Chapter 7

Home-Based Automated Office Work

Contents

Chapter 7

Home-Based Automated Office Work[1]

New information technologies allow the dispersion of office work over time and space. As many functions of an office become internal to computers, and as computers are increasingly linked by communication networks, it becomes less necessary for office coworkers to be located in the same room, or in the same building. When a worker's primary interaction is with "the system" rather than with other people, she can do her work wherever she can get access to the system–in the office, while traveling, or even at home.

Some futurists have predicted that the availability of low-cost computing power and telecommunications will increase the number of Americans working at home. The dawn of the information age will find millions of people "telecommuting" from their "electronic cottages, " that is, using computers and telecommunications to do office work in their homes. [2] At the present, there are only a few thousand Americans for whom working at home is a full-time substitute for working in the office, but the number is growing and many more might be so employed by the mid-1990s.

Parts of this chapter draw on a contractor report prepared for OTA by Kathleen E. Christensen, New York University, *Impacts of Home-Based Work on Women and Their Families,* January 1985.

-The word telecommuting was probably coined by Jack Nines, now at the University of Southern California, in the 19'70s and reflected the interest at that time in working at home as a means of conserving automobile fuel and reducing urban air pollution. The term is not fully appropriate for those who are hired (or contracted) specifically for home-based work and might not otherwise commute to an office to do the same work. In any case, ''telecommuting'' is an awkward back construction since it means ''commuting from afar' rather than ''working at a distance. Other terms often used are homework, remote work, telework, or flexiplace. Blue Cross calls its home-based workers, cottage keyers, or telenauts. The home as a computerized workplace is sometimes called an electronic cottage or an electronic sweatshop.

THE CONTROVERSY OVER HOME-BASED OFFICE WORK

The term "home-based office work" describes three very different phenomena. The first is the practice of working occasionally or sporadically at home instead of at the office, when it suits the purposes of the worker. The primary work site is still the office, and the worker continues to be a fully participating member of the office staff while enjoying greater control over when and where, and under what conditions the work is done. The occasional home-based worker is most often a professional. This kind of home-based work is not controversial.

In other cases the residence is the primary work site. Some of these full-time home workers are entrepreneurs—people who have founded small businesses with headquarters in their homes. They may intend to move the business to separate quarters as soon as it can generate enough income to cover the overhead, or they may choose to keep their business at home no matter how successful it becomes. In any case, these owner-managers seek work from a number of clients and set their prices based on their perception of the value of their work and their competitive environment. These home-based businesses provide a variety of professional and clerical services from word processing to accounting to computer programming. This kind of home-based work is also, for the most part, noncontroversial. [3]

Finally, the residence can also be the principal work site for workers who are employed by a single organization, but seldom or never work in the central office. As employees, their

'Christensen found that women who developed word processing businesses in their home, seeking multiple clients rather than tied to one corporate client, thought of themselves as, and functioned as, professionals and businesswomen, in spite of the fact that the work they were doing would be called clerical work if done in an office, and the women had in fact previously been clerical workers. Christensen, op. cit.

wages are usually set by the employer. Most home workers in this category are clerical workers, usually performing data entry or word processing; in some cases however, the home may be the primary site for professional work such as computer programming.

Most of the workers in this last category are women. They may decide to work at home because they must combine work with other responsibilities such as care of young children or elderly relatives. Some other full-time home workers have physical disabilities or live far from commercial centers.

Those who are enthusiasts for home-based work usually discuss it in terms of the first two images, the privileged worker and the entrepreneur. Those who oppose it are likely to) speak mostly of the last, the woman struggling to juggle two or more full-time responsibilities.

There are three important variables here, which relate to controversial positions on home-based office work. One is the extent to which the home replaces a separate office as the primary work site. Another is the degree to which the home-based worker functions as a separate unit providing services to the organization, rather than as an integral and participating member of the organization. The third variable is the degree of choice exercised by the worker, either in choosing a job that is home-based rather than office-based, or in allocating his or her time between two locations.

The controversy about home-based work can only be understood in the context of other social issues, including the long-range outlook for employment, the feminization of poverty, labor-management relations, protection for workers, the adequacy of child care sytems, and opportunities for the handicapped and the elderly. If we had full employment and ample social services, home-based work would probably not be controversial at all. The concern hinges on the question of whether, now or in the future, some workers are forced to work at home under undesirable conditions because the lack of certain social services deprives them of other options.

Home-based workers themselves are not divided over the issue; they would be unwilling to give it up. Many have demanded the privilege or worked hard to persuade employers to grant it. Some have accepted the risks that go with free-lance employment in order to work at home. Some have made the basic decision to stay at home while their children are young, and regard the opportunity to do paid work at home as a pleasant bonus, the icing on their cake. Others would much prefer to work away from home but have not been able to find any satisfactory alternative. Their choice is to work at home, or to settle for child care arrangements that they regard as unacceptable, or not work at all and become dependent on others.

Congressman Newt Gingrich of Georgia introduced a bill in the 97th and 98th Congresses (H.R. 2531, The Family Opportunity Act) that would have allowed a tax credit of 50 percent of the cost of computers bought primarily for "nonrecreational use in the home. One purpose of the bill, which has not been reintroduced in this session, was to encourage computer-mediated work at home.[4]

In contrast, the AFL-CIO has called for a ban on computer-mediated home-based work. The labor organization says that it is not possible to enforce health, wage and hour, and other worker protection measures in homes without invasion of workers' privacy. The unions are concerned that many home workers are paid under piece-rate systems and are deprived of benefits packages. They also claim that overhead costs are shifted from employer to employee, and that the threat of sending

'H. R. 2531 would amend the Internal Revenue code to allow an income tax credit for 50 percent of the expense of computers designed primarily for educational, professional, or other nonrecreational use in the home. It would limit the amount of such credit for a taxable year to $100 multiplied by the number of qualified members of the taxpayer's family. The bill was referred to the House Committee on Ways and Means and was not reported out. Computers used for work in the home are tax deductible; the bill called for a tax credit.

work out to be done at home could be used to discourage office workers from demanding rights and benefits or from joining unions.[5] The Service Employees International Union (SEIU) also supports the call for a ban by refusing to enter into collective bargaining with employers who use home workers, but is not completely opposed to home-based work if ways can be found to regulate it.

The implementation and enforcement of labor standards in home-based work is probably the central policy issue in this discussion. Those who call for a ban on home-based clerical work argue that such enforcement would be excessively costly or impossible, and that without it women (especially mothers), the elderly, new immigrants, and other disadvantaged minorities may be exploited. Those who favor home-based work argue that protective regulation should not become a reason to deprive workers of benefits that are often sought after, such as the privilege of choosing where they will do their work.

Historical Roots

Americans have a long tradition of working in the home to earn family income. Cottage industry did not entirely disappear with the development of factories. It is thought that about 10 million to 11 million Americans earn part of their income by working at home at a wide variety of craft, production, and service occupations.[6] This includes some farmers (although their number has been steadily decreasing) and many others who are only earning a little supplemental money at home, are part of the underground economy, or for other reasons are not counted in the labor force. The 1980 census counted about 1.2 million people in the labor force whose primary place of work was in their residence.[7]

Home-based production work in a few industries, such as knitting of women's outerwear, was banned in 1938.[8] The Reagan Administration ended the prohibition on industrial home knitting in November 1984.[9] In addition, a bill has been introduced in the Senate to amend the Fair Labor Standards Act to lift the ban on sewing, knitting, and other industrial home work so long as the employer complies with minimum wage and maximum hour laws.[10] The controversy over the knitting ban began to focus attention on, and inflame, the emerging controversy over home-based automated office work, which is, of course, not restricted. The AFL-CIO and others assert that the conditions that brought about the ban in the 1930s can recur, that home-based office work can also be used in the future to exploit the unskilled, women, children, and immigrants.

In recent decades some kinds of office work –for example, typing and envelope stuffing– have been done at piece-rates in the homes of

---

Judith Gregory, "The Future: Clerical Workers," a presentation for Nine to Five, National Association of Working Women, to the *National Executive Forum: Office Work Stations in the Home,* National Academy of Science, Washington, DC, Nov. 9-10, 1983, p. 9.

