Chapter 7

Jobs in the Services

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Chapter 7

Jobs in the Services

SUMMARY

The number of people in the U.S. labor force has been growing much more rapidly than the total number of hours worked. The result? A great deal of slack in the labor market. Unemployment remains at historically high levels, although not so high as at the beginning of the decade. Among the employed, part-time and temporary work has been increasing. With American companies facing competition from a continually expanding number of technc dogically competent firms based in low-wage countries, U.S. wages and living standards, relative to the rest of the world, are being driven downward. The United States, like other Western economies, faces a future of chronic underemployment for many, and new labor market opportunities for groups such as urban blacks that seem quite limited.

This chapter examines U.S. employment patterns over the recent past—in terms of both service industries (regardless of occupation) and service *occupations* (regardless of industry). The growing percentage of the labor force working in service industries, and in service occupations in manufacturing industries, mirrors ongoing structural changes in the Nation's economy:

- rising imports culminating in huge trade deficits;
- rapid technological change, including automation in response to competitive pressures;
- shifts in demographics, social norms, and patterns of demand (the entry of the baby boom generation into the labor market, many more women seeking jobs, consumer preferences for small cars, many of them imported).

The jobs being created in the United States today differ on many dimensions from those of 15 years ago. Many of the new jobs in services pay poorly compared with manufacturing jobs, particularly those in the unionized smokestack industries. Unions themselves are in decline, part-time and temporary work on the rise. Competitive pressures, largely from abroad, have dampened wage growth, indeed forced wages down, in many manufacturing companies. As one response to new competition, American manufacturers have automated, cutting further into job opportunities. Hard-pressed firms in industries like autos and steel have slashed white-collar jobs as well as blue. The consequences come through with striking clarity in a comparison of manufacturing and service employment in the Pittsburgh area, where: 1) in 1982, pay in durable goods manufacturing remained nearly 50 percent higher than the average for the area, although dropping; 2) pay in trade (wholesaling and retailing, including restaurants) was 40 percent below the average, and pay in personal services 47 percent below average; and 3) fringe benefits dropped rapidly with take-home pay.[1] Jobs *in the services, in sum, are poor substitutes for jobs in manufacturing.*

Measured by the number of jobs created over the past decade, the U.S. economy has performed better than most other advanced industrial economies. But *many more Americans now have contingent or casual jobs than 20*

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[1] "'Labor Mobility and Structural Change in Pittsburgh, 1977-82, " prepared for OTA by L. Jacobson, The W.E. Upjohn Institute for Employment Research, under contract No. 533-6090, The report analyzes a unique database assembled from Pennsylvania unemployment insurance records.

Pay in durable goods manufacturing fell from 63 percent above the average in 1977 to 48 percent above in 1982.

In Pennsylvania as a whole over the period 1975-85, manufacturing employment dropped at an average rate of 1.63 percent per year, while rising at 2.75 percent per year in the services-L. Jacobson, "Job Creation and Destruction in Pennsylvania, 1975-85, " report to the Organization for Economic Cooperation and Development, The Upjohn Institute for Employment Research, Nov. 17, 1986, p. 12.

years ago, as shown by the steady rise in involuntary part-time employment. By many indicators (e.g., purchasing power per hour worked), living standards in the United States are headed downward—a direct consequence of competition from low-wage economies in other parts of the world. Given open U.S. markets, and steadily improving technological capabilities in large numbers of developing countries—nearly all with substantial labor surpluses that promise to hold wages far below U.S. levels—competitive pressures can only intensify. Many Americans who entered the labor force in the 1970s and 1980s will never earn as much, in real terms, as their parents. At least until the baby boom generation passes through its prime earning years, competition among Americans seeking jobs and advancement in the U.S. labor market promises to be just as intense as competition among U.S. and foreign firms in the world economy.

At the same time, a minority of skilled and professional jobs in the services offer, as always, lucrative opportunities for physicians, attorneys, stockbrokers. While many and diverse patterns characterize work in the services, the mobility patterns suggested by a listing of such professions seem to be growing more common (in the services and thus in the U.S. economy as a whole). That is, upward mobility depends on the right kind of entry-level skills and credentials.

Two or three decades ago, Americans could climb mobility ladders in many of the services much like those in manufacturing, with greater responsibilities and greater rewards in the form of pay and perquisites for those who succeeded or simply accumulated enough seniority, It was possible to move from a sales job in a department store to a position as buyer (roughly equivalent to a departmental supervisor), and perhaps even store manager. Many of those opportunities are gone: new technologies *and the rise of higher education have knocked the rungs out of mobility ladders in many companies.* These companies now tend to hire people with the skills they need from outside, rather than promoting (and training) current employees. As the external labor market replaces internal markets, buyers and managers come from the ranks of college graduates, often with specialized degrees such as MBAs. Like the nurse—who cannot become a physician through on-the-job advancement—a sales person or clerk who wants to move very far upward will need a new set of credentials. If nothing else, employers view a college degree as evidence of the ability to learn—of retrainability.

In effect, more of the services are becoming professionalized. One consequence is to sharpen many of the differences in work setting between jobs in the services and jobs in manufacturing—differences that create substantial barriers to mobility for displaced manufacturing employees. In addition to facing the prospect of substantially lower pay, an unemployed steelworker is unlikely to feel at home in a bank or insurance office.

As many examples suggest, labor markets in the services tend to fit a two-tier pattern, with sharp divisions between professionals (and others with specialized skills) and people with lower skills and lower pay. To the extent that these patterns broaden and persist, they will aggravate the stratification already found in the U.S. labor force: if it is too simple to speak of a two-tier structure in the labor force as a whole, with a small fraction of highly paid people at the top, while the vast majority have low pay and few prospects, it is certainly not too simple to speak of a segmented labor market, in which moving upward will be possible only for people with unusual abilities and ambition.

What does international trade and competition have to do with the picture sketched above? Most of the impacts are indirect. Neither the statistics nor the case examples in the body of this chapter can be tightly linked to exports and imports of services, which—as shown in chapter 2—remain relatively small. With exports of services less than a fifth of goods exports, relatively few American jobs depend directly on foreign sales of U.S.-produced services. Certainly trade helps create domestic jobs in many service industries: the motion picture business gets much of its revenue from overseas rentals; Japanese and European banks in New York and

San Francisco hire many Americans, But, for the U.S. economy as a whole, the indirect effects—for instance, through service inputs embodied in exports and imports of goods—are much greater.

Service companies in many industries market their products primarily to manufacturing firms, while many American jobs in the intermediate or knowledge-based services support the activities of overseas affiliates of U.S.-based firms. Beyond this, about 40 percent of Americans employed in manufacturing industries perform service functions. Jobs in the services may replace some jobs in manufacturing, but they also depend on jobs in manufacturing—and on the continuing competitiveness of the manufacturing sector of the U.S. economy.

Other indirect impacts are more subtle. Pervasive competitive pressures on American service and manufacturing firms, stemming from domestic deregulation as well as from imports, have forced companies to reassess their business strategies, Many have sought to cut costs and improve their flexibility by replacing some of their full-time employees with part-time or temporary workers. Not only does this help meet fluctuations in demand (day-to-day or seasonal, as in banks and department stores, as well as fluctuations tied to the business cycle), but companies can hold down their hourly costs, for fringe benefits as well as direct pay,

Since the middle 1970s, the number of contingent workers in the U.S. labor force—those without formal or long-lasting ties to a company–has grown steadily. The majority hold part-time jobs or are self-employed. When temporary and contract employees are added, together with illegal immigrants and those working at home or in the underground economy, *contingent workers total well over a quarter of the Nation labor force.* (Most of the work in the underground economy is simply unreported, not otherwise illicit or illegal.)

In effect, companies have been able to push much of the risk associated with business downturns onto their employees. During 1985, about 5.5 million Americans employed part-time wanted full-time jobs but could not get them (another 8.3 million were unemployed), The trends outlined in this chapter suggest that American service firms (and manufacturers) are attempting to control costs and achieve flexibility in part by using workers who receive few fringe benefits and little training, whose hours can be varied to meet fluctuations in demand, and who can be laid off more easily than regular employees.

Given a slack labor market that has seen involuntary part-time work rising for years, greater reliance on contingent workers becomes an easy and obvious adjustment, at least in the short run, for companies faced with greater competitive pressures. Somewhat greater commonality of skills across industries—e.g., in computer-related occupations—makes it easier for firms to tap part-time or temporary workers as needed (while giving employees more scope for horizontal mobility—although this may be a poor second to vertical mobility). But job ladders in the normal sense seldom exist for contingent workers, and over the longer term, *companies that rely too heavily on part-time and temporary employees may well find themselves with a work force lacking the skills and experience base needed to meet new competition.*

OTA makes no attempt in this report to project future employment in the service industries, A quantitative assessment would require sector-by-sector analyses, including the indirect impacts of new technologies and international trade and investment. This chapter aims, instead, at a summary picture of U.S. employment patterns, one that highlights service industries and service occupations. The later sections, touching briefly on the effects of immigration and work in the underground economy, show that the jobs taken by immigrants, legal and illegal, and the choices made by Americans who work “off the books” fit consistently into the larger picture. Immigrants divide sharply into those with high skills and professional credentials (nurses and physicians from the Philippines, engineers from Taiwan) and those with low skills who take jobs in personal services, construction, or trade (e. g., restaurants) —most of them from Latin America, Many of the

Americans who work in the underground economy do so in response to disruptions and uncertainties in the labor market, as well as underemployment. People who fear future lay-offs take opportunities that they happen upon. By definition, they are part of the contingent labor force.

EMPLOYMENT AND STRUCTURAL CHANGE IN THE U.S. ECONOMY

Economic activities can be grouped in many ways. The simple, most common division breaks the economy into three broad sectors: 1) a primary sector, the largest components of which are agriculture and mining; 2) secondary industries, manufacturing and construction; and 3) a tertiary or service sector. (This is the conventional use of the term tertiary, not the sense used in this report—see below.) The outputs of the primary industries, extracted in some way from the natural world (food, timber, iron ore), provide inputs to secondary industries (food processing, housing construction, steelmaking). The service sector, in essence, takes in everything that is left—including, under most classification schemes, government.

This conventional threefold classification reveals little concerning employment in the services. Thus, as explained in chapter 1, this report subdivides the services into knowledge-based and tertiary categories—reserving the term tertiary for the subset of traditional service industries and occupations (table 6) such as retailing and personal services. Throughout the remainder of this chapter, tertiary will, as elsewhere in the report, refer only to that subset of services.

The Shift to Services

As economies develop, employment in agriculture and mining shrinks, people find jobs in manufacturing, and, somewhat later, in the services. Post-industrial economies, those in which the service sector has come to dominate, emerged after World War 11, Table 32 provides a summary picture of U.S. employment patterns over the period 1975-85, based on a fivefold classification that further subdivides both manufacturing and the services, identifying knowledge-based jobs and sectors in each.[2] The breakdown is inevitably somewhat arbitrary. Many of the jobs in traditional industries are highly skilled and thus knowledge-intensive. On the other hand, large numbers of people working in knowledge-based services like health care have routine, even menial, jobs. Nonetheless, this classification helps delineate important shifts in the structure of U.S. employment.

Since 1980, employment in the traditional industries (Sector II in table 32, manufacturing and construction) has declined both relatively and absolutely, Net new jobs have been created in both the knowledge-based and tertiary services, along with knowledge-intensive manufacturing (Sector III). Services in total now employ more than 70 percent of the U.S. labor force, with high continuing rates of growth. Sector IV (knowledge-based services) grew by one-third over the period 1975-85, as did tertiary service employment. Jobs in Sector III (knowledge-intensive manufacturing) grew by more than 40 percent.

Explanations for the relative growth of services employment would take the analysis well beyond the bounds of this assessment. Cer-

[2]The classification in table 32, along with much other material in chs. 7 and 8, is based on "International Competition in the Service Industries: Impacts of Technological Change and International Trade on U.S. Employ merit," prepared for OTA by E. Appelbaum, P.S. Albin, R. Koppel, and F. Hormozi under contract No. 533-5560.

Because of the need to base table 32 on Bureau of Labor Statistics (BLS) categories, it does not correspond directly to the classifications in table 6. Moreover, at various points, ch. 7 uses data from the Bureau of the Census in the Department of Commerce as well as from BLS (part of the Department of Labor), Census and BLS do not always use comparable categories and procedures. Largely because of this, it has not been practical to rigorously maintain the distinction between knowledge-based and tertiary services at all places in the chapter. Doing so would have meant sacrificing much of the statistical detail available in the databases of one or the other of the agencies.

