

WORKING PAPER SERIES

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Working Paper 94 - 04



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Working Paper #94-04

<http://www.ilr.cornell.edu/CAHRS>

Submitted to Professor Nanette Fondas, Graduate School of Management, UCR, Riverside CA for the Careers Division of the Academy of Management Meetings, 1993-94.

This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make results of Center research, conferences, and projects available to others interested in human resource management in preliminary form to encourage discussion and suggestions.

ABSTRACT

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on Career Outcomes of Professional Employees**

Working at home is often claimed to adversely affect employees' career progress, presumably because supervisors are inclined to negatively evaluate the performance of employees whose activities are not available to frequent observation. However, such claims are usually based on studies of supervisors' attitudes, not on direct evidence of the achievements of employees who work at home. This research examines the impact of working at home on career outcomes, by comparing a variety of measures of achievement by professional employees who work at home with those of similar employees who do not. The findings contradict the common argument that working at home is associated with career costs. The implications for further research and practice are discussed.

The Impact of Working at Home on Career Outcomes of Professional Employees

One of the defining characteristics of modern, bureaucratic organization is a commitment to meritocratic principles in personnel decisions; legitimate criteria for hiring and promotion address individuals' demonstrated skills and aptitudes for carrying out assigned work responsibilities (Weber 1947). Although this principle is firmly institutionalized in U.S. organizations, its application is often problematic, especially in the case of white collar and professional employees. This is because the output of work by such employees typically involves decisions and products (e.g., research findings, ideas for new procedures) whose value is extremely difficult to gauge, in the short run at least. By the same token, means/ends relations - the relationship between the activities and procedures followed by employees and the probabilities of producing valuable output - are also usually quite ambiguous (see Thompson 1967: 84; Turcotte 1974; Ouchi and Maguire 1975). Under these circumstances, assessment of performance and productivity, and hence nominal meritocratic assignment of rewards, are likely to rest on superiors' perceptions of employees' commitment and effort.

Given the common difficulties in objectively assessing performance of administrative and professional employees, a number of analysts have argued that employees who work at home (in lieu of working at the office during normal working hours) are likely to be penalized in terms of their career progress, an argument that is premised on the assumption that a lack of visibility in the office is usually interpreted as lower commitment and effort by supervisors (Shamir and Salomon 1985; Leidner 1988; Olson 1989a; Perin 1991; Bailyn 1993). In this study, we examine evidence of the empirical validity of this argument by comparing the career achievements of professionals who work at home with those who do not.

Based on survey data from a sample of approximately 400 engineering and computer professionals employed by several major corporations, we investigate the impact of working at home on three aspects of employees' career progress: salary level, rates of promotion, and perceived career progress. The results of the research directly challenge assertions of negative career consequences of work at home.

We begin our discussion by reviewing the sources of the contemporary spread of work at home arrangements among white collar and professional employees, then consider both empirical and theoretical work focusing on the consequences of such arrangements. The following section describes our study, presenting sampling, measurement and analytic procedures, and the next section contains the results. In concluding, we consider the implications of our study, both for practice and further research.

Contemporary Work at Home: Causes and Consequences

Although work at home is not a recent organizational innovation (see Albrecht 1982 for an historical review of work at home policies and practices in the U.S.), its widespread use by professional and managerial-level employees is. One of the initial impetuses for the use of work at home arrangements among such employees was provided by the oil crisis of the 1970s which, in conjunction with advances in computer technology, led to a surge of interest in "telecommuting" among white collar workers (Niles et al., 1976). However, it was not until the development of personal computers and networked systems in the 1980s that work at home arrangements experienced significant growth, growth that has been particularly pronounced among executives, managers, scientists and engineers in large corporations (Bureau of National Affairs 1991).

There are a number of social forces that have contributed to the recent spread of work at home arrangements. One factor is associated with recent demographic changes in the work force. For members of the growing numbers of both dual-earner and single-parent families, work at home arrangements can help solve problems of juggling personal and work responsibilities (Bailyn 1993). In addition, recent legislation (such as the 1992 Americans with Disabilities Act and the 1991 Clean Air Act) has provided incentives for many companies to offer work at home arrangements to employees. Finally, increasingly sophisticated and economically affordable communications technologies, including fax machines, telephone answering and computer systems, have eliminated many of the barriers to coordinating work activities among geographically dispersed employees.

