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ABSTRACT

Pre-Retirement Work Options is a demonstration project designed to develop and test alternative employment patterns for older workers in the Wisconsin Civil Service System. The program ws evaluated to determine the interest of older state workers in reducing their work hours prior to retirement as well as the impact of that reduction for those who actually reduced their hours of work. Results showed that about 5 percent of the workers were interested in reducing their working hours, often citing growing job dissatisfaction and declining health. The vast majority of respondents named loss in future retirement income as a major concern in altering current work and retirement plans. Actual reductions in work hours produced few changes in job satisfaction, job performance, or supervisors' attitudes. The findings suggest that a phased retirement program will benefit about 5 percent of older state workers by allowing them to reduce their hours of work prior to retirement. (Author/JAC)

Preretirement Work Options: Evaluation Report
Volume 2

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Volume II details the results of the research conducted by the University of Wisconsin. The research evaluated the interest of older state workers in reducing their hours of work prior to retirement & the effect on job satisfaction & performance of a group of workers who reduced from full-time to part-time work. This volume highlights the research activities.

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Preretirement Work Options: Evaluation of a Part-time Employment Experiment

ABSTRACT

The evaluation of the Preretirement Work Options Project had two objectives. First we determined the extent to which older full-time Wisconsin State employees are interested in reducing hours of work before retirement. Second, for 30 workers who actually reduced their hours of work, we measured the impact of that reduction on job satisfaction, productivity, job tenure and on the attitudes of their supervisors towards older workers.

Approximately five percent of workers indicated interest in reducing their hours of work within the next year. Another two percent indicated they would work part-time if given assurance they could return to full-time work. Whether others would also be interested in such work options depends upon the strength of their concern about changes in fringe benefits that might follow from a reduction in hours of work. There appears to be some misinformation about the effect of changing work hours on health and life insurance benefits. With correct information another small percentage would work part-time. The majority of workers interested in part-time work, would actually reduce their hours of work, only if there were some sort of financial offset to the loss in retirement benefits (including social security) that would result. The vast majority of respondents cite loss in future retirement income as a major concern in altering their current work and retirement plans.

Looking at the reasons why some workers are interested in reducing their hours of work, we find that part-time work may be an avenue to address growing job dissatisfaction and declining health. Thus broader work options would permit the continued employment of employees who might otherwise retire because of growing dissatisfaction or ill health.

The major impact of an alternative work options program would probably be to allow workers to extend work beyond their expected retirement age. Our data indicate a desire on the part of the majority of workers to work longer than they now expect to. That these wishes are not idle dreams is suggested by information on changes in retirement age that actually occurred when the state's mandatory retirement age was raised from 65 to 70 and on the large number of retirees who have actually worked in non-state jobs following their retirement from state employment.

We found that actual reductions in hours of work produced few changes in job satisfaction, job performance or supervisors' attitudes during the demonstration project. There is some indication that participant workers were a special group whose work attitudes might have both enabled them to arrange for a reduction in hours of work and determined their rather high job satisfaction both before and during the evaluation period. The maintenance of job satisfaction and job performance for both project participants and the control group of workers may indicate that workers adjust to the work situation in which they are likely to remain. At the same time, there are no major costs in terms of job performance if the reduction in hours of work is granted and supervisors who are willing to allow changes in work schedules are not disillusioned by their experience with older workers working part-time.

We conclude that a phased retirement program would benefit about five percent of older state workers by allowing them to reduce their hours of work prior to retirement. Such a program would be particularly attractive to workers seeking ways to combat deteriorating health and adjust their working lives to growing job dissatisfaction. It is clear that the retirement system is a major barrier to more interested workers reducing their hours of work. If the double penalty imposed by the state retirement system against workers choosing to reduce their hours of work prior to retirement were eliminated, more workers who are interested in part-time work might consider this option seriously. It is clear from our data that no change in job satisfaction, performance or supervisors' attitudes stemmed from older workers reducing work hours. Finally there is no indication that supervisors represent a major stumbling block to workers reducing their work hours, though it may be that barriers exist for individual workers or jobs and that state policies limit the willingness or ability of workers and supervisers to introduce part-time work schedules.

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Preface

This report details the results of an evaluation of the Pre-retirement Work Options Project (PRWO) developed by the Alternative Work Patterns Unit (AWP) of the Department of Employment Relations of the Wisconsin State Department of Employee Relations (DER). This project was designed to evaluate the interest of older state workers in reducing their hours of work prior to retirement and the effect on job satisfaction and performance of a group of workers who reduced from full time to part time work. The AWP-DER unit was responsible for recruiting workers into the project and for orienting workers and their supervisors to the requirements of participation. The evaluation of the project was undertaken by a staff at the University of Wisconsin headed by Dr. Karen C. Holden, Department of Economics and Dr. Timothy W. Bosworth, Industrial Relations Research Institute.

The evaluation was conducted in two stages. First, we surveyed all Wisconsin state workers age 55 or older to ascertain their interest in reducing hours of work and to obtain demographic and economic data that would enable us to explain why some workers were interested in part time work options while others were not. Second, we were responsible for evaluating the experiences of 30 workers who were part of the demonstration project to measure the impact of reducing hours of work on job satisfaction, job performance and attitudes of their supervisors towards older workers.

During the first two years of the project we developed the required survey instruments and analyzed the data we collected from these surveys on older Wisconsin state workers and the 30 project participants. Only after all participants were on board were we able to identify the control groups of workers and supervisors and begin the analysis of the effects of part time work on job satisfaction and performance. This effort occupied the final stage of the project.

In addition, at various stages of the project the AWP-DER unit requested that we assist them in developing surveys and analyzing data on other worker groups. The largest of these was a survey of recipients of Wisconsin State Retirement Fund annuities. We also advised on a survey of full-time workers over 65 and coded and tabulated these data.

Dr. Bosworth had overall responsibility for the administration of the project. He was also primarily responsible for the research design for the demonstration project and the development of all required surveys. Dr. Holden's major responsibility was the development of the older worker survey and the analysis of that data. Thomas Mattern and later Stephanie Green were in charge of interviewing participants, control group workers, and their supervisors, and Ms. Green participated in the final analysis and writing of the final report.

This report is divided into four sections. In Section I we describe the origin of the project and the issues addressed, and we discuss the literature on part-time work. In Section II we analyze the interest of older workers in part-time work and the reasons why some are not willing to reduce hours of work while others are. At the end of this section we also provide some information on the willingness of retirees to work part time. In Section III we present data on project participants, their supervisors and the control groups of workers and supervisors. In this section we attempt to answer the questions of whether the reduction in hours of work alone has a measurable effect on job satisfaction and performance. Section IV presents our conclusions and recommendations.

Several people have assisted in the project and for their time and insights we are grateful. Susan Meives, now Senior Staff Associate,

University of Wisconsin System, advised us at the very early stages, sharing with us her experiences evaluating an earlier job-sharing demonstration project for DER. Randy Dunham, School of Business, helped develop the job performance measures. David Zimmerman, Mathematics Policy Research, Madison, advised us at several stages during the first two years of the project. Finally we wish to thank the AWP-DER unit staff, specifically Mary Cirilli, and Diane Lindner for their work in developing the idea for this project, Mary Mullen for her work in keeping track of project details, and Wanda Duborg, Dorothy Schmidt, and Kathryn Moore for their work with participant recruitment.

I. Introduction

A. Background

Within the past few years interest has grown in the economic and social advantages of part-time work and in programs that would increase part-time work opportunities. Introduction of part-time work on a broader scale could have important public policy implications. Some observers argue that increased use of part-time employment could reduce the number of persons unemployed and the costs of periods of unemployment to the individual and to society. For example, Levitan and Belous (1977) argue that if only ten percent of all full-time workers reduced their work week to four eight-hour days, up to two million new people could be put to work. Other proponents maintain that widespread use of part-time employment would increase employment among individuals whose physical disabilities, home and child-care obligations or inadequate job skills limit their ability to find full-time employment. Groups that would be most advantaged by an increase in part-time work opportunities include workers near retirement age, already retired workers who wish to supplement pension income, women with young children and teen agers. Advocates of part-time work also argue that, in general, part-time workers are more productive and satisfied with their jobs than are full-time workers (Foegen, 1976; Nollen et al., 1976). Part-time workers are also less likely to quit, be late or be absent from work (Greenwald & Liss, 1973; Hallaire, 1968; Olmstead, 1977; Werther, 1975).

Other advantages attributed by various sources to part-time employment include the more efficient coverage for periods of peak workload (Nollen and Eddy, 1975; Nollen et al., 1976; Olmstead, 1977; Stewart et al., 1975; Werther, 1975), better utilization of capital equipment (Nollen and Eddy, 1975; Nollen et al., 1976; Werther, 1975), better public image (Foegen, 1976), aid in meeting affirmative action requirements -

(Martin, 1974; Nollen et al., 1976; Olmstead, 1977), and the ability to employ a higher quality work force at lower labor costs (Schwartz, 1974; Owen, 1977).

Thus, contrary to the expressed concerns of employers about the higher labor costs of hiring more part-time workers, it is argued that allowing workers to work part-time might actually improve worker productivity and reduce per unit output costs. The reluctance of employers to experiment with part-time work on a wider scale than such jobs are now offered stems in part from the lack of rigorous empirical research to support the argument of cost advantages to hiring more part-time workers. Many firms, in fact, anticipate that increased use of part-time workers will necessitate more time devoted to recruitment and training, more supervisory time, greater employee compensation, higher facilities costs, and more communication problems between part-time workers and their supervisors or full-time workers. Again, little empirical evidence exists with which to calculate the magnitude of these cost increases. Meives (1979a), however, points out that without any contradicting evidence it is these expected costs that will act as constraints to the increase in part-time work, even though for some firms these costs may in fact be small or non-existent.

It is also argued that part-time employment is now more feasible because a number of labor market developments, particularly since World War II, have increased the potential for greater job flexibility. One such trend has been a shift in employment towards service work, notably the rising demand for clerical and repair service workers. According to this view, service work can more easily be divided among several part-time workers than is feasible in other occupations (Cohen and Gadon, 1978).

The entry of women into paid work may also have forced a shift towards greater numbers of part-time jobs. Between 1947 and 1976, the percentage of women in the labor force more than doubled with women workers accounting

for sixty percent of the total labor force growth during this period (Clark, 1977). Work by mothers of young children has recently grown most rapidly with 50.2% of wives with children under 18 working in 1978 compared to only 39.7 in 1970. In part, the sharp increase in the number of women working part time was a response of employers to the growing demand of women workers who wished, or were able, to work part-time. It may also be that increases in part-time work opportunities, a result of occupational shifts in the supply of jobs, induced women who otherwise would not have done so to seek paid employment (Meives, 1979b).

Other economic changes have also been associated with the observed increase in part-time employment. Higher educational attainment levels may have resulted in a more mobile labor force, with workers demanding greater job flexibility and less physically demanding job options

Finally, the growth in government and private income security programs has increased the number of persons subject to the earnings limits of these programs. Such provisions limit the earned income that beneficiaries can receive without finding their benefits reduced, thus encouraging some to work limited hours in order to retain benefits. The sharp decline in the percentage of older men at work has been attributed in part to the earnings limit on social security beneficiaries (Burkhauser & Turner, 1980; Clark & Barker, 1981). The departure of men from work has both increased the costs of the social security program while reducing the inflow of revenues to support benefits to retirees and their families. Part-time work is seen as a method of satisfying the demand for part-time work by retired beneficiaries, while continuing to utilize valuable worker skills and increasing social security revenues.

Together these demographic and economic developments have encouraged

the spread of permanent part-time work. A better educated population, buffered by more effective social security mechanisms have demanded more flexible job options that meet their desires not to compromise health, family and non-work goals to full-time employment. At the same time, higher unemployment among some population groups, the sharp rise in the costs of income support programs, and the rapid growth in the percentage of workers retiring early has led to the search for ways of encouraging the employment of more workers. At a time of limited growth in jobs, part-time work is one solution to this dilemma.

Some workers have always worked part-time. In 1965, 16.4 percent of workers worked less than full-time. This percentage was higher in 1974 when 18.3% worked part-time, 15.5% for noneconomic reasons. In 1980 18.7 of all workers worked part time (14.4% for noneconomic reasons.) The unique element in the current debate over part-time work is the emphasis on providing part-time work opportunities to all types of workers, and on the success of public programs that would encourage part-time work options as a path to accomplishing desired social goals. While statistics are sparse, it is clear that many firms have introduced flexible work schedules for their employees, though it is equally clear that only a small percent of all workers are affected. While only a portion of the alternative scheduling arrangements are part-time, most flexible work programs include the possibility of reducing total weekly hours of work (Clark, 1977).

Despite the growing interest in part-time work programs, there are few data with which to evaluate whether government programs that either encourage or mandate greater part-time work options would actually increase the

number of persons who would choose part-time over full-time work. In an attempt to evaluate the attractiveness of part-time work options for employees approaching the retirement age, the Wisconsin Department of Employment Relations undertook the Pre-Retirement Work Options (PRWO) project. This project set up a demonstration project and measured the impact of reducing hours upon the job satisfaction and performance of workers who actually reduced from full-time to part-time work. The PRWO project grew out of an earlier effort, Project JOIN (Job Options and Innovations), which created 117 new part-time, job-sharing positions. Contrary to the expectations of JOIN researchers, there was little interest on the part of older workers in part-time work. A desire to discover the reasons for this low response by older workers and a suspicion that workers of diffent ages might react differently to alternative job options, led to the funding of the PRWO project, targeted specifically on workers fifty-five years of age or older.

B. Literature Review

Interest in Part-Time Work

While many studies of part-time employment assert that part-time work would be attractive to workers near retirement age as well as to already retired workers, few provide any empirical evidence by which to evaluate these claims. There are only a limited number of studies that specifically focus on the interest of older workers and retirees in part-time work. At the same time, studies of part-time workers in general do provide some insights into the variables that may affect the interest of older age workers in part-time work, particularly in the option of reducing hours from full-time work, and these studies we also review.

In evaluating Project JOIN, Meives compared the responses to a questionnaire of project participants (i.e., shared job holders) to those not hired by the project and to those who continued to work full-time. The questionnaire was designed to obtain data by which to evaluate the kind of person

most likely to be interested in part-time work and to find out whether those who preferred part-time work could be differentiated from those who preferred full-time work. Meives concluded that people with a preference for part-time work form a separate group in the labor market, a group that is distinct from workers preferring to work full-time (Meives, 1979a). Although she was unable to specify differences among age groups in their response to part-time work options, it is clear from her results that non-workers are more likely to respond to such opportunities than are workers currently employed full time.

Anschell (1980) examined the retirement plans and behavior of a sample randomly chosen from 607 University of Washington staff members 56 years of age or older and of 352 retirees. The study focused on attitudes, interests, and work-related characteristics and behavior of workers approaching retirement. Persons who had at some time considered working part-time as a step toward retirement were more likely to have a strong job orientation (as defined by Anschell, and based on responses to questions concerning the importance of the job in meeting psychic needs.) Those with higher job classifications expressed more interest in working part time. Many, however, were deterred from reducing their hours of work because they did not want to sacrifice retirement service credits. Respondents who indicated interest in changing to a part-time schedule "at this time" were by and large professionals and were more likely to be married. As did persons who had at some time considered reducing hours of work, persons interested in making the change "now" planned to retire at a younger age; however, they also thought that working part-time would enable them to continue working for a longer time. Anschell also found that those interested in reducing hours "now", reported problems on the job in disproportionate numbers, particularly problems with their supervisors. Consistent with the disproportionate desire of professionals to reduce their

hours of work, workers currently on part-time schedules tended to be in higher level jobs. These part-time workers also tended to see their jobs as less important in meeting their needs, obtained less satisfaction from their work, but also experienced fewer work-related problems that did others.

Finally, Usher, from a survey of 333 older public and private sector employees in Los Angeles County, concluded that there was a strong interest in alternative work options as a means of extending their working lives. About 53 percent indicated an interest in delaying retirement if attractive part-time options were available. Although this study dealt primarily with interest in delayed retirement, Usher discovered that interest in part-time work was quite high though conditional upon specific wage and pension policies associated with each employment option (Usher, 1981).

Job Satisfaction of Part-Time Employees

When one searches for data on the effect of part-time work by older employees on job performance, attendance, records, job satisfaction, and on firm costs, one finds that virtually every study conducted to date has dealt with part-time workers in general. Hence there is virtually no information on retirement-aged workers. Nevertheless, because demonstration project data bear directly upon performance and job satisfaction issues, we will briefly review some of these studies.

Logan et al., (1973) compared the job satisfaction of part- and full-time nurses, aides, and clerical workers in a west coast hospital. This study found no significant differences between part-time and full-time workers in overall job satisfaction though there did seem to be differences in the way part-time and full-time workers defined the determinants of job satisfaction. Part-timers viewed their jobs in terms of what they could expect from other part-time jobs; full-time workers compared their jobs to other full-time jobs. Also, full-timers expected much more from their jobs than part-timers.

Hall and Gordon (1973) examined job satisfaction for a sample of women on mailing lists of various women's organizations, college alumni clubs, and in various college graduating classes. The researchers hypothesized that women who are doing tasks they prefer would be more satisfied than those women who were involved in jobs they did not prefer. Hall and Gordon classified occupations as part-time or full-time housewife, volunteer worker, or paid employee. Though fewer than half of the questionnaires were returned, the analysis of the useable responses supported the original hypothesis in all four non-employment categories, but not in the employed categories. Women working part-time for pay had the lowest level of job satisfaction, even when they were doing tasks they preferred, and the job satisfaction of women who preferred not to be doing what they were doing was the lowest among part-time

workers. Hall and Gardner speculated that part-time employment represented only a partial resolution of the woman's conflict between home life and a career. The low response rate is only one problem which limits the usefulness of this study for comparing the role of part-time work as a means of increasing job satisfaction among workers who would voluntarily choose part-time over full-time work. Many of the female respondents in the Hall and Gardner study were clearly not voluntary part-time workers. Thus, while part-time work may have been preferred over the most likely alternative (e.g., not working), many would have chosen a different job if given the opportunity.

In her evaluation of project JOIN, Meives (1979 a) compared the effect of voluntary part-time work on job satisfaction. She found that JOIN participants were much more highly satisfied with their jobs than were persons who applied for shared jobs but were subsequently hired into full-time positions. However, JOIN workers were also more satisfied than were those who were subsequently hired into other part-time jobs, as they preferred to be but were not included in the JOIN demonstration project. This suggests that there may have been something unique to participation in project JOIN jobs which were more satisfying or that an ability or taste for work factor not taken into account by the research may have led both to being hired into a JOIN position and to subsequent greater job satisfaction on the part of participants.

Productivity of Part-time Employees

As in the case of the job satisfaction literature, the material on productivity is rich in assertion (Nollen et. al., 1976). Most writers maintain that part-time workers are at least as productive as full-time workers, and to justify those judgments they bring to bear a number of entirely plausible reasons. Among them are the following: a person can work harder for four hours a day than for eight (Greenwald and Liss, 1973; Werther, 1976); part-timers don't get as tired, spend less time socializing, and have broader life experiences (Martin, 1974); less time is wasted on the job (Stewart et. al., 1969), and part-time workers have higher morale which leads to higher productivity (Foegen, 1976; Olmstead, 1977). As is also the case with the job satisfaction literature, most of it is short on data. Nevertheless several studies are based on empirical research.

The first of these reviewed here is an evaluation of an experiment carried out in the Boston Public Welfare Department in which fifty part-time social workers were hired to fill twenty-five full-time slots. Each part-time worker received a case-load and full responsibility for that caseload. The research concluded that part-time social workers were more productive than full-time workers when compared on a work per hour basis. Part-time workers carried forty-two cases per worker compared with seventy-eight cases per worker for 364 full-time workers. In addition, part-timers had eighty-nine percent the full-time face-to-face contact rate. While this study seems to show that part-time workers are more productive than full-time workers when measured in terms of cases carried per workers and the number of face-to-face contacts, the reasons for this are not clear because the number of hours worked and the quality of work was ignored. (Part-Time Social Workers in Public Welfare, 1971).

A second experiment was undertaken by the U.S. Department of Health, Education, and Welfare. In 1967, HEW established the professional and executive corps, a group of "highly qualified individuals" who wished to work less than full-time. Productivity measures for corps personnel, based upon supervisory ratings and corps members' opinions were compared with those of full-time employees working in comparable grades and occupations. Corps' members productivity was fifty-five percent higher, on a work per hour basis, than comparable full-time employees, a finding that seems to show that part-timers are more productive than full-timers. However, the productivity of corps members was forty-two percent higher than non-corps part-time workers, a fact which suggests that corps members may have been atypical. Thus, this study does not provide clear-cut evidence in support of increased productivity for part-time employees (Howell and Ginsburg, 1973).

Meives (1979a) addressed the productivity claims in some detail. Meives used four sets of data to evaluate the effects of part-time work upon productivity: the opinions of supervisors who had actually supervised job sharers on both full- and part-time jobs, the perceptions of the employees themselves, comparisons of JOIN workers with full-time workers in comparable jobs, and performance evaluations of supervisors of job sharers and full-time incumbants. Meives found no support in her data for the claim that part-time workers were more productive than full-time workers, but she did find that both supervisors of job sharers and employees themselves thought there was an improvement in performance when full-time workers reduced their hours. Meives' study differs slightly from most job satisfaction studies because she went beyond simple comparisons between full-and part-time workers' productivity and examined the impact of the actual reduction of hours upon productivity.

Supervisors' Attitudes

Little attention has been given in the literature to the attitudes of supervisors and employers to part-time employment. Greater knowledge about these attitudes could provide some insight into the principal barriers to increased part-time work, and the potential role of researchers in providing data by which to support or refute the claims of employers about the effect of increased part-time jobs on employees and firm performance.

Anschell interviewed 69 supervisors for their views on employment of older workers. Supervisors felt older workers tended to be motivated, stable, reliable, and diligent. In addition they felt that older workers had greater skill and were more familiar with the work than were younger workers. A principal shortcoming of older workers according to supervisors was their rigidity of attitude and intolerance of new ways of doing things. Supervisors disagreed about whether or not older workers took more sick leave than younger workers; however, the author found that sick leave records of older workers were not notably different from those of their younger counterparts.

Evaluation of the Literature

While many claims are made about the advantages and the higher costs of hiring part-time workers in place of full-time workers, there has been little empirical research undertaken to support or refute these claims. Second, what literature there is is not consistent (and often not even explicit) in defining the standards against which the performance of part-time workers is being compared. Some compare it with the performance of other workers, either full or part time; a few look at the performance of workers in full-time jobs versus the performance of those same workers in part-time jobs, and still others compare the worker's current part-time job with some

preferred jobs, that may be different among the studied individuals. While each comparison might have its rationale, it is clear that the contradictory conclusions of the few empirical studies available arise in part because of the different questions being asked. Finally, there has been inadequate attention given to the importance of type of job and worker in determining employer attitudes towards part-time work and employee performance in part-time versus full-time jobs. Meives' study suggests that type of workers, particularly age and family status, may have been an important variable determining the outcome of part-time work projects such as JOIN. Some of the studies reviewed above also suggest that occupation may have some influence.

Because older workers did not respond to project JOIN as had been anticipated and little literature existed to tell us why, a follow-up study (PRWO) was designed by the Department of Employee Relations to examine the interest of older employees in part-time jobs, and as was done with project JOIN, the effect of reducing hours of work on job satisfaction and performance. This project attempts to evaluate the interest of older workers in reducing hours of work from full- to part-time, and to compare job satisfaction and productivity of each worker on their former full-time and current part-time job. It is important to emphasize that the questions posed by the PRWO project are not always comparable to those of the studies cited above. Even though the PRWO project grew out of project JOIN, the questions asked by JOIN and this project are not the same. While reading the research results reported in the remainder of the report, the reader is cautioned to hold in mind the particular comparison being made. While we were often tempted to make sweeping statements about the results of part-time work in general, we felt it important to limit our conclusions to those based on our data about the effects of part-time work on the group being studied. Thus, our goal, which is not consistent with all

the literature on part-time work, is to compare the effect on workers and the work-place of having older workers reduce hours of work from full to part time.