Table 32.—U.S. Employment by Sector

	Annual average (thousands)		
	1975	1980	1985
Sector 1, agriculture and mining	4,319	4,472	4,262
Sector 11, ***traditional industries***	18,500	21,121	19,540
Construction	3,457	4,469	4,662
Manufacturing excluding information machines (below) and printing/publishing equipment	15,043	16,652	14,879
Sector Ill, ***knowledge-intensive manufacturing***	2,225	2,927	3,126
Electrical, electronic, and communication equipment excluding household appliances and electric lighting	1,426	1,744	1,865
Instruments and related equipment	489	711	724
Office and computing machines	284	431	506
Printing/publishing equipment	26	41	31
Sector IV, knowledge-based services	28,582	33,794	38,101
Education[a]	7,448	7,650	8,371
Health	5,393[b]	6,287	7,583
Communications media	1,434	1,687	1,877
Telecommunications (mainly telephone and postal service)	1,710	1,739	1,833
Business services	1,629	2,523	3,732
Computerland data processing services	143	293	1,819
Other business services	1,486	2,230	3,275
Professional services (legal, engineering, accounting, etc.)	743	1,353	1,819
Financial services (banking, insurance, real estate)	4,223	5,162	5,924
Government not included elsewhere	6,002	7,393	6,962
Sector V, tertiary services	27,257	32,407	36,042
Transportation and public utilities	3,888	4,397	4,477
Wholesale trade	4,177	5,275	5,769
Retail trade	12,771	15,292	17,425
Lodging	979	1,071	1,368
Personal services	835	931	1,125
Auto and other repair services	656	889	1,066
Tertiary business services	477	615	836
Other tertiary services	3,474	3,937	3.976

[a]Federal education employment included under government
[b]OTA estimate
estate transportation employment included under government.
NOTE Totals may not add due to rounding.

SOURCES *Supplement to Employment* and *Earnings* (Washington, DC: Department of Labor, Bureau of Labor Statistics, July 19&3 and June 1986); *Employment and Earnings Bulletin, 1979,* pp 1311-1312, except for farming, forestry, and fishing from "Projections to 1995," Bulletin No 2253 D-2, April 1986, Department of Lab&, Bureau of Labor Statistics

tainly, relative productivity trends would be part of the story. Measures of productivity in the services are poor—particularly on the output side, where the qualitative characteristics of services like banking have changed dramatically over the past two decades. But, despite the flaws in the data, it does appear that productivity in the services has increased less rapidly than in manufacturing.[3] Low productivity growth coupled with expanding output means higher rates of job creation,

In many of the knowledge-based services, automation has already proceeded through sevEra] generations of computer-based methods and work organization (ch.8). Output has risen in sectors like banking (in terms of such measures as transactions processed) without parallel increases in employment; indeed, it has been said that providing today's banking services using 1950s technology would require half the U.S. labor force. The continuing spread of automation through the services points to a major question: Will new technologies deployed in service industries eventually lead to productivity improvement so rapid that employment growth slows relative to output? If so, rates of job creation in the services could drop. Slower

[3]See, for example, "TheServiceE conomy:O pportunity, Threat or Myth?" Proceedings of a Workshop on Structural Change, Department of Commerce, Oct. 22, 1985, especially H.K. Stokes, Jr., "TheShiftt oServices: Does It Threaten Long-Run Productivity Growth," pp. 105-116.

job creation would aggravate the unemployment and underemployment already endemic in the United States.

Is this scenario likely? As in manufacturing, domestic employment in the services will necessarily depend on trends in both productivity and output. Output will depend in part on patterns of international trade and competition—the effects of which are largely indirect. In part because of these complexities, OTA cannot definitively answer the questions posed above. Some indicators do suggest that the services are poised for rapid productivity growth, with a marked slowdown in rates of job creation, particularly for clerical workers.[4] One implication, consistent with much of OTA's past work, is plain. The United States will face continuing adjustment problems. Displacement will be a fact of working life for many Americans. The policy implications are also plain. The United States will need to maintain flexible labor markets and continuing public and private sector commitments to training, retraining, and reemployment.[5] Chapter 10 deals with these issues of human resources policy.

Table 33 outlines the current distribution of occupations in the U.S. economy. The table shows that the vast majority of professionals, managers, and technicians—as well as salespeople and clerical workers—work in the service industries. (In terms of occupational rather than industry classifications, most professionals fill service jobs by definition.) Craft workers, machine operators, and laborers, on the other hand, find work primarily in manufacturing.

Table 33.—Sectoral Distribution by Occupation in the U.S. Economy, 1986[a]

	Percentage of those in a given occupation employed:	
	In service industries	In nonservice industries
Professionals	860/0	14 "/0
Managers	73	27
Technicians	73	27
Salespeople	94	6
Craft workers	36	64
Operatives, fabricators, laborers	40	60
Clerical workers and administrative support	82	18
Service occupations	96	4
Other, primarily agricultural	16	84

[a]Based on data for April.

SOURCE: Calculated from data in *Employment and Earnings*, table A-25, p. 32, May 1986,

Because managerial and professional jobs pay well, the occupational distribution outlined in table 33 raises the average level of compensation in the services compared to manufacturing, At the same time, the disparity between the wages earned by managers and professionals (as well as some salespeople) and the wages of those in the "service occupations" contributes to the two-tiered nature of compensation in the U.S. labor market (discussed below). Rapid growth in services enhances this split between a small group of well-paid people at the top of the pyramid, and a very much larger group with low wages at the bottom. Differing mobility patterns also contribute; those in occupations near the bottom of the pyramid have limited prospects for moving up, although making frequent lateral moves (turnover is high in unattractive jobs). Managers and professionals, in contrast, normally move steadily upward in terms of pay over the course of their careers,

Job Creation

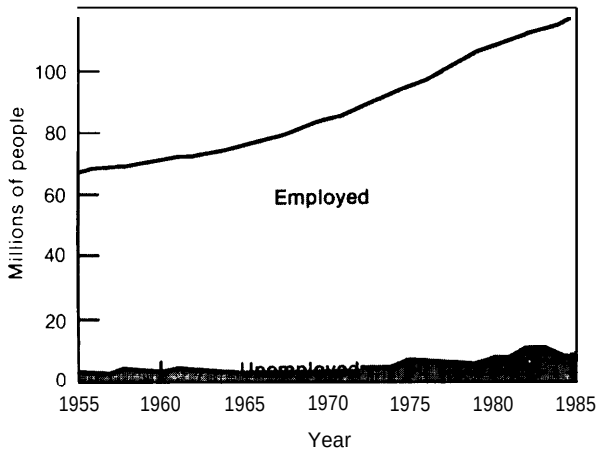
Since the Second World War, the U.S. labor force has grown steadily, nearly doubling between 1952 and 1985. As figure 44 shows, the increase has been especially rapid since the

[4] *Automation of America Offices* (Washington, DC: Office of Technology Assessment, December 1985); also W. Leontief and F. Duchin, *The Future Impact of Automation on Workers (New* York: Oxford University Press, 1986). Leontief and Duchin suggest that clerical jobs could drop from about 17 to 18 percent of U.S. employment to as low as 12 percent by 2000 (p. 14).

[5] *'Technology and Structural Unemployment: Reemploying Displaced Adults* (Washington, DC: Office of Technology Assessment, February 1986).

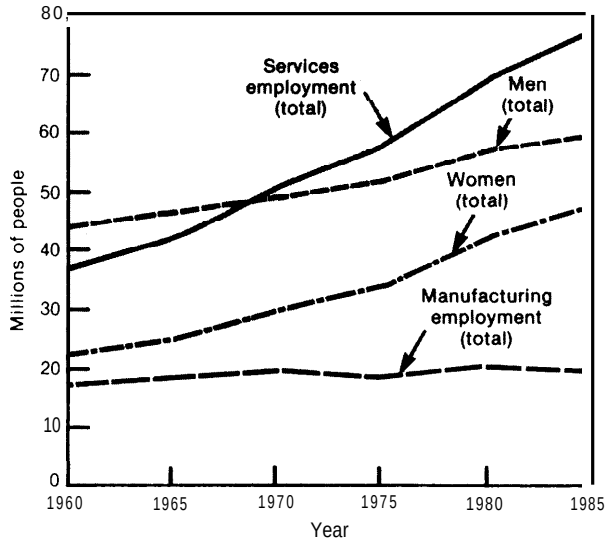
As one example of the magnitude of these displacement problems, note the situation of the production workers who lost their jobs when International Harvester's plant in Fort Wayne, IN, closed in 1983, On the average, these men and women remained unemployed for 39 weeks. When they found work, their new jobs paid 20 percent less. Average family assets dropped by more than $6,000. See "The New Job After the Plant Closed Meant Considerably Less Pay," *Wall Street Journal*, Oct. 22, 1985, p. 1. Moreover, both clerical and managerial employees took pay cuts greater than those of the displaced production workers.

Figure 44.—Growth of the U.S. Labor Force



SOURCE Bureau of Labor Statistics, Employment *and Earnings*, October 1986, p 7

Figure 45.— U.S. Employment by Industry and Sex



NOTE Services employment includes construction and government The breakdowns by sex and by sector come from d! fferentseries and may not be strictly comparable

SOURCE Bureau of Labor Statistics, *Employment and Earnings* various issues

mid-1960s, as the postwar baby-boom generation entered the labor market. With the labor force growing faster than the number of jobs, unemployment has risen. Figure 45 breaks down the increase in employment since 1960 by industry and sex. Large numbers of women have joined the labor force. Manufacturing employment has changed little, but employment in service industries—in 1960 already double that in manufacturing—has continued to rise.

Competition and Structural Change

In U.S. manufacturing, structural shifts going back in many cases to the 1960s have had far-reaching consequences for employment. Industries like steel, automobiles, and apparel have been hit hard by import competition. Competitive pressures (along with the strength of the dollar during the first half of the 1980s) drove American firms to shift some employment overseas, move to low-cost locations within the United States, and to automate.

In the services as well as in manufacturing, changes in product design and in production processes affect the overall number of jobs available, as well as demand by occupations and the characteristics of jobs within a given industry or occupation, New products—money market mutual funds, aircraft parts made from fiber-reinforced composites rather than sheet metal—may mean more jobs or fewer jobs, as well as quite different skill requirements. The work done by medical technicians has changed a great deal since the 1960s, largely because of the introduction of computer-based laboratory equipment.

Competition forces firms to automate and reorganize their production processes; the next chapter shows how American insurance companies have turned to computer-based automation, not only in back-office paper processing, but for claims adjustments in the field. In insurance, domestic competition has been the principal spur. In industries where international competition has been a factor, change has often been more rapid and more fundamental: companies may not only redesign their products and production processes, they may move production offshore, seeking locations with lower costs—notably for labor. While domestic competition can also lead to offshore production—this was the case in the 1960s when American semiconductor firms began

moving abroad (mostly to Asia) —pressures from imports hasten things along.

Domestic and international competition also contribute to geographic shifts within the United States. Manufacturing companies have moved South and West in search of labor markets with lower wages and fewer labor unions. Some service companies have followed: Citicorp tranferred its credit card operations from Long Island to Sioux Falls, South Dakota in the early *1980s;* American Express now processes travelers checks in Salt Lake City rather than Manhattan. Jobs like data entry, provided exceptions to standard procedures are rare, can be handled remotely with little or no productivity loss.

Some of this sort of work has also moved offshore, although the absolute numbers remain small.[6] Technology that would facilitate the export of office jobs continues to emerge, Although the clarity of facsimile transmissions remains a problem, and two-way satellite links expensive, low transportation costs and low wages make it cost-effective for some U.S. firms to ship paper to the Caribbean and return magnetic disks or tape. Continuing technical advances promise to make offshore office work more practical. But before many of these jobs actually move abroad, it seems likely that more highly automated technologies (paperless transactions) will largely replace data entry and other routine input-output jobs. While offshore office work will, therefore, probably not cut severely into U.S. job opportunities, continuing multinational expansion and decentralization by large American corporations will see more of the work now done at headquarters dispersed to locations abroad.

[6] *See Automation of America Offices,* op. cit., ch. 8, "Off-shore Office Work;" also B. Stokes, "Beaming jobs Overseas," *National Journal,* July 27, 1985, p. 1726. At present, a few thousand workers—perhaps 10,000 at most—in several of the Caribbean countries and Mexico, as well as Singapore, South Korea, and India, perform coupon sorting, data entry, and routine data processing for as many as a hundred American businesses. Some computer programming is done remotely, as well.

