

### A century of service

*Holding the Balance: A History of New Zealand's Department of Labour, 1891-1995.* By John E. Martin, Christchurch, New Zealand, Canterbury University Press, 1996, 478 pp. \$69.95, cloth; \$49.95, paper.

New Zealand is a land of spectacular natural beauty. It is also a modern society faced with many of the same issues and problems that challenge economically advanced countries all around the world. Just as it is psychologically refreshing to experience a foreign land, so is it intellectually stimulating to discover how another country handles its social and economic problems. Dr. John E. Martin, Senior Historian with the New Zealand Department of Internal Affairs, has written a comprehensive, readable, and often entertaining history of his country's Department of Labour, which celebrated its centennial in 1991. Martin's book documents in detail the responses of the Department to the needs of New Zealand's working people. It will afford students of government and labor in the United States unique insights into different ways of handling labor problems and help them see our own Department of Labor in a new perspective.

The book thoroughly examines the wide-ranging programs of New Zealand's Department of Labour and includes the political, social, and economic contexts in which they developed. To meet its goal of comprehensiveness, it also tells the story of the organization itself and covers the diverse functions the Department acquired from time to time that lay outside the core labor areas.

Originally established as the Bureau of Industries in 1891, the Department, according to Martin, "took on functions that made it perhaps the most powerful and all-embracing government body concerned with the 'labour problem' of the late nineteenth century." Its reformist, pro-labor agenda soon embroiled it in controversy. In a defensive response, over the next 20 years it gradually

shifted from a crusading role to a more neutral, even-handed approach.

Perhaps the most noteworthy feature of the history of the Department was its administration of the first compulsory state labor arbitration system, beginning in 1894. This system attracted attention around the world, including within the United States. In 1902, the U.S. Bureau of Labor published in its Bulletin No.40 a report on *Working on Compulsory Conciliation and Arbitration Laws in New Zealand and Victoria*. The investigator, who took a scrupulously neutral approach, reported that "The [arbitration] act has prevented strikes of any magnitude, and has, on the whole, brought about a better relation between employers and employees than would exist if there were no act." While the spell of the "country without strikes" was broken by a major work stoppage in 1906, the system dominated labor relations well into the twentieth century before being replaced by primary reliance on collective bargaining and voluntary arbitration.

Throughout the twentieth century, the Department continued to grow and develop as an administrative agency. However, the election of a Labour Party government in 1984 precipitated a break with its tradition of being one of the prime means by which the government regulated economic and social life. The new government "rolled back the state" and directed the Department to focus exclusively on core labor market functions.

During the Department's century of service, there are many points of comparison with its U.S. counterpart. One of the most interesting involves the attitudes of employers toward government labor agencies. The 1903 legislation that upgraded the Bureau of Industries to departmental status included a mandate to continue collection of labor statistics. Employer groups opposed the provision, though unsuccessfully, because they considered the Department to be too biased toward labor. They contrasted the New Zealand Department with the U.S.

Department of Labor, which they considered to be neutral. This seems ironic in light of the fact that immediately after the U.S. Department of Labor was established in 1913, and periodically ever since, many American employers have criticized it for showing undue favoritism toward labor.

There is no question that the book meets Martin's goal of comprehensiveness. The inclusion of detailed background on political and other environmental events shaping the Department makes the book an interesting read and helps the non-native reader make sense of events. Furthermore, the author has told a warts-and-all story that paints a well-balanced picture of both the successes and failures of the Department. Detailed appendices, extensive notes and bibliography, and a profusion of photographs, political cartoons and other illustrations all enhance the value of this fascinating book.

—Judson MacLaury

Historian  
U.S. Department of Labor

### Productivity redux

*The Economics of Productivity.* Edited by Edward N. Wolff. Lyme, NH, Edward Elgar Publishing, 1997, 1,209 pp. \$360.

This year marks the 40th anniversary of Nobel Laureate Robert Solow's seminal article on productivity measurement, "Technical Change and the Aggregate Production Function," which was published in the *Review of Economics and Statistics* in August, 1957. So it is particularly fitting that this landmark paper leads off a new two-volume collection of previously published writings on productivity analysis, *The Economics of Productivity*.

This hefty compendium, which spans 1,209 pages, was edited by Edward N. Wolff, an economics professor at New York University who has writ-

ten extensively on productivity. *The Economics of Productivity* is the 77th in a series of books, *The International Library of Critical Writings in Economics*, from Edward Elgar Publishing. Fifty papers, grouped into seven categories, are included in this reference work. In the first volume, the categories are (1) Production Function and Growth Accounting; (2) R&D and Technological Spillovers; and (3) Evolutionary, Schumpeterian and Technology Gap Models. In the second volume, the groups are (1) Productivity Convergence; (2) Endogenous Growth Theory; (3) Multi-Sectoral Approaches; and (4) The Productivity Slowdown.

This is a useful and needed work. The papers in it, which are reproduced in their original forms, had been scattered among various journals and books. To my knowledge, there is no other compendium of papers on productivity that is as broad in coverage, both in terms of topics and the time period (1957-94) in which the papers were written. The papers provide a sweeping survey of significant writings by economists on productivity.

The parade of papers is preceded by a brief, 15-page introduction by the editor. In it, Wolff presents an overview of each of the seven groups of papers in this collection. He also refers to a number of writings not appearing in the anthology in this opening discussion, which helps to put the selected papers in context. One curious omission in the introduction is that he makes no mention of research on productivity published by the Bureau of Labor Statistics in the past 15 years, even though a 1979 paper by three BLS researchers is in the book. (J.R. Norsworthy, Michael J. Harper, and Kent Kunze, "The Slowdown in Productivity Growth: Analysis of Some Contributing Factors," *Brookings Papers on Economic Activity*, 1979, pp. 387-421.)

He cites findings from that paper regarding the effects on productivity of changes in the composition of the labor force yet he neglects to mention a more recent and more sophisticated BLS study

on the topic. (*Labor Composition and U.S. Productivity Growth*, U.S. Bureau of Labor Statistics, Bulletin 2426, December 1993.) (I should convey at this point that I worked on the BLS labor composition project for a few years and that I have been on the staff of two of the three authors of the 1979 paper.) Wolff also discusses research and development (R&D) in several sections of the introduction, but does not take note of the research that BLS has conducted on the subject. (See *The Impact of Research and Development on Productivity Growth*, U.S. Bureau of Labor Statistics, Bulletin 2331, September 1989.)

