and 8.7 percent, respectively, of the population in 1995, but each accounted for more than 28 percent of the projection error. Their population was underprojected largely because of assumptions about undocumented immigrants. The Bureau of the Census has revised its methodology for projecting the population of undocumented immigrants since it issued projections for the 1984–95 labor force, and, as a result, the magnitude of the error for this difficult-to-project group has been significantly reduced.

The population projection error actually offset errors in labor force participation projections. If the projected 1995 labor force participation rates for each age, sex, and racial group were applied to the actual 1995 population, the result would have increased the labor force by 6.9 million, and the projection would have been 3.8 million too high. Although some of the age, sex, and racial group labor force participation rates were projected too low, and some of the population groups too high, the net effect was that labor force participation rate projections were too high and population projections too low, just about offsetting each other. □

Footnote

[1] This section focuses on the 1995 projections as part of the Bureau's series of 1984–95 projections. In the previous series of projections, covering the 1982–95 period, the projected labor force of 131.4 million was more accurate, with the error being 900,000, or 0.7 percent. For a review of all six BLS labor force projections to 1995, see Howard N Fullerton, "Evaluating the 1995 BLS Labor Force Projections," *1997 Proceedings of the Section on Government Statistics* ((Alexandria, VA, American Statistical Association, forthcoming).

Evaluating the 1995 industry employment projections

The 1995 BLS projections of industry employment foretold the trend of almost all major industry groupings, as the economy hewed closely to the path projected for it

Arthur Andreassen

BLS industry employment projections correctly described most broad industry trends over the 1984–95 period. Most of the major industry sectors projected to have faster-than-average growth did so, and 2 of the 3 major sectors projected to decline did lose employment from 1984 to 1995. Services and retail trade were projected to account for 65 percent of the net change in employment, which was very close to the actual 72 percent they attained. Downsizing, which has resulted in the contracting out of many operations, especially in manufacturing industries, is one of many factors that have led to a growth in services faster than that projected.

Major industry sectors

Total wage and salary employment was underprojected by 6.6 million, reflecting chiefly the 3.1 million underprojection of the labor force, but also the unforeseen faster growth of wage and salary employment, compared with that of the labor force. The faster growth stemmed from an unexpected increase in dual jobholders over the projection period. Despite the large numerical underprojection of total employment, the projected 1995 distribution of employment by major industrial sector closely matched the actual distribution. Indeed, the shares of total employment for all but two sectors, agriculture and wholesale trade, were projected to change in the correct direction. Agriculture's share was projected to decline, but it maintained its small 1.7 percent of employment. This was because, although agricultural *production* declined as projected, a rapid growth in agricultural *services*, stemming largely from lawn care services, offset that decline. Wholesale trade's share was projected to increase from 5.7 percent to 5.9 percent, but it actually dropped to 5.3 percent. Wholesale trade was the only sector whose employment growth rate was incorrectly projected to be faster than total employment. The industry grew more slowly than projected because manufacturing, an intensive user of wholesale trade distribution services, grew more slowly than projected. (See table 1.)

Manufacturing's share of employment was correctly projected to decline; however, instead of dropping from 20 percent to 18.4 percent, it fell even lower, to 15.5 percent. These projections were prepared in 1984, just as the economy was emerging from the deeper of two recessions in the 1980s, and it was assumed that manufacturing would recover from its losses, as in the past, but not reach its 1979 peak. But this did not occur. The overprojection was concentrated in defense-related industries in durable goods manufacturing. Nondu-

Table 1. Wage and salary employment, by major industry group, 1984 actual and 1995 projected and actual

[Numbers in thousands]

