Recent Trends in Compensation Inequality

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I. Introduction

This paper documents recent changes in employer costs for labor, using establishment survey microdata collected to produce the Employment Cost Index (ECI). These data capture wage payments as well as employer cost information for several benefits, including health insurance, defined benefit pensions and defined contribution savings plans, and paid leave. The data also allow one to compare the wage distribution to the distribution of employer costs, as defined to include these forms of compensation. Workers choose jobs partly on the basis of the job's wage-benefits mix, and higher productivity workers are likely to choose different mixes than lower productivity workers, for a number of reasons. One might therefore expect compensation inequality to differ from wage inequality in systematic ways.

Over the 1994-2006 period, real wage rates in the ECI rose by approximately 8-9 percent. Employer costs more broadly defined to include benefits rose by a slightly larger amount, about 10 percent. Costs associated with health insurance and retirement and savings plans rose more, approximately 20-25 percent. Wage growth over this period was not uniform across the wage distribution. In particular, wage growth was smallest among jobs with near-median wage rates, and largest among jobs closer to the higher end of the wage distribution. That is, wage inequality increased in certain parts and decreased in other parts of the wage distribution. These changes roughly offset, in the sense that broad indices of wage inequality exhibit little change over the period. Compensation growth and wage growth exhibit roughly similar distributional patterns. In particular, benefit cost growth tended to be greatest (in percentage terms) in the lower half of the wage distribution.

II. The Employment Cost Index (ECI) Data

The ECI is a quarterly index measuring changes over time in the cost of wages and various nonwage compensation costs. ECI survey scope is the civilian workforce, excluding agricultural, federal government, self-employed, and private household workers. Establishments are the primary sampling units. Within a sampled establishment, 1 to 8 jobs are selected. The unit of observation in the microdata is therefore a "job", as defined by the sampled establishment. Information is collected on the wages, other compensation costs, and work schedules of the individual incumbents in the sampled jobs. Various categories of non-wage compensation are collected, including health and life insurance, several forms of leave, pension and savings plans, bonuses, and legally required expenditures on Social Security, workers' compensation, and unemployment insurance. This data is converted to a cost per hour worked, and averaged over the incumbents within a job. Data are collected quarterly; quarterly samples over the 1994-2006 period average about 33,000 observations from 7500 establishments.

Several caveats are in order. The cost data refer to employer costs, which will differ from employee valuations. The data are subject to nontrivial measurement error. Also, the data miss variation in wages and benefit costs across workers in the same job and establishment. Nonetheless, these data are some of the best available for this particular application, as they span a substantial time period, include cost measures for several important fringe benefits, and are derived from employer and administrative records.

Table 1 gives sample means for various recent periods. The table gives costs per hour worked, benefits' share of total compensation, and an incidence rate for some key benefit

categories.[1] The hourly wage rate is a straight-time hourly earnings figure adjusted to include overtime premium pay and shift differentials. Cost figures are deflated to 2006 dollars using the CPI-U. The data are hours-weighted.

For the period as a whole, about 72 percent of ECI compensation takes the form of wages, and about 28 percent of compensation is in the form of benefits. The costliest single benefit is health insurance, with average expenditures of $1.77 per hour worked. Retirement and savings benefits costs are fairly substantial at $1.03 per hour worked. Retirement benefits include defined benefit pensions as well as defined contribution vehicles such as 401(k) and deferred profit sharing plans. The ECI data reflect current pension costs, which in the case of defined benefit plans can vary with pension asset returns and firms' chosen liability accounting methods. Therefore these costs can only approximate the long run actuarial obligation associated with a pension plan. Paid leave of various sorts accounts for costs of $1.94 an hour on average. Leave is an aggregate of paid vacation time, holidays, sick leave and an "other" category. Of these, the vacation and holidays components are the most important. Vacation and holiday benefits are each typically collected in time units at some accrual rate (4 hours per biweekly pay period, 8 days per year, etc.), converted to an hours accrued per hour worked basis, and then valued at the job's hourly wage. Leave may simply represent one margin of labor supply, or leave plans may reflect firms' attempts to monitor and coordinate work time. I interpret leave to also represent some flexibility to the worker in scheduling hours or coordinating time for non-work purposes. Paid leave benefits are probably not captured as part of the calculated wage in Current Population Survey data, as

[1] Because cost data are averaged over job incumbents the fraction of jobs with positive employer costs excced true coverage rates which would be derived from individual data.

those calculations include earnings while on leave but probably do not adjust the hours worked to reflect leave time.

Table 1 also reports summary statistics on benefit shares in compensation and the fraction of the data with positive employer costs for the various benefit categories. About nine percent of compensation costs come in the form of legally required compensation, the bulk of which is attributable to Social Security, Medicare and Worker's Compensation. Leave and health insurance shares are each a little over 6 percent. The retirement savings category accounts for about 3 percent of hourly employer costs, and miscellaneous other non-legally required benefits (mainly non-production bonuses) account for a little more than 1 percent of compensation on average. Over 90 percent of the sample has some positive leave costs, about 81 percent have some positive health insurance costs, and about 68 percent have some positive retirement vehicle costs.

Table 1 gives beginning- and end-of-period statistics as well. Hourly wage rates grew 8-9 percent and hourly compensation grew about 10 percent over this period. Among the benefit categories, health insurance and retirement plan costs rose the most. Note that the whole-period average health insurance costs are similar to the 1994 level. There was a slight decrease in the fraction of jobs reporting positive health insurance costs. Not apparent from table 1 is the shift toward defined contribution plans, which tend to have lower reported employer costs. That shift has been accompanied by an increase in the overall fraction of jobs reporting positive retirement plan costs.

III. Benefits' Share in Total Compensation

Looking at benefit costs as a share of total compensation is a useful device to understand how the wage differential between two jobs compares to the analogous compensation differential. Define total compensation per hour, c, as wages per hour, w, plus various benefits per hour, b_j,

$$\begin{aligned} c &= w + \sum_j b_j = w + \sum_j s_j c \\ &= w + sc \\ &= \frac{w}{1-s} \end{aligned}$$

where $s_j = b_j/c$ is benefit j's share in total compensation and s is the sum of these shares over j. Then, for example, the log compensation differential between jobs at the 90th percentile wage and the median wage can be written as

$$\begin{aligned} \ln(c^{90}) - \ln(c^{50}) &= \ln(w^{90}) - \ln(w^{50}) - \left\{\ln(1-s^{90}) - \ln(1-s^{50})\right\} \\ &\approx \ln(w^{90}) - \ln(w^{50}) + \frac{(s^{90} - s^{50})}{1-\bar{s}} \end{aligned} \tag{1}$$

where superscripts refer to location in the wage distribution, and where $\bar{s}$ is the average of the 90th percentile and median benefit shares.[2] The benefit cost share can further be split into component (s_j) parts.

Figure 1 graphs the share of compensation costs taken in the form of benefits against the percentile of the compensation distribution, for the whole 1994-2006 period.[3] Voluntary (not legally required) nonwage compensation is shown, along with all nonwage

[2] Equation (1) uses the same data ordering for both the compensation and wage differentials. Moving from wage to compensation dispersion requires an additional term that quantifies the effects of resorting when moving from a wage to a compensation distribution.

[3] Statistics are averaged within percentile. Percentiles are defined to be the one percent of the (weighted) data centered on the relevant number. In tables I smooth these series by taking averages over the five percent of the data nearest the indicated percentile; e.g., the 25-10 percentile differential is the difference between averages over percentiles 23-27 and percentiles 8-12.

compensation. The benefit shares are relatively smooth increasing functions of the percentile. The immediate implication is that wage differentials tend to understate compensation differentials, especially in the lower half of the wage or compensation distribution. The difference between the two plotted series is attributable to legally required compensation costs. This difference is somewhat larger at lower percentiles, reflecting the fact that some of these costs have fixed cost attributes. For example, unemployment insurance costs are often a percentage of earnings up to some relatively low earnings cutoff. The series in the graph imply that the 50-10 log wage differential is about .11 log points less than the 50-10 log voluntary compensation differential, which translates to about one-sixth of the size of the 50-10 log wage differential.

Figure 2 graphs the benefit share in compensation for leave, pensions and savings plans, and health insurance, against compensation percentile. The health insurance share is quite low at the 10^{th} percentile, increases rapidly through about the 40^{th} percentile, stays roughly constant in the middle of the distribution, and tails off noticeably above the 60^{th} percentile. Health benefit costs per hour are rising over the entire range, but not proportionately with total compensation beyond the 60^{th} percentile. The share falls by about 2 percentage points on a base of about 8 percentage points over this range.

