Health Care Costs, Wages, and Aging

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ABSTRACT

While economists generally agree that workers pay for their health insurance costs through reduced wages, there has been little thought devoted to the level at which these costs are passed on: Is each employee's wage reduced by the amount of his or her own health costs, by the average health costs of employees in the firm, or by some amount in between? This paper analyzes one dimension of the question of how firms pass health costs to workers. Using cross-city variation in health costs, I test whether older workers pay for their higher health costs in the form of lower wages. I find that in cities where health insurance costs are high, the age/wage profile is flatter, indicating that older workers do pay for their higher health costs in the form of reduced wages. This finding is robust to the inclusion of several other city-specific variables that might also affect age/wage profiles and that could be correlated with health insurance costs. I also find that workers who choose family health insurance coverage pay for the added employer costs through reduced wages.

I. Introduction

While economists generally agree that, on average, workers pay for their health insurance costs through reduced wages, there has been little thought devoted to the level at which these costs are passed on. Under our current health system, the health insurance costs faced by most *firms* vary with the health conditions of their employees, either because firms self insure and pay the actual medical costs of their employees, or because they buy insurance in the small group market, which generally bases insurance premiums on workers' expected health costs. Firms can pass these costs on to workers in a number of ways. At one extreme, individual health care costs may be passed on to individual wages -- that would mean that a worker with cancer would receive significantly lower wages than a healthy worker. At the other extreme, employers may smooth health care costs across workers, providing implicit subsidies from workers with low health insurance costs to those with higher costs.

Exactly how health insurance costs are passed on to workers is important both for furthering our understanding of the workings of labor markets and for analyzing the impact of health insurance reforms. For example, a number of states have enacted community rating laws for their small-group health insurance markets.[1] These laws eliminate or reduce the ability of insurers to vary their health insurance premiums based on age or health status. If firms already "community rate" their insurance premiums within their own firms, then these laws will not have large effects. On the other hand, if firms charge workers (through direct charges or reduced wages) only for their actual or age-specific health costs, then community rating laws will redistribute income from younger to older workers. Similarly, an understanding of the level at which health care costs are passed on to workers is

[1] See Institute for Health Policy Solutions (1995).

necessary to evaluate the effects of recently enacted federal subsidies to expand children's health insurance coverage. Some analysts argue that one by-product of these recent efforts is a reduction in the prevalence of employer-provided insurance for low-income workers.[2] To the extent that this substitution of public for private insurance takes place, it is important to know who the beneficiaries are--do the firms gain when their health insurance costs are reduced, or do low-income workers receive higher wages as a result?

This paper analyzes one dimension of the question of how firms pass health costs to workers. Using cross-city variation in health costs, I test whether older workers pay for their higher health costs in the form of lower wages. If the age/wage profile is flatter in cities with high health costs, this would be evidence that firms do pass on age-related health insurance costs to their workers. I also examine whether married workers who have family policies pay for their higher insurance costs through lower wages.

The paper is organized as follows. In Section II, I show that most employers directly bear the age-related health costs of their workers. In Section III, I review a number of existing models of labor contracting to determine what theory would predict about the incidence of these costs. I argue that for the standard full-information model, in which workers maximize utility and firms maximize profit, a worker's expected health costs will be fully reflected in his or her wage. However, if it is costly for firms to determine a worker's expected health cost, or if workers pay attention only to the nominal wage payment and not to the value of benefits, then health costs may not be passed on at the level of individual wages, but potentially at the industry or occupation level --

[2] For a discussion of the controversy, see Yazici and Kaestner (1998), Cutler and Gruber (1997) and Dubay and Kenney (1997).

i.e., occupations or industries with many older workers may pay lower wages to all their workers. Section IV discusses the estimation strategy used to test whether older workers pay for their higher expected health costs, and Section V discusses the basic data used in these tests. Section VI presents estimates of the variation of employer health insurance expenditures across age and sex. Section VII discusses the estimation results. Section VIII concludes with a discussion of the policy implications of the findings.

II. Employers' Health Expenditures

The health insurance expenses of most employers will vary with the expected health costs of their employees. Large employers generally self-insure, meaning that they pay directly for their employees' insured health expenses. For example, in 1993, 63 percent of firms with 500 or more employees self-insured, although overall, only 19 percent of employers did. Overall, it is estimated that 46% of employees who have health insurance are in a self-insured plan (Jensen, Morrisey, Gaffney, and Liston, 1997). The remaining employees work for firms that purchase health insurance. In general, the rates charged to employers for their health insurance depend on the age distribution of their employee population, as well as on a number of other demographic and health status characteristics.

According to estimates from the American Academy of Actuaries, in 1992, only 9 percent of employees with employer-sponsored health insurance were in community rated plans. The remaining 91 percent of workers were either in self-insured plans, or in commercial health insurance plans that based premiums either on the age and sex of workers, or on the actual health status or health experience of the employees. (American Academy of Actuaries, 1996). Thus, the vast

majority of employees with employer-sponsored insurance work at firms that pay more for health insurance the higher the health costs of their employees. The key question is who bears these costs.

III. Theoretical Considerations and Previous Research

There has been little research to date devoted explicitly to the issue of how medical costs are passed on to wages, but existing models of labor contracting can readily be applied. In the simplest model, in which every worker is paid his or her marginal product, workers who receive substantial health care benefits would receive lower wages, with a one-for-one offset between health costs and wages. Older workers who have higher health care costs would be paid lower wages to compensate. This model is likely too simple, as it would imply that workers with chronic illnesses would pay the expected costs of those illnesses through lower wages. To the extent that firms do continue to employ workers and provide them with insurance even though the expected costs of their health expenses and wages exceed their marginal product, some type of implicit contract model is appropriate.[3]

But the motivations for smoothing health costs across age are quite different from those for smoothing costs due to unexpected shocks in health status. Because increases in health costs with age are predictable, smoothing health costs across an individual worker's tenure does not provide insurance but rather forced saving. While the firm has a clear advantage over the individual in

[3] In fact, the concern about "job-lock" would be irrelevant were it not the case that, at least at some firms, workers with higher anticipated health costs do not pay for them with reduced wages and hence can not move freely to other firms at which they might. While anecdotal evidence certainly suggests that some individuals are "locked" into their current jobs because of health insurance concerns, the empirical importance of this phenomenon is a subject of some controversy. See Cooper and Monheit (1993), Holtz-Eakin (1993), and Madrian (1994).

smoothing the costs of unpredictable health shocks across individuals, it is not obvious that it has any such advantage in providing saving.[4]

In an examination of the relationship between wages and benefits, Bulow and Landsman (1985) describe two classes of models which could lead firms to smooth health costs across workers of different ages: equity models and hierarchical models. Both of these classes of models entail some contemporaneous transfers between younger and older workers.[5] Under the equity models, relative wages are determined without regard to benefit expense. Workers expect to be paid the same in wages as others with the same job, and pay no attention to the fact that some workers are receiving more valuable benefits than others. Under this type of model, firms do recognize that older workers cost them more in benefits, but for some reason, perhaps perceptions of fairness or antidiscrimination rules, cannot adjust wages accordingly. This is clearly the nature of the model underlying the discussion in Aaron (1994), where he states that "experience rating ....encourages employers not to hire candidates with high predictable health care costs -- the older, the disabled, the previously ill.....Community rating avoids such perverse business incentives, and thus complements laws that prohibit discrimination based on age and disability."