Industry	1984	1995				Percent change, 1984–95		Numerical error, 1995	Percent error, 1995	Share of total growth, 1984–95	
		Projected		Actual							
		Level	Share (percent)	Level	Share (percent)	Projected	Actual			Projected	Actual
Total, all industries[1]	96,843	112,267	100.0	118,833	100.0	15.9	22.7	–6,566	–5.5	100.0	100.0
Agriculture, forestry, and fisheries	1,668	1,401	1.2	1,976	1.7	–16.0	18.4	–575	–29.1	–1.7	1.4
Mining	620	601	.5	418	.4	–3.1	–32.6	183	43.8	–.1	–.9
Construction	4,726	5,225	4.7	5,407	4.5	10.6	14.4	–182	–3.4	3.2	3.1
Manufacturing	19,369	20,683	18.4	18,405	15.5	6.8	–5.0	2,278	12.4	8.5	–4.4
Durables	11,476	12,986	11.6	10,596	8.9	13.2	–7.7	2,390	22.6	9.8	–4.0
Nondurables	7,894	7,697	6.9	7,809	6.6	–2.5	–1.1	–112	–1.4	–1.3	–.4
Transportation, communications, and utilities	5,232	6,031	5.4	6,280	5.3	15.3	20.0	–249	–4.0	5.2	4.8
Wholesale trade	5,568	6,578	5.9	6,324	5.3	18.1	13.6	254	4.0	6.5	3.4
Retail trade, including eating and drinking places	16,512	19,549	17.4	20,840	17.5	18.4	26.2	–1,291	–6.2	19.7	19.7
Finance, insurance, and real estate	5,683	6,740	6.0	6,949	5.8	18.6	22.3	–209	–3.0	6.9	5.8
Services	21,517	28,468	25.4	33,042	27.8	32.3	53.6	–4,574	–13.8	45.1	52.4
Business and professional services, except medical	8,011	11,728	10.4	13,479	11.3	46.4	68.2	–1,751	–13.0	24.1	24.9
Other services	13,506	16,740	14.9	19,564	16.5	23.9	44.9	–2,824	–14.4	21.0	27.5
Government	15,947	16,991	15.1	19,192	16.2	6.5	20.4	–2,201	–11.5	6.8	14.8

[1] Employment data for wage and salary employment are from the BLS Current Employment Statistics (payroll) survey, which counts jobs. Agriculture and private household data are from the Current Population Survey (household survey), which counts workers.

rable-goods-manufacturing industries were correctly projected to decline, not only as a share of total employment, but also in absolute levels. Employment in mining was correctly projected to decline as well, but the actual decline was much steeper than the projection. Employment in construction in 1995 was very close to the projected level, but construction's share of employment was overprojected.

Employment in services was correctly projected to increase faster than employment in all other sectors, although the actual rate was underprojected. Services accounted for 70 percent of the underprojection in total employment. Government employment was correctly projected to decline as a share of total employment, but the decline was much less than projected. The finance, insurance, and real estate sector and the transportation, communications, and utilities sector had relatively small projection errors.

Gross domestic product

Changes made since 1984 to the definition of real demand and to how it is calculated make it difficult to compare the dollar values of actual and projected gross domestic product (GDP). The evaluation that follows, therefore, is largely based on relative values and actual and projected annual average percent change. Total GDP was projected to grow at an annual average of 2.8 percent, but actual growth was much slower, 2.5 percent. Higher-than-projected employment levels were offset by a slower-than-projected growth in output per worker hour. (See table 2.)

Personal consumption expenditure is the largest and most stable of the major demand components of GDP. The projected annual growth rate of 2.9 percent for total personal consumption expenditure was very close to the actual rate, 2.7 percent. Here, an underprojection for durable goods consumption was offset by an overprojection for services consumption. The growth rate of gross domestic investment, the most variable of the major demand components of GDP, was overprojected. By contrast, the projection of producer's durable equipment was too low, as purchases of computer and communications equipment by businesses were much greater than projected. However, this was offset by the projection of nonresidential structures and residential structures, which was much too high. The growth of construction was spurred by the tax-encouraged building in the middle 1980s, but slowed significantly in later years because of legislation that affected the tax benefits of this investment.

