

The Effect of Increases in Health Insurance Premiums on Labor Market Outcomes

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Executive Summary

In the United States, two-thirds of the non-elderly population is covered by employer-provided health insurance. The cost of this insurance has increased by more than 59 percent since 2000, with no accompanying increase in the scale or scope of benefits. These increases in health insurance premiums may have significant effects on both health insurance markets and labor markets, including changes in the number of jobs, hours worked per employee, wages, and compensation packages. The increase in premiums could increase unemployment and uninsurance, as employers face a choice between discontinuing health insurance benefits or employing fewer workers as benefit costs rise.

Understanding how labor markets adjust to increased health insurance costs is of growing policy importance. Proposals to cover the uninsured often rely on “employer mandates” that would require employers to cover eligible workers. The effects of such proposals on employment, wages, and health insurance coverage will be driven by the characteristics of labor supply and demand, institutional constraints on wages and compensation packages, and how much workers value the increase in health insurance costs, and must thus be estimated empirically.

Measuring the effect of increases in health insurance costs on labor markets is an inherently difficult problem, however, both because of data constraints and because many unobserved factors may affect both employment and insurance coverage. Previous studies have found some ef-

fects of premiums on hours worked and wages, but have not been able to disentangle confounding factors effectively. We use a novel strategy based on the changes in health care costs driven by the recent medical malpractice crisis to uncover the causal effect of increases in the cost of benefits on labor market outcomes.

We find that the cost of increasing health insurance premiums is borne primarily by workers. Workers with health insurance through their employer see a decrease in their wages as health insurance premiums rise, so that they bear the full cost of the premium increase. Some workers, such as those low-wage workers whose wages cannot be lowered, lose their jobs as the cost of benefits increases. Other workers are moved from full-time jobs with benefits to part-time jobs without benefits as the costs of benefits rise, perhaps because non-discrimination clauses prevent firms from discontinuing coverage only for those workers who value it least.

These results have strong implications for policies designed to cover the uninsured. The cost of employer health insurance mandates that raise the cost of employment are likely to be borne by workers through reduced wages. If part-time workers or the employees of small firms are exempt from the mandate, employers are likely to substitute uncovered jobs for covered ones, undermining the net effect of the mandate on insurance rates and distorting labor markets. Rising health insurance costs may thus place an increasing burden on workers, leading to both uninsurance and unemployment.

— Craig Garthwaite
Director of Research

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Introduction

In the United States, two-thirds of the non-elderly population is covered by employer-provided health insurance (EHI).¹ According to a national survey conducted by the Kaiser Family Foundation, the cost of EHI has increased by more than 59 percent since 2000, with no accompanying increase in the scale or scope of benefits.² Figure 1 shows the increase in premiums for the 10 largest states. These increases in health insurance premiums may have significant effects on both health insurance coverage and on labor markets more broadly, including changes in the number of jobs, hours worked per employee, wages, and compensation packages. Simple evidence is consistent with this hypothesis. At the same time that health insurance premiums have risen, insurance coverage has declined: despite strong economic growth in the 1990s, the number of non-elderly uninsured grew by 3 percentage points, to 15.7 percent of the population (Kaiser, 2003). A significant portion of the increase in the uninsured population may be a consequence of employers shedding health insurance benefits as health insurance premiums rose. Recent accounts also suggest that rising health insurance premiums may be responsible for substantial employment declines (Porter, 2004; Reber and Tyson, 2004). The increase in premiums could thus be responsible for both an increase in unemployment and uninsurance, as employers face a choice between shedding health insurance benefits or employing fewer workers as benefit costs rise.

Understanding the effect of rising health insurance costs on labor markets is of growing policy importance. Proposals to cover the

uninsured often rely on “employer mandates” that would require employers to cover eligible workers. For example, California’s Senate Bill 2 (also known as Proposition 72), which was narrowly defeated in November 2004, would have required all employers with more than 20 employees to provide health insurance to their workers (who work more than 100 hours per month).³ Other policy proposals include the provision of tax credits for the purchase of non-group health insurance, differentially changing eligible employees’ valuation of benefits provided by their employer versus wages.

The effects of these proposals on employment, wages, and health insurance coverage will be driven by characteristics of labor supply and demand, institutional constraints on wages and compensation packages, and how much workers value the increase in health insurance costs. Since employers provide such coverage voluntarily, if workers fully value these benefits and are able to sort among firms based on their preferences, then (in the absence of other institutional constraints) employees will bear the cost of the benefit increase in reduced wages, with no accompanying change in employment, employment costs, or employee utility.⁴ There are many reasons to believe, however, that firms are limited in their ability to offset increases in the price of health insurance premiums through lower compensation. Factors such as the minimum wage or IRS non-discriminatory provisions that limit the extent to which employers can differentially offer (tax-free) benefits to their employees may curtail an employer’s ability to reorganize the compensation mix. For these reasons,

increases in the cost of providing health insurance may affect both employment and the structure of work.

