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Relations industrielles / Industrial Relations, vol. 25, n° 3, 1970, p. 485-509.

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URI: <http://id.erudit.org/iderudit/028151ar>

DOI: 10.7202/028151ar

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Technology and Unemployment: A Comparative Study

Albert A. Blum

In this paper, the author summarizes how countries try to prevent job losses caused by technological change and how they assist workers who are discharged as a result of new machines.

A Historical Perspective

Machines alter man's work. In essence, that is one of their functions. They are designed to use mechanical power instead of human or animal power. What once was wrought by man's hand becomes wrought by inanimate metal hands.

With the machines of the first industrial revolution, trees were replaced with factories and the sun with smoke. Loud voices cried out in protest. And yet, the rural peasant and the farm laborer who moved into the city to work in the factory often happily left behind a rural slum in which he and his children had worked long hours and lived in mud hovels. In the city, he also worked long hours and now lived in an concentration of the population. Agricultural slums were diffused along the countryside; the eye could pass quickly to more pleasant views.

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* This section was written for the Automation Unit of the International Labour Organization while the author served as a research associate there. It is based upon the three volumes, *Manpower Adjustment Programmes*, published by the I.L.O., which dealt with such programs in Canada, France, Federal Republic of Germany, Italy, Japan, Sweden, United Kingdom, United States, and U.S.S.R. The author served as the coordinating editor of these volumes. Of course, the I.L.O. is not responsible for anything said in this article. The author would like to thank the Automation Unit's Chief, Dr. Ralph Bergmann, for all of this assistance.

Urban slums, however, showed unhealthy conditions in concentrated doses. Many people in many countries raised questions concerning the poverty which seemed to accompany the progress and they began to struggle with the problem of how the benefits of technological change could be shared among mankind.

In the wake of the first industrial revolution, society generally accepted the idea that whatever unemployment effects resulted from the new machines were either temporary in nature or were inevitable. Because of increased demand for the products made by the machines (as well as for the machines themselves), a worker discharged because of the installation of one of them would be only temporarily dislocated. Moreover, the argument went that although the machine replaced workers, it also replaced work and, therefore, those who did continue to be employed had easier tasks to perform. And, even if a worker's job were lost, the machines would increase the total amount of employment to the benefit of the total society. Thus, the majority view in the nineteenth century was that society had no real responsibility for cushioning the impact of technological change on the worker. Either, in the long run all things being equal, the harshly affected worker would secure another job or if he did not, this was the price of progress.

But there were minority voices whose whispers were ignored by those in power. These minority spokesmen argued that it was society's responsibility to help the unemployed. By the time of the Great Depression at the beginning of the 1930's and surely more recently when automation has become an accepted addition to the terminology describing technological change (and the term automation is used here in its broadest sense to include all forms of advanced technology involving some kind of automatic process), society had come to accept what were once the whispered warnings of the minority of the nineteenth century. Today, it is the majority who argues that it is society's responsibility to make sure that workers do not suffer from technological change and that the benefits that result from automation should be shared among all groups. The main arguments are over the application of this principle, not over the principle itself. And today, it is the minority who claims that society ought not to deal with problems automation brings to the worker.

This current majority view, which helped give birth to the International Labour Organization (namely, to ensure that the benefits of progress are shared by all groups including labor) also prompted the I.L.O., and more particularly its Automation Unit, to sponsor a study of

nine nations — Canada, France, Federal Republic of Germany, Italy, Japan, Sweden, United Kingdom, United States, and U.S.S.R. — in which experts explored programs of manpower adjustment to technological change. The following is a summary of those parts of the studies dealing with how countries try to prevent job losses caused by technological change and how they assist workers who are discharged as a result of new machines. Clearly, these programs also assist those not at work for other reasons, and clearly, whatever the present impact of automation on jobs, these programs can cushion the future impact.

Programs to Prevent Job Loss

All of the nine countries, despite varying economic structures, have developed some form of plan to achieve the twin goals of full employment and economic growth. It is clear that the problems of technological unemployment are much less serious in an economy which is fully employed as compared with an economy which has a nagging problem of unemployment. In fact, in a fully employed economy, automation may be fostered as a method of achieving increased production in spite of the shortage of workers.

In some countries where labor shortages in recent years have led to the view that automation posed no manpower problems, recent downturns in economic activity have resulted in some concern with automation issues. This concern is undoubtedly related to the fact that three of the countries which have been among the most extensive users of automated equipment — the United States, Canada and Japan — have had an unemployment problem in recent years. A commitment to full employment policy will help ease whatever over-all manpower adjustments are necessary because of advanced technology. Nonetheless, there inevitably will still be individual workers who are displaced by new technology. Programs have been developed to keep such displacement to a minimum and will be discussed in this section. Other programs, which will be described shortly, provide financial support to the unemployed and are designed to help them find new positions as quickly as possible.

