# TEMPORARY EMPLOYMENT IN US SMALL AND MEDIUM ENTERPRISES: PATTERNS AND DETERMINANTS

**Jyh-Jer Roger Ko**
**Institute of Human Resource Management**
**National Sun Yat-sen University (Chines Taipei)**

# TEMPORARY EMPLOYMENT IN US SMALL AND MEDIUM ENTERPRISES: PATTERNS AND DETERMINANTS

## ABSTRACT

This paper examines the factors that influence US small and medium enterprises' (SMEs) use of temporary workers. The objective of this paper is to explain how the use of temporary workers allows SMEs to achieve staffing flexibility, lower labor costs, obtain specialized services, and deal with union pressure. To test these hypotheses, I identify features of jobs, organizations, and environments which are likely to predict the use of temporary workers.

Data for this research come from the 1991 National Organizations Study. These data on employers yielded information on around 1700 jobs. Most analysis was conducted using logit and tobit models that included extensive controls for occupation, industry, and region.

The results pertaining to the use of temporaries are mixed with respect to the main hypotheses. Evidence shows that temporaries are used to achieve staffing flexibility that is provided by part-time workers and that is facilitated by decentralizing the decision making on using contingent workers; and they are used more by firms that face union pressure. On the other hand, temporaries are less likely to be employed in jobs where labor costs such as pay and training cost are high; and they appear not to be used to obtain specialized services, because in general temporaries lacked such specialized skills.

The above findings provide some practical implications for SMEs' human resources management practices, particularly for contingent labor deployment.

## INTRODUCTION

Recently public attention has been drawn to the "temping" phenomenon, the growing contingent work arrangements including part-time, temporary, and subcontracting work in American workplaces. Conspicuous headlines such as "the temping of America", "disposable workers", and "just-in-time employees" have been ubiquitous in the press. The growing contingent workforce has also become a pressing topic and a main concern of corporate America (Callaghan and Hartmann 1991; Nollen and Axel 1996).

Generally speaking, contingent workers are people with little or no attachment to the organization for which they work. When and how much they work depends on the organization's need. Their work schedule is irregular and usually they have no job security and no implicit contract for continued employment. Furthermore, contingent workers usually earn less and are less likely to receive fringe benefits than workers in comparable full-time jobs (Polivka and Nardone 1989). In practice, contingent workers can be hourly part-time employees, temporaries from staffing companies, direct-hire temporaries, workers from leasing companies, or independent short-term contractors (Nollen and Axel 1996). Due to space consideration, this paper focuses on temporary workers only.

Temporary employment has grown rapidly in recent years. Data from the Bureau of Labor Statistics (BLS) for the help supply services (temporary help) industry constitutes a basis for what is known about temporary workers. This industry, which supplies temporary workers to client firms, has been growing very fast. The employment share of the help supply services industry among nonfarm employments rose from below 0.3 to 1.8 percent between 1972 and 1994. The number of workers employed in this industry grew 8.4 times larger between 1972 and 1994 (from less than 214,000 to 2,002,000) (U.S. Department of Labor 1995: 32-33).

Following the rapid growth of temporary employment, there have been some studies about temporary workers, but thus far there are only few studies examine factors that facilitate or impede employers' use of temporary workers and, moreover, there is no research investigates different patterns of temporary employment for various sizes of enterprises. This research thus focuses on the pattern of temporary employment and explores factors that influence temporary employment in US small and medium enterprises (SMEs)[1].

The reasons for using contingent employment have been considered from several perspectives: staffing flexibility (Abraham 1990; Abraham and Taylor 1996; Callaghan and Hartmann 1991; Nollen and Axel 1996), employment costs (Abraham 1990; Callaghan and Hartmann 1991; Davis-Blake and Uzzi 1993; Pfeffer and Baron 1988), specialized services (Abraham 1990; Abraham and Taylor 1996; Harrison and Kelley 1993), and union avoidance (Davis-Blake and Uzzi 1993; Pfeffer and Baron 1988). An illuminating way to learn why employers use contingent workers is to study the job,

[1] SMEs refer to the enterprises whose number of employees are less than 500.

organizational and environmental correlates of reasons that have been proposed by major researchers (Abraham and Taylor 1996). Through such analysis, we can obtain a better understanding of what sort of job is more likely to be externalized, what type of organization tends to use contingent workers and what kind of environment paves the way for contingent workers.

The paper is organized as follows. The next section reviews the literature and discusses the theoretical and empirical expectations surrounding the reasons employers give for using contingent workers. The third section describes data, measures, and the empirical design. The fourth section gives the empirical findings and analysis about the determinants of employers' use of contingent workers. The last section provides a summary and discussion.

## REASONS WHY SME EMPLOYERS USE TEMPORARY WORKERS

There are four main reasons SME employers give for their use of temporary employment arrangements: to increase staffing flexibility, to reduce labor costs, to acquire specialized services, and to avoid unionization.[2] In the next several sections, the corresponding job-related, organizational and environmental indicators of each reason are specified and then testable hypotheses are formulated.

### Increasing Staffing Flexibility

Since the 1980s, new economic conditions have increased the variability and uncertainty in demand for products and services. In order to respond to cyclical or unpredictable variations in demand, employers need freedom to vary the number of work hours and the size of workforce; this type of flexibility is known as the numerical flexibility (Rosenberg 1989; Rubery, Tarling and Wilkinson 1987). In this light, contingent workers are the best choice for employers to achieve numerical flexibility. Employers can add or subtract the number of workers as needed, and thus avoid the added cost of idle people during slack times and the extra cost of overtime during peak periods (Nollen and Axel 1996). Therefore, if an important reason for firms to employ contingent workers is to rapidly adjust the number of workers because of fluctuation in demand, then the number of contingent workers an employer needs would be determined by the size of the workload fluctuations.

Previous research has provided some evidence that higher variation in production and employment levels increase the use of contingent workers. Mangum, Mayall, and Nelson (1985) found that the use of temporary workers was positively associated with the instability of product demand as measured by employment change. Abraham (1990) reported that both the seasonal and cyclical variation in an organization's demand affect the use of temporary workers. Based on the preceding discussion, I predict:

[2]Besides these five main reasons, there are some other reasons reported by various sources: filling in for absent employees, screening a candidate for future employment, inability to find regular workers and easing management tasks. Due to data limitations, I cannot construct variables for these reasons.