Identifying the magnitude of these effects empirically is difficult, however, both because of limited data availability and because of multiple confounders that affect both health insurance and employment decisions. In this report we first review previous studies that explore the causal effects of increases in the cost of benefits on labor market outcomes, and then present estimates from our own research, which exploits an exogenous source of variation in the cost of providing health insurance: the recent “medical malpractice crisis.” As we discuss in more detail below, the dramatic growth of malpractice costs in some states affects both malpractice insurance premiums and the cost of health insurance, but should not affect other aspects of employment. Using this source of variation, we examine the effect of increases in health insurance premiums on employment patterns, earnings, and health insurance coverage. We find that the cost of increases in health insurance premiums is borne in large part by workers, through increased unemployment, decreased wages for those workers with employer health insurance, and decreased hours for those workers moved from full-time jobs with benefits to part-time jobs without benefits. These results have strong implications for the distributional impact of many different health care reform proposals.

Empirical Framework

In theory, changes in the cost of an employment benefit like health insurance that is fully valued by workers should not change employment, but should decrease wages by the cost of the benefit. There are, however, several reasons that this adjustment may not occur. First, an increase in health insurance costs may have a different effect on workers’ valuation of that health insurance than an increase in the quality or quantity of the health care being provided.

Second, workers may not be perfectly sorted among firms, based on their preferences for benefits, and non-discrimination stipulations in the tax code limit the differentiation of benefit packages to full-time workers within the same firm. These non-discrimination constraints create incentives to move workers between “covered” full-time jobs with benefits and “uncovered” part-time jobs without benefits. Third, the ability of firms to reduce wages for lower-skilled workers is restricted by the minimum wage. For these three reasons, increases in the cost of health insurance could affect both total compensation and employment.

We thus need to evaluate the effect of rising health premiums on employment, wages, hours worked, and the composition of employment (the share of jobs that are full-time or part-time) empirically.

Estimation Methodology and Previous Results

As a first estimate of the effect of increases in the cost of health insurance on several different labor market outcomes, one might begin by running ordinary least squares (OLS) regressions:

$$Outcome_{ist} = \beta_s + \beta_t + \beta_I Cost\ of\ HI_{ist} + X_{ist}\beta + \varepsilon_{ist}$$

for individual i in state s and year t . X includes a number of economic and demographic controls at the individual and state-year level. (1) thus tells us the effect of increases in (HI) costs on labor market outcomes, such as employment, hours worked, or part-time status, controlling for other characteristics of the worker and the local labor market.⁵

Estimating these effects using this methodology poses several conceptual and practical problems. Most data sets such as the Census and the Current Population Survey do not contain information on the employer costs of health insurance or the generosity of the plan.⁶ Even

when this information is available, researchers may not be able to control adequately for worker characteristics such as ability that might also influence outcomes.⁷ Despite these difficulties, Cutler and Madrian (1998) estimate a similar equation, and conclude that rising health insurance premiums result in increased hours worked per employee. Because data on the cost of individual health insurance premiums (paid by employers or individuals) is not available, they impute health insurance premiums to each respondent based on industry of employment, but they are unable to identify a source of exogenous variation in premiums.⁸

In our analysis, we use per capita medical malpractice payments as an instrument for health insurance premiums to overcome these empirical obstacles. The “medical malpractice crisis” that began at the turn of the 21st century saw a dramatic increase in physician premiums for malpractice insurance. Baicker and Chandra (2005), Chandra, Nundy, and Seabury (2005), and Mello, Studdert, and Brennan (2003) provide an overview of this crisis and its underlying causes and consequences. If the demand for health services is inelastic, then the effect of increasing malpractice payments on malpractice premiums will have little effect on net physician compensation, but will instead be borne by consumers of health care through increases in the price of health care (and, consequently, health insurance premiums).⁹ We thus use increases in malpractice payments¹⁰ as an instrument for health insurance premiums to estimate the following first-stage equation:

$$\text{Cost of HI}_{st} = \gamma_s + \gamma_t + \delta_1 \text{Malpractice Payments}_{st} + X_{st}\Gamma + v_i$$

where observations are at the state-year level and malpractice payments are broken down by the size and number of payments for different specialties. Instrumenting for health insurance premiums removes both the bias

from classical measurement error as well as the bias from omitted variables. This is because the instrument picks up only that part of the (within-state) variation in premiums that is attributable to (within-state) changes in malpractice climate.¹¹ We then include the instrumented premium on the right-hand side of regressions estimating various labor market outcomes, including employment, hours worked, and health insurance coverage:

$$\text{Outcome}_{ist} = \beta_s + \beta_t + \beta_1 \text{Cost of HI}_{ist} + X_{ist}\mathbf{B} + \varepsilon_{ist}$$

This equation can be modified to tell us the differential impact of the cost of health insurance premiums on certain groups of workers by including interaction effects.¹² For example, if we want to know the effect of increases in HI premiums on earnings for workers with employer-provided HI, we can estimate

$$\text{Earnings}_{ist} = \beta_s + \beta_t + \beta_1 \text{Cost of HI}_{ist} + \beta_2 \text{Have EHI}_{ist} + \beta_3 \text{Have EHI}_{ist} * \text{Cost of HI}_{ist} + X_{ist}\mathbf{B} + \varepsilon_{ist}$$

where (3) tells us the differential effect on earnings of increases in HI costs on those workers who actually have EHI, relative to those who do not.

