How Much Risk Pooling Is There in the Individual Insurance Market?

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Objective. To examine how much pooling of risks occurs among potential purchasers in the individual market, how much pooling occurs among those who purchase coverage, and whether there is greater pooling among longer-term enrollees.

Data Sources. The data are administrative records for enrollees in individual insurance plans in California in 2001, and from a survey of Californians enrolled in the individual insurance market and the uninsured.

Study Design. Logit models were estimated for 5 health outcome measures to compare the insured and uninsured after adjusting for other factors that affect insurance status and health. Multivariate models were also estimated to explore the relationship between health and three measures of pooling in the market: plan type, pricing tier, and the actuarially adjusted premium paid by the enrollee.

Principal Findings. Those who purchase individual health insurance are in better health than those who remain uninsured. On the other hand, a large share of people with health problems does obtain individual insurance. The distribution of subscribers across plan type and pricing tier varies with their health status. Those in poor health are less likely to purchase low benefit plans. There is less separation of risks for those who become sick after enrollment based on the measure of pricing tier. The distribution of subscribers across plan type for those who have health problems at enrollment and those who become sick differs, but so does the distribution of those who become sick and those who remain healthy.

Conclusions. Despite small differences among the healthy and sick, our results support the conclusion that there is considerable risk pooling in the individual market. To some extent, this pooling occurs because underwriting happens at the time people enroll and there is greater pooling among those who become sick than those who enroll sick. Our results however suggest that health savings accounts may further fragment the market.

Key Words. Risk pooling, health insurance, adverse selection

The potential for adverse selection is a key factor in the individual insurance market where enrollment is voluntary and people have an incentive to purchase coverage when they expect to have health care needs. Insurers in this

market try to protect themselves against adverse selection by denying coverage to very high risks or by segmenting risks into groups that can be charged different prices—if they are free to do so under state law. Concern that these practices make individual insurance unavailable or unaffordable to those who most need it have led to efforts to more broadly pool risks in this market through reforms such as guaranteed issue and community rating (Blumberg and Nichols 1996).

Risk separation can occur when insurers exclude high risks from the market completely, or when high and low risks are both sold coverage but are separated into different groups by plan design or by price. But the evidence on the amount of risk separation that occurs on either dimension in markets without reforms is somewhat mixed. A recent survey of carriers found that only 12 percent of actual applicants were denied coverage and only about 17 percent of those accepted had riders excluding certain health problems (Musco and Wildsmith 2004). However, this may understate the extent of risk separation if underwriting deters the less healthy from applying. We do not know whether this deterrent effect occurs, but a study of insurance offers to hypothetical insurance applicants with a range of health problems found potential access problems; 37 percent were denied coverage, and 40 percent of those accepted had riders that restricted covered benefits (Pollitz, Sorian, and Thomas 2001). Some studies have shown that those purchasing individual insurance are in better health than those who are uninsured, consistent with underwriting denials or high mark-ups (e.g., Hadley and Reschovsky 2003). On the other hand, even in a market with guaranteed issue and community rating, those participating in a program subsidizing the purchase of individual coverage were healthier than otherwise similar people who remained uninsured (Swartz and Garnick 2000).

Among those purchasing individual policies, evidence on risk separation and pooling is also somewhat mixed. Some have said that the diversity of products in the individual insurance market reflects insurers' attempts to separate risks because low and high-risk people will choose different benefit designs (Chollet and Kirk 1998). In addition, there is substantially more variation in the cost of insurance policies than can be accounted for by variation in the benefits, suggesting possible differences in the health of those in different health plans (Cutler 1994). And in some markets that have tried to force risk

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pooling in the individual market, there are signs that the market is not sustainable (Monheit et al. 2004). At the same time, a number of authors have suggested that there may be more pooling in the individual market than commonly supposed. Pauly and Herring (1999) find that premiums increase with health risk, but that the relationship is far less than would be expected with perfect risk rating. In fact, a 50 percent increase in risk is associated with a premium increase of less than 10 percent (Pauly, Percy, and Herring 1999). Analyses of choices by low- and high-risk purchasers of individual insurance conclude that the two groups do not purchase policies with significantly different benefit designs (Browne and Doerpinghaus 1993).