Men in general may be taken care of by full employment policies but man specifically may not. A new piece of advanced technology may statistically result in no net increase in unemployment: 100 workers displaced and 100 additional workers employed. The only trouble is the 100 workers displaced are not always the same as the 100 employed. It is those who are displaced by the machine to whom attention now turns.

The discussion will examine public, union and management policies which have been used to cushion the impact of technology upon the individual worker. The dynamism of a market economy means, almost by definition, that workers will be discharged as changes occur in the economy. There are those who may feel that such an act is the inevitable price of progress and that the discharge is necessary in order to permit the economic growth which benefits the total society. Sometimes a company and union may agree to permit technological change to be installed at whatever rate management feels is necessary with whatever reductions in employment these changes entail as long as the wage rates paid to those who remain at work are high. Individual workers are involved in these developments — they have a primary interest in their personal income and future opportunity.

In varying degrees in different countries, workers have sought job security. In fact, one of the major functions of a number of unions is to provide this form of security. In Japan, for the regular employees hired after school completion, this job security has become a matter of custom. In the Soviet Union, it is a matter of law. In the United States, it is a matter of union-management agreements or unilateral managerial decision and some recent legal decisions. Thus, unions, management and government are all concerned with the problem of job security too.

Either because management thinks it just, or because of pressure from representatives of the workers (or from the workers themselves), or because of the influence of government or public opinion, a host of alternative procedures have been developed at the plant level which have as their goal the protection of the job at the workplace. These procedures obviously only provide aid for those who are already employed. For example, a computer may be installed in an insurance company which results in the need for 20 fewer bookkeepers. The company, with or without a union, may decide to protect the employment of those at work and, by appropriate action, no person is dismissed. But neither are there any permanent hires until the excess of 20 has been absorbed through attrition or other programs. Those graduates of the local secondary school who could have normally secured a job each year at that insurance company are no longer able to do so and thus they may become statistics among the unemployed youth.

To help the secondary school graduates secure a job, some of the policies described in other sections of this report will be helpful; this section will, however, focus on the policies used to prevent the discharge of the 20 already-employed excess workers.

Advance Notice and Consultation

Among the various programs designed to avoid the discharge of excess workers,¹ advance notice is often considered as a first, or basic, approach. There are two types of advance notice. The first is to the individual worker so that he can have some time to make whatever adjustment he is able to make. The second is to an organization — the union, the works council, or the employment exchange.

Notice to workers range from one day to several months. Italian law requires that notice must be in compliance with « collective agreements, customs and equity, » and the failure to give notice means that the employer must compensate the worker for the period during which the notice should have been given. It ought, however, to be recognized that notice to the individual worker is normally to give him time to look for another job and does not have as its main goal the prevention of discharge. This latter goal is, more normally, associated with advance notice to the various organizations.

The assumption behind advance notice concerning technological change is that with such notice the union or works council concerned, along with the company, can develop a plan concerning the manpower requirements for the new installation. It can look at the present workers and their skills and compare them with the estimated number of workers and the new skills required on the soon-to-be-installed advanced technology. Plans then can be made, among other things, for retraining, transfers and attrition, thereby hopefully preventing large numbers of discharges.

But if such dismissals are necessary, early notice to the employment exchange gives the exchange time to develop plans and to make arrangements so that those who are to be discharged may be more easily placed in other positions. The law, in some countries, requires that countries so inform the exchange prior to the dismissal of more than a minimum number of workers. In the Federal Republic of Germany, anticipated collective dismissals must be announced to the labor exchange at least one month before the dismissals are to be effective and they must be accompanied by a statement by the works council, along with its opinion

¹ With the exception of the United States and Canada, most excess workers would be discharged ; in the United States and Canada, they more normally would be « laid off » in that they still would have rights for recall to a job at the company paid them severance pay. Except when the term « lay off » is specifically used, the term « discharge » (or « dismissal ») will cover both types of determination of employment.

and recommendations concerning the dismissals. (There is, however, a restriction on the right of works councils in the Federal Republic to discuss dismissals caused by technological change.)

