Salary or Benefits?*

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Abstract

Employer-provided benefits are a large and growing share of compensation costs. It is often efficient for employers to provide benefits because firms have a comparative advantage (for example, due to scale purchasing or tax treatment) in purchasing relative to employees. I model two factors that can affect the value created by employer-sponsored benefits – costly search for employees whose preferences match the benefits a firm offers and the fact that some benefits can reduce the marginal cost to an employee of extra working time. I use employee benefits data from the National Longitudinal Survey of Youth to investigate how these factors contribute to the salary/benefit mix. I provide evidence consistent with firms using benefits to ease the costs of working long hours, to create value in long-tenure relationships, and to exploit the cost advantages they have in procurement.

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"Concierge services, petsitting, nap rooms and the option to telecommute are really just sneaky new ways to get already overworked employees to toil even harder, says Jill Andresky Fraser, author of *White-Collar Sweatshop*. 'These perks are often illusory. They exist just for their publicity value,' she says. 'In reality, staff face resentment if they try to work from home or take family days. And free food, nap rooms and home computers just keep people tied to their work.'" – Economist (2000)

1 Introduction

Significant effort has gone into the economic analysis of firms' choices about what to make and what to buy. Economists have also often considered when parties to a transaction exchange goods and services rather than one side simply purchasing from the other with currency. A large and growing portion of employment costs are driven by both the make or buy decision and non-monetary barter – provision of employee benefits. The most widely discussed employer-sponsored benefit is health insurance, but some employers also provide dental care, subsidized or free beverages and meals, subsidized or free child care, discounts on the firms' products, and even in-office massages.[1] Given the wide use of non-cash compensation, it must be the case that these *workplace* benefits create *economic* benefits that cannot be captured if employees make all their own consumption choices.[2] In this paper, I model potential sources of this value and explore these sources empirically.

As modeled by Rosen (1974) and others, benefits can create value in the employment relationship when firms can purchase certain goods and services more cost effectively than employees. That is, the firm acts as a buyers' club for its employees with much of the potential cost advantage of this arrangement driven by tax treatment of benefits. I develop a model that adds two elements to this "tax/buyers' club" explanation of employee benefits. First, I consider the potential costs of matching employees who value certain benefits with firms that can procure them efficiently. I add an element of search costs to a model where employees have heterogeneous tastes and the firm cannot price discriminate (in the sense of tying compensation to benefits consumption.) In this case, hiring workers at random would reduce or eliminate the value created by employer-provided benefits, so the firm trades off the cost of finding employees that value the benefits it can provide

[1] In this paper, I only consider non-monetary benefits. I do not analyze why and how firms choose among forms of financial compensation (that is, cash, stock, or profit sharing), nor do I look at the timing of pay (such as retirement benefits.)

[2] This sentence suggests the potential confusion when looking at an economic model of employee benefits given the natural tendency to discuss marginal costs versus marginal benefits. Hereafter, I use the term benefits solely to refer to non-cash employee compensation and use other terms when referring to economic benefits more generally.

efficiently against its procurement cost advantage.

As long as employee preferences are reasonably fixed, the "tax/buyers' club" model, with or without search costs, suggests that benefits packages will be stable over time. The second part of the model, on the other hand, helps explain the fact that many benefits are sensitive to the business cycle.[3] I consider the possibility that certain benefits are provided as a means of reducing employees' cost of effort. When the marginal product of a worker is high, the employer may want to encourage the worker to extend his work week. Assuming the employee's cost of effort is convex in hours worked, the employer is trying to buy additional hours that are very costly to the employee. By offering benefits such as meals, entertainment options at the workplace, and errand services, employers lower the employee's cost of effort. That is, by helping the employee subcontract some of his personal duties to a party that can execute these duties at lower cost, the employer can free more time for the employee to engage in high value tasks. If macroeconomic conditions weaken and the employee's marginal product drops, then the employer may choose to discontinue these benefits.

I derive the empirical implications of the basic "tax/buyers' club" model with search costs and the "effort complementarity" extension. Some of the implications of these two ideas are similar. However, while the buyers' club model suggests generous benefits packages will be related to long-tenure jobs, the effort complementarity idea suggests a relationship between benefits and hours of work.

I explore these implications using data from the National Longitudinal Survey of Youth (NLSY). In 1979, the NLSY interviewed 12,686 people born between 1957 and 1964. When possible, these same individuals were interviewed annually through 1994 and bi-annually through 2000. From 1985-2000, the NLSY included questions about fringe benefits at the person's main job. I examine factors associated with employer-provided or employer-subsidized meals, child care, dental insurance, and health insurance. I also look at how these benefits are combined with other offerings to form benefits "packages."

I find results that are consistent with the traditional buyers' club model, search costs, and effort complementarity having an important influence on the benefits firms provide. I show that employer-sponsored benefits are associated with factors that proxy for employers' costs and employees' tastes. For example, larger firms, which can gain greater scale economies in benefits purchasing, are more likely to provide all benefits. Firms are more likely to provide benefits related to their industry, suggesting they provide benefits when they can create them at low cost. It appears people sort to

[3]For anecdotal discussions of discontinuation of benefits when economic conditions weaken, see Economist (2000) and Raghavan (2003).

firms based on their demand for benefits. For example, people with families are significantly more likely to hold jobs with employer-provided health insurance. In addition, benefits are far more common in jobs with longer tenure and among people likely to be looking for job stability.

The correlation between hours of work and benefits is highly supportive of effort complementarity enhancing the value of the firm acting as a buyers' club. All benefits are more likely for full-time workers than for part-time workers. However, employees who work particularly long hours are significantly more likely to have employer-provided meals than other full-time workers. This relationship between long hours and benefits does not hold for benefits that would seem less naturally complementary to effort such as dental care and health care. Also, it seems likely that employer-provided child care can help lower the costs of switching from part-time to full-time but that people who work very long hours are unlikely to keep their children at the workplace. The evidence is consistent with this notion, as employer-provided child care is significantly more likely for full-time workers than part-time workers. However, employees who work particularly long hours are less likely to have employer-provided child care than those who work standard full-time hours.

I find further evidence of effort complementarity and employer-based buyers' clubs when I look at factors associated with provision of benefits "packages." I show that people who work long hours are relatively likely to receive a package of benefits that lower the cost of effort, including meals, parking, and flexible time. I also show that workers who are likely to be seeking stable employment relationships are more likely to get a package of benefits that the firm can purchase efficiently but that do not affect the cost of effort.

The theory and the empirical evidence lead to the conclusion that the optimal compensation package can be affected by numerous factors. As a result, firms get involved in the procurement of various products and services that are only related to their business because of employee preferences. Due to variations in labor market conditions, income tax structure, and purchasing economies, it is often efficient for firms to expand their scope into creating employment packages rather than simply engaging in cash-only transactions with workers.