What are the implications of this sort of model? If workers do compare wages across jobs, then the outcome of this model would be that workers with the same occupation would receive the same wage, with younger workers subsidizing older workers with the same job. Workers in occupations with a lot of older workers would suffer reduced wages. However, firms with a high

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[4] However, Frank and Hutchens (1993), Neumark (1992) and Loewenstein and Sicherman (1991) find evidence that workers desire for forced saving may contribute to the observed rising age/wage profile.

[5] By contrast, if forced saving were the motivation, firms would smooth health costs across an individual's tenure, but would not redistribute costs from older to younger workers.

proportion of older workers of a given occupation, relative to the average age within the occupation, would also spend more in total compensation than other firms.

The second model identified by Bulow and Landsman is the hierarchical model, under which the a firm's benefit office is separate from the hiring office. One example might be a university, where different departments are provided budgets to pay wages, with the university providing the benefits from a centralized office. Under this system, those doing the hiring have no incentive to offer lower wages to older workers, and as long as all firms operate in this fashion, the market equilibrium wage will not reflect age or individual-specific differences in benefit costs. However, industries with older workers will have higher "overhead" costs, and may pay lower wages. Individual firms with workers older than the industry average, however, may not be able to lower the wages of their own workers and the higher health care costs may be borne by shareholders.

Previous Empirical Research

There has been little research to date devoted explicitly to the issue of how health costs are passed on to wages. One exception is Gruber (1994) who studied the impact of mandated maternity coverage on the relative wages of maternity-age workers relative to other wages. He found that workers experiencing higher health costs because of the mandates did suffer reduced wages, indicating that employers could pass differential costs to specific groups of workers.[6] However, the

[6] Actually, Gruber could not distinguish between individual-specific and group-specific effects. For example, it is possible that the employer response to the mandate was to lower the wage of women who became pregnant rather than the wages of all workers in the child-bearing years. Since it is easier for a firm to tell if its own employee is pregnant than to tell if an employee's spouse is pregnant, such an individual-based mechanism would have a greater effect on women than on men. In fact, Gruber found much stronger evidence for wage reductions for women than for men, even though the mandate increased the costs of health insurance for men about equally.

effects of a mandated benefit on wages could be different from the effects of fringe benefits that are supplied voluntarily. Previous research aimed at uncovering the compensating wage differential associated with the voluntary provision of health insurance generally found that workers with health insurance had higher wages than those without.[7] These results were likely biased by severe selection effects because more productive employees are more likely to have health insurance.[8]

There is a much more extensive pension literature aimed at distinguishing between the spot-market model, under which a worker's compensation would equal his or her marginal product on an annual basis, and the lifetime contract model of labor markets. Pension compensation under defined-benefit pension plan typically exhibit large spikes; a spot-market model would imply that these spikes in pension compensation are offset by similar spikes in cash wages or other benefits. The empirical evidence testing this hypothesis has been mixed. Kotlikoff and Wise (1985), and Montgomery, Shaw and Benedict (1990) conclude that the lifetime contract model is more appropriate, at least with respect to pension benefits, while Clark and McDermed (1986) find evidence for the spot-market model.

Bulow and Landsman (1985) tried to distinguish between economic and noneconomic models of the labor market. They used data from Stanford University to test whether faculty members who chose to contribute to pensions that received matching funds from the university received lower salaries. They found that an individual's salary was not significantly affected by the pension acceptance decision. They interpret their findings as support for the equity or hierarchy models. It may be more difficult, however, to have salaries predicated on individual decisions than

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[7]See Leibowitz (1983), and Monheit et. al. (1985).

[8] See Morrisey (1991) and Gruber and Krueger (1991) for a discussion of the failures of previous research to uncover compensating wage differentials.

on group characteristics.

IV. Estimation Strategy

To examine the effects of health care costs on wages, I use cross-city variation in health insurance costs. The basic estimating strategy is to test whether a city's health care costs have a larger impact on the wages of older workers than of younger workers. By using the variation in health costs across cities, I am able to minimize the selection problems and also am able to separately identify the effects of aging on health costs from the effects of aging on productivity and employer costs.[9]

Under the spot-market hypothesis, total compensation, the sum of wages and expected employer health costs, HC, would be a function of individual characteristics and a city effect. This hypothesis could be tested with the following equation:

$$\log(W_{i,m}+\gamma HC_{i,m}) = \beta X_i + \varphi_m + \varepsilon_i \qquad (1)$$

[9] Health insurance costs will vary across cities both because of differences in practice styles that can lead to large variations in the costs of treatment (see, for example, Skinner and Wennberg, 1998) , as well as differences in the price of treatment. To the extent that variations in practice styles reflect differences in workers' desire for more or less intensive treatment, this difference should be reflected in the wage. It is less clear cut whether differences in health insurance costs arising from difference in prices should be reflected in wages. Mobile firms will ensure that costs per unit produced are equalized across localities, implying that workers will bear the costs of higher health insurance. However, if workers are perfectly mobile, they would not accept lower real compensation in one city than another. Of course, other things can vary across cities to remove this disequilibrium--for example, local amenities and even other prices (especially land prices), so that firms pay the same in total cash compensation across cities yet workers receive the same utility. Empirically, the cost of living has an insignificant impact on wages (Gyourko and Tracy, 1991 and 1989). Thus, it seems reasonable to assume that variations in health insurance costs arising from variations in input prices will be reflected in workers' wages.

where, for individual i in city m, $W_{i,m}$ measures the wage, $HC_{i,m}$ represents the expected employer health costs, and $X_{i,m}$ represents the standard individual characteristics that influence wages, and ϕ_m is a city-specific error reflecting unmeasured prices. If health costs are passed on to employees in the form of lower wages, then the coefficient on health costs, γ, would be 1. I do not measure individual-specific health costs, but rather model health costs as a function of age. Although health care costs differ across cities, I assume that the relative costs of health care across age groups within a city is constant:[10]

$$HC_{i,m} = \frac{\bar{HC}_m}{\bar{HC}}(\alpha + \delta age_i) \qquad (2)$$

where δ measures the effect of age on health costs on average (which I estimate from a different data set discussed below), $\bar{HC}_m$ represents the average health care cost across all ages in city m, and $\bar{HC}$ represents the average health care cost across all ages and all cities.[11]

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[10] Indeed, data from the California HIPC show that the age/premium relationship does not vary much across geographic areas, even as average premiums do.

[11] In the regression analysis, I also allow health costs to vary by age group, rather than restricting the relationship between health costs and age to be linear. In this case, health costs are modeled as:

$$HC_{i,m} = \frac{\bar{HC}_m}{\bar{HC}}(\alpha + \delta_2 D2_i + \delta_3 D3_i + \delta_4 D4_i + \delta_5 D5_i + \delta_6 D6_i + \delta_7 D7_i)$$

where the D variables take the value of 1 if the individual is in that age group. In this case, the δ's measure the amount by which a group's health costs exceed those of the youngest omitted group.