The pattern that holds for health insurance is somewhat different from those for leave and pensions. Although retirement compensation represents on average only about 2-3 percent of compensation, it can substantially affect inequality calculations. Jobs in the bottom quartile of the compensation distribution have very little in the way of retirement benefits while jobs in the top decile have over 5 percent of compensation in this form. Retirement compensation tends to increase compensation inequality in the upper as well as

the lower tail of the distribution. The share of compensation taken as leave increases with compensation, but somewhat more rapidly in the lower half of the distribution.

Table 2 brings together the results from these figures. The table gives wage and compensation dispersion across various points of the distribution, and indicates each group of benefits' contribution to compensation inequality using the approximation in equation (1). For example, the first row indicates that the log wage differential between the 25^{th} and 10^{th} percentile of the wage distribution is 0.281. The log compensation differential between these two points (again, in the wage distribution) is 0.347. Therefore about 0.066 log points in compensation dispersion can be attributed to various benefits. Table 2 breaks out benefits by type, including "other voluntary" and "legally required" benefits categories. The wage dispersion column and the first four benefits columns add up to the "voluntary dispersion" column; adding in the last benefit component ("legally required") gives the wage-sorted compensation dispersion. The final column of table 2 gives compensation dispersion based on the compensation-sorted distribution of the data. Reordering the data by compensation per hour rather than by the wage rate must increase overall compensation dispersion measures.

Consider first the broadest range, the 90^{th}-10^{th} differential. The leave and pensions components each add over .05 in log points to measured compensation dispersion. Health insurance adds less, about .01. At least over the whole distribution, leave and pension benefits are more important in determining compensation dispersion than are health insurance benefits. The "other voluntary" category adds about .02 log points. The sum of these non-legally required benefits gives 0.138 in log points. Legally required compensation costs tend to equalize the compensation distribution substantially.

There are also interesting differences among benefits components across the various parts of the 90^{th}-10^{th} percentile range. These differences are apparent in previously referenced figures: leave effects occur mostly in the bottom half of the wage distribution, pension effects operate throughout the distribution, and health insurance is important in adding to dispersion in the lower half of the distribution but is equalizing in the upper half. The contrasting effects of health insurance in the 25^{th}-10^{th} versus above-median percentile ranges are especially stark. In the 25^{th}-10^{th} wage percentile range, voluntary compensation dispersion is about 30 percent larger than wage dispersion. Nearly half of this is attributable to health insurance benefits.

IV. Changing Wage and Compensation Inequality

The results in table 1 show nontrivial wage and compensation growth over this period. That growth did not occur uniformly across the wage spectrum, as shown in figure 3. The graph overlays a plot of real compensation growth by compensation percentile with a plot of real wage growth by wage percentile. Wage and compensation rates grew throughout their respective distributions, but the growth rates were generally more modest near the median. The greater growth rates at higher percentiles indicates that wage and compensation inequality increased above the median. That expansion continues a longer term trend found in, for example, CPS data. The greater growth rates below the median imply reduced inequality among the subset of medium- and low-wage jobs. Compensation grew slightly faster than wages on average, but the differences were more noticeable in the middle half of the distribution. This suggests that below-median compression and above-median expansion in inequality is slightly more apparent in wages than in overall compensation.

Table 3 gives wage and compensation differentials across various parts of the distribution. Overall inequality, as measured by the standard deviation or Gini coefficient, increased slightly for both log wage and log compensation rates. As figure 3 indicates, the experience above and below median differs. The measured 90-50 differentials indicate increased inequality of .064 log points (for wages) and .055 log points (for compensation). The analogous 50-10 differential indicate compression of .027 (wages) and .023 (compensation).

One can account for benefit contributions to changing inequality, in a mechanical sense, by first differencing equation (1). Figures 4-6 show how the benefit shares for health insurance, pensions, and leave have changed, by percentile in the wage distribution. In these figures the benefit shares for 1994 and 2006 are smoothed (over wage percentile) and overlaid. The results in table 1 showed that health insurance costs rose at a faster rate than wages over this period. Figure 4 shows that much of this differential growth occurred in jobs with below-median wages. Or, more accurately, such differential growth did not occur in the upper quartile. One may not have expected health insurance costs to rise more (in percentage terms) in jobs with median or slightly below-median wages. These results suggest that health insurance contributed in a modest way to compensation compression below the median.

Figure 5 gives the series for the retirement and savings category. The 2006 series lies above the 1994 series, but especially so in the upper few deciles. As shown later, this is primarily a result of recent increases in defined benefit plan costs. Because the 2006 series is somewhat steeper than the 1994 series over the whole range of data, retirement and savings plan cost changes contributed toward greater compensation inequality. To be complete I also

show the analogous graph for paid leave, in figure 6. The change over time in paid leave is fairly minor.

Table 4 provides point estimates and standard errors. The first column gives the change in wage dispersion over the 1994-2006 period for the relevant percentile range. The next four columns give the contribution of benefit categories to compensation inequality, as operationalized by equation (1). The last column in the table gives changing dispersion in total compensation, where the distributional range continues to be defined based on points in the wage distribution. The point estimates for the benefit contribution columns are often small and not statistically different from zero. However, a case can be made that some health insurance cost changes contributed toward equalizing compensation differentials near and somewhat below the median, whereas retirement and savings plan costs contributed toward greater compensation dispersion in the upper half of the distribution.

Subperiods

One interesting exercise is to contrast the earlier and later subperiods within the 1994-2006 time frame. Figure 7 repeats figure 3 for 1994-2000. Over the earlier 1994-2000 time period there was substantial compression in the ECI in below-median wage differentials, and a slight expansion in above-median wage differentials. Compensation cost growth was lower than wage growth over this subperiod.

Figure 8 shows the later 2000-2006 period. The differences between the two subperiods are fairly remarkable. First, wage dispersion in the ECI data increased over the broad spectrum of the wage distribution in the latter period. Or, at least, there is no wage

compression evident in the latter subperiod. Second, compensation grew faster than wages over this latter subperiod.

The Timing of Benefit Cost Growth

The differences between wage and benefit cost growth in the subperiods shown in figures 7-8 suggest that it may be helpful to show the timing of changes within the health insurance and retirement components of benefit costs. The health insurance statistics shown thus far do not give any sense for whether changing offer or takeup rates have noticeably affected employers' costs. In addition, lumping together changes in defined benefit plan and defined contribution plan costs into a retirement aggregate obscures some changes within each subcategory.

Because the ECI unit of observation is a job within an establishment, we cannot readily calculate a health insurance coverage rate analogous to what one might calculate from household survey data. We can instead calculate the fraction of any given sample that has positive employer costs for health plans. Such a calculated fraction is conceptually closer to an employer offer rate than a health insurance coverage rate.

A better source for a coverage rate is the March CPS. The March CPS identifies those with health insurance coverage and determines whether that coverage is through the individual's employer (although we do not know if an uninsured worker's employer offered health insurance). The wage measure for the CPS sample is derived as annual wage and salary earnings, divided by the product of weeks worked and usual hours worked per week in the prior year. Several exclusions are imposed in the CPS data so that it more closely resembles the ECI sample. This primarily involves excluding self-employed unincorporated

workers and workers in the federal sector. The CPS sample also is restricted to full-time year-round workers.

Figure 9 juxtaposes March CPS and ECI incidence measures, by position in the wage distribution. As expected, the ECI positive cost incidence measure exceeds the CPS individual-based coverage rate. The difference between measures does not vary greatly with position in the wage distribution, although the difference does form a higher proportion of the base below the median.

Figure 10 compares the CPS coverage rate over time at different points in the wage distribution. The coverage rate fell over time, for each quintile group. The decrease was not particularly greater at lower than higher wage quintiles. Figure 11 shows the comparable figure using the ECI incidence measure. The ECI measure was roughly unchanged over this period. One hypothesis is that the health insurance coverage rate declines found in the CPS data are more due to declining rates of takeup than to declining rates of employer offer. Of course, health insurance offers typically come conditional on worker contributions to costs, and employers may have changed the terms of offer over this period. One implication is that the cost data in the ECI will reflect not only general health insurance premium inflation, but also any declining propensity for workers to enroll in employer-based health plans.

Table 5 shows the trends in CPS and ECI incidence rates, as well as the trend in ECI health insurance costs, measured here relative to compensation in the form of a share. Note that the compensation share fell substantially over the early 1994-2000 period. That is in fact one of the main reasons why compensation cost growth was lower than wage growth over that period, especially at wage percentiles above the very bottom of the distribution. The Employment Cost Index for health insurance benefits did in fact become negative (or

effectively zero) for some isolated quarters over this time period. Over the later 2000-2006 period the health insurance share in compensation rose by more than enough to offset the early period decline. Premium increases dominated over any trends factors in wages or in the coverage propensity. This in part caused the rapid compensation cost growth over the 2000-2006 period shown above in figure 8.

