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LABOR MARKET RESPONSES TO RISING HEALTH INSURANCE COSTS: EVIDENCE ON HOURS WORKED

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ABSTRACT

Increases in the cost of providing health insurance must have some effect on labor markets, either in lower wages, changes in the composition of employment, or both. Despite a presumption that most of this effect will be in the form of lower wages, we document in this paper a significant effect on work hours as well. Using data from the CPS and the SIPP, we show that rising health insurance costs over the 1980s increased the hours worked of those with health insurance by up to 3 percent. We argue that this occurs because health insurance is a fixed cost, and as it becomes more expensive to provide, firms face an incentive to substitute hours per worker for the number of workers employed.

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Because employers provide health insurance voluntarily, there has been an economic presumption that rising health insurance costs will not influence employment outcomes: As health insurance costs increase, employers that provide health insurance will lower wages in order to keep total compensation (wages plus health insurance costs) the same (Summers 1989). Workers who value health insurance at its cost will be willing to accept this wage reduction in exchange for receiving insurance. As a result, an increase in the cost of health insurance will result in lower wages but no change in employment outcomes. Indeed, empirical research has demonstrated that increases in the costs of health insurance and other benefits are essentially fully offset by lower wages (Gruber and Krueger 1991; Gruber 1994; Sheiner 1995).

This substitution of wages for health insurance benefits is not the whole story, however. One complication which has been noted in the literature is that firms may be constrained in their ability to lower wages, either because the minimum wage is binding or because some workers do not value health insurance at its cost.[1] In this situation, increases in health costs will act like a tax on employment, with the usual incidence and efficiency effects.

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[1] If employers could selectively provide health insurance to their workers, they would choose not to insure those workers who impose such wage constraints. Internal Revenue Code nondiscrimination rules, however, limit the ability of firms to differentiate health insurance benefits among full-time workers.

A second complication is the fact that health insurance is a fixed cost of employment for each worker rather than a marginal cost per hour worked. Consequently, an increase in the cost of health benefits, even if offset by equal wage reductions, will alter the tradeoff that firms face in allocating labor input between hours per worker and the number of employees hired.

Anecdotal evidence suggests that this substitution of hours for bodies has been occurring. In 1994, several thousand General Motors workers went on strike in a union-led protest "demanding that the auto maker hire more full-time workers to reduce the number of overtime hours that union members are working" (Levin 1994). G.M., however, was reluctant to increase full-time employment, citing: "lavish health and pension benefits" which made "permanent workers an enormous financial liability." While unusual in the amount of publicity generated, this incident illustrates the impact that increasing health insurance costs can have on employment outcomes.

Despite the potential importance of health insurance costs in understanding employment dynamics, there is little previous evidence on this issue. This paper takes a first step toward providing such evidence by looking explicitly at the effect of rising insurance costs on hours of work.

We begin by estimating the effect of health insurance on work hours controlling for individual demographic variables and overall macroeconomic effects. Using data from the March CPS surveys for the 1979-92 period, we find that hours of work increased for those with health insurance by about 0.06 hours per week each year compared to those without health insurance. This change represents an increase of about 1.5 to 2.0 percent in labor input over a decade-long period. We further show that hours increased more rapidly in industries that experienced rapid

health insurance cost growth relative to industries with more restrained changes in health insurance costs.

We then consider alternative explanations for this finding. One explanation is that health insurance proxies for unobserved skill differentials across individuals. Since the demand for high-skilled workers relative to low-skilled workers increased over the 1980s (Katz and Murphy 1992), this might explain our finding for health insurance. We test this theory by examining hours changes for workers with different wages, using wages as a proxy for skill. If our results are driven by an increase in the demand for skilled workers, we should observe that among those with health insurance, hours should increase more for high-wage than for low-wage employees, since these are the most skilled. We find no evidence that increases in skill demand are responsible for the observed changes in hours worked.

We then consider how the effects of health insurance coverage compare with the effects of pension coverage. We find workers with both health insurance coverage and pension coverage disproportionately increase their hours over time. This may be evidence that employers consider pension costs to be fixed along with health insurance costs, and would be consistent with the fact that employer spending on health insurance and pensions is roughly equal.

Finally, we consider whether the results are due to changes in the composition of the insured pool over time. A decline in coverage for workers with low hours worked would cause observed hours to increase among those with health insurance, even if no workers changed their hours of work. Using data from the 1984 to 1992 panels of the Survey of Income and Program Participation, however, we show that the increase in hours worked occurred for workers who were insured continuously over a two- to four-year period relative to workers who were never insured

over this period. We thus conclude that the increase in hours worked appears to be due to increases in health insurance costs rather than other factors.

The paper proceeds as follows. The first section discusses the theoretical impact of employer-provided health insurance on labor market outcomes. The second section summarizes previous evidence on fixed costs and work hours. The third and fourth sections present results on hours worked and insurance coverage. The fifth section examines whether these results can be explained by changes in the demand for labor. The sixth section considers pension coverage along with health insurance coverage. The seventh section then looks at potential composition bias, and the last section concludes.

I. Employer-Provided Health Insurance and Labor Input

This section sets forth a framework which formalizes the relationship between health insurance benefits and labor market outcomes. The representative consumer maximizes utility which is a function of labor supply and a composite consumption good comprised of benefits and other commodities whose purchase is financed with wage payments. The firm offers the worker a job with hours H and total compensation $M(H)$. The worker can decide whether or not to accept the job, and will do so only if the utility from the job equals or exceeds a reservation level of utility.[2] If the consumer accepts the job, he can choose the allocation of compensation between wages (W) and benefits (B). Thus, the consumer solves the following problem:

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[2] In the United States, not working is generally associated with free receipt of public insurance (Medicaid) or uncompensated care, so that reservation utility is not likely to be affected by increases in health insurance costs.

$$\underset{B,W}{Max}\ U = U(V(B,W),H)$$
$$\text{subject to:}\quad W + P\cdot B = M(H) \qquad (1)$$
$$U \geq \bar{U}$$

where $V(\cdot)$ is the composite consumption good and P is the price of benefits. Rather than solve the consumer's problem here, we simply note that it imposes an important constraint on the firm--that an increase in hours worked can only be achieved by increasing compensation such that the consumer is no worse off after the increase in labor supply than before. Thus, in our formulation of the firm's problem, we express both wage payments and benefits as a function of hours, *W(H)* and *B(H)*. If there is increasing disutility of work, both *W(H)* and *B(H)* will be convex in H: W_H, B_H, >0; W_{HH}, $B_{HH} > 0$.

The firm then chooses the number of employees to hire and the hours per worker in order to maximize profits.

$$\underset{H,N}{Max}\ \pi = f(H\cdot N) - N[W(H) + P\cdot B(H)] \qquad (2)$$

where $f(\cdot)$ is the firm's production function[3] with $f' > 0$ and $f'' < 0$, N is the number of employees, and P is the price of providing benefits.[4] The constraint that firms must guarantee their employees

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[3] Our production function assumes that only total hours of work affect output. Assuming a more general production function yields results qualitatively similar to those presented below, but the analytics are not as simple.

[4] We assume that the firm has some cost advantage in providing benefits so that it is in the best interests of both consumers and the firm for the firm provide benefits rather than for the firm to pay only cash compensation, leaving individuals to purchase benefits in the private market. Firms have several likely cost advantages in providing benefits. By pooling their employees together as a group, firms can save on administrative expenses and reduce the costs associated with adverse selection. Expenditures on employee

a reservation level of utility is incorporated in equation (2) by specifying that wage and benefit payments are a function of hours. Note that our framework assumes that the firm offers the employee a wage/hours bundle which the employee can choose to accept; the employer does not offer the employee an hourly wage and then allow the employee to choose how many hours to work (see Trejo 1991 for a similar formulation of the job as a wage/hours bundle). Because we allow employees to choose the division of compensation between wages and benefits, employees will value health insurance at or above its cost; consequently, the results that we derive below will not arise from an inability of firms to reduce wages in response to higher health insurance costs.

