



WORKING PAPER SERIES - 207

ALTERNATIVE APPROACHES TO WORKPLACE
FLEXIBILITY IN THE U.S.A.

by

David Lewin and Daniel J.B. Mitchell

*David Lewin
Professor
Anderson Graduate School of Management
University of California, Los Angeles

and

Director
Institute of Industrial Relations
University of California, Los Angeles

Telephone: 213/825-4339

**Daniel J.B. Mitchell
Professor
Anderson Graduate School of Management
University of California, Los Angeles
405 Hilgard Avenue
Los Angeles, California 90024
U.S.A.

Telephone: 213/825-1504

DRAFT: August 1991

INSTITUTE OF INDUSTRIAL RELATIONS

UNIVERSITY OF CALIFORNIA

LOS ANGELES

**ALTERNATIVE APPROACHES TO WORKPLACE
FLEXIBILITY IN THE U.S.A.**

Prof. David Lewin
Director
Institute of Industrial Relations
U.C.L.A.
Los Angeles, California 90024-1496 USA
(213) 825-4339

and

Prof. Daniel J.B. Mitchell
Anderson Graduate School of Management
U.C.L.A.
Los Angeles, California 90024-1481 USA
(213) 825-1504

August 1991

Paper for the Study Group on Flexible Work Patterns, International Industrial Relations Association, meeting of September 26, 1991, Naples, Italy.

"Flexibility" has become a buzzword among human resource practitioners and scholars in the U.S. However, the word has many meanings and contexts. It can mean flexibility in pay, either directly or through devices such as profit sharing.¹ It can mean simply the ability to hire and fire without legal or other limitation.² It can mean the hiring of individuals for fixed - but short - terms or on an on-call basis. Finally, it can mean working arrangements that differ from the norms of common workplace practices.

In this paper we report on findings related to workplace flexibility in the U.S. We focus on formal human resource practices other than pay flexibility and simple layoffs and hires. Included specifically are flexitime, use of part-timers, simplified job classifications, work sharing, and work at home.

I. Employer Pressures for Flexibility.

Much of the discussion of flexibility in recent years has been from the viewpoint of the employer. During the 1980s, American employers found themselves pressured by uncertainty in product markets. The factors behind this pressure included the very severe "double-dip" recessions of the first years of the decade, the massive appreciation and then depreciation of the U.S. dollar, deregulation in important sectors of the economy, financial and corporate restructuring,³ and relaxation of antitrust laws.

Given these pressures in product markets, employers sought to reduce commitments to employees in the labor market, resulting in the growth of temporary employment and other forms of contingent work.⁴ As contingent work has grown, concerns have increased about its ultimate impact on social welfare, e.g., the greater tendency of such workers not to have employer-provided health and retirement benefits.⁵ Apart from direct hiring of workers under contingent-flexible arrangements or hiring through agencies, firms also engaged in contracting out of work such as bookkeeping, computer services, janitorial services, and maintenance to other - often smaller - employers.⁶

The related phenomenon of part-time work raised concerns about income adequacy.⁷ Although there is a perception that part-time employment has been rapidly expanding, that perception is misleading. The voluntary part-time employment rate in 1990 (13.6%) was actually somewhat below its 1979 level. While

there was a slight upward movement in the total part-time rate over this period, the growth was in involuntary part-time employment.⁸ Thus, it appears that employer preferences dominated the overall part-time trend.

II. Employee Preferences.

Although most discussion of the kinds of workplace flexibility described above has been from the viewpoint of employers, workplace arrangements are also influenced by employee preferences. The degree to which such preferences are reflected depends in part on the state of the labor market. For much of the 1980s, the labor market was soft and hence it is not surprising that employer preferences dominated the discussion (and the outcomes). But toward the end of the decade there began to be spot labor shortages and expectations - in part based on labor-force projections - that such shortages would persist.⁹ In a labor market with shortages, employee preferences come to the fore. While the 1990-1991 recession quickly put an end to spot labor shortages, a resumption of economic growth might again revive them.

There were signs that employees in the 1980s were seeking to modify their workplace arrangements. For example, there was notable growth in multiple job holding ("moonlighting") in the 1980s. The proportion of workers with more than one job rose for 4.9% in 1979 to 6.2% in 1989. Women accounted for over two thirds of the growth in the number of moonlighters and increased their proportional representation among moonlighters from 30% to 43% during the decade. Female moonlighting rates were highest among single, widowed, divorced, and separated women.¹⁰

Similarly, there was a notable rise in the rate of self employment, up from 6.9% of total nonagricultural employment in 1979 to 8.3% in 1990. Almost 6 out of 10 workers added to nonagricultural self employment during 1979-1990 were women; the female self employment rate rose from 4.8% in 1979 to 6.4% in 1990.¹¹ There is a linkage in these data to moonlighting; about a fourth of nonagricultural moonlighters whose primary job was as a wage earner had a secondary job classified as self employment.¹²

The trends toward moonlighting and self employment are both suggestive of increased desires on the part of some workers to depart from the formalities of a standard workplace relationship. On the other hand, it must be recognized that both

trends are modest in relation to the entire workforce. Thus, if these trends are indexes of an employee desire for flexibility, the implication is that workplace accommodations to such desires will also be modest. We can expect flexible arrangements which meet employee preferences to increase in incidence over time in the U.S. But the pace will be evolutionary, not revolutionary.