The Dynamics of Job Creation

From 1972 to 1984, civilian employment in the United States rose by **20.8** million (table 34)—a figure equal to jobs created minus jobs destroyed, and thus at least hinting at the associated structural shifts and displacements. About **8** percent of U.S. jobs disappear each year, meaning that an equivalent number must be created just to stay even. Net job creation has depended almost entirely on expansion in the services; since 1979, manufacturing employment has shrunk, so that the services, in effect, have created more than ***100*** percent of net new jobs. Although jobs have disappeared in manufacturing slightly faster than they have been created, rates of creation and destruction vary widely across sectors in U.S. manufacturing. Knowledge-intensive or high-technology manufacturing has continued, in general, to create jobs (table **32).** Other manufacturing sectors have declined, some very rapidly.

Some portion of job creation in services may be a bit illusory, because manufacturing firms

Table 34.—U.S. Job Creation by Industry, 1972-84

Industry[a]	Net new jobs (thousands)	Percentage of net new jobs	Employment share 1972	Employment share 1984
Total	20,785	100.00/0	100.0 '%0	100.00/0
Mining	346	1.7	0.9	1.0
Construction	456	2.2	5.3	4.6
Manufacturing	261	1.3	26.0	20.6
Transportation/public utilities	657	3,2	6.2	5.5
Trade ... ,	6,185	29.8	21,6	23.4
Finance, insurance, and real estate (FIRE)	1,774	8.5	5.3	6.0
Other services	8,485	40.8	16.7	22.0
Government	2,621	12.6	18.1	16.9

[a]One-digit Standard Industrial Classification (SIC)basis.

SOURCE *Employment and Earnings,* May 1986, table B-1, p 45

have been hiring service firms to take on tasks once performed by their own employees (maintenance, plant security, food service, engineering), It remains the case, however, that the United States has in the net created jobs more consistently than other major Western economies. Since the middle to late 1960s, unemployment rates have been gradually but steadily rising throughout the advanced industrial nations, not excluding Japan.[7] While many of the new service jobs in the United States have been low in pay and status, as discussed be-10W, at least the U.S. economy has been creating them. Most of the European economies have not.

The dominance of the services in U.S. job creation—in a context of declining manufacturing employment—raises troubling questions. How do these jobs compare with work in manufacturing in terms of skill requirements and pay? In terms of opportunities for advancement? The following sections address such questions, utilizing a series of industry and occupational profiles-[8] The industry profiles compare major service and non-service sectors in terms of the kinds of jobs created and the workers and skills in greatest demand. The occupational profiles compare the demand for labor as a function of skills and credentials across industries,

Industrial Profile of Job Creation

U.S. manufacturing jobs reached a peak and began to decline over the 1972-84 period. Although there were more manufacturing jobs in 1984 than in 1972, the relative share of manufacturing dropped by more than 5 percentage points, as shown in table 34. Manufacturing employment will undoubtedly continue to shrink as a fraction of the total, In contrast, almost all the service industries have experienced substantial net job growth. Of nearly 21 million new jobs between 1972 and 1984, over 16 million (79 percent) were created in wholesale and retail trade, FIRE (finance, insurance, and real estate), and "other services" (table 34)—with roughly one in three in a food- or health-related enterprise.

Table 35 subdivides the industries listed in the preceding table, showing large percentage increases in employment in segments of wholesale trade (primarily durable goods), and in retail trade (mostly eating and drinking establishments—which, given a large initial base, created 2½ million jobs). Almost all segments of the FIRE industries saw rapid employment increases, as did "other services. " In percentage terms, expansion was most rapid in computer-related services (a 325 percent rise, by far the highest of any sector), followed by legal and social services. But in total jobs created, again because of the large initial base, health services exceeds even eating and drinking establishments, (Note that table 35, restricted to service industries showing 30 percent growth or more over the period 1972-84, excludes some relatively large sectors that created many new jobs although expanding at lower rates.)

Table 36 lists demographic and occupational characteristics as revealed by the 1980 census. While the statistics themselves are now rather dated, the 10-year census of population provides a wealth of information not otherwise available. The table shows that manufacturing employees, on average, earned substantially more than those in many of the rapidly-growing service industries; median annual (full-time) earnings were 25 percent greater in manufacturing than in "other services, " despite the high annual earnings in the professional service categories.

Such differences have persisted; as of mid-1986, average hourly pay in U.S. manufacturing was $9.70 (excluding benefits), compared with $8,10 in the service sector (20 *percent* lower). Service workers earn less in part because more of them are women, and also because they tend to be younger. According to the table, more than two-thirds of the Ameri-

[7] *International Competitiveness in Electronics* (Washington, DC: Office of Technology Assessment, November 1983), p. 345.

[8] These profiles are based on" I nternational Competition in Service Industries: Labor Market and Employment Issues, " prepared for OTA by J.A. Orr under contract No. 533-4845, Much of the analysis is based on trends revealed in the 1980 census, which provides far more information than is available between the 10-year censuses,

Table 35.—High-Growth Service Industries, 1972-84[a]

Industry	Net new jobs (thousands)	Growth over the period 1972-84
Wholesale *trade:*		
Machinery, equipment, and supplies	**535**	62%
Electrical goods	**138**	42
Groceries	**184**	35
Retail trade:		
Eating and drinking establishments	2,521	70 %
Food stores	840	30
Finance, insurance, and real estate		
FIRE:		
Commercial and savings banks	512	50%
Real estate	339	**46**
Insurance agents, brokers	205	**68**
Savings and loans	193	**61**
Securities and commodities brokers and dealers	141	**60**
Medical and health insurance	53	**35**
Other services:		
Business services:		
Personnel supply[b]	613	820/,
Computer and data processing	*364*	**325**
Services to buildings	*279*	**53**
Automotive repair, garages	*284*	**36**
Amusement and recreation	*445*	**89**
Hotels and lodging	*418*	**64**
Professional services:		
Health	**2,677**	**79**
Social	**667**	**134**
Legal	**387**	**144**
Engineering and architectural	**283**	**83**
Accounting, auditing, and bookkeeping	174	**85**

[a]Two- and three-digit Standard Industrial Classifications.
[b]Including temporary help services and employment agencies

SOURCE: Bureau of Labor Statistics.

cans working in manufacturing industries were men. In contrast, 45 percent in trade were women, and more than 60 percent in "other services. " Everything else the same (and often when it is not), men continue to earn more than women. Furthermore, the average manufacturing worker can expect more pay simply on the basis of age. The table shows those with jobs in trade to have a median age of 32, compared with 36 in manufacturing.

Service workers have more education, on the average, than manufacturing employees; at equivalent levels of education, they make less. Especially among the younger workers in the new service labor force, educational levels are higher simply because more Americans now finish high school; only in personal services is the percentage of high school graduates lower than in manufacturing—60 percent compared with 70 percent. Of course, some of the new jobs being created in the services demand more education and better skills (or at least different skills—ch. 8), while a few of the service sectors listed in table 36 employ large numbers of professionals. Those with college degrees are most heavily represented in business and professional services, and in the FIRE industries.

Within the FIRE industries, commercial and savings banks added more than half a million jobs between 1972 and 1984 (table 35), with savings and loans contributing another 193,000; together, real estate and insurance accounted for 700,000 (including several slowly growing subsectors omitted from table 35). As in trade, women fill many of these jobs, but the average levels of education are considerably higher in the FIRE industries—90 percent high school graduates compared with 70 percent in trade, and nearly a quarter with college degrees. At the same time, FIRE employees are considerably older, on the average, than those in trade. FIRE jobs tend to be full-time, but annual earnings are relatively low. Indeed, the coupling of relatively high educational levels and relatively low pay sets the FIRE industries apart from other sectors in both the services and manufacturing. With exceptions such as managers, underwriters, and brokers, many of the jobs in these industries have been held by women who are the second wage earners in the family (note that the percentage of heads of households found in banking is the lowest of all industries listed in table 36). Chapter 8 discusses jobs in banking and insurance from the perspective of changes in work organization, illustrating some of the other reasons for this combination of high education and low pay.

Service employees are less likely to work full time than those in manufacturing, This depresses annual earnings, and usually means much lower fringe benefits. While more than 70 percent of manufacturing workers had full-time jobs in 1980, half of all employees in the trade sector worked part time. In "other services," full-time employment predominates only in the more skilled jobs (computer and data

Table 36.—Work Force Characteristics in Manufacturing and Selected Nonmanufacturing Industries, 1980

Industry	Percent full time[a]	Median earnings, all[b]	Median earnings, full-time[b]	Percent male	Median age	Percent nonwhite	Percent foreign born	Percent head of household	Percent high school graduates	Percent college graduates
Total nonagricultural	59.0%	$10,600	$14,200	56.5%	35.5	14.0%	6.7%	55.9%	76.4%	18.9%
Manufacturing	70.9	13,000	15,200	68.0	36.7	14.6	8.3	64.4	69.9	11.9
Transportation, communications, and public utilities	73.5	16,000	18,200	75.5	37.2	15.3	4.7	72.1	79.4	10.9
Trade	50.8	7,600	12,100	54.1	31.9	10.8	6.7	46.5	70.4	9.9
FIRE	67.5	10,100	12,200	41.8	35.0	11.2	6.7	50.3	90.3	23.1
Banking	68.1	8,900	10,500	29.1	32.1	14.0	7.9	38.5	91.7	17.8
Security and commodity brokerage	70.3	14,500	17,600	60.6	36.0	16.1	6.8	46.5	82.2	33.0
Insurance	73.2	11,300	13,200	43.3	34.8	10.6	5.2	53.2	93.2	25.5
Other services	47.4	8,790	12,100	38.7	36.0	16.1	6.8	46.5	82.2	33.0
Personal	39.0	4,880	8,220	29.5	38.8	25.0	11.0	42.1	60.0	6.0
Nonpersonal:										
Business	57.1	10,200	15,000	57.1	34.8	14.6	7.4	57.0	83.6	28.3
Computer and data processing	72.7	14,600	17,800	60.2	32.1	11.6	6.8	61.0	95.0	48.0
Repair	59.9	9,620	12,400	74.5	33.9	10.9	7.3	62.1	71.2	9.7
Entertainment	37.7	6,650	11,700	59.2	30.3	11.7	6.7	47.1	72.2	17.2
Professional	46.9	9,360	12,300	33.5	36.3	15.6	6.0	44.5	87.1	40.9
Engineering and architectural	73.5	16,700	19,600	79.1	35.2	8.4	10.1	72.5	94.8	48.0
Accounting, auditing, and bookkeeping	63.	12,100	16,600	51.7	34.1	5.1	4.9	55.7	95.8	51.0

[a]Full-time workers are defined as those working at least 50 weeks in 1979, and at least 35 hours per week.
[b]Does not include fringe benefits.

SOURCE: 1980 Census of Population, Public Use Sample.

processing, repair services, some subsectors of professional services). Finally, relatively fewer non-manufacturing employees belong to labor unions. As table 37 shows, about a quarter of American manufacturing workers continue to be covered by collective bargaining agreements, compared with less than 10 percent in many of the service industries. (Differences in factors such as value-added also affect relative wage levels across industries.)

Much more so than in blue-collar manufacturing jobs—where people can expect to advance with seniority, particularly in unionized industries—career prospects for those who enter the services depend on educational background and credentials. Of the high proportion of young and/or less educated employees in entry-level positions, particularly in the trade sector, some take jobs during interruptions in schooling or on a part-time basis while students. For these people, high rates of job creation in the services mean easy entry into the labor market and widespread opportunities for initial work experience. Many go on to better-paying jobs in entirely different industries—jobs with good prospects for upward mobility—when they complete their schooling.

Those with less education and/or poor skills face much dimmer career prospects. The jobs they can get will be less likely to prove the first rung on a career ladder, Although they may learn and advance somewhat with on-the-job experience, fewer career ladders seem to exist in the services today than in the past; as discussed below, companies now tend to hire in entry-level college graduates, rather than filling lower level administrative and supervisory jobs with those moving upward in the ranks. To get such jobs—and get a foot on the ladder —may mean a 2-year degree, or in some cases specialized training in fields like business.