Foreign trade, in both its import and export components, was projected to grow faster than the other major components of GDP, but it grew even faster than projected. The trade-weighted value of the dollar reached a post-World War II low in 1995, which helped ex-

port growth. Import growth from 1984 to 1995 reflected the generally healthy domestic economy during most of the period, as well as the unexpected low price of oil. Some of the components of government demand were significantly overprojected and others significantly underprojected. Changes in the international political situation resulted in a reversal of the defense buildup that started in the late 1970s. Consequently, national defense expenditures, which were projected to increase significantly, actually declined. In contrast, Federal nondefense expenditures rose faster than projected, as projected cutbacks did not occur. State and local government purchases were higher than projected, spurred by increases in spending for health and education.

Detailed industries

The BLS evaluation covers wage and salary workers in 117 industries or industry groups that sum to total employment.[1] Average errors have little analytical value, because some industry sectors, such as manufacturing, have large numbers of detailed industries, while other sectors, such as construction and wholesale trade, have no industry detail, and retail trade is divided into only two detailed industries. The projected direction of change was correct for 72 (62 percent) of the industries; 28 that were projected to increase and 44 to decline did so. Projected declines in 12 industries and increases in 33 were in the wrong direction.

Manufacturing industries are overrepresented in the evaluation, accounting for 75 industries, 64 percent of the total number evaluated, although they made up only 15 percent of employment in 1995. Durable goods account for 44 manufacturing industries, of which 30 declined over the 1994–95 period, only 10 of which were projected to do so. Among the most significant errors in the projections for manufacturing industries were those related to the overprojection of defense expenditures, including ordnance (119 percent), aerospace (60 percent), shipbuilding (35 percent), and communications and scientific equipment (58 percent). An unforeseen surge in imports of computers resulted in an overprojection of 123 percent in the computer and office equipment industry. In contrast, nine durable-goods-manufacturing industries were underprojected. Of these, the largest projection error was for motor vehicles and equipment. An increase in U.S. operations and a rise in production by foreign motor vehicle manufacturers resulted in U.S. jobs gains, rather than losses due to production in foreign countries. (See table 3.)

In the 31 nondurable goods industries, the projection errors were generally smaller than in durable goods industries. The food-manufacturing industries were all projected to decline, except for the miscellaneous group, and all did, save the miscellaneous group and meat products. However, the declines were generally less than projected. Drug manufacturing grew a little faster than projected, spurred by purchases from health service and government health industries.

Employment in 9 of the 12 detailed service industries that were evaluated increased faster than projected. One of the three that increased less than projected, private households, was projected to decline and did so, but the decline was even greater than projected. Beauty and barber shops and personal and repair services registered an increase in employment, but not as fast as was projected. Two of the service industries with the largest numerical projection errors—miscellaneous business, professional, and social services and doctors' offices, nursing homes, and miscellaneous health services—were projected to grow much faster than average, but they grew even faster than projected. The former industry was driven in part by very rapid, unprecedented growth in the early 1980s, when projections were

Table 2. Growth in demand components between 1984 and 1995, actual and projected

[Annual percent change]

Components of demand	Gross domestic product, 1984 to actual 1995 (1992 dollars)	Gross national product,[1] 1984 to projected 1995 (1992 dollars)[2]
Total	2.5	2.9
Personal consumption expenditures	2.7	2.8
Durable goods	3.7	2.8
Nondurable goods	1.9	1.9
Services	2.9	3.4
Gross private domestic investment	1.8	2.8
Producers' durable equipment	4.7	3.8
Nonresidential structures	–1.2	2.0
Residential structures	1.4	2.1
Change in business inventories	–4.0	.3
Net exports		
Exports	8.1	5.6
Imports	–6.3	–4.0
Government	2.0	2.5
Federal Government	.2	2.8
National defense	–.7	3.4
Nondefense	2.5	1.1
State and local government	3.3	2.3

[1] Actual 1995 demand data are available on a gross domestic product basis, rather than the projected gross national product basis.