In his selection of papers, the editor seems to have placed a bit too much emphasis on productivity convergence (the convergence over time of average

productivity levels in industrialized economies). He chose seven papers on the subject for this anthology, the same number of papers that he culled for the category "Production Functions and Growth Accounting."

*The Economics of Productivity* is clearly a reference work aimed at a readership of professional economists. The general reader would in all likelihood find it arduous to tackle the economics jargon and notation in these technical papers. But for professional economists interested in productivity research, *The Economics of Productivity* will be a valuable tool.

—Mary Jablonski

Office of Productivity and Technology  
Bureau of Labor Statistics

MANAGEMENT AND CIRCULATION  
(Required by 39 U.S.C. 3685)

1. — Title of Publication: *Monthly Labor Review*
2. — Publication Number: 0098-1818
3. — Date of Filing: October 1, 1997
4. — Frequency of Issue: Monthly
5. — Number of Issues Published Annually: 12
7. — Annual Subscription Price: \$25
7. — Complete Mailing Address of Headquarters of General Business Office of Publisher: U.S. Department of Labor, Bureau of Labor Statistics, 2 Massachusetts Ave., NE, Washington, DC 20212
8. — Complete mailing address of Headquarters of General Business Office of Publisher: U.S. Department of Labor, Bureau of Labor Statistics, 2 Massachusetts Ave., NE, Washington, DC 20212
9. — Names and Complete Addresses of Publishers, Editor, and Executive Editor: Publisher: U.S. Department of Labor, Bureau of Labor Statistics, Office of Publications, 2 Massachusetts Avenue, N.E., Washington, DC 20212; Editor: Deborah P. Klein, same address; Executive Editor: Richard M. Devens, Jr., same address
10. — Owner: U.S. Department of Labor, Bureau of Labor Statistics, 2 Massachusetts Avenue, N.E., Washington, DC, 20212
11. — Known Bondholders, Mortgagees, and other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: None
12. — Purpose, Function and Nonprofit Status: Not applicable
13. — Publication Name: *Monthly Labor Review*
14. — Issue Date for Circulation Data Below: August 1, 1997
15. — Extent and Nature of Circulation:

	Average number of copies each issue during preceding 12 months	Actual number of copies of single issues published nearest to filing date
A. Total number copies printed (net press run) .....	11,137	10,868
B. Paid circulation:		
1. Sales through dealers and carriers, street vendors, and counter sales .....	2,536	2,608
2. Mail subscription .....	8,037	7,725
C. Total paid circulation .....	10,573	10,333
D. Free distribution by mail, carrier, or other means (samples, complimentary, and other free copies) .....	321	292
E. Free Distribution Outside the Mail .....	125	125
F. Total Free Distribution (sum of D and E) .....	446	417
G. Total distribution (sum of C and F) .....	11,019	10,750
H. Copies not distributed:		
1. Office use, leftover, unaccounted, spoiled after printing .....	118	118
2. Returns from news agents .....	---	---
I. Total (sum of G and H--should equal net press run shown in A) .....	11,137	10,868

I certify that the statements made by me above are correct and complete.

[Signed] Richard M. Devens, Jr., Executive Editor

## Erratum

In the article, "Evaluating the 1995 occupational employment projections," which appeared in the September 1997 *Monthly Labor Review*, some zeros were inadvertently dropped from table 2. The table (with corrections in bold) is reprinted below.

**Table 2. Employment, by occupation, 1984 actual and 1995 projected and actual**

[Numbers in thousands]

Occupation	Total employment				Percent change, 1984-95		
	1984	Projected 1995		Actual 1995		Projected	Actual
		Level	Share (percent)	Level	Share (percent)		
Total, all occupations .....	106,729	122,758	<b>100.00</b>	130,009	<b>100.00</b>	15.0	21.8
Cooks, institution or cafeteria .....	361	426	.35	426	.33	18.0	18.1
Aircraft mechanics .....	82	98	.08	98	.08	19.7	19.8
Mail clerks, except mail machine operators and postal service .....	126	132	.11	132	.10	5.3	5.2
Supervisors of blue-collar workers .....	1,794	1,931	1.57	1,925	1.48	7.6	7.3
Butchers and meatcutters .....	229	220	.18	219	.17	-4.1	-4.5
Crushing and mixing machine operators and tenders .....	133	137	.11	138	.11	3.5	4.0
Highway maintenance workers .....	159	167	.14	168	.13	5.0	5.7
Cannery workers .....	74	72	.06	72	.06	-3.4	-2.8
Farmers .....	1,312	1,240	1.01	1,231	.95	-5.5	-6.2
Stock clerks .....	1,707	1,800	1.47	1,815	1.40	5.5	6.3
Industrial machinery mechanics .....	438	465	.38	470	.36	6.3	7.3
Secretaries .....	3,050	3,369	2.74	3,403	2.62	<b>10.5</b>	11.6
Pharmacists .....	157	174	.14	172	.13	<b>10.7</b>	9.6
Loan and credit clerks .....	146	172	.14	174	.13	17.5	19.2
Bus drivers, except school .....	138	156	.13	158	.12	13.3	14.9
Tire repairers and changers .....	80	90	.07	91	.07	12.8	14.5
Guards .....	680	903	.74	917	.71	32.8	34.9
Brokers, real estate .....	58	68	.06	69	.05	16.2	18.1
Supervisors of police and detectives .....	80	89	.07	88	.07	11.3	9.3
Purchasing agents, except wholesale, retail, and farm products .....	183	216	.18	220	.17	18.2	<b>20.6</b>
Bookkeeping, accounting, and auditing clerks .....	2,019	2,158	1.76	2,217	1.71	6.9	9.8
Order clerks for materials, merchandise, and service .....	263	315	.26	324	.25	19.9	23.3
Public relations specialists and publicity writers .....	83	108	.09	112	.09	<b>30.9</b>	34.6
Cabinetmakers and bench carpenters .....	104	124	.10	127	.10	18.7	22.1
Welders and cutters .....	291	330	.27	340	.26	13.5	16.9
Dental assistants .....	149	191	.16	197	.15	28.0	31.9
Dispatchers, except police, fire, and ambulance .....	118	142	.12	146	.11	19.7	23.5
Waiters and waitresses .....	1,570	1,978	1.61	1,916	1.47	25.9	22.0
Drywall installers and finishers .....	117	129	.11	125	.10	<b>10.2</b>	6.8
Pressing machine operators and tenders, textile, garment, and related .....	89	80	.07	78	.06	<b>-10.3</b>	-13.1
Stenographers .....	172	101	.08	105	.08	-41.2	39.2
Numerical control machine tool operators and tenders, metal/plastic .....	58	74	.06	77	.06	28.7	33.1
Pipelayers and pipelaying fitters .....	53	59	.05	57	.04	12.9	9.0
Food counter, fountain, and related workers .....	1,377	1,627	1.33	1,692	1.30	18.2	22.9
Paralegals .....	54	105	.09	110	.08	96.2	104.2
Licensed practical nurses .....	593	695	.57	724	.56	17.3	22.1
Machine-forming operators and tenders, metal and plastic .....	174	170	.14	177	.14	-2.2	1.9
Bank tellers .....	497	522	.43	545	.42	5.1	9.7
Machine builders and other precision machine assemblers .....	53	63	.05	61	.05	<b>20.5</b>	15.6
Medical assistants .....	126	204	.17	214	.16	62.5	<b>70.6</b>
Electricians .....	511	592	.48	565	.43	15.9	<b>10.5</b>
Truck drivers, light and heavy .....	2,123	2,511	2.05	2,648	2.04	18.3	24.7
Photographers .....	92	121	.10	115	.09	31.6	25.1
Production, planning, and expediting clerks .....	210	230	.19	243	.19	9.6	15.9
Packaging and filling machine operators and tenders .....	298	314	.26	333	.26	5.4	11.9
Textile drawout and winding machine operators and tenders .....	237	199	.16	188	.14	-15.9	<b>-20.6</b>
Sewing machine operators, nongarment .....	137	137	.11	130	.10	.4	-5.2

**Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual**

[Numbers in thousands]

Occupation	Total employment				Percent change, 1984-95		
	1984	Projected 1995		Actual 1995		Projected	Actual
		Level	Share (percent)	Level	Share (percent)		
Carpet installers .....	64	75	.06	70	.05	15.8	9.3
Salespersons, retail .....	3,284	3,729	3.04	3,970	3.05	13.6	<b>20.9</b>
Heating, air-conditioning, and refrigeration mechanics and installers .....	209	247	.20	233	.18	18.0	11.1
Police patrol officers .....	334	378	.31	403	.31	13.1	<b>20.7</b>
Janitors and cleaners, including maids/housekeeping cleaners .....	2,449	2,890	2.35	3,086	2.37	18.0	26.0
Extruding and forming machine setters, operators, and tenders .....	104	110	.09	103	.08	5.6	-8
Carpenters .....	940	1,029	.84	965	.74	9.5	2.7
Travel agents .....	94	138	.11	129	.10	46.5	37.3
Sheet metal workers and duct installers .....	215	246	.20	230	.18	14.3	7.0
Employment interviewers, private or public employment service .....	63	89	.07	83	.06	39.5	<b>30.1</b>
Cost estimators .....	143	171	.14	184	.14	19.2	28.5
Central office and pax installers and repairers .....	77	86	.07	80	.06	11.4	3.8
Insulation workers .....	53	60	.05	65	.05	12.9	21.9
Chemists .....	84	89	.07	96	.07	5.6	14.0
Personnel clerks, except payroll and timekeeping .....	115	135	.11	125	.10	16.5	8.2
Helpers, construction trades .....	466	484	.39	525	.40	3.8	12.5
Librarians, professional .....	128	139	.11	152	.12	8.5	18.2
Chemical equipment controllers, operators, and tenders .....	77	79	.06	73	.06	3.1	-5.1
Police detectives and investigators .....	55	60	.05	66	.05	<b>10.1</b>	<b>20.8</b>
Plastic molding machine operators and tenders, setters, and setup operators .....	142	185	.15	169	.13	29.6	18.9
Registered nurses .....	1,326	1,758	1.43	1,937	1.49	32.6	46.1
Maintenance repairers, general utility .....	999	1,173	.96	1,294	1.00	17.4	29.5
Physicians .....	487	600	.49	548	.42	23.2	12.6
Painters and paperhangers, construction and maintenance .....	368	384	.31	424	.33	4.3	15.2
Refuse collectors .....	106	125	.10	114	.09	17.9	7.0
Welfare eligibility workers and interviewers .....	82	94	.08	105	.08	15.0	28.1
Concrete and terrazzo finishers .....	100	117	.10	130	.10	17.0	<b>30.4</b>
Mobile heavy equipment mechanics .....	102	119	.10	107	.08	16.6	5.6
New-accounts clerks, banking .....	87	99	.08	111	.09	14.4	27.7
Data entry keyers, except composing .....	369	370	.30	414	.32	.4	12.3
Institutional cleaning supervisors .....	108	141	.12	128	.10	<b>30.9</b>	18.2
Taxi drivers and chauffeurs .....	84	95	.08	107	.08	12.9	26.7
Sewing machine operators, garment .....	673	568	.46	511	.39	-15.7	-24.1
Payroll and timekeeping clerks .....	192	182	.15	163	.13	-5.6	-15.2
Artists and commercial artists .....	184	240	.20	272	.21	<b>30.2</b>	47.3
Combination machine tool setters, setup operators, operators, and tenders .....	95	122	.10	109	.08	28.1	14.8
Cooks, restaurant .....	485	630	.51	714	.55	29.9	47.0
Respiratory therapists .....	53	64	.05	73	.06	<b>20.6</b>	36.6
Machine feeders and offbearers .....	278	296	.24	265	.20	6.6	-4.7
Lawyers .....	527	722	.59	645	.50	37.1	22.6
Firefighters .....	214	247	.20	220	.17	15.3	2.9
Machinists .....	386	424	.35	378	.29	9.7	-2.1
Clinical lab technologists and technicians .....	231	245	.20	279	.21	6.0	<b>20.6</b>
Aircraft pilots and flight engineers .....	66	82	.07	93	.07	24.0	41.2
Hairdressers, hairstylists, and cosmetologists .....	525	687	.56	611	.47	<b>30.8</b>	16.4
Food preparation workers .....	879	1,078	.88	1,230	.95	22.6	39.9
Home appliance and power tool repairers .....	75	86	.07	77	.06	15.2	2.3
Child care workers, private household .....	401	347	.28	308	.24	-13.5	-23.2
Cutting and slicing machine setters, operators, and tenders .....	82	81	.07	94	.07	-7	14.4

Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual

[Numbers in thousands]

Occupation	Total employment					Percent change, 1984-95	
	1984	Projected 1995		Actual 1995		Projected	Actual
		Level	Share (percent)	Level	Share (percent)		
Bus drivers, school .....	311	364	.30	420	.32	17.2	35.0
Writers and editors, including technical writers .....	194	246	.20	284	.22	26.9	46.5
Library assistants and bookmobile drivers .....	97	107	.09	123	.09	9.7	26.6
Insurance sales workers .....	425	474	.39	415	.32	11.4	-2.5
Wholesale and retail buyers, except farm products .....	189	214	.17	187	.14	13.2	-1.2
Cashiers .....	2,016	2,627	2.14	3,080	2.37	30.3	52.8
Insurance adjusters, examiners, and investigators .....	109	138	.11	162	.12	26.7	48.9
Science and mathematics technicians .....	233	268	.22	233	.18	15.3	.1
Automotive body and related repairers .....	202	243	.20	210	.16	19.9	3.9
Bricklayers and stonemasons .....	154	170	.14	148	.11	10.6	-4.2
Cleaners and servants, private household .....	532	409	.33	484	.37	-23.1	-9.1
Personnel, training, and labor relations specialists .....	221	262	.21	310	.24	18.5	40.2
Underwriters .....	90	112	.09	97	.07	24.1	7.4
Woodworking machine operators and tenders, setters, and setup operators .....	72	77	.06	67	.05	6.7	-7.8
Inspectors and compliance officers, except construction .....	120	133	.11	158	.12	10.9	32.2
Machine assemblers .....	51	61	.05	53	.04	19.8	2.9
Hotel desk clerks .....	97	115	.09	137	.11	18.3	41.6
Drafters .....	326	367	.30	315	.24	12.7	-3.5
Plumbers, pipefitters, and steamfitters .....	384	442	.36	378	.29	14.9	-1.7
Farm managers .....	164	180	.15	154	.12	9.8	-6.1
Gardeners and groundskeepers, except farm .....	597	639	.52	545	.42	7.0	-8.8
Physical therapists .....	59	86	.07	104	.08	45.3	76.6
Designers .....	198	252	.21	307	.24	27.7	55.5
Brokerage clerks .....	51	60	.05	73	.06	18.0	43.7
Automotive mechanics .....	706	859	.70	728	.56	21.6	3.1
Dental hygienists .....	83	107	.09	130	.10	28.7	56.9
Bus and truck mechanics and diesel engine specialists .....	256	309	.25	262	.20	20.4	2.0
Water and liquid waste treatment plant and systems operators .....	71	79	.06	97	.07	11.6	36.8
Inspectors, testers, and graders, precision .....	701	791	.64	668	.51	13.0	-4.6
Drivers/salesworkers .....	253	276	.23	339	.26	9.2	33.9
Cooks, short order and fast food .....	543	637	.52	785	.60	17.3	44.6
Order fillers, wholesale and retail sales .....	188	182	.15	225	.17	-3.1	19.6
Roofers .....	137	156	.13	131	.10	13.5	-4.6
Counselors .....	116	135	.11	168	.13	16.0	44.8
Office machine and cash register servicers .....	53	70	.06	58	.04	31.8	9.9
Laundry and drycleaning machine operators and tenders, except pressing .....	130	145	.12	182	.14	11.5	39.2
Millwrights .....	87	94	.08	78	.06	7.0	-10.9
Customer service representatives, utilities .....	104	122	.10	152	.12	16.7	45.9
Industrial truck and tractor operators .....	426	381	.31	477	.37	-10.6	11.8
Upholsterers .....	68	77	.06	64	.05	11.9	-6.8
Hosts and hostesses, restaurant/lounge/ coffee shop .....	158	203	.17	255	.20	28.5	61.4
Reservation and transportation ticket agents and travel clerks .....	106	115	.09	145	.11	9.0	37.0
File clerks .....	223	231	.19	292	.22	3.4	30.6
Recreation workers .....	154	180	.15	228	.18	16.8	47.7
Psychologists .....	92	110	.09	139	.11	19.8	51.5
Electronics repairers, commercial and industrial equipment .....	77	91	.07	76	.06	18.4	-2.3
Bartenders .....	366	466	.38	385	.30	27.4	5.1
Statistical clerks .....	69	60	.05	77	.06	-12.6	11.4

**Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual**

[Numbers in thousands]

