

MARKET WATCH

Consumer Decision Making In The Individual Health Insurance Market

A study in California suggests that the individual market is an important source of long-term coverage for many who purchase it.

by **M. Susan Marquis, Melinda Beeuwkes Buntin, José J. Escarce, Kanika Kapur, Thomas A. Louis, and Jill M. Yegian**

ABSTRACT: This paper summarizes the results from a study of consumer decision making in California's individual health insurance market. We conclude that price subsidies will have only modest effects on participation and that efforts to reduce nonprice barriers might be just as effective. We also find that there is substantial pooling in the individual market and that it increases over time because people who become sick can continue coverage without new underwriting. Finally, we show that people prefer more-generous benefits and that it is difficult to induce people in poor health to enroll in high-deductible health plans. [*Health Affairs* 25 (2006): w226-w234 (published online 2 May 2006; 10.1377/hlthaff.25.w226)]

AN INCREASING NUMBER of policy-makers and analysts advocate policies to expand the individual insurance market. Some point to the advantages this market offers consumers, in the form of increased choice of products and portability of coverage, as reasons for encouraging greater participation.¹ An invigorated individual market, they argue, can help promote a competitive, consumer-driven health care marketplace. Others seek ways to help people participate in this market, to reduce the number of uninsured people.²

Some observers, however, believe that the individual market has inherent weaknesses,

which could prevent it from serving those who need it.³ In most states, insurers underwrite applicants, in an attempt to avoid enrolling those with very high expected costs or to charge them higher prices than they charge healthier applicants. As a result, individual coverage might not be accessible or affordable to people with high health risks. Affordability is also a general concern in this market because of high premiums and the low incomes of many market candidates. About half have incomes below 200 percent of the federal poverty level and would have to pay premiums that are almost 15 percent of their income to purchase coverage.⁴

Susan Marquis (susanm@rand.org) and Melinda Beeuwkes Buntin are senior economists at RAND in Arlington, Virginia. José Escarce is a professor of medicine, Department of Medicine, Division of General Internal Medicine, at the University of California, Los Angeles, and a senior natural scientist at RAND in Santa Monica, California. Kanika Kapur is a lecturer in the School of Economics, University College Dublin, Ireland, and an adjunct economist at RAND in Santa Monica. Thomas Louis is a professor in the Department of Biostatistics, Bloomberg School of Public Health, Johns Hopkins University, in Baltimore, Maryland. Jill Yegian is the director of the Health Insurance Program, California HealthCare Foundation, in Oakland.

A variety of proposals have been offered to overcome these barriers and to encourage more voluntary participation in the individual market. However, until now, this market has been the subject of relatively little study. As a result, there is much disagreement about the importance of the advantages cited for this market, the extent of the barriers to participation, and the likely effects of policy proposals.⁵ In this paper we summarize findings from a multiyear study of consumer decision making in the individual insurance market in California, to shed new light on these issues. We examine whether subscribers have heterogeneous coverage preferences; continuity of coverage in the individual market; accessibility for high health risks; the effect of subsidies and of changing benefit design on demand; and the nonprice barriers to purchase.

Study Data And Methods

We restricted our analysis to one state, to obtain detailed information about benefits, premiums, and choices in the market. Although our results describe experiences in only one state, we believe that this experience is likely to generalize to most states. As in most states, California has few regulations on the individual insurance market beyond the guarantees on renewal and portability required by the federal Health Insurance Portability and Accountability Act (HIPAA) of 1996.⁶ Premiums and premium trends in California are similar to those in the nation as a whole.⁷ California has a higher rate of uninsurance and lower rates of employer-sponsored coverage than the nation as a whole; however, trends in these rates in California mirror the U.S. experience.⁸ The California individual market differs from that in most other states in the large role played by health maintenance organizations (HMOs). In addition, individual health insurance premiums in California are, on average, about 17 percent lower than the national average for single coverage and about 11 percent lower for family coverage.⁹

The three largest carriers offering individual health insurance products in California, which account for more than 80 percent of

such products sold in the state, agreed to provide us with detailed information about their products and enrollees. The carriers provided administrative files covering all enrollees in their individual plans during 1996–2003. These files include information about enrollees' product choices, their enrollment and termination dates, premiums paid, contract types, and the age and sex of the subscriber and covered dependents.

