

Occupational winners and losers: who they were during 1972–80

Job gains occurred in most occupational groupings in which Americans were employed during the 1970's, but close to half of the overall employment increase took place in just 20 of the 235 occupations; and, several job groups lost thousands of workers

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Most occupations gained workers in the 1970's. An employment increase of 15.6 million persons during 1972 to 1980 was dispersed among three-fourths of the 235 or so occupational categories in which most persons were employed. However, almost half of this job growth can be attributed to just 20 occupations—including secretaries, cashiers, registered nurses, and cooks. Among occupations declining in size were delivery workers, cleaners and servants in private households, and farmers. (See exhibit 1.)

This article looks at employment changes among the biggest occupational winners and losers of the 1970's. Two sets of criteria were used to choose the winners. An occupation must be one of the top 20 in terms of the number of workers added to the annual average employment level between 1972 and 1980—these increases ranged from more than 200,000 to nearly 1 million; alternately, the job group must have been one of the 20 which grew by 75 percent or more. The majority of occupations which met these tests were in either professional or clerical fields. Four job groups—computer specialists, computer operators, health technologists and technicians, and bank tellers—met both criteria. For all winners, job expansion by industry and by sex is examined.

The 10 biggest losers of 1972–80—that is, occupations which declined by 60,000 workers or more—were generally other than white-collar jobs. (Percentage decrease in employment was not used as a criterion for job losers because only occupations with extremely small numbers of workers in them declined by a large proportion and their absolute loss of workers was small.) Various technological and sociological changes help account for many of the employment decreases, as will be pointed out later.

The Current Population Survey, which is the article's major data source, provides employment information for about 435 detailed occupations. However, this discussion is limited to those which posted a 1980 annual average employment level of 50,000 workers or more. To determine growth during the 1970's, annual averages for 1972 and 1980 are used; the year 1972 was chosen as the base year because earlier data are not available for all occupations on a comparable definitional basis.¹

Where has the growth occurred?

About half of the 15.6 million increase in employment between 1972 and 1980 took place among two white-collar groups—professional and technical workers rose by 4.2 million and clerical workers registered a gain of 3.9 million. Next highest were managers and administrators with an increase of 2.9 million, service workers (excluding private household workers) with 2.4 million, and craft and kindred workers with 1.7 million.

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Exhibit 1. Occupations ranked by the size of their absolute employment changes, 1972-80

Largest increases	Largest decreases
Secretaries	Delivery and route workers
Cashiers	Cleaners and servants
Registered nurses	Farm owners and tenant farmers
Cooks	Unpaid family farmworkers
Truckdrivers	Garage workers and gas station attendants
Accountants	Sewers and stitchers
Engineers	Child-care workers
Computer and peripheral machine operators	Textile operatives
Bookkeepers	Telephone operators
Computer specialists	Stenographers

Only small increases were posted among salesworkers, operatives, and nonfarm laborers, while there were declines of about 400,000 each among private household and farmworkers.

Growth rates follow a similar pattern. These measure the increase in employment relative to the initial (1972) employment level of the occupation. As shown below, white-collar groups—in particular, professionals, managers and administrators, and clerical workers—experienced the fastest growth between 1972 and 1980, followed by service workers (excluding private household):

Occupation	Employment change, in percent
Total	19.1
White-collar workers	30.0
Professional and technical workers	36.3
Managers and administrators, except farm	35.9
Salesworkers	15.3
Clerical and kindred workers	27.1
Blue-collar workers	7.8
Craft and kindred workers	15.9
Operatives, except transport	0.1
Transport equipment operatives	8.1
Nonfarm laborers	6.9
Service workers	18.2
Private household workers	-27.6
Other service workers	25.1
Farmworkers	-11.9

The only blue-collar occupational group which even came near the average growth rate was craft and kindred jobs. Generally speaking, as the service-producing sector expanded, so did office and service jobs, while slow growth in manufacturing and other goods-producing industries limited the increase in the employment of production workers.

Women accounted for about 65 percent of the employment rise over the period, an amount disproportionate to their 38-percent share of total employment in 1972. Many of the specific occupational winners—including the top five mentioned earlier—were “female-dominated.” Women also made up a relatively large share of the job gains in all major occupational groups

which experienced growth. More specifically, women accounted for at least half of the increases in employment in each of the major groups except craft and kindred jobs, where 1 of 5 additional workers was female. And even among craftworkers, women composed much of the employment advance compared with their portion of all craft jobs, as they accounted for fewer than 1 of 25 craftworkers in 1972. In two occupational groups, women made up 100 percent of the (limited) job gains, as the number of men employed as nonfarm laborers remained about the same and the number working as operatives except transport declined. Women made up a small part of the drop in farmworkers but virtually all of the decrease among private household workers.

Surge among white-collar groups

The proportion of workers employed in white-collar occupations reached 50 percent for the first time in 1976 and exceeded 52 percent by 1980. The continual climb in the proportion of these jobs can be attributed to three of its four major occupational groups—professional and technical workers, managers and administrators, and clerical workers.

Professional workers. The most growth took place among professional workers; seven specific occupations with increases of 200,000 or more fall under this heading. (See table 1.) The biggest employment gain was among registered nurses, whose job count was boosted by the growing demand for health services throughout the 1970's. (However, demand for services does not necessarily imply a simple one-to-one relationship to job growth in the health or any other industry. Other factors, such as relative wages received by persons in the occupation, the supply of workers with appropriate skills, changes in productivity and technology, and the degree to which other types of workers can satisfy the additional demand may all contribute to determining the magnitude of the employment change.) The health industry boom—caused by the greater availability of medical insurance, a larger and older population, and more public awareness of quality health care, among other factors—led to the job gains for nurses, as well as for dieticians, therapists, health technicians, administrators, and health aides.² The number of physicians increased too, but their rate of growth was slower than that of other health workers. The employment advance among registered nurses, which totaled 500,000 during 1972-80, occurred mainly among those in hospitals (350,000) and in medical offices (125,000). Although the number of male nurses more than doubled—they totaled 45,000 by 1980—95 percent of the job gains occurred among women.

