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ABSTRACT

Who Among White Collar Workers Has an Opportunity for Phased Retirement? Establishment Characteristics*

Utilizing a new survey of employers, this paper examines how and why establishments differ in their willingness to permit an older full-time white-collar worker to take phased retirement. Phased retirement means that 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. The survey indicates that employers are often willing to permit phased retirement, but primarily as an informal arrangement. The results also indicate that opportunities for phased retirement are greater in establishments that employ part-time white-collar workers, allow job sharing, and have flexible starting times. Opportunities tend to be more limited in establishments where white collar workers are unionized, and where the establishment is part of a larger organization.

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Who Among White Collar Workers Has an Opportunity for Phased Retirement? Establishment Characteristics

Phased 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.¹ Yet, all indications are that phased retirements are unusual. Studies from the 1980s indicate that within a cohort of older workers, less than ten percent took phased retirement; most people simply moved from full-time work to full-time retirement.² Nothing in the more recent data indicates a substantive increase in these numbers.

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 percent of the full-time workers between 55 and 65 said their employers would permit reduced hours.³ 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) and 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 percent 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).

Accompanying these studies of individual workers is a small literature that investigates phased retirement through employer-level interviews. For example, there have been several surveys of human resource executives in firms that belong to the Conference Board (see Rhine (1978, 1984), Christensen (1989), and Barth, McNaught, and Rizzi (1993)). These surveys included phased retirement along with several other topics.⁴ More recent additions to the literature include two studies of clients of major consulting firms and two sets of case studies, one published by the AARP and the other by the consulting firm Watson and Wyatt.⁵

While these employer surveys are useful, many questions remain. Specifically, (a) the employer surveys are not based on representative samples. They probably over-sample large firms with progressive human resource policies. A representative sample may yield different results. (b) The surveys often ask about hours reductions before official retirement but not about rehiring of retirees. It is conceivable that such rehires are

a quantitatively more important form of hours reductions. (c) There is little information on whether employers are selective in offering phased retirement to workers. Are specific types of workers in specific types of jobs more likely to have an opportunity for these forms of reduced hours? (d) The studies often focus on formal policies without delving into whether there are informal ways to adjust working hours. (e) This literature does not provide a clear answer to the question of why some employers offer phased retirement while others do not. Do pensions play a role? What job characteristics are particularly important? The forces behind employer behavior remain murky.

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 2002.⁶ Respondents were asked about establishment characteristics, pensions, an array of human resource policies, as well as policies regarding phased retirement. This paper utilizes these data to examine how and why establishments differ in their willingness to permit an older full-time white-collar worker to shift to part-time work.

II. 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 framework remains, however, useful for identifying important explanatory variables and interpreting results. This section concentrates on hypotheses that explain why establishments may differ in their policies toward phased retirement. 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.⁷

There exist several potential explanations for why employers may limit opportunities for phased retirement. One of the earliest, introduced by Gustman and Steinmeier (1983), hypothesizes that some employers have minimum hours constraints. Such employers require their employees to work a minimum number of hours per week, month and/or year. Regardless of age, employees in these jobs can only reduce hours by quitting and taking a different job. Thus,

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

There are at least three explanations for why employers impose minimum hours constraints.

1. **Team Production.** 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 example, other jobs like software development or police services require people to work the same hours so that they can interact as members of a team. One way to think about team production and minimum hours constraints is in terms of technology.⁸ Some technologies (e.g., continuous process operations) may be most efficiently exploited by a team.⁹
2. **Quasi-Fixed Employment Costs.** Quasi-fixed employment costs do not change with hours worked. Examples are hiring and training costs. Economic theory predicts that while employers will initially bear a share of these costs, they will only do so in anticipation of recovering the cost over the duration of the employment relationship. A minimum hours constraint may be part of this cost recovery; if an employee works less than the minimum hours constraint, then the employer may not fully recover the initial fixed cost. In fact, there exists evidence that the proportion of a firm's workforce that is part-time declines with the magnitude of hiring and training costs (Montgomery, 1988).
3. **Supervisory Costs.** Another reason for minimum hours constraints -- a reason quite similar to quasi-fixed costs -- is supervisory cost. Nollen, Eddy and Martin (1977) indicate that the problem is primarily one of scheduling complexities. "Either there is more scheduling of workers to be done because there are more

workers or scheduling is harder because part-time workers are not continuously available or work irregular schedules.” (page 45)

Empirical work requires observable proxies for minimum hours constraints.

Obvious proxies are variables that indicate the extent to which an establishment permits less than full-time work.

While minimum hours constraints apply to all workers, other barriers to phased retirement may be peculiar to older workers. Particularly important are defined benefit pension plans. 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 US General Accounting Office (2001). Thus,

Hypothesis 2: 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, one author calculates that in such a system, a 10 percent decrease in annual earnings can translate into a lifetime wealth loss of 150% of annual earnings.¹⁰ 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, a person who works half time in the final years before retirement receives lower benefits than would be the case if he or she had worked full time (because of lower contributions to that 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 59½.¹¹

Given this, for empirical purposes it is necessary to determine 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.

A final hypothesis is that phased retirement policies are primarily a product of worker demand for such policies, and are, in consequence, a function of workforce demographics. Different workers have different needs. If a large proportion of an establishment's workforce is interested in certain types of programs or fringe benefits, then it can be in the employer's interest to respond. Thus,

Hypothesis 3: **Employee Demand.** Establishments with employee groups that want phased retirement are more likely to permit phased retirement, *ceteris paribus*.