Sarah Ban Breathnach, "Trends: Mothers and Others of Invention," The *Washington Post,* July 16, 1984, B5.

According to unpublished analysis by Robert E. Kraut of Bell Communicant ions Research, private communication of Dec. 20, 1984.

A 1930 publication of the U.S. Department of Labor provides background on the prohibition:

> The industries that use the home-work system vary but they are alike in using to quickly expand the labor force when a rush of work comes, the labor available in the home. Thus the industries need not provide factory space and pay rent and other overhead for this part of their production The burden of expansion and production is passed on to the home workers in the form of irregularity of employment and earnings. Inevitably questions arise as to the soundness and the social ethics of such a system of production. From the standpoint of the public there is a clear case for regulation, if not the more drastic measure of prohibition, to set limits to the conditions that this highly competitive type of production imposes upon a group of workers who are, by the nature of the case, in poor position to protect themselves.
>
> Home workers are largely women, aided all too frequently by children. They are chiefly unskilled or semiskilled (and) recruited largely in tenement neighborhoods, often from recent immigrants or other groups with little or no industrial experience.

Emily C. Brown, *Industrial Home Work* (Washington, DC: U.S. Department of Labor, Women's Bureau, 1930).

'Regulations, pt. 530: Employment of Home Workers in Certain Industries. Title 29, pt. 530 of the Code of Federal Regulations. U.S. Department of Labor, Employment Standards Administration, Wage and Hour Division. White House Publication 1026. Revised March 1980. See also, S. 2145, a bill to amend the Fair Labor Standards Act of 1938 to facilitate industrial homework. . . . and H. R. 6103, a bill to amend the Fair Labor Standards Act of 1938 to provide that an employer who violates sees, 6 or 7 of that act shall be liable to the employee involved . . . These bills represent opposing sides of the issue of relaxing homework restrictions.

'"A bill to amend the Fair Labor Standards Act of 1938," S. 665, was introduced by Senator Orrin G. Hatch of Utah in March 1985 with eight cosponsors.

workers. These are usually women housebound with small children, or retired people. How much work is done in this way is unknown, much of it perhaps being part of the underground economy (that is, not reported to IRS), but it has provoked little comment and aroused little or no controversy. The tasks that can be done in this way are limited and poorly paid, and the number of workers willing to do such work is also limited. Homebased work has not been a viable option for most employers or employees, nor a threat to the mainstream clerical work force.

Two other categories of home-based office work have always been relatively common. The first includes the clerical and management aspects of home-based small businesses that most often involve crafts, personal services, and professional practices. In most communities, there are many such home-based commercial activities, even where they are officially forbidden by zoning laws and other local legislation. Another kind of home-based work is ''overflow, work brought home to be done outside of regular office hours. An AT&T survey in 1982 concluded that in 16 percent of households there is at least one person who frequently brings work home–possibly as many as 30 percent of all employed people.

Few people doing office work at home, in any of these categories, have until recentl:y been using sophisticated technology. The AT&T survey found that most people bringing work home with them used only the telephone, pencil and paper, and perhaps a calculator. These, plus typewriters, are more than likely the most frequently used equipment for cottage industry offices as well.

Computers and telecommunication increase the viability of home-based work and make it possible for a significant portion of all office work to be done at home. The information that is to be processed or generated, the instructions for handling it, supervision and monitoring of the work, interaction between coworkers, and distribution of the output can now or at some future stage of technological development, all be done at a distance. In addition, American households are becoming equipped with computers that could be used for paid employment. By 1990, at least one-third of households may have a PC and some projections are much higher. 'z

Much of the interest in home-based work using computers arose, however, years before the technology was ready to allow it. In the early 1970s, the need for conservation of gasoline and the problem of growing air pollution and congestion evoked much talk about the potential benefits of decentralization of work. If or when these problems again become high national priorities, they will surely act as a powerful stimulus for interest in home-based office work.

"Robert E. Kraut (Bell Communications Research), ''Telework: Cautious Pessimism, a presentation at the National Research Council's National Executive Forum: Office Workstations in the Home, " Washington, DC, Nov. 10, 1983, p. 9 (manuscript, no date).

"About 15.8 percent of American households have a computer in 1985, according to an estimate supplied to OTA by Future Computing, Inc. (a division of McGraw Hill). This is based on a total installed base of 15.4 million in 1985, expected to rise to 38.8 million in 1990. They estimate that by 1990, 32.9 percent of households will contain a computer.

THE STATUS OF HOME-BASED OFFICE WORK

How Many Home-Based Office Workers Are There?

Estimates of the number of home-based office workers using electronic equipment at present range from 10,000 to 30,000. The most frequently used estimate is 15,000, the Bureau of Labor Statistics' projection. [13] But many of these estimates include those who only do cas-

"'Homebodies," *Forbes,* September-October 1984, p. 10. Joanne Tangorra, in an article, "Telecommuting," Working *Woman 7:1 1:52-54;* quoted in *Telecommuting,* Advanced Systerns Laboratory, Wang Laboratories, Inc., educational brief, 1984, p. 6, says that the number of full-time home-based, computer-based workers is only 1,000.

ual or "overflow" work.[14] Probably there are only between 3,000 and 5,000 people who are doing office work, using microelectronic equipment, in their homes for outside employers or clients, and most of these began only in the last 4 years.

While there was much discussion of "telecommuting' during the oil crisis there was little or nothing in the literature discussing real experience or examples.[15] A survey in 1970 identified few home-based workers using computers. " But some corporations had already begun formal home-based work programs in the United States and in other countries. There are now at least 40 such programs in the United States. That could amount to only a few hundred people. But there may be at least 3,000 home-based workers in zOO companies that less formally allow employees to choose to work at home.[17] This does not include many people who work at home as contractors or free-lance workers.

How Many May There Be in the Future?

Some enthusiasts, such as Alvin Tofiler say that there could be as many as 15 million home-based white-collar workers by 1990. '8 This is loosely based on the estimate that 15 million of today *jobs* could be moved to remote locations.[19]

Others project 5 million to 18 million home-based workers (up to 18 percent of the white-collar work force) using computers by 1990.[20] One estimate is that 50 percent of all white-collar workers, or 26 million people, could do their work at home using computers.[21] There are similar estimates in other industrialized nations. For example, one organization has forecast that by 1990, 40 percent of people in Britain could be working at home.[22]

All of these highly unlikely estimates (some of them even presented as projections, or at least possibilities for the future) assume, explicitly or implicitly, that some driving trends will continue or that some existing constraints will be eased. Factors most often mentioned as encouraging the growth of home-based work are lower equipment costs, the growth of electronic mail systems, improved technology for linking the home and central office, rising energy costs, stable or decreasing communication costs, and renewed inflation (which tends to increase the demand for part-time workers or an externalized work force).

Some long-range social and demographic trends seem to make it likely that more people will be willing or eager to work in their homes in the future, or will see it as their only way to earn a necessary income. Married women increasingly want an independent income even when they choose the traditional role of housewife; in the absence of alternative provisions for child care they may be forced to combine work with family duties. The same choice or lack of choice may face people who must care for elderly relatives. Large numbers of

'Jack M. Nines, University of Southern California, "An Overview of Office Workstations in the Home, " presented at the National Executive Forum: Office Workstations in the Home, National Academy of Sciences, Washington, DC, Nov. 10, 1983.

' Ibid., pp. 1-2.

"Joanne H. Pratt, "Home Teleworking: A Study of Its Pioneers, " *Technological Forecasting and Social Change 25,* 1-4, 1984, p. 1.

-Patrick Honan, "Telecommuting, Will It Work For You?" *Computer Decisions,* June 15, 1984, p. 89.

"Quoted in Breathnach, op. cit., and elsewhere.

'An estimate by economist Elisabeth Allison of Data Resources, Inc., quoted by Judith Gregory, op. cit., p. 3, and *Business Week*, "*If* Home Is Where the Worker Is, " May 3, 1982, p. 66.

