



BLS tests feasibility of a new job openings survey

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In 1977, Congress asked the Bureau of Labor Statistics to collect job openings data by occupation and region. This information would be used by the Government in analyses of the causes of unemployment, and to help plan training and employment programs. Accordingly, the Bureau undertook a series of cooperative Federal-State surveys in Florida, Massachusetts, Texas, and Utah during March 1979–June 1980 to explore the feasibility of gathering these data.

Because the Bureau had already acquired considerable experience in collecting job openings data by industry during the 1969–73 Job Openings and Labor Turnover Survey project, the recent pilot tests instead emphasized the collection of occupational detail and the ability of employers to accurately report the number of job openings. Data from the pilots were also used to determine the sample size required to provide occupational detail at the State level, and the cost of such a survey.

The participating States were chosen to provide appropriate regional representation, and because they had demonstrated a willingness and ability to cooperate in the project. Each State was assigned a probability sample of 1,200 establishments drawn across all nonagricultural industries, except private households and public administration. State staff collected the data in tandem with the Labor Department's ongoing monthly labor turnover survey. Each State was required to conduct a response analysis survey of 200 of its sample units, and a quality measurement of job openings data collected by telephone from 225 units. Utah and Massachusetts also undertook special studies of recruiting and hiring activity in 100 of their establishments.

The pilot tests were divided into two phases roughly corresponding to fiscal 1979 and fiscal 1980. The first

phase included three quarterly job openings collections during March–September 1979, and tabulation and analysis of the results. These tests were chiefly concerned with the method of soliciting participation, the nature of the data to be collected, and the format of the survey questionnaire. Also part of the first phase was a Response Analysis Survey, conducted following the collection of data for March, and designed to measure the quality of information gathered by mail. The second phase consisted of three quarterly collections of job openings data during the October 1979–June 1980 period; a quality measurement of data collected by telephone; and a case study for which selected participating units kept daily records of recruiting and hiring activity during March 1980.

The pilot tests showed that occupational data on job openings can be collected, but the task is difficult and costly, and at present the Bureau has no plans for initiating a job openings survey. The specific results of the study and conclusions are outlined below.

Collection methodology. Response rates for the first quarter pilot test varied widely among the four States—36 percent in Texas, 50 percent in Florida, 56 percent in Utah, and 82 percent in Massachusetts. Initial response rates similar to that in Massachusetts can only be achieved if certain collection procedures are carefully followed.

First, the sample should be phased in over a 1-year period. Because States must exert intensive effort to achieve high initial response, the workload must be small. Ideally, between 1,000 and 1,500 units per quarter should be introduced through the first year.

Data should be collected from small units (fewer than 50 employees) by telephone. Because recruiting and hiring occur infrequently in small units, these employers usually have nothing to report, and therefore feel that it is unnecessary and a nuisance to complete and return the questionnaire. The pilot tests showed telephone contacts to be less objectionable, and capable of eliciting the data with speed and reliability.

Units slated to respond to the survey by mail—those with 50 or more employees—should first be solicited for participation by telephone. These employers should be contacted before the questionnaires are mailed to explain the survey, ask their cooperation, identify a con-

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tact person in the firm, and confirm the mailing address. This procedure facilitates follow-up of firms which do not respond, and minimizes delays in collecting the often perishable job openings data.

Establishments which do not respond to the initial mailing must be followed-up aggressively. The pilot tests showed that response from mail collection improved considerably when employers received reminders by telephone. And, especially sensitive large firms should be visited by a field agent for solicitation or follow-up, or both. Largest units as a class had the lowest response rate in the four participating States, indicating that some additional collection effort is needed.

Quality of the data. The Response Analysis Survey attempted to assess overall collectibility of data by identifying both the type and magnitude of collection problems. It included a unit profile and a quality measurement component. The unit profile test examined in general fashion the recruiting and hiring process, information flow, and recordkeeping practices within the reporting establishments. The quality measurement component tested the validity of the data originally collected by matching it against information for the same reference date collected at a later time by personal interview. The strongest evidence concerning the feasibility of a job openings survey is provided by the qualitative unit profile results. However, caution should be used in interpreting the pilot findings because of the modest sample sizes in some categories.

The tests indicate that the extent to which respondents are well informed concerning job openings in their firms varies by size of establishment. As a general rule, respondents in small firms and in large manufacturing firms are knowledgeable and able to supply job openings data. However, a significant number of respondents in mid-size firms (50–250 employees) report gaps in their information which would lead to underestimates of job openings. Test results for large nonmanufacturing firms are mixed, but, overall, not strong enough to substantiate collectibility.