[2] Actual 1995 demand data are available in 1992 chain-weighted dollars, rather than the projected 1972 fixed-weight dollars.

Table 3. Wage and salary employment, by industry, 1984 actual and 1995 projected and actual

[Numbers in thousands]

Industry	1984	1995				Percent change, 1984–95		Numerical error, 1995	Percent error, 1995	Share of total growth, 1984–95	
		Projected		Actual							
		Level	Share (percent)	Level	Share (percent)	Projected	Actual			Projected	Actual
Total	96,843	112,267	100.0	118,833	100.0	15.9	22.7	–6,566	–5.5	100.0	100.0
Agricultural production	1,126	1,021	.9	1,064	.9	–9.3	–5.5	–43	–4.0	–.7	–.3
Agricultural services	501	330	.3	872	.7	–34.2	73.9	–542	–62.2	–1.1	1.7
Forestry, fishing, hunting, and trapping	41	50	.0	40	.0	22.0	–2.4	10	25.0	.1	.0
Metal mining	55	44	.0	51	.0	–20.3	–7.2	–7	–14.1	–.1	.0
Coal mining	196	185	.2	107	.1	–5.4	–45.4	78	73.2	–.1	–.4
Crude petroleum, natural gas, and gas liquids	261	263	.2	155	.1	.8	–40.5	108	69.5	.0	–.5
Nonmetallic minerals, except fuels	109	109	.1	105	.1	.5	–3.5	4	4.1	.0	.0
Construction, including oil and gas services	4,726	5,225	4.7	5,407	4.5	10.6	14.4	–182	–3.4	3.2	3.1
Logging	88	78	.1	82	.1	–10.9	–6.7	–4	–4.4	–.1	.0
Sawmills and planing mills	202	190	.2	186	.2	–6.1	–8.2	4	2.3	–.1	–.1
Wood products and mobile homes	428	435	.4	490	.4	1.7	14.5	–55	–11.2	.0	.3
Household furniture	296	321	.3	279	.2	8.6	–5.6	42	15.1	.2	–.1
Miscellaneous furniture and fixtures	191	242	.2	221	.2	27.0	15.8	21	9.6	.3	.1
Glass and glass products	163	167	.1	152	.1	2.5	–6.7	15	9.8	.0	.0
Cement and concrete	223	242	.2	222	.2	8.7	–.4	20	9.1	.1	.0
Stone, clay, and miscellaneous mineral products	176	212	.2	167	.1	20.5	–4.8	45	26.6	.2	.0
Blast furnaces and basic steel products	334	261	.2	239	.2	–21.9	–28.4	22	9.1	–.5	–.4
Foundries, forging, and refining	770	785	.7	721	.6	1.9	–6.4	64	8.9	.1	–.2
Metal cans and shipping containers	59	52	.0	41	.0	–11.3	–29.7	11	26.2	.0	–.1
Cutlery, handtools, and hardware	148	162	.1	131	.1	9.7	–11.0	31	23.3	.1	–.1
Plumbing and nonelectric heating equipment	65	60	.1	60	.1	–8.0	–7.7	0	–.3	.0	.0
Fabricated structural metal products	430	514	.5	428	.4	19.6	–.4	86	20.1	.5	.0
Screw machine products, bolts, rivets, etc.	96	108	.1	99	.1	12.1	2.6	9	9.3	.1	.0
Ordnance and ammunition	76	111	.1	51	.0	46.8	–32.8	60	118.5	.2	–.1
Miscellaneous fabricated metal products	342	394	.4	379	.3	15.4	10.8	16	4.1	.3	.2
Engines and turbines	113	124	.1	87	.1	9.7	–22.8	37	42.2	.1	–.1
Farm and garden machinery	108	136	.1	104	.1	26.4	–3.4	32	30.9	.2	.0
Construction and related machinery	257	334	.3	217	.2	29.8	–15.8	117	54.1	.5	–.2
Metalworking machinery and equipment	327	367	.3	340	.3	12.3	3.9	27	8.0	.3	.1
Special industry machinery	158	197	.2	167	.1	24.6	5.6	30	18.0	.3	.0
General industrial machinery and equipment	252	325	.3	253	.2	29.0	.4	72	28.5	.5	.0
Computer and office equipment	515	756	.7	340	.3	46.9	–34.0	416	122.5	1.6	–.8
Refrigeration and service industry machinery	171	194	.2	200	.2	13.3	16.7	–6	–2.9	.1	.1
Industrial machinery, n.e.c.[1]	317	322	.3	336	.3	1.6	5.9	–14	–4.1	.0	.1
Electric distribution equipment	111	231	.2	81	.1	108.3	–26.9	150	184.8	.8	–.1
Electrical industrial apparatus	201	241	.2	160	.1	19.7	–20.4	81	50.3	.3	–.2
Household appliances	146	150	.1	123	.1	2.6	–16.0	27	22.1	.0	–.1
Electric lighting and wiring equipment	202	223	.2	182	.2	10.5	–9.7	41	22.4	.1	–.1
Household audio and video equipment	90	85	.1	93	.1	–5.6	3.1	–8	–8.4	.0	.0
Communication and scientific equipment	986	1,164	1.0	737	.6	18.1	–25.3	427	58.0	1.2	–1.1
Electronic components and accessories	657	846	.8	582	.5	28.7	–11.5	265	45.5	1.2	–.3

