

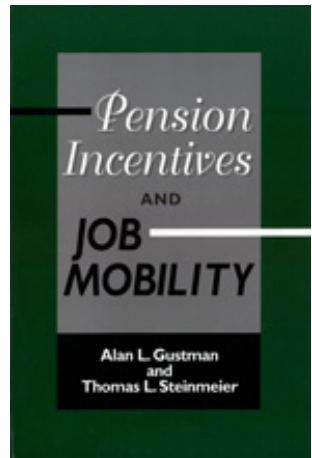
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## Introduction and Overview

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# 1

## Introduction and Overview

Employees whose jobs offer pensions leave their positions much less frequently than do employees whose jobs lack pensions. This observation has been confirmed by numerous researchers, working with diverse data sets covering different time periods. For instance, Allen, Clark, and McDermed (1993) found that over the seven-year period from 1975 to 1982, over 60 percent of workers not covered by pensions changed jobs. In the same time frame, less than 40 percent of workers who had pension coverage moved on to new jobs. Our own research (Gustman and Steinmeier 1993b) showed that over a one-year period between 1984 and 1985, the rate of job change among male workers without pension coverage was almost 20 percent. Meanwhile, only 6 percent of pension-covered workers switched employers.

Moreover, it does not appear that other factors, such as education or the type of job, are capable of explaining these differences in mobility rates. Even after allowing for the effects of various individual and job characteristics that might be expected to influence mobility, Mitchell (1982) found that pension-covered workers were 20 percentage points less likely to change jobs over a four-year period. This result is fairly typical. Indeed, the observation that workers with pensions move less from their jobs has come to be one of the most firmly rooted “stylized facts” in the literature dealing with pensions.

The research presented in this book challenges a widely held view as to why worker mobility is lower from jobs that offer pensions than from jobs that do not. According to that explanation, the lower mobility rate from pension-covered jobs occurs primarily because of financial disincentives created by pensions. Many pension plans use a formula to determine the amount of benefits, and the formula often increases benefits very rapidly in the final years before the specified retirement age.<sup>1</sup> Such plans are said to be “backloaded.”<sup>2</sup> If workers leave the firm before qualifying for retirement, they suffer a pension “capital loss” by giving up the opportunity for substantial increases in pension benefits.<sup>3</sup> Thus, the prevailing view links the lower mobility of workers from pension-covered jobs and the backloading of defined benefit plans in a

causal way, asserting that the capital loss from mobility discourages covered workers from leaving firms before qualifying for early retirement.

Indeed, there is a literature that takes the linkage between reduced mobility from pension-covered jobs and backloaded pensions as evidence of purposeful behavior by firms with regard to the design of pension plans. One branch of this literature argues that pensions are part of a human resource policy created to reduce the mobility of workers. Another branch argues that backloaded pensions are an integral part of compensation schemes that enhance work incentives. A further motivation attributed to the adoption of pensions is to encourage retirement at optimal ages.<sup>4</sup> With regard to this literature, a finding of a relationship between pensions and mobility, and especially of a negative relationship between backloaded pensions and mobility, is taken as support of a model or set of models of human resource policies in which pensions are an important tool for regulating mobility and worker productivity.

### **Background for Research**

There are three types of evidence that have led to the belief that financial penalties from pensions reduce turnover. First, there is evidence that workers who are covered by pensions have lower rates of turnover from their jobs and longer tenure than do workers without pensions (Bartel and Borjas 1977; Mitchell 1982, 1983; and McCormick and Hughes 1984, among others). Second, as required by the theory, there are financial penalties to early mobility. Examinations of pension plans at a number of firms have revealed that the benefit formula of defined benefit plans causes the value of the pension to accrue disproportionately in the later years of employment (Bulow 1981, 1982; Kotlikoff and Wise 1985, 1987a). In addition, special benefits often accrue to those who remain with the firm until qualifying for early retirement. This research establishes the magnitude of the backloading and pension capital losses in defined benefit plans and has suggested to analysts that the resulting disincentives are sizable enough to discourage mobility. Third, there has been some recent work that has attempted to relate a measure of the disincentive to mobility in pen-

sions directly to observed turnover behavior. That work (Allen, Clark, and McDermed 1993) has concluded that a substantial fraction of the difference in turnover associated with pension coverage is due to the loss in pension value with turnover.<sup>5</sup>

Our analysis confirms that turnover is lower from pension-covered jobs and that pensions are indeed structured in such a way as to result in financial penalties to early mobility. However, we do not find pension backloading to be large enough to have a strong effect on turnover, nor do we find the available evidence of the relationship between pension backloading and turnover to be persuasive as to causality. We believe that our study raises questions about the conventional view that pension backloading is responsible for the lower mobility rates of pension-covered workers.

