

## —FOOTNOTES—

<sup>1</sup>The Current Population Survey (CPS), conducted for the Bureau of Labor Statistics by the Bureau of the Census, is a monthly sample survey of some 60,000 households in the United States. Information obtained from this survey relates to the employment status of persons 16 years and over in the noninstitutional population. In the survey conducted each March, supplemental information is obtained on the earnings, income, and work experience of persons in the prior year. These data, along with information on employment status are tabulated annually in conjunction with information on marital and family status.

Because it is a sample survey, estimates derived from the CPS may differ from the actual counts that could be obtained from a complete census. Therefore, small estimates or small differences between estimates should be interpreted with caution. For a more detailed explanation, see the Explanatory Note in *Families at Work: The Jobs and the Pay*, Bulletin 2209 (Bureau of Labor Statistics, 1984), pp. 30–34.

<sup>2</sup>Children are defined as "own" children of the family. Included are never-married daughters, sons, stepchildren, and adopted children. Excluded are other related children such as grandchildren, nieces, nephews, and cousins, and unrelated children.

<sup>3</sup>A family consists of two persons or more who are related by blood or marriage and living in the same household. Relationship of family members is determined by their relationship to the reference person or householder, that is, the person in whose name the housing unit is owned or rented.

<sup>4</sup>For more information on poverty thresholds for 1983, see *Money Income and Poverty Status of Families and Persons in the United States: 1983*, Series P–60, No. 145 (Bureau of the Census, 1984), p. 31.

<sup>5</sup>See Beverly L. Johnson and Elizabeth Waldman, "Most women who maintain families receive poor labor market returns," *Monthly Labor Review*, December 1983, pp. 30–34.

<sup>6</sup>See Morris J. Newman, "A profile of Hispanics in the U.S. workforce," *Monthly Labor Review*, December 1978, pp. 3 and 5.

<sup>7</sup>See *Educational Attainment of Workers, March 1982–83*, Bulletin 2191 (Bureau of Labor Statistics, 1984), pp. 1 and 2.

## Unemployment insurance: identifying payment errors

PAUL L. BURGESS, JERRY L. KINGSTON,  
AND ROBERT D. ST. LOUIS

A system for detecting payment errors in the unemployment insurance program was recently developed by the U.S. Department of Labor. This system has made it possible to identify the level of both fraud and nonfraud overpayments, as well as underpayments, in the program. Prior to the introduction of this detection system, it was not possible to determine the extent and nature of payment errors.

Currently, the detection system—known as the random audit system—is operating in 46 unemployment insurance jurisdictions.<sup>1</sup> The remaining jurisdictions will be included in this program or its successor (the UI quality control pro-

gram) during fiscal year 1985. At that time, the audit system will provide a basis for: (1) estimating the extent of payment errors in the nationwide unemployment insurance program; (2) indentifying the primary sources of the payment errors; (3) implementing corrective action, where appropriate; and (4) evaluating the effects of such corrective actions (or other programmatic changes) on unemployment insurance payment accuracy. This summary discusses the design and methodology of the random audit system and presents findings from the pilot tests conducted in five States—Illinois, Kansas, Louisiana, New Jersey, and Washington—over a 1-year period ending in March 1982.<sup>2</sup>

Because of the large volume of weekly payments made in the unemployment insurance system, it would be prohibitively expensive (under current law and policy)<sup>3</sup> to verify each claimant's eligibility to receive benefits. Thus, the random audit system relies on a small sample of payments made in each unemployment insurance jurisdiction as the basis for estimating the extent and nature of payment errors. The payments selected for investigation are taken from a specially constructed computer file of weekly statewide unemployment insurance payments in each participating jurisdiction. Each week, a probability sample of cases is selected from the file, and the results of verifying benefit eligibility for those cases are used to estimate statewide payment errors;<sup>4</sup> quarterly estimates are developed for each unemployment insurance jurisdiction.<sup>5</sup>

After a sample has been selected for review, a detailed and consistent procedure is followed. When cases are selected for investigation, it is assumed that claimants have been properly paid, and this opinion is changed only if documented evidence to the contrary is presented.

