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ACCOUNTING FOR THE SLOWDOWN IN EMPLOYER HEALTH CARE COSTS

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ABSTRACT

The most widely used measure of employer health care costs, the health insurance component of the Employment Cost Index, indicates that cost growth has decelerated since 1989. In recent years employer expenditures per hour worked have even declined in nominal dollars. This paper analyzes the components of changes in employers' health care costs over the 1992-94 and 1987-93 periods. We find that employer costs have decreased primarily as a result of a steady decrease in the fraction of workers with coverage and a large decrease in the rate of growth of insurance premiums. We conclude that the shift to managed care does not appear to be directly responsible for significant cost savings because managed care premiums are almost as high as those for fee-for-service plans, on average. Finally, we note that there is a significant need for improved data collection in this area.

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I. Introduction

Employer-sponsored insurance is sometimes characterized as the foundation of the U.S. private health insurance system. About 90% of all private insurance is provided by an employer, and approximately two-thirds of the population under age 65 is covered by employer-sponsored insurance (EBRI, 1996). Employers directly paid $179.5 billion for this coverage on behalf of their employees in 1994; this amount constitutes about one-fifth of all health care expenditures, or 6.7% of total employee compensation (Cowan et al. 1996, Department of Labor 1995). In view of the importance of health insurance as a form of compensation, and the substantial share of health care dollars that pass through employers' coffers, it is not surprising that employers are keenly aware of changes in health care costs. In addition, because of the important role employer-sponsored insurance plays in providing coverage for the nonelderly, employer health care costs are of interest to public policymakers as well.

One measure of employer health care costs is presented in figure 1, which shows annual changes in the wage and health insurance components of the Employment Cost Index (ECI). The ECI measures compensation growth for a fixed set of jobs. Two features of this chart stand out. First, in 1995 the growth rate of nominal health insurance costs dropped below the growth rate of wages and salaries for the first time since it did so briefly in 1986. Second, the growth rate of employer health care costs has been decelerating since the late 1980s. Once a year, for March, the BLS uses the ECI data to calculate compensation costs per hour for the actual mix of jobs. According to this series, in the last two years nominal health care expenditures per employee even decreased, falling from $1.14 per hour in 1994, to $1.06 in 1995, and to $1.04 in 1996 (table 1). It is difficult to interpret these trends or predict whether they will continue without an understanding of the components underlying employers' costs, and the sources of change in these components. Our goals in this paper are descriptive ones: to decompose employer health care costs into its components, to look at how the components are changing, and to determine which effects are driving the overall trend in employer health care expenditures.[1]

II. Analytic framework

[1] See U.S. Department of Labor, 1996, for a related analysis of employer costs.

Ideally, we would like to measure employer health care costs at the firm level, and examine changes in costs with micro data. Unfortunately, such data are not available. Indeed, even evaluating the components of health care costs at the aggregate level places strong demands on the available data. Aggregate employer health insurance expenditures, C, in a given year can be approximated by[2]:

$$(1) \qquad C \approx N \cdot p \cdot \beta \cdot [f \cdot \pi_f + (1-f) \cdot \pi_m]$$

where N = number of workers
p = fraction of workers holding employer-sponsored health insurance
β = share of premium paid by employer[3]
f = fraction of policyholders who are in fee-for-service (FFS) plans
π_f = premium for FFS plan
π_m = premium for managed care plan

Cost per worker is therefore $p \cdot \beta \cdot [f \cdot \pi_f + (1-f) \cdot \pi_m]$. Using this expression, we can write the change in costs per worker from year1 to year 2 as:

$$\begin{array}{l} p_2 \cdot \beta_2 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}] \\ \underline{- p_1 \cdot \beta_1 [f_1 \cdot \pi_{1f} + (1-f_1) \cdot \pi_{1m}]} \quad = \end{array}$$

$\Delta p \cdot \beta_2 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$		change in fraction covered
$+ [\Delta \pi_f \cdot f_1 + \Delta \pi_m \cdot (1-f_1)] \cdot p_1 \cdot \beta_1$	+	change in premiums
$+ \Delta \beta \cdot p_1 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$	+	change in employer share of premium
$+ \Delta f \cdot (\pi_{2f} - \pi_{2m}) \cdot p_1 \cdot \beta_1$	+	change in fraction in managed care

Writing the change this way allows us to decompose the overall change in employer health care costs into these various components.

III. Data Sources and Trends in Components of Costs

[2] Equation (1) will hold exactly if the variables in equation (1) are jointly independently distributed. If, as is likely, these variables are not independently distributed, micro data would be required to decompose aggregate costs into its components. Also note that a number of the factors in equation (1) could be further disaggregated; for example, premiums could be broken down into family and individual coverage. We leave this for future work.

[3] Ideally we would be able to distinguish between cost sharing in managed care plans versus fee-for-service plans (β_m and β_f), since the degree of employer cost sharing is likely to be quite different for the two types of plan. Unfortunately, data are not available to perform this decomposition.