III. Information Sources.

Unfortunately, surveys of flexible workplace arrangements tend to be sporadic. Thus, long-term trends are difficult to estimate. And often when data are collected by private sources, the biases in the sample chosen are unknown. In addition, access to such sources for research purposes may be limited.

As a preliminary step toward illuminating the issue of workplace flexibility in the U.S., we examine below information from two data sources. One is a data set collected by researchers at Columbia University to analyze a variety of human resource issues. The other is a survey undertaken by the U.S. Bureau of Labor Statistics in the mid 1980s as part of the Current Population Survey.

IV. The Columbia Data Set.

Information for the Columbia Data Set was obtained through the design and administration in 1987 of a 29-page survey questionnaire to a subset of publicly held U.S. businesses.¹³ Data obtained from the respondents were combined with financial performance measures contained in Standard and Poor's COMPUSTAT file. The resulting survey covers a wide range of human resource management policies and practices, including some dimensions of flexible work arrangements.

i. Response Biases.

Fully usable responses to the survey were received from 495 U.S. businesses, which represent 6.5 percent of the population initially surveyed. While, at first glance, this response rate appears quite low, it is in line with response rates obtained by other researchers who have conducted shorter and less comprehensive surveys of organizational human resource management policies than in the case of the Columbia survey. The Columbia researchers consciously chose a data collection approach which sought to yield a large number of respondents rather than a high

response rate.

In any case, a low response rate does not necessarily present analytical problems if the biases are understood. Since COMPUSTAT firms are larger than U.S. firms generally, the Columbia survey is obviously biased towards larger firms. To illuminate the biases still further, the size and economic performance of the respondents to the Columbia survey were compared to the same characteristics of the nonrespondents. That comparison indicated that responding businesses were larger than nonresponding COMPUSTAT businesses. To illustrate, while the 495 responding businesses comprised 6.5 percent of the COMPUSTAT enterprises, they employed 15 percent of the employees working for COMPUSTAT firms.

On average, respondents had 7,884 employees while nonrespondents had 2,935 employees. Overall, the respondents employed 3.9 million people, or about three percent of the total U.S. work force. Similarly, responding businesses reported significantly higher sales, operating income, capital expenditures, assets, and equity than nonresponding businesses. Succinctly stated, large COMPUSTAT firms are overrepresented in the Columbia data base.

A second test of the representativeness of the Columbia human resource data involved an assessment of the extent to which the distribution of respondents across industries was similar to the industrial distribution of nonrespondents. The results of this comparison are shown in Table 1, which indicates that the industrial distributions of respondents and nonrespondents are generally similar. However, the respondent sample overrepresents businesses in the transportation, telephone, and utilities industries, and underrepresents businesses in the wholesale and retail trades.

Generally, therefore, the Columbia data set is reasonably representative of large U.S. industrial businesses. To the extent that large businesses tend to be human resource management policy innovators or pattern-setters, the Columbia data provide a useful basis for analyzing human resource policies and practices of firms, including those pertaining to flexible work arrangements. But innovations taking place in small firms will not be well represented.

ii. Structural Measures and Correlates of Flexibility.

Four measures of flexible work arrangements in U.S. business are contained in

the Columbia human resource data base. These are 1) the percentage of a company's employees who are on flexible work schedules (%FLEX) - typically in the form of a band of hours, rather than fixed hours, for reporting to and departing from work; 2) the percentage of a company's employees who are working part-time rather than full-time (%PART-TIME) - typically meaning less than 20 hours per week; 3) the number of job classifications in a company (JOB CLASS); and 4) a company's use of work-sharing (%WORKSHARE), which refers to the sharing of a particular job by two (or more) workers. The last of these measures of flexible work arrangements is expressed as the percentage of businesses with work-sharing, rather than the percentage of employees who share jobs.

Grand means of these four measures for the 495 companies in the Columbia data set are: %FLEX - 9.4%, %PART-TIME - 3.7%, JOB CLASS - 57, %WORKSHARE - 5.3%. In general, %FLEX and %WORKSHARE can be viewed as employer accommodations to employee preferences. %PART-TIME and (changes in) JOB CLASS can be viewed as accommodations to employer preferences. It might be noted that the low value of %PART-TIME probably reflects the large firm/industrial firm bias of the sample.

By themselves, the mean data are not especially informative. More significant are the relationships among flexible work arrangements and certain characteristics of firms. The first set of these characteristics to be examined here is labeled "structural characteristics" and includes the following:

- 1) Union - the percentage of a company's employees covered by collective bargaining agreements.
- 2) Occupation - the percentages of a company's work force who are in managerial, professional, clerical, and production jobs, respectively.
- 3) Industry - first, whether the firm is in the manufacturing or nonmanufacturing sector; second, the firm's classification in one of the following, more detailed, categories: mining, construction, durable goods manufacturing, nondurable goods manufacturing, wholesale and retail trade, business services, personal services, and finance, insurance, and real estate (FIRE).
- 4) Firm size - dollars of assets (in 1987).
- 5) Firm age - number of years since the firm was founded.

To facilitate analysis of the correlates of flexible work arrangements, we constructed two categories for the Union (highly unionized, lightly unionized), Firm Size (large firm, small firm), and Firm Age (old firm, young firm) characteristics. In each case, the procedure was to split the distribution of firm responses at the median value, thereby effectively

creating high and low groups.