The category of health technologists and technicians was among the biggest gainers—both in the size of the

job gain and the growth rate of the employed—although they posted an employment increase of only half that of registered nurses. (See tables 1 and 2.) As the demand for skilled persons to operate highly sophisticated diagnostic and therapeutic equipment grew, the employment level of health technologists and technicians advanced by approximately 255,000. More than half of this gain was among hospital workers, particularly those employed as clinical laboratory and radiologic technicians. As one might suspect, substantial increases also occurred among health technicians working in medical offices and other such facilities. A much smaller, but still noteworthy, gain took place in local government, which employed very few health technologists and technicians in the early 1970's compared with 13,000 by 1980. Women accounted for about two-thirds of the total increase among health technologists and technicians, in line with their representation in that occupation.

In another health-related occupation, therapists posted an 85-percent increase (almost 100,000), as the health industry as a whole grew rapidly. The exception-

ally fast growth rate among therapists can be partly traced to stronger interest in, and funding for, rehabilitation programs. The representation of women among therapists advanced from about 60 to 75 percent from 1972 to 1980, as the vast majority of new therapists were women.

While still a relatively small health occupation, the number of dieticians grew swiftly, as their employment total rose from less than 35,000 to 60,000. As about 9 of 10 dieticians are women, virtually all of the job gains were registered among women. Like the other health workers, both therapists and dieticians found most job opportunities in hospitals, nursing homes, and other medical facilities.

The professional group which posted the next largest increase after nurses—about 335,000—was accountants. As business and individuals became more aware of the need for financial management, demand for accountants and accounting firms expanded; in fact, the rate of growth of accountants—a group which includes income tax advisers and others with accounting skills—was about twice that of total employment. About 30 percent of the job gains took place among those in professional services industries, especially the accounting, auditing, and bookkeeping services industry (although accountants working for hospitals and educational services made up part of the increase). An additional 20 percent of the advance occurred among manufacturing industries, with most of that rise being registered in firms which produce durable goods. The remaining 50 percent of the increase was spread among numerous industries, including public administration at all three levels of government, banking and finance, wholesale trade, and insurance and real estate. Although most accountants are men, the female share of the industry rose by 15 percentage points, to about 36 percent, as two-thirds of the additional accountants were women.

Engineers had a substantial employment rise, as their job count moved ahead by 330,000. Close to half of the job growth for engineers was in manufacturing. Next came professional services, and noticeable growth also occurred in business services, public utilities, and public administration (State and local). Industrial, and electrical and electronic engineers experienced the largest job gains, followed by mechanical engineers. These were also the fields in which employment of female engineers expanded the most. Although women made up only 15 percent of the total employment advance of engineers, their 50,000 increase was exceptional, considering there were fewer than 10,000 female engineers in 1972.

Related to the job gains among engineers was a rise of 265,000 among engineering and science technicians. These gains were spread throughout the economy but, like that of engineers, much of their employment increase was in manufacturing. Especially rapid growth in

Table 1. Occupations with the largest absolute increases in employment between 1972 and 1980

[Numbers in thousands]

Occupation	Employed		Employment increases		Rank by size of increase
	1972	1980	Number	Percent	
Total employed	81,702	97,270	15,568	19.1	—
Professional and technical workers:					
Accountants	714	1,047	333	46.6	6
Computer specialists	273	584	311	113.9	10
Engineering and science technicians	828	1,095	267	32.2	12
Engineers	1,102	1,433	331	30.0	7
Health technologists and technicians	315	571	256	81.3	14
Lawyers	303	522	219	72.3	18
Registered nurses	801	1,302	501	62.5	3
Salesworkers:					
Real estate agents and brokers	349	582	233	66.8	17
Sales representatives, wholesale trade	696	915	219	31.5	18
Clerical workers:					
Bank tellers	288	531	243	84.4	16
Bookkeepers	1,584	1,904	320	20.2	9
Cashiers	988	1,554	556	55.7	2
Computer and peripheral machine operators	196	522	326	166.3	8
Secretaries	2,949	3,876	927	31.4	1
Craftworkers:					
Heavy equipment mechanics	714	963	249	34.9	15
Transportation equipment operatives:					
Truckdrivers	1,441	1,844	403	28.0	5
Nonfarm laborers:					
Stockhandlers	723	941	218	30.2	20
Service workers:					
Building interior cleaners excluding janitors and sextons	668	932	264	39.5	13
Cooks	866	1,331	465	53.7	4
Waiters	1,124	1,416	292	26.0	11

Note: Data are annual averages.

the production and use of electrical and electronic equipment and computer equipment accounted for a substantial number of new engineering jobs in those manufacturing industries and in the field of telecommunications. Although engineering and science technician jobs traditionally have been filled by men, women accounted for 45 percent of the 1972–80 growth, thereby doubling their representation in the occupational group from 9 to 18 percent.

