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## Employer Willingness To Permit Phased Retirement: Why Are Some More Willing Than Others?

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## Abstract

Under phased retirement, an older worker remains with his or her employer while gradually reducing work hours and effort. Although older workers often express an interest in phased retirement, actual occurrences are evidently rare. A possible explanation is that employers limit opportunities for phased retirement. Using a survey of employers conducted in 2001–2002, the authors examine how and why establishments differed in their willingness to permit an older full-time white-collar worker to take phased retirement. The survey indicates that employers were often willing to permit the option, but primarily as an informal arrangement. The results also indicate that opportunities for phased retirement were greater in establishments that employed part-time white-collar workers, allowed job sharing, and had flexible starting times. Opportunities tended to be more limited in establishments where white-collar workers were unionized.

**KEYWORDS:** phased retirement

# EMPLOYER WILLINGNESS TO PERMIT PHASED RETIREMENT: WHY ARE SOME MORE WILLING THAN OTHERS?

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Under phased retirement, an older worker remains with his or her employer while gradually reducing work hours and effort. Although older workers often express an interest in phased retirement, actual occurrences are evidently rare. A possible explanation is that employers limit opportunities for phased retirement. Using a survey of employers conducted in 2001–2002, the authors examine how and why establishments differed in their willingness to permit an older full-time white-collar worker to take phased retirement. The survey indicates that employers were often willing to permit the option, but primarily as an informal arrangement. The results also indicate that opportunities for phased retirement were greater in establishments that employed part-time white-collar workers, allowed job sharing, and had flexible starting times. Opportunities tended to be more limited in establishments where white-collar workers were unionized.

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**P**hased retirement is like good nutrition: more promoted than practiced. The basic idea of phased (or gradual) retirement is that an older worker remains with his or her employer while gradually reducing work hours and effort. For decades, experts in a range of disciplines have proclaimed the advantages of this type of retirement; not only can phased retirement produce a more fulfilling end to a lifetime of work, but it can also increase productivity through preservation of specific human

capital. Indeed, employees often express an interest in it. According to the Health and Retirement Survey, in 1996 more than half of the employed respondents age 55 to 65 preferred to gradually reduce their hours of work as they age (U.S. General Accounting Office 2001). Yet, all indications are that phased retirements are unusual. Studies from the 1980s (for example, Ruhm 1990; Quinn, Burkhauser, and Meyers 1990) indicate that within a cohort of older workers, less than 10% took phased retirement; most people simply moved from full-time work to full-time retirement. Nothing in the more recent data indicates a substantive increase in these numbers.

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Since the authors intend to write additional articles based on these data, the data will become publicly available in 2011. Contact the first author at 263 Ives Hall, ILR School, Cornell University, Ithaca, NY 14853; rmh2@cornell.edu.

This discrepancy between employee wishes and actual behavior is, at least in part, a consequence of employer policy. According to the Health and Retirement Survey, despite their interest in gradual hours reductions, only 16% of the full-time workers between 55 and 65 said their employers would permit reduced hours (U.S. General Accounting Office 2001). For reasons that we do not fully understand, opportunities for phased retirement are in some sense restricted. This paper uses a new establishment-level survey to begin examining why that is.

Much of what we know about phased retirement comes from surveys of retired or employed workers. Early work on the topic was built on the Retirement History Study (RHS), a sample of 11,000 people who were age 58–63 in 1969, and who were interviewed at two-year intervals between 1969 and 1979 (Quinn 1981; Gustman and Steinmeier 1983, 1984, 1985; Ruhm 1990; Reimers and Honig 1989). The basic conclusion that comes out of this literature is that many older workers must choose between full-time work, full-time retirement, and part-time work at a different job. Indeed, data from the RHS indicate that 75% of working men move from full-time work to full-time retirement without a spell of partial retirement with the current employer or any other employer (Hurd 1996).

Explanations for this behavior largely focus on two hypotheses. First, Gustman and Steinmeier (1983) argued that some employers prohibit phased retirement because of a “minimum hours constraint” whereby employers restrict all workers—both young and old—to full-time work. Second, several authors have argued that defined benefit pensions are implemented in ways that prevent phased retirement. Both explanations are examined below.

One way to assess such hypotheses is with surveys of employers. For example, there have been several surveys of human resource executives in firms that belong to the Conference Board (Rhine 1978, 1984; Christensen 1989; Barth, McNaught, and Rizzi 1993). These surveys ask questions about phased retirement along with several

other topics. More recent additions to the literature include two studies of clients of major consulting firms and two sets of case studies (Watson and Wyatt 1999, 2001; William M. Mercer 2001; AARP 2000).

While these employer surveys are useful, many questions remain. For example, the employer surveys are not based on representative samples; they probably oversample large firms with progressive human resource policies. A representative sample may yield different results. In addition, the studies often focus on formal policies without delving into whether there are informal ways to adjust working hours. Finally, this literature does not provide a clear answer to the question of why some employers offer phased retirement while others do not.

In an effort to address these and other issues, a telephone survey of a random sample of 950 establishments was conducted between June 2001 and November 2002.<sup>1</sup> Respondents were asked about establishment characteristics, pensions, and an array of human resource policies, as well as policies regarding phased retirement. This paper uses these data to test hypotheses on why establishments differ in their willingness to permit an older full-time white-collar worker to shift to part-time work.

### **Theoretical Framework and Hypotheses**

Since the subsequent empirical work is based on a sample of establishments at a point in time, it can reveal correlations and associations, but is unlikely to permit unambiguous conclusions about causation. A theoretical model, however, remains useful for establishing hypotheses and interpreting results. This section presents three hypotheses for why establishments differ in their policies toward phased retirement at a point in time: minimum hours constraints, employee demand, and defined benefit

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<sup>1</sup>The survey was sponsored by the Sloan Foundation and executed by the Center for Survey Research at the University of Massachusetts, Boston.

pensions. Admittedly, other factors, like the social security earnings test or age discrimination laws, may influence an establishment's phased retirement policy. Since they do not vary across establishments, however, it is not possible to identify their effect in a sample of establishments at a point in time.

As noted above, an early explanation for why employers may limit opportunities for phased retirement focused on minimum hours constraints. Gustman and Steinmeier (1983) hypothesized that some employers require a minimum number of hours of work per week, month, or year, and that employees can reduce hours only by quitting and taking a different job. While there are several reasons why an employer might introduce a minimum hours constraint, it is useful to begin with a simple model of a firm with hiring and training costs. The principal point of the model is that some profit-maximizing firms will impose and enforce a minimum hours constraint and thereby limit opportunities for phased retirement.

Consider a profit-maximizing firm that hires one utility-maximizing employee for three periods. The employee receives firm-specific training in the first period and produces output in the second and third periods. Let the bulk of the employee's career be spent in period 2, with the third period encompassing a few years before retirement from the firm. Although the firm would like the employee to work full-time in the second and third periods, there is a probability  $P_2$  ( $P_3$ ) that at the beginning of the second (third) period the employee will, in fact, wish to work part-time. Phased retirement occurs if a third-period employee actually becomes a part-timer. Possible reasons for wanting to shift to part-time include ill health, family responsibilities, and leisure activities. Regardless of the reason, if the employee wants to work part-time, then there is a utility gain from doing so. Let  $\mu_j$  be a cash equivalent measure of this utility gain from working part-time in a different firm in period  $j$ , where  $\mu_j \geq 0$ , and  $j = 2$  or  $3$ . Since the employee may reap a greater gain from working part-