**Hypothesis 1**: There is a positive relationship between the extent of variation in industrial and organizational employment levels and the use of temporary workers.

Researchers have argued that transformed organizations often build participation and enpowerment into their organizational structure, both by pushing decisions to the lower levels of the organization and by breaking down boundaries across departments through the use of teams (Appelbaum and Batt 1994; Osterman 1994). The use of contingent work arrangements is related to the transformed organizations because contingent labor force is used to buffer core employees from job loss in such transformed work systems (Abraham 1990; Abraham and Taylor 1996). Through this link, I connect the degree of decentralization of decision-making on using contingent work arrangements to the actual use of contingent workers, and predict:

**Hypothesis 2**: The more decentralized the organizational decision-making structure is, the more likely the organization will employ temporary workers.

## Reducing Labor Costs

Since the 1980s, new economic conditions have increased the variability and uncertainty in product demand, expanded and internationalized the domain of markets, and influenced firm market shares. These new features of competition in combination with the experience of severe and recurring recession have caused employers to become very sensitive to all types of costs, especially labor-related costs. These factors have pressured organizations to cut labor costs, to achieve greater flexibility in the employment of their workforce, and to change organization boundaries by shifting some costs of production to contingent workers. In this respect, contingent employment arrangements seem to fit employers' broader strategy of cutting labor costs and boosting organizations' competitiveness: contingent workers are less expensive than regular workers because their pay and benefits can be lower (Carre 1992, Parker 1994).

Using contingent workers can save on labor costs in two ways. First, the use of contingent workers can reduce employment costs, such as payroll, fringe benefits expenditure, and training costs. Second, many employers believe that dismissing regular employees and using contingent workers as replacements is the most effective way of reducing costs. Therefore, labor costs related to the use of contingent workers can be studied from these two perspectives: employment costs, and downsizing action.

### Employment Costs

Contingent workers normally receive lower pay than regular full-time employees and are usually excluded from the available fringe benefits. In addition, through contingent employment arrangements, employers can reduce or eliminate overtime and save on expenditures associated with various aspects of employment such as recruiting, training, and even firing workers (Abraham 1990; Appelbaum 1987; Callaghan and Hartmann 1991; Parker 1994). Since data on the cost of other aspects of employment practices were not available, I limit my discussion to training costs only. Therefore, my discussion of employment costs focuses on pay, fringe benefits and training costs.

Pay. A major reason employers hire contingent workers is to minimize expenses associated with regular workers. Since contingent workers generally receive lower pay than regular employees, employers are tempted to use contingent work arrangements to reduce employment costs if the high pay level of certain jobs has been a main concern.

Research on the earnings of contingent workers has found that contingent workers earn less than regular workers. Using data from the Bureau of Labor Statistics, Callaghan and Hartmann (1991) found that temporary workers earned about 75 to 80 percent of what wage and salary workers earned during the 1980s.

Other researchers also have found a connection between the pay level and use of contingent work arrangements. Studying contracting arrangements in manufacturing industries, Harrison and Kelley (1993) reported that a higher wage level in the work force they studied increased the likelihood of subcontracting. Abraham and Taylor (1996) found that wage saving is a key factor in contracting out tasks in three out of five types of services they studied. Thus, I predict:

**Hypothesis 3**: The higher the level of pay for a job, the more likely the organization will use temporary employment arrangements.

Fringe benefits. Fringe benefit costs for regular employees are a substantial part of employment costs; thus employers are motivated to avoid fringe benefit costs by using contingent workers. The U.S. Chamber of Commerce's annual employer survey shows that non-wage payroll costs have increased from 28 to 38 percent of total payroll between 1969 and 1989 (cited in Callaghan and Hartmann 1991, p. 26). From BLS data on benefit, wage, and total compensation costs per hour, Callaghan and Hartmann (1991) found that between 1970 and 1991 employers' payments for various fringe benefits grew from 20 to 28 percent of total compensation for employed workers (p. 26).

Some researchers have related fringe benefit costs to the use of contingent workers. Abraham and Taylor (1996) argued that the soaring cost of health insurance during the 1980s may well have strengthened employers' incentives to contract out tasks to firms not offering health benefits. Davis-Blake and Uzzi (1993) found fringe benefits did not affect the use of both temporary workers and independent contractors, but they noted that this finding may be due to their use of an industry-level fringe benefit measure, which may not be a good indicator of a firm's fringe benefits level. In contrast, Mangum, Mayall, and Nelson (1985) reported that firms with higher fringe benefits used more call-ins and temporary-help service employees, whereas they found no effect of fringe benefit levels on the use of direct-hires. Based on the above reasoning, I predict:

**Hypothesis 4**: The higher the level of fringe benefits in an organization, the more likely the organization will use temporary workers.

Training costs. Facing increasing economic competition and uncertainty, many employers are using job training to cope with rapid changes in technology, industrial restructuring, market conditions, and demographic shifts (Knoke and Kalleberg 1994). Organizational formal training involves human, physical and financial resources; hence expenditure on training constitutes a substantial part of employment costs. In addition, it takes time for employers to recoup training costs. Hence, organizations tend to retain those employees with formal training. Williamson (1979, 1981) offered a similar argument: employers with firm-specific skills will pursue a long-term employment relationship with regular employees to avoid losing the investment in high training costs. Davis-Blake and Uzzi's (1993) findings that firm-specific training had a negative effect on the use of temporary workers supports this line of argument. I thus infer that if a job involves high training costs, employers will try to retain the regular employees with organizational-specific training and will be less likely to replace the employees with contingent workers; the accompanying hypothesis is:

**Hypothesis 5:** Jobs involving higher training costs are less likely to be filled by temporary and contracting workers.

**Downsizing (Controlling Headcount)**

For many employers, the fastest and easiest way to reduce costs is to dismiss workers. At the same time, with several recessions still fresh in their memories and the ongoing 1990-1991 recession, employers are reluctant to hire regular workers (Parker 1993). Under such conditions, downsizing has been increasingly used as a strategic move toward cost-saving. Although it has not been verified that controlling headcount through the use of contingent workers can save costs, many employers have followed the downsizing trend. They believe that controlling headcount can contain costs and do not consider contingent workers as part of headcount (Nollen and Axel 1996).