This hypothesis is linked to the literature on work/family programs. In recent years employers have increasingly supported child care programs for their employees. This is at least in part a response to the needs of employees who are increasingly parents in two-earner families. Indeed, Osterman (1995) finds that the greater the percent female in an establishment's workforce, the more likely it is that the establishment will have such policies.

Phased retirement policies could also be a response to worker preferences. By this argument, phased retirement should be more likely in establishments with large proportions of older workers and less likely in establishments with large proportions of young workers. Similarly, since the available evidence suggests that women tend to be more interested in phased retirement than men (Hutchens and Dentinger, 2003), phased retirement should be more likely in establishments where the workforce is largely female. For empirical purposes this hypothesis can be tested with data on the demographic characteristics of an establishment's workforce.

III. 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 is 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 practice. In order to obtain detailed information in a relatively brief interview, the survey focused on white-collar workers.¹² 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 are age 55 or more.¹³ The latter restriction insures that questions about phased retirement are relevant to the establishment's current situation.¹⁴

The sample universe was the Dun and Bradstreet Strategic Marketing Record for December 2000. 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. In order to insure adequate numbers of large establishments, the sample was stratified by establishment size. The subsequent results are weighted to insure representative samples. 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 is best able to answer questions about flexible work schedules and employee benefits, for example a human resource manager or benefits manager. Identifying a respondent was usually easiest in small establishments. In large establishments, especially those that were part of a complex organization, it was sometimes necessary to rely on multiple respondents. Interviews were conducted with 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 to complete.

The overall response rate was 61%. Most of the nonresponse occurred when screening establishments for eligibility (e.g., 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.¹⁵

Measuring Phased Retirement

After asking a series of question 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, perhaps, be noted that whereas phased retirement usually means gradual reduction in hours, this question asks about a shift from full-time to part-time. In designing the survey, it was 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%) said “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, this can be true with formal policies. Formal policies 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 an 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?

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 insured that when a respondent said “no” they really meant that such an arrangement could not be worked out

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. The goal in this paper is to understand when and why an opportunity for phased retirement exists. 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 can not 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 interest 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 (less) employees, the percentage is 77%. (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.¹⁶ For example, the first entry in column 1 indicates that two percent of the establishments that allowed phase retirement were in the construction industry. While the first entry in column 3 indicates that 0% of the establishments that did *not* allow 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 for establishments that did not allow phased retirement. The major exceptions are public administration and transportation, communications and utilities; establishments in these industrial sectors make up a comparatively *small* share of establishments that permit phased retirement. In contrast establishments in the service sector, especially those in the health, education, and social services, make up a comparatively *large* share of those that permit phased retirement.

The regional information in part B of Table 2 suggests that establishments that permit phased retirement have a different regional distribution than those that do not. Phased retirement is more likely in the central region (e.g., Minnesota, Ohio, Illinois) and less likely in the south (e.g., Texas, Alabama, Florida).

Parts C and D of Table 2 provide information on establishment and organization size. There is no evidence that opportunities for phased retirement are greater in small establishments; the share of small establishments in column 1 is roughly the same as the

share of small establishments in column 3. As one might expect, however, there is evidence that establishments that expanded in the recent past are more likely to have opportunities for phased retirement than establishments that recently contracted. Since an establishment may be part of a larger organization, it is important to also consider the effect of organization size. Part D indicates that opportunities for phased retirement tend to decline with size of organization; the share of establishments that are part of large organizations in column 1 is less than the share of establishments that are part of large organizations in column 3). Note also that establishments that are part of larger organizations are less likely to permit phased retirement.

Part E of Table 2 examines pensions and phased retirement. Since a key hypothesis in this work is that pensions are a major determinant of an employer's phased retirement policy, considerable effort went into obtaining accurate pension information. 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 given a list of possible pension types (401-K, ESOP, etc.). 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. 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.

Table 2 uses the pension data to classify establishments in terms of five categories. The first two categories, “defined benefit only” and “defined contribution only,” indicate that the establishment offers only one type of plan, while the third category “both DB and DC” indicates that the establishment offers employees both a defined benefit and a defined contribution plan. The fourth category, “DB for some; DC for others” indicates that the establishments offers people in some white collar occupations one type of plan, while offering another type of plan (or combination of plans) to workers in other occupations. For example, secretaries might be covered by a DB plan while professionals have both a DB plan and a DC plan (like a 401-K). The final classification “no pension” indicates that the establishment either had no plan or, despite our best efforts, we could not determine the nature of the plan.

Since, as noted above, phased retirement can be difficult with a defined benefit plan, one would expect phased retirement to be more likely for establishments that primarily use defined contribution plans. The results in Table 2 support this, although, at least in this initial univariate look at the data, the relationship is surprisingly weak. Of the establishments that report that phased retirement is possible (not possible), 46% (38%) have only a defined contribution pension. Interestingly, however, the analogous numbers for establishments that only have defined benefit plans are 24% and (21%). There is no evidence in this table that employers with defined benefit pensions are especially averse to phased retirement.

Workforce 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 fall into different demographic categories.¹⁷ The percent of the workforce that is white collar is high and roughly the same in the two types of establishments. There are, however, clear differences for establishments with different types of white-collar workers. In particular, unions matter. Among establishments that permit phased retirement, on average 16% of the white collar workforce is covered by a collective bargaining agreement. This percentage is much higher (29%) among establishments that do not permit phased retirement. As one might expect, the percentage of white-collar workers who are part-timers is somewhat higher in establishments that permit phased retirement. Note also that in establishments that permit phased retirement have a higher percentage of women and a somewhat lower percentage of older workers and long tenure workers.