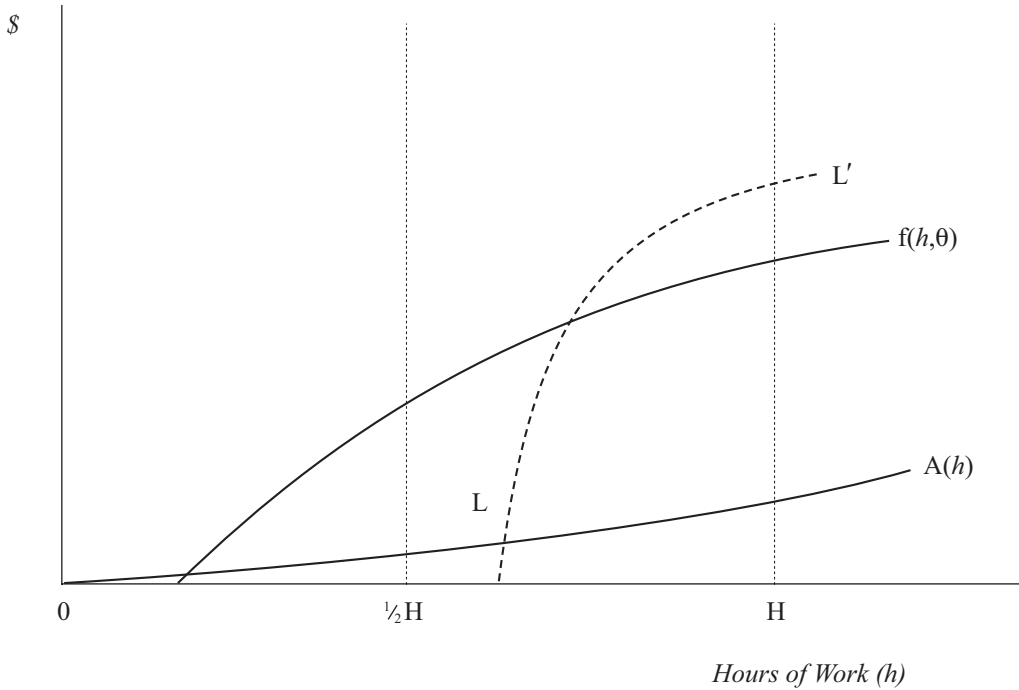
time in the current firm (given the familiarity of the surroundings, routines, commute, and so on), let  $\mu_j + \epsilon_j$  be the gain from working part-time in the current firm in period  $j$ , where  $\epsilon_j \geq 0$ . Finally, assume that  $P_j$ ,  $\mu_j$ , and  $\epsilon_j$  are common knowledge; thus, while at the time of hire neither the employer nor the employee knows whether the employee will want to become a part-timer in some later period, both employer and employee know  $P_j$ ,  $\mu_j$ , and  $\epsilon_j$ ,  $j = 2, 3$ .

Assume the firm's period  $j$  production function is  $f(H, \theta_j)$  if the employee works full-time and  $f(\frac{1}{2}H, \theta_j)$  if the employee works part-time, where  $H$  is full-time hours (for example, 40 hours per week);  $f(h, \theta_j)$  is a function of hours worked ( $h$ ) with  $\partial f(h, \theta_j) / \partial h > 0$  for  $h > 0$  and  $\partial^2 f(h, \theta_j) / \partial h^2 < 0$  for  $H \geq h \geq \frac{1}{2}H$ ;  $j = 2, 3$ ; and  $\theta_j$  is a technological parameter that determines the curvature of  $f(h, \theta_j)$ . For example,  $f_j(h, \theta_j) = 20 + h - \theta_j(h-H)^2$ . Although the subsequent analysis is equally applicable to daily, monthly, or annual hours, for heuristic purposes it may be easiest to think of "h" as weekly hours.

With regard to cost, assume that in the first period the firm pays training costs of  $X$  and a wage  $W_j$ . In the second and third period the employee is paid  $W_j(H)$  for working full-time and  $W_j(\frac{1}{2}H)$  for working part-time,  $j = 2, 3$ . To retain the employee, the firm must set these wages so that the employee is at least as well off as in the external labor market. Let the market-determined relationship between hours and earnings be  $A(h)$ , where  $\partial A(h) / \partial h > 0$ , and assume that in all three periods the external market pays  $A(H)$  to full-timers and  $A(\frac{1}{2}H)$  to part-timers. We refer to these as the full-time and part-time alternative wage. The first-period alternative wage is assumed to be  $A(H)$ . Finally, assume that the output price equals "1" and that time is discounted at rate zero. The solid lines in Figure 1 illustrate  $f(h, \theta_j)$  and  $A(h)$ .

The firm's goal is to maximize profit over the three periods. As such, at the beginning of the first period, the firm sets wages for the three periods and decides whether to provide second- and third-period part-time jobs. To reiterate, at the

Figure 1. An Illustration of  $f(h, \theta)$  and  $A(h)$ .



time the firm decides about these part-time jobs, it only knows that there are probabilities  $P_2$  and  $P_3$  that the employee will want one. It can be shown (an appendix is available from the authors) that a necessary condition for the firm to provide a part-time job in period  $j$  is

$$(1) \quad f(\frac{1}{2}H, \theta_j) + \zeta_j \geq A(\frac{1}{2}H) - \epsilon_j$$

and

$$f(\frac{1}{2}H, \theta_j) - A(\frac{1}{2}H) + (\mu_j + \epsilon_j) \geq f(H, \theta_j) - A(H),$$

where  $\zeta_3 = 0$  and  $\zeta_2$  is a positive number that represents the expected contribution to profit if the employee works in the third period (the difference between third-period output and the alternative wage).<sup>2</sup>

As such, there are two cases in which the firm does *not* permit an employee to shift to part-time in period  $j$ . First,  $f(\frac{1}{2}H, \theta_j) + \zeta_j < A(\frac{1}{2}H) - \epsilon_j$ . In this case, there is no opportunity for a “deal.” Were the firm to provide a part-time job paying  $A(\frac{1}{2}H) - \epsilon_j$ —a below-market wage that the employee would accept because of the utility gain (measured by  $\epsilon_j$ ) from remaining with the current firm—it would lose money. Were the firm to instead pay a wage equal to the expected revenue generated by the part-

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$$\zeta_2 = (1 - P_3)(f(H, \theta_3) - A(H)) +$$

$$\text{Max}(P_3(f(\frac{1}{2}H, \theta_3) - A(\frac{1}{2}H) + \epsilon_3);$$

$$\text{Max}(0; P_3(f(H, \theta_3) - A(H) - \mu_3)).$$

Note that the firm’s wages ( $W_j(H)$  and  $W_j(\frac{1}{2}H)$ ) are irrelevant to the firm’s decision about providing a part-time job. The only constraint on these wages is that current and expected future compensation in period  $j$  is greater than or equal to current and expected future compensation in an alternative job.

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<sup>2</sup>More precisely, the expected contribution to profit in the event that the employee works in the third period is

time job  $(f(\frac{1}{2}H, \theta_j) + \zeta_j)$ , the employee would quit for a better-paying part-time job elsewhere. Note that this is not the case in Figure 1, since  $f(\frac{1}{2}H, \theta_j) > A(\frac{1}{2}H)$ . Note also that there is a subtle difference between the second and third period. In the third period,  $\zeta_3 = 0$ , and the only gain to the firm from providing a part-time job is  $f(\frac{1}{2}H, \theta_3)$ . In the second period, the firm gains not only  $f(\frac{1}{2}H, \theta_2)$  but also  $\zeta_2 > 0$ . The difference occurs because by providing a part-time job in the second period, the firm prevents a quit, and thereby gains expected profits from work in the third period.

The other case in which the firm does not permit an employee to shift to part-time is  $f(\frac{1}{2}H, \theta_j) - A(\frac{1}{2}H) + (\mu_j + \varepsilon_j) < f(H, \theta_j) - A(H)$ . Here the full-time job contributes more to profit than the part-time job does. Indeed, the extra profit in the full-time job is such that the firm not only can forego any profit from the part-time job, but also can pay sufficient compensation to induce the employee to ignore his or her preferences for working part-time (represented by  $\mu_j + \varepsilon_j$ ). Note that this could possibly be the case in Figure 1, since the gap between  $f(h, \theta_j)$  and  $A(h)$  is larger at  $H$  than at  $\frac{1}{2}H$ .

As illustrated by Figure 1, whether the firm permits a shift to part-time depends heavily on the shape of  $f(h, \theta_j)$  and  $A(h)$ . Of particular importance in what follows is the curvature of  $f(h, \theta_j)$ . Holding  $A(h)$  constant, if the firm's technology is such that the employee's productivity drops dramatically with reduced hours worked (implying greater curvature in  $f(h, \theta_j)$ ), then condition (1) is more likely to be violated.

At least three important implications follow from this model:

—A minimum hours constraint can be profit-maximizing. If condition (1) does not hold, then this profit-maximizing firm does not permit the employee to shift from full-time to part-time. The employee can make such a shift only by working elsewhere.