Table 3. **Continued—Wage and salary employment, by industry, 1984 actual and 1995 projected and actual**

[Numbers in thousands]

Industry	1984	1995				Percent change, 1984–95		Numerical error, 1995	Percent error, 1995	Share of total growth, 1984–95	
		Projected		Actual							
		Level	Share (percent)	Level	Share (percent)	Projected	Actual			Projected	Actual
Miscellaneous electrical equipment	170	186	.2	154	.1	9.7	–9.1	32	20.7	.1	–.1
Motor vehicles and equipment	862	826	.7	933	.8	–4.1	8.3	–107	–11.5	–.2	.3
Aerospace	729	866	.8	541	.5	18.8	–25.8	325	60.0	.9	–.9
Ship and boat building and repairing	192	220	.2	163	.1	14.7	–15.3	58	35.4	.2	–.1
Railroad equipment	35	36	.0	38	.0	2.9	8.6	–2	–5.3	.0	.0
Miscellaneous transportation equipment	65	59	.1	70	.1	–9.8	6.7	–11	–15.5	.0	.0
Medical equipment, instruments, and supplies	208	234	.2	262	.2	12.4	25.7	–28	–10.6	.2	.2
Photographic equipment and supplies	124	135	.1	87	.1	9.0	–30.1	49	56.1	.1	–.2
Watches, clocks, and parts	14	14	.0	8	.0	–.7	–43.3	6	75.0	.0	.0
Jewelry, silverware, and plated ware	55	78	.1	51	.0	42.6	–7.3	27	53.8	.2	.0
Manufactured products, n.e.c.[1]	327	303	.3	343	.3	–7.3	4.9	–40	–11.6	–.2	.1
Meat products	355	328	.3	465	.4	–7.7	30.8	–137	–29.4	–.2	.5
Dairy products	163	126	.1	150	.1	–22.8	–8.2	–24	–15.9	–.2	–.1
Grain mill products, fats, and oils	166	124	.1	159	.1	–25.2	–3.9	–35	–22.2	–.3	.0
Bakery products	218	181	.2	212	.2	–16.9	–2.8	–31	–14.6	–.2	.0
Sugar and confectionery products	102	85	.1	99	.1	–16.5	–2.5	–14	–14.4	–.1	.0
Beverages	214	191	.2	179	.2	–10.9	–16.6	12	6.8	–.2	–.2
Miscellaneous foods and kindred products	390	415	.4	421	.4	6.3	7.9	–6	–1.5	.2	.1
Tobacco products	64	56	.0	39	.0	–12.8	–38.6	17	42.1	–.1	–.1
Weaving, finishing, yarn, and thread mills	432	354	.3	350	.3	–18.1	–19.0	4	1.2	–.5	–.4