We expect that there may be greater pooling for those who remain enrolled in individual health plans for a period of time, even if there is risk separation at enrollment. Guaranteed renewal, required by the Health Insurance Portability and Accountability Act (HIPAA), means that those who become sick cannot be excluded from the pool and, in practice, they generally are not placed in a new underwriting class.[1] This practice provides some degree of protection in the event of becoming sick; for those who remain in the individual market over a period of time there may be greater pooling of long-term risk than of risk at entry (Pauly 1992; Patel and Pauly 2002). But few studies have been able to explore the effect of duration in plan on pooling.

The purpose of our study is to further examine how much pooling of risks occurs among potential purchasers in the individual insurance market, how much pooling occurs among those who purchase coverage, and how this varies with duration of coverage using data from an unregulated market.

DATA AND METHODS

Data

Our study focuses on the individual insurance market in California. We restricted our analysis to one state in order to obtain detailed information about benefits, premiums, and choices in the market. California is a good market for our study because it accounts for almost 15 percent of all individual insurance products sold, it is largely unregulated, and we were able to gain cooperation from the major carriers offering individual insurance products in California. California imposes relatively few restrictions on carriers selling individual products; they can deny coverage based on health status and are not constrained in setting premiums (Kelch 2003). Carriers, however, cannot impose special riders on the policies sold. The three largest carriers offering health insurance products in California, which account for over 80 percent of indi-

vidual insurance products sold in the state, agreed to provide us with detailed information about their products and enrollees.

The data for our study come from the administrative files of the three carriers, from a survey of enrollees in products offered by these carriers, and from a survey of the uninsured. We use the two surveys to compare the health status of those who purchase and do not purchase for evidence of separation among potential purchasers in the market. We use the administrative data to explore the extent to which health status separates enrollees by plan or by price.

Administrative Data. The administrative files include information about enrollees' product choices, premium paid, contract type (e.g., single, family), the age and gender of the subscriber and covered dependents, and the length of time that the subscriber has been enrolled in an individual product offered by the company. The carriers also provided claims or encounter data files for their members. For this analysis, we extracted information on all subscribers enrolled in June 2001 and focus on persons who had enrolled within the four preceding years.[2] This comprises about 490,000 subscribers.[3]

Insurer's price files for this period provide premiums for each product and subscriber. We also abstracted benefit data for all of the plans offered during our study period. The Actuarial Research Corporation (ARC) used the abstracted data to develop measures of the actuarial value of each plan by simulating what each insurance product would pay for the health care services incurred by each person in a standardized population.[4]

We had a claims history covering the period 1997–2001 for all subscribers in the cross-section, which we used to develop indicators of health status. We chose our health measures to be predictive of future use of health care. We hypothesize that expectations about future health care spending by the person factor into subscriber preferences and also into insurer underwriting practices, and that expectations are correlated with actual future use. Based on analysis of the claims data, we developed three health status indicators. One indicated the presence of a chronic medical condition in an adult family member enrolled in the plan including arthritis, hay fever, cancer, diabetes, heart disease, hypertension, lung disease, spine or neck injury, or ulcers. The second denoted whether an adult family member had a mental health condition. The final measure indicates the presence of one of the following in children: asthma, hay fever, chronic ear infections, chronic skin problems, and emotional problems. The measures are based on diagnoses on claims forms. We develop a measure of health at the time of enrollment and the

presence of a condition that occurred as enrollment. Our analysis of the claims data revealed that chronic conditions indicators based on four quarters of enrollment fairly closely matched prevalence rates for these conditions reported by a similar population to the National Health Interview Survey. Therefore, we measure enrollment health status by the presence of chronic conditions for the four time intervals immediately following entry into the market based on the first year of claims data. The measure of recent health conditions indicates that a diagnosis appeared subsequent to this time.

These measures are, of course, imperfect. Ideally we would have a measure of health status at enrollment, but the best that we can capture are chronic conditions for which the enrollee seeks care within the first year. In addition, conditions other than the major chronic conditions we capture may affect participation and pricing tier assignment. Similarly, our measure of a recent condition could reflect either a new condition or an ongoing chronic condition for which an enrollee had not sought regular care. Overall, however, these are all sources of measurement error that should bias us away from finding significant differences between groups with and without health conditions.