In describing the trends in retirement and savings plan costs, it is useful to distinguish between defined benefit (DB) and defined contribution (DC) plan costs. The ECI began separately publishing statistics for these categories in 1996. DB and DC plans tend to look different in terms of the distributional accounting. Figure 12 shows the fraction of the sample, as averaged across the years 1994-2006, with positive employer costs at given wage percentile for each of the two categories. DC plan costs tend to be more prevalent than DC plan costs, especially at and below the median. Figure 13 gives benefit shares for DB and DC plans separately. It is apparent there that DB plan costs tend to be higher than DC plan costs, especially above the median.

The whole period averages in figures 12-13 obscure some important trend changes. Table 6 shows these trends. Of course, DC plans have become increasingly prevalent while no new DB plans (other than cash balance plan conversions) have been started for (literally) years. But table 6 also shows some important changes in the employer costs associated with the two types of plans. DC plan cost shares increased slightly over this period. However, DB plan costs fell substantially from 1996 to 2002, then rose tremendously over a short period of time. From 2002 to 2006 DB plan costs per hour rose about 50 percent. The rapid change after 2002 is wide-spread in the ECI data, and is not due to sample turnover. This rapid increase is likely a response to falling pension funding levels brought on by declines in the

market value of stocks (the lag accords with accounting rules allowing averaging or smoothing responses to plan underfunding over multiple years).

Because DB plans have a larger effect on above-median wage jobs, this surge in DB plan contributions had a noticeable impact on compensation growth above the median, and on compensation dispersion measures. It is likely that ECI compensation growth above the median understated true values early in this period (when stock values were rising) and overstated true values in the more recent past. Furthermore, DB plan cost growth, at least as measured in the ECI data, has slowed in the quarters since December 2006. DB plan costs are therefore unlikely to be a near-term driver for dispersion increases to the same extent as they have been in the very recent past.

V. Work-related Injuries

Hamermesh (1999a,b) describes the possible effects of increased wage inequality on the incidence of other job attributes. This section discusses results for one such attribute, work safety and the likelihood of work-related injury.

The BLS conducts annual surveys of employers to estimate the number of work-related injuries and illnesses. As part of that effort BLS collects information on injured workers and the characteristics of the injuries, for the subset of injuries that require days away from work (see Nestoriak and Ruser this volume). While these data do not include direct wage measures, they do include factors that correlate with wages, such as age and gender of the affected worker, the occupation held by the worker, and the industry of the employer. In order to create graphs analogous to those above for health or pension benefits, I

merge injury count estimates to CPS data to construct injury rates, and plot such injury rates against wages as measured in CPS Outgoing Rotation Group data.

To be specific, I construct injury rates for cells given by year, gender, age group, industry, and occupation. The denominator for the injury rate statistics are cell totals for hours worked as constructed using from CPS Basic Monthly survey data (the numerator is of course the injury count estimate itself). These cell-specific injury rates are in turn merged to CPS ORG individual level data. Individual wage rates form the basis for a wage positional, and the injury rate estimate for the individual's gender-age-industry-occupation cell is in effect an imputed work-related injury risk. Because occupation is such an important determinant of both wages and injury risk, I construct cells so that much of the variation in the data comes from the occupational dimension (there are 5 age groups, 2 industries, and approximately 40 occupational categories). Because of changing occupational classifications, the time frame is limited to 1994-2002 data.

Figure 14 shows the cross-sectional relationship between wage position and imputed work-related injury risk. To conform with earlier graphs, I measure not risk but absence of risk (a positive amenity). This is measured as the log of the ratio of the year's injury rate for all cells divided by the particular cell's injury rate relative risk, the latter being the inverse of the cell's relative risk. Because the risk measure is relative, the measure averages to zero within year. Figure 14 shows data for the entire pooled period. The obvious point is that higher wage workers are in cells with lower work-related injury risk. This appears to be especially true at the highest wage positions. Because much of the constructed variation is along occupational lines, this is a statement mainly about the occupations that high wage workers occupy.

There were large declines in injury rates over this period. The rate of injuries and illnesses requiring days away from work fell from 2.8 per 100 FTE workers in 1994 to 1.6 per 100 FTE in 2002. This raises a question of what sorts of occupations, industries, and workers experienced disproportionately experienced those declines. Figure 15 tries to get at that question by graphing the begin- and end-of-period cross-sectional relationships analogous to the whole-period average shown in figure 14. Here the safety or relative risk measure incorporates changes through time. That is, a cell's injury risk is now measured not relative to the year's average injury rate, but relative to the whole 1994-2002 average.

Although the curvature of the plots may trick the eye, in fact the two plots are roughly parallel. That is, one relationship is almost a vertical displacement of the other. What this suggests is that the declining injury risk apparent in the total trend in injury rates is broad-based occupationally. In fact, injury rates are declining by reasonably similar proportions in almost all of the occupational categories used here.

These are qualitative results, in the sense that the risk and risk improvement is not priced out in an accounting sense (as the job attributes can be to some degree with the benefits above). Further qualifications include the fact that the risk here is of injury, not fatality, and that injuries are not weighted by duration. For example, the trend shifts away from injuries requiring days away from work were known to disproportionately affect shorter-duration injuries, and also coincided with trend increases in injuries with days of restricted work activity. Nevertheless, the results suggest that less-risky work environments were not disproportionately enjoyed by workers with wages in any particular places in the wage distribution.

VI. Summary

The intent of this paper is to present facts on the level and distribution of fringe benefits, on the relationship between wages and fringe benefits, and on how these relationships have changed over the past decade. The data are fairly clear on changes through time in benefits levels, wage dispersion, and on how including benefits might change measured compensation dispersion. Changes in the distribution of voluntary benefits acted to compress compensation differentials in the lower half of the distribution and (with the exception of health insurance) expand them in the upper half. It appears that safety risk improvement was broad-based and not concentrated in particular occupations over this period.

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Appendix: ECI Microdata

A. Panel Aspects and Weighting

The ECI measures changing wages and compensation costs over a sample of fixed jobs. To do so it follows sampled establishments and jobs over multiple quarters. Sample replenishment takes the form of replacing a small fraction of establishments every quarter. The new subsample, except for subsequent attriters, remains in the ECI sample for approximately 4½ years. Sample weights are constructed at the time of initiation into the sample, and reflect aggregate employment in the industry.

The panel aspect of the data raises some issues relevant to treating the data as annual cross-sections. To correct for attrition, sample weights are adjusted quarter by quarter so that the cross section maintains a proper industry distribution. This reweighting does not correct for nonrandom attrition within industry or the fact that the distribution of sampled jobs (say, with respect to occupations) is static. This treatment is very similar to what the BLS undertakes in producing its annual Employer Costs for Employee Compensation (ECEC) release. Also, cross sections are not independent at high frequencies, but are at the frequency corresponding to the length of a panel's life. Finally, the data are hours-weighted. Published ECEC statistics are not hours-weighted

B. Leave Costs and Scheduled Hours versus Hours Worked

An example demonstrates how leave is treated in the ECI. Consider a job where incumbents are paid $400 per week for a 40 hour scheduled workweek. Assume workers receive 2 hours per week in paid vacation, and that there are no other benefits. The wage rate is calculated as $10 per hour. Leave costs are calculated as the hourly wage times the ratio of leave hours to hours worked (which is scheduled hours minus leave hours). Here the computation is $10 times 2/(40-2) = $0.53 per hour worked. Note that the figure is on a per hour worked (versus per scheduled hour) basis. Total compensation is $10.53 per hour, also on an hours worked basis. One could arrive at the same $10.53 figure by dividing weekly earnings by weekly hours worked ($400/38). Had there been other benefits in this example, they would have been converted to a cost per hour worked and added to the $10.53 figure to arrive at total compensation.

As this example should make clear, whether leave is incorporated into wage measures in CPS and similar data depends on how "hours worked" is defined in such surveys, and how respondents answer in practice. March CPS retrospective data has response heaping at 52 weeks and 40 hours per week, suggesting that annual hours worked do not typically net out leave. Analyses using CPS Outgoing Rotation Group data that generate hourly wages as the ratio of usual weekly earnings to usual hours worked per week would not net out leave if usual hours per week is interpreted as scheduled hours or modal hours.

C. Within-job Compensation Variation

One way in which ECI-based inequality statistics differ from those based on household survey data is that the ECI microdata unit of observation is the job rather than the individual. The inequality statistics presented in the paper are therefore interpretable as what one would observe using individual microdata, except that individuals' wages and benefit costs are proxied by their job averages. That is, one misses within-job wage and benefit cost

dispersion. From a firm's perspective this may not be very relevant – the within-job dispersion in, say, health insurance takeup rates may reflect ex post outcomes rather than ex ante expected costs – but it would be relevant from the perspective of the individual workers.

For wage rates, evidence from other establishment survey data suggests that relatively little of the total log wage variation is within-job (Groshen (1991)). More recent evidence from another establishment survey, the National Compensation Survey, indicates that within-job log wage variance is on the order of 3 to 4 percent of total log wage variance (calculations by author). The sampling design and data collection for these surveys are similar, suggesting that wage dispersion measures as presented in the paper are quite like what would obtain were individual wage rates observed.

