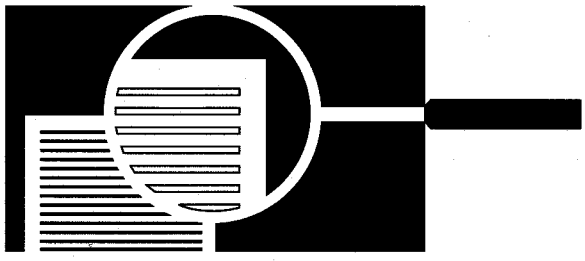
Research summaries



The Employee Turnover and Job Openings Survey

Richard M. Devens, Jr.

Insufficient numbers of workers in some occupations have long been recognized as potential bottlenecks in the economy. As a partial solution, a longstanding policy gives immigration preference to workers with specific skills that are difficult to obtain in the domestic labor market. The process of identifying such workers is cumbersome, however, because certifications are done on a case-by-case basis. In order to improve the process, the Immigration Act of 1990 authorized the Department of Labor to test a program that would "precertify," on the basis of labor market information, occupations with shortages of workers. The Senate Committee on Appropriations, in the appropriation for the Department of Labor for fiscal year 1990 (H.R. 2990), also directed the Department to earmark funds to "develop a methodology to annually identify national labor shortages."

The Employment and Training Administration, in response to these mandates, commissioned the Employee Turnover and Job Openings Survey to evaluate the possibility of collecting data on job openings, turnover, and marginal wages.[1] In the opinion of many labor market analysts, such demand-side data are important components for determining which occupations have labor shortages.

The issues these data could address go beyond labor shortage concerns. For example, many economists believe that structural change is an important determinant of the unemployment rate. That is, the unemployment rate has gradually risen over time, in part because a growing mismatch exists between the skills of unemployed workers and the skill requirements of vacant jobs. The mismatch is due principally to an increase in the rate of change in the industrial composition of employment. Such trends can be better quantified by the analysis of job openings and turnover data. In the same way that national vacancy data could help economists understand the source of fluctuations in the aggregate unemployment rate, information on job openings by region or State would be helpful for identifying the sources of regional variations in unemployment and for understanding patterns of migration.

Aware of their potential utility, public policymakers and research economists have often cited the need for the government to collect statistics on job openings, along with the information on turnover of employees and duration of vacancies needed to make meaningful analyses of those statistics. In 1962, the President's Committee to Appraise Employment and Unemployment Statistics noted that one of the most frequently mentioned suggestions for improving the body of labor market knowledge was instituting a program on job vacancy statistics.[2] In 1979, the National Commission on Employment and Unemployment Statistics recognized the conceptual appeal of data on job vacancies, but, purely on considerations of cost, recommended against establishing such a program.[3] More recently, in 1989, Professor Sar Levitan, who chaired the National Commission, wrote in a report to the Joint Economic Committee, "An ongoing survey of job openings could shed light on the availability of jobs for the structurally unemployed and provide a timely warning of economic downturns."[4] Levitan then, however, reiterated that the collection of statistically reliable vacancy data would entail considerable difficulty and expense.

Survey purpose and design

Conducted as a pilot project from late 1990 to mid-1991, the Employee Turnover and Job Openings Survey sought to determine whether advanced data collection technologies and a specific legislative mandate to produce data related to national labor shortages could lead to a cost-effective statistical program.[5] The data obtained from the survey would, of course, be of interest, but the main purposes of the project were to assess the data concepts and methods and to estimate the costs of implementing a full-scale survey on the national level.

The survey provided the data to develop two direct measures of the difficulty employers found in hiring prospective employees: the duration of existing job openings and the "vacancy fill rate" (the number of new hires in a month divided by the number of jobs open at the end of that month). Economic theory also suggests that shortages in competitive markets will be accompanied, at the margin, by rising wages. Therefore, data were collected on the wages of new hires—the wages most directly affected by market conditions. Data on separations were collected to allow the information on job openings to be understood more completely in relation to turnover in an occupation.

The operational definitions of job openings and turnover used in the survey were designed as measures of specific activities. Job openings were vacant jobs for which there had been active recruiting and in which work

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could be started immediately. The definitions of new hires and separations excluded short-term events, such as temporary layoffs or absences, focusing instead on permanent separations and new hires. New-hire wages were defined as the arithmetic mean wage of persons hired during the month. The complete definitions of job openings, separations, new hires, and new-hire wages used in the survey are presented in the box on this page.