If backloading is not the cause of lower mobility, what is? One possibility is that workers who are in pension-covered jobs are different in a way that makes them inherently more likely to remain in their jobs. These differences may or may not be observable to the investigator, but could not have been included in studies finding lower mobility from pension-covered jobs. Another possibility is that there is some aspect of pension-covered employment, other than backloading, that is responsible for reduced mobility. The explanation we favor is that workers are reluctant to leave pension-covered jobs because they receive higher compensation on those jobs than they can receive elsewhere (in the next best opportunity). This extra compensation on a pension-covered job may be called a “compensation premium.”

## **Research Approach**

Previous empirical studies have disregarded the possibility of a compensation premium, largely because the next best opportunity is not observed if the worker does not switch jobs. As a result, those studies have attributed whatever effect the compensation premium has on mobility to other variables, most notably to pensions or to pension backloading. However, we have developed a procedure that overcomes this difficulty, and we believe that the compensation premium explana-

tion for the lower mobility rate among pension-covered workers is supported by the balance of the evidence.

The approach adopted here is more comprehensive than in the usual model, but it still does not encompass all relevant possibilities. The methodology does analyze the effects of both the degree of pension backloading and of any compensation premium on mobility. However, the model does not incorporate the possibility that backloaded pensions are used to select workers on the basis of unobservable characteristics associated with low turnover and that it is this unmeasured propensity to stay that accounts for the lower mobility of workers on pension-covered jobs. In this regard, we face the same problem as other researchers: where there are a number of potential explanations for behavior, it is often not possible to include all relevant possibilities in a single model, due to limited empirical information. The typical empirical model of mobility incorporates one or at best two of these explanations. The same is true for empirical studies explaining pension coverage, plan attributes, and pension accrual profiles and their characteristics. In all of these studies, it is hoped that the behavioral variables omitted from the analysis will be orthogonal in their impact to the included variables so that, in the absence of a relationship between included and omitted variables, coefficient estimates for included variables are unbiased. Fortunately, for the model we estimate, evidence from Allen, Clark, and McDermed (1993) suggests that selection, to the extent it exists, is based on observable, rather than unobservable, characteristics, which can be included in our analysis.

The model also does not address the source of a wage premium. In a spot labor market, where only the current period matters, and in which all agents are competitive, we can anticipate that the wage equals productivity in each period and that workers shift to jobs providing the highest benefits net of moving costs. In such a world, we would not expect to find compensation premiums. Once more realistic assumptions are adopted, however, compensation premiums may arise; these assumptions include such factors as long-term attachment of workers to firms, compensation arrangements that may span a period of time, training costs, matching workers to jobs, pockets of imperfect competition and a resulting array of rents and quasi rents, monitoring costs, imperfect and asymmetric information, and unions motivated by a variety of considerations (Krueger and Summers 1988).

The origin and even the existence of compensation premiums are intensely debated topics in the field of labor economics. Arguments abound over whether certain jobs are “good” jobs, meaning that they pay a given worker more than can be secured in other employment, or whether industry wage differentials mainly reflect compensating differentials for unmeasured factors or unmeasured ability. While there is general agreement on the existence of wage premiums on union jobs, there is, for example, disagreement on the reasons for the well-documented compensation premium that accrues to those who work at large firms (Brown and Medoff 1989). Some argue that such wage differentials are equalizing, so that those on less pleasant jobs are paid more, while others find the evidence inconsistent with an equalizing wage differentials argument. The literature also includes competing views of how wages are determined, even when there is long-term job attachment. Some argue that wage experience and wage-tenure profiles are more likely to reflect efforts by the firm to economize on the costs of specific training or on the costs of generating a good match. Others argue that the profiles reflect selection in mobility over the course of the life cycle, so that those with higher productivity are more likely to stay with the job, or even pure returns to seniority.

## Research Findings

Our work does not resolve the preceding issues of wage determination or indicate a choice among the competing explanations for compensation and employment differentials. Our findings do suggest that the backloading is smaller than one would expect from a major determinant of productivity and turnover and that some aspects of the usual explanation for the effects of pensions on turnover are not consistent with observed behavior. Our results also indicate that the wage premium on pension-covered jobs has a suspiciously strong, negative relationship with the turnover observed for pension-covered workers. More specifically, the evidence that we and others have gathered suggests the following:

- The penalty to mobility from backloaded pensions is relatively small. For the average, covered male worker in his thirties or forties,

the loss would be a little more than half a year's pay. If an alternative job were to pay just a few percentage points more, it would be to the worker's advantage to take the pension loss to get the higher wage. As an example, a raise of just 3 percent, multiplied by 20 years until retirement, more than offsets a pension loss of half a year's pay, especially since the increase in wages begins immediately, while the loss in pension value comes after 20 years. In general, a once-and-for-all loss of the equivalent of a few months' pay, which would be realized 20 to 30 years in the future, is not large enough to tie workers in their thirties or forties to the firm. The loss from pension backloading due to early separation is a stock rather than a flow over time, and that loss remains small relative to the wage differential from moving until the worker approaches within a decade or so of retirement age.