Contingency relationships among firms' structural characteristics and firms' use of flexible work arrangements are shown in Table 2. Unionization is associated with substantially lower proportions of workers on flexible and part-time work schedules and with businesses using work-sharing. Unionization is also associated with a substantially higher number of job classifications in U.S. businesses. These contingency relationships are consistent with the more general view that unionization is negatively associated with flexible work arrangements in the U.S. economy and a more detailed structure of job classifications.¹⁴ The shift of capital from unionized to nonunion firms - and from unionized to nonunion plants and facilities within firms - may partly reflect a managerial desire to achieve greater flexibility.¹⁵

Firm age is correlated with certain aspects of flexibility and certain aspects of rigidity. Older firms are more likely to have flexitime and work sharing options and to use part-timers. But they also have more job classifications. Paradoxically, it may be that firms need to acquire experience in personnel practice in order to implement flexible scheduling options. On the other hand, age may also entail an encrusting of old, "Taylorist" job classifications.¹⁶

With respect to occupational groupings, managers and professionals are considerably more likely than clerical and production workers to be on flexible work schedules, but considerably less likely than clerical and production workers to be employed part-time. Clerical workers have fewer job classifications than other occupational groups. Work sharing is rarely used for managers, probably because of the level of responsibility undertaken by such employees.¹⁷

Manufacturing firms have a higher proportion of employees on flexible work schedules than nonmanufacturing firms, while nonmanufacturing firms have a higher proportion of employees doing part-time work, fewer job classifications, and a higher incidence of work-sharing than manufacturing firms. However, the manufacturing/nonmanufacturing classifications may be too broad. Among the more detailed industry groupings, firms in nondurable goods

manufacturing have the highest proportion of employees on flexible work schedules; finance, insurance, and real estate businesses have the lowest average number of job classifications; personal service businesses are more likely than other businesses to use work-sharing. Wholesale and retail trade businesses and personal service businesses have the highest proportions of workers engaged in part-time work.

Table 2 also shows that larger firms and older firms are far more likely than smaller firms and younger firms, respectively, to have employees on flexible and part-time work schedules and to have a larger number of job classifications. On balance, it appears that larger older firms have more highly structured workplace arrangements when measured by JOB CLASS. But they also have more flexible and part-time work arrangements than younger and smaller firms. In short, there does not seem to be any simple concentration of flexibility and rigidity using firm size and age as a classification.

A second set of firm characteristics which may be related to firms' use of flexible work arrangements is that pertaining to human resource management policies and practices. The particular firm "human resource management characteristics" examined here are:

SHRIBP - the extent to which the firm's senior human resource management official is involved in business planning, measured on a seven point scale with 1 = never, 7 = always.

EFP - employee financial participation (percent of a company's employees covered by financial participation plans such as stock ownership and profit sharing).

INFO - business information-sharing programs with employees (percent of a company's employees covered by such programs).

TEST - validation of employee selection tests by the company (percent of employees for whom selection tests are validated). This measure can be seen as an index of the formalism and professionalism of the human resource function.

JOBANAL - use of a job analysis program (percent of a company's jobs covered by job analysis programs). This measure is another index of formalism and professionalism.

To facilitate this portion of the analysis, we separated each of the human resource characteristics measures into two groups, again effectively forming high and low categories. In the case of the senior human resource official's involvement in business planning, respondent ratings of 1-3 were used to form the "not involved" grouping and ratings of 4-7 were used to form

the "involved" grouping. For each of the four other human resource management characteristics, the procedure was to split the distribution of firm responses at the median value, thereby creating pairs of groupings.

Contingency relationships between firms' human resource management characteristics and firms' use of flexible work arrangements are presented in Table 3. Note that the senior human resource management official's involvement in business planning is positively associated with the percentage of workers on flexible and part-time work schedules and with the proportion of businesses engaged in work-sharing. Such involvement is also modestly negatively associated with the number of job classifications maintained by these businesses.

Employee financial participation in the business is slightly positively associated with flexible work arrangements in two of the cases shown on Table 3 - the percentage of employees on flexible work schedules and the number of job classifications - and negatively associated with flexible work arrangements in the two remaining cases - the percentage of employees engaged in part-time work and the percentage of businesses using work-sharing. In short, pay flexibility is not consistently related to other forms of flexibility. Similarly, information sharing (a form of non-financial participation) is not consistently related to the flexibility measures.

Companies that validate employee selection tests have more job classifications and fewer employees doing part-time work than companies that do not validate selection tests. Test validation is also negatively associated with firms' use of work-sharing, but companies with and without test validation have about the same proportions of employees on flexible work schedules. Thus, to the extent that test validation is an index of formality and professionalism of the human resource function, it does not seem to be consistently associated with flexibility.

The use of formal job analysis programs by firms is consistently associated with flexible work arrangements. As shown in Table 3, firms with such programs are more likely to engage in work sharing, to have fewer job classifications, to have employees on flexible work schedules, and to have employees doing part-time work than firms without formal programs of job

analysis. On balance then, it appears that certain human resource management characteristics of firms, notably job analysis programs and senior human resource management executive involvement in business planning, are associated with flexible work arrangements. But the linkage is sensitive to the measures chosen.

iii. Performance Measures and Correlates of Flexibility.

There has been growing interest in the relationship between human resource policies and the economic performance of enterprises.¹⁸ Thus, it is useful to look for any strong relationships that might exist between performance measures and our measures of flexibility. The financial performance measures contained in the Columbia data set include two measures of profitability: company return on investment (ROI) and return on assets (ROA).¹⁹ There is also an imputed productivity measure: net sales revenue per full-time equivalent employee (PROD).²⁰ Following earlier procedures, we again created high and low categories for each of these financial performance measures (that is, we split the distribution of firms on each of these measures at the median value) and observe the relations - if any - between the profit and productivity measures and flexibility.