Unfortunately, there is little evidence on within-job differences in benefit costs. Within-job dispersion in legally required benefit costs should approximately equal the within-job wage dispersion, since those costs tend to be direct functions of earnings. And obviously there is no within-job variance where costs are zero, which is a substantial portion of the data for some benefits. For observations with positive voluntary benefits costs, one can conceptually attribute within-job cost differences to differences in employer offers or in employees' take-up. One would expect within-job differences in employer benefit offers to be small because of non-discrimination rules and the desire to be perceived as treating similar workers in a similar fashion. Note in this regard that ECI sampling treats full-time and part-time workers as occupying different jobs, even if they have the same job title (the same treatment holds for differences in union status and incentive pay status). Therefore any dispersion due to full-time/part-time differentials in health insurance (etc.) offers will be reflected in the ECI data as dispersion across jobs, and so will be incorporated in the paper's inequality calculations. The main offer rate differences within-job probably relate to tenure or age service requirements, which are relevant mainly for retirement plans and vacation leave. Within-job differences in individuals' take-up of benefit offers are most likely to occur for benefits where there is some copayment or immediate cost to the worker, e.g., health insurance or matching contributions to defined contribution plans. Therefore most of the within-job compensation variation is likely to be due to health insurance and pension plan costs.

Table 1
Sample Means

	1994	2006	Whole Period Average
Employer Costs Per Hour ($)			
Wage	18.36	19.96	19.18
Compensation	25.70	28.38	26.66
Health Insurance	1.77	2.18	1.77
Retirement and Savings	0.99	1.25	1.03
Paid Leave	1.85	2.15	1.94
Benefit's Share in Compensation			
Health Insurance	.066	.077	.065
Retirement and Savings	.029	.033	.030
Paid Leave	.063	.064	.063
Other Non-Legally Required	.014	.013	.014
Legally Required	.098	.091	.092
Fraction of Jobs Reporting Positive Costs			
Health Insurance	.821	.809	.808
Retirement and Savings	.652	.707	.681
Paid Leave	.926	.923	.922

Notes: Cost figures are in CPI-U deflated 2006 dollars. The Retirement and Savings category includes defined benefit pensions and defined contribution plans. Paid Leave includes vacations, holidays, sick leave, and other paid leave. Other Non-Legally Required benefits include non-production bonuses, severance pay, life insurance, sickness and accident insurance, and supplemental unemployment insurance. The Legally Required category includes Social Security, Medicare, Worker's Compensation, and state and federal unemployment insurance.

Table 2
Benefits' Contribution to Compensation Dispersion

		Benefit's Contribution					Compensation Dispersion		
Distributional Range	**Wage Dispersion**	**Leave**	**Pensions**	**Health Insurance**	**Other Voluntary**	**Legally Required**	**Voluntary Compensation**	**Compensation (wage sort)**	**Compensation**
25-10	.281	.023	.015	.037	.005	-.015	.362	.347	.368
50-25	.371	.017	.009	-.001	.003	-.007	.399	.391	.425
75-50	.416	.016	.016	-.014	.005	-.011	.439	.428	.447
90-75	.356	-.001	.011	-.014	.005	-.010	.357	.347	.369
50-10	.652	.041	.025	.036	.008	-.022	.761	.738	.793
90-50	.772	.014	.027	-.027	.010	-.021	.796	.775	.816
75-25	.786	.033	.025	-.015	.008	-.018	.838	.819	.872
90-10	1.424	.055	.052	.008	.019	-.043	1.557	1.513	1.610

Notes: ECI quarterly data from the first quarter 1994 to the fourth quarter 2006 are pooled and equally weighted to obtain these statistics. The "Distributional Range" column indicates the percentile range over which comparisons are made. Statistics are based on averages over the five percentiles of the data centered on the relevant point; for example, the row "25-10" refers to differences between the 23^{rd}-27^{th} and the 8^{th}-12^{th} percentile ranges. In all columns except the last the percentiles reference place in the wage distribution; for the last column percentiles reference place in the compensation distribution. Wage and compensation dispersion columns are log wage and log compensation differentials.

Table 3
Wage and Compensation Dispersion

	Standard deviation	Percentile differentials 90-10	90-50	50-10	Gini coefficient
A. Log wage					
1994	.558	1.428	.742	.686	.317
2006	.578	1.465	.806	.659	.332
Change 1994-2006	.020	.037	.064	-.027	.015
B. Log compensation					
1994	.595	1.635	.802	.834	.328
2006	.617	1.668	.857	.811	.344
Change 1994-2006	.022	.033	.055	-.023	.016

Table 4
Changing Wage and Compensation Dispersion, 1994-2006

	Change In:					
		Benefit's Contribution				
Distributional Range	**Wage Dispersion**	**Leave**	**Pensions**	**Health Insurance**	**All Voluntary**	**Compensation Dispersion (wage sort)**
25-10	-.010	-.001	-.000	.015	.016	.005
	(.002)	(.004)	(.004)	(.009)	(.014)	(.014)
50-25	-.017	-.007	-.005	-.020	-.035	-.041
	(.001)	(.004)	(.004)	(.007)	(.013)	(.013)
75-50	.030	.009	.008	-.010	.007	.029
	(.002)	(.003)	(.004)	(.005)	(.009)	(.009)
90-75	.033	.005	.006	-.001	.012	.044
	(.002)	(.004)	(.004)	(.003)	(.008)	(.008)
50-10	-.027	-.008	-.006	-.004	-.019	-.035
	(.002)	(.003)	(.003)	(.007)	(.011)	(.011)
90-50	.064	.014	.014	-.011	.019	.073
	(.002)	(.004)	(.004)	(.005)	(.009)	(.009)
75-25	.013	.002	.003	-.030	-.028	-.012
	(.002)	(.005)	(.005)	(.007)	(.014)	(.012)
90-10	.037	.006	.008	-.015	-.001	-.037
	(.003)	(.004)	(.004)	(.007)	(.010)	(.012)

Notes: The "Distributional Range" column indicates the wage percentile range over which comparisons are made. Statistics are based on averages over the five percentiles of the data centered on the relevant point; for example, the row "25-10" refers to differences between the 23^{rd}-27^{th} and the 8^{th}-12^{th} wage percentile ranges. Wage and compensation dispersion columns show changes through time in the log wage and log compensation differentials between different points in the wage distribution. Standard errors are in parentheses.

Table 5
Health Insurance Plan Trends

Year	ECI Data		March CPS
	Fraction Positive Costs	Share of Compensation	Coverage Fraction, FTYR Workers
1994	.821	.066	.701
1995	.810	.063	.682
1996	.810	.061	.688
1997	.800	.058	.681
1998	.798	.057	.683
1999	.799	.057	.689
2000	.801	.059	.682
2001	.815	.062	.674
2002	.817	.067	.668
2003	.813	.071	.658
2004	.808	.073	.653
2005	.807	.075	.647
2006	.809	.077	-

Notes: March CPS coverage rates refer to a sample of full-time, year-round workers (who usually work 35 or more hours per week, for 50 or more weeks in the year prior to the survey).

Table 6
Retirement and Savings Plan Trends

	Defined Benefit Plans		Defined Contribution Plans	
Year	Fraction Positive	Share of Compensation	Fraction Positive	Share of Compensation
1994	-	-	-	-
1995	-	-	-	-
1996	.415	.019	.452	.012
1997	.387	.018	.468	.012
1998	.372	.017	.484	.013
1999	.357	.016	.510	.014
2000	.340	.015	.528	.014
2001	.336	.014	.559	.015
2002	.337	.013	.563	.015
2003	.340	.015	.565	.015
2004	.343	.018	.565	.015
2005	.340	.019	.569	.015
2006	.330	.019	.582	.015

Notes: The BLS began publishing separate statistics for defined benefit and defined contribution plan with 1996 data.