Verification of benefit eligibility includes the following procedures:<sup>6</sup> (1) files related to the case are obtained and reviewed; (2) the base period wages upon which the claimant established his or her claim for benefits are verified (with employers if possible);<sup>7</sup> (3) a personal interview with the claimant is conducted to verify relevant facts regarding the individual's claim for benefits; (4) the claimant's reasons for separation from previous employers are verified to determine if any disqualifying circumstances were involved; (5) attempts are made to verify if the claimant was able and available for work during the sampled week; (6) if applicable, employers listed by the claimant as work search contacts during the sampled week are contacted for verification as to whether the claimant actually applied for work; (7) as appropriate, attempts are made to determine if the claimant refused any offers of "suitable" work that would disqualify the individual from receiving benefits; (8) attempts are made to determine if the claimant accurately reported any earnings or work performed during the sampled week; and (9) depending on the circumstances of the case, other individuals may be contacted to verify any other determinants that could affect the claimant's eligibility for benefits during the sampled week.

---

Paul L. Burgess and Jerry L. Kingston are professors of economics, and Robert D. St. Louis is an associate professor of decision and information systems, Arizona State University. This paper summarizes some of the major findings of a study conducted by the authors under a contract with the Unemployment Insurance Service, Employment and Training Administration, U.S. Department of Labor. However, the opinions expressed herein do not necessarily represent the official position or policy of the U.S. Department of Labor.

On the basis of information acquired during the verification process, the field investigator makes a judgment as to whether the claimant met eligibility requirements for the benefits received. If an overpayment is suspected, careful review procedures are followed. First, the investigator interviews the claimant a second time in order to provide the claimant an opportunity for rebuttal of evidence acquired during the investigation. Second, a review is requested from the manager of the local unemployment insurance office in which the claim for benefits was filed. Third, the case file is reviewed by the State random audit system supervisor and, in some cases, by a Federal review team (representing the national office of the unemployment insurance service). If the State determines that the payment was in error and the claimant files for an appeal, a representative of the State random audit unit is available to present relevant evidence affecting the case. In the event of a reversal of the overpayment determination, the results recorded for the case are modified to reflect this final status of the sampled payment.

Verifications of benefit eligibility are conducted by unemployment insurance personnel from each participating jurisdiction to ensure that each sampled case is reviewed in accordance with the respective State's law and policy. Each full-time unemployment insurance investigator assigned to the random audit program normally receives no more than three cases on a weekly basis. In contrast, a full-time State unemployment insurance claims examiner assigned to a local office typically would process at least 50 times as many cases in a week.

### Limitations of the random audit system

Several limitations of the random audit system and its data should be noted. For example, the random audit system tends to produce "low-side" estimates of the payment errors that characterize State unemployment insurance programs. This tendency appears to result from the following: First, unemployment insurance benefits are paid with at least a 1-week lag, so that "ex post facto" efforts are required to determine if benefits have been paid in accordance with the State's employment security law and policies; the longer these investigations are delayed, the more difficult it is for claimants and others to accurately recall relevant facts, making it more difficult to document payment errors. Second, the provisions of each State's employment security laws and policies limit the extent to which a claimant's activities may be investigated to determine if a payment error occurred. Third, because of the very long time lags usually involved in detecting instances of unreported earnings in unemployment insurance-covered employment through a "postaudit," this procedure is not utilized as part of the standard random audit investigation, resulting in some understatement of overpayments that actually occur.<sup>8</sup> Fourth, unreported earnings in the "cash economy" are extremely difficult to detect, even if "postaudit" procedures are utilized. Fifth, sampled payments are considered correct unless documented

evidence to the contrary is made available; given the complexities of the employment security laws and policies that specify the eligibility criteria—especially those related to the "availability for work" and "active-search-for-work" requirements—it is likely that overpayment errors are somewhat understated simply because unrefutable documentation could not be obtained. The nature of the payment errors that cannot be detected by the random audit system is such that many would be established as fraud overpayments if they were detected; hence, the estimates provided by the random audit system of fraud overpayments are very likely to be more understated than is the case for all overpayments.<sup>9</sup>