[20]See for example, Lad Kuzela, "Office Old-Fashioned?" *Industry Week,* Oct. 19, 1984, p. 71; and Sally Jacobs, "Working at Home Electronically, ' *New England Business,* May 21, 1984, p. 15, for summaries of recent forecasts and projections. In the Kuzela article, Dr. Jack Nines of the University of Southern California is quoted as saying that under different sets of conditions the number of telecommuters in California, by the year 2000, could range from 300,000 to 8 million.

[21]R.C. Harkness, *Technology Assessment of Telecommunications-Transportation Interactions,* Stanford Research I nstitute, Menlo Park, CA, 1977.

-*Business Equipment Trends 1983/1 984,* compiled by Kern/Ferry International for Beta Exhibitions Ltd., quoted in B. C. Burrows, "Information Technology-Its Impacts on Property Development, *Long Range Planning,* vol. 17, No, 4, August 1984.

retired workers want or need a way to supplement retirement income on a part-time basis. Handicapped people seek the self-reliance that comes from an earned income. Many people simply like the idea of more flexibility in the use of their time, or wish to live in rural areas but are reluctant to spend large parts of the day commuting.

However, many observers are skeptical about the likelihood that home-based work will expand greatly .23 The conventional office has proven to be a remarkably useful and stable institutional structure.[24] It has four valuable characteristics that cannot be matched by home-based work: the presence and cooperation of coworkers, its role in socializing the worker to the corporation and its unique culture, the prevalence of informal communication networks, and mechanisms for structuring the allocation of time. The office is also a major focus of social and recreational activities for many workers.

The central office provides economies of scale in capital equipment acquisition, communication and cooperation of coworkers, access to central files and reference material, and the supporting superstructure of superior/subordinate relationships.[25] Some of these benefits are lost or attenuated with dispersion of the work to other locations. If home-based work threatens to disrupt established corporate culture, employers are likely to choose instead to increase productivity by further automation within the office.[26]

There are other factors that may well retard the spread of home-based office work. Managers and supervisors sometimes oppose it, because it calls for entirely new techniques of supervision, instruction, and quality control. Home-based workers frequently report that they are resented by coworkers who do not have that privilege.[27] Many work-at-home arrangements depend heavily on telephone lines; if there is a significant increase in local telephone rates, home-based work may be less attractive to both employers and employees.[28] (In some cases, telephone costs are borne by the home worker.)

Finally, it is generally assumed that further development of information and communication technologies will tend to encourage home-based work. It is also possible however that technological development may make some of it superfluous. If the use of optical scanning devices eliminates the need for much of today's mass data entry, a large portion of the work now done at home may be eliminated.

Mechanisms for Home-Based Work

Work at home can be supported either by an organization or by independent, free-lance activity. The worker, in other words, may be an employee, or may be self-employed.

A corporation may have a formal program under which selected employees are offered the option, or employees may request home-based work (often under the condition that a supervisor also has the option of refusing to agree to it). Other corporations informally allow individual workers to negotiate the privilege of working at home, either full time or more often part time.

Most employed home-based workers have previously worked for the same employer on-site. But some corporations have set up programs to hire workers not otherwise available to them or able to work, e.g., handicapped workers, mothers with small children, or suburban housewives.

---

[23] Margrethe Olson has surveyed corporations experimenting with work-at-home programs in 1983-84 and concludes that "... while there is continuing interest in the prospect, there are no significant trends toward shifting large numbers into their homes either part or full time." (Margrethe H. Olson, New York University, "Working at Home and Telematics: Myths and Realities," a presentation at the Office Automation Conference, Convention Center, Los Angeles, Feb. 20-22, 1984.)

[24] Robert E. Kraut, Bell Communications Research, "Telework: Cautious Pessimism, a presentation at the National Research Council's National Executive Forum: Office Workstations in the Home, Washington, DC, Nov. 10, 1983, pp. 17-18.

[25] Steven S. Kawakami, Institute of Labor and Industrial Relations, University of Illinois, "Electronic Homework: Problems and Prospects From a Human Resources Perspective," September 1983, p. 14,

[26] Kraut, op. cit., p. 19.

[27] Pratt, op. cit., p. 7; Jacobs, op. cit., p. 19.

[28] Honan, op. cit., p. 96.

Independent or self-employed home-based workers may work under contract for one or more organizations, or solicit piece work on an ad hoc basis. Often corporations shift employees to self-employed contractor status when they become home-based workers. However, if these workers contract with only one organization, they may in fact be employees in the eyes of the law, depending on how pay rates are set, and other details of the arrangement .[29]

Professionals are often operating as consultants, one-person firms, or part of very small businesses. Those who are employees, however, typically retain salary and benefits, whereas clerical home-based workers are usually shifted to part-time status or independent contractor status, and do not retain employee benefits. Most clerical workers who are first hired for home-based work are not given employee benefits.[30]

Whether workers are full or part time, they may not do their work in the traditional office hours of 9 to 5. The ability to control one's own work hours is often cited as a major benefit of working at home.[31] But the choice of work hours in practice is usually constrained. The workers sometimes find that they must work during the business hours of employers or clients in order to ask questions or receive instructions. More often, they must fit their work around family responsibilities, working during school hours, when another adult is at home to care for children, or when the children are asleep. It is common for them to work at night, often after a full day of child care, cooking, cleaning, and shopping.[32]

Some workers use dumb terminals connected to an employer's mainframe computer, usually by a ordinary telephone line and modem. An additional telephone line is often installed

[29] A recent IRS ruling indicates that they are employees, at least for some purposes. See p. 38 below. There have also been cases under the National Labor Relations Board ; rider which newspaper delivery truck drivers, for example, were held to be employees rather than independent contractors as a company had claimed, according to Dennis Chamot, Associate Director of the A FL-CIO Department for Professional Employees (personal communication, Jan.8, 1985).

Photo credit: Digital Equipment Corp.

A portable terminal can be connected via telephone lines to business computer systems

[30] "T!argrethe Olson studied work-at-home programs in 14 corporations in 1983. I n eight programs the workers were permanent full-time employees (salaries plus benefits). All of these programs except one involved professional workers. The other six programs were for clerical workers. I n four programs, they were permanent part-time workers earning hourly wages. One of these companies paid the workers no benefits, three prorated benefits. One program paid the part-time worker-s by output (piece rate) with no benefits. The sixth program used contract workers. paid hourly rates, but with no separate benefits package. Margrethe H. Olson, *Overview of Work-at-Home Trends in the United States, New* York University, Graduate School of Business Administration, Center for Research on 1 nformation Systems (New York: New York University, August 1983), p. 9.

The literature suggests that the disparity in arrangements for professional compared to clerical workers shown in Olson's data is probably typical of corporate programs.

"Olson found that about half of the workers in her study did, however, approximate a 9-to-5 schedule. The others tended to work early mornings or late evenings, but on a fairly regular schedule. These were most often professionals, working at home under informal arrangements rather than formal programs. Those in formal programs. i.e., clerical workers, who worked odd hours usually did so because of the need to work around family constraints. Olson, op. cit., p. 22.

[31] Kathleen E. Christensen, " Impacts of Home-Based Work on Women and Their Families, contractor report for OTA, January 1985.

in the home for this purpose. Sometimes a dedi cated leased line is necessary for security. Other workers use personal computers or stand-alone word processors, dictating machines and printers.[33]

There have been problems with equipment in some programs, but by most accounts technological problems have been minimal.[34] The equipment may be owned and installed by the employer, and either lent or rented to the worker. The worker may own or lease her own equipment .35 Blue Cross clerical workers in North Carolina, for example, pay their employer $2,400 yearly rental for use of their equipment.[36] On the other hand, an employer in the Netherlands pays home workers an extra 2,000 guilders per month to cover the costs of operating a terminal at home.[37]

What Work Can Be Done at Home?

One of the most likely kinds of office work to be done at home is professional work that involves only one person's creative activity (programming, writing reports) or contacts usually carried out by telephone (sales, brokering). A second kind is clerical activities that are unitized, repetitive, and routine.[38] Data entry and word processing can be monitored and measured electronically, computer checked for errors, and paid as piecework. Raw data and finished work can be physically transported between office and home in batches, or can be sent by telephone. Whether professional or clerical, this work usually does not require much face-to-face supervision or collaborative effort between coworkers in real time.