We completed a survey with a sample of 3,964 subscribers enrolled in the individual and family health plans offered by these carriers in late summer 2003. The survey provided us with information about purchasers' attitudes about insurance and the barriers they perceive to purchasing coverage. We also completed interviews with 409 uninsured people and their families in California, to compare the perceptions and attitudes of the insured with those of the uninsured.

Finally, our analysis used information from the California sample in two large national surveys: the Current Population Survey (CPS) for 1996–2002 and the Survey of Income and Program Participation (SIPP) 1996 panel, which covers 1996–1999. Health insurance products and prices vary over time and by geography; we used this variation to estimate how consumers' decisions to participate in the market, as measured in these surveys, respond to price. We used multivariate methods to study decisions to purchase coverage, product choices, the extent of risk pooling in the market, and turnover in the market.¹⁰

Study Results

We found wide variation in the actuarial value of products that people selected in the individual market in California, which indicates that preferences are heterogeneous and that purchasers derive value from having the range of choices that the individual market offers.¹¹ In 2002 about 25 percent of people who bought individual products enrolled in plans that would pay about 95 percent of total spending for a standardized population, and about 25 percent selected plans that would cover less than 67 percent.¹² In contrast, in the

group market, there is limited choice and limited variability in the generosity of plans.¹³

More direct measures also indicate that consumers value choice. In focus groups of employees, most reported a preference for a choice of health plans, although they also valued employers' role in bargaining with insurers and in narrowing the options in a complex market.¹⁴ Data from nationwide surveys indicate that those who have a choice of health plans are more likely than those lacking a choice to be satisfied with their plan and to be satisfied that their health care needs are met.¹⁵

■ **Continuity of coverage.** Individual insurance, unlike employer-sponsored coverage, is not tied to a particular job, and coverage is not lost when employment circumstances change. However, the conventional view is that the individual market primarily serves to bridge short-term gaps in group coverage instead of providing long-term, continuous coverage.¹⁶ Our study of the California market, in contrast, suggests that the market is an important source of long-term coverage for a sizable fraction of those who purchase it. About 60 percent of new coverage episodes continue more than one year, and more than 30 percent continue for more than three years (Exhibit 1). The individual market is more likely to serve short-term needs for younger than for older subscribers; among the latter, more than half of those who start a new episode of coverage in the individual market hold coverage continuously for more than three years.

■ **Access for poor health risks.** Underwriting might prevent some high-risk market candidates from obtaining insurance because insurers are free to deny coverage. Those who obtain health insurance are in better health than those who remain uninsured. About 32 percent of those who recently purchased individual health insurance reported that an adult family member included on the policy has a chronic medical condition, and 4 percent reported that an adult family member was in fair or poor health.¹⁷ In contrast, 45 percent of the uninsured reported an adult with a chronic condition, and 30 percent reported an adult in fair or poor health. These differences diminished only slightly when we adjusted for differences in demographic characteristics, including ability to pay, and preferences between the insured and uninsured populations. That is, even when preferences and income are controlled for, the sick are less likely to enroll in the individual market than those in better health. Nonetheless, a large number of people with health problems do obtain coverage.

Insurers may also sell policies to both high- and low-risk people but separate them into different groups by plan design or by price.¹⁸ Some argue that the very diversity of products that insurers offer is an attempt to separate risks and charge them different prices—because low and high risks will prefer different types of benefits. In addition, insurers may charge higher premiums for a given product to people with health problems than they charge

EXHIBIT 1
Episodes Of Coverage In The Individual Insurance Market By Length Of Episode And Age Of Subscriber, 1996–2003

| Percent of episodes continuing for at least | All new episodes (%) | Age of subscriber, years (%) | | |
|---|----------------------|------------------------------|-------|-------|
| | | Under 25 | 35–44 | 55–64 |
| 6 months | 80 | 77 | 79 | 88 |
| 12 months | 63 | 58 | 63 | 77 |
| 24 months | 43 | 37 | 46 | 62 |
| 36 months | 31 | 26 | 35 | 52 |
| 48 months | 24 | 19 | 28 | 46 |

SOURCE: Authors' analysis of enrollment files from participating carriers.

people of a similar age and family structure who have no identified health problems.