The principal findings of the random audit system pilot tests are summarized below. These results are indicative of the types of information currently being produced on a quarterly basis in the 46 unemployment insurance jurisdictions in which the random audit system is currently operating, but it should be noted that a variety of other data elements also are collected in this system.<sup>10</sup>

Table 1 shows the estimated percentages<sup>11</sup> of weeks paid statewide with either an overpayment or an underpayment of any amount. The total percentage of weeks paid with such errors ranged from 12.2 percent in Louisiana to 52.1 percent in New Jersey; the findings also indicate that overpayment errors tended to be much more common than underpayment errors in the five pilot test States.<sup>12</sup> Underpayments, as a proportion of all dollars paid, were estimated to be 1 percent or less in each State, indicating the insignificance of underpayments.

In sharp contrast, the rates of unemployment insurance overpayments in the five States ranged from 7.3 percent in Louisiana to 24.3 percent in New Jersey; overall, double-digit overpayment rates were estimated for 3 of the 5 States.<sup>13</sup> A comparison of the percentage of dollars overpaid with the percentage of weeks overpaid indicates that payment errors of small dollar amounts were relatively frequent in these States. In Washington, for example, 20 percent of the weeks paid but only 9.3 percent of the dollars paid were estimated to be overpaid. Similarly, in New Jersey, 38.2 percent of the weeks paid but only 24.3 percent of the dollars paid were estimated to be overpaid. The principal cause of these relatively frequent overpayments involving small dollar amounts was errors in the reporting or recording of base period earnings.<sup>14</sup>

**Table 1. Payment errors in five random-audit pilot test States, April 1981–March 1982**

Payment error category	Illinois	Kansas	Louisiana	New Jersey	Washington
Percentage of weeks with payment error	19.1	15.0	12.2	52.1	31.7
Underpayments	3.1	0.9	1.7	13.9	11.7
Overpayments	16.0	14.1	10.5	38.2	20.0
Percentage of dollars paid in error:					
Underpayments	0.8	0.1	0.1	1.0	1.0
Overpayments	11.9	12.9	7.3	24.3	9.3
Fraudulent payments	1.2	0.2	2.7	1.9	2.1

Because of the historical interest in and concern about fraud in the unemployment insurance program, a separate measure of fraudulent payments is provided by the random audit system; estimates for the five pilot test States indicate that "officially established" fraudulent payments constituted only a small portion of the total dollars paid in each State; fraud rates ranged from 0.2 percent in Kansas to 2.7 percent in Louisiana. As noted earlier, however, the absence of postaudits to detect unreported earnings in covered employment and the difficulty of detecting unreported earnings in the "cash economy" tend to understate the "true" magnitude of the fraud problem in the unemployment insurance program.<sup>15</sup>

The random audit system also produces information on both the "types" and "causes" of payment errors in the unemployment insurance program. Types of payment errors are classified on the basis of whether the error was the "responsibility" of the unemployment insurance claimant, covered employers, the State unemployment insurance agency, or a combination of the three. Causes of payment errors are classified on the basis of which aspects of employment security law or policy were violated, including: errors in the reporting or recording of earnings during the sampled week for which the payment was made; errors in the reporting or recording of base period earnings; violations of "continuing" eligibility criteria (refusals of suitable work, nonavailability for work, inactive job search); disqualifying reasons for separation from previous employers; and other factors. In the current system, statistical information is provided for specific causes of unemployment insurance payment errors only if such causes account for at least 1 percent of quarterly unemployment insurance payments.