—Because of differences in technology, some firms will impose a minimum hours constraint while others will not. Suppose there are two firms that produce different

products but hire the same type of labor in the same market, and thereby confront the same  $A(h)$ . Since they produce different products, they use different technologies to produce output, and thereby may have different values of  $\theta_j$ . Due to such differences, condition (1) may hold in period  $j$  for one firm but not for the other.

—A firm that imposes a minimum hours constraint on a period 2 employee is likely also to prohibit phased retirement by period 3 workers. Suppose  $\theta_2 = \theta_3$ . Then a firm that prohibits part-time work by a period 2 employee will also prohibit part-time work by a period 3 employee. This is because in (1) above,  $\zeta_2$  is positive. This simply means that the firm can retain young second-period employees by offering them part-time work (perhaps to care for a child), and thereby reap third-period returns on training. That is not the case for older employees who depart at the end of the third period. Suppose  $\theta_2 \neq \theta_3$ . Even in this case, it is likely that these parameters will be positively correlated within the same firm, that is, it is likely that second- and third-period workers will use similar technologies and that thereby  $f(h, \theta_2)$  and  $f(h, \theta_3)$  will have similar curvatures. Thus, a firm that imposes a minimum hours constraint on some workers is likely also to prohibit phased retirement.

The last point is easily extended to a firm with  $N$  employees. Suppose these  $N$  employees have identical values of  $P_j$  and  $\mu_j$ ,  $j = 2, 3$ , but are in different jobs with different values of  $\theta_j$ . While the firm could conceivably negotiate  $N$  different contracts, some of which involve minimum hours constraints in the second or third period, the cost of negotiating and implementing  $N$  different contracts may be sufficiently burdensome that the firm imposes a broad policy on its employees. That policy could take many forms. It could apply to all workers or only to workers in certain jobs. It could be formal or informal. Regardless of its form, the driving force behind the policy is the shape of the  $f(h, \theta_j)$ . To the extent that employees in the same firm have similar  $\theta_j$ ,  $j = 2, 3$ , a firm that imposes a minimum hours constraint on some employees is likely

to provide fewer opportunities for phased retirement. Thus,

**Hypothesis 1: Minimum Hours Constraints.** Establishments that impose minimum hours constraints on their employees are less likely than other establishments to permit phased retirement, *ceteris paribus*.

Note that this link between a minimum hours constraint and phased retirement is one of association and not causation; consistent with Gustman and Steinmeier (1983), the underlying causal variable is technology. Technology determines the shape of the  $f(h, \theta_j)$ , and thereby both minimum hours constraints and opportunities for phased retirement.

What types of employers are particularly likely to introduce minimum hours constraints? The relationship between hours and earnings ( $A(h)$ ) should *not* play a role, since in a given labor market all employers face the same relationship. One would, however, expect the shape of the  $f(h, \theta_j)$  to differ across employers and jobs. For example, in some jobs efficiency requires that a team of workers be present (Hurd 1996; Nollen, Eddy, and Martin 1977, 1978). While a football team and an assembly line are classic examples, other jobs like software development or police services also require people to work the same hours so that they can interact as members of a team. If production involves coordination among members of a team, then reduced hours by one worker could affect the output of other workers, implying a  $f(h, \theta_j)$  with curvature similar to the dotted line  $LL'$  in Figure 1. Supervisory costs could also affect the curvature of  $f(h, \theta_j)$ . Part-time workers may cause additional supervisory costs, especially when there is a mix of both part-time and full-time employees (Nollen, Eddy, and Martin 1977). Such costs would reduce the revenue generated by part-timers relative to full-timers. Of course, there are other jobs in which teamwork and supervisory costs are not problematic, and in which part-time workers may be quite productive, for example, processing forms in an insurance company or selling merchandise in a retail store with predictable time-

of-day demand fluctuations. Here  $f(h, \theta_j)$  could have even less curvature than the line designated  $f(h, \theta_j)$  in Figure 1, and a minimum hours constraint would not be imposed.

An alternative way to think about phased retirement is to view a part-time job as an amenity that the employee purchases through lower wages. If the employee is willing to compensate the firm for the expected profit loss from providing a part-time job, then the firm will provide the job. The above model expresses this idea with  $\epsilon_3$ . A positive  $\epsilon_3$  indicates that the worker is willing to accept below-market compensation in order to work part-time at this firm. Looking at equation (1), it is clear that as  $\epsilon_3$  increases, both inequalities are more likely to be satisfied, *ceteris paribus*, implying that the firm is more likely to provide a third-period part-time job. In essence, if the employee makes a sufficient payment in exchange for provision of a third-period part-time job (perhaps by accepting a lower wage in the first period), then the firm provides the job. This is the logic inherent in the classic economic argument for why employers provide fringe benefits such as health insurance (Rosen 1986).<sup>3</sup>

This argument is linked to the literature on work/family programs. In recent years employers have increasingly supported childcare programs for their employees.

<sup>3</sup>Note that for this argument to obtain, the employee must view a part-time job with the current employer as worth more than a part-time job elsewhere at the same wage. We believe this is a reasonable assumption even though the above model, with its one employee, is not well adapted for grounding it. People who remain with a firm for a long time often enjoy not only their job but also their coworkers. It is plausible that working part-time in such a setting would yield greater utility than working part-time at the same wage elsewhere. Even if workers were randomly assigned to firms, those workers with particularly large values of  $\epsilon_3$  would be more willing to pay for phased retirement and the employer would, in consequence, be more likely to permit it, *ceteris paribus*. A sorting process could reinforce this relationship. For example, workers with large values of  $\epsilon_3$  may sort themselves into establishments in which the technology is especially compatible with phased retirement.

Workers presumably purchase this amenity with lower wages. Such policies are at least in part a response to the demands of employees in two-earner families. Indeed, Osterman (1995) found that the greater the percentage female in an establishment's work force, the more likely it is that the establishment will have such policies. One would expect a similar phenomenon with regard to phased retirement. Thus,

**Hypothesis 2: Employee Demand.** If an establishment contains employee groups that have a strong interest in phased retirement at that establishment, then the establishment is more likely to permit phased retirement, *ceteris paribus*.

A final hypothesis concerns pensions. Although they do not fit easily into the above model, there are good reasons to assert that defined benefit pensions are a barrier to phased retirement. Defined benefit pensions base benefits on a formula; as such they are distinct from defined contribution pensions, which base benefits on the amount of money in an individual account at the time of retirement. Several authors have argued that in contrast to workers covered by defined contribution pensions (or no pension), workers with defined benefit pensions confront formidable obstacles to phased retirement. (See Quinn, Burkhauser, and Myers 1990; Hurd 1996; and U.S. General Accounting Office 2001.) Thus,

**Hypothesis 3: Defined Benefit Pensions.** Establishments with defined benefit pension plans are less likely to permit phased retirement than those with defined contribution pensions or no pension at all, *ceteris paribus*.

There are two reasons why defined benefit pensions may impede phased retirement. First, defined benefit pensions sometimes base a retired person's pension benefits on earnings during the final few years before retirement. In that case an older person who chooses to work half-time at half pay prior to retirement could lose as much as half of all future pension benefits. Indeed, Hurd (1996:35) calculated that in such a system, a 10% decrease in annual earnings can translate into a lifetime wealth

loss of 150% of annual earnings. Such a pension will almost certainly discourage part-time work. This is not the case with defined contribution pensions. Since benefits are based on the amount of money in an individual account, working half-time rather than full-time in the final years before retirement will reduce benefits (because of lower contributions to the individual account), but the decrease is small and nothing close to a lifetime wealth loss of 150% of annual earnings.