Even though records on job openings in large firms have improved since the mid-1960's, those in mid-size firms remain sketchy. A high percentage of large firms keep formal records of recruiting activity for 28 days or more. Most small firms are able to provide valid data from memory. Mid-size firms present a mixed picture, with large numbers lacking job openings records. This highlights the perishable nature of the data, and dictates collection as soon as possible after the reference date.

Telephone contact appears to be a viable collection method for firms with fewer than 50 employees. Pilot results from telephone collection of job openings data are similar to those obtained by personal visit, which

are taken to be the standard. While we were unable to completely isolate the effects of collection methods from other factors, our survey estimates indicate that personal visits found, on average, only about 5 percent more firms with openings than telephone collection. If interviewers are properly trained, collection is timely, and telephone response is carefully monitored for quality and periodically bolstered with personal visits, this method should yield data of acceptable quality.

The pilot tests used the last business day of the month as a reference date, but survey results indicate that this may not be appropriate for collecting data on job openings. First, there appears to be a weekly pattern to the data, with Mondays accounting for the largest numbers of job openings. This suggests that a designated and constant day of the week would be preferable to a "floating" day. And secondly, there appear to be monthly patterns, with unique (if offsetting) occurrences at the ends of the months. Therefore, we recommend a more typical reference date—specifically, Wednesday of the week containing the 12th of the month.

Scope of the data. The purpose of a comprehensive job openings survey would be to measure opportunity for employment. Therefore, it is important to know not only whether the respondent can and will report the requested data accurately, but also what portion of unmet demand for labor is measured in this survey and what is not measured. Three separate issues emerge: the coverage of the definition of a job opening; the composition of the universe of firms to be studied; and the importance of unmeasurable opportunities for self-employment.

The pilot results indicate that the survey definition of a job opening—a position for which the employer is actively recruiting—yields appropriate measures of employment opportunities for wage and salary workers. The infrequent hiring that does take place without some type of recruitment occurs mainly in small and mid-size nonmanufacturing firms. The test definition, therefore, is effective in setting forth strict criteria without excluding significant paths to employment.

Establishments in business for less than a year cannot be surveyed. New establishments take about a year before they appear on the BLS sampling frame. Excluding these establishments would undercount the level of job openings, but consistency could be maintained year after year.

The scope of the data is best limited to wage and salary job openings in all industries except agriculture and private households, and opportunities for self-employed cannot be measured. Even if a nationwide survey were funded, it would not be practical to collect information outside the pilot universe of industries.

Survey design. The survey design should allow for statistical measurement of the accuracy of the estimates produced, and ensure high response rates and consistency of scope over time. In particular, this means that a probability sample of firms would be required, so that estimates of the sampling error for the statistics being measured might be developed.

Sample members should be rotated periodically; that is, new firms should replace some of the previously surveyed firms after a designated time. This procedure would ensure that all firms in business 1 year or longer are represented by the sample, and that adequate survey response rates could be maintained. The pilot test results indicate that the optimal procedure would be to replace one-eighth of the sample each quarter. However, it should be noted that, while pilot evidence does suggest that the recommended survey design could maintain an adequate response rate, the scheme has not had a full field test.

Cost considerations. A full-scale national survey is estimated to cost between \$25 and \$30 million. This estimate pertains to a Federal-State cooperative statistical program which would collect quarterly job openings and new hires data in tandem with the monthly labor turnover information, and provide publishable estimates of job openings by State for all occupations with at least 500 openings. National statistics would be publishable in considerable occupational and industrial detail. The required sample size, the special problem of dealing with smaller firms, and optimal collection methods were taken into account in developing the cost estimate.

A national survey capable of producing occupational estimates at the State level would require a very large sample: about 275,000 units, or between 4,000 and 6,000 per State. The samples used in the pilot tests (1,200 units per State) could provide estimates with small relative errors only for total current job openings and for the largest estimating cells. Most detailed estimates had very high sampling errors. Much larger samples would be required to produce reliable statistics on the number of unfilled jobs by occupation.

Because the job openings rate in firms with fewer than 250 employees was about 50 percent higher than in larger firms, considerable resources and effort should be expended to solicit the participation of small firms in the survey. Additionally, high weights associated with the smallest firms in the pilot tests at times resulted in large numbers of estimated openings from a few reports, while the majority of small firms reported no openings. This, in turn, resulted in high variances. The implication for a full-scale survey is that small firms should be sampled more heavily to keep establishment weights as low as possible.