Unfortunately, there is no single survey that collects annual data on all of the terms in equation (1). We first describe the sources of data we use for each term, and then present the decomposition described above. Our data are drawn from several sources, including the Current Population Survey (CPS), the Employee Benefits Surveys (EBS), the Employment Cost Index and related Employer Costs per Hour Worked series, and the KPMG health benefits surveys. For the workforce as a whole, data are only available for the years 1992 through 1994, but for medium and large firms we can look from 1987 to 1993. As a consistency check, we compare our premium estimates to the 1992 Survey of Expenditures for Health Care Plans by Employers and Employees and the 1993 Robert Wood Johnson Foundation Survey of Employers in ten states. The various components of health insurance costs were culled from the following sources:

Number of workers (N), fraction of workers who are policyholders (p), fraction of policyholders with fee-for-service insurance (f): these data are calculated from the EBS. The EBS is conducted separately for small and medium/large employers in alternating years for each group of firms, and is probably the most complete and comparable data on employer health care costs available over time. Part-time workers were excluded from the EBS until 1990, so we focus on full-time workers. We interpolated to construct annual series for each employer size group, and then combined the two size categories to derive aggregate values for N, f and p. See the Data Appendix for further details.

The fraction of full-time workers in the EBS who participate in health insurance plans has declined steadily since the survey was first conducted, from 97% of all workers in large establishments in 1980, to 82% of the same group in 1994 -- about a one percentage point decline per year (see table 2). A similar decline is evident for employees in the EBS small establishment surveys in the briefer period that it is available. Estimates from the CPS, on the other hand, suggest a smaller decline: about half a percentage point per year between 1979 and 1992, and a four percentage point rebound between 1992 and 1994. Because the CPS underwent major changes in the wording and processing of the health insurance questions in 1989 and

1995, however, one must be very cautious in interpreting post-1988 trends with this data set.[4] Thus, we rely on the EBS data for trends in employer-provided coverage.

The EBS data indicate a large shift from fee-for-service plans to managed care plans. Between 1992 and 1994, the fraction of workers in fee-for-service plans declined from 63 percent to 53 percent. For medium and large firms the shift is also substantial -- a decline from 79 to 50 percent between 1987 and 1993. As shown below, however, this dramatic shift by itself is unlikely to account for the slowdown in cost increases because premiums are about the same in managed care and fee-for-service plans.

As an aside, we might ask how much of the decline in direct coverage can be attributed to a decrease in the probability of workers being offered insurance versus a decrease in the probability of enrollment conditional on being offered insurance. We can answer this question using data from the September 1988 and May 1993 employee benefits supplements to the CPS, both of which asked workers whether they were offered insurance at work and whether they enrolled. The rate of direct coverage for the subgroup of workers included in these supplements dropped from 66.2% to 59.0%; rates of offering health insurance declined from 81.5% to 74.6%, while rates of enrollment conditional on insurance being offered declined from 81.2% to 79.1%. The probability of enrollment, denoted P(E), can be written as $P(E)=P(O)\cdot P(E \mid O)$, where P(O) is the probability that insurance is offered and P(E|O) is the probability that an employee enrolls conditional on health insurance being offered. One can write the change in the probability of enrollment from 1988 to 1993 as:

$$\Delta P(E) = P(O)_{93}\cdot P(E_{93} \mid O_{93}) - P(O_{88})\cdot P(E_{88} \mid O_{88})$$

$$= \Delta P(O)\cdot P(E_{93} \mid O_{93}) + \Delta P(E \mid O)\cdot P(O_{93}) + \Delta P(O)\cdot \Delta P(E \mid O)$$

[4] The difference in the levels between the CPS and the EBS data in any given year mainly results because the EBS survey is limited to full-time private sector employees.

Using this expression, about three-quarters (=.055/.072) of the decline in coverage was due to the drop in offering, with the remaining decline attributable to changes in enrollment rates for employees who were offered insurance. Because data on offering and enrollment are available for only these two years, however, in the analysis that follows we will not consider these components separately.

Premiums: Our estimates of premiums for 1992-94 are based on the KPMG/Peat Marwick report on health benefits, which contains data from the KPMG survey of 1,037 large employers (>200 employees). We calculated a composite single/family premium for each type of plan (HMO/fee-for-service) by taking a weighted average of single and family premiums, using the share of employer-sponsored policies of each type from the March CPS of that year.