- It has been suggested that firms use pensions to reduce turnover in order to lower hiring and training costs. However, the penalty to mobility from defined benefit plans is especially small for young workers. The incentives against quitting are insubstantial precisely during the time when the firm has the largest share of unrealized returns on its training investment. Until the individual reaches within about 10 years of retirement age, benefit formulas do not create a substantial penalty to leaving the firm. Thus, the evidence developed here suggests that firms would use pensions as a tool to economize on training costs only if these costs occurred throughout the period of attachment to the firm. The pension would not be helpful in economizing on the substantial fraction of training costs incurred in the initial year of hire.<sup>6</sup> The pension, of course, would also not be useful in economizing on hiring costs.

- Turnover is not lower for workers who hold jobs offering backloaded pensions (mainly defined benefit pensions) than it is for workers who hold jobs offering pensions in which benefits are not backloaded (defined contribution plans). We show that, in reduced form mobility equations in which defined benefit plans are distinguished from defined contribution plans, both types of pensions are found to have an equal, negative association with the probability of turnover. Generic defined contribution plans are not backloaded, and, even with the addition of provisions that foster backloading on some defined contribution plans, such as special bonuses for those who qualify for early retirement, a nationally representative sample of defined

contribution plans does not exhibit much backloading. Thus, it is a mystery as to why defined contribution plans, which are not backloaded, should be associated with lower turnover.<sup>7</sup> This finding suggests that it is not the financial backloading aspect of pensions that causes lower turnover rates, but some omitted factor that is correlated both with pension coverage and with turnover.<sup>8</sup>

- In current empirical models relating mobility to pensions (or to pension backloading), to wages, and to other variables, the relative sizes of the pension and wage coefficients are difficult to interpret. Typically, the pension coefficient is quite large, and the wage coefficient is relatively small. Taken at face value, this would imply that the effect on mobility of having a pension is the same as that of having a very substantial wage increase. For instance, Mitchell (1982) estimates that having a pension has more effect on mobility than a tripling of the wage!<sup>9</sup> These findings suggest to us that the current models are misspecified if they are to be interpreted as a causal relationship. The problem is that they lack a measure of the compensation premium. If there are compensation premiums, and if those premiums are more closely correlated with pensions than with wages, then the explanatory power that should be attributed to the premiums in a mobility equation would instead be attributed to pensions. This problem would account for the pension coefficient being so large relative to the wage coefficient. In the material that follows, we develop evidence that supports this view.

- Some studies find that pensions are associated with reduced turnover mainly because they are associated with lower layoffs, rather than lower quits (Mitchell, 1982; Allen, Clark, and McDermed 1993).<sup>10</sup> This finding raises questions about the motivation for adopting backloaded pensions and, in particular, about whether firms adopt backloaded pensions as a device to reduce turnover. If turnover were lower on pension-covered jobs due to a reduction in layoffs, backloaded pensions would be unnecessary as a device for lowering mobility: firms can control layoffs directly without resorting to backloaded pensions. This suggests that firms have adopted a backloaded benefit structure for other reasons, perhaps having to do with efforts to provide tax-deferred savings, to provide various types of insurance that the worker values and that are not available in the market, and/or to regulate retirement behavior (Gustman, Mitchell, and Steinmeier 1994).<sup>11</sup>



A finding that compensation premiums, and not pension backloading, account for reduced mobility from pension-covered jobs calls into question a number of theoretical models of the motivation for pensions. The role of backloading is central to models claiming that the defined benefit pension is a natural outgrowth of implicit contracts designed to increase worker productivity and to economize on training, supervision, and related costs. Thus, in addition to its relevance for models of worker mobility, this study is relevant to the literature on pension economics. To the degree that it uncovers additional systematic wage differentials, the study also provides evidence pertinent to models of wage determination and to the analysis of industry and compensating wage differentials.