The contingency relationships presented in Table 4 indicate that there are no outstanding associations between the economic performance measures and flexibility. Some of the minor differences shown appear as statistically significant on the basis of a chi-squared test. However, it is unlikely that more sophisticated analysis would find any strong relationships. Since flexibility - at least with regard to the employer-induced features (%PART-TIME and JOB CLASS) - is supposed to assist in adaptation to change, future testing will include examination of trends in profitability rather than absolute levels.

iv. Regression Analysis.

To examine the relationships among flexible work arrangements, firms' structural characteristics, and firms' human resource management characteristics, we performed several simple OLS regression analyses. In the

case of all dependent variables except JOB CLASS, the zero boundary to possible responses suggests that other regression techniques would be preferable as research progresses. However, we present the OLS results on Table 5 descriptively and as indicative of likely later findings.

Generally, the findings of the simple contingency table (Table 2) stand up in the multivariate regressions. Unionization is associated with more job classifications, less flexitime, less use of part-timers, and less use of work sharing. In short, unionization is associated with less flexibility even after standardization for industrial sector, occupation, and other firm characteristics. Managers are more likely to have flexible hours but are less likely than other workers to be part-timers or to have work sharing arrangements. Professionals are more likely than other workers to have flexitime. Clericals have fewer job classifications and more likelihood of work sharing arrangements.

Older and larger firms have a higher incidence of flexitime and use of part-timers - at least within the Columbia sample - but also have more job classifications. Thus, age and size again evidence contradictory impacts on flexibility. The coefficients on the importance of the human resource function to the firm (SHRIBP) all have the "right" sign, e.g., they indicate greater flexibility. But only two relationships, with part-time work and with work sharing, are significant.

V. Data from the Current Population Survey.

The Current Population Survey (CPS) is a major source of American labor market information. It is collected on a monthly basis from roughly 50,000 households. Data on such widely followed indexes as the unemployment rate and the participation rate are drawn from the CPS. Thus, the CPS is most often used for macroeconomic analysis and forecasting.

Normally, the CPS does not contain information on flexible working arrangements. However, in May 1985 a special supplement was added to the CPS on a one-shot basis dealing with work schedules.²¹ Not all of the questions in the supplement can be said to deal with flexibility in work arrangements. Some dealt with assigned shift, e.g., day shift, night shift. But two

questions were included which do involve flexibility. One question asked about flexitime scheduling and the other asked about work at home.

i. Flexitime

Flexitime is not a common working arrangement in the United States. About 1 in 8 full-time American nonfarm wage and salary workers were under such a schedule in May 1985, according to the CPS.²² Unfortunately, consistent data have not been gathered over time by the CPS although it is likely that some increase in flexitime usage has been occurring in the U.S. Thus, a survey by the Administrative Management Society found an increased incidence of flexitime over the period 1977-1989, but with much of the growth occurring in the earlier years of the period.²³

It is probable that the incidence of flexitime is greater among firms which have been willing to experiment generally with related alternative working arrangements. For example, of five U.S. firms showcased in a recent International Labour Office publication on flexibility in work patterns, three had a flexitime option.²⁴ Interrelationships between use of alternative flexible arrangements is an area of research to be pursued in the future.

Use of flexitime involves giving the employee a voice in the particular hours worked each day. Typically, as noted previously, the employer specifies a core working time during which all employees must be present. As long as the employee is at work during core hours, he/she is free to schedule other work time. However, a requisite number of hours must be worked each week.

Sadly, the CPS question did not go into the details of the operation of the flexitime system. It asked simply "Is (the worker) on flexitime or some other schedule that allows workers to vary the time they begin and end work?" Given the facts that 1) respondents to the CPS are often not the actual worker (but rather another householder) and that 2) the question was loosely worded, there may be some exaggeration of the degree to which a true flexitime program was involved.

Table 6 shows the proportion of workers reported to be covered by a flexitime option in the CPS. There is little variation across demographic characteristics such as sex, age, and marital status, although due to the

large sample size most of the minor differences are statistically significant. Blacks are less likely than other employees to have flexitime schedules. As will be noted below, this feature most likely reflects occupational status.

Part-time vs. full-time status substantially influences the probability of a reported flexitime schedule. It cannot be known whether the greater flexitime coverage of part-timers is fully reflective of actual personnel practices or whether the looseness of the CPS question elicited the higher rate. Part-timers might be perceived by respondents as having a flexitime schedule when they were in fact just functioning as on-call contingent workers (with uncertain hours) or simply had a perceived schedule irregularity.

Table 7 shows the linkage between occupational status and flexitime. Managers and professionals had the highest incidence of flexitime among full-timers. Among part-timers, managers and professionals and technical-sales-administrative support workers had high reported incidences of flexitime. In both cases, service and production workers had comparatively low rates.

These occupational incidence rates are reflected in the results when workers are broken down by educational attainment. More educated workers are more likely to have flexitime schedules than others. Unfortunately, the May 1985 CPS supplement did not contain data on individual worker earnings, but only on family income. Family income is likely to be correlated with worker earnings but, of course, reflects earnings of all household members and non-labor income. As might be expected, the higher the family income level of the worker, the greater the chance of flexitime scheduling. (Table 8)

A sectoral breakdown of flexitime incidence shows no important difference between the private and public sectors. This finding is at first surprising since government workers can be expected to be disproportionately white collar, an occupational group which should be more amenable to flexible scheduling. However, many government workers are in fact in enterprise situations, notably postal and municipal transport. The category "other" on Table 9 is predominantly composed of public administration employees, i.e., civil servants. That categories does show a relatively high incidence of flexitime.

ii. Work at Home.