Occupation	Total employment				Percent change, 1984-95		
	1984	Projected 1995		Actual 1995		Projected	Actual
		Level	Share (percent)	Level	Share (percent)		
Dentists .....	160	200	.16	165	.13	25.1	2.9
Tool and die makers .....	165	178	.15	146	.11	8.3	-11.2
Radiologic technologists and technicians ..	109	134	.11	172	.13	23.2	58.0
Musicians .....	184	208	.17	267	.21	13.0	45.2
Accountants and auditors .....	902	1,213	.99	991	.76	34.5	9.8
Producers, directors, actors, and entertainers .....	61	76	.06	98	.08	23.6	59.7
Amusement and recreation attendants .....	179	218	.18	282	.22	21.6	57.2
Head sawyers and saw machine operators and tenders, setters, and setup operators .....	75	80	.07	65	.05	6.6	-13.1
College and university faculty .....	758	654	.53	848	.65	-13.8	11.8
Paper goods machine setters and setup operators .....	60	63	.05	51	.04	4.4	-15.1
Sales agents, real estate .....	290	332	.27	270	.21	14.2	-7.2
Dispatchers, police, fire, and ambulance ...	58	64	.05	84	.06	10.5	43.6
Duplicating, mail, and other office machine operators .....	152	175	.14	230	.18	15.5	51.4
Punch machine setters and setup operators, metal and plastic .....	63	61	.05	49	.04	-2.7	-21.4
Flight attendants .....	68	83	.07	109	.08	21.0	59.7
Chemical engineers .....	52	64	.05	51	.04	21.8	-2.3
Farm workers .....	1,002	863	.70	692	.53	-13.8	-30.9
Postal mail carriers .....	240	248	.20	330	.25	3.3	37.9
Radio and television announcers and newscasters .....	58	64	.05	50	.04	9.9	-12.6
Social workers .....	342	419	.34	570	.44	22.5	66.6
Barbers .....	75	83	.07	65	.05	9.8	-13.4
Station installers and repairers, telephone .....	58	47	.04	37	.03	-18.1	-35.6
Insurance claims clerks .....	78	87	.07	120	.09	12.4	54.9
Teachers' aides and educational assistants .....	594	700	.57	966	.74	17.9	62.8
Sheriffs and deputy sheriffs .....	61	62	.05	86	.07	2.9	42.3
Messengers .....	90	100	.08	139	.11	11.2	54.6
Correction officers .....	167	225	.18	314	.24	34.5	87.7
Civil engineers, including traffic engineers	188	243	.20	188	.14	29.4	.1
Telephone and cable television line installers and repairers .....	123	140	.11	198	.15	14.1	61.8
Textile machine setters and setup operators .....	58	49	.04	38	.03	-15.4	-34.7
Industrial engineers, except safety engineers .....	117	152	.12	116	.09	30.0	-.3
Vehicle washers and equipment cleaners .....	165	177	.14	254	.20	7.4	54.5
Computer operators, except peripheral equipment .....	241	350	.29	267	.21	45.5	11.1
Machine tool cutting operators and tenders, metal and plastic .....	172	164	.13	125	.10	-4.6	-27.4
Child care workers .....	511	563	.46	821	.63	10.1	60.5
Nursery workers .....	54	58	.05	85	.07	6.9	55.8
Mechanical engineers .....	231	309	.25	233	.18	33.6	1.0
Meat, poultry, and fish cutters and trimmers, hand .....	98	93	.08	138	.11	-4.3	41.5
Lathe machine tool setters and setup operators, metal and plastic .....	99	98	.08	74	.06	-.5	-25.0
Grinding machine setters and setup operators, metal and plastic .....	89	87	.07	64	.05	-2.2	-28.1
Drill machine tool setters and setup operators, metal and plastic .....	65	64	.05	47	.04	-.7	-27.4
Electrical and electronic assemblers .....	256	300	.24	218	.17	17.0	-15.0
Data-processing equipment repairers .....	61	106	.09	77	.06	72.8	24.8
Switchboard operators .....	256	330	.27	238	.18	29.1	-7.0
Electrical and electronic equipment assemblers, precision .....	175	205	.17	148	.11	17.5	-15.4

Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual

[Numbers in thousands]

Occupation	Total employment					Percent change, 1984-95	
	1984	Projected 1995		Actual 1995		Projected	Actual
		Level	Share (percent)	Level	Share (percent)		
Animal caretakers, except farm .....	71	75	.06	124	.10	6.2	75.0
Computer programmers .....	440	782	.64	559	.43	77.6	26.9
Adult and vocational education teachers ...	303	352	.29	587	.45	15.9	93.6
Computer systems analysts, engineers, and scientists .....	306	503	.41	860	.66	64.4	180.8
Structural and reinforcing metal workers ...	77	91	.07	63	.05	17.8	-17.8
Typists and word processors .....	922	954	.78	662	.51	3.5	-28.1
Bill and account collectors .....	112	144	.12	259	.20	28.4	131.1
Electrical and electronic technicians/ technologists .....	310	460	.37	316	.24	48.4	2.0
Welding machine setters, operators, and tenders .....	131	157	.13	107	.08	19.9	-18.1
Reporters and correspondents .....	69	83	.07	57	.04	19.9	-18.2
Custom tailors and sewers .....	112	123	.10	83	.06	10.5	-26.1
Emergency medical technicians .....	62	66	.05	140	.11	5.3	124.5
Electromechanical equipment assemblers, precision .....	61	75	.06	48	.04	24.0	-20.0
Adjustment clerks .....	130	158	.13	384	.30	21.9	196.0
Precision instrument repairers .....	57	65	.05	39	.03	13.4	-31.3
Service station attendants .....	289	287	.23	167	.13	-8	-42.1
Electrical and electronics engineers .....	399	607	.49	353	.27	52.2	-11.4
Roustabouts .....	78	79	.06	27	.02	1.1	-65.2
				Absolute percent error, 1995		Share of total job growth, 1984-95	
	Numerical error, 1995 (projected minus actual)	Absolute percent error, 1995	Actual industry totals to projected staffing pattern		Projected	Actual	
			Actual industry totals to projected staffing pattern	Actual staffing pattern to projected industry totals			
Total, all occupations	-7,250	5.6	0.0	5.6	100.00	100.00	
Cooks, institution or cafeteria .....	0	.1	22.4	17.8	.41	.28	
Aircraft mechanics .....	0	.1	14.6	13.4	.10	.07	
Mail clerks, except mail machine operators and postal service .....	0	.1	6.5	6.6	.04	.03	
Supervisors of blue-collar workers .....	6	.3	1.3	1.7	.85	.56	
Butchers and meatcutters .....	1	.4	13.5	10.9	-.06	-.04	
Crushing and mixing machine operators and tenders .....	-1	.5	1.0	2.0	.03	.02	
Highway maintenance workers .....	-1	.6	13.0	12.0	.05	.04	
Cannery workers .....	0	.6	11.1	10.8	-.02	-.01	
Farmers .....	9	.7	8.8	3.8	-.45	-.35	
Stock clerks .....	-15	.8	2.0	3.2	.58	.46	
Industrial machinery mechanics .....	-5	1.0	5.9	6.8	.17	.14	
Secretaries .....	-34	1.0	4.5	6.0	2.00	1.52	
Pharmacists .....	2	1.0	2.7	5.5	.10	.06	
Loan and credit clerks .....	-2	1.4	7.7	7.9	.16	.12	
Bus drivers, except school .....	-2	1.4	30.2	24.7	.11	.09	
Tire repairers and changers .....	-1	1.5	4.2	5.8	.06	.05	
Guards .....	-14	1.5	11.1	11.5	1.39	1.02	
Brokers, real estate .....	-1	1.6	47.3	10.5	.06	.05	
Supervisors of police and detectives	2	1.8	14.9	10.7	.06	.03	
Purchasing agents, except wholesale, retail, and farm products .....	-4	2.0	8.6	9.0	.21	.16	
Bookkeeping, accounting, and auditing clerks .....	-59	2.7	1.0	3.8	.87	.85	
Order clerks for materials, merchandise, and service .....	-9	2.8	4.2	.6	.33	.26	
Public relations specialists and publicity writers .....	-3	2.8	10.1	11.5	.16	.12	
Cabinetmakers and bench carpenters .....	-4	2.8	2.5	2.7	.12	.10	
Welders and cutters .....	-10	2.8	12.4	10.8	.25	.21	
Dental assistants .....	-6	3.0	9.8	12.1	.26	.20	
Dispatchers, except police, fire, and ambulance .....	-5	3.1	4.4	8.6	.15	.12	

**Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual**

[Numbers in thousands]

Occupation	Numerical error, 1995 (projected minus actual)	Absolute percent error, 1995	Absolute percent error, 1995		Share of total job growth, 1984-95	
			Actual industry totals to projected staffing pattern	Actual staffing pattern to projected industry totals	Projected	Actual
Waiters and waitresses .....	61	3.2	15.2	10.1	2.54	1.49
Drywall installers and finishers .....	4	3.2	8.6	3.9	.07	.03
Pressing machine operators and tenders, textile, garment, and related .....	3	3.2	15.7	15.2	-.06	-.05
Stenographers .....	-3	3.3	3.4	7.8	-.44	-.29
Numerical control machine tool operators and tenders, metal/plastic .....	-3	3.3	20.9	19.9	.10	.08
Pipelayers and pipelaying fitters .....	2	3.6	1.6	5.2	.04	.02
Food counter, fountain, and related workers .....	-65	3.8	6.5	9.9	1.56	1.35
Paralegals .....	-4	3.9	20.7	10.9	.32	.24
Licensed practical nurses .....	-29	4.0	10.0	12.6	.64	.56
Machine-forming operators and tenders, metal and plastic .....	-7	4.0	13.4	7.2	-.02	.01
Bank tellers .....	-23	4.2	12.2	8.7	.16	.21
Machine builders and other precision machine assemblers .....	3	4.3	14.3	20.8	.07	.04
Medical assistants .....	-10	4.7	8.2	12.4	.49	.38
Electricians .....	27	4.8	11.6	5.5	.51	.23
Truck drivers, light and heavy .....	-137	5.2	4.1	8.4	2.42	2.26
Photographers .....	6	5.2	10.1	3.1	.18	.10
Production, planning, and expediting clerks .....	-13	5.5	17.9	13.0	.13	.14
Packaging and filling machine operators and tenders .....	-19	5.8	5.0	2.6	.10	.15
Textile drawout and winding machine operators and tenders .....	11	5.9	11.0	4.7	-.24	-.21
Sewing machine operators, nongarment .....	8	5.9	11.2	2.4	.00	-.03
Carpet installers .....	4	5.9	20.2	9.2	.06	.03
Salespersons, retail .....	-241	6.1	1.6	4.6	2.78	2.95
Heating, air-conditioning, and refrigeration mechanics and installers .....	14	6.2	12.1	5.6	.23	.10
Police patrol officers .....	-25	6.3	7.0	12.0	.27	.30
Janitors and cleaners, including maids/housekeeping cleaners .....	-196	6.3	6.7	12.6	2.75	2.74
Extruding and forming machine setters, operators, and tenders .....	7	6.4	8.7	3.0	.04	.00
Carpenters .....	64	6.6	12.2	3.8	.56	.11
Travel agents .....	9	6.7	14.1	9.5	.27	.15
Sheet metal workers and duct installers .....	16	6.8	2.6	4.5	.19	.06
Employment interviewers, private or public employment service .....	6	7.2	23.0	13.3	.16	.08
Cost estimators .....	-13	7.3	7.3	.3	.17	.18
Central office and fax installers and repairers .....	6	7.3	9.1	17.8	.05	.01
Insulation workers .....	-5	7.4	4.7	3.4	.04	.05
Chemists .....	-7	7.4	2.6	11.3	.03	.05
Personnel clerks, except payroll and timekeeping .....	10	7.7	7.9	.7	.12	.04
Helpers, construction trades .....	-41	7.8	6.1	.4	.11	.25
Librarians, professional .....	-13	8.2	9.6	16.0	.07	.10
Chemical equipment controllers, operators, and tenders .....	6	8.6	1.4	9.6	.01	-.02
Police detectives and investigators .....	-6	8.9	.1	7.5	.03	.05
Plastic molding machine operators and tenders, setters, and setup operators .....	15	9.0	6.7	2.7	.26	.12
Registered nurses .....	-179	9.2	3.7	12.3	2.70	2.63
Maintenance repairers, general utility .....	-121	9.4	5.5	7.4	1.08	1.27
Physicians .....	52	9.4	22.3	9.5	.70	.26
Painters and paperhangers, construction and maintenance .....	-40	9.5	2.3	5.8	.10	.24
Refuse collectors .....	12	10.2	46.4	22.8	.12	.03
Welfare eligibility workers and interviewers .....	-11	10.2	2.2	8.3	.08	.10
Concrete and terrazzo finishers .....	-13	10.3	2.0	8.3	.11	.13



Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual

[Numbers in thousands]						
Occupation	Numerical error, 1995 (projected minus actual)	Absolute percent error, 1995	Absolute percent error, 1995		Share of total job growth, 1984-95	
			Actual industry totals to projected staffing pattern	Actual staffing pattern to projected industry totals	Projected	Actual
Mobile heavy equipment mechanics .....	11	10.4	8.1	3.6	.11	.02
New accounts clerks, banking .....	-12	10.4	17.7	9.0	.08	.10
Data entry keyers, except composing .....	-44	10.7	4.6	7.9	.01	.20
Institutional cleaning supervisors .....	14	10.8	28.8	12.8	.21	.08
Taxi drivers and chauffeurs .....	-12	10.8	6.0	18.0	.07	.10
Sewing machine operators, garment .....	57	11.1	2.7	9.2	-.66	-.70
Payroll and timekeeping clerks .....	19	11.4	16.7	3.7	-.07	-.13
Artists and commercial artists .....	-31	11.6	2.7	5.7	.35	.37
Combination machine tool setters, setup operators, operators, and tenders .....	13	11.6	3.8	13.7	.17	.06
Cooks, restaurant .....	-83	11.7	4.2	9.4	.90	.98
Respiratory therapists .....	-9	11.7	.8	12.2	.07	.08
Machine feeders and offbearers .....	31	11.8	11.7	.8	.11	-.06
Lawyers .....	76	11.8	9.5	3.8	1.22	.51
Firefighters .....	27	12.1	27.7	12.1	.20	.03
Machinists .....	46	12.1	.4	11.9	.23	-.04
Clinical lab technologists and technicians .....	-34	12.1	2.3	12.7	.09	.21
Aircraft pilots and flight engineers .....	-11	12.2	15.5	24.6	.10	.12
Hairdressers, hairstylists, and cosmetologists .....	75	12.3	13.5	.2	1.01	.37
Food preparation workers .....	-152	12.4	.0	11.5	1.24	1.51
Home appliance and power tool repairers .....	10	12.6	16.2	.0	.07	.01
Child care workers, private household .....	39	12.7	6.4	5.9	-.34	-.40
Cutting and slicing machine setters, operators, and tenders .....	-12	13.2	10.9	1.9	.00	.05
Bus drivers, school .....	-55	13.2	14.6	23.8	.33	.47
Writers and editors, including technical writers .....	-38	13.4	6.9	1.0	.33	.39
Library assistants and bookmobile drivers .....	-16	13.4	2.8	15.4	.06	.11
Insurance sales workers .....	59	14.2	23.5	6.1	.30	-.05
Wholesale and retail buyers, except farm products .....	27	14.6	18.2	1.6	.16	-.01
Cashiers .....	-453	14.7	8.8	7.1	3.81	4.57
Insurance adjusters, examiners, and investigators .....	-24	14.9	12.1	3.7	.18	.23
Science and mathematics technicians .....	35	15.2	25.3	9.3	.22	.00
Automotive body and related repairers .....	32	15.4	24.4	5.9	.25	.03
Bricklayers and stonemasons .....	23	15.4	20.7	3.3	.10	-.03
Cleaners and servants, private household .....	-75	15.4	20.1	5.9	-.77	-.21
Personnel, training, and labor relations specialists .....	-48	15.5	15.5	.7	.26	.38
Underwriters .....	15	15.6	19.4	1.3	.14	.03
Woodworking machine operators and tenders, setters, and setup operators .....	10	15.7	15.9	.8	.03	-.02
Inspectors and compliance officers, except construction .....	-26	16.1	11.3	5.1	.08	.17
Machine assemblers .....	9	16.4	2.4	21.7	.06	.01
Hotel desk clerks .....	-23	16.5	8.6	8.6	.11	.17
Drafters .....	53	16.8	3.4	10.9	.26	-.05
Plumbers, pipefitters, and steamfitters .....	64	16.9	21.7	3.6	.36	-.03
Farm managers .....	26	17.0	17.9	.8	.10	-.04
Gardeners and groundskeepers, except farm .....	94	17.2	36.2	14.1	.26	-.22
Physical therapists .....	-19	17.8	6.6	12.2	.17	.19
Designers .....	-55	17.9	4.9	4.3	.34	.47
Brokerage clerks .....	-13	17.9	11.2	6.4	.06	.10
Automotive mechanics .....	131	17.9	28.9	7.9	.95	.09
Dental hygienists .....	-23	18.0	6.5	12.2	.15	.20
Bus and truck mechanics and diesel engine specialists .....	47	18.1	28.0	7.4	.33	.02
Water and liquid waste treatment plant and systems operators .....	-18	18.4	5.2	13.8	.05	.11

**Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual**

[Numbers in thousands]

