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Mental Health Parity: What Are the Gaps in Coverage?

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Abstract

Background: Mental health benefits in private health insurance plans in the United States are typically less generous than benefits for physical health care services, driving reform efforts to achieve parity in coverage. While there is growing evidence about the effects such legislation would have on the utilization and cost of mental health services, less is known about the impact parity would have on reducing the risk of large out-of-pocket expenses that families would face in the event of mental illness.
Aims of the Study: We seek to understand the impact that mental health parity would have on the out-of-pocket burden that families would face in the event of mental illness. We focus in particular on variations in coverage across the privately insured population.
Methods: We compare out-of-pocket spending for hypothetical episodes of mental health treatment, first under current insurance coverage in the United States and then under a reform policy of full mental health parity. We exploit detailed informtion on actual health plan benefits using a nationally-representative sample of the privately insured population under age 65 from the 1987 National Medical Expenditure Survey (NMES) that has been carefully aged and reweighted to represent 1995 population and benefit characteristics.
Results: Our results show that existing benefits of the U.S. privately insured population under age 65 leave most people at risk of high out-of-pocket costs in the event of a serious mental illness. Moreover, the generosity of existing mental health benefits varies widely across subgroups, particularly across firm size. We find significantly lower out-of-pocket costs when simulating full parity coverage. However, our results show those with less generous mental health coverage tend to have less generous physical health coverage, as well.
Conclusions: Parity would substantially increase generosity of mental health coverage for most of the privately insured population. The wide variation in the generosity of existing mental health benefits suggests that there are likely to be differential impacts from a parity mandate. Those with limited physical health coverage would still be at significant financial risk for catastrophic mental illness.

Introduction

The health insurance system for persons under the age of 65 in the United States is dominated by private health insurance plans, mostly obtained from employers, and thus much of the population obtains coverage for mental health services in this private system. However, mental health benefits in private health insurance plans are typically much less generous than benefits for physical health care services, with separate deductibles, higher coinsurance requirements, and lower annual and lifetime maxima. A limited form of mental health parity was included in legislation passed and signed into law in 1996, mandating that medium and large employers that offer mental health benefits must maintain equivalence in the annual and lifetime dollar maxima that are applied to mental and physical health services. Small employers were excluded from the 1996 legislation, as were dimensions of coverage other than dollar maxima. However, many mental health advocates believe that this recent legislation represents a foot in the door, and continue to push for full mental health parity both at the national and, especially, at the state level. Full mental health parity would eliminate all distinctions in the benefits for mental health services and physical health services—mental health services would be covered under the general plan benefit provisions for physical health services.

Two issues are central to understanding the potential effects of parity legislation—(i) the effect such legislation would have on the utilization and cost of mental health services and (ii) the impact on reducing the risk of large out-of-pocket expenses that privately insured families would face in the event of mental illness. With respect to the first issue, evidence from the RAND Health Insurance Experiment[1] suggests that in a fee-for-service environment the impact on costs and premiums would be substantial, while more recent studies suggest that under certain forms of managed care the cost impact may be minimal.[2,3] Regarding the second issue, less is known. Large employer surveys, such as the Bureau of Labor Statistics' Employee Benefit Survey, provide useful insights into the differences in coverage between mental and physical health care. However, there has not previously been a systematic analysis of household coverage data enabling researchers to analyze mental health benefits by household and personal character-

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istics, as well as addressing cases of multiple and overlapping coverage and the coverage of dependents.

In this paper we focus on the impact parity would have on the risk of out-of-pocket expense that privately insured families would face in the event of mental illness, particularly catastrophic illness. We use nationally representative household data to compare the out-of-pocket spending for hypothetical episodes of mental health treatment that would be required under current private health insurance coverage and under a reform policy of full mental health parity. Our methodology builds on the analysis of underinsuredness by Short and Banthin,[4] exploiting detailed information on actual health plan benefits to determine how hypothetical treatment episodes would be covered. Ours is a descriptive analysis of the distribution of private mental health benefits in 1995 as written in policy booklets and how these benefits compare to those for physical illness. We measure the generosity of coverage under current mental health benefit provisions and compare it with the generosity of coverage that would occur if mental health benefits were equal to current physical health benefits.

It is important to note that we exclude from our analysis any coverage for mental health services provided by publicly supported mental health treatment systems at the state and local level and by the Medicaid program to privately insured individuals who exhaust their private benefits or who otherwise cannot afford mental health treatment. Public mental health systems vary widely by state and locality in their ability to protect privately insured individuals (not to mention uninsured individuals) from catastrophic mental health episodes. In addition, individuals are often required to spend down most of their assets and income in order to qualify for public coverage. Since the purpose of our paper is to understand the gaps in mental health benefits in private insurance, we focus on a measure of out-of-pocket costs to families that reflects the cost of treatment less only what private insurance would pay.

Our results show that existing benefits of the US privately insured population under age 65 leave many people at risk of high out-of-pocket costs in the event of a serious mental illness. We find significantly lower out-of-pocket costs when simulating full parity coverage. Moreover, the generosity of existing mental health benefits varies widely across subgroups, particularly across firm size, so that there are likely to be differential impacts from a parity mandate. Our results also show that those with less generous mental health coverage tend to have less generous physical health coverage, so that legislating parity would not, by itself, provide all individuals with full protection against catastrophic mental health expenditures.

The Data

Our analysis of private insurance coverage for mental health services is based on data from the 1987 National Medical Expenditure Survey (NMES), which have been aged and reweighted to represent 1995 population characteristics. The NMES includes data for over 38 000 persons in approximately 15 000 households. For this analysis, we use NMES data on socioeconomic, demographic and health status variables, as well as detailed data regarding health insurance coverage. We restrict our sample to those persons under age 65 covered by private insurance (as a policyholder or as a dependent), either through employment or purchased directly from an insurance company ($n = 17\,258$).

A unique aspect of the 1987 NMES is the detailed information on health insurance benefits. Health insurance policy booklets were collected for households with private insurance in a followback survey of employers, insurers and unions. Detailed benefit provisions were abstracted from the booklets, including covered services, individual and family deductibles, copays and coinsurance rates, out-of-pocket stop loss limits and annual and lifetime maximum payments. Benefit provisions were abstracted separately for dozens of different medical services, including mental health services. Information about the type of health plan was also coded, including whether the plan was basic, major medical or HMO. In this analysis we rely on information coded on regular and psychiatric hospital room and board, regular and psychiatric inpatient physician services, regular outpatient physician services and mental health outpatient services, covering both physician and non-physician care.