Well known for its growth is the computer field, as advances in computer technology and usage have generated literally hundreds of thousands of jobs during both the 1960's and 1970's. Among just the professional job categories, computer specialists—mainly programmers and analysts—increased from about 12,000 in 1960³ to 275,000 in 1972 and to nearly 585,000 by 1980. The number of persons employed as computer programmers came close to doubling during the 1972–80 period, while computer systems analysts were not far from tripling their 1972 level. Both of these occupations were among the 20 fastest-growing, and systems analysts were at the top in terms of percentage growth. Interestingly, it is difficult to pinpoint those industry groups in which most of the employment increase among computer specialists took place, because computers influenced nearly every major industry. As technological advances have made better computer equipment available at more reasonable prices, industries with firms which could not previously afford computers—such as some business services—and industries which grew only slightly during the 1970's—such as several durable goods manufacturing industries—incorporated computers into their operations.⁴ Other large increases in the employment of computer specialists occurred in transportation and public utilities, especially telecommunications; finance, insurance, and real estate; nondurable goods manufacturing; public administration; and professional services, particularly educational services. (Employment advances in another computer-related occupation, computer operator, will be discussed later in this article.)

The female share of computer specialist jobs rose from 17 percent in 1972 to 26 percent in 1980, as 1 of 3 additional jobholders was a woman. Women continued to be more likely to be programmers than systems analysts—although female representation among both groups of workers increased substantially.

While lawyers make up one of the top 20 occupations only in terms of the size of their employment increase, both the absolute size of their gain—220,000—and their rate of growth—more than 70 percent—were notable. The demand for lawyers grew rapidly as businesses and individuals called upon them to untangle and interpret laws which are increasing in number and in complexity. About two-thirds of the rise in the employment of lawyers, which includes law clerks and

Table 2. Occupations with the largest percentage increase in employment between 1972 and 1980

(Numbers in thousands)

Occupation	Employed		Employment increases		Rank by size of increase
	1972	1980	Number	Percent	
Total employed	81,702	97,270	15,568	19.1	--
Professional and technical workers:					
Authors	30	70	40	133.3	4
Biological scientists	36	64	28	77.8	19
Computer programmers	186	341	155	83.3	14
Computer systems analysts	74	201	127	171.6	1
Designers	110	193	83	75.5	20
Dieticians	33	59	26	78.8	17
Economists	68	138	70	102.9	7
Health technologists and technicians	315	571	256	81.3	15
Psychologists	50	106	56	112.0	5
Research workers	86	175	89	103.5	6
Therapists	115	213	98	85.2	10
Managers and administrators, except farm:					
Health administrators	118	210	92	78.0	18
Clerical workers:					
Bank tellers	288	531	243	84.4	12
Computer and peripheral equipment operators	196	522	326	166.3	2
Teachers' aids except school monitors	206	383	177	85.9	9
Craftworkers:					
Data processing machine repairers	45	83	38	84.4	12
Operatives, except transport:					
Insulation workers	30	59	29	96.7	8
Nonfarm laborers:					
Warehouse laborers, not elsewhere classified	150	272	122	81.3	15
Service workers:					
Health aides, except nursing	157	290	133	84.7	11
Welfare service aides	34	87	53	155.9	3

NOTE: Data are annual averages.

many paralegal workers, took place among the group to which the majority belong—that is, those in private practice, either with law firms or alone. Proportionately speaking, a larger increase was registered among government lawyers, whose number more than doubled between 1972 and 1980 (from 40,000 to 90,000). Nearly a quarter of the job gains for lawyers were in public administration, with increases occurring at Federal, State, and, especially, local levels. Most of the remaining rise in employment—about one-tenth of the total increase of lawyers—was among those employed as house counsel by private firms, and a small increase was noted among law teachers.

Although the practice of law traditionally has been a "man's job"—women accounted for only 4 percent of all lawyers in 1972—1 of 4 lawyers added to the job count during 1972–80 was a woman. By 1980, the fe-

male proportion of employed lawyers was 13 percent, and this share is expected to continue rising.

Two of the three professional occupations which more than doubled in size fall under the social sciences heading—psychologists and economists. Psychologists are heavily concentrated in just a few industries; accordingly, their 55,000 increase was accounted for almost exclusively by job gains in professional services. Hospitals and medical offices provided opportunities for slightly more than half of the additional psychologists, while other services industries, including educational ones, absorbed most of the remainder. More than half of the increases took place among women, bringing their share of the employment total for psychologists to just over 50 percent.

The industrial distribution of economists is much more diverse, and so their 70,000 rise was spread among many types of businesses. About 30 percent of the advance took place in manufacturing firms, while banks and particularly business services—such as securities and investment companies, economic research firms, and management consulting firms—made up another 30 percent. About 2 of 5 economists added between 1972 and 1980 were women, making their proportion 25 percent.

The third group of professionals which more than doubled in size was composed of authors, including magazine free-lancers, speech writers, and television writers. About three-fourths of all authors in 1980 were self-employed and, accordingly, most of the increase of 40,000 was among self-employed workers. Men and women shared equally in the group's employment gain, and the proportion of women in this occupation was about 43 percent in both 1972 and 1980.

Other fast-growing professional occupations include biological scientists, designers, and research workers. The occupational group referred to as life and physical scientists as a whole grew at about twice the national rate for all workers, but biological scientists, who make up about one-fifth of the overall scientist group, increased at the even faster rate of close to 80 percent. Nevertheless, biological scientists increased by fewer than 30,000, with most of the gain occurring among those working in hospitals and medical offices, government (particularly at the State level), and education. Women made up half of the employment increase, as their representation in this occupation rose about 13 percentage points, to 38 percent.

The majority of designers in 1972 worked for manufacturing firms, particularly in the development of durable goods. However, an increase of 80,000 in the number of designers was most strongly felt in professional and business services. Both sexes shared in the 75-percent increase in the employment of designers. Men continued to predominate in this occupation, al-

though women increased their proportion 10 percentage points, to 30 percent.

Employment of research workers who are not included in one of the other professional occupations rose substantially in every major industry group in which researchers can be found. A doubling in the number of research workers, to 175,000, was especially evident in professional service industries, such as educational institutions and law offices. Women accounted for almost half of the overall advance and, by 1980, made up about a third of all researchers.

