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Abstract

This study presents an integrative model of early retirement using data from the Wisconsin Longitudinal Study. The model extends prior work by incorporating work–family conflict to capture the interaction between the work and family domains and by assuming proximal and distal predictors of early retirement. More precisely, the model suggests that family and job demands and resources predict family-to-work and work-to-family conflict, respectively. All of these factors are presumed to have only indirect effects on retirement timing via the intervening effect of quality-of-life measures, that is, marital satisfaction, job satisfaction, and health. The authors assume that these three factors constitute predictors of early retirement in addition to socioeconomic status and the availability of a pension plan and health insurance. The model was tested with structural equation modeling techniques, and the results were supportive. Therefore, the proposed model offers a general framework for the integration of previous research findings.

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Keywords

early retirement, demands and resources, work–family conflict, quality of life

Since its implementation in the early 20th century, the “normal retirement age,” that is, the age at which full social security or retirement benefits are available for individuals, has steadily declined and early retirement schemes have been launched (Graebner 1980). Especially during periods of high unemployment (e.g., the 1970s and 1980s), stimulating early exits from the labor force was a commonly used political tool to secure the succession of younger employees and to keep older workers out of unemployment statistics (Kohli 1985). More recently, changing demographics such as longer life expectancy and decreasing fertility rates have rendered policies promoting early withdrawal from the labor force increasingly problematic (van Dalen and Henkens 2002), as they impose growing fiscal pressure on public pension systems (Fullerton and Toossi 2001). As a consequence, many industrialized countries have launched policies to promote extended labor force participation (Frostin 1999). For example, in the United States, the age of eligibility for full social security retirement benefits has begun to increase gradually from 65 to 67, and the benefits available from the age of 62, the current minimum age for early retirement, have been reduced (National Research Council and the Institute of Medicine 2004).

The success of such political endeavors to encourage delayed retirement is at least partially contingent on the workers’ willingness and ability to extend their working lives. Apart from analyzing the effects of structural changes in social security systems, it therefore seems necessary to understand why people opt for an early exit from the labor force. To do so, it is necessary to consider individual characteristics that determine a worker’s decision to retire early.

Until now, the most widely studied individual predictors of early retirement are age, financial status, and health. For example, among older people, those in a more favorable financial situation and those in ill health were found to aim for early retirement (Flippen and Tienda 2000; Kim and Feldman 1998). Job and family characteristics, on the other hand, have received considerably less attention in empirical studies (Beehr 1986; Feldman 1994; Szinovacz 2003). Where the effects of job and family characteristics have been investigated, the research primarily relies on surveys conducted in European countries. Studies based on U.S. data mainly focus on financial aspects, pension eligibility, and continuous health insurance coverage. In this study, we thus expand the scope of American retirement research by analyzing how work and family characteristics contribute to early retirement.

Job and family characteristics are interesting for retirement research because of their relationship to health outcomes and attitudes toward work and family life (Karasek and Theorell 1990)—all of which are associated with retirement behavior—and because of their susceptibility to modification via work design or counseling programs. Since they are amenable to modification, job and family characteristics can be used to alter retirement behavior. As such change processes require some time to take effect and need to be implemented well before actual retirement, what we are interested in is the long-term effect of work and family factors on an individual's propensity to retire early. If we can demonstrate that job and family conditions assessed in the later stages of a person's working life (i.e., about a decade before retirement) are linked to early retirement behavior, then altering job and family characteristics via work design or counseling programs may prove to be a powerful tool for facilitating extended labor force participation.

We therefore developed and tested a conceptual model that focuses on preretirement work and family characteristics as long-term predictors of early retirement. Because these characteristics mutually influence each other, we also looked at the interaction between the domains of work and family as potential determinants of early retirement. We assume that work and family characteristics surveyed during the later stages of a person's working life will exhibit predictive power in forecasting early retirement in addition to the effects of well-established predictors such as socioeconomic status, the availability of a pension plan, and health insurance coverage. We also assume that those characteristics are linked to early retirement via the intervening effect of perceived quality of work and family life. In other words, we conjecture that work and family characteristics exert their influence indirectly (mediated through the perceived quality of work and family life) and at a temporal distance from the retirement event.

Job and Family Characteristics as Predictors of Early Retirement

Job Characteristics

According to the job demands–resources (JD-R) model recently proposed by Bakker and Demerouti (2007), work characteristics can be classified into two global categories, namely, *job demands* and *job resources*. Job demands refer to those aspects of the job “that require sustained physical and/or psychological . . . effort and are therefore associated with certain physiological and/or psychological costs” (Bakker and Demerouti 2007:312). Therefore,

these demands include burdens such as overload or time pressure. Job resources, on the other hand, are positive aspects of the job that keep people healthy and motivate them to remain in the labor force even when they encounter high job demands. Furthermore, resources (e.g., job control and social support from coworkers or supervisors) are assumed to be instrumental in attaining work goals and in fostering personal development and growth (Bakker and Demerouti 2007). When the JD-R model is applied to retirement research, the findings as to the influence of job characteristics on early retirement behavior can be interpreted as effects of job demands and job resources. For instance, studies consistently indicate that *physical* job demands are related to earlier retirement and especially to disability retirement. Jobs that are physically demanding or involve working in uncomfortable positions have been shown to increase the risk of disability and early retirement, even after controlling for socioeconomic and health factors (Karpansalo et al. 2002; Salonen et al. 2003). In line with these findings, Blekesaune and Solem (2005), Hayward (1986), and Quinn (1978) reported that workers in physically strenuous occupations were more inclined to retire early than were those in less demanding jobs. More specifically, pushing heavy loads, extreme bending of the back (Lund, Iversen, and Poulsen 2001) or neck, and working mainly in a standing or squatting position (Lund and Villadsen 2005) have been identified as predictors of early retirement.