C. The Preretirement Work Options Project (PRWO): An Overview

The Evaluation of the PRWO has two purposes. First, based on data from a sample of older workers in Wisconsin State service, it estimates the level of interest among Wisconsin State employees in reducing from full-time to part-time work, and tries to explain why some older workers are interested in reducing their hours or work, while others are not. Second, we evaluate the experience of a group of workers who elected to take part in the demonstration project in order to measure the effects of reducing work hours on the satisfaction and productivity of older workers. The questionnaire sent to all workers over 54 who were employed in November, 1980 by the State of Wisconsin and the demonstration project were designed to test the following hypotheses.

1. Many older workers are interested in reducing from full to part time work.

2. Interest on the part of older workers in reducing their hours of work varies inversely with the loss in retirement benefits that would result from the decision to reduce hours of work prior to retirement. In addition, health conditions, job satisfaction, and type of job held affect their willingness to alter their hours of work.

3. Job satisfaction will increase for workers choosing to reduce to part-time work, compared to their job satisfaction prior to this reduction in hours of work.

4. Job satisfaction will be higher for workers who were able to reduce their hours of work than for those workers who expressed interest in doing so but did not reduce hours.

5. Workers who reduce their hours of work will continue on their jobs for a longer period of time than will workers who wanted to shift from part-time work but did not.

6. The productivity of older workers who reduced their hours will stay the same or increase compared with their productivity prior to reducing their hours of work.

7. As their experience with supervising older workers in part-time positions increases, supervisors will become more favorably disposed towards older employees reducing their working hours.

A questionnaire mailed to 6,700 workers aged 55+ (hereafter, the older worker survey) supplied the data needed to test hypotheses 1 and 2. The remaining hypotheses were tested with data collected on project participants and a control group of non-participants. Hypotheses 3 and 4 were tested using job satisfaction data obtained for project participants and the controls from the older worker survey at the beginning of the project and a follow-up survey administered at the end of the project. We tested hypothesis 5 by observing both participants and control group workers during the life of the project, and noted any changes in actual or projected quits and retirements by the members of each group. Hypothesis 6 was tested with data from two performance appraisals by supervisors for each project participant; the first completed for each participant prior to the reduction in work hours and the second done six months later. We discuss all surveys and interviews in the appropriate section of this report, and copies of each instrument have been placed in appendix A.

II. Determinants of Interest in Part-Time Work

A. Interest in Reducing Hours of Work Before Retirement

Because the Department of Employee Relations of the State of Wisconsin (DER) was interested in estimating the response by older workers to a program encouraging state employees to seek a reduction in hours of work, the older worker survey was designed to ascertain whether current full-time workers would reduce hours of work on their current jobs if given the option to do so, and the characteristics of workers who would and would not respond to such an opportunity. The older worker survey was mailed in late December 1979 and January 1980 to 6,700 employees 55 years of age or older. With one follow-up of non-respondents, a 62.5 percent response rate was obtained. The questionnaire, which also collected data on expected retirement age, previous work experience, current job classification, present income and health, and on the post-retirement work and expected income of each respondent, is reproduced in Appendix A.

While there are no measurable differences between the mean characteristics of respondents and population surveyed, it may be that those workers who were more interested in reducing their hours of work were more likely to respond. This potential source of bias cannot be measured, but may bias our results such that we overestimate interest in part-time work. Response rates and response bias are discussed more fully in Appendix B.

Table 1 gives the mean value for some of the salient characteristics of respondents. In general, they are a relatively young and healthy group of workers. They have worked close to 16 years for the state and plan to retire in 5 1/2 years. It is important to note the high percentage of female

Table 1

Respondents' Profile[1]

Characteristic	
Mean Age	58.78
Mean Income	$17,500
Gender	
Percent Male	58.1
Percent Female	41.9
Marital Status	
Percent Married	74.1
Single, Widowed, Divorced	25.9
Mean Number of Years Worked for State	15.88
Mean Number of Years Before Planned Retirement Age	5.53
Occupational Distribution	
Percent Administrators	5.54
Percent Professionals	26.60
Percent Technicians	4.32
Percent Protective Service	5.62
Percent Para-Professionals	10.49
Percent Office-Clericals	15.73
Percent Skills Craft	3.68
Percent Service-Maintenance	17.66
Residences of Respondents	
Percent Madison or Milwaukee	32.70
Percent Rest of State	67.30
Health Level	
Percent Excellent Health	33.90
Percent Good Health	57.10
Percent Fair Health	8.30
Percent Poor Health	0.70
Mean Education	12.25

1 Profile for 3691 full time workers who responded to the Older Worker Survey. Numbers may be different from those given in Appendix B since the latter includes respondents working less than full time who were included in the population surveyed.

workers (42 percent are women) and the fact that retirement is expected to occur at a mean age of close to 64 (although 16.5 percent of respondents expect to work beyond 65.) A more detailed profile of the respondents is included in Appendix C.

Estimates of the level of interest in part-time work were derived from the responses to three questions on the older worker survey (Questions 16, 17, 33 (see Appendix A)).[1] We obtained a rough indication of the number of full-time workers interested in reducing hours of work from their answer to the first of these ("If you could choose would you, within the next year, reduce the number of hours you work in a week?"). Table 2 gives the number and percent of full-time workers responding positively and negatively to this question. Slightly over 21 percent indicate they would reduce their hours of work in the near future if given the opportunity to do so.

Table 2

Responses to Question #16

Response	N	Percent
yes	711	20.8
no	2701	79.2
total	3412	100.0

From the answers of respondents to Question 17, however, it is apparent that interest in part-time work cannot be accurately measured by a simple yes/no answer and that many workers would reduce their hours of work only under certain circumstances. The conditions that would have to prevail in order for workers to find a reduction in hours of work attractive were indicated in Question 17 and permit us to refine our estimates of the number of workers who might reduce hours of work if the opportunity were offered, but other things did not change. Table 3 shows how workers were classified by

[1] Of approximately 4100 respondents, about 17 percent were excluded because they were already part-time workers, limited term employees or acted as consultants or because they did not answer the question indicating their interest in part-time work.

interest group, based on the combination of their answers to Questions 16 and 17. The latter question listed several options (including an "other" category) that workers were asked to check if such a change would cause them to change from full- to part-time work. These options were (1) under no circumstances; (2) if there were no loss in health or life insurance benefits; (3) if there were no loss in sick leave or vacation time; (4) if they could collect full retirement benefits while working reduced hours; (5) if they could return to their present hours during the first year; (6) if they could train for another type of job at the same time. We assumed that workers who answered "no" to Question 16 but checked one or more circumstances in Question 17 would not be interested in reducing hours under current conditions, but might be interested if one or more of those circumstances changed.

Table 3

Classification of Respondents by Answers to Questions 16 and 17

Group No.	Response to Question #16	Whether or not checked "under no circumstances" in #17	Whether or not checked a circumstance in #17	Manner interpreted
1	yes	no	no	absolute yes
2	no	no/yes	no	absolute no
3	yes	no	yes	qualified yes
4	no	no	yes	qualified no
5	yes	yes	no	inconsistent
6	yes	yes	yes	inconsistent
7	no	yes	yes	inconsistent

Respondents fall into seven groups. Groups 5, 6, and 7 (10.1 percent of all responding to Q16) gave inconsistent answers and therefore were eliminated from the analysis. Group 1 consists of workers who gave an unqualified "yes" to Question 16, indicating their interest in reducing hours of work given the circumstances under which they worked. At the other extreme are workers (group 2) who gave an unqualified "no" response to Question 16. These workers would be uninterested in reducing hours of work even if present conditions

changed.* In between are two groups of workers who would under some circumstances reduce their hours of work. While it could be argued that the two groups should be combined, it is important to note that they gave different responses to Question 16. While workers in group 4 answered "no" to Question 16, they checked at least one circumstance in Question 17. These workers gave a qualified "no" response, meaning that under present circumstances they would be uninterested in reducing hours but might be more interested if one or more of the present conditions which governed their working lives were changed. Group 3 workers gave seemingly ambiguous answers which we interpreted as reflecting some ambivalence. Since they answered "yes" to Question 16, but also checked at least one circumstance in Question 17, we interpreted their response as a qualified "yes," indicating a greater willingness to reduce hours of work than are the qualified no's of group 4.

Classifying workers in this way highlights the dependence of a worker's interest in reducing hours of work to part-time on the circumstances under which reduction would occur (Table 4). Only 5 percent of respondents indicate interest in reducing their hours under any circumstances. About 38 percent would not reduce their hours under any circumstances. The remaining 57 percent would do so if certain benefit or employment conditions changed.

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*The relevant changes are those specified on the questionnaire. These are not exhaustive. Although respondents were asked to write down any other circumstances under which they would reduce hours of work, few in fact did. Thus, there may be other benefit or job changes which would induce the "no's" to work part time.

Table 4

Interest in Reducing Hours of Work: By Answers to Questions 16 and 17

Interest Level	N	Percent
absolute yes	154	5.0
qualified yes	502	16.3
qualified no	1252	40.7
absolute no	1165	37.9
total	3073	100.0

Question 33 serves as a check on answers to 16 and 17. About 20 percent of the respondents agreed or strongly agreed with the statement in Question 33 that "if given the chance now, I would reduce my hours of work" and about 70 percent of those who answered this question disagreed with the statement. This means that when we exclude the group with no opinion (neither agree or disagree) about 21.3 percent were interested and about 78.7 percent were not interested.

While the conclusions drawn from responses to Question 33 (Table 5) are almost identical to those described in Table 4, some respondents gave answers to 33 that conflicted with their answer to questions 16 and 17.

Table 5

Interest in Reducing Hours on Question #33

Interest Level	N	% of Total (N = 3073)	% of Those Expressing Opinion (N. 3073-603=2470)
Strongly Agree	178	5.8	21.3
Agree	448	14.6	
Neither Agree nor Disagree	603	19.6	—
Disagree	1331	43.3	78.7
Strongly Disagree	513	16.7	
Total	**3073**	**100.0**	**100.0**

About 90 percent of those respondents who answered "yes" to Question 16 also "agree" or "strongly agree" with Question 33, but about 11 percent of all respondents disagreed, an answer that contradicts their "yes" to Question 16.

These workers, willing to reduce hours now (Question 16) but not within a year (Question 33) or willing to reduce hours in the next year (Question 33) but not now (Question 16), were eliminated from the analysis. Thus, checking the responses to these two questions allows us to gain a more reliable estimate of the interest among respondents in reducing hours of work before retirement. While this procedure alters the sample size, by refining our estimates of who is in fact interested in reduction of hours of work, it increases our ability to analyze the behavioral response of workers to part-time work opportunities.

When inconsistent answers are excluded, we find that 4.6 percent of state employees would reduce hours of work if given the opportunity to do so (Table 6). Another 54.6 percent would do so if some benefit or job condition changed. Only 41 percent appear to be absolutely opposed to a reduction in hours of work. Thus while many older workers are interested in part-time work, a simple opportunity to alter hours of work would have limited response, since the majority of state workers would only consider a reduction in hours of work if other things changed as well which would make the reduction in hours more attractive. If all these conditions were met, the interest in part-time opportunities would be impressive.

Table 6

Interest of Older Workers in Part-Time Work
(all inconsistent responses removed)

Interest Level	N	Percent
Unqualified yes	126	4.6
Qualified yes	402	14.7
Qualified no	1074	39.3
Absolute no	1130	41.4
Total	2732	100.0

B. Conditional Responses

The previous section showed that for almost 55 percent of full-time workers some change in fringe benefit or work conditions would be necessary before they would reduce their hours of work prior to retirement. Examining in greater detail the conditions checked by these respondents (the workers giving conditional yes and no answers to Questions 16 and 17) allows us to identify the barriers to part-time work and the policy changes that would be required if the state wished to make part-time work attractive for a large percentage of workers near retirement age. It is important to note that the answers given by respondents represent their perceptions about the disadvantages of reducing hours of work and, as will be noted below, often indicate some misinformation about benefit programs. Thus in some cases, a lack of information on benefit programs may be as serious, though more easily correctable a barrier to workers reducing their hours of work than are the actual changes in benefits that would occur.

Simple tabulation of circumstances checked in Question 17 indicates that the greatest concern to these workers was the fringe benefit losses that might arise from not working full-time. Table 7 shows circumstances checked by workers who indicated that some change in benefit or job conditions would be required before they would consider a reduction in their work hours. Forty-four percent indicated their concern about the "loss of future social security or state retirement benefits." About 42 percent of the workers were also concerned about changes in health and life insurance benefits, even though most would not experience any reduction in coverage if hours of work were reduced (See Section II.C.) The other benefit related circumstances were each checked by far fewer respondents.

Combined with information from Section II.A, these data suggest that while under present circumstances only a small percentage of older workers would reduce their hours of work, many more would do so if their concerns

Table 7

Number of Respondents
Checking Each Circumstance (Q17)

Circumstances Chosen	N	% of all Responsible[1]
1. "if there were no decrease in fringe benefits."	1055	38.6
2. "if there were no loss of future social security or state retirement benefits."	1211	44.3
3. "if there were no loss in health or life insurance benefits."	1156	42.3
4. "if there were no loss in sick leave or vacation time."	1053	38.5
5. "if I could collect full retirement benefits while working reduced hours."	1043	38.2
6. "if I could return to my present hours if I changed my mind during the first year."	733	26.8
7. "if I could train for another type of job at the same time."	149	5.5
Total (number of respondents checking at least one circumstance)	1476[2]	54.0

NOTE:

[1]Percentages add up to more than 100 percent because respondents were instructed to choose all those circumstances which applied.

[2]1476 workers chose at least one circumstance and did not give inconsistent responses to questions 16, 17, and 33.

about fringe benefit losses could be assuaged either through more accurate information or actual changes in benefit programs. However, because many respondents checked more than one circumstance under which they might switch to part-time work--the mean was 4.1--it is not readily apparent what role each concern plays in limiting the willingness of respondents to change work hours. In other words, it is not clear whether each circumstance listed would alone cause the respondent to want to work part-time or whether it is the combination of circumstances that together would have to change to make part-time work more attractive.

To isolate those changes that workers indicated were important we took three approaches in analyzing the combinations of circumstances checked. First, we examined the responses of only those workers who checked only one circumstance. We then grouped the responses of the entire group of conditional yes and no's and analyzed them first as if each circumstance alone were sufficient to induce an hours change, and then as if all circumstances checked were critical and had to be met at the same time.

Table 8 indicates the circumstances chosen by those workers who chose only one circumstance (9.6 percent of the 1476 workers choosing at least one condition.) For about one-quarter of these workers, an irreversible decision to work part time is not attractive. They might try working part time if they knew they could later return to full-time work if they wished to. Other than the small percentage of workers who would view part-time work as an opportunity to increase their job mobility, all remaining workers in this group would reduce their hours only if some fringe benefit condition were to change. Close to half (42.6 percent) apparently would like to work part time as an early retirement opportunity, working while collecting full retirement benefits.

To estimate the priority all respondents put on benefit and job condition changes, the seven circumstances were grouped into three groups. Conditions

Table 8

Circumstances Checked by Respondents
Checking Only One Condition

Circumstances Chosen	Number Choosing Only This Circumstance	%
1. "if there were no decrease in fringe benefits."	12	8.5
2. "if there were no loss of future social security benefits."	23	16.3
3. "if there were no loss in health or life insurance benefits."	4	2.8
4. "if there were no loss in sick leave or bacation time."	1	.7
5. "if I could collect full retirement benefits while working reduced hours."	60	42.6
6. "if I could return to my present hours if I changed my mind during the first year."	33	23.4
7. "if I could train for another type of job at the same time."	8	5.7
Number Choosing only one circumstance.	141	100.0

(1), (2), and (5)[1] were grouped together as reasons that denote workers' concerns over possible losses in retirement benefits. For these conditions to be met, workers would have to continue accumulating service credit at their full-time salary rate or collect full benefits now without an early retirement penalty. Conditions (3) and (4) are those relating to non-retirement benefits. Finally (6) and (7) are those that could be met by the part-time work programs without affecting benefit calculations. These merely insure greater flexibility in workers' commitment to part-time work. Because respondents were not asked to indicate the relative importance of these circumstances, we had to do it ourselves. Two methods of ranking circumstances were tested.

First, assuming that the combination of circumstances checked was important; i.e., that only if all the checked conditions changed would a worker then feel it worthwhile to work part time, we classified the entire group of workers giving conditional yes and no answers according to the most restrictive condition checked. For example, workers who checked that they would work part-time if they could train for another job and if they would lose no sick leave, were classified as checking the latter reason. Likewise, a person concerned about losses in social security benefits would be listed as picking a circumstance in group (2), regardless of other circumstances checked.

Classifying workers in this way (Table 9), we find that 1.9 percent of all workers would be interested in part-time work if they could return to their present hours or if they could be retrained while working part time. A very small fraction (.5 percent) would find part-time work attractive if non-retirement benefit conditions were changed. On the other hand, almost 50 percent would reduce hours only if they lost no retirement benefits. Clearly, without changes in retirement benefits, this method of classifying workers indicates that most workers would continue to work

[1] Case numbers conform to those used in Tables 7 and 8.

Table 9

Conditions Required for Change
to Part-Time Work; More Restrictive Method

(Workers classified by last reason in list)[1]

Conditions	Number	% of all Consistent Respondents
Would now change hours	126	4.6
Would never change hours	1130	41.4
Require:		
1. A return to present hours or retraining	52	1.9
2. No loss in sick leave, vacation, health, life insurance	13	0.5
3. No loss in retirement benefits	1356	49.6
4. Other[2]	55	2.0
Total	2732	100.00

[1] Workers were classified if they gave a circumstance in groups 1 through 3 by the highest number of the groups in which circumstances checked fall.

[2] These respondents checked no other reason than the "other" category. Most listed loss in salary or retirement benefits as impediments to their reducing hours of work. They are thus largely a group that if reclassified would fall into the "would never change hours" group or would require no loss in retirement benefits.

full-time.

It may be, however, that respondents checked each circumstance that alone would be sufficient to induce them to change hours of work. For example, it may be that while most workers would clearly find part-time work more attractive if they lost no retirement benefits, they might also be willing to work part time if they lost no vacation time. They might even settle for part-time work with a guaranteed return to full-time work, even though they indicated that they would prefe an alternative guarantee of receiving retirement benefits at the full-time work rate.

Therefore, we assumed that each circumstance checked was sufficient for a worker to reduce hours and then ranked workers in Table 10 in such a manner that the least restrictive condition checked determined the group into which they were classified (thus we reverse the order from Table 9). About 30 percent of respondents checked a group (3) reason. Another 19 percent of workers would require a change in non-retirement benefits and 4.7 percent would reduce hours only if retirement benefits were not reduced by their choice. In contrast to the approach taken in Table 9, this last classification suggests that a state program could substantially increase interest in part-time work by making relatively easy policy changes. Though three-quarters of workers would probably remain uninterested in working reduced hours before retirement, the level of interest might be increased by another 29% merely if workers could return to full time or train for another job even if there were no changes in social security or state retirement payments. Further, interest might rise by another 19 percent if the state eliminated reductions in sick leave, vacation time, or provided more accurate information on health and life insurance benefit changes as a result of part-time reductions.

These three methods of trying to gauge the relative importance of the structure of the part-time work program itself on workers' decisions to

Table 10

Conditions Required for Change to Part-Time Work; Less Restrictive Method

(Workers classified by last reason in list)[1]

Conditions	Number	% of all Consistent Respondents
Would now change hours	126	4.6
Would never change hours	1130	41.4
Require:		
1. No loss in retirement benefits	129	4.7
2. No loss in sick leave, vacation, health, life insurance	510	18.7
3. Return to present hours or retraining	782	28.6
4. Other[2]	55	2.0
Total	2732	100.0

[1] Workers were classified if they gave a circumstance in groups 1 through 3 by the highest number of the group in which the circumstance checked fall.

[2] These respondents checked no other reason than the "other" category. Most listed loss in salary or retirement benefits as impediments to their reducing hours of work. They are thus largely a group that if reclassified would fall into the "would never change hours" group or would require no loss in retirement benefits.

reduce their hours of work result in a wide range in estimates. Our data show that only 5 percent of workers would work part time if simply offered the option to do so (see Section II A.) If workers were guaranteed the chance to return to their present job or training, between 2 and 29 percent of workers might shift to part-time work. This range results from problems of identifying the particular combination of circumstances that would have to change in order to induce workers to shift to part-time work. We feel, however, that the assumption underlying Table 9 is closer to reality. Most respondents appeared to choose carefully among the various circumstances given in Question 17. In addition, the large number of workers who did not check the social security and WSRF benefit-related contitions indicate to us that most respondents checked the combination of circumstances that would be necessary to cause them to consider a reduction in hours of work. They did not check only those that would be merely sufficient to cause them to change. Because so many appeared to be willing to undergo considerable losses in retirement benefits to work part time, we feel the circumstances actually checked represent real demands that would have to be satisfied by any part-time work program to attract a large percentage of state workers.

These findings have important implications for the success of a part-time jobs program. Table 8, 9, and 10 show that the greatest concern among workers is the decline in retirement benefits that would result from their decision to reduce their hours of work before retirement. This indicates that for the majority of interested older workers, part-time work opportunities are not attractive because of the known losses in retirement benefits incurred by workers who reduce hours. These workers would consider part-time work if changes were made in the retirement program or a supplemental program were introduced and targeted on workers who choose to reduce their hours of work

some years prior to normal retirement age. Our data suggest that a part-time work program, structured to insure job flexibility and provide accurate information on benefit changes would encourage a small percentage of workers (at least another 2% of all workers) to reduce their hours of work. Only rather major changes in retirement benefit programs, or state supplemental programs to counteract losses in retirement benefits would induce the majority of workers to alter their hours of work. Thus, a small scale part-time program would meet with some success, providing attractive work options for some 7 percent of state employees. Who these employees might be and what determines whether or not they would respond to a part-time work opportunity is addressed in the next section.

C. The Effect of Part-time Work on Retirement, Health, and Life Insurance Benefits

Because such a high percentage of Wisconsin State workers cite fringe benefit reductions as major barriers to their reducing from full-time to part-time work prior to retirement, we will review the relationship between hours of work and the major fringe benefit programs. There is also a compelling theoretical reason for looking at how fringe benefits change with hours of work.

We know that hourly compensation, including both wages and fringe benefits,[1] is a major determinant of the hours of work decision (Cain, 1966; Mincer, 1962; Mincer & Polachek, 1974; Sandell & Shapiro, 1978) and that, in general, higher hourly compensation increases the number of hours worked. In addition, the literature on part-time employment shows that lower wages from part-time work, fewer fringe benefits, and fewer promotional opportunities are major deterrents to workers' choosing part-time over full-time employment (See Meives, 1979a for a review of this literature.) Even if hourly wages are constant for a person reducing hours of work on a given job, hourly compensation will change if fringe benefits are not pro-rated by time worked. The direction of this change explains why a full-time worker may or may not be willing to work part time if offered that opportunity.

Benefits from each of the major benefit programs covering full-time state workers change with hours of work. It is important to emphasize, however, that we are unable to measure differences in future wage increases, differences in job promotion opportunities, and differences in on-the-job relationships with supervisors and co-workers between part- and full-time workers. These may in fact be "fringe benefits" whose importance to workers near retirement are at least equal to those discussed in this section. Part-time workers who expect lower merit increases and fewer job promotion opportunities suffer a real compensation loss which will not be picked up by

[1] The distinction between wages and total compensation as used in this report is important. Wages refers to pre-tax earnings of workers, excluding employer contributions for pension, health or life insurance and the value of vacation & sick leave. Compensation includes the value of these employer provided benefits.

measures of current compensation, but will elicit responses identical to those occasioned by lower hourly pay for part-time work.

Wisconsin State Retirement Fund Benefits (WSRF)

For workers near retirement, the change in WSRF benefits for which they will be eligible at retirement is a major concern. The benefit for which workers are eligible at age 65 equals years of creditable service times the average of the three highest years of earnings all multiplied by .013. Receipt of benefits between 55 and 65 results in an actuarial reduction in the full benefit calculated by this formula. Thus, a worker reducing to part-time work may find that at retirement benefits will be lower than they could have received if they had continued working full time to an unchanged retirement age. The most obvious reason for this reduction is that the creditable service is lower; a half-time worker will receive a half year of service per calendar year, while a full-time worker is credited with a full year. The earnings average is of the three highest years of earnings. For a person reducing to part-time these are likely to be an average of their earlier, full-time years (ironically a long-term part-time worker will have their earnings averaged over their full-time equivalent salary). Such a person will be doubly penalized: both their service credits will be fewer and their earnings average smaller than will be true if they had continued full-time.