To age the data, we rely on techniques equivalent to the post-stratification that is often done in population-based surveys. We begin by adjusting the NMES sample weights to capture the distribution of the population in the 1995 Current Population Survey by age, sex, race, employment status, insurance coverage, region and income. Simultaneously, we capture the shift toward HMO coverage by reweighting the sample, accounting for changes in the composition of the population in HMOs, using information from the 1994 National Health Interview Survey. Reweighting the data in this manner allows us to examine the current distribution of mental health benefits by demographic and other characteristics. We also employ calibration factors, developed from employer benefit survey estimates from the Bureau of Labor Statistics (BLS),[5] to rescale the deductibles, lifetime maxima, out-of-pocket limits and other dollar-denominated elements of health insurance policies to reflect current coverage dollar amounts. These aging and reweighting steps are described in detail by Moeller *et al* (available from the authors).[6]

Our aged data closely match those from BLS.[5,7] The proportions of insured employees in medium and large establishments with inpatient and outpatient mental health coverage are 98 and 97% respectively, in the BLS data versus 95% (for both) in our aged data. Also, the proportion of employees in medium and large establishments with parity coverage for inpatient visits is 18% in the BLS data versus 14% in our aged data, while the comparable figures for outpatient parity are 2 and 3%, respectively. The two data sources are also similar with respect to the coverage provided by small firms.

The limited evidence from other sources that permit a more detailed comparison of our coverage generosity measures also suggests our data are accurate. Since 1987,

there has been an important trend toward increased use of day limits for inpatient stays and limits on the number of outpatient visits. Buck and Umland[8] report that between 1989 and 1995 there was a 11 percentage point increase in the prevalence of day limits on inpatient care and a 15 percentage point increase in the prevalence of outpatient visit limits. Virtually all of this change, however, can be explained by the increasing proportion of the population in HMO versus non-HMO plans—a shift that we capture by reweighting the data. There has also been a trend toward increased use by HMOs of copayments for inpatient and outpatient services, for both physical and mental health services, that we do not capture.[8] However, HMO copayments typically represent only relatively small percentages of total expenditures (especially for episodes involving inpatient stays). To the extent that HMO copays have risen for both mental and physical health care, our estimates of the coverage generosity of HMOs may be biased slightly upward. However, any bias with respect to the *gap* between mental and physical health coverage is likely to be small.

The most important trend in the last decade specific to mental health benefits has been the rapid growth in the use of managed mental health carve-out contracts, particularly by large employers, where mental health benefits are administered separately from other benefits. To the extent that managed behavioral carve-outs have led to increases in generosity of mental health coverage, our measures of the gap between mental health and physical health status will be overstated. However, the true extent of carve-out arrangements is difficult to gage. While most of the insured population in the United States have their mental health care managed to some extent by behavioral health care firms, much of this is in the form of utilization review and Employee Assistance Program (EAP) contracts that do not directly affect benefit design.[9] Recent studies suggest that mental health benefits in actual carve-out plans are generally much less generous than physical health benefits, and are subject to the same kinds of strict limit as mental health benefits in other plans.[8,10] While mental health benefits are often carved out in HMOs, we do not expect significant changes in generosity of mental health coverage. Furthermore, the available evidence suggests that despite the growth of carve-out plans, only a minority of people (around 20% of employees) with fee-for-service, PPO or POS plans have their mental health benefits carved out.[8,11]

Gathering arguments, we believe that our data are substantially in line with the available evidence from more recent surveys. Moreover, they offer several distinct advantages over these other surveys. The detailed information on coverage characteristics contained in NMES allow us to calculate the out-of-pocket costs that individuals would face for different episodes of treatment. Also, NMES is a nationally representative household survey which contains benefit data for individuals with non-employment-related insurance and for dependents (spouses and children) of employees. Importantly for this study, we are also able to identify individuals with coverage from more than one insurance plan. Finally, the benefit data in NMES are linked to a rich array of demographic and socioeconomic characteristics.

Methodology

Computation of Out-of-Pocket Expenses

Private health insurance policies are defined by hundreds of specific provisions. To simplify this complexity into a more useful summary measure of coverage generosity, we calculate the share of total expenditures that is covered by an individual's held plan(s) and the out-of-pocket amount that is the responsibility of the patient and family for a given stylized treatment episode. To compute these out-of-pocket expenses, we use detailed benefit data (collected from the policy booklets for each person in our sample) in conjunction with the claims processing program BENSIM (benefits simulation), a component of the MEDSIM microsimulation model developed by researchers at the Agency for Health Care Policy and Research.[6]

BENSIM replicates the standard calculations of insurance payments and out-of-pocket responsibility that an insurance plan would make for each person in our sample based on the specific benefit provisions contained in their policy booklets. Deductibles are first applied to the total medical expenditures, pro-rating the contribution of each type of expenditure (inpatient facility, inpatient provider and ambulatory provider) to the deductible. Co-payments and co-insurance rates specific to each type of expenditure are then applied to amounts above the deductibles up to any out-of-pocket limits, after which the insurance plan pays 100%. Insurance payments continue to be applied to expenditures until any plan limits on number of visits, number of inpatient days or dollar maxima are reached, after which the patient and family are responsible for 100% of the expense. Standard coordination of benefits rules are applied when an individual is covered by more than one private insurance plan. The reform policy of full parity is easily simulated by processing mental health expenditures as if they were physical health expenditures, using the actual benefit provisions for physical health expenditures. By using the actual benefit provisions of people in the NMES sample, BENSIM allows us to calculate coverage generosity accurately for both current and reform policies. At the same time, we caution the reader that any change in benefits over time not fully captured through our aging and reweighting (post-stratification) procedures (as described in the previous section) will introduce imprecision into our estimates of current out-of-pocket costs.

It is also important to note that in comparing the generosity of benefits as stated in policy booklets we do not take into account the application of utilization review or other managed care practices that can limit both mental health and physical health treatment. Thus, even where mental health and physical health benefits are equally generous, *access* to mental health care may be lower in practice due to supply-side interventions such as managed behavioral health care carve-outs.[12] Unfortunately, there is little conceptual or

empirical basis for making quantitative predictions about the likely effects of supply-side interventions on equal access. Nevertheless, by analyzing the generosity of insurance benefits, we are better able to examine the magnitude of the out-of-pocket burdens that individuals would face *if they were* to undergo expensive episodes of mental health treatment.

Treatment Scenarios

Epidemiologic studies suggest that each year approximately 5% of the privately insured population use mental health services and nearly 1% receive inpatient treatment.[13,14] While relatively few people use mental health services each year, and even fewer use intensive treatment, a significant proportion of the US population is *at risk* for mental health treatment. One-third to one-half of the adult population have had a mental disorder (including drug or alcohol abuse) at some point in their lifetimes, and approximately five million or more non-institutionalized adults currently suffer from severe mental disorders (such as major depression, manic depression or schizophrenia).[13,14] While not everyone with a mental disorder (particularly those with less severe disorders) requires treatment,[15] there is still a significant individual risk. Given individual probabilities, the risk to *families* of having one or more members experience a catastrophic episode of treatment can be substantial. Moreover, given the chronic nature of many mental illnesses, families lacking extensive mental health coverage can be at risk of large out-of-pocket payments over long periods of time.