Organizations representing the workers such as unions and works councils are also informed so that they can consult with management about what can be done to prevent impending job losses. In the United States and Canada, as examples, collective bargaining agreements often spell out how far in advance the unions have to be informed of pending changes. In addition, in some agreements, notice has to be given to a special body set up as a result of a collective bargaining on which representatives of the unions and management serve (sometimes with a public representative also). These committees, frequently called « human relations committees, » have many functions among which is that there be co-operative discussions concerning the implications of automation. Thus, in Canada in 1963, the Quebec Iron and Titanium Corporation and its union set up a Human Relations Committee to discuss and develop proposals about problems resulting from automation. In 1966, a new agreement required that the company inform the committee of any technological changes 15 days before the change. An oil company in Canada has to inform its Union Management Committee on Automation six months before any anticipated change in working methods or facilities which might result in the discharge or lay-off of workers.

Besides the union, in many countries, the works committee or council is the worker organization to be consulted over any changes which may result in discharge. Thus, in France, employers must consult with their works committees before proceeding to collective dismissals. Collective agreements reinforce this requirement and as a result there has been widespread consultation. By law, works councils must be consulted in some countries ; in others this is not the case. As a result, the role of works councils varies in the countries which have them, but nonetheless, they provide an actual or a potential location for such discussion and possible adjustments.

Attrition

A program of attrition can often avoid any worker discharges, even when technological change results in excess workers. In other situations, it can reduce such discharges to a minimum. This technique is based on the fact that there will normally be a certain number of workers voluntarily leaving the company because of pregnancy, retirement or quits.

If a plant expects 20 persons to leave in a month, then appropriate action three months prior to the installation of a technological change may save the jobs of as many as 60 workers.

In that three months (or other relevant period) management planning can indicate which persons are to be displaced and how they can be trained to work on the new operations — to take the place of other workers who will be leaving other departments of the company. If it is necessary to keep the workforce at the usual level right up to the moment of introducing the new technology, then persons hired to replace the workers who leave can be hired on a temporary basis, in order to save the job opening for established employees.

In some cases, as the contraction of the coal industry in France and Germany, it has proved worthwhile to foster the early retirement of workers who had not yet reached normal retirement age, thus opening up additional opportunities for displaced workers. Some plants have even provided special inducements to get more workers to quit, thus reducing the size of the excess labor pool. There are other cases in which management has agreed to retain a larger workforce than it considered necessary — for short or even long periods — with the intention of gradually finding opportunities for the excess workers.

Attrition plans involve manpower planning at the establishment level and will usually encompass other techniques which are treated separately below, i.e., phasing the introduction of change, transfers and special early retirement arrangements.

Work-sharing

If the increased productivity of newly installed equipment results in the need for fewer workers than before, there is the possibility that work-sharing arrangements can be instituted to prevent the discharge of any workers. Such an approach is customarily adopted as a temporary expedient only, and its acceptability among the workforce is likely to be related to their past experience, the availability of other work in the area, and an estimate of the duration of the work-sharing arrangement.

In some cases, work-sharing is used to ease a general problem of excess manpower — for example, to reduce production throughout the entire plant during periods of decreased demand. In other cases, this technique is used to meet the problem of unneeded workers in a department or section.

Work-sharing involves a reduction in the normally scheduled work-week and a consequent loss of income. It provides an example of worker solidarity since all workers affected accept a smaller income in order than no single worker or small group shall suffer a major economic hardship through discharge or lay-off. Work-sharing appears to be decreasing in certain countries which provide high payments to those who are unemployed. The differential between the income received by a worker on short time and one who is unemployed is so small that there is no real pressure for work-sharing.

In some cases, instead of a reduction in the hours worked per week, arrangements are made for workers, in rotation, to go entirely without work for a longer period, such as a week. This technique would have advantages with respect to payment from unemployment insurance schemes. Thus, the agreement in the French furniture industry provides that workers, when they are not all needed, can take « layoffs in rotation, so arranged as to enable the workers concerned to obtain the maximum benefit from . . . partial employment. »

Sometimes, this work-sharing is tied to a guaranteed period of pay. Thus, a worker is guaranteed a minimum salary if he works a given minimum period of time. One of the hopes here is that management, faced with such a guarantee, will plan its work schedule so that there will be a better scheduling of work and a sharing of work if needs require it. Somewhat related to this approach is premium pay for overtime work. Because of the increased costs to management of keeping workers employed overtime, one of the goals of high premium pay is that management will plan its production schedules better so that the available work will be shared among more workers.