The data in table 36, then, hold few surprises. Higher incomes correlate with age, with union membership, and, given some exceptions, with levels of education. White males get the best jobs in both manufacturing and the services. Average wages in the services lag behind those in manufacturing except in industries with high proportions of professionals, The accounting, auditing, and bookkeeping sector, for example, shows relatively high median earnings—$16,600 for full-time employees in 1980 (table 36). This is greater than the median for manufacturing employees ($15,200) or in banking (only $10,500),

Table 37.—Union Representation by Industry

Industry	Percentage of wage and salary workers covered by collective bargaining agreements	
	1980a	1984b
All (including government)	23,00/o	19.1 "/0
Government	35,9	35.9
Private sector	20.1	15.6
Service producing	13.5	10.6
Transportation, communications, and public utilities	48.4	39.6
Wholesale and retail trade	0.1	8.2
Finance, insurance, and real estate (FIRE)	3.2	2.7
Other services	8.9	7.2
Goods producing	30.5	24.5
Mining	32.0	17.9
Construction	30.9	24.3
Manufacturing	32.3	26.5
Durable goods	34.8	28.0
Nondurable goods	28.5	24.2

[a]Percentages for May
[b]Averages for 12-month period ending September 1984.
[c]Includesagriculture,andforestry and fisheries, in addition to those listed separately.

SOURCE L T Adams, "Changing Employment Patterns of Organized Workers, " *Monthly Labor Review,* February 1985, p. 26.

even though women make up nearly half of all accounting, auditing, and bookkeeping employees, But over half of those in this sector have college degrees—indeed, the percentage is the highest of all industries listed in the table,

Occupational Profile of Job Creation[9]

More than half of all new jobs created from 1970 to 1980 fall in one of two occupational categories—both relatively low-skilled and low-paid:

1. Sales/support, including sales clerks, cashiers, and secretaries—which accounted for 36 percent of new jobs over the 1970-80 period;
2. "Service" occupations such as security guards, custodians, food service workers, and nurses aides—accounting for another 19 percent of all new jobs.

Rapid growth in food service and other retail trade establishments, and in health care drove job creation in both sets of occupations. But job creation was also rapid at the high-skill, high-pay end of the spectrum, with professional and managerial/administrative occupations comprising more than 26 percent of all newly created jobs over this same period—about half as many jobs in total as in sales/support and "services." Note that some of the people working in service *occupations* hold jobs in the manufacturing sector of the economy. Nurses aides, for instance, may find jobs either in the services or in manufacturing (although many more work in hospitals than factories).

While service occupations have grown, traditional manufacturing jobs like assembler and machine operator have declined, and not only in absolute numbers—on the manufacturing side of the economy, the fraction of production employees has dropped. Particularly in knowledge-intensive sectors like computers or microelectronics, companies are hiring increasing numbers of skilled blue-collar and white-collar employees. Nonetheless, manufacturing firms in both durable and nondurable goods industries still employ large numbers of Americans in occupational categories such as machine operator and production craft worker; together, these two groups accounted for over half of all employment in U.S. manufacturing at the time of the 1980 census,

In addition to the professionals, skilled white-collar workers, and low-skilled clericals that banks and insurance companies have always depended on, these companies—like many other service firms—increasingly seek employees with specialized technical skills such as computer programming. According to the 1980 census, computer-related occupations made up 3.6 percent of employment in banking, and 4 percent in the insurance industry, compared with 3.3 percent in durable goods manufacturing and only 1.0 percent in non-durables.[10] In total, more than 80 percent of insurance industry employees, and 68 percent of those in banking, filled jobs that can be classified as technical/professional (including such traditional occupations as loan officer, underwriter, and claims adjuster, but excluding managers) or sales/support. Another 14 percent in insurance and 26 percent in banking held managerial jobs—compared with only 8.6 percent in manufacturing,

Within the technical/professional categories, of course, the range in skills is vast: some but not all of these people—e. g., data-entry clerks—have semi-skilled jobs analogous to machine operators and assemblers. Industries like legal services employ, not surprisingly, 42 percent professionals. Business and repair services show the most varied occupational mix: roughly 20 percent mechanics and repairers, 23 percent production/craft workers, 30 percent technical and sales/support employees, and 15

[9] otherwise unattributed data in this section comes from ''International Competition in Service Industries: Labor Market and Employment Issues, " op. cit., table 11.3, and is based on the 1980 Census Public Use Sample.

[10] Business and repair services showed the highest fraction of computer-related occupations—5.6 percent. Other service industries, notably the personal services, though large in absolute size, create few such jobs (O. 1 percent). One percent of all jobs in trade and the FIRE industries were computer-related, and **0.9** percent in professional services. All these figures, which come from the Public Use Sample of the 1980 Census of Population, have no doubt increased over the intervening years. At the time of the census, the overall figure for computer-related jobs, excluding agriculture, was 1.5 percent,

percent managers. Mechanics and repairers, as an occupation, show up in a broad range of industries, as do occupations related to transportation and materials handling—important in manufacturing (about 10 percent of all manufacturing jobs) and in trade (9 percent).

Labor force characteristics by occupation—outlined in table 38, which parallels the profile by industries in table 36—illustrate the typical differences between manufacturing and service jobs from a somewhat different perspective. Manufacturing occupations such as operator/assembler and production/craft worker show above-average earnings and below-average educational levels. The high-growth sales/support and service occupations, in contrast, have the lowest average earnings of any major occupational category. While 85 percent of sales/support workers have a high school education, compared with 57 percent for operators/assemblers, the latter show median annual earnings higher by $1,100.

In general, people in a given occupational group make more money if they work in a manufacturing industry than in a service industry. As table 33 indicated, many of those in service occupations have jobs in industries classed in the manufacturing sector, and vice versa. Eighteen percent of all clerical workers—a service occupation—work for manufacturing firms. Clerks employed in manufacturing have about the same education, on average, as clericals in other industries—but earn more. Likewise, a typical 35-year-old in a sales/support occupation earned $18,000 in 1980 if he or she worked in the manufacturing sector, but only $13,500 in trade or FIRE (and still less in other sectors—median earnings came to only $11,000), again despite similar educational levels. Managers in manufacturing industries earn more than managers in the services, all other things the same, Of course, other things are not always the same. People in service occupations working for manufacturing companies tend to have other characteristics associated with higher incomes—they are older, more likely to be men, and more likely to work full time, Put another way, they have different job histories, reflecting other characteristic differences between manufacturing and the services.

Although the faster relative growth of the service industries has been the primary reason for the shift toward service occupations in the U.S. labor force, growth of service functions and service jobs within manufacturing has also been important. The proportion of nonproduction workers in many manufacturing companies has been rising. At the same time, American manufacturers are also making greater use of outside contractors and people who work for temporary help service firms—sometimes in production, but more commonly to fill jobs ranging from engineering and drafting to plant security and cafeteria work—as discussed in a later section.

MOBILITY

The kinds of jobs being created and their distribution within the economy help determine worker mobility, both vertically (upward within a firm or industry) and laterally (e.g., from manufacturing to the services). Overall, employment *in service industries seems to offer fewer opportunities for upward mobility,* though horizontal mobility may be greater than in manufacturing.

Manufacturing work, particularly in unionized industries, offered attractive opportunities for many Americans in the years following the Second World War. Collective bargaining agreements meant, not only substantially more pay than in non-union companies, but a framework within which on-the-job training and experience combined with job tenure and seniority rules to provide upward ladders by which em-

Table 38.—Characteristics of Workers in Selected Occupations, 1980

Occupation	Percent full time[a]	Median full-time earnings[b]	Percent male	Median age	Percent nonwhite	Percent foreign born	Percent head of household	Percent high school graduates	Percent college graduates
Total nonagricultural	59.0%	$14,200	56.5%	35.5	14.0%	6.7%	55.9%	76.4%	18.9%
Managerial	79.6	19,300	69.7	39.8	7.7	6.0	72.7	91.1	38.5
Professional	53.1	18,400	50.7	36.3	10.7	6.5	58.5	96.7	68.8
Engineers	85.6	24,300	95.3	38.8	7.8	9.7	88.5	97.9	68.8
Mathematics and computer science	86.5	22,100	74.0	34.9	9.7	6.9	76.4	98.8	58.5
Health diagnosticians	58.7	16,800	33.8	36.5	12.0	9.8	49.6	97.7	55.9
Teachers, librarians	29.9	15,300	34.1	36.2	11.8	4.1	46.1	97.5	81.7
Computer systems analysts	78.6	22,500	77.7	34.4	9.4	7.0	78.2	98.1	58.0
Technicians	67.2	14,900	56.1	32.4	13.2	6.7	58.8	93.0	25.1
Computer programmers	75.8	18,200	69.6	30.6	11.3	7.4	67.3	97.8	47.9
Sales/support	57.7	1,000	33.6	34.7	1[illegible]5	[illegible]3	43[illegible]	85[illegible]	[illegible]0
Service	39.2	9,350	40.7	34.0	22.7	8.3	41.0	59.9	4.8
Food preparation	24.8	7,200	33.5	26.4	17.2	9.3	27.6	53.6	3.3
Health services	46.4	8,080	11.8	33.2	27.7	7.2	31.6	69.2	5.1
Personal	32.9	8,230	21.9	34.9	17.6	7.8	32.9	73.5	7.2
Cleaning and buiding	48.6	9,820	64.7	41.1	30.5	9.7	54.8	45.9	2.4
Operators/assemblers	62.3	12,100	59.7	35.2	20.3	10.4	56.0	57.2	2.3
Production/craft	70.0	16,700	92.1	36.8	10.7	6.7	78.9	69.2	5.4
Transport/material movers	54.6	13,800	85.9	32.7	18.7	5.6	62.5	56.0	2.6
Mechanics/repairers	75.6	14,700	96.6	35.5	9.9	5.4	80.6	70.0	3.1

[a]Full-time workers are defined as those working at least 50 weeks [illegible]79, and at least 35 hours per week.
[b]Does not include fringe benefits.

SOURCE: 1980 Census of Population, Public Use Sample.

ployees could expect to advance in terms of skills, responsibility, and income. Abroad spectrum of skilled occupations separated unskilled or semi-skilled laborers and assembly workers from college-trained managers and supervisors—a spectrum including craft workers (millwrights, pipefitters, tool setters, machine repairers), technicians and draftsmen, and, in many cases, foremen risen from the ranks. After the war, those who entered rapidly expanding capital and consumer goods industries could expect job security, steadily rising income, and relative affluence-prospects that have vanished over the last 10 years, notably in industries like steel and automobiles, as a result of international competition and structural change in the U.S. economy.

It is no surprise that few manufacturing workers have moved laterally into the services (less than 500,000 over the period 1979-84).[11] Because manufacturing workers can earn considerably more than those in service occupations with the same level of education, people with well-paying manufacturing jobs hold on to them whenever possible. And, because a good deal of the decline in U.S. manufacturing employment has come through attrition (retirement and voluntary quits), the number of manufacturing workers looking for jobs in the services tends to be smaller than might be expected based on the publicity given mass layoffs and plant closings in depressed industries.

But what about the career prospects of the younger, more educated service workers profiled in the 1980 census (tables 36 and 38)? As the service-based U.S. economy continues to mature, will levels of pay rise so that these people will experience job histories in terms of income and upward mobility comparable to their forerunners in manufacturing? Probably not. New entrants into the labor force with a high school education (or less) seem unlikely to have the opportunities that those with similar backgrounds could expect a generation ago. The manufacturing jobs these people could enter are vanishing. The service jobs for which today's high school graduates can qualify will not offer the career prospects of the manufacturing jobs available 30 years ago.

Of course, job ladders do exist in the services. But many examples, including several summarized later in this section, and in chapter 8, suggest that prospects for younger Americans currently entering the service industries will not be as good as for their parents who went to work in factories.[12] Vertical mobility may be less, in part because service companies tend to hire people with specialized skills (selling) or educational backgrounds (computer programming) for many of their openings; where on-the-job learning can still lead to advancement, many career ladders are nonetheless capped at relatively low levels. Horizontal movement will be easier, particularly for nonunion workers with no seniority to give up—but moving, say, from a clerical job in retailing to a similar job in the insurance industry may not lead to much of an increment in pay, or to new opportunities.

People in some service jobs do develop specialized occupational skills that are easily transportable across industry boundaries. These skills may begin with relatively formal education and training (accounting). In other cases, they may be developed on the job (computer graphics)—although on-the-job skill development has generally been more important in manufacturing than the services, if only because manufacturing workers have not been as well-educated to begin with. To the extent that commonality of skill requirements across the services (including social skills) grows, lateral mobility will increase; it has probably always been easier to go from selling shoes to selling insurance than from making shoes to making steel—certainly easier to do so without moving to another city or State. Of course, many skilled and craft workers in manufactur-

[11] 'l'' Labor Mobility and Structural Change in Pittsburgh, 1977-82, " op. cit.