THE NATIONAL RANDOM AUDIT is a major step forward in controlling payment errors in the unemployment insurance program. This is an essential program because it provides statistically reliable estimates of payment error rates for entire unemployment insurance jurisdictions. This permits not only identification of payment errors, but also the means through which the fundamental problems can be diagnosed and solved. Furthermore, the capability of the system to provide timely evidence on such payment errors facilitates evaluation of the effects of the various types of corrective actions that may be undertaken in individual unemployment insurance jurisdictions. The compilation of this systemwide data base should prove to be a valuable research tool. □

—FOOTNOTES—

<sup>1</sup>There are 53 unemployment insurance "jurisdictions" which include all 50 States, the District of Columbia, Puerto Rico, and the Virgin Islands. Although it is more accurate to speak of unemployment insurance jurisdictions rather than "State" unemployment insurance programs, the terms are used interchangeably throughout this article.

<sup>2</sup>For the full report from which this summary was taken, see Paul L. Burgess, Jerry L. Kingston, and Robert D. St. Louis, *The Development*

*of an Operational System for Detecting Unemployment Insurance Payment Errors Through Random Audits: The Results of Five Statewide Pilot Tests* (U.S. Department of Labor, Employment and Training Administration, Unemployment Insurance Service, 1982).

<sup>3</sup>Each State provides for its own complete, self-contained unemployment insurance program, administered by State employees. The States are responsible for all substantive matters: qualifying requirements; benefit levels; disqualification provisions; eligibility conditions; and tax structure. The Federal Government's responsibilities include maintaining nationwide standards for State program performance. Although the States are responsible for the administration of their programs, the responsibility for the design and nature of that administration is shared because financing of unemployment insurance administrative costs comes from Federal funds.

<sup>4</sup>Only payments that meet certain criteria are included in the populations sampled each week. The major criterion is that the payments must be for "regular" unemployment insurance program claims made to intrastate claimants. For additional detail on the criteria utilized to define the population of payments sampled each week, see Burgess, Kingston, and St. Louis, *The Development of an Operational System*, pp. 5-6.

<sup>5</sup>The decision to obtain accurate estimates on a quarterly basis was made so as to provide data on a relatively frequent basis and in a cost-effective manner. Obviously, information could have been provided on a more frequent basis (for example, weekly or monthly), but this would have greatly increased the cost of the random audit system.

<sup>6</sup>For additional information on the investigative methodology utilized in the random audit system, see Burgess, Kingston, and St. Louis, *The Development of an Operational System*, pp. 13-20.

<sup>7</sup>The base period is the time period (normally a 12-month period prior to the filing of an "initial claim") utilized to determine whether a claimant is "monetarily" eligible for benefits and, if so, the amount of the claimant's weekly benefit payment.

<sup>8</sup>Postaudits are conducted routinely in many "wage-reporting" States. In such States, computer files of wages reported by covered employers for a given quarter are matched against unemployment insurance files of benefits paid during the same quarter to identify those claimants who may have received both unemployment insurance benefits and wages in 1 or more weeks. Given the usual lag of at least 1 and up to 2 quarters before unemployment insurance agencies can conduct a postaudit, the use of this procedure would delay by at least 3 months the time when error rates could be estimated. Such a delay was considered unacceptable, at least during the formative stages of the random audit system.

<sup>9</sup>For additional limitations of the random audit system and its empirical results, see Burgess, Kingston, and St. Louis, *The Development of an Operational System*, pp. 27-39.

<sup>10</sup>For a complete listing of the data elements included in the random audit data base, see *The Development of an Operational System*, appendix B.

<sup>11</sup>These estimates are based on weekly samples of unemployment insurance payments made in each State for 1 year. Statistical tests were conducted to determine if the weekly samples selected were representative of their respective populations with regard to the following known population characteristics: sex, age, ethnic group, and amount of the weekly unemployment insurance payment. Because these tests indicated that the samples selected were representative of their respective populations with regard to the known characteristics analyzed, it is likely that the samples also are representative with respect to the frequency and size of unemployment insurance payment errors in the populations from which the samples were drawn. For additional details, see *The Development of an Operational System*, p. 41.