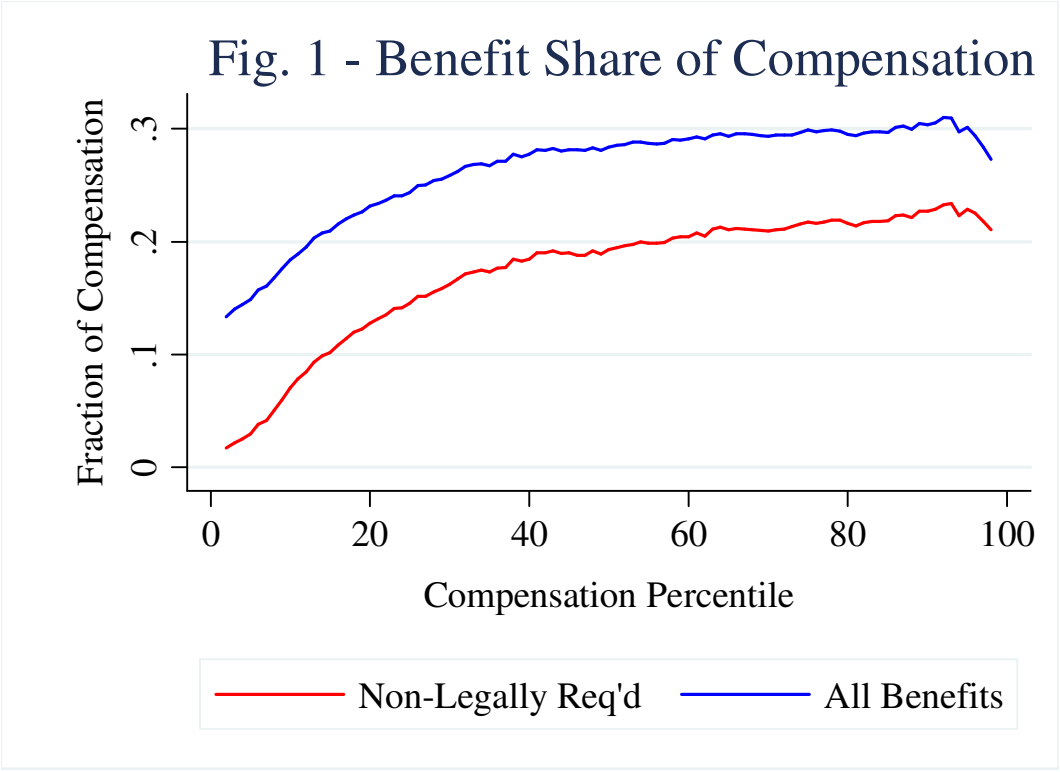


Fig. 1 - Benefit Share of Compensation
Fraction of Compensation
0
.1
.2
.3
0
20
40
60
80
100
Compensation Percentile
Non-Legally Req'd
All Benefits

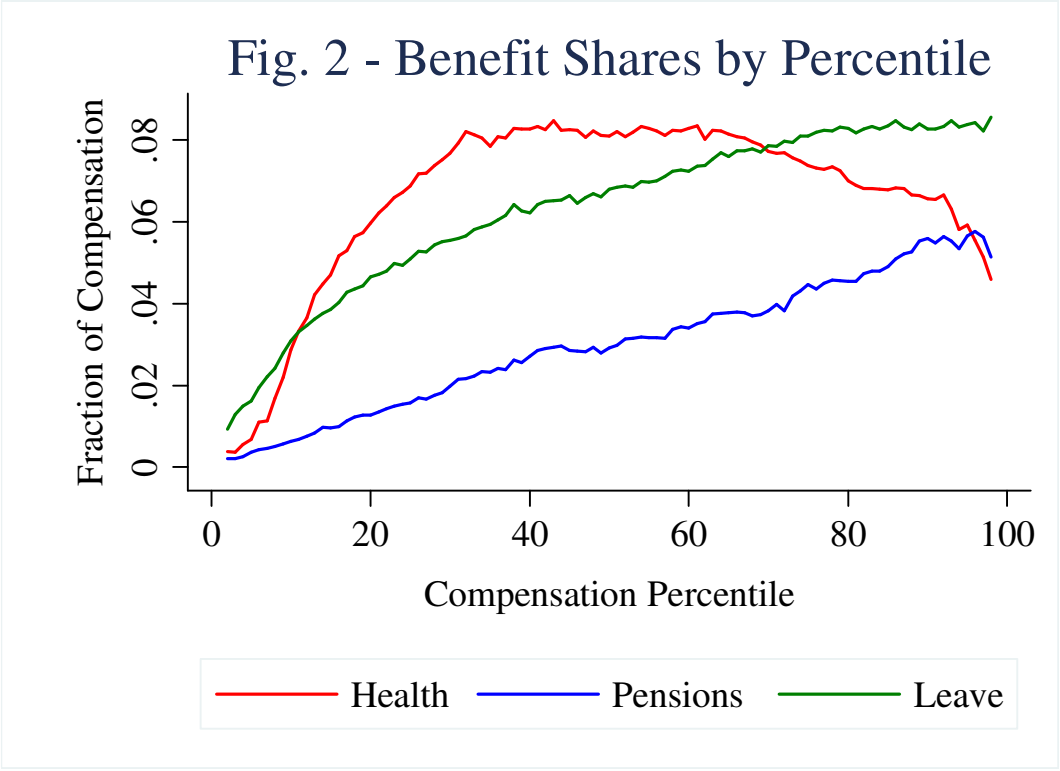


Fig. 2 - Benefit Shares by Percentile
Fraction of Compensation
0
.02
.04
.06
.08
0
20
40
60
80
100
Compensation Percentile
Health
Pensions
Leave

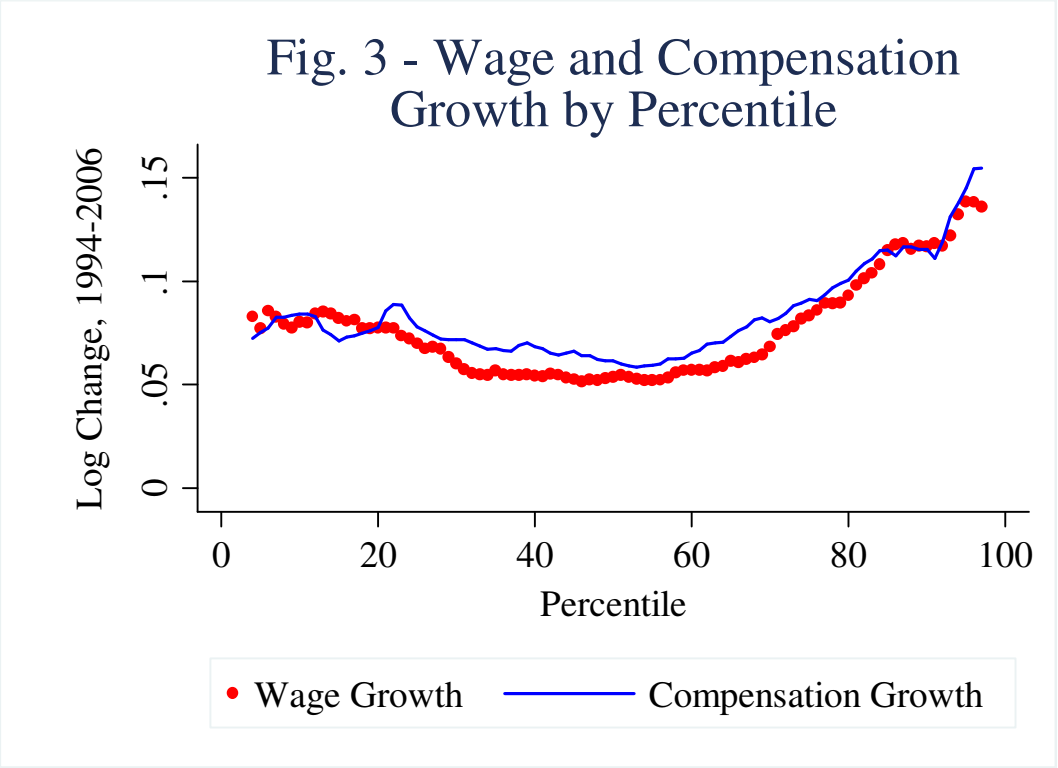


Fig. 3 - Wage and Compensation Growth by Percentile
Log Change, 1994-2006
0
.05
.1
.15
0
20
40
60
80
100
Percentile
Wage Growth
Compensation Growth