These premium estimates, presented in table 3, show that HMO premiums for both single and family policies are only slightly lower than fee-for-service (FFS) premiums, and that premiums for preferred provider organizations (PPOs) are in fact higher than either HMO or FFS premiums. Over time, the weighted-average premiums for HMO and FFS plans are almost identical. To see whether this somewhat surprising pattern exists in other cross-sectional data, we compared the KPMG estimates for 1993 to the Robert Wood Johnson Foundation's 1993 Survey of Employers in ten states, which collected premium information on 21,525 plans offered by 15,229 establishments. The results of this comparison are presented in table 4. The RWJ data on single premiums exhibit the same pattern observed in the KPMG data: HMO and FFS are about the same, PPO slightly higher. For family premiums, however, the RWJ estimate of the FFS premium is the highest ($5,060), followed by HMO ($4,798) and PPO ($4,720). Thus, the commonly cited argument that health care costs have decelerated because employers have moved employees into lower cost managed care plans does not seem plausible. There has been a large shift out of fee for service, but this shift alone can not explain much of the deceleration in costs because the plans employees were shifted into were almost as expensive.

In the analysis that follows, we use the KPMG estimates of premiums for pure HMO and FFS plans because they are the only data available over time. The comparison with the RWJ data suggests that the KPMG data may slightly understate the relative cost of FFS premiums, but note that because we have also chosen to use the pure HMO premium, rather than combining it

with the PPO premiums to construct a "managed care" premium, we give more weight to shifts to managed care because PPOs are more expensive than HMOs, on average. In the final section, we use RWJ data to explore reasons for the surprising finding that HMO and FFS premiums are so similar.

Employer share of premium: We estimated the employer share of premium by separately calculating total monthly employer and employee premium contributions and combining them to get the fraction of that are paid by the employer; this calculation is described in more detail in the appendix. Note that our estimates will miss any increase in employee expenditures that come about from higher deductible or co-payments; only the premium payments are counted. The results of this calculation for 1992-94 are presented in table 5. We estimate that overall, employers paid about 79% of all premiums in 1992, and about 78% in 1993 and 1994. This is comparable to estimates from KPMG and from three cross-section estimates, which are also presented in table 5. Over the longer 1987-1993 period, the results indicated a decline of the employer share from .84 to .80 for medium and large firms. Taken as a whole these sources suggest that there was a small reduction in the share of premium paid by employers. Considering co-payments and deductibles would probably lead to a somewhat larger shift in employees' share, but would be unlikely to change greatly the magnitude of this component because managed care is likely to have relatively small co-pays and deductibles.

Premium Data prior to 1992: A version of the EBS was conducted as early as 1980, although the sample did not include small employers until 1990. The main obstacle to conducting an analysis of cost changes for just medium and large employers prior to 1992 is the lack of premium data and the fact that employer costs per hour worked were not released by BLS before 1991. For 1987, however, the National Medical Expenditure Survey (NMES) collected data on both premiums and the employer share of premiums. The average premium across all plans in 1987 was $2,048. Unfortunately, the survey did not collect premium data separately on HMO and FFS plans, so we assume the premiums were the same. We combine these data with the EBS data for medium and large employers in 1986 and 1988 to perform a cost decomposition for the 1987-1993 period.

IV. Cost Decomposition

Tables 6 and 7 contain the results of the cost decomposition for 1992-94. All costs are in nominal dollars. Plugging our estimates of the cost components into equation (1), total employer expenditure per worker is estimated to have increased $137, or 7.0%. The ECI data indicate about a 12% increase in employer costs over this period. The difference may result from several sources, including: errors in the estimates of the cost components that we use; differences in the universes of the surveys; changes in hours worked; and the fact that equation (1) is only an approximation that requires independence of the various components at the firm level. The fact that cost growth declined rapidly after 1993, and that many of our components are interpolated may be especially important in explaining the differential. Nonetheless, the large gap between these two separate estimates is reason for exercising caution in interpreting the decomposition results.

These caveats aside, the 7 percent increase in costs was driven entirely by premium costs, which would have led cost per worker to increase by 13.4% (or 6.5% per annum) had there been no other changes in the structure of employer-sponsored health insurance. Other changes, however, offset the increase in premiums: most notably, the decrease in the fraction of workers covered by health insurance led to a 4.8% (2.4% per annum) drop in health insurance costs. An increase in employee cost-sharing also led employer costs to drop by 1.5%. As noted previously, the shift to managed care --often touted as the main source of lower costs -- had little direct effect, accounting for only a 0.1% decrease in costs. This is primarily because HMO premiums were not substantially lower than FFS premiums in this period. It is possible that managed care has exerted an indirect effect by lowering insurance premium growth in FFS plans (see Baker, 1994), but the shift to managed care by itself does not appear to be an important source of slower health care cost growth.

From 1987 to 1993, average cost per worker in medium and large firms rose from $1,588 to $2,284 (table 8). The 1987-93 data suggest that, in the absence of any other changes, premiums would have caused employer costs per worker to rise by 70.5% (9.3% per annum), but that in this case as well other changes occurred to partially offset this increase (table 9). Most importantly, a decrease in the fraction of workers covered by employer-sponsored health

insurance reduced costs by 18.4% (3.3% per annum); an increase in employee cost-sharing reduced employer costs by 6.4 % (1.4% per annum). The impact of the shift to managed care is very small (-0.3%).