The evidence regarding the effects of *psychosocial* job demands and job resources on the propensity to retire early is less conclusive. Whereas working in a repetitive or nonchallenging job has repeatedly been demonstrated to encourage early exits from the labor force (Henkens and Tazellar 1997; Reitzes, Mutran, and Fernandez 1998), other psychosocial job demands yield less consistent results. For example, Mein et al. (2000) found that female (but not male) civil servants in psychosocially demanding jobs opt for early retirement more often than their colleagues in less psychosocially strenuous jobs. In contrast, Salonen et al. (2003) identified health impairments and heavy physical workloads—rather than psychosocial demands—as factors that promote early retirement among food industry workers.

Moreover, no clear pattern of evidence exists regarding the effect of job resources on people's propensity to exit the labor force early. For example, job control has been found to reduce early retirement considerations or intentions (Beehr and Glazer 2000; Elovainio et al. 2005; Sutinen et al. 2005) but not actual early retirement behavior (Lund and Borg 1999; Lund and Villadsen 2005; Mein et al. 2000). The role of social support from coworkers is even less clear. Whereas some studies have found fewer incidents of early retirement among employees with more social support (Krause et al. 1997), others

indicate that social support exerts no influence on early departure from the labor force (Lund and Borg 1999) or at least no postponing effect on women (Mein et al. 2000). In sum, apart from the impact of physical job demands, no clear overall pattern of evidence has emerged with regard to the effect of job characteristics on early retirement.

Family and Marital Characteristics

Because full retirement constitutes a transition from work to leisure, which frequently takes place in the household context, some retirement models assume that retirement behavior is at least partially contingent on selected spouse and family characteristics. For example, spouses who have a close relationship, live in a satisfactory marriage, and appreciate the time they spend together are more prone to retire early than couples in conflict-laden marriages (Henkens and Tazellar 1997; Szinovacz and DeViney 2000). The latter may perceive work as a haven from stressful family situations (Hochschild 1997) and may therefore seek to postpone retirement. Furthermore, a spouse's poor health can promote earlier retirement due to the burden of caregiving (Hayward, Friedman, and Chen 1998), or it can encourage delayed retirement due to the high costs of the spouse's disability (O'Rand and Farkas 2002; Pienta 2003; Szinovacz and DeViney 2000). To distinguish various familial influences on early retirement behavior, we extend the JD-R model into the family domain by proposing that family characteristics can also be classified as demands (e.g., caring for one's spouse or handling problems with family members) and resources (e.g., social, financial, or emotional support from relatives).

Work–Family Conflict

Although some researchers explain the influence of stressful family or marital characteristics on retirement behavior by referring to the competing demands of work and family lives (e.g., Szinovacz, DeViney, and Davey 2001), work–family conflict has not yet been studied explicitly in relation to early retirement. However, Raymo and Sweeney (2006) found the perceived spillover of stress from the family into the work domain (i.e., family-to-work conflict) and from work into the family realm (i.e., work-to-family conflict) to affect *retirement preferences* independently of stressful work and family characteristics. The concept of family-to-work conflict may also shed light on actual retirement behavior and the unclear effects of care obligations. Caring for an ill spouse may only relate to early retirement if caregiving is

incompatible with job demands. On the other hand, job demands may only be linked to early exits from the labor force if they prevent people from spending time with their family or friends.

Quality of Work and Family Life— The Missing Link?

Given the mixed findings with regard to the influence of psychosocial job characteristics and the unclear impact of family demands on early retirement, it appears crucial to evaluate the effect of individual perceptions more carefully. We therefore aim to link job and family characteristics with early retirement via the intervening effect of quality of life, a concept that combines objective work and family characteristics with individual perceptions of those conditions (e.g., Korunka, Hoonakker, and Carayon 2008; Voydanoff 2002). In line with this rationale, several indicators of the quality of work and family life, including job satisfaction, health status, and marital satisfaction, have been linked to early withdrawal from the labor force. For instance, how a person feels about his or her job is a significant predictor of early retirement. Low job satisfaction and negative attitudes toward work cause people to hasten their transition to retirement (Reitzes et al. 1998; Topa et al. 2009) and increase the likelihood of early retirement (Mein et al. 2000) or disability retirement (Krause et al. 1997).

Another important quality-of-life factor that may accelerate labor force withdrawal is poor health. Although estimated health effects vary depending on the measures used, recent longitudinal analyses (Dwyer and Mitchell 1999; Karpansalo et al. 2004; McGarry 2004; Rupp and Davies 2004) have shown that health complaints exert a strong influence on encouraging early retirement (see also Bound 1991).