Survey Data. We interviewed 3,964 subscribers enrolled in the individual and family health plans offered by the three insurers and 409 families with an uninsured adult in California. A sample of subscribers, stratified by age, gender, type of policy, and duration of enrollment, was selected from the enrollment files of each insurer. Surveys were administered from October 2003 through February 2004 by phone, with a self-administered version of the questionnaire mailed to those who we were unable to contact by phone. We completed 2,195 interviews by phone and 1,769 by mail. This represented 35 percent of the sample selected for the survey. The vast majority of incompletes were enrollees for whom we did not have sufficient contact information and enrollees who failed to return a form to any of three mailings that we made when we were unable to contact them by phone or locate a phone number. For these analyses, we excluded 168 families who were enrolled in conversion policies because they are not subject to underwriting. Our analyses sample thus included 3,796 families. Surveyed respondents are weighted to account for different probabilities of selection and nonresponse; after weighting they represent all subscribers of these insurers at the time of the sample selection on measurable characteristics.

To survey the uninsured, we conducted a brief random digit dialing survey with 5,947 households to identify households with an uninsured adult and to obtain information on family size and income. We attempted to complete a

longer telephone interview with 483 households that had an uninsured adult; this included all high-income households with an uninsured adult and one in four low-income households with an uninsured adult.[5] We completed interviews with 85 percent of these households, for a total of 409 interviews.[6]

Both surveys collected economic and demographic data about the family. Respondents were asked about the presence of the chronic conditions listed above and when each condition was diagnosed. We also have an indicator of fair or poor health for any adult in the family and a similar measure for children in the family from self-reports of general health. Respondents were asked to report their attitude about risk ("I'm more likely to take risks than the average person"), the availability of a safety net ("Good care at low cost can be found in public clinics," "Health care is easy to get even without money") and the efficacy of medical care ("My own behavior determines how soon I will get well," "I understand my health better than most doctors," "Home remedies are often better than drugs prescribed by a doctor," "I can overcome most illness without help from a medically trained professional"). We use these to control for possible differences in attitudes about insurance and medical care that might be correlated with both the insurance purchase decision and health status.

Our unit of analysis throughout is the family—which includes all family members covered under the subscriber's policy in our insured sample and all uninsured family members in our uninsured sample. About 1/3 of uninsured families had an insured family member excluded from our analysis; almost 1/2 of excluded family members were spouses with their own employer group policy and about 1/2 were children in public programs. About 1/5 of insured families had one or more persons excluded from our analyses because they were not enrolled in the subscriber's individual insurance plans.

The uninsured are younger, lower income, more likely to be male, and more likely to be from a minority racial/ethnic group than the insured. We control for these differences in comparing the insured and uninsured.

Methods

Pooling among Potential Purchasers. We use the survey data to examine the extent of pooling among potential purchasers by comparing the measures of health status collected from insured families. We report observed health status differences between the groups and health status differences that adjust for variation between them in demographic and economic factors and attitudes about insurance and health care. To obtain the adjusted

comparisons, we fit logit models in which the health status indicators are the dependent variables and the explanatory variables include: race/ethnicity, gender, age, education, and work status of the head as well as family income, attitudinal measures, and indicators for insurance status. To test the hypothesis that duration of coverage is a factor, we include separate indicators for newly insured and longer term insured persons. We use the fitted model to predict expected health status for our entire sample of insured and uninsured families first as if they are all insured and then as if they are all uninsured. We then compare the average predictions. This method is commonly referred to as "recycled predictions" and is analogous to a standardized comparison where we standardize for all covariates other than insurance status (Russer 1998; Sommers 2005). Our prediction sample, then, is a population with the distribution of characteristics of people who are likely candidates for individual insurance.