To represent a range of potential mental health treatment episodes, we examine four hypothetical scenarios, in each case using the BENSIM claims processing program to calculate the out-of-pocket costs privately insured individuals would face. These four hypothetical scenarios represent different levels of treatment intensity across both inpatient and outpatient services. Scenario 1 consists of 20 outpatient visits at $100 per visit (approximately the CPI-adjusted mean office visit expenditure in NMES). Approximately 1% of the US noninstitutionalized population has 20 or more ambulatory visits annually (authors' calculations from NMES data). Scenario 2 consists of 48 outpatient visits combined with an inpatient stay of 7 days at $825 per day and three inpatient physician visits at $125 per day. Facility charges are CPI-adjusted mean charges per day for mental health stays in 1992 from Elixhauser and McCarthy.[16] The median length of stay for mental disorders in short-term hospitals is 7 days, and mental disorders (including substance abuse) account for 4% of all discharges in short-term hospitals, a figure that excludes both public and private psychiatric hospitals.[16]

Scenarios 3 and 4 represent more catastrophic episodes. Scenario 3 combines 90 outpatient visits, a 30 day inpatient stay and ten inpatient physician visits. We choose this scenario because plans typically impose a 30 day maximum on the number of days of inpatient mental health treatment covered. Scenario 4 combines 80 outpatient visits, a 60 day inpatient stay and 20 inpatient physician visits.

In all four scenarios, we eliminate other types of medical expenditure for simplicity and to focus on the gap in coverage that currently exists between mental and physical illness benefits. Note, however, that mental health and physical health expenditures are often correlated, and by excluding services that may be related to mental illness but covered under physical health provisions, we are likely to understate the parity gap slightly. For most policies, under parity the mental health costs and mental health related physical health costs would contribute to common deductibles and limits on out-of-pocket expenses, whereas under current benefit provisions they would not. We also exclude prescription drug expenditures, which are a common component of mental health treatment, since we would expect no changes in *coverage* for prescription drug benefits as a result of parity.

Regression Analysis

A major strength of NMES, as discussed in the data section, is that it provides linked data on private health benefits and household characteristics, enabling us to examine how insurance generosity varies across individuals by demographic and socioeconomic characteristics. We use a multivariate regression approach in this context to examine simultaneously a range of socioeconomic and health status variables, holding all other factors constant. We include variables on family income, self-reported health status, mental health status, age, race/ethnicity, sex, family characteristics and geographic indicators **Appendix Table 1**. We exclude from these analyses variables that might possibly reflect the endogenous employment or health plan choices of individuals, such as the number of plans, HMO enrollment and group size.

The dependent variables are out-of-pocket expenses for both current mental health coverage and parity coverage for each of the four scenarios. Because these expenses are bounded between $0 and the total expenditure for a particular scenario, conventional ordinary least squares (OLS) estimation is inappropriate—it fails to account for the qualitative difference between continuous observations and the limit observations at $0 or at the total expenditures. We estimate instead the two-limit variant of the Tobit model (or censored regression model), which is widely used to account for censoring that occurs at limit observations. The Tobit model assumes an underlying (latent) relationship between the dependent and independent variables and a truncated normal distribution (because of the limits).[17] Unlike OLS, the coefficient estimates from Tobit regressions are not directly interpretable as representing the dollar change in out-of-pocket expense, because of censoring. For ease of interpretation, we therefore report marginal effects for (or the change in) out-of-pocket expenses in the results section using the truncated normal distribution to transform the Tobit coefficient estimates (full Tobit regression results reported in **Appendix Table 2**).

Because of the well known sensitivity of the Tobit model

to non-normality and heteroskedasticity (both of which are evident in our data), we also estimated the more robust median-based censored least absolute deviations (CLAD) model of Powell.[18–20] Just as the Tobit model accounts for censoring in mean regressions (OLS), the CLAD model accounts for the censoring in median regression (or other quantile) models. The CLAD estimator reduced immediately to simple median regressions in each case because of the minimal censoring in our data, especially in relation to the median. These median regression results are presented in **Appendix Table 3**. Coefficient estimates are interpreted in exactly the same way as estimates from an OLS mean regression model except that they represent the change in the median instead of the mean of the dependent variable. Because of the qualitative similarity between the median regression and the Tobit regression estimates, we focus our discussion on the much better known Tobit variant of the mean regression model.

Results

Descriptive Analysis

We report the mean out-of-pocket expenditures under current mental health coverage and under parity coverage for each of the four stylized scenarios in the first row of Table 1. We note that these means do not represent actual out-of-pocket expenditures, but rather the mean of the out-of-pocket costs an individual would face under each stylized mental health treatment scenario.

In each of the four scenarios there is a large gap between current and parity coverage. In scenario 1, mean out-of-pocket expenditures are $815 for current mental health coverage versus only $377 with parity coverage, reflecting the higher deductibles and copayments that often apply to mental health treatments. Moving to scenarios 2–4, the parity gap widens substantially, with out-of-pocket expenditures under parity coverage rising only slightly, whereas out-of-pocket expenditures rise far more rapidly under current coverage. Indeed, in scenario 3 out-of-pocket expenditures under parity coverage are only 4% of total expenditures, versus 34% under current coverage. The fact that the parity gap widens as expenditures rise reflects not only differences in deductibles and copayment rates between mental health and physical health coverage, but also the fact that current plans often cap both the number of outpatient mental health visits and the number of inpatient mental health days that are covered by insurance. In addition, expenditures on mental health services are generally not subject to the limits on out-of-pocket expenses that exist in many plans.

Plan Type Differences

The second section of **Table 1** examines the impact of HMO versus non-HMO coverage on parity gaps in each of the four scenarios. For all but the most catastrophic expenditures (scenario 4), HMOs provide more generous insurance benefits for both mental health coverage and physical health coverage (parity). For example, in scenario 2 (total cost $10 950), out-of-pocket costs under current mental health benefits are $3259 on average for HMO plans compared to $4259 for non-HMO plans. Under parity, out-of-pocket costs for the same scenario are $286 for HMO plans versus $1173 for non-HMO plans.

Group Size

The third section of **Table 1** presents mean out-of-pocket expenditures under current and parity coverage by group size. In general, the generosity of both current and parity coverage increases with group size, with non-group coverage having lower generosity than even that of the smallest groups. The fact that larger firms provide more generous

Table 1. Mean out-of-pocket costs (in 1995 dollars) by coverage characteristics: current versus parity mental health coverage

Plan type	Population (000s)	Scenario 1 $2000		Scenario 2 $10 950		Scenario 3 $35 000		Scenario 4 $60 000	
		Current coverage	Parity coverage	Current coverage	Parity coverage	Current coverage	Parity coverage	Current coverage	Parity coverage
Total	139 983	815	377	3892	866	11 831	1470	26 655	1795
Type of coverage									
HMO	52 372	479	114	3259	286	10 104	515	27 826	488
Non-HMO*	83 290	1017	529	4258	1173	12 917	1881	25 848	2335
Group size									
Non-group coverage	13 529	1123	538	4839	1469	13 830	3059	28 874	4391
Group coverage	126 453	782	359	3791	802	11 617	1300	26 418	1517
size <10	11 438	896	449	4348	963	13 183	1532	28 301	1868
size 10–24	12 727	903	440	4059	998	12 322	1573	26 583	1854
size 25–99	23 785	794	362	3992	836	12 702	1402	28 227	1730
size 100–499	31 704	752	325	3671	704	11 426	1084	26 118	1245
size 500+	46 743	735	338	3559	757	10 620	1261	25 194	1413
Number of plans									
Single plan	123 383	861	398	4129	932	12 573	1592	28 367	1958
Multiple plans	16 600	473	219	2131	375	6 314	557	13 929	576

*Excludes a small number of non-comprehensive plans.
Source: BENSIM calculations using aged NMES data.

insurance coverage may not seem surprising at first since economic theory tells us that the larger the risk pool, the easier it is to offer more generous coverage and spread the risk. In addition, it is often believed that some of the effect of group size is also due to the fact that large employers are associated with higher wage workers.[21] These results continue to hold, however, even when we control for income, industry, age, race, sex, health status and region using a regression-based approach.