Supervisors are least likely to be able to work at home and there are now only a few firms where they do so. This may change in the future with the spread of electronic mail, computer conferencing, PBX, and other electronic tools that make possible cooperative document-handling and reduce the need for frequent interactions with coworkers.[39] However, the extent to which supervisors will be inclined and willing to replace face-to-face interaction and supervision with electronic communication remains to be seen.

Financial and computer service corporations have been most likely to experiment with work-at-home programs. Metropolitan Life, Control Data Corporation, National Bank of Chicago, Continental Illinois, Southern New England Telephone, Seybold, and Aetna Life and Casualty Company have started such programs, although some of these have been terminated or suspended.[40] Small new companies have also experimented with the scheme. Few or none of the programs have been found in old, traditional industries.

There is strong interest in work at home in other countries, but the movement has been strongest in the United States. In England, early enthusiastic projections of "electronic commuting" were not met, largely because of the high costs of telephone lines.[41] In France, there have been a number of experiments with working long distance from small neighborhood centers rather than homes. The national telecommunications authority, which sponsored these programs, made an explicit policy

---

"In Pratt's recent study of 59 home-based office workers, 57 percent of the equipment was employer-owned terminals communicating with mainframe computers in the office; 31 percent was stand-alone computers; and 12 percent was stand-alone word processors usually not equipped for communication. Pratt, op. cit., p. 5.

"However, according to Elizabeth Carlson, second vice president of personnel, as quoted by Honan, op. cit., p. 96, Continental Illinois curtailed its program in 1980 and again in 1981, "waiting for vendors to come out with usable equipment. "

'"In most of the formal corporate programs that Olson studied, the employer paid for installation of equipment and monthly telephone charges; in one program employees rented equipment from the company. Olson, op. cit., August 1983, p. 10.

""If Home Is Where the Worker 1s, " *Business Week,* May 3, 1982, p. 66.

"Richard J. Long, "The Application of Microelectronics to the Office: Organizational and Human Implications, " Nigel Percy (cd.), *The Arrnagement Implications of New Information Technology* (London: Croom Helm, 1984), p. 106.

"In one study of corporate pilot programs, it was found that they had targeted either clerical workers, with the objective of cutting overhead costs, or professional workers, in the interest of retaining valued workers who demanded the privilege of working at home. These were distinct objectives and quite different kinds of pilot programs; no corporations had both types. Olson, op. cit., 1983, p. 7.

"Olson, op. cit., August 1983, p. 7. .

"Honan, op. cit.; Jacobs, op. cit.; Wang Laboratories, op. cit.

"Ursula Huws, *The New Home Workers* (London: Low Pay Unit, pamphlet No. 28, 1984), pp. 14-15.

decision that home-based work would be too isolating. These experiments have generally not been successful and most of the workers dropped out. " However some pilot programs for handicapped workers are now underway. Sweden has also experimented with neighborhood work centers, and there is reported to be much interest, but little experience, with working at home.[43 44]

One multinational software company based in Britain, with subsidiary offices in Denmark, Holland, and the United States, is deliberately structured so that nearly all of its workers are based at home. These are computer professionals, and in Europe, 96 percent of them are women with small children, and 95 percent work entirely at home. In the United States, 70 percent of the company's employees are women, and 50 percent are fully home-based. The workers agree at the outset, they will steadily increase both their working hours and commitment to the company and career, as their children mature.[45]

[43] Ibid., p. 19.
[44] Ibid.
[45] Monica Elling, Swedish Center for Working Life, Stockholm, "Remote Work Telecommuting, " presentation at IF IP-Conference on "Women, Work, and Computerization, ' Riva del Sole, Italy, Sept. 17-21, 1984.

[46] Huws, op. cit.: and Marsha Johnston Fisher, "Firm Turns Telecommuting Into a Reality, " *MIS*, Nov. 28, *1984*.

PARTIES AT INTEREST

Employers

Employers who offer home-based work have at least one of four possible objectives: response to employee demands, social responsibility, access to an untapped labor pool, or cost cutting. The last is apt to be the critical factor for the future spread of home-based work.

Some corporations have begun home-based work programs, or allowed the option in individual cases, to hold on to particularly valued workers. Some allow workers on retirement to continue part-time work from their homes. Others such as Control Data Corporation and Metropolitan Life began programs in order to offer employment to handicapped workers.[46]

A few corporations are reported to be turning to home-based work as a way of recruiting otherwise unavailable but highly qualified workers, such as mothers of small children, or suburban housewives.[47] Critics say that they are trying to avoid hiring poorly educated urban minority workers.

[47] Honan, op. cit., pp. 88-91.
[48] Pratt, op. cit.

The strongest motivation for offering home-based work in the future is, however, likely to be the possibility of reducing costs. The employer saves money in terms of:

- floor space and associated overhead costs,
- equipment costs (in some situations), direct labor costs, and workers' benefits.

The office needs proportionately smaller facilities, with all of the reduced operating costs that entails, if many of the workers are at home. There workers pay for their own floor space, heating, cooling, and amenities; in some cases, they own and maintain the computer and other equipment. In effect, these costs are shifted to the workers.

If the workers use terminals to communicate with the employer's central computer, the employer benefits by the more intensive use of the computer because workers often use it, and can even be required to use it, outside of peak hours. For example, in a pilot program run by the Army Materiel Development and Readiness Command, there was a 64 percent increase in computer usage without additional cost. Three homebased employees were shifted to second and third shifts. The percentage of work time that the remote employees spent

on-line also increased by an average of 93 percent.[48]

Home-based clerical employees are often paid less than their peers in the office, although this is not always the case.[49] If the workers are paid piece-rates, the employer is not paying for set-up time, time spent in collecting or delivering work, coffee breaks, bathroom breaks, discussions with supervisors, chats with coworkers, or any of the other unproductive time that office work includes. The organization can define the work by task and pay only when it is satisfactorily completed.

The employer's biggest cost saving may come from flexibility-workers can be used when needed and not used when work is slow, without the difficulties of firing and rehiring or the expense of unemployment compensation. This-is a great advantage for a company with a highly uneven workload. It means, however, that the worker does not have a steady income .50

Many homebased workers received no benefits—health insurance, sick leave, vacations, pensions, etc. Of 14 corporate programs studied in 1983, for example, the 6 designed for clerical workers shifted their status from full-time to permanent part-time workers, in which category workers-did not receive benefits.[5] Those classified as independent contractors are generally not eligible for unemployment insurance benefits when not working. Home" based employees and independent contractors studied by OTA for this project did not receive any employee benefits. Entrepreneurs had purchased their own health insurance and retirement plans.[52]

It has also been suggested that union-busting is, or will be, a motivation for some employers. At present, few office workers belong to unions, and home-based workers are likely to be even more difficult to organize than other office workers. The low pay for home-based clerical workers, especially piece-rates, could act over the long run to depress the pay of the main clerical work force. Critics argue that employers might use the threat of expanded homework programs to undermine attempts by office workers to organize.

In spite of seemingly significant benefits to the employer, many companies resist the concept of work at home. It involves a significant change in traditional techniques of management and supervision, and managers fear a loss of control over quality, quantity, and pacing of the product. The workers themselves sometimes complain of poor instruction and a lack of feedback from managers.[53]

Productivity

Almost without exception, studies show that home-based workers are more productive than those in the office. Estimates of the increased productivity of home-based workers range from Control Data Corporation's estimate of 15 to 25 percent to other estimates of up to 60 percent[54] and even 80 percent[55] for some work-

[48] Mary T. McDavid, "The ALMSA Work-at-Home Prototype," presented at the National Executive Forum: Office Workstations in the Home, National Academy of Sciences, Washington, DC, Nov. 10, 1983.

[49] Continental Illinois, for example, paid at-home workers the same salaries paid to in-office workers, expecting that cost-reduction would result from reduced need for office space. Honan, op. cit., p. 96.

[50] *Business Week* reported in 1982, for example, that "Aetna plans to pay telecommuters by the project and to use them only for 'peak work,' leaving them without a regular salary. They will also be ineligible for health and pension benefits." Blue Cross home-based data enterers are excluded from benefits, which for office-based workers amount to $2,000 to $3,000. The company says that those at home earn "up to $3,oOO a year more," but they also pay $2,400 rent for their terminals. "If Home Is Where the Worker Is," *Business Week*, May 2, 1982, p. 66.