Finally, models applying a life-course perspective to retirement behavior imply that retirement is influenced by an individual's experiences in the family domain, including marital satisfaction (Moen 1996), which itself is another quality-of-life indicator. One benefit of retirement is that it enables spouses to spend more time together, as evidenced by the propensity of spouses to retire simultaneously (Henkens 1999; O'Rand and Farkas 2002). Such considerations are most likely to prevail among couples who are satisfied with their marriages. Similarly, spouses living in satisfactory marriages were found to hasten their transition to retirement, whereas spouses whose marital relationships were already under strain tended to postpone retirement (Szinovacz and DeViney 2000).

Taken together, the reported findings show that indicators of the quality of work and family life are valuable in understanding early retirement. They may also contribute to disentangling hitherto mixed results regarding the effects of more objective work and family conditions. More specifically, job and family characteristics may indirectly influence a worker's propensity to retire early via the intervening effect of quality-of-life factors. In our models, quality-of-life measures are assumed to be contingent on more objective work and family characteristics and to mediate their relationship to early retirement behavior. For example, workers who experience low job resources as well as high physical and psychosocial demands are assumed to be at risk of developing adverse health conditions or negative work-related attitudes, which will in turn prompt them to exit the labor force early. On the other hand, it is assumed that family demands such as a spouse's declining health will reduce marital satisfaction (e.g., Booth and Johnson 1994; Kramer and David 1999) and that family resources such as social support will foster marital satisfaction (e.g., Brotheridge and Lee 2005; Frone, Yardley, and Markel 1997), which is also linked to early retirement behavior.

As job and family demands and resources cannot be seen as mutually independent, we integrated both forms of work–family conflict into the model in order to capture the spillover between the domains of work and family. Whereas we postulate that family-to-work conflict is shaped by family demands and resources and has an impact on marital satisfaction, we expect work-to-family conflict to be attributable to job demands and resources and to result in lower job satisfaction and higher levels of health complaints. We therefore assume that potentially stressful job or family characteristics will only exert an influence on early retirement behavior if they are perceived as a source of work–family conflict and if they lead to negative job or marital satisfaction or adverse health outcomes.

In summary, we anticipate that three key factors—health, marital satisfaction, and job satisfaction—will directly affect whether individuals opt for early retirement and that all other characteristics of the work and the family/marital context will operate through these variables. Furthermore, we expect these three factors to exhibit predictive power in addition to socioeconomic status, the availability of a pension plan, and health insurance coverage, all of which have been identified as consistent predictors of early retirement behavior in past research (for overviews, see Feldman 1994; Szinovacz 2003). Finally, we assume that the key factors proposed here will exhibit long-term explanatory power, in that job and family conditions assessed about a decade prior to actual retirement will predict early retirement (see Figure 1).

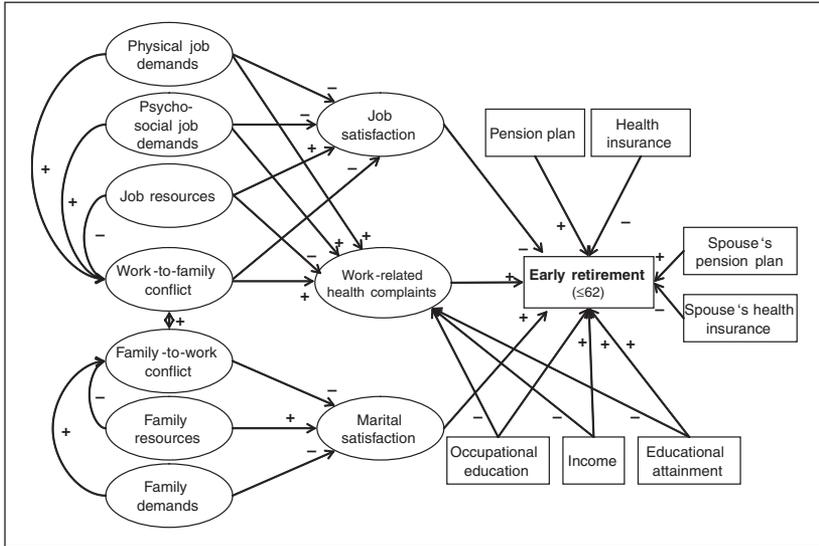


Figure 1. Conceptual model of early retirement

Method

Data

To assess the conceptual model described above, we used data from the Wisconsin Longitudinal Study (WLS), a long-term cohort study involving a random sample of 10,317 men and women who graduated from Wisconsin high schools in 1957. Survey data were collected from graduates in 1957, 1975, 1993, and 2004. These data provide extensive information on the respondents' work histories, job characteristics, and health complaints.

As it focuses on high school graduates, the WLS sample is not representative of the U.S. population at large. On average, the respondents tend to be better educated than the general population. Furthermore, a vast majority of the respondents are White, which mirrors the demographic composition of Wisconsin in the 1950s. Although we do not expect the hypothesized relationships to differ by region of residence, ethnic background has been found to influence retirement timing (Flippen and Tienda 2000) and to moderate the effect of various factors on labor force participation among the elderly (McNamara and Williamson 2004). Therefore, our results may not be generalized to the entire population of Americans in this age group.

Despite its limited generalizability, the WLS is very well suited for evaluating our early retirement model. Its reliance on both telephone interviews and mail questionnaires allows us to reduce common method variance by using different sources of data collection and by separating the times of measurement for the interview and questionnaire variables (Podsakoff et al. 2003). Second, the WLS contains a series of questions designed to measure work and family interference as well as information on family characteristics and social support within the family. Finally, its long-term longitudinal design permits us to assess the effect of temporally distant predictors on early retirement behavior.