The first order conditions from this maximization problem are:

$$\begin{aligned} \pi_N = 0: \quad & H \cdot f' - W(H) - P \cdot B(H) = 0 \\ \pi_H = 0: \quad & N \cdot f' - N[W_H + P \cdot B_H] = 0 \end{aligned} \tag{3}$$

Combining these two equations yields:

$$(W_H + P \cdot B_H) = \frac{W(H) + P \cdot B(H)}{H} . \tag{4}$$

This condition has an intuitive interpretation: the firm will increase the hours worked by each employee until the marginal cost of an additional hour of work (the left-hand side of equation (4)) equals the average cost of an additional worker at the current level of hours (the right- hand side of equation (4)).

Totally differentiating this expression and rearranging terms allows us to solve for *dH/dP*:

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benefits also receive favorable tax treatment when made by firms rather than by individuals.

$$\frac{dH}{dP} = \frac{\frac{P \cdot B}{H} - P \cdot B_H}{P \cdot [W_{HH} + P \cdot B_{HH}]} . \tag{5}$$

The increasing marginal disutility of work implied that the denominator of this expression is always positive. The sign of the numerator is indeterminate, however. The effect of an increase in the price of benefits on hours worked depends on the average benefit cost of an additional hour of work ($P \cdot B/H$) relative to the marginal benefit cost of an additional hour of work ($P \cdot B_H$). Because an increase in the price of benefits raises the fixed cost associated with each worker, the firm will want to substitute hours per worker for the number of workers employed. However, in order to induce the workers to increase their labor supply, the firm must increase its wage and/or benefit payments. As long as the average hourly cost of providing benefits ($P \cdot B/H$) is greater than the marginal increase in compensation that must be made in order to induce an increase in labor supply ($P \cdot B_H$), the firm will find it optimal to increase hours per worker. At some point, however, the additional compensation required to elicit additional hours from its workforce will become so large that the firm will find it less costly to increase labor input through hiring additional workers, while at the same time scaling back on the hours of its existing labor force.

To calculate the effect of an increase in the price of benefits on the number of workers hired, we totally differentiate the π_H first order condition and rearrange terms to get:

$$H \cdot f'' \frac{dN}{dP} = -\left[N \cdot f'' - W_{HH} - P \cdot B_{HH}\right] \frac{dH}{dP} + B_H . \tag{6}$$

There are two effects operating in equation (6). First, increases in health insurance costs induce firms to change the allocation of labor input between hours per employee and the number of workers, as discussed above (the substitution effect). This is seen in the first term on the right-hand side of equation (6). The second order condition for profit maximization implies that the expression in brackets is negative. Thus, the effect on employment of an increase in the cost of benefits will be opposite the effect on hours: if $dH/dP > 0$, then $dN/dP < 0$, and vice versa. Second, as health insurance costs increase, so do total labor costs ($B_H>0$) and this induces firms to cut back on employment (the scale effect). Thus, when equation (5) implies that firms have an incentive to increase their hours per employee in the face of rising health insurance costs, they will also unambiguously desire lower employment because the scale and substitution effects go in the same direction. When they face an incentive to decrease hours, however, the effect on employment will depend on the relative magnitudes of the substitution and scale effects in equation (6).

Note that the results above will continue to hold even if firms must pay a wage premium for overtime work. Although the overtime wage is a deterrent to increasing hours with or without fixed costs, an increase in fixed costs will increase the relative demand for both standard and overtime hours because both types of hours become less expensive relative to the costs of hiring an additional worker.

Our model suggests that increasing health insurance costs should affect both hours of work and total employment. Because the firm-level data required to examine changes in the number of employees hired is limited, we focus exclusively in this paper on the length of the work week, a dimension of the employment relationship that can be readily analyzed using individual-level data.

We therefore consider in our empirical work whether hours of work have been affected by rising health insurance costs.

II. Evidence on the Relationship Between Fixed Costs and Hours Worked

There are two strands of literature which are similar in spirit to the aim of this paper. The first examines the effect of fixed employment costs on firm use of overtime (Ehrenberg 1971a and 1971b; Laudadio and Percy 1973; Nussbaum and Wise 1978; Solnick and Swimmer 1978; Ehrenberg and Schumann 1982). These studies, which use plant-level or industry data on the use of overtime and industry data on nonwage labor costs, find rather consistently that an increase in nonwage labor costs relative to the overtime wage rate increases overtime.

The second strand of literature considers the effect of fixed costs on the employment of full- versus part-time labor (Montgomery 1989; Montgomery and Cosgrove 1993; Owen 1979; Ehrenberg, Rosenberg and Li 1988). Owen (1979) finds that the ratio of part- to full-time employees is lower in the industry-occupation groups which have higher indirect labor costs. Ehrenberg, Rosenberg and Li (1988), in contrast, find little relationship between the relative likelihood of health insurance coverage for part- to full-time employees and the inter-industry ratio of part- to full-time employment. Montgomery and Cosgrove (1993), in an analysis of child-care centers, find that the fraction of hours worked by part-time workers falls when the fraction of compensation accounted for by fringe benefits payments increases, while Montgomery (1988) finds some evidence both for and against the notion that higher fixed costs increase utilization of full-time labor. Overall, conclusions regarding the relationship between fixed costs and part- versus full-time employment appear to be somewhat tenuous.

There are a number of problems in using this literature to infer the effect of changes in the cost of insurance on employment outcomes. The first is that the bulk of this literature defines fixed costs as all nonwage labor costs.[5] In practice, however, many nonwage labor costs are not fixed. While health insurance expenditures, which comprise 32 percent of nonwage labor costs, are clearly a fixed cost, OASDHI contributions, which equal 25 percent of nonwage labor costs, represent a variable cost for workers who earn less than the Social Security maximum taxable earnings. Pensions, which total 23 percent of nonwage labor costs, are more difficult to classify.[6] Given the rather nebulous definition of fixed costs in this literature, interpreting the "fixed cost" coefficient as the effect of health insurance expenditures may be problematic.

Second, even if fixed costs were properly defined, aggregating health insurance with various other fixed costs may be inappropriate as so doing assumes that all fixed costs affect labor market outcomes the same way. If firms have the ability to partially offset higher fixed costs by paying lower wages because their employees value benefits, then the effect of any fixed cost will depend on the extent to which employees value the benefits derived from that cost. Employees may value a dollar spent on health insurance more or less than a dollar spent on life insurance, unemployment compensation, or pensions.

Third, this literature typically assumes that nonwage labor costs are the same for all employees. While for some costs, such as OASDHI contributions or costs incurred for training, this is likely to be true, for health insurance this is not necessarily the case. Firms that provide health insurance face tax penalties if the vast majority of full-time workers do not receive these

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[5] The exception is Ehrenberg and Schumann who consider three different definitions of fixed costs which include various components of nonwage labor costs. Their results are somewhat sensitive to the definition of fixed costs that is used.

[6] Data on nonwage compensation are from Piacentini and Foley (1992).

benefits; they face no penalty, however, for exempting part-time and seasonal employees from health insurance coverage. Thus, aggregated benefits costs, at the industry or even at the firm level, do not necessarily represent the true fixed cost for any particular worker.