The health profile of new enrollees differs across plan and underwriting tier, which suggests that there is some separation of high- and low-risk purchasers (Exhibit 2).¹⁹ HMOs and preferred provider organizations (PPOs) with generous benefits have a slightly worse risk profile than average, while the risk profile in the less generous PPOs is much healthier than the profile for all new enrollees.²⁰ As we would expect, the higher pricing tiers include about 50 percent more subscribers who have chronic conditions at enrollment than would occur at random. However, the distribution of health risks in the standard tier fairly closely matches the distribution of risks of all new enrollees, which indicates that a large share of families with chronic conditions pay a standard price.

Guaranteed renewal, required by HIPAA, means that those who enroll and become sick cannot be excluded from the pool, and in practice they are not placed in a new underwriting

class.²¹ Thus, there may be less separation of risks among longer-term enrollees than among new enrollees. The evidence on this is somewhat mixed (Exhibit 2). The less generous PPOs include fewer longer-term subscribers with newly acquired chronic conditions than we would expect at random. Thus, there continues to be a separation of risks in the less generous PPOs, even among those who acquired chronic conditions subsequent to enrollment. On the other hand, the share of longer-term enrollees who become sick who are in higher pricing tiers is about the same as their share in the population, which is consistent with a decrease in separation of risks over time as a result of health status changes.

Differences in the actuarially adjusted premium that high- and low-risk subscribers pay for their coverage incorporate the effects of both price markups over the standard premium and any differences in the quantity-adjusted standard premium that are attributable to variation in average risk across plans.

EXHIBIT 2
Distribution Of Health Risks By Duration Of Coverage, Type Of Plan, And Rating Tier, 1996–2003

| | Enrolled within last year (%) ^a | | Enrolled in plan 3–4 years (%) ^b | | |
|---------------------------------|--|-------------------------------------|---|---|--|
| | No chronic conditions | With chronic condition ^c | No chronic conditions | Initial chronic conditions ^d | Recent chronic conditions ^e |
| All subscribers | 79 | 21 | 47 | 27 | 26 |
| Type of plan | | | | | |
| HMO | 75 | 25 | 51 | 24 | 25 |
| PPO, generous ^f | 76 | 24 | 39 | 32 | 29 |
| PPO, less generous ^g | 92 | 8 | 66 | 15 | 19 |
| Rating tier | | | | | |
| Standard | 79 | 21 | 48 | 26 | 26 |
| Nonstandard | 69 | 31 | 31 | 41 | 28 |

SOURCE: Authors' analysis of enrollment and claims files from participating carriers.

NOTES: HMO is health maintenance organization. PPO is preferred provider organization.

^a Percent of new enrollees.

^b Percent of 3–4-year enrollees.

^c Includes families with one of the following conditions: arthritis, cancer, diabetes, hypertension, heart disease, lung disease, back pain, ulcers, or mental health problems for adults; and asthma, ear infections, hay fever, skin problems, or emotional problems for children.

^d Measured from claims data based on treatment occurring in first year of enrollment.

^e Measured from claims data based on treatment for conditions not occurring in the first year.

^f PPO that would pay more than 50 percent of the expenditures made by one with average spending.

^g PPO that would pay less than 50 percent of the expenditures made by one with average spending.

To make comparisons, we first adjusted the nominal premiums to control for differences in the plan benefits; we based the adjustment on the share of health care expenses that a product would cover for a standard population. We then compared the actuarially adjusted premium paid by low- and high-risk consumers. Among new enrollees, families that include an adult with a chronic medical problem pay an actuarially adjusted premium that is about 10 percent higher than the premium for new enrollees with no chronic conditions. Among longer-term enrollees, families that include an adult who contracts a chronic medical condition after enrolling in the individual market pay more than longer-term enrollees with no health problems (7 percent) but less than families with a chronically ill adult at enrollment (who pay 12 percent more than the healthy families). This is consistent with the hypothesis that pooling increases over time.