[51] Olson, op. cit., August 1983, p. 11.

[52] Christensen, op. cit. Most of the home-based workers studied in depth were, except for those who were active entrepreneurs who owned their own business, regarded by their companies as independent contractors. Since they each worked only for one company, in most cases had been regular employees until they took maternity leave, and had been approached on the question of working at home in each case by the company rather than themselves soliciting home-based work, they probably should still be regarded as employees.

[53] Pratt, op. cit., p. 6.

[54] R.A. Manning, Control Data Corp., "Alternative Work Site Programs," a presentation to the National Research Council's National Executive Forum: Office Work Stations in the Home, Washington, DC, November 1983.

[55] In a study of about 1,000 home-based workers by Electronic Services Unlimited, reported in Jacobs, op. cit., p. 15.

ers.[56] In part, this is an artifact of measurement. With home-based workers, only actual working minutes are counted. In the office, there is a considerable amount of "wasted time" that is so fragmented that it is not noticed. However, many experts believe that much of this "wasted" time is in fact spent in informal help and support to other workers, or in the exercise of "invisible skills' beneficial to the company .57

Home-based workers who were interviewed for OTA said that they did not bill their employers for extra work they did in correcting mistakes. Some did not request payment for, or even report, hours that they put in on a project over and above the time that had been estimated as required, feeling that they should have been able to work faster–even though these estimates of required time had been made by the employer rather than by themselves. This kind of self-exploitation maybe common among those for whom home-based work is new and regarded as a rare privilege, and should be taken into account in assessing the reports of high productivity .5*

Workers themselves tend to attribute the increased productivity to their control over their schedule, their ability to work when they most feel like working. In part, the additional productivity probably results from the fact that home-based workers are carefully selected, highly motivated, and working in an environment chosen and designed by themselves.

Some observers argue that all of these effects are transitory and will disappear when the novelty of working at home is gone, and when less highly motivated or selected workers are involved. The cross-fertilization and mutual support that occurs in an office working group are valuable. Workers learn from each other on the job. When there is no chance to do this, productivity y may suffer in the long run.

The Workers: Why Are They at Home?

Because the number of home-based workers is uncertain, their characteristics-age, gender, occupational status, etc.—cannot be described quantitatively with confidence. Certain groups are thought to be represented far out of proportion to their number in the total work force—women, single parents, the handicapped, and retirees. [59]

Professional home-based workers include both men and women; the clerical workers are overwhelmingly women, and the evidence indicates that most have one or more children under 6 years old.[60] This is true in other countries as well as in the United States. The typical home-based white-collar worker, then, is probably not a male professional, but a young mother doing clerical work.[61]

Most of the home-based clerical workers are women because: 1) most clerical workers are women, and 2) women are most likely to be responsible for care of children, the elderly,

'McDavid, op. cit. Nines concludes that gains of 20 to 50 percent are common. (Nilles, op. cit., p, 3.) In one group, 6'7 percent of the workers perceived their own productivity, as well as the quality of their work, to have significantly increased. (Pratt, op. cit., p.5.) In another study, workers reported their perceived increase in productivity to be 35 percent on the average, with the self-reported range from 5 to 100 percent.

Invisible skills are important aspects of the job that are not specified in job descriptions but make the worker valuable to an organization: for example, a secretary chatting hospitably with important visitors, or a word processor showing co-workers features of the equipment that they have not yet discovered.

'Christensen notes that this response was typical for the *employed* home workers, but that it was not typical for entrepreneurs who had clear ideas about the value of their time and priced services to be competitive with similar businesses,

[59] An analysis based on the 1980 census suggests that of people regularly working at home (but not necessarily doing office work or using computers), 57 percent were women compared to 43 percent of those working outside the home. (Robert E. Kraut, in on-going analysis, communication of Dec. 20,1984.)

[60] Among those who volunteered to be interviewed by OTA contractor Kathleen Christensen there were two groups, roughly equal in size. Those who were in effect employees (although called independent contractors they worked only for one organization, usually their employer before they took maternity leave) were all women in their thirties, married or with partners, and with small children. Those who were entrepreneurs. with their own companies and seeking multiple clients, were typically older, single, with no small children. An as-~' et- unpublished survey of several hundred home-based workers confirms this finding.

[61] ''Nlost home-based women workers with children under 17 are clerical workers, according to a major survey: Kathleen E. Christensen, "National Survey on Women and Home-Based Work" *Family Circle*, Dec. 15,1984 (publication of results in progress).

or the ill.[62] Women are probably also most likely to need additional income after retirement, because they live longer than men, and are less likely to have adequate pensions.

Most if not all home-based workers are now working at home by choice, in the sense that other jobs are available and no employers are known to require working at home as a condition of employment. In most cases, the demand for home-based work has so far come from the workers, not from employers, who are often reluctant or at least hesitant to provide this option. But this may already be changing, as organizations become aware of the cost-saving possibilities.[63]

"Choice" in any case has a wide range of meanings. In some cases, it means that other options are not available, or are less attractive to a worker for reasons over which she has little control—staying at home is necessary because of other responsibilities, because of social inhibitions (the traditional housewife's role), or because of physical disability. Often, however, the person has first decided that he she wants to stay at home and care for a family; the opportunity to do paid work at home is a secondary choice that is not a critical factor in the first decision. Other people simply prefer a lifestyle that does not include going to an office, at least not at any preset times.

These people who have actively sought home-based work as part of a new lifestyle are more likely to be the professionals (including males) simply because professionals usually can exert more control over the conditions under which they earn a living. Corporations frequently report that they have formally or informally provided the option in order to retain valued employees.

Many of these professionals believe however that home-based work, especially if done full time or nearly full time, seriously prejudices their chance of promotion and advancement. They have consciously traded-off advancement for a preferred lifestyle.[64] Women managers especially tend to believe that this choice is particularly prejudicial to their careers; some have done it in preference to dropping out entirely when they became mothers, and in order to maintain their expertise and credentials until they could return to work.[65]

Those who look for home-based work reluctantly, because they must beat home, are more likely to be clerical workers.[66] They are less likely than professionals to be able to afford professional child care or specialized transportation for the handicapped. But even for these people, the opportunity to work at home may be cherished, in contrast to not working, or working under less desirable conditions.

It is therefore not surprising that overwhelmingly home-based workers are pleased with their situation. This must be kept in mind when evaluating the implications of home-based office work. Controversy over home-based work does not arise from the dissatisfaction of the current home-based workers themselves, but from the possibility of future exploitation.

The Benefits and Costs for Home-Based Workers?

How workers assess the relative benefits and costs to them of working at home undoubtedly depends on the degree to which they exercised free choice from a wide range of employment options.

All studies, and all journalistic accounts of home-based workers, indicate that most value the opportunity to control their own work hours. Many report that the quality of their leisure time is also improved because they can select and schedule recreational activities that

[62] "While women constitute 80.5 percent of all clerical workers, they are even more dominant in clerical occupations most likely to include home-based work. For example, over 96 percent of typists are women, but less than 23 percent of shipping clerks. Kraut, op. cit., p. 5.

[63] "The group of 13 "independent contractors" who worked only for one client included nine former employees of an insurance company, who had been offered work to be done at home when they applied for maternity leave. Four others were housewives who had each been asked to do work at home by friends or husbands who were the proprietors of small companies. Christensen, op. cit.

[64] Pratt, op. cit., p. 7. See also Breathnach, Honan, Jacobs, Olson, op. cit.

[65] Pratt, op. cit., p. 11. Also substantiated in Christensen, op. cit.

[66] For example, see Olson, op. cit., August 1983, p. 17.

are not otherwise available. Many of them find the home a congenial and comfortable working environment; this is not always the case for those who are combining work with child care in crowded living quarters. Many value highly, the additional time spent with their families, or the latitude to spend more daytime hours with family. The opportunity to care for children at home rather than have them cared for by others is the primary benefit for many people.