Pooling among Those Who Purchase Coverage. We use the administrative data to assess the extent of pooling among those who purchase using three measures: the odds of being in a nonstandard tier relative to a standard tier; enrollment in an health maintenance organization (HMO), a generous preferred provider organization (PPO), and a less generous PPO; and the premium actually paid by the subscriber adjusted for the actuarial value of the plan benefits. A generous PPO is one that would pay more than 50 percent of the expenditures made by the average person; a less generous PPO would pay less than this.[7] As noted earlier, some believe that insurers can use benefit design to separate risks because the healthy and sick prefer different coverage. Insurers can also direct high risks to certain plans, effectively raising the price of those plans and so steering the healthy to alternate plans. We look at plan type choices of the sick and healthy to examine whether these practices occur. The premium relative to the actuarial value of the policy summarizes the effect of separation by tier and plan design. If the healthy and sick are separated into different plans, then the actuarially adjusted premium for the pool with the sicker enrollees would be higher than that for the pool of healthier enrollees. And people in the nonstandard tier pay higher premiums for a given plan than others.

    Each of the three measures is available from the carrier administrative files for our June 2001 cross-section. We fit multivariate models to explore the relationship between health status and each measure of pooling. The explanatory variables in all models include: the health indicators, indicators for how long the family has been enrolled with the carrier, the age and gender of the policyholder, an indicator of whether a spouse is covered by the plan and the age of the spouse,

and an indicator of whether children are included on the policy and the number of covered children. To test our hypothesis that pooling increases over time because underwriting occurs primarily at enrollment, we differentiate between families with health conditions at enrollment and those who became sick later. To allow for the effect of disenrollment from the market, we include interactions between the duration indicators and the health indicators. The models we fit are a binary logit model for whether the individual is charged a higher price than the standard price, a multinomial logit model for the type of plan, and a linear regression model for the actuarially adjusted premium.[8]

We again use the method of recycled predictions and predict the three outcomes for all enrollees in our sample varying health status and enrollment length. That is, the outcome for a given health status and duration is the average predicted value for the full sample assuming that all families have the value of heath status and duration in question, and we make predictions for the full sample as they take on each value of health status and duration. From these predictions, we compare the distribution of plan type and pricing tier for families with different health and plan duration who are otherwise alike in their demographic characteristics. We also use these predicted values to estimate the expected mix of risks within a health plan type for enrollment cohorts with varying duration given the mix of health risks in the cohort at the time. This controls for differences in the mix of risks in a plan that may stem from differences in other characteristics (that are correlated with health and plan preferences). For example, we look at the distribution of expected health risks for a cohort that has been enrolled for 3–4 years within the HMO plan, given the mix of health risks observed for this cohort and the predicted distribution of each health group across plans. The difference between the predicted distribution of risks in the plan and the predicted distribution of risks for the cohort is an indication of pooling or separation. Finally, we calculate similar predictions for pricing tiers.

A pool at a given time includes newly enrolled people as well as people who have been enrolled over time. We examine the extent of pooling or separation in a 4-year pool to approximate the pooling in the market as a whole. We do this by combining our predictions of the distribution of risks for newly enrolled people using weights that are the expected share of people who would be in the pool from that cohort assuming equal size entering cohorts and earlier analyses we have done on duration of coverage (Marquis et al. 2005).[9]

Although guaranteed issue improves access for enrollees who become sick, their choice of plan subsequent to enrollment is likely to be restricted because switching products may expose the subscriber to underwriting. This

would especially deter subscribers who became sick after enrolling with the carrier. To test this, we fit a logit model to examine whether the likelihood of switching products for subscribers in a given cohort depends on health status.[10] The model specification is the same as described above.

RESULTS

Pooling among Potential Purchasers

Although we expect those in poor health will value insurance more highly than those in good health, those who purchase individual health insurance are in better health than those who remain uninsured (Table 1). This conclusion

Table 1:   Health Status of Families Enrolled in Individual Insurance Policies Compared with the Uninsured

	Individual Insurance		
	Purchased in Last Year	*Purchased 2 or More Years Ago*	*Uninsured*
I. Observed			
Percent with any adult having chronic medical condition[†]	32.9	43.5	45.2*+#
Percent with any adult having mental condition	9.1	10.8	15.3*+#
Percent with any adult reporting fair/poor health	3.8	6.5	30.2**+#
Percent with any child having chronic condition[‡§]	40.9	42.4	33.7
Percent with any child reported in fair/poor health[§]	3.0	1.0	18.5+#
II. Adjusted difference[¶]			
Percent with any adult having chronic medical condition[†]	32.4	37.4	45.3*+#
Percent with any adult having mental condition	6.5	7.8	15.2†#
Percent with any adult reporting fair/poor health	6.0	8.0	26.2**+#
Percent with any child having chronic condition[‡§]	40.4	39.3	34.1
Percent with any child reported in fair/poor health[§]	1.7	0.9	16.9+#
Number of families	954	1905	409

*Recent and longer term insured differ significantly, $p = .05$.