Our results also show that the relative generosity of benefits in large firms is greater with respect to mental health benefits than with respect to physical health benefits. One possible explanation may be that large risk pools are also better able to offer supplemental benefits such as dental care, prescription drugs and mental health care, given that such benefits may be subject to more risk selection than more standard benefits. The relative generosity of mental health benefits in large firms may also reflect the greater impact in those firms of collective bargaining. Still another explanation may simply be that workers in larger firms have stronger preferences for mental health benefits relative to other workers.

Number of Plans

Twelve percent of privately insured persons in 1995 are covered by more than one private insurance plan. As a household based survey, NMES is one of the only data sources that allow us to examine the impact of being covered by multiple plans on out-of-pocket expenditures under current versus parity coverage. Using standard coordination of benefit rules, we find that individuals with multiple sources of coverage pay substantially less out of pocket for mental health treatment episodes under each of our scenarios. In scenarios 1 and 2, individuals with multiple plans have out-of-pocket expenditures under current coverage that are $388 and $1998 lower, respectively, than individuals with only one plan. In the catastrophic scenarios 3 and 4, those with double coverage pay $6259 and $14 438 less out of pocket under their current coverage, respectively, than those covered by only one plan. Those with multiple plans also have lower out-of-pocket expenses with their physical health benefits (parity coverage); however, the differences are less pronounced.

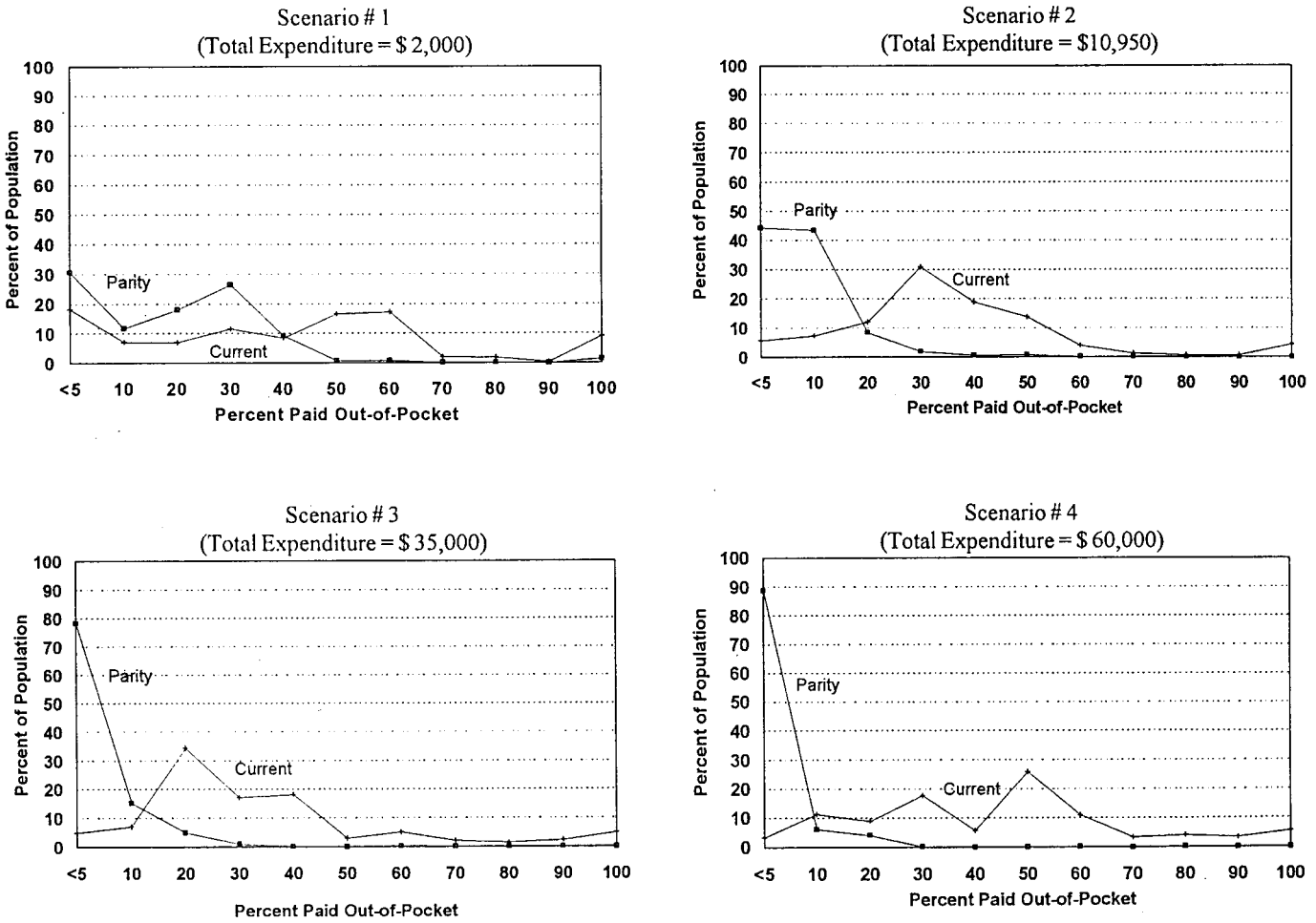

Figure 1. Distribution of out-of-pocket expenditures

Table 2. Tobit results: marginal effects of age, race, sex, family income and health on out-of-pocket expenditures (in 1995 dollars)

