CHANGING INSURANCE One Mile

Paying premiums based solely on how much you use your car may make sense to many consumers, and to most environmentalists and energy conservationists.

BUT WILL IT BE THE WAVE OF THE FUTURE?

Although it's widely recognized that how much you drive is an important factor in crash risk, most auto insurance policies don't use mileage as a major risk factor in setting premiums. While many insurers offer discounts for driving under a fixed number of miles (e.g., 7,500 miles per year) or for not driving to work, these discounts are typically very small because the information reported by drivers isn't verified. Moreover, the insurance premium isn't affected at all by incremental changes in driving behavior, such as choosing to carpool or taking transit to work occasionally.

Pay-As-You-Drive (PAYD) insurance is a relatively new concept for pricing auto insurance premiums. Under this concept, an insurance company would allow customers to purchase insurance on a per-mile basis, rather than as a fixed yearly or semi-annual premium, using verified mileage information. The per-mile rate for an insured household would be based on recognized risk factors, such as driving record, age, gender, location, and vehicle characteristics.

Therefore, a driver with a history of accidents would pay more per mile than a driver with a perfect record, all else being equal. The key difference from current insurance policies is that the cost of coverage would effectively relate to how much a vehicle is driven, and turn what is currently a fixed cost for drivers into a variable cost.

With per-mile insurance, drivers would have a major incentive to reduce the amount of miles they drive. Although there's limited information on the effects of per-mile charges on travel behavior, studies of other types of transportation pricing (e.g., fuel price increases, parking charges) demonstrate that drivers do respond to price incentives.

at a Time

By Keri Funderburg, Michael Grant, and Ed Coe

A PAYD insurance policy might involve premiums between two cents and 10 cents per mile (e.g., simply assuming a flat rate, an average vehicle mileage of 12,500 miles paying a $500 annual premium would reflect about 4 cents per mile). Since the U.S. private automobile fleet averages about 20 miles per gallon in fuel efficiency, each 1 cent per mile charge is equivalent to about a 20 cents per gallon fuel price increase.

Pricing studies suggest that providing drivers with an incentive such as PAYD insurance could result in about a 10 percent reduction in driving as drivers choose to carpool, take mass transit, or combine trips. Reductions in driving would result in reduced vehicle fuel consumption, air pollution, and greenhouse gas emissions.

An Evolution in Thinking

The concept of turning auto insurance premiums from a fixed cost into a variable cost isn't new, but it has undergone significant changes in response to real insurance industry market concerns and an evolution in national policy from a focus on regulation to one on market mechanisms and voluntary programs.

Initially, the concept of variable-priced auto insurance was often linked to the concept of Pay-at-the-Pump (PATP) insurance, which would be a mandatory program to fund a portion of vehicle insurance premiums through a surcharge on the price of gasoline.

Over the period of the late 1960s to the mid-1990s, Pay-at-the-Pump insurance entered into a number of policy debates. In an August 1967 article in *The New York Times*, then Sen. Patrick Moynihan (D-NY) proposed a PATP system that would divert a portion of the highway-user tax to a new federal insurance system. At nearly the same time, William Vickrey of Columbia University's economics department proposed a surcharge on gasoline prices as a way of internalizing the costs of accidents. Several states considered PATP insurance and policy analysts studied the topic, but the concept never went anywhere due to industry opposition.

The approach also has significant flaws from an actuarial perspective. It essentially charges more for drivers with fuel inefficient vehicles and doesn't take into account real risk factors, such as the age and driving record of the driver or the vehicle's safety equipment.

In 1998, the U.S. Environmental Protection Agency (EPA)

sponsored an effort to examine new mechanisms that would convert fixed vehicle costs into variable costs and be more responsive to industry concerns. The concept of Pay-As-You-Drive insurance evolved from that effort.

PAYD pricing is a market-based approach that encourages individual insurance companies to offer consumers an option of per-mile pricing. It's a voluntary program, and would not require any government regulation or involvement in collecting premiums.

It offers potential benefits to consumers in terms of cost savings when they drive less, and gives insurance companies the flexibility to set per-mile rates based on their own analysis of risk factors and pricing considerations. A portion of the premium could be fixed to reflect risks that don't relate to driving.

How Pay-As-You-Drive Insurance Works

A PAYD insurance policy could be set up in different ways, based on the desires of the individual insurance company.

Insurance companies could track mileage using periodic odometer readings or Global Positioning System (GPS) technologies that can track mileage continually. Insurance providers would then charge drivers based on their customized per-mile charge. If using GPS technology, the pricing structure could be designed to charge different rates based on time of day or location.

Billing could be set up so that drivers are charged monthly, based on their actual mileage, or insurers could charge drivers an up-front premium (comparable to current billing practices), and then send drivers a credit at the end of the year on a per-mile basis for every mile under a certain level.