The contrast between the 1992-94 and 1987-93 period is worth noting. Insurance premium increases have decelerated, while the drop in employer-provided coverage appears about steady. Thus, the deceleration in costs per worker appears to us to be largely driven by a slowdown in the rate of growth of premiums (for both HMO and FFS plans), and a fairly constant erosion of employer-provided health insurance.

V. Analysis of HMO and FFS Premiums

A major puzzle suggested above is that premiums are only slightly lower for HMOs than FFS plans, yet there was a major shift into HMOs. One possible explanation is that a simple comparison of average premiums for HMO and FFS plans does not accurately reflect the difference in premiums faced by an employer of a given size in a given market. For example, HMOs are likely to be more prevalent in higher cost areas. On the other hand, larger establishments, which have lower administrative costs, are more likely to offer HMO plans. In any event, our cost decomposition is still valid if geographic and other variables confound the differential in premium costs between HMO and FFS plans facing employers. But understanding the determinants of these premium cost differences conditional on other factors is critical to understanding the operation of the health care market.

To investigate the gap between HMO and FFS premiums, we estimated several Ordinary Least Squares (OLS) regressions using the RWJ premium data. The dependent variable in these models is the log of the premium cost for each plan the establishment offered. The key explanatory variable is a dummy indicating whether the plan is an HMO or FFS plan. We control for establishment size with 5 establishment size dummies and for geographic differences using either 9 state dummies or 453 county dummies. The regressions were estimated separately for single and family premiums, first using the full sample of all HMO and FFS plans in the RWJ sample, and then using a subsample that was drawn to mirror the KPMG sampling restrictions (i.e., only firms with more than 200 employees, and only the largest of each type of plan offered by an employer, were included). The samples include only HMO and FFS plans. The ten states

included in the survey are: Colorado, Florida, Minnesota, New Mexico, New York, North Dakota, Oklahoma, Oregon, Vermont and Washington. Table 10 presents the results of this analysis.

Without controls, there is approximately a 7 percent difference in costs between HMO and FFS premiums for single coverage, and 2 percent difference for family coverage, in the full sample. Contrary to our expectation, however, adding geographic and establishment size dummies results in a slight attenuation of the HMO premium gap. Thus, these results do not suggest that geographic and establishment size differences are responsible for the small observed difference in premiums between HMO and FFS plans. But given how surprising this finding is, it would be useful to replicate this analysis in other data sets.

The KPMG sample, which we rely on for our cost decomposition, is limited to the largest plan of each type (FFS and HMO) offered by large firms. In panel B, we impose a similar set of restrictions. With this sample, the HMO/FFS premium gap is smaller, and controlling for geographic and size dummies attenuates the gap and in some specifications changes the sign of the gap. Notice, however, that even if we used the larger 7 percent gap in our earlier decomposition based on the RWJ data, the shift to managed care would not account for very much of the slowdown in health care cost growth.

Importantly, the preceding analysis does not take into account differences between HMO and FFS plans in scope of benefits and copays and deductibles. The shift to managed care may result more from HMOs providing more extensive services and requiring lower out-of-pocket payments than FFS plans, than from substantial employer premium savings from HMOs. Additionally, employer demand for insurance plans may be highly elastic with respect to premium costs, conditional on the decision to provide insurance. We leave these topics for future research.

VI. Conclusions

The main conclusion to emerge from our analysis is that the reduced growth in health care expenditures achieved by employers, which is sometimes attributed to an increase in the prevalence of managed care, is to a greater extent the result of a decline in rates of health insurance coverage and slower overall premium growth. If our finding that managed care

premiums are only slightly lower than fee-for-service premiums is correct, the large shift to managed care cannot account for the reduction in the rate of growth of employer costs by itself. Declining coverage rates, however, have offset about one-quarter to one-third of the cost increases that would otherwise have been observed as a result of increases in premiums over both the 1992-94 and 1987-93 time periods. In addition, some of the reduced growth in employer health care costs represents shifting costs from employers to employees due to a decrease in the employer's share of the premium; this effect is more noticeable for the 1987-93 period than for 1992-94. Understanding why insurance premium growth has slowed down and why employer-provided health insurance coverage has declined would seem to us to be priorities for future health economics research.

A question often raised by financial analysts and macroeconomists is: Will the moderate growth in employer health care costs that have occurred in recent years continue, or does it represent a one-time cost saving? Three findings lead us to suspect that moderate cost growth will continue in the future. First, there has been a steady trend toward more moderate health care cost growth over the last 8 years. The recent flat or declining employer costs represent more of a continuation of past trends than an unusual blip. Second, the driving forces behind the moderate costs have been a steady erosion of employer-provided health insurance and lower premium growth. Although we have no crystal ball, these forces do not necessarily represent a one-time shift. Third, and related, health insurance benefits have declined most for less skilled workers, who have also experienced real wage declines (Pension and Welfare Benefits Administration, US Department of Labor, 1994). The same economic forces that are causing real wages to decline or stagnate for these workers may also be causing employers to cut back on their health insurance and other fringe benefits. It is anyone's guess whether these economic trends will continue in the future, but the fact that health insurance costs declined in the height of an economic recovery suggest to us that slower cost growth may well continue in the future.