Data

Data for this analysis comes from several different sources and is documented more fully in Baicker and Chandra (2005). Annual state-year-level data on health insurance premiums by type (family or single) and employer size (under 50 or larger) comes from the Medical Expenditure Panel Survey for 1996 to 2001. Labor market outcomes, health insurance coverage, and demographic data are obtained from the March Current Population Survey (CPS) for 1996–2002. We assign health insurance premiums to workers based on their state of residence,

year, family structure, and firm size. Medical malpractice payment information comes from the National Practitioner Data Bank (NPDB), where all malpractice payments made in the United States by or on behalf of a licensed health care provider must be reported. We calculate the size and number of payments resulting from medical treatments, surgical treatments, obstetrical treatment, and other treatments.¹³ All dollar amounts are deflated using the Consumer Price Index. This data is summarized in

Table 1 (and shown in more detail in Appendix Table A1).

Results

We begin with an examination of the effect of increases in health insurance premiums on employment, wages, and hours worked. Table 2 summarizes the results of estimating equation (3) using the instrumental variables technique described above. The full results are shown in Appendix Table A2.

Table 1: Trends in Employment, Health Insurance, and Malpractice			
	All Years	1996–1999	2000–2002
Employer Health Insurance			
Premiums	5,266	4,782	5,959
Probability of Having Any Health Insurance	0.82	0.81	0.82
Probability an Employee has Employment Health Insurance	0.51	0.50	0.51
Probability an Employer Offers Health Insurance	0.93	0.92	0.93
Labor Market Outcomes			
Probability of Being Employed	0.74	0.74	0.73
Hours Worked	32.5	30.0	36.8
Wage and Salary Income (inflation-adjusted)	26,209	25,457	27,285
Probability a Worker Is Employed Part Time	0.16	0.16	0.15
Malpractice Payments			
Dollars Paid per Capita (inflation-adjusted)	12.43	11.61	13.67
Number of Payments per Capita	0.021	0.021	0.021

Table 2: Effect of Premiums on Labor Market Outcomes				
Change Caused by 10 Percent Increase in Premiums in:				
Probability of Being Employed	Hours Worked	Probability of Working Part Time (if employed)	Employee Contribution to Health Insurance Premiums	Employee's Share of Health Insurance Premiums
–1.5	–1.0	1.9	11.3	–0.2

Premium increases have a large effect on employment and hours worked. A 10 percent increase in health insurance premiums leads to a 1.5 percent decline in the probability of being employed and a 1 percent decline in hours worked. While part of the decline in hours worked is due to unemployment, there is also a significant decline in hours worked among the employed. A 10 percent increase in HI premiums leads to a 1.9 percent increase in the probability that a worker will be employed only part time. This is consistent with our expectation that as the cost of providing health insurance benefits increases, firms will substitute part-time workers with limited benefits for full-time workers with benefits. In fact, in our data only 22 percent of part-time workers have employer health insurance, while 64 percent of full-time workers do. These results are consistent with the predictions of a model where workers partially value health benefits or where firms are constrained in their ability to adjust wages. Employment effects are likely to be concentrated among workers whose wages are least able to adjust, such as low-wage workers. We explore this hypothesis in more detail below. It is worth noting that, as shown in Table A2, these

results are much more consistent than the OLS results, which do not use exogenous shocks in health insurance premiums to abstract from the effects of confounders.

As health insurance costs have risen, popular concern has grown over increases in required employee contributions to health insurance premiums. In fact, between 1996 and 2002, employee contributions to health insurance premiums remained relatively stable at just under 20 percent. Our results suggest that while increases in health insurance premiums lead to an increase in the dollar amount contributed by employees, the share that employees and employers each pay remains stable: a 10 percent increase in premiums results in a 10 percent increase in both employer and employee contributions.¹⁴

As previous models and empirical research have suggested, we might expect the earnings of certain groups to be more sensitive to changes in the cost of health insurance.¹⁵ Table 3 summarizes the results of including interaction terms to capture the effect on earnings of increases in HI premiums for different groups, with full results shown in Appendix Table A3.

Table 3:	Effects of Health Insurance Premium Increases on Income of Different Workers
	Percent Change in Wage and Salary Income Caused by a 10 Percent Increase in Health Insurance Premiums
Effect for Average Workers	-1.3
Effect for Workers with Employee Health Insurance	-3.4
Effect for Part-Time Workers	1.0
Effect for Manufacturing Workers	-3.3
Effect for Workers Earning More Than \$3 Above Minimum Wage	-2.9

First, workers with health insurance should see a much bigger offset in their wages than workers without insurance. This is indeed the case: a 3.4 percent reduction in earnings seen by workers with EHI for every 10 percent increase in HI premiums is consistent with a dollar-for-dollar offset (since premiums paid with pre-tax dollars are about 20 percent of wage and salary income for the average earner), implying that covered workers bear the full burden of increases in health insurance premiums. Similarly, part-time workers see an increase in wages when health insurance premiums increase, consistent with workers moving from full-time jobs with benefits to part-time jobs with higher wages instead of benefits. We also expect to see greater declines in earnings for workers in sectors where the demand for labor is particularly elastic, such as manufacturing, and we find that manufacturing workers do indeed see a larger decline in earnings. Last, we see that declines in wages are concentrated among workers whose hourly wages are far enough above the minimum wage in their state that it is unlikely to prevent employers from passing higher health insurance costs on to workers.