<sup>12</sup>Because the design of the study is based on *payments made* rather than *claims for* unemployment insurance benefits, this finding was not unexpected. Presumably, some underpayments occur because claimants are denied payment of any benefits: such cases would be excluded from the populations analyzed in this study. Overpayments are also more likely to be found than underpayments because issues related to the nature of the claimant's separation from previous employers, availability for work, and active job search are more likely to result in overpayments than underpayments, once a payment actually has been made.

<sup>13</sup>Although a number of different measures of these dollar rates are utilized in the random audit system, the results reported in table 1 reflect

only those overpayments for which "official" actions were taken by the State unemployment insurance agency in response to the random audit investigations; hence, those cases reported as overpaid in table 1 were "sanctioned" by the State unemployment insurance agency through official actions that were taken. Also included in the random audit system is a measure which includes cases with errors that the State unemployment insurance agencies were either unwilling or unable to "sanction" through official actions plus all of the cases in which such actions were taken. For additional details on the other measures of payment errors, see *The Development of an Operational System*, pp. 21-25.

<sup>14</sup> Additional analysis, not reported here, reveals that such reporting errors were quite common. For example, more than 25 percent of the cases analyzed in the pilot test period involved some error in the reporting or recording of base period wages in 3 of the 5 pilot test States, and more than 70 percent of the cases sampled in one of the States involved such errors. See *The Development of an Operational System*, p. 50.

<sup>15</sup> It also should be emphasized that direct comparisons among the States are difficult to interpret, especially for fraud overpayments, because important differences in law and policy exist among these five States as to what conditions constitute the basis for establishing a fraud overpayment. Identical claimant behavior could lead to the establishment of a fraud overpayment in one State, but the establishment of a nonfraud overpayment in another State.

## Small firms' employment growth twice that of large firms in 1983

Small businesses played a significant role in the 1983 recovery, according to the Small Business Administration's 1984 report of the President. In six major industries for which small- and large-dominated industries can be identified, small business employment growth of 2.6 percent was more than twice that of large business growth of 1.2 percent.

Small firms accounted for 6 percent of the growth in construction, 2 percent in retail trade, 6 percent in finance, insurance, and real estate, and 4 percent in services. Transportation, communication, and public utilities employment declined about .1 percent, and employment was unchanged in wholesale trade. In contrast, employment in large business-dominated industries declined in all but the finance, insurance, and real estate (up 1.5 percent) and services (up 4 percent) industries.

According to the report, "Small businesses furnish 2 of 3 workers with their first jobs. Many of these first-time positions are in the service sector, the traditional doorway to the job market for the young, minority, and unskilled jobseeker."

Over the 1980-82 period, firms with fewer than 100 employees accounted for 43 percent of the net increase in jobs. Creation of new small businesses alone added 2 million jobs. The service industry continued as the fastest growing. Employment increased 10 to 12 percent a year in small firms providing business, education, and legal services. Other rapidly growing industries included metal and anthracite mining, oil and gas extraction, real estate, social services, and security, commodity brokers, and services. Job generation slowed among small business industries in construction and wholesale and retail trade.

In addition to discussing the state of small business in 1983 and over the 1980-82 period, the 475-page report contains information on the changing industrial and size composition of U.S. business, historical patterns of small business financing, worker characteristics and size of business, export trade and small business, small business and procurement, women and minority owned businesses, development of small business data bases, export programs of the Federal Government, and Federal procurement from small businesses.