Knitting mills	208	168	.1	191	.2	–19.0	–7.8	–23	–12.2	–.3	–.1
Carpets and rugs	53	43	.0	65	.1	–19.5	20.8	–22	–33.3	–.1	.1
Miscellaneous textile goods	53	46	.0	51	.0	–13.9	–5.2	–5	–9.1	.0	.0
Apparel	1,000	808	.7	705	.6	–19.2	–29.5	103	14.6	–1.2	–1.3
Miscellaneous fabricated textile products	185	174	.2	211	.2	–5.9	14.3	–37	–17.7	–.1	.1
Paperboard containers and boxes	197	183	.2	215	.2	–7.2	9.0	–32	–14.8	–.1	.1
Pulp, paper, and paperboard	477	480	.4	473	.4	.7	–.8	7	1.5	.0	.0
Newspapers	440	508	.5	453	.4	15.5	3.0	55	12.2	.4	.1
Periodicals, except newspapers	277	313	.3	341	.3	13.2	23.5	–28	–8.3	.2	.3
Printing	659	785	.7	762	.6	19.1	15.6	23	3.1	.8	.5
Industrial chemicals	305	305	.3	272	.2	–.1	–11.0	33	12.3	.0	–.2
Plastics materials and synthetics	178	162	.1	158	.1	–8.9	–11.3	4	2.7	–.1	–.1
Drugs	206	243	.2	260	.2	18.1	26.1	–17	–6.4	.2	.2
Soap, cleaners, and toilet goods	145	160	.1	152	.1	10.0	4.5	8	5.3	.1	.0
Paints and allied products	62	57	.1	58	.0	–8.1	–6.3	–1	–1.9	.0	.0
Agricultural chemicals	61	61	.1	53	.0	.7	–12.2	8	14.7	.0	.0
Miscellaneous chemical products	92	101	.1	93	.1	9.4	.9	8	8.5	.1	.0
Petroleum and coal product manufacturing	189	175	.2	144	.1	–7.4	–24.0	31	21.8	–.1	–.2
Tires and inner tubes	95	86	.1	83	.1	–9.7	–13.1	3	4.0	–.1	–.1
Rubber products, plastic hose, and footwear	184	132	.1	184	.2	–28.2	.2	–52	–28.4	–.3	.0
Miscellaneous plastics products, n.e.c.[1]	534	707	.6	705	.6	32.4	31.9	2	.3	1.1	.8
Footwear and other leather products	190	140	.1	108	.1	–26.1	–43.0	32	29.5	–.3	–.4
Railroad transportation	376	283	.3	239	.2	–24.7	–36.5	45	18.7	–.6	–.6
Local and interurban passenger transit	270	267	.2	448	.4	–1.2	65.6	–181	–40.3	.0	.8

Table 3. Continued—Wage and salary employment, by industry, 1984 actual and 1995 projected and actual

[Numbers in thousands]