**Recent and longer term insured differ significantly, $p = .10$.

+Recent insured purchaser and uninsured differ significantly, $p = .05$.

#Longer term insured and uninsured differ significantly, $p = .05$.

†Arthritis, cancer, diabetes, hypertension, heart disease, lung disease, back pain, ulcers.

‡Asthma, ear infections, hay fever, skin problems, emotional problems.

§Families with one or more children.

¶Differences are adjusted for age, gender of head, income, education, whether born in the U.S., whether works, race/ethnicity, family composition, risk aversion, perceived efficacy of medical care, and perceived alternatives to insurance for care.

holds for all our health measures except the presence of chronic conditions in children. The insured are healthier when we compare actual health status differences between the groups, and also when we control for differences in characteristics that we expect might be associated with both the demand for health insurance and health. This latter finding suggests that underwriting excludes some sick people from the market. On the other hand, a large share of people with health problems do obtain individual health insurance—over 1/3 of enrollees report having an adult family member with chronic medical conditions and about 10 percent report mental health problems. Thus, there is considerable pooling of health risks.

As hypothesized, there is greater pooling of risks for those who have been in the market for a while. Subscribers who purchased coverage two or more years earlier have significantly worse health than those who are newly enrolled. On the other hand, the longer-term enrollees still are in better health than the uninsured.

It is possible that differences in health are an outcome of having insurance, rather than a factor in obtaining coverage. If so, we expect the health of people who were previously insured and just lost coverage to be similar to the currently insured and better than the health of the longer-term uninsured. We tested this hypothesis by examining whether those who were newly uninsured had health status that was similar to the insured and whether the newly uninsured were in better health than those who had been uninsured for 2 or more years. We found, however, that the newly uninsured were in significantly poorer health than the insured, and that they did not differ from the longer term uninsured in their health status.

Pooling among Purchasers of Individual Coverage

Separation by Plan Type. The distribution of subscribers across plans varies with their health status. This is shown in the top panel of Table 2 for two enrollment cohorts: new enrollees and those who remain enrolled for 3–4 years. At enrollment, subscribers who have health conditions or have family members with such conditions are more likely to be in HMOs and in generous PPOs than healthier subscribers and their families. These differences are pronounced for families with adults in poor medical or mental health. The differences are statistically significant, but small for families with children with a chronic health condition. As a result, less generous PPOs have a healthier risk profile of initial enrollees than one would expect at random (Table 2, bottom). Generous PPOs and HMOs have a

Table 2:   Health Plan Enrollments by Plan and Duration of Coverage

		Plan		
	HMO	PPO, Less Generous	PPO, Generous	All Plans
Distribution of choices by duration of coverage and family health				
Enrolled within last year				
All families	0.39	0.14	0.47	1.00
No family health problems	0.35	0.20	0.44	1.00
Adult chronic medical condition	0.40	0.06	0.54*	1.00
Adult mental health condition	0.55	0.05	0.40*	1.00
Child health condition	0.37	0.17	0.46*	1.00
Enrolled in plan 3–4 years				
All families	0.36	0.09	0.55	1.00
No family health problems	0.40	0.14	0.46[#]	1.00
Initial poor health				
Adult chronic medical condition	0.30	0.04	0.66*[#]	1.00
Adult mental health condition	0.46	0.04	0.50*[#]	1.00
Child health condition	0.41	0.12	0.46*[#]	1.00
Recent poor health				
Adult chronic medical condition	0.32	0.07	0.61*[+]	1.00
Adult mental health condition	0.45	0.07	0.48*	1.00
Child health condition	0.41	0.13	0.46*	1.00
Distribution of health risks within a plan by duration[a]				
Cohort enrolled within last year				
No family health problems	0.75	0.92	0.76	0.79
With health problem	0.25	0.08	0.24	0.21
Cohort enrolled in plan 3–4 years				
No family health problems	0.51	0.67	0.39	0.46
Initial poor health	0.24	0.15	0.32	0.27
Recent poor health	0.25	0.19	0.29	0.26
Steady state pool after 4 years				
No family health problems	0.69	0.87	0.62	0.69
Initial poor health	0.21	0.08	0.26	0.22
Recent poor health	0.10	0.05	0.12	0.09

*Significantly different from no health problem at $p = .05$.