Combining equations (1) and (2) yields the theoretically appropriate estimating equation:

$$\log(W_{i,m}+\gamma\frac{\bar{HC}_m}{\bar{HC}}(\alpha+\delta age_i))=\beta X_{i,m}+\varphi_m+\varepsilon_i \qquad (3)$$

This equation presents two problems. First, it is nonlinear. Second, ϕ_m, the city's price level, is unobserved. Because a city's health costs are likely to be positively correlated with its price level, running the equation without a measure of prices will induce a spurious **positive** coefficient on the health care variable in the wage equation, although maybe not on the age/health care cost interaction variable. My main approach is to run a linear version of this equation[12]

$$\log(W_{i,m})=\beta X_{i,m}+\varphi_m-\gamma\frac{\bar{HC}_m}{\bar{HC}}(\alpha+\delta age_i)+\varepsilon_i \qquad (4)$$

I then subtract the means by city of all variables to reduce the problem stemming from the omission

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[12] I also estimated equation (3) directly using nonlinear least squares, rewriting it as:

$$W_{i,m}=exp(\beta X_{i,m})-\gamma\frac{\bar{HC}_m}{\bar{HC}}(\alpha+\delta age_{i,m})+\varepsilon_{i,m}$$

Because of computational difficulties, I was not able to include city dummies in this regression, and hence the coefficients are still biased by the omitted local price variable. This nonlinear equation was more sensitive to outliers, but provided essentially the same results as those presented in the paper.

Note that under the approximation in (4) the effects of health costs on wages are assumed to be proportional to wages. This may not be a bad approximation, as workers with higher wages are more likely to receive employer insurance and are likely to pay a smaller share of their premium (Sheiner, 1994), and higher-income people have been shown to use medical services more intensively (Mclellan and Skinner, 1997). Because health expenditures by age are unlikely to be strictly proportional to wages, however, running this equation may bias the coefficients on the health care variables toward zero.

of φ_m, and for convenience, divide the health cost variable by the average wage in order for the coefficients to be interpretable as the effects of an increase in health costs on the dollar value of annual wages. Under the hypothesis that older workers pay for their higher expected health costs, γ will be 1, and the coefficient on the interaction between $\bar{HC}_m/\bar{HC}$ and the individual's age, will equal δ, the impact of age on relative health costs. If health costs are not shifted to wages, or if health costs are reflected in the average wage but not in age-specific wages, then the coefficient on the interaction between $\bar{HC}_m/\bar{HC}$ and age will be zero.

V. The Data

The data I use to measure city health care costs are from a Milliman and Robertson survey of 16 major writers of comprehensive group health insurance (Chesner, 1991), and measure the mean "area factor" or area price adjustment of the 16 companies for a group of 400 cities. The area factors reflect prices for a standardized benefit package for a standardized group of 15 workers as of October 1, 1989.[13] The data show that there is a lot of variation in health care costs. Cities with the lowest health care costs average only 73% of the average national health cost (Appleton, Eau Claire and Wausau, Wisconsin, and Buffalo, Elmira and Glens Falls, New York), while the city with the highest health cost (Los Angeles) was 73% above the average cost. Figure 1 presents a distribution of health care costs for the 244 cities that were both in the Milliman and Robertson survey and in the Current

[13]Gentry and Peress (1994) use a similar area factor variable from one insurance company to analyze the effect of price and taxes on insurance coverage.

Population Survey.[14] The average city health costs are weighted by population, and larger cities tend to have higher health costs, so, by number, most cities fall below the national average.

In order to match the wage data with the health insurance cost data, I use the 1990 and 1991 March Current Population Surveys, reflecting earnings and demographic information from 1989 and 1990. I use both years to enlarge the data set, but omit any households in 1990 that also appear in 1991. I restrict the analysis to workers working at least 20 hours per week and at least 26 weeks per year. The wage variable that I use is the average weekly earnings from the previous year multiplied by 52 (i.e., I proportionally increase earnings for those workers working fewer than 52 weeks.) I restrict the analysis to those aged 25 to 59. Younger workers are significantly less likely to have health insurance[15], and those who do are likely to be very unrepresentative. Workers older than 59 are likely to be a biased sample because of the prevalence of early retirement in that age group, and the fact that early retirement decision may be influenced by the existence and cost of retiree health plans. I also exclude workers earning less than $2.50 per hour and those earning more than $50 per hour.

VI. Distribution of Health Expenditures Across Age Groups

In order to interpret the coefficients from the regression analysis, it is necessary to determine how employer health insurance costs actually vary by age. This will provide an estimate of what the

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[14] In order to match the city definitions in the CPS, the city factors from some of the cities in the Milliman and Robertson survey were averaged--for example, Los Angeles, Long Beach, Torrance, Inglewood, and Pomona were all combined to create the city factor used for the Los Angeles MSA. (In general, city factors of cities within the same MSA were quite close--the combined city factor for the Los Angeles MSA was 1.7 rather than the 1.73 city factor of Los Angeles proper, for example.)

[15] See Table 1.

δ's (the coefficients on the age/health cost interactions) would be under the hypothesis of 100% shifting. I use the 1987 National Medical Expenditure Survey (NMES) to analyze the age pattern of employer health insurance expenditures. In particular, I compute the sum of annual insured medical expenses for each policyholder and his or her dependents.[16] When two spouses both have family coverage, I divide the medical expenses of the children evenly between them, but assign each individual's insured health expenses to his or her own policy. I also added health insurance expenses covered by workers' compensation to my measure of employer health costs. I normalize the NMES data such that the "premiums" that I calculate match the average cost of conventional insurance premiums in 1989/1990 from the 1990 HIAA employer survey (HIAA, 1990), plus an estimate of the medical component of workers compensation costs per employee.[17]

Because the NMES data set includes information on expenses actually paid for by employer-provided insurance, I did not need to estimate copayments or deductibles. However, I did need to estimate employee shares of the health insurance premium. Data from the NMES policyholder survey for 1987 indicate that employee premium contributions, in dollars, do not vary by age, although they vary by policy type.[18] Thus I assume that employee premium contributions are

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[16] I thank Jessica Vistnes at AHCPR for providing me with the unpublished data necessary to link dependents and policyholders in the household survey. Using the publicly-available linkages would have resulted in too many nonresponses.

[17] The average health insurance premium in the 1990 HIAA survey was $2978. I estimated the average medical component of workers' compensation cost at $193 (from data in Baker and Krueger 1993).

[18] Thus, older employees contribute the same amount in dollars as younger employees with the same policy type. Because the costs of insurance are higher for older employees, the older employees are actually contributing a smaller share of the total costs. The fact that the premium contributions do not vary with age does not mean that age-varying health costs are not reflected in wages. Wages may still reflect the entire employer costs, and this finding only increases the expected coefficient on age under the spot-market hypothesis, since employers actually contribute a greater fraction of the insurance

invariant to age, and are equal to the average percentage contribution multiplied by the average insurance cost, for each policy type. Since there has been a trend toward larger employee contributions over time, I use the average contributions from the 1989 HIAA employer survey and a 1993 followup (see Gabel et. al., 1994). These averages are 15% for single policies and 27% for family policies.