For self-employed workers, flexitime has no real meaning since such employees are free to choose their hours. However, self-employed workers may or may not work at home - depending on the nature of their work. Hence, we have included self-employed individuals in the work-at-home sample from the CPS.

As Table 6 shows, over 1 in 6 full-time workers reported doing some work at home in May 1985. Unlike the flexitime responses, however, part-timers were less likely to work at home than full-timers. There was little difference in the incidence rates of homework by sex. Work at home was most prevalent among workers in prime working age brackets. Thus, there appears to be a linkage between the intensity of workforce attachment and work at home.

Homework again seems linked to occupational status, accounting for the lower propensity of black workers to report it. Managers and professionals (Table 7) are most likely to report homework as are more highly educated workers. Table 8 reports a positive association between income and work at home.

These findings may surprise readers who associate homework with low-paid piece work at home in industries such as apparel. But three points are worth noting. First, there are federal and state limits on such manufacturing homework which may influence the pattern of incidence rates. Second, the advent of telecommuting (through computer modems) may be influencing the figures.²⁵ Third, the individuals involved may simply be bring work home from the office on their own. There need not be a formal personnel practice involved.

As Table 9 shows, private wage and salary earners are the least likely sectoral group to report homework. Government workers are much more likely to report it than their private-sector counterparts, in contrast to the results for flexitime. But the "other" industry category on Table 9 does not show a high incidence of home work, relative to government employment. "Other," again, is predominantly composed of civil servants but it excludes those in government who providing services. Thus, the discrepancy may be due to the inclusion of public educational services in the "government" category but its

exclusion from "other". Many teachers perform some work at home such as grading papers and preparing lesson plans.

By far it is the self employed who are most likely to be home workers. Almost half of the self employed report some work at home. Moreover, among the full-timers shown on Table 10, it is the self employed who report the longest home working hours.

VI. Summary and Future Directions.

Moves toward more flexible working arrangements are undoubtedly taking place in the U.S. However, documentation of the actual trend is quite spotty. Most studies, as has this one, rely on "snap-shot" surveys rather than time series, simply because of the unavailability of reliable time-series data. However, even the snap-shot view should serve as a cautionary note for those who are convinced that workplace arrangements are undergoing revolutionary change through a process of adapting to changing employee desires. Where significant change is occurring, e.g., the use of temporary, contingent workers, the trend is due largely to employer needs linked to increased uncertainty in product markets.

First, the proportion of workers actually covered by employee-oriented flexible working arrangements (flexitime, work sharing, and home work) is quite small. A relatively low proportion of firms have experimented with such flexible working arrangements. Even those firms that do experiment do not apply the systems to all their workers. The major exception is voluntary part-time work. But voluntary part-time employment - the one flexible arrangement for which good time-series information is available - is not growing relative to the overall workforce.

Second, employee-oriented flexible working arrangements have not been randomly distributed across occupations and sectors. In particular, flexitime and work at home have been associated with higher status and higher paid employees. Work sharing seems to be most common among clericals - at least among the larger firms covered by the survey data we have examined. Managerial employees are rarely involved in work sharing. These findings suggest that flexible work arrangements are not of general application.

Rather they meet needs in specific circumstances.

Third, flexible working arrangements seem to be less common in the highly unionized sector than elsewhere. To the extent that union bargaining preferences represent a collective employee "voice," this finding suggests employee resistance to such arrangements. Apparently, many employees are not seeking the new systems. Of course in the U.S., the union sector is relatively small and nonunion employers can - if they wish - institute changes in personnel policy unilaterally. But even in the nonunion sector, employee resistance will act as a check on the introduction of new working arrangements.

Still, there is evidence in American labor force data - particularly with regard to moonlighting and self employment - suggesting that some employees are looking for greater control over their hours. Thus, use of employee-oriented flexible workplace arrangements is likely to continue to evolve. However, ongoing product-market uncertainty is likely to propel the growth of employer-oriented flexible arrangements at a faster pace.

**Table 1:
INDUSTRIAL DISTRIBUTION OF RESPONDENTS TO THE COLUMBIA HUMAN RESOURCE
MANAGEMENT SURVEY**

Industrial Sector	Percent of Respondents in COMPUSTAT Data	Percent of Respondents in Sample Data
Agriculture, Mining, and Construction	9.8%	6.5%
Manufacturing	45.7%	46.0%
Transportation, Communications, and Utilities	8.9%	16.6%
Wholesale and Retail Trade	11.0%	7.5%
Finance, Insurance, Real Estate	12.0%	11.9%
Services	12.6%	11.5%

Source: John Thomas Delaney, David Lewin and Casey Ichniowski, Human Resource Policies and Practices in American Firms, BLMR No. 137 (Washington: U.S. Department of Labor, Bureau of Labor-Management and Cooperative Programs, 1989), p. 45.