It is not always true, however, that working at home allows the worker to control when he or she works. The home-based worker indeed often has a double constraint, having to fit work around family needs and the times when the company computer is down, such as on Sundays. Thus, they may have as little control as office workers over when they work, and they may even lose some of what is usually considered family time.

Cost savings can be significant for some who give up work in an office. Workers have reported savings up to $200 per month for meals, $100 for gasoline, parking, and insurance; $100 for clothes and cleaning bills. Large costs of children's day care may be avoided. [67] Those who are entrepreneurs avoid the cost of outside office space and take tax deductions for the use of their home.

Eliminating the commute to work is for many a primary benefit. The average American worker now travels over 9 miles in each direction, often a 1- to 2-hour commute.[68] The time and the stress spent in commuting is often resented even more than the cost of gasoline, insurance, car maintenance, and parking.

These cost savings of working at home do not tell the whole story. There are also added costs, both direct and indirect. Some workers must lease or buy terminals. Most pay the telephone bills and some must pay for special dedicated telephone lines. Workers generally provide the furniture that they use in connection with the equipment. They pay higher electricity bills because of the equipment, and some report additional heating and cooling bills.[69]

Clerical home workers almost always earn less than their peers in the office, even within the same firm.[70] Sometimes the pay rate is technically the same, but those at home are shifted to part time or piece rates without fringe benefits. They usually work fewer hours than those in offices, either because work is not regularly available, because of their home-related duties, or by choice.

Part-time and piece-rate home-based workers usually report that their workload is very uneven." (For employers, the flexibility of labor supply is a major benefit.) The lack of a regular income can be as much of a problem as is low pay; those who are dependent on income from home-based work may live balanced on the edge of financial disaster.

Health insurance coverage becomes a major problem for those converted to the status of independent contractor or part-time worker. The majority of home-based workers may be covered as dependents by the health insurance of spouses, but the separation from employee status leaves others to pay the high costs of individual coverage or be without protection .72

[67] Pratt, op. cit., p. 5.

[68] Motor Vehicles Manufacturers Association, *Facts and Figures,* Detroit, MI, 1981.

[70] Pratt, op. cit.; and Honan, op. cit., p. 97.

[71] See for example, Olson, op. cit., August 1983. Other case studies of home-based clerical work have consistently found that home-based workers make less than peers. However, some preliminary analysis by Robert Kraut at Bell Communications Research, shows higher hourly wages for home-based workers in a few clerical categories as compared to those not working at home.

Reduced income is typical of the larger category of all work at home as compared to work away from the home. According to the 1980 census, 10 percent of home-based workers are below the poverty line, compared to 6 percent of other workers. Male home-based workers have an average hourly wage of $6.77 compared to $8.20 for nonhome workers; women home-based workers have an hourly wage of $3.06 compared to $4.80 outside the home. In addition, home-based women workers average 30.6 hours work per week compared to 40.2 for those working away from home, 35 for male home-based workers, and 41.6 for other male workers. There may be several variables involved in this phenomena.

Pratt (op. cit.) also reported that many retired people found home-based work not worth their effort because of the low pay, even though many enjoyed having some work to occupy their time.

[72] Pratt, op. cit., p. 10.

"Among those interviewed by Christensen, independent contractors working for one client were covered under a hus-

While home-based workers have more control over their working environment than they would in most offices, in the sense that the decisions are their own, in fact, they often work under very undesirable conditions. It may not be possible to set aside space dedicated only to work. They may not know how to select, or perhaps cannot afford to buy, chairs and desks that accommodate the equipment and reduce muscular strain for the workers.[73] Poor lighting may cause eyestrain and headaches. It is possible that office automation equipment also introduces unrecognized hazards into the home.[74]

One intangible cost to the worker may be the social isolation of working at home. Saloman and Saloman point to the importance of social interaction at work, and studies that have shown that small, cohesive work groups are for most workers the most effective and satisfying work unit. For these workers, separation from the office work group may in the long run result in dissatisfaction and low motivation. For managers and professionals, the social role of the workplace may be less important; they rank achievement, advancement, and the work itself as the most important factors in work satisfaction. The Salomans hypothesize that for some of these workers, the shift to working at home may cause the individual's "motivators" to shift. He or she may become less concerned with achievement, status, and recognition, and more concerned with affiliation and emotional contentment within the family and community, which will become more important to the worker than his or her organization. If these needs for "belongingness cannot be met within the immediate environment, then frustration and dissatisfaction will result.[75]

Home-based professionals whose salaries do not depend on the exact number of hours worked have remarked that minor illnesses, for which they would have stayed home from the office, now make them feel guilty-there is no ritual process of calling in to validate their reason for not working.

Distractions and interruptions by family members, normal household noise, salesmen and solicitors, friends who do not respect working hours at home and repeatedly call or visit, are sources of annoyance and stress for home-based workers.[76] Some people have reported giving up work at home because they could not resist the temptation to eat or drink too much. Men have reported that wives resented having them under foot all of the time.[77]

On the other side, some researchers have reported that both the loners and the gregarious types say that they can overcome these problems with time. Handicapped people report that they feel less isolated with work to do, even if their human contacts do not increase, and young mothers according to one survey said they were no more isolated than they would be if they were caring for children without paid office work to do. It appears to be the young, never married workers who are most likely to give up home-based work after they have tried it because they miss the social aspects of the office.[78]

band's health insurance. Those who were entrepreneurs with, or seeking, multiple clients were mostly not married; they said that the high cost of health insurance (in one case, $1,400 per year) was one of their greatest concerns, and one or two had gone uncovered for long periods of time. Christensen, op. cit.

[73] *Telecommuting Review,* Dec. 31, 1984, cited a survey of computing furniture needs conducted by the Business Products Consulting Group, which found that only 25 percent of personal computer users, whether in the home or in the office, had specialized computer furniture, and many of them complained of flaws in design that caused discomfort. Overall 7 out of 10 PC users had complaints about the furniture used with the computers. The situation is likely to be worse in homes than in offices, since home furniture is often jerry-rigged to hold office equipment.

[74] If fire breaks out, there is a serious hazard to residents and to fire fighters from the highly toxic gases produced when the plastic casing of computers burns. Any special cabling that might be installed in homes could also involve fire hazards, according to discussions with insurance risk assessors.

[75] Ilan Saloman and Meera Saloman, "Telecommunicating: The Employee's Perspective," *Technological Forecasting and Social Change 25, 15-28, 1984.* The Salomans here are drawing on the work of N.D. Dunnette and others in *Work and Nonwork in the Year 2000,* Dunnette (cd.) (California: Brooks/Cole, 1973).

[76] Saloman and Saloman, op. cit., pp. 23-24.

[77] Nelson B. Phelps, "Mountain Bell Telephone Company, a Case Study," a presentation to the National Research Council National Executive Forum: Office Work Stations in the Home, Washington, DC, September 1983.

[78] Pratt, op. cit.

Again, those who found home-based work unpleasant or stressful, have so far either had the option of returning to the office or have found this alternative even less acceptable. Thus, studies of home-based workers almost always find the workers enthusiastic about this lifestyle.

Family Considerations

Advocates of home-based work stress the benefits to family life of returning the worker to the home. Little research has been done to determine the real effects on family life. Such indicators as there are point to generally positive effects, but with some caveats .79 Mothers perceive several specific advantages for their children, in addition to the primary advantage of having a parent care for them, instead of strangers or a commercial facility. They believe it is good for their children to realize that "mothers can do more than cook . . . and take care of them. They want their children to see women performing a broader social role than that of housewife, however they themselves value that role. Some say that their children become more independent because they are not the only focus of mother's attention. They say also that their children become familiar with computers and what they can do.

On the other hand, some mothers report that their children get less time and attention, and that the mother gets impatient when she is under pressure to get work done.

For women struggling to earn an income and care for children at the same time, home-based work may be a golden opportunity, but it is not an unalloyed blessing. It involves significant stress, both physical and mental, and may create emotional strains within the family as well. [80] One expert says, "It appears that work at home cannot be called a 'good' solution to child care. "[81]

Mothers working at home typically try to work when other adults are at home to care for the children or when the children are at school or asleep; they are not so much combining work and child care as interweaving them." It is hard to find 40 such hours a week even when work is available and the income is wanted, and typically they work split shifts, often late at night. Those who must earn as much as possible because they and their children are dependent on their income, may therefore have little or no time for rest or recreation, like the cottage sweatshop workers of the turn of the century.