Along with the theoretical implications, there are a number of policy implications from the finding that pension backloading *per se* is not likely to be responsible for much of the difference in mobility between workers on pension-covered and nonpension jobs. A mistaken view of causality may lead to inappropriate policies. For example, there has been some concern at the U.S. Department of Labor that pensions adversely affect productivity because they discourage mobility. This motivates a search for potential legislative cures. Some policy analysts also fear that, because of backloaded pensions, workers may stay too long with declining firms, thus worsening the positions of these firms; similarly, these analysts are concerned that workers might be reluctant to move to expanding sectors, thereby raising the labor costs of promising enterprises and inhibiting growth.<sup>12</sup> Legislation has required either cliff vesting—where an employee becomes fully vested after a specified number of years, with no vesting prior to that—within five years or graded vesting—where an employee is partially vested after a certain number of years and then is increasingly vested according to a schedule until attaining 100 percent vesting—within seven years (the Tax Reform Act of 1986) and has lowered the minimum age for crediting a pension to 21 (the Pension Equity Act of 1984). The Congressional Budget Office (CBO) has explored the possibility of using a projection of the wage at retirement rather than the wage at termination in calculating the pension benefit (CBO 1987). These initiatives, and other, more sweeping, recommendations, such as those of the President's Commission on Pension Policy (1981), were partly motivated by

a concern about the effects of turnover and backloading on pension benefits received at retirement.

## **Data Sources and Organization of Study**

The empirical work in this book uses three major data sources: retrospective data for a five-year period from the 1983 Survey of Consumer Finances (SCF), the 1984-85 Survey of Income and Program Participation (SIPP), and the Panel Study of Income Dynamics (PSID), covering the period 1984 through 1989. All three surveys provide useful information for analyzing the pension-mobility relationship, but the data do have some limitations. The reason for job change is routinely collected only in the PSID, which is the smallest of the samples we have available. In the other surveys, either the reason for job change is not reported or it is available only for a limited, and, as it turns out, highly unrepresentative sample. As a result, much of our empirical work pools layoffs and quits, rather than allowing us to examine layoffs and quits separately.<sup>13</sup> On the other hand, employer-provided information detailing the pension characteristics and formulas is only available for the SCF.<sup>14</sup> Consequently, calculating the extent of backloading using the SIPP and the PSID data requires imputation, by matching pensions to individuals on the basis of personal and job characteristics.

We should note that, throughout the book, all empirical work pertains to men who are initially in their thirties and forties. Prime-aged workers are selected to avoid contaminating the results with retirement-related behavior and to eliminate any mobility associated with school-work choices or with the initial period of job shopping. Analyzing job mobility for women is considerably more complicated than it is for men, since it is much more reasonable to assume in the case of men that participation is constant and that work hours are full time. Our empirical model is not adequate to analyze jointly labor force participation, labor force hours, and mobility decisions, and, as such, would be inappropriate to use in analyzing the mobility decisions of women.

The book is organized as follows. Chapter 2 presents the basic arithmetic of pension backloading. The literature exploring the relationship

of pensions to mobility is discussed in chapter 3. Chapter 4 reviews the relevant descriptive statistics and basic multivariate relationships from the three surveys used in this study: the SCF, the PSID, and the SIPP. An econometric model of mobility decisions is developed in chapter 5. Using data from each of the three surveys, an empirical version of the model is estimated in chapter 6. In this model, mobility is a function of the compensation differential between the current and the next best job. The results of these estimations are then used to simulate the effects of pension backloading and of compensation differentials. Chapter 7 provides a reestimation of the model with panel data from the SIPP and the PSID, allowing pension backloading and the remaining compensation premium to have separate and possibly different effects on mobility.<sup>15</sup> The findings in this chapter represent a specification check. Chapter 8 presents the potential policy issues that arise from this work, and our conclusions are discussed in chapter 9.

## NOTES

1. These plans, which are called defined benefit plans, base pension eligibility and the yearly pension entitlement on years of service and history of pay on the job. The other major plan type, defined contribution, bases benefits at retirement on the amount accumulated in an account held in the name of the covered worker, with accumulation based on contributions made by the worker and the employer, and on the returns to the investments held by the plan. Defined benefit plans are declining in importance, but they still are the predominant type of primary plan. Often, defined benefit plans are supplemented by defined contribution plans. In recent years, they have been supplemented by a particular type of defined contribution plan, the 401(k) plan. For recent figures on plan coverage by type, see Beller and Lawrence (1992). For discussions of the reasons for these trends, see Clark and McDermid (1990), Gustman and Steinmeier (1992a), Ippolito (forthcoming a), and Kruse (forthcoming a and b).