Before starting, it is worth noting that I will not address one important issue in employee benefits – overconsumption. That is, one of the costs of firms' providing benefits to employees is that, if employees pay no marginal cost to receive a benefit, they will consume to the point where the marginal value of their benefits consumption is zero. Given that the social optimum would be for employees to consume until marginal value equals marginal cost (to the firm), there will be a deadweight loss from overconsumption. See Marino and Zabojnik (2004) for a theoretical analysis of the optimal "price" firms should charge workers who consume benefits.

The rest of this paper proceeds as follows. In the next section, I describe the traditional model

of employee benefits. I then develop a version of this model where firms balance the value of their comparative advantage in purchasing benefits against the costs of searching for employees. I also consider the effect on optimal employer-sponsored benefits when these benefits lower the cost of employee effort. In Section 3, I test the comparative static implications of these models using self-reported data on individuals' work-related benefits. I conclude and discuss ideas for further related research in Section 4.

2 Theory

2.1 Background: Basic Tax/Buyers' Club Model

Any group that interacts regularly and has a reasonable level of correlation in their preferences has an incentive to pool the procurement of goods they consume. As a result, there are many situations in which people form (either formally or informally) "buyers' clubs" that centralize purchasing. This includes families that do their grocery shopping and cooking as a group, eating clubs at schools, and, more recently, on-line buying groups.

Employers can be efficient buyers' clubs for their employees for several reasons.[4] First, people interact regularly at work, so the marginal costs of organizing group buying is lowered there. Also, firms may attract people with similar tastes, enabling larger purchases. Perhaps most importantly, there can be substantial tax advantages to some benefits being provided by firms relative to paying employees more money and letting them purchase goods with after-tax income. For example, if a firm provides free coffee to employees, employees do not have to declare the value of the coffee as income. However, if the firm gave the money it spent on coffee to employees as additional compensation, the employees would have to pay additional income and payroll tax.

As the above discussion suggests, the potential value of employers acting as buyers' clubs depends on several factors, including the relative cost advantage for the firm and the variance in employees' valuation of benefits. These factors are considered in Rosen (1986) and Brown (1980). Rosen (1986) surveys the theoretical and empirical work on compensating differentials in the labor market. He outlines a model where employees sort efficiently and costlessly to the employer that offers the benefits they value most. As he and Brown (1980) discuss, it is very difficult to measure the "price" of employee benefits in terms of lowering wages. To avoid this issue, I primarily analyze the existence of benefits rather than the exact salary trade-off.

[4] See Rice (1966) and Woodbury (1983) for early discussions of the potential efficiency of employer-sponsored benefits. Theoretical foundations can be found in Rosen (1974).

2.2 Employee Benefits, Search Costs, and Sorting

I now develop a simple model of the firm acting as a buyers' club. While prior work has analyzed this possibility, my goal here is to develop a simple, realistic model that generates testable implications. The one enhancement I make to prior work is the introduction of a search cost, because matching firms and workers is an important and costly part of the employment relationship. I analyze how the salary/benefit trade-off is affected by a firm's cost of providing benefits, the variation in employees' preferences over those benefits, the expected length of the employment relationship, and the costs of firms and workers assessing how well they match with each other.

Consider a firm that requires N employees (where N is exogenously determined.) At the time of hiring, each employee is expected to work for T periods. T is driven by such factors as the nature of the work, the value of firm-specific human capital, and the stability of employee preferences.

Firms offer a package of wage and benefits, (w, b). b is the dollars per employee that the firm spends on benefits. Employees vary in how much utility they derive from these benefits. In particular, person i derives $\delta_i V(b, N)$ from the firm's expenditure (b) on employee benefits. Let δ_i be drawn from a distribution with density $f(\widetilde{\delta}; \sigma)$ and cumulative density $F(\widetilde{\delta}; \sigma)$, where σ^2 is the variance of $\widetilde{\delta}$ across individuals. The function V incorporates representative preferences, individual heterogeneity in preferences (through $\widetilde{\delta}$), and economies of scale in purchasing on the part of the firm. People prefer more benefits to less, but the marginal value of additional benefits is decreasing (that is, $V_b \geq 0$ and $V_{bb} \leq 0$.) Employers can provide more benefits per dollar spent if they have a larger workforce, but these scale economies are concave (that is, $V_N \geq 0$ and $V_{NN} \leq 0$.) Also, the marginal value to the employee of a dollar spent on benefits is greater at larger firms (that is, $V_{bN} \geq 0$.) The employee has an alternative job that pays w_0 in cash, so he accepts any (w, b) combination such that $w + \delta_i V(b, N) \geq w_0$. All potential employees accept an offer of $(w, b) = (w_0, 0)$.

The firm wants to minimize the total costs of employment, which it can do by finding potential employees with the highest values of δ_i. However, it is costly to search for such workers. To capture this in the model, I assume that it costs m to offer a job to an employee and that, at the time the job is offered, the firm does not know the employee's preferences. As a result, the expected costs of hiring a new worker are $\frac{m}{pr(accepts)}$, or $\frac{m}{1-F(\frac{w_0-w}{V(b,N)};\sigma)}$. The firm sets the wage such that

$$w = w_0 - \delta V(b, N) \tag{1}$$

for some critical δ.

The firm's problem is to minimize the expected costs of compensating a worker over T periods, including both the costs of hiring and the annual cost of compensation. Writing this problem as a

profit maximization problem, treating δ and b as choice variables, and substituting for w using (1), this can be written

$$\max_{\delta,b} \delta V(b,N) - b - w_0 - \frac{m}{T(1-F(\delta;\sigma))}. \tag{2}$$

The profit function is quasisupermodular in (δ, b) and, given the assumptions of the model, satisfies the single crossing property in $(\delta, b; m, T, N)$. Therefore, applying Milgrom and Shannon (1994), any change that increases b will also increase δ and the following comparative statics will hold. First, $\frac{db}{dT}$ and $\frac{d\delta}{dT}$ are positive because, as the expected length of the employment relationship increases, the firm chooses to invest more in searching for employees who value the benefits highly. Because increases in the length of the relationship are conceptually similar to reductions in the cost of searching for employees, $\frac{db}{dm}$ and $\frac{d\delta}{dm}$ are both negative. Finally, $\frac{db}{dN}$ and $\frac{d\delta}{dN}$ are positive. The economies of scale induce larger firms to invest more than smaller firms in benefits and to seek employees with higher values on those benefits.[5]

The implications of this model include:

- There will be a positive correlation between benefits and the expected length of the employment relationship.
- When the costs of screening workers are higher, benefits will be lower. However, when offering a benefit helps self-select appropriate workers, screening costs and benefits may be positively associated.
- Employees with high valuations of certain benefits (that is, those with high δ) will sort to firms that offer those benefits.
- Larger firms will provide more benefits than smaller firms.
- When the tax advantages of providing benefits are greater, benefits will be greater.