[#]Significantly different from enrolled within last year.

[+]Significantly different from initial pool health for cohort at $p = 0.05$.

[a]No tests of statistical significance.

HMO, health maintenance organization; PPO, preferred provider organization.

slightly riskier profile than would expect, but the differences are not large; the healthy and sick are pooled in these plans at enrollment roughly in proportion to their prevalence in the enrolling population.

The distribution of subscribers who have been enrolled for 3–4 years differs significantly from the distribution at enrollment. As we have reported

elsewhere, people are more likely to disenroll from the individual market if they are in less generous plans or if they are in HMOs (Marquis et al. 2005). Consequently, we find that enrollees who stay for 3–4 years are less likely to be in the less generous PPOs than initial entrants, irrespective of health status. And longer-term enrollees in families that entered with adult health conditions are less likely to be in HMOs than similar new entrants. We continue to find separation by plan after 3–4 years of enrollment as evidenced by the lower enrollment rates in less generous PPOs among families who had an adult with medical or mental health conditions at enrollment (Table 2, top).

There is only weak evidence to support the hypothesis that greater pooling across plan types occurs over time because health status changes. The distribution of plan types for families with an adult who acquires a chronic medical condition after enrollment differs significantly from families that start out with health conditions, but it also differs from families remaining in good health. The plan mix distribution does not differ between families that enroll with an adult with a mental health condition and families in which the condition occurs postenrollment, or for families with a child with a chronic condition. Thus, we continue to see separation of risks in the less generous PPO, which enrolls primarily good risks, whether we look at initial enrollees, a 3–4 year cohort, or a risk pool with newer and longer term enrollees (Table 2, bottom).

Separation by Pricing Tier. Those with chronic conditions are significantly more likely to pay a marked-up price for a given product than families without these chronic health problems—although the difference for families with a child with chronic conditions is small (Table 3).[11] The odds of being in a nonstandard tier for families with an adult with a chronic medical or mental health problem relative to healthier families is significantly greater for families enrolled for 3–4 years than for families at enrollment. This is neither because of durational rating nor new underwriting because fewer than 4 percent of these longer-term enrollees change rating tiers during their tenure. Rather, it indicates that families who are initially enrolled at a nonstandard price, but do not include a member with a chronic condition, are more likely to disenroll from the market than otherwise similar individuals without one of the conditions that we measured.

Our hypothesis that there is less separation of risks for those who become sick after enrollment is borne out in our measure of pricing tier. The odds of being in a nonstandard tier for subscribers with an adult family member who acquires a medical or mental chronic condition families is

Table 3:   Probability of Being in a Non-Standard Rating Tier Relative to the Probability if No Family Health Problem

	Odds Ratio
Enrolled within last year	
Adult chronic medical condition	1.66*
Adult mental health condition	1.58*
Child health condition	1.03*
Enrolled in plan 3–4 years	
Initial poor health	
Adult chronic medical condition	2.49*[#]
Adult mental health condition	1.95*[#]
Child health condition	1.00
Recent poor health	
Adult chronic medical condition	1.63*[+]
Adult mental health condition	1.44*[+]
Child health condition	0.98*

*Significantly different from no health problem at $p = .05$.
[#]Significantly different from enrolled within last year.
[+]Significantly different from initial pool health for cohort at $p = 0.05$.

significantly lower than that for families in the same cohort who had health conditions at enrollment.

　　While subscribers with health conditions are more likely to pay a marked-up price, as we would expect, there is still considerable pooling of the healthy and sick. The distribution of health risks in the standard tier fairly closely matches the distribution of risks of all enrollees, controlling for cohort (Table 4). This indicates that a large share of those with chronic conditions pay a standard price. The higher pricing tiers include about 50 percent more subscribers who have conditions at enrollment than would occur at random. However, the share of those who become sick in the higher tiers is about the same as their share of the population. This also shows that the extent of separation diminishes over time because of health status changes.