One major problem downsizing organizations have to face, especially those which turn to temporary or contract workers as substitutes for regular employees, is that they are most likely to use a considerable number of contingent workers. Nollen and Axel (1995) found that "downsized companies often find themselves in this predicament when large numbers of employees are terminated without controls in place to protect vital jobs and prevent a massive talent drain. Seeking an immediate solution, such companies then bring back former employees and temporaries to fill in the gaps" (p. 43). This measure brings in a work force of so-called "permanent temporaries" (Nollen and Axel 1995: 43). Considering that downsizing organizations use contingent workers to prevent a talent drain, I predict:

**Hypothesis 6:** Organizations that have downsized within the past year will be more likely to use temporary workers than those that have not downsized.

Acquiring Specialized Services

The need for specialized services is another essential reason why organizations adopt contingent work arrangements. Acquiring specialized talent has gained

importance in an era of downsizing and restructuring. Organizations may sometimes find that they do not have the specialized equipment or skills in-house needed to produce a product or deliver a service. Therefore, they have to turn to outside providers--either temporary or contract workers--to perform the specialized tasks. The situation can be either due to the considerations concerning the economies of scale in the provision of the specialized services in question (Abraham and Taylor 1996), or due to organizational strategic concerns (Harrison and Kelley 1993). This reason for using contingent workers includes tow organizational correlates: economies of scale, and product/service diversity.

**Economies of Scale (Establishment size)**

Contracting arrangements for a particular job may indicate that an organization cannot economically maintain the specialized equipment or skills in-house. In addition, firm size is sometimes used to indicate the extent of economic scale. Therefore, small organizations would be more likely to contract out for this reason (Abraham and Taylor 1996). Harrison and Kelley (1993) held a similar argument regarding subcontracting behavior in terms of their machining production sample, but their indicator of the scale of machining operations is employment in those occupations at the establishment, which is different from establishment size. Although both arguments are focusing on contracting arrangements, similar reasoning can be applied to temporary workers. Because large firms have a larger pool of employees than small firms, they are likely to have employees available to meet temporary skill or service needs.

The argument that large organizations are less likely than small organizations to use temporary workers has been partially supported by past research. Davis-Blake and Uzzi (1993) reported that larger establishments were less likely to use temporary workers than small ones. In contrast, Mangum, Mayall, and Nelson (1985) reported that large organizations were more likely than small organizations to use temporary workers, based on a bivariate relationship.

Based on economies of scale, I infer that:

**Hypothesis 7**: Larger organizations should be less likely to employ temporary workers.

**Product/Service Diversity**

As product/service diversity increases, the employer will be more likely to encounter the need for greater capacity or for more specialized skills or tools that cannot be easily accessed in-house. Outside subcontractors may have specialized skills or equipment that the organization needs. Therefore, product/service diversity increases the likelihood of subcontracting out (Harrison and Kelley 1993). Harrison and Kelley (1993) verified this argument in their empirical study on manufacturing industries. Jobs requiring specialized skills or equipment generally involve high complexity. Specialized subcontractors might be able to meet the job requirements, but temporary workers are less likely to fit into such jobs. Davis-Blake and Uzzi (1993) found that temporary workers usually fill in low skill jobs. Thus, I infer that the impact of product/service diversity upon the use of temporary and subcontracting workers will be

different and predict:

**Hypothesis 8**: The greater an organization's diversity of product/service, the less likely it is that the employer will use temporary workers.

## Avoiding Unionization

One main argument on the effect of unionization upon the use of contingent workers is that of union avoidance. While public discussion did not pay much attention to it, supposedly one of the main reasons for the use of contingent work arrangements is to allow organizations to remain union-free or to weaken incumbent unions. It is generally believed that contingent workers are difficult to organize because many contingent workers either do not stay with the same employer for extended periods, or because they work for more than one employer, conditions that leave them at a disadvantage in organizing and mobilizing collective action for their own welfare. Moreover, contingent workers are generally separated from and excluded by the regular employees because some employers use contingent workers to put pressure on regular employees (Parker 1994; Pfeffer and Baron 1988). Hence employers can hamper unions through contingent work arrangements since contingent workers are inherently more difficult to organize and are often in tension with the organized regular employees.

This line of reasoning implies a positive relationship between the use of contingent workers and the intensity of union pressure, because as union pressure increases, employers are more likely to utilize contingent workers to remain union-free or to weaken incumbent unions. Based on this discussion, I predict:

**Hypothesis 9**: The intensity of union pressure in an organization will be positively associated with the organization's use of temporary workers and subcontracting.

# DATA AND MEASURMENT

In this section, I discuss the data and measurement of this research.

## Data

The main data used in this research come from the 1991 National Organizations Study (NOS) (Kalleberg, Knoke, Marsden and Spaeth 1991), which consists of data on 727 employers of the respondents and their spouses in the 1991 General Social Survey (GSS). The NOS concentrated on the establishments' human resources policies and practices. Items asked about current staffing procedures, internal job ladders and promotion chains, job training programs, and employee benefits and incentives. Additional items gathered basic information about each organization's formal structures, social demography, environmental situation, and productivity and performance.

**Unit of Analysis**

In order to take the job heterogeneity in the NOS into consideration, I created a job level data set which concatenated information of the three jobs, core, GSS and managerial jobs, which were collected by the same sequence of questions. By doing so, I transformed the organizational data set into a job-level data set and made *job* the unit of analysis in this research. As a result of this procedure, the sample size was increased from 727 to 1701.

**Measurement**

Variables used can be broadly divided into two groups: dependent and independent variables. For analytical purposes, independent variables were further classified into two categories, study and control variables. Table 4.4 reports the definitions, means, and standard deviations of all the variables used in this paper by three levels--job, organizational and environmental.

**Dependent Variables**

Use of temporary workers (coded one if temporary workers were used for the job and zero if not) and the extent of using temporary workers were examined at the job level of analysis. The two measures of temporary work arrangements are based on the same question repeated for three jobs: "About what percentage (of CORE, GSS or MANAGERIAL workers) were temporaries?"

**Independent Variables**

Independent variables are divided into two groups: study and control variables.

**Study Variables**

Four sets of variables will be constructed to measure job, organizational, and environmental indicators of the following four reasons for using contingent workers: increasing staffing flexibility, reducing labor costs, acquiring specialized services, and avoiding unionization.