Second, under Internal Revenue Service regulations it can be quite difficult for active employees to receive pension benefits from their current employer's defined benefit pension plan. Specifically, an active employee cannot receive benefits before the plan's normal retirement age. By implication, a worker who takes phased retirement (and thus stays with the current employer) may not be able to supplement earnings with payments from a defined benefit plan. This is less of an issue for a defined contribution plan. Internal Revenue Service regulations permit employers to set up defined contribution plans so that an active employee can draw pension benefits. The major federal limitation on this is that the employee must be over age 59½.<sup>4</sup>

### Empirical Implementation

A test of the first hypothesis requires proxies indicating whether or not the employer has a minimum hours constraint. Obvious proxies are variables that reveal the extent to which an establishment permits less than full-time work. This paper uses three proxies: the percentage of white-collar employees who are part-time, whether the employer permits job sharing, and whether the employer permits flexible starting times. Regarding the last, Michael Hurd

<sup>4</sup>This is the essence of the regulations, which are arcane. A complete treatment would require several pages. Good discussions can be found in Penner, Perun, and Steuerle (2002) and Fields and Hutchens (2002).

has argued that flexible starting times in part reveal the absence of team production (Hurd 1996:25). Consistent with the first hypothesis, we expect a positive association between these proxies and an employer's openness to phased retirement.

With regard to the second hypothesis, a test requires data on employee groups. Due to employee demands, there should be more opportunity for phased retirement in establishments with large proportions of long-tenured older workers and less opportunity in establishments with large proportions of young workers. Moreover, since the available evidence suggests that women tend to be more interested than men in phased retirement (Hutchens and Dentinger 2003), phased retirement should be more likely in establishments where the work force is largely female. As in the literature on family-friendly policies (for example, Osterman 1995), this hypothesis can be tested with data on the demographic characteristics of an establishment's work force.

A test of the third hypothesis requires information on the type of pension that covers workers in each establishment. In particular, information is required on whether the establishment covers its workers with a defined benefit pension, a defined contribution pension, some mixture of the two, or no plan at all. As discussed in the appendix, considerable effort went into collecting these data.

### The Data

The subsequent analysis is based on a representative sample of 950 establishments. An establishment is defined as a single physical location at which business is conducted or services or industrial operations are performed. An establishment may or may not be part of a larger organization (like a business with several addresses or a school district). For purposes of studying phased retirement, establishment-level data are arguably better than data collected from the larger organization. In contrast to, say, a survey of upper-level executives at corporate headquarters, establishment-level respondents are more likely to know

how policy is actually implemented. In order to obtain detailed information in a relatively brief interview, the survey focused on white-collar workers. The sample was restricted to establishments not engaged in either agriculture or mining with twenty or more employees and at least two white-collar employees who were age 55 or more. The last of those restrictions ensures that questions about phased retirement are relevant to the establishment's current situation.<sup>5</sup>

The sample universe was the Dun and Bradstreet Strategic Marketing Record for December 2000. This is a comprehensive listing of establishment addresses in the United States. The main source of these data is credit inquiries, although information is also obtained from the U.S. Postal Service, banks, newspapers, yellow pages, and other public records.<sup>6</sup> In order to ensure adequate numbers of large establishments, the sample was stratified by establishment size. The subsequent results are weighted to correct for this difference in the sampling ratios. The survey was executed by the University of Massachusetts Center for Survey Research between June 2001 and November 2002.

The survey was conducted by telephone. The survey research firm first contacted the establishment and asked for the person who was best able to answer questions about flexible work schedules and employee benefits, such as a human resource manager or benefits manager. Identifying a suitable respondent was usually easiest in small es-

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<sup>5</sup>Due to these restrictions on the sample, results cannot be compared to a benchmark survey. There exists no other comparable national survey of establishments that includes information on the demographics of the establishment's work force. We do find, however, that with respect to industry, region, and union characteristics, this sample is remarkably similar to the Health and Retirement Survey sample of older white-collar workers in establishments with more than 20 employees.

<sup>6</sup>Kalleberg, Marsden, and Aldrich (1990) provide a particularly useful introduction to these data, along with a discussion of their advantages and disadvantages.

tablishments. In large establishments, especially those that were part of a complex organization, it was sometimes necessary to rely on multiple respondents. Interviews were conducted using a CATI (Computer Assisted Telephone Interviewing) system, thereby permitting an interview to be completed over several phone calls. Although this technology simplified the interview process, new technologies on the respondent side (in particular, AUDIX and answering machines) complicated matters. The median number of telephone calls to complete an interview was 10, with 10% of the interviews requiring 30 or more calls for completion.

The overall response rate was 61%. Most of the unit nonresponse occurred when screening establishments for eligibility (to determine, for example, whether there were at least two white-collar employees age 55+), and before respondents knew the purpose of the survey. Interviews were completed in 89% of the establishments that were successfully screened. This is on a par with other establishment-level telephone surveys (for example, Lynch and Black 1998; Holzer and Neumark 1999).

### Measuring Phased Retirement

After asking a series of questions about the characteristics of the establishment and its human resource and pension policies, the interviewer posed the following question:

Q1 Think of a secure full-time white-collar employee who is age 55 or over. One day that person comes to you and says that at some point in the next few years he/she may want to shift to a part-time work schedule at this establishment. Could this person's request to shift to part-time employment be worked out in a way that would be acceptable to your establishment?

If the response was "yes" or "in some cases," then we asked further questions about the nature of this hours reduction and the conditions under which it could occur.

It should be noted that whereas phased retirement usually means a gradual reduction in hours, this question asks about a shift from full-time to part-time. The sur-

vey designers decided to focus on a rather concrete form of phased retirement—a shift from full-time to part-time. If a respondent said such a shift was possible, the interviewer followed up with questions about what the respondent meant by "part-time."

As indicated in Table 1, most employers responded that some kind of arrangement could be worked out. Only 131 of the 950 establishments (14%) responded with a "no" to the question. The table also shows that the employers were usually thinking in terms of an informal arrangement. Of course, employers exercise considerable discretion in these informal arrangements. For example, when we probed the meaning of "in some cases," employers told us that "it depends on the position" or "it depends if there are part-time opportunities." Indeed, formal policies can carry similar qualification: they can stipulate that phased retirement is conditional on the need for part-time workers.

Thus, for these employers phased retirement is often seen as discretionary. An employer may think long and hard about both business prospects and an employee's talents before permitting the employee to take phased retirement. There exist some employers who see phased retirement as available to all workers in all circumstances. For these employers phased retirement is like time off for holidays or pension benefits—a fringe benefit that is part of the job. Most employers, however, view phased retirement as a special arrangement that is more like a leave of absence or a late starting time. Although the survey explored the different ways in which employers view phased retirement, the present paper is primarily focused on the broadest possible definition of phased retirement: can something be worked out?<sup>7</sup>

<sup>7</sup>The high percentage of employers who responded "yes" or "in some cases" appears to conflict with the comparatively low percentage of Health and Retirement Survey respondents who said that they could reduce their usual hours of work. The difference is more apparent than real. Most of it is evidently due to employer selectivity about who has an opportunity

Table 1. Employer Response to an Older Employee's Request to Shift to Part-Time Work (Question 1) and Whether the Policy is Informal or Formal.

<i>Answer to Question 1</i>	<i>No. Obs.</i>	<i>There is no formal policy (decisions are case by case)</i>	<i>There is a formal written policy:</i>			<i>Total</i>
			<i>that applies to everyone</i>	<i>but adjustments can be made in individual cases</i>	<i>Don't Know or NA</i>	
Yes	639	65.4%	22.7%	11.1%	0.8%	100.0%
In Some Cases	142	67.6%	19.7%	7.0%	5.6%	100.0%
No	131					
Don't Know or NA	38					
Total	950					

For that reason the subsequent analysis does not distinguish between “yes” or “in some cases” answers to Q1. When respondents answered “yes,” they may have meant, “yes, that opportunity is always available,” or “yes, that opportunity is sometimes available.” The “in some cases” response was included in order to catch any possibility that a worker could shift to part-time. By including that response, we ensured that a respondent who said “no” really meant that such an arrangement could not be worked out.<sup>8</sup>

It is also important to note that while an employer may be willing to work out phased retirement, the employer’s “offer” may be unacceptable to the employee. How will health insurance be handled? Will it be possible to supplement salary with pension payments? Can the employee have a change of heart and return to full-time work? Although the survey inquired into what constituted an acceptable arrangement from the employer’s perspective, it did not attempt to assess whether that arrangement was acceptable to a “typical” employee who is contemplating phased retirement. This paper examines when and why an opportu-

nity exists for phased retirement. An older worker’s decision to seize that opportunity depends not only on what is offered but also on the worker’s wealth, marital status, and attitude toward retirement, most of which cannot be ascertained through employer-level interviews.