The survey questionnaire was constructed using the latest literature on document design. The final instrument reflected input from focus groups drawn from the business community and the results of a field pretest. The pilot survey covered only eight industries, one from each major nonfarm industry group.[6] Each industry-specific questionnaire required a customized occupational matrix, which included all occupations accounting for at least 0.25 percent of total industry employment.

Data collection

Data collection activities began on October 1, 1990, with an operations test—a preliminary test to see how the survey would be carried out in practice—on 100 establishments. After incorporating systems and procedural improvements suggested by the results of the operations test into the data collection strategy, survey staff in the national office commenced full-sample operations in December 1990.[7] Data were collected via the mail, with follow-up by mail and computer-assisted telephone interviews. Telephone interviews were also used to assure the internal consistency of questionnaires received by mail.

The data were collected in three rotations of approximately 1,000 establishments each. The rotation plan resulted in a unit being in sample for 1 month, out of sample for 2 months, and in sample again for 1 month. The months for which data were collected were November 1990 through April 1991. November, December, and January made up the first rotation through the entire sample, and February, March, and April made up the second. Response rates were higher in the second rotation, as interviewers became more experienced and the name-and-address file became more refined. The second rotation yielded a usable response rate of 75 percent, versus 70 percent in the first.

Results and analysis

The central finding of the survey was that the collection of data on job openings and employee turnover remains a difficult and labor-intensive undertaking. In general, this confirms the findings of earlier tests, including those of the Job Openings Pilot Program issued in 1981.[8] Based on the results of the survey, a full-scale program to produce, on a national scale, the demand-side data required for annual analyses of occupations experiencing a labor

Definitions

Separations: Separations are terminations of employment of permanent or temporary workers initiated by either the employee or the employer.

Included are:
- Quits
- Layoffs of more than 30 days
- Discharges for cause
- Retirements
- Unauthorized absences of more than 1 week
- Deaths
- Transfers to other establishments of the company
- Permanent separations due to disability

Excluded are:
- Temporary layoffs (under 30 days)
- Workers on strike
- Outside consultants and contractors
- Workers from temporary-help agencies

New hires: New hires include all permanent or temporary additions to the work force of the establishment.

Included are:
- Transfers from other establishments of the company
- Workers who were hired and who separated during the month

Excluded are:
- Recalls from temporary layoffs
- New hires who have not yet reported to work
- Workers returning from strikes
- Outside consultants

New-hire wage: The new-hire wage is the average (mean) hourly wage at which new employees were hired during the month. If there was only one new hire during the month, the wage of that person was used. If the new hires were not paid an hourly wage (for example, they were paid weekly, biweekly, monthly, or annually), the respondent was asked to calculate an hourly rate by dividing the salary paid the new hires during a pay period by the scheduled hours for the period.

Included are:
- Straight-time wages or salary
- Incentive payments (for example, piecework rates and commissions)
- Cost-of-living payments

Excluded are:
- Tips
- Premium pay for overtime, holidays, weekends, or shift work
- Lump-sum payments

Job openings: Jobs are open if work would have started immediately or during the next pay period *and* if active recruiting of workers from outside the establishment took place. "Active recruiting" means efforts to fill openings through means such as listings with private or public agencies or school placement offices, help wanted advertising, recruitment programs, or interviews with applicants.

Included are:
- Full- and part-time positions
- Temporary positions

Excluded are:
- Jobs to be filled by recalls from temporary layoffs and within-establishment transfers, promotions, and demotions

Duration of job openings: The duration of job openings is the length of time, in weeks, that job openings have been unfilled. The duration categories were "fewer than 2 weeks," "2 to 4 weeks," and "more than 4 weeks."

shortage could be conducted by the BLS for about $11–$12 million a year.

The responses to the survey were evaluated by a response analysis survey, conducted from April through June 1991. The response analysis survey found that a substantial majority of respondents used personnel or payroll records as the primary sources of information to complete the Employee Turnover and Job Openings Survey. As a result, there were no major problems with the validity of the data, whether collected by mail or by computer-assisted telephone interview, although technical issues of multiple reference periods, the treatment of interestablishment transfers, and the calculation of wages under nonstandard pay schemes would need to be addressed during the implementation of a full-scale program.

Although the primary objectives of the Employee Turnover and Job Openings Survey were to assess the technical feasibility and estimate the cost of conducting a full-scale program, it yielded statistical results for analysis as well. The following overview of the findings pertain strictly to the aggregation of the eight specific industries that were selected for the survey and do not reflect estimates for the entire economy.