We confined our analyses to those 5,976 WLS participants who completed both the telephone and mail surveys in 1993 and who participated in the telephone interview in 2004. By limiting the sample to private or governmental wage and salary workers who did not retire before the 1993 survey and who had worked at least 10 years between 1975 and 2004, we reduced the sample size to 4,176. We further restricted our analyses to respondents who were married in 1993 and remained in that marriage at least until 2004. This applied to 3,095 of the 3,447 married people in the remaining sample (89.8%). The final analytical sample comprised the 2,499 respondents who had no missing data on any of the study variables. Differences between the analytical sample and the full sample of married respondents were tested for all measured variables and did not prove to be statistically significant. The analytical sample may thus be regarded as representative of the entire subsample of married WLS respondents.¹

Measures

Retirement timing. The WLS data set permits at least two methods of determining retirement timing: (1) using data on respondents' self-reported employment status and the associated date of retirement, and (2) employing information related to job histories. For this study, the second approach was used. Specifically, we drew upon information obtained from respondents' descriptions of jobs held between 1993 and 2004. Information was collected on up to eight spells of employment. When respondents reported retirement as one of the main reasons for having stopped working or when they first considered themselves retired after having left a job in any of the eight employment spells, we used the end date of that spell as the indicator of retirement timing. Respondents' ages at the time of initial retirement were calculated by subtracting their birth dates from their retirement dates (expressed in

century months) and transforming the resulting figures into an age variable.² Compared to more objective measures of retirement, such as the receipt of retirement benefits, weekly earnings, or usual working hours, this more subjective measure provides more insight into the retirement process (e.g., Gustman and Steinmeier 2000). Another argument in favor of using the job history–based measure is that it can be linked to characteristics of the job from which the respondents retired. As we were interested in the determinants of early retirement, we dichotomized job history–based retirement age into two groups: retirement at or before age 62 versus retirement after age 62. One advantage of this method is that because all respondents were age 62 or older at the time of the 2004 telephone interview, we could regard those who were still in the labor force as not having retired early.

Predictor variables. Except for the outcome variable described above, all measures were taken from the 1993 wave of data collection. At that time, respondents were an average of 53 years old and were approaching retirement. The means, standard deviations, coding algorithms, wording, and sources of the predictor variables are reported in Table 1. As the table shows, some variables are represented by single items. Although we made efforts to include multi-item measures, well-established measures of constructs were not always available; this limitation has been described as a common disadvantage of using archival data (Kosloski, Ekerdt, and DeViney 2001).

Analyses

To test the plausibility of the proposed model shown in Figure 1, we used structural equation modeling procedures, which allow more rigorous tests of formalized hypotheses than the usual procedures of bivariate and multivariate statistics (Reinecke 2005). Due to the categorical nature of some study variables and the probable violation of the multivariate normality assumption, we based our analyses on polychoric and polyserial correlations (Bollen 1989) as implemented in the PRELIS 2.51 and LISREL 8.51 programs (Jöreskog and Sörbom 2001).

Parameter estimates were determined using weighted least square estimation procedures. The adequacy of the model was assessed by applying four fit statistics: the χ^2 goodness-of-fit statistic, the adjusted goodness-of-fit index (AGFI), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI). CFI and AGFI values close to 1.00 and an RMSEA value close to .06 are indicative of a well-fitting model (Hu and Bentler 1999). Finally, the Bayesian information criterion (BIC) was used to compare non-nested models.

Table 1. Means, Standard Deviations, Coding Algorithms, Wording, and Sources of Survey Questions for the Independent Variables

Variable	M	SD	Coding algorithm	Source: Wording of question
Job resources	0.50	0.50	Dummy variable: 1 = yes, 0 = no	Phone 1993: Can you decide what time to come to work and when to leave, either officially or unofficially?
	0.66	0.47	Categorical variable dichotomized into whether a job does (1) or does not (0) require postsecondary education: 1 = postsecondary education (technical or vocational school, graduate or professional school, some college, two-year or four-year college graduate), 0 = no postsecondary education (less than high school, high school graduate, high school plus apprenticeship)	Phone 1993: How much education do most people in jobs like your job have?
Physical job demands	2.79	1.20	Metric variable ranging from 1 = never to 5 = always	Phone 1993: How frequently does your job require lots of physical effort?
	1.62	0.77	Metric variable ranging from 1 = not at all dirty to 4 = very dirty	Phone 1993: How dirty do you get on your job?
Psychosocial job demands	20.30	15.87	Metric variable ranging from 0 to 90 hours/week	Phone 1993: How many hours per week do you spend working with your hands, tools, or equipment?
	3.95	0.93	Ranges from 1 = never to 5 = always	Phone 1993: How frequently do you have to work under the pressure of time?
	4.33	0.67		Phone 1993: How frequently does your job require intense concentration?