[12] See, for example, "Labor Mobility and Structural Change in Pittsburgh, 1977 -82," op. cit.; "Testimony of Dr. Eileen Appelbaum, Temple University, Philadelphia, PA 19122, The Shrinking Middle: Evidence from the Insurance Industry, " *Service Industries: The Future Shape of the American Economy*, hearings, Subcommittee on Economic Stabilization, Committee on Banking, Finance and Urban Affairs, House of Representatives, June 8, 12, 14, and 28, 1984 (Washington, DC: U.S. Government Printing Office, 1984), p. 627,

ing—toolmakers, electricians—have always had know-how that could be readily transferred across industry boundaries.

While lateral mobility may be on the rise, giving service workers greater flexibility than some of their counterparts in manufacturing, upward channels in many service firms have been cut off. Partly because companies now hire college-trained people for jobs once filled through promotion, and partly because changes in work organization (largely computer applications) have stripped away some of the rungs on career ladders, many service workers have little opportunity for advancement. Both factors—structural/organization change, and technological change—have contributed to the development of two-tiered employment patterns in the United States. Boxes X and Y illustrate,

In industries as different as retailing and telecommunications (boxes X and Y), new patterns of hiring fence off supervisory and managerial jobs from most of the work force. In both cases—as in others described in the next chapter (banking, insurance) —deregulation, new competition, and sweeping technological change have led to restructuring, reorganization, and shifts in personnel structure. A telling example comes from a major insurance company with offices in New York City. *3 This firm once hired large numbers of clerks and messengers straight from high school. To maintain a pool of desirable entry-level candidates, and help in the selection process, the company took on as many as 2,000 high school students each summer; over the past dozen years, the number of summer jobs has been cut to 100. Rather than hiring high school graduates, the firm now seeks entry-level employees with at least an associate degree from a community college. As other studies demonstrate, this is hardly an isolated instance; some 20,000 unskilled entry-level jobs reportedly disappeared in New York City during the 1970s, as banks, insurance companies, and utilities replaced their clerks and runners with computers and information networks.[14] Currently, banks are hiring perhaps 20 percent of their new employees at the high-school level; 10 years ago, the proportions would have been reversed, with as many as 80 percent of newly hired workers having no more than a high school education.[15]

Given the explosion in higher education over the postwar period, it is hardly surprising that service companies in many industries now place a premium on hiring people with specialized expertise directly from colleges and universities. Why pay to train existing employees in the latest techniques of finance, marketing, or data processing when a generally slack labor market makes it is easy to hire someone new? Thus selection processes have shifted to emphasize credentials and schooling, to move the costs of training and skill development outside the firm, and to encourage lateral moves between companies rather than upward moves in an established internal labor market, As a result, many more people now split their time between work and school, studying part-time or at night to qualify for positions with prospects for advancement. Instead of on-the-job training and experience leading to a better position, Americans today are much more likely to hold one job while studying on their own for another, perhaps in a quite different field.

Stratification in the services, then, contrasts markedly with traditional patterns in manufacturing, There, labor unions sought to minimize differences in wages and working conditions among their members—differences that have become commonplace in the services, The comparisons across industries and occupations in tables 36 and 38 demonstrate the sharpness of

[13] E. Ginzberg, T. J, Noyelle, and T. M. Stanback, Jr., ‘ ‘Technology and Employment: Concepts and Clarification s,” Conservation of Human Resources, Columbia University, October 1985, p. 4-13.

[14] T. Bailey and R. Waldinger, “Employment Problems in the Shifting New York Labor Market, ” *New York Affairs*, summer 1984. Cited in T.J. Noyelle, *Beyond industrial Dualism: Market and Job Segmentation in the New Economy* (Boulder, CO: Westview, 1987).

[15] Most of these new hires fill positions like tellers, where turnover has always been high. Even so, banks are now seeking out people with several years of college for such jobs. See O. Bertrand and T. Noyelle, “Changing Technology, Skills and Skill Formation in French, German, Japanese, Swedish and U.S. Financial Service Firms: Preliminary Fin dings,’ report to the Center for Educational Research and Innovation of the Organization for Economic Cooperation and Development, August 1986, table 1 (following p. 52).

Box X.-Restructuring in a Department Chain: The Macy's Case[1]

Career paths in retailing have changed radically in the United States, a process still underway. Rising consumer spending after World War II, and the growth of the suburban middle class, led to intense competition. Established downtown department stores like Macy's began moving to the suburbs and to shopping centers in order to meet competition from newer discount retailers (e.g., K-Mart) as well as mass merchandisers (Sears, J.C. Penney). Most of the expansion took place outside the major urban centers that had been strongholds for chains like Macy's. Many small independent stores in the cities vanished; survival for both large and small meant restructuring to serve the growing suburban market.

In 1948, R.H. Macy & Co., established 90 years earlier, operated six large stores and a few smaller branches. Over the next 30 years, the company opened more than 80 new outlets. In battling the discounters, Macy's first tried to imitate them, but with little success. Seeking a new strategy that would prove more effective, the company went through a series of rapid changes as it opened new stores, revised its managerial and administrative procedures, and installed computer systems for accounting, billing, and inventory control. Major shifts in the structure of employment followed.

The most fundamental change entailed separating store management from merchandising. Originally, each department in a store was the responsibility of a "buyer," who personally selected the merchandise to be stocked in his or her department. Buyers not only handled marketing, but they hired the sales staffs for their departments. Management and merchandising were integrated in the person of the buyer. Rapid expansion doomed this system, in which each buyer operated as a nearly independent agent. There were far too many stores, too many departments; coordination was impossible, costs could not be controlled. In Macy's new structure, divisional administrators supervised purchasing and merchandising for an entire (geographic) division. Store management had its own hierarchy; managers ran their stores, but no longer supervised the selection of merchandise.

With two parallel chains of responsibility—one for merchandising, one for store management—good communications between the two sets of line administrators and managers were vital. To aid in this, and to help develop the large numbers of new managers needed to staff their growing company, Macy's executives required line managers to move back and forth between store operations and merchandising as they advanced. (The restructuring also involved extensive changes in other parts of the organization-e.g., financial management.)

Below these managerial and administrative levels, the break with the past has been just as sharp, although for different reasons. With stores remaining open in the evenings and on weekends, a work force that had been two-thirds full-time in the mid-1960s became two-thirds part-time by end of the 1970s. Macy's turned to part-time employees not only to cover longer store hours, but also to reduce labor costs. Fringe benefits as well as pay scales could be trimmed for part-time employees, few of whom advance much beyond the minimum wage. In recent years, three out of four of those on the sales floor (who comprise four-fifths of the nonmanagerial staff) have been part-time workers. In the back-store jobs (shipping and receiving stockrooms and distribution centers) that comprise the remaining fifth of the company's nonmanagerial labor force, only one in four employees works part time.

The demographics of the sales staff have changed as well. Once mostly white females over age 30, today the typical sales clerk is younger and more likely to be a minority (although women have actually risen from about 70 percent of the company's total work force in 1966 to 74 percent in 1982—largely because computers have taken over much of the back-store work once performed by a largely male clerical staff). While Macy's has placed more women in managerial positions in recent years, most of the firm's female employees still work in low-level sales jobs; the company has made less progress in placing minorities than women in managerial and professional positions.

[1]Based on T.J. Noyelle, *Beyond* Industrial *Dualism: Market and Job Segmentation in the New Economy* (Boulder, CO: Westview, 1987), Chapter 111 (Retailing: The Case of R.H. Macy & Co.).

When buyers ran their own departments, Macy's employees could move into junior management positions from the sales floor. Starting in an entry-level job such as greeting card sales or as a stock clerk, they might work their way into a lead or commissioned sales job (handling, say, furniture or major appliances), eventually into supervision (e.g., as an assistant buyer). People could and did enter at the bottom, become buyers, and rise to be store managers. The new managerial structure has effectively blocked these channels, with the shift toward a part-time sales force also contributing. Today, sales-floor employees, for practical purposes, are stuck where they are. Management trainees are hired in from college (or sometimes from other firms), normally beginning in supervisory positions on the floor. The next step-over to the merchandising side-is an assistant buyer's job. Steady advance through the management hierarchy is the reward for those who perform best—although turnover is high, with many people leaving, voluntarily or involuntarily, to be replaced by a new crop. (Turnover is also high among the sales staff.)

In the back of the store, computer-based systems have taken over account processing and billing, financial and inventory control. Most of the routine jobs have disappeared; in some stores, two or three people do work once handled by 25 or more stock clerks. As a consequence, the back-office staff has shifted toward skilled and professional employees who can maintain and use the new equipment. Macy's hires in many of these people because of their skills; opportunities for low-skilled employees to learn on the job are limited.

Macy's has achieved its objectives. During the 1970s, costs were cut and productivity grew rapidly. The proportion of sales people in the labor force has not changed much, but employment has otherwise shifted away from clerks and laborers toward managers and professionals.

With a college education the prerequisite for entering on the managerial track, and the back-store shift toward higher skill levels, earnings patterns for Macy's employees have become bimodal. At the upper end are the executives, managers, and professionals–at the lower end, the sales staff, largely part-time, together with the smaller number of clerks and laborers still needed in the back of the store, on the loading docks, for mopping the floors.

Macy's restructured under intense pressures from discount retailers. Forced to cut costs while expanding rapidly, senior managers felt the company could no longer rely on an internal labor market; they brought in trainees directly from college, invested heavily in data processing equipment, and sought to impose discipline on their buyers' fiefdoms. The new requirement of a 4-year college degree for entry on a management track, plus computer automation, effectively closed off career ladders that earlier gave employees with high-school backgrounds the opportunity to advance.

the distinctions in pay, frequency of part-time work, age, and educational background among workers in differing sectors. With stratification on the rise in the U.S. labor market, severe strains could develop if younger entrants, perhaps including those with college degrees, face career prospects and living standards inferior to those of their parents.

TEMPORARY AND PART-TIME WORKERS"

With domestic and international competition forcing American firms to cut costs, many have turned to contingent workers—e.g., people with temporary or, more commonly, part-time jobs —in search of flexibility. Using short-term, project-related, or part-time employees rather than

[18]Much of this section is based on "International] Competition in the Service Industries: Impacts of Technological Change and International Trade on U.S. Employ merit," op. cit., ch. 4, including specifics not otherwise cited. The data on part-time employment in figure 46 and elsewhere below cannot be directly compared with that in tables 36 and 38. The two earlier tables use the Census definition for full-time employment—35 hours or more per week *plus* **at** least 50 employed weeks per year—rather than the Bureau of Labor Statistics definition of 35 hours or more per week *at the time of the survey*.

Box Y.-Deregulation, Expansion, and New Technology at New York Telephone

During the 1970s, new competition stemming from deregulation, along with exploding residential and commercial demand in the New York metropolitan area, led to massive organizational change at New York Telephone (NYT)—organizational change that was possible only because of the replacement of electromechanical switchgear by computerized systems. Reorganization stemming from deregulation culminated, at least for the time, in the AT&T breakup—which left NYT a division of NYNEX, one of the Bell operating companies. Other forces for change-notably, the ever-expanding telecommunications needs of businesses in the New York area—will continue and perhaps grow stronger.

Also contributing were circumstances in earlier years that had left NYT's equipment in a state of disrepair; because so much of its switchgear was obsolete, and because demand was growing so fast, when NYT began installing computerized switching equipment, it did so at higher rates than many other telephone companies. An entirely independent set of forces were also at work. Shifts in NYT'S personnel structure came faster and cut more deeply because of a lengthy strike during the early 1970s. In addition, a poor affirmative action record led NYT to accept a new set of personnel practices as part of a consent decree negotiated with the Federal Government. As a result of this consent decree, the company nearly stopped its hiring on the outside, moving women and minorities into more desirable jobs at a time of shrinking overall employment. When NYT resumed hiring in substantial numbers, it sought college-trained engineers, professionals, and management trainees to help it deal with new technical and marketing needs.

As the end of the 1960s approached, NYT had been deferring investment and postponing maintenance because of low profits. Meanwhile, demand skyrocketed. The company was ill-prepared to meet a market growing by hundreds of thousands of new lines per year. Service was poor, equipment broke down, customers complained.

Infusions of capital from AT&T—more than $10 billion during the 1970s—rescued NYT from crisis. Meanwhile, a largely fortuitous series of events contributed to major changes in work rules and job descriptions, and thus to the structure of employment. In 1971, NYT's union called a strike-one that was not to be settled for 8 months. To maintain service, engineers, managers, and supervisors took over many of the tasks of the striking union members. Other AT&T divisions flew in planeload of professional and managerial personnel on weekends. As the strike lingered, these non-union personnel installed some 700,000 new telephones, carried out the necessary maintenance on central switching systems, learned to climb telephone poles. This unplanned training convinced NYT's management of the need for sharp cuts in some parts of the company's labor force, and of a parallel need for changes in the content of many jobs.