That said, when an employer told us that phased retirement was possible, it was often the case that phased retirement had actually occurred in the establishment. If an employer indicated that some form of phased retirement could be worked out, we asked whether in the last three years a white-collar worker age 55 or over had actually shifted from a full-time to a part-time work schedule. Fully 42% said “yes.” This percentage should arguably increase with establishment size. Small establishments may employ only a handful of people over 55; if none are interested in phased retirement, then regardless of the opportunity, the right answer to our question would be “no.” That is less likely in large establishments with their larger numbers of people over 55. It turns out that the percentage is in fact higher in large establishments. For establishments with 500 or more employees, the percentage is 77%; for those with under 500 employees, 39%.

In order to provide an overview of the data, Table 2 presents descriptive information on establishments that did and did not allow phased retirement. For example, the first entry in column (1) indicates that 2%

for phased retirement and to differences in the questions asked. For a discussion of this issue, see Hutchens and Chen (forthcoming).

<sup>8</sup>Moreover, we experimented with a trichotomy; a binary variable contains virtually the same information.

of the establishments that *permitted* phased retirement were in the construction industry, and the first entry in column (3) indicates that 0% of the establishments that *did not permit* phased retirement were in construction. By implication, the industry percentages in column (1) sum to 100%, as do the industry percentages in column (3). Looking at the remaining industries, we see that the industrial composition of the establishments that allowed phased retirement is quite similar to that of establishments that did not allow phased retirement. The two major exceptions are public administration and transportation/communications/utilities. Establishments in these industrial sectors tend not to permit phased retirement. In contrast, establishments in the service sector, especially those in health, education, and social services, tend to permit phased retirement.

The pension results in Table 2 are particularly interesting. (The appendix discusses how pensions and other Table 2 variables were measured.) As noted above, phased retirement can be difficult with a defined benefit plan, and one would expect phased retirement to be more likely for establishments that primarily use defined contribution plans. The results in part E of Table 2 support this expectation, although, at least in this initial univariate look at the data, the relationship is surprisingly weak. Of the establishments that permitted (did not permit) phased retirement, 46% (38%) had only a defined contribution pension. Interestingly, however, the corresponding number for establishments that had only a defined benefit plan is 24% (21%). Thus, there is no evidence in this table that employers with defined benefit pensions were especially averse to phased retirement.

Other important results in Table 2 pertain to work force demographics and human resource policies. Work force demographics are detailed in Part F of Table 2. Respondents were asked for their best estimates of the fraction of the establishment's employees who fell into different demographic categories. The percent of the work force that was white-collar was high

and roughly the same in the two types of establishments. There were, however, clear differences for establishments with different types of white-collar workers. In particular, unions mattered. Among establishments that permitted phased retirement, on average 16% of the white-collar work force was covered by a collective bargaining agreement. This percentage was much higher (29%) among establishments that did not permit phased retirement. As expected, the percentage of white-collar workers who were part-timers was somewhat higher in establishments that permitted phased retirement.

Part G of Table 2 lists a set of establishment-level human resource policies. Information on these policies came from respondent answers to a battery of questions that preceded questions about phased retirement. There is clear evidence here that if an establishment permitted flexible hours (for example, it had flexible starting times), it also tended to be open to phased retirement. Moreover, establishments that permitted phased retirement tended to have policies that were supportive of part-time work, such as health insurance and paid vacations for part-timers.

Interestingly, however, several other human resource policies did not differ between the two types of establishments. Perhaps most surprising are the results on retiree health insurance and total compensation. Establishments that did *not* permit phased retirement were *more* likely to provide health insurance to retirees. It may be that these employers wanted to encourage departure of older workers, and used health insurance for that purpose. We also asked establishments to compare their total compensation for white-collar workers with that of similar organizations in their geographic area. Interestingly, although the difference is not statistically significant, establishments that did *not* permit phased retirement were slightly *more* likely to report that their employees were comparatively well paid.

In summary, reasonable people may differ as to whether the establishments in our sample that were most willing to per-

Table 2. Descriptive Statistics on Establishments That Did and Did Not Permit Phased Retirement.

Independent Variable	Employer Response to Question about Phased Retirement (Q1):				Fraction Missing in Full Sample (5)
	"Yes" or "In Some Cases"		"No"		
	Mean <sup>3</sup> (1)	Standard Error (2)	Mean <sup>3</sup> (3)	Standard Error (4)	
A. Industry of Establishment					
Construction	0.019*	0.005	0.003	0.004	0.000
Manufacturing	0.141	0.013	0.140	0.027	0.000
Transportation, Communications, and Utilities	0.038*	0.007	0.114	0.024	0.000
Wholesale and Retail Trade	0.130	0.013	0.125	0.025	0.000
Finance	0.062	0.009	0.051	0.017	0.000
Health, Education, and Social Services	0.385*	0.018	0.268	0.034	0.000
Other Services	0.161	0.014	0.120	0.025	0.000
Public Administration	0.064*	0.009	0.180	0.029	0.000
B. Region of Establishment					
East	0.176	0.014	0.202	0.031	0.000
Central	0.304*	0.017	0.208	0.031	0.000
South	0.300*	0.017	0.402	0.038	0.000
West	0.221	0.015	0.188	0.030	0.000
C. Size of Establishment					
20 to 49 Employees	0.413	0.018	0.418	0.038	0.000
50 to 99 Employees	0.252	0.016	0.219	0.032	0.000
100 to 249 Employees	0.191	0.015	0.251	0.033	0.000
250 to 999 Employees	0.098	0.011	0.097	0.023	0.000
1,000 or More Employees	0.045*	0.008	0.014	0.009	0.000
Number of Employees Decreased in Last 3 Years	0.162	0.014	0.208	0.031	0.010
Number of Employees Increased in Last 3 Years	0.392*	0.018	0.259	0.034	0.010
D. Size of Organization					
Fewer Than 100 Employees	0.326*	0.017	0.245	0.033	0.051
100 to 249 Employees	0.146	0.013	0.134	0.026	0.051
250 to 999 Employees	0.158	0.014	0.191	0.030	0.051
1,000 to 4,999 Employees	0.132	0.013	0.157	0.028	0.051
5,000 or More Employees	0.237	0.016	0.274	0.034	0.051
Establishment Is Part of a Larger Organization	0.334*	0.018	0.470	0.038	0.000
E. Pension Type					
Defined Benefit Only	0.237	0.016	0.208	0.031	0.000
Defined Contribution Only	0.465*	0.019	0.382	0.037	0.000
Both DB and DC	0.125*	0.012	0.188	0.030	0.000
DB for Some; DC for Others	0.036*	0.007	0.083	0.021	0.000
No Pension, NA	0.138	0.013	0.139	0.027	0.000

Continued

mit phased retirement were exemplars of progressive human resource policies. While they often permitted flexible hours and had policies that were supportive of part-time work, they also tended to be non-union

and to offer wages and fringes that were about average for the local labor market.

#### Multiple Imputations and Missing Data

As in most surveys, this survey of 950

Table 2. Continued.