Table 11 illustrates the effect of part-time work on WSRF benefits for three hypothetical workers with a service and earnings history drawn from data on older workers in our sample. These workers are assumed to shift to half-time work at one (worker A), three (worker B) and five years (worker C) prior to their retirement at 65. The annual annuity at age 65 following a full time career would have been $3308 (item 10) for all three workers. For each worker we calculated the accrued benefit at the time they reduced their hours of work (item 7). This benefit would not be payable until age 65 but represents the benefit

payable at that age based on earnings and service accrued up to the age the worker reduced hours of work. Because each hypothetical worker chose part-time work at a different age, each will have a different service and earnings record at 65 (item 11 and 12) and therefore a different annuity at age 65. The last items in the table compare the gains in the annuity if the worker had continued full-time (item 14) with the actual gain realized following the specified years of part-time work (item 15).

Clearly a worker can expect to forego retirement benefits upon reducing hours of work. This is reasonable in a system that rewards retirees on the basis of prior earnings and service. However note that while each worker foregoes only half of their full-time salary (i.e. they reduce their service to the state by only one half) they forego two-thirds of their potential annuity gains. The disproportionate loss in benefits arises because forthe part-time workers both service credits and average salary are lower. The part-time worker is unable to benefit in terms of retirement income from salary increases during their final years of earnings as a full-time worker is able to do.[1] The further from their actual retirement age a worker chooses to reduce to half time work, the greater is the absolute and relative loss in size of foregone benefits. While this will be true even if a double penalty were not imposed on the worker reducing hours, this loss is increased because the worker is also unable to benefit from salary increases.

[1]The percentages in item 18 would be even larger if salary increases during the workers final earnings years were greater than the approximately 2 percent assumed. Assuming an 8 percent increase in full-time salary after age 60 benefit gains foregone (item 18) rises to 81 to 82.2 percent for these three examples.

Table 11

Effect of Part-Time Work on
Wisconsin State Retirement Benefits for Three Hypothetical Workers

	Worker A	Worker B	Worker C
1. Total Years of Work	21	21	21
2. Age Going Half-Time	64	62	60
3. Retirement Age	65	65	65
4. Years of Part-Time Work	1	3	5
BENEFIT ACCRUED AT TIME HOURS REDUCED[a]			
5. Years of Creditable Service	20	18	16
6. 3-Year Earnings Average	11928	11528	11128
7. Accrued Benefit	3101	2698	2315
BENEFIT AT 65 IF CONTINUED FULL-TIME			
8. Years of Creditable Service	21	21	21
9. 3-Year Earnings Average	12119	12119	12119
10. Benefit	3308	3308	3308
BENEFIT AT 65 WITH HALF-TIME WORK			
11. Years of Creditable Service	20.5	19.5	18.5
12. 3-Year Earnings Average	11928	11528	11128
13. Benefit	3179	2922	2676
COMPARISON OF BENEFITS			
14. Benefit Change From Full-Time Work (10-7)	+207	+610	+993
15. Benefit Change from Part-Time Work (13-7)	+78	+224	+361
16. Benefits Foregone for Part-Time Work (15-14)	-129	-386	-632
17. Percent Full-Time Benefits Foregone (16/10)	3.9	11.7	19.1
18. Percent Full-Time Gain Foregone (16/14)	62.3	63.3	63.6

[a]This benefit is not payable if the worker is less than 65, but represents the amount that would be payable at 65 based on years of service and earnings up to that time at which the hours of work are reduced.

Because the reduction in pension benefits is not proportional, hourly compensation will fall for part-time workers when hours of work are reduced. This fall is somewhat larger the further from age 65 is the worker when hours are reduced. Thus two changes occur when workers reduce to part-time work. Clearly retirement income is foregone, thus discouraging full-time workers from working part-time. In addition, hourly compensation falls for part-time workers, which will aggravate the negative income effect of an absolute change in future retirement income. The absolute loss is less for workers closest to retirement, suggesting that all else equal, the closer to retirement is a worker the more attractive will be part-time work. Not only is the negative effect of a future loss in income less, but the fall in hourly compensation is smaller.

Health and Life Insurance

Workers reducing hours of work, but continuing to work at least one-half time (1044 hours per year) will suffer no reduction in health coverage. Under the State Comprehensive Health Insurance program the state continues to pay all premiums for all workers working at least half-time, thus insuring that half-time workers will receive identical coverage as do full-time workers. This means that for full-time workers considering reduction in hours to no less than half-time, hourly compensation will actually rise.

Life insurance coverage at the prior, full-time level may also be continued for workers reducing their hours of work. Thus no loss in protection need result. Most workers participating in the demonstration project chose to continue full-coverage. Through a curious, though not often elected feature of the program, coverage for part-time workers may actually be cheaper. A "basic" amount of insurance is available and equal to gross state earnings. The employee pays a fixed premium per $1,000 in basic coverage. In addition, a supplemental plan will double the value of life insurance by 50 or 100 percent above the basic

amount. The premium for this supplement is lower than for the basic insurance for persons over age 30. Thus, a worker insured at only the basic value (i.e. gross full-time salary) could receive the same total protection on a half-time job by choosing the 100 percent supplement, but would pay a lower premium. Of course, if the Basic Coverage had been supplemented while working full-time, a reduction in hours would mean a reduction in life insurance coverage.

Sick Leave

Sick leave is prorated by hours of work. State workers may accumulate sick leave throughout their employment period and at retirement exercise the option of redeeming accumulated sick leave credit for payment of part of the health insurance premium. The sick leave credit is converted into a dollar credit amount based on the number of accumulated hours of sick leave. Clearly a part-time worker will accumulate fewer hours of sick leave than will a full-time worker. After these credits are exhausted, health insurance premiums are deducted from the retirees' WSRF annuity. Thus, even though health insurance coverage is identical for full-time and part-time workers prior to retirement, the accumulation of fewer hours of sick leave by part-time workers means that health insurance coverage is more costly following retirement to the worker who reduced hours sometime prior to retirement. The fewer number of years worked part time, the less will be the difference between full- and part-time workers in the number of years over which post-retirement premiums are paid by the State.

Other Benefit Programs

Several other benefit programs may be marginally important in a worker's decision to work part time. Income continuation is an elective program which is designed

to replace up to 75 percent of a worker's gross salary, but may be off-set by other disability income. Thus, a part-time worker will receive less protection from this program and will be more likely to have benefits off-set by social security disability income based on life time income averages.

Holidays and vacations are received based on days of work. Thus, a part-time employee will receive an equal number of days off as will a full-time worker although the actual number of hours of vacation time are prorated.

D. Who Is Interested in Part-Time Work?

Measures of Interested Respondencs

We have estimated the number of respondents among older state employees who would immediately reduce their hours of work if given the opportunity to do so, and discussed reasons given by others for their reluctance to do so under current benefit and job conditions. From this information it is not clear why some older workers worry about potential losses in future retirement income and other benefits while others do not, even though all full-time workers are covered by the same benefit programs.[1] In order to understand differences among workers in their current interest in part-time employment and the characteristics of those who would be responsive to changes in state policies concerning part-time work, it is necessary to analyze more closely the responses of workers who expressed interest in a reduction in hours of work. In order to do this we first discuss two measures of the "interested in part-time work" group that we use to isolate those who might be responsive to a part-time work program from those who would not be. Next we discuss key variables that we expect to affect which group a given individual will fall into. In the final part of this section, we discuss the results of our multivariate analysis of worker interest in part-time work.

Section A discussed the responses of workers to part-time work option;

[1] While this is true, not all workers participate in all fringe benefit programs. We have no information on participation by Older Worker Respondents.

some would definitely be interested in reducing their hours of work while others would only do so if certain job or benefit conditions were to change. Likewise, some said they were definitely not interested in reducing their hours of work, while others indicated changes in some job and benefit changes might cause them to reconsider their negative response. Thus we look at two groups of respondents, those who would respond to a part-time job option under current conditions and a second group including these and others who would do so only if benefit or job conditions were to change.

The first measure, MEASURE 1, includes only those respondents who said that either they would definitely reduce their hours of work now or they definitely would not (groups 1 and 2 in Table 3). Thus this measure enables us to analyze why those workers with definite ideas about a change in their hours of work might choose to do so under current circumstances. The second measure, MEASURE 2, expands the sample by including the qualified yes and no respondents (groups 3 and 4 in Table 3).

How Fringe Benefits Enter Into the Analysis

The two major programs in which State employees participate are the WSRF and Group Health Insurance. We have explained how part-time work may result in losses in retirement benefits from the former but, except for fewer accumulated sick leave credits at retirement, will not lead to any change in health insurance coverage. Although some respondents viewed potential losses in health insurance as a concern if they reduced their hours of work, such a loss is unlikely to occur. Health insurance coverage is unchanged if hours are reduced to no less than half-time. There is an apparent information gap about health insurance coverage and its relationship to hours of work which should be addressed by any part-time work program. However, this difference across people in information

and its effect on interest in part-time work cannot be measured.

The effect of changed hours of work on WSRF benefits can be measured and is included in our analysis. We calculate for each person in our sample the benefit they could receive at their expected retirement age if they continued to work full time at their current salary. Years of service are calculated as the sum of years of service to date, plus years to their expected retirement age. We also calculate what would be their benefit at that age if they were to reduce their hours of work within the next year, working half-time until retirement. The retirement income lost as a result of a decision to work part time is the difference betwee.. their pension as a full-time and as a part-time worker. We also include a variable measuring their accumulated pension to date, calculated from information given on years worked for the state to date and the average of their three highest years of earnings. These last two variables are calculated as are items j and e in Table 11:[1]

In our analysis we use two pension variables: accumulated pension to date (PVAL) and the change in the pension that would result from working part time until their expected retirement age (PLOSS).. These measures are used to test two different hypotheses about the effect of pension on work behavior. According to one view the absolute level of income is important, with workers already assured of high pensions being able to afford and therefore more willing to reduce their hours of work. For high pensioners further increases in pensions are not important; it is the absolute income levels that are critical. Conversely, workers with low benefits accumulations will be unable to afford a reduction in hours of work. The opposing view argues that because pensions are directly tied to wages and income, workers have adjusted current and future standards of living to absolute income levels. Low- and high-income earners will be equally willing to change hours of work. What is important is the gain in future pension income that follows from a change in hours of work. Regardless of the absolute level of income, a sharp drop in retirement benefits due to a change in hours of work

[1] In this case, however, we assume a constant salary until retirement. Thus we underestimate the absolute loss in benefits by reducing hours of work.

will discourage a worker from doing so. For example, consider the case of two full-time workers each of whom expect to retire at age 65. Both consider reducing their hours of work prior to retirement. If one worker does so three years prior to retirement, the annual annuity at 65 will fall from $500 to $450, for a monthly income loss of $50. For the other, a reduction in earnings will also result in a lower annuity; from $600 to $500. Because the second person will lose twice as much as the first from reducing to part time, s/he will be less likely to do so. Thus, this second view of retirement behavior argues that workers whose retirement benefits will change less will be more willing to change their hours of work, regardless of the initial size of their benefits. The inclusion of these two pension variables tests the relative importance of pension levels versus pension changes to workers considering part-time work options.

Data provided by workers on years worked for the State and average income during the three highest paid years of employment enabled us to estimate the appropriate pension variables. Table I2, which gives the mean benefits and mean benefits foregone by reducing now to part time for the two groups of respondents, indicates a significant and negative relationship between both benefit measures and interest in part-time work. On both measures the F statistics were large and suggests that both the level and change in pension income foregone by reducing hours of work is negatively associated with interest in reducing hours of work. The higher the pension and the higher the loss in benefits, the less likely is the worker to be interested in reducing hours of work.

Job Satisfaction

As we did with retirement benefits we develop two different measures of job satisfaction that attempt to isolate the level from the change in job satisfaction.

To examine the relationship between job satisfaction and interest in reduction in hours of work, we analyzed questions 18 through 33. (See Appendix A) Four variables were

Table 12

Mean Value of Pension Variables and Interest in Reducing Hours

Measures	MEASURE 1[1]		MEASURE 2[1]	
Interest Category	N	Mean $'s	N	Mean $'s
PVAL[2]				
Uninterested	926	4,554	2349	3,913
Interested	97	3,828	500	3,529
F		4.68		6.44
Sig.		.03		.01
PLOSS[2]				
Uninterested	857	660	2191	606
Interested	91	545	462	434
F		4.08		57.02
Sig.		.05		<.01

Note:

[1]MEASURE 1: Equals 1 if respondent indicated would reduce now. Equals 0 if respondent indicated would not under any circumstance. MEASURE 2: Equals 1 if respondent indicates would now or might reduce hours of work. Equals 0 if respondent indicated would never or probably would not.

[2]See text and Table 15 for definition of variables.

[3]See Technical Appendix (Appendix E) for brief discussion of F-statistics and level of significance.

created. First a general job satisfaction index measures general satisfaction with current job, salary and coworker relationships. The next two variables indicate recent changes in satisfaction with salary and with job tasks. Finally a fourth measure indicates each respondent's desire for more control over setting their own working hours and defining what they do each day. Appendix D gives greater detail on how these various measures were created.

We hypothesize that workers who are more satisfied with job conditions are least likely to want to work fewer hours per week. For highly satisfied workers, longer work hours will be accompanied by greater satisfaction and therefore there will be little desire to reduce overall satisfaction by working fewer hours. On the other hand, less satisfied workers will be more likely to want to reduce their hours of work in order to avoid the distasteful rewards of full-time work. However, we argue that as in the case of pension income, workers have already adjusted working hours to accomodate to the satisfaction derived from their jobs. The key variable in determining whether they now might want to change earlier decisions about working hours is whether their satisfaction has recently changed. Thus, we hypothesize that it is the variables reflecting recent changes that are key to determining whether workers will be attracted by part-time work options. The two change variables, less satisfaction with salary and less satisfaction with job tasks during the past year, are expected to be negatively and positively related, respectively, to whether a person views part-time work options favorably. Persons less satisfied with their current salary will be more hesitant than others in suffering the income loss associated with a reduction in hours of work. On the other hand those less satisfied during the past year with their jobs will

seek to reduce hours of work. Finally, the fourth variable measuring what they want in terms of personal autonomy to determine hours and tasks, should be negatively related to interest in part-time work. Because part-time work is associated with somewhat less involvement in the workplace, the desire for greater control over decisions affecting one's own work environment should be associated with desire to continue as a key worker in the workplace, i.e., as a full-time worker.

Table 13 shows the association between these four measures of job satisfaction with the desire to reduce hours of work. All job satisfaction measures are significantly associated with whether a person is interested in reducing their work hours, with the exception of the CHSAT$ variable, which indicates whether or not a person is now less satisfied with their salary than they were in the recent past. Differences between the two interest groups in level of job satisfaction (JOBSAT varies between -1 and 1 with a positive value showing higher job satisfaction) are small, but significant. Difference in the mean values of CHSATT (a value closer to +1 indicates the respondent was less satisfied with job tasks during the past year) and of the WANTMORE variable (a value closer to +1 indicates a person wants more control over work hours and job tasks) between the two groups are larger and significant. While there is a significant relationship between job satisfaction variables and interest in part-time work, this simple test for differences fails to indicate whether there is a causal relationship between the two variables. For example, it may be that the demonstrated relationship is due to a high correlation between job satisfaction and another variable (for example health), the latter which is the cause of a person's interest in working part-time.

Table 13

Job Satisfaction Measures:
Their Relationship to Interest in Part-Time Work

Measure and Interest Group	Definition of Interest and Mean Value of Job Satisfaction Measures	
	MEASURE 1[1]	MEASURE 2[1]
JOBSAT[2]		
Interest in Part-Time		
Uninterested	.89	.85
Interested	.79	.81
F	12.0	8.9
Level of Significance	< .01	< .01
CHSAT$[2]		
Interest in Part-Time		
Uninterested	.50	.50
Interested	.58	.50
F	1.4	.07
Level of Significance	--	--
CHSATT[2]		
Interest in Part-Time		
Uninterested	.41	.44
Interested	.63	.50
F	9.3	3.7
Level of Significance	< .01	.05
WANTMORE[2]		
Interest in Part-Time		
Uninterested	.14	.05
Interested	-.18	-.15
F	59.7	103.6
Level of Significance	< .01	< .01

Note:

[1] MEASURE 1: Equals 1 if respondent indicated would reduce now. Equals 0 if respondent indicated would not under any circumstance. MEASURE 2: Equals 1 if respondent indicates would now or might reduce hours of work. Equals 0 if respondent indicated would never or probably would not.

[2] Values for variable range from -1 to +1.

Health

Table 14 shows the relationship between the three measures of health and interest in reducing hours of work. HEALTH is a dummy variable which is equal to 1 if a person's health was rated poor. Persons interested in part time work are significantly more likely to have poor health. CHHEALTH and FATIGUE are two measures of health change, the former equaling 1 if the workers indicated that health status was worse than a year ago and the latter equaling 1 is he or she felt more fatigue at the end of the working day compared with a year ago. Workers interested in a change in hours of work were significantly more likely to indicate worsening health or growing fatigue.

From these simple tabulations it is clear that the interest of older workers in reducing their hours of work is significantly related to their pensions, job satisfaction and health. This does not tell the full story, since we cannot yet tell how these measures relate to each other or to other variables affecting a workers' interest in a reduction in work hours, and therefore are not yet able to understand the complex relationship among the characteristics of the worker and the job that determine whether or not a reduction from full-time to part-time work is an appealing options. For example, if a high percentage of workers who have always been dissatisfied with their job also have become less satisfied with their job tasks in the past year both the JOBSAT and CHSATT will be highly correlated with interest in part-time work, even though only the latter has caused the worker to look for ways to reduce hours of work. In the next section we try to control for the effects of other variables in explaining the relationship between interest in reducing work hours and variables we hypothesize to affect interest in part-time work.

E. The Decision to Reduce Hours of Work

The importance of level versus changes in three key variables is predicated

Table 14

Health Measures and Their Relationship to Part-Time Work

Measure and Interest Group	Definition of Interest and Mean Value of Health Measure	
	MEASURE 1[1]	MEASURE 2[1]
HEALTH[2]		
Interest in Part-Time		
Uninterested	.08	.09
Interested	.13	.14
F	4.1	14.9
Level of Significance	.04	< .01
FATIGUE[2]		
Interest in Part-Time		
Uninterested	.18	.24
Interested	.46	.47
F	48.5	116.3
Level of Significance	< .01	< .01
CHHEALTH[2]		
Interest in Part-Time		
Uninterested	.03	.04
Interested	.13	.07
F	19.8	9.9
Level of Significance	< .01	< .01

Note:

[1] MEASURE 1: Equals 1 if respondent indicated would reduce now. Equals 0 if respondent indicated would not under any circumstances. MEASURE 2: Equals 1 if respondent indicates would now or might reduce hours of work. Equals 0 if respondent indicated would never or probably would not.

[2] Values for variable range from -1 to +1. See Table 15 for description of variables.

on the assumption that workers have chosen working hours rationally and those workers who work full-time have chosen to do so as a way of maximizing the satisfaction derived from job and non work activities. In addition, the job they have chosen represents the best solution to meeting their financial and other needs within the context of labor market and family obligations. Thus, unless full-time workers were originally severely constrained in the number of hours they could work, an increase in part-time work options alone will not alter their current hours of work. It is likely that any particular job is offered with a fixed number of hours. However, because there are opportunities for part time work in state employment (about 5 percent of older permanent employees work part-time; a higher percentage of all state employees including limited term employees do so) as well as in non-state work, there is considerable choice of jobs with varying salaries, working hours and other attributes. Thus we hypothesize that when the job was chosen, it represented the best choice of work hours, salary and job tasks.

Despite workers' original satisfaction with their job choice, it is clear that unexpected changes in job or health conditions could disrupt this equilibrium, leading a worker to seek a different combination of working conditions, one of which might be part-time work at current hourly earnings. Part-time work, however, is one which necessitates considerable loss in salary and in participation in the workplace. Therefore only those workers who are willing and able to suffer income loss as well as disengagement from work will be willing to do so. Changes in working conditions and in future income resulting from changes in working hours are therefore key variables that workers will consider in determining whether or not to reduce hours of work on their current job. We develop two sets of variables, those measuring levels and those measuring changes in those levels. We have already discussed in some detail three of these measures; those indicating levels and changes in future retirement income that

result from reducing from full- to part-time work, those indicating level and recent changes with job satisfaction and those measuring levels and changes in health. Other variables are also hypothesized to affect current interest in part-time work and are included in our analysis.

Income other than that from their state job is expected to have a positive influence on interest in part-time work; workers with other income are better able to withstand the income loss associated with a reduction in hours of work. The direction of the effect of current hourly earnings[1] from their state job is ambiguous. Two opposing effects determine the net effect of this variable. A reduction in part-time working hours means an absolute loss in income. The higher is the current hourly salary the more able will be the employee to withstand this loss, implying that the income effect of this variable will be to encourage a reduction in working hours. On the other hand, if part-time work changes the per hour value of fringe benefits and the probability of future wage increases, a reduction in hours of work also changes the relative cost of non-working hours. If high wage earners expect higher salary increases in the future that might be threatened by a reduction in hours, and lose more in fringe benefits (e.g. lose more life insurance coverage) part-time work will be mean a reduction in per hour earnings. Thus the hours of leisure "bought" with part time work will be more expensive and will be less likely to be purchased by high salary earners. Thus, the wage effect is expected to discourage part-time employment. The effect of the earnings variable is the net effect of the positive income and negative wage effects and cannot be determined a-priori.

Several control variables attempt to capture the effect of non-economic characteristics of workers on the hours of work decision. Sex and marital status measure the influence of social pressures on males and married persons, especially

[1] Since all workers are full-time, salary was converted to hourly earnings by assuming 2080 hours worked per year.

those with other dependents, to continue full-time work prior to reaching retirement age. These variables may also reflect the effect of other family members' work behavior which cannot be measured by our data on the work behavior of the state worker. Occupational characteristics not associated with earnings are measured by the inclusion of selected occupational variables.

Table 15 presents the regression results for our two samples of respondents; those who gave definite answers to the question on interest in working part-time (MEASURE1) and the larger group of those who gave consistent answers indicating either definite or conditional interest (MEASURE2).

Looking first at respondents who indicated a definite yes or no response to the question of whether they would reduce their hours of work within the next year if given the opportunity (MEASURE1) we find our hypotheses about differences in the effect of level versus changes in key conditions supported by the results. The level of pension benefits for which a worker would be eligible at retirement (PVAL) has no significant effect, but the absolute reduction in benefits that would result from the decision to reduce their years of work (PLOSS) is important. The higher is this reduction, the less likely is a person to want to reduce hours of work.[1] The coefficients on hourly wage (WAGE) and other income (OTHER$) are positive, indicating that the income effect of wages predominates and that the higher the non-wage income the more likely is a person to want to reduce to part-time work. Interestingly, the more one has considered and planned for retirement (PLANS), the more likely is one to want to reduce hours of work. It may be that insufficient information about retirement leads to greater caution about changing hours of work prior to retirement. On the other hand, the PLANS variable may be acting as a proxy for the value of non-income producing assets (e.g. house, pension funds) which have been accumulated by those who have given greater thought and attention to the necessity of accumulating assets for retirement purposes. If the first interpretation is correct, a pre-retirement

[1] Coefficients measure the change in the probability of being interested in part-time work that would result from a unit change in the independent variable.

program providing accurate information on fringe benefits may encourage some to consider part-time work. The second interpretation, however, suggests that a pre-retirement program will have limited impact, if any at all. The accumulation of assets occurs over a working life and may have more to do with attitudes towards work and savings acquired early in one's working career than with specific information on retirement acquired a few years prior to retirement.

The job satisfaction variables have the expected role in explaining the probability of wanting to reduce hours of work. The actual level (JOBSAT) has no significant effect on the probability of a worker's being interested in part-time work, while two of the change variables do. If the level of worker satisfaction with the tasks performed on the job has recently changed (CHSATT) they are more likely to want to reduce hours of work (i.e. the probability rises by .22 percent). However, if they want more decision making power on their job (WANTMORE) they are less likely (be 13.5 percent) to want to relinquish control through working part-time. A recent change in satisfaction with salary (CHSAT$) has no significant effect although the sign is correct. It may be that recent high rates of inflation have made dissatisfaction with salaries widespread (note the higher mean forthis variable than for CHSATT) among state employees and therefore this variable is less likely to explain differences among employees in hours of work than it might have some years earlier.