All of these factors have undoubtedly influenced the rapid increase in work at home arrangements. A recent study (Calem 1993) found that the number of part and full-time telecommuters rose to 6.6 million by 1992, an increase of 20 percent within a year's span. Similarly, a study conducted by Home Office Computing of Fortune 1000 companies and large public employers reported a five-fold increase between 1992 and 1993 in the average number of employees working at home at least two to five days each week (HR Reporter 1993). [It should be noted that these figures refer to employees who work at home on a regular or occasional basis during normal work hours; other studies have suggested that, when after-hours work is included, up to two-thirds of all wage and salary employees report working at home at least occasionally (see Horvath 1986.)] The growth in work at home arrangements is also reflected in organizational level data. For example, based on a representative survey of medium-sized firms in 1992, Link Resources reported that over a third of the firms had work at

home arrangements by 1992 (although only 14 percent had formal work at home policies) (HR Reporter 1992).

Given the increasingly rapid growth in work at home arrangements, it's not surprising that the consequences of working at home, both for employers and employees, have been the subject of considerable speculation and, to a lesser extent, empirical investigation. The majority of research conducted thus far has focused on the effects on employees' attitudes toward work and on supervisors' attitudes toward employees who work at home.

Research on the first topic, the effects of working at home on employees' attitudes, has yielded mixed results. A variety of studies have indicated that employees who work at home experience less job-related stress, as well as a greater sense of productivity and autonomy, thus increasing job satisfaction (McClintock 1985; Kraut, 1987; Olson 1987, 1989a; Bailyn 1989). At the same time, work at home employees tend to perceive more problems in relations with supervisors and co-workers and in their compensation than other workers, resulting in a negative impact on overall job satisfaction (Ramsower 1985; Olson 1989a).

Research on supervisors' attitudes toward work at home employees, on the other hand, has produced much less ambiguous results: Most work has indicated strong resistance by supervisors to the use work at home arrangements, stemming from concerns about loss of control over employees and consequent declines in employee productivity (Olson 1987, 1989a, 1989b; Perin 1991; Bureau of National Affairs 1991; Bailyn 1993). Based on interviews with supervisors in charge of employees in formal work at home programs as well as those supervising informal work at home arrangements, Olson summarizes general reactions (1989a: 333),

Supervisors tended to discount changes in output or quality of the homeworkers. They were concerned that they did not know what an employee was doing much of the time and felt uncomfortable with employee estimates of improved performance. Thus supervisors tended to estimate conservatively that employee performance did not increase...

Given the evidence of strong negative reaction among supervisors to work at home arrangements, a number of researchers have suggested that, all else equal, one of the major consequences of working at home for employees is likely to be significantly slower career progress relative to other employees. Perin (1991) argues that office presence is a key element in supervisors' assessment of professional employees' performance, because "invisible" workers are suspected of not working at all. Such suspicion is reflected in a quote from Bailyn (1993: 80), made by a manager who, while expressing his support for allowing a "trusted subordinate" to spend a day working at home, added, "Of course, if there were an important

game on TV, I might be tempted to check and see whether he was working!" Perin attributes the lower than predicted use of work at home arrangements (see Niles et al. 1976; Toffler 1980) by professional employees, despite apparent advantages of such arrangements, to employees' awareness of the long-term career costs of working at home.

However, most of the empirical work on the career consequences of working at home conducted thus far has been anecdotal and often based on inferences drawn from supervisors' attitudes; to our knowledge, no studies have systematically examined the actual career progress of employees who work at home. This research examines the impact of working at home by comparing objective and subjective measures of career achievements in a sample containing both professional employees who worked at home and those who did not. In the following section, we describe the procedures used to collect and analyze data to address this question.

Sample, Measures and Analysis

The data used in this study were collected through a survey of engineering and computer professionals administered in three major corporations. These occupational groups were targeted for a number of reasons. First, various components of the work of such employees (e.g., designing, programming, writing, etc.) are particularly well-suited to work at home; thus, they were considered to be more likely than other groups to contain a relatively large proportion of members who worked at home. Moreover, they represent a large and growing group of professional workers in many organizations today, ones that are often critical to organizations' success.

Sampling:

Three major U.S.-based corporations, all members of a human resources consortium, agreed to serve as research sites for the study. Two of the corporations are part of the telecommunications industry; the other is a highly diversified company, whose products range from health care to graphic arts and audio visual supplies to traffic and personal safety products. Human resource managers were contacted in each corporation, who referred us to the managers of departments and subunits that were staffed by the occupational groups of interest to us. Arrangements for distributing the survey instruments to all subunit employees were made with these managers. The initial mailing with one follow-up mailing yielded response rates from each organization of 50%, 42% and 57% respectively. The overall response rate was 48%, based on the receipt of a total of 406 usable responses.