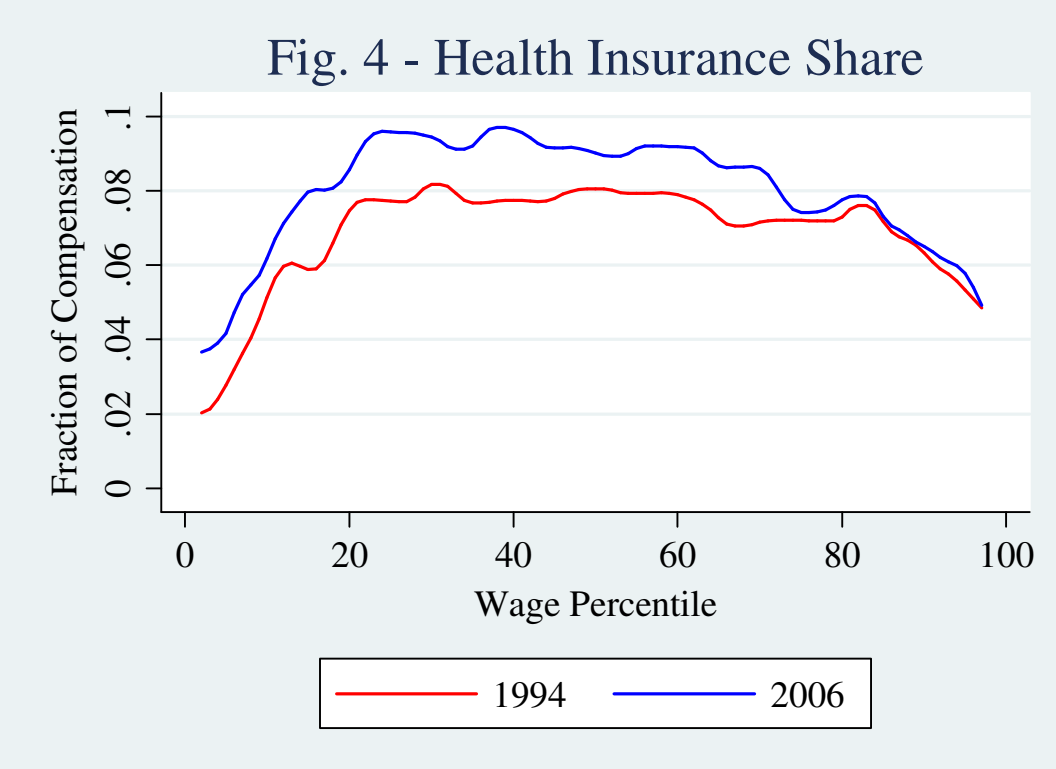


Fig. 4 - Health Insurance Share
Fraction of Compensation
0
.02
.04
.06
.08
.1
0
20
40
60
80
100
Wage Percentile
1994
2006

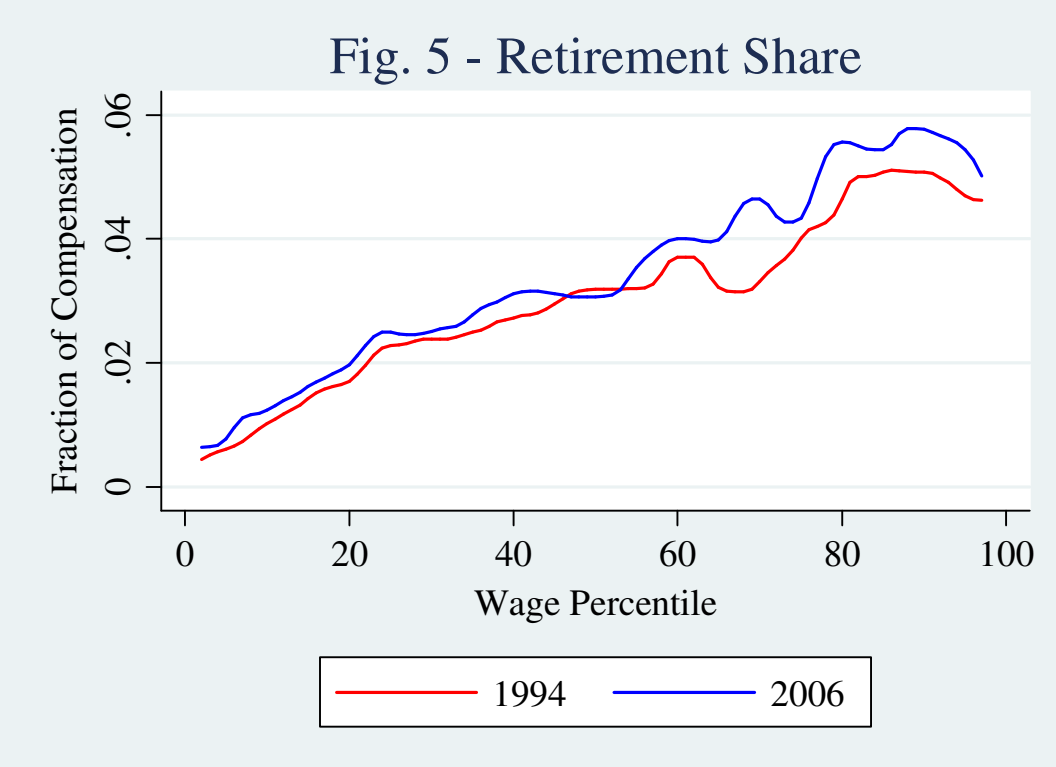


Fig. 5 - Retirement Share
Fraction of Compensation
0
.02
.04
.06
0
20
40
60
80
100
Wage Percentile
1994
2006

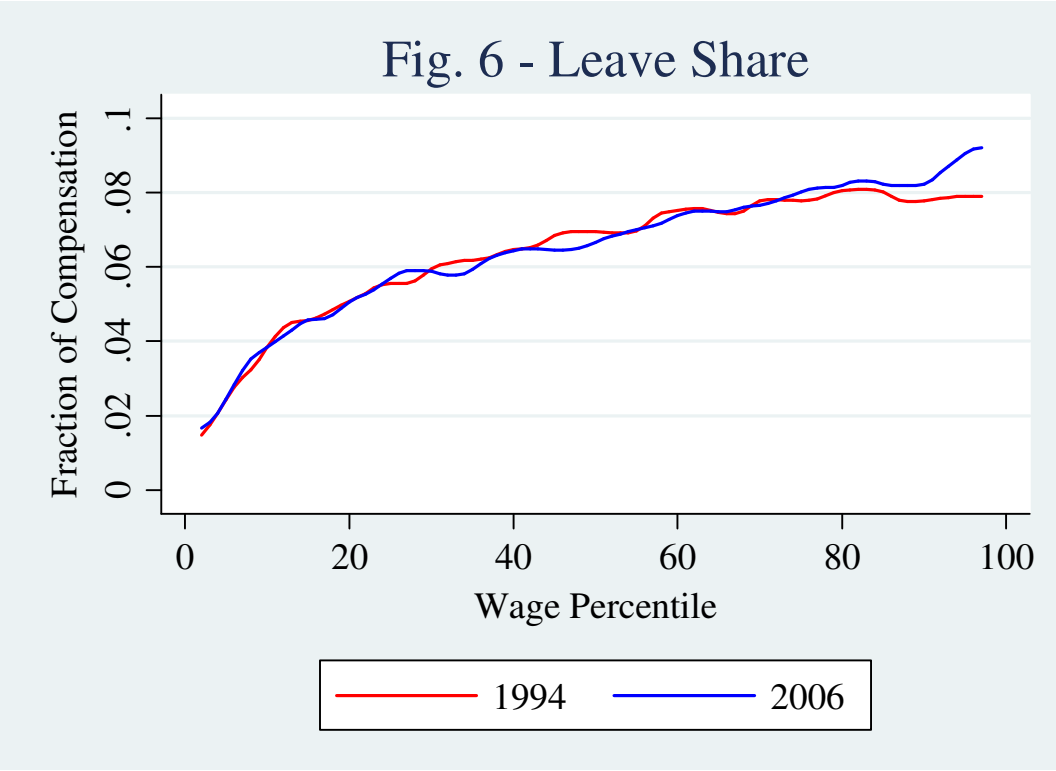


Fig. 6 - Leave Share
Fraction of Compensation
0
.02
.04
.06
.08
.1
0
20
40
60
80
100
Wage Percentile
1994
2006