(continued)

Table 1. (continued)

Variable	M	SD	Coding algorithm	Source: Wording of question
Job satisfaction	3.46	0.65	Ranges from 1 = very dissatisfied to 4 = very satisfied	Phone 1993: All things considered, how satisfied are you with your job as a whole?
Family resources	2.33	1.38	Ranges from 0 = least support to 5 = strongest support; for each item, respondents indicated whether they could ask (a) friends, neighbors, or coworkers; (b) daughters or sons; (c) parents; (d) brothers or sisters; or (e) other relatives for help. The measure indicates the number of sources that would provide help.	<i>Financial support:</i> Mail 1993: Suppose you had to borrow \$250 for a few weeks because of an emergency. Could you ask for help from ...
	2.19	1.32		<i>Emotional support:</i> Mail 1993: Suppose you had a personal problem, and you wanted to talk to someone about it. Could you ask for help or advice from ...
	2.04	1.24		<i>Instrumental support:</i> Mail 1993: Suppose you were sick and unable to take care of yourself for a week or more. Could you ask for help from ...
Family demands	4.42	0.67	Metric variable ranging from 1 = very poor to 5 = excellent	Phone 1993: How would you describe your spouse's health?
	0.12	0.33	Dummy variable: 1 = yes, 0 = no	Phone 1993: Does the respondent's spouse have any long-term physical or mental condition, illness or disability which limits what he/she is able to do, or which is likely to limit his/her activities in the future?

(continued)

Table 1. (continued)

Variable	M	SD	Coding algorithm	Source: Wording of question
	0.09	0.29	Dummy variable: 1 = yes, 0 = no	Mail 1993: Does your husband or wife have a physical or mental condition that limits the amount or kind of work he or she can do for pay?
Work-family conflict	2.96	1.19	Ranges from 1 = strongly disagree to 5 = strongly agree	Mail 1993: My job reduces the amount of time I can spend with the family. Problems at work make me irritable at home. My job takes so much energy I don't feel up to doing things that need attention at home.
Family-work conflict	2.29	0.95	Ranges from 1 = strongly disagree to 5 = strongly agree	Mail 1993: Family matters reduce the time I can devote to my job. Family worries or problems distract me from my work. Family activities stop me from getting the amount of sleep I need to do my job well.
Marital satisfaction	3.53	0.55	Metric item ranging from 1 = not at all similar to 4 = very similar	Phone 1993: Do you share similar views?
	3.81	0.42	Metric item ranging from 1 = not at all close to 4 = very close	Phone 1993: How close would you say you are to your (husband or wife)?
Work-related health complaints	0.23	0.73	Ranges from 0 to 3 (0 = never, 1 = monthly, 2 = about once a week, 3 = daily or more often); values for each dimension were obtained by calculating mean scores for the respective items.	Cardiovascular complaints (2 items): Mail 1993: (1) In the past six months how often have you had chest pain? (2) How often have you felt shortness of breath?
	1.86	2.15		Musculoskeletal complaints (3 items): Mail 1993: (1) How often have you had back pain or strain? (2) How often have you had aching muscles? (3) How often have you had stiff/swollen joints?

(continued)

Table 1. (continued)

Variable	M	SD	Coding algorithm	Source: Wording of question
	1.07	1.51		Exhaustion (2 items): Mail 1993: (1) How often have you felt a lack of energy? (2) How often have you had fatigue or exhaustion?
Occupational education	0.35	0.58	Ranges from -2.00 to 1.96	Phone 1993: 1990 Occupational education score for last or only job in current or last employment spell.
Income	2.69	0.65	To allow natural log transformation, a small start value (\$1) was added for those reporting wages of \$0.	Phone 1993: Base hourly wage rate, in 1992 dollars (in \$).
Educational attainment	14.20	2.89	Ranges from 12 to 30 years of schooling; 12 years of college education were added to 12 years of high-school attendance	Phone 1993: How many years of college have you completed since 1957?
Pension eligibility	NA	NA	Categorical measure: Not eligible: 18.7 Eligible \leq 62: 74.9 Eligible $>$ 62: 6.4	Phone 1993: Are you currently included in a pension plan or retirement plan offered by a current or former employer or union?
Employer-provided health insurance	0.78	0.42	Dummy variable: 1 = currently covered by employer-provided health insurance	Phone 1993: Are you currently covered by health insurance offered by a current or former employer or union?
Spouse's pension eligibility	0.61	0.49	Dummy variable: 1 = currently covered by pension plan	Phone 1993: Does your spouse have a pension plan from any current or former employers?
Spouse's employer-provided health insurance	0.42	0.49	Dummy variable: 1 = covered by spouse's employer-provided health insurance	Phone 1993: Are you covered by any health insurance through your spouse's current or former employer or union?

Results

Descriptive Analysis

With regard to the sample characteristics, descriptive analyses reveal that there are fewer women in the analytical sample than in the full sample (44.3% vs. 51.6%). This is because we concentrated on the more career- or work-oriented women by imposing a lower job tenure limit of nine years. Due to the cohort design of the WLS, the respondents' age span was limited. It ranged from 51 to 56 years, with an average of 53, in 1993, and from 62 to 67 years, with an average of 64, in 2004. In the analytical sample, almost three quarters of respondents retired between the two waves of data collection, that is, between 1993 and 2004. Of those who left the labor force, 53.3% retired at or before the age of 62. All in all, the respondents' retirement ages ranged from 52.4 to 66.3 years, with a mean age of 59.9 ($SD = 2.9$).