Managers and administrators. In contrast to the 1960's, which had slow growth in managerial and administrative jobs, the 1970's saw rapid advances in the employment of these workers. Jobs for managers and administrators increased nearly as quickly as those for professional workers, the fastest-growing occupational group. However, the 2.9-million increase in the number of managers was substantially less than that posted for professionals or clerical workers. Moreover, no single managerial occupation qualified in the top 20 in terms of the size of the increase, although bank officials and financial managers—with an increase of about 215,000—was in 21st place. The duties performed by different persons working in managerial and administrative positions can be quite varied, and actually fewer than half of these workers are classified according to a specific occupation under the managerial heading. That is, most managers are grouped together under the indefinite title, "managers and administrators, not elsewhere classified." The number of such workers increased by more than a third, or 1.7 million.

One administrative group with a relatively fast rate of growth was health administrators; their number increased by close to 80 percent, as more than 90,000 such employees—about half men and half women—were added to the job count. In line with the faster growth of health industry workers in medical facilities other than hospitals, only one-third of the increase among health administrators was attributable to hospital hirings. In both 1972 and 1980, almost half of all health administrators were women.

Salesworkers. The growth among salesworkers was slower than the national average, as their number rose by only about 800,000, or 15 percent, during 1972-80. The recessions of 1974-75 and 1980 had a dampening effect on this group, but, as will be seen in the discussion of cashiers in the clerical occupations, much of the actual increase in retail trade employment is reflected at the cash register rather than on the sales floor. Also, there has been a substantial rise in the number of persons who are salesworkers in their secondary job. The number of these multiple jobholders grew by about

250,000, or 75 percent, from 1972 to 1980.

Real estate agents and brokers—with an increase of almost 235,000—were 1 of only 2 salesworker categories listed among the Nation's top gainers. The growth among real estate workers can be partly traced to the tremendous rise in the investment potential of homeownership during most of the 1970's and to a growing economy's need for additional residential and commercial buildings. Moreover, saleswork can provide an opportunity for part-time employment, as about one-fifth of all real estate agents work less than 35 hours per week.⁵ By 1980, half were women, as they accounted for 7 of 10 additional agents; hence, this occupation is becoming more female-dominated.

A large absolute increase also was posted among sales representatives in wholesale trade. However, their rate of growth was only about 12 percentage points higher than the national average, and their 220,000 increase occurred primarily as a result of sizable advances within a few industries—most notably the wholesale machinery equipment and supplies industry in which the employment of salesworkers grew by 70,000. The female proportion of this occupation, while still low at only about 10 percent, doubled during the period.

Clerical workers. Clericals—the largest occupational group of the 12 major job groups—took second place after professionals in terms of the 1972–80 employment advance. Like professional workers, clerical occupations included 4 of the 10 top gainers; among these were the two largest (absolute) gainers, secretaries and cashiers. Clerical workers, in particular, were affected by developments in computers and office machines, as employment decreased among stenographers and keypunch operators, for example, while increasing among computer operators.

Secretaries, who make up one-fifth of all clerical workers, registered an increase of more than 925,000, making them the leading gainer among all occupational groups. As secretaries are needed in every industry, their employment grew in all sectors of the economy, especially among fast-growing industries such as business services, welfare and religious organizations, and local government, where their employment advanced by more than 50 percent. Legal secretaries experienced exceptional growth, increasing by about 70 percent.

Only 1 of 100 secretaries is a man, and virtually all of the field's increase was among women. The traditionally female composition of the secretarial work force—as well as that of cashiers—showed no indication of changes in the 1970's.

Cashiers, whose numbers grew by more than 550,000, are strongly concentrated in the retail trade industry. Although the employment of salesworkers in retail trade was virtually unchanged, the shift to self-service

drugstores, clothing stores, discount operations, and catalog stores increased the demand for cashiers. The proliferation of fast-food eating places, which often require several cashiers, led to more than a doubling of the number of cashiers working in restaurants, as well as increases in part-time job opportunities. In 1976, 4 of 10 cashiers were working part time.⁶ Women made up 87 percent of all cashiers in both the early 1970's and the beginning of the 1980's.

Computer and peripheral machine operators increased by 325,000 and bookkeepers by 320,000. However, whereas the latter grew at about the same rate as that for the Nation as a whole, computer operators were the second fastest-growing occupation, following only computer systems analysts. As technological improvements have decreased the need for keypunch operators, computer operators became the largest computer occupation, accounting for nearly 40 percent of all computer personnel.⁷ As was the case for programmers and systems analysts, the demand for computer operators increased in every major industry.

The need for bookkeeping services has grown in line with the overall expansion of the economy, as all industries include firms which require the services of one bookkeeper or more. Although 1 of 3 works in wholesale or retail trade, their employment grew more rapidly in other industries. Professional services, most notably medical offices, experienced a particularly fast rate of growth for bookkeepers. More than 90 percent of all bookkeepers in 1980 were women; this proportion had been slightly lower in 1972.

Another clerical occupation with a sizable increase in jobholders was that of bank tellers—85 percent or 245,000. As the suburbs expanded and branch banking proliferated, the demand for tellers increased. Apparently, the appearance of automatic teller machines served to lengthen banking hours without eliminating job opportunities for bank tellers. As has been seen, the proportion of women in several traditionally female occupations has grown, as more women have joined the labor force; this occupation is no exception. The proportion of female bookkeepers rose by 5 percentage points, to nearly 93 percent, by the start of the 1980's.

Teachers' aides (excluding school monitors) were a very small group in 1960 but grew extremely fast during both the 1960's and 1970's; their number increased by about 85 percent, or 175,000, from 1972 to 1980. These workers—who serve as teachers' assistants and thereby assume some functions formerly performed by teachers, for example, grading papers and exams, supervising study halls, and helping out in kindergartens—are almost always women. The female proportion in this rapidly growing field was approximately 94 percent in 1980, up a few points from the early 1970's.