Table 2: RELATIONSHIPS BETWEEN FLEXIBLE WORK ARRANGEMENTS AND FIRMS' STRUCTURAL CHARACTERISTICS

Structural Characteristics	Flexibility Measures			
	%FLEX	%PART-TIME	JOB CLASS	%WORKSHARE
Highly unionized	3.1	2.1	76	3.7
Lightly unionized	13.4	4.3	46	6.3
Managerial	17.7	0.7	61	0.5
Professional	12.3	2.5	63	3.3
Clerical	9.2	4.5	43	7.4
Production	6.4	3.6	66	4.3
Manufacturing	9.1	3.4	51	3.8
Nonmanufacturing	7.2	5.3	42	6.7
-Mining	1.4	0.6	44	2.2
-Construction	2.3	1.1	68	1.6
-Durable Mfg.	8.4	3.0	55	3.2
-Nondurable Mfg.	10.5	3.9	48	4.6
-Transportation/ communications/ utilities	5.9	2.7	62	2.4
-Wholesale/retail	5.2	7.4	46	5.8
-Business Services	3.7	6.4	39	7.3
-Personal Services	9.2	7.6	36	8.8
-Finance, Insur- ance, Real Estate	9.5	5.9	31	6.3
Large Firm	11.6	6.3	55	5.2
Small Firm	5.7	3.2	38	5.6
Old Firm	12.1	5.3	57	5.8
Young Firm	5.2	2.4	37	5.0

Note: See text for variable definitions.

Source: Columbia University Data Set.

Table 3: RELATIONSHIPS BETWEEN FLEXIBLE WORK ARRANGEMENTS AND FIRMS' HUMAN RESOURCE MANAGEMENT CHARACTERISTICS

Human Resource Management Characteristics	Flexibility Measures			
	%FLEX	%PART-TIME	JOB CLASS	%WORKSHARE
Status of Senior Human Resource Executive in Business Planning (SHRIBP):				
Involved	12.5	4.9	58	5.9
Not Involved	7.2	3.3	63	4.2
Employee Financial Participation (EFP):				
Yes	7.3	3.5	55	4.8
No	6.9	5.1	64	6.9
Information Sharing with Employees (INFO):				
Yes	7.2	3.4	58	5.2
No	7.7	4.1	62	4.8
Test Validation Used (TEST):				
Yes	7.4	3.2	64	4.7
No	7.5	4.5	54	5.9
Job Analysis Used (JOBANAL):				
Yes	9.2	5.0	49	5.7
No	5.7	3.7	67	4.9

Note: See text for variable definitions.

Source: Columbia University Data Set.

Table 4: RELATIONSHIPS BETWEEN FLEXIBLE WORK ARRANGEMENTS AND FIRMS' FINANCIAL PERFORMANCE

Financial Performance Measures	Flexibility Measures			
	%FLEX	%PART-TIME	JOB CLASS	%WORKSHARE
High ROI (%)	14.6	14.3	14.2	14.1
Low ROI (%)	13.4	13.7	13.8	13.9
High ROA (%)	12.3	11.9	12.5	12.0
Low ROA (%)	11.8	12.2	11.6	12.0
High PROD (\$)	231,000	233,000	240,500	228,000
Low PROD (\$)	221,000	219,000	213,500	224,000

Note: See text for variable definitions.

Source: Columbia University Data Set.

**Table 5: OLS
REGRESSION ESTIMATES OF FLEXIBLE WORK ARRANGEMENTS**
(t-values in parentheses)

Independent Variable	Dependent Variable			
	%FLEX	%PART-TIME	JOB CLASS	%WORKSHARE
Constant	+3.81 (+2.24)	+1.83 (+1.06)	+2.23 (+1.19)	+4.36 (+2.58)
Union (%)	-3.61** (-1.53)	-2.87* (-1.32)	+3.23** (+1.39)	-2.74* (-1.21)
Managerial(a)	+1.72* (+0.83)	-1.84* (-0.90)	-0.61 (-0.45)	-1.62* (-0.78)
Professional(a)	+1.41* (+0.68)	-0.63 (-0.46)	-0.33 (-0.19)	-0.95 (-0.67)
Clerical(a)	+0.52 (+0.39)	+1.04 (+0.70)	-1.45* (-0.68)	+1.82* (+0.88)
Nonmanufacturing(a)	-1.81* (-0.87)	+1.74* (+0.85)	-1.56* (-0.76)	+2.27** (+0.93)
Firm Size (\$)	+2.11* (+1.03)	+1.82* (+0.87)	+2.47* (+1.14)	-0.64 (-0.45)
Firm Age (years)	+1.94* (+0.86)	+1.71* (+0.81)	+2.54** (+1.02)	+0.67 (+0.49)
SHRIBP (1-7)	+1.37 (+0.85)	+1.49* (+0.71)	-0.50 (-0.38)	+1.58* (+0.73)
R-squared	.53	.56	.48	.43
N =	482	485	461	438

*Significant at 5% level.

**Significant at 1% level.

Source: Columbia University Data Set.

Table 6: INCIDENCE OF COVERAGE BY FLEXTIME OR WORK AT HOME BY DEMOGRAPHIC GROUP AND FULL-TIME/PART-TIME EMPLOYMENT

	Proportion Covered by Flexitime	Proportion Working at Home
All	13.6%	16.9%
Males	13.8	16.9
Females	13.3	16.9
Married (a)	13.3	19.5
Males	13.4	19.4
Females	13.1	19.6
Single (b)	14.1	12.2
Males	14.6	11.4
Females	13.7	12.9
Full-Time	12.4	17.5
Males	13.2	17.4
Females	11.4	17.5
Part-Time	18.5	14.5
Males	19.1	12.6
Females	18.3	15.5
White	14.0	18.1
Black	10.1	7.8
Other	13.8	12.2
Age:		
16-25	13.2	6.7
25-39	14.4	19.5
40-55	13.2	21.0
55 and up	12.3	17.4

(a) Married with spouse present or spouse absent including separated.