Table 1. **Selected statistics on employee turnover and job openings, by major occupation, eight industries,[1] rotations 1 and 2 and 6-month averages**

[Numbers in thousands]

Occupation	Separations	New hires	Job openings	Hourly wage of new hires	Proportion of jobs open more than 4 weeks	Ratio of new hires to job openings
Rotation 1 (November 1990 to January 1991)						
Managerial	27	11	12	$13.39	52.6	0.93
Professional and technical	40	40	109	13.76	67.9	.36
Sales	96	76	15	4.83	28.4	5.07
Administrative support	73	62	42	6.81	33.1	1.45
Service	352	314	106	4.45	14.8	2.95
Production and related	298	196	99	9.87	45.3	1.98
Total, rotation 1	886	698	384	6.77	41.5	1.82
Rotation 2 (February 1991 to April 1991)						
Managerial	21	15	18	15.17	63.6	.83
Professional and technical	40	40	97	14.84	60.7	.41
Sales	56	66	9	4.78	24.7	7.00
Administrative support	76	58	52	7.03	32.4	1.12
Service	317	351	141	4.30	11.0	2.49
Production and related	183	166	45	9.65	30.5	3.69
Total, rotation 2	693	695	362	6.51	32.7	1.92
Six-month averages (November 1990 to April 1991)						
Managerial	24	13	15	14.12	59.3	.87
Professional and technical	40	40	103	14.30	64.5	.39
Sales	76	71	12	4.81	27.0	5.82
Administrative support	75	60	47	6.92	32.7	1.27
Service	334	332	124	4.37	12.7	2.69
Production and related	240	181	72	9.77	40.7	2.51
Total average, both rotations	789	697	373	6.64	37.3	1.87

[1] Oil and gas extraction (SIC 13), special trade contractors (SIC 17), electronic and other electrical equipment (SIC 36), trucking and warehousing (SIC 42), machinery, equipment, and supplies wholesaling (SIC 508), eating and drinking places (SIC 58), depository institutions (SIC 60), and hospitals (SIC 806).

In the eight industries surveyed, there were numerous openings in the first rotation (November 1990–January 1991) in professional and technical, service, and production and related jobs. (See table 1.) In the second rotation (February 1991–April 1991), there was a statistically significant decrease in job openings among the production and related jobs. This shift may reflect seasonal factors, irregular events, or cyclical developments. The survey was conducted in the midst of a recession that resulted in a sharp reduction in employment in several of the industries included in the sample. These declines may have affected the number of openings, particularly for production jobs, which tend to be cyclically sensitive.

A large number of job openings does not, in itself, signal a shortage of labor. More important are the length of time such openings remain unfilled and the number of openings relative to new hires (the fill rate). When these criteria are applied, it becomes clear that the professional and technical occupations and the managerial occupations most likely had a shortfall of labor. For each of these two groups, more than half of the job openings had been open for more than 4 weeks in both rotations. By contrast, little more than one-tenth of the job openings for the service occupations were of long duration. In addition, the professional and technical occupations and the managerial occupations had relatively little new hiring and separations. The fill rates were less than 1 for both groups, indicating that openings exceeded hirings.

The large number of job openings in the service occupations, on the other hand, were also associated with high levels of separations and new hiring. Service occupations made up about two-fifths of the separations and nearly half of the hiring in both rotations.

Future prospects

As noted before, the pilot program was too limited in industrial scope and the sample was too small to carry out a definitive analysis of occupational labor shortages. Rather, it was intended solely to highlight some of the tools that would be available for such an analysis from a full-scale survey pro-

gram. With data from a fully operational survey, research could:

1. Determine the relative importance to be accorded the various statistics on turnover and job openings in the identification of labor shortages;
2. Develop a long enough series of data to gauge the trends in important indicators, such as the change in earnings of new hires;
3. Compare the lists of occupations with a shortage of labor developed with the data from the Employee Turnover and Job Openings Survey with lists developed using other methodologies.

The full report, *Employee Turnover and Job Openings Survey: Results of a Pilot Study on the Feasibility of Collecting Measures of Imbalances of Supply and Demand for Labor in an Establishment Survey*, is available from the Office of Employment and Unemployment Statistics, Bureau of Labor Statistics, Washington, DC 20012. □

Footnotes

[1] Bureau of Labor Statistics, *Employee Turnover and Job Openings Survey: Results of a Pilot Study of the Feasibility of Collecting Measures of Imbalance of Supply and Demand for Labor in an Establishment Survey* (Washington, Bureau of Labor Statistics, 1991). See Chapter III for a discussion of a theoretical foundation for using such data in analyzing labor shortages.