Measures:

The questionnaire that was administered to respondents was divided into three main sections, the first containing items on demographic and work characteristics, the second containing items measuring work attitudes, and the third items on work at home experience. Three main dependent variables are the focus of this study: *current salary* (measured in seven ranges, beginning with "less than \$20,000" and ending with "more than \$60,000"); *rate of promotion*, measured by the number of promotions a respondent had received in the organization (defined as an assignment to a new position involving an increase in job responsibilities and a salary increase) divided by the total number of years the respondent had been with the organization; and *perceived career progress* (measured by a three point item, "slower than expected," "about as expected," and "faster than expected.")

Our independent variables included variables designed to control for the effects of factors that have been shown to influence salary levels and other career outcomes (age, education, job and occupational experience, number of subordinates, sex and race), along with measures of work at home status. We defined working at home for respondents as "carrying out work responsibilities from a home office, on at least an occasional basis, in lieu of working at your employer's office during normal working hours." Our measures of work at home status included a dummy variable, coded "1" for those who work at home and "0" for those who never worked at home, and two measures intended to tap quantitative differences in the level of work at home involvement. The first is based on a question asking respondents to indicate the percent of working hours spent working at home in an average month. Responses to this measure ranged from zero to 90. The second is a measure of the number of years a respondent has used work at home arrangements; those who had worked at home for less than a year were coded ".5" on this measure. This measure had a range of zero to five.

Analysis:

Multiple regression models were used to assess the effect of working at home on each of the three career outcomes. In the first set of analyses, three models are presented showing the results of separately regressing measures salary, promotion rate and perceived career progress first on the control variables and the dummy variable distinguishing employees who worked at home from those who did not, then on the control variables and each of the measures of work at home involvement. The second set of analyses uses data only from employees who work at home, and shows the effects of variations in the measures of work at home involvement on the career outcomes for this group of employees.

Findings

Table 1 presents descriptive statistics, means, standard deviations and correlations, for the variables used in the analysis. As can be seen from this table, the measures of working at home appear to have a fairly small, but significant positive relationship to salary, and no relationship to either the measure of promotion rate or perceived progress.

Examining this further, Table 2 presents the results of the regression of salary on the control variables and the work at home measures. This analysis suggests that, contrary to expectations of negative career effects, employees who work at home actually have higher salary levels than employees who do not. The coefficients for the dummy variable, and for each of the two measures of level of work at home are positive and significant. When all three measures are entered simultaneously into the analysis, the coefficient of each becomes non-significant; however, this can reasonably be attributed to the high level of intercorrelation among these measures. The positive effect of working at home on salary levels may reflect organizational practices of permitting only higher status, more "trusted" (and hence higher paid) employees to work at home. This interpretation is discussed further below.

Tables 3 and 4 present the results of the regression of the measures of promotion rate and perceived progress, respectively, on the control and work at home variables. While the coefficients of the work at home measures are negative in these analyses, they have relatively large standard errors and are not significant. When all three measures are entered simultaneously into analysis, the coefficients remain non-significant, as in the analysis of salary.

Table 1: Descriptive Statistics for Independent and Dependent Variables (N = 398)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1) Age	-	-.048	.255	.496	.114	.172	.151	.113	.077	.095	.138	.343	-.136	-.174
2) Education		-	-.089	-.269	-.133	.015	-.115	-.044	.127	.052	.094	.165	-.166	-.036
3) Occupational Experience			-	.188	.119	.074	.045	.097	.080	.008	.147	.187	.001	-.018
4) Organization Tenure				-	.277	.226	.178	.139	-.013	-.065	.050	.257	-.071	-.234
5) Job Tenure					-	-.019	.019	.133	-.016	-.033	.006	.019	-.008	-.129
6) Number Subordinates						-	.098	.081	.006	-.048	.050	.434	.109	.005
7) Race (1 = white)							-	.067	.037	.041	.068	.114	.100	-.025
8) Sex (1 = male)								-	-.082	-.141	.040	.168	.023	-.094
9) WAH (1 = work at home)									-	.627	.885	.173	-.018	-.041
10) Percent Hours WAH										-	.493	.089	-.071	-.025
11) Length of WAH											-	.216	-.050	-.088
12) Salary												-	.017	-.188
13) Progress													-	.170
14) Promotion Rate														-
X	39.19	4.22a	10.01	11.91	4.16	1.94	.83	.57	.30	4.72	.89	5.24b	1.63	.18
S.D.	7.66	2.51	11.16	7.30	3.84	4.09	.37	.50	.46	11.42	1.53	1.23	.55	.20

a)Years of post-high school education

b)Mid-point of the salary range for code = "5" is \$48,000

Table 2: Regression of Salary on Work at Home and Control Variables (N = 394)