Variable	Scenario 1 ($2000)		Scenario 2 ($10 950)		Scenario 3 ($35 000)		Scenario 4 ($60 000)	
	Current	Parity	Current	Parity	Current	Parity	Current	Parity
age 0–4	45*	15	238**	39	1061**	49	2342**	53
	(27)	(18)	(103)	(45)	(352)	(100)	(638)	(152)
age 5–12	−9	−22*	31	−52	80	−123*	728	−149
	(20)	(13)	(74)	(33)	(252)	(72)	(457)	(110)
age 13–17	8	−15	47	−11	22	1	666	0
	(22)	(15)	(84)	(38)	(290)	(82)	(522)	(125)
age 18–24	15	9	180**	60*	534**	173**	418	326**
	(21)	(13)	(77)	(34)	(264)	(74)	(478)	(113)
age 25–34	−22	−7	58	0	368	7	1351**	5
	(18)	(13)	(70)	(32)	(243)	(70)	(434)	(105)
age 35–44	−21	−3	−23	21	−41	53	−104	90
	(17)	(11)	(63)	(28)	(214)	(61)	(389)	(92)
age 55–64	75**	79**	254**	196**	346	369**	59	546**
	(21)	(14)	(80)	(35)	(272)	(76)	(492)	(115)
Hispanic	−27	−39**	−98	−94**	−712**	−138*	−752	−152
	(20)	(14)	(76)	(34)	(262)	(75)	(471)	(113)
black	−149**	−113**	−378**	−271**	−993**	−484**	−1157**	−623**
	(17)	(11)	(65)	(29)	(221)	(64)	(399)	(98)
male	−6	8	14	10	39	−6	182	−16
	(10)	(7)	(38)	(17)	(132)	(38)	(236)	(57)
family income <125%	207**	144**	492**	416**	1283**	882**	2838**	1272**
poverty level	(21)	(15)	(78)	(33)	(264)	(72)	(481)	(110)
family income 125–200%	52**	33**	396**	123**	1221**	314**	2892**	519**
poverty level	(16)	(11)	(61)	(26)	(208)	(58)	(377)	(89)
family income 200–400%	49**	46**	295**	109**	1026**	206**	2358**	286**
poverty level	(11)	(7)	(42)	(18)	(141)	(39)	(255)	(60)
good self-reported health	−49**	−13	−173**	−43	−481**	−79*	247	−123*
status	(11)	(8)	(43)	(19)	(147)	(42)	(265)	(64)
fair self-reported health	−42**	−17	−165**	−53	−49	−107	793	−155
status	(20)	(14)	(79)	(36)	(274)	(78)	(492)	(118)
poor self-reported health	−35	−45	−381	−145	−1852**	−276	−2637**	−412
status	(58)	(41)	(226)	(103)	(782)	(224)	(1408)	(338)
mental health index-	−13	12	−25	39	−208	80	−204	80
upper 20 percentile	(28)	(18)	(105)	(46)	(358)	(101)	(649)	(101)
log likelihood	−108 694	−96 285	−147 987	−111 151	−168 941	−122 196	−181 792	−128 205
Pseudo-R^2	0.0033	0.0048	0.0014	0.0040	0.0011	0.0028	0.0011	0.0024

Notes: $^{**}p<0.05$, $^{*}p<0.10$. Standard errors corresponding to the marginal effects are shown in parentheses. Other explanatory variables include marital status, family size, geographic indicators, indicators for missing health and mental health status and a constant term. Full Tobit regression results (coefficient estimates) are presented in **Appendix Table 2**.

Distribution of Out of Pocket Expenditures

Our data allow us to examine the full distribution of benefits across the privately insured US population. **Figure 1** graphs the distribution of the percent paid out of pocket under full parity and under current mental health coverage for each of the four scenarios. Clearly, coverage for mental health treatment varies widely, and the means reported in **Table 1** can obscure important differences in the distribution of out-of-pocket expenditures under full parity and under current mental health coverage. For instance, under scenario 3 with current mental health benefits, a large fraction of the population (about 40%) pays around 20% of the total cost of $35 000 out of their own pockets, and there are large numbers of people paying 30% or more out of their own pockets. The variation in out-of-pocket expenditures is even greater in scenario 4, because many people exceed plan maximums on inpatient stays and/or total benefits.

The distribution of out-of-pocket expenditures under mandated parity is much narrower than under current coverage. In scenario 3, almost 80% of the population would pay less than 5% out-of-pocket and very few persons would pay more than 30% out-of-pocket. The variation is even smaller in the more catastrophic scenario 4, where almost 90% of the population would pay less than 5% out of pocket under parity. However, the graphs reveal that even under full parity some individuals would face the risk of substantial out-of-pocket expense for catastrophic mental health episodes, because their physical health benefits are also meager.

Regression Analysis

We use multivariate regression analyses to examine how insurance generosity varies across individuals by demographic and socioeconomic characteristics. Estimation results from the Tobit regression models described in the method-

ology section are presented in **Table .2** Estimates of out-of-pocket expenditures under current coverage and parity coverage for scenario 1 are presented in columns 1 and 2. Results for scenarios 2–4 are similarly presented in columns 3–8. As discussed in the methodology section, we report marginal effects (or the change in out-of-pocket expense) in dollars, instead of the Tobit coefficient estimates, for ease of interpretation. A positive (negative) marginal effect estimate indicates that the variable is associated with an increase (decrease) in out-of-pocket expenditures, or less (more) generous health insurance coverage.

Income Differences

Table 2 highlights the differences in insurance generosity across income groups. In all four scenarios, those with family income below 400% of the poverty line tend to pay more out of pocket under both current and parity coverage compared to high income groups (above 400% of poverty). For example in scenario 3 ($35 000), under current mental health coverage those with family incomes under 125% of the poverty line and those with 125–200 and 200–400% of the poverty line pay $1283, $1221 and $1026 more out of pocket, respectively, than the highest income group. Under parity coverage, out-of-pocket costs are also linked to income. However, note that in scenarios 2–4 the income differentials under parity coverage are smaller in magnitude than those under current coverage. These results suggest that the gap between current and parity coverage is larger at lower- than at upper-income levels (at least with respect to the coverage of relatively catastrophic mental health episodes).

Mental Health Status

Our multivariate analyses include a measure of self-reported mental health status constructed from the standard five-item mental health scale used in the Medical Outcomes Studies, and included in the Short Form 36 (SF-36) Health Status questionnaire.[22] This five-item scale is modified slightly for self-administration to parents about their children's mental health status. We used the scale to create a single dummy variable that is equal to one if the person's mental health status score was in the upper 20th percentile (higher scores indicate worse mental health status).

We find no meaningful or statistically significant differences in insurance generosity for those with poor mental health status (upper 20th percentile) compared to others under both current mental health coverage and parity coverage. The insignificant differences in current mental health benefit generosity across mental health status are surprising given the great variation in generosity and the potential for adverse selection (persons with higher expected mental health treatment use selecting more generous plans). Previous studies have found strong evidence of selection among groups who have a choice of private plans, such as US government employees.[23,24] However, the majority of workers do not have a choice of health insurance plans through their employers (who are by far the largest source of private insurance for the under 65 population in the United States).[25] Any selection that occurs for these workers who are offered only one plan through their employer is through the labor market (among employers with different compensation packages, including mental health benefits). Thus, opportunities for self-selection may be limited for much of the population. This may explain the mixed evidence of selection found in other studies.[26–29] Another likely explanation is that our measure of self-reported mental health status may not adequately differentiate those with high expected mental health treatment use.

General Health Status

We include measures of self-reported health status (good, fair and poor, with excellent being the omitted category) in our multivariate analyses. In general, those with excellent health status tend to face higher out-of-pocket expenses than those with greater health risks, especially under current coverage. Many, but not all, of the coefficient estimates under current coverage are significantly different from zero. Moreover, using a likelihood ratio test, we reject for all current coverage scenarios the hypothesis that the differences across health status are jointly equal to zero. One possible explanation is that those with greater health risks tend to self-select into plans with more generous coverage (and that the greater coverage generosity extends to mental health coverage, as well).