These results also suggest that we should see stronger effects of increases in premiums

on employer health insurance coverage and employment patterns among workers whose wages cannot be lowered in response to rising premiums. We find that as health insurance premiums rise, workers who are paid less than \$8/hour (about a quarter of workers) are significantly more likely to work part time when employed and less likely to have health insurance through their employer than higher-paid workers.¹⁷ These results are summarized in Table 4.

As the income results in Table 3 suggest, low-income workers in particular may face a higher probability of losing their health insurance when institutional constraints such as minimum wages make their wages less flexible. More than 15 percent of the workers in our sample reside in states with legislated minimum wages that are higher than the federal minimum wage. Low-income workers in these states are indeed less likely to have employer health insurance as premiums rise: when health insurance premiums go up by 10 percent, workers earning less than \$20,000 per year in higher minimum wage states are 1.3 percentage points less likely to have health insurance through their employers, while their counterparts working in states using the federal minimum wage are only 0.4 percentage point less likely.¹⁸ Furthermore, us-

Table 4: Effects of Health Insurance Premium Increases on Low-Wage Workers		
	Percent Change Caused by a 10 Percent Increase in Health Insurance Premiums	
	In Probability of Working Part Time	In Probability of Having Employee Health Insurance
All Workers	1.9	-0.2
Workers Paid Less Than \$8/Hr	4.1	-0.7

ing the sub-sample of our data for which information on whether or not employers offer health insurance is available, we find that when health insurance premiums rise by 10 percent, hourly workers are 3.8 percentage points less likely to be offered health insurance by their employer.¹⁹ These effects do not, however, seem to be concentrated in workers with low education: including interaction effects for workers with no college education (or high school dropouts) does not suggest that these effects are operating primarily through them.

Our results on wage-shifting are consistent with previous estimates of the effect of mandated maternity benefits in Gruber (1994) and workers' compensation in Gruber and Krueger (1991): for workers with EHI, we observe full shifting of the increased price of health insurance onto wages. In addition, our results provide further evidence that the effects of increasing costs are borne disproportionately by particular groups.²⁰ In contrast to these previous studies, where workers received new or more generous benefits that they might fully value, we find effects on both hours worked and employment, as well as on earnings. Here, the increase in the price of health insurance premiums driven by the medical malpractice crisis did not change the generosity of health benefits. It is therefore unsurprising that workers do not value this increase in costs as highly, and that the labor market responds with both decreased wages and labor demand.

We can use our estimates to study the economy-wide impact of the growth of health insurance premiums. We calculate the effect of rising health insurance premiums on the probability of being employed, employed as a full-time worker, average hours worked, and annual income. A 20 percent increase in health insurance premiums (smaller than the increase seen in many areas in the last three years) would reduce the probability of being employed by 3 percentage points—the equivalent of approximately 4 million workers. A similar number of workers would move from full-time jobs to part time, reducing the average number of hours worked per week by a little less than one hour. Annual (wage) income would be reduced by

\$2,000 for those who are employed and have EHI. Together, these estimates demonstrate that the labor market effects of rising health insurance are far from neutral.