Those who regard this income as discretionary often have babysitters while they are working." Since taking care of the children themselves is important to these women, the fact that they turn to baby sitters indicates two things: that doing paid work and taking care of children at the same time is difficult and stressful; and that it is important to them to have some other work, in addition to caring for a family, for reasons other than the marginal income. The second point is repeatedly confirmed by home-based working mothers, who say that they need something to occupy their minds or that paid work gives them pride

[80] Material in this section, unless otherwise noted, is drawn from Kathleen Christensen's study and chiefly from the responses of 14 mothers working at home, so that it is merely illustrative. Her findings as discussed in this section are, however-, in many cases confirmed by or congruent with the somewhat scanty and widely dispersed observations of other researchers about the family situation of home-based workers.

[81] Gregory, op. cit., discussing Cynthia Costello, "On the Front: Class, Gender, and Conflict in the Insurance Workplace, Ph. D, dissertation, University of Wisconsin, Dept. of Sociology, 1984. In one study, 50 percent of mothers working at home reported that they found it necessary to have a paid babysitter for part of the time in spite of their desire to combine work and child care. Also Margrethe Olson, *Remote Office Work: Implications for Individuals and Organizations*, CAIS No. 25, GBA No. 81-86 (CR), New York University, Graduate School of Business Administration (New York: New York University).

[79] Olson, op. cit., August 1983, p. 27.

[80] The 14 mothers interviewed by Kathleen Christensen, nearly all said the hours they could work were those in which the children were asleep, in school, being watched by the husband, or "playing by themselves and or in a good mood." These women are in traditional two-parent households where the husband is the primary breadwinner.

"Six of the 14 mothers interviewed by Kathleen Christensen, all of whom were from traditional two parent households and said that they stayed at home to care for their children, relied on some form of paid child care while they worked. The mothers, whether or not they had child care, usually gave as their reason for working "to have something to do, so that my mind can keep working, or to show "that I can do something besides cleaning the house and being a housewife."

and self-respect (and respect from others) that is lacking otherwise.[84]

In the few cases where effects on the marriage, or other personal relationships, of home-based women workers have been studied, most husbands were said by their working wives to be supportive and helpful—sometimes because they welcomed the supplemental family income, sometimes because they recognized its psychological importance to the worker, sometimes for both reasons. A few husbands were said to have mixed feelings, perceiving that work sometimes interfered with housework; none were reported to be actively opposed.

Most of the women said, however, that their husbands helped no more with housework than they had before. The women had been, and still were, predominantly responsible for the household work, and a few spontaneously expressed dissatisfaction or resentment of this. Most were unable to draw boundaries between household and work responsibilities, and move back and forth between them during the day.

Even those home workers without children to care for often report significant stress resulting from the lack of separation between work and family responsibilities. Saloman and Saloman, in a paper on home-based work from the perspective of the sociology of work, point out that:

> Work and family life today are not only physically separate entities, but each also gives rise to distinctly different role behavior that may have little in common. It is not only that the two different environments require different behavior, but that they also offer the individual a chance to express different aspects of his or her personality .85

Sociologists define a' 'role' as a set of structural demands being placed on the individual in a given social position.[86] Role conflicts can result when the demands and expectations imposed by multiple roles operate at the same time. Working at home, the Salomans argue, can introduce identity conflict as it eliminates the sequential operation of the different roles related to home and work. For men, it has normally been "acceptable for work (to) interfere with family life"; at home, the reverse interference may happen more often. For women, who may have more social inhibitions to overcome in establishing a career role, the conflict may be particularly severe when the roles of mother, wife, housekeeper, employee, and career aspirant overlap in time and space.

These sociologists say that the trip between work and home is often a useful separation between two arenas of social interaction. Thus, eliminating the commute may be a cost as well as a benefit.

Effects on Society

Workers and employers are part of one society and the interests and concerns of each are part of the public interest. But society at large may have a general interest separate from the specific concerns of either party.

In this case, some of the costs that are ordinarily borne by employers or shared by employers and employees are shifted to workers—for example, in the case of independent contractors, social security taxes, health insurance, pensions, and the costs associated with periods when the workload falls below normal levels for long periods of time. For people who are not employed, those costs ultimately may be borne by the taxpayers. Thus, a strong trend toward farming out work to "independent contractors' who were previously, or would otherwise be, employees, also implies a shift of life-cyle costs from the employer to the general public.

"'Ibid., citing D.T. Hall, "A Model of Coping With Role Conflict: The Role Behavior of College Educated Women, " *Administrative Science Quarterly 17 (4), 1972. See also* J. Pleck, "The Work-Family Role System, *Social Problems 24 (48), 1977.*

"'This was a theme that recurred repeatedly in the interviews conducted by Christensen.

[85] Ilan Saloman and Meira Saloman, op. cit., pp. 15-18, 21.

LEGAL AND REGULATORY BARRIERS TO HOME-BASED WORK

Zoning laws in some communities prohibit any paid employment in residential areas.[87] The Internal Revenue Service (IRS) has in recent years progressively restricted the income tax deductions that may be taken for home offices. It is not clear under what conditions home-based workers can claim deductions, especially if the workspace that they use is not entirely dedicated to work (many home-based workers use a corner of the dining room, bedroom, or living room). But when there is dedicated space, a recent IRS ruling says that the home office is to be treated as business property rather than residential property, and thus part of the proceeds of selling a house that includes a home office are not eligible for the standard exclusion from tax on the proceeds allowed to people who immediately buy another house, or who are over 55 when they sell the house. [88]

There have until recently been unresolved questions about the status of home-based "contractors' who contract with only one organization, especially, if they have previously been employees of that organization. The National Labor Relations Board has ruled, in similar situations, that such independent contractors are in fact employees. The tax code says that anyone who performs services for any person as a home worker, performing work according to specifications on materials furnished by the other person and required to return the finished product to that person, is an employee. This holds unless that person has a substantial investment in facilities used for the work, in which case, he or she may be an independent contractor. [89] The Internal Revenue Service has ruled specifically that computers with word processing capability are not " substantial investments' in that sense, and that home-based workers providing transcription services for one person or organization are employees at least for certain tax purposes. [90] The effects of these rulings on home-based clerical work are not yet fully apparent. It will open the door for home-based clerical workers, if they choose, to argue that they are employees, even if regarded by their client as contractors, and thus, entitled to certain worker benefits and safeguards.

Government work-at-home pilot programs have been frustrated or terminated because of regulatory requirements. The pilot program of the Army Material Development and Readiness Command wanted to use either direct lines or telephones with a modem to connect home-based workers to the central computer. The Army Communications Command determined that for the government to provide telephone service to a home violated a Federal statute;[91] but employees could not use their own telephones because another statute" placed some limitations on government acceptance of voluntary services from individuals.[93] The problem was solved by installing direct lines without voice capability; a legal opinion sanctioned occasional use of the employee's home phone to communicate with a supervisor.

This introduced a second problem: how to protect the government if personal property was damaged as a result of installing the communication lines or the use of government-owned equipment. This was solved by requiring employees to sign a "hold harmless' agreement with the government as a condition for participation."

---

[87] Tammara H. Wolfgang, "Working at Home: The Growth of Cottage Industry, " *The Futurist,* June 1984, p. 31.

[88] *Telecommuting Review.* Dec. 31,1984, p. 7.

[89] 'Sec. 312 l(d) (3)(C) of the Internal Revenue Code.

[90] "'Internal Revenue Service, Technical Advisory Memorandum 8451004, Aug. 1, 1984. Index nos. 312 1.04 -00," 3306,05-00, 3401.04-00.

[91] Stat. 32 U.S.C. 1348.

[92] Rev. Stat. 3679, 31 U.S.C.1342.

[93] McDavid, op. cit.