(1) Increasing staffing flexibility

*Organizational variation in employment* was measured as the standard deviation in an organization's employment of full-timers and part-timers within the past one and three years. *Industrial variation in employment* was measured as the coefficient of variation of monthly employment in various industries over the period from 1989 to 1990. The data come from the BLS "Employment and Earnings".

(2) Reducing labor costs

Three measures of employment costs are constructed. The *pay level* of a job is what most persons in that job earned annually in the organization. *Fringe benefits* is a scale based on 13 items of various benefits including medicare, dental care, life

insurance, sick leave, maternity leave, elderly care, flexible hours, cash or stock bonus, pensions, profit-sharing, drug and alcohol abuse programs, disability insurance, and child care. *Training costs* is a logged expenditure measure representing the training budget divided by the number of persons trained.

Two binary indicators of *downsizing* are used: if an organization has ever cut the number of full-time or part-time employees within the last year, then it is considered a downsizing organization.

(3) Acquiring specialized services

*Organizational size* is defined as the natural log of an establishment's full plus part-time employees. The indicator of *product/service diversity* is based on employers' evaluations of their organizations' performance in developing new products, services or programs.

(4) Avoiding unionization

No specific NOS survey item asked informants to estimate the degree to which the workforces in their establishment were organized by trade unions. Several items that did appear in the survey, however, are indicative of the presence of organized labor, and these were combined into a *union pressure* scale[3]. These indicators are well correlated with one another, so the scale has an estimated reliability (Cronbach's alpha) of 0.82.

**Control variables**

Several variables were included to control for human capital, occupational, organizational, governmental, industrial, and geographic factors that were likely to affect the use of contingent workers.

In my research, human capital variables are features of a job (rather than of a current employee) since only job information was available in the NOS data. In order to control for gender effect, the percentage of female employees of a certain job is included. To control for the effects of skills required to perform a job, several measures of occupational complexity from the Dictionary of Occupational Titles (DOT) including information (data), interpersonal (people) and technical (things) complexity; specific vocational preparation (SVP); general educational requirements (GED); and some adaptability and aptitude measures were combined to create two job complexity measures.

Whether an organization is profit or nonprofit could cause fundamental

[3] Marsden, Cook and Knoke (1996) inferred the presence of a union when informants told interviewers that formal training was offered by virtue of provisions in union contracts; when union negotiations were said to be an important criterion in the determination of earnings of core or GSS employees; or when it was anticipated that union relations would be a problem for the establishment over the three-year term. These indicators were combined into the *union pressure* scale

differences in practice patterns. To control for organizational type, I included an indicator variable for nonprofit organizations.

Organizations which were regulated by the government ought to be responsive to the concerns of the government. Government agencies have become more concerned about the well-being of contingent workers recently (Belous 1989; Davis-Blake and Uzzi 1993). A scale measuring the intensity of governmental regulation was used to control for the effect of governmental regulation upon the use of contingent workers.

Some researchers (Abraham 1988, 1990; Abraham and Taylor 1996; Davis-Blake and Uzzi 1993; Mangum, Mayall, and Nelson 1985) have suggested that the use of contingent workers varies by occupation, industry, and region. Using 1980 Census occupation codes, six binary variables for occupational categories were created: (1) managerial, (2) professional and technical, (3) sales and administrative support, (4) service, (5) precision production, craft, and repair, and (6) operator, fabricator, laborer, farming and fishing. Binary variables for nine industries were created based on three-digit SIC codes: (1) agriculture, forestry and mining, (2) manufacturing, (3) construction, (4) infrastructural activities (transportation, communication, and utilities), (5) trade (wholesale and retail), (6) finance, insurance, and real estate, (7) professional services, (8) personal services, (9) public administration.

To control for regional effect, four regional binary variables were added to the models: East, West, South, and Midwest (which serves as the omitted category).

**Missing values**

In order to preserve cases, I replaced missing values of these variables with the means of nonmissing values. However, if cases had missing values on the dependent variables, they were dropped from an equation.

**Empirical Design**

This section is an overview of the empirical design for studying the determinants of the use/extent of use of contingent work arrangements.

**Statistical Methods**

One problem that has not been commonly recognized in research on contingent employment is the censored dependent variable problem--variables whose actual values are not observed for a large proportion of the cases. One of the dependent variables in this research, the proportion of temporary workers in a particular job, is censored. A Tobit analysis is thus appropriate for these data (Maddala 1983; Winship and Mare 1992).

When the research focus was switched to whether or not an employer uses temporary workers for a specific job, the logistic model was applied because the dependent variable was binary.

# ANALYSIS

Table 1 reports the definitions, means, and standard deviations of the variables used in this paper. Pooling all jobs together, I found that 6 percent of the jobs could be filled with temporary workers for these SMEs. The mean percentage of temporary employees for all kinds of jobs was 2 percent. I examine determinants of whether an SME employer uses temporary workers or not in this section. Table 2 presents the results from the logistic models representing whether or not temporary work arrangements are used for all jobs together. Each model includes the control variables and the group of study variables associated with a particular perspective. The perspectives and the corresponding model titles are "Increasing Staffing Flexibility" (Model 1), "Reducing Labor Costs" (Model 2), "Acquiring Specialized Services" (Model 3), "Avoiding Unionization" (Model 4), and an integrative model (Model 5).

**Determinants of the Use of Temporary Workers**

Employers use contingent workers to increase staffing flexibility, to reduce labor costs, to acquire specialized services, and to avoid unionization. Based on the results from Model 1 through Model 5 in Table 2, I had the following findings:

Increasing staffing flexibility. As predicted, organizational fluctuation of part-time employment was important for explaining the use of temporary workers and had a significant positive association with the use of temps. This finding also implies that in deciding the use of temps for a particular job, employers resort to past experiences of employing part-time workers. The significant and positive coefficient of decentralization indicator support the hypothesis that the more decentralized the organizational decision-making structure is, the more likely the organization will employ temporary workers.

Reducing labor costs. Contrary to usual predictions, employment costs such as the pay level and training cost (per trainee) of a job had a negative effect on temporary worker use, while the fringe benefits' measure was not a significant predictor. This result did not support the common argument that the primary motivation for using contingent workers was to save on employment costs; otherwise, the increase of costs should have driven employers to use more temporary workers. One possible interpretation of these negative coefficients is that many of the jobs analyzed were central to the organization's success and were performed by workers who are more difficult to replace. If employers have invested high costs in rewarding and training such employees, they are less likely to replace those employees with contingent workers.