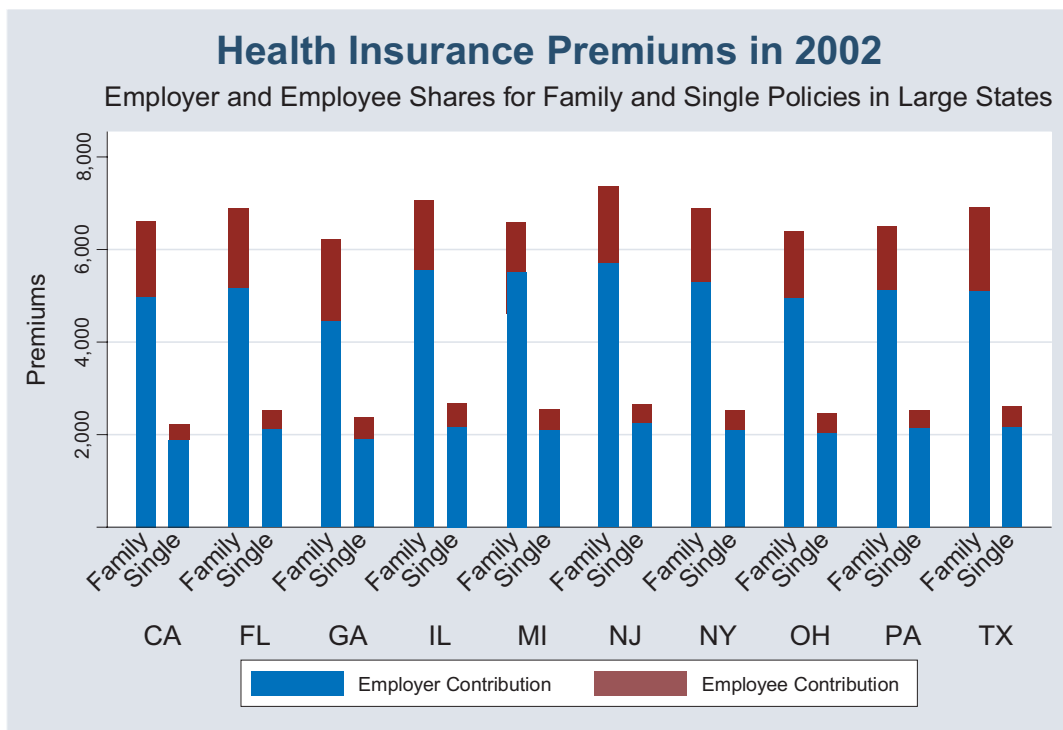
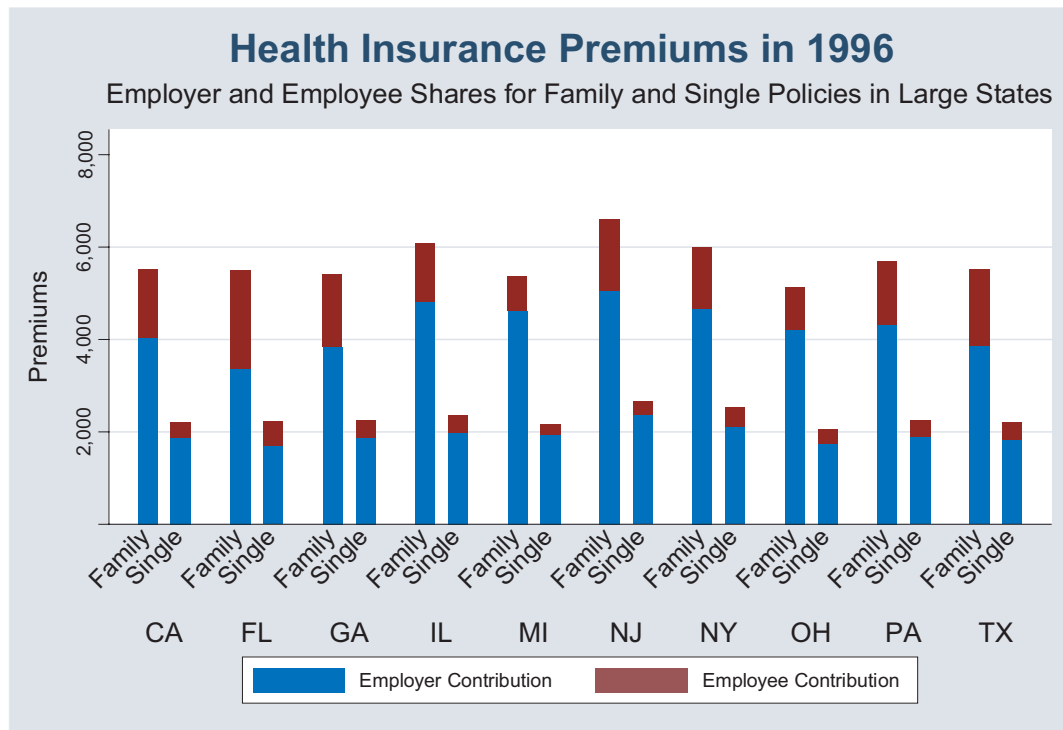
Conclusion

Rising health insurance premiums coupled with rising unemployment have led to increased scrutiny of the labor market consequences of rising benefit costs. Understanding these consequences is particularly important in light of popular policy proposals to cover the uninsured through employer mandates. The causal effects of increases in health insurance benefits costs are, however, difficult to disentangle without a source of exogenous variation. We use variation in medical malpractice payments to uncover the causal effect of rising premiums on health insurance coverage, wages, and employment.

We find that the cost of increasing health insurance premiums is borne primarily by workers. Workers with health insurance through their employer see a decrease in their wages as health insurance premiums rise, so that they bear the full cost of the premium increase. Some workers, such as those low-wage workers whose wages cannot be lowered, lose their jobs as the cost of benefits increases. Other workers are moved from full-time jobs with benefits to part-time jobs without benefits as the costs of benefits rise, perhaps because non-discrimination clauses prevent firms from discontinuing coverage only for those workers who value it least.

These results have strong implications for policies designed to cover the uninsured. For example, the cost of employer health insurance mandates that raise the cost of employment are likely to be borne by workers through reduced wages. If part-time workers or the employees of small firms are exempt from the mandate, employers are likely to substitute uncovered jobs for covered ones, undermining the net effect of the mandate on insurance rates and distorting labor markets. Rising health insurance costs may thus place an increasing burden on workers, leading to both uninsurance and unemployment.