Industry	1984	1995				Percent change, 1984–95		Numerical error, 1995	Percent error, 1995	Share of total growth, 1984–95	
		Projected		Actual							
		Level	Share (percent)	Level	Share (percent)	Projected	Actual			Projected	Actual
Trucking and warehousing	1,317	1,571	1.4	1,879	1.6	19.3	42.6	−308	−16.4	1.6	2.6
Water transportation	190	206	.2	160	.1	8.4	−16.1	47	29.2	.1	−.1
Air transportation	488	574	.5	766	.6	17.6	56.8	−192	−25.0	.6	1.3
Pipelines, except natural gas	19	20	.0	17	.0	4.7	−13.6	4	21.2	.0	.0
Miscellaneous transportation services	253	362	.3	424	.4	43.1	67.4	−62	−14.5	.7	.8
Communications	1,340	1,575	1.4	1,358	1.1	17.5	1.3	217	16.0	1.5	.1
Electric utilities	645	827	.7	585	.5	28.3	−9.3	242	41.5	1.2	−.3
Gas utilities	223	225	.2	189	.2	.8	−15.4	36	19.0	.0	−.2
Water and sanitation	110	121	.1	218	.2	10.0	98.5	−97	−44.6	.1	.5
Wholesale trade	5,568	6,578	5.9	6,324	5.3	18.1	13.6	254	4.0	6.5	3.4
Retail trade, except eating and drinking places	11,131	12,890	11.5	13,617	11.5	15.8	22.3	−727	−5.3	11.4	11.3
Eating and drinking places	5,381	6,659	5.9	7,223	6.1	23.8	34.2	−564	−7.8	8.3	8.4
Banking and brokerages	2,852	3,396	3.0	3,316	2.8	19.1	16.3	80	2.4	3.5	2.1
Insurance	1,765	2,056	1.8	2,243	1.9	16.5	27.1	−187	−8.3	1.9	2.2
Real estate and royalties	1,067	1,288	1.1	1,390	1.2	20.7	30.3	−102	−7.3	1.4	1.5
Lodging places and residential care	1,532	1,955	1.7	2,259	1.9	27.6	47.5	−304	−13.5	2.7	3.3
Beauty and barber shops	341	430	.4	395	.3	26.3	16.0	35	8.8	.6	.2
Personal and repair services, n.e.c.[1]	706	1,160	1.0	881	.7	64.4	24.8	280	31.7	2.9	.8
Advertising	183	227	.2	241	.2	24.0	31.3	−14	−5.6	.3	.3
Miscellaneous business, professional, and social services	7,828	11,501	10.2	13,238	11.1	46.9	69.1	−1,737	−13.1	23.8	24.6
Automotive services	682	864	.8	1,025	.9	26.6	50.3	−161	−15.7	1.2	1.6
Motion pictures and videotape rental	276	243	.2	586	.5	−11.9	112.6	−343	−58.5	−.2	1.4
Amusement and recreation services, n.e.c.[1]	859	1,056	.9	1,474	1.2	23.0	71.7	−418	−28.4	1.3	2.8
Doctors, nursing homes, and miscellaneous health services	3,115	4,796	4.3	5,454	.6	54.0	75.1	−658	−12.1	10.9	10.6
Hospitals	3,004	3,253	2.9	3,816	3.2	8.3	27.0	−563	−14.7	1.6	3.7
Educational, job training, child care, etc.	1,755	1,964	1.7	2,712	2.3	11.9	54.5	−748	−27.6	1.4	4.3
Private households	1,238	1,019	.9	963	.8	−17.7	−22.2	56	5.8	−1.4	−1.3
U.S. Postal Service	703	677	.6	843	.7	−3.7	20.0	−166	−19.7	−.2	.6
Federal Government enterprises, n.e.c.[1]	197	140	.1	194	.2	−29.0	−1.8	−54	−27.6	−.4	.0
General government	14,325	15,429	13.7	17,389	14.6	7.7	21.4	−1,960	−11.3	7.2	13.9
Local government passenger transit	186	209	.2	212	.2	12.4	14.2	−3	−1.6	.1	.1
State and local government enterprises, n.e.c.[1]	536	536	.5	554	.5	.0	3.3	−18	−3.2	.0	.1

[1] n.e.c. = not elsewhere classified.

developed for the temporary help services supply industry. Growth in that industry reflects much of the cost cutting that employers have been implementing over the past several years, as firms replace permanent employees with temporary ones to save on the cost of benefits, yet maintain flexibility in their production operations.