Three primary forces shaped the restructuring that followed the strike: 1) new technology, primarily in the form of electronic central office (CO] switching equipment; 2) affirmative action requirements; and 3) the changing market for telecommunications services. Much of NYT's new investment went toward electronic CO switches. In essence large computers (ch. 5), they needed little routine maintenance compared to the older electromechanical switchgear. What maintenance they did require called for new skills-e. g., editing computer programs. Engineers and computer specialists took over most of this, including trouble-shooting. Switchmen—the craft workers who had maintained the old electromechanical equipment-were relegated to the simpler and more mundane tasks that still needed to be performed; in effect, their jobs, when not eliminated, were deskilled. A CO switching system once manned by a crew of 30 to 40 switchmen could now get by with 2 or 3.

Furthermore, with the new electronic exchanges, a much smaller complement of operators could handle a given volume of traffic. Computers took care of the bulk of the routine calls. NYT's operators were needed mostly for, directory assistance and international dialing.

[a] Based on T.J. Noyelle, *Beyond Industrial Dualism: Market and Job Segmentation in the New Economy* (Boulder, CO: Westview, 1987), Chapter IV (Utilities: The Case of New York Telephone).

Change was just as rapid in the field. Computer-based customer equipment—e.g., PBX'S (private branch exchanges)—was easier to install, easier to maintain. Cuts in jobs for equipment installers followed, especially after new regulatory decisions permitting customers to hookup their own telephones. At the same time, deregulation and new competition led the company to beef up its marketing staff.

Between 1972 and 1977, NYT's work force dropped from 106,000 people to 75,000. At the end of this period, the company employed about the same number of skilled and craft workers (for a much larger equipment base), but a smaller number of operators. The percentages of sales representatives, managers, and professionals in NYT's work force were up substantially. (Like other large businesses, NYT moved rapidly to computerize its billings and accounts over these years, which also had major impacts on staffing patterns.)

Federal legislation in the form of affirmative action standards came into play during the middle 1970s. In earlier years, as the company had grown, most of the craft jobs (e.g., switchmen and linemen) went to white males. Women filled almost all the openings for operators and in customer service departments. Blacks were found mainly in janitorial and other support roles. Operating under guidelines for hiring minorities and women set out in a 1973 consent decree negotiated with the Justice Department, NYT began moving women, blacks, and other minorities into more desirable jobs. Simultaneously, the company's overall employment was shrinking; for a time, NYT all but stopped hiring on the outside, filling openings by offering them to existing employees. (In 1970, the company had hired some 35,000 people, while 30,000 others left.)

Affirmative action—combined with new technology that cut back on the need for craft workers, plus competition that forced NYT to begin actively marketing its services-meant very high rates of lateral job transfers. Operators could become sales representatives; switchmen became equipment installers. Mobility increased within the firm; new internal job ladders appeared; formerly closed opportunities opened. But this period proved short-lived.

As it responded to growth in the New York market for telecommunication services, and particularly to increasing competition, NYT began searching out managers and other employees with specialized expertise in fields ranging from engineering and marketing to finance and law. Trying to stay ahead of rivals who seemingly offered new rate structures and new services almost daily, NYT was becoming professionalized. With the shift from line to staff personnel, typified by the new emphasis on marketing, the frequency of internal promotions dropped during the ***1970s*** (except for shifts mandated by affirmative action, many of which were lateral as much as vertical). Cost pressures, together with the pace of change, discouraged internal training; it was quicker and cheaper to hire people with needed skills, rather than retrain existing employees as computer programmers or marketing specialists. In many cases, new entrants took positions that in earlier years would have been filled through promotions from within.

Today, NYT hires almost exclusively on the outside to fill professional and managerial openings, with a college or vocational-technical degree the minimum job qualification. No longer is NYT a craft-oriented company, in which employees could progress via seniority and on-the-job training up a skill ladder and perhaps into a supervisory position. While many older men without college degrees can still be found in NYT's middle management ranks, they are the last of their kind.

full-time staff is a simple way to adjust for variations in demand. Work that once took place within a large firm (or public organization) may be subcontracted to small companies, or to individuals. Subcontractors, in turn, may have people on-call so that they can respond quickly.

A recent survey of some 5,000 American firms found many more in the services than in manufacturing relying on part-time and temporary employees; fewer than 6 percent of the companics questioned reported that they planned to replace any of their part-time or temporary

workers with full-time staff during *1987.*[17] In a typical case, a U.S. bank that had formerly staffed its branches exclusively with full-time employees began, in 1984, to fill all new vacancies with part-time workers. The bank's managers sought to restructure their work force so that they could cover peak hours without having extra people on hand at other times.

On the supply side of the labor market, self-employment has been growing—to some extent in response to new opportunities. For instance, skilled workers and professionals, whether engineers or truck drivers, may choose to work as independent contractors. But some self-employment, like much other contingent work, is involuntary-as when an accountant who has been laid off or pushed into early retirement starts an income tax service. As figure 46 shows, involuntary part-time work now accounts for 5 to 6 percent of total U.S. employment—small as a percentage but large in absolute terms (5.5 million at the beginning of 1987); growing numbers of Americans take part-time jobs, not because they want to, but because they cannot find desirable full-time positions.

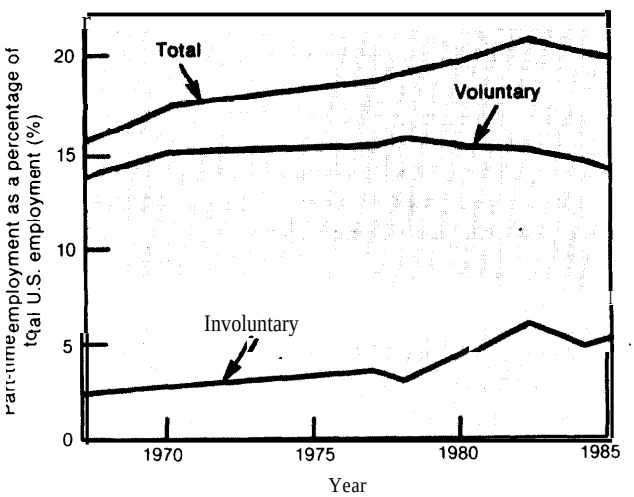
When all contingent workers are added together—the self-employed, together with part-time, temporary (voluntary and involuntary), and contract workers, plus illegal immigrants and people who work at home or in the underground economy—the total reaches 25 to 30 percent of U.S. employ ment.[18] Some of these people become eligible for fringe benefits such as retirement plans, health insurance, and paid vacations. Most do not. For only a few does a contingent job represent one step on a career ladder; indeed, almost by definition, contingent workers—those without a lasting association with some company—have no access to internal labor markets. This ongoing ***change in the*** *U.S. labor market transfers much of the risk associated with business downturns, illness, and other interruptions in people's ability to work from companies to individuals.* American corporations have begun looking to temporary employees, in particular, as buffers—much *as* in more primitive economies, where casual work is common.

Because typical service products cannot be held in inventory, but must be supplied on demand, it is no surprise that service companies employ many more people on a temporary or part-time basis than goods-producing firms. Table 36 showed that half or more of the labor force in some service sectors works part time.

[17] J.W. Duncan, "Survey Shows Continued Use of Temporary and Part-Time Workers," *Dun & Bradstreet Looks at Business,* November/December 1986, p. 1.

On the bank example, below, see "Changing Technology, Skills and Skill Formation in French, German, Japanese, Swedish and U.S. Financial Service Firms: Preliminary Findings," op. cit., pp. 40-41. At the same time, this bank raised the minimum requirements for entry-level employees. Formerly, it had hired mostly high-school graduates; now the bank sought women with at least some college.

Figure 46.—Part.Time Employment in the United States



SOURCE: "International Competition in the Service Industries: Impacts of Technological Change and International Trade on U.S. Employ. merit, " prepared for OTA by E Appelbaum, P S Albin, R Koppel, and F. Hormozi under contract No 533.5560, table 4-5

@'Trends Toward Labor Flexibility in the Reported and Unreported Economy, " prepared for OTA by S. Christopherson under contract No. 533-5745.

A number of large American corporations—including New York Telephone and Blue Cross/Blue Shield—have begun homework programs, through which "independent clerical contractors" can do jobs such as data entry from their homes (p. 14). While it seems likely that no more than 10,000 Americans now do this kind of work, about 90 percent on a part-time basis, some 250 firms now have homework programs. The companies tend to view them as experiments; homework could expand substantially in the future.

Many service firms employ large numbers of people on a part-time basis simply because they need staff to cover long and odd hours, as the Macy's case or the bank example above illustrate, Nursing homes, day care centers, and restaurants provide other illustrations, along with retailers who hire extra workers in peak business periods before Christmas.

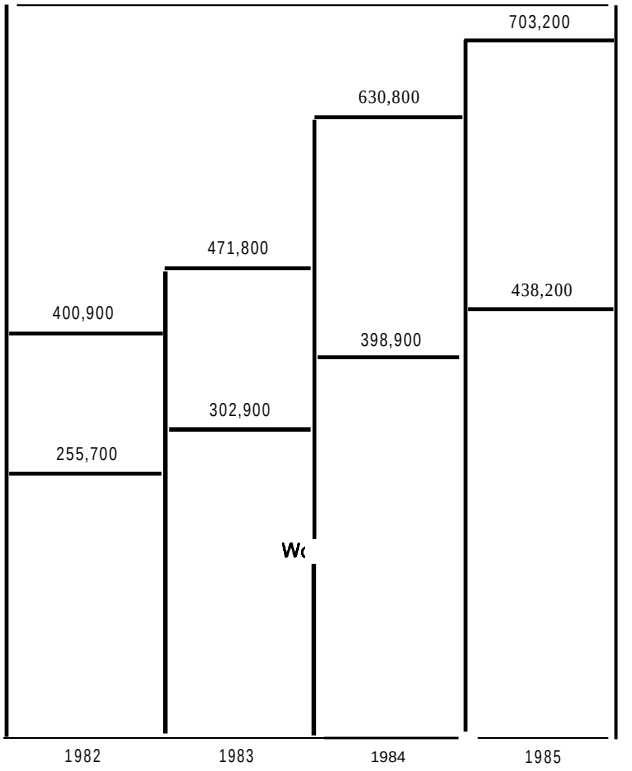
In manufacturing, a far greater percentage of employees work a regular full-time week, although some manufacturing firms do bring in temporary workers to cover periods of high demand, Many have also begun hiring temporary employees with specialized skills for short periods, and contracting for services including factory maintenance, drafting, technical writing, and plant renovations—in many respects a widening of business services categories beyond such traditional functions as auditing and accounting, advertising and market research, and legal services. Contract engineering by job shops, for example —prominent in defense and aerospace since the 1960s–has begun to penetrate other manufacturing sectors much more deeply.

Temporary Employment

Traditional routes to staffing flexibility include seasonal hiring, periodic layoffs, and keeping a tight labor force while paying for overtime when necessary; companies in seasonal businesses like toys may double their employment while producing for the Christmas rush. For decades, also, temporary help agencies have been supplying office workers. More recently, temporary help has become one of the faster growing service industries and service occupations in the U.S. economy, expanding at more than 10 percent per year.[19] As figure 47 indicates, in 1985 the industry placed an average of over 700,000 workers each day, more than 60 percent women. In 1982, 0.65 percent of women holding nonagricultural jobs worked for a temporary help services agency, a figure that reached 1 percent in 1985. Note that figure 47 does not include the growing number of temporary workers hired directly by companies, rather than through an agency,

With clients demanding a broader range of skills, the temporary help services industry has diversified well beyond the typists and clerical workers who were its mainstay 15 years ago.

Figure 47.— Employment in the Temporary Help Services Industry[a]



[a]Annual averages based on monthly reporting

SOURCES *Employment and Earnings*, Supplement, Revised Establishment Data, 1984, p 309; 1985, p 156, 1986, p 178 *Employment and Earnings*, 1984, 1985, and 1986, various issues, tables B 2 and B 3

[19]Employment growth in the temporary help services industry has averaged 1 1 percent a year over the last 13 years, compared with a 2.1 percent growth rate for nonagricultural jobs in general—H. Collins, "Unions Decry Trend to Short-Term Federal Jobs, " *Philadelphia Inquirer,* Feb. 5, 1986, p. B1.

The Federal Government itself filled nearly 250,000 jobs with temporary employees during 1984 (as reported by the Office of Personnel Management), a number expected to continue increasing as a result of new regulations governing the employment of temporary workers that took effect at the beginning of 1985. Federal officials publicly welcomed the new rules. Hiring temporaries, who have no civil service protection, makes it easier for Federal agencies to adjust the size of their work forces while cushioning permanent employees against lay offs. Moreover, the temporary jobs carry no medical or retirement benefits other than social security.