Figure 1



Notes: Data from Kaiser Family Foundation/HRET survey. Premiums expressed in real year 2001 dollars. Ten largest states (by population) shown.

DATA APPENDIX

Health Insurance Premiums

We use annual state-level data on health insurance premiums by type of policy (family or single) and employer size from the Kaiser Family Foundation/HRET survey for 1996 to 2002 (see Kaiser Family Foundation, 2003).²¹ We assign premiums to workers based on their state of residence and year. In most specifications we also match based on family structure (with single respondents given the single premium) and on firm size (with employees of small firms given the small-firm premium, and unemployed respondents given the average premium)—although we also test the sensitivity of our results to potential changes in the composition of family size and employment.

In Figure 1 we illustrate the steady growth in premiums for family premiums and single premiums over the time period of our study. All dollar figures are expressed in year 2001 dollars. Family premiums grew from an average of \$5,000 in 1996 to well over \$8,000 in 2002. Premiums for single policies also grew substantially—from an economy-wide average of \$2,000 in 1996 to more than \$3,000 in 2002. In Figure 2 we illustrate the details of family and single policies for the 10 states with the largest population in 2000—Panel A reports the level of premiums in 1996 and Panel B in 2002. We see that family premiums grew between 40 and 60 percent over this time period in these states. The growth in single person premiums was relatively smaller but still considerable: in states such as Florida, Georgia, Michigan, and Ohio, premiums for single people grew by more than 40 percent. Both panels also show the share of total premiums that were paid for by employee and employer contributions—even though premiums increased substantially, the share paid by employees remained relatively stable.

Labor Market Data

The Current Population Survey (CPS) is a monthly survey of about 50,000 households conducted by the Bureau of the Census for the Bureau of Labor Statistics. The survey has been conducted for more than 50 years and is the primary source of information on the labor force characteristics of the U.S. civilian non-institutional population. The March (Annual Demographic Survey) files of the CPS contain information on hours worked, wage and salary income, unemployment, and health insurance coverage in the past year. In several years the February Dislocated Worker Supplement asked questions on health insurance eligibility and employer offering, in addition to actual coverage (for both dislocated and non-dislocated workers).

We use data from the 1996–2002 March CPS, supplemented with information from the 1997, 1999, and 2001 February survey. Because individuals are included in the CPS in two four-month cycles, our February samples include only three-quarters of the respondents from that year's March sample. We use information on demographics (such as age, gender, race, marital status, family size, and education), labor market variables (such as wage and salary, employment status, firm size, and hours worked), and health insurance coverage (such as source of coverage and, from the February supplement, whether coverage was offered by the respondent's employer and whether the respondent was eligible). Because we expect premiums from last year to affect current labor market outcomes, we measure hours worked, full-time/part-time status, and unemployment during the reference week of the survey (typically the second week of March). We include all respondents between the ages of 22 and 64, although we fur-

ther limit the sample in some of our analyses. Our data is summarized in Table A1.

Medical Malpractice Payments

All malpractice payments made in the United States by or on behalf of a licensed health care provider must be reported to the National Practitioner Data Bank (NPDB) within 30 days under the Health Care Quality Improvement Act of 1986. Noncompliance is subject to civil penalties codified in 42 U.S.C. 11131–11152. We examine payments that resulted from either a court judgment against the provider or a settlement made outside of the courts. We use NPDB information on such payments for 1996–2002.²² We calculate the size and number of payments resulting from medical treatments (including diagnosis, medication, and other medical treatment), surgical treatments (including surgery and anesthesia), obstetrical treatment, and other treatments (including monitoring, equipment,

intravenous and blood, and all others). Table A1 shows the growth of per-capita malpractice payments at the state level between 1996–99 and 2000–02. The variability of payments (over time within states) is the source of our identification. For example, over the 2001–03 period, per-capita payments were highest in Connecticut, Delaware, New Jersey, New York, Pennsylvania, and West Virginia. In these states the burden of malpractice liability was almost twice the U.S. average of \$13.50 per person. (See Chandra et al. (2005) for more details on the growth of malpractice payments as measured by the NPDB. We discuss potential limitations of the NPDB in the Appendix.)

We calculate malpractice payments per physician by obtaining data on state-level physician counts using data from the 2003 Area Resource File (ARF) published by the National Center for Health Workforce Analysis. Data on the physician workforce by specialty and age is available only for 1989, 1995, 2000, and 2001. Intervening years are linearly interpolated.