The health variables indicate that recent changes in health might be more important than is the level of health in explaining worker's interest in part-time work. If workers are less healthy than they were one year earlier (CHHEALTH), or experience more fatigue at the end of a work day (FATIQUE), part-time work is of greater interest (the probability of wanting to work part-time rises by 18 and 9 percent, respectively).

Few of the control variables are significant explanatory variables. While

the older is the worker the less likely are they to be interested in part-time work options, the AGE variable is only significnat at the 10 percent level. Five dummy variables were included, each indicating whether or not the respondent was classified in a particular job category: clerical (OFFCLEK), protective service (PROTSRV), craft (SKLCRFT), technicians (TECHS) and service-maintenance workers (SVCMNT). The categories are not exhaustive. Professional workers are the major excluded category. Coefficients for the included occupational groups indicate the degree to which the probabilities of being interested in part-time work diverge for theparticular group from that for professionals. Two additional groups were excluded (paraprofessicnals and office administrative workers) since there was no a-priori reason to expect their behavior to diverge from the professional workers and because their inclusion in earlier equations showed their behavior was not different. The groups included are thosejob categories which are often thought most amenable to shared job or part-time work schedules, since responsibility for specific tasks can be assigned among workers. While the positive signs on the coefficients for clerical, craft and technical workers indicate that these workers are somewhat more likely to be interested in part-time work, the coefficients are insignificant for the first two categories. In addition, service maintenance workers are somewhat less likely to be interested, although again the coefficient is not significant, indicating that its divergence from zero could be due merely to chance variations in the sample. Only technicians (TECHS) are significantly more likely than are professionals and all other groups to be interested in part-time work.

Looking at the results using MEASURE2 as the dependent variable we see only slight changes in our results. Recall that this group of workers includes those who have given a conditional "yes" response to the question on whether they are interested in reducing hours of work in the next year. Thus differences between these results and those for MEASURE1 are due to the inclusion of workers who might be interested under some conditions. Recall that these conditions are most likely to include no reductions in retirement benefits.

The results for the two pension and the PLANS variables are similar to those for the equation using MEASURE1. For this group hourly earnings and other income have no significant effect. It may be that since the condition given by most workers is that retirement income not change as a result of part-time work, most respondents see little need to "finance" a reduction in hours of work from other income. The results on the job satisfaction variables are slightly altered from MEASURE1. While CHSAT$ is now signficant, it is so only at the 10 percent level. Likewise, CHSATT is no longer significant, although even in the MEASURE1 equation the level of significance was not high. The group of health variables again show that changes in health rather than its level are important, although in this equation the CHHEALTH variable is no longer significant, though of the correct sign. Among the control variables, males are significantly less likely to consider a change in hours of work in the near future and TECHS are significantly more likely to be conditionally interested.

These two regressions indicate that there are significant differences between workers who might reduce to part-time work and those who would not. Workers are strongly influenced by the losses in retirement benefits that would arise from their decision to work part-time. Thus workers not covered by a pension plan, those whose benefits would change only slightly because of long years of

service, or those very close to retirement are more likely to be interested in a part-time work program. On the other hand, this is counter-balanced by the greater ability of high wage earners or those with substantial non-state income or assets to afford the loss in income that comes from working fewer hours per week.

The profile of a typical part time worker is not immediately apparent, although these results suggest that high wage earners, near their expected retirement age who have been covered by the WSRF for many years as well as accumulating other assets and income sources may be most interested in reducing hours of work on their current job.[1] This is consistent with the findings of Anschell (1980). It is clear that change in health or job satisfaction has an effect on interest in part time work. Thus for some employees, part-time work options may permit them to continue working in the face of unexepcted declines in health or changes in assigned work and satisfaction with that work.

Decomposing the WANTMORE variable gives us added insight into the inter-relationship between job dissatisfaction and part-time work. When the two components of this variable are examined, it appears that the desire for greater control over one's working hours is the controlling influence. The other component, the desire for greater control over tasks performed, alone has an insignificant effect on interest in part-time work. Workers who want more control over setting their working hours may wish to do so for two opposing reasons. Those who are increasingly

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[1] An alternative interpretation is possible. Such a worker may be a highly skilled employee working long hours in a high pressure position. They may be attracted by the possibility of working part time on their current job, in hopes that this would more equally balance actual hours worked with salary paid, since another person might be hired to share responsibilities and over-time work. It may also be that the question was not interpreted as requiring permanent part-time work. Persons in high administrative positions might be attracted by part-time employment for a limited period of time, knowing that they could easily return to full-time work when they so wished.

dissatisfied with their job may see in part-time work or more flexible full-time hours a way of compensating in part for job dissatisfaction by adjusting their hours to accomodate more satisfying non-work activities. There is another group, however, who are satisfied with their jobs and see more flexible hours as a way of satisfying their wish to meet the demands of both a satisfying full-time job and their non-work obligations. The latter group dominates in the relationship between the WANTMORE variable and interest in part-time work. This indicates that many state workers would welcome greater flexibility in setting their full-time work hours. However, some respondents do want to set their own part-time working hours to accomodate their lessening interest in their job, and when the WANTMORE variable is excluded from the MEASURE2 regression (not shown) the effect of the NEGTSAT variable increases and become highly significant. This strengthens our conclusions that if other means of dealing with reduced job satisfaction are not forthcoming (e.g. by dealing with the source of this dissatisfaction itself) providing opportunities for reduced workinghours is one method of accomodating workers who might otherwise resign from state employment. These reduced work hours will be most attractive to workers experiencing growing job dissatisfaction; more satisfied workers are likely to wish to continue working at their full time rate although they may prefer some flexibility in deciding when this work is performed. In general, part-time work opportunities are a method by which the State can retain the services of workers who might otherwise choose to retire or resign earlier due to ill health or growing job dissatisfaction.

Logit Analysis

The dependent variable for the OLS regressions described in the previous section is a dummy which equals 1 if the person would reduce their hours of work and 0 otherwise. Thus the coefficients in the regression are interpreted as measuring the effect of an independent variable on the probability of a person being willing to reduce hours of work. However, a serious problem exists in

Table 15

OLS Estimates of Determinants
of Interest in Reducing Hours of Work

	MEASURE 1		MEASURE 2	
FINANCIAL VARIABLES	Coefficient	(Standard Error)	Coefficient	(Standard Error)
PVAL	.0012	(.004)	.0010	(.003)
PLOSS	-.0875	(.03)****	-.1099	(.02)****
WAGE	.0166	(.004)****	.0041	(.004)
OTHER$	.0022	(.001)*	.0003	(.001)
PLANS	.0811	(.022)****	.0813	(.016)****
JOB SATISFACTION				
JOBSAT	.0248	(.040)	.0416	(.031)
CHSAT$	-.0050	(.009)	-.0125	(.007)*
CHSATT	.0216	(.010)**	.0093	(.008)
WANTMORE	-.1357	(.025)****	-.1536	(.019)****
HEALTH				
HEALTH	-.0175	(.036)	.0338	(.027)
CHHEALTH	.1825	(.051)****	.0380	(.038)
FATIGUE	.0905	(.024)****	.1081	(.0172)****
CONTROL				
GENDER	.0035	(.026)	-.0838	(.020)****
AGE	-.0077	(.004)*	-.0038	(.003)
MARSTAT	-.0256	(.025)	.0018	(.019)
DEPS	.0063	(.010)	.0104	(.008)
OFF-CLER	.0044	(.032)	.0160	(.025)
PROTSRV	-.0386	(.042)	-.0276	(.033)
SKLCRFT	.0035	(.049)	.0134	(.038)
TECHS	.1021	(.051)**	.1247	(.039)****
SVCMNT	-.0014	(.029)	.0038	(.023)
COLLGRAD	.0038	(.029)	-.0091	(.023)
Constant	.4191		.3777	
R^2	.171		.107	
F	7.76		12.89	
N	848		2383	

**** Significant at .01 level
*** Significant at .025 level
** Significant at .05 level
* Significant at .10 level

Means and Standard Deviations[1]

	MEASURE 1		MEASURE 2	
MEASURE 1	.0932	(.29)	--	--
MEASURE 2	--	--	.1716	(.38)
PVAL ($1,000)	3.986	(3.18)	3.909	(3.12)
PLOSS	.658	(.52)	.584	(.45)
WAGE	8.45	(3.42)	8.31	(3.23)
OTHER$ ($1,000)	6.008	(7.08)	6.414	(7.35)
PLANS	.281	(.45)	.326	(.47)
JOBSAT	.8769	(.27)	.8484	(.27)
CHSAT$	-.0330	(1.18)	.0428	(1.14)
CHSATT	-.5035	(1.06)	-.3416	(1.07)
WANTMORE	.0981	(.41)	.0133	(.41)
HEALTH	.0849	(.28)	.0974	(.30)
CHHEALTH	.0401	(.20)	.0449	(.21)
FATIGUE	.0225	(.40)	.2900	(.45)
GENDER	.665	(.47)	.6253	(.48)
AGE	58.56	(2.70)	58.66	(2.72)
MARSTAT	.7500	(.43)	.7655	(.43)
DEPS	.4021	(.99)	.3642	(1.0)
OFFCLER	.1344	(.34)	.1431	(.35)
PROTSRV	.0637	(.24)	.0613	(.24)
SKLCRFT	.0401	(.20)	.0424	(.20)
TECHS	.0377	(.19)	.0407	(.20)
SVCMNT	.1686	(.38)	.1733	(.38)
COLLGRAD	.133	(.34)	.1347	(.34)

[1]Standard deviations in parentheses.

Definitions of Variables

PVAL The annual benefit from the Wisconsin State Retirement Fund for which an individual will be eligible if s/he continues to work full time at the current full-time salary until stated age of expected retirement.

PLOSS The difference between PVAL calculated for the individual and the WSRF benefit that would result if the worker immediately reduced to part-time and worked until the stated age of expected retirement.

WAGE The hourly wage of the individual. Calculated as the full-time annual earnings on the persons state job divided by 2080 hours.

OTHER$ The individuals total income for 1979 minus earnings from their state job.

PLANS A dummy variable equal to 1 if the person has given a great deal or some thought to retirement.

JOBSAT An index ranging from -1 to 1, measuring a person's general satisfaction with salary, benefits, relationships with co-workers and with what they do on the job.

CHSAT$ A dummy variable which equals 1 if the person agreed or strongly agreed with the statement that "Within the past year, I have become less satisfied with my salary and benefits."

CHSATT A dummy variable that equals 1 if the person agreed or strongly agreed with the statement that "Within the past year, I have found the things I do on my job less satisfying."

WANTMORE An index that varies between -1 and +1. A positive value on WANTMORE indicates that the worker wants more control over tasks.

HEALTH A dummy variable that equals 1 if the respondent rated his/her health as "poor."

CHHEALTH A dummy variable that equals 1 if the worker indicated that the health status was worse than a year ago.

FATIGUE A dummy variable which is coded 1 if the worker indicated he/she felt more fatigue at the end of the working day compared with a year ago.

GENDER A dummy variable that equals 1 if male.

AGE Age of individual in 1980.

MARSTAT A dummy variable that equals 1 if currently married.

DEPS Number of dependents excluding spouse.

OFFCLER A dummy variable that equals 1 if the respondent was a clerical worker.

PROTSRV A dummy variable that equals 1 if the respondent's job classification was included uner the "Protective Service" E.E.O. category.

SKLCRFT A dummy variable that equals 1 if the respondent's job classification was skilled craft.

TECHS A dummy variable that equals 1 if the respondent's job classification fell into the technician category.

SVCMNT A dummy variable that equals 1 if the respondent's position was included under the service maintenance category.

COLLGRAD A dummy variable that equals 1 if the worker finished college.

MEASURE 1 Equals 1 if the respondent would reduce hours now, and equals 0 if the respondent would under no circumstance reduce hours of work. All other cases are excluded.

MEASURE 2 Equals 1 if the respondent would reduce hours now or under some circumstances and equals 0 otherwise.

using OLS to estimate probabilities since although a probability cannot in fact exceed 1 or be less than 0, the predicted probabilities from a regression are not bounded. Thus a transformation is necessary in order to estimate a function that is bounded and conforms to the likely real-world case that marginal changes in the dependent variable due to a change in an independent variable diminish as the bounds are approached. A logit function which conforms to these specifications was estimated including the variables already described. Since the coefficients are not as easily interpreted as in the case of the regression and because the logit results conform to those for the regression we do not discuss the logit results in detail here. It is important to note that the difference between the effects of level and changes in variables hold up in the logit estimates with one possible exception. In the logit estimates the coefficient on NEWSAT is significant at the 10% level. However the coefficient on NEGTSAT remains highly significant indicating that persons recently less satisfied with their jobs are more likely than others to be interested in reducing their hours of work. As in the regression results recent changes in health and pension loss that would result from reducing hours of work prior to retirement are significant variables in determining a person's interest in part time work prior to retirement while current health and pension accumulation levels are not.

F. Part-Time Employment After Retirement

While few full-time workers are willing to reduce to part-time work prior to retirement, a larger percentage would consider working part-time after the age at which they currently expect to retire. The willingness of workers to work part-time after retirement is not unexpected and is not inconsistent with their reluctance to consider part-time work now. It is consistent with Mieves' conclusion that part-time workers are a different labor market than are part-time workers. In the case of retirees, retirement is that age at which full-time work is rejected. At that time part-time work may be an attractive alternative to total retirement, even though it earlier was a less appealing alternative to full-time work. This finding also indicates that the major effect of a part-time work program would be to increase the work options of retirees, rather than of workers during their pre-retirement years.

Delayed Retirement

Current Wisconsin State employees were asked about their interest in continuing their current job beyond the age at which they now expect to retire completely from state employment. It is important to understand the decision each respondent was being asked to consider. The hypothetical case posed was an opportunity to continue working later than now planned; in short the option of increasing their hours of work from the expected zero hours of work upon reaching their expected retirement age. The worker was asked to state a preference for retirement from state employment, and the opportunity to continue working at their current job. In contrast to the hypothetical situation for a worker considering an immediate reduction in hours of work, there could be a net financial gain to workers in delaying retirement. Full-time work would mean continued coverage by WSRF and with longer service years and, perhaps, annual earnings gains, a higher retirement benefit when retirement was chosen at a later age. For a part-time worker, as long as earnings remained below half the three year final average used to calculate WSRF

(in effect below half-time employment for recent retirees) a worker could receive both WSRF benefits and their part-time earnings. Above this limit the worker would lose WSRF bneefits, but as is true for the full time worker, would find future benefits increased due to longer service.

If workers were offered some type of opportunity to continue working for the state 87 percent would do so. We do not know for how long these workers would be willing to delay full retirement. Because the questionnaire asked workers to indicate all circumstances under which they would be willing to work past their expected age of retirement we are able to estimate the degree to which part-time work would be necessary for an older worker to delay retirement and what other type of work opportunities might be attractive. Using the same method we adopted in describing the conditions under which workers would reduce from full-time to part-time work, we looked at the circumstances under which workers would delay retirement. Table 16 indicates the number of workers checking each of the circumstances under which they would be willing to continue working. Over half might delay retirement if they were able to work part-time. However, it is important to note that a large percentage (33.3 percent) also indicated that they might continue working full-time if they were able to do so. Nine percent would do so with a switch to a four, ten hour days schedule but 27.8 percent would do so on the current job schedule. The three remaining conditions do not specify a particular job schedule, although the majority of workers checking these three conditions also checked a part-time option; a minority checked one of the full-time options. The large percentage checking the inflation condition, indicates that older workers may in the future be more interested in post-retirement work opportunities than they have been during past periods of low price inflation.

Table 17 looks at the answers given in a somewhat different way. This table evaluates the extent to which part-time as well as full-time work options would be successful in permitting workers who wished to to delay retirement. The two

Table 16

Circumstances Under Which Workers Would Delay Retirement: Number Checking Circumstance

Circumstances	N[1]	%
Would Never Delay	373	12.9
Would Delay	2522	87.1
A. If Present Job Continued	961	33.2
As Is	804	27.8
For 4, 10 hour days	264	9.1
B. If Could Work Part Time	1545	53.4
Shorter Day	617	21.3
Shorter Week	1304	45.0
Share Job	512	17.6
C. Other Conditions	2125	73.4
If Inflation Continues	1916	66.2
If Job Made Less Stressful	538	18.6
If More Flexible Hours	581	20.1
TOTAL	2895	100.0

[1]Numbers in this column add up to more than total number of respondents since many checked more than one circumstance.

panels only differ in the way workers who stated a willingness to work both full and part-time are classified. In Panel A they are described as part-time workers, in Panel B as full-time. This exercise is important since allowing workers to work part-time at a given job if they so wished, would probably lead to pressure from those who wish to do so to continue working full-time or to rearrange their full-time working hours. Although we can't tell whether a person would prefer part- or full-time work after retirement, the two panels give a sense of how many workers would benefit from a part-time work option compared to one that merely allowed them to continue working full-time beyond their expected retirement age. Circumstances given by each respondent are grouped as in Table 16.[1]

Table 17, Panel A shows that up to 53.4% of workers might work past their current expected age of retirement if only part time hours were available. The remaining workers indicated no willingness to work at any of the part-time schedules. Almost 18 percent would apparently work only full-time; another 13 percent would not work at all. The remaining 16 percent are a curious group. Since they checked none of the full-time or part-time schedules, it is difficult to know what kind of job schedule they would prefer after retirement.

The second panel shows that up to 33.2% might alter their expected age of retirement if full-time work were the only option available by which workers could delay retirement. In this case, respondents who indicated that they would either work part-time or full-time were classified as willing to work full-time (in panel A they were classified as willing to work part-time).

These two tables indicate a strong desire to continue working beyond the respondents' current expected ages of retirement. Part-time work options would clearly be popular, permitting up to 53 percent of current full-time workers to

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[1] See Appendix A for questions used in this analysis. (Question 12 of Older Worker Survey)

Table 17

Circumstances Under Which Workers Would Delay Their Retirement: Circumstances Grouped and Ranked

	N	%
	A	
Would Never Delay	373	12.9
Other Circumstances	459	15.9
If Present Job Continued	518	17.9
If Could Work Part-time	1545	53.4
TOTAL	2895	100.
	B	
Would Never Delay	373	12.9
Other Circumstances	459	15.9
If Could Work Part-time	1102	38.1
If Present Job Continued	961	33.2
TOTAL	2895	100.0

delay retirement. However, it is not clear that this is what workers prefer. For whatever reason one-third of workers would like to continue working full-time but do not expect to do so. Only 38 percent of workers (Table17, Panel B) feel that they would return to work only on a part-time schedule. Thus, greater part-time work options would permit half of current workers to extend their lives. But for almost one-third other reasons prohibit them from continuing at their current full-time job, even though they express a desire to do so.

Post-Retirement Work Behavior

Given the strong desire to continue working on the part of the majority of older workers in our sample, it would be useful if we could test to see whether workers would actually delay retirement if given the opportunity to do so. In other words, would workers in fact work as they now say they would if given greater post-retirement employment opportunities? Unfortunately, there is no data on what our respondents would actually do if faced with the job options they now claim they would find most attractive. We do, however, have some data on workers who have actually delayed retirement or have sought post-retirement work opportunities elsewhere. These we feel provide some confirmation of the desire of current full-time workers to continue working at their current jobs.

First, we asked workers about their response to the increase in the age of mandatory retirement from age 65 to 70, effective January 1, 1980 for Wisconsin State employees. About one-quarter (24.5 percent) of those who had heard of the changed state requirement, delayed their expected retirement age by an average of about four years. If we look only at those who had previously expected to retire at age 65 (the earlier mandatory retirement age), over one-third (35 percent) delayed their planned age of retirement by about 3 1/2 years. This suggests that indeed our respondents would delay retirement if given the opportunity to continue working at their current job. A large percentage had done so when the restrictions on working beyond age 65 was raised.

Another piece of evidence about the desire of workers to continue working past the the retirement age comes from the number of respondents who indicate they plan to work in a non-state job after retirement. One-third of all respondents indicated they were planning to do so. Most of these would be willing to continue working for the State if their job so permitted. Among workers who expect to leave state employment at 62 or later 32 percent expect to work elsewhere, but 83 percent of these would also be willing to work full-time for the state. This indicates not only a potential loss of labor talent from state employment, but also that a high proportion of those who want to extend their work life will search for alternative ways of doing so.

A final piece of evidence comes from data on the recent retirees from Wisconsin State Employment. Looking at only those who have retired between 1975 and 1980 and are now 65-75 years of age, we find that while 31 percent have worked since retirement, only 12 did so in state government. While this may have as much to do with the limit on earnings for WSRF annuitants as it does with limited employment opportunities, it is interesting to note that 32 percent of this group would be interested in returning to work for the State, and that among those who have worked since retirement 91 percent did so part-time.

G. Conclusions

This section has attempted to measure the interest of full-time workers in reducing hours of work prior to retirement. We found that about 5 percent of workers would be willing to do so within the next year. If in addition, workers were assured that they could return to full-time hours if they so wished, at least another 2 percent would reduce their hours of work. If the group of consistent respondents analyzed here are representative of all full-time Wisconsin state workers 55 years or older (a total of 6238 in 1980), this would mean that 287 workers would be willing to immediately reduce their working hours. Another 118 would be willing to do so if the decision to reduce their hours would not commit them to doing so indefinitely. These are the minimum numbers who would willingly change their hours of work. Whether others would do so depends upon the strength of their concerns about changes in fringe benefits that might follow from a reduction in hours of work. An additional 31 workers might switch if they were given better information on health and life insurance policies. For other interested workers to switch there would have to be a significant change in retirement programs (including the Federal social security program) or a supplemental benefit program that would offset the loss in retirement benefits resulting from workers reducing their hours of work prior to retirement.

Further analysis has shown that for many older workers, part-time work may be an avenue to reduce job dissatisfaction or to continue working in the face of declining health. The importance of retirement benefit considerations is shown by the strong influence of the foregone

pension amounts in determining whether workers are interested in part-time work.

It is difficult to conclude on whether the number of workers that would reduce their hours of work would make financing a part-time jobs program "worth it." It is clear that for some workers such an option would be attractive and that it might permit the continued employment of highly skilled state employees who might otherwise retire because of growing job dissatisfaction or ill health. Note that workers most likely to be interested in part-time work are those who will lose less by this change in hours of work. These are also the workers who will lose the least by retiring now, and are therefore most likely to choose early retirement (see Burkhauser and Quinn, 1980; Hansen and Holden, 1981).

We also presented some information suggesting that the major impact of a program opening up part-time jobs to older workers would be to permit workers to extend work beyond their expected retirement age. Our data indicate a desire on the part of the majority of workers to work longer than they now expect to. It may be that part-time work would permit them to receive both their social security and WSRF benefits while working. If they were to continue at their full-time hours of work they would most likely lose all retirement benefits for the period during which they worked. At the same time, a large proportion of workers would like to continue working full time beyond the age at which they currently expect to retire. That these wishes are not idle dreams is suggested by information on changes in retirement age that actually occurred when the state's mandatory age of retirement was raised from 65 to 70 and on the large number of retirees who have worked in non-state jobs following their retirement from state employment.

III. The Demonstration Project

A. Introduction:

The Older Worker Survey analyzed in Section II allowed us to estimate the level of interest among older workers in reducing hours of work prior to retirement. From it we were able to estimate that about 5 percent of workers would now reduce hours of work if given the opportunity to do so and that others would do so if only certain job or benefit conditions were to change. For the workers who are interested in reducing their hours of work, part-time work would clearly be beneficial in that it would allow them to work their preferred number of hours; for some this might provide some adjustment to growing job dissatisfaction or ill health. It is not clear, however, whether the expectation of these full-time workers would be realized if they were to reduce their hours of work or if employers and co-workers would gain or lose by having hours of work change for some workers. To answer these issues we need longitudinal data on workers who have reduced from full-time to part-time work. We have already cited writers who argue that permitting more workers to work part-time results in increased productivity (Nollen et. al., 1975; Greenwald and Liss, 1973; Martin, 1976; Stewart et. al., 1975; Foegen, 1976; and Olmstead, 1977) and improved job satisfaction (Logan, et. al., 1973; Hall and Gardiner, 1973). The demonstration component of the PRWO project was set up to evaluate some of these claims by analyzing changes in job performance, job satisfaction and supervisors' attitudes for thirty workers who actually reduced their hours of work during the life of the project. In this section we look at the data from this part of the PRWO project.