Because this model is largely based on prior "tax/buyers' club" models of workplace benefits, as in Rosen (1986), these last three implications are similar to those that emerge from prior work. The first two implications are specific to this version of the model because they are driven by the firm trading off the value of benefits against the costs of finding workers who value those benefits. I will look explicitly at the first implication in the empirical work below.

[5] I focus on the existence and amount of benefits. See Marino and Zabojnik (2004) for a related model that derives predictions about the price firms will charge their employees for benefits.

The third implication, which suggests that employees will sort to firms based on benefits, has been analyzed in the context of health insurance by Scott, Berger and Black (1989), Dranove, Spier and Baker (2000), and Levy (1998). Scott et al. (1989) study the effect of Internal Revenue Service rules that require benefits to be offered on a nondiscriminatory basis in order to qualify for tax exemption. They show that this has enhanced sorting of workers into occupations that match their preferences (as proxied by income.) Dranove et al. (2000) develop a model where employers offer health insurance due to cost and tax advantages, but, in order to discourage over-consumption of this benefit, require employees to make a contribution to insurance premiums. This saves the firm some expense, at the cost of some efficiency in the total costs to the firm and the workers, by encouraging some employees to utilize health insurance offered by their spouse's employer. Levy (1998) draws similar conclusions by studying the relationship between employee contributions and average age of a firm's employees.

The final implication of the above model, which suggests a connection between benefits and taxes, also has support from prior studies of employer-provided health insurance. See, for example, Gruber and Lettau (2004), who show that health insurance provision is highly sensitive to tax rates. Their results are also consistent with economies of scale and, more specifically, with the assumptions that $V_{NN} < 0$ and $V_{bN} > 0$ because insurance benefits are, on average, significantly higher at larger firms and the response to tax rates is greater at small firms that provide fewer benefits.

The implications do not include sharp predictions about σ, which captures the heterogeneity of tastes across the population of potential workers. Heterogeneity is particularly important here, because it has a potentially large effect on search costs. However, the empirical work that follows does not allow me to investigate this parameter. Therefore, I will only briefly discuss σ and how its effects in the model are consistent with some anecdotal observations about employer-provided benefits.

The effect of an increase in the heterogeneity of the pool of potential employees on the salary/benefits trade-off depends on the taste distribution ($f(\widetilde{\delta})$). Intuitively, the issue works as follows. In cases where the firm finds it optimal to set δ such that only a small set of potential applicants accept job offers (that is, when it sets δ very high), then an increase in σ increases this select group that will accept offers *and* increases the rents created by their high valuation of the benefits. In these cases (and as long as f_σ is not "too" high), the firm will take an increase in employee heterogeneity as an opportunity to increase b and capture more rents. Or, put another way, when a firm is looking for a select group of people with extreme tastes, then an increase in taste variance creates more

people with even more extreme taste. So the firm finds it optimal to get even more selective.[6]

Consider the following example where this increasing variance in a selective environment might be relevant to a firm's compensation policy. Many avid skiers spend a winter as "ski bums" where they work near a ski mountain and spend much of the week skiing. Ski passes are quite expensive and the fact that employers can provide them as part of the employment relationship without the skiers declaring the passes' value as income creates rents in the employment relationship. Note, however, that very few people in the general population value these ski passes. Suppose some demand shock increases variance in how much people value a season ski pass. The model suggests that, for most reasonable taste distributions, employers who provide free ski passes could reduce the cash wages they offer.

Now consider a case where F is very low (that is, a high proportion of applicants accept the firm's offer.) Then an increase in applicant heterogeneity, with no other changes, would lead to more applicants rejecting the firm's offer. Therefore, under most realistic forms of f, the firm would lower the benefits level to minimize the additional search costs. That is, if the firm does not want many applicants to reject its offer, it will use fewer and fewer benefits as tastes diverge.

This predicted effect of increased heterogeneity on a common benefit is consistent with trends in employer-provided health care and is essentially the idea behind the analyses in Dranove et al. (2000) and Levy (1998). As health care costs have increased over time, so has the variance in the valuation of health benefits because people's health and risk aversion varies and because employees with working spouses value health insurance less than those without. This, along with changes in tax rules, likely help explain why firms have required employees to contribute more to the costs of employer-provided health insurance policies (see Gruber (2000).)

I have emphasized the firm's purchasing efficiency and matching of employees with firms strictly based on employee tastes. However, a firm could also use benefits if employee tastes for a certain benefit are correlated with productivity at the firm. Consider, for example, a firm that felt the most productive workers were those who were intellectually curious and valued education. That firm might offer a tuition reimbursement benefit, even in the absence of any tax or purchasing advantage, as a means of inducing the most productive potential employees to signal their tastes (and, therefore, their productivity.) While this suggests a somewhat different model from the one I have outlined, both emphasize the firm using benefits to sort on a certain type of worker. As a result, the empirical implications (at least those that are testable) are quite similar. Therefore,

[6] If $\widetilde{\delta}$ is uniformly distributed, then this statement will hold. If it is normally distributed, then f_σ complicates the issue in the upper extreme, but b will be increasing in σ for any optimum where the offer acceptance rate is near one half.

at this point, I make no attempt to distinguish between sorting strictly on preferences and using benefits to sort on productivity.

2.3 Complementarity between Effort and Benefits

In the traditional "buyers' club" model, workers create a complementarity amongst one another by centralizing their purchasing of benefits through the firm. I now extend that model to consider a case where workers' valuations of firm-provided benefits depend on the firm's production function. I assume that effort and benefits are complements in production. As a result, the employee prefers the cash spent by the firm on a benefit to the benefit itself when effort is low. However, as effort changes, so do employee preferences and the benefit may become efficient. If the firm can purchase the benefit more efficiently than the employee, then it will provide the benefit when it wants high levels of effort and discontinue it when it is not efficient to induce high effort.[7]

I concentrate on understanding how provision of benefits varies with the marginal return to employee effort. In the empirical analysis, I will focus on cross-sectional variation in working hours as a proxy for differences in return to effort. But the model can also explain inter-temporal changes in productivity and, therefore, variations in benefits over the business cycle.[8] Consider a simple example. "Concierge services" were popular in the late 1990s.[9] Facing a shortage of qualified applicants (or, given that displacing workers is costly, not wanting to take on more employees in case demand slipped), firms chose to induce employees to work longer hours. As a means of lowering the personal cost of those long hours, concierge services took care of details in people's personal lives such as laundry, shopping, and even planning children's birthday parties. These services lost favor when the economy softened, however. As the marginal return to working long hours dropped, firms decided to let employees take in their own dry cleaning.

Consider an employee who bears personal cost of doing his job of $c(e, b)$ where e is effort and b is again the cost of benefits purchased by the firm and given to the employee.[10] Assume the standard convex cost of effort ($c_e(e, b) > 0$ and $c_{ee}(e, b) > 0$). Now assume that benefits lower the

[7] For an analysis of the complementarity between benefits (or "perks") and effort by executives, see Rajan and Wulf (2004). They look only at senior executives and focus on large firms. They focus on perks such as company jets, chauffer service, and country club membership.