Overall Price Effect. Differences in the actuarially adjusted premium paid by the healthy and sick are shown in Table 5. These differences incorporate both the effects of price mark-ups and separation of risks by plan that would affect the overall price of a product. As we have adjusted for the actuarial value of the plan, the measure does not reflect differences because of different benefit choices. Those who are initially in poor heath pay higher prices per benefit than those in good health, but differences are not large. Subscribers with an adult family member with a chronic medical condition pay 10–12 percent

Table 4:   Distribution of Health Risks within Price Tiers

	Standard Tier	Higher Tier	All Tiers
Cohort enrolled within last year			
No family health problems	0.79	0.69	0.79
With health problem	0.21	0.31	0.21
Cohort enrolled in plan 3–4 years			
No family health problems	0.48	0.31	0.46
Initial poor health	0.26	0.41	0.27
Recent poor health	0.26	0.28	0.26
Steady state pool after 4 years			
No family health problems	0.68	0.58	0.69
Initial poor health	0.23	0.34	0.22
Recent poor health	0.10	0.08	0.09

more per month than subscribers with no family health problems. The differences are even smaller for our other health indicators. Families in which an adult family member contracts a chronic medical condition after enrolling in the individual market pay more that families with no health problems, but less than families with a chronically ill adult at enrollment. This is consistent with the hypothesis that pooling increases over time because underwriting

Table 5:   Actuarially Adjusted Premium Paid by Health Status and Duration of Coverage

	Premium ($/Month)
Enrolled within last year	
No family health problems	184
Adult chronic medical condition	202*
Adult mental health condition	191*
Child health condition	189*
Enrolled in plan 3–4 years	
No family health problems	189#
Initial poor health	
Adult chronic medical condition	212*#
Adult mental health condition	195*#
Child health condition	191*#
Recent poor health	
Adult chronic medical condition	203*+
Adult mental health condition	199*+
Child health condition	192*+

*Significantly different from no health problem at $p = .05$.
#Significantly different from enrolled within last year.
+Significantly different from initial pool health for cohort at $p = .05$.

Table 6:   Probability of Changing Products for Subscribers Enrolled 3–4 Years by Health Status

	Probability of Switching
No health problem	0.04
Initial poor health	
Adult chronic medical condition	0.10*
Adult mental health condition	0.07
Child health condition	0.04
Recent poor health	
Adult chronic medical condition	0.07*+
Adult mental health condition	0.06
Child health condition	0.04

*Significantly from no health problem at $p = .05$.
+Significantly different from initial health problem at $p = .05$.

occurs only at enrollment. On the other hand, for our two indicators of family health, the amount paid by those with new health problems is slightly higher than the amount paid by those with longer-term conditions.

Product Switching. We hypothesized that there would be less product turnover among the sick, especially those who become sick, to avoid renewed underwriting. However, as Table 6 indicates, families with an adult with a chronic medical condition are more likely to switch products than families without health problems. The sick may have more experience with their plan and have greater awareness of any discrepancy between the product and their preferences and needs that would promote switching. Overall, there is limited switching between products, even among those who are enrolled for 3–4 years. However, we do find less switching among the newly sick, who risk paying higher premiums if they are exposed to new underwriting, than the initially sick.

DISCUSSION

The Bush administration has emphasized consumer choice and an expanded role for the individual market as a solution to the problem of the uninsured (Bush 2004). Some question whether a strategy that targets subsidies to the individual insurance market will expand insurance and promote equitable access to coverage (Swartz 2001; Pollitz and Sorian 2002). At the root of their

concerns is the extent to which the individual market pools health risks and the extent to which it either denies coverage to those in poor health or separates them into groups that are charged higher prices. Past research on this question has produced somewhat mixed answers. Although our study is limited to the California market, we believe our findings provide new information about pooling in the individual market that is likely to apply in other unregulated markets.