Demographic Characteristics

We find no significant difference between men and women in their current mental health coverage and for their coverage for physical illnesses (parity). Also, we do not find strong patterns with respect to age, although young adults aged 18–24 and young children aged 0–4, as well as those aged 55–64, tend to have less generous coverage than the reference group (persons aged 45–54).

Blacks and Hispanics who are privately insured have better mental health coverage relative to whites and other groups after controlling for such factors as age and income. For example, in scenario 3 blacks and Hispanics would face $993 and $712, respectively, less in out of pocket expenditures than whites and others (the omitted category). This same pattern holds true for the other two scenarios and for parity coverage (although the magnitudes of the effects are correspondingly smaller and not always statistically significant).

Discussion

The simulations of hypothetical mental health treatment episodes presented in this paper highlight how much more generous private insurance coverage for physical illness is compared to coverage for mental illness. For catastrophic episodes, individuals face out of pocket costs equal to 30% or more (on average) of total treatment costs under current mental health benefits, but less than 5% under physical health benefits (parity). Even for non-catastrophic events, the out-of-pocket expenses for individuals are at least two to three times higher under their mental health benefits than they would be under their physical benefits.

The large difference we find in generosity between

physical and mental health benefits is not surprising and is a driving force in the push for full mental health parity. Exploiting our unique database we are also able to describe the distribution of mental health benefits across the privately insured population. Short and Banthin[4] have previously described the distribution of physical health benefits in the privately insured population and shown that coverage varies by many factors, leaving many persons underinsured in the event of a catastrophic illness. Our findings show that even greater variation exists in the coverage of individuals for mental health services than exists in the coverage for physical health services. This variation makes it impossible to define 'typical' mental health coverage for the privately insured population.

The most notable source of variation in insurance generosity is group size. Persons covered by *non-group* policies would face larger out-of-pocket burdens in all of the scenarios than persons with group coverage (regardless of group size). Persons in small employer groups (less than 100) would pay as much as two or three thousand dollars more out of pocket for our hypothetical catastrophic mental health episodes compared to those in large employer groups under existing mental health coverage. For physical health coverage, the differences are much smaller (though significant) across employer group size. One explanation may be that the risk pooling advantages of large groups are relatively more important for mental health benefits compared to physical health benefits.

Unlike many other sources of insurance coverage data, NMES allows us to examine cases in which individuals are covered by more than one plan. Our results suggest that double coverage is particularly important in reducing the risk of out-of-pocket expense for catastrophic mental illness under existing mental health coverage (by thousands of dollars relative to those with single coverage). Under full benefit parity, the effect of double coverage in reducing the risk of out-of-pocket expense is much smaller.

Our results show that full benefit parity would represent a substantial increase in coverage generosity for much of our sample of privately insured individuals. Based on results from the RAND Health Insurance Experiment we would expect to see a significant demand response to more generous insurance coverage among the large number of consumers whose mental health benefits are still relatively unmanaged. Moreover, the wide variation in parity gaps that we observe suggests that the impact would not be uniform across this population. Recent evidence suggests that the demand response among consumers would be substantially reduced in plans with managed mental health benefits, particularly where the benefits are carved out.[2,3] The extent of the reduction in demand response, or alternatively, the increase in utilization, would likely vary with the extent of managed care controls.

Even if increased coverage generosity does not translate into greater utilization, the result would nevertheless be higher costs for payers, as they would pay a greater share of the cost of treatment. Mandating mental health parity would increase premiums to the extent that private insurer costs are passed along to employers and consumers. It might also have the effect of causing some employers or individuals to reduce or drop their coverage of physical health treatment. Moreover, by shifting more of the cost of treatment onto payers, mandating parity is likely to increase incentives for managed care providers to tighten utilization controls and for fee-for-service insurers to adopt managed care practices—potentially more than offsetting any increase in demand.

Finally, in addition to our concerns about access, our results suggest that simply legislating parity may not be sufficient to protect individuals against catastrophic out-of-pocket expenditures in the event they receive large amounts of mental health care. This is because many individuals are underinsured (or completely uninsured) with respect to their physical health benefits. For all of these reasons, we conclude that mandating the parity of mental health insurance benefits must be but one part of any policy to improve access to mental health services and to reduce the financial risks associated with such care.

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Appendix

Appendix Table 1. Sample Means

Variable	Mean	Variable	Mean
1 plan only (omitted)	0.88	Health and mental health status	
>1 plan	0.12	excellent self-reported health (omitted)	0.36
non-group coverage	0.10	good self-reported health	0.44
establishment size <10	0.08	fair self-reported health	0.08
establishment size 10–24	0.09	poor self-reported health	0.01
establishment size 24–99	0.17	self-reported health missing	0.11
establishment size 100–499	0.23	mental health index—upper 20 percentile	0.16
establishment size 500+ (omitted)	0.33	mental health index—lower 80 percentile (ommitted)	0.64
Personal characteristics		mental health index missing	0.20
age 0–4	0.07	Family characteristics	
age 5–12	0.13	family size	3.47
age 13–17	0.08	income <100% poverty level	0.05
age 18–24	0.10	income 100–125% poverty level	0.02
age 25–34	0.18	income 125–200% poverty level	0.12
age 35–44	0.20	income 200–400% poverty level	0.38
age 45–54 (omitted)	0.16	income >400% poverty level (omitted)	0.43
age 55–64	0.08	Marital status of family head	
Hispanic	0.07	married	0.73
black	0.09	widowed or divorced	0.14
white (omitted)	0.84	never married (omitted)	0.13
female (omitted)	0.49	Geographic location in US	
male	0.51	north (omitted)	0.21
Population size of location		midwest	0.27
SMSA 19 largest	0.30	south	0.30
SMSA others	0.50	west	0.22
Non-SMSA	0.20		

Appendix Table 2. Out-of-pocket expenditures Tobit regression results (coefficient estimates)