As initially designed, the demonstration project was to include 30 workers who were working full-time at the beginning of the project but who reduced their hours of work at some time during the project period but no later than six months from the end of the evaluation period. The design specified that we ask questions about workers' job satisfaction before they reduced their hours of work. At that time we would also survey each participant's supervisor to gauge the supervisor's attitudes towards older workers and also to have the supervisor rate the performance of the full-time worker. Sometime after the worker had entered the project by reducing his or her hours of work, we would again collect information on job satisfaction, job performance and supervisor attitudes for the part-time job. By comparing the information at two points in time, we hoped to detect shifts in worker performance, job satisfaction and in supervisor's attitudes which could be attributed to the change in hours of work. To control for other factors that could cause these shifts we planned to select a control group, matched by key characteristics including the initial desire to reduce hours of work. This control group would be workers who continued as full-time workers, i.e. they were not able to reduce their hours of work as they had wished to. The control group would also be surveyed at the beginning and end of the project period and these data would be compared with those for the participant workers.

However, unforeseen factors over which neither we nor the staff of the Alternative Work Patterns unit of the Department of Employment Relations (AWP-DER) had any control altered the way the project worked out in actual practice. These alterations reduce our ability to come to firm

conclusions about the effect of workers' reducing their hours of work and therefore need to be discussed prior to the presentation of the demonstration project results.

In planning the demonstration project it was impossible to predict the ease with which the required number of workers could be identified, arrangements for part-time work could be made with supervisors and participants, they could be interviewed as full-time workers and then entered into the demonstration project. While 30 participants was an arbitrarily chosen number, it was selected as a reasonable number of workers that could be recruited during the project period and be analyzed with some statistical confidence. However, the small number meant that comparability among participants had to be attained as far as possible.

The difficulty in recruiting 30 workers was far greater than anticipated. This is not entirely surprising given our subsequent finding that this number is 10 percent of <u>all</u> state employees who were potential project participants (i.e. all those might be interested in reducing hours now) and the well known difficulty of reclassifying state jobs and obtaining supervisor cooperation in changing hours of work. We had hoped that all project participants would conform to the pattern of hours change originally specified and described above. In fact the project participants are a far more heterogenous group than we had originally planned. Some participants we excluded from the analysis because their situation was so unique they could not be compared with other participants or of any control workers we could identify. Others however, we were forced to include, and therefore our findings are weakened by the aggregation of fairly

diverse cases. (See Volume I - Implementation).

Difficulty in recruiting workers was aggravated by the fact that neither we nor the staff of AWP-DER had final control over whether and when a person who wished to do so could in fact reduce their hours of work. The decision whether or not to allow an interested worker to participate had to be negotiated, sometimes over a period of months, and delayed entry into the project meant that research ends necessarily suffered. In addition participation required the agreement of workers and supervisors to answer the necessary surveys during the participation period. Often this agreement did not come until after the worker had in fact reduced their hours of work. In some cases the "before" data could only be collected retrospectively which jeopardized the accuracy of the information.

Because AWP-DER had little control over the process of who would reduce hours to part-time, they were often not informed about certain aspects of their participants' working lives which, though trivial to supervisors and workers, were of great importance in terms of the research.

For example, some participants are Department of Revenue employees who were allowed to reduce their hours of work temporarily in the fall of 1980 on the condition that they return to their full-time schedule between the first of the year. Thus changes in job satisfaction and performance for this group of workers must be understood as a change that results if workers know that the switch in hours of work is temporary. It is not a permanent change in hours of work and is not strictly comparable to

changes that result from permanent part-time employment. While we would argue that such flexibility in setting job schedules is of some benefit to both employers and employees, the inclusion of these workers means that we are able to say less about the effects on key variables of a permanent shift to part-time work.

In addition, it was not always made clear to AWP-DER staff which supervisor was actually appraising the performance of a given participant. Or, often supervisors would team up and do them in a way which was impossible to determine. In other cases, workers retired without informing DER, or there would be a change in supervisors which went unnoticed until much later in time. Thus changes in supervisors' attitudes in some cases could be due to changes in supervisors rather than in the attitudes of either supervisor.

The separation of recruiting functions and project evaluation between AWP-DER staff and our own staff meant that the evaluation does not reflect some information that may have been useful in evaluating the strengths and weaknesses of the data. This division of tasks was agreed to since DER staff has much greater access to personnel records and expected to maintain contact with participants and supervisors. It was natural that they would handle the orientation of each worker and supervisor as each began participation in the project. In retrospect, however, it is clear that the evaluation staff was not sufficiently aware of the recruiting and orientation problems that might have had an important impact on the establishing the comparability of the participant group and the validity of the data collected. Greater sharing of the responsibilities would have been desirable although its value was not anticipated when the

division of responsibilities was established.

Finally, two difficulties were anticipated and were taken into account in designing the evaluation, but at the same time limit our ability to draw firm conclusions on some aspects of part-time work. First, we realized that there was no way to predict in advance who might participate in the demonstration project. Thus, no specific job analysis, the cornerstone of performance analysis, could be done. Instead we had to design a general performance appraisal process which could be used regardless of job. This means that the appraisal method used is identical across all jobs, thus increasing our ability to compare answers across participants and time, but may fail to pick up important effects of part-time work that are specific to certain jobs. Secondly, we knew that participants would enter the project at different times during the two-year project period. The first participant entered in June, 1979, and the last participant entered in December, 1980. This means that each participant was "on board" for a different length of time and comparisons among them are therefore difficult. For example, six participants were in the project for less than six months; two participants were in the project for between six and ten months; six in for between ten and fifteen months; seven were in for between 15 and 20 months, and nine were in for the entire 27 months.

The demonstration project, therefore, proceeded within the limits of severe constraints both because of the way the administration of the project was structured and because of constraints which naturally occur when research attempts to evaluate, but cannot control real-world events. Some problems of the data resulted inevitably because we were asking busy

people to cooperate in a venture from which they would receive only marginal reward. In this section, we will examine several issues related to part-time work for the older State workers nearing retirement.

B. Project Participants: An Overview

As Chapter II (Participants Job and Demographic Characteristics) of the Alternative Work Patterns Unit report indicates, the participant group was a heterogeneous group of workers. This variety makes them an interesting group to study, yet the diversity of participant, makes generalizations about their experiences difficult. For example, of the thirty participants recruited, four (or 13.3%) were reinstated into half-time jobs from full-time jobs after a short period of retirement. Further, of the remaining twenty-six people, not all viewed part-time positions as a permanent shift from full-time work. One participant reduces hours every summer and arranged for a leave of absence to fill the other half of her position. Another went on half-time after surgery and then returned to full-time when his health improved. Moreover, three workers from the Department of Revenue reduced hours temporarily in the fall on the condition that they return to full-time work around the first of the year when the Department's workload increased. Thus, at least five (16.7%) of the participants viewed their part-time positions as temporary and therefore are not ideal subjects in a demonstration project intended to study the impact of permanent reductions upon performance and job satisfaction. For a description of each participant, the job held and their reasons for reducing their hours of work is included in the AWP-DER final report.

The participant group differed in important ways from the group of respondents to the older Worker Survey (see Table 1). They were older

than respondents (61.4 versus 58.8 years), the ratio of men to women was lower (.38 compared to 1.25) and they held jobs at lower occupational categories. Twelve participants (41.4%) filled clerical positions and nine (31.0) had service and maintenance positions compared to the 16 and 18% respectively of respondent group in these two occupational groups. One quarter of the respondents were professional while only three (10.3%) of the project participants were in this category.

These age and occupational differences resulted in a lower mean educational level for the participant group, and a higher proportion divorced or widowed compared to respondents. It is also worth noting that the two largest employing agencies among the respondent group (the University of Wisconsin System and the Department of Health and Social Services (57%)) employed only 36% of project participants. A far larger proportion of participants than respondents were employed by the Department of Administration.

We suspect that many of these differences arose in part because certain jobs are more amenable to part-time work than are others. But, in addition, participants were able to obtain rather speedy permission from supervisors to participate in the project. Even though age and sex were not significant predictors of interest in part-time work and occupational differences were not those predicted (See Table 15), supervisors seemed to be more willing to adjust working hours of older females in the lower occupational categories. Thus, we suspect that the make-up of the demonstration project participants may largely be a reflection more of supervisors who are more willing to use part-time workers than of workers who would work part-time if given complete freedom to do so.

We interviewed each participant as he or she entered the project. During the interview we asked participants to explain why they were reducing their hours. Inspection of their responses indicated that their major concerns were for more leisure time (53.3%), a desire to work less hard (30.0%), family obligations (26.7%), and poor health. Some viewed part-time work as a chance to "do other things," and many participants saw part-time work as a means of "easing into retirement" or as a middle ground between abrupt retirement and full-time work.

When we re-interviewed participants at the end of the project we asked them to give us their opinions about the advantages and disadvantages of part-time work for older workers. Participants were almost uniformly enthusiastic. Advantages most frequently cited were better health ("not as tired" and "feel better"), social ("lets you talk to people," and "gets you out of the house"), economic ("like the money," and "can have an income of one's own"), family reasons (such as having more time to be with spouse), and more time for various leisure time activities such as volunteer work, hobbies, and general recreation.

Workers felt their participation in the project had been a successful experience, but some pointed to possible problems for others. These included fewer benefits (such as vacation days, holidays and sick leave), not as much money, and less social security. One person mentioned that they were less satisfied with their working hours because they had to work evenings because only these shifts were available to part-timers.

A number of participants retired early. Economic and family reasons seem to have had the largest impact here. One participant reported that a son had graduated from school and thus no longer needed support; another participant remarked that she wished to spend more time with her spouse who was also retiring.

C. Reducing Hours of Work and Job Satisfaction

Questions 18 through 30 on the older worker survey (See Appendix A) also served as the primary source of information on the job satisfaction of project participants at the beginning of the project period. These questions were designed to probe a number of facets of job satisfaction. Specifically, we tried to identify the separate components of job satisfaction and changes in job satisfaction. Our first five measures combine the answers on these questions to obtain indices of 1) satisfaction with job tasks (questions 18, 23, 25), 2) satisfaction with financial aspects of their jobs (questions 19 and 22), 3) satisfaction with the degree of autonomy their jobs offer (questions 24, 26, and 27), 4) satisfaction with co-worker relationships (questions 28, 29, 30), and 5) general job satisfaction (questions 18, 19, 28 and 29). The final three measures attempt to capture changes in job satisfaction and the importance of job versus non-job activities: 6) whether workers have become less satisfied with various aspects of their job over the past year (questions 22 and 23), 7) whether workers want more control over their jobs (question 26 and 27) and 8) the degree to which the job is central to a worker's life (questions 20 and 21). Note that there is considerable duplication among these measures in questions included. Each reflects a somewhat different, but not unique, aspect of job satisfaction. These measures are not the same as those used in Section II. In that section we focus on levels and changes in general job satisfaction as determinants of interest in part-time work. Here we look in detail at various aspects of job satisfaction for workers who are clearly interested in part-time work and have acted on this interest

by reducing their work hours. It is much more important that we isolate the components of job satisfaction in greater detail than we did in Section II.

Combining responses to these questions in various ways, we were able to create indices which would allow us to estimate the level of job satisfaction of workers and to detect shifts in different job satisfaction dimensions. Each index varies from -1 to +1. An "0" response on any given question indicates that the respondent neither agreed nor disagreed (i.e. was neutral) with the statement present. A "0" score on an index could indicate indifference for all respondents or an equal number agreeing and disagreeing. For example, if a worker strongly agreed with the statement in question 18 that "in general I am satisfied with what I do on my job," agreed with the statement in question 19 that "in general I am satisfied with my salary, benefits, and other financial aspects of my job," agreed with the statement in question 28 that "in general I get along with my co-workers," but disagreed with the statement in question 29 to the effect that "most of my co-workers think I am too old to be working," that worker would show job satisfaction index of close to +1. If the worker disagreed with the first three statements, but agreed with the statement in 29, the worker would be given an index of close to -1 on the satisfaction dimension. (See Appendix D for a more detailed description of the indices used.)

As Table 18 shows, participants were in general, fairly satisfied with all aspects of their full-time jobs. Participants were quite likely to say that they were generally satisfied with their jobs (-.538). They tend to see their job as central to their lives (.508), and are satisfied with their relationships with

Table 18

Job Satisfaction Indices
for Participants Prior to Entry into Project

Dimension	N	Mean
1) Task Satisfaction	25	.447
2) Financial Satisfaction	29	.388
3) Autonomy Satisfaction	26	.026
4) Co-Worker Satisfaction	30	.289
5) General Job Satisfaction	30	.538
6) Less Satisfied Since 1 Year Ago	28	-.219
7) Want More from Job	28	.063
8) Centrality of Job	30	.508

Note

See Appendix D for detailed description of how indices were constructed. All indices range between -1 and +1.

their co-workers (.289). Participants were not as likely to say that they were satisfied with the amount of control they had on their jobs (.026). Almost as many of them disagreed with the autonomy statements as agreed with them. The variables entitled "less satisfied than one year ago" and "want more from job" require further explanation. The negative sign before the "less satisfied" dimension (i.e. -.219), indicates that more workers disagreed with the statement (i.e. they were no less satisfied than a year ago.) than agreed. A positive sign would have signified that a majority of respondents were less satisfied. Hence, it is clear that the majority of participants were not less satisfied than a year before. Similarly, participants were mixed on whether or not they wanted more control over their jobs. The mean figure of .063 indicates that only slightly more participants agreed than disagreed.

Participants filled out the job satisfaction questions for the first time when they entered the project. In some cases, this was at the same time as the general older worker population completed the questionnaire (in Spring, 1980). In other cases, however, if that worker had not answered them at the time of the general mailing, the participant completed the first set of job satisfaction questions upon entering the project. In order to isolate shifts in job satisfaction stemming from reductions in hours of work, we asked participants to answer all of the job satisfaction questions again when the project ended. We then compared the scores on the job satisfaction indices between the two times the participant completed the surveys.

Table 19 compares the mean scores on the indexes at these two points in time. Scores on all job satisfaction dimensions but one improved slightly. General job satisfaction increased from .538 to .543; task

Table 19

Participants' and Control Group Workers' Job Satisfaction at Time 1 and Time 2

	Participants' Job Satisfaction				Control Group Workers' Job Satisfaction			
Dimension	N	Time 1	Time 2	+/-	N	Time 1	Time 2	+/-
Task Satisfaction	25	.447	.464	+.017	28	.107	.320	+.213
Financial Satisfaction	29	.388	.490	+.112	27	.019	.038	+.019
Autonomy Satisfaction	26	.026	.071	+.045	27	.068	-.179	-.247
Co-Worker Satisfaction	30	.289	.302	+.013	27	.364	.360	+.006
General Job Satisfaction	30	.538	.543	+.005	27	.463	.470	+.007
Less Satisfied Than 1 Year Ago	28	-.219	-.356	+.137	28	.018	-.067	+.085
Want More From the Job	28	.063	.148	+.065	25	.019	-.250	-.269
Centrality of the Job	30	.508	.519	+.011	26	.315	.308	-.007

Notes

See Appendix D for construction of Job Satisfaction Indices

Time 1: mean for all project participants based on answers given prior to entry into demonstration project.

Time 2: mean for all project participants based on answers given at end of project.

+/-: change in means between times 1 and 2.

satisfaction increased moderately from .447 to .464, and satisfaction with financial aspects of the job increased from .388 to .490. In addition autonomy satisfaction improved modestly, co-worker satisfaction increased, and participants became less likely to say they were less satisfied on their jobs compared with a year ago. Participants were slightly more likely, however, to want more out of their jobs when they were part-time than previously. Most interesting is the apparent large shift in financial satisfaction among participants which appears to have accompanied the switch in work hours from full to part time. For some workers, part-time work may have meant a more satisfactory balancing of work effort and take-home pay.

While project participants experienced some increase in job satisfaction, however, defined, we do not know whether this change can be attributed solely to their change in hours of work. Other factors such as new employment policies and general attitudinal shifts among society in general, which would affect the job satisfaction of all workers may also have caused such an increase. To separate changes in hours of work from these changes caused by other factors, we compare data for participants with data for a control group of full-time workers matched with each participant by age, job classification, sex, department and interest in part-time work.

Table 19 gives mean job satisfaction indices for participants and the control group at both the initial time period and at the end of the project period. Although we focus our discussion on changes in job satisfaction for individual workers and have much less confidence in the validity of using these measures to compare across individuals, it is

interesting to note that participants score higher on almost all job satisfaction measures than do the control group workers. Since the control group also expressed interest in reducing their hours of work now, we would expect the two groups to have similar scores. This suggests that, as Meives (1979a) found for job-sharers, that workers willing to participate in a demonstration project may be somewhat different from non-participants. For example, it may be that while PRWO participants were less satisfied with their jobs than are persons who did not want to reduce their hours of work (see Section II), that workers who could quickly and smoothly arrange a part-time schedule and who were willing to participate in a project such as this one were those workers who got along well with supervisors and co-workers and whose jobs were particularly suited to part-time work. Those in the control group were workers who although interested in an immediate reduction in hours of work did not pursue this option. These workers may have jobs that are not easily adaptable to part-time schedules or supervisors who are less willing to approve a change.[1] Thus, the group of participants may not be typical of all workers who want to reduce their hours of work and the experience of this demonstration project might not be duplicated by a broader part-time work program. Table 19 suggests that increases in job satisfaction among participant workers cannot be attributed solely to a change in hours worked. Similar and sometimes greater absolute increases in the mean value of these indices were observed for the control group. General job satisfaction increased a similar amount for both groups. The task satisfaction index increased .017 points for participants, but by .213 points for the control group. On the other hand, the autonomy index fell for control workers as did the last two measures listed in

[1] We have no way of knowing why control workers did not move to a part-time schedule. Participant workers had often given considerable prior thought to working part-time. Thus control workers simply may not have had sufficient time to consider the implication of part-time work and to work out with their supervisors a mutually aggreable schedule.

Table 19; the indices for all three of these measures increased for participant workers. It may be that this difference is due to the fact that control group sorkers came to realize the inflexibility of their job schedules. This may have been taken as proof that they had less autonomy than they had originally thought. If this is true the decline in the index indicating wish for more control over tasks for the control group is curious. It may be that this group, noting that adjustments in work hours would be difficult, subsequently adjusted to the realities of their job and ceased this quest for further flexibility. This process has interesting implications. While the control group may have preferred part-time work, our data suggest that workers adjust expectations to the job they currently hold. Thus while the difficulty in arranging part-time work may mean an adjustment in how they evaluate the degree of control they have in their job, it appears to have no effect on worker job satisfaction.

The data in Table 19 indicate that increases in job satisfaction occured among participants and control group workers alike. It may be that some change in financial satisfaction can be attributed to part-time work since for this index the difference between the two groups of workers in the change over time is large. Again, as mentioned earlier, it may be that the participant group saw part-time work as a means of combining part-time salary with income from other sources and felt that the part-time salary received was sufficient compensation for part-time work. This is unlikely, however, because participants showed no change in social security or other pension income. Any such changes therefore would have to occur in sources other than these two.

In conclusion, our data indicate some increase in job satisfaction among participant workers, but they also show that similar changes occured among the control group. These changes cannot be attributed to the change in hours of work. Further, the higher value for the indices of participants suggests that this group of workers may have been unique. If this is true these results might not be duplicated by a larger state program. If the participant group is unique, it is impossible to know merely by looking at control group what might have happened to the job satisfaction of the former group if they had not been granted the opportunity to work part time. Thus, we really don't know what the result for job satisfaction might be for workers who are permitted to reduce hours of work prior to retirement. Our findings suggest little effect although it is difficult to know what might otherwise have happened to participants.

D. Reduction of Hours of Work and Work Longevity

We expected that workers who reduced their hours of work would continue on their jobs for a longer time than would workers who remained full time until retirement. We anticipated that workers who might otherwise retire because of demands of full-time employment would be attracted to jobs which offer greater flexibility in terms of hours of work or task definition.

To test this hypothesis we observed the behavior of demonstration project participants over the life of the project and compared them with the control group workers. We examined the proportion of participants who retired before the end of the project and compared that percentage with the proportion of controls who had retired.

Of 27 control group workers who returned our survey, 25 (92.6%) were still on their jobs at the end of the project. Because control group workers were chosen in December, 1980, we compared this persistence rate with those participants who came on board January 1, 1981 or later. Of 23 participants in this group, six had retired before the project ended. This means that only 17, or 73.9% of the participants worked nine or more months after reducing their hours of work. These data suggest that workers who reduce their hours are more likely to retire early than those who do not reduce their hours, when interest in reducing hours of work is controlled.

This finding is contrary to our expectations. We theorized that workers who reduced their hours of work would work longer because they would have reduced the stress which was causing them to desire such an hours reduction. We reasoned, therefore, that workers who actually reduced their hours of work would be less likely to retire. It may be that the participant group would have retired much sooner if they had not been able to reduce their hours of work, and that because we did not identify factors contributing to early retirement, we did not obtain a control group matched to participants by this important characteristic. This also indicates that the participant group was different in important ways from the control group of workers and that these differences both enabled them to arrange part-time schedules while the control group could not and caused them to behave in different ways from the controls. But these differences, including differences in retention rates, cannot be attributed to the reduction in work hours.

E. Reducing Hours of Work and Productivity

We hypothesized that the productivity of older workers would remain the same or increase compared with their productivity before they reduced their hours of work. This expected increase could arise for several reasons. First, we hypothesized that for workers of all ages more work per hour can be performed during a 4-hour period than during an 8-hour day when fatigue at the end of the work day might reduce work effort and output. We hypothesized that this would be especially true for older workers if job fatigue were associated with age. Finally, we expected that if the wish to reduce hours of work was associated with recent increases in job dissatisfaction that reduced hours of work would encourage a worker to do a job well during a shorter period of time, reducing the lost work hours that might result as workers try to avoid unpleasant job tasks during a full eight-hour day.

As discussed earlier we were limited by the design of the demonstration project to analyzing performance rather than productivity (which would require a specific and comparable measure of output.) We looked at job performance prior to the reduction in work hours and then six months later. Thus, the performance of all workers are compared over a time period of the same length, although the six-month period could occur at different points in time for each participant.

We asked the supervisor of each participant to list and rank between four and seven tasks that the supervisor felt were important to the successful completion of the job (See appendix A for performance appraisal forms). Then, we asked the supervisor to rank each worker on each task along a seven-point scale which ran from below minimum standard to excellent. We asked supervisors to rate their employees before they

reduced hours of work and then six months after the reduction. Changes in ratings would reflect changes in performance.

Analysis of performance data indicated that the impact of job reductions on performance was mixed. Of the twenty-six participants who were rated twice, the performance of eight improved; twelve stayed the same, and six went down.

We expected that changes in performance of participants would mirror supervisors' predictions about whether participants' performance would improve or diminish. Specifically, we expected that supervisors who thought that their employee's performance would increase would rate that employee higher on the second rating, and conversely, that supervisors who thought that their supervisee's performance would diminish would so rate them on their performance appraisals. Contrary to our expectations, the performance of employees did not necessarily mirror their supervisor's stated expectation. Of three supervisors who expected their employee's performance to increase, two employees remained the same, and only one improved. Of the three supervisors who said they thought their employee's performance would decrease, one remained the same and two went down.

Because we were unable to obtain performance data from supervisors of the control group workers, it is impossible to know how these performance appraisal changes compare with changes that might have been observed for other workers. Our data indicate no uniform effect of a change in hours of work on performance. Performance was almost as likely to be rated lower as higher at the end of the six-month period. It should be noted, however, that these ratings are from performance appraisals of supervisors and may be as much affected by supervisor's attitudes as by the actual

productivity of the worker. At the same time the affect of attitudes on the job performance data do not support the original hypothesis that a reduction in hours of work will increase productivity. While we only have data on performance, we find that performance ratings fell between the two ratings almost as often as they rose. We guess this is fairly typical of all workers, and represents little change from the situation that would have been found if the performance of the control group could have been evaluated.