Using these data, I can estimate employer health costs for **insured** workers. To estimate health insurance costs for all workers, including those whose employers do not pay for their health insurance, it is necessary to have data on the fraction of workers receiving health insurance by age and sex. In Table 1, I present data from the 1990/1991 March Current Population Survey Sample on the prevalence of employer-paid health insurance by age.[19] As can be seen from the table, for men, the probability of having employer-paid health insurance increases substantially between ages 20 and 40, and then increases slightly through age 55; 72 percent of all working men between ages 25 and 59 have employer-paid health insurance. In contrast, the probability of having employer-paid health insurance declines slightly over the 25-64 age period for women. Furthermore, the fraction of women with employer-paid health insurance is much lower, averaging only 61 percent for women aged 25-59. To calculate employer costs for all workers, I multiply the age-and-marital status

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costs for their older workers. However, the finding may be indicative of an unwillingness on the part of employers to openly differentiate between employees on the basis of age, perhaps providing some evidence for the "equity" models described above.

[19] The CPS questionnaire actually asks whether individuals receive insurance from their current or former employer or union. Most workers responding in the affirmative to this question presumably receive insurance from their current employer. However, it is possible that older workers who receive insurance do not receive it from their current employer. I refer to this possibility later in my discussion of the regression results. One "correction" that I do make is to reclassify those who claim that they receive insurance but that they pay for it all as not receiving employer insurance. These are likely to be workers purchasing insurance from former employers through COBRA or other retiree health programs.

specific health costs in the NMES data set by the age-and-marital status specific probability that workers have insurance from their own employer (since workers without employer-paid insurance impose a zero cost on their employers).

Table 2 presents my estimates of employer costs.[20] For insured men, employer costs rise relatively steadily throughout ages 25 to 59. (The NMES sample is relatively small, considering the extreme skewness of medical expenses, so the large spike in expenses between 45 and 49 might easily be an artifact of the data.) As shown in the second panel, each additional year of age increases employer health expenses, on average, by $84. This increase in health expenditures stems from two factors--as male workers age, their own health expenses increase, and they are more likely to have family policies as well. The second column of Table 1 reports the effects of age on employer

[20] The distribution of medical expenses is very skewed, and the sample sizes in the NMES data may not be sufficiently large to provide a very accurate measure of how average health expenditures vary with age. As one test, I compared the NMES data with the premiums charged in 1994 by health insurers in the California Health Insurance Purchasing Cooperative (HIPC). (The premiums of insurance policies sold through the HIPC are allowed to vary by age, but not by sex, so I combine data across the sexes from the NMES for this test.) As the following table shows, the NMES data match the California HIPC data reasonably well, although there seems to be a stronger relationship between insured expenses and age in the NMES data. This difference may be attributable to a different selection of policyholders, or to the fact that the California HIPC is dominated by HMOs, which may exhibit a different relationship between health expenditures and age.

	HIPC (Premiums by age group for employee only policies relative to premiums for those under 30)	NMES (Insured expenses by age group relative to expenses for 20-30 year olds)
Ages 30-39	1.11	1.17
Ages 40-49	1.34	1.52
Ages 50-54	1.77	2.14
Ages 55-59	2.15	2.35

health insurance costs once the probability of male workers having insurance has been taken into account.[21] Obviously, health costs are lower on average for all workers than for insured workers alone. For men, the coefficient on the age variable drops from $87 to $70.

Women's health expenditures show much less dependence on age. Column 3 of Table 1 presents the data for insured women. Health expenditures for these women do not show much of a pattern until women reach 55. On average, each additional year of age between 25 and 59 increases expenses by $48; however, excluding medical expenses for 55-59 year olds, age has a much smaller effect on employer expenses, with employer expenses increasing only $36 per year betweeen 25 and 54. This lack of a strong association of health expenses with age stems from two factors -- first, women's own health expenses do not show the same strong pattern with age as men's, largely because childbirth costs raise health expenses for younger women; second, women are less likely to have family policies, and when they do have family policies, are more likely to be in "two-policy" households than are men. Thus, the costs of caring for dependents rises more slowly with age for women than for men. Multiplying the age-specific health costs by the age-specific probabilities of having employer insurance to get an estimate of employer costs for all women, I find that the coefficient on age in a a regression of employer costs on age drops from $48 to $26. Again, omitting the 55-59 year group, the coefficient on age for women is quite small ($18) and insignificant. Thus, on the whole, employer health costs are smaller and vary much less with age for women than for men.

The bottom two panels of Table 2 present estimates of the effects of marriage and having a

[21] The number of observations is the same for the policyholders and the all workers column, because the latter simply reports the means for insured workers multiplied by the probability of insurance coverage for each age/marital status group.

family policy on employer health costs. Being married increases employer costs on average by $1763 per year for insured men, and by $1380 for all men. Having a family policy increases costs somewhat more, by $2070. In contrast, marriage does not cost employers nearly so much for women. For insured women, being married increases costs by only $781; for all women, being married has essentially no impact on employer costs for all women, as the lower probability of having insurance offsets most of the increased cost for those who are insured. Because married women are more likely to have spouses with insurance who share the cost of the kids, having a family policy increases costs for insured women much less than for insured men--by only $841.

VII. Results

Results for Men

Table 3 presents the results for men. I find strong evidence for the hypothesis that the wages of older workers do reflect their higher health costs. The coefficients on the interaction between age and health costs is negative and significant. Without regional age dummies, the regression indicates that each additional year of age reduces wages by $156; with the regional age dummies, the coefficient drops to $113 per year and is still strongly significant. These numbers are somewhat larger than those suggested by the NMES data, which indicated that each additional year of age raised employer costs by an average of $70. The $156 and $113 coefficients correspond to shifting of 222% and 161%, respectively. These shifting coefficients are presented in bold brackets in the table. The third and fourth columns of Table 3 present separate estimates for every age group. As expected, the coefficients get larger and more negative as age increases (through age 54), and again,

the amount of shifting is substantially larger than 100% for certain age groups.[22] The pattern of shifting is not constant across age groups, with those aged 50-54 exhibiting the largest amount of shifting, and those aged 45-49 and 55-59 exhibiting relatively little shifting, particularly once regional age dummies are included. The overall pattern, however, is quite consistent with the hypothesis that health costs are reflected in wages.

Columns 5 - 8 of Table 3 present the results for a sample that includes only men whose employers provide them with health insurance. Because more productive workers are more likely to be provided insurance, splitting the sample this way may introduce some sample selection bias. The problem is likely to be less severe when examining the interaction between health insurance and age, but the direction of the bias is also less clear. It may be that when health insurance is expensive, all "cheap" (i.e. young) workers, but only the most productive "expensive" (i.e. old) workers, receive it. In that case, the sample selection would induce a positive bias on the age times health cost variable--wages would be higher for older workers who receive insurance because the fact that they receive it indicates that they're more productive. On the other hand, it may be that when health insurance is expensive, all older workers want it because going without coverage is too risky, whereas only the more highly paid younger workers choose to be covered. This type of selection would induce a negative bias on the age times health cost coefficient. Empirically, I find some support for this latter hypothesis. For men, high health costs reduce the probability of receiving employer insurance, but less so for older men (the coefficient on age times health costs is only marginally significant, however); for women, I find no effect of age on the impact of health

[22] Because 25-29 year olds are the excluded group in these regressions, the shifting coefficient is calculated by dividing the coefficient on an age-group's health cost variable by the **difference** between the employer costs for that group and the employer costs for 25-29 year olds from Table 2.

costs on the probability of having employer-paid insurance. Thus, selection effects may induce a small negative bias for men, but probably none for women.