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 when an establishment permits flexible hours, it also tends to be open to phased retirement. Of those establishments that permit phased retirement, fully 75 percent also permit flexible starting times, 57 percent permit job sharing (where two employees split a single full-time job), and 76 percent permit unpaid leave beyond the Family Medical Leave Act. These percentages are much lower in establishments that do not permit phased retirement. Moreover, establishments that permit phased retirement tend to have policies that are supportive of part-time work, e.g., health insurance and paid vacations to part-timers.

Interestingly, however, several other human resource policies do not differ between the two types of establishments. This includes paid maternity and paternity leave, sick leave, the likelihood that a 45 year old will stay with the establishment until retirement,¹⁸ and provision of formal or structured training. Perhaps most surprising are the results on retiree health insurance and total compensation. Establishments that permit phased retirement are *less* likely to provide health insurance to retirees. Perhaps these establishments are using health insurance to encourage full retirement; they are not particularly interested in part-time work for older employees. We also asked establishments to compare their total compensation for white-collar workers with that of similar organizations in the geographic area.¹⁹ Interestingly, establishments that do *not* permit phased retirement were slightly *more* likely to report that their employees were comparatively well paid.

In summary, the establishments that are most willing to permit phased retirement are unlikely to be seen as exemplars of progressive human resource policies. They tend to be non-union, to permit flexible hours, to have ample opportunities for part-time work, and to offer wages and fringes that are about average for the local labor market.

IV. Establishment Characteristics and Phased Retirement: Probit Results

Table 3 presents probit models of the probability that an employer permits phased retirement. The dependent variable takes the value “one” if the employer answered “yes” or “in some cases” to Q1 and is otherwise “zero”. Cases with any missing data are excluded from this analysis, thus the sample size drops to 662 observations. The first model includes variables that determine the economic and organizational environment

within which the establishment operates. Included here are measures of industry, establishment size, whether the establishment is part of a larger organization, and whether the establishment has expanded or contracted over the past 3 years.

The industry results indicate that, with the exception of public administration, an establishment's industrial classification has little to do with phased retirement. Recall that public administration excludes health, education, and social services; it should be viewed as indicating an establishment that provides government services like planning, regulation, protection, and tax collection.²⁰ The results suggest that such government bureaucracies tend to be unreceptive to phased retirement.

With regard to region, the first model reinforces the surprise in Table 2: establishments in different regions of the country differ in their propensity to permit phased retirement. The results indicate that even after controlling for other variables, employers in the central region of the country are particularly likely to say that they could work out phased retirement.

With regard to establishment size, establishments with more than 1000 employees have a higher propensity to permit phased retirement than establishments with 20 – 50 employees. Looking at the full set of establishment size coefficients, however, there is no evidence that the establishment size relationship is linear. There is also no strong evidence to support the plausible hypothesis that expanding (contracting) establishments are more (less) likely to permit phased retirement. Although the coefficients have expected signs, they are not statistically different from zero at conventional levels.

Model 1 also indicates that establishments that are part of a larger organization tend to be less likely to permit phased retirement. Interestingly, this effect appears to be particularly strong in organizations with less than 1000 employees.

Model 2 introduces a set of four variables that proxy for minimum hours constraints: the percentage of white collar workers who are part-time, the square of this percentage, a dummy variable indicating whether or not the employer permits job sharing (whereby two part-time workers effectively split a job), and a dummy variable indicating whether or not the employer permits flexible starting times. A likelihood ratio test rejects the null hypothesis that the coefficients on these variables are all zero at a .005 level. Consistent with expectations, the model indicates that phased retirement is more easily accommodated when there already exist 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.²¹ The positive coefficient on the job sharing variable is also in line with expectations; employers who permit job sharing often see phased retirement as something that can be worked out within the framework of job sharing. Finally, the results indicate that employers who permit flexible starting times are also more likely to permit phased retirement. This is consistent with Michael Hurd's argument that flexible starting times in part reveal the absence of team production.²² By implication establishments with flexible starting times should be more likely to permit phased retirement. Model 2 clearly yields strong support for the hypothesis that phased retirement is tied to minimum hours constraints.

Model 3 introduces four dichotomous (0,1) pension variables that were described in the discussion of Table 2. These are, "DB only" (a defined benefit plan is the only plan

available), “DB or DC” (both a defined benefit and a defined contribution plan are available), “DB for some, DC for others” and “no pension.” The excluded pension type is “DC only.” Given the previous arguments regarding defined benefit pensions, one would expect the coefficient on “DB only” and “DB or DC” to be negative. That is the case, but the t-statistics are surprisingly small. Indeed, a likelihood ratio test is unable to reject the null hypothesis that the coefficients on all four pension measures are zero at a .25 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 demographic characteristics of the establishment’s white-collar workforce. From the employee demand hypothesis, one would expect establishments where a large fraction of the workforce is 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 percent of white-collar workers over 54 and phased retirement policies. Similarly, there should be evidence of a positive relationship between percent with long job tenures and phased retirement. The evidence in Model 4 does not support that. The t-statistics are small and signs are often inconsistent with expectations. There is no evidence here in favor of the employee demand hypothesis.²³

It is important to be cautious about this result. Employee preferences almost certainly play a role in whether or not employees actually take phased retirement. Moreover, they may indirectly influence employer acceptance of phased retirement by

influencing broader policies like job sharing or flexible starting times. The point is not that employee demands have nothing to do with phased retirement. Rather the point is that predictions concerning the age and tenure of the workforce -- predictions that flow logically from an employee demand hypothesis -- find no support in these data. If employee demands are influencing employer policies toward phased retirement, then they must be operating in a less direct fashion.