Variable	Scenario 1 ($2000)		Scenario 2 ($10 950)		Scenario 3 ($35 000)		Scenario 4 ($60 000)	
	Current	Parity	Current	Parity	Current	Parity	Current	Parity
constant	975.1**	440.2*	4192.2**	946.9**	12352.6**	1469.2**	23335.2**	1678.7**
	(33.1)	(20.9)	(105.4)	(56.2)	(371.8)	(140.8)	(673.4)	(234.1)
age 0–4	55.0*	18.2	249.9**	50.3	1154.2**	84.3	2539.7**	108.1
	(33.3)	(21.1)	(106.1)	(56.6)	(374.2)	(134.6)	(677.6)	(223.1)
age 5–12	−11.1	−26.9*	32.8	−66.6	87.0	−181.5*	789.9	−238.7
	(23.9)	(15.2)	(76.3)	(40.8)	(269.0)	(103.5)	(487.0)	(172.2)
age 13–17	10.0	−18.0	49.0	−13.6	24.3	2.1	722.6	0.4
	(26.9)	(17.1)	(85.8)	(45.9)	(302.7)	(116.5)	(547.8)	(193.9)
age 18–24	18.7	11.3	189.1**	78.1*	580.8**	256.4**	452.9	523.3**
	(25.2)	(15.9)	(80.3)	(42.7)	(283.0)	(105.8)	(512.4)	(175.7)
age 25–34	−26.5	−9.1	61.0	−0.3	400.6*	7.8	1464.9**	3.7
	(21.3)	(13.5)	(68.0)	(36.4)	(239.8)	(91.2)	(434.1)	(151.7)
age 35–44	−25.4	−4.0	−23.7	26.9	−44.5	81.3	−112.3	151.0
	(20.4)	(13.0)	(65.2)	(34.9)	(229.7)	(87.6)	(415.8)	(145.7)
age 55–64	91.7**	96.3**	266.4**	253.4**	376.3	545.1**	64.0	875.2**
	(25.7)	(16.3)	(82.2)	(43.6)	(289.8)	(110.6)	(524.3)	(183.9)
Hispanic	−32.8	−47.8**	−102.3	−121.4**	−774.1**	−209.2**	−815.0*	−253.2
	(24.2)	(15.4)	(77.4)	(41.5)	(273.1)	(104.7)	(493.8)	(174.2)
black	−183.3**	−137.4**	−396.3**	−351.2**	−1080.8**	−721.4**	−1254.8**	−1010.5**
	(21.1)	(13.6)	(67.1)	(36.5)	(236.7)	(92.3)	(428.0)	(153.6)
male	−7.6	10.2	15.2	13.0	42.4	−10.2	197.8	−28.2
	(11.8)	(7.5)	(37.8)	(20.1)	(133.2)	(50.3)	(241.1)	(83.6)
family income < 125%	254.4**	174.4**	516.4**	538.8**	1395.6**	1318.8**	3077.0**	2072.1**
poverty level	(25.5)	(16.0)	(81.5)	(42.9)	(287.7)	(100.1)	(521.2)	(165.6)
family income 125–200%	63.3**	39.8*	414.9**	158.5**	1327.9**	462.0**	3136.1**	826.8**
poverty level	(20.1)	(12.8)	(64.1)	(34.2)	(226.1)	(86.6)	(409.1)	(143.9)
family income 200–400%	60.3**	55.9**	308.8**	140.3**	1115.6**	303.2**	2556.4**	454.7**
poverty level	(13.6)	(8.6)	(43.3)	(23.1)	(152.7)	(58.4)	(276.5)	(97.1)
good self-reported health	−60.5**	−15.9*	−181.1**	−55.4**	−522.5**	−116.1**	268.0	−195.6*
status	(13.8)	(8.7)	(44.0)	(23.5)	(155.1)	(59.2)	(280.7)	(98.4)
fair self-reported	−51.9**	−20.1	−172.6**	−68.7	−53.1	−161.3	859.5*	−254.0
health status	(25.0)	(15.8)	(79.6)	(42.4)	(280.7)	(107.4)	(507.9)	(178.6)
poor self-reported health	−43.0	−54.3	−399.3*	−188.3	−2014.2**	−412.7	−2859.9**	−670.9
status	(70.9)	(45.3)	(227.1)	(121.8)	(800.8)	(308.9)	(1451.1)	(514.3)
self-reported health	−27.6	27.4	−87.9	80.1	−72.6	121.2	176.9	154.9
missing	(29.1)	(18.4)	(92.5)	(49.4)	(326.4)	(115.3)	(591.0)	(190.7)
mental health index—upper	−15.4	15.0	−26.4	50.4*	−226.2	125.5*	−221.7	225.3*
20 percentile	(17.1)	(10.8)	(54.5)	(29.0)	(192.2)	(71.1)	(348.0)	(118.0)
mental health index	−32.7	−23.3	−7.4	−42.3	−66.8	−66.5	147.3	−75.4
missing	(26.3)	(16.7)	(83.7)	(44.7)	(295.2)	(105.6)	(534.5)	(174.7)
famsize	1.8	6.6**	0.2	11.2	−57.7	22.5	173.5*	10.4
	(4.7)	(2.9)	(14.9)	(7.9)	(52.4)	(20.0)	(94.8)	(33.2)
married	−20.2	−72.7**	−258.9**	−197.4**	−948.0**	−435.5**	−1038.9**	−672.9**
	(20.8)	(13.1)	(66.1)	(35.1)	(233.2)	(85.0)	(422.4)	(141.0)
widowed or divorced	−0.1	−91.1**	−158.4**	−209.2**	−155.2	−417.3**	523.8	−680.5**
	(24.0)	(15.2)	(76.4)	(40.7)	(269.4)	(99.8)	(488.0)	(165.9)
midwest	−94.0**	−75.2**	−254.5**	−142.5**	40.0	−303.6**	−82.8	−363.2**
	(17.5)	(11.1)	(55.5)	(29.8)	(195.9)	(75.6)	(354.4)	(125.9)
south	118.7**	79.6**	335.1**	269.9**	1505.3**	549.5**	2598.7**	933.0**
	(17.2)	(10.8)	(54.7)	(29.0)	(193.1)	(72.9)	(349.6)	(121.3)
west	−102.5**	−79.1**	90.6	−130.6**	951.6**	−355.8**	1848.8**	−476.3**
	(18.5)	(11.7)	(58.7)	(31.5)	(207.0)	(79.1)	(374.4)	(131.6)
SMSA 19 largest	−227.5**	−153.8**	−416.4**	−390.1**	−1467.5**	−832.6**	−371.9	−1350.3**
	(17.6)	(11.1)	(56.3)	(29.8)	(198.4)	(75.2)	(359.3)	(125.0)
SMSA others	−193.6**	−133.4*	−310.3**	−303.3**	−687.0**	−585.6**	418.8	−953.3**
	(15.9)	(10.0)	(50.9)	(26.8)	(179.4)	(67.7)	(324.9)	(112.4)
σ	753.5**	470.2**	2450.1**	1261.1**	8641.5**	3178.3**	15665.9**	5267.1**
	(5.1)	(3.3)	(14.2)	(8.4)	(49.6)	(11.6)	(88.4)	(18.2)
log-likelihood	−108 694	−96 285	−147 987	−111 151	−168 941	−122 196	−181 792	−128 205
Pseudo-R^2	0.0033	0.0048	0.0014	0.0040	0.0011	0.0028	0.0011	0.0024
N	17 258	17 258	17 258	17 258	17 258	17 258	17 258	17 258
number of censored observations—lower	319	2649	142	2652	1867	2913	401	2649
number of censored observations—upper	799	4	799	4	1504	205	799	4