Model Test

As for our test of the hypothesized model, the statistics in the first row of Table 2 indicate that the initial model estimation yielded an overall χ^2 value of 1,993.22 with 408 degrees of freedom. The ratio of χ^2 to degrees of freedom indicates that the model's fit is only marginally adequate. By contrast, the CFI provides evidence of a fairly well-fitting model, as do the RMSEA and the AGFI; all of these indicators were well within the recommended ranges of acceptability. However, the modification indices tend to support respecification even though the goodness-of-fit statistics indicate a relatively well-fitting model.

First, we allowed the job resources variable measuring whether a job requires postsecondary education to load simultaneously on the latent job resource factor and the latent occupational standing factor operationalized in the occupational education metric. The high concordance between these two items yielded a substantive rationale for adding this factor loading. The modification brought about a significant improvement in model fit, $\chi^2_{\text{diff}}(1) = 209.86, p < .0001$. In addition, a review of the modification indices showed that incorporating an error covariance between the spouses' health measures—that is, a physical or mental condition limits (1) the activities or (2) the amount or kind of work the spouse can do—would further enhance model fit. Including this error covariance seems appropriate because the similar wording of the two items might represent redundancy in their content. Again, the respecified model fit the data significantly better than the former model, $\chi^2_{\text{diff}}(1) = 104.37, p < .0001$. Finally, the modification indices

Table 2. Fit Indices for Structural Equation Models

Model	χ^2	df	χ^2/df	RMSEA	CFI	AGFI	BIC	BIC _{diff}
1. Hypothesized indirect path model	1,993.22	408	4.89	.039	.95	.98	-1,198.83	
2. Respecified model (postsecondary education as indicator of job resources and occupational standing)	1,783.36	407	4.38	.037	.96	.98	-1,400.86	-202.03
3. Respecified model (covariance between spouse's health measures)	1,678.99	406	4.14	.035	.96	.99	-1,497.41	-96.55
4. Respecified model (covariance between measures of physical job demands)	1,604.96	405	3.96	.034	.96	.99	-1,563.62	-66.21
5. Alternative direct path model	1,591.79	400	3.98	.035	.97	.98	-1,537.67	25.95

RMSEA = root mean square error of approximation; CFI = comparative fit index; AGFI = adjusted goodness-of-fit index; BIC = Bayesian information criterion.

suggested that allowing for an error covariance between two job demands measures, namely, getting dirty at work and the frequency of physical effort, would also improve model fit. The third and final respecification of the model therefore incorporated the error covariance between these two items. This modification again enhanced model fit substantially, $\chi^2_{\text{diff}}(1) = 74.03, p < .0001$.

To further assess the appropriateness of our conceptual model, we compared the final model with an alternative model that included direct paths from job and family characteristics to early retirement. Given the non-nested structure of the two models, changes in model fit were evaluated using differences in BIC values. As the BIC value for the direct path model was smaller (less negative) than the BIC value for the respecified indirect path model, the results were interpreted as evidence in favor of the indirect path model (Raftery 1995). In support of this interpretation, only two out of five direct paths were significant (job resources and physical job demands). Given its greater parsimony and better fit, the indirect path model was considered more acceptable than the direct path model. Therefore, the indirect path model was used for the ensuing examination of path weights as well as direct and indirect effects.

Figure 2 shows the final structural model of early retirement, including its standardized path coefficients. Not surprisingly, being eligible for an employer-sponsored pension before or at the age of 62 exerted the strongest influence on the respondents' propensity to retire early ($\beta = .49$). Furthermore, receiving health insurance from one's employer and having spent more years in education constituted negative predictors of early retirement, whereas a spouse's pension plan increased the respondent's propensity to retire early. Irrespective of the influence of socioeconomic status, the availability of a pension plan, and health insurance coverage, the paths from job satisfaction and marital satisfaction to early retirement were statistically significant. While job satisfaction showed the expected negative association with the propensity to retire early ($\beta = -.07$), marital satisfaction was positively related to early retirement ($\beta = .11$). Health complaints also tended to result in early withdrawals from the labor force ($\beta = .05, p < .06$). These findings indicate that respondents who reported higher levels of job satisfaction were less prone to retire early, while higher levels of marital satisfaction and poorer health status coincided with a higher probability of early retirement. The standardized path coefficients suggest that marital satisfaction has the strongest association with early retirement.

As far as antecedents of marital satisfaction are concerned, our assumptions were confirmed. All paths were significant and showed the expected signs. Higher family demands (measured by the spouse's poor health) and

Table 3. (continued)

Construct	Job resources	Physical job demands	Psychosocial job demands	Family demands	Family resources	Occupational education	Income	Educational attainment	Pension eligibility	Health insurance	Spouse's pension eligibility	Spouse's health insurance
Family-to-work conflict				.08 ^{***}	-.08 ^{***}							
Job satisfaction	.32 ^{***}	.20 ^{***}	-.13 ^{***}									
Work-related health complaints	-.17 ^{***}	-.15 ^{***}	.13 ^{***}			-.01	-.09 ^{***}	-.07 ^{***}				
Marital satisfaction				-.21 ^{***}	.17 ^{***}							
Early retirement	-.03 ^{***}	-.02 ^{***}	.02 ^{***}	-.02 ^{***}	.02 ^{***}	.00	.03	-.06 ^{***}	.49 ^{***}	-.22 [*]	.13 ^{***}	-.13

Direct effects were obtained by subtracting indirect effects from total effects.

* $p < .05$. *** $p < .01$.