As predicted, one of the downsizing indicators, organizations having downsized their part-time employees, was strongly related to the use of temporary workers. The positive coefficient here showed that organizations which had laid off part-time workers were more likely to use temporary work arrangements.

Acquiring specialized services. I found that both measures indicating the extent of specialization of functions, size of employment and organization's diversity of

products/services, were significant predictors.

An organization's employment size was positively related to the probability that it used temporary workers. Although it was not anticipated that the size variable would have a positive coefficient, the result is consistent with Mangum, Mayall, and Nelson's (1985) findings. This result implied that larger organizations are more likely to employ temporary workers.

As anticipated, product diversity had a significant negative effect on the use of temporary workers. One interpretation is that product/service diversity creates the need for specialized expertise which generally involves high complexity, but temporary workers were less likely to fit into such jobs because in general they lacked the necessary specialized skill. This finding supplemented Davis-Blake and Uzzi's (1993) findings that temporary workers usually filled jobs low in skills.

Avoiding unionization. Union pressure, as anticipated, had a positive effect on the use of temporary workers. This evidence supported the union avoidance argument, i.e., as the union pressure increased, employers were more likely to use temporary workers to remain union-free or to weaken existing unions.

Control variables. In general, control variables had the expected signs, though some of them were not statistically significant. Occupation generally had no effect on the use of temporary workers except for the managerial occupation that also served as the managerial job indicator. Moreover, the highly significant and negative coefficient of the managerial job indicator indicated the extremely low usage of temporary work arrangement for managerial jobs. Nonprofit organizations seemed to be more likely to employ temporary workers. Temporary work arrangements were more frequently used in professional and personal service than in manufacturing industries. I also found temporary workers were used less frequently in the East than in the Midwest.

**Determinants of the Extent of Employers' Use of Temporary Workers**

This section analyzes the determinants of the extent of using temporary workers. The following discussion on the determinants of the extent of using temporary workers is based on Table 3, and is arranged under the headings as the previous section.

Increasing staffing flexibility. As in predicting whether an employer used temporary workers or not, organizational fluctuation of part-time employment was important for explaining the extent of using temporary workers. As predicted, part-time employment variation had a significant positive association with extent of use. This finding implies that in deciding the degree of temping for a particular job, employers resort to past experiences of employing part-time workers.

Reducing labor costs. As seen earlier, in the logit analysis, the pay level of a job and training cost was significant and negatively associated with the extent of using temporary workers. In contrast, the fringe benefit indicator was not a significant predictor. Again, these results did not support the common argument that the primary motivation for using contingent workers was to save on employment costs. Instead, if

employers had invested high costs in rewarding and training those employees, they were less likely to replace them by contingent workers.

Downsizing indicators predicted the extent of using temporary workers in ways that are similar to their prediction of the use of temporary workers. As predicted, one of the downsizing indicators (organizations downsizing their part-time employees) was strongly related to the extent of temporary worker use. The positive coefficient here showed that organizations which had laid off part-time workers were more likely to increase their use of temporary work arrangements.

Acquiring specialized services . Similar to the result for whether or not an employer used temporary workers, both measures indicating the extent of specialization of functions for an organization were significant. An organization's employment size was positively related to the extent of using temporary workers. This deserves further investigation. Product/service diversity, as anticipated, had a significant negative effect on the extent of temporary worker use; this implied that temporary workers were less likely to fit into such complex jobs because in general they lacked complex organization-specific skills.

Avoiding unionization. Union pressure had a positive effect on the extent of using temporary workers. This evidence supported the union avoidance argument.

Control variables. Occupation generally had no effect on the use of temporary workers except for the managerial occupation. The higher the percentage of female workers for a job, the stronger the extent of using temporary workers. More temporary workers were used by those organizations in the personal service industry than in others. One area indicator was significant; the extent of temping was less serious for organizations in the East.

## SUMMARY AND DISCUSSION

This paper draws on theories from organizational sociology, economics, and the sociology of labor markets to examine the factors that influence US SMEs' use of temporary workers. The objective of this paper is to explain how the use of temporary workers allows SMEs to achieve staffing flexibility, lower labor costs, obtain specialized services, deal with union pressure, and improve employees' commitment and competence. To test these hypotheses, I identify features of jobs, organizations, and environments which are likely to predict the use of temporary workers.

The results pertaining to the use of temporaries are mixed with respect to the main hypotheses. Evidence shows that temporaries are used to achieve staffing flexibility that is provided by part-time workers and that is facilitated by higher degree of decentralization on the decision making of using contingent workers; and they are used more by firms that face union pressure. On the other hand, temporaries are less likely to be employed in jobs where labor costs such as pay and training cost are high; and they appear not to be used to obtain specialized services, because in general temporaries lacked such specialized skills.

The above findings provide some practical implications for SMEs' human resources management practices, particularly for contingent labor deployment. However, there are a couple of points need to be noted: First, the data set used here was not aimed at the use of temporary workers, therefore some crucial information about the use of temporary arrangements are not available. This problem suggests that more representative and systematic data need to be collected. Second, this research studies the causes of SMEs' use of temporary workers, but does not explore labor market consequences of this use due to lack of appropriate data. This is definitely a very urgent and promising field to be researched considering the rapid growth of the contingent workers.

## REFERENCES

Abraham, Katharine G. 1990. "Restructuring the Employment Relationship: the Growth of Market-Mediated Work Arrangements." Pp. 85-120 in *New Developments in the Labor Market: Toward a New Institutional Paradigm*, edited by Katharine G. Abraham and Robert B. McKersie. Cambridge, MA: MIT Press.

Abraham, Katharine G. and Susan K. Taylor. 1996. "Firm's Use of Outside Contractors; Theory and Evidence." *Journal of Labor Economics* 14(3):394-424.

Appelbaum, Eileen. 1987. "Restructuring Work: Temporary, Part-time, and At-home Employment." Pp. 268-310 in *Computer Chips and Paper Clips: Technology and Women's Employment*, Vol. II, edited by Heidi I. Hartmann. Washington, DC: National Academy Press.

Appelbaum, Eileen and Rosemary Batt. 1994. *The American Workplace: Transforming Work Systems in the United States*. Ithaca, NY: ILR Press.