[8] See Oyer (2004) for an alternative explanation of the cyclicality of benefits based on nominal wage rigidity.

[9] Several companies, including Circles, VIPdesk.com, and Virtual Concierge, contract with employers to provide these services to workers.

[10] Note that similar results emerge if the benefits are intrinsic rewards from work rather than products the employee can purchase on his own. See Delfgaauw and Dur (2003).

employees' cost and that the marginal effect of benefits on effort cost is decreasing ($c_b(e,b) < 0$ and $c_{bb}(e,b) > 0$).[11] Most importantly, I assume $c_{eb}(e,b) < 0$. That is, the marginal cost of an extra unit of effort is decreasing in benefits. This captures the notion that working late is less costly if dinner is provided, that working hard all week is less costly when a concierge is provided, or even that working is less unpleasant when attractive art is posted in the firm's corridors.

The employee's utility is $w + \lambda b - c(e,b)$ where w is cash compensation and λ is the amount the employee values benefits relative to cash pay. This is a simplified valuation compared to the basic buyers' club model. Assume that $\lambda \leq 1$ because any benefits that employees value at greater than their cost to the firm will be included in the basic compensation package. By focusing on cases where $\lambda \leq 1$, this model considers the optimal provision of benefits that are only valuable because of their effect on effort costs.[12]

The employee has an alternative use of time that provides utility w_0. The firm sets

$$w = \overline{u} - \lambda b + c(e,b). \tag{3}$$

As in standard principal-agent models, effort provides a potential conflict of interest because it is costly to the employee and beneficial to the firm. Assume that each unit of effort generates a constant marginal product of θ. Unlike standard principal-agent models, however, the focus is on jointly choosing the right effort level given the firm's cost structure rather than on hidden action. In fact, assume that effort is contractible. The firm offers the package (w, e, b) and the employee either accepts it or rejects it.

Given that the wage is determined by equation (3), the firm's problem is to optimize its investments in employee effort and benefits:

$$\max_{b,e} \theta e - (1-\lambda)b - \overline{u} - c(e,b). \tag{4}$$

This generates two simple first order conditions,

$$(1-\lambda) = -c_b(e,b). \tag{5}$$

[11] The assumption that $c_{bb}(e,b)$ is positive is needed to insure an interior solution. This seems like a reasonable assumption, at least in the limit. If the firm can never provide enough benefits to make unlimited effort enjoyable for the employee, then this assumption will hold.

[12] Even if the firm cannot provide the benefit more efficiently, it may provide the benefit if the employee might be tempted to use additional cash compensation for non-productive purposes. That is, the firm may want to commit the employee to a specific use of compensation, which is similar to the justification for parental transfers in kind modeled by Bruce and Waldman (1991).

and

$$\theta = c_e(e, b). \tag{6}$$

These two equations can be used to derive comparative statics for the two key exogenous parameters – the marginal value of effort and how highly employees value benefits relative to their cost to the firm. Naturally, given that effort and benefits are, in effect, complements in the firm's production function, any change that increases optimal e also increases optimal b and vice-versa. In addition, straightforward calculations show that $\frac{db}{d\theta}$, $\frac{de}{d\theta}$, $\frac{db}{d\lambda}$, and $\frac{de}{d\lambda}$ are all positive if and only if $c_{be}^2 > c_{ee}c_{bb}$ (where the arguments of the effort cost function are suppressed.) Given that this is a part of the second-order sufficient condition, these four comparative statics will all be positive at any interior solution. It is also simple to show that benefits and effort are both increasing in the degree of complementarity between effort and benefits (that is, $\frac{db}{dc_{be}}$, $\frac{de}{dc_{be}}$ are both positive.)[13]

The implications of effort complementarity include:

- When the marginal cost of effort is high (due to high opportunity cost of working or due to heavy workload), the firm will provide more benefits.
- In situations where benefits are relatively useful at lowering the unpleasantness of work, firms will use more benefits.

3 Empirical Analysis

3.1 Data

I use data from the National Longitudinal Survey of Youth (NLSY). The NLSY started with a sample if 12,686 Americans who were between the ages of 14 and 21 in 1979. Every year from 1979 to 1994, and then in the years 1996, 1998, and 2000, those members of the original sample who could be found and interviewed were asked many questions about employment and other issues.[14] I use the 1985-2000 interviews because most respondents had become permanently attached to the labor force by then and these are the years with the most questions related to employee benefits. The total NLSY sample size in these years varies from 10,894 to 8,033. However, because I only look at employed respondents, the usable sample size is somewhat smaller.

[13] The comparative statics for θ and λ actually hold under more general conditions (again applying Milgrom and Shannon (1994).)

[14] The original NLSY included an oversampling of disadvantaged youth and a subsample focused on members of the military. These samples were reduced over the years, so attrition from these groups is higher.

In each year, I use responses relating to the job that the NLSY determined to be the respondent's "main job." This is the job at which he worked the most hours at the time of the interview or, if the person is not working at the time of the interview, it is the last job he held (as long as he worked there after the previous interview.) Table 1 provides summary statistics of key demographic and employment variables in the NLSY sample. I use a total of 82,144 observations from a total of 10,654 workers, with any given worker providing up to thirteen observations. The summary statistics do not apply to each of the individual analyses that follow, because some of the relevant questions were not asked in each of the NLSY years.

Just under half the observations are women and just over half are married. About 60% of the observations are people with children, with the average respondent having 1.2 children at the time of an interview.[15] Naturally, given that the sample ages over time, this average (as well as the marriage rate) varies across years in the sample. Fewer than 40% of 1985 respondents had children, while almost 80% of those interviewed in 2000 had at least one child. This aging and changing demographics could complicate the empirical analysis in that controls for year could also control for aging of the sample. I attempt to minimize this effect throughout the following analysis by always controlling for a full set of age indictor variables so that the year effects should pick up, for example, differences between thirty year olds in 1989 and 1990.

The NLYS includes a measure of the unemployment rate in the local labor market for each person in the sample. The measure is crude, however, revealing only whether the unemployment rate is 0-3%, 3-6%, 6-9%, etc. Most of the variation in this variable is explained by person fixed effects and year effects. That is, the unemployment rate does not change much in local markets during the sample, except as it moves up and down with national trends. Therefore, this variable is largely a crude region indicator variable.

The "employees" row shows the number of employees at the site where the respondent works. The NLSY has other measures of firm size, such as whether the employer has multiple locations and the total number of workers at all the employer's locations. I use employees at the worker's site throughout the analysis, but all results are similar when using other (or multiple) proxies for firm size.