If insurance companies choose the second billing method, they would need to guarantee that drivers are covered throughout the policy period, regardless of whether the driver purchased a sufficient number of miles to cover the duration. If the driver didn't purchase enough miles, then the insurance company could simply charge the driver for the additional miles.

Another option to ensure drivers are never uninsured is to allow drivers to purchase additional miles during the policy period. If a driver fails to purchase mileage, they'd be charged for the additional mileage, as well as a penalty fee at the time of the next audit, or at the end of the policy or billing period.

Saving More Than Just Money

PAYD insurance offers many consumer benefits. In addition to saving money and giving consumers greater control over their insurance costs, it makes often confusing insurance costs easier for consumers to understand. Per-mile pricing makes insurance more affordable to lower-income drivers since they could choose only to insure a given number of miles. As a result, PAYD insurance is expected to reduce the number of uninsured drivers.

The benefits of PAYD insurance extend beyond consumers' wallets. By creating an incentive to drive less, PAYD would reduce traffic congestion, air pollution, greenhouse gas emissions,

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and U.S. dependency on foreign oil. This is an important goal for policy-makers since the transportation sector consumes more than 68 percent of thepetroleum used in the United States and produces more than one quarter of the total greenhouse gas emissions. Moreover, reduced driving would be expected to reduce vehicle crashes, improving the overall safety of our transportation system.

Regulatory Issues

A recent survey by the Georgia Institute of Technology found that insurance regulations in a limited number of states prohibit insurance companies from selling per-mile premiums. In a survey of insurance commissioners in 43 states, 63 percent of the respondents indicated that regulations in their state would not prohibit PAYD insurance. The remaining 37 percent indicated that regulations existed that would preclude insurers from offering a PAYD program.

The insurance commissioners gave various reasons why the regulations prohibit PAYD insurance, some of which could be overcome by a properly structured PAYD program. In West Virginia, for example, the regulations require that customers be insured at all times, and PAYD might mean that drivers would lose coverage if they exceeded the prepaid number of miles. This need not preclude PAYD insurance, however, since an insurer could structure a PAYD program to ensure that participating drivers are never uninsured.

In Michigan, the regulations require that insurers give consumers an up-front statement of the premium charge. This would be difficult under PAYD insurance since the total premium for any time period is unknown at the start of the period. But a program could potentially be set up that would charge a fixed premium and then offer per-mile discounts based on driving un-

der a certain mileage level. Whether these options would qualify needs to be determined by each state's insurance commissioner.

In several states where regulations prohibit insurance companies from offering per-mile premiums, legislators have proposed legislation to allow PAYD insurance. In 2001, the Texas legislature passed House Bill 45, which gives insurers in the state permission to offer cents-per-mile insurance. Insurers choosing to offer this type of coverage are also required to track and report premium revenues and claim losses for both per-mile and time-based insurance premiums.

In January 2003, state legislators in Georgia introduced a bill that will enable insurers in the state to offer consumers a choice between mileage-based insurance and traditional, time-based premiums. The proposed legislation requires that consumers pre-purchase at least 2,000 miles of coverage.

Georgia's proposed legislation also mandates that insurers file separate reports on their experience with mileage-based versus time-based premiums. Using these reports, the insurance commissioner will annually compile the number of insurers issuing mileage-based premium plans, record the locations in Georgia where mileage-based premiums are being used, and analyze the impact of mileage-based premiums on traditional, time-based premiums.

Momentum for PAYD Insurance

Although no companies currently offer PAYD insurance, insurance companies are showing signs of increased interest in the concept. Progressive Insurance pilot-tested the concept in Texas several years ago. Norwich Union, the largest insurer in the United Kingdom, also announced in 2002 a pilot test of the concept involving 5,000 vehicles. Norwich Union is currently identifying potential participants for the pilot test. According to its market research, nine in 10 people say they would prefer their motor insurance to reflect the usage of their car.

Policy-makers and a number of organizations have also shown support for the concept as a means to meet goals for the environment, equity, and traffic safety. The U.S. Environmental Protection Agency is currently working with the insurance industry to raise awareness of the benefits of PAYD and provide technical assistance to support implementation, as part of its voluntary program initiatives. EPA is developing a recognition program for insurance companies that offer PAYD insurance, similar to its Energy Star program, which recognizes consumer products that meet high energy efficiency standards.

In July 2003, Oregon's governor signed into law a bill creating an incentive program to encourage insurance companies to test PAYD insurance premiums. Under the law, insurance companies that offer mileage-based or time-based rating plans

will be given a $100 tax credit for each vehicle carrying this type of policy.