F. Reduction of Hours of Work and Supervisors' Attitudes

One purpose of the demonstration project was to measure the impact of having older workers reduce their work hours upon supervisors' attitudes towards older workers and part-time work. This is an important issue since the cooperation of supervisors is required before a worker can either reduce his or her hours to part-time or return to work part-time after retirement. In addition, supervisors' attitudes are important because employees' performance levels will be affected by the way supervisors feel about both the older worker and about the fact that he or she is working part time. For an older worker to be willing to work part time and to perform well on that job, unbiased supervision is required.

We obtained data on supervisors' attitudes through both a mailed survey and telephone interview with participant supervisors as each participant entered the project (See Appendix A). In the questionnaire we asked each supervisor to agree, or state no opinion regarding whether older workers were more desirable than younger workers with respect to health, mental concentration, training, motivation, performance, and number of mistakes made on the job, and asked supervisors their probable position, should a hypothetical older worker approach them with requests

to reduce his or her hours, return to work after a short period of retirement, or delay retirement past the normal retirement age. By examining the distribution of responses, we hoped to gain some idea of supervisors' opinions about older workers and their productivity compared to younger workers. During the telephone interview, we asked supervisors about their experience with older workers, opinions about the effect of aging upon performance, and expectations they had regarding the future performance of the participant each supervised.

In responding to the questions on attitudes towards older workers supervisors frequently checked the "neither agree nor disagree" response. Whether this response means real neutrality or simply reluctance to state an opinion is not clear. Better than 37% of all responses on the questionnaire were no opinion responses. On some questions, no opinion responses amounted to far more than half the number of responses. For example, eighteen of the thirty of supervisors (60%) neither agreed nor disagreed with the statement that "if I could choose, I would rather hire a younger worker than an older worker. Twenty of twenty-nine who answered question #21 (See appendix A) neither agreed nor disagreed.

A number of factors may account for the high proportion of neutral responses. First of all, in conversations with supervisors, it became apparent that supervisors were used to and preferred to deal with their employees on a "one-to-one" basis and found it difficult to make generalizations. Supervisors were reluctant to take a controversial and sometimes illegal stand on a single issue. For example, few expressed a definite opinion on question 8, "If I could choose, I would rather hire a younger worker than an older worker," when agreeing with such a statement could be viewed as discriminatory. Finally, supervisors may not have been

sufficiently informed or convinced about the importance of their responses. For a busy supervisor, filling out what may have seemed a rather meaningless questionnaire may have been done most quickly by giving the least controversial response. While we analyzed the responses of supervisors, the reader should keep in mind that any generalizations made in this section concerning responses on the questionnaire by both participant supervisors and a control group of supervisors should be seen as highly tentative and based only on the responses of a small number of supervisors.

Because of the large number of supervisors who refused to give a definite opinion on many of the attitudinal statements, it is impossible to statistically test for the association between these statements and characterics statistically of supervisors and workers. We can only briefly describe the answers that were given.

In general, supervisors of participant workers have a fairly positive opinion of older workers. Questions 3 and 7 reveal with some degree of reliability the views of supervisors. Fifty percent of the supervisors did not think that older workers have more health problems than younger workers (Q. 3); 56.7% disagree with the statement in question 7 that workers should be required to retire at the age of 65. Responses to other questions on opinions of older workers confirm this positive image. Most supervisors who expressed an opinion think that, compared with younger workers, older workers keep their minds on their work better, are not harder to train into a new job, work harder, are more interested in their job performance, make fewer mistakes on the job, and most supervisors would not hire a younger worker rather than an older worker.

Supervisors also appeared favorably disposed toward allowing a worker to reduce their hours of work or return to work after having retired, and would allow a worker to work past the normal retirement age. This finding is to be expected since participants' supervisors had already agreed to allowing a supervised employee to reduce hours of work as a part of the demonstration project. This suggests that supervisors of project participants may be a group biased in favor of flexible job schedules for older workers, if not for all age groups. To estimate the degree of this bias, we administered the same survey and interview to the supervisors of the matched control group workers. These supervisors oversee the same types of employees as participant supervisors; the only difference is that control group supervisors have no workers in the demonstration project.[1]

For control supervisors as well, comparisons are difficult. Control group supervisors also appear to be quite positive about older workers and alternative work options for older workers. On question 7, approximately the same percentage (60.0%) of control groups supervisors also disagree that workers should be forced to retire at the age of 65, and those control group supervisors who expressed an opinion, responded the same way to other questions as did participant supervisors. The only difference lies in responses to question 6 ("Compared to younger workers who do the same kind of work, older workers make fewer mistakes on the job."). Seven of eleven control group supervisors who expressed an opinion believed that older workers make more mistakes than younger workers, but only

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[1]While the control workers are full-time, it may be that their supervisors also supervise some older workers working part time. If so, the control group is not controlled by type of worker supervised. This may account for the similarity in experience and attitudes between the two supervisor groups.

seven of fifteen participant supervisors thought older workers made fewer mistakes than younger ones.

While there are severe shortcomings in the data, the general picture seems to be that participant supervisors are not necessarily more favorably disposed toward older workers or toward the feasibility of alternative work options for older workers than are other supervisors. We have already given some of the reasons why supervisors may not have been willing to reveal their true opinions. In addition, it may be that general attitudes among state government employees are such that a climate of opinion in favor of alternative work options, as an idea, is widespread. Or, the answer may lie in the way control group supervisors were selected. Because there is no roster of supervisors in State government, we used the control group workers as a way of identifying control group supervisors. Thus supervisors in both groups have had some experience supervising older workers. The control group may be different from other supervisors because they supervise at least one worker over 55 and who wanted to work part-time, and be more like the participants' supervisors.

At the same time, because one group of supervisors did permit workers to immediately reduce their hours of work we expected that supervisors' attitudes toward older workers working in alternative employment options would improve over the course of the project. Thus, we surveyed participant supervisors again at the end of the project to detect any shifts in opinions about these subjects. Again, the high number of no opinion responses made comparisons difficult.

One easily measured difference does exist between the two groups. The mean age of control group supervisors was 55.9, compared to only 48.9 for participant supervisors. Unfortunately, the small sample size and frequency of missing data make it impossible to control for the effect of age on responses. More control supervisors were "older workers" themselves. Thus, they may naturally be more favorably disposed towards older workers and flexible schedules than younger supervisors.

There were no obvious attitudinal shifts on the part of participant supervisors as a result of their experience with older workers working part time. Participant supervisors were still favorably disposed toward older workers and alternative work options but not notably more so. The same was true of the control group supervisors.

The conclusions drawn based on the mailed survey data were confirmed with additional data from a telephone interview (See Appendix A). This interview obtained information on the number of older workers (55+) supervised, opinions on age-related performance declines, and on the advantages and disadvantages of employing older workers.

In general, both participant and control group supervisors have had considerable experience with older workers both as co-workers and as supervisors. Twenty-three of the former (76.6%) and 22 of the latter (88.0%) have supervised older workers before.

Supervisors in general were reluctant to generalize about the ability of particular groups of employees, and a common response was that they couldn't make general statements because their employees varied so much. Almost all of the participant supervisors (73.7%) believed that there was no exact age at which performance begins to decline. Of seven participant

supervisors who did feel that older workers' performance declined after a specified age, three believed that that age was after 55, and two said performance began to decline after the age of 65. Only three of the control group supervisors felt that performance of older workers declines with age.

When asked about the advantages and disadvantages of having older workers on the job, supervisors were generally sanguine regarding older workers. When asked to list advantages and disadvantages, they listed far more advantages, and we grouped them together to bring out the most commonly mentioned traits.

The most common traits listed as advantages were "experience," checked by 20 participant supervisors (68.9%), and "dependability," checked by 21 supervisors (72.4%). (Table 20.) Over 92% of participant supervisors listed one of these two as the most important advantage of employing older workers. A third group of advantages was cited less often. These advantages included conscientiousness, pride in work, greater wisdom, greater care concerning work, greater satisfaction, tact, knowledge of the field, positive attitudes toward work, common sense, and lesser degree of absenteeism and sickness.

Fewer supervisors listed disadvantages of hiring older workers; 11 participant supervisors listed none at all. The most common disadvantages listed that were associated with hiring older workers related to inflexibility, technical obsolescence, reluctance to innovate, and "negative attitudes due to failure to advance." These accounted for 19 of the 29 separate disadvantages (65.5%) given by supervisors. Another eight supervisors listed poor health as a major disadvantage of hiring older workers.

Table 20

Participant and Control Group Supervisors' Opinions of Advantages of Employing Older Workers

Advantages Cited	Initial				Follow-up			
	Participant		Control Group		Participant		Control Group	
	N	%*	N	%	N	%	N	%
Experience	20	68.9	13	48.1	15	55.6	11	47.9
Dependability[1]	21	72.4	9	33.3	10	37.3	10	43.5
Positive Work Attitude[2]	10	34.5	22	81.5	15	55.6	16	69.6
Thoroughness of Work[3]	6	18.5	3	14.8	6	22.2	0	0.0
Interpersonal Skills[4]	3	13.8	4	14.8	2	7.4	3	13.0
Other[5]	5	17.2	4	18.5	3		5	21.7
None	3	10.3	5	3.3	2		1	
N	29		27		27		23	

Notes:

[1] dependable, reliable, stable, stead, responsible

[2] dedicated, pride in work, hard work, better attendance, positive attitude, stronger incentive, more satisfied, punctual, calmer approach, try to do good job, higher productivity, fewer distractions, take less sick time, more interested, conscientious, serious, less time wasted reading, more concerned with performance

[3] caring about work, workers, thoroughness, knowledgeable

[4] tact, teaching younger workers, sociable, easy to get along with, experienced with people

[5] common sense, wisdom, less excitable, mature, deliberate, competent, savvy, well-rounded

* percentages add up to more than 100 because supervisors often listed more than one advantage

These eight supervisors accounted for 26.7% of the supervisors. Other characteristics noted were alienation from younger workers, greater forgetfulness, and grumpiness.

Thus, participant supervisors see older workers as mature, dependable and experienced, yet reluctant to innovate. While on the surface this combination of traits may seem self-contradictory, the greater experience of older workers may have taught them that new solutions may not be as effecatious as younger workers may think. They have seen new solutions tried and fail, and may therefore be more cautious in their approach to problems. This, then, may be interpreted as reluctance to innovate by participant supervisors who are generally younger than the participants supervised. Whatever the specific advantages or disadvantages listed, however, interviews confirm the generally positive attitude toward older workers given by the surveys.

Experience with the project did not result in much change in supervisors' opinions of older workers. They listed roughly the same advantages and disadvantages at the end of the project as they had at the beginning. Supervisors still saw older workers as experienced, dependable, mature, reliable, and knowledgeable about their field, although fewer cited dependability as a major advantage. At the same time more participant supervisors listed disadvantages of hiring older workers than had done during the follow-up interview as at the first interview. There were no changes over time in advantages cited by control group supervisors.

The major disadvantages cited were the same as earlier -- inflexibility, lack of desire to innovate, slowness, lack of willingness to take

on new tasks, and professional obsolescence. Twenty-three out of forty responses (57.5%) by participant supervisors were in these groups. Another seven participant supervisors (29.2%) gave poor health as a major disadvantage of employing older workers. Nevertheless, supervisors listed, overall, five more traits as disadvantages, and only three supervisors gave no disadvantages, compared with nine supervisors on the initial interview. Moreover, supervisors cited a number of disadvantages which differed from those given early in the project. Here, supervisors included lowered productivity, reluctance to work over-time, more physical problems, personality problems, difficulty relating to younger workers, and decline in attention when close to retirement. Hence, direct experience with part-time workers in the project, may have caused supervisors to be somewhat more negative toward older workers. The extent to which this is true, however, is not clear because of the small number of supervisors included in the project. Overall, however, the project apparently had an impact upon supervisors' attitudes, probably because of supervisors' prior experience with older workers as co-workers and as supervisors. Thus, they probably had a fairly solid base of experience upon which to base judgments about older workers.

In conclusion, a comparison of opinions of participant and control group supervisors indicate few differences between the two groups. Experience, dependability, and a positive work attitude prove to be those characteristics which supervisors see as advantages, while poor health, inflexibility and a lower learning rate headed the list of disadvantages. There were only slight changes over time in the attitudes and opinions

of participant supervisors; fewer cited dependability as a major advantage, and more listed some disadvantages.

G. Conclusion

It is difficult to know what effect participation in the demonstration project had on participants' job satisfaction, job performance or on the attitudes of their supervisors. Few changes were in fact recorded and the observations are too few to make these changes statistically significant. While we tried to control for factors other than change in hours of work that could cause the recorded changes, it was difficult to identify a true control group of workers or of supervisors against which to compare participant workers and their supervisors. First there is some indication that participant workers were a special group whose work attitudes might have both enabled them to arrange for a reduction in hours of work and determined their rather high job satisfaction both before and during the evaluation period. Thus the control group may have differed from the participant group in attitudes towards work and in their relationship with their supervisors, i.e. in key ways that we could not identify but are important in causing differences between the two groups of workers.

The control group of supervisors was particularly difficult to identify correctly, and in retrospect we were probably not successful in doing so. Because we were unable to identify the population of supervisors from which to choose a matched group, we were restricted to choosing supervisors of the control worker groups. Indeed they were matched on one variable they probably should not have been -- their supervision of older workers. Thus experience with older workers did not differ for the two supervisor groups and therefore it is not surprising that their attitudes towards older workers were very much the same. However, we did find a major

difference in age. Control group supervisors were much older than were participant supervisors. Thus similarities between the two groups in views about older workers and schedule flexibility may be caused by different factors. The participant supervisors may have indeed been more open to schedule changes for older workers (and perhaps for others as well) while the control group supervisors were biased towards older workers because they were themselves in that category. In practice the latter group may not have been as flexible since the control workers were unable to arrange for a reduction in part-time work while the participant group was. While we do not conclude that there is a definite age-related difference in supervisors' willingness to experiment with flexible schedules, our data suggest that this might be so.

There were no major changes in job satisfaction, job performance or supervisors' attitudes measured by the demonstration project. Thus the change in hours of work maintained the level of job satisfaction and job performance that had been reported for the full-time job. This may indicate that workers in general adjust to the work situation in which they are likely to remain. While some adjustment might occur in how they view the amount of control they have over their own job when they are denied the chance to reduce hours of work, job satisfaction and performance does not decline. Likewise, however, there are no major costs in terms of job performance if the reduction in hours of work is granted and supervisors who are willing to allow changes in work schedules are not disillusioned by their experience with older workers working part-time.

IV. Epilogue

This report has looked at two aspects of part-time work. First, through the answers to a survey on part-time work, we examined the number and characteristics of older state employees who would be interested in reducing their hours of work within the next year. Next we looked at the effects on job satisfaction and performance of a group of workers who did reduce their work hours between June 1979 and December 1980. It is important to recognize that the first part of the report analyzes interest in part-time work, while the second looks at the results of actually doing so. While many workers might express interest in a change in work hours, it may be that their job characteristics, job responsibilities, family obligations and relationships with supervisors and co-workers make such a change difficult. In addition, state employment rules sometimes constrain the ability of departments to quickly approve a change in work hours. Demonstration project participants were workers who were able to arrange a part-time work schedule within the short period of time required by the grant period. They may have already put a considerable amount of thought and effort into the decision, might have had jobs particularly suited to part-time work or have had supervisors especially willing to accomodate the desires of their older employees. Thus differences in the results of the two parts of this report probably arise from their focus on different aspects of job choice (i.e. wishes and actual behavior) and from the time constraints imposed by the project (i.e. project participants had to arrange for part-time work within a very short time period).

Readers may have already noted that the characteristics of workers interested in part-time work (i.e. respondents to the Older Worker Survey) and demonstration project participants differed in important ways. We found that full-time workers more likely to be interested in part-time work were those

with high wages, who had given considerable thought to retirement (or alternatively, have other job opportunities or assets) and workers who were classified as technicians. On the other hand, demonstration project participants were largely in clerical and service jobs and had below average (for all respondents) educational and salary levels. We do not believe that these differences cast doubt on our conclusions in Sections II and III. From these differences we conclude that the interest of state workers in part-time work extends far beyond those occupations that traditionally have been assumed most amenable to part-time work or job sharing. Because worker interest in part-time work must surely be influenced by the type of job held, we feel that workers and jobs are probably more adjustable to flexible work schedules than is generally recognized or demonstrated by the characteristics of jobs actually held part-time, and that workers themselves might more clearly see the possibility of adjusting their jobs to part-time schedules than do their employers. Because the demonstration project was known to be short lived, and no changes in state policies on promotion opportunities, retirement benefits or job classifications could be promised, it was clear that there was neither time nor institutional support for workers and their supervisors who wished to explore somewhat different work options. In short, we feel that differences between the characteristics of workers who expressed interest in part-time work and demonstration project workers point to a need for and the probable success of a program exploring and encouraging part-time work options.

Further, our research found no predictable effect of actual reductions upon job satisfaction, job performance, or supervisors' attitudes. Whereas much of the literature contains sweeping statements concerning the great advantages of part-time work for employees, we found no dramatic changes for most workers who actually reduce their hours. The lack of changes in job satisfaction after reduction in hours suggests that workers adjust in terms of job satisfaction to

the characteristics of the jobs they hold. It is also possible that the increase in satisfaction that workers seek by reducing hours of work cannot be measured well by traditional measures of job satisfaction. For example, workers in ill health who want to work fewer hours may not be dissatisfied with their job per se, but with the match between their job demands and physical strength. Their answers to questions on job satisfaction are not likely to reflect the latter aspect of their dissatisfaction if they would in healthier times wish for no changes in job tasks, earnings or control over job decisions. Thus we suspect that the lack of change in job satiefaction for participant worker does not mean that workers wish to reduce their hours of work for reasons entirely unrelated to their jobs or that the inability to change working hours would not at some point result in growing dissatisfaction with their job. This study was unable to identify long run changes in job satisfaction or adjustments other than in work hours that might be made by workers and their supervisors (including retiring completely). It is clear from our study that changes in hours of work is an attractive means for adjusting to change, that a fair number of workers are interested in part-time work opportunities and that no major ill effects arise from a reduction in hours of work. In addition, both participant and control group worker supervisors were generally favorable toward older workers and alternative employment options, and our performance appraisal data shows that workers perform at roughly the same level whether or not they reduce their hours.

From the demonstration project results it is difficult to predict the likely results of large number of workers reducing their hours of work. The participant group may be a unique group of workers since they were able to arrange part-time work schedules rather quickly, as required by the grant period limit. In addition, for real effects of hours reductions to show up, one would have to examine job performance over a longer period of time and job performance criteria would have

to be grounded on job analysis. But it is clear from our data that reducing hours of work will cause little harm. Whereas there were no dramatic changes in job satisfaction, performance, or supervisor's attitude, older workers reduced their hours, there were no ill consequences either.

A program that examined the constraints on the ability of workers and their supervisors to arrange part-time work and the loosening up of these constraints would be advantageous to many older workers. It is clear that a fair number of older workers and their supervisors are open to phased retirement or flexible work schedules. A state program that assisted them in arranging alternative work options for older workers would not only be to the benefit of older workers, but might increase the ability of the state to retain workers who would otherwise retire from state work due to growing job dissatisfaction or declining health.

Bibliography

Anschell, Susan. "Potential for Semi-Retirement in Public Agencies: A Survey of Active and Retired Staff." University of Washington Institute of Governmental Research. (Seattle, Washington, 1980).

Burkhauser, Richard and Joseph Quinn. Mandatory Retirement Study (Part I) Washington, D.C.: The Urban Institute, June, 1980.

Burkhauser, Richard and John A. Turner, "The Effect of Pension Policy Through Life" in Retirement Policy in an Aging Society, ed. by Robert L. Clark. Durham, N.C.: Duke University Press, 1980.

Cain, Glen. Married Women in the Labor Force: An Economic Analysis. Chicago: University of Chicago Press, 1966.

Clark, Robert. Adjusting Hours to Increase Jobs: An Analysis of the Options. Special Report of the National Commission for Manpower Policy No. 15, September, 1977.

Clark, Robert and David T. Barker, Reversing the Trend Toward Early Retirement. Washington, D.C.: American Enterprise Institute, 1981.

Cohen, Allan R. and Herman Gadon. Alternative Work Schedules: Integrating Individual and Organizational Needs. Reading, Massachusetts, 1978.

Foegen, J.F. "Too Many Hours." Administrative Management. April, 1976.

Greenwald, Carol S. and Judith Liss. "Part-Time Workers Can Bring High Productivity." Harvard Business Review. 51:5 (September-October 1973).

Hall, Douglas T. and Francine E. Gordon. "Career Choices of Married Women: Effects on Conflict, Role Behavior, and Satisfaction." Journal of Applied Psychology. 58:1 (1973).

Hallaire, Jean. Part-Time Employment. Its Extent and Its Problems. Paris: Organization for Economic Co-Operation, 1968.

Hansen, W. Lee and Karen C. Holden. Mandatory Retirement in Higher Education November, 1981 (mimeo).

Howell, Margaret A. and Marjorie G. Ginsburg. "Evaluation of the Professional and Executive Corps of the Department of Health, Education, and Welfare." Public Personnel Management. 2:1 (January-February, 1973).

Levitan, Sar A., and Richard S. Belous. "Work Sharing Initiatives at Home and Abroad." Monthly Labor Review. September, 1977.

Logan, Nancy et. al. "Job Satisfaction Among Part-Time and Full-Time Employees." Journal of Vocational Behavior. 3 (1973).

Martin, V. H. "Recruiting Women Managers Through Flexible Hours." S.A.M. Advanced Management Journal. 39:2 (July, 1974).

Meives, Susan. "Part-Time Work: a Multi-Perspective Analysis. Madison, Wisconsin, 1979a.

_____. "Interest in Part-Time Pre-Retirement Among Older Workers in Wisconsin. Madison, 1979b.

Mincer, Jacob. "Labor Force Participation of Married Women: A Study of Labor Supply." in Aspects of Labor Economics. Princeton: Princeton University Press, 1962.

Mincer, Jacob and Soloman Polachek. "Family Investments in Human Capital: Earnings of Women." Journal of Political Economy (March/April, 1974). Part 2.

Nollen, Stanley D., et. al., "Permanent Part-Time Employment: an Interpretive Review." Washington, D.C., 1976. (unpublished paper).

Nollen, Stanley D. and Brenda B. Eddy. "Permanent Part-Time Employment: an Empirical Research Design." Washington: School of Business Administration, Georgetown University, February 1975. (unpublished manuscript).

Olmsted, Barney. "Job Sharing — a New Way to Work." Personnel Journal (February, 1977).

Owen, John D. "An Empirical Analysis of the Voluntary Part-Time Labor Market." U.S. Department of Labor. (August, 1977).

Part-Time Social Workers in Public Welfare. New York: Catalyst, 1971.

Sandell, Steven H. and David Shapiro, "The Theory of Humar Capital and the Earnings of Women: A Re-examination of the Evidence," Journal of Human Resources 13 (Winter, 1978): 103-117.

Schwarz, Felice. "New Work Patterns for Better Use of Womanpower." Management Review. 63:5 (May, 1974).

Stewart, Patricia, et. al. The Measurement of Satisfaction in Work and Retirement. Chicago: Rand McNally, 1969.

Usher, Carolyn E. "Alternative Work Options: Part I — Employees' Interest." Aging and Work, Spring, 1981.

Werther, William B. "Mini-Shifts: an Alternative to Overtime." Personnel Journal. 55:3 (March, 1976).

Appendix A

1. Older Worker Survey
2. Performance Appraisal Forms
3. Supervisor Survey and Interview Forms
4. Initial Participant Interview
5. Early Termination Interview

APPENDIX A

Appendix A contains all the surveys and interview schedules we designed during the life of the project: the older worker survey, initial and follow-up participant interview schedules, performance appraisal forms, initial and follow-up supervisor surveys and interview schedules.

State personnel files provided a list of all older workers currently employed by the State and gave data on address, place of residence, employing department, job classification, E.E.O. category, and year of birth.

The Older Worker Survey collected data on gender, marital status, health, education, number of years worked for the State, extent of retirement planning, circumstances under which respondents would delay retirement, interest in working for pay after retirement, current work status, interest in reducing hours of work before retirement, job satisfaction, feelings about retirement, current benefits, expectations about post-retirement income and levels of living, current salary, total family income, average annual salary before taxes during the three highest-paid years of State employment, and number of dependents.