Silicon Valley electronics firms, for example, can now call a temporary agency for extra assembly workers. Half the temporaries placed by agencies currently fall outside the category of office workers. For 1984, estimates of the industry's placements in terms of revenues break down as follows: office workers, 49,4 percent; professional and technical, 34.4 percent; health service workers, 8.8 percent; and, industrial workers, 7.4 percent. [20] Although still relatively small in absolute terms, health service temporaries—most of them supplied to hospitals and nursing homes—comprise the fastest growing category. Hospitals rely on temporary help agencies for growing numbers of nurses, laboratory and other technicians, therapists, and housekeepers. Many also use nurse's registries and call-ins,

The temporaries in greatest demand by manufacturing companies tend to be people in service occupations, not production, with generic rather than industry-specific skills. One survey of chemical and electronic components manufacturers found that most of the electronics firms used temporaries to fill technical jobs (drafting, computer programming, technical writing and illustrating, electrical engineering), while chemical firms continued to call mostly for office workers (secretaries, receptionists, word processing operators, file clerks, messengers). Chemical firms did use technicians and engineers on a temporary basis, but less heavily than in electronics,

Banks also use temporaries in positions calling for relatively standardized skills—file clerks, bookkeepers, data-entry technicians, messengers, security guards—the sorts of occupations in which temporary help agencies specialize, But banks have also begun filling transient needs with people who have more specialized skills—e.g., experience in banking practices and procedures, even firm-specific knowledge of financial products. How do they accomplish this? Primarily by creating internal labor pools of full-time employees who move as required from one branch or office to another. From the employee's perspective, of course, though specific assignments are temporary, employment with the bank (or other service firm) need not be. Some banks now maintain floating pools of branch managers and operations managers, as well as tellers and new account clerks.

Self-employment and independent contracting, two other forms of contingent employment, have also been expanding in the United States. Men who are self-employed tend to work in construction and in transportation, communications, and utilities, The available data suggest that most self-employed women and minorities work in retail trade and other tertiary services; in ***1980,*** for example, approximately 800,000 self-employed women worked in trade, while another 1.2 million found employment in "other services. " These sectors, particularly trade, also attract many self-employed white males, Independent contractors have, in addition, become a major source of skilled and professional workers for industries needing short-term specialized services ranging from graphic design to systems analysis.

Part-Time Work, Voluntary and Involuntary

As figure ***46*** indicated, the fraction of part-time employees in the U.S. labor force has been in the vicinity of **20** percent since the latter part of the 1970s—compared with about 15 percent during the 1950s. Involuntary part-time work has been expanding slowly but steadily—from ***2*** percent of the total labor force in 1967 to more than 5 percent during the slack employment periods of the 1980s. Part-time employees who would prefer full-time jobs have recently made up 25 to 30 percent of the 20 million Americans working less than 35 hours per week. Figure 46 also shows that, since the latter part of the 1970s, the entire increase in part-time employment in the United States can be accounted for by growth in involuntary part-time work,

Historically, women have been far more likely than men to take part-time positions (table 39); a third of all women work part-time, compared with 15 or 16 percent of men. Furthermore, the proportion of women taking part-time jobs in-

[20] "International Competition in the Service Industries: Impacts of Technological Change and International Trade on U.S. Employment, " op. cit., ch. 4, pp. 9-10.

Table 39. —Industry Profile for Men and Women Employed Part-Time, 1984

	Percentage of those employed working less than 35 hours per week[a]	
	Men	Women
Total ...	15.9"/0	32.60/o
Manufacturing.	9.2	17,3
Trade	23,5	47.7
Retail .,	28.8	50.9
Finance, insurance, and real estate (FIRE)	12.4	20.1
Service	19.9	35.7
Business and repair.	17.9	35.2
Personal ., ...	20.9	41.8
Other professional	12.4	27.0

[a]Annualaverages, excluding agriculture

SOURCE 'International Competitionin the Service Industries Impacts of Technological Change and International Trade on U S Employment, prepared for OTA by E Appelbaum, P S Albin, R Koppel, and F Hormozi u rider contract No 533.5560, from unpubli shed Bureau of Labor Statistics data

voluntarily has nearly doubled, from 12.1 percent of those employed part-time in 1970, to 22 percent in 1985. Note that table 39, based on monthly averages, tells only part of the story, The number of Americans who experience involuntary part-time employment at *some point during the* year—because their employer puts them on short hours, or because a part-time job is all they can find—is much higher than the monthly figures suggest. During 1983, 14,9 million Americans experienced some period of involuntary part-time employment,

Part-time jobs cluster by industry more than temporary employment, with over 70 percent of all part-time workers found in trade and "other services. " While companies often use temporaries—many of whom work variable hours–as buffers, part-time workers tend to fill more predictable needs, For instance, restaurants and other retail establishments typically prefer to have their own people available, with firm-specific training and experience, rather than call on temporaries. Not only is customer service an important part of such jobs, but supervision is more difficult than in an office environment. As noted earlier, part-time work in many service industries—not only wholesale and retail trade, but entertainment, recreation, and "other services''—is in a part a function of lengthening business hours. More women than men work part-time in such industries because they are more likely to have sales jobs. (In Macy's stores–box X–women work on the floor, men on the loading docks.)

Perhaps 20 to 25 percent of those who work part-time hold two or more jobs—by choice or by necessity. Roughly 5 million Americans report that they hold multiple jobs; the number has been growing at about the same rate as the overall size of the labor force. Larger than average numbers of moonlighters work one of their jobs in public administration (7.6 percent, clustered particularly in teaching and in State and local government), agriculture (6.1 percent), and "other services" (also 6.1 percent).

Multiple job-holding by women rose steeply during the 1970s. Men tend to hold one job on a full-time basis, working part time elsewhere; 40 percent of male moonlighters are self-employed in their second job. In contrast, nearly half of all women working two jobs hold both on a part-time basis. Much part-time self-employment takes the form of unreported work in the underground economy (discussed below); men are much more likely to freelance on a cash or barter basis, while women tend to hold second jobs in the above-ground economy. Multiple job-holding by men also appears to be more cyclical, increasing when opportunities rise during periods of economic expansion, dropping back during recessions. Multiple job-holding by women, in contrast, has shown steady growth since the 1960s. More men than women claim they hold a second job because they enjoy it, or because they are saving for the future; women, especially minority women, work multiple jobs to meet their day-to-day expenses.

IMMIGRANTS IN THE U.S. LABOR FORCE[21]

In 1965, Congress amended the Immigration and Nationality Act, increasing the number of immigrants who could be admitted each year as workers with needed skills (to 290,000), while tightening the certification requirements. In addition, the 1965 amendments eliminated quotas based on national origin, and made it easier for family members of U.S. citizens to enter. Immigrants can also be admitted as political refugees; in some years, nearly as many people have entered outside the occupational preference system—i.e., as refugees or under the family reunification provisions—as through it. The Immigration Reform and Control Act of 1986 left the system for legal entry largely unchanged.

The amendments have changed the mix of skills, educational backgrounds, and occupations that immigrants bring to the U.S. economy. Under the earlier national origin quotas, more than half of all immigrants came from Europe. Since 1965, the immigrant stream has become much more diverse, and shifted toward entrants from Asia and Latin America, with Europeans dropping below 20 percent of the total. Relatively large fractions of professionals (e.g., nurses, physicians, engineers) have entered under the occupational preference system. At the same time, many women with low skills have been admitted under the family reunification provisions; they have increased the supply of workers in tertiary service industries. (Women constitute slightly more than half of all immigrants.)

During the first half of the 1980s, 2.8 million immigrants entered legally. Illegal aliens—of whom there may be 2 million to 5 million—differ from legal entrants in demographics, skills, and countries of origin (many more come from Mexico). As a whole, immigrants cluster into two groups at the high and low ends of the skill/pay spectrum: in this sense, U.S. immigration policy reinforces the two-tiered pattern that characterizes employment in the Nation's service industries.

[21] This section is based on "Immigrants in the Service Sector," prepared for OTA by S. Christopherson under contract No. 533-5745.

Immigration adds to the size of the U.S. labor force, and immigrants compete for jobs with native-born Americans. Given the unemployment and underemployment that have typified U.S. economic performance in recent years, it is probably fair to say they have taken some jobs from native-born workers. At the same time, as pointed out in chapter 6, American industry has come to depend quite heavily on foreign-born engineers and scientists, many of whom first come to this country to further their education. A balanced view of the impacts of immigration must take account of such factors, as well as the overall thrust of immigration policy in a country that historically has welcomed people from abroad.

Distribution by Occupation and Industry

More than half of all immigrants, legal and illegal, live in California, New York, Florida, and Texas—mostly in large metropolitan areas. New entrants with professional and technical skills tend to settle in the same areas as the rest of the immigrant population, with some exceptions such as physicians. Many of the latter start practices in small towns and rural areas that offer them better opportunities.

Women and children who report no occupation make up 60 percent of legal immigrants, generally entering under the family reunification provisions. With the advent of more stringent labor certification requirements in 1965, the number of entrants listing professional/technical occupations more than doubled; about one in four of the current immigrant labor pool claims such an occupation, compared with 17 percent for the U.S. labor force as a whole. Of 209,000 immigrants in 1983 who designated an occupation on admission, 39,000 fell into professional or technical categories—19 percent of those listing occupations, and 7 percent of all immigrants. Nearly half of those declaring a professional/technical occupation fall into one of four categories—engineers, nurses, physicians (and dentists), and teachers. Engineers comprise the largest group, accounting for about 17 percent of professional/technical en-

trants in 1983, with the other three occupations each representing about 10 percent.

In general, immigrants from Latin America are less likely to report a white-collar background than those from Europe or Asia, more likely to be unskilled and female. By the late 1960s, Asian countries—India, the Philippines, Taiwan—had replaced Europe as the source of most professional and technical immigrants; less than 2 percent of entrants from Mexico claim a professional or technical occupation, compared with 14 for the Philippines and 19 percent for India. However, occupations reported at entry do not necessarily correlate with the jobs that immigrants find in the United States. Many are downwardly mobile, at least at first.

Most immigrant professional and technical workers take routine jobs in their fields, or move laterally and downward. Physicians may have trouble gaining a medical license; accountants may have to accept jobs as bookkeepers or clerical workers. Not only may immigrants have inferior skills, but some employers no doubt discriminate against them. The effects of immigration on U.S. labor market conditions, therefore, cannot be directly inferred from occupations listed on entry. The "fourth wave" of immigrants—those entering since 1965—will probably have trouble catching up in terms of skills and income with native-born Americans. This conclusion holds at both the high and low ends of the skill/pay spectrum, although low-skilled immigrants can expect to be upwardly mobile in the United States, as compared to their countries of origin.

If immigrants are more likely than the average U.S. worker to claim professional/technical skills, they are also twice as likely to be unskilled laborers and four times as likely to be domestic workers. The split between high and low skills is sharper for women than for men. While many immigrant women do fall at the professional end (the largest single group consists of nurses), much larger numbers cluster at the bottom. Almost all the women admitted under the occupational preference system in recent years have been either professionals or low-skilled service workers (including housekeepers, dressmakers, and household servants); the proportion of immigrant women with clerical occupations is only half that for women in the U.S. labor force as a whole. Occupational profiles for male immigrants resemble those for the rest of the male labor force more closely.

Illegal Immigration

Largely because the vast majority of illegal aliens come from Mexico, this group differs greatly in terms of skills and occupations from those who enter legally. Many more illegal immigrants cluster at the low-skill end of the spectrum. Although skilled workers and white-collar professionals have entered illegally in some numbers—e.g., from the Philippines—little is known about these people; almost certainly, however, the professional/technical group is relatively much smaller than for legal immigrants.

Taken together, the many studies on illegal aliens suggest numbers in the range of 2 million to 5 million, with estimates for the Select Commission on Immigration and Refugee Policy indicating 3½ million to 5 million (something under 3 million from Mexico). Many undocumented workers, especially those from Mexico, stay in the United States for only a few months, making estimates more difficult. Most illegal aliens live in major U.S. cities, with a distribution by State similar to that for legal entrants,

Although many undocumented workers take jobs in agriculture, they have also moved in relatively large numbers into blue-collar manufacturing. Surveys show that more than half the Hispanic women entering illegally find work in manufacturing (versus about 10 percent for women in the U.S. labor force as a whole)—e.g., in the southern California garment industry. Large and increasing numbers of illegal entrants from Mexico and the rest of Latin America do construction work, or take jobs in restaurants and other service firms.