I limit the sample to those working at least twenty hours per week at their main job. Over 90% of the sample regularly works at least 30 hours/week, with 64% reporting working 30 to 40 hours per week ("full-time") and 27% working more than 40 hours/week ("more than full-time"). The median wage is about \$9/hour (real \$1990) and the average is considerably higher. Table 1

[15] In the analysis that follows, I use the children indicator rather than the number of children. The results are not sensitive to this choice.

displays the fraction working in industries related to the employee benefits I analyze because these industries can presumably provide these benefits at low cost.

The last four rows of the sample show the fraction of employees who reported receiving various benefits from their employer. In 1988, 1989, and 1990, the NLSY asked respondents if they received "company paid or subsidized meals". Approximately 15% of respondents received this benefit. From 1988-2000, the NLSY asked if respondents received "company provided or subsidized childcare." Only 7% received this benefit.[16] Not surprisingly, health care related benefits were more common. Over half of the NLSY sample reported receiving dental benefits and about three quarters said yes when asked "Does your employer make available to you medical, surgical, or hospital insurance that covers injuries or major illnesses off the job?"

3.2 Employer-Provided Meals

Meals that employees receive at the workplace present an opportunity to investigate the basic tax/buyers' club idea, the importance of search costs, and the effort complementarity idea. Meals have the potential to be efficiently provided by employers because they may be able to purchase meals more cost effectively than employees (either due to scale economies, tax savings, or simply saving individual effort of food preparation). If this is the case, I would expect to find that employees are more likely to receive meals from their employer when the employer can provide them at lower cost. Factors that might indicate low cost include that the firm is in the food business (that is, surely it is efficient for restaurants to provide meals to employees) and that the firm is relatively large, allowing it to take advantage of scale economies in purchasing (especially in the case of on-site subsidized cafeterias.) I also expect higher-paid workers to be more likely to receive meals at the workplace, as the tax advantages are greater for these workers.

The relationship between benefits and sorting would indicate that meals should be offered by firms who employ people that value the meals relatively highly. To proxy for value to the employee, I include children and marital status. I would expect people with families to have a higher opportunity cost of dining at the workplace and, therefore, expect these proxies to be negatively related to on-the-job meals. Finally, a firm can reduce its search costs if it benefits lead to a longer relationship with employees, so I expect meals to be more common with longer employment spells.

The hours of work variables are potentially informative about whether these tax/buyers' club advantages are enhanced by effort complementarity. As the model suggested, benefits that lower the cost of effort are more valuable when greater effort is required. Therefore, the effort complementarity

[16] See McIntyre (2000) for further details on the growth and prevalence of on-site day care.

hypothesis predicts that employer-provided meals will be increasing in hours worked.

The first column of Table 2 presents the results of a logit regression that attempts to test these hypotheses. The dependent variable is the indicator for whether the person receives employer-provided or employer-subsidized meals in a given year.[17] The coefficients displayed are the marginal effect on the probability of receiving this benefit if the explanatory variable increases by one.

The regressions provide support for the standard tax/buyers' club justification for employer-provided meals. First note that a doubling of the number of employees at the work site increases the likelihood of the firm providing meals by approximately 1%. Given a base probability of 15% of receiving meals, this is a reasonably large effect. Firms that are in food-related businesses, such as bakeries and restaurants, are much more likely to provide meals. Also, higher wages are associated with workplace meals, consistent with the tax effects.

The data are also consistent with employees who value meals more sorting to firms that provide them, as both marriage and children are negatively related to workplace meals. Marriage lowers the probability of receiving meals at work by about 10% (1.6 percentage points on a base probability of 15%) and having children has even a larger effect. The one prediction of the model with search costs that is not supported by the data is the fact that people with longer tenure are *less* likely to receive meals.

The logit results on hours worked are consistent with effort complementarity contributing to the value of buyers' clubs. Full-time workers are somewhat more likely to receive meals at work than part-time workers. However, the important effect of hours is for those who work more than full time. Employees who work more than 40 hours per week have about a 6% higher likelihood of receiving meals at work than part-time workers and about a 3% higher likelihood than those who work full time. The coefficients on full-time and more than full-time are both statistically different from zero, as well as from each other, at better than the 1% level. They are economically meaningful given an overall employer-provided meal probability of 15%. These results appear even more striking when compared to later regressions, which will show that employees who work more than full time are no more likely than full time workers to receive benefits that do not complement long hours of work.

Given that work-related meals are a key example of how the effort complementarity idea can affect firms' purchases, it is worth considering the size of these effects in the overall economy.

[17] I also performed the analysis using the Chamberlain (1980) methodology to run fixed-effects ("conditional") logits. The qualitative conclusions were largely the same as those presented below. However, effects of variables that do not vary over time for the same person (such as gender) cannot be identified. Effects of those where within-person variation is small (such as marital status and industry) are measured imprecisely.

Sodexho USA and Aramark are both large providers of meals to U.S. businesses. Aramark, for example, states in their 2003 10-K statement: "We satisfy the business dining needs of several million people annually." Both companies generate several billion dollars of revenue annually in this segment of the market, with double-digit annual growth. In addition, many work-related meals are provided by small caterers and restaurants.[18] The estimates in Table 2 suggest that working more than full-time increases employer-sponsored meal probability by about one quarter. It therefore seems likely that a non-trivial portion of this multi-billion dollar business is related to the effort complementarity between meals and

3.3 Child Care

I now consider employer-provided child care. The implications with regards to effort complementarity are quite different than for meals. Employees who are primarily responsible for their children seem unlikely to be swayed to work very long hours as a result of employer-provided child care. However, it is plausible that employer-provided child care can help some employees increase their working hours, if not to extreme levels. The effort complementarity idea may apply to child care on the part-time vs. full-time margin rather than in leading people to work more than full-time.

Column 2 of Table 2 shows the results of logits where the dependent variable is one if the NLSY respondent reports that his employer provides or subsidizes child care. Several results in the table suggest the basic tax/buyers' club model applies to child care. First, people who work in industries that are related to child services are much more likely to get child care through their employers. Larger employers are far more likely to provide child care and employees with this benefit have higher paying jobs (possibly due to tax effects).

Child care benefits are also associated with factors that suggest employers search for those who value this benefit and these employees sort to employers that provide it. Employer-provided child care is more common at longer tenure jobs (indicating high "T" in the buyers' club model). Women are much more likely than men to get child care benefits. Note, however, that child care benefits are not significantly related to marital status or whether the employee has children. This is likely due to the confounding factors that married people with children are more likely to have a spouse that does not work outside the home and that unmarried parents are likely to value child care more than married parents.

The results are quite consistent with the value of firm-based buyers' clubs being enhanced by effort complementarity. Full-time workers are significantly more likely to get child care at work

[18] Feel free to discuss this issue in more detail with me over a post-seminar dinner sometime.

than part time workers. The 1.5 percentage point increase in child care probability for full time workers suggests part time workers are about 20% less likely to get work-related child care than full time workers. However, those who work more than full time are less likely to get work-related child care than those who work full time. This difference is statistically significant at the 6% level and the point estimate indicates a large difference based on full-time versus more-than-full-time status. Combined with the results on hours worked and employer-provided meals, the importance of effort complementarity is well supported by the data. The results are consistent with the idea that employers provide child care to ease the transition from part-time to full-time work and they provide meals to make it easier for employees to work long hours.