Service workers stride ahead

While service worker jobs can be found in all major industry groups, most—nearly 90 percent—are in the service-producing sector of the economy. And as employment in this sector bounded forward, so did the number of service workers (excluding private household). The fastest-growing nonwhite-collar occupational category, it included five job groups which registered relatively large employment increases, either numerically or percentage-wise.

The occupation which ranks fourth among those with the largest numerical increase in employment was that of cooks, whose job count rose by 465,000, or close to 55 percent. Related to this increase was an almost 300,000, or 25 percent, advance among waiters (including waitresses). As more women joined the labor force, turning single-earner families into multi-earner ones, the number of restaurants and fast-food places expanded and were frequented more often. The extremely large rise in the employment of cooks, including grill cooks, pizza makers, and fast-order cooks, can also be partially accounted for by the use of several cooks simultaneously in one eating establishment. In addition, part of the increase in their employment—about 55,000—was because of more job opportunities in hospitals and other medical facilities and in schools.

About one-third of all cooks work part time—about the same proportion as for all service workers—while closer to 45 percent of waiters are part-timers.⁸ Most waiters and cooks are women, but men made up an increasing proportion of the latter during the 1970's. The representation of women among cooks dropped about 9 percentage points, to 53 percent, while the female proportion of waiters remained around 90 percent.

Another group of service workers which posted a large increase was building interior cleaners (excluding janitors and sextons). Rising about 265,000 from 1972 to 1980, they experienced a growth rate about twice the national average. The number of such workers rose substantially in many industries, such as professional and business services—including building cleaning services—and in manufacturing and retail trade. The proportion of women in this occupation barely changed over the 9-year period, staying near 55 percent.

One of the fastest-growing occupations—which nevertheless totaled fewer than 90,000 in 1980—was that of welfare service aides. Their more than 150 percent increase made this the third largest gainer in the 1970's in terms of rate of growth. In 1960, prior to the widespread establishment of programs in social welfare, there were fewer than 1,000 welfare service aides. Community service workers, family service aides, and other welfare service aides work mainly in welfare and religious organizations but can also be found in medical fa-

cilities, such as nursing homes for the aged, and in schools. Current Population Survey data for 1980 show that 9 of 10 of these workers were women.

A larger service occupation, and one which also grew rapidly during the 1970's, was that of health aides (excluding nursing aides, orderlies, and attendants). Employment in this category—which includes medical assistants, pharmacists' helpers, and numerous others—was part of the overall growth of health-related occupations. Half of the nearly 135,000 rise in health aides was among those working in medical facilities other than hospitals, while a third was because of increased hospital employment. The number of women in this occupation doubled between 1972 and 1980, bringing their representation among health aides up 5 percentage points, to almost 85 percent.

Slow blue-collar growth

Blue-collar jobs, while still a major portion of the labor market with nearly a one-third share of total employment, accounted for only one-seventh of the overall increase in jobholders since 1972. The sluggish growth of blue-collar employment during the 1960's slowed even further in the 1970's as technological advances reduced the need for some types of blue-collar workers, while the job growth which took place in industries within the service-producing sector had little impact on the opportunities for workers in many blue-collar occupations. Even the rapid expansion of certain durable goods manufacturing industries—such as machinery and electric equipment—had only a slight overall effect on blue-collar employment.

Craft and kindred workers—those in skilled trades—grew at a slower pace than the overall economy but nevertheless made up more than three-fourths of the blue-collar advance, as laborers increased even more slowly and operatives employment was virtually unchanged. However, there were six specific blue-collar occupations which grew enough to qualify as big gainers, either in terms of absolute or percentage increases.

Craft and kindred workers. Much of the news concerning craftworkers in the 1970's focused on the entrance of women into the skilled trades; and, they did make important gains in this area. The number of female craftworkers doubled between 1972 and 1980, rising by about 365,000.⁹ This resulted in women's representation among total craftworkers rising to only 6 percent, compared with 3.6 percent in 1972. So while 1 of 5 additional craftworkers over the period were women, and men's employment in the skilled trades rose less than 10 percent, by 1980 this occupation was still predominantly male.

Heavy equipment mechanics were the only craft occupation which posted a large employment gain. Much

of it took place in manufacturing, although especially rapid growth was characteristic of mechanics in repair services, wholesale trade, and mining. The rate of growth for heavy equipment mechanics as a whole was 35 percent, about 15 points above the national average. Despite the increases already noted for women in this field, the occupation was 98 percent male in 1980.

Data processing machine repairers—also called computer service technicians—experienced essentially the same sharp growth trend as other workers in the computer field, with a percentage gain that placed it as the 10th fastest-growing occupation during the period. While still not a large occupational group, data processing machine repairers increased by nearly 85 percent, as the need for installation, service, and repair of computer equipment expanded as a result of more widespread computer use. These workers were employed mainly in durable goods manufacturing, wholesale trade, and business and repair services, and the growth rate for computer technicians was virtually the same in each of these industries. Like most other craft occupations, this one is more than 90 percent men, but women did hold more jobs as computer repairers in 1980 than they had in 1972.

Operatives except transport. Nontransport operatives made up a no-growth occupational group during the 1970's and only one specific occupation under this heading—insulation workers—experienced a fast rate of growth. Moreover, only a few other nontransport operative occupations grew at a rate even somewhat above the national average; these included mine operatives, welders and flame cutters, and laundry and dry cleaning operatives. The overall standstill among operatives, following only slow growth during the 1960's, was the result of several technological and societal changes. Among these were the shift of consumer demand away from the output of goods-producing industries, in which most operatives work, and towards service-producing industries; technological advances which made production more efficient and thereby reduced the need for as many operatives to produce the same amount of goods; changes in consumer demand for some types of work, such as dressmakers; and an increase in imports of certain goods that may have limited the jobs available, such as for textile workers. The proportion of female operatives (excluding transport) edged up to 40 percent in 1980. In more than a third of the specific operative occupations, the majority of workers were women.