"That is, an agreement not to hold the government liable for accidental damages,

A third problem was the question of responsibility y for injury to the employee while working at home. Workers' Compensation (U. S. C., title 5, sec. 8102) covers Federal employees on duty, but the question was how to prove that they were on duty when the accident occurred. The solution to this problem was a written work agreement stating hours to be worked each day; participants had to formally request changes to their designated work schedule and get a supervisor's approval. This of course eliminated one of the major benefits that workers typically see in working at home.

Finally, this program ended when government auditors ruled that there was a risk of fraud or abuse in spite of electronic monitoring of work done at home.

Some of these problems also appear in the private sector, for example, the problems with the installation of communication lines and questions related to the protection of home workers from work-related injury or illness. Installing an additional telephone line in a rented residence, for example, sometimes requires the permission of the owner. One study of home-based corporate employees found that half of them had no accident insurance, and most "assumed" that they were covered by Workers' Compensation.[95] It appears to be true that home workers are covered by Workers' Compensation if injured while working at home, and by the employer's insurance plan if injured at the same location while not working-if the worker is covered by employee benefits.[96] In either case, how the worker is to demonstrate whether or not he or she was actually working when injured, is so far unanswered.

[95] Pratt, op. cit., p. 8.
[96] Honan, op. cit., p. 91.

The more general question as to how Occupational Safety and Health rules apply to home-based workers is also unanswered. Laws pertaining to the use of VDTS in the office have been proposed in 13 States but it is not known how these will apply to home-based employees."

A British document illustrates that these questions arise in other countries. Draft regulations proposed by the U.K. Health and Safety Commission in 1979 says that:

> Home workers, properly speaking, work for the person who puts out work to them in the sense that they contribute to products which he markets. For this reason, those who put out work to home workers bear the prime responsibility for ensuring that, so far as is reasonably practical, no risks to health and safety arise.[98]

In the next paragraph however, clerical workers are expressly excluded: "The Commission, particularly in the absence of evidence of risk to home workers from these processes . . . propose to exclude from these regulations all office type work undertaken in domestic premises. " The document continues:

> It is important to reemphasize that any person requiring a home worker to utilize potentially hazardous processes in connection with clerical work is nonetheless bound by the requirement . . . to ensure that risk is controlled.

No further reasoning supporting the exclusion is given, nor are "potentially hazardous processes in connection with clerical work" specified or defined.

[97] Gregory, op. cit., p. 2.
[98] Health and Safety Commission, *Home Workers: Draft Regulations,* consultative document (issued by the Commission in compliance with its duty to consult under sec. 50(3) of the Health and Safety at Work, etc., Act, 1974, 1979, p. 1.

PUBLIC POLICY ISSUES

Encouragement or Prohibition of Home-Based Office Work

The primary public policy issue in home-based office work is whether the Federal Gov.. ernment should: 1) actively encourage it, 2) actively discourage or forbid it, or 3) take neither action.

Parties at interest include: employers, home-based workers, their families, other workers (especially clerical workers and working women

with children), and unions. The issue also tends to engage people with an ideological position regarding home and family values, equity for women, and alternative life styles. Society in general has an interest, in that some potential costs may be shifted to the taxpayer when home-based workers are converted to the status of independent contractors.

Congress, and State governments, could take a number of steps to further encourage home-based work, although these are probably not necessary. These include:

- revising IRS rulings on independent contractors and relieving employers of some tax liabilities for them, for example, rewriting social security tax provisions;
- resolving the problems of applying workers' compensation to work performed in the home;
- persuading States to grant exemption from zoning and building codes for computer-mediated employment in residential buildings;
- providing significant tax incentives for equipment purchased for home-based work; i.e., a tax credit rather than deductions; and
- clarifying and expanding tax deductions allowed on home office;, especially providing large deductions when all or a significant portion of family income is earned in the home (this would benefit some home-owning workers).

If public policy is to discourage home-based office work—or more narrowly, home-based clerical work—the clearest option is to prohibit it, as was done for some other occupations in the 1930s. However, this would require very careful definition to limit the prohibition to those kinds of office work that are subject to exploitation. The prohibition would very likely be seen, even by some of those it was designed to protect, as discrimination against women (who would be mostly affected) or against certain occupational and income groups.

There are a few ways to discourage the spread of home-based work that are largely the converse of options for encouraging it:

- strong enforcement of the rules requiring organizations to treat independent contractors in some situations as employees, with full benefits;
- placing a special tax on income derived from services provided from homes, for both the employer and the employee; and
- high telephone rates for digitalized information transmitted between office and remote workers, which would run counter to present policies of deregulation.

Other government actions are possible that would both: 1) tend to discourage the spread of home-based clerical work, and 2) enhance the element of free choice for home-based work, thereby reducing the possibility that it will be used exploitatively. These actions are:

- developing subsidized, high-quality day care centers for children of working parents;
- providing larger tax deductions for expenses related to child care (or the care of elderly or infirm dependents); and
- requiring or providing further significant incentives for modifying transportation systems and office environments to facilitate employment of the handicapped, and providing positive inducements for employment of the handicapped.

Congress may choose not to take actions either to encourage or discourage home-based work. There are now few important legal or regulatory barriers to its growth; therefore the option of no-action will allow its spread. Eventually, home-based work is likely to grow since it offers benefits to both employers and many individual employees, while the costs that it imposes on some workers are generally considered acceptable in the absence of more desirable alternatives.

Controversy about home-based work is likely to become a major policy issue only if and when one of three conditions obtain:

- the number of home-based clerical workers becomes a significant fraction of all clerical workers, so that this becomes a factor in the competitive position of office workers in the job market and in negotiations with employers;

- cases of serious exploitation of home-based workers come to public notice through the media; and/or
- unions are highly successful in their attempt to organize white-collar workers

Regulation of Home-Based Office Work

If, however, the Federal Government neither actively promotes nor prohibits home" based office work, then issues arise regarding its regulation to provide protections that are assured to other workers. In summary, these include wage and hour guarantees, assurance of safe and healthy working conditions, the right to negotiate collectively with employers, guarantee of equal opportunity, equitable pay, and equitable access to insurance, pensions, and other entitlements.

At present, managers and professionals are generally exempt from the Fair Labor Standards Act of 1938 (which covers such conditions of work as wages and hours) and managers, but not professionals, are exempt from the National Labor Relations Act (right to collective bargaining), whether they work in an office or at home. They are assumed to protect themselves individually by negotiation with employers, although some belong to unions or professional organizations that bargain collectively. They are however covered by the Equal Opportunity Act and other recent work-related legislation.

The chief concern in regulation of working at home therefore focuses on clerical workers. Predominantly female, nonunionized, and often bearing heavy responsibilities as mothers (increasingly, as single parents), they are particularly vulnerable to exploitation. Another growing concern is the vulnerability of new immigrants, of disadvantaged minorities, and of elderly workers to possible exploitation.

It is quite possible that States or local governments may impose regulations on home-based work, especially with regard to health and safety issues.

Questions with regard to regulation are:

clarification of the application of existing regulations to home-based work (e.g., Workman's Compensation);
. what additional protection is needed for home-based workers? and
what means can be devised for effective implementation and enforcement of regulations related to home-based work?

With regard to the last question, there are concerns that any attempts to implement and enforce regulation of home-based work may destroy the benefits for which it is valued (i.e., autonomy over work hours), or may lead to unacceptable violations of the privacy of workers and their families.

This—how existing labor standards can be implemented and enforced for home-based workers—is in fact, the critical policy issue most likely to confront the Congress in this area in the immediate future. It is the point on which opponents usually base their argument for an outright ban, since they maintain that real enforcement will be extremely costly, and in practice impossible. This is the problem that led to the ban on home-based work in some industries in the 1930s. However there has been little real examination of the possibilities and difficulties of enforcement today. It can be argued that the same difficulties would arise in enforcing a prohibition. It can also be argued that either a ban or regulation would be easier to enforce today than in the 1930s. Reporting requirements laid on businesses have proliferated, the rights of workers and the benefits they stand to gain by demanding those rights are larger, and people doing computer-mediated work are likely to be far better educated and more sophisticated in understanding to what protection they are entitled. The same technologies that make computer-mediated work at home possible, might be used to make it difficult to hide.