(b) Never married, widowed, or divorced.

Note: All data refer to non-farm workers aged 16 and older who are currently employed. Data on work at home include self employed and unpaid family workers. Data on flexitime exclude such workers.

Source: Data tape for May 1985 Current Population Survey.

Table 7: OCCUPATIONAL AND EDUCATIONAL STATUS OF WORKERS WITH FLEXTIME OR WHO WORK AT HOME BY FULL-TIME AND PART-TIME STATUS

	Percent Who Have Flexitime Schedules or Who Work at Home		
	All Workers	Full Time	Part Time
	Incidence of Flexitime:		
Managers and Professionals	18.8%	18.5%	21.4%
Technical, Sales, and Administrative Support Workers	16.7	14.8	22.9
Service Workers	10.6	8.5	13.6
Production Workers	7.6	6.6	15.2
Educational Attainment:			
Elementary	7.8	5.6	16.3
High School	10.4	9.1	15.4
College	17.6	16.5	23.1
	Incidence of Work at Home:		
Managers and Professionals	36.6%	37.0%	34.1%
Technical, Sales, and Administrative Support Workers	15.3	15.5	14.7
Service Workers	7.7	8.7	6.3
Production Workers	5.9	5.4	10.1
Educational Attainment:			
Elementary	4.9	4.0	8.5
High School	8.5	8.1	10.3
College	27.0	28.2	21.1

See note, Table 6.

Source: Data tape for May 1985 Current Population Survey.

Table 8: INCIDENCE OF FLEXTIME AND WORK AT HOME BY FAMILY INCOME LEVEL

Family Income	Flexitime	Work at Home
Less than \$20,000	11.9%	11.2%
\$20,000 - \$49,999	13.4	17.1
\$50,000 - \$74,999	17.4	26.4
\$75,000 and over	21.9	33.6

See note, Table 6.

Source: Data tape for May 1985 Current Population Survey.

Table 9: INCIDENCE OF FLEXTIME AND WORK AT HOME BY SECTOR

Sector	Flexitime	Work at Home
Private wage & salary workers	13.9%	11.0%
Government workers	12.1	23.9
Self employed	n.a.	48.0
Construction/ mining	9.8%	14.6%
Manufacturing/ communications/ utilities/ transportation	11.1	9.7
Wholesale/retail/ finance/insurance/ real estate/ services	14.7	20.9
Other (a)	19.6	13.1

(a) Consists mainly of public administration with a small number of employees other than farm workers from agriculture, forestry, and fishing.

See note, Table 6.

Source: Data tape for May 1985 Current Population Survey.

Table 10: INCIDENCE OF WORK AT HOME AND HOURS WORKED AT HOME OF FULL-TIME WORKERS

	Incidence of Work at Home	Hours Worked at Home:		
		1-8 Hours	9-35 Hours	Over 35 Hours
Private wage & salary workers	11.8%	56.6%	38.4%	3.0%
Government workers	25.7	61.3	38.0	.7
Self Employed	45.4	40.8	42.4	16.9
All(a)	17.5	55.6	39.3	6.1

(a) Includes other workers not classified.

See note, Table 6.

Source: Data tape for May 1985 Current Population Survey.