The results for the sample of insured men tell much the same story, with the coefficients on the age-health costs interaction variables increasing, particularly on some of the age dummies.[23] Exactly how to interpret these coefficients depends on how wages are set, i.e., whether workers with health insurance receive lower wages than workers without. To the extent that those without health insurance primarily are those whose employers do not offer it, it seems reasonable to assume that workers without health insurance do receive higher wages to compensate, and that only insured workers receive lower wages because of age-specific health care costs. In this case, the spot-market hypothesis would predict that the coefficient on the age*health care variable would be the employer-costs of insured workers, reported in columns 1 and 3 of Table 2. On the other hand, to the extent that workers without employer-paid health insurance from their own employer are those that have been offered insurance but have turned it down, their wages may still reflect the costs of their health insurance had they accepted it. In this case, the average health care costs by age will be reflected in all workers wages, insured or not, and insured workers will be receiving subsidies from uninsured ones.

The shifting calculations for this sample of employees with employer-provided insurance are calculated assuming that 100% of the costs of health insurance are reflected in the insured workers' wages (i.e., without an adjustment for the probability of receiving insurance). Regressions estimated

[23] I also ran these regressions separately for men with a high school education or less, and men with some college working 40 hours or more per week. The results were quite different for the two groups. Only 65% of those with a high school degree had health insurance from their own employer; for these men, the coefficient on the age*HC variable was -48, and insignificant. In contrast, 80% of men working 40 hours or more with some college had employer-sponsored insurance; for these men, the coefficient on age*HC was -230 and significant.

on a sample of workers without employer-paid health insurance (not reported) show that health costs do have a negative effect on wages even for these workers, though the effect is much smaller, roughly one-third the size of the effect for the insured sample, and insignificant. Thus, the correct approach is probably somewhere in between, with some uninsured workers (probably those who are offered insurance and turn it down) bearing the costs of health insurance nonetheless.

Overall, the results strongly support the hypothesis that the impact of health costs on wages depends on the age of the worker: older workers suffer larger decreases in wages for any given increase in health costs. The pattern on the age dummy/health cost interaction variables look relatively smooth for this group, although again, those aged 50-54 appear to bear a disproportionate share of the costs. The estimates of the amount of shifting are generally substantially larger than 100%, a finding that cannot easily be explained by economic theory. The most likely explanation is that the variation in health care costs across regions are also picking up variations in the price of other benefits--for example, administrative costs of health insurance (which are not included in the HIAA survey of health insurance premiums) or employer-paid retiree health insurance, the cost of which is presumably also correlated with local health care costs and which comes out of wages in some unknown age-specific pattern. In addition, the NMES data set is fairly small, and employer costs are measured with a significant degree of error.

Results for Women

As Table 2 indicated, the effect of age on employer health costs is much smaller for women than for men, health costs do not increase substantially until age 55, and also do not even increase monotonically with age. Furthermore, the fraction of women actually receiving health insurance

from their own employer is much smaller. Thus, it is likely to be much harder to detect the effect of health costs on wages for women than it is for men. Tables 4 presents the results for women. Regardless of the estimation method, the results show that, when run on the whole sample of women, health costs interacted with age do not predict wages. The standard errors surrounding these estimates are also quite large, however. When the sample is restricted to those women who receive health insurance from their employer, the results improve, though they are still not statistically significant. The regression coefficients match the predictions from the NMES data fairly well. The average effect of age on the wages of women with employer insurance varies between $30 and $51, depending on the specification, indicating shifting of between 63% and 107%. The pattern of coefficients on the age dummies looks reasonable, though as with the men, the 50-54 year old group appears to bear a disproportionate share of the health costs.

In order to separate out some of the confounding effects of health costs on wages, I also ran these regressions separately for women with a high school education or less, and women working 40 hours a week or more with at least some college. The results are reported in Table 5. I do not report shifting coefficients as I do not know how employer health costs vary by age for these different classes of women. Only 55% of the less-educated women had health insurance provided by their own employer. For these women, the effects of health care costs on wages was positive but insignificant. Fully 74% of the more educated and full-time workers had health insurance from their own employer. For these women, local health insurance costs had a large and significant impact on wages.

Ruling out Confounding Effects

The regression results provide strong evidence that workers bear the costs of their health insurance through reduced wages. Not only are the effects significant for men, but the patterns exhibited across the regressions--the differing results for men vs women, for the insured vs total population, for the more highly educated full-time workers vs the less educated, seem to indicate that the effects I am picking up are due to health costs. Were the effects due to something else correlated with health costs in a city, then one would expect to find similar results for all these groups.

However, cities do differ in other attributes that could conceivably influence age/wage profiles. To rule out other possible explanations, I rerun the regressions including interactions between other city variables and age. These results are summarized in Table 6, where only the coefficients on the health cost-age interaction variable and the city-specific variable are reported. As the table reports, none of the variables most likely to affect age/wage profiles--unionization level, education level, ethnic and racial composition, average earnings, or city size--has much of an effect on the relationship between health care costs and wages across cities.

Effects of Marriage and Policy Choices

While the main focus of this paper has been on the effect of age on health costs, differences in health insurance costs due to marriage provide another test of the level at which employers distinguish between employees. Even while most community rating plans permit insurers to charge different rates for persons choosing individual vs. family policies, it is possible that employers do not discriminate on this basis in their wage decisions. For example, in the "hierarchical" model described above, there might not be information sharing between the benefits office and the office that makes wage offers, so discriminating on the basis of marriage or of family versus single policies

might not be possible.

However, the evidence indicates that employers do reflect differential health insurance costs based on policy choice in their wage offers. In Table 7, I report results from regressions that include marriage and insurance policy characteristics interacted with health insurance costs. The table shows that, for men, being married increases wages by less in cities with high health costs than in cities with lower health costs. These effects are large and generally significant. Again, the amount of shifting is generally greater than 100%.

Table 7 also examines whether the choice of single vs. family policies affects wages. The results indicate that male workers with insurance who choose family policies (or who are offered the choice of family policies) have lower wages in areas where health care costs are high, although these individuals on average do have higher wages. And once policy choice is accounted for, the marriage times health costs variable no longer has any effect on wage. The coefficients for men with employer insurance indicate that roughly 135% of the costs of having a family policy are shifted to workers.

The bottom panel of Table 7 presents the results for women. Marriage has no significant impact on the effect of health costs on wages for all women or for insured women. For insured women, this is consistent with the finding that marriage has no impact on employer costs. Choice of family policy does have a significant impact however--women with family policies receive lower wages in more expensive cities than in cheaper cities,[24] although once again the estimates imply

[24] It is possible that these results are due to sorting rather than to the ability of employers to discriminate on the basis of policy choice. If firms cannot adjust wages to reflect policy choice, then firms that offer family policies and lower wages will attract more workers who choose family policies and fewer workers who choose single policies. If sorting of this type is more common in cities with expensive health insurance costs, then the correlation between having family policies and receiving lower wages may be larger in those cities.

shifting of more than 100%.