A surprise in model 4 is the negative and statistically significant coefficient on percent covered by a collective bargaining agreement. Even after controlling for region, industry, and establishment size, there is evidence that unionized establishments tend to not permit phased retirement. While the literature on phased retirement does not address this, there may be a good explanation. The establishments in this survey prefer 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 those terms.²⁴

Finally, Model 5 includes all of 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 support for either the pension hypothesis or the employee demand hypothesis.

V. Multiple Imputations and Missing Data

As in most surveys, the survey that underlies the above results suffers from missing data. Although data were collected from 950 establishments, a small fraction of the respondents answered “not applicable” or “don’t know” to several of the questions. The above analysis addresses this through listwise deletion, whereby any observation with missing data is excluded. As a result, the analysis is based on 662 rather than 950 observations. Of course, that raises concerns about bias in the estimates.²⁵ The best way to address this problem is for it not to happen, i.e., collect data so that each respondent provides complete answers to each question. In actual surveys, however, despite every effort, such perfection is infeasible.

Here we explore a very good – albeit still imperfect – way to handle the problem: multiple imputation. This methodology was developed by Rubin (1987). See Brownstone and Valletta (2001) for a good introduction to the methods and the literature. 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 the Table 3 probit 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 mechanism generating the missing data is “ignorable,” and a necessary condition for this is that the data are

missing at random. To explain, let Y be a variable that is sometimes missing, and let X be a vector of variables that are always observed. Then data are missing at random if $\Pr(Y \text{ missing} | Y, X) = \Pr(Y \text{ missing} | X)$.²⁶ When the data satisfy this condition multiple imputation produces estimates that are consistent, asymptotically efficient, and asymptotically normal (Rubin (1987), Chapter 4). While one could reasonably object to the assumption that the data are missing at random, 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 to multiple imputation are that the method is based on a statistical theory, it is straightforward to apply, and the assumptions are explicit.

Appendix A provides additional detail on the multiple imputation methodology used here, and Appendix Table A.1 presents estimates of the Table 3 models after application of multiple imputations. Note that the Table A.1 models are estimated over 950 observations. While both coefficients and t-statistics differ between Tables 3 and A.1, the essential results are quite similar. In particular, there is no change in the importance of the minimum hours constraint hypothesis or in the unimportance of the pension and employee demand hypotheses.

Conclusion

This paper utilizes 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 are often willing to work out phased retirement, but primarily as part of an informal arrangement. These informal

arrangements can 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 two surprises in the empirical work: (1) establishments that are part of larger organizations are less likely to permit phased retirement, and (2) the greater the percent of an establishment's white collar workers that are covered by a collective bargaining agreement, the smaller the probability that establishment permits phased retirement. For different reasons, both unions and large bureaucracies often frown on informal arrangements. Unions usually prefer the codification of a contract, and large bureaucracies usually prefer the consistency imposed by a personnel policies handbook. 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. Establishments that already employ part-time white collar workers, that allow job sharing, and that have flexible starting times are much more likely to permit phased retirement. As such, these results are closely tied to a theoretical and empirical literature that places technology (e.g., team production, quasi-fixed employment costs, and supervisory costs) at the center of an explanation for rigidity in worker hours.

Moreover, the results provide no direct 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 are 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 and with large organizations. Once those variables are in the model, pensions cease to be important. While defined benefit pensions undoubtedly complicate phased retirement, there is nothing in these results to indicate that they alone are a major barrier.

Consistent with these findings, it appears that the establishments that are most willing to permit phased retirement are unlikely to be seen as leaders in innovative human resource policies. They tend to be non-union, to permit flexible starting times, to have ample opportunities for part-time work, to offer wages and fringes that are about average for the local labor market, and to not be part of a large organization. They are apparently comfortable with flexible hours for workers of all ages, and consequently do not see major problems with phased retirement.

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

Answer to Question 1:	# of Obs.	There is no formal policy (Decisions are <u>case-by-case</u>)	There is a formal written policy: that applies <u>to everyone</u>	but adjustments can be made in <u>individual cases</u>	Don't Know <u>or NA</u>	<u>Total</u>
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					

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

	Employer Response to Question about Phased Retirement (Q1):			
	"Yes" or "In Some Cases"		"No"	
	Standard		Standard	
	Mean ^a	Error	Mean ^b	Error
	(1)	(2)	(3)	(4)
A. Industry of Establishment				
Construction	0.02 *	0.01	0.00	0.00
Manufacturing	0.14	0.01	0.14	0.03
Transportation, Communications and Utilities	0.04 *	0.01	0.11	0.02
Wholesale and Retail Trade	0.13	0.01	0.13	0.03
Finance	0.06	0.01	0.05	0.02
Health, Education, and Social Services	0.39 *	0.02	0.27	0.03
Other Services	0.16	0.01	0.12	0.02
Public Administration	0.06 *	0.01	0.18	0.03
B. Region of Establishment				
East	0.18	0.01	0.20	0.03
Central	0.30 *	0.02	0.21	0.03
South	0.30 *	0.02	0.40	0.04
West	0.22	0.02	0.19	0.03
C. Size of Establishment				
20 to 49 employees	0.41	0.02	0.42	0.04
50 to 99 employees	0.25	0.02	0.22	0.03
100 to 249 employees	0.19	0.01	0.25	0.03
250 to 999 employees	0.10	0.01	0.10	0.02
More than 1000 employees	0.04 *	0.01	0.01	0.01
Number of Employees Decreased in Last 3 Years	0.16	0.01	0.21	0.03
Number of Employees Increased in Last 3 Years	0.39 *	0.02	0.26	0.03
D. Size of Organization				
Less than 100 employees	0.33 *	0.02	0.24	0.03
100 to 249 employees	0.15	0.01	0.13	0.03
250 to 999 employees	0.16	0.01	0.19	0.03
1000 to 4,999 employees	0.13	0.01	0.16	0.03
More than 5000 employees	0.24	0.02	0.27	0.03
Establishment is Part of a Larger Organization	0.33 *	0.02	0.47	0.04
E. Pension Type				
Defined benefit only	0.24	0.02	0.21	0.03
Defined contribution only	0.46 *	0.02	0.38	0.04
Both DB and DC	0.12 *	0.01	0.19	0.03
DB for some; DC for others	0.04 *	0.01	0.08	0.02
No pension, NA	0.14	0.01	0.14	0.03

a. 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.

b. This column indicates the fraction of those establishments that responded "no" to Q1 that had the row characteristic.