■ Turnover and pooling of health risks.

Although the individual market is a source of long-term coverage for a large share of subscribers, as reported above, it also serves a population of people who enroll for only a short period of time. This latter population is

younger than those who enroll for long-term coverage (see Exhibit 1). It is also less likely to be in poor health. Our analysis indicates that a family that includes an adult who has a chronic condition is 20–30 percent less likely than a family without health problems to leave coverage at any given time. The health risk of an enrolling cohort will thus change over time because subscribers have different disenrollment probabilities. It will also change because of changes in health status (Exhibit 2).

■ The role of price in consumers' decisions. Affordability of insurance is believed to be the most important reason that the uninsured lack coverage; thus, most policy proposals include subsidies to lower the price of insurance.²² The empirical evidence shows that price does affect consumers' decisions in the individual insurance market, but the extent of the response depends on the type of decision (Exhibit 3). Consumers' decisions to buy individual coverage are relatively price-inelastic, so that a modest change in price will have only a small effect on the number of purchasers. A 20 percent decrease in premiums, holding benefits constant, will induce an additional 1–2 percent of market candidates to buy insur-

EXHIBIT 3
Effect Of A 20 Percent Decrease In Actuarially Adjusted Premium On Consumers' Decision Making In The Individual Market, 2002

| Premiums affected | Outcome | Population | Initial rate (%) | Rate after price decrease (%) | Change (%) |
|---------------------------|---------------------------------------|---------------------------|------------------|-------------------------------|------------|
| All products | Percent purchasing coverage | Market candidates | 23.3 | 24.2–25.4 | 3.9–9.0 |
| One product of carrier | Percent product share | Subscribers | 10.0 | 14.2 | 42.0 |
| One product of carrier | Percent market share for carrier | Subscribers | 40.0 | 40.8 | 2.0 |
| All products of carrier | Percent market share for carrier | Subscribers | 40.0 | 43.0 | 7.5 |
| All products | Percent disenrolling in first quarter | Subscribers | 10.5 | 8.9 | -15.2 |
| Child price, all products | Percent covering whole family | Subscribers with children | 85.2 | 86.6 | 1.6 |

SOURCE: Authors' analysis of enrollment files from participating carriers and of data from the Current Population Survey (CPS), Survey of Income and Program Participation (SIPP), and National Health Interview Survey (NHIS).

NOTE: Estimated effects hold all other characteristics, including benefit design, constant.

ance, an increase of about 4–9 percent in the purchase rate.

Although price has only a small effect on the decision about whether or not to buy, it has a bigger effect on the decision about which product to buy. Among purchasers, a 20 percent decrease in the premium of a product will lead to a nearly 40 percent increase in its market share.²³ However, most of the switching will be from other plans offered by the same carrier rather than from the market as a whole. Put another way, there is some brand loyalty in choices. Thus, if a carrier lowers the price of only one product, the carrier’s market share will increase by only about 2 percent. However, a change in all prices of the products offered will raise its market share by 7.5 percent (Exhibit 3).

Premium changes affect other decisions that consumers make about coverage as well. A 20 percent decrease in premiums reduces the likelihood that a person will drop coverage at any given point in time by about 15 percent (Exhibit 3) and increases the number of enrollees at a point in time by about 1.8 percent $[(10.5-8.9)/(100-10.5)]$. Combining the effect of a price decrease on take-up and disenrollment decisions, a 20 percent subsidy would increase the number of subscribers in the individual market by 5–11 percent and decrease the number of uninsured people by 1–3 percent. A decrease in the marginal cost of covering children on a policy also has a small effect on the number of subscribers who cover the entire family on their policy instead of leaving some family members uninsured. A 20 percent decrease in the price of covering a child would increase the number of families in the individual market who purchase whole-family coverage by about 1.2 percent—an increase of about 20,000 families with whole-family coverage.

■ The role of benefit design on demand.