Footnotes

1. We have elsewhere explored the issue of flexible pay systems. See Daniel J.B. Mitchell, David Lewin, and Edward E. Lawler III, "Alternative Pay Systems, Firm Performance, and Productivity" in Alan S. Blinder, ed., Paying for Productivity: A Look at the Evidence (Washington: Brookings Institution, 1990), pp. 15-88.
2. American employers are basically free to lay off workers. In the case of mass layoffs and plant closings, however, they must give 60 days notice to workers. During the 1990-1991 recession, there was casual evidence that employers were quicker to layoff than might have been the case in the past. For example, productivity - which usually turns down in recession - held up fairly well, suggesting that employers were shedding labor as output fell. See also Jonathan Peterson, "Firms Cut Jobs Before Slump Worsens," Los Angeles Times, November 15, 1990, pp. D1, D17.
3. Richard S. Belous, "The 'Financial Impact on Labor Markets' (FILM) Hypothesis," paper presented to a joint session of the North American Economics and Finance Association and the Industrial Relations Research Association, December 28, 1990, National Planning Association, 1990.
4. Richard S. Belous, The Contingent Economy: The Growth of the Temporary, Part-Time and Subcontracted Workforce (Washington: National Planning Association, 1989); Kathryn Troy, Rethinking Employment Security, research bulletin no. 244 (New York: Conference Board, 1990); U.S. Department of Labor, Women's Bureau, Flexible Workstyles: A Look at Contingent Labor, conference summary (Washington: DOL, 1988); Katharine G. Abraham, "Flexible Staffing Arrangements and Employers' Short-Term Adjustment Strategies," working paper no. 2617, National Bureau of Economic Research, 1988; Kathleen Christensen, Flexible Staffing and Scheduling in U.S. Corporations research bulletin 240 (New York: Conference Board, 1989). It might be noted that the Bureau of Labor Statistics projects that "personnel supply services" - an industry which includes temporary help supply agencies - will be among the fastest growing industries in the 1990s. See U.S. Bureau of Labor Statistics, Outlook 2000, bulletin 2352 (Washington: GPO, 1990), p. 30.
5. U.S. General Accounting Office, Workers at Risk: Increased Number in Contingent Employment Lack Insurance, Other Benefits, GAO/HRD-91-56 (Washington: GAO, 1991). Only about a fourth of temporary workers hired through temporary help supply agencies had employer-based medical insurance in 1987. In general, such insurance - when provided - involves an employee contribution. See U.S. Bureau of Labor Statistics, Industry Wage Survey: Temporary Help Supply, September 1987, bulletin 2313 (Washington: GPO, 1988), p. 89. It should be noted that not all "temps" are low level employees. The popular press has reported on the use of temp managers, too. See "And Now, 'Temp' Managers," Newsweek, September 26, 1988, pp. 52, 54; Jesus Sanchez, "The New Breed of Temp May Run Entire Company," Los Angeles Times, March 16, 1991, pp. D1, D3.
6. U.S. Bureau of Labor Statistics, "Business Contracting-Out Practices," summary 87-8, November 1987; Janice D. Murphey, "Business Contracting-Out Practices: Evidence from a BLS Survey," paper presented to the Eastern Economic Association, March 1989.
7. Sar A. Levitan and Elizabeth A. Conway, "Part-Time Employment: Living on Half-Rations," working paper 1988-3, Graduate Institute for Policy Education and Research, George Washington University, 1988. Much of the income difference between full-time and part-time workers is in the area of employee benefits. See Rebecca M. Blank, "Are Part-Time Jobs Bad Jobs?," in Gary Burtless, ed., A Future of Lousy Jobs? (Washington: Brookings Institution, 1990), pp. 123-155.
8. This point is emphasized in Chris Tilly, Short Hours, Short Shrift: Causes and Consequences of Part-Time Work (Washington: Economic Policy Institute, 1990).
9. Daniel J.B. Mitchell, "Wage Pressures and Labor Shortages: The 1960s and the 1980s," Brookings Papers on Economic Activity (2:1989), pp. 191-231.

10. U.S. Bureau of Labor Statistics, "Multiple Jobholding Reached Record High in May 1989," press release USDL: 89-529, November 6, 1989.
11. Data are drawn from Employment and Earnings, vol. 38 (January 1991) and other sources.
12. It should be noted that some employers have found it advantageous for tax reasons to treat employees as independent contractors. Often these arrangements are in fact illegal. However, there is no way of knowing the degree to which such activity may have affected the reported proportion of the self employed in the workforce. There have also been suggestions that some self employed are in fact individuals who have lost their jobs and have undertaken self employment temporarily. A few extremely limited efforts have in fact been made to assist the unemployed to become self employed. See Harry Bernstein, "Turning Jobless into Capitalists," Los Angeles Times, March 20, 1990, p. D3. However, it is doubtful that such an effect is having an appreciable impact on the data cited in the text, which run from business cycle peak to peak.
13. John Thomas Delaney, David Lewin and Casey Ichniowski, Human Resource Policies and Practices in American Firms, BLMR No. 137 (Washington: U.S. Department of Labor, Bureau of Labor-Management and Cooperative Programs, 1989).
14. Thomas A. Kochan, Harry C. Katz, and Robert B. McKersie, The Transformation of American Industrial Relations (New York: Basic Books, 1986), p. 96.
15. Anil Verma, "Relative Flow of Capital to Union and Nonunion Plants Within a Firm," Industrial Relations, vol. 24 (Fall 1985), pp. 395-405.
16. Analysis of personnel practices of older firms and newer firms can be found in Paul Osterman, Employment Futures: Reorganization, Dislocation, and Public Policy (New York: Oxford University Press, 1988).
17. However, managerial job sharing has been touted by some as advantageous to the firm, especially in retention of women. See "Managerial Job Sharing Brings Benefits, Catalyst Study Suggests," Daily Labor Report, October 31, 1989, p. A1.
18. Morris Kleiner, Richard N. Block, Myron Roomkin, and Sidney W. Salsburg, eds., Human Resources and the Performance of the Firm (Madison, Wisc.: Industrial Relations Research Association, 1987).
19. ROI is defined in the COMPUSTAT file as the ratio of operating income to equity investment. ROA is defined as the ratio of operating income to identifiable assets.
20. "Net" refers to an adjustment to gross sales: the value of returned or cancelled goods and services is deducted.
21. A symposium based on this special supplement was published in the November 1986 edition of the Monthly Labor Review.
22. In the tables in this paper, we present data as drawn directly from the CPS computer tape. These differ slightly from those published in the symposium cited in the previous footnote. For example, the proportion of full-time workers under flexitime is reported to be 12.3% in the publication vs. 12.4% on the tape. Reasons for the deviations are not known. Full-time workers are those working 35 or more hours per week.
23. Administrative Management Society Foundation, 1989 Flexible Work Survey (Trevose, Pa.: AMS Foundation, 1989), p. 7.
24. See the cases reported in the Conditions of Work Digest, vol. 9 (1990).

25. The use of computer modems from home is likely to be a growing field. AT&T is reported to be developing a system whereby workers such as airline reservation clerks will be able to work from home. See "Operators May Soon Work from Home," Los Angeles Times, January 30, 1991, p. D2. See also "Telecommuting Can Benefit Employer, Employees, But Remains Controversial," Daily Labor Report, September 22, 1989, pp. C1-C3, for brief discussion of the uses of telecommuting.