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

Table 2 (continued)
Descriptive Statistics on Establishments that Did and Did Not Permit Phased Retirement

	Employer Response to Question about Phased Retirement (Q1):			
	"Yes" or "In Some Cases"		"No"	
	Mean ^a	Standard	Mean ^b	Standard
		Error		Error
(1)	(2)	(3)	(4)	
F. Demographic Characteristics of Workforce				
Percent of All that are White Collar	0.64	0.01	0.59	0.03
Percent of White Collar that				
are Union	0.16 *	0.01	0.29	0.03
are Under Age 35	0.30	0.01	0.26	0.02
are Over Age 54	0.21	0.01	0.22	0.02
are Female	0.59 *	0.01	0.53	0.02
Work Part Time	0.11 *	0.01	0.06	0.01
have Job Tenure < 4 years	0.30	0.01	0.28	0.02
have Job Tenure > 15 years	0.20	0.01	0.23	0.02
G. Human Resource Policies and Practices				
Flexible Starting Time Is Possible	0.75 *	0.02	0.54	0.04
Job Sharing Is Possible	0.57 *	0.02	0.24	0.03
Paid Maternity Leave Is Possible	0.60	0.02	0.63	0.04
Paid Paternity Leave Is Possible	0.37	0.02	0.42	0.04
Unpaid Leave Beyond the FMLA is Possible	0.76 *	0.02	0.66	0.04
Paid Sick Leave	0.89	0.01	0.86	0.03
Provides Health Insurance to Regular FT Employees	0.97	0.01	0.98	0.01
Provides Health Insurance to Regular PT Employees	0.52 *	0.02	0.42	0.04
Provides Health Insurance to Retirees	0.42 *	0.02	0.56	0.04
Provides Paid Vacation to Regular FT Employees	0.94	0.01	0.91	0.02
Provides Paid Vacation to Regular PT Employees	0.60 *	0.02	0.45	0.04
Current Employees Favored for New Job Openings	0.79	0.02	0.72	0.04
45 Year Old Is Likely to Remain Until Retirement	0.72	0.02	0.73	0.03
Provides Formal or Structured Training	0.85	0.01	0.83	0.03
Provides Above Average Total Compensation	0.26	0.02	0.30	0.04

a. This column 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.

b. This column indicates the fraction of those establishments that responded "no" to Q1 that had the row characteristic.

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

Table 3
Employer Response to Question about Phased Retirement (Q1) was :
"Yes" or "In Some Cases": Probit Models

Variable Name	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>	
	Coefficient	t	Coefficient	t	Coefficient	t
Industry of Establishment^a						
Manufacturing	0.0657	(0.1)	0.0197	(0.0)	0.0383	(0.1)
Transport, Comm. and Utilities	-0.4622	(0.8)	-0.7171	(1.1)	-0.4918	(0.8)
Wholesale and Retail Trade	-0.0955	(0.2)	-0.3452	(0.6)	-0.1251	(0.2)
Finance	-0.0235	(0.0)	-0.3936	(0.6)	-0.0411	(0.1)
Health, Ed., and Social Services	0.0412	(0.1)	-0.2641	(0.4)	-0.0020	(0.0)
Other Services	0.2926	(0.5)	-0.1769	(0.3)	0.2850	(0.5)
Public Administration	-0.9692	(1.7)	-1.2504	(2.0)	-0.9220	(1.6)
Region^a						
Central	0.5741	(3.1)	0.6777	(3.3)	0.5601	(3.0)
South	0.1220	(0.7)	0.3487	(1.8)	0.1116	(0.6)
West	0.3550	(1.8)	0.3502	(1.6)	0.3542	(1.8)
Establishment Size^a						
50 to 99 employees	0.0675	(0.3)	-0.0104	(0.1)	0.0547	(0.3)
100 to 249 employees	-0.3367	(2.0)	-0.3331	(1.8)	-0.3342	(1.9)
250 to 999 employees	0.0363	(0.2)	0.0086	(0.0)	0.0477	(0.2)
More than 1000 employees	1.0370	(1.9)	1.0900	(1.7)	1.0040	(1.9)
Change in Size over Past 3 years^a						
Increase	0.1667	(1.1)	0.0486	(0.3)	0.1443	(1.0)
Decrease	-0.0808	(0.5)	-0.1495	(0.8)	-0.1008	(0.6)
Establishment is Part of a Larger Organization						
With Less than 1000 Employees	-0.7994	(4.2)	-0.6817	(3.4)	-0.7544	(3.9)
With More than 1000 Employees	-0.1523	(1.0)	-0.1823	(1.1)	-0.0994	(0.6)
Proxies for Minimum Hours Constraints						
Pct Part Time			0.0524	(4.1)		
Square of Pct Part Time			-0.0006	(4.0)		
Permit Job Share			0.8897	(5.1)		
Permit Flexible Start Time			0.2970	(2.1)		
Pensions^a						
Defined benefit only					-0.1867	(1.1)
Both DB and DC					-0.3474	(1.9)
DB for some; DC for others					-0.3347	(1.2)
No pension, NA					-0.1278	(0.6)
Demographics of the establishment						
Pct of All that are White Collar (WC)						
Pct WC that are below age 35						
Pct WC that are above age 54						
Pct WC with job tenure < 4 yrs						
Pct WC with job tenure > 15 yrs						
Pct WC that are female						
Pct WC that are union						
Constant	0.9471	(1.7)	0.5672	(0.9)	1.0960	(1.9)
Log Likelihood	-256.7040		-224.5530		-254.5910	
Pseudo R square	0.1378		0.2458		0.1449	
N	662		662		662	

^a 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.