And finally, the pilot tests indicated that the tele-

phone should be used for solicitation of participation, data collection from small firms (about a third of the sample), and follow-up of nonrespondents. Telephone contact is much more expensive than use of the mails, but because representatives of small firms tend to rely on memory, strict adherence to a compressed schedule is essential. This also means that a relatively large State staff would be required to complete the calls, in the absence of technological enhancements such as computer-assisted telephone interviewing.

A comprehensive report about the pilot study appears in L. Plunkert, *Job Openings Pilot Program: Final Report*. National Technical Information Service, Springfield, Va. 22151, 1981 (Pb. 81-228538). \$33.50. □

Container plant workers win largest gains in glassware manufacturing

A Bureau of Labor Statistics study of the pressed or blown glass and glassware industry in May 1980 found that wages in glass container manufacturing averaged \$7.66 an hour—a 65-percent increase over the \$4.63 average reported in May 1975.¹ Average straight-time earnings of workers in other types of glassware plants rose 48 percent—from \$4.32 an hour to \$6.40. Consequently, the pay advantage for glass container workers, accounting for about two-thirds of the survey employment, rose from 7 percent in 1975 to 20 percent in 1980.

The nationwide study, which covered about 83,000 workers and approximately 200 establishments, also found that in each industry earnings for the middle 50 percent of workers spanned a narrow range.² Contributing to this concentration of earnings was the relatively high incidence of pay plans based on single rates for individual jobs (covering 69 percent of workers in glass container plants; 32 percent in other glass factories) and the almost universal coverage of union contracts.

From the preceding observations, earnings for most individual occupations were also closely concentrated. In glass container plants, for example, the spread of the middle range of earnings by occupation was typically less than 40 cents an hour. In other glass and glassware firms, the spread was usually larger—about 50 cents to \$1.50 an hour.

On the other hand, the broad mix of skill requirements in both industries provided for substantial difference in pay between the highest and lowest paid occupational groups studied. For example, the top earners in glass container firms were forming-machine upkeepers averaging \$10.85; the lowest paid were janitors at \$6.58. In the other glassware industry, the highest hour-

ly average was \$8.95 for mold makers while the lowest average was \$5.25 for watchmen. The following tabulation illustrates average straight-time hourly earnings of surveyed jobs common to both industries:

<i>Department and occupation</i>	<i>Glass containers</i>	<i>Other glassware industry</i>
Batch house and furnace:		
Furnace operators	\$7.54	\$6.79
Cullet handlers	7.09	6.05
Machine forming:		
Forming-machine upkeepers	10.85	7.85
Mold polishers	7.19	5.83
Maintenance:		
Machinists	10.06	8.62
Maintenance trades helpers	7.13	6.36
Miscellaneous:		
Power truckers	7.22	6.23
Janitors	6.58	5.90

Nearly all establishments in the survey operated under labor-management contracts covering all or a majority of their production workers. Most of the union members were represented by The American Flint Glass Workers Union of North America (AFL-CIO) or The Glass Bottle Blowers Association of the United States and Canada (AFL-CIO). Bargaining is generally conducted on a company-by-company basis. During the 1980 negotiations with major producers, an uncapped cost-of-living-adjustment (COLA) clause was adopted for the glass container industry which provides annual adjustments of 1 cent for each 0.5-point movement in the BLS Consumer Price Index for Urban Wage Earners and Clerical Workers in excess of 9 percent. COLA clauses applied to about nine-tenths of the workers in glass container establishments, and to slightly over one-half in other glassware plants.

All establishments in the Bureau's sample provided paid holidays, usually 12 per year, and paid vacations. Typical vacation provisions were at least 1 week after 1 year of service, 2 weeks after 2 years, 3 weeks after 10 years, 4 weeks after 15 years, and at least 5 weeks after 25 years of service.

At least seven-eighths of the workers in both industries were with employers who paid some or all of the cost of life, accidental death, sickness and accident, hospitalization, surgical, and basic and major medical insurance. Slightly over two-fifths of the glass container employees worked in plants providing separate non-contributory dental plans; less than one-tenth of the other glass and glassware workers were eligible for such benefits. Generally, retirement pension plans were financed by the employer and covered all workers in both industries.

A comprehensive report, *Industry Wage Survey: Pressed or Blown Glass and Glassware*, BLS Bulletin

2109, May 1980, will be for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. □

—FOOTNOTES—

¹ For an account of the 1975 study, see Carl Barsky, "Container plants top pay scale in glassware manufacturing," *Monthly Labor Review*, September 1976, pp. 47-49.