Fig. 7 - Wage and Compensation Growth by Percentile, 1994-2000

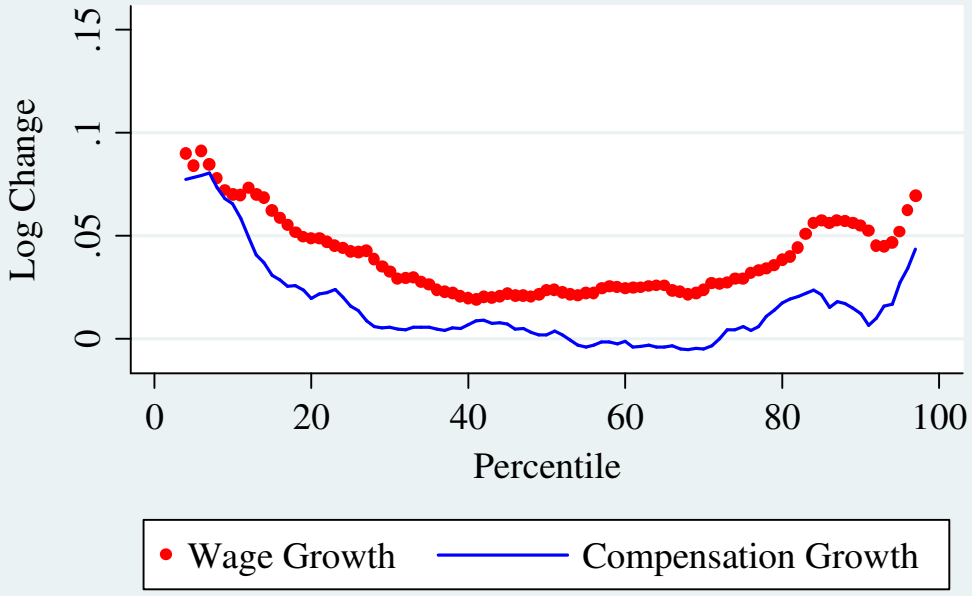


Fig. 8 - Wage and Compensation Growth by Percentile, 2000-2006

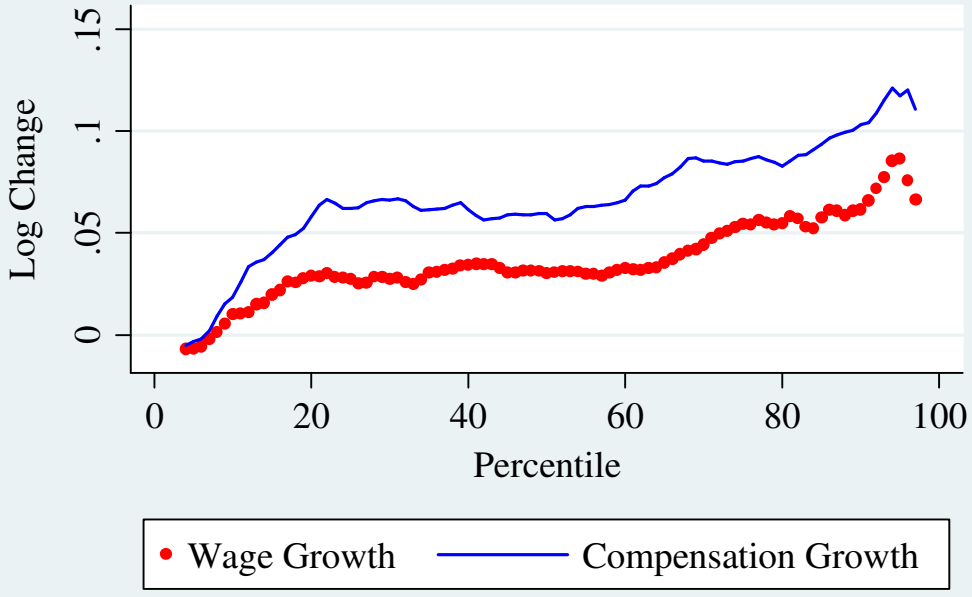


Fig. 9 - Health Insurance Incidence by Wage Percentiles

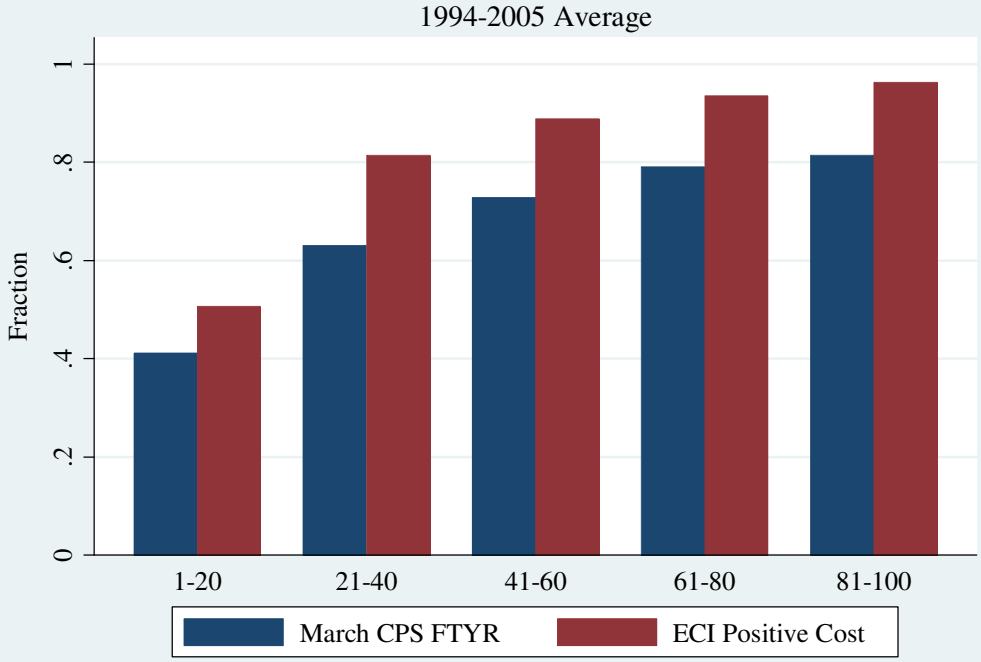
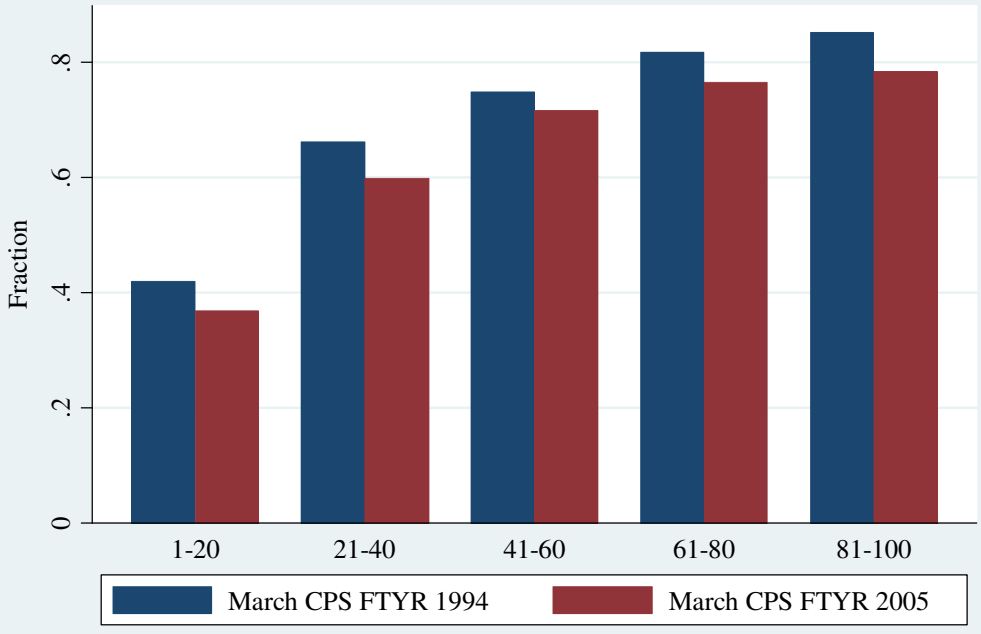


Fig. 10 - Health Insurance Incidence by Wage Percentiles



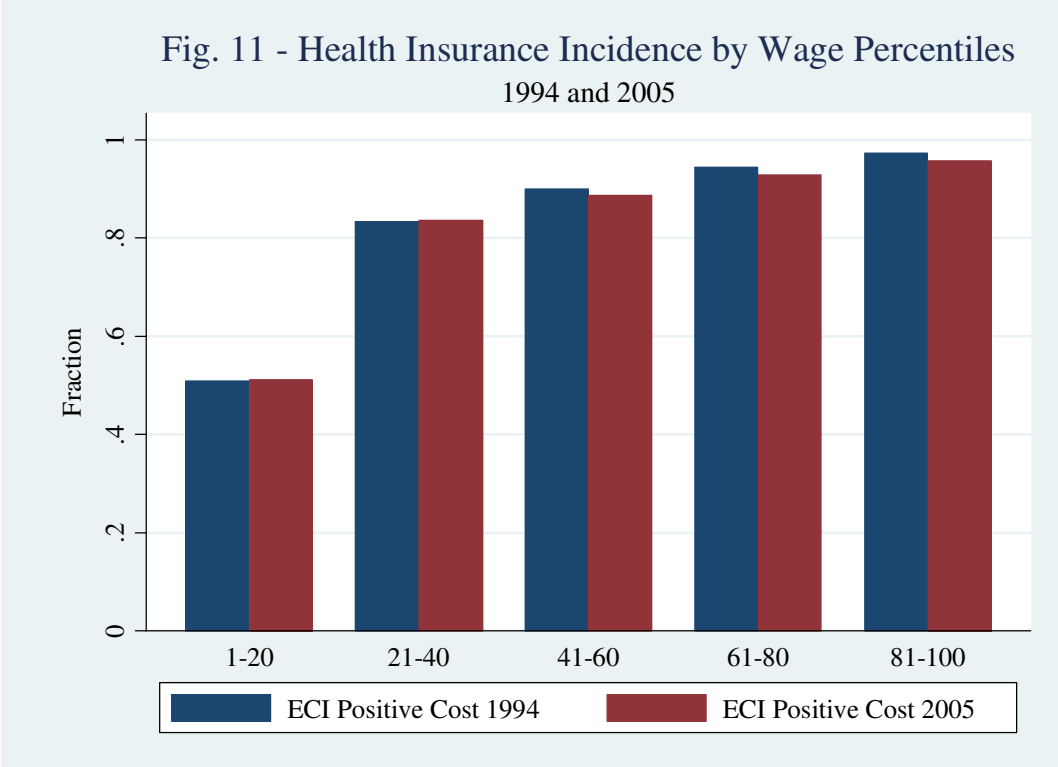


Fig. 11 - Health Insurance Incidence by Wage Percentiles
1994 and 2005
Fraction
0
.2
.4
.6
.8
1
1-20
21-40
41-60
61-80
81-100
ECI Positive Cost 1994
ECI Positive Cost 2005