*The State of Small Business: A Report of the President Transmitted to the Congress March 1984* can be purchased (\$13) from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. □

## Earnings in electric and gas utilities

Occupational pay levels in the Nation's privately operated electric and gas utility systems typically rose 45 to 55 percent between February 1978 and October 1982, according to a recent industry wage survey conducted by the Bureau of Labor Statistics.<sup>1</sup> By comparison, wages and salaries of all private industry workers covered by the Bureau's Employment Cost Index rose 45 percent, and those of all transportation and public utility workers rose 50 percent, between the first quarter of 1978 and the fourth quarter of 1982.

Slightly more than 100 physical, office clerical, and professional and technical occupations were selected to represent the utility systems' wage structure in the October 1982 survey. Average hourly earnings among the physical occupations studied ranged from \$7.51 an hour for janitors to 16.27 for watch engineers, but typically fell between \$10 and \$13. (See table 1.) Journeymen line workers, numerically the most important physical occupation studied (23,938 workers), averaged \$12.72 an hour. This compared with \$9.17 an hour for meter readers and \$10.82 for gas appliance service technicians, two other major groups. The physical jobs studied accounted for nearly one-half of the 361,000 nonsupervisory physical workers within scope of the survey.

Averages for the office clerical jobs studied ranged from \$5.69 an hour for messengers to \$9.35 for secretaries, with rates of \$7 to \$9 being the norm. Secretaries, numbering nearly 10,000, were by far the largest clerical group studied.

Hourly pay levels for professional and technical occupations ranged from \$8.68 for computer data librarians to \$14.53 for computer systems analysts. Drafters, the most numerous group, averaged \$10.48 an hour.

Occupational averages varied by region and by type of utility system. In general, averages were highest in the Pacific region and in combination electric and gas systems,<sup>2</sup> and lowest in the Southeast and in gas distribution systems. Table 1 illustrates the regional variations, with the largest

**Table 1. Average straight-time hourly earnings<sup>1</sup> and number of workers in selected occupations,<sup>2</sup> electric and gas utility systems, United States and regions,<sup>3</sup> October 1982**