The empirical work which follows addresses all of these objections by focusing exclusively on health insurance and employment. Our analysis also differs from this literature in two other important ways. First, we use pooled cross-sectional data on individuals while the overtime literature and much of the part-time literature has used only firm- or industry- level data. While one source of data is not necessarily better than the other, the use of individual-level data allows us to control for a variety of supply-side factors affecting individual work decisions that cannot be accounted for with firm-level data. Second, the time span covered by our data, 1979-1992, is much more current than that used in the overtime literature, in which the most recent data comes from 1976. Third, we use a comparison group of those without employer-provided health insurance to capture general changes in hours worked over time.

III. Trends in Health Insurance Costs and Hours of Work

We begin by documenting the changes in health insurance costs that have occurred between 1979 and 1992. We use data on employer spending for health insurance from the National Income and Product Accounts. Figure 1 shows the trend in real ($1992) health insurance costs per full-time equivalent employee and per covered employee. Both measures of costs have risen steadily over the period. In 1979, the average cost of health insurance per covered employee was about $1,500; by 1992, costs had risen to almost $3,000, about twice as high. In contrast, real wages per worker increased by only 7 percent over this period.

To measure trends in hours worked, we employ data from the 1980-1993 March Current Population Surveys (CPS).[7] In addition to a wide array of demographic characteristics, this data set includes information on usual weekly hours worked during the previous year and whether an individual was covered by employer-provided health insurance through his or her employer during the previous year.[8] The sample is restricted to men aged 25-54 who were not self-employed. We examine the hours worked of men because coordinating benefits is likely to be an important element in female labor force participation and choice of hours. Focusing on prime age males eliminates changes in hours due to school enrollment or retirement. The self-employed are excluded because their labor market decisions will not depend on the cost of benefits in the same way as do the hours worked of those who are employed by firms.

Unfortunately, the CPS asks only about average hours on all jobs in the previous year; it does not ask about average hours on each job. In 1989, however, only 6.2 percent of the work force held more than one job simultaneously (Stinson, 1990). The potential for multiple job-holding to confound the results on hours worked that we find is therefore small. We use the March CPS data because it is the longest continuous survey that asks about both health insurance coverage and hours of work.

Wage data for the individuals in the sample were obtained by merging the March CPS with the CPS Merged Outgoing Rotation Group data set which contains wage information for the CPS

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[7] For a more detailed discussion of trends in hours worked, see Pencavel and Coleman (1993a and 1993b).

[8] Questions on health insurance coverage were first asked in 1980; this precludes incorporating data from earlier years into the analysis.

households.[9] We exclude individuals who report wages below $1.65 per hour in 1980 dollars (roughly the real minimum wage over the period) or above $57 per hour in 1980 dollars (roughly the real topcoding level in 1993). Summary statistics on the CPS data set are provided in the first column of Table 1. Overall, 84 percent of the sample have employer-provided health insurance in their own name while the average work week is 43.5 hours.

As noted above, IRS non-discrimination rules require health insurance to be offered to almost all full-time workers if it is offered at all, where full-time employees are generally defined as those working over 1,000 hours per year. Part-year workers, however, are exempt from the nondiscrimination tests even if they work full-time when employed. To account for this, we also restrict our sample to those who worked 40 or more weeks in the previous year. Note that we cannot restrict our sample on the basis of hours worked because this is our dependent variable.

Figure 2 shows trends in hours worked for those with and without health insurance who worked at least 40 weeks in the previous year. As Figure 2 shows, among workers without health insurance, average hours per week fell by slightly over 0.5 hours from 1979 to 1992. In contrast, workers with health insurance experienced increases in average hours of 0.7 hours per week. The cumulative difference is about 1.2 hours per week over the 13-year period.

While the trends documented in Figure 2 are supportive of the argument that health insurance costs have lead to changes in employer behavior, they do not account for other changes that have taken place between 1979 and 1992 (such as the two recessions which are apparent in Figure 2) or for individual characteristics that could also have affected both insurance coverage and

[9] We were able to successfully merge 86 percent of individuals. This ratio compares favorably with that reported by other individuals who have merged various months of the CPS. Appendix Table 1 gives the merge ratio by year.

hours worked. We therefore turn to an econometric model to estimate the effect of increasing health insurance costs on hours worked.

IV. Estimating the Effect of Health Insurance Coverage on Hours Worked

A. Basic Results

We begin by estimating an equation of the following form:

$$Hours\ Worked = \beta_0 + \beta_1 \cdot HI + \beta_{2,y} \cdot Year + \beta_3 \cdot (HI * Time) + \mathbf{Z}'\gamma + \varepsilon, \qquad (7)$$

where *HI* is a dummy variable which indicates whether the individual received health insurance from his employer in the previous year, *Time* is a linear time trend, and *Year* is a vector of year dummy variables.[10] In this equation, β_1 controls for underlying differences in the hours worked of those with and without health insurance, β_2 controls for macroeconomic or other conditions that change may over time, and γ controls for other individual and job characteristics that may also influence labor supply, such as age and its square, education (indicator variables for less than high school; high school degree; some college; and a college degree or beyond), marital status, and 1-digit industry and occupation dummy variables. In order to capture changes in the demand for

[10] We could replace the main effect estimated by our year dummy variables with a simple linear time trend. We prefer year dummy variables because they allow us to control for changes in economic conditions in a very general way. For example, with year dummy variables in the regression, the coefficient on a state-specific unemployment rate is generally insignificant (and therefore, we do not include it in the regression results presented in this paper). The conclusions with respect to hours worked, the focus of this paper, are not sensitive to whether the regressions are estimated with a time trend or a series of year dummy variables.

skilled and unskilled workers over time, we also interact our education dummies with a time trend (Katz and Murphy 1992).[11]

The coefficient of interest, β_3, captures the differential effect over time on hours worked for those in jobs with health insurance relative to those without health insurance. If the rising cost of health insurance has resulted in a lengthened work week for those with health insurance, we would expect the coefficient on β_3 to be positive.

The results from estimating equation (7) are presented in the first column of Table 2. As noted earlier, the sample is men aged 25-54 who are not self-employed, who worked at least 40 weeks in the previous year, and who have a real ($1980) hourly wage of between $1.65 and $57. The coefficients on the demographic variables reveal that hours worked increase with age, although at a declining rate, and are higher for those who are married or who have health insurance. College graduates (the omitted educational category) work more hours than those with less education, and over time those with more education have worked increasingly more hours relative to their less educated counterparts.

The coefficient on the key variable of interest, *Time*Health Insurance*, is equal to 0.057 and is statistically significant at conventional levels. This effect is substantively large; it implies that over the 1979-1992 time period, the work week for those with health insurance increased by about 0.7 (0.057 x 13) hours per week relative to the work week of those without health insurance. Since the average work week of full-year workers is about 43 hours, this effect corresponds to a 2 percent increase in labor input for those with health insurance (holding total employment constant). Alternatively, if employers wanted to keep total labor input constant, this increase in hours implies

[11] We have also estimated models with separate year effects for each education group. The results from this specification are extremely similar to those reported below.

that they would choose to reduce employment of those with health insurance by about 2 percent. While this estimate seems modest, it is reasonably large. A typical recession, for example, involves only a 4 to 5 percent reduction in employment.

In the remaining columns of Table 2, we try to understand where the increase in hours worked is coming from: to what extent is the increase in hours driven by part-time workers who are now working full-time, and to what extent do we see full-time workers moving to overtime? To address this, we group the hours data into discrete categories and estimate the probability that a worker will fall into any given interval. We choose four intervals: less than 25 hours per week; between 25 and 39 hours per week; 40 hours per week; and more than 40 hours per week. We then estimate a multinomial logit model for the probability that a worker falls into one of these categories. This probability is given by:

$$Prob\,(Hours=j) = \frac{\mathbf{X}'\beta_j}{\sum_{j=1}^{4} \mathbf{X}'\beta_j} \qquad (8)$$

where **X** denotes the entire set of variables in equation (7).