Belous, Richard S. 1989a. "How Human Resource Systems Adjust to the Shift toward Contingent Workers." *Monthly Labor Review* 112(3):7-12.

Callaghan, Polly and Heidi Hartmann. 1991. *Contingent Work: A Chart Book on Part-time and Temporary Employment*. Washington, DC: Economic Policy Institute.

Carre, Francoise J. 1992. "Temporary Employment in the Eighties" Pp. 45-87 in *New Policies for the Part-time and Contingent Workforce*, edited by Virginia L. duRivage. Armonk, New York: M.E. Sharpe.

Davis-Blake, Alison and Brian Uzzi. 1993. "Determinants of Employment Externalization: A Study of Temporary Workers and Independent Contractors." *Administrative Science Quarterly* 38:195-223.

Harrison, Bennett and Maryellen R. Kelley. 1993. "Outsourcing and the Search for 'Flexibility'." *Work, Employment and Society* 7(2):213-35.

Kalleberg, Arne L., David Knoke, Peter V. Marsden and Joe L. Spaeth. The 1991 National Organization Studies [machine readable data file]. University of Minnesota [producer] 1992. Inter-university Consortium for Political and Social Research (ICPSR) [distributor] 1993.

Knoke, David and Kalleberg, Arne L. 1994. "Job Training in U.S. Organizations." *American Sociological Review* 59:537- 46.

Maddala, G. S. 1983. *Limited-Dependent and Qualitative Variables in Econometrics.* Cambridge, New York: Cambridge University Press.

Mangum, Garth, Donald Mayall, and Kristin Nelson. 1985. "The Temporary Help Industry: A Response to the Dual Internal Labor Market." *Industrial and Labor Relations Review* 38(4):599- 611.

Marsden, Peter V., Cynthia R. Cook, and David Knoke. 1996. “American Organizations and Their Environments.” Pp.45-66 in *Organizations in America: Analyzing Their Structures and Human Resource Practices,* edited by Arne L. Kalleberg, David Knoke, Peter V. Marsden and Joe L. Spaeth. Thousand Oaks, CA: Sage Publications.

Nollen, Stanley and Helen Axel. 1996. *Managing Contingent Workers*. New York: AMACOM.

Osterman, Paul. 1994. "How Common is Workplace Transformation and Who Adopts It ?" *Industrial and Labor Relations Review* 47(2):173-88.

Parker, Robert E. 1993. "The Labor Force in Transition: The Growth of the Contingent Work Force in the United States." Pp. 116-36 in *The Labor Process and Control of Labor: The Changing Nature of Work Relations in the Late Twentieth Century*, edited by Berch Berberoglu. Westport, CT: Praeger.

Parker, Robert E. 1994. *Flesh Peddlers and Warm Bodies: The Temporary Help Industry and Its Workers*. New Brunswick, N.J.: Rutgers University Press.

Pfeffer, Jeffrey and James N. Baron. 1988. "Taking the Workers Back Out: Recent Trends in the Structuring of Employment." Pp. 257-303 in *Research in Organizational Behavior*, Vol. 10, edited by L. L. Cummings and Barry M. Staw. Greenwich, CT: JAI press.

Polivka, Anne E. and Thomas Nardone. 1989. "On the Definition of 'Contingent work'." *Monthly Labor Review* 109(12): 9-16.

Rosenberg, Sam. 1989. "From Segmentation to Flexibility." *Labour and Society* 14(4):363- 407.

Ruberry, Jill, Roger Tarling and Frank Wilkinson. 1987. "Flexibility, Marketing and the Organisation of Production." *Labour and Society* 12(1):131- 151.

U.S. Department of Labor. 1995. *Report on the American Workforce*. Washington, DC: U.S. Department of Labor.

Williamson, Oliver E. 1979. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.

Williamson, Oliver E. 1981. “The Economics of Organization: The Transaction Cost Approach.” *American Journal of Sociology* 87:548-77.

Winship, Christopher and Robert D. Mare. 1992. "Models for Sample Selection Bias." *Annual Review of Sociology* 18:327-50.

Table 1. Table of Variables by Level in This Research

| Variable | Definition | mean | s.d. |
|---|---|---|---|
| **Job Level Variables** | | | |
| % of temporaries | % of temporary workers in a job. | 0.02 | 0.13 |
| Use of temporaries | A dichotomous variable coded 1 if the job uses temporaries. | 0.06 | 0.24 |
| Ln(mode) | The natural logarithm of the annual earnings of most employees in the job earned. | 10.07 | 0.73 |
| Unionization | A proportion measures the intensity of union pressure used by Marsden, Cook and Knoke's (1996) by drawing on three questions of union influence in the NOS questionnaire. | 0.30 | 0.24 |
| Core job | A dichotomous variable coded 1 if the job is a core job. | 0.44 | 0.50 |
| Job complexity | A combined measure of several measures of occupational complexity from the DOT included information (data), interpersonal (people) and technical (things) complexity, specific vocational preparation (SVP), general educational requirement (GED), and some adaptability and aptitude. | 2.87 | 5.63 |
| % of female employees | % of female workers in the job | 0.44 | 0.39 |
| Managerial | A binary variable for the job's occupation. | 0.42 | 0.49 |
| professional, and technical | A binary variable for the job's occupation. | 0.13 | 0.33 |
| sales and administrative support | A binary variable for the job's occupation. | 0.16 | 0.37 |
| Service | A binary variable for the job's occupation. | 0.08 | 0.28 |
| precision, craft, and repair | A binary variable for the job's occupation. | 0.07 | 0.26 |
| operator, fabricator, laborer, and farmer (omitted) | A binary variable for the job's occupation. | 0.13 | 0.34 |
| **Organizational Level Variables** | | | |
| Decentralization | A scale measured by the level at which the decision on using contingent work arrangements is made. | 2.72 | 0.94 |
| Organization's full-timer variation | The standard variation of an organization's employment of full-timers within the past one and three years. | 8.22 | 18.58 |
| Organization's part-timer variation | The standard variation of an organization's employment of part-timers within the past one and three years. | 6.00 | 16.57 |
| Fringe | The proportion of 13 items of various benefits including medicare, dental care, life insurance, sick leave, maternity leave, elderly care, flexible hours, cash or stock bonus, pensions, profit-sharing, drug and alcohol abuse programs, disability insuranc | 0.54 | 0.24 |
| Training expenditure | A logged expenditure measure represents the training budget divided by the number of persons trained. | 4.15 | 3.03 |
| Formal job training | A dichotomous variable coded 1 if the organization provided any employees with formal job training in the past two years. | 0.69 | 0.46 |
| Downsizing full-timer | A binary indicators of downsizing based on a question asking if the organization has ever cut the number of full-time employees within one year. | 0.20 | 0.40 |
| Downsizing part-timer | A binary indicators of downsizing based on a question asking if the organization has ever cut the number of part-time employees within one year. | 0.07 | 0.26 |