The question of whether employer health care costs will continue their moderate growth is of interest to policymakers as well as Wall Street. If employer health care costs continue on their moderate path, pressure for health care reform (from employers) is also likely to moderate. On the other hand, if the erosion of the employer-provided health care system continues to be a

main reason for moderate cost growth, pressure may be placed on other dimensions of the health care system to provide care for the uninsured.

Finally, another important lesson from our research is that there are serious data limitations in this area. Even such simple and critical figures as the average health insurance premiums for HMO and FFS plans are not available from comparable surveys over time. The BLS data are collected consistently over time, and based on large samples, but are not available for the same sample or same universe. An optimistic note for future work on this topic is that the BLS is embarking on a new project called Comp 2000 which will integrate data from its various employer compensation surveys (ECI, EBS and locality pay surveys). In the future, it may be possible to perform a decomposition such as equation (1) with micro establishment-level data. Our accounting exercise shows the minimum level of data that would be required from such a survey.

Data Appendix

Construction of yearly aggregate data from the EBS

The Employee Benefits Surveys are conducted separately for small and medium/large establishments (defined as <100 or <250 employees, depending on the industry); the two groups have been surveyed in alternating years since 1989. In order to derive an annual series for all employers, we first interpolated years within a size category, and then took a weighted average for the two size categories using the number of workers in each category as the weight. Table A1 presents the actual series as published by BLS, and also our estimates based on them. Numbers in table A1 that were taken directly from the EBS are indicated in bold type; those that were interpolated, or calculated by us as weighted averages, are in regular type.

Several other points about the EBS are worth mentioning. The first is that the number of workers includes full-time workers only, and is therefore smaller than an estimate of employment from, for example, the CPS. Second, the EBS defines employee "participation" in health insurance as either making a contribution toward a health insurance premium, or being offered a health insurance plan for which 100% of the premium is paid by the employer. Therefore, workers who are offered the opportunity to enroll in employer group health insurance for which the employer pays no part of the premium are not considered "participants" by the EBS. This excludes about 6-7% of all workers with employer-sponsored policies, based on estimates from the CPS during this time period.

Calculation of employer share of premium

Table A2 gives an example of how we calculated employer share of premium for medium and large employers in 1992. First, total monthly employer contributions for health insurance were calculated by multiplying the average cost of health insurance per hour worked from the BLS Employment Cost Levels times the average number of hours worked per worker per month times the number of workers. Total monthly employee contributions were calculated by multiplying the number of workers times the fraction of workers with insurance who have contributory coverage times the average employee contribution; the employee contribution is calculated

separately for single and family coverage and the results are added to get a total contribution for all employees. This calculation was also performed for small employers, and these amounts would be added to those for medium and large employers, but for the sake of simplicity table A2 omits this step. We then took employer contributions/(employee contributions + employer contributions) to determine what share of premiums are paid by the employer.