	(1)	(2)	(3)
Intercept	2.839 (.303)***	2.901 (.304)***	2.878 (.305)***
Age	.029 (.008)***	.028 (.008)***	.028 (.008)***
Education	.093 (.021)***	.094 (.021)***	.100 (.021)***
Occupational			
Experience	.010 (.005)*	.010 (.006)	.012 (.005)*
Organization Tenure	.018 (.009)*	.018 (.009)	.020 (.009)*
Job Tenure	-.008 (.014)	-.008 (.014)	-.008 (.014)
No. of Subordinates	.107 (.013)***	.106 (.013)***	.108 (.013)***
Race (1 = white)	.126 (.143)	.126 (.143)	.137 (.143)
Sex (1 = male)	.307 (.106)**	.269 (.105)**	.309 (.107)**
WAH (1 = work at home)	.364 (.114)***	-	-
Length of WAH	-	.105 (.034)**	-
Pct. Hours WAH	-	-	.011 (.005)*
R ² /ADJ R ²	.34/.32	.34/.32	.33/.32

* p < .05

** p < .01

*** p < .001

Table 3: Regression of Rate of Promotions
on Work at Home and Other Variables (N = 394)

	(1)	(2)	(3)
Intercept	.382 (.057)***	.377 (.057)***	.380 (.057)***
Age	-.002 (.002)	-.002 (.002)	-.002 (.002)
Education	-.008 (.004)*	-.008 (.004)*	-.009 (.004)*
Occupational Experience	.001 (.001)	.001 (.001)	.001 (.001)
Organization Tenure	-.006 (.002)***	-.006 (.002)***	-.006 (.002)***
Job Tenure	-.004 (.003)	-.004 (.003)	-.004 (.003)
No. of Subordinates	.003 (.002)	.002 (.027)	.003 (.002)
Race (1 = white)	.000 (.027)	.002 (.027)	.000 (.027)
Sex (1 = male)	-.022 (.020)	-.020 (.020)	-.023 (.020)
WAH (1 = work at home)	-.017 (.021)	-	-
Length of WAH	-	-.009 (.006)	-
Pct. Hours WAH	-	-	-.001 (.001)
R ² /ADJ R ²	.09/.07	.09/.07	.09/.07

* p < .05
 ** p < .01
 *** p < .001

Table 4: Regression of Perceived Progress
on Work at Home and Other Variables (N = 394)

	(1)	(2)	(3)
Intercept	2.077 (.159)***	2.072 (.159)***	2.070 (.159)***
Age	-.010 (.004)*	-.009 (.004)*	-.009 (.004)*
Education	-.041 (.011)***	-.040 (.011)***	-.040 (.011)***
Occupational Experience	.001 (.003)	.001 (.003)	.001 (.003)
Organization Tenure	-.009 (.005)	-.009 (.005)	-.009 (.005)
Job Tenure	.002 (.007)	.002 (.007)	.002 (.007)
No. of Subordinates	.021 (.007)***	.022 (.007)***	.021 (.007)***
Race (1 = white)	.158 (.075)*	.163 (.075)*	.166 (.075)*
Sex (1 = male)	.026 (.055)	.026 (.055)	.015 (.056)
WAH (1 = work at home)	.011 (.059)	-	-
Length of WAH	-	-.012 (.018)	-
Pct. Hours WAH	-	-	-.003 (.002)
R ² /ADJ R ²	.09/.06	.09/.07	.09/.07

* p < .05
 ** p < .01
 *** p < .001

Tables 5 and 6 present similar analyses, using only the sample of respondents who currently work at home. With few exceptions, the results suggest the same conclusion as analyses conducted using the full sample: Working at home has little discernible effect on career outcomes. Among those employees who work at home, increasing levels of work at home involvement have no effect on either salary or perceived career progress. However, the length of time an individual has engaged in work at home does have a significant negative effect on promotion rate, indicating that, *ceteris paribus*, the longer an employee has had work at home arrangements, the slower his or her rate of promotion. This effect holds when both measures of work at home involvement are included in the model simultaneously. However, this result may well reflect the general characteristics of employees who have worked at home longer. Typically, such employees are older, more experienced and higher salaried (see Table 1) - i.e., employees who are probably near the top of their career ladder and hence, who should have slower rates of promotion.