| | | | |
|---|---|---|---|
| Establishment size | Natural log of establishment's full-plus part-time employees. | 3.57 | 1.58 |
| Product/service diversity | Employer's evaluation of his/her organization's performance in the development of new products, services or programs with that of other similar organizations. (-1= worse; 0 = about the same; 1 = some better; 2 = much better) | 0.96 | 0.78 |
| Non-profit organization | A dichotomous variable coded 1 if the organization is a non-profit organization. | 0.29 | 0.40 |
| Government regulation | A scale measuring the intensity of governmental regulation. The scale is from 1 to 5. | 3.28 | 1.26 |
| **Environment Level Variables** | | | |
| Industrial employment variation | The coefficient of variation of monthly employment in various industries over the period from 1989 to 1990 by using data in "Employment and Earnings". | 0.11 | 0.26 |
| Manufacturing (omitted) | A binary variable for the organization's industry. | 0.15 | 0.35 |
| Construction and agr., mining | A binary variable for the organization's industry. | 0.07 | 0.26 |
| transport, communication, utility | A binary variable for the organization's industry. | 0.09 | 0.28 |
| trade | A binary variable for the organization's industry. | 0.20 | 0.40 |
| finance, insurance, real estate | A binary variable for the organization's industry. | 0.07 | 0.25 |
| Professional service | A binary variable for the organization's industry. | 0.24 | 0.43 |
| Personal service | A binary variable for the organization's industry. | 0.12 | 0.32 |
| public administration | A binary variable for the organization's industry. | 0.07 | 0.25 |
| East | A binary variable indicated the organization's area. | 0.34 | 0.47 |
| Midwest (omitted) | A binary variable indicated the organization's area. | 0.37 | 0.48 |
| South | A binary variable indicated the organization's area. | 0.16 | 0.37 |
| West | A binary variable indicated the organization's area. | 0.13 | 0.34 |

Table 2. The Determinants of Use of Temporary Workers: Logistic Regression Results

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|
| ***Study variables*** | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) | ß<br>(s.e.(ß)) |
| *Staffing Flexibility* | | | | | |
| Emp. variation | -.516<br>(.878) | | | | -.509<br>(.898) |
| Varemp (full) | -.007<br>(.008) | | | | -.004<br>(.009) |
| Varemp (part) | .013**<br>(.006) | | | | .012*<br>(.007) |
| Decentralization | .331***<br>(.108) | | | | .268**<br>(.115) |
| *Labor Cost* | | | | | |
| Mode of earnings | | -.314**<br>(.151) | | | -.277*<br>(.160) |
| Training cost | | -.054<br>(.050) | | | -.101*<br>(.054) |
| Fringe | | .427<br>(.676) | | | -.556<br>(.854) |
| Empf1dec (full) | | -.202<br>(.361) | | | -.222<br>(.366) |
| Empp1dec (part) | | 1.203***<br>(.431) | | | .831*<br>(.447) |
| *Specialized Services* | | | | | |
| Size | | | .280***<br>(.100) | | .351***<br>(.129) |
| Diversity | | | -.483***<br>(.168) | | -.483***<br>(.176) |
| *Avoiding Unionization* | | | | | |
| Union pressure | | | | .765<br>(.631) | 1.368**<br>(.676) |
| ***Control variables*** | | | | | |
| Core job | .472<br>(.300) | .431<br>(.303) | .550*<br>(.305) | .440<br>(.299) | .540*<br>(.306) |
| Job complexity | -.043<br>(.039) | -.026<br>(.039) | -.019<br>(.040) | -.041<br>(.039) | -.012<br>(.041) |
| Perwoman | .005<br>(.004) | .004<br>(.004) | .006<br>(.004) | .006<br>(.004) | .005<br>(.004) |
| Nonprofit | .827**<br>(.372) | .771**<br>(.381) | .541<br>(.381) | .726*<br>(.373) | .627<br>(.401) |
| Governmental regulation | .095<br>(.119) | .108<br>(.123) | .001<br>(.127) | .057<br>(.119) | .072<br>(.133) |
| *Occupation* | | | | | |
| Managerial | -1.641**<br>(.753) | -1.781**<br>(.761) | -1.969***<br>(.765) | -1.607**<br>(.751) | -1.859**<br>(.769) |
| Professional, and technical | -.663<br>(.692) | -.737<br>(.698) | -1.002<br>(.712) | -.718<br>(.696) | -.922<br>(.703) |
| Sales & adm. Support | .278<br>(.506) | .054<br>(.506) | -.027<br>(.515) | .080<br>(.500) | .059<br>(.524) |

| | | | | | |
|---|---|---|---|---|---|
| Service | .064 | -.104 | -.242 | -.093 | -.256 |
| | (.527) | (.525) | (.536) | (.519) | (.551) |
| Precision, craft, and repair | .483 | .434 | .326 | .343 | .476 |
| | (.524) | (.525) | (.531) | (.519) | (.538) |
| Operator, farmer & laborer (omitted) | | | | | |
| *Industry* | | | | | |
| Construction | -.328 | -1.119 | -.395 | -.934 | -.263 |
| | (.874) | (.719) | (.733) | (.704) | (.889) |
| Communication, transport & utility | -.094 | -.409 | .028 | -.279 | .088 |
| | (.596) | (.596) | (.608) | (.592) | (.616) |
| Trade | -.599 | -1.152** | -.537 | -.808 | -.660 |
| | (.572) | (.583) | (.578) | (.558) | (.602) |
| Finance, insurance, real estate | -1.112 | -1.168 | -.531 | -1.142 | -.578 |
| | (.891) | (.897) | (.900) | (.869) | (.973) |
| Professional service | .832 | .433 | .887 | .485 | 1.018* |
| | (.579) | (.586) | (.596) | (.571) | (.608) |
| Personal service | .612 | .409 | 1.022* | .451 | 1.001* |
| | (.505) | (.519) | (.537) | (.494) | (.555) |
| Public administration | -1.019 | -1.385 | -1.018 | -1.282 | -.720 |
| | (.921) | (.920) | (.931) | (.911) | (.945) |
| Manufacturing (omitted) | | | | | |
| *Area* | | | | | |
| East | -.509 | -.592* | -.609* | -.605** | -506 |
| | (.317) | (.315) | (.315) | (.313) | (.326) |
| South | -.478 | -.544 | -.578 | -.489 | -.542 |
| | (.392) | (.389) | (.391) | (.386) | (.403) |
| West | -.107 | -.035 | -.090 | -.099 | .033 |
| | (.375) | (.374) | (.375) | (.367) | (.387) |
| Midwest (omitted) | | | | | |
| N | 1274 | 1274 | 1274 | 1274 | 1274 |
| -2 log likelihood | 476.074 | 478.291 | 475.507 | 488.724 | 450.288 |
| ? 2 (df) | 105.32**** | 103.10**** | 105.88**** | 92.67**** | 131.10**** |
| Pseudo $R^2$ | .181 | .177 | .182 | .159 | .226 |