The bill applies to the tax years beginning on Jan. 1, 2005, and before Jan. 1, 2010. The bill also establishes a limit of $1 million on the total credits that may be claimed by all of the insurance companies during that time.

A number of environmental advocacy groups, including Environmental Defense, are working with members of Congress to encourage them to offer federal incentives for PAYD insurance, or a special grant program for PAYD insurance pilot projects, as part of reauthorization of the federal transportation legislation.

Implementation Challenges

Although PAYD insurance has the potential to alter the automobile insurance industry in new and innovative ways, there are challenges to its implementation.

First, insurers are concerned that the actuarial data linking lower vehicle mileage and reduced crash risk, given limited collection of mileage data in the industry, isn't there. While it's generally accepted that there is a relationship between miles driven and claims made, a critical question with regard to PAYD insurance is the extent to which that relationship exists.

Until a clear relationship is established, many insurance companies may find it difficult to come up with an appropriate pricing structure and remain unwilling to consider offering PAYD insurance. This has created a chicken-and-egg situation for PAYD insurance because without implementing a pilot program, it'll be difficult to quantify these effects.

Second, insurers are concerned about tracking mileage through odometer readings or GPS technologies. Some insurers believe that getting an odometer reading could be a headache for consumers. PAYD proponents believe that odometer audits could be performed with little consumer effort during annual vehicle inspections or at local service stations during routine maintenance checks. A new program in Massachusetts will demonstrate the effectiveness of this approach.

For years, insurance regulations in Massachusetts have allowed insurers to offer discounts to consumers who drove fewer than 7,500 miles per year. In most cases, insurers gave this discount according to the honor system and consumers submitted their annual mileage on their insurance renewal forms.

Starting in 2003, inspectors in Massachusetts performing annual vehicle inspections will submit mileage information to insurers via the state. The insurers will then provide drivers with a mileage discount based on the inspectors' information. While insurers have the option of not verifying claims using this approach, the Massachusetts Division of Insurance expects that all companies will sign on.

Concerns with mileage tracking using GPS revolve around the potential cost of GPS units and the privacy of the data collected by the units. The costs associated with using GPS units include the cost to install the units and on-going service charges. With the rapid advancement of GPS technologies, however, the cost of installing a system in a car is declining and many new cars already are equipped with GPS units.

Privacy is also becoming less of a concern since PAYD insurance would be a voluntary option. Many consumers appear unconcerned with privacy issues as they're essentially agreeing to have their vehicle tracked when they purchase cars equipped with systems such as General Motors' OnStar™ or Mercedes-Benz's TeleAid. For these consumers, the benefits offered by the tracking systems outweigh any privacy concerns.

The same would be true for PAYD customers who would select PAYD insurance over traditional insurance. Moreover, insurance companies offering PAYD insurance could provide confidentiality agreements to their customers, guaranteeing that the collected data will be used only for insurance pricing purposes.

Conclusion

By offering PAYD premiums, insurance companies have the opportunity to bring an innovative product to their customers, which should open up new consumer markets for the first companies to offer PAYD pricing. By purchasing PAYD insurance, consumers would be rewarded for driving less and have more control over their insurance costs. This, in turn, should result in societal benefits, including reduced air pollution, improved traffic safety, and fewer uninsured drivers.

For actuaries, PAYD insurance could provide a wealth of data on the relationship between crash risk and vehicle mileage, and enable pricing that more accurately reflects risk, ultimately leading to more equitable insurance pricing.

In all, PAYD insurance holds the potential to be a win-win for all major parties involved. There are, however, implementation hurdles to setting up a PAYD system, including how to organize the pricing structure and the vehicle mileage tracking mechanism so it's appealing to consumers and makes sense for insurance companies. Public sector policies, including state and federal incentives to encourage these programs, and the potential for increased market share, may encourage insurance companies to experiment with this new option. ●

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References

■ U.S. Environmental Protection Agency. *Pay-As-You-Drive Insurance: A Review of the Literature.* Prepared by ICF Consulting and Victoria Transport Policy Institute. November 2001. Draft. Also: Litman, Todd. *Implementing Pay-As-You-Drive Vehicle Insurance*, Victoria Transport Policy Institute, Victoria, British Columbia, Canada. 2002.

■ Khazzoom, J. Daniel. "Pay-at-the-Pump Auto Insurance: Review of Criticisms and Proposed Modification." *Journal of Insurance Regulation.* Vol. 18, No. 4. pp. 448-496. Summer 2000.

■ U.S. Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001.* Davis, Stacy. *Transportation Energy Data Book: Edition 22.* U.S. Department of Energy. 2002.

■ Guensler, R., A. Amekudzi, J. Williams, S. Mergelsberg, J. Ogle. *Current State Regulatory Support for Pay-As-You-Drive Automobile Insurance Options*, Georgia Institute of Technology, May 2003.