² The index of dispersion, calculated by dividing the middle range of earnings by median earnings, is 15 in glass containers and 20 in other glassware. These values fall within the first quartile of an array of dispersion indexes for 43 manufacturing industries discussed in an article by C.B. Barsky and M.E. Personick, "Measuring wage dispersion: pay ranges reflect industry traits," *Monthly Labor Review*, April 1981, pp. 35-41. Dispersion indexes for most industries typically fell between 24 and 36, according to the article.

Pay hikes tracked for local-transit employees

Increases in union wage rates for local-transit operating employees averaged 10.3 percent between July 1, 1979, and July 1, 1980. The average increase for operators of surface cars and buses was 10.1 percent, compared with 11.9 percent for elevated and subway equipment operators. The overall increase for transit workers was the third largest for the decade, according to an annual survey conducted by the Bureau of Labor Statistics.¹ This study presents local-transit wage rates set by labor-management agreements in large cities (defined as those with at least 100,000 inhabitants).

Regionally, the largest wage rate increases for transit employees were reported in the Pacific States (16.3 percent). The smallest were reported in New England (6.3 percent) and the Southwest region (7.4 percent). The 1979-80 increase was highest (13.0 percent) for the smallest cities studied—100,000 to 250,000 inhabitants—and lowest (9.2 percent) for those with 1 million inhabitants or more. Increases varied considerably among individual cities. (See table 1.)

On July 1, 1980, union wage rates for local-transit operating employees averaged \$9.01 an hour; for operators of surface cars and buses, about nine-tenths of all employees covered by the survey, the average was \$9.02; and for operators of elevated and subway equipment, it was \$8.94. Six years earlier, the wage differential favored subway equipment operators by 60 cents, or 11 percent.

The highest paying regions in the survey—the Great Lakes, Pacific, Border States, and New England—had wage levels ranging between \$9 and \$10 per hour. The lowest paying region, the Southwest, averaged \$7.37.

Union contracts commonly provide for pay differentials among local-transit operators by length of ser-

Table 1. Average wage rates by region: selected cities, July 1, 1980

[Union local-transit operating employees]

City and region ¹	Average hourly rate ¹	Change from July 1, 1979		City and region ¹	Average hourly rate ²	Change from July 1, 1979	
		Cents per hour	Percent			Cents per hour	Percent
All cities	\$9.01	82	10.3	Great Lakes	\$9.77	73	9.5
New England	9.13	54	6.3	Akron, Ohio (III)	7.28	68	10.3
Boston, Mass. (II)	9.65	36	3.8	Chicago, Ill. (I)	11.48	...	...
New Bedford, Mass. (IV)	7.50	81	12.1	Cincinnati, Ohio (III)	8.32	86	11.5
New Haven, Conn. (IV)	8.29	100	13.7	Cleveland, Ohio (II)	9.20	73	8.6
Providence, R.I. (IV)	8.16	84	11.5	Columbus, Ohio (II)	8.16	78	10.6
Stamford, Conn. (IV)	8.30	100	13.7	Detroit, Mich. (I)	8.31	...	...
Middle Atlantic	8.66	75	9.5	Flint, Mich. (IV)	7.21	120	20.0
Albany, N.Y. (IV)	7.76	79	11.3	Grand Rapids, Mich. (IV)	7.50	91	13.8
Buffalo, N.Y. (III)	8.01	68	9.3	Hammond, Ind. (IV)	8.33	82	10.9
New York, N.Y. (I)	8.69	83	10.5	Indianapolis, Ind. (II)	7.53	49	7.0
Newark, N.J. (III)	9.00	55	6.5	Milwaukee, Wis. (II)	9.14	101	12.4
Philadelphia, Pa. (I)	8.08	52	6.9	Minneapolis-St. Paul, Minn. (III)	9.84	105	11.9
Pittsburgh, Pa. (II)	9.80	79	8.8	Rockford, Ill. (IV)	8.75	57	7.0
Rochester, N.Y. (III)	8.21	31	3.9	Toledo, Ohio (III)	7.94	43	5.7
Scranton, Pa. (IV)	7.20	50	7.5	Middle West	8.43	82	10.6
Border States	9.22	80	9.3	Kansas City, Mo. (II)	8.91	71	8.6
Baltimore, Md. (II)	8.33	66	8.6	Omaha, Nebr. (III)	7.73	...	...
Louisville, Ky. (III)	7.55	14	1.9	St. Louis, Mo. (II)	9.61	97	11.2
Norfolk, Va. (III)	8.56	...	...	Wichita, Kans. (III)	5.35	50	10.3
Washington, D.C. (II)	10.23	100	10.9	Mountain	7.94	79	11.1
Southeast	8.01	79	10.9	Denver, Colo. (II)	9.31	101	12.2
Atlanta, Ga. (II)	9.71	143	17.3	Phoenix, Ariz. (II)	8.23	96	13.2
Chattanooga, Tenn. (IV)	7.81	...	...	Salt Lake City, Utah (IV)	6.86	61	9.8
Jacksonville, Fla. (II)	8.00	76	10.5	Pacific	9.60	133	16.3
Memphis, Tenn. (II)	8.84	101	12.9	Fresno, Calif. (IV)	7.80	36	4.8
Miami, Fla. (II)	7.49	40	5.6	Honolulu, Hi. (III)	8.98	140	18.5
Nashville-Davidson, Tenn. (III)	7.33	...	...	Long Beach, Calif. (III)	9.51	...	...
St. Petersburg, Fla. (IV)	5.21	92	21.4	Los Angeles, Calif. (I)	9.74	...	...
Southwest	7.37	51	7.4	Portland, Oreg. (III)	9.58	33	3.6
Fort Worth, Tex. (III)	6.15	40	7.0	Riverside, Calif. (IV)	9.26	...	...
Houston, Tex. (I)	8.15	53	7.0	Sacramento, Calif. (III)	9.63	192	24.9
New Orleans, La. (II)	7.07	56	8.5	San Diego, Calif. (II)	9.76	...	...
San Antonio, Tex. (II)	6.87	43	6.8	San Francisco, Calif. (II)	9.90	190	23.8
				Santa Ana, Calif. (IV)	9.32	119	14.6
				Seattle, Wash. (II)	10.31	112	12.2
				Spokane, Wash. (IV)	8.66	84	10.7