The almost 100-percent growth among insulation workers, bringing their number in 1980 to slightly fewer than 60,000, was the result of the need for insulation in new homes and offices and the demand for more of it among energy-conscious owners of older homes. Almost all insulation workers are men, and the majority are

employed by insulation contractors.

Transport equipment operatives. Although this group as a whole experienced slow growth—about 8 percent, or 260,000, since the early 1970's—the jobs under this heading tell a mixed story: three occupations grew at rates equal to or exceeding the national average, two were unchanged, and the remaining one decreased. The fastest growing of the three gainers was busdrivers, whose employment rose about 40 percent, or 100,000.

However, in terms of the actual size of the increase, truckdrivers grew most. Their advance of 400,000 placed them fifth in the ranking of all occupations by size of their employment growth. About 40 percent of all truckdrivers work for transportation companies (including their own), and 20 percent work in wholesale and retail trade. These industries accounted for three-fourths of the job gains, with employment growing more among truckdrivers in the trade industries. Despite a number of articles and even movies about female truckdrivers, 98 percent were men in 1980. However, there were five times as many women holding these jobs in 1980 as in 1972, and their employment level rose to more than 40,000.

Nonfarm laborers. The number of nonfarm laborers, like transport equipment operatives, crept upward during 1972–80, following a decade of little or no growth. The substitution of machines for laborers, as well as the trend toward employing more highly skilled workers, depressed the hiring of laborers. Although 4 of the 9 specific laborer occupations posted employment declines, stockhandlers increased by more than 200,000 and warehouse laborers were among the fastest growing occupations.

The level of employment among stockhandlers rose by almost 220,000, with virtually all of the growth taking place in retail trade establishments (other than eating and drinking places), their biggest employer. Nearly a fourth of all stockhandlers in 1980 were women—up from 17 percent 8 years earlier—as an additional 100,000 women joined the field. More than 1 of 3 stockhandlers works part time,¹⁰ which helps account for the large number of young persons—both male and female—holding these jobs.

Warehouse laborers (excluding those already counted as stockhandlers) rose by more than 120,000, as several major industry groups increased their hiring of these laborers substantially. Half of all warehouse laborers work in wholesale or retail trade establishments, and many others work in factories or in the transportation industry. Only about 15,000 of the employment increase can be attributed to women. Yet this represents a notable change from the early 1970's when only a few thousand women were employed in this occupation.

Yes, there were losers, too

Despite the magnitude of the employment increase during the 1970s, about 1 of 4 specific occupational groups did not post an employment advance. The declines—spread among about 50 occupations—totaled more than 2 million, ranging from 1,000 workers to more than 300,000. More than half of the 30 occupations which dropped by at least 10,000 workers during 1972-80 were blue-collar jobs, especially those of operatives. There were only five white-collar losers, four of which were in the clerical grouping. And, the same pattern occurred among the 10 biggest losers—that is, occupations whose level of employment dropped by 50,000 or more. Again, the blue-collar category posted the most losers. (See table 3.)

Occupational employment can fall in much the same way it can be boosted by changes in consumer tastes, technology, labor supply, and other factors. For example, a preference for longer hair resulted in less consumer demand for barbers, while the use of dictation machines reduced the business community's need for stenographers.

Delivery and route workers posted the biggest occupational loss—almost 310,000, or a third of the 1972 employment total. These workers, who are employed in wholesale or retail trade, in manufacturing, and to some extent by transportation and service firms, may deliver to homes or stores. The largest percentage declines were posted among those working for factories which produce nondurable goods and those employed in both

wholesale and retail trade. A large drop—more than 200,000—occurred from 1973 to 1974, as many businesses were perhaps influenced by the gasoline shortage and resulting high gas prices to reduce delivery services. Employment in this occupation appears to have stabilized during the decade's second half. But despite the occupation's overall employment decline, the number of women who are delivery and route workers almost doubled during 1972-80, though the female proportion was still only 7 percent by 1980.

The number of private household workers has been dropping for four decades, as it fell from about 2.4 million in 1940 to 1.4 million by 1972 and 1.0 million by 1980. The two largest specific occupations within the private household workers category—cleaners and servants, and child-care workers—are among the biggest losers of the most recent decade.

Cleaners and servants totaled less than a half million in 1980, following a nearly one-third decline of 220,000 since 1972. This decrease was partially offset by a rise in employment within commercial cleaning businesses. Also, the supply of the private household workers—a group generally paid low wages—declined, perhaps more than the demand for them, as employment opportunities in other fields increased and as public assistance became more available.¹¹ Just over half of the cleaners and servants in 1980 were black and other minority women; however, nearly 90 percent of the employment decline among workers in this occupation took place among minority women, as older workers retired and younger, better-educated blacks entered other types of occupations. The representation of total women in this field—about 97 percent—was steady over the decade.

Child-care workers in private households, including both young part-time babysitters and full-time experienced adults, also posted a sizable employment decline. Their number dropped by about 110,000, or 20 percent of the 1972 total. During the same period, employment of child-care workers outside the child's own home—such as in day care centers or in the homes of women who care for several children—increased by 75,000, as many working parents turned to these alternatives. Moreover, much of the decrease in private household child-care workers occurred in the early 1970's, with employment in this occupation remaining relatively flat during the decade's latter half. The 1976 change in the income tax law permitting a tax credit to families with certain child-care expenses—in contrast to their early classification as an itemized deduction only—may have helped stem the downward trend of this occupation. About 9 of 10 child-care workers are white women, and most of the 1972-80 decline was among them.