Finally, employer-provided child care is more common in more competitive labor markets. An increase of 3% in the local unemployment rate is associated with a one percentage point reduction in child care probability (or about a one-seventh reduction.) This could indicate that, when labor markets are tight, firms use child care to increase labor supply by helping to ease the transition from part-time to full-time work.[19] In unreported regressions, I found suggestive further support for this hypothesis by interacting the unemployment variable with the hours variables. The hours effects are significantly larger when unemployment is low – that is, both unemployment/full-time and unemployment/more-than-full-time interaction variables are negative and at least marginally significant. The unemployment/full-time coefficient is larger in magnitude than the unemployment/more-than-full-time coefficient, though the difference is not significant.

3.4 Dental and Health Insurance

The biggest benefit given to US employees, in terms of likelihood of receiving it and cost to firms is health insurance.[20] This is as much by historical accident and due to institutional factors as it is a reflection of any sort of optimal allocation of resources. Nevertheless, given the tax incentives and opportunities to use such a high-cost benefit to affect the employment relationship, it is well

[19] As noted above, the unemployment variable is very crude and does not vary much independently of the national economy. It does, however, indicate which labor markets are generally competitive. If child care were added and dropped regularly by firms and if this labor market measure were more accurate, the negative coefficient could imply firms cut this benefit when wages are rigid (as suggested by Oyer (2004).) However, this does not appear to be the case, based on unreported conditional logit regressions.

[20] This statement is somewhat dependent on the definition of employee benefits. Employer-provided health insurance is about as common in the NLSY as paid vacation. However, I am thinking of paid vacation as affecting the timing, rather than the form, of compensation.

worth studying determinants of health insurance provision.[21]

Health insurance, as well as dental insurance, can help shed light on the effort complementarity model presented above because they are different in important ways from employer-provided meals and child care. It seems unlikely that either of these benefits is in any way complementary to employee effort or hours of work. It does not seem likely that the value of this benefit should be related to an employee's marginal product. Therefore, if insurance also shows different prevalence for full-time workers and more-than-full-time workers, I would suspect that the results with regard to work hours for child care and meals are not due to effort complementarity. As columns 3 and 4 of Table 2 show, however, there is no difference in insurance likelihood between full-time and more-than-full-time employees. This suggests that effort complementarity is not driving provision of insurance.

As might be expected, the results are highly consistent with the basic tax/buyers' club model. Higher pay (which proxies for tax rate and commitment to the firm), working in a related industry (low cost of providing benefit), and large firm (which helps amortize the fixed cost of establishing a program and creates greater economies of scale) are all strongly positively related to health and dental benefits. A 10% increase in wage increases dental probability by 2.4 percentage points (which is just under a 5% increase on the unconditional 56% probability of having dental insurance.)

The relationship between benefits and employee sorting is also consistent with the data, though some of the results are ambiguous in this regard. Most importantly, longer jobs (as proxied by tenure) have higher rates of insurance. An extra year of tenure raises the probability of dental and health benefits by about one to two percentage points each. Married workers, who may want to get benefits for the rest of their family, are far more likely to have either health or dental insurance. This may also be because married workers are more stable. However, people with children are *less* likely to receive these benefits than those with no children. This could be because some children are covered by spouses' insurance. In fact, when not controlling for marriage (in an unreported logit), children are associated with much higher rates of health insurance coverage.

3.5 Benefits Packages

The discussion to this point suggests two kinds of companies in terms of the package of benefits put together – those that compile benefits to encourage long hours and those that compile benefits to encourage costs savings and long employment relationships. To more directly assess this distinction,

[21] There is a large literature on health insurance and its effects on the U.S. labor market. Many of these issues are beyond the scope of this analysis. For further institutional detail on U.S. employer-provided health insurance and its effects on the labor market, see Gruber (2000).

I now look at groups of benefits offered by individual employers.

The NLSY asks for details on several other benefits that can be used to define benefits packages. I start by forming an "effort package" that consists of benefits that are good candidates to help lower the cost of effort. Unfortunately, the NLSY does not ask about many of the benefits (such as concierge service, game rooms in the office, etc. – see the quote at the beginning of the paper) that are most likely to complement effort and keep people at the workplace. I therefore define a person as receiving the indicator variable "effort package" to be one if the employee gets employer-provided meals, employer-provided parking, and flexibility in choosing work hours.

The NLSY asks about a variety of more traditional benefits that can help attract employees for a long relationship. I define a "tenure package" indicator that equals one if the employee's firm provides health insurance, dental insurance, maternity leave, on-the-job training, life insurance, and a retirement plan.[22]

Panel A of Table 3 provides descriptive statistics for each package, as well as each benefit within the package. One thing that is immediately clear from the table is that there is significant correlation across these benefits for a given person. That is, the 8.3% (30.7%) of people who have each element of the effort (tenure) package is almost double (six times) the fraction that would have all these benefits if they were provided completely independently of each other.[23] However, as Panel B shows, the correlation between the effort and tenure packages is not particularly noteworthy. While 8.3% of people have the effort package, 11.9% of those who get the tenure package also get the effort package. Similarly, while 26.1% of the relevant sample gets the tenure package, 37.3% of those who get the effort package also get the tenure package. While these numbers suggest these two groups of packages are related, the correlation is far from overwhelming. This provides some initial evidence that these types of benefits fit at different types of firms.

Table 4 shows the results of logits similar to those in Table 2, but with the two packages as dependent variables. Column 1 presents the results for the effort package. Not surprisingly, the results are similar to the meals logit, given meals are a third of the package. Two results are worth highlighting. First, the greater-than-full-time indicator is again larger (and statistically distinguishable) from the full-time indicator. It is not, however, distinguishable from the less-than-

[22] On-the-job training and retirement plans do not necessarily meet the basic criterion I stated earlier that a benefit would be something the person got from the firm that it could also buy externally. However, both these benefits could meet that definition and, given the correlation in benefits within firms, are probably more likely to meet it when provided as part of a large package of benefits.

[23] That is, if the components of the effort package were provided independently, roughly 4.3% (15.1% * 58.5% * 48.4%) of respondents would have the full package.

full-time group, though this could be due to the small sample of less-than-full-time workers. Second, there is no relationship between effort-related benefits and tenure. These benefits do not seem to be about attracting people who place a high value on a particular benefit and, therefore, stay with the firm. Rather, they appear to help induce high effort during the employee's stay at the firm, however long that may be.

Column 2 of Table 4 shows that these two results reverse when looking at the tenure package. That is, there is no difference between the likelihood of getting this group of benefits for those working full-time and those working very long hours. Also, these benefits are clearly associated with relatively long-term jobs. This suggests that these benefits are packaged together to take advantage of firm buying power and to attract people who place a relatively high value on the benefits.