<i>Independent Variable</i>	<i>Employer Response to Question about Phased Retirement (Q1):</i>				<i>Fraction Missing in Full Sample (5)</i>
	<i>"Yes" or "In Some Cases"</i>		<i>"No"</i>		
	<i>Mean<sup>3</sup> (1)</i>	<i>Standard Error (2)</i>	<i>Mean<sup>3</sup> (3)</i>	<i>Standard Error (4)</i>	
<b>F. Demographic Characteristics of Work Force</b>					
Percent of All Who Are White-Collar	0.636	0.012	0.589	0.026	0.013
Percent of White-Collar Who Are Union	0.163*	0.013	0.291	0.033	0.084
Are under Age 35	0.296	0.007	0.265	0.017	0.066
Are over Age 54	0.206	0.006	0.219	0.015	0.057
Are Female	0.587*	0.010	0.527	0.022	0.036
Work Part-Time	0.107*	0.006	0.059	0.013	0.038
Have Job Tenure < 4 Years	0.303	0.010	0.280	0.023	0.047
Have Job Tenure > 15 Years	0.197	0.009	0.232	0.019	0.020
<b>G. Human Resource Policies and Practices</b>					
Flexible Starting Time Is Possible	0.755*	0.016	0.545	0.039	0.015
Job Sharing Is Possible	0.568*	0.019	0.242	0.034	0.033
Paid Maternity Leave Is Possible	0.603	0.018	0.625	0.038	0.027
Paid Paternity Leave Is Possible	0.372	0.018	0.417	0.039	0.051
Unpaid Leave Beyond the FMLA Is Possible	0.758*	0.016	0.661	0.038	0.046
Paid Sick Leave	0.892	0.012	0.858	0.027	0.004
Provides Health Insurance to Regular FT Employees	0.971	0.006	0.977	0.011	0.000
Provides Health Insurance to Regular PT Employees	0.523*	0.019	0.425	0.040	0.055
Provides Health Insurance to Retirees	0.417*	0.019	0.562	0.040	0.063
Provides Paid Vacation to Regular FT Employees	0.943	0.009	0.912	0.022	0.003
Provides Paid Vacation to Regular PT Employees	0.602*	0.019	0.446	0.040	0.077
Current Employees Favored for New Job Openings	0.793	0.015	0.721	0.036	0.024
45 Year Old Is Likely to Remain Until Retirement	0.720	0.017	0.730	0.035	0.020
Provides Formal or Structured Training	0.846	0.013	0.832	0.029	0.005
Provides Above Average Total Compensation	0.260	0.016	0.297	0.036	0.019

<sup>3</sup>Column (1) indicates the fraction of those establishments that responded "yes" or "in some cases" to Q1 that had the row characteristic. Thus, the industry fractions sum to 1, as do the region, establishment size, organizational size, and pension type fractions. Column (3) indicates the fraction of those establishments that responded "no" to Q1 that had the row characteristic. Entries are computed with sample weights and are adjusted for missing data.

\*The difference between the means in columns (1) and (3) is statistically significant at the .05 level.

establishments suffers from missing data; a small fraction of the respondents answered "not applicable" or "don't know" to several of the questions. The last column in Table 2 presents this fraction for each variable. For most of the variables that come from

the initial Dun and Bradstreet sampling universe—for example, establishment size or industry—there are no missing data. For other variables, like percent union, missing data are an issue. Of course, that raises concerns about biased parameter estimates

in multivariate models.<sup>9</sup> The best way to address this problem is for it not to happen, that is, for data to be collected in such a way that each respondent provides complete answers to each question. In actual surveys, however, despite every effort, such perfection is not possible.

In estimating the subsequent multivariate models we implement multiple imputation, which is a very good—albeit still imperfect—way to handle the problem. This methodology was developed by Rubin (1987).<sup>10</sup> As applied to the current problem, multiple imputation involved a four-step procedure:

1. Estimate a parametric imputation model that can be used to generate imputed values for the missing data.
2. Using parameters drawn from the relevant Bayesian posterior distribution as well as a random draw from the relevant residual distribution, impute values for the missing data, thereby creating a new data set with no missing data.
3. Repeat the second step  $K$  times, thereby creating  $K$  data sets with no missing data.
4. Estimate models in each of the  $K$  data sets, compute the average of each estimated coefficient across the  $K$  data sets, and use the variation in those estimates to obtain the standard error of the estimated coefficients.

A key assumption underlying multiple imputation is that the mechanism generating the missing data is “ignorable,” and a necessary condition for this is that the data are missing at random (MAR). To see this, let  $Y$  be a variable that is sometimes miss-

ing, and let  $X$  be a vector of variables that are always observed. Then, as in Schafer (1997) and Allison (2002), data are missing at random if  $\Pr(Y \text{ missing} | Y, X) = \Pr(Y \text{ missing} | X)$ . When the data are MAR, multiple imputation produces estimates that are consistent, asymptotically efficient, and asymptotically normal (Rubin 1987, Chap. 4). While one could reasonably object to the MAR assumption, it should be recognized that when correcting for missing data, one must make assumptions, and that due to the missing data, those assumptions cannot be checked. Advantages of multiple imputation are that the method is based on a statistical theory, it is straightforward to apply, and assumptions are explicit.

To implement multiple imputation for this paper, we first estimated a parametric imputation model; this was a multivariate normal model with 72 variables, 39 of which had missing data.<sup>11</sup> After performing several diagnostic checks and transforming variables when appropriate (see Allison 2002:39–40 for a discussion of these issues), we used a SAS procedure called Proc MI to estimate the imputation model, to randomly draw parameter values from the posterior distribution of estimated means and covariances, and to impute all variables simultaneously. The results (Table 3) are based on five data sets with imputations for the missing values.

An alternative way to handle the problem of missing data is through listwise deletion, whereby any observation with missing data is excluded from the analysis. Listwise deletion is inferior to multiple imputation in that it does not use all of the non-missing

<sup>9</sup>Since the response rate in the survey was 61%, a related concern is bias arising from unit nonresponse. The Dun and Bradstreet Strategic Market Record—the sample universe—contains information on the establishments that did not respond. Thus, we were able to experiment with computing sample weights from a model of the probability of response. The results in Tables 2 and 3 were virtually unaffected. As such, this paper focuses on multiple imputations for item nonresponse.

<sup>10</sup>See Brownstone and Valletta (2001) for an informative introduction to the methods and the literature.

<sup>11</sup>Survey variables were included either if they were used in Table 3 or if they were correlated with one or more of the Table 3 variables, with the absolute value of the correlation coefficient being .2 or above. Some examples of the latter: a variable indicating that a full-time white-collar employee over 55 had been hired in the previous three years, a similar variable for a part-time employee, a variable indicating that the employer provided retiree health insurance, a variable indicating that the establishment employed sales people, and a variable indicating whether any full-time white-collar employee had retired in the previous three years.

data. Moreover, even if the data are missing at random, listwise deletion can yield biased parameter estimates. Application of listwise deletion in the subsequent multivariate work reduces the number of observations from 950 to 662, but, as discussed below, yields results that are quite similar to those in Table 3.<sup>12</sup>

### Establishment Characteristics and Phased Retirement: Probit Results

Table 3 presents probit models of the probability that an employer permits phased retirement. The dependent variable equals 1 if the employer answered "yes" or "in some cases" to Q1 and is otherwise 0. All models incorporate multiple imputations. The first model includes variables that determine the economic and organizational environment within which the establishment operated. Included here are measures of industry, establishment size, whether the establishment was part of a larger organization, and whether the establishment had expanded or contracted over the previous three years.

The industry results indicate industry differences in opportunities for phased retirement. Public administration and transport/communications/utilities tended to be less willing to permit phased retirement than construction (the omitted industry). Recall that public administration excludes health, education, and social services; it includes establishments that provide government services. Examples in the data include an office of the Mississippi regional housing authority, a state department of corrections, and several fire and police departments. The results suggest that such government bureaucracies tended to be particularly unreceptive to phased retirement.

With regard to region, the first model reinforces a result in Table 2: establishments in different regions of the country differed in their propensity to permit phased retirement. The coefficients indicate that even when we control for other variables, employers in the central region of the country were particularly likely to say they could work out phased retirement.

With regard to establishment size, establishments with 1,000 or more employees had a higher propensity to permit phased retirement than establishments with 100—249 employees. Looking at the full set of establishment size coefficients, however, there is no evidence that the establishment size relationship is linear. Model 1 also indicates that establishments that had increased in size over the previous three years and those that were not part of a larger organization were more likely to permit phased retirement. However, these effects largely disappear as other explanatory variables are added to the model.

Model 2 introduces a set of four variables that proxy for minimum hours constraints: the percentage of white-collar workers who were part-time, the square of this percentage, a dummy variable indicating whether or not the employer permitted job sharing (whereby two part-time workers effectively split a job), and a dummy variable indicating whether or not the employer permitted flexible starting times. A likelihood ratio test rejects the null hypothesis that the coefficients on these variables are all zero at the .005 level. Consistent with expectations, the model indicates that phased retirement was more easily accommodated when there existed part-time white-collar jobs in the establishment. The percent part-time variable has a positive, albeit non-linear, relationship with the propensity for employers to permit phased retirement.<sup>13</sup>

<sup>12</sup>While multiple imputation deals with one form of error, there remain, of course, others. As in any survey, variables that are based on the answers of a knowledgeable respondent could suffer from measurement error. Much like missing data, depending on its distribution, measurement error could lead to biased estimates.