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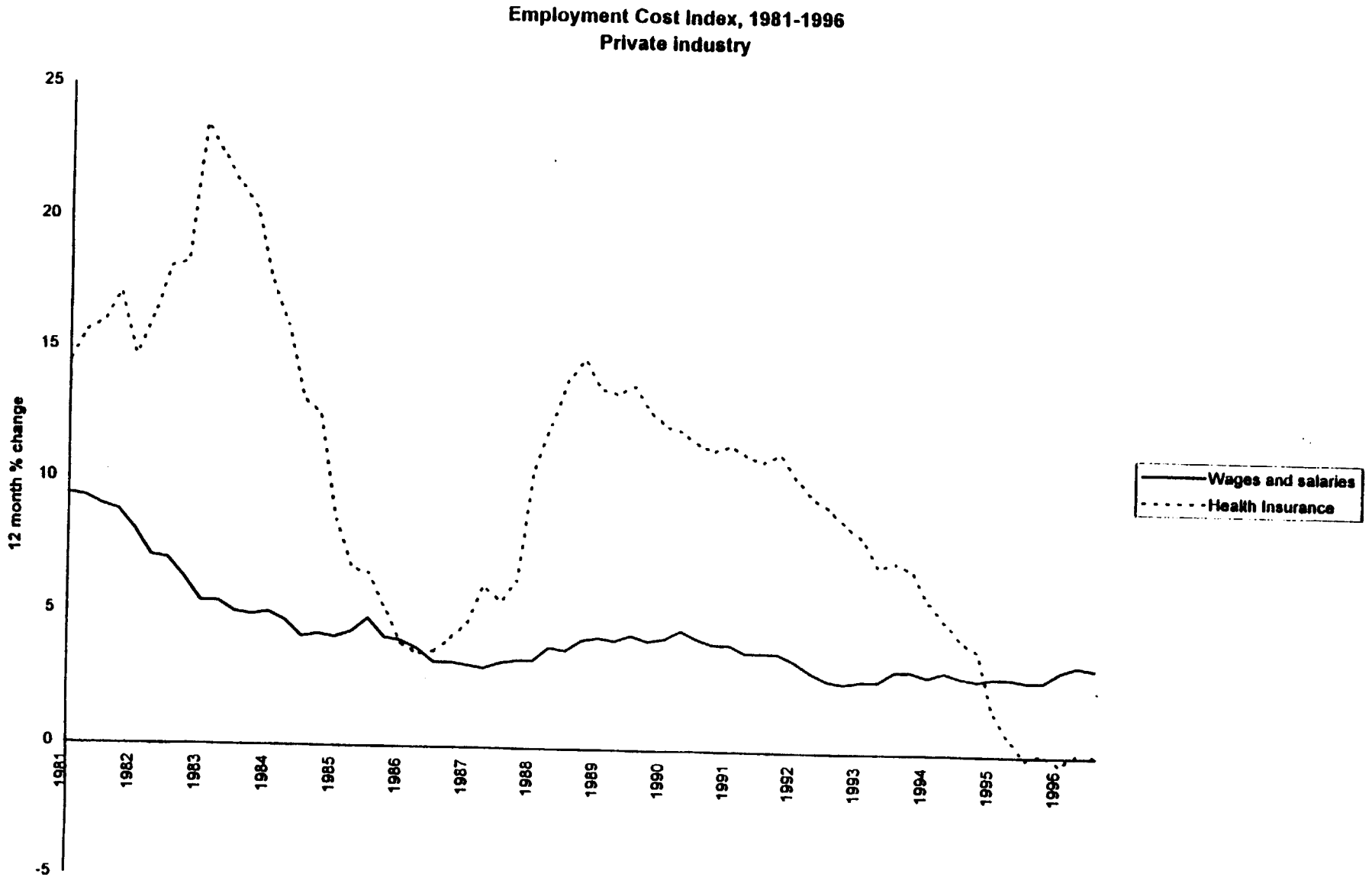
Employment Cost Index, 1981-1996
Private industry
12 month % change
25
20
15
10
5
0
-5
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
Wages and salaries
Health insurance

Figure 1

Table 1
Trends in employer health care costs, private industry, 1991-96

	1991	1992	1993	1994	1995	1996
Employment Cost Index (2nd quarter, 12 month % change)						
Total compensation	4.4%	3.7%	3.6%	3.4%	2.8%	2.9%
Wages and salaries	3.7%	3.0%	2.7%	3.1%	2.9%	3.4%
Health insurance[1]	11.1%	9.6%	7.0%	5.0%	0.6%	0.1%
Employer costs per hour worked for health insurance						
Cost level	$1.01	$1.02	$1.10	$1.14	$1.06	$1.04
As a % of total compensation	6.5%	6.3%	6.4%	6.7%	6.2%	5.9%

Source: Bureau of Labor Statistics

[1]Unpublished data from BLS.

Note: All dollar figures are in nominal dollars.

Table 2
Trends in employee health insurance coverage
Estimates from the CPS and the EBS

	1979	1980	1981	1982	1983	1984	1985	1986
Percent of civilian wage and salary workers with own employer health insurance (CPS)	61.2%	-	62.0%	-	61.0%	-	60.2%	-
Percent of full-time workers in private industry participating in health insurance (EBS)								
Small establishments	-	-	-	-	-	-	-	-
Medium and large establishments	-	97%	97%	97%	96%	97%	96%	95%
Total	-	-	-	-	-	-	-	-

	1987	1988	1989	1990	1991	1992	1993	1994
Percent of civilian wage and salary workers with own employer health insurance (CPS)	56.6%	-	56.5%	55.8%	55.5%	54.2%	57.6%	58.5%
Percent of full-time workers in private industry participating in health insurance (EBS)								
Small establishments	-	-	-	69%	70%	71%	69%	66%
Medium and large establishments	93%	90%	92%	88%	83%	83%	82%	82%
Total	-	-	-	78%	76%	76%	75%	73%

Source: CPS estimates, 1979-1992: EBRI 1995b, table 8.10.
CPS estimate, 1993: EBRI 1995a.
CPS estimate, 1994: EBRI 1996.
EBS estimates: author calculations based on the Employee Benefits Survey; see appendix for details.

Note: The CPS estimates for each year are from the following year's March survey.