Employment in railroads, air transportation, trucking and warehousing, and local and interurban transit grew faster than projected. The most significant underprojection was for the last of these, as the growth of subway systems took hold during the projection period. Employment in the transportation industries grew faster than projected, as companies converted to "just in time" inventory management more rapidly than was expected. Electric and gas utilities were both projected to increase, but they decreased, as deregulation apparently had a significant impact on employment. □

Footnotes

[1] Originally, projections were made for 156 industries. Because of changes in the Standard Industrial Classification (SIC) system, however, com-

parability with actual 1995 industries could be accomplished only at a 117-industry level. Data were analyzed just for wage and salary workers, both because of the change in the SIC system and because it would be difficult to establish comparability between the data for these workers, derived from the Current Employment Statistics program, and data on self-employed and unpaid family workers, derived from the Current Population Survey.

Evaluating the 1995 occupational employment projections

Although too conservative, the BLS employment projections to 1995 correctly foresaw most general occupational trends

Carolyn M. Veneri

The Bureau's occupational employment projections captured the majority of the general occupational trends over the 1984–95 period. Some of the most glaring inaccuracies in the projections for detailed occupations reflect the conservative nature of projected growth rates that was identified in previous evaluations. Although the impact of inaccurate industry employment projections on the occupational employment projections was significant, the projections of the changes in the utilization of occupations by industry resulted in the biggest source of projection error, as in past evaluations.

Major occupation groups

The direction of employment change was projected correctly for all nine of the major occupation groups. The absolute projection error was less than 10 percent for eight out of the nine groups and 11.3 percent for professional specialty occupations, the major occupation group with the largest absolute error. (See table 1.)

Projected employment was lower than actual in six major groups: executive, administrative, and managerial occupations; professional specialty occupations; marketing and sales occupations; administrative support occupations, including clerical; services occupations; and operators, fabricators, and laborers. Employment was overestimated for precision production, craft, and repair occupations, and technicians and related support occupations. The latter group's employment was projected the most accurately, at less than 1 percent more than actual employment. The decline in employment was slightly overestimated for agriculture, forestry, fishing, and related occupations.

Not only was the direction of employment change anticipated correctly for all the major groups, but the projected distribution of employment growth among the groups was reasonably accurate.[1] For example, the professional specialty occupation group had the largest absolute numerical error, nearly 2 million, but its share of total employment growth was underprojected by only 3.4 percent. Thus, the projection for total employment—low by about 7.3 million—had an impact on the overall accuracy of the projections.

The largest error in the projected share of employment growth was for precision production, craft, and repair occupations. This group's share of total employment growth was overprojected by about 7 percent, in line with its employment being overprojected by 886,000. For each major group, however, the same pattern of projection of employment growth and rprojection of the group's share of employment growth does not necessarily apply. In the case of operators, fabricators, and laborers, for example, employment was slightly underprojected, and the share of employment growth was overprojected. For marketing and sales workers, the projected share of total employment growth was almost identical to the actual share, although the level of employment was underprojected. (See table 1.)

The fastest growing occupation groups had the largest absolute projection errors. Technicians and related support occupations was projected to be the fastest growing group, but was outpaced by four other groups. The two actual leaders, professional specialty occupations and executive, administrative, and managerial occupations, which were both projected to grow faster than average, but not as fast as they really did grow.

Administrative support workers, including clerical workers, made up the largest group of workers in 1984 and also was projected to be, and was in actuality, the largest in 1995, even though it did not grow more slowly than average, as projected. The projection error for this group was 8.3 percent. The group's projected slow growth was based on the anticipated effect of the rapid spread of computerized office equipment. As a result, many clerical occupations were correctly projected to grow slowly or decline. However,