The latter three columns of Table 2 report the results of this multinomial estimation. The omitted category is working between 25 and 39 hours per week. Relative to that group, workers with health insurance have been increasingly likely to work 40 hours per week over time, and in particular, over 40 hours per week. There is no effect of health insurance on the probability of working less than 25 hours per week. Note that while the multinomial estimation illustrates how the distribution of hours worked has changed among those with health insurance, it does not capture change in hours worked that are coupled with a change in health insurance status, for

example, a movement from full-time work with health insurance to part-time work without health insurance. Panel data would be needed to account for these effects.

To evaluate the magnitude of these coefficients, we selected workers in 1992 who had health insurance and calculated what their hours distribution would have looked like if they had been working in 1979 when health insurance costs were lower. The results, shown below, indicate that the fraction of individuals working 40 hours per week or less has fallen, while the probability of working over 40 hours per week has increased by 7 percentage points.

Weekly Hours Response to Higher Health Insurance Costs

	Fraction of Individuals Working:		
	1979 Cost	1992 Cost	Difference
<25 Hours	0.5%	0.4%	-0.1%
25-39 Hours	5.1	3.8	-1.3
40 Hours	61.3	55.7	-5.6
>40 Hours	33.0	40.1	7.1

Based on multinomial logit estimates in Table 2.

B. Incorporating Data on Health Insurance Costs

To validate the contention that increased health insurance costs are driving the increase in hours worked, we incorporate information on changes in the average per worker cost of providing health insurance by industry. If firms are increasing the work week in order to avoid incurring the health insurance expenditures associated with hiring new employees, then weekly hours should increase proportionately more in industries in which health insurance is more expensive to provide.

To test this, we use data from the Commerce Department on employer spending for health insurance by industry in 1979 and 1992.[12] The Commerce Department collects data on total spending on health insurance and on total employment by industry. We divide total industry spending by total employment to get cost per worker; we then adjust this measure by the fraction of insured workers in each industry (a number that we calculate from the Current Population Survey) to get costs per insured worker by industry. Finally, we compute the percentage change in costs per insured worker from 1979 to 1992. The data are available for 53 industries and include all workers except for some service sector workers and government employees.[13] Appendix Table 2 reports the estimates of cost by industry in 1992. The industry with the highest costs is Tobacco ($10,568 per worker), while the industry with the lowest costs is Local Passenger Transportation ($1158 per worker). The fact that tobacco has the highest spending may be a bit anomalous; most of the industries with very high costs are manufacturing or primary goods industries with older, married workers, and generous benefits.[14]

To examine how industries with different costs responded in their hours decisions, we augment equation (7) to:

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[12] Although the Commerce Department reports health insurance expenditures on an annual basis, the survey used to derive the expenditure data is conducted only once every 5 years; numbers for the intervening years are interpolated. For this reason, we use cost data that correspond to the first and last year of our CPS data set rather than the annual cost data.

[13] We exclude individuals in three small service sector industries because we were unable to confidently match the fraction of insured workers in the CPS to the detailed industry groups used by the Commerce Department. Government workers are excluded because the Commerce Department does not report health insurance expenditures for the government sector. Backing out costs for government workers is impossible because spending for many government workers (for example, public school teachers) are allocated to other industries.

[14] We have estimated models excluding tobacco and other industries with very high costs and obtained results that were very similar to those using all industries.

$$\begin{aligned} \frac{Hours}{Worked} = {} & \beta_0 + \beta_1 \cdot HI + \beta_{2,y} \cdot Year + \beta_3 \cdot \Delta Cost + \beta_4 \cdot (\Delta Cost * HI) + \beta_5 \cdot (Time * \Delta Cost) \\ & + \beta_6 \cdot (Time * HI) + \beta_7 \cdot (Time * \Delta Cost * HI) + \mathbf{Z}'\gamma + \varepsilon \, . \end{aligned} \tag{9}$$

In this specification, the coefficient β_5 gives the changes over time in average hours for workers without health insurance in industries with high relative to low health insurance cost growth. The coefficient β_6 measures the trend change for those with health insurance compared to those without health insurance in industries with no cost growth, and β_7 captures the differential trend for those with health insurance in industries with high relative to low cost growth.

Table 3 presents our estimates of equation (9). The regression in this table also includes the full set of controls in Table 2, although these coefficients are not reported.[15] As noted above, the sample size is somewhat smaller because we do not have health insurance cost information for workers in some industries. The estimates imply that workers without health insurance have seen their weekly hours fall disproportionately more in industries with high cost growth (the coefficient on *Time**Δ*Cost* is negative). Relative to this trend, workers with health insurance have experienced disproportionate increases in hours in industries with high cost growth (the coefficient on *Time**Δ*Cost***Health Insurance* is positive). At the average level of cost growth in the sample, the magnitude of this coefficient suggests that among those with health insurance, weekly hours increased by roughly 2.2 hours over what they would have with constant health insurance costs. This effect is somewhat larger but similar to that in Table 1.

[15] The cost data are more disaggregated than the industry controls. We have also estimated these equations using dummies for each of the industries for which we have cost data. The results are very similar to those reported here.

V. *Controlling for Skill-Based Explanations*

The results above attributed the increase in hours worked to rising health insurance costs. These changes may alternatively be the result of general changes in labor demand or supply that are correlated with the receipt of health insurance. Since employees with health insurance may be more skilled than employees without health insurance, changes in the demand for skilled and unskilled workers may affect hours worked for these two groups. To the extent that our empirical specification does not fully capture skill level, this provides an alternative explanation for our results.

The finding that increases in hours of work are associated with health insurance costs across industries suggests that changes in skill demand are not the full explanation for the findings we observe. Nevertheless, to address this issue directly, we consider how employer-provided insurance affects hours of work for workers with different wages. If our results are driven by changes in the demand for skilled workers, we should see that among those with health insurance, hours should increase more rapidly for high-wage than for low-wage workers. The benefit cost explanation, in contrast, does not predict any particular relationship between health insurance costs and hours of work for workers with different wages. The response will differ based on how convex the labor supply schedule is for each worker.

To test this, we augment equation (7) to:

$$\begin{aligned} \frac{Hours}{Worked} = {} & \beta_0 + \beta_1 \cdot HI + \beta_{2,y} \cdot Year + \beta_3 \cdot Wage + \beta_4 \cdot (Wage * HI) + \beta_5 \cdot (Time * Wage) \\ & + \beta_6 \cdot (Time * HI) + \beta_7 \cdot (Time * Wage * HI) + \mathbf{Z}'\gamma + \varepsilon \, . \end{aligned} \tag{10}$$

In this specification, β_3 is the difference in average hours for high- relative to low-wage workers, β_5 is the change over time in average hours by wage for workers without health insurance, and β_7

is the trend change by wage for those with health insurance compared to those without health insurance. The skill-bias explanation predicts that β_7 is greater for workers with high wages, which the health insurance cost explanation offers no clear prediction.

Using actual hourly wages in equation (10) may lead to error since wages may be determined along with health insurance costs. We thus impute hourly wages for each worker from a regression of wages on our independent variables. To compare trends in hours by wage rate, we divide the population into three wage groups: those with a predicted wage (in $1980) of less than $7.50; those with a predicted wage greater than $7.50 but less than $10.00; and those with a predicted wage greater than $10.00. Roughly one-third of workers fall into each category.