VIII. Policy Implications and Conclusions

This study has found strong evidence that workers pay for their health costs in the form of reduced compensation, and that they do so contemporaneously with those costs. These results add to the growing body of evidence that wages reflect health insurance costs, and that labor markets do indeed conform to the predictions of a competitive model, at least at the group level. Whether or not health insurance costs at the individual level are reflected in wages (i.e., whether workers with pre-existing conditions suffer lower wages because of their higher expected health costs) still is an important unanswered question.

The results of this study have important policy implications for a number of health insurance reforms that have been enacted or proposed in recent years. One such proposal is mandated community rating, which would require insurers to charge the same premium to all customers, regardless of expected medical costs. The finding that older workers currently do pay more for their health insurance implies that a move toward community rating would involve substantial redistributions from young workers to old workers. Of course, younger workers would benefit when they were older, so their lifetime loss would be much smaller, but all future generations of young workers would bear the cost of the community rating. These findings also suggest that worries that experience rating leads to hiring discrimination against older workers are misplaced.[25]

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[25] In practice, however, we are unlikely to move to pure community rating. Most health reform proposals that have been put forward maintain the broad outlines of our current health insurance system, and permit large firms to continue to self-insure. When a firms self-insures, it is not subject to community rating, but remains (implicitly) experience rated. While the implications of moving toward pure community rating may be clear, the implications of moving toward a system where small firms are

The findings also have implications for the analysis of Medical Savings Accounts (MSAs). Legislation enacted in 1996 allows employers to offer MSAs to their employees--accounts that are funded with pre-tax dollars to be used to pay out-of-pocket health expenditures for workers with catastrophic health insurance plans. Opponents of MSAs worried that providing favorable tax treatment for catastrophic health insurance plans would undo the risk pooling that currently occurs within firms--with healthier workers choosing MSAs (and ending up with large sums in their accounts which they can roll over into IRAs) and sicker workers remaining in the firm's traditional health insurance plan which would then face higher costs.[26] The evidence in this paper suggests that firms do recognize differences in health insurance costs among workers, and that they might adjust wages (reducing the wages of those who join MSAs, for example) to prevent major redistributions across workers.

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community rated while large firms are experience rated are much less so. In particular, this type of firm segmentation can produce an additional source of labor market inefficiency because it introduces incentives for firms and employees to sort. Older workers would rather work for firms that are community rated, and younger workers would rather work for firms that are experience rated. The more sorting that occurs, the more expensive is the average cost in the community-rated pool and the less effective is the community rating. Furthermore, such sorting is presumably accompanied by losses in efficiency stemming from the misallocation of workers. Unequal treatment of firms, either explicitly or implicitly, was a constant theme in the many health care reform proposals put forth in 1994. Sheiner (1994) analyzed the potential inefficiencies stemming from the incentives for low and high wage workers to sort into separate firms under a system of firm-based subsidies. CBO (1994) analyzed the potential revenue cost associated with such sorting.

[26] See Berman (1997) for an analysis of the adverse selection effects of MSAs.

TABLE 1
Prevalence of Employer-Paid Health Insurance

Age Group	Men			Women		
	All	Married	Single	All	Married	Single
20-24	44%	53%	41%	47%	48%	47%
25-29	64%	65%	63%	62%	59%	66%
30-34	69%	72%	64%	62%	56%	69%
35-39	74%	77%	69%	60%	53%	71%
40-44	75%	77%	70%	61%	53%	73%
45-49	75%	76%	74%	60%	51%	76%
50-54	77%	79%	69%	59%	53%	70%
55-59	76%	78%	67%	59%	51%	72%
60-64	74%	76%	63%	59%	51%	69%

Note: This table reports the probabilities that workers of different ages receive health insurance from their own employers from the March 1990/1991 CPS. See text for a description of the sample.

TABLE 2
Employer Health Costs

Age Group	Men		Women	
	Policyholders	**All**	**Policyholders**	**All**
25-29	1306 (383)	832 (285)	1332 (375)	808 (211)
30-34	2585 (349)	1789 (260)	2147 (363)	1239 (205)
35-39	2127 (374)	1573 (278)	1803 (413)	1052 (233)
40-44	2637 (400)	1981 (297)	2863 (423)	1635 (239)
45-49	3835 (450)	2864 (334)	2332 (489)	1282 (276)
50-54	4130 (481)	3188 (358)	1973 (546)	1116 (308)
55-59	3510 (493)	2661 (367)	3357 (535)	1982 (302)
All	2704 (155)	1982 (116)	2162 (164)	1250 (93)
N	3577	3577	2513	2513
Coeffs: **Age**	83.6 (16.1)	70.2 (11.2)	47.8 (16.9)	26.2 (9.5)
Coeffs: **Marry**	1763 (358)	1380 (266)	781 (331)	99 (186)
Coeffs: **Family Policy**	2070 (339)		841 (328)	

Note: Numbers in parentheses are standard errors. First panel represents regressions of age dummies on employer health insurance costs. Second, third, and fourth panels present coefficients from regressions of employer health costs on age, marriage, and policy type, respectively.

TABLE 3
Results for Men

	All Men				Men With Employer Insurance			
Age*HC	-156 (34) **[222%]**	-113 (42) **[161%]**			-182 (38) **[218%]**	-132 (49) **[158%]**		
HC*Age 30-34			-875 (1173) **[91%]**	-366 (1422) **[38%]**			-2436 (1321) **[190%]**	-881 (1370) **[69%]**
HC*Age 35-39			-1154 (982) **[156%]**	-562 (1045) **[76%]**			-3396 (1147) **[414%]**	-1801 (1293) **[219%]**
HC*Age 40-44			-2506 (1457) **[218%]**	-2336 (1653) **[203%]**			-4197 (2007) **[315%]**	-3269 (2088) **[246%]**
HC*Age 45-49			-2616 (1195) **[129%]**	-2088 (1535) **[103%]**			-4927 (1136) **[195%]**	-3493 (1540) **[138%]**
HC*Age 50-54			-5591 (1183) **[237%]**	-4664 (1437) **[198%]**			-7418 (6347) **[240%]**	-5733 (1643) **[203%]**
HC*Age 55-59			-3267 (1715) **[179%]**	-961 (1937) **[53%]**			-2993 (1852) **[136%]**	-395 (2021) **[77%]**
Educ	.023 (.007)	.023 (.007)	.022 (.007)	.022 (.007)	.029 (.007)	.029 (.007)	.028 (.007)	.028 (.007)
Educ^2	.0007 (.0003)	.0007 (.0003)	.0007 (.0003)	.0007 (.0003)	.0004 (.0003)	.0004 (.0003)	.0004 (.0003)	.0004 (.0003)
Black	-.151 (.011)	-.151 (.011)	-.150 (.011)	-.151 (.011)	-.133 (.012)	-.133 (.012)	-.132 (.012)	-.132 (.012)
Hispanic	-.182 (.020)	-.182 (.020)	-.184 (.020)	-.183 (.020)	-.165 (.015)	-.164 (.015)	-.166 (.015)	-.166 (.015)
Married	.131 (.007)	.131 (.007)	.144 (.010)	.144 (.010)	.124 (.010)	.125 (.010)	.128 (.010)	.128 (.010)
Children	.021 (.004)	.021 (.004)	.021 (.003)	.021 (.003)	.019 (.004)	.019 (.004)	.019 (.003)	.019 (.003)
Hours	.017 (.0006)	.017 (.0006)	.017 (.0006)	.017 (.0006)	.013 (.0005)	.013 (.0005)	.013 (.0005)	.013 (.0005)
Age	.053 (.004)	.053 (.004)			.054 (.004)	.052 (.004)		