Like legal entrants, illegal aliens—except for those from Mexico—tend to be downwardly mobile in the United States. Many who enter

from Mexico move from agriculture into construction and manufacturing, or upward in terms of service occupation. In some contrast, people with white-collar backgrounds entering illegally from countries like El Salvador or the Philippines often find themselves in lower status white-collar jobs than they formerly held.

Immigrants and Jobs

Do immigrants take jobs and job opportunities from native-born citizens? Assuming that immigrants gradually become assimilated into the U.S. economy, seeking to move up job ladders and otherwise compete with native-born workers having similar educational backgrounds and skills, the answer must be yes. On the other hand, to the extent that immigrants find work in labor market segments where few native-born Americans seek jobs—because, for example, of the nature of the work (domestics and custodians) —then it is equally fair to say that immigrants contribute their labor to the economy without taking jobs from those born here.

Legal immigrants with professional and technical backgrounds compete with native-born workers in nursing, medicine, engineering, and other white-collar occupations. These professions have traditionally provided relatively open channels of advancement for anyone who enters—including native-born women and minorities—because skills can be obtained through schooling rather than apprenticeship or on-the-job training. While there has sometimes been evidence of oversupply in such fields, serious unemployment seems unlikely; health care, for example, is still growing rapidly. Frequently, as with the small-town physician, immigrants fill slots at the bottom of the pay and status ladders for their occupational group. In the professions, crowding out by immigrants would seem unlikely. The most severe impacts of immigration have been felt, not in the United States, but in the countries these people have left, some of which have suffered severe drains of talent. At the same time, with unemployment remaining high, and underemployment on the rise, immigration can only make things more difficult for native-born Americans with poor education and low skills.

THE UNDERGROUND ECONOMY[22]

The major categories of underground economic activity—those that escape the national accounts—have little in common except their unreported nature. Underground economic activities include: 1) explicitly illegal activities such as prostitution and drug dealing; 2) unreported wages and salaries, along with other legal transactions that shield earnings (including capital gains and dividends) from taxation; and 3) goods or services obtained through barter. By all estimates, unreported earnings from otherwise legal activities makes up the largest of these categories.

The limited information available on the composition and growth of work in the underground economy points to close relationships with broad changes visible elsewhere in the labor market. For example, unreported wages and salaries appear to correlate with the increase in part-time and temporary work in the United States, particularly among those who hold multiple jobs; in general, underground employment appears to have grown at about the same pace as overall U.S. employment, with more people working off-the-books when the economy picks up, presumably because they have more opportunities.

Attempts to estimate the size of the underground economy depend on relatively arbitrary assumptions. As for illegal immigrants, the estimates cover a considerable range. Moreover, most of the surveys and other estimating procedures have focused on individuals and households, rather than businesses, although unreported transactions between companies more

[22]This section is based on "Trends Toward Labor Flexibility in the Reported and Unreported Economy, " prepared for OTA by S. Christopherson under contract No. 533-5745.

than likely exceed those involv ing individuals and households (perhaps by a large margin). Thus more data have been collected on, say, unreported cash income for people working as cab drivers, house painters, and waitresses than for transfers of funds overseas by businesses seeking to avoid taxation.

Because most people who work off-the-books also hold above-ground jobs, estimates of unreported wages or revenues, such as those made by the Internal Revenue Service, cannot be directly related to employment levels. Estimates based on conservative assumptions have placed *full-time* underground employment at about 4 percent over and above reported U.S. employment levels—perhaps 5 million people currently, [23] The number of people working on a part-time basis in the underground economy is no doubt several times greater.

[23] D.O'Neill, *Growth of the Underground Economy 1950 -81.' Some Evidence From the Current Population Survey*, report to the Joint Economic Committee (Washington, DC: U.S. Government Print ing office, Dec. 9, 1983). An estimated 800,000 of these people are Self-(!nll)lo}f;(i.

Most of the studies of the underground economy suggest that the trends explored earlier in the chapter—particularly the use of contingent workers by businesses seeking greater flexibility—have contributed to its growth, Companies that hire people off-the-books (which may include illegal aliens) not only avoid paying fringe benefits, but also payroll taxes. If they can hide some of their revenues, they may also be able to escape income taxes. These processes feed on one another. Contingent employment increases risks for the worker; with less assurance of future wages, more people will supplement their income as opportunities come along. Some of these opportunities may go unreported —working extra hours in a regular job for cash, doing auto or home repairs for a neighbor. Deregulation and a free-market approach to economic activity mean increased uncertainties. Work in the underground economy becomes more tempting for Americans seeking a hedge against an unknown future.

CONCLUDING REMARKS

From 1972 to 1984, American companies created nearly 21 million new jobs. Given the size of the Nation's economy, the patterns revealed by the 1980 census have been changing relatively slowly; nonetheless, the trends are unmistakable, Manufacturing jobs will continue to decline relative to the services, and almost certainly in absolute terms as well. The trade, FIRE and "other service" industries will expand, creating jobs that, on many dimensions, make poor substitutes for the manufacturing positions that the U.S. economy created in large numbers during the earlier postwar period:

- Everything else the same, jobs in the services pay less than jobs in manufacturing. This is true for both skilled and unskilled work, and for most managerial positions.
- Prospects for upward mobility in the services tend to be limited. Entry into jobs with such prospects commonly requires specialized educational credentials (or other evidence of retrainability).
- While women fill a higher fraction of managerial jobs in the services than in manufacturing, many of the women who have entered the service industries earn relatively little and face very restricted career opportunities. As women moved into the labor force in greater numbers, companies restructured work to employ them on a part-time basis. Many well-educated women in industries like banking and insurance fill dead-end jobs that consist basically of skilled clerical work.

Formal education and training as a route to upward mobility has become more important as workplace technology has grown more complex. While new technology deskills some jobs, it upskills others—processes explored in the next chapter. With companies, in effect, seek-

ing people with education/training credentials that indicate an aptitude for ongoing retraining, only those who are prepared can take advantage of the opportunities opened by upskilling. One of the functions of higher education, at least in theory, has been to equip people for continuing learning. Both colleges and vocational/technical schools will have to do this in fact as well as in theory if the U.S. economy is to prosper in the years ahead.

New entrants and displaced manufacturing workers whose backgrounds make them ill-suited for retraining will have a difficult time—in contrast to many of those who entered the manufacturing sector in earlier years with little education, but went onto achieve relatively high career earnings. Many such people will find themselves confined to occupations like sales or clerical work. Their earnings potentials will suffer, particularly in comparison with unionized manufacturing workers; for many years, wage levels in manufacturing have remained above those for most non-manufacturing workers by a relatively constant margin. Moreover, differences between the social environments of work in manufacturing and in the services will continue to limit opportunities for displaced manufacturing workers.

The knowledge-based service industries show sharp divisions between people with jobs high in pay and in skill requirements (loan officers, stockbrokers) and occupations low in pay and skills (bank tellers, data-entry clerks). As employment in the services has increased, a two-tiered wage pattern has emerged. At the high end of the scale, a minority of technical and professional workers, many of them in computer-related occupations, can expect high earnings and ample opportunity to move upward. A much larger group appears stuck at the bottom. A slack labor market, the largely non-union environment of the services, and competitive pressures in industries like retailing—populated by very large numbers of firms —mean constant downward pressure on wages, Crumbling internal job ladders in many service firms reinforce the tendencies toward stratification, making it more difficult to move upward via seniority and on-the-job experience. Broader access to schooling can make up for the decline of internal labor markets in part, but not entirely. Upward mobility for some people will be cut off.

The growth of the service industries does mean new jobs for Americans who can qualify for high-wage, high-skill positions in knowledge-based sectors like telecommunications, banking, and the professions–jobs that will coexist with the many low-skilled, low-paying openings that the economy has also been creating. The latter can be found, not only in the tertiary services, but in the knowledge-based sectors as well. The growth of the health services industry has meant many new jobs for food preparation, custodial, and laundry workers, as well as physicians, nurses, and laboratory technicians.

Because so many service jobs depend on demand based in other sectors of the economy—and ultimately on U.S. living standards—competitiveness and economic growth will remain essential for job creation at both ends of the pay/skills spectrum. To the extent that American firms move successfully into higher value-added services and goods, making possible higher living standards overall, Americans with jobs in the tertiary services will also be better off–at the least through broader opportunities, To continue moving into high-value-added services and goods, continuing investments in human capital will be essential; beyond this, American companies will have *to* utilize the skills and abilities of their employees effectively—a subject to which the next chapter turns.

Because direct exports (and imports) of services remain relatively small, the first-order impacts of trade and competition in the services on domestic employment are small. But trade pressures in manufacturing—and in many services that depend on manufacturing—have driven American firms to seek lower labor costs and greater flexibility in their labor forces. Companies in industries hurt by import competition—autos, steel—have slashed white-collar as well as blue-collar payrolls, laying off many people in service occupations. Domestic competi-

tion—driven in many cases by deregulation (most obviously in the airline industry)–has created similar pressures in service sectors.

For such reasons, companies in many parts of the U.S. economy have restructured to replace permanent employees with temporary and/or part-time workers. This is as true in the health care industry as in banking. With the spread of profit-seeking hospitals, health maintenance organizations, and specialized clinics (and because of changes in Medicare payments), hospitals have sought to tie staffing levels more closely to patient demand—by using temporary employees during peak periods, as well as contracting out food service and housekeeping. It is no longer true, if it ever was, that the typical part-time employee is the teenager with a job at MacDonald's, or the housewife who works a few weeks at Macy's to earn a little extra for her own Christmas spending,

As the examples above suggest, both domestic and international competition contribute to the rise in contingent employment. Table 40 compares typical labor force patterns in older, smoke-stack manufacturing companies—characteristic of the 1950s and 1960s—with those found in many service industries (as well as some kinds of light manufacturing). Companies seeking flexibility or pursuing new strategies through restructuring and automation (Macy's, New York Telephone, examples following in chapter 8) may redesign jobs so they can be performed by people with less skill and lower pay (cashiers replace retail clerks who once also helped customers choose merchandise). Self-service replaces semi-skilled jobs. Banks use part-time workers on Mondays and Fridays, their peak days. In other cases, two part-time jobs may take the place of a full-time position. As the next chapter illustrates, trade pressures and other competitive forces mean that many more American companies will seek to move toward a work force structured more like that on the right hand side of table 40.

Contingent employment transfers risk downward to the worker, who may not be covered by health and accident insurance, a pension plan, the other benefits that regular full-time employees have come to expect. By definition, contingent workers have little or no access to internal job ladders (and thus little opportunity for on-the-job training). Employers face fewer constraints regarding layoffs, hiring and promotion policies, job assignments and work rules, They can dispense to some extent with both the implicit and explicit contracts (i.e., agreements with labor unions, laws and regulations) that govern relationships with their full-time employees. This drive for freedom and flexibility, tied to the broad trends toward deregulation in the U.S. economy—and perhaps also to shifts in individual preferences—lies behind the growth in part-time and temporary employment in the United States.

Table 40.—Shifting Employment Patterns in the U.S. Economy

1950s-1970s	1980s
Large core work force of full-time, permanent employees, particularly in unionized manufacturing industries.	Growing contingent work force of part-time, temporary, and casual employees.
Firm-specific knowledge acquired through on-the-job training, plus seniority, meant steady advancement in earnings via the firm's internal labor market.	Portable skills—often acquired through formal education and training—replace firm-specific knowledge, as the external labor market replaces internal job ladders.
Flexibility for the firm through overtime and/or a buffer of full-time employees to meet variations in demand.	Flexibility for the firm comes through a smaller core of more highly skilled employees, coupled with contingent workers.
Examples: chemicals, steel, automobiles,	Examples: banking, retailing, health care, some manufacturing,

SOURCE Off Ice of Technology Assessment, 1987

Relying on a buffer of contingent workers brings short-term savings. Just as some American companies have negotiated give-backs with labor unions—or established dual wage structures, with new entrants starting at lower levels than their predecessors—part-time and temporary workers can help hold down the bill for wages, benefits, and training expenses. On the other hand, the very lack of training, and of prospects for advancement, diminishes a firm's ability to make use of the human capital its employees bring to the workplace. When companies design standardized jobs that can be performed by temporaries in for two days or two weeks, they maybe sacrificing efficiency both immediately and over the longer term. (The next chapter explores some of the less obvious reasons.) Over the medium term and longer—periods of years rather than months—companies that substitute flexibility in numbers for the flexibility created by a work force rich in experience-based skills and know-how risk losing their ability to compete.

Photo credit: Smithsonian Institution