Although insurers and public policy are promoting new product designs to try to expand the role of the individual insurance market, until now there has been little study of the im-

portance of benefits on purchase decisions. Our research suggests that people prefer more generous benefits, but overall demand for insurance is not very responsive to changes in the benefits of policies offered in the market. We examined changes in demand as benefits change and as the premium is adjusted to account for the increased in expected payout of the plan—that is, holding constant the actuarially adjusted premium or quantity-adjusted premium. We found that a 50 percent decrease

in deductibles would increase demand for insurance by about 0.5 percent and that a 50 percent decrease in out-of-pocket maximums would increase demand by 1 percent.²⁴

Consumers in poor health are more likely than healthier consumers to demand generous benefits. About 5 percent

of healthy subscribers would switch from a plan that doubled the deductible, even if the premium were reduced to account for the lower expected claims payment. However, 7 percent of subscribers in poor health would switch. Put another way, it would take a 3 percent decrease in the actuarially adjusted price (or a 4 percent decrease in the nominal premium) to induce a healthy consumer to switch to a plan with a 50 percent higher deductible. For a riskier consumer, however, it would take a 4.5 percent decrease in the actuarially adjusted premium (or a 5.5 percent decrease in the nominal premium) to induce the switch.

■ Nonprice barriers to purchasing coverage. There are nonprice barriers to obtaining coverage as well. A primary barrier is information. Choice in the individual market means that the complexity of the shopping task is also high. Our analysis suggests that reducing consumers’ perceptions of the difficulty of obtaining information would increase participation in the market (Exhibit 4). For example, if one could reduce the perceived costs of search from the mean to the lowest twenty-fifth percentile of perceived information search costs, purchase rates would increase by two percentage points or 9 percent—which is equivalent

“Consumers in poor health are more likely than healthier consumers to demand generous benefits.”

EXHIBIT 4
Role Of Nonprice Barriers On Individual Coverage Purchase Rates, 2003

| Perceived barrier | Individual insurance purchase rates among market candidates (%) | | |
|-----------------------------------|---|---|-----------------|
| | Initial rate | Rate after perceived barrier reduced from mean to | |
| | | 25th percentile | 10th percentile |
| High cost of search | 23.3 | 25.4 | 30.3 |
| Burden of disclosure requirements | 23.3 | 24.0 | 27.5 |
| Risk taker | 23.3 | 26.3 | 26.3 |
| Low efficacy of medical care | 23.3 | 23.8 | 24.4 |

SOURCE: California HealthCare Foundation and RAND, Survey of Individual Market Candidates in California, 2003.

NOTES: Each barrier is an index measured as the sum of strongly agree or agree responses to construct/number of questions. Search cost questions: Searching is difficult, requires time, don't know where to search, no one to trust. Burden-of-disclosure-requirements questions: Search reveals too much information, too much paperwork. Risk-taker questions: Take risks more than average. Efficacy-of-medical-care questions: Own behavior determines health, can overcome illness without doctor, home remedies better.

to a 20 percent subsidy (Exhibit 3). Reducing the perceived search costs from the mean to the tenth percentile would increase participation by seven percentage points, or 30 percent. Similarly, reducing the perceived burden of disclosure requirements, the willingness to take risks, and the perception that medical care is not efficacious would all increase purchase rates.

Discussion

Our research on California's individual insurance market offers some lessons for policymakers looking for strategies to encourage more of the uninsured to participate in this market.

We conclude that tax credits and subsidies are likely to have only modest effects on the number of uninsured people. Price is a factor, but demand is relatively inelastic. A 20 percent subsidy to the price of individual insurance would reduce the number of uninsured people by at most 12 percent, or about 5.5 million people. On the other hand, we also find that tax subsidies in the individual market would not lead to an unraveling of the group market as some fear; a 20 percent subsidy in the individual market would reduce the number of workers participating in their own plan by less than 0.05 percent. At the same time, subsidy approaches will also help achieve other policy objectives—namely, promoting whole-family

coverage and continuity of coverage. They are likely to be an inefficient way to achieve any of these objectives, however, because it is difficult to target subsidies only to those who would not otherwise purchase insurance for some or all family members and to those who need longer-term coverage but would leave the market because of high prices.