The coefficients on wages and wage trends are reported in Table 4. The first three rows report hours differences by wage level for workers without health insurance. Among those without employer provided health insurance, hours are roughly similar for workers of all wage levels. The next three rows give difference in hours worked by wage level for those with health insurance. In this case, low wage workers with health insurance work more hours on average than high wage workers with health insurance, a result consistent with the notion that benefits are relatively more costly for low wage workers. The next three rows give the trend in hours worked for workers without health insurance. Relative to high wage employees, medium wage employees have seen modest reduction in hours worked over time, while low wage employees have experienced an even great decrease in hours. This is consistent with the literature documenting large increases in the relative demand for high-wage workers over time.

After accounting for these trends, hours worked increased by roughly the same amount for all workers with health insurance, regardless of wage level (the last three rows in Table 4). This result is inconsistent with an explanation that health insurance is merely proxying for unmeasured

skill and is consistent with the model that health insurance costs have driven the increase in hours worked.

Another significant change that occurred between 1979 and 1992 was a substantial reduction in marginal tax rates, especially for high-wage workers. To the extent that health insurance is correlated with wages, the estimated hours increase of those with health insurance may have been a labor supply response to the change in the after-tax wage rate for this group. However, conditional on wages, this response should not differ for those with and without health insurance, and will thus be accounted for by the *Time*Wage* interactions in Table 4 (indeed, the increasing pattern of *Time*Wage* coefficients is consistent with both a increase in the demand for skilled workers, and a tax-rate induced increase in the labor supply of high-wage workers).

VI. Health Insurance and Pensions

Since health insurance is correlated with other benefits, it is important to distinguish the effects of health insurance from the effects of other benefits. In principle, accounting for other benefits may increase or decrease the effects of health insurance. To the extent that health insurance is correlated with other benefits, accounting for these benefits may reduce the direct effects of health insurance on hours of work. On the other hand, if other benefits are fixed costs as well, the effect of health insurance may be *greater* for employees who also receive other benefits than for workers who just receive health insurance.

The largest benefit outside of health insurance -- and the one for which we have data -- is employer-provided pensions. The CPS asks workers whether their employer offers a pension and if so, whether the employee is covered. We use data on whether the employee is covered by a pension, to match the data on whether the employee is covered by health insurance.

There are two difficulties in distinguishing the effects of health insurance from those of pensions. First, the two are highly correlated. As shown, 75 percent of workers either have both health insurance and a pension, or neither. Only 22 percent have health insurance without a pension, and a mere 3 percent have a pension without health insurance.

Health Insurance and Pension Coverage

	Health Insurance	
Pensions	No	Yes
No	13%	22%
Yes	3%	62%

Source: Authors' tabulation from the CPS.

Second, it is not clear whether pensions represent a variable or a fixed cost. Because employer contributions to defined contribution pension plans are typically tied to wages, these pension plans may be more appropriately thought of as variable costs to the firm. Defined benefit pension plans, in contrast, have more of a fixed cost component, although in many plans contributions are indirectly tied to wages. It is therefore difficult to know whether defined benefits plans represent a fixed or variable cost to the firm.[16]

To examine the effect of pensions on hours of work, we estimate a regression similar to that specified in equation (7), replacing health insurance with a dummy variable for pension coverage. These results are presented in the first column of Table 5. As with health insurance, workers with a pension have worked increasing hours over time relative to workers without a

[16] The frequent mention of nondiscrimination rules in the debate over pension reform suggests that employers and employees do not consider pensions perfectly substitutable for wages.

pension. The effect is actually a bit larger than for health insurance (0.077 hours per week), but is of the same order of magnitude.

To examine the interaction between health insurance and pensions, we divide workers into three categories: those who have only health insurance, those who have only a pension; and those who have both health insurance and a pension. The second column of Table 5 examines the changes in hours worked for workers in each of these three categories. Two conclusions emerge. First, the independent effect of both health insurance (0.036) and pension coverage (0.031) on changes over time in hours worked is about the same. The result is statistically significant in the case of health insurance, although not in the case of pension coverage.

The second conclusion is that for workers with both health insurance and a pension, there is a significantly larger effect on hours worked. For these workers, hours increase by 0.081 hours per week annually, or 1 hour per week over the sample period. This effect is somewhat larger than the sum of the separate effects of pensions and health insurance, but is not inconsistent with the notion that pensions and health insurance have had roughly similar effects on hours over the past decade. If firms do treat pensions like a fixed cost, the similarity of these results can be explained by the fact that employer expenditures on health insurance and pensions are also roughly equal. One difficulty with interpreting these results, however, is that the pension and health insurance plans of firms which offer both may be significantly more generous than the plans in firms which offer only one or the other. Without more detail on the characteristics of both the health insurance plans and the pensions of different industries, however, we cannot address this issue.

VII. Changes in The Composition of Workers with Health Insurance

A final concern is that the earlier results are biased because of changes in the composition of workers with health insurance. Bias from composition changes may work in either direction. Suppose first that over time there is a decline in health insurance coverage for workers with fewer hours of work compared to workers with higher hours of work.[17] As a result of this change in the insured population, the pool of workers with health insurance will become increasingly concentrated among those who work longer hours, and it will appear that hours of work are increasing among those with health insurance. In fact, the share of workers in our CPS sample with health insurance from their employer fell by over 10 percentage points between 1979 and 1992 (Figure 3), suggesting that composition bias is potentially a problem.[18]

Composition change may also bias the coefficients towards zero, however. If workers who move in and out of coverage have smaller increases in hours than workers with permanent coverage (because their coverage may be dropped if costs rise sufficiently), the observed increase in hours for those with health insurance will understate the true increase for those with health insurance throughout the sample.

The appropriate solution to this composition problem is to eliminate from the estimation workers who are insured in some years but not in other years. Suppose we were able to limit the estimation to workers who had health insurance in each of two consecutive years or who did not have health insurance in either year. Because no worker changed health insurance status, there is

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[17] Tabulations from the SIPP data described below suggest that this is indeed the case. For workers who were continuously insured over the SIPP sample period, average initial weekly hours equaled 44.2. In contrast, the average initial weekly hours of those who lost their health insurance coverage was 43.8.

[18] While some of this decline is due to changes in the CPS questionnaire in 1988 (Levit, Olin and Letsch 1992), there is still a large decline even excluding the change in 1988.

no composition bias in measuring changes in average hours for these two groups. Restricting the sample to those with fixed health insurance status thus solves the composition problem.[19]

In principle, we could address this issue with the CPS by linking individuals in two consecutive March surveys. This, however, would only allow us to observe whether health insurance coverage was constant at two points in time that are one-year apart. Instead, we turn to the Survey of Income and Program Participation (SIPP) which follows individuals for two to four years. This allows us to observe whether or not health insurance coverage is constant for a much longer period of time. We use data from the 1984-1992 SIPP panels, which cover a period of time between 1983 and 1994. Each panel consists of between 30,000 and 60,000 individuals who are interviewed every 4th month for two to four years (these interviews are termed "waves"). Because the same individual is followed over time, we can look at hours changes for workers who have health insurance continuously over the period compared to workers without health insurance at any time.

As with the CPS, we restrict the sample to men between the ages of 25 and 54 who were not self-employed in any wave. We also impose the same weeks worked and wage restrictions as in the CPS.[20] We omit waves in which an individual did not work. The resulting sample contains 288,543 observations on 52,815 individuals.[21] Summary statistics for our SIPP sample are

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[19] Alternatively, if changes in health insurance coverage were random, we could examine the changes over time in the incremental hours worked for those whose health insurance coverage status changed. This approach has been used to estimate the wage differential associated with union membership. Because the initiation or loss of health insurance coverage is not likely to be random, however, we do not adopt this approach.