Agricultural employment has dropped dramatically since the early 1900's, when the agricultural count totaled more than 12 million—or a third of all workers—

Table 3. Employment in occupations with declines of 60,000 or more between 1972 and 1980

[Numbers in thousands]

Occupation	Employed		Employment decreases		Rank by size of decrease
	1972	1980	Number	Percent	
Clerical workers:					
Telephone operators . . .	392	316	-76	-19.4	9
Stenographers	125	64	-61	-48.8	10
Craftworkers:					
Garage workers and gas station attendants . .	502	337	-165	-32.9	5
Operatives except transport:					
Sewers and stitchers . .	936	788	-148	-15.8	6
Textile operatives	424	323	-101	-23.8	8
Transport equipment operatives:					
Delivery and route workers	892	584	-308	-34.5	1
Private household workers:					
Child-care workers . . .	543	431	-112	-20.6	7
Cleaners and servants . .	713	491	-222	-31.1	2
Farmworkers:					
Farm owners and tenant farmers	1,658	1,447	-211	-12.0	3
Farm laborers, unpaid family workers	455	284	-171	-37.6	4

Note: Data are annual averages.

to the 1980 employment level of 3.3 million, representing just over 3 percent of all employees. Accordingly, farmworkers, who account for 4 of 5 agricultural employees, posted sizable decreases, too. Between 1972 and 1980, the ranks of farmworkers were diminished by 365,000 as farms became more mechanized and the trend towards fewer farms continued. However, it should be noted that the rate of decline among farmworkers slowed considerably during the 1970's and practically all of the 1972-80 decline took place among farmers—that is, farmowners and tenant farmers—and unpaid family workers who are farm laborers; these two groups made up two-thirds of all farmworkers in 1972. Hence, over the same period, the number of wage- or salary-earning farm laborers changed little.

Both owners and renters of small farms and unpaid laborers posted their largest losses before 1978, as their employment level held fairly steady for the balance of the decade. Interestingly, as the number of farmowners and renters declined—by about 210,000—the number of women in this occupation rose by 50,000. Still, about 90 percent of all farmers in 1980 were men.

Approximately 2 of 3 unpaid farm laborers are women, generally the farmer's wife, but his daughter or other female relative also would be included. These unpaid family members must work 15 hours or more per week on the family farm to be counted as employed farm laborers. The 170,000 drop in the number of unpaid workers is partly a response to the reduced number of family farms; the number of farms fell by half a million during the 1970's.¹² Moreover, some of the decrease can be attributed to women moving into paid jobs in the nonagricultural sector, either replacing or supplementing their hours spent on farmwork. If these unpaid farmworkers spend more hours at their off-farm job—which often happens during slack farming seasons—they are classified accordingly. Hence, the decline among farm laborers is caused by more moonlighting among some farmers' relatives and a complete cessation of farmwork among others.

A one-third decline in the number of garage workers and gas station attendants took place between 1972 and 1980. A large factor in this drop was undoubtedly the gasoline shortage of 1973, with the resulting cutbacks in the number and hours of gas stations; but probably of even greater importance was the introduction of self-service pumps. In fact, half of the overall employment drop occurred between 1978 and 1980. Garage workers and gas station attendants, many of whom are relatively young, include a substantial proportion of part-timers—about 30 percent in 1976.¹³

Two of the occupations which posted large job losses—textile operatives and sewers and stitchers—were in many ways related, as some textile firms produce the materials which are then used by sewers. A 150,000 de-

cline among sewers and stitchers and a 100,000 drop among textile operatives—including, for example, spinners, knitters, and weavers—occurred as more efficient machinery, the use of synthetic fibers, and competition from imports have combined to reduce the demand for these workers. As about 95 percent of all sewers and stitchers are women, virtually all of the decrease took place among women. Although women represent about 3 of 5 textile operatives, about half of the reduction among these operatives was accounted for by men.

The employment of telephone operators declined by about 75,000 during 1972-80, as several factors combined to reverse their earlier upward trend. Most of the drop—about 60,000—occurred among telephone company operators, whose job total was affected by changing consumer habits, such as less use of directory assistance caused by the imposition of charges in some areas, and more direct dialing of long-distance calls. In addition, improved switching equipment reduced the need for so many operators. Private branch exchange switchboard operators, who work mainly for large companies, also experienced some decline in demand as firms adopted the operatorless Central Exchange (CENTREX) telephoning system. All of the job loss took place among women, as the number of men employed as telephone operators rose during the 1970's.

In terms of absolute size of the employment decline, those construction laborers who are employed as carpenters' helpers would qualify as the Nation's 10th largest occupational loser. Because much of their 65,000 drop undoubtedly is cyclical, rather than secular, and because the number of carpenters actually rose during the decade, a better choice of occupations for the list of those with big losses probably is stenographers.

The employment of stenographers fell rapidly during the 1970's, as their job count in 1980—at less than 65,000—was only half of its 1972 level. As mentioned earlier, the overall demand for stenographers was greatly diminished, both in the 1960's and 1970's, as a result of the increased use of dictation machines. Virtually every industry which employed stenographers in the early 1970's had drastically reduced the number of these jobs by 1980. For instance, the estimated number of stenographers working in telecommunications fell from 21,000 to 1,000; in manufacturing, their employment dropped from almost 20,000 to less than 5,000. The relative declines among public administration workers were not as large, as skilled shorthand reporters found job opportunities within the court systems. It is likely that many persons who had been classified as stenographers in the early 1970's were working as secretaries, dictaphone typists, or in other clerical fields by 1980. Employment of both male and female stenographers was reduced by about half, resulting in virtually no change in the 90 percent female share of these jobs.