Table 4. Standardized Indirect and Total Effects Between Endogenous Latent Variables (weighted least square estimates)

Construct	Work-to-family conflict	Family-to-work conflict	Job satisfaction	Health complaints	Marital satisfaction
<i>Indirect effects</i>					
Work-to-family conflict					
Family-to-work conflict					
Job satisfaction					
Work-related health complaints					
Marital satisfaction					
Early retirement	.05**	-.02**			
<i>Total effects</i>					
Work-to-family conflict					
Family-to-work conflict					
Job satisfaction	-.26**				
Work-related health complaints	.55**				
Marital satisfaction		-.21**			
Early retirement	.05**	-.02**	-.07*	.05	.11**

Direct effects were obtained by subtracting indirect effects from total effects.

* $p < .05$. ** $p < .01$.

were positively associated with job satisfaction and had no significant impact on work-to-family conflict. Third, physical job demands exerted a negative influence on respondents' health complaints. Finally, psychosocial job demands had no significant effect on job satisfaction or work-related health

complaints, a finding which may be explained by taking indirect effects into account. As shown in Tables 3 and 4, psychosocial job demands do influence health complaints and job satisfaction indirectly through the experience of work-to-family conflict.

Moreover, our estimates of direct and indirect effects suggested that job resources—together with psychosocial and physical job demands—have an indirect effect on early retirement behavior. Psychologically demanding jobs increased the chances of early retirement through job dissatisfaction or work-to-family conflict, while job resources and physical job demands decreased the chances of early retirement. As hypothesized, family resources and family demands also showed a significant indirect effect on early retirement. Both factors exerted an influence via the intervening role of marital satisfaction, but their effects pointed in opposite directions. Whereas family resources increased the propensity to retire early, family demands slightly reduced the probability of early retirement. Therefore, the results suggest that people who receive less family support and those who have to care for an ill spouse are less likely to opt for early retirement. Finally, work-to-family and family-to-work conflicts were found to have an indirect effect on the decision to retire early. Once again, both factors exerted opposing but theoretically reasonable influences. While higher levels of work-to-family conflict led to a higher probability of retiring early, higher levels of family-to-work conflict were negatively related to early retirement. In the former case, job characteristics may produce stressful conditions that increase the desire to stop working as a means of reducing stress and conflict. In the latter case, work may be perceived as an escape from a demanding and stressful family life (Hochschild 1997).

Discussion

Predictors of Early Retirement

Building upon previous research findings, we specified a multidimensional model of early retirement. In the model, we assumed that job satisfaction, marital satisfaction, and work-related health limitations exert a direct influence on the propensity to retire early, in addition to well-established antecedents of early retirement such as socioeconomic status, pension plans, and health insurance coverage. We further hypothesized that job and family characteristics influence early retirement behavior only indirectly through their effect on marital and job satisfaction and work-related health complaints. Finally, we were interested in whether the proposed factors affect the likelihood of early retirement even when they are temporally distant from the

retirement event. If so, changes in work–family characteristics through job redesign or counseling programs could help meet the need for extended labor force participation. By and large, we were able to confirm the main assumptions of the proposed model.

Job satisfaction and marital satisfaction were shown to have effects even when the influence of respondents' and spouses' pension eligibility, health insurance coverage, and socioeconomic status were taken into consideration. Thus, our analysis revealed that both work- and family-related factors influence early retirement behavior. This finding underscores the complexity of the retirement process and suggests the importance of considering multiple determinants of early retirement. Not only does job dissatisfaction induce people to retire, but marital satisfaction also makes retirement more attractive. After traditional economic factors, marital satisfaction actually turned out to be the strongest predictor of retirement timing. The fact that marital satisfaction exerted a stronger influence than job satisfaction on early retirement suggests that individuals are more pulled toward retirement by what they believe awaits them than pushed by dissatisfaction with their current work situation. This argument is in line with previous studies that have found the complementarity of leisure to be more important in explaining retirement timing than are retirement preferences or shared household finances (Gustman and Steinmeier 2002).

Although job satisfaction had a weaker effect on early retirement, our results coincide with the mounting evidence that job satisfaction makes early retirement less likely (Krause et al. 1997; Mein et al. 2000; Reitzes et al. 1998). The rather small magnitude of this influence corresponds to the effect sizes found in a recent meta-analysis on the antecedents of retirement behavior (Topa et al. 2009).

Unlike in previous studies, the effect of work-related health complaints on early retirement did not attain statistical significance. In evaluating this result, we have to bear in mind that we examined long-term predictors of early retirement. In 1993, when data on the predictors were collected, respondents were an average of 53 years old and relatively few of them had serious health problems (see Table 1). The fact that we excluded respondents who had retired before 1993 from our analytical sample may also account for the weak effect of work-related health complaints on early retirement behavior, as we may have eliminated the respondents who opted for disability retirement due to severe health problems.

One of the most interesting elements of our model is the work–family interface. By increasing the risk of health complaints and job dissatisfaction, work-to-family conflict is an important distal antecedent of early retirement

behavior. More precisely, work-to-family conflict encouraged workers to choose early retirement via the intervening effect of job dissatisfaction. Family-to-work conflict, on the other hand, was strongly associated with marital satisfaction and exerted its influence on early retirement via individual perceptions of the marital relationship. Workers who experienced higher levels of family-to-work conflict were less satisfied with their marriages and were also less inclined to take early retirement than were workers who reported lower levels of family-to-work conflict and higher marital satisfaction.