[20] The weeks worked cutoff in the CPS is 40 weeks in the previous year. The analog to this in the SIPP is 13 weeks in the previous four months (the previous wave).

[21] Appendix Table 3 shows the sample sizes for each SIPP panel.

presented in Table 1. As can been seen, individuals in this dataset look very similar to their CPS counterparts.

We begin by using these data to replicate our basic CPS results presented in Table 2. Thus, we first estimate equation (7) using all individuals regardless of whether their health insurance status changed over time.[22] These results are presented in the first column of Table 6. The standard errors in this table have been corrected to account for the fact that there are multiple observations on each individual. The coefficients on the demographic variables are generally similar to those in Table 2.[23] The finding of a larger health insurance effect than in the CPS data is potentially explicable by measurement error in the CPS. Although the CPS asks about annual health insurance coverage, comparisons of coverage rates in the CPS and the SIPP suggest that at least some people answer the CPS question as if it refers to current health insurance status.[24] The resulting measurement error will bias the CPS estimates towards zero.

The coefficient of interest, that on the interaction between health insurance and the time trend, suggests an even larger increase in hours than estimated from the CPS. Compared to workers without health insurance, workers with health insurance have seen an increase in their

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[22] We make one change from the specification in equation (7). The SIPP data have observations in every month of each year of our sample period (with the exception of the first and last year). The CPS, in contrast, has observations from the same month of every year--March. In the CPS regressions of Tables 2 through 4, we use a complete set of year dummies to control for macroeconomic factors. The CPS results, however, are substantively the same when a time trend is used rather than year dummies. We therefore use a simple linear time trend in our SIPP regressions, rather than a complete set of month and year dummies.

[23] The one notable difference between the demographic coefficients from the CPS in Table 2 and from the SIPP here in Table 6 is that the interactions between education and time are not significant in the SIPP. Note, however, that the coefficients on these interactions follow the same pattern (increasing with education) as in the CPS.

[24] See Reynolds and Swartz (1994) for more discussion on this.

hours of about 0.14 hours per week each year, or 1.7 hours over the SIPP time period. This effect is larger than that estimated using the CPS in Table 2, but of a similar magnitude to that estimated in Table 3 using data on health insurance costs.

To examine the importance of composition bias, in the second column we restrict the sample to workers with health insurance in each interview (about two-thirds of the sample) and workers without health insurance in any interview (about 10 percent of the sample). The coefficients from this regression are similar to those in the first column. In particular, the interaction between health insurance and the time trend remains positive and statistically significant. Moreover, the coefficient is only 30 percent smaller than that in column 1, suggesting that composition bias can explain only a part of the estimated increase in hours worked of those with health insurance. The point estimate implies that the hours of those with health insurance have increased by about 0.10 hours per week each year, or roughly a 3 percent increase in labor input over the 12-year SIPP sample period. We thus conclude that composition bias cannot explain the trends in hours worked noted above.

VIII. Conclusions

Increasing health insurance costs must have some effect on labor markets -- either in lower wages, changes in the composition of employment, or both. Despite the economic presumption that health insurance costs should only affect wages, we document in this paper large effects of health insurance on work hours as well. We show that rising health costs over the 1980s increased hours worked of those with health insurance by up to 3 percent. We argue that this finding occurs because health insurance is a fixed cost, and as it becomes more expensive to provide, firms face an incentive to substitute hours per worker for employment.

Our results suggest several important considerations for the ongoing debate about health care reform. The results clearly show that rising health costs are not "neutral." If the hours increase we document is used as a complement to lower employment, our results imply very large and ongoing changes in the distribution of employees across jobs. Workers who cannot be employed in jobs with health insurance will crowd jobs without health insurance, lowering wages and potentially limiting total employment. Examining in more detail whether the corresponding employment response has occurred is clearly one avenue for future research.

In addition, there are many other labor market outcomes that have been anecdotally linked to the rising cost of benefits provision, such as an increased employment of part-time and temporary workers and an increased sorting of workers among firms on the basis of preferences for health benefits. A richer framework than that specified in this paper would generate many of these predictions, and their empirical validation is an important area for research that will enhance our understanding of the relationship between the structure of employment and the provision of employee benefits.

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Table 1. Sample Means

Variable	CPS	SIPP
Hours per week	43.5	43.4
	(8.4)	(9.13)
Own Employed-Provided Health Insurance	0.84	0.82
	(0.36)	(0.38)
Age	37.6	37.2
	(8.3)	(8.2)
Married	0.76	0.72
	(0.43)	(0.45)
Less than high school	0.12	0.14
	(0.34)	(0.35)
High school graduate	0.37	0.34
	(0.48)	(0.47)
Some college	0.21	0.25
	(0.42)	(0.43)
College graduate	0.29	0.28
	(0.45)	(0.45)
Hourly wage ($1980)	$8.60	$10.20
	($4.17)	($5.03)

Data come from the 1980-1993 March CPS and the 1984-1992 Panels of the SIPP. Sample is comprised of men aged 25-54 with a real ($1980) hourly wage between $1.65 and $57, who were not self-employed, and who worked more than 39 weeks in the previous year (CPS) or more than 14 weeks in the previous four months (SIPP). Standard deviations are in parentheses.

Table 2. The Effect of Health Insurance on Hours Worked (CPS)

		Multinomial Logit		
Variable	OLS	<25 Hours	40 Hours	>40 Hours
Health Insurance				
Health Insurance	1.197	-1.517	.618	.546
	(.096)	(.096)	(.045)	(.048)
Time * Health Insurance	.057	.004	.015	.039
	(.011)	(.012)	(.005)	(.006)
Demographics				
Age	.291	-.186	.056	.107
	(.019)	(.027)	(.011)	(.012)
Age^2	-.004	.002	-.001	-.001
	(.0002)	(.0004)	(.0001)	(.0002)
Married	1.324	-.316	.488	.706
	(.037)	(.048)	(.021)	(.022)
Less than high school	-.734	-.410	.153	-.290
	(.107)	(.151)	(.061)	(.063)
High school graduate	-.587	-.425	.228	-.112
	(.082)	(.126)	(.049)	(.050)
Some college	-.631	.133	.142	-.094
	(.093)	(.123)	(.054)	(.055)
Time * Less than high school	-.109	-.001	.000	-.040
	(.013)	(.018)	(.008)	(.008)
Time * High school graduate	-.044	-.018	.006	-.012
	(.010)	(.015)	(.006)	(.006)
Time * Some college	-.016	-.019	.000	-.008
	(.011)	(.015)	(.007)	(.007)
Sample Size	247,906		247,906	
R^2 or Log likelihood	0.062		-201,283	

Data come from the 1980-1993 CPS. The sample is males, 25-54, who are not self-employed. All regressions include 1-digit industry and occupation controls, and year dummy variables. Sample is weighted to national totals.

Table 3. Changes in Health Insurance Cost and Hours Worked (CPS)

Variable	OLS
Health Insurance	1.024
	(0.452)
ΔCost	-0.022
	(0.339)
ΔCost * Health Insurance	-0.156
	(.353)
Time * ΔCost	-0.112
	(0.037)
Time * Health Insurance	-0.089
	(0.052)
Time * ΔCost * Health Insurance	0.130
	(0.041)
Sample size	207,597
R^2	0.076

All regressions have the same controls as in Table 2. Health insurance cost is in thousands of dollars. Sample is weighted to national totals.