Table 5: Regression of Career Outcome Measures
of Length of Working at Home for WAH Employees (N = 118)

	Salary	Perceived Progress	Promotion Rate
Intercept	2.307 (.615)***	2.545 (.271)***	.458 (.092)***
Age	.002 (.002)	-.019 (.007)**	-.003 (.002)
Education	.142 (.039)***	-.023 (.017)	-.009 (.006)
Occupational Experience	.010 (.008)	.003 (.003)	.002 (.001)*
Organization Tenure	.029 (.016)	-.005 (.007)	-.005 (.002)*
Job Tenure	-.005 (.028)	-.006 (.012)	-.003 (.004)
No. of Subordinates	.087 (.026)***	.013 (.012)	.004 (.004)
Race (1 = white)	.428 (.308)*	.110 (.136)	-.019 (.046)
Sex (1 = male)	.416 (.202)*	.007 (.098)	.010 (.033)
Length of WAH	-.002 (.088)	-.045 (.038)	-.030 (.013)*
R ² /ADJ R ²	.38/.33	.14/.07	.17/.11

* p < .05
 ** p < .01
 *** p < .001

Table 6: Regression of Career Outcome Measures
on Percent Hours Working at Home for WAH Employees (N = 115)

	Salary	Perceived Progress	Promotion Rate
Intercept	2.321 (.612)***	2.543 (.269)***	.430 (.095)***
Age	.033 (.015)*	-.018 (.007)**	-.003 (.002)
Education	.144 (.040)***	-.031 (.018)	-.009 (.006)
Occupational Experience	.010 (.008)	.002 (.003)	.002 (.002)
Organization Tenure	.029 (.016)	-.006 (.007)	-.005 (.003)
Job Tenure	-.005 (.028)	-.007 (.012)	-.003 (.004)
No. of Subordinates	.090 (.027)***	.007 (.012)	.003 (.004)
Race	.412 (.310)	.120 (.136)	-.034 (.048)
Sex	.436 (.209)*	-.072 (.092)	.024 (.032)
Pct. Hours WAH	.004 (.006)	-.005 (.003)	-.000 (.001)
R ² /ADJ R ²	.38/.32	.17/.10	.13/.06

* p < .05
 ** p < .01
 *** p < .001

Discussion

Work at home represents one facet of a potentially significant transformation occurring in the workplace, a transformation that Pfeffer and Baron (1988) have referred to as "externalization." Externalization fundamentally entails the weakening of the structures that have traditionally tied employers to employees - *viz.*, long-term, full-time employment practices, encouraging the development of careers within a single organization, and geographic centralization of work activities, providing for regular interaction and exchange among employees. Pfeffer and Baron cite the increased use of temporary and part-time employees, along with the spread of work at home arrangements as manifestations of externalization.

In this context, understanding the consequences of working at home represents part of an effort to understand more fully the nature and implications of this transformation, including the implications for traditional career patterns. Our research suggests that, contrary to expectations, work at home has few negative effects on employees career outcomes. If anything, employees who work at home receive higher salaries than those who do not. Of course, it may be that this relationship reflects the higher, more trusted and more valued status of employees who work at home (see Whalley 1986), on average, compared to other employees. That is, our measure of work at home may be picking up the underlying privileged status of employees, and if we could control for this status, working at home per se would have little effect on salary. However, the point remains that our evidence provides no support for the assertion that working at home negatively affects career progress, on any of the dimension we examined.

However, most of the respondents in our study had worked at home a relatively short time (the longest reported time in work at home arrangements was five years). It is possible that the costs of working at home will be evidenced over the long run. Also, as suggested above, there may be a selectivity bias operating and that the career impacts of working at home would be much greater on "less trusted" sets of employees. In the same vein, the lack of negative career effects may reflect the fact that work at home arrangements are normally implemented in ways that minimize potential problems. Exploration of these possibilities requires both longitudinal research and comparative research on different groups of employees. Given the growing pressures on most organizations for more flexible employment arrangements, including the use of work at home, such research can contribute both to immediate practical knowledge as well as theoretical understandings of career patterns and processes in a changing workplace.

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