[2] President's Committee to Appraise Employment and Unemployment Statistics, *Measuring Employment and Unemployment* (Washington, Government Printing Office, 1962).

[3] National Commission on Employment and Unemployment Statistics, *Counting the Labor Force* (Washington, Government Printing Office, 1979), p. 122. This report is summarized in Robert L. Stein, "National Commission recommends changes in labor force statistics," *Monthly Labor Review*, April 1980, pp. 11–21. See also Harry Frumerman, "Job Vacancy Statistics," in National Commission on Employment and Unemployment Statistics, *Concepts and Data Needs—Appendix Volume I* (Washington, Government Printing Office, 1979), pp. 602–35.

[4] Sar A. Levitan and Frank Gallo, *Workforce Statistics: Do We Know What We Think We Know—and What Should We Know?* (Washington, Joint Economic Committee, 1989).

[5] Earlier efforts, such as the Job Openings and Labor Turnover Survey of the late 1960's and the Job Openings Pilot Project of the late 1970's, were hampered by very broad goals and were conducted without the availability of advanced, computer-assisted survey techniques.

[6] The eight industries (and their SIC numbers) were oil and gas extraction (13), special trade contractors (17), electronic and other electrical equipment (36), trucking and warehousing (42), machinery, equipment, and supplies wholesaling (508), eating and drinking places (58), depository institutions (60), and hospitals (806).

[7] The States of Maine and Georgia also participated in the project. The experience of the Maine State Employment Security Agency is summarized in Maine Department of Labor, *Employee Turnover and Job Openings Survey: An Analysis of the Methodology* (Augusta, ME, Division of Economic Analysis and Research, 1991).

[8] Bureau of Labor Statistics, *Job Openings Pilot Program: Final Report* (Washington, Bureau of Labor Statistics, 1981).

Benefits in State and local governments address family concerns

Douglas Hedger

Employee benefits in State and local governments included a wide variety of programs to help workers care for family members, according to 1990 survey data issued by the Bureau of Labor Statistics. For example:

- 51 percent of full-time employees had unpaid maternity leave available;
- 33 percent of full-time employees had unpaid paternity leave available;
- 9 percent of full-time employees were eligible for employer-subsidized child-care benefits;
- 31 percent of full-time employees had a reimbursement account available, which could often be used for dependent care expenses; and
- 8 percent of full-time employees were covered under formal flexible work arrangements, which allow employees to vary work hours to meet family commitments.

These statistics are from the Bureau's 1990 Employee Benefits Survey of State and local governments. The survey data represent about 13 million full-time employees in all State and local governments in the 50 States and the District of Columbia. For the first time, the survey also provides data for the approximately 1.5 million part-time workers in State and local governments. While benefits are provided less frequently to them, they have access to a variety of family-related programs.

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Family benefits

The care of family members of full-time employees was addressed by State and local government employers in a number of ways in 1990. Parental leave plans provide time off for mothers and fathers to care for newborn or newly adopted children. (See table 1.) Such plans, as defined in the survey, are separate from vacations, which also may be used for parenting purposes. Fifty-one percent of full-time employees could take unpaid maternity leave, with the maximum leave available averaging 1 year. Thirty-three percent of full-time employees could take unpaid paternity leave, with the maximum leave available also averaging about 1 year. Paid parental leave was rare.

Nine percent of full-time employees were eligible for child-care benefits subsidized by their employer. (See table 2.) These benefits include both onsite or near-site child-care facilities and reimbursement of employee child-care expenses. A more prevalent means of assisting employees with child-care expenses was through reimbursement accounts, which typically cover dependent care or medical care expenses. Thirty-one percent of full-time employees were eligible for such accounts, which were often funded solely by employee pretax dollars.

Flexible benefit plans, also known as cafeteria plans, covered 5 percent of full-time employees. These plans allow employees to choose among levels of coverage in two or more benefit areas, most commonly health care, life insurance, and disability benefits.

The survey also included information on flexible work schedules. Eight percent of full-time workers studied had formal flexible work arrangements, which give employees the opportunity to begin and end work within a range of hours, thereby helping to accommo-