Some of the specific occupational changes of the 1970's were similar to those of the previous decade—for example, strong growth was maintained among computer specialists and cashiers, and declines continued among unpaid farm laborers. However, the employment changes for some occupations in the 1970's were in contrast to changes in the 1960's. For instance, the big winners of the 1960's included billing clerks and library attendants, which were both slower than average gainers during the 1970's; but a substantial loss was posted by machinists in the 1960's, whose number had shown strong growth during the more recent decade. How much the occupational employment trends of the 1970's continue through the 1980's remains to be seen. □

NOTE: The data are based on 1970 Decennial Census population counts, adjusted for the aging of the popula-

tion, deaths, and net migration. The Bureau of Labor Statistics has subsequently converted current CPS estimates to reflect the 1980 census, which enumerated 4.7 million more people than had been estimated in updating the 1970 figure. Because this difference was so much larger than previous censuses, historical CPS data series also are being revised, including broad occupational employment categories. Unlike data for the major labor force series, the full range of revised data for detailed occupational categories was not available at this writing; indeed, revisions of some of the detailed series may not be undertaken. However, even if revised data were available, their validity might be questionable at the level of detail in this analysis. (The size and scope of the revisions of major labor force data as a result of the 1980 census will be discussed in an article in the *July Review*.)

—FOOTNOTES—

¹ The Current Population Survey is a monthly survey of about 60,000 households around the Nation conducted by the Bureau of the Census for the Bureau of Labor Statistics. For all persons ages 16 and over, the following questions are asked in order to classify workers by occupation: (1) "What kind of work was . . . doing?" and (2) "What were . . . 's most important activities or duties?" For a listing of the job titles which made up each detailed occupation during 1972-80 see *Classified Index of Industries and Occupations*, 1970 Census of Population, U.S. Department of Commerce, September 1971. Beginning in 1983, the Current Population Survey will use the Standard Occupational Classification on which the 1980 Census of Population was based. For information detailing occupational changes between 1960 and 1970 based on the censuses for those years, see Constance Bogh DiCesare, "Changes in the occupational structure of U.S. jobs," *Monthly Labor Review*, March 1975, pp. 24-34.

Data on occupational employment are also developed by the Bureau based on the Occupational Employment Statistics (OES) surveys. The OES surveys cover wage and salary workers on the payrolls of nonagricultural establishments, except private households. Data are collected from a sample of employers who report occupational employment totals in their establishments based on specific occupational definitions on the survey questionnaire. The OES surveys are conducted on a 3-year cycle, with about one-third of the economy covered each year. To develop occupational employment estimates for a specific year, occupational staffing patterns of industries are developed from the OES survey data. These patterns are then applied to annual averages of total employment by industry from the Bureau's Current Employment Statistics Survey. The resulting data are summed across industries and added to Current Population Survey (CPS) employment data for workers not covered by the OES surveys—agriculture, private household, self-employed, and unpaid family workers—to develop estimates of total employment by occupation.

This procedure was used for the first time in 1980 to develop occupational employment estimates for 1978. These estimates were also used as the base of occupational projections to 1990 (see Max Carey, "Occupational employment growth through 1990," *Monthly Labor Review*, August 1981, pp. 43-55).

For many comparable occupations, significant differences exist between occupational employment estimates in the CPS and those based on OES survey data. These differences not only reflect sampling and nonsampling errors of each survey, but also conceptual differences. For example, the CPS is a count of individuals and therefore workers with two jobs or more are counted once in their primary occupation. On the other hand, the OES surveys count jobs, and workers on the

payrolls of two employers or more (establishments) are counted in the occupation held in each establishment. More complete details on differences in occupational employment data derived from the CPS and the OES surveys are available in an unpublished paper *Comparison of Occupational Employment in the 1978 Census-based and OES Survey-based Matrices*, OES Technical Paper-1. Available from the BLS Division of Occupational Outlook.

² For more information on the growth of the health industry, see Edward S. Sekscenski, "The health services industry: a decade of expansion," *Monthly Labor Review*, May 1981, pp. 9-16.

³ The data source for the number of computer specialists in 1960 (12,142) is the 1960 Census of Population. See DiCesare, "Changes in the occupational structure."

⁴ For more information on the growth and outlook of the computer industry and its related occupations, see H. Phillip Howard and Debra Rothstein, "Up, Up, Up, and Away: Trends in Computer Occupations," *Occupational Outlook Quarterly*, Summer 1981, pp. 3-11. Also see "Small business computers: the need for them is increasing," *Office*, July 1979, pp. 77-79.

⁵ Data presented in this report on the part-time status of workers by detailed occupational group refer to 1976 and can be found in "Who's Working Part Time These Days?" *Occupational Outlook Quarterly*, Summer 1979, pp. 14-17.

⁶ *Ibid.*

⁷ For more on the changing distribution of computer jobs; see Howard and Rothstein, "Up, Up, Up, and Away."

⁸ "Who's Working Part Time?"

⁹ Some of the specific craft occupations in which the number of women at least tripled were: carpenters, among whom the number of female jobholders increased from 5,000 to 18,000; other construction craftworkers, with an increase from about 15,000 to almost 50,000; machinists, from 2,000 to 18,000; heavy equipment mechanics, from 5,000 to 15,000; and telephone installers and repairers, from 6,000 to 27,000.

¹⁰ "Who's Working Part Time?"

¹¹ See Allyson Sherman Grossman, "Women in domestic work: yesterday and today," *Monthly Labor Review*, August 1980, pp. 17-22.

¹² For more information on farmworkers, see Patricia A. Daly, "Agricultural employment: has the decline ended?" *Monthly Labor Review*, November 1981, pp. 11-17.

¹³ "Who's Working Part Time?"