<sup>13</sup>The effect of this part-time percentage reaches a maximum at 42%. Since the part-time percentage had an average of 9.15 and a standard deviation of 15.97 in the sample, almost all of the establishments in the sample were on the upward-sloping part of the curve.

Table 3. Employer Response to Question about Phased Retirement (Q1)  
Was "Yes" or "In Some Cases": Probit Models with Multiple Imputations.

Variable Name	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
Industry of Establishment <sup>a</sup>										
Manufacturing	-0.5567	(1.1)	-0.7141	(1.3)	-0.5471	(1.1)	-0.5928	(1.2)	-0.6992	(1.3)
Transport, Communications, and Utilities	-1.1329	(2.2)	-1.3691	(2.5)	-1.1221	(2.1)	-1.1153	(2.1)	-1.2710	(2.3)
Wholesale and Retail Trade	-0.6381	(1.2)	-0.8920	(1.6)	-0.6273	(1.2)	-0.6871	(1.3)	-0.8844	(1.6)
Finance	-0.7043	(1.3)	-1.0435	(1.8)	-0.6906	(1.3)	-0.9863	(1.8)	-1.2135	(2.1)
Health, Education, and Social Services	-0.5020	(1.0)	-0.8148	(1.5)	-0.5067	(1.0)	-0.6843	(1.3)	-0.8701	(1.6)
Other Services	-0.3287	(0.7)	-0.6869	(1.3)	-0.2947	(0.6)	-0.2249	(0.4)	-0.4363	(0.8)
Public Administration	-1.2903	(2.5)	-1.6136	(2.9)	-1.2035	(2.3)	-1.1433	(2.2)	-1.3452	(2.4)
Region <sup>a</sup>										
Central	0.4837	(3.2)	0.5154	(3.2)	0.4791	(3.2)	0.3800	(2.4)	0.4148	(2.4)
South	0.1091	(0.8)	0.2069	(1.4)	0.1152	(0.8)	-0.1664	(1.1)	-0.0388	(0.2)
West	0.3066	(2.0)	0.3004	(1.8)	0.3167	(2.0)	0.2108	(1.3)	0.2355	(1.4)
Establishment Size <sup>a</sup>										
50 to 99 Employees	0.0818	(0.5)	0.0957	(0.6)	0.0673	(0.4)	0.1989	(1.2)	0.1936	(1.1)
100 to 249 Employees	-0.2206	(1.6)	-0.1941	(1.4)	-0.2192	(1.6)	-0.1856	(1.3)	-0.1628	(1.1)
250 to 999 Employees	0.0232	(0.1)	0.0078	(0.0)	0.0359	(0.2)	0.0924	(0.5)	0.0523	(0.3)
More Than 1,000 Employees	0.3029	(1.1)	0.2162	(0.7)	0.3583	(1.2)	0.4604	(1.5)	0.3873	(1.1)
Change in Size over Past 3 Years <sup>a</sup>										
Increase	0.2493	(2.1)	0.1706	(1.4)	0.2377	(2.0)	0.2521	(2.0)	0.2051	(1.6)
Decrease	0.0336	(0.2)	0.0260	(0.2)	0.0315	(0.2)	0.0494	(0.4)	0.0414	(0.3)
Establishment Is Part of a Larger Organization										
With Fewer Than 1,000 Employees	-0.4366	(3.1)	-0.3286	(2.2)	-0.4068	(2.8)	-0.2770	(1.8)	-0.1953	(1.2)
With More Than 1,000 Employees	-0.1993	(1.6)	-0.1305	(1.0)	-0.1692	(1.4)	-0.0097	(0.1)	0.0244	(0.2)
Proxies for Minimum Hours Constraints										
Percent Part Time			0.0377	(3.9)					0.0354	(3.5)
Square of Percent Part Time			-0.0004	(3.7)					-0.0004	(3.4)
Permit Job Share			0.6083	(4.9)					0.6774	(5.2)
Permit Flexible Start Time			0.4125	(3.7)					0.3277	(2.7)
Pensions <sup>a</sup>										
Defined Benefit (DB) Only					-0.1298	(1.0)			-0.0047	(0.0)
Employees Have Both DB and DC					-0.3714	(2.5)			-0.3017	(1.9)
DB for Some Employees; DC for Others					-0.3470	(1.5)			-0.1420	(0.6)
No Pension, NA					-0.1489	(0.9)			-0.2060	(1.1)
Demographics of the Establishment										
Percent of All Who Are White-Collar (WC)							0.0012	(0.6)	0.0012	(0.6)
Percent WC Who Are below Age 35							0.0012	(0.4)	0.0019	(0.6)
Percent WC Who Are Above Age 54							0.0040	(1.2)	0.0042	(1.2)
Percent WC with Job Tenure < 4 Yrs							-0.0006	(0.2)	-0.0007	(0.3)
Percent WC with Job Tenure > 15 Yrs							-0.0059	(2.0)	-0.0032	(1.0)
Percent WC Who Are Female							0.0037	(1.4)	0.0018	(0.7)
Percent WC Who Are Union							-0.0094	(5.2)	-0.0095	(4.9)
Constant	1.3839	(2.8)	1.0303	(1.9)	1.4757	(2.9)	1.4148	(2.6)	1.0808	(1.9)
Log Likelihood	-408.1375		-370.3404		-404.4201		-385.9625		-351.0545	
Pseudo R Square	0.0886		0.1730		0.0969		0.1381		0.2161	
N	950		950		950		950		950	

<sup>a</sup>The excluded industry is construction, the excluded region is East, the excluded establishment size is 20–49, the excluded change in size is no change, and the excluded pension is defined contribution.

In addition, note that even after we control for percent part-time, both the “job sharing” and “flexible start-time” variables have positive and statistically significant coefficients. Employers who permitted flexible work schedules were more willing to permit phased retirement. Finally, note that the result on flexible starting times is consistent with Michael Hurd’s argument that this type of flexibility is linked to the absence of team production and thereby phased retirement. In sum, Model 2 yields strong support for the hypothesis that phased retirement is associated with minimum hours constraints.

Model 3 includes the four dichotomous (0,1) pension variables that were introduced in Table 2. The excluded pension type is “DC only.” Given the previous arguments regarding defined benefit pensions, one would certainly expect a negative coefficient on “DB only” (a defined benefit plan is the only plan available) and “DB or DC” (both a defined benefit and a defined contribution plan are available). That is the case, but the t-statistics are surprisingly small; a likelihood ratio test is unable to reject the null hypothesis that the coefficients on all four pension measures are zero at the .10 level. In comparison to the Model 2 results on the minimum hours constraint hypothesis, results on the pension hypothesis are much less robust. Indeed, the data provide almost no support for the pension hypothesis.

Model 4 introduces a vector of seven variables that characterize the demographics of the establishment’s white-collar work force. From the employee demand hypothesis, one would expect establishments where a large fraction of the work force was interested in phased retirement to be more likely to offer phased retirement. Since we know from population surveys like the Health and Retirement Survey that older employees frequently express interest in phased retirement, we should see strong positive relationships between the percentage of white-collar workers over 54 and phased retirement policies. Similarly, there should be evidence of a positive relationship between the percent of workers with long job

tenures and phased retirement. The evidence in Model 4 does not support these expectations. The t-statistics are small and the signs are often inconsistent with expectations. There is no evidence here in favor of the employee demand hypothesis.

It is important to be cautious in interpreting this result. Employee preferences almost certainly play a role in whether or not employees actually take phased retirement. The point is not that employee demands have nothing to do with phased retirement, but rather that predictions concerning the age and tenure of the work force—predictions that flow logically from an employee demand hypothesis—find no support in these data.