During the initial and termination participant interviews, we asked participants why they entered the project, what benefits, if any, they were currently receiving, and income both before and after entering the project. On the termination interview, we asked participants why they were ending their participation in the project, income from social security and Wisconsin State Retirement Fund, if any, and earnings upon withdrawal from the project, and specific questions about their work or retirement situation. Those who were continuing to work part-time but not in the project, we asked about their new supervisor, position, and employing agency. Those who were retiring, we asked about their expectations of post-retirement levels of living plans about post-retirement employment. Those who will leave State service, we asked the name of the firm for which they would be working, the title of the new job, and whether or not that job would be full or part-time. Finally, for those returning to full-time State jobs, we asked about the position, the job and agency. It should be noted that not every participant fit these categories.

When we designed the questionnaire, we expected that some participants would leave the project early, and we were not confident that we could get to interview each participant before he or she left the project. Therefore, we designed the interview schedule in such a way that there would be an appropriate set of questions for each group.

The performance appraisal process has been explained in the text, and therefore requires little further explanation here.

Supervisor surveys asked supervisors their opinions about the characteristics of older workers compared with younger workers, whether workers should be required to retire at age 65, and about the feasibility of various work options for older workers.

Supervisor interviews asked a number of questions which seemed to be better suited to a personal interview. These included questions about the supervisor's experience with older workers in the past, about the performance of older workers, the advantages and disadvantages of employing older workers, age of the supervisor, and expectations about each participant's performance. This question was omitted from interviews of control group supervisors.

At the end of the project, we administered an abbreviated form of the supervisor interview, specifically questions #1, #2, #5, #6, #7, #8, and #9.

APPENDIX A.1.

ALTERNATE WORK OPTIONS SURVEY

1. Are you . . . ___male ___female?

2. Are you . . . ___single ___married ___divorced ___separated ___widowed?

3. In general, is your health . . . ___excellent ___good ___fair ___poor?

4. Compared with one year ago, is your health . . . ___better ___same ___worse?

5. Please circle the highest year you completed in school.

Elementary	High School	College	Graduate School
1 2 3 4 5 6 7 8	9 10 11 12	1 2 3 4	1 2 3 4 or more

6. How many years have you worked for the State of Wisconsin? _____#

7. In general, how much have you thought about your retirement plans?

___a great deal ___some ___very little ___not at all

8. What is your best estimate of the age at which you will retire from Wisconsin state employment? _____

9. Because of a federal law effective January 1, 1979, it is now possible for state employees to work past the age of 65. Are you aware of this change?

___no ___yes → 10. Has your awareness of this new law changed your retirement plans?

___no ___yes → 11. At what age had you previously planned to retire? _____

12. Check all those circumstances under which you would work for the state past the age at which you presently plan to retire.

___under no circumstances would I work for the state past the age I presently plan to retire.

___if I could continue my present job as it is now.

___if inflation were to continue at a high rate.

___if the work were made less stressful.

___if I could work a shorter day.

___if I could work fewer days in a week.

___if I could work four, ten-hour days a week.

___if I could share my job with another worker.

___if I could work more flexible hours.

___other. Please explain: _____

_____

13. Do you intend to work after retirement in a non-state job? ___yes ___no

14. Do you presently work . . . ___1/3 time ___1/2 time ___2/3 time ___Full-time

15. In total, about how many employees do you supervise on your job? ____#

16. Many workers are exploring new work options that entail reducing the number of hours they work. If you could choose, would you, within the next year, reduce the number of hours you work in a week?

___yes ___no → 17. Many workers, however, might choose to reduce their hours of work under certain conditions. Under which of the following circumstances would you reduce the number of hours you work in a week? Please check all that apply.

____under no circumstances.

____if there were no decrease in fringe benefits.

____if there were no loss of future social security or state retirement benefits.

____if there were no loss in health or life insurance benefits.

____if there were no loss in sick leave or vacation time.

____if I could collect full retirement benefits while working reduced hours.

____if I could return to my present hours if I changed my mind during the first year.

____if I could train for another type of job at the same time.

____other. Please explain: _____

_____

Items 18 through 33 are statements you might make about your satisfaction with various aspects of your job. By circling the appropriate number to the right of each statement, please indicate whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with these statements.

	Strongly Agree	A-gree	Neither Agree nor Disagree	Dis-Agree	Strongly Disagree
18. In general, I am satisfied with what I do on my job.	1	2	3	4	5
19. In general, I am satisfied with my salary, benefits and other financial aspects of my job.	1	2	3	4	5
20. My opinion of myself goes up when I do my job well.	1	2	3	4	5
21. In general, I would work even if I did not need the money.	1	2	3	4	5

	Strongly Agree	A-gree	Neither Agree nor Disagree	Dis-Agree	Strongly Disagree
22. Within the past year, I have become less satisfied with my salary and benefits.	1	2	3	4	5
23. Within the past year, I have found the things I do on my job less satisfying.	1	2	3	4	5
24. I make most of the important decisions on my job.	1	2	3	4	5
25. I want just as much control over deciding what I do each day as I have now.	1	2	3	4	5
26. I want more control over deciding what I do each day.	1	2	3	4	5
27. I want more control over setting my working hours on my job than I have now.	1	2	3	4	5
28. In general, I get along well with my co-workers.	1	2	3	4	5
29. Most of my co-workers think I am too old to be working.	1	2	3	4	5
30. Few of my co-workers understand what growing old is like.	1	2	3	4	5
31. Within the past year, the amount of fatigue I feel at the end of my day has increased.	1	2	3	4	5
32. I am looking forward to retirement.	1	2	3	4	5
33. If given the chance now, I would reduce my hours of work.	1	2	3	4	5

The remaining questions ask about your income. We wish to reassure you that any information you provide will be held strictly confidential. No one outside of our staff at the University of Wisconsin-Madison will be given access to it.

34. Are you <u>now</u> receiving retirement benefits from . . .

___Wis. State Retirement ___Social Security ___Other Pensions ___None

35. If you had to guess now, how do you think your total family income <u>after</u> retirement from your state job will compare with your total family income <u>just before</u> retirement from your state job?

___more than 2/3 ___about 2/3 ___about 1/2 ___about 1/3 ___less than 1/3

36. After retirement, what proportion of your total family income will be provided by your Wisconsin state retirement? Your best estimate will do.

___more than 2/3 ___about 2/3 ___about 1/2 ___about 1/3 ___less than 1/3

37. After retirement, what proportion of your total family income will be provided by social security? Your best estimate will do.

___more than 2/3 ___about 2/3 ___about 1/2 ___about 1/3 ___less than 1/3

38. Do you think that you will be able to live comfortably after retirement without accepting post-retirement employment?

___definitely yes ___probably yes ___probably not ___definitely not

39. What is your current salary from the State of Wisconsin before taxes?

$_____per year/month/week/hour.

40. During calendar year 1979, what was the income of you and your spouse <u>from all sources</u> before taxes and deductions? An estimate will do.

___0-4,999 ___10,000-14,999 ___20,000-29,999 ___40,000-49,999

___5,000-5,999 ___15,000-19,999 ___30,000-39,999 ___50,000 and up

41. Have you worked for the State of Wisconsin for at least three years?

___No ___Yes. → 42. What were your average annual earnings before taxes during the three highest-paid years of state employment. Your best estimate will do.

___0-4,999 ___15,000-19,000 ___40,000-49,999

___5,000-9,999 ___20,000-29,999 ___50,000 and up

___10,000-14,999 ___30,000-39,999

43. How many people, other than yourself are dependent upon your income? _____#

Date Completed _____

THANK YOU VERY MUCH

APPENDIX A.2.

DEFINITION OF

PERFORMANCE APPRAISAL CATEGORIES

1. Completely unacceptable. This describes a level of performance which is clearly and completely below minimum standards. Normally, this level of performance indicates that an employee should not remain on the job unless improvements are made quickly.

2. Marginally unacceptable. This describes a level of performance which is partially or occasionally below minimum standards. Normally, this level of performance, if maintained consistently over time, indicates that an employee should not remain on the job.

3. Marginally acceptable. This describes a level of performance which is just barely below minimum standards. Normally, this level of performance indicates that an employee could remain on the job but that the employee is not consistently performing at the minimum standard.

4. Minimum Standard. This describes a level of performance which is regularly good enough to meet the normal requirements of the job. Normally, this level of performance indicates that an employee should remain on the job but that performance is no better than the minimum standard.

5. Good. This describes a level of performance which is usually at the minimum standard and is occasionally above that required to meet the basic requirements of the job. Normally, this level of performance indicates that an employee should remain on the job and that performance is better than the minimum standard on occasion.

6. Very Good. This describes a level of performance which, on a regular basis is clearly above the minimum standard. Normally, this level of performance identifies an employee who does more than that which is required and who can serve as an example of a distinguished employee.

7. Exceptionally Good. This describes a level of performance which is without exception distinguished. Normally, this level of performance identifies an employee whose performance is consistently far above the minimum standard and who performs at a level which is above the capabilities of most employees.

PERFORMANCE OBJECTIVES

Job: _____ Employee Rated: _____

Rated By: _____ Date: _____

Below are the performance objectives you previously listed along with the minimum standards you used. Please describe the employee's accomplishments and circle the number below which best describes the job performance of the employee named above on each of the objectives listed. The mid-point on each performance scale is the minimum standard. Under "Accomplishment," state how the employee actually performed, compared to the minimum standards required for the job. An example of an "accomplishment" for the worker who conducts workshops might be "excellent" ratings from all those in attendence.

Performance Objectives	Completely Unacceptable	Marginally Unacceptable	Marginally Acceptable	Minimum Standard	Good	Very Good	Exceptionally Good	Minimum Standard	Accomplishment
1.	1	2	3	4	5	6	7		
2.	1	2	3	4	5	6	7		
3.	1	2	3	4	5	6	7		
4.	1	2	3	4	5	6	7		
5.	1	2	3	4	5	6	7		
6.	1	2	3	4	5	6	7		
7.	1	2	3	4	5	6	7		
Overall Performance (with greater emphasis on the most important objectives)	1	2	3	4	5	6	7		

APPENDIX A.3

ALTERNATE WORK OPTIONS
SUPERVISOR SURVEY
AND INTERVIEW FORMS

This questionnaire consists of a series of statements some people might make about workers who are 60 years of age or older. I would like you to indicate whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with each statement.

	Strongly Agree	Agree	Neither Agree or Disagree	Dis-Agree	Strongly Disagree
1. Compared with younger workers, older workers are better able to keep their minds on their work.	1	2	3	4	5
2. Compared with younger workers, older workers are harder to train into a new job.	1	2	3	4	5
3. Compared with younger workers, older workers have more health problems.	1	2	3	4	5
4. Compared with younger workers, older workers work harder.	1	2	3	4	5
5. Compared with younger workers, older workers are more interested in their job performance.	1	2	3	4	5
6. Compared with younger workers who do the same kind of work, older workers make fewer mistakes on the job.	1	2	3	4	5
7. Workers should be required to retire at the age of 65.	1	2	3	4	5
8. If I could choose, I would rather hire a younger worker than an older worker.	1	2	3	4	5
9. Compared with younger supervisors, older supervisors are better able to direct the work of older workers.	1	2	3	4	5
10. Compared with older workers who work full time, older workers who work part time perform better.	1	2	3	4	5

	Strongly Agree	Agree	Neither Agree or Disagree	Dis-Agree	Strongly Disagree
11. If an older worker under my supervision asked to reduce the number of hours he or she worked in a week, I would agree if I thought there would be no decline in the quality of work my unit produced.	1	2	3	4	5
12. If an older worker under my supervision asked to reduce the numbers of hours he or she worked in a week, I would agree if I thought there would be no decrease in the quantity of work my unit produced.	1	2	3	4	5
13. If an older worker under my supervision asked to reduce the number of hours he or she worked in a week, I would agree if I thought this were the only way I could keep a qualified worker.	1	2	3	4	5
14. If an older worker under my supervision asked to reduce the number of hours he or she worked in a week, I would agree if the worker had health problems.	1	2	3	4	5
15. If an older worker under my supervision asked to reduce the number of hours he or she worked in a week, I would agree if the worker's co-workers didn't object.	1	2	3	4	5
16. If an older worker under my supervision asked to reduce the number of hours he or she worked in a week, I would agree if my supervisor didn't object.	1	2	3	4	5
17. If an older worker under my supervision asked to reduce the number of hours he or she worked in a week, I would refuse.	1	2	3	4	5
18. If a person who had retired within the past year asked to return to work under my supervision, I would agree if it did not diminish the quality of the work my unit produced.	1	2	3	4	5
19. If a person who had retired within the past year asked to return to work under my supervision, I would agree if it did not decrease the quantity of the work my unit produced.	1	2	3	4	5

	Strongly Agree	Agree	Neither Agree or Disagree	Dis-Agree	Strongly Disagree
20. If a person who had retired within the past year asked to return to work under my supervision, I would agree if the worker's co-workers did not object.	1	2	3	4	5
21. If a person who had retired within the past year asked to return to work under my supervision, I would agree if the person had performed well before retirement.	1	2	3	4	5
22. If a person who had retired within the past year asked to return to work under my supervision, I would agree although the person had performed poorly before retirement, if he/she now needed the money.	1	2	3	4	5
23. If a person who had retired within the past year asked to return to work under my supervision, I would agree if my supervisor didn't object.	1	2	3	4	5
24. If a person who had retired within the past year asked to return to work under my supervision, I would agree if the person were planning to return to work part time.	1	2	3	4	5
25. If a person who had retired within the past year asked to return to work under my supervision, I would agree if the person were planning to work full time.	1	2	3	4	5
26. If a person who had retired within the past year asked to return to work under my supervision, I would refuse.	1	2	3	4	5
27. If an older worker under my supervision aksed to work past the normal age of retirement, I would agree if I thought there would be no decline in the quality of work my unit produced.	1	2	3	4	5
28. If an older worker under my supervision asked to work past the normal age of retirement, I would agree if I thought there would be no decrease in the quantity of work my unit produced.	1	2	3	4	5

	Strongly Agree	Agree	Neither Agree or Disagree	Dis-Agree	Strongly Disagree
29. If an older worker under my supervision asked to work past the normal retirement age, I would agree if I thought this was the only way to keep a qualified worker.	1	2	3	4	5
30. If an older worker under my supervision asked to work past the normal retirement age, I would agree if my supervisor didn't object.	1	2	3	4	5
31. If an older worker under my supervision asked to work past the normal retirement age, I would agree if the worker's co-workers didn't object.	1	2	3	4	5
32. If an older worker under my supervision asked to work past the normal retirement age, I would agree if the worker wanted to work full time.	1	2	3	4	5
33. If an older worker under my supervision asked to work past the normal retirement age, I would agree if the worker wanted to work part time.	1	2	3	4	5
34. If an older worker under my supervision asked to work past the normal retirement age, I would oppose the request.	1	2	3	4	5

Thank you in advance for your cooperation. I will be calling you in the near future for a brief, five-minute interview.

APPENDIX A.4.

SUPERVISOR INTERVIEWS

We would like to find out a few things about you and your experience with older workers. We consider an older worker to be one who is at least sixty years old.

1. Have you supervised older workers in the past?

_____yes _____no

2. Have you worked with older workers as co-workers in the past?

_____yes _____no

3. How many older workers do you supervise?

_____(#)

4. In total, how many workers do you supervise?

_____(#)

5. How much experience have you had with older workers? Would you say you have had a great deal, some, or very little?

_____a great deal _____some _____very little

Next, I would like to ask you a few more questions about older workers.

6. In general, do you think a person's performance declines after a certain age?

_____No (Omit #7) _____Yes

7. In general, after about what age does a person's performance begin to decline?

_____45 _____50 _____55 _____60 _____65 _____70

8. Generally speaking, what special advantages do older workers bring to their jobs?

1.

2.

3.

9. Generally speaking, what disadvantages do older workers display on their jobs?

1.

2.

3.

10.

a. What is your age? _____

b. Are you _____under 55
_____55-59
_____60-63
_____64-65
_____over 65

ASK QUESTION #11 ONLY OF SUPERVISORS WHOSE EMPLOYEES ARE PARTICIPATING IN THE PROJECT.

11. Your employee, _____, is participating in our project. Do you expect his/her performance to improve, stay about the same, or decline over the course of this study?

_____improve _____stay the same _____decline

12. Do you have any further comments to make, or are there any questions you have about this survey?

THANK YOU VERY MUCH FOR YOUR TIME. YOUR RESPONSES WILL BE VERY HELPFUL TO US.

APPENDIX A.5.

Supervisor's Termination Interview

The following information is important for an evaluation of any attitude changes among supervisors of project participants.

1) How many older workers do you presently supervise?

_____#

2) In total, how many workers do you presently supervise?

_____#

3)How much experience do you have in dealing with older workers?

_____a great deal _____some _____very little

4) In general, do you think that a person' performance declines after a certain age?

_____yes _____No (Omit #5)

5) In general, at what age does a person's performance begin to decline?

_____45 _____50 _____55 _____60 _____65 _____70

6) Generally speaking, what advantages does an older worker bring to his/her job?

A.

B.

C.

7) Generally speaking, what disadvantages does an older worker bring to his/her job?

A.

B.

C.

APPENDIX A.6.

INITIAL PARTICIPANT INTERVIEW

ASK QUESTIONS 1 THRU 8 ONLY OF THOSE RETURNING TO WORK AFTER RETIREMENT

1. Briefly, why did you decide to return to work after you had retired?

_____inappropriate

2. Were there any other reasons?

_____inappropriate

3. Did any of the following factors enter into your decision?

_____needed something to do with my time

_____needed money

_____needed to be with my old co-workers

_____needed sense of doing something worthwhile

_____needed sense of security

_____inflation made it hard to live

_____needed the respect of others

_____needed life and health insurance benefits

4. Are you receiving any social security benefits now that you have returned to work?

_____yes _____no _____don't know _____inappropriate

5. What is the amount of social security benefits you are receiving?

per year/month

_____don't know

_____inappropriate

6. Are you receiving income from the Wisconsin Retirement Fund now that you have returned to work?

_____yes _____no _____don't know _____inappropriate

7. What is the amount of Wisconsin Retirement Fund benefits you are receiving?

per year/month

_____don't know

_____inappropriate

8. What are your estimated earnings, before taxes, on your current job?

_____per year/month/week/hour

ASK QUESTIONS 9 THRU 16 OF ALL PARTICIPANTS WHO HAVE DECIDED TO REDUCE HOURS

9. Briefly, why did you decide to reduce the hours you have to work in a week?

_____inappropriate

10. Were there any other reasons?

_____inappropriate

11. Did any of the following factors play a role in your decision?

_____more leisure time

_____health reasons

_____didn't want to work as hard

_____wanted more time to consult

_____wanted more time to attend classes

_____family obligations

_____wanted more time for church or community affairs

12. Are you receiving any social security benefits now that you have reduced hours?

_____yes _____no _____inappropriate

13. What is the amount of social security benefits you receive?

_____per year/month

_____don't know

_____inappropriate

14. Are you recieving income from the Wisconsin Retirement Fund?

_____yes _____no _____inappropriate

15. What is the amount of income from the Wisconsin Retirement Fund you receive?

_____

_____don't know

_____inappropriate

16. What were your earnings, before taxes, on the job you held before you reduced your hours?

_____per year/month/week/hour

_____inappropriate

17. What are your earnings, before taxes, on your present job?

_____

_____inappropriate

ASK QUESTION 18 OF ALL PARTICIPANTS

18. Do you have any additional comments you would like to make or any questions about this survey?

THANK YOU VERY MUCH. YOUR RESPONSES HAVE BEEN VERY HELPFUL.

APPENDIX A.7.

EARLY TERMINATION INTERVIEW

1. Briefly, why did you decide to end your participation in the project?

_____ inappropriate

2. Were there any other reasons?

_____ inappropriate

3. Did any of the following factors play a role in your decision?

__X__ supervisory pressure

_____ dissatisfaction with the project

_____ other

_____ inappropriate

4. Are you . . .

____ continuing to work part-time but not in the project (Go to #5)
  _____ already withdrawn (Go to #9)
  _____ not yet withdrawn (Go to #19)

____ retiring (Go to #29)
  _____ already retired (Go to #38)
  _____ not yet retired (Go to #33)

____ going to work in a non-state job (Go to #45)
  _____ already started (Go to #57)
  _____ not yet started (Go to #49)

____ returning to work full-time for the state (Go to #65)
  _____ already gone back to work (Go to #78)
  _____ not yet gone back to work (Go to #72)

ASK THESE QUESTIONS OF THOSE WHO HAVE DECIDED TO WITHDRAW FROM THE PROJECT BUT TO CONTINUE WORKING PART-TIME

5. Briefly, why did you decide to continue working part-time but to withdraw from the project?

____ inappropriate

6. Were there any other reasons?

____ inappropriate

7. Did any of the following factors play a role in your decision?

____ supervisory pressure

____ dissatisfaction with the project

____ too much interviewing

8. Have you already withdrawn from the project?

____ yes ____ no

ASK THESE QUESTIONS OF THOSE WHO HAVE DECIDED TO WITHDRAW BUT HAVE NOT YET DONE SO

We would like to ask you about your income. I realize that this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that any information you give us will be held strictly confidential, but please feel free to avoid answering any questions if you feel the least bit uncomfortable about doing so.

9. Will you be receiving any social security benefits when you are no longer in the project?

____ yes ____ no ____ don't know ____ inappropriate

10. What will be the amount of social security benefits you will receive?

_____ per year/month

____ don't know

____ inappropriate

11. Will you be receiving benefits from the Wisconsin Retirement Fund when you are no longer in the project?

____ yes ____ no ____ don't know ____ inappropriate

12. What will be amount of benefits you will receive from the Wisconsin Retirement Fund?

_____ per year/month

____ don't know

____ inappropriate

13. What will be your estimated earnings, before taxes, when you are no longer a project participant?

_____ per year/month/week/hour

____ don't know

____ inappropriate

14. Will you be working for the same supervisor as you are now?

____ yes ____ no ____ don't know ____ inappropriate

15. Will you be working in the same position as you are now?

____ yes ____ no ____ don't know ____ inappropriate

16. What will be the job classification of your new position?

_____

____ don't know

____ inappropriate

17. Will you be working in the same agency as you are now?

____ yes ____ no ____ don't know ____ inappropriate

18. In what agency will you be working?

_____

____ don't know

____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO HAVE ALREADY WITHDRAWN FROM THE PROJECT

We would like to ask you about your income. I realize that this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that any information you give us will be held strictly confidential, but please feel free to avoid answering any questions if you feel the least bit uncomfortable about doing so.

19. Are you receiving any social security benefits?

____ yes ____ no ____ don't know ____ inappropriate

20. What is the amount of social security benefits you are receiving?

_____ per year/month

____ don't know

____ inappropriate

21. Are you receiving benefits from the Wisconsin Retirement Fund?

____ yes ____ no

22. What is the amount of Wisconsin Retirement Fund benefits you are receiving?

per year/month

____ don't know

____ inappropriate

23. What are estimated earnings, before taxes?

_____ per year/month/week/hour

____ don't know

____ inappropriate

24. Are you working for the same supervisor you worked for before you withdrew from the project?

____ yes ____ no ____ inappropriate

25. Are you working in the same job you worked before you withdrew from the project?

____ yes ____ no ____ inappropriate

26. What is the job classification of your present job?

_____

____ inappropriate

27. Are you working in the same agency as you were before you withdrew from the project?

____ yes ____ no ____ inappropriate

28. In what agency are you presently working?

_____

_____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO HAVE DECIDED TO RETIRE

29. Briefly, why did you decide to retire?

____ inappropriate

30. Were there any other reasons?

____ inappropriate

31. Did any of the following factors enter into your decision?

____ poor health

____ wanted more leisure time

____ didn't want to work as hard

____ wanted more time to pursue hobbies, community or church-related activities

____ lost too many benefits

____ inappropriate

____ other

32. Have you already retired?

____ yes ____ no ____ inappropriate

ASK THESE OF THOSE WHO HAVE DECIDED TO RETIRE BUT HAVE NOT YET DONE SO

Now we would like to ask you about your income. I realize that this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earnings. I assure you that any information you should give us will be held strictly confidential, but please feel free not to answer should you feel the least bit uncomfortable about doing so.

33. When you retire, will you receive any social security benefits?

____ no ____ yes ____ don't know ____ inappropriate

34. What is the amount of social security you will receive?

_____ per year/month

____ don't know

____ inappropriate

35. After you retire, will you receive any benefits from the Wisconsin Retirement Fund?

____ no ____ yes ____ don't know ____ inappropriate

36. What is the amount of Wisconsin Retirement Fund benefits you will receive?

_____ per year/month

____ don't know

____ inappropriate

37. After you retire, how comfortably do you think you will be able to live without accepting post-retirement employment?