Occupation	United States		New England		Middle Atlantic		Border States		Southeast	
	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings	Number of workers	Average hourly earnings
<b>Physical occupations:</b>										
Auxiliary-equipment operators (electric)	5,833	\$10.51	—	—	378	\$11.16	243	\$10.45	743	\$ 9.21
Control-room operators, conventional (electric)	4,615	13.24	227	\$12.67	476	13.89	294	12.27	674	12.09
Control-room operator assistants, conventional (electric)	2,626	11.89	42	12.02	228	12.98	242	10.54	484	10.76
Electricians, maintenance	7,020	12.70	530	11.30	867	12.74	440	11.81	1,098	11.77
Gas-main fitters	7,306	10.82	264	10.55	2,191	11.30	412	10.42	240	8.03
Janitors, porters, and cleaners	4,026	7.51	150	8.15	739	7.76	528	6.98	327	5.87
Line workers, journeymen	23,938	12.72	1,691	11.60	3,953	13.21	1,586	11.91	3,502	11.40
Mechanics, maintenance	7,531	12.56	333	11.50	719	12.76	594	11.66	1,163	11.65
Meter readers	18,649	9.17	1,049	8.92	3,901	9.56	1,523	8.95	2,135	8.27
Pipeline repairers (gas)	5,243	10.12	—	—	—	—	—	—	—	—
Service technicians, gas appliances	10,218	10.82	671	11.03	2,561	11.35	770	11.10	964	8.08
Watch engineers (electric)	2,681	16.27	137	16.49	420	17.37	201	16.14	188	13.38
Welders (gas)	1,676	11.98	22	11.69	253	12.72	124	11.71	70	11.05
<b>Office clerical occupations:</b>										
Accounting clerks	6,449	8.43	316	8.15	986	9.60	559	7.87	707	7.54
Messengers	481	5.69	29	5.87	80	6.01	60	5.74	45	5.81
Secretaries	9,979	9.35	616	9.19	1,289	11.06	932	9.33	1,355	8.38
Stenographers	3,359	7.96	71	7.65	782	8.63	136	7.13	402	6.77
<b>Professional and technical occupations:</b>										
Computer data librarians	119	8.68	—	—	34	10.38	9	9.27	10	7.60
Computer operators	1,513	9.70	106	9.88	221	11.51	112	9.60	153	8.26
Computer programmers	2,980	11.73	201	10.68	495	12.27	172	12.02	387	12.25
Computer systems analysts	2,989	14.53	191	14.48	412	15.46	220	13.18	337	12.04
Drafters	3,822	10.48	163	9.95	710	12.71	295	10.10	483	8.56
			<b>Southwest</b>	<b>Great Lakes</b>	<b>Middle West</b>		<b>Mountain</b>		<b>Pacific</b>	
<b>Physical occupations:</b>										
Auxiliary-equipment operators (electric)	1,353	\$10.01	1,483	\$10.91	468	\$11.24	431	\$10.74	468	\$12.00
Control-room operators, conventional (electric)	969	12.41	864	13.76	404	13.76	253	13.58	454	15.33
Control-room operator assistants, conventional (electric)	382	10.92	737	12.63	260	12.33	—	—	191	13.49
Electricians, maintenance	1,057	12.44	1,616	13.42	587	12.78	383	13.44	442	14.70
Gas-main fitters	586	6.64	2,409	11.41	495	10.95	175	12.31	534	11.94
Janitors, porters, and cleaners	462	5.92	1,125	8.48	290	8.45	209	6.31	196	8.60
Line workers, journeymen	2,693	12.05	4,764	13.18	1,636	12.51	1,404	13.25	2,709	14.58
Mechanics, maintenance	1,330	12.41	1,579	12.87	688	12.46	537	12.82	—	—
Meter readers	2,113	7.35	3,740	9.66	992	9.55	705	8.91	2,491	10.28
Pipeline repairers (gas)	2,455	9.63	—	—	—	—	—	—	—	—
Service technicians, gas appliances	868	8.21	1,977	11.67	886	10.57	167	11.69	—	—
Watch engineers (electric)	442	15.28	656	16.52	232	15.20	150	16.88	255	18.26
Welders (gas)	475	10.66	368	12.75	149	12.10	62	13.34	153	13.07
<b>Office clerical occupations:</b>										
Accounting clerks	1,463	7.59	1,052	8.82	375	6.96	337	7.78	654	10.62
Messengers	76	4.88	97	5.91	23	5.29	40	4.71	31	7.35
Secretaries	2,225	8.60	1,375	9.99	580	8.29	673	8.36	934	10.72
Stenographers	459	7.33	787	8.24	292	7.21	100	7.31	330	9.29
<b>Professional and technical occupations:</b>										
Computer data librarians	26	7.66	8	8.09	—	—	10	8.41	13	7.28
Computer operators	250	8.24	267	9.97	106	8.54	124	10.13	174	10.72
Computer programmers	581	11.88	489	10.97	191	11.14	206	11.61	258	12.17
Computer systems analysts	362	15.43	597	14.25	122	14.36	320	15.16	428	15.52
Drafters	690	9.61	619	10.50	295	10.27	277	9.90	290	11.70

<sup>1</sup>Excludes premium pay for overtime and for work on weekends, holidays, and late shifts.

<sup>2</sup>The comprehensive report on the study includes data for additional occupations.

<sup>3</sup>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; and *Pacific*—California, Nevada, Oregon, and Washington. Alaska and Hawaii were not included in this study.

NOTE: Dashes indicate that no data were reported or that data do not meet publication criteria.

differences commonly associated with the lower paying occupations. For example, janitors in the Pacific States averaged 47 percent more than their counterparts in the Southeast (\$8.60 versus \$5.87), compared with a 36-percent differential for watch engineers (\$18.26 versus \$13.38), and one

of only 18 percent for welders (\$13.07 over \$11.05).