**$p<0.05$, *$p<0.10$. Standard errors in parentheses.

Appendix Table 3. Out-of-pocket expenditures median regression results

Variable	Scenario 1 ($2000)		Scenario 2 ($10 950)		Scenario 3 ($35 000)		Scenario 4 ($60 000)	
	Current	Parity	Current	Parity	Current	Parity	Current	Parity
constant	1068.2**	495.9**	4143.7**	820.6**	10109.5**	909.0**	21455.1**	898.4**
	(51.4)	(26.4)	(101.8)	(59.5)	(408.5)	(59.2)	(955.3)	(51.9)
age 0–4	106.2**	6.5	76.7	11.3	1052.1**	34.9	2750.9**	31.6
	(49.1)	(25.3)	(97.1)	(56.8)	(390.7)	(56.7)	(910.9)	(49.5)
age 5–12	41.0	−2.3	−34.5	−35.6	516.9*	−18.9	1958.5**	−11.7
	(36.8)	(19.0)	(72.7)	(42.3)	(292.1)	(42.3)	(682.9)	(37.1)
age 13–17	16.6	0.0	−45.2	10.5	−42.9	39.2	1774.3**	35.9
	(41.6)	(21.3)	(82.3)	(48.1)	(328.7)	(47.9)	(771.6)	(42.0)
age 18–24	−4.8	1.6	29.3	22.3	413.0	63.1	565.2	61.8
	(38.9)	(20.0)	(76.6)	(44.9)	(308.9)	(44.6)	(721.7)	(39.2)
age 25–34	−19.9	−11.4	−71.3	−4.1	273.8	53.6	2352.9**	42.0
	(33.6)	(17.3)	(66.4)	(38.8)	(267.0)	(38.6)	(623.5)	(33.9)
age 35–44	−3.7	−2.8	−94.5	0.0	69.7	23.7	185.1	23.0
	(32.3)	(16.6)	(63.7)	(37.3)	(256.3)	(37.2)	(599.6)	(32.6)
age 55–64	133.6**	81.2**	260.6**	207.8**	1054.2**	188.9**	−529.1	214.6**
	(36.7)	(18.8)	(72.5)	(42.3)	(291.2)	(42.2)	(676.3)	(37.0)
Hispanic	−69.5**	−47.5**	52.4	−76.8**	−253.8	−76.3**	691.6	−67.8**
	(32.5)	(16.9)	(64.4)	(37.8)	(260.2)	(37.8)	(607.0)	(33.1)
black	−206.4**	−114.3**	−321.1**	−223.8**	−858.0**	−264.5**	−531.4	−256.7**
	(25.1)	(12.9)	(49.5)	(29.0)	(199.8)	(29.0)	(464.9)	(25.3)
male	23.8	9.7	17.5	3.7	195.9	12.1	331.3	12.4
	(17.7)	(9.1)	(35.0)	(20.5)	(141.0)	(20.4)	(328.6)	(17.9)
family income < 125%	187.3**	139.1**	339.4**	339.8**	1242.2**	528.6**	3787.8**	584.1**
poverty level	(40.2)	(20.7)	(79.7)	(45.7)	(320.1)	(46.1)	(743.5)	(40.5)
family income 125–200%	7.3	49.3**	187.9**	155.4**	1329.9**	71.6**	2970.5**	94.4**
poverty level	(31.1)	(16.1)	(61.6)	(36.0)	(247.8)	(35.9)	(578.4)	(31.4)
family income 200–400%	40.2**	47.5**	141.9**	85.6**	926.0**	70.2**	3907.5**	105.1**
poverty level	(19.8)	(10.2)	(39.2)	(22.9)	(157.5)	(22.8)	(367.2)	(20.0)
good self-reported health	−84.6**	−9.7	−146.9**	−25.0	−513.6**	−36.2	940.1**	−35.8*
status	(20.6)	(10.6)	(40.8)	(23.8)	(164.0)	(23.8)	(382.2)	(20.8)
fair self-reported	−58.7*	−6.2	−129.2*	−64.4	−59.5	−82.4**	1193.7*	−77.6**
health status	(34.7)	(17.9)	(68.7)	(40.1)	(275.3)	(40.1)	(645.1)	(35.0)
poor self-reported health	−66.3	−106.2**	−2.1	−212.3*	−752.5	−193.6	−260.1	−234.4**
status	(103.0)	(53.1)	(202.4)	(118.9)	(721.6)	(118.5)	(1913.7)	(92.5)
self-reported health	27.4	21.6	103.5	36.6	−33.6	17.5	574.1	35.9
missing	(41.3)	(21.2)	(81.4)	(47.7)	(327.9)	(47.6)	(764.8)	(41.6)
mental health index—upper	−20.8	13.6	−37.2	−15.8	−64.5	1.6	−505.0	−10.1
20 percentile	(25.6)	(13.2)	(50.5)	(29.5)	(202.4)	(29.3)	(473.8)	(25.7)
mental health index	−44.6	−7.0	−67.6	−37.5	71.8	−26.7	542.1	−44.4
missing	(38.1)	(19.5)	(75.2)	(44.1)	(303.0)	(44.0)	(706.8)	(38.5)
famsize	4.5	−1.1	−12.6	10.6	−48.3	25.7**	240.0*	23.2**
	(7.0)	(3.5)	(13.7)	(8.0)	(55.2)	(8.0)	(129.3)	(7.0)
married	−62.3**	−65.1**	−268.5**	−167.4**	−1064.7**	−188.6**	−173.6	−194.9**
	(31.3)	(16.2)	(62.3)	(36.4)	(250.5)	(36.2)	(584.0)	(31.9)
widowed or divorced	−66.4*	−106.1**	−224.0**	−166.1**	−667.0**	−134.6**	1419.2**	−154.0**
	(37.7)	(19.5)	(74.7)	(43.8)	(300.9)	(43.6)	(700.4)	(38.1)
midwest	−130.4**	−19.0	28.3	−55.9*	1065.7**	−106.7**	436.0	−97.5**
	(25.3)	(13.0)	(50.0)	(29.1)	(200.6)	(29.1)	(469.5)	(25.5)
south	127.0**	85.5**	321.3**	197.5**	1573.6**	248.6**	2688.5**	231.6**
	(25.8)	(13.3)	(51.2)	(29.8)	(205.5)	(29.8)	(480.1)	(26.1)
west	−84.8**	−33.6**	130.0**	−67.0**	451.6**	−54.6*	930.4*	−77.9**
	(27.0)	(13.9)	(53.3)	(31.0)	(213.9)	(31.0)	(500.0)	(27.2)
SMSA 19 largest	−228.9**	−167.8**	−511.4**	−223.4**	−1582.5**	−225.9**	125.8	−231.9**
	(24.9)	(12.8)	(49.1)	(28.7)	(197.6)	(28.6)	(460.4)	(25.1)
SMSA others	−208.2**	−134.3**	−442.8**	−173.1**	−1230.5**	−177.4**	457.4	−170.6**
	(21.7)	(11.2)	(43.0)	(25.1)	(172.9)	(25.0)	(403.1)	(21.9)
Pseudo-R^2	0.0336	0.0425	0.0160	0.0250	0.0211	0.0149	0.0140	0.0116
Median	800	340	3600	648	9409	811	30 200	800
N	17 258	17 258	17 258	17 258	17 258	17 258	17 258	17 258
number of censored observations—lower	319	2649	142	2652	1867	2913	401	2649
number of censored observations—upper	799	4	799	4	1504	205	799	4

**$p<0.05$, *$p<0.10$ Standard errors in parentheses.