2. It is possible to design defined contribution plans so that they are backloaded. Examples of such plans abound (Turner 1993). Backloading is attained in higher education, for example, by combining defined contribution plans with special early retirement incentives (Gustman and Steinmeier 1991 and 1992b). However, as evidence from a representative cross section of the population will show, the degree of backloading in defined contribution plans is very mild because early retirement incentives and other backloading devices are not nearly as common in defined contribution plans as they are in defined benefit plans. Moreover, even when such provisions are present, the size of the incentives they create, and thus their effects on retirement, are modest.

3. The concept of pension capital loss is discussed by Ippolito (1986), by Allen, Clark, and McDermid (1993), and by other students of the pension-mobility relationship. We will return to the question of measuring the pension loss from mobility.

4. More generally, pensions are said to have been promoted by efforts to save at tax-favored rates of return and to meet other goals of covered workers and their employers. For a review of the pension literature, see Gustman, Mitchell, and Steinmeier (1994).

5. The 1993 Allen, Clark, and McDermed article is an important contribution to the literature on pensions and mobility. This study is based on a series of working papers, including Allen, Clark, and McDermed (1991). Certain calculations are only available in the working papers. When appropriate, the working papers will be referenced directly instead of the article.

6. A basic lesson learned from human capital models early on is that human capital investment expenditures should be undertaken as soon as possible (Ben Porath 1967). Although we are aware that much of training costs and all hiring costs occur up front, specific training is distributed throughout the period of worker attachment on the job. For recent data separately reporting training activity at the time of hire and training activity during the course of employment, see U.S. Department of Labor, Bureau of Labor Statistics (1992). For a preliminary effort to relate these data to pension coverage, see Dorsey, Cornwell, and Macpherson (1994).

7. This finding has been confirmed in work by Even and Macpherson (1992). They suggest that failure to vest the employers' contribution in the first few years of employment may discourage mobility of those covered by a defined contribution plan until vesting is attained. This point is of relevance only for a relatively short span of time and cannot account for defined benefit and defined contribution plans having similar, negative effects on turnover for workers throughout their prime working age.

8. Consistent with a view that pensions are used to reduce turnover is a finding that the negative pension-mobility relationship is observed in large firms, which commonly offer defined benefit plans, but not in small firms, which more often offer defined contribution plans (Even and Macpherson 1992). There remains the possibility, however, that other unmeasured characteristics of large and small firm employment may account for this result.

9. The coefficient of pensions in her probit equation for mobility was 0.700, while the coefficient of log wages was 0.608. Both coefficients are highly significant.

10. One might argue that on jobs where a worker's compensation is higher than in the next best opportunity, turnover should be greater because the firm will be encouraged to lay off employees. The evidence is not consistent with this view. We find that where the compensation premium is higher, turnover is lower. Moreover, pension-covered jobs are associated with payment of a compensation premium, yet Mitchell (1982) and Allen, Clark, and McDermed (1993), find that layoffs are lower on pension-covered jobs.

11. Allen, Clark, and McDermed (1993) explain the effect of pensions on mobility through layoffs as a reflection of the firm's commitment to an implicit contract. In such a contract, compensation is deferred. It is argued that laying off workers who have backloaded pensions would violate the implicit contract. We are sympathetic to the idea of an implicit pension contract. There is no other way to explain the *ad hoc* postretirement pension increases that have been granted to most recipients of defined benefit pension plans. Evidence supporting the existence of such increases is contained in Allen, Clark, and Sumner (1986), and in Allen, Clark, and McDermed (1992). Indeed, examination of data from the Panel Study of Income Dynamics (PSID) suggests that cost-of-living adjustments may offset almost half of the adverse effect of inflation on the real value of pensions for those retired on a fixed nominal pension (Gustman and Steinmeier 1993a). Nevertheless, if pension backloading decreases mobility by reducing layoffs, as Allen, Clark, and McDermed find, the question arises as to why firms concerned about mobility would bother to adopt backloaded pensions, since they can control layoffs directly.

12. There is a separate set of concerns about equity. It is argued that, because of pension backloading, those in the population with the least stable job histories, including women and minorities, will have inadequate retirement incomes. For relevant discussions and evidence, see Turner (1993).

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13. In the PSID, which is the one survey where quits and layoffs can be readily distinguished, the qualitative results are the same whether the analysis uses quits only or quits and layoffs combined.

14. We use retrospective data from the SCF because, for reasons we discuss, attrition from the 1983-86 SCF panel is systematic and renders the data highly suspect for use in a mobility study. The 1983-89 SCF panel was unavailable at the time this work was done.

15. Censoring of the retrospective data in the SCF prevents estimation of the expanded model with those data.