Table A1	Summary Statistics									
	All			1996–1999			2000–2002			
	Mean	Std Dev	Obs	Mean	Std Dev	Obs	Mean	Std Dev	Obs	
Health Insurance Variables	Premiums	5,266	1,955	513,068	4,782	1,658	288,900	5,959	2,131	224,168
	Health Insurance from Employer	0.51	0.50	513,068	0.50	0.50	288,900	0.51	0.50	303,628
	Any Health Insurance	0.82	0.39	513,068	0.81	0.39	288,900	0.82	0.39	303,628
	Employer Offers Health Insurance	0.93	0.26	73,779	0.92	0.27	52,014	0.93	0.26	21,765
Labor Market Outcomes	Hours	32.5	20.1	476,580	30.0	21.2	288,900	36.8	17.1	187,680
	Wage and Salary Income (real)	26,209	35,501	513,068	25,457	35,102	288,900	27,285	36,037	224,168
	Part Time (<30 hours per week)	0.16	0.36	377,921	0.16	0.37	212,346	0.15	0.36	165,575
	Employed	0.80	0.40	476,580	0.74	0.44	288,900	0.73	0.44	224,168
Malpractice Payments	Dollars Paid per Capita (inflation-adj)	12.38	7.36	508,068	11.60	6.66	286,143	13.49	8.13	221,925
	Number of Payments per Physician	0.021	0.008	508,068	0.021	0.008	286,143	0.021	0.008	221,925

Notes: Individual-level observations from 1996–2002 Current Population Survey, weighted using March weights. Sample limited to those age 22–64. Health insurance premiums from Kaiser/HRET survey (state-year data on premiums by policy type and employer size). Malpractice payments from National Practitioner Data Bank. Labor market outcomes and employer health insurance information from Current Population Survey (March and February).

Table A2														
Effect of Premiums on Labor Market Outcomes														
	Ln (Wage & Salary Income)		Employed		Ln (Hours)		Part Time (If Employed)		Have HI Through Employer		Employee Share of HI Premium		Ln (Employee Contribution to HI)	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Sample: All														
Ln (HI Premium)	-0.033 (0.020)	-0.128 (0.136)	-0.004 (0.007)	-0.155 (0.071)	0.004 (0.005)	-0.102 (0.054)	0.005 (0.007)	0.186 (0.061)	-0.027 (0.013)	-0.063 (0.092)	-0.145 (0.031)	-0.020 (0.103)	0.397 (0.122)	1.130 (0.419)
R-squared	0.237	0.237	0.161	0.154	0.080	0.075	0.047	0.033	0.111	0.111	0.626	0.616	0.921	0.918
N	346,524	346,524	447,883	447,883	368,230	368,230	328,952	328,952	447,883	447,883	368,230	368,230	368,230	368,230
Covariates and FEs	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Notes: Individual-level observations from 1996–2002 Current Population Survey (CPS). Sample limited to those age 22–64. Health insurance premiums from Kaiser/HRET survey (state-year data on premiums by policy type and employer size). Malpractice payments from National Practitioner Data Bank. Labor market outcomes and employer health insurance information from Current Population Survey (March). Part-time workers work less than 30 hours per week. Covariates include race, age, age², age³, marital status, education, gender, and health status. Instruments include real dollar amount and number of medical malpractice payments per capita for different specialties (surgery, ob-gyn, internal medicine, and other) for current year and previous year. Premiums assigned based on state, year, family structure (and employer size for employed). Regressions weighted by March CPS weights, and standard errors clustered at state level.

Table A3: Differential Effects of Premium Increases				
Health Insurance Premiums Instrumented with Malpractice Payments				
	Ln (Wage & Salary Income)			Employed
Ln (HI Premium)	-0.114 (0.196)	-0.313 (0.166)	-0.195 (0.134)	-0.079 (0.068)
Ln (HI Prem) *Employer HI	-0.225			
Ln (HI Prem) *Part Time		0.103		
Ln (HI Prem) *Manufacturing			-0.134 (0.033)	-0.057 (0.015)
Employer HI	2.510 (0.289)			
Part Time		-1.634 (0.431)		
Manufacturing			1.362 (0.281)	0.502 (.125)
R-squared	0.33	0.32	0.25	0.03
N	304,744	304,744	304,744	368,230
Sample	Employed	Employed	Employed	All

Notes: Individual-level observations from 1996–2002 Current Population Survey (CPS). Sample limited to those age 22–64. Health insurance premiums from Kaiser/HRET survey (state-year data on premiums by policy type and employer size). Malpractice payments from National Practitioner Data Bank. Labor market outcomes and employer health insurance information from Current Population Survey (March). Part-time work defined as less than 30 hours per week. Instruments include real dollar amount and number of medical malpractice payments per capita for different specialties (surgery, ob-gyn, internal medicine, and other) for current year and previous year. Premiums assigned based on state, year, family structure (and employer size for employed). Regressions weighted by March CPS weights, and standard errors clustered at state level.