We find some evidence of separation of risks. Those with chronic conditions are less likely to have individual insurance, more likely to purchase generous benefits, and more likely to be charged a nonstandard price than those in good health. These findings control for characteristics that may affect consumer preferences. However, there may be unobserved subscriber characteristics that affect health and demand for insurance or preference for insurance packages that are the source of the differences. That is, the differences cannot necessarily be attributed to insurer behavior. Despite these differences, our results by and large support the conclusion that there is considerable risk pooling in the individual market. A substantial number of families with health problems are enrolled in the market and the distribution of health risks within different plans and within the standard pricing tier does not deviate a great deal from the distribution of health risks of all purchasers. However, as we noted at the outset, some error in our health measures may lead us to understate the separation of risks. And the uninsured are in substantially worse health than the insured. Therefore, risk adjusted subsidies or credits may help people in poor health to participate in the individual market.

To some extent, the pooling we observe occurs because underwriting happens at the time people enroll in a plan. Guaranteed renewal provides protection against the consequences of becoming sick in the future. Those who have been enrolled in the market for several years are in somewhat poorer health than those who newly enroll; those who become sick are less likely to be rated up and pay a small, but significantly lower actuarially adjusted premium than those who initially have chronic conditions. We hypothesized that guaranteed renewal might limit future choice because subscribers who wish to switch products may face new underwriting, but we find little evidence of this. Those that become sick switch plans at only a slightly lower rate than the initially sick. This could be due to enrollees' preferences about benefit design changing enough when they become sick to override the cost of new underwriting.

On a similar note, although our overall results suggest a high degree of risk pooling in this market, they also may suggest a cautionary tale for the

effect that HSAs may have in this market. Kuttner (2004) writes that HSAs may fragment risk pools because they will be attractive only to the healthy. The sick, he argues, will continue to prefer plans with more generous benefits to accounts that are unlikely to accumulate savings. Our analysis shows that enrollment in less generous plans is heavily dominated by the healthy, but overall it is low and thus does not produce substantial market-wide segmentation. However, if HSAs do realize the explosive growth that some predict, it is possible that the introduction of HSAs into the individual market could reduce the broad pooling that now occurs.

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NOTES

1. Although HIPAA does not prohibit underwriting at renewal, it generally does not occur (Patel and Pauly 2002).
2. As discussed below, we use the claims data to develop a measure of health status that required a 1-year postenrollment observation. We selected June 2001 as our cross-section because the claims that were available to us covered this 1-year period for any new enrollees in our cross-section. We restricted our study to persons who had enrolled within the preceding 4 years because the available claims data did not allow us to measure health status at the time of enrollment for earlier enrollees.
3. We exclude policyholders who are under the age of 18. We also exclude HIPAA policies and conversion policies as these are priced differently and not subject to underwriting.
4. The standardized population was based on privately insured persons under age 65 in the 1997 National Medical Expenditure Panel Survey (MEPS); see Buntin et al. (2003) for more details.
5. Low income was defined as 200 percent of the poverty threshold for families of one for single persons, and 200 percent of the poverty threshold for families of two for all other families.
6. This sample provides 90 percent power to detect a 10 percent difference between the insured and uninsured in having a chronic condition and a 15 percent different in self-reported health status.

7. Note that we base our definition on the expected share of the bill reimbursed for the expenses of an average person and not the expected expenses reimbursed for a pool, which is the measure often reported as the actuarial value of a policy. The latter is heavily influenced by very large expenditures, which are reimbursed more generously than small medical bills.

8. We carried out these analyses using our survey sample as well. The survey data provide additional demographic controls, but samples are much smaller. In general, the results from the survey were similar to that for the larger administrative database, but many results were not statistically significant in the smaller survey data. Therefore, we present only our results from analyzing the administrative data.

9. We are restricted to assuming a pool includes only enrollees for up to 4 years because our data include only enrollees who have been enrolled for 4 years or less.

10. We can only observe switching among products offered by a carrier, not switching between carriers. Therefore, we limited this analysis to two carriers offering a menu of product options.

11. We report odds ratios rather than actual percentages in the rating tiers for reasons of confidentiality. Other studies have suggested that the share of applicants that are rated up ranges from 8 percent to about 33 percent (Pauly and Nichols 2002; Musco and Wildsmith 2004). We would expect fewer purchasers to be rated up, because some applicants quoted a higher price will shop around until they qualify for a standard price, and some will choose not to buy insurance.

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