Our analysis confirms earlier studies' findings that there is considerable risk pooling in the individual market and that high risks are not charged premiums that fully reflect their higher risk.²⁵ Moreover, guaranteed renewal and underwriting only at initial enrollment appear to help promote pooling to some extent, and they protect subscribers from financial consequences associated with changes in their health status. However, the health risk of a pool might deteriorate over time because some subscribers will become sick and because people who continue coverage are more likely to be in poor health. This suggests that policies that promote pooling but also keep premiums low to encourage healthy subscribers to enroll and to continue coverage might help maintain a viable pool.

Consumers' choices are only modestly affected by benefit design changes. However, our results suggest that it will be easier to attract healthy subscribers than high-risk subscribers to high-deductible policies. Currently PPO

products with high cost sharing are primarily subscribed to by those in good health, and larger premium reductions are needed to induce subscribers in poor health to switch to high-deductible plans. This suggests that there is potential for selection in consumer-directed health plans—an outcome that worries many critics of these new plans.

Although most policy proposals have focused on financial incentives to expand the market, we also find that nonprice barriers, especially the costs of obtaining information, play an important role in the low rates of participation in this market. Insurers are trying new marketing strategies and new distribution channels to overcome these barriers. Public policies that would reduce the costs of information search and the burden of the application process might go as far as modest subsidies in helping expand coverage. Although the solution to the problem of information barriers is not new, some believe that online tools that make information easily accessible, deliver tailored information, and reduce the administrative complexity in obtaining health insurance will spur growth in the individual insurance market.²⁶

.....
 This study was supported by the California HealthCare Foundation (CHCF), Grant no. 01.1520. Any views expressed herein are solely those of the authors, and no endorsement by the CHCF or RAND is intended or should be inferred.

NOTES

1. S. Harrington and T. Miller, “Competitive Markets for Individual Health Insurance,” *Health Affairs* 21 (2002): w359–w362 (published online 23 October 2002; 10.1377/hlthaff.w2.359).
2. M. McClellan and K. Baicker, “Reducing Uninsurance through the Nongroup Market: Health Insurance Credits and Purchasing Groups,” *Health Affairs* 21 (2002): w363–w366 (published online 23 October 2002; 10.1377/hlthaff.w2.363).
3. K. Pollitz, “Can Access to Affordable Individual Health Insurance Be Sustained?” in *State Health Insurance Market Reform: Toward Inclusive and Sustainable Health Insurance Markets*, ed. A.C. Monheit and J.C. Cantor (New York: Routledge, 2004), 113–120.
4. M.B. Buntin et al., “Trends and Variability in Individual Insurance Products in California,” *Health Affairs* 22 (2003): w449–w459 (published online 24 September 2003; 10.1377/hlthaff.w3.449). Insurance premiums might also be a large burden for low-income people in the group market if the employer share of premiums is borne by workers, as most economists believe.
5. M.V. Pauly and L.M. Nichols, “The Nongroup Health Insurance Market: Short on Facts, Long on Opinions and Policy Disputes,” *Health Affairs* 21 (2002): w325–w344 (published online 23 October 2002; 10.1377/hlthaff.w2.325).
6. D.R. Kelch, “Rules Governing California’s Individual Health Insurance Market,” Issue Brief, April 2005, <http://www.chcf.org/documents/insurance/RulesGoverningCAIndividualInsuranceMarket.pdf> (accessed 24 March 2006).
7. California HealthCare Foundation, *California Employer Health Benefits Survey*, 2004, <http://www.chcf.org/documents/insurance/HRETEmployerBenefits2004.pdf> (accessed 24 March 2006). The similarity of trends noted is for the group market; a comparison for the individual market is not available.
8. CHCF, “Snapshot: California’s Uninsured,” 2004, <http://www.chcf.org/documents/insurance/UninsuredSnapshot2004.pdf> (accessed 24 March 2006).
9. America’s Health Insurance Plans, “Individual Health Insurance: A Comprehensive Survey of Affordability, Access, and Benefits,” August 2005, http://www.ahipresearch.org/pdfs/Individual_Insurance_Survey_Report8-26-2005.pdf (accessed 24 March 2006). These lower premiums might reflect consumers’ choices of plan types and benefits as well as differences in health care costs, demographics of purchasers, and regulatory factors affecting pricing.
10. The specific details of the estimation models and more detail about the methods can be found in