A surprise in Model 4 is the negative and statistically significant coefficient on percent covered by a collective bargaining agreement. Even after we control for region, industry, and establishment size, there is evidence that unionized establishments tended not to permit phased retirement. While the literature on phased retirement does not address the effect of unions, there may be a good explanation. The establishments in this survey preferred to arrange phased retirement as part of an informal “deal” with a specific older worker. Unions tend to frown on such arrangements, favoring negotiated policies that apply to broad classes of workers. One explanation for this result is that employers are less likely to permit phased retirement on such terms.<sup>14</sup>

Finally, Model 5 includes all the variables in a single model. The results reinforce the conclusion that the minimum hours constraint hypothesis provides a good explanation for between-establishment differences in the propensity to permit phased retirement. In contrast, there is no substantive support for either the pension hypothesis or the employee demand hypothesis. This conclusion is not an artifact of multiple imputation. If listwise deletion is applied, coefficients and t-statistics change slightly, but the results continue to be sup-

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<sup>14</sup>We are indebted to Nick Salvatore for suggesting this explanation.

portive of the minimum hours constraint hypothesis and unresponsive of the pension and employee demand hypotheses.

### Econometric Issues

One econometric concern associated with Table 3 is the robustness of the pension results. For example, suppose the four pension dummies are replaced by a single dummy indicating that the establishment has a DB pension. The results are robust with respect to this change in the sense that the single dummy is negative and statistically significant in Model 3 (t-statistic = 2.0), and less negative and statistically insignificant (t-statistic = .7) in Model 5. A related test of robustness excludes the percentage union variable. In Model 5, this test slightly increases the magnitude of the coefficients on DB pension dummies, and has virtually no effect on the measures of minimum hours constraints.

Another econometric issue is the possibility that the variation of explanatory variables in this cross-section of establishments reflects unobserved differences in technology. Although measures of industry, establishment size, organization size, and region help to control for some differences in technology, unobserved variation undoubtedly remains. This is not a problem for the minimum hours constraint hypothesis, since that first hypothesis predicts an association between minimum hours constraints (as indicated by the proxy variables) and phased retirement policies that is due to differences in technology ( $\theta_j$ ). One can conclude from these results that the predicted association exists. Since we know little about whether differences in phased retirement policies are associated with minimum hours constraints, that is useful. This result indicates that Gustman and Steinmeier were right: when employers restrict opportunities for phased retirement, they are not targeting older workers with that policy. The policy is, rather, part of a more general policy of restricting flexible hours for workers of any age. Technology undoubtedly influences employer decisions to introduce such policies.

Note, however, that one cannot draw conclusions about causation from this evidence. In particular, these results do not permit an examination of how, say, a legislatively imposed change in minimum hours constraints (for example, a requirement that employers offer job sharing) affects an employer's phased retirement policies.

Unobserved variation in technology could conceivably be a problem for the other two hypotheses. With regard to the employee demand hypothesis, certain technologies may attract or retain certain types of workers. For example, technologies that are compatible with part-time work may attract workers with a taste for part-time work. This sorting process could conceivably lead to a spurious correlation between phased retirement policies and work force demographics. The evidence in Table 3, however, is inconsistent with such a pattern. If unobserved variation in technology were driving the results on work force demographics, then one would expect the coefficients on these variables to be statistically significant in Model 4 (which excludes the proxies for minimum hours constraints) and quite different in Model 5. In fact, these coefficients are nearly the same in the two models. A similar point can be made for pensions; although not shown in Table 3, including or excluding the proxies for minimum hours constraints has little effect on the pension dummies.

Finally, reverse causation may be a concern when using percent part-time to test the minimum hours constraint hypothesis. This should not be a problem for the variables indicating flexible starting times and job sharing, since these variables come from questions about policies that apply to both young and old workers. It is unlikely that a willingness to work out phased retirement would cause the employer to institute such across-the-board policies. Reverse causation could conceivably be a problem for the percentage of part-time workers; an establishment may have more part-time workers *because* the employer is willing to work out phased retirement. One way to address this concern is to exclude percent part-time from the proxies for the minimum hours

constraint. When this is done, the coefficients on flexible starting times and job sharing increase slightly in both magnitude and statistical significance.<sup>15</sup> Thus, even without the part-time variable, there is strong support for the first hypothesis.

### Conclusion

We have used a new survey of employers to examine how and why establishments differ in their willingness to permit an older full-time white-collar worker to take phased retirement. The results indicate that employers were often willing to work out phased retirement, but primarily as part of an informal arrangement. These informal arrangements imply extensive employer control; whether phased retirement is possible can depend on a worker's skill, job classification, the availability of part-time work, or business conditions.

This preference for informal mechanisms may help explain one surprise in the empirical work: the greater the percentage of an establishment's white-collar workers who were covered by a collective bargaining agreement, the smaller the probability that the establishment permitted phased retirement. Unions often prefer the codification and consistency of a contract. That preference for policies and practices that are codified and consistent may have the effect of limiting opportunities for phased retirement.

The results also indicate that minimum hours constraints are important. Establish-

ments that employed part-time white-collar workers, that allowed job sharing, and that had flexible starting times were much more likely than other establishments to permit phased retirement. As such, these results are closely tied to a theoretical and empirical literature that places technology at the center of an explanation for rigidity in work hours (for example, technologies that involve team production).

In addition, the results provide no real support for either an employee demand hypothesis or the hypothesis that defined benefit pensions limit opportunities for phased retirement. The latter is particularly surprising. While the Table 2 cross-tabulations indicate that establishments with defined benefit pensions were less likely to permit phased retirement, this result effectively disappears in the multivariate model of Table 3. This is in part because defined benefit pensions are positively correlated with unions. Once percent union is in the model, pensions become less important. While defined benefit pensions undoubtedly affect opportunities for phased retirement, there is nothing in these results to indicate that they alone are a major barrier.

Consistent with Tables 2 and 3, it appears that the establishments that were most willing to permit phased retirement were unlikely to be on a list of nationally recognized leaders in innovative human resource policies. They tended to be non-union, to permit flexible starting times, to have ample opportunities for part-time work, to not be part of a large organization, and to offer wages and fringe benefits that were about average for the local labor market. They were apparently comfortable with flexible hours for workers of all ages, and consequently did not see major problems with phased retirement.

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<sup>15</sup>Similarly, if both percent part-time and job sharing are excluded, the coefficient on flexible starting time increases slightly in magnitude and statistical significance.

**Appendix**  
**Details on Survey Variables**

*The pension variable:*

Respondents were asked whether white-collar workers age 55 and over were covered by a traditional defined benefit plan, a cash balance plan, a defined contribution plan, or something else. In addition, respondents were provided with a list of possible pension types (401-K, ESOP, and so on). Given this information, we made our own assessment of whether the establishment had a defined benefit or defined contribution plan. For example, if the respondent told us that the pension was a cash balance plan, then regardless of what the respondent said about it being a defined benefit or defined contribution, the pension was classified as a defined benefit plan. (In the empirical work we did, however, test the sensitivity of the analysis to the classification of cash balance plans as defined benefit plans. We found little difference using alternative classifications.) Since many firms have multiple plans (for example, a traditional defined benefit as well as a 401-K), the interviewers also sought to learn about and classify each of the plans. Some respondents were able to provide detailed answers, while others had problems remembering the characteristics of their pension plan. For example, one respondent told us that the pension was the Arkansas teacher retirement plan. In that case we checked with Arkansas to find out whether the plan was a defined benefit or defined contribution plan.

*Demographics of the establishment:*

Respondents were asked for their best estimates of the fraction of the establishment's work force that fell into different demographic categories. For example,

—About (what percent/how many) of the regular full- and part-time employees at your establishment are white-collar employees? (probe: what is your best estimate?)

—About (what percent/how many) of the white-collar employees at this establishment are age 55 or over? (probe: what's your best estimate?)

The same form of question was asked for white-collar employees under age 35, women, coverage by a collective bargaining agreement, worked 3 years or less (15 years or more), and work fewer than 35 hours per week.

*HR policies:*

Respondents were asked the following question:

First, in order to make these questions more concrete, please think of a secure, full-time white collar position in your establishment that is occupied by an employee in good standing. Either as a matter of formal or informal policy, would your establishment allow this employee:

a) flexible starting time?

Yes/ In Some Cases/ No/ Don't Know; Not Sure/ Refuse; NA

b) job sharing, where two employees split one full-time job?

[same possible answers as for flexible starting time]

The Table 2 variable "Provides above Average Total Compensation" is the percentage who selected option (1) when presented with the following question:

Compared to equivalent white-collar employees in similar organizations in your geographic area, would you say total compensation at your establishment is typically: (1) above the average total compensation, (2) at the average ..., (3) below the average ...

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