Table 3
Trends in health insurance premiums, 1992-1995

		1992	1993	1994	1995
Single	FFS	$1,701	$1,846	$1,940	$1,992
	HMO	$1,677	$1,816	$1,912	$1,920
Family	FFS	$4,437	$4,814	$5,059	$5,196
	HMO	$4,433	$4,801	$5,056	$5,076
Composite	FFS	$3,219	$3,496	$3,694	-
	HMO	$3,207	$3,476	$3,635	-
Fraction of policies that are single policies		.45	.44	.45	-

Source: Author calculations based on KPMG/Peat Marwick, "Health Benefits in 1995" (premiums)
Author tabulations of March Current Population Survey, 1992-94 (fraction single policies)

Notes: All dollar figures are in nominal dollars. The composite premium is a weighted average of the single and family premiums.

Table 4
Health insurance premiums: comparison of different estimates for 1993

		KPMG	RWJ, full sample	RWJ, restricted sample*
Single	FFS	$1,701	$1,808	$1,791
	HMO	$1,677	$1,681	$1,754
	PPO	$1,807	$1,870	$1,834
Family	FFS	$4,437	$4,926	$5,060
	HMO	$4,433	$4,680	$4,798
	PPO	$4,496	$4,777	$4,720

*The sample is restricted to firms with more than 200 employees, and only the largest plan of each type (HMO/PPO/FFS) is considered, as in the KPMG survey.

Table 5
Trends in employer share of premium, 1992-1994
Comparison of our estimates and estimates from other sources

						change,
Trend estimates			1992	1993	1994	92-94
Our estimate		Small	.745	.755	.755	.010
		M+L	.832	.799	.811	-.021
		Total	.794	.777	.784	-.010
KPMG[1]	Single	FFS	.87	.86	.88	.01
		HMO	.79	.81	.80	.01
	Family	FFS	.77	.75	.77	.00
		HMO	.70	.71	.68	-.02
Cross-section estimates for benchmarking:						
RWJ	Single	FFS	-	.811	-	-
		HMO	-	.811	-	-
	Family	FFS	-	.725	-	-
		HMO	-	.737	-	-
BLS[2]			.86	-	-	-
HCFA[3]			-	-	.836	-

[1]KPMG, 1995.
[2]U.S. Department of Labor, 1993.
[3]Cowan et al., 1996.

Table 6
Trends in components of employer health care costs, 1992-94

	1992	1994	Change 92-94	Percent change 92-94
Number of workers (N)	64,305,671	64,637,765	332,094	0.5%
Fraction of workers covered by employer policy (p)	0.76	0.73	-0.03	-4.3%
Fee-for-service premium (π_f)	$3,219	$3,649	$430	13.4%
HMO premium (π_m)	$3,207	$3,635	$428	13.4%
Employer share of premium (β)	0.7943	0.7837	-.0106	-1.3%
Fraction with fee-for-service coverage (f)	0.63	0.53	-0.11	-16.9%
Total cost (billion)	$125.4	$134.9	$9.5	7.6%
Cost per worker	$1,950	$2,087	$137	7.0%

Note: All dollar figures are in nominal dollars.

Table 7
Cost Decomposition, 1992-94

Change in cost =	$p_2 \cdot \beta_2 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$		$2,087	as % of
	- $p_1 \cdot \beta_1 \cdot [f_1 \cdot \pi_{1f} + (1-f_1) \cdot \pi_{1m}]$	-	$1,950	92 cost:
= change in fraction covered:	+ $\Delta p \cdot \beta_2 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$		-$93	-4.8%
+ change in premiums:	+ $[\Delta \pi_f \cdot f_1 + \Delta \pi_m \cdot (1-f_1) \cdot p_1 \cdot \beta_1]$		$260	13.4%
+ change in cost-sharing:	+ $\Delta \beta \cdot p_1 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$		-$30	-1.5%
+ change in fraction in managed care:	+ $\Delta f \cdot (\pi_{2f} - \pi_{2m}) \cdot p_1 \cdot \beta_1$		-$1	0.0%
			$137	7.0%

Note: All dollar figures are in nominal dollars.

Table 8
Trends in components of employer health care costs, 1987-93
Medium and large employers only

	1987	1993	Change 87-93	Percent change 87-93
Number of workers (N)	21,107,319	28,728,206	7,620,887	36.1%
Fraction of workers covered by employer policy (p)	0.93	.82	-0.11	-11.4%
Fee-for-service premium (π_f)	$2,048	$3,496	$1,448	70.2%
HMO premium (π_m)	$2,048	$3,476	$1,428	70.7%
Employer share of premium (β)	.838	.799	-0.039	-4.6%
Fraction with fee-for-service coverage (f)	0.79	0.50	-0.29	-37.0%
Total cost (billion)	$33.5	$65.6	32.1	95.8%
Cost per worker	$1,588	$2,284	$697	43.9%

Note: All dollar figures are in nominal dollars.