Age^2	-.0005 (.00004)	-.0005 (.00004)			-.0005 (.00005)	-.0005 (.00005)		
Age 30-34			.126 (.044)	.107 (.059)			.197 (.050)	.105 (.064)
Age 35-39			.223 (.039)	.196 (.048)			.309 (.044)	.213 (.064)
Age 40-44			.312 (.053)	.310 (.066)			.372 (.070)	.318 (.078)
Age 45-49			.357 (.047)	.340 (.069)			.450 (.046)	.369 (.075)
Age 50-54			.460 (.046)	.419 (.071)			.544 (.052)	.456 (.082)
Age 55-59			.371 (.064)	.243 (.098)			.373 (.068)	.220 (.097)
Regional Age Effects?	No	Yes	No	Yes	No	Yes	No	Yes
N	22216				15743			

Note: All regressions estimated with robust standard errors taking account of clustering by city. Bracketed bold terms are estimates of shifting. Regional age effects when age is interacted with health cost are age interacted with 3 region dummies. Regional age effects when age dummies are interacted with health cost are age dummies interacted with 3 region dummies.

TABLE 4
Results for Women

	All Women				Women With Employer Insurance			
Age*HC	-11 (28) **[42%]**	11 (32) **[-42%]**			-51 (42) **[107%]**	-30 (40) **[63%]**		
HC*Age 30-34			-1377 (687) **[319%]**	-983 (747) **[228%]**			-1273 (800) **[156%]**	-1131 (921) **[139%]**
HC*Age 35-39			161 (667) **[-66%]**	326 (776) **[-134%]**			-951 (795) **[202%]**	-629 (955) **[133%]**
HC*Age 40-44			-594 (704) **[72%]**	-34 (941) **[-4%]**			-1724 (972) **[113%]**	-1557 (1208) **[102%]**
HC*Age 45-49			-1025 (854) **[26%]**	-1471 (1049) **[310%]**			-1798 (1070) **[179%]**	-1790 (1363) **[179%]**
HC*Age 50-54			-839 (962) **[272%]**	99 (1025) **[-32%]**			-1888 (1503) **[295%]**	-692 (1366) **[108%]**
HC*Age 55-59			-1027 (989) **[87%]**	108 (1251) **[9%]**			-1681 (1250) **[83%]**	-1624 (1313) **[80%]**
Educ	.005 (.007)	.005 (.007)	.005 (.007)	.005 (.007)	.021 (.010)	.021 (.010)	.021 (.010)	.020 (.010)
Educ^2	.002 (.0003)	.002 (.0003)	.002 (.0003)	.002 (.0003)	.001 (.0004)	.001 (.0004)	.001 (.0004)	.001 (.0004)
Race	-.063 (.011)	-.063 (.011)	-.063 (.011)	-.063 (.011)	-.043 (.013)	-.043 (.013)	-.042 (.013)	-.042 (.013)
Hispanic	-.100 (.017)	-.100 (.017)	-.010 (.017)	-.100 (.017)	-.090 (.018)	-.090 (.018)	-.090 (.018)	-.090 (.018)
Married	.014 (.007)	.015 (.007)	.015 (.007)	.015 (.007)	.019 (.008)	.019 (.008)	.021 (.008)	.021 (.008)
Children	-.030 (.003)	-.029 (.003)	-.030 (.004)	-.029 (.003)	-.022 (.005)	-.022 (.005)	-.022 (.005)	-.021 (.005)
Hours	.027 (.0007)	.027 (.0007)	.027 (.0007)	.027 (.0007)	.019 (.0007)	.019 (.0007)	.019 (.0007)	.019 (.0007)
Age	.044 (.004)	.042 (.004)			.047 (.004)	.047 (.004)		
Age^2	-.0005 (.00004)	-.0005 (.00004)			-.0005 (.00005)	-.0005 (.00005)		
Age 30-34			.152 (.040)	.108 (.050)			.158 (.045)	.149 (.059)

Age 35-39			.108 (.039)	.097 (.053)			.176 (.044)	.145 (.064)
Age 40-44			.158 (.042)	.107 (.074)			.230 (.053)	.214 (.089)
Age 45-49			.168 (.049)	.209 (.080)			.248 (.062)	.255 (.098)
Age 50-54			.099 (.051)	.001 (.068)			.194 (.081)	.090 (.088)
Age 55-59			.092 (.057)	.-041 (.098)			,164 (.069)	.159 (.103)
Regional Age Effects?	No	Yes	No	Yes	No	Yes	No	Yes
N	18069				10899			

Note: All regressions estimated with robust standard errors taking account of clustering by city. Standard errors are in parentheses. Bracketed bold terms are estimates of shifting. Regional age effects when age is interacted with health cost are age interacted with 3 region dummies. Regional age effects when age dummies are interacted with health cost are age dummies interacted with 3 region dummies.

TABLE 5
Women by Hours and Education

	Women with High School or Less				Women Working 40 Hours or More with Some College or More			
Age*HC	43 (36)	70 (46)			-96 (45)	-85 (46)		
HC*Age 30-34			-2402 (915)	-2320 (1054)			-857 (730)	-48 (867)
HC*Age 35-39			745 (1205)	-168 (1237)			-1278 (1157)	-189 (1166)
HC*Age 40-44			105 (913)	907 (1194)			-3112 (1270)	-2665 (1359)
HC*Age 45-49			329 (1371)	-676 (1552)			-3357 (1347)	-3317 (1439)
HC*Age 50-54			326 (1029)	1406 (1133)			-2535 (1696)	-1816 (1966)
HC*Age 55-59			-725 (1370)	252 (1769)			-1414 (1638)	-783 (1702)
Educ	-.009 (.010)	-.010 (.010)	-.009 (.011)	-.009 (.011)	.171 (.076)	.171 (.077)	.163 (.076)	.163 (.076)
Educ^2	.002 (.0006)	.002 (.0006)	.002 (.0006)	.002 (.0006)	-.004 (.002)	-.004 (.002)	-.003 (.002)	-.004 (.002)
Black	-.050 (.012)	-.050 (.012)	-.049 (.012)	-.049 (.012)	-.101 (.015)	-.100 (.015)	-.100 (.015)	-.099 (.015)
Hispanic	-.078 (.019)	-.078 (.019)	-.078 (.018)	-.079 (.018)	-.127 (.020)	-.126 (.020)	-.126 (.020)	-.125 (.020)
Married	-.004 (.010)	-.003 (.010)	-.003 (.010)	-.003 (.010)	.037 (.012)	.037 (.013)	.038 (.012)	.039 (.013)
Children	-.024 (.005)	-.024 (.005)	-.026 (.005)	-.025 (.005)	-.031 (.006)	-.030 (.006)	-.030 (.006)	-.029 (.006)
Hours	.029 (.0010)	.029 (.0010)	.029 (.0001)	.029 (.0001)	.013 (.001)	.013 (.001)	.013 (.001)	.013 (.001)
Age	.033 (.005)	.030 (.006)			.065 (.006)	.063 (.006)		
Age^2	-.0004 (.00005)	-.0004 (.00005)			-.0007 (.00007)			
Age 30-34			.183 (.051)	.168 (.071)			.154 (.045)	.073 (.061)

Age 35-39			.075 (.066)	.181 (.086)			.211 (.069)	.097 (.085)
Age 40-44			.115 (.054)	.040 (.089)			.342 (.071)	.296 (.105)
Age 45-49			.111 (.076)	.215 (.113)			.306 (.084)	.296 (.105)
Age 50-54			.046 (.058)	-.068 (.086)			.240 (.100)	.144 (.133)
Age 55-59			.110 (.075)	-.012 (.125)			.119 (.098)	.031 (.141)
Regional Age Effects?	No	Yes	No	Yes	No	Yes	No	Yes
N	9687				6350			
% with HI	55%				74%			

Note: All regressions estimated with robust standard errors taking account of clustering by city. Standard errors are in parentheses. Regional age effects when age is interacted with health cost are age interacted with 3 region dummies. Regional age effects when age dummies are interacted with health cost are age dummies interacted with 3 region dummies.