Endnotes

1. Author calculations from the Annual Demographic Files of the Current Population Survey (CPS) for 1988–2003 for the population under the age of 65.
2. Kaiser, (2003). The Kaiser/HRET survey also documents trends in health insurance coverage, such as increasing deductibles and copays for drugs and physician office visits over this time period.
3. Yelowitz (2004) provides a thorough discussion of this legislation and estimates its economic impact.
4. See Summers (1989) for a discussion of the importance of employee valuation and the elasticities of supply and demand in determining the effects on wages and employment of mandated benefits versus taxes.
5. Technically, HI_i should measure the difference between employer premiums and premiums for policies purchased in the non-group market. We note that non-group health insurance (for individuals and families) may be priced nationally, so that controlling for individual characteristics would account for variation in non-group prices. As an example, using data from www.eHealthInsurance.com, an online Web site that provides insurance quotes from many carriers, we note that there was less than a 5 percent difference in premiums across states like Arizona, California, Nebraska, and Ohio, suggesting that prices in the non-group market may not be very variable across states. The inclusion of state fixed effects captures any residual variation in non-group premiums at the state level, as well as controlling for other differences between states, such as the underlying health of the population.
6. It is also not clear whether (if asked) respondents would know the costs or generosity of their health insurance plan (see Gustman and Steinmeier, 2001).
7. These limitations are identical to those that have plagued the literature on identifying the wage-fringe trade-off (see Currie and Madrian, 2000, for a comprehensive overview).
8. Cutler and Madrian do not include state fixed effects. Yelowitz (2004) examines data from California; his analysis is therefore comparable to one where state fixed effects are included. He imputes premiums based on industry, firm size, and family/single status.
9. See Manning et al. (1987) for evidence on the (in)elasticity of demand for health services.
10. See Baicker and Chandra (2005) for a discussion of the “crises” of previous decades and the evolution of tort reforms. We also discuss alternate measures of malpractice liability (such as malpractice premiums) in the appendix and in Baicker and Chandra (2005). In theory we could also use malpractice premiums as an instrument for health insurance premiums, but limitations of malpractice insurance data make this less practical. There were very few tort law changes during this time period, so we cannot easily examine the effect of state malpractice reform measures such as liability caps.
11. Our use of this instrument does not rely on the fact that workers get more or better health care as their premiums rise—only that the price of health insurance from all sources has increased. Workers may not value the increase in health spending, for example, if increased malpractice costs lead to “defen-

- sive medicine” that is of little medical value and that increase in the cost of care is reflected in higher premiums. Even if they don’t value the increase in spending, however, workers may be willing to accept lower wages in exchange for costlier health insurance because they would have to pay more on the open market for it. It may be tempting to reason that the correlation of premiums with the instrument, malpractice payments, is potentially spurious because states with high malpractice payments may have workers who are systematically more or less abled. This is not the case, however, as all of our specifications include state fixed effects.
12. All regressions include state and year fixed effects and the individual-level controls outlined above, and are weighted using the March CPS final weights. Standard errors are clustered at the state level (clustering at the state-year level yields marginally smaller standard errors). Premiums, income, and hours are all measured in logs. Ideally we would also be able to take into account the state and federal tax rate to which individual workers are subject, but we do not have detailed enough information (on deductions, filing status, etc.) to impute accurate marginal tax rates.
 13. Payments are attributed to the year in which they were made, not the year in which the judgment or settlement was entered. See Chandra et al. (2005) and Baicker and Chandra (2005) for a detailed discussion of the robustness of results to specifications that incorporate variation in the timing of when payments are made.
 14. Using this data we cannot estimate the effect of these increases on other characteristics of plans, such as deductibles, cost sharing, or covered benefits changed.
 15. Hamermesh (1993, table 3.5) shows, for example, that the labor demand elasticity for manufacturing is larger than that of many other industries.
 16. See Baicker and Levy (2005) for a more detailed study of health insurance coverage mandates for low-wage workers and the risk of unemployment.
 17. Using the gap between a worker’s wage and the minimum wage in effect in that state and year produces similar results. Note that these results are suggestive, rather than conclusive, as the differences are not significant at the 5 percent level.
 18. The difference is significant at the 2 percent level.
 19. This data comes from the February supplement to the CPS, which we merge to the March demographic file for those workers included in the survey in both February and March.
 20. Gruber (1994) finds that the cost of maternity benefits is fully borne by married women, although broader evidence on cost shifting is somewhat mixed. Sheiner (1995) finds that demographic groups with higher ex ante insurance costs (such as older workers) experience full wage shifting when the price of health insurance increases.
 21. The Kaiser Family Foundation/Health Research and Educational Trust 2004 Annual Employer Health Benefits Survey (Kaiser/HRET) reports findings from a telephone survey of 1,925 randomly selected public and private employers. Firms range in size from small enterprises with a minimum of three workers to corporations with more than 300,000 employees. The Kaiser/HRET Employer

Health Benefits Survey is based on previous surveys sponsored by the Health Insurance Association of America from 1986–1991 and Bearing Point (KPMG at the time of the surveys) from 1991–1998.

22. We exclude payments that were linked to dentists, pharmacists, social workers, or nurses. In a small fraction of payments, there are multiple physician defendants (and thus multiple reports), but only the total payment by all defendants is

reported. In these cases we average the payment by the number of physicians involved. In the NPDB, 5 percent of payments are made by state funds in addition to other payments made by the primary insurer for the same incident. We match such payments based on an algorithm that uses unique physician identifiers, state of work, state of licensure, area of malpractice, type of payment (judgment or settlement), and year of occurrence.

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