Table 9
Cost Decomposition, 1987-93
Medium and large employers

Change in cost =	$p_2 \cdot \beta_2 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$	$2,284	as % of
	- $p_1 \cdot \beta_1 \cdot [f_1 \cdot \pi_{1f} + (1-f_1) \cdot \pi_{1m}]$	- $1,588	87 cost:
= change in fraction covered:	+ $\Delta p \cdot \beta_2 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$	-$292	-18.4%
+ change in premiums:	+ $[\Delta \pi_f \cdot f_1 + \Delta \pi_m \cdot (1-f_1) \cdot p_1 \cdot \beta_1]$	$1,119	70.5%
+ change in cost-sharing:	+ $\Delta \beta \cdot p_1 \cdot [f_2 \cdot \pi_{2f} + (1-f_2) \cdot \pi_{2m}]$	-$125	-7.9%
+ change in fraction in managed care:	+ $\Delta f \cdot (\pi_{2f} - \pi_{2m}) \cdot p_1 \cdot \beta_1$	-$5	-0.3%
		$697	43.9%

Note: All dollar figures are in nominal dollars.

Table 10
OLS regression estimates of proportionate difference in HMO and FFS premiums
Based on the Robert Wood Johnson Foundation ten-state employer survey, 1993

Dependent variable: ln(premium)

	Single premiums			Family premiums		
	(1)	(2)	(3)	(4)	(5)	(6)
A. Full sample						
HMO dummy (1=yes)	-.074	-.057	-.045	-.018	-.012	-.002
	(.007)	(.008)	(.008)	(.008)	(.009)	(.009)
Establishment size dummies (5)	no	yes	yes	no	yes	yes
State dummies (9)	no	yes	no	no	yes	no
County dummies (453)	no	no	yes	no	no	yes
Sample size	10,956	10,956	10,956	11,118	11,118	11,118
R^2	.010	.036	.167	.001	.025	.209
B. Restricted sample						
HMO dummy (1=yes)	-.041	-.031	.002	-.028	.015	.044
	(.014)	(.015)	(.017)	(.017)	(.018)	(.019)
Establishment size dummies (5)	no	yes	yes	no	yes	yes
State dummies (9)	no	yes	no	no	yes	no
County dummies (453)	no	no	yes	no	no	yes
Sample size	2,949	2,949	2,949	3,015	3,015	3,015
R^2	.003	.049	.255	.001	.039	.318

Notes:
Standard errors are in parentheses.
Restricted sample consists of large firms (>200 employees), and the largest plan of each type to mirror the KPMG sample.

Table A1
Trends in number of workers, health insurance participation, and the shift to managed care

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Number of workers										
Small	-	-	-	-	-	**32,465,565**	33,412,903	**34,360,240**	35,134,900	**35,909,559**
M/L	**20,489,879**	**20,798,599**	21,107,319	**21,416,039**	**32,427,605**	31,795,131	**31,162,656**	29,945,431	**28,728,206**	28,728,206
Total	-	-	-	-	-	64,260,696	64,575,559	64,305,671	63,863,106	64,637,765
Fraction participating in HI										
Small	-	-	-	-	-	**.69**	.70	**.71**	.69	**.66**
M/L	**.96**	**.95**	.93	**.90**	**.92**	.88	**.83**	.83	**.82**	.82
Total	-	-	-	-	-	.78	.76	.76	.75	.73
Fraction in FFS										
Small	-	-	-	-	-	**.74**	.71	**.69**	.62	**.55**
M/L	**.90**	**.85**	.79	**.74**	**.74**	.71	**.67**	.59	**.50**	.50
Total						.72	.69	.63	.56	.53

Data in **bold type** are taken directly from the EBS; numbers in regular type have been calculated by the authors as described in the appendix.

Source: Employee Benefits Surveys, 1985-1993

Table A2
Calculating employer share of premiums

		M&L firms, 1992
Employers contribute:		
A.	Cost per hour worked for HI (BLS, employment cost trends)	**$1.25**
B.	average # of hours worked week (unpublished data from BLS)	**38.8**
C.	average # of hours worked per month=B·4.3	166.8
D.	# of workers (thousands; EBS)	**29,945**
E.	Total employer contribution=A·C·D (millions)	$6,245
Employees contribute:		
F.	# of workers with health insurance (thousands; EBS)	**24,711**
G.	fraction of covered workers who have single coverage (CPS; full-time workers in private industry)	**.40**
H.	fraction of workers with single coverage who contribute(EBS)	**.56**
I.	average monthly contribution for workers with contributory single coverage (EBS)	**$29.08**
J.	fraction of covered workers who have family coverage (CPS; full-time workers in private industry)	**.60**
K.	fraction of workers with family coverage who contribute (EBS)	**.73**
L.	average monthly contribution for workers with contributory family coverage (EBS)	**$102.20**
M.	Total employee contribution= F·G·H·I+F·J·K·L (millions)	$1,257
Employer share of premium=E/(E+M)		.83