Virtually all workers were in utilities providing paid holidays, paid vacations, and various health, insurance, and retirement benefits to physical and office workers. The most common provisions were 12 holidays annually and 2 weeks

of vacation pay after 1 year of service, 3 weeks after 10 years, 4 weeks after 15 years, and 5 weeks after 25 years. Nearly all workers were eligible for life, hospitalization, surgical, and basic and major medical insurance, and retirement pension plans. Accidental death and dismemberment insurance, dental insurance, and sick leave plans also were widespread in the industry, each applying to at least two-thirds of the workers. Most of the health, insurance, and retirement plans were paid for entirely by the employer.

Electric and gas utility systems within scope of the survey employed about 521,000 nonsupervisory employees in October 1982, an increase of 9 percent from February 1978. Over the period, employment grew 19 percent in electric systems and 8 percent in gas distribution systems, remained stable in combination electric and gas systems, and fell slightly in gas transmission systems.

Slightly more than three-fourths of the physical workers and about one-third of the office workers were covered by labor-management agreements in October 1982. The major union for both types of workers was the International Brotherhood of Electrical Workers (AFL-CIO).

A comprehensive report on the 1982 survey, *Industry Wage Survey: Electric and Gas Utilities, October 1982*, Bulletin 2218 (Bureau of Labor Statistics, 1984), is for sale by the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. The report provides additional information on occupational earnings and employee benefits. □

—FOOTNOTES—

<sup>1</sup>Earnings data exclude premium pay for overtime and for work on weekends, holidays, and late shifts. For an account of the 1978 study, see *Industry Wage Survey: Electric and Gas Utilities, February 1978*, Bulletin 2040 (Bureau of Labor Statistics, 1979).

<sup>2</sup>Under the classification system used for this study, a utility was considered a combination system if neither service contributed 95 percent or more of revenues obtained from electric and gas services. If one service did account for at least 95 percent of such revenues, the utility was considered as exclusively engaged in that service. Only the electric and gas operations of combination systems were included.

## **Pension plans as a spur to labor force withdrawal**

To what extent may pension plans decrease labor force participation among older workers? In a study undertaken

for the National Bureau of Economic Research, economists at several universities probe the possible effect of defined-benefit pension plans on labor force behavior. Their objective, according to David A. Wise, author of the study, is "to demonstrate the order of magnitude of the potential incentive effects of these plans without attempting to present empirical estimates of the impacts, but suggesting the response of workers to pension plan characteristics could be substantial."

The economists consider the case of a 30-year-old worker in a "typical plan." The plan calculates normal retirement benefits as 1 percent of average earnings over the last 5 years of service multiplied by years of service. Benefits are reduced by 3 percent for each year that early retirement at age 55 precedes normal retirement at age 65. "Cliff vesting" occurs after 10 years, meaning the employee accrues no credits until meeting the service requirement. "The annual increment to pension wealth" is calculated as a percentage of the wage rate. "Underlying the calculations is a representative lifetime age-earnings profile that assumes substantial growth in real wage rates between ages 30 and 50 and very little growth from 50 to 65."

Under three accrual patterns based on wage inflation of 6 percent and nominal interest rates of 3, 6, and 9 percent, pension wealth increases by from 4 to 14 percent of wage earnings when vesting begins. The rate of accrual increases "slowly at first and then rather sharply until the age of early retirement." At the age of early retirement, the accrual rate drops sharply. This is because annual benefits are not reduced enough to offset the increase in the number of years the worker would receive benefits if he or she chooses early retirement.

For a plan without an early retirement option, or one "that uses an actuarially fair, early retirement reduction formula," benefits continue to increase to age 65.

The study emphasizes the importance of interest rates. It points out that "if interest rates are high relative to the rate of inflation, the accrual after age 55 can indeed be negative. In this case pension wealth could actually decline with additional years of work."

Wise's report is based on the introductory chapter of an NBER volume, "Pensions, Labor and Individual Choice," to be published by the University of Chicago Press. □