* p<.10; ** p <.05; *** p<.01; **** p<.001.

Logistic regression coefficients are reported. Standard errors are in parentheses. The two-sided z-test was applied to test all variables.

Table 3. The Determinants of the Intensity of Employers' Use of Temporary Workers: Tobit Models

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|
| ***Study variables*** | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) | ß<br>(s.e. (ß)) |
| *Staffing Flexibility* | | | | | |
| Emp. variation | -.241<br>(.389) | | | | -.235<br>(.394) |
| Varemp (full) | -.004<br>(.004) | | | | -.003<br>(.004) |
| Varemp (part) | .007**<br>(.003) | | | | .006*<br>(.003) |
| Decentralization | .157***<br>(.054) | | | | .135**<br>(.056) |
| *Labor Cost* | | | | | |
| Mode of earnings | | -.176**<br>(.078) | | | -.157**<br>(.080) |
| Training cost | | -.022<br>(.024) | | | -.039<br>(.025) |
| Fringe | | .112<br>(.319) | | | -.136<br>(.390) |
| Empf1dec (full) | | -.096<br>(.166) | | | -.101<br>(.166) |
| Empp1dec (part) | | .468**<br>(.215) | | | .317<br>(.212) |
| *Specialized Services* | | | | | |
| Size | | | .096**<br>(.047) | | .109*<br>(.059) |
| Diversity | | | -.225***<br>(.082) | | -.218***<br>(.083) |
| *Avoiding Unionization* | | | | | |
| Union pressure | | | | .314<br>(.304) | .532*<br>(.323) |
| ***Control variables*** | | | | | |
| Core job | .120<br>(.138) | .086<br>(.139) | .140<br>(.141) | .100<br>(.138) | .121<br>(.138) |
| Job complexity | -.021<br>(.019) | -.015<br>(.019) | -.013<br>(.019) | -.021<br>(.019) | -.011<br>(.019) |
| Perwoman | .003*<br>(.002) | .003<br>(.002) | .003*<br>(.002) | .003*<br>(.002) | .003<br>(.002) |
| Nonprofit | .278<br>(.179) | .255<br>(.182) | .166<br>(.182) | .243<br>(.179) | .181<br>(.185) |
| G. regulation | .038<br>(.057) | .052<br>(.059) | .009<br>(.060) | .019<br>(.057) | .048<br>(.062) |
| *Occupation* | | | | | |
| Managerial | -.708**<br>(.339) | -.739**<br>(.345) | -.842**<br>(.350) | -.690**<br>(.341) | -.756**<br>(.347) |

| | | | | | |
|---|---|---|---|---|---|
| Professional, and technical | -.194 (.312) | -.199 (.317) | -.334 (.324) | -.237 (.318) | -.251 (.316) |
| Sales & adm. Support | .153 (.231) | .067 (.233) | .028 (.234) | .064 (.232) | .074 (.234) |
| Service | .110 (.243) | .016 (.244) | -.029 (.248) | .025 (.245) | -.030 (.247) |
| Precision, craft, and repair | .329 (.240) | .293 (.241) | .270 (.242) | .262 (.240) | .355 (.243) |
| Operator, farmer & laborer (omitted) | | | | | |
| *Industry* | | | | | |
| Construction | .067 (.379) | -.321 (.308) | -.120 (.314) | -.228 (.298) | .018 (.388) |
| Communication, transport & utility | .030 (.269) | -.136 (.276) | -.004 (.275) | -.070 (.270) | .061 (.278) |
| Trade | -.257 (.251) | -.489* (.259) | -.304 (.254) | -.359 (.251) | -.278 (.261) |
| Finance, insurance, real estate | -.567 (.420) | -.597 (.421) | -.366 (.411) | -.573 (.406) | -.357 (.433) |
| Professional service | .378 (.263) | .208 (.266) | .341 (.269) | .243 (.260) | .444 (.276) |
| Personal service | .383* (.232) | .287 (.239) | .477** (.246) | .306 (.231) | .527** (.251) |
| Public administration | -.277 (.401) | -.450 (.402) | -.336 (.403) | -.418 (.400) | -.110 (.403) |
| Manufacturing (omitted) | | | | | |
| *Area* | | | | | |
| East | -.274* (.148) | -.278* (.148) | -.304** (.150) | -.292** (.148) | -.267* (.150) |
| South | -.267 (.183) | -.302* (.186) | -.286 (.183) | -.269 (.183) | -.304 (.189) |
| West | -.083 (.177) | -.020 (.177) | -.053 (.178) | -.063 (.176) | -.015 (.179) |
| Midwest (omitted) | | | | | |
| N | 1274 | 1274 | 1274 | 1274 | 1274 |
| -2 log likelihood | 508.424 | 511.810 | 511.715 | 521.871 | 487.008 |
| ? $^2$ (df) | 104.98**** | 101.59**** | 101.69**** | 91.53**** | 126.40**** |
| Psuedo $R^2$ | .171 | .166 | .166 | .149 | .206 |

* p<.10; ** p <.05; *** p<.01; **** p<.001.

Tobit regression coefficients are reported. Standard errors are in parentheses. The two-sided t-test was applied to test all variables.