3.6 Benefits at Government and Non-Profit Organizations

Conventional wisdom suggests that people work for government and non-profit organizations because these employers tend to offer generous benefits. A commonly heard justification for taking jobs outside the private sector is, "The pay stinks, but the benefits are good." In this section, I extend the prior analysis to consider the type of firm. I show that non-profit and government employers are, in fact, much more likely to provide certain types of benefits than private firms and I consider how this fits with the theoretical analysis above.

Given the stability of government work, it seems likely that effort complementarity will be less important at government organizations. In addition, there may be political constraints that make it unlikely government organizations will provide perquisites such as meals. Therefore, I expect meals, child care, and the effort package to be less prevalent at government employers.

Because of their size and potential power in procurement, government employers are likely to be able to take advantage of scale economies in purchasing insurance. Also, it seems reasonable to expect that people who choose the stability of government jobs are likely to be risk averse and, therefore, to value insurance. If either or both of these conjectures are correct, dental and health insurance, as well as the tenure package as a whole, should be relatively common for government workers.

Self-employed workers are likely to have just the opposite profile – they are likely to be relatively risk tolerant and they cannot take advantage of scale economies in purchasing insurance. In addition, self-employed workers may have less tax incentive to purchase health insurance, as they may be able to shield their income from taxes in other ways. Therefore, I would expect self-employed workers to be less likely to receive employment-related insurance. Self-employed workers have more

to gain than other workers by providing meals at work. This is one way to shield income from taxes, for example. Also, a self-employed person need not worry about the variety of food preferences of a large group when purchasing meals.

Table 5 displays the results of logits similar to those in Tables 2 and 4, except I include indicator variables for working for the government, for being self-employed, and for working for a non-profit organization. The excluded category in all regressions is private company, so the coefficients show the difference in probability between each type of employer and a private company. Note that I limit the analysis, when possible, to 1994 and later. From the start of the survey until 1993, the NLSY asked respondents if they worked for a private company, worked for the government, or were self-employed. Starting in 1994, the option of non-profit organization was added. Before 1994, non-profit employees were classified as working at private companies.

The meal logit in column 1 confirms that government workers are significantly less likely to receive meals at work than people who work for companies, while self-employed workers are much more likely to get meals at work. Column 2 suggests that government workers are somewhat less likely to get child care at work, though the effect is not significant. Employees of non-profit organizations, on the other hand, are much more likely to have employer-provided child care. This is not simply due to the fact that child care and child service providers are likely to be non-profit agencies, because the regressions control for child-oriented businesses. Perhaps this connection between non-profits and child care reflects that some new parents who want to continue working move to the non-profit sector because they find the "work-life balance" better. Non-profit employers would then find it efficient to set up a child care buyers' club given this common preference. However, there is not enough detail in the data to investigate this conjecture fully.

Columns 3, 4, and 6 confirm that the benefits at government and non-profit jobs are very good. Employees in both these sectors are much more likely to get insurance at work, as well as to have the entire tenure package. The results are statistically significant at any reasonable level and economically large. For example, while 56% of the sample as a whole receives dental insurance, this probability is increased by twenty (twelve) percentage points for government (non-profit) workers. Also, self-employed workers are dramatically less likely to grant themselves these benefits.[24] The results are consistent with the idea that those with strong preferences for insurance (that is, those who are relatively risk averse) are also those who like the stability of government and non-profit

[24] As discussed by Gruber and Poterba (1994), before the Tax Reform Act of 1986, the tax advantages of employment-based health insurance were lower for self-employed workers than others. However, because the results in columns 3, 4, and 6 are for 1994 and later, they should be free of effects of tax differences between self-employed workers and others.

jobs and, therefore, these organizations purchase benefits to cost effectively employ these workers. Column 5, on the other hand, shows that government workers are far less likely than corporate employees to be provided with benefits that are conducive to increased effort.

4 Conclusions and Further Research

One of the "make or buy" decisions nearly every firm faces is how much to simply "buy" labor input with salary and how much to "make" employee benefits that it can barter for labor services. In this paper, I analyzed several factors that go into this choice about firms' boundaries. I developed a model where firms do some of their employees' purchasing for them when the firm can more efficiently procure some items and then considered how the implications of that model were affected if employee valuations of benefits vary with work-related effort. Using the National Longitudinal Survey of Youth, a survey of small California firms, and a BLS dataset of work stoppages, I showed empirical evidence that is consistent with these theoretical considerations playing a role in firms' decisions about which benefits to provide. For some key benefits that make up the bulk of benefits expenditures (especially health insurance), the efficient purchasing model appears to be particularly important. The relationship between benefits and employee effort appears to be strongest for company-provided meals and child care. These are both large and growing portions of the economy, which suggests that "effort complementarity" will become more important in the overall economy in coming years.

The comparative statics derived in this paper and the empirical relationships provide some evidence to suggest factors that affect firms' decisions on provision of benefits. However, the reduced-form nature of the analysis makes it difficult to draw strong conclusions about how responsive firms' benefits policies are to parameters of the various models. Also, while tax rates and other policy factors affect the salary/benefit trade-off, the analysis in this paper cannot provide detailed conclusions on how firm behavior would change if policies change. Therefore, a worthwhile extension of the analysis in this paper would be to more precisely model the implications of policy choices and then to use data on, for example, firms' health care plans, to estimate the effects on workers, firms, and, perhaps, social welfare, if these policy choices were changed.

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Table 1: NLSY Summary Statistics

	mean	median	standard deviation	sample size
Female	46.9%	na	na	82,144
Married	52.1%	na	na	82,144
Children indicator	61.2%	na	na	82,144
# children	1.223	1	1.258	82,144
Local unemployment	6-9%	3-6%	na	80,654
Employees	1,982	50	12,197	79,448
Full-time	64.1%	na	na	82,131
More than full-time	27.41%	na	na	82,131
Tenure (weeks)	200.8	123	211.5	81,092
Hourly wage ($1990)	$16.19	$8.59	$397	82,144
Age	31.23	31	4.66	82,144
Food industry	8.1%	na	na	23,686
Child-related industry	4.6%	na	na	69,432
Dental industry	0.5%	na	na	81,855
Health-related industry	8.4%	na	na	82,144
Meals provided	15.1%	na	na	23,686
Child care provided	7.2%	na	na	69,432
Dental insurance	56.2%	na	na	81,855
Medical insurance	75.8%	na	na	82,144

Sample includes 82,144 person/year observations (from a total of 10,654 people) who usually work at least 20 hours at their main job and provided a positive wage. Years included are 1986-1994, 1996, 1998, and 2000. Samples are smaller for some variables (and for some analyses in the following tables) because respondent did not answer question or the question was not asked each year. NLSY measure of "Local unemployment" is provided in 3% bands (that is, either 0-3%, 3-6%, etc.) "Employees" refers to the number of people working at the establishment where the respondent works. "Full-time" indicates the person said they usually work more than 30 hours per week and no more than 40 at their main job. "More than full-time" indicates the person usually works more than 40 hours per week at that job. "Food industry" includes stores that sell food and restaurants, "child-related industry" includes elementary schools, secondary schools, day care services, residential care facilities, and social services, "dental industry" includes dentist offices, and "health-related industry" includes doctors' offices, hospitals, nursing homes, and health services.