TABLE 6
Testing Alternate Explanations

	City Variable						
	None	**Percent Union**	**Percent College Graduates**	**Percent Hispanic**	**Percent Black**	**Average Pay**	**City Population**
			MEN				
HC*Age	-156	-156.4	-156.5	-156.9	-154.8	-158.5	-160.7
	(34)	(33.8)	(33.9)	(34.5)	(33.8)	(33.7)	(34.1)
City Variable*Age		.14	.09	.03	-.08	.21	.03
		(.11)	(.12)	(.07)	(.09)	(.23)	(.01)
			WOMEN				
HC*Age	-10.9	-10.6	-10.6	-13.8	8.1	-11.0	-11.9
	(28.0)	(27.9)	(27.9)	(28.0)	(32.1)	(27.9)	(28.1)
City Variable*Age		-.04	-.04	.08	.17	.03	.02
		(.06)	(.08)	(.04)	(.05)	(.16)	(.01)

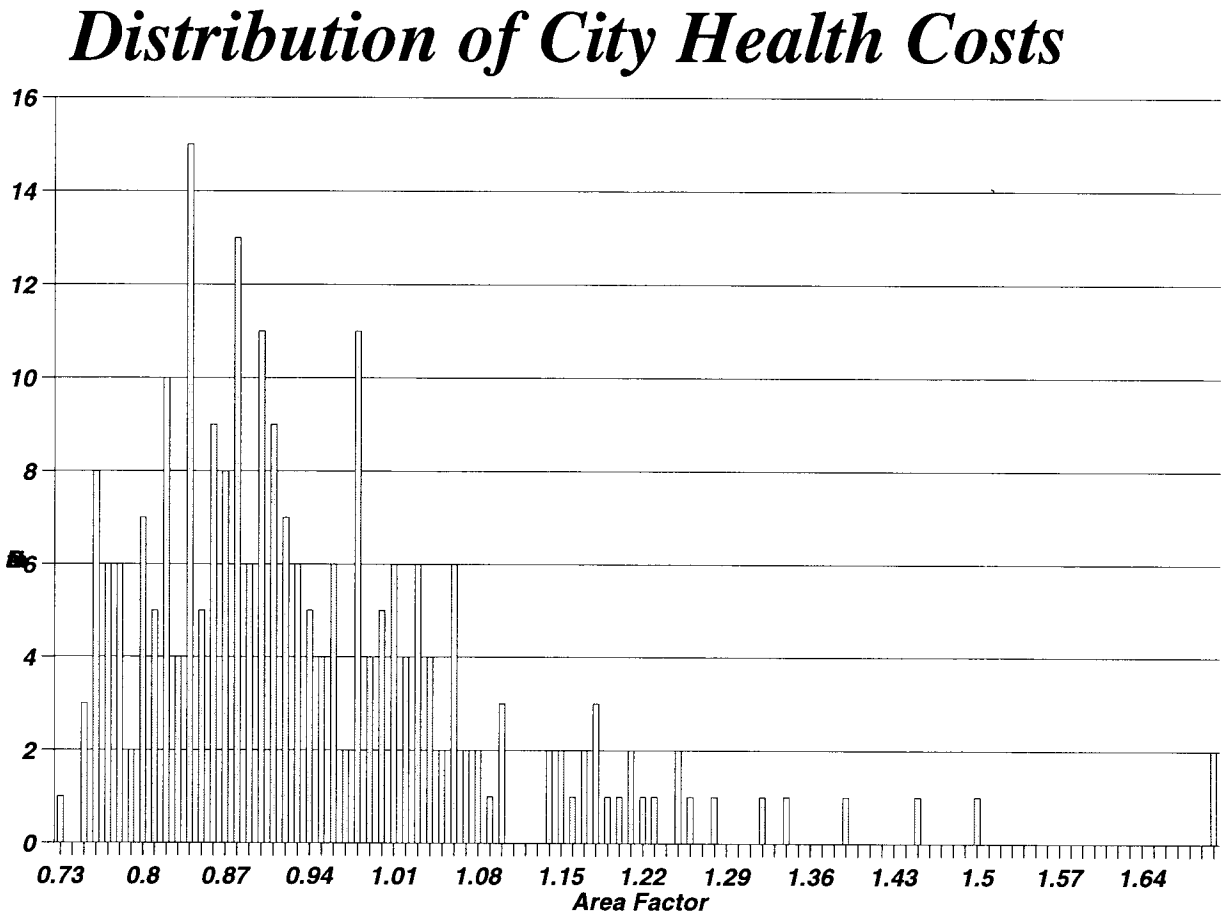
Note: This table reports the coefficients on health care costs and other city-specific variables interacted with age from regressions that include all the same variables as in Tables 2 and 3. These regressions were run without regional age effects. The coefficients on the percent union, percent college graduates, percent hispanic, and percent black variables can be interpreted as the effects of a 1 percentage point increase on the city variable in question on the average value of an additional year of age on wages. The coefficients on the average pay and city population variables correspond to the effects of an additional $1,000 in pay and an additional 100,000 in population, respectively, on the dollar value of an additional year of age on wages.

TABLE 7
Effect of Marriage and Policy Choice

	All Men	Men With Employer Insurance	
HC*Marry	-2853	-2087	-578
	(858)	(858)	(1237)
	[207%]	**[118%]**	
HC* Family Policy		-2774	-2396
		(775)	(1063)
		[134%]	
	All Women	**Women With Employer Insurance**	
HC*Marry	587	-11	699
	(656)	(700)	(656)
	[-593%]	**[-14%]**	
HC * Family Policy		-1392	-1667
		(583)	(550)
		[166%]	

Note: This table reports the coefficients from regressions of wages on marriage and family policy. The other independent variables are the same as those in tables 3 and 4, except the regressions that include family policy*health cost also include family policy as an independent variable. All regressions estimated with robust standard errors taking account of clustering by city.All regressions estimated with robust regression. Standard errors are in parentheses and bold bracketed terms represent estimates of shifting.

FIGURE 1


Distribution of City Health Costs
16
14
12
10
8
6
4
2
0
0.73
0.8
0.87
0.94
1.01
1.08
1.15
1.22
1.29
1.36
1.43
1.5
1.57
1.64
Area Factor

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