Table 3 (continued)
 Employer Response to Question about Phased Retirement (Q1) was :
 "Yes" or "In Some Cases": Probit Models

Variable Name	<u>Model 4</u>		<u>Model 5</u>	
	Coefficient	t	Coefficient	t
Industry of Establishment^a				
Manufacturing	-0.0635	(0.1)	-0.1304	(0.2)
Transport, Comm. and Utilities	-0.5513	(0.9)	-0.8286	(1.2)
Wholesale and Retail Trade	-0.2184	(0.4)	-0.4601	(0.7)
Finance	-0.4163	(0.6)	-0.6962	(1.0)
Health, Ed., and Social Services	-0.1609	(0.3)	-0.4037	(0.6)
Other Services	0.2413	(0.4)	-0.2040	(0.3)
Public Administration	-0.9984	(1.6)	-1.2559	(1.9)
Region^a				
Central	0.5106	(2.6)	0.6088	(2.8)
South	-0.1109	(0.6)	0.1442	(0.7)
West	0.3204	(1.5)	0.3129	(1.4)
Establishment Size^a				
50 to 99 employees	0.1797	(0.9)	0.0918	(0.4)
100 to 249 employees	-0.2960	(1.7)	-0.2941	(1.5)
250 to 999 employees	0.1337	(0.6)	0.0861	(0.4)
More than 1000 employees	1.2473	(2.1)	1.2223	(1.8)
Change in Size over Past 3 years^a				
Increase	0.2074	(1.3)	0.1140	(0.7)
Decrease	-0.0913	(0.5)	-0.1640	(0.9)
Establishment is Part of a Larger Organization				
With Less than 1000 Employees	-0.6926	(3.5)	-0.5902	(2.8)
With More than 1000 Employees	0.0142	(0.1)	-0.0616	(0.3)
Proxies for Minimum Hours Constraints				
Pct Part Time			0.0508	(3.8)
Square of Pct Part Time			-0.0006	(3.7)
Permit Job Share			0.9040	(5.0)
Permit Flexible Start Time			0.2785	(1.8)
Pensions^a				
Defined benefit only			-0.0366	(0.2)
Both DB and DC			-0.2710	(1.3)
DB for some; DC for others			-0.0413	(0.1)
No pension, NA			-0.0754	(0.3)
Demographics of the establishment				
Pct of All that are White Collar (WC)	0.0008	(0.3)	-0.0004	(0.1)
Pct WC that are below age 35	-0.0018	(0.5)	-0.0017	(0.4)
Pct WC that are above age 54	0.0003	(0.1)	0.0027	(0.6)
Pct WC with job tenure < 4 yrs	0.0025	(0.8)	0.0024	(0.8)
Pct WC with job tenure > 15 yrs	-0.0005	(0.2)	0.0010	(0.3)
Pct WC that are female	0.0048	(1.5)	0.0042	(1.2)
Pct WC that are union	-0.0084	(3.5)	-0.0072	(2.8)
Constant				
	0.8973	(1.4)	0.5808	(0.8)
Log Likelihood	-247.0080		-216.9840	
Pseudo R square	0.1704		0.2712	
N	662		662	

^a 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.

Appendix: Multiple Imputations for Missing Data

The first step in applying multiple imputation involved estimating a parametric imputation model. In our case this was a multivariate normal model. Although that assumes that the data are normally distributed, the importance of meeting this assumption is greater for variables with higher percentages of missing data (Schafer, 1997). Thus, we began by checking the percentage of missing data for each of the variables involved in the analysis.

First we checked the percentage of missing data for the variables used in the models in Table 3. The percentage missing was quite low for all, i.e., under 10 percent. Second, we computed correlations between the variables in Table 3 that had missing data and other variables in the data set. In doing this, we dropped correlated variables that had 50% or more missing values themselves. Most correlations were very low, and any variables with complete data that had correlations higher than .2 were included in the imputation model. Second, we compared the means for variables without missing data for observations with and without missing data. There were no obvious patterns. Furthermore, we looked at the types of variables that had missing data; there was no reason to suspect that the missing data mechanism was related to the missing values themselves.

We also checked the normality of all of the variables requiring imputations using normal probability plots. Very few were normally distributed. Non-normal continuous variables were transformed to achieve normality and categorical variables were dummy coded for the imputation. See Allison (2002), pp 39-40 for a discussion of this issue.

Predictors in the multivariate normal imputation model included all of the variables that were to be used in Table 3 as well as those that were correlated with any of the imputed variables at a value of .2 or above. Proc MI, a SAS procedure, was used 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. A total of 72 variables were included in the imputation model. Of these, 39 had missing data. Because of the size of the data set and the number of variables included in the imputation model, the number of iterations had to be raised to 2000 before the model converged. The subsequent Table is based on five data sets with imputations for the missing values.