- the following papers: M.S. Marquis and M.B. Buntin, "How Much Risk Pooling Is There in the Individual Insurance Market?" *Health Services Research* (forthcoming); M.S. Marquis et al., "Is the Individual Market More than a Bridge Market? An Analysis of Disenrollment Decisions," *Inquiry* 42, no. 4 (2005/06): 381–396; M.S. Marquis et al., "Subsidies and the Demand for Individual Health Insurance in California," *Health Services Research* 39, no. 5 (2004): 1547–1570; M.S. Marquis et al., "The Role of Product Design in the Demand for Individual Health Insurance" (Unpublished paper, RAND, January 2006); and K. Kapur et al., "Individual Health Insurance within the Family: Can Subsidies Promote Family Coverage?" (Unpublished paper, RAND, January 2006).
11. This captures only preferences among benefit features and not other differences between plans, such as type of plan or service characteristics of the carrier. Moreover, to some extent, choice of plans could reflect ability to pay as well as preferences for different features.
 12. Buntin et al., "Trends and Variability."
 13. J.R. Gabel, S.H. Long, and M.S. Marquis, "Employer-Sponsored Insurance: How Much Financial Protection Does It Provide?" *Medical Care Research and Review* 59, no. 4 (2002): 440–454.
 14. J.R. Lave et al., "Changing the Employer-Sponsored Health Plan System: The Views of Employees in Large Firms," *Health Affairs* 18, no. 4 (1999): 112–117.
 15. A.A. Gawande et al., "Does Dissatisfaction with Health Plans Stem from Having No Choices?" *Health Affairs* 17, no. 5 (1998): 184–194; and B.S. Schone and P.F. Cooper, "Assessing the Impact of Health Plan Choice," *Health Affairs* 20, no. 1 (2001): 267–275.
 16. E. Ziller et al., "Patterns of Individual Health Insurance Coverage, 1996–2000," *Health Affairs* 23, no. 6 (2004): 210–221.
 17. The chronic conditions included in the measure are arthritis, cancer, diabetes, hypertension, heart disease, lung disease, back pain, and ulcers.
 18. We would expect some risk pooling even if insurers endeavor to separate high and low risks, because insurers will attempt to refine risk classifications only if the benefits of so doing outweigh the costs.
 19. High-risk purchasers are those with an adult family member with one of the chronic conditions listed in Note 17 or with a child with asthma, ear infections, hay fever, skin problems, or emotional problems. Chronic conditions were measured from claims data for all subscribers, and a treatment for the condition at any time during the first year was assumed to be a condition at enrollment; treatment for a condition occurring in subsequent years that was not treated in the first year was assumed to be the onset of a new condition. The difference in choice by health status controls for other factors that might influence plan preference, such as income and family structure.
 20. We grouped all HMOs together because there are a limited number of different plans, and they all provide fairly similar benefits as measured by actuarial value. They will, however, differ in networks and might differ in the extent of medical management; preferences for these characteristics might also be related to health risk.
 21. V. Patel and M.V. Pauly, "Guaranteed Renewability and the Problem of Risk Variation in Individual Health Insurance Markets," *Health Affairs* 21 (2002): w280–w289 (published online 23 October 2002; 10.1377/hlthaff.w2.289).
 22. L.M. Nichols, "Myths about the Uninsured," Congressional Testimony before the House Ways and Means Subcommittee on Health, 9 March 2004, <http://www.hschange.org/CONTENT/655/?words=Myths+About+the+Uninsured> (accessed 24 March 2006).
 23. The price response for the product depends on its original market share and the share of the market held by the carrier offering the product. For this and other estimates, we assumed that the product market share is 10 percent and the carrier share is 40 percent.
 24. This and the following results are not shown in the exhibits. They can be found in Marquis et al., "The Role of Product Design."
 25. This conclusion was also reached in M. Pauly and B. Herring, *Pooling Health Insurance Risks* (Washington: AEI Press, 1999).
 26. K. Weismantel, "Covering the Uninsured: The Promise and Pitfalls of the Individual Medical Market," *AHIP Coverage* 45, no. 3 (2004): 32–33, 36–38.