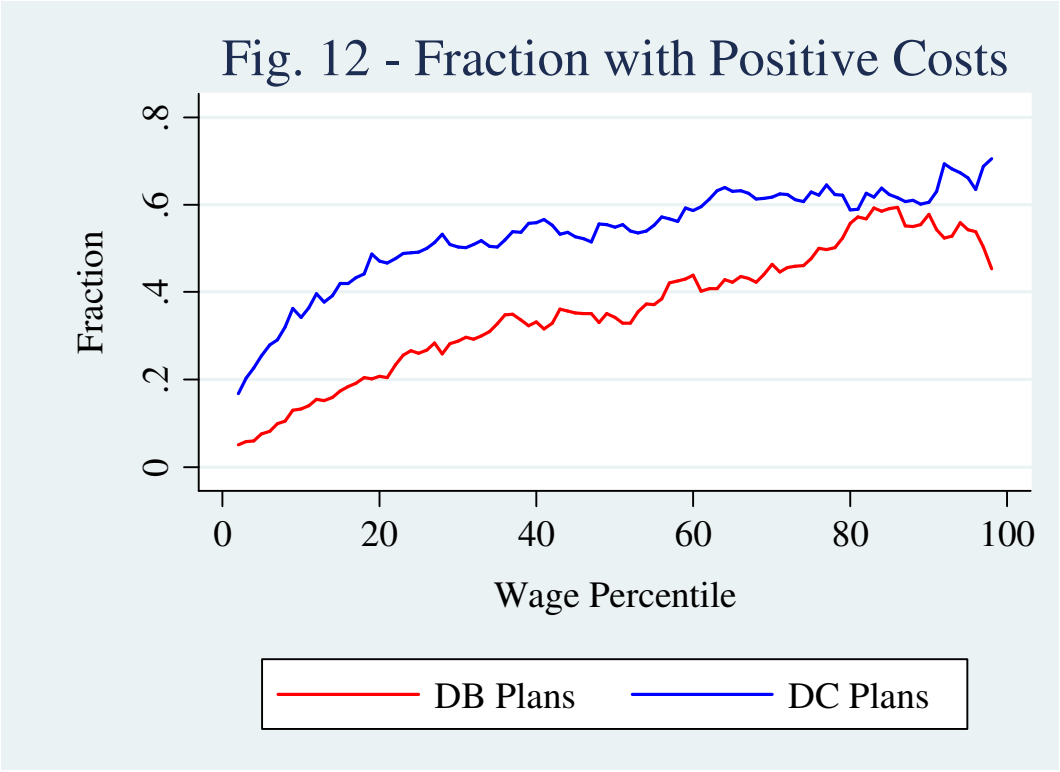


Fig. 12 - Fraction with Positive Costs
Fraction
0
.2
.4
.6
.8
0
20
40
60
80
100
Wage Percentile
DB Plans
DC Plans

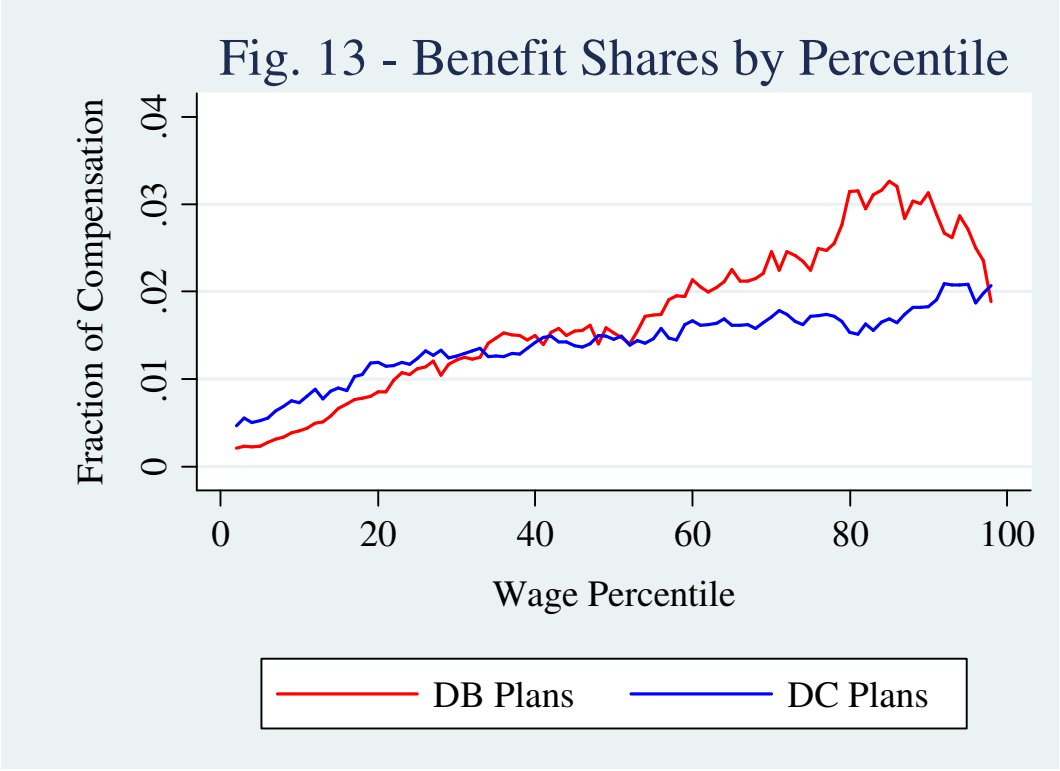


Fig. 13 - Benefit Shares by Percentile
Fraction of Compensation
0
.01
.02
.03
.04
0
20
40
60
80
100
Wage Percentile
DB Plans
DC Plans

Fig. 14 - Lower Work-Related Injury Risk at High Wages

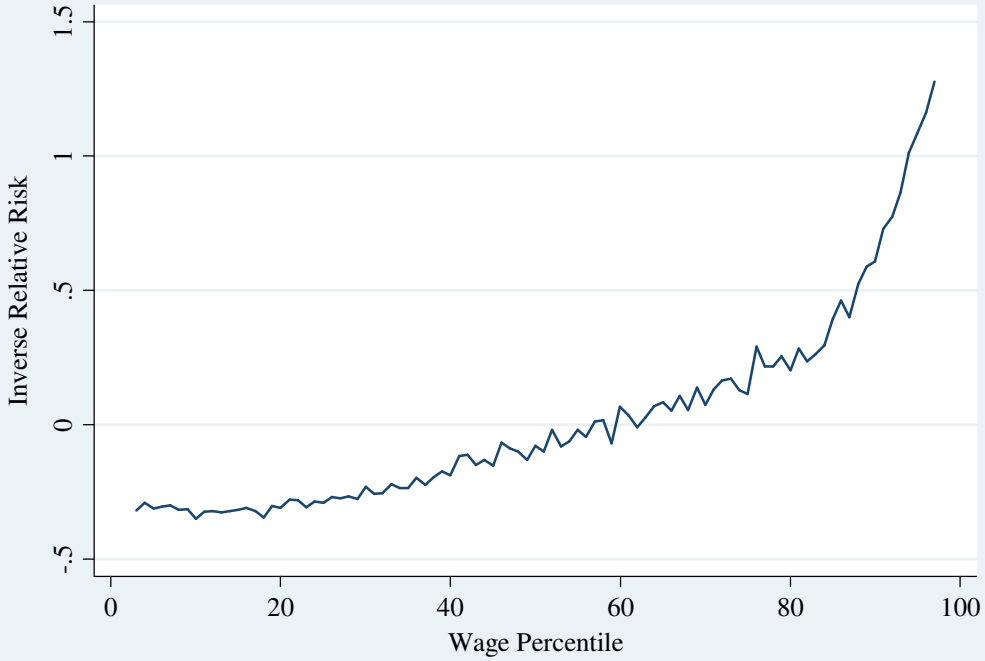


Fig. 15 - Risk Improvements by Percentile