As predicted in our hypothesis that job characteristics only have an indirect impact on early retirement behavior via the intervening effects of job satisfaction and health status, psychosocial and physical job demands and resources turned out to have indirect effects on early retirement. Previously inconsistent findings regarding the effect of job characteristics on early retirement behavior can thus be attributed to the intervening role of health status and job satisfaction. Moreover, our analysis provides insights into the cumulative negative effects of working conditions. Those who work in unpleasant jobs are at higher risk of facing health limitations and job dissatisfaction. If those employees are not able to exit the labor force due to financial needs or the lack of a pension plan, they are forced to stay in dissatisfying and health-impairing jobs even longer and therefore experience a cumulative disadvantage. In contrast, those who work in stimulating and satisfying jobs may be able to remain employed and will be rewarded with higher future pension income and greater financial security. This effect is even more pronounced where workers are covered by a defined contribution plan, as pension benefits then accumulate constantly based on the amount of contributions from the employee and employer. Although we were not able to control for the effect of pension plans, they should certainly be considered in future studies because defined contribution plans have been found to encourage later retirement more effectively than defined benefit plans do (Friedberg and Webb 2005).

To avoid creating cumulative disadvantages for workers in more strenuous jobs, it appears important to reduce inequalities through adequate job redesign, as improving working conditions can be a useful means to prevent health complaints and job dissatisfaction and to encourage workers to postpone retirement. For example, reducing work-family conflicts by increasing workplace flexibility could help workers to meet job requirements and family demands more easily. Accepting workers' requests for less standardized working hours, telecommuting, or part-time work may provide such opportunities to combine the domains of work and family. According to our results, extended labor force participation can also be achieved by reducing psychosocial job demands such as time pressure. Since job demands are partially contingent on external requirements and may therefore not be amenable to

change, improving job resources may constitute a promising tool for keeping workers in the labor force. Enhancing job control and facilitating personal and professional development should not only contribute to workers' job satisfaction but also enhance their health status and their propensity to stay in their jobs. At the individual level, counseling could help workers to cope better with existing, apparently incompatible demands from the domains of family and work. However, without structural changes such as those described above, the effects of such programs will only be short lived.

Study Limitations and Directions for Future Research

The results show that our model fits the data reasonably well. However, operationalization was limited for some of the measures due to specific characteristics of the WLS. In particular, the measures for job demands, job resources, and the quality of working life could have been improved. For example, job satisfaction was measured using a single indicator because only one item was available in the data set. We assume that model fit would increase even further if these measures were improved.

The data used to assess the conceptual model stem from two rounds of data collection conducted in 1993 and 2004. All of the predictors were collected in 1993, 11 years prior to the measurement of the outcome variable (early retirement) in 2004. Although the work and family characteristics of people in their 50s are relatively stable, a decade is a long period for predicting future events. One can assume that the intervening variables may change over time. As both the respondents and their spouses move closer to retirement, current health factors are assumed to have a greater impact on the final decision to retire early than do the temporally distant measures used in this study. Moreover, as people approach retirement, their conceptions of work and family may change, which will in turn affect their levels of job and marital satisfaction. In spite of these limitations, the aim of the present study was to explain early retirement behavior by using temporally distant predictors as potential starting points for early-stage intervention programs.

With regard to the consequences of working conditions for health, it is reasonable to think about accumulated exposures or experiences over entire work histories. Nonetheless, we concentrated on the respondents' job characteristics at a single point in time, assuming that these measures are a reasonable predictor of long-term exposure. Although earlier analyses showed that most respondents had relatively stable jobs between 1993 and 2004 (see also Stevens 2005 for trends in long-term employment in the United States), future research should also investigate the influence of cumulative working conditions and changes in health status on early retirement.

Furthermore, as the great majority of respondents (82%) were married in 1993, we narrowed our focus to married couples. We presume that the model can also be used to predict early retirement among unmarried employees. In lieu of marital satisfaction, measures of family or parental satisfaction should then be used to assess the quality of family life.

Especially for this pre-baby-boom generation, we can assume that there will be considerable differences in the career paths of men and women. Future research should therefore examine whether the model is invariant to previously identified gender differences in the work and family correlates of retirement outcomes (e.g., Coile 2004; Dentinger and Clarkberg 2002; Talaga and Beehr 1995). Matters are further complicated by the fact that in most cases people have spouses with their own characteristics both in the work and family domains and with regard to financial status. Ideally, the data on respondents and their spouses should be combined in order to test the model more reliably.

Finally, as mentioned above, the pre-baby-boom generation has some unique characteristics. For example, although 70% of women in the WLS sample had a job between 1993 and 2004, we can assume that the labor force participation of women is higher in later generations. Therefore, it is difficult to generalize this model over time. However, we assume that the increased labor force participation of women in later generations would only improve the fit of our model due to its focus on both the work and family domains.

Authors' Note

The data cited from the Wisconsin Longitudinal Study are available to the public at <http://www.ssc.wisc.edu/wlsresearch>.

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Notes

1. Tables comparing the full and analytical samples are available upon request.
2. As we were only interested in initial retirement, we did not examine whether respondents went back to work at a later point in time.

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