Occupation	Numerical error, 1995 (projected minus actual)	Absolute percent error, 1995	Absolute percent error, 1995		Share of total job growth, 1984-95	
			Actual industry totals to projected staffing pattern	Actual staffing pattern to projected industry totals	Projected	Actual
Inspectors, testers, and graders, precision .....	123	18.4	5.2	9.0	.57	-.14
Driver/salesworkers .....	-63	18.5	15.6	6.9	.15	.37
Cooks, short order and fast food .....	-148	18.9	9.3	9.4	.58	1.04
Order fillers, wholesale and retail sales .....	-43	19.0	18.1	.8	-.04	.16
Roofers .....	25	19.0	24.7	3.4	.12	-.03
Counselors .....	-34	19.9	1.9	17.3	.12	.22
Office machine and cash register servicers .....	12	19.9	18.8	4.5	.11	.02
Laundry and drycleaning machine operators and tenders, except pressing .....	-36	19.9	5.0	14.9	.09	.22
Millwrights .....	16	<b>20.0</b>	15.1	3.6	.04	-.04
Customer service representatives, utilities .....	-31	<b>20.0</b>	31.5	16.5	.11	.21
Industrial truck and tractor operators .....	-96	<b>20.1</b>	18.4	2.7	-.28	.22
Upholsterers .....	13	<b>20.1</b>	16.8	5.6	.05	-.02
Hosts and hostesses, restaurant/lounge/ coffee shop .....	-52	<b>20.3</b>	12.3	<b>10.7</b>	.28	.42
Reservation and transportation ticket agents and travel clerks .....	-30	<b>20.5</b>	4.8	22.2	.06	.17
File clerks .....	-61	<b>20.8</b>	16.0	6.8	.05	.29
Recreation workers .....	-48	<b>20.9</b>	4.1	15.2	.16	.32
Psychologists .....	-29	21.0	6.5	11.6	.11	.20
Electronics repairers, commercial and industrial equipment .....	16	21.1	15.3	4.4	.09	-.01
Bartenders .....	82	21.2	35.7	<b>10.9</b>	.62	.08
Statistical clerks .....	-17	21.5	16.0	9.2	-.05	.03
Dentists .....	35	21.5	34.9	8.5	.25	.02
Tool and die makers .....	32	21.9	7.8	12.2	.08	-.08
Radiologic technologists and technicians ..	-38	22.0	11.4	11.9	.16	.27
Musicians .....	-59	22.2	2.4	22.1	.15	.36
Accountants and auditors .....	223	22.5	23.0	.0	1.94	.38
Producers, directors, actors, and entertainers .....	-22	22.6	2.2	12.6	.09	.16
Amusement and recreation attendants .....	-64	22.7	1.0	21.4	.24	.44
Head sawyers and saw machine operators and tenders, setters, and setup operators .....	15	22.7	22.6	1.2	.03	-.04
College and university faculty .....	-194	22.8	4.9	18.8	-.65	.38
Paper goods machine setters and setup operators .....	12	23.0	27.7	3.7	.02	-.04
Sales agents, real estate .....	62	23.1	34.1	5.6	.26	-.09
Dispatchers, police, fire, and ambulance ...	-19	23.1	<b>10.8</b>	13.9	.04	.11
Duplicating, mail, and other office machine operators .....	-55	23.7	21.0	9.1	.15	.34
Punch machine setters and setup operators, metal and plastic .....	12	23.9	7.6	12.9	-.01	-.06
Flight attendants .....	-26	24.2	3.9	27.1	.09	.18
Chemical engineers .....	13	24.6	15.3	9.2	.07	-.01
Farm workers .....	171	24.7	11.7	6.7	-.87	-1.33
Postal mail carriers .....	-83	25.1	6.6	19.7	.05	.39
Radio and television announcers and newscasters .....	13	25.8	<b>10.2</b>	17.4	.04	-.03
Social workers .....	-151	26.5	<b>10.5</b>	15.9	.48	.98
Barbers .....	17	26.8	<b>30.2</b>	2.1	.05	-.04
Station installers and repairers, telephone .....	10	27.1	7.6	18.1	-.07	-.09
Insurance claims clerks .....	-33	27.5	22.1	8.7	.06	.18
Teachers' aides and educational assistants .....	-266	27.6	7.6	<b>20.8</b>	.66	1.60
Sheriffs and deputy sheriffs .....	-24	27.7	17.0	12.9	.01	.11
Messengers .....	-39	28.1	23.8	5.6	.06	.21
Correction officers .....	-89	28.3	<b>20.0</b>	<b>10.3</b>	.36	.63
Civil engineers, including traffic engineers .....	55	29.3	22.9	4.9	.34	.00

**Table 2. Continued—Employment, by occupation, 1984 actual and 1995 projected and actual**

[Numbers in thousands]						
Occupation	Numerical error, 1995 (projected minus actual)	Absolute percent error, 1995	Absolute percent error, 1995		Share of total job growth, 1984-95	
			Actual industry totals to projected staffing pattern	Actual staffing pattern to projected industry totals	Projected	Actual
Telephone and cable television line installers and repairers .....	-59	29.5	38.1	13.7	.11	.33
Textile machine setters and setup operators .....	11	29.6	39.1	4.9	-.06	-.09
Industrial engineers, except safety engineers .....	35	<b>30.5</b>	4.9	21.0	.22	.00
Vehicle washers and equipment cleaners .	-78	<b>30.5</b>	2.6	29.0	.08	.39
Computer operators, except peripheral equipment .....	83	31.0	35.3	1.6	.68	.11
Machine tool cutting operators and tenders, metal and plastic .....	39	31.4	17.8	<b>10.4</b>	-.05	-.20
Child care workers .....	-258	31.4	19.1	15.5	.32	1.33
Nursery workers .....	-27	31.4	16.3	16.1	.02	.13
Mechanical engineers .....	75	32.3	14.5	14.8	.48	.01
Meat, poultry, and fish cutters and trimmers, hand .....	-45	32.4	6.0	27.9	-.03	.17
Lathe machine tool setters and setup operators, metal and plastic .....	24	32.6	13.0	15.4	.00	-.11
Grinding machine setters and setup operators, metal and plastic .....	23	36.1	21.0	13.3	-.01	-.11
Drill machine tool setters and setup operators, metal and plastic .....	17	36.8	16.6	17.2	.00	-.08
Electrical and electronic assemblers .....	82	37.6	4.6	43.0	.27	-.16
Data-processing equipment repairers .....	29	38.5	33.2	3.1	.28	.07
Switchboard operators .....	92	38.9	48.9	7.4	.46	-.08
Electrical and electronic equipment assemblers, precision .....	57	38.9	6.8	48.7	.19	-.12
Animal caretakers, except farm .....	-49	39.3	13.2	22.4	.03	.23
Computer programmers .....	223	<b>40.0</b>	46.2	3.3	2.13	.51
Adult and vocational education teachers ...	-235	<b>40.1</b>	26.4	15.1	.30	1.22
Computer systems analysts, engineers, and scientists .....	-356	41.5	39.8	3.6	1.23	2.38
Structural and reinforcing metal workers ...	27	43.3	47.6	2.8	.09	-.06
Typists and word processors .....	292	44.0	55.5	8.2	.20	-1.11
Bill and account collectors .....	-115	44.5	42.5	3.1	.20	.63
Electrical and electronic technicians/ technologists .....	144	45.5	25.7	17.7	.94	.03
Welding machine setters, operators, and tenders .....	50	46.3	29.6	13.8	.16	-.10
Reporters and correspondents .....	26	46.6	16.6	<b>10.9</b>	.09	-.05
Custom tailors and sewers .....	41	49.4	47.9	3.2	.07	-.12
Emergency medical technicians .....	-74	53.1	39.0	23.1	.02	.33
Electromechanical equipment assemblers, precision .....	27	55.1	.7	42.3	.09	-.05
Adjustment clerks .....	-226	58.8	59.5	.4	.18	1.09
Precision instrument repairers .....	26	65.0	21.4	22.4	.05	-.08
Service station attendants .....	120	71.4	85.6	16.3	-.01	-.52
Electrical and electronics engineers .....	253	71.8	41.4	<b>20.2</b>	1.30	-.20
Roustabouts .....	52	<b>190.1</b>	37.6	114.6	.01	-.22