____ very comfortably ____ somewhat comfortably ____ not very comfortably ____ not at all comfortably

____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO HAVE ALREADY RETIRED

We would like to ask you about your income. I realize that this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that any information you give us will be held strictly confidential, but please feel free not to answer should you feel the least bit uncomfortable about doing so.

38. Now that you have retired, are you receiving any social security benefits?

____ no ____ yes ____ inappropriate

39. What is the amount of social security benefits that you receive?

_____ per year/month

____ inappropriate

40. Now that you have retired, are you receiving any benefits from the Wisconsin Retirement Fund?

____ no ____ yes ____ inappropriate

41. What is the amount of social security benefits that you receive?

_____ per year/month

____ inappropriate

42. Have you accepted post-retirement employment?

____ yes ____ no ____ inappropriate

43. Why did you accept post retirement employment?

____ inflation made it hard to live.

____ needed sense of self-worth

____ got bored

____ other

____ inappropriate

44. Now that you have retired, how comfortably are you able to live without accepting post-retirement employment?

____ very comfortably

____ somewhat comfortably

____ not very comfortably

____ not at all comfortably

____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO HAVE DECIDED TO LEAVE STATE SERVICE

45. Briefly, why did you decide to work in a non-state job?

____ inappropriate

46. Were there any other reasons?

____ inappropriate

47. Did any of the following factors play a part in your decision?

____ inadequate pay

____ inadequate benefits

____ dissatisfaction with what you did on your job

____ dissatisfaction with state government

____ better opportunities in the private sector

____ other

____ inappropriate

48. Have you already begun working in a non-state job?

____ yes ____ no ____ inappropriate

THESE QUESTIONS ARE FOR THOSE WHO WILL LEAVE STATE SERVICE BUT WHO HAVE NOT STARTED WORKING IN THEIR NON-STATE JOB

49. For what firm or company will you be working? _____

____ don't know

____ inappropriate

50. What will your new job title be? _____

____ don't know

____ inappropriate

51. Will your job be part-time or full-time?

____ part-time ____ full-time ____ don't know ____ inappropriate

Now we would like to ask you about your income. I realize that this may be a very sensitive issue for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that the information you give us will be held strictly confidential, but please feel free not to answer should you feel the least bit uncomfortable about answering them.

52. Will you be receiving social security benefits while working in your new job?

____ no ____ yes ____ don't know ____ inappropriate

53. What will the amount of your benefits be after you begin your new job?

_____ per year/month

____ don't know

____ inappropriate

54. Will you be receiving benefits from the Wisconsin Retirement Fund after you begin your new job?

____ no ____ yes ____ don't know ____ inappropriate

55. What will be the amount of your benefits after you begin your new job?

_____ per year/month

____ don't know

____ inappropriate

56. What will be your estimated earnings, before taxes, on your new job?

_____ per year/month/week/hour

____ don't know

____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO ALREADY ARE WORKING IN A NON-STATE JOB

57. For what firm or company do you work? _____

____ inappropriate

58. What is your present job title? _____

____ inappropriate

59. Are you working . . . ___ part-time ___ full-time

We would like to ask you about your income. We realize that this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that any information you give us will be held strictly confidential, but please feel free not to answer should you feel the least bit uncomfortable about answering.

60. Are you presently receiving social security benefits?

____ no ____ yes ____ inappropriate

61. What is the amount you presently receive from social security?

_____ per year/month

____ don't know

____ inappropriate

62. Are you presently receiving benefits from Wisconsin Retirement Fund?

____ no ____ yes ____ inappropriate

63. What is the amount you presently receive from the Wisconsin Retirement Fund?

_____ per year/month

____ don't know

____ inappropriate

64. What are your estimated earnings, before taxes, on your new job?

_____ per year/month/week/hour

____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO HAVE DECIDED TO RETURN TO WORK FULL-TIME FOR THE STATE

65. Briefly, why did you decide to work full-time for the state?

____ inappropriate

66. Were there any other reasons?

____ inappropriate

67. Did any of the following factors enter into your decision?

____ supervisory pressure

____ difficult to live comfortably on a part-time salary

____ needed sense of esteem which flows only from full-time work

____ can't do all the work I have to on part-time status

____ other. Please explain.

____ inappropriate

68. Are you going to work full-time in the position you have now, or in a different position?

____ same position ____ different position ____ inappropriate

69. In what agency will you be working?

_____

____ inappropriate

70. What will your new job classification be?

____ inappropriate

71. Have you already begun working full-time?

____ yes ____ no ____ inappropriate

THESE ARE FOR THOSE WHO HAVE NOT YET STARTED WORKING FULL-TIME FOR THE STATE

We would like to ask you about your income. I realize this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that any information you give us will be held strictly confidential, but please feel free not to answer should you feel the least bit uncomfortable with answering these questions.

72. Will you be receiving any social security benefits after you go to work full-time for the state?

____ no ____ yes ____ don't know ____ inappropriate

73. What will be your estimated amount of social security benefits after you go to work full-time?

_____ per year/month

____ don't know

____ inappropriate

74. Will you be receiving any benefits from the Wisconsin Retirement Fund after you go to work full-time?

____ no ____ yes ____ don't know ____ inappropriate

75. What will be the estimated amount of Wisconsin Retirement Fund benefits after you go to work full-time?

_____ per year/month

~~76. What will be the estimated amount of Wisconsin Retirement Fund benefits you will receive after you go to work full-time?~~

~~_____ per year/month~~

~~____ don't know~~

~~____ inappropriate~~

77. What will be your estimated earnings, before taxes, on your full-time job?

_____ per year/month/week/hour

____ inappropriate

ASK THESE QUESTIONS OF THOSE WHO HAVE ALREADY BEGUN WORKING FULL-TIME FOR THE STATE

We would like to ask you about your income. I realize that this may be a very sensitive area for you, but it is important for us to assess the impact of alternative employment options on participants' earning power. I assure you that any information you give us will be held strictly confidential, but please feel free not to answer should you feel the least bit uncomfortable about answering.

77. Now that you are working full-time for the state, are you receiving social security benefits?

____ no ____ yes ____ inappropriate

78. What is the amount of benefits you are earning from social security?

_____ per year/month

____ inappropriate

79. Now that you are working full-time, are you receiving benefits from the Wisconsin Retirement Fund?

____ no ____ yes ____ inappropriate

80. What is the amount of benefits you are earning from the Wisconsin Retirement Fund?

_____ per year/month

____ inappropriate

81. What are your estimated earnings, before taxes, on your full-time job?

_____ per year/month/week/hour

____ inappropriate

APPENDIX A.8.

Items 1 through 16 are statements you might make about your satisfaction with various aspects of your job. By circling the appropriate number to the right of each statement, please indicate whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with these statements.

		Strongly Agree	Agree	Neither Agree nor Disagree	Dis-Agree	Strongly Disagree
1.	In general, I am satisfied with what I do on my job.	1	2	3	4	5
2.	In general, I am satisfied with my salary, benefits, and other financial aspects of my job.	1	2	3	4	5
3.	My opinion of myself goes up when I do my job well.	1	2	3	4	5
4.	In general, I would work even if I did not need the money.	1	2	3	4	5
5.	Within the past year, I have become less satisfied with my salary and benefits.	1	2	3	4	5
6.	Within the past year, I have found the things I do on my job less satisfying.	1	2	3	4	5
7.	I make most of the important decisions on my job.	1	2	3	4	5
8.	I want just as much control over deciding what I do each day as I have now.	1	2	3	4	5
9.	I want more control over deciding what I do each day.	1	2	3	4	5
10.	I want more control over setting my working hours on my job than I have now.	1	2	3	4	5
11.	In general, I get along well with my co-workers.	1	2	3	4	5
12.	Most of my co-workers think I am too old to be working.	1	2	3	4	5
13.	Few of my co-workers understand what growing old is like.	1	2	3	4	5
14.	Within the past year, the amount of fatigue I feel at the end of my day has increased.	1	2	3	4	5
15.	I am looking forward to retirement.	1	2	3	4	5
16.	If given the chance now, I would reduce my hours of work.	1	2	3	4	5

APPENDIX B

Older Worker Survey: Response Rates and Response Biases

Questionnaires were mailed out in late December, 1979 and January, 1980. Those sent by the postal service contained a stamped, self-addressed envelope, and all questionnaires were accompanied by a letter which assured the recipients that their responses would be confidential. On each survey was a number which enabled us to follow-up non-respondents, and which allowed us to identify control group workers.

From the first mailing we achieved a response rate of 52.5%. Late in March, 1980, we contacted those by mail who had not yet returned their questionnaires. The follow-up procedure paralleled the initial mailing. Those whom we had originally tried to reach through interdepartmental mail were contacted again through interdepartmental mail; we mailed post cards to those to whom questionnaires had first been sent by U.W. mail. Those who had lost the original questionnaire were asked to contact us for another copy. After completing the follow-up procedure, the response rate had increased by about 10% to 62.5%.

The response rate varied considerably by means sent. Over 73% of those who received the questionnaire through interdepartmental mail returned them, but only 51% of those who were reached through the postal service completed their surveys. People seem much more likely to have completed and returned their surveys if they filled them out as part of their work than if they got them at home.

Five pieces of data were used to compare respondents with non-respondents: year of birth, employing agency, E.E.O. Category, gender, and place of residence. Comparison between respondents and non-respondents in terms of these variables reveals no substantial difference.

Year of Birth

Over eighty percent of both groups were born between 1916 and 1925,

Table B.1.

Year of Birth of Respondents and Non-Respondents

Year	Total		Non-Respondents		Respondents	
	N	%	N	%	N	%
1901-1905	19	.03	15	.7	4	.1
1906-1910	51	.08	34	1.5	17	.4
1911-1915	571	9.25	266	11.7	305	7.8
1916-1920	2605	42.20	965	42.6	1640	42.0
1921-1925	2927	47.42	987	43.5	1940	49.7
Total	6173	100.00	2267	100.0	3906	100.0
Missing	82	--	--	--	82	--
TOTAL	6255		2267		3988	

though respondents had a greater percentage who were born between 1901 and 1915. Non-respondents were therefore slightly younger, though not greatly so. Non-respondents were on average 59.6 years old, and respondents averaged 58.8 years old.

Employing Department

Non-respondents and respondents were also quite similar when compared in terms of the agencies which employed them. The University of Wisconsin System and the State Department of Health and Social Services employed well over half of each group. About 32.4% and 26.5% of the respondents and 30.4% and 28.7% of the non-respondents respectively worked for these two agencies.

Table B.2.

Employing Departments of Respondents and Non-Respondents

Department (State Code)	Total		Respondents		Non-Respondents	
	N	%	N	%	N	%
University of Wisconsin (100)	1996	32.4	1305	33.5	691	30.4
Agriculture (115)	183	3.0	143	3.7	40	1.8
Regulation and Licensing (165)	96	1.6	14	.4	82	3.6
State Fair (195)	46	.7	11	.3	35	1.5
Historical Society (245)	84	1.4	54	1.4	30	1.3
Public Instruction (255)	173	2.8	103	2.6	70	3.1
Natural Resources (370)	266	4.3	171	4.4	95	4.2
Transportation (395)	544	8.8	382	9.8	162	7.1
Health and Social Services (435)	1630	26.5	979	25.1	651	28.7
Industry, Labor, Human Relations (445)	334	5.4	217	5.6	117	5.2
Military Affairs (465)	61	9.9	38	1.0	23	1.0
Veterans Affairs (485)	165	2.7	89	2.3	76	3.3
Administration (505)	183	3.0	127	3.3	56	2.5
Revenue (566)	179	2.9	119	3.1	60	2.6
All Employees except missing	6160	100.0	3893	100.0	2267	100.0
Missing	95		95		--	
TOTAL	6255		3988		2267	

E.E.O. Category

Comparison between the two groups also reveals a close similarity in E.E.O. category of respondents and non-respondents. Though a slightly higher proportion of para-professionals than other groups responded, there was very little difference between the two groups. With both groups, professionals predominated, followed by service maintenance, office clerical and para-professional workers.

Table B.3.

E.E.O. Category of Respondents and Non-Respondents

Category	Total		Respondents		Non-Respondents	
	N	%	N	%	N	%
Officials-Administrators	290	5.7	194	5.5	96	6.2
Professionals	1413	27.8	998	28.2	415	26.8
Technicians	246	4.8	177	5.0	69	4.4
Protective Service	307	6.3	219	6.2	88	5.7
Para-Professionals	728	14.3	443	12.5	285	18.4
Office-Clerical	898	17.6	637	18.0	261	16.8
Skilled Craft	171	3.4	138	3.9	33	2.1
Service Maintenance	1035	20.3	731	20.7	304	19.6
Total (without missing)	5088		3537		1551	
Missing	1167		451		716	
TOTAL (including missing)	6255		3988		2267	

Place of Residence

Fourth, respondents and non-respondents were compared according to where they lived. About one-quarter of both groups live in Madison or Milwaukee, 19.7% and 17.9% respectively in Madison and 6.3% and 7.3% respectively in Milwaukee. The remainder of both groups were spread across the state. Other than Madison and Milwaukee the highest proportion of workers live in Eau Claire, Oshkosh, Chippewa Falls, Lacrosse, and elsewhere. This comparison probably understates the dominance of Madison and Milwaukee residence, because it probably ignored a large number of workers living near these two cities. Nevertheless, a majority of both respondents and non-respondents live in smaller communities. Residential patterns seem to make little difference.

Table B.4.

Places of Residence for Respondents and Non-Respondents

Place of Residence	Total		Respondents		Non-Respondents	
	N	%	N	%	N	%
Madison	1162	18.6	770	19.7	392	17.9
Milwaukee	412	6.6	247	6.3	165	7.3
TOTAL	6255	100.0	3988	101.0	2267	100.0

Gender and Response Bias

There was no clear response pattern by gender. Men made up 56.5% of the respondent group and 51.7% of the non-respondent group, but these differences were not large enough to indicate any significant bias.

Table B.5.

Gender of Respondents and Non-Respondents

Gender	Total		Respondents		Non-Respondents	
	N	%	N	%	N	%
Male	3420	54.7	2249	56.5	1171	51.7
Female	2829	45.2	1733	43.5	1096	48.3
Missing	6	.1	6	.2	--	
TOTAL	6255	100.0	3988	100.0	2267	100.0

APPENDIX C

Demographic Characteristics of Respondents

The first set of questions in the survey asked workers to report their age, sex, marital status, and highest year completed in school. Responses indicated that 56% were male. The average age of respondents was 58.8 years, but almost sixty percent of the respondents were younger than 60. Another third were aged between sixty and sixty-four years. Almost three-fourths (74.1%) of those who answered our questionnaire were married; another 8.5% were divorced; ten percent were widowed, and about six percent were single. Slightly fewer than half had finished high school; another third had finished college, and just under twelve percent had completed some graduate school. About eight percent had only an elementary school education.

Characteristics of Employees' Work

Almost all of those who sent in their surveys worked full-time; only six percent of them worked less than full-time. In general, those who answered the survey had on average worked slightly under sixteen years for the State, but over half worked fifteen or more years. Some had worked as many as forty years. "Professional" occupations predominated as might be expected for civil service workers; one out of every four respondents held a job classified as "professional." Slightly under eighteen percent of jobs held were classified as "service/maintenance;" sixteen percent were identified as "clerical," and about eleven percent of the occupations held were para-professional. About one-third of the workers worked in Madison or Milwaukee; two-thirds outside of the two cities. About one-third of the respondents (32.7%) were University employees, and close to one quarter (24.5%) worked for the Department of Health and Social Services. Together, these two agencies accounted for over half (57.2%) of all the agencies which employed respondents.

Health

Virtually all reported that they were in at least "good" health. Over half the employees surveyed stated that their health was "good," and about one-third (33.9%) indicated that their health was "excellent." Less than one percent described their health as "poor." Virtually all (95%) said their health was the same or better than it was one year ago. Despite the general level of good health, a fairly large proportion indicated that they felt more fatigue at the end of a working day compared with a year ago. More than thirty-five percent of those who stated an opinion either agreed with or strongly agreed with a statement that they felt more fatigue at the end of a working day.

Attitudes Toward Retirement and Altered Work Patterns

Most of those who responded to the questionnaire indicated that they had given at least some thought to their retirement plans. Almost one-

third had given "a great deal" of thought to retirement, and slightly more than one-half (50.4%) had given "some" thought to it. At the outset of the study, we were curious about how many State workers knew about the new federal legislation changing the mandatory age of retirement from 65 to 70. It turned out that almost all workers (94.4%) knew of the change, but that in more than three cases out of four (76.7%) the change in the law had made no difference in the age at which workers planned to retire. Most workers stated that they did not plan to work after retirement. A large proportion, however, indicated that they might under certain circumstances delay retirement and work beyond the age they presently plan to retire.

Job Satisfaction

An important part of our questionnaire was designed to estimate the level of job satisfaction of older State workers in order to test the relationship between worker satisfaction and interest in alternative work options. From many of the open-ended responses attached to the end of the older worker survey, we expected to find the job satisfaction of many older workers to be low. We did not find this to be the case. Most of the respondents indicated that they were either satisfied or very satisfied with various aspects of their jobs. More than eighty-five percent of these workers stated that they were generally satisfied with what they did on their jobs (85.7%), and almost sixty percent indicated they were satisfied with their salaries (59.7%). Workers were probably the least satisfied with the amount of autonomy given them by their jobs and with the relationships with their co-workers.

Income, Post-Retirement Benefits, and Expected Levels of Living

About ninety percent of those who filled out the survey supplied income information. Average annual income was spread over a wide range; three-quarters of these workers reported that they enjoyed a family income of between 10,000 and 29,000 per year, but the modal category, shared by some thirty percent of the respondents was 20,000-29,000. Average yearly full-time salary of these workers was about 17,000, but some twenty-two percent of the workers fell into the 10,000-14,999 category.

As expected, most of the older State workers (88.0%) who responded to the questionnaire are not receiving any type of retirement income. The small number that receives such income do so from the Wisconsin State Retirement system or federal Social Security. In predicting their post-retirement income, most respondents expect a considerable decline in their income, to about one-half their 1979 income with Wisconsin State retirement benefits and federal Social Security providing most of their post-retirement income (about one-third and one-third to one-half respectively). Although only about forty percent anticipate living comfortably on expected income in retirement without working for pay, there appears to be little interest in working after expected age of retirement. Response to questions concerning the circumstances under which retirement may be delayed, however, indicate that this situation may be altered by economic conditions.

Summary

The general picture of older State workers that emerges is that most are between the ages of 55 and 59, have worked for the State for about fifteen years and earn about $17,000 per year. Most are married, and most have graduated from college. In general they are professionals who work outside Madison, primarily for the University of Wisconsin System or for the Department of Health and Social Services, and view themselves to be in good health. They have given some thought to their retirement plans but might reduce their hours of work before retirement under certain circumstances. They are not particularly eager to work for pay after they retire, but at the same time, they are not particularly optimistic over the extent to which they can support themselves on their expected retirement income from the State Retirement fund, or Social Security.

APPENDIX D

Construction of Job Satisfaction Indices used in the Evaluation of the Demonstration Project

In general, responses to the job satisfaction questions on the Older Worker Survey were coded so that a "strongly agree" response was equal to +1, an "agree" was +0.5, a "neither agree nor disagree" was equal to 0, a "disagree response" coded -0.5 and a "strongly disagree" response coded -1. All codes were done to make responses to questions 18 through 30 consistent. The indices are equal to the sum of the codes recorded for the appropriate question, divided by the number of questions in each index. Thus each job satisfaction index varies between -1 and +1. For example, a score of +1 on the LESSAT index means that the respondents were less satisfied with their job and salary than they were one year earlier. A score of -1 indicates that they were definitely not less satisfied. The table below describes the questions used in constructing each index.

Table D.1.

Variable		Questions Included:	
1.	Task Satisfaction (Q. #18 - Q. #23 + Q. #25)/3	Q. #18:	In general, I am satisfied with what I do on my job.
		Q. #23:	Within the past year, I have become less satisfied with the things I do on my job.
		Q. #25:	I want just as much control over deciding what I do each day as I have now.
2.	Financial Satisfaction (Q. #19 - Q. #22)/2	Q. #19:	In general I am satisfied with my salary, benefits, and other financial aspects of my job.
		Q. #22:	Within the past year, I have become less satisfied with my salary and fringe benefits.
3.	Autonomy Satisfaction (Q. #24 - Q. #26 - Q. #27)/3	Q. #24:	I make most of the important decisions on my job.
		Q. #26:	I want more control over deciding what I do each day.
		Q. #27:	I want more control over setting my working hours on my job than I have now.
4.	Co-worker Satisfaction (Q. #28 - Q. #29 - Q. #30)/3	Q. #28:	In general, I get along with my co-workers.
		Q. #29:	Most of my co-workers think I am too old to be working
		Q. #30:	Few of my co-workers understand what growing old is like.

Table D.1. (continued)

Variable		Questions Included:	
5.	General Job Satisfaction (Q. #18 + Q. #19 + Q. #28 - Q. #29)/4	Q. #18:	In general, I am satisfied with what I do on my job.
		Q. #19:	In general, I am satisfied with my salary, benefits, and other financial aspects of my job.
		Q. #28:	In general, I get along with my co-workers.
		Q. #29:	Most of my co-workers think I am too old to be working.
6.	Less Satisfied than one year ago (Q. #22 + Q. #23)/2	Q. #22:	Within the past year, I have become less satisfied with my salary and benefits.
		Q. #23:	Within the past year, I have become less satisfied with the things I do on my job.
7.	Want More from job (Q. #26 + Q. #27)/2	Q. #26:	I want more control over deciding what I do each day.
		Q. #27:	I want more control over setting my working hours than I have now.
8.	Centrality of the job (Q. #20 + Q. #21)/2	Q. #20:	My opinion of myself goes up when I do my job well.
		Q. #21:	In general, I would work even if I didn't need money.

APPENDIX E

On the Interpretation of F Statistics

We used the F statistic to test the "null hypothesis" that the means of two populations are the same. The F statistic can be expressed as:

$$F = \frac{SS_b}{SS_w}$$

where SS_b is the sum of squares (or variance) between groups and SS_w is the sum of squares (or variance) within groups. Since each sample variance is an unbiased estimator of the population variance, the long-run expected value of the above ratio is about 1.0. However, for any given pair of samples, the sample variances are not likely to be identical in value, even though the null hypothesis is true. Since this ratio is known to follow an F distribution, this probability distribution can be used in conjunction with testing the difference between two variances or for the equality of two population means.

An F statistic that is much greater than 1 generally indicates that the null hypothesis can safely be rejected. In other words, the variation between groups should be larger than the variation within groups. But how much greater does it have to be? Given a significance level (for example, .05) and the degree of freedom for both sameples (df = n-1) the critical F can be found from an F statistical table and compared with the observed F statistic. If the observed F is larger than the critical F, the null hypothesis can be rejected.

The F test can be applied in regression analysis to test the null hypothesis that the multiple correlation is zero in the population from which the sample was drawn, or to determine whether an independent variable or the addition of a particular independent variable, results in a significant reduction in the variance associated with the dependent variable. The test statistic employed for the overall test for goodness of fit of the regression equation is:

$$F = \frac{SS_{reg}/k}{SS_{reg}/n-k-1}$$

where SS_{reg} is the sum of squares explained by the entire regression equation, SS_{reg} is the residual variance, k is the number of independent variables in the equation, and n is the sample size. In this context, the sum of squares attributed to the regression is the sum of the squared deviations between each predicted regression line value and the overall mean of the dependent variable. The residual sum of squares is the sum of the squared deviation between each observed value of the dependent variable and the regression line value. On the basis of these two types

of sum of squares, the significance of the regression coefficient (and of the correlation coefficient) can be determined by comparing the mean square attributable to the regression with the mean square attributable to the residual.

Again, in order to reject the null hypothesis, the ratio of variance explained by the regression equation (the numerator) to the unexplained variance (or the residual sum of squares) should be equal to or greater than the critical level of F. For more information on the F statistic, see Norman H. Nie et. al., SPSS: Statistical Package for the Social Sciences (New York: 2nd ed., 1975), p. 335.