Table 4. Change in Hours Worked by Predicted Wage (CPS)

Variable	OLS
Low Wage	0.109
	(0.288)
Medium Wage	0.275
	(0.284)
High Wage	--
Low Wage * HI	0.976
	(0.281)
Medium Wage * HI	0.637
	(0.290)
High Wage * HI	--
Time * Low wage	-0.070
	(0.031)
Time * Medium wage	-0.034
	(0.032)
Time * High wage	--
Time * Low wage * HI	0.046
	(0.016)
Time * Medium wage * HI	0.046
	(0.019)
Time * High wage * HI	0.062
	(0.027)
Sample Size	247,906
R^2	0.062

Predicted wage is based on a regression of hourly wages on the independent variables noted in Table 2 (without the health insurance terms). The regression includes all of the controls in Table 2. Sample is weighted to national totals.

Table 5. Health Insurance, Pensions, and Hours (CPS)

Variable	OLS	OLS
Health Insurance	---	1.867
		(0.119)
Time * Health Insurance	---	0.036
		(0.014)
Pension	-0.319	0.839
	(0.068)	(0.225)
Pension * Time	0.077	0.031
	(0.008)	(0.025)
Health Insurance & Pension	---	1.119
		(0.108)
Time * Health Insurance & Pension	---	0.081
		(0.013)
Sample Size	247,906	247,906
R^2	0.057	0.063

Note: The regression includes all of the controls in Table 2. Sample is weighted to national totals.

Table 6. Health Insurance and Hours of Work (SIPP)

Variable	All Workers	Workers with Same Health Insurance Status
Health Insurance		
Health Insurance	1.790	2.664
	(0.206)	(0.333)
Time * Health Insurance	0.141	0.100
	(0.030)	(0.047)
Demographics		
Age	0.315	0.297
	(0.041)	(0.046)
Age^2	-0.004	-0.004
	(0.001)	(0.001)
Married	1.746	1.575
	(0.081)	(0.095)
Less than high school	-1.588	-1.607
	(0.251)	(0.295)
High school graduate	-1.292	-1.505
	(0.201)	(0.223)
Some college	-1.209	-1.195
	(0.210)	(0.231)
Time * Less than high school	-0.015	-0.019
	(0.035)	(0.043)
Time * High school graduate	0.010	0.024
	(0.027)	(0.030)
Time * Some college	0.020	0.032
	(0.032)	(0.035)
Sample Size	288,543	218,560
R^2	0.059	0.062

Data come from 1984-1992 panels of the SIPP. The sample is men aged 25-54 who were not self-employed at any time. Industry and occupation dummies as well as a time trend are included in the regressions but not reported. Standard errors have been corrected to account for multiple observations on the same individual.

Table A1. CPS March to MORG Match Rate

Year	Sample	
	Number of individuals in March CPS	Percent merged with MORG
1980	26,243	88.7%
1981	26,630	84.5
1982	23,953	88.6
1983	23,986	87.8
1984	23,860	88.0
1985	24,510	87.6
1986	24,525	86.9
1987	24,484	86.6
1988	24,797	79.0
1989	23,271	87.9
1990	26,188	86.5
1991	26,167	86.4
1992	25,953	85.9
1993	25,564	85.8

Data are for men aged 25-54 who are not self-employed.

Table A2. Health Insurance Costs per Insured Worker, 1992

Industry	Cost	Industry	Cost
Tobacco	$10,568	Oil and gas extraction	3933
Coal mining	10,429	Miscellaneous repair services	3929
Petroleum and coal products	8932	Wholesale trade	3828
Communications	7341	Nonmetallic minerals, except fuels	3824
Transportation equipment	6223	Depository institutions	3811
Metal mining	6081	Transportation services	3769
Electric, gas, and sanitary	5823	Water transportation	3712
Primary metal	5697	Legal services	3673
Chemicals and allied products	5399	Pipelines, except natural gas	3646
Motion pictures	5299	Furniture and fixtures	3533
Food and kindred products	5108	Business services	3261
Transportation by air	4975	Lumber and wood products	3231
Construction	4743	Other services	3059
Instruments and related products	4731	Apparel and other textile products	2984
Rubber and miscellaneous plastics	4614	Personal services	2915
Security and commodity brokers	4575	Auto repair, services, and parking	2791
Fabricated metal	4557	Trucking and warehousing	2687
Industrial machinery and equipment	4525	Insurance	2616
Nondepository institutions	4353	Textile mill products	2601
Paper and allied products	4325	Leather and leather products	2417
Amusement and recreation services	4241	Farms	2180
Stone, clay, and glass	4199	Retail trade	2110
Miscellaneous manufacturing	4157	Agricultural services, forestry, and fisheries	2106
Electronic and other equipment	4099	Railroad transportation	1712
Hotels	4066	Real estate	1712
Health services	4051	Local and interurban passenger transportation	1158
Printing and publishing	4033		

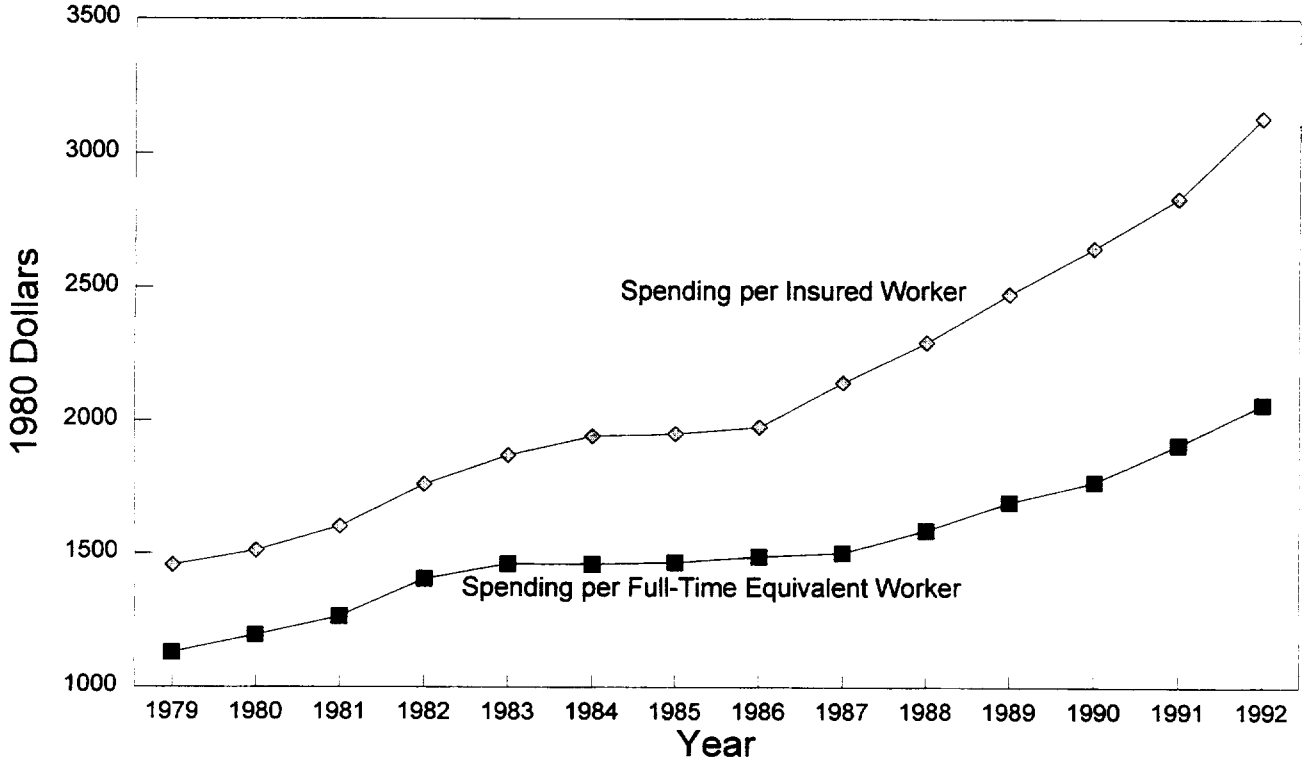
Based on data from the Commerce Department.