Table A.1
Employer Response to Question about Phased Retirement (Q1) was :
"Yes" or "In Some Cases": Probit Models with Multiple Imputations

Variable Name	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>	
	Coefficient	t	Coefficient	t	Coefficient	t
Industry of Establishment^a						
Manufacturing	-0.5567	(1.1)	-0.7141	(1.3)	-0.5471	(1.1)
Transport, Comm. and Utilities	-1.1329	(2.2)	-1.3691	(2.5)	-1.1221	(2.1)
Wholesale and Retail Trade	-0.6381	(1.2)	-0.8920	(1.6)	-0.6273	(1.2)
Finance	-0.7043	(1.3)	-1.0435	(1.8)	-0.6906	(1.3)
Health, Ed., and Social Services	-0.5020	(1.0)	-0.8148	(1.5)	-0.5067	(1.0)
Other Services	-0.3287	(0.7)	-0.6869	(1.3)	-0.2947	(0.6)
Public Administration	-1.2903	(2.5)	-1.6136	(2.9)	-1.2035	(2.3)
Region^a						
Central	0.4837	(3.2)	0.5154	(3.2)	0.4791	(3.2)
South	0.1091	(0.8)	0.2069	(1.4)	0.1152	(0.8)
West	0.3066	(2.0)	0.3004	(1.8)	0.3167	(2.0)
Establishment Size^a						
50 to 99 employees	0.0818	(0.5)	0.0957	(0.6)	0.0673	(0.4)
100 to 249 employees	-0.2206	(1.6)	-0.1941	(1.4)	-0.2192	(1.6)
250 to 999 employees	0.0232	(0.1)	0.0078	(0.0)	0.0359	(0.2)
More than 1000 employees	0.3029	(1.1)	0.2162	(0.7)	0.3583	(1.2)
Change in Size over Past 3 years^a						
Increase	0.2493	(2.1)	0.1706	(1.4)	0.2377	(2.0)
Decrease	0.0336	(0.2)	0.0260	(0.2)	0.0315	(0.2)
Establishment is Part of a Larger Organization						
With Less than 1000 Employees	-0.4366	(3.1)	-0.3286	(2.2)	-0.4068	(2.8)
With More than 1000 Employees	-0.1993	(1.6)	-0.1305	(1.0)	-0.1692	(1.4)
Proxies for Minimum Hours Constraints						
Pct Part Time			0.0377	(3.9)		
Square of Pct Part Time			-0.0004	(3.7)		
Permit Job Share			0.6083	(4.9)		
Permit Flexible Start Time			0.4125	(3.7)		
Pensions^a						
Defined benefit only					-0.1298	(1.0)
Both DB and DC					-0.3714	(2.5)
DB for some; DC for others					-0.3470	(1.5)
No pension, NA					-0.1489	(0.9)
Demographics of the establishment						
Pct of All that are White Collar (WC)						
Pct WC that are below age 35						
Pct WC that are above age 54						
Pct WC with job tenure < 4 yrs						
Pct WC with job tenure > 15 yrs						
Pct WC that are female						
Pct WC that are union						
Constant	1.3839	(2.8)	1.0303	(1.9)	1.4757	(2.9)
Log Likelihood	-408.1375		-370.3404		-404.4201	
Pseudo R square	0.0886		0.1730		0.0969	
N	950		950		950	

^a 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.

TableA.1 (continued)
Employer Response to Question about Phased Retirement (Q1) was :
"Yes" or "In Some Cases": Probit Models with Multiple Imputations

Variable Name	<u>Model 4</u>		<u>Model 5</u>	
	Coefficient	t	Coefficient	t
Industry of Establishment^a				
Manufacturing	-0.5928	(1.2)	-0.6992	(1.3)
Transport, Comm. and Utilities	-1.1153	(2.1)	-1.2710	(2.3)
Wholesale and Retail Trade	-0.6871	(1.3)	-0.8844	(1.6)
Finance	-0.9863	(1.8)	-1.2135	(2.1)
Health, Ed., and Social Services	-0.6843	(1.3)	-0.8701	(1.6)
Other Services	-0.2249	(0.4)	-0.4363	(0.8)
Public Administration	-1.1433	(2.2)	-1.3452	(2.4)
Region^a				
Central	0.3800	(2.4)	0.4148	(2.4)
South	-0.1664	(1.1)	-0.0388	(0.2)
West	0.2108	(1.3)	0.2355	(1.4)
Establishment Size^a				
50 to 99 employees	0.1989	(1.2)	0.1936	(1.1)
100 to 249 employees	-0.1856	(1.3)	-0.1628	(1.1)
250 to 999 employees	0.0924	(0.5)	0.0523	(0.3)
More than 1000 employees	0.4604	(1.5)	0.3873	(1.1)
Change in Size over Past 3 years^a				
Increase	0.2521	(2.0)	0.2051	(1.6)
Decrease	0.0494	(0.4)	0.0414	(0.3)
Establishment is Part of a Larger Organization				
With Less than 1000 Employees	-0.2770	(1.8)	-0.1953	(1.2)
With More than 1000 Employees	-0.0097	(0.1)	0.0244	(0.2)
Proxies for Minimum Hours Constraints				
Pct Part Time			0.0354	(3.5)
Square of Pct Part Time			-0.0004	(3.4)
Permit Job Share			0.6774	(5.2)
Permit Flexible Start Time			0.3277	(2.7)
Pensions^a				
Defined benefit only			-0.0047	(0.0)
Both DB and DC			-0.3017	(1.9)
DB for some; DC for others			-0.1420	(0.6)
No pension, NA			-0.2060	(1.1)
Demographics of the establishment				
Pct of All that are White Collar (WC)	0.0012	(0.6)	0.0012	(0.6)
Pct WC that are below age 35	0.0012	(0.4)	0.0019	(0.6)
Pct WC that are above age 54	0.0040	(1.2)	0.0042	(1.2)
Pct WC with job tenure < 4 yrs	-0.0006	(0.2)	-0.0007	(0.3)
Pct WC with job tenure > 15 yrs	-0.0059	(2.0)	-0.0032	(1.0)
Pct WC that are female	0.0037	(1.4)	0.0018	(0.7)
Pct WC that are union	-0.0094	(5.2)	-0.0095	(4.9)
Constant				
	1.4148	(2.6)	1.0808	(1.9)
Log Likelihood	-385.9625		-351.0545	
Pseudo R square	0.1381		0.2161	
N	950		950	