¹ The regions used in this study include: *New England*—Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; *Middle Atlantic*—New Jersey, New York and Pennsylvania; *Border States*—Delaware, District of Columbia, Kentucky, Maryland, Virginia, and West Virginia; *Southeast*—Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee; *Southwest*—Arkansas, Louisiana, Oklahoma, and Texas; *Great Lakes*—Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin; *Middle West*—Iowa, Kansas, Missouri, Nebraska, North Dakota, and South Dakota; *Mountain*—Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming; *Pacific*—Alaska, California, Hawaii, Nevada, Oregon, and Washington. Population size of city is shown in parentheses as follows: Group I-1,000,000 or more; Group II-500,000 to 1,000,000; Group III-250,000 to 500,000; and Group IV-100,000 to 250,000.

² Wage rates used to calculate these averages represent those available and payable only on July 1, 1980, and do not include later increases retroactive to that date or before. Such retroactive increases are included in the wage rates reported in the following year's survey. Averages were developed by weighting the top rate of length-of-service progressions that ended at 3 years or less for each occupation in each contract by the number of union members at that rate on the survey date. In seven cities where progressions extended beyond 3 years, all contract-stipulated rates, and associated union membership, at steps of 3 years or beyond were included in the averages.

NOTE: Variations in the size of annual increases from survey to survey may reflect, in part, timing of negotiations. Dashes indicate no change in rate.

vice. Wage rate averages in table 1 were usually based on the top rate of the pay structure reported in each labor-management agreement within an individual city studied.² To develop averages, the rates at or near the top of the progression were weighted by the number of employees at these rates (about 65,100 total). Distributions of wage rates developed by the study and year-to-year wage changes also relate only to union members at these rates. For national and regional wage averages, the 62 cities studied were appropriately weighted to reflect union rates of local-transit operating employees in all cities with populations of 100,000 or more.

A comprehensive report, *Union Wages and Benefits: Local-Transit Operating Employees, July 1980*, BLS Bul-

letin 2117, is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. □

FOOTNOTES

¹ Higher increases were reported in 1973-74 (11.5 percent) and 1974-75 (11.3 percent). Union wage rates included in the BLS surveys are the straight-time hourly rates agreed upon through collective bargaining between employers and unions. They do not include employer payments for vacations, holidays, or other purposes. Thus, they may not represent actual amounts earned by employees.

² A single top rate was used whenever the progression ended at 3 years or less—in 55 out of 62 cities. For progressions extending beyond 3 years, all contract-stipulated rates, and associated union membership, at steps of 3 years or beyond were included.