Table A3. Description of SIPP Data

Panel	Number of Observations	Number of Individuals
1984	40,860	10,929
1985	29,399	5,359
1986	24,560	4,525
1987	25,865	4,526
1988	23,665	4,795
1990	56,568	8,944
1991	37,268	5,824
1992	50,358	7,913
TOTAL	288,543	52,815

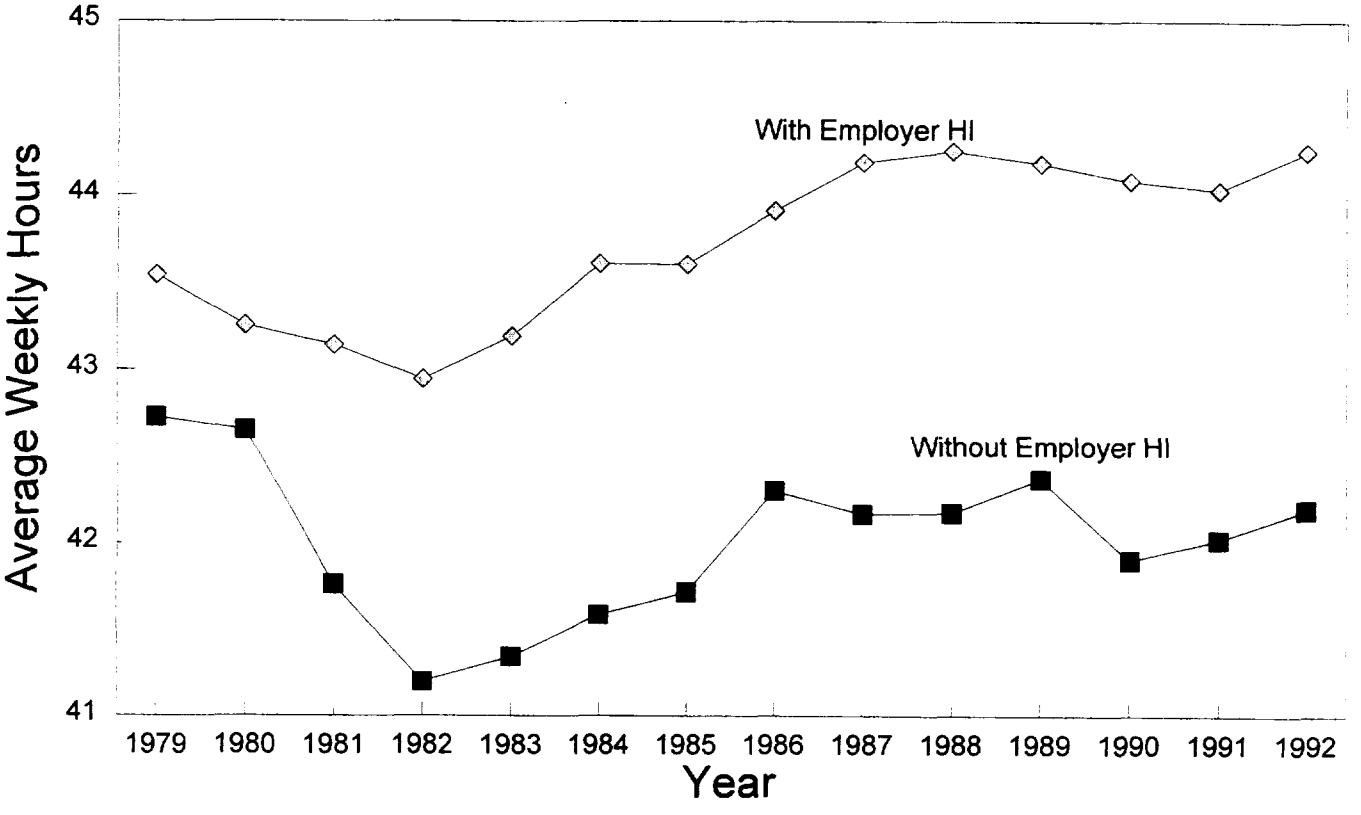
The sample is men aged 25 to 54 who were not self-employed at any time in the panel and who had real ($1980) average hourly wages of between $1.65 and $57. Only waves in which an individual was working are included.

FIGURE 1. Employer Spending on Health Insurance



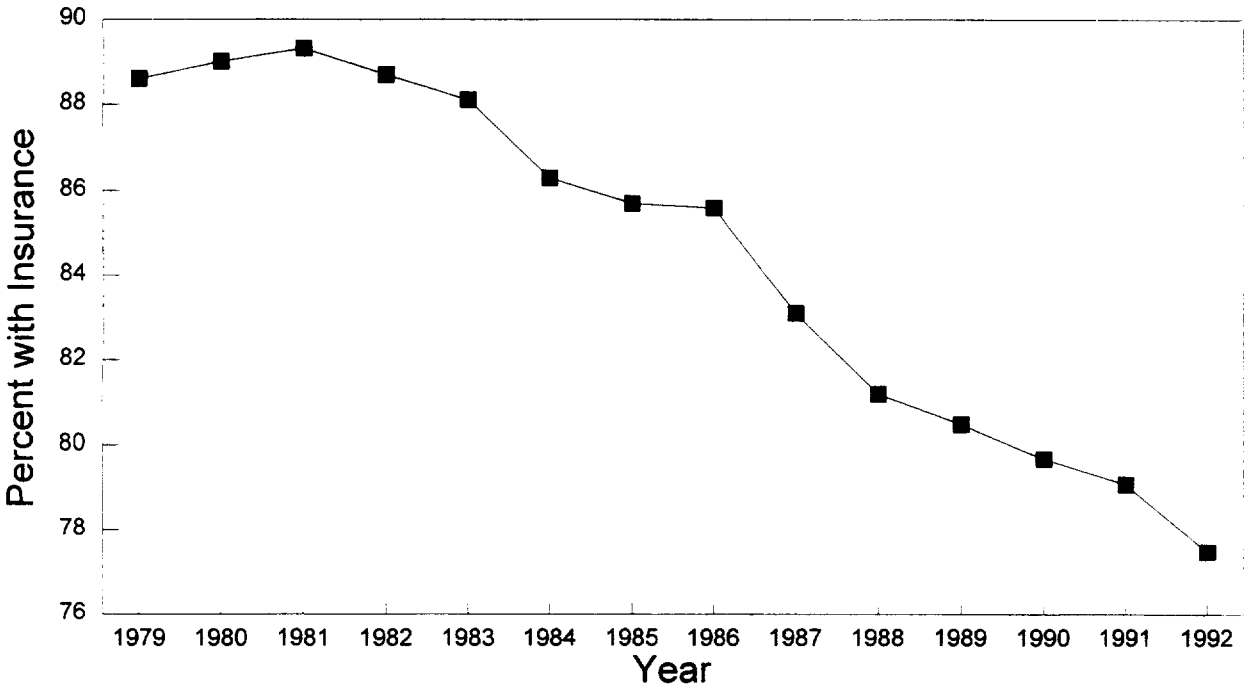
Source: Author's calculations based on data from the Commerce Department.

FIGURE 2. Average Weekly Hours and Health Insurance Coverage



Source: Author's calculations using data on 25-54 year-old men from the 1980-1993 March CPS.

Figure 3. Own Employer-Provided Health Insurance Coverage



Source: Authors' calculations using data on 25-54 year-old men from the 1980-1993 March CPS.