^a 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.

 Endnotes

¹ General Accounting Office (2001), p. 27.

² See Quinn, Burkhauser, and Meyers (1990), Ruhm (1990).

³ General Accounting Office (2001), p. 27

⁴ Also relevant is a survey that examined retirement policies for faculty in universities. See Ehrenberg, (2001).

⁵ See Graig, Laurene A. and Paganelli, Valerie. Phased Retirement: Reshaping the end of work. William M. Mercer, Phased Retirement and the Changing Face of Retirement; AARP. Easing the Transition: A Look at Phased and Partial Retirement Programs in the United States; Watson and Wyatt, Current Practices in Phased Retirement: Transforming the End of Work.

⁶ The survey was sponsored by the Sloan Foundation. It was executed by the Center for Survey Research at the University of Massachusetts, Boston.

⁷ The social security earnings test may affect phased retirement for people who are eligible for social security. As argued in Hurd (1996), workers may react to the social security earnings test by seeking to limit hours so as to not lose current benefits. Employers may become frustrated with employees who wish to limit their hours, and choose to not offer part-time work to older workers. This could be the case even though the social security earnings test has little effect on the discounted present value of social security benefits. Workers may not understand that benefits reduced by the earnings test are effectively reimbursed after age 65 (see Rust (1990), p. 374). Similarly, age discrimination law may cause employers to avoid targeting a program of part-time work on older employees. Faced with a choice between no program and a program that applies to all employees, employers may opt for no program.

⁸ Minimum hours constraints could also be viewed as a social norm associated with team production. A team member who works different hours violates a group norm, thereby creating problems of morale and social control.

⁹ There is debate on this. Nollen, Eddy and Martin (1977, 1978) argue that jobs requiring team work are not, in fact, incompatible with part-time work.

¹⁰ Hurd, 1996, page 35.

¹¹ This is the essence of the regulations, which are arcane. A complete treatment would require several pages. Happily good discussions can be found in Fields and Hutchens (2002) and Penner, Perun and Steuerle (2002).

¹² Blue collar and white-collar workers often have different work arrangements and pensions. A thorough treatment of both blue and white-collar workers would have required a longer survey and resulted in lower response rates.

¹³ The 1999 Census Bureau County Business Patterns indicates that excluding government, railroads, and the self-employed, approximately 15 percent of all establishments have 20 or more employees, and 75 percent of all employees work in establishments with 20 or more employees.

¹⁴ 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 workforce. We have, however, compared the industry, region, and union characteristics of this sample with the Health and Retirement Survey sample of older white-collar workers in establishments with more than 20 employees. The results are remarkably similar.

¹⁵ The response rate was 64% in the Educational Quality of the Workforce National Employers Survey, which was administered by the U.S. Bureau of the Census as a telephone survey in August and September 1994 to a nationally representative sample of private establishments with more than 20 employees (Lynch and Black, 1998). The response rate was 65.5 percent in Osterman's 1992 telephone survey of establishments with more than 50 employees (Osterman, January 1994). Holzer and Neumark (1999) report a response rate of 67% for establishments that were successfully screened in a telephone survey undertaken between June 1992 and May 1994.

¹⁶ Fractions of Table 2 are computed after applying sample weights. All fractions and standard deviations are adjusted for missing data.

¹⁷ For example, we asked “about (what percent/how many) of the white-collar employees at this establishment are age 55 or over? (probe: what’s your best estimate?)”

¹⁸ This is based on the following question: In some organizations a white-collar worker who has reached age 45 is almost certain to remain with that organization until retirement. In other organizations, a 45-year-old white-collar worker may be likely to change employers before retirement. On a scale from 1 to 5, where 1 means not at all likely and 5 means very likely, how likely is it than an average 45-year-old white collar worker would stay at your establishment until retirement. The Table 2 result is based on the percentage that respond with a 4 or 5.

¹⁹ This is based on 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...” The Table 2 result is the percentage that respond with a “1.”

²⁰ Actual cases in the data included an office of the Mississippi regional housing authority, a town recreation department, a state department of corrections a congressman’s office, and several fire and police departments.

²¹ The effect of this part-time percentage reaches a maximum at 40%. 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.

²² See Michael Hurd (1996), p. 25

²³ Additional variables were experimented with in order to further check the demand hypothesis. Included was a measure of the establishment’s typical retirement age, and a variable indicating whether the establishment had in the previous three years hired an older (age 55+) white collar worker. Consistent with the demand hypothesis, these variables were positively related to phased retirement. The estimated coefficients were, however, statistically insignificant at conventional levels. Since they add no new information on the demand hypothesis, they are excluded from the models presented here.

²⁴ I am indebted to Nick Salvatore for suggesting this explanation.

²⁵ 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.

²⁶ This treatment borrows from Allison (2002), page 4.

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