Table 2: Factors Associated with Benefits

Individual Data – NLSY

	(1)	(2)	(3)	(4)
Dependent Variable	meals	child care	dental	health
Female	0.0043	0.0188	0.0806	0.0366
	(0.0061)	(0.0031)	(0.0080)	(0.0046)
Local unempl	-0.0006	-0.0094	-0.0170	-0.0058
	(0.0037)	(0.0015)	(0.0038)	(0.0021)
Children indic.	-0.0236	-0.0032	-0.0347	-0.0384
	(0.0065)	(0.0033)	(0.0082)	(0.0048)
Married	-0.0157	0.0011	0.0245	0.0536
	(0.0069)	(0.0036)	(0.0084)	(0.0050)
Log employees	0.0086	0.0123	0.0846	0.0548
	(0.0012)	(0.0005)	(0.0019)	(0.0013)
Full-time	0.0262	0.0154	0.2981	0.2368
	(0.0102)	(0.0047)	(0.0117)	(0.0069)
$>$ than full-time	0.0642	0.0097	0.2966	0.2607
	(0.0110)	(0.0053)	(0.0130)	(0.0077)
Tenure (*100)	-0.0053	0.0016	0.0204	0.0362
	(0.0019)	(0.0006)	(0.0022)	(0.0015)
Log wage	0.0196	0.0159	0.2442	0.1436
	(0.0046)	(0.0020)	(0.0085)	(0.0053)
Related industry	0.2002	0.0447	0.4208	0.0243
	(0.0083)	(0.0056)	(0.0696)	(0.0078)
Sample Years	1988-1990	1988-2000	1986-2000	1986-2000
Pseudo-R^2	0.058	0.067	0.1882	0.2607
Sample Size	21,839	63,672	76,730	76,989

Data are from the National Longitudinal Survey of Youth. Each column reports the results of a logit. Dependent variables are indicators that equal one if the respondent indicates his/her main employer provides paid or subsidized meals (column 1), child care (column 2), dental benefits (column 3) or "medical, surgical, or hospital insurance that covers injuries or major illnesses off the job" (column 4). Sample includes all people who report that they usually work at least 20 hours per week at their main job. Explanatory variables are described in Table 1. Each regression also includes year and age indicators. Sample years are 1986-1994, 1996, 1998, and 2000, though not all columns include all years (as noted). Standard errors, adjusted for correlation among multiple responses by the same person, are in parentheses. Coefficients are marginal effects on the probability that the respondent's firm provides the benefit.

Table 3: Packages of Benefits

Panel A: Summary Statistics

	mean	sample size
"Effort" package	8.3%	15,897
Meals	15.1%	23,686
Parking	58.5%	15,959
Flex Time	48.4%	15,948
"Tenure" package	30.7%	68,966
Medical insurance	75.8%	82,144
Dental insurance	56.2%	81,855
Maternity leave	62.5%	66,518
On-the-job training	48.6%	70,213
Life Insurance	65.1%	70,423
Retirement plan	59.8%	70,077

Panel B: Relationship between packages (1989 and 1990 only)

	No "Tenure" package	"Tenure" package	Total
No "Effort" package	68.7%	23.0%	91.7%
"Effort" package	5.3%	3.1%	8.3%
Total	73.9%	26.1%	100%

See Table 1 for sample details. Years included are 1986-1994, 1996, 1998, and 2000. Samples are smaller for some variables because respondent did not answer question or the question was not asked each year. "Effort" benefits and "Tenure" benefits are indicator variables that equal one for respondents who report having every one of the benefits in the relevant category. If respondent reports not knowing if he/she receives a benefit, that benefit is not included when determining if the person receives the relevant "package." As a result, package sample size can be bigger than individual benefit sample..

Table 4: Factors Associated with Benefits Packages

	(1)	(2)
Dependent Variable	"Effort" Package	"Tenure" Package
Female	0.0056	0.1259
	(0.0042)	(0.0069)
Local unempl	-0.0033	-0.0221
	(0.0036)	(0.0035)
Children indicator	-0.0085	-0.0313
	(0.0058)	(0.0071)
Married	-0.0166	0.0266
	(0.0061)	(0.0077)
Log employees	0.0025	0.0575
	(0.0010)	(0.0013)
Full-time	-0.0053	0.2319
	(0.0089)	(0.0126)
$>$ than full-time	0.0130	0.2252
	(0.0097)	(0.0135)
Tenure (*100)	-0.0017	0.0140
	(0.0016)	(0.0015)
Log wage	0.0010	0.1920
	(0.0043)	(0.0069)
Sample Years	1989-1990	1988-2000
Pseudo-R^2	0.0069	0.1686
Sample Size	14,685	64,962

Data are from the National Longitudinal Survey of Youth. Each column reports the results of a logit. Dependent variables are defined in Table 3 and in the text. See Table 2 for sample and specification details. Standard errors, adjusted for correlation among multiple responses by the same person, are in parentheses. Coefficients are marginal effects on the probability that the respondent's firm provides the benefit.

Table 5: Benefits and Employment Sector

Individual data – NLSY

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	meals	child care	dental	health	"effort"	"tenure"
Government	-0.0196	-0.0080	0.1975	0.1156	-0.0528	0.1260
	(0.0100)	(0.0064)	(0.0165)	(0.0104)	(0.0091)	(0.0128)
Self-Employed	0.0953	-0.0007	-0.3169	-0.1186	0.0338	-0.4521
	(0.0280)	(0.0129)	(0.0298)	(0.0135)	(0.0254)	(0.0486)
Non-Profit		0.0450	0.1188	0.0606		0.1447
		(0.0067)	(0.0194)	(0.0121)		(0.0162)
Sample years	1988-1990	1994-2000	1994-2000	1994-2000	1989-1990	1994-2000
Pseudo-R^2	0.059	0.071	0.249	0.311	0.013	0.120
Sample Size	21,837	21,014	21,288	21,343	14,683	21,343

Each column reports the results of a logit. Dependent variables in columns (1)-(4) are the same as those used in Table 2. Dependent variables in columns (5) and (6) are the same as those in Table 4. Control variables include all those used in Tables 2 and 4. In columns (1) and (5), non-profit organizations are combined with for-profit entities (which is the excluded variable). Standard errors, adjusted for correlation among multiple responses by the same person, are in parentheses. Coefficients are marginal effects on the probability that the respondent's firm provides the benefit.