Phasing the Introduction of Change

Major technological changes require long advance periods of preparation and it has proved advantageous in some cases to arrange for new equipment to be introduced on a step-by-step basis. Such phasing, particularly when accompanied by manpower planning, provides additional time for making the necessary workforce adjustments. If management phases the introduction of changes, particularly if it does this taking into account the manpower picture in the company or plant, then there may be time for other adjustment mechanisms to take place. Workers, aware they may be replaced, can look for other jobs. Attrition can be planned

for and new permanent hires stopped. The employment services can be operating to make job opportunities known to those to be displaced. The community can be making plans to attract other companies into the community which can make use of the displaced personnel and their skills. Time becomes the handmaiden of the phasing process and it is hoped that time will permit adjustments to take place.

Transfers

Transfer, in the sense that a worker shifts to a new assignment as a consequence of the introduction of new technology, is, of course, a standard procedure. When the new equipment is a net addition to productive capacity, some workers are likely to transfer, perhaps after a training period, from their former jobs to the new work. When the equipment replaces other machines, then, too, frequently all or part of the workforce is drawn from the workers who had jobs on the older equipment. These workers maintain a continuity of employment, even though possibly with different work responsibilities, and the problem is largely one of physical and mental readjustment to the new work routine.

In making a transfer of this sort, the workers will naturally seek to have their regular earnings maintained. Sometimes, the workers' earnings do decline (at times gradually over a period of time), but unions have sought to ensure that the transferred workers continue at their old rate of wages, even if the job to which they are transferred does not merit the wage. In United States' terminology, the workers receive « red circle » rates.

Another category of worker is also involved — those who worked on the discarded equipment but who do not transfer to work on the new. In all countries, evidence suggests that management recognizes the economic advantages to arranging transfers for these workers to other jobs in the plant, while workers and their organizations consistently fight for continued employment by the firm.

For the employer, transfers have the advantage that the experience of the worker with plant procedures is retained and the task of hiring new personnel can be avoided. In addition, to discharge such workers may involve substantial costs, according to programs detailed in following sections, as well as a decline in morale among the remaining workers. Balancing this may be the cost and time delay involved in training the worker for new types of work.

The issue of transfer is handled differently, depending upon the right of a man to a job. If a man, as a matter of custom or legal right, must be kept employed, as is the case in Japan and the U.S.S.R., then a host of alternative procedures are developed, often quite complex, to ensure that a worker will be transferred to another position. Thus, in the Soviet Union, when a reduction in force is necessary at a plant, management has to consult with the union. The worker has the right to be transferred to another job in the undertaking or to another company. The worker as to consent to this transfer. If he does not, and it is a transfer to which the union has agreed, then the worker can be dismissed. In Japan, for example in the coal industry, a series of subsidiary and subcontracting company relationships were set up to which regular employees, who by custom have life-time job security, were transferred — but at a reduction in pay.

In the United States, the method used has mainly been through collective bargaining. Collective bargaining agreements normally describe a procedure whereby workers can bid for new jobs — usually with seniority as a key factor. Unions have been striving to widen these seniority units so that a worker who is displaced can claim seniority within the plant, company, area or industry. Thus, in some agreements, if a worker is laid off at a plant he can « bump » or replace any union employee doing similar work at any plant of the company in the area. Moreover, there is pressure for controls over plant relocation and the protection of job rights if a job is moved. In the garment industry in New York, a plant can move — but only within an area in which workers can reach their job by paying whatever the going rate is in the subway system, thereby protecting-in expenses is also an issue.

But, whatever the custom, there has been an increasing concern with the implications of technological change on the right of a worker to transfer within the undertaking, to another plant, or even to another company. The implied right to a job results in another program which will be discussed in more detail shortly — namely, retraining so that even if a new machine makes obsolete the skill of a displaced worker, retraining will make him qualified for a new task.

Reductions in Working Time

One suggested program to prevent job loss, not extensively used so far, is through a general reduction in work time. The reasoning can be stated as follows : if, with the same amount of production needed,

automation results in a reduction in the number of hours needed to produce this output, the way to protect jobs is to reduce the number of hours worked by each worker, not to reduce the number of workers. This can be accomplished through collective bargaining by shortening the work week, increasing the number of days provided for vacations or for holidays, and providing for earlier retirement. It can also be accomplished through legislation by reducing the length of the normal or maximum work week, increasing the number of legal holidays or the vacation period, or making pension payments available earlier and in larger amounts.

It is in the United States that the labor movement has voiced the most vigorous call for a reduction of the number of hours of work to cushion the impact of technological change. Some unions there have negotiated shorter hours in recent contracts, basing their argument on the need to meet the challenge of new technology. For example, the Electrical Workers Union in New York City negotiated a work week of 25 hours, the Steelworkers Union has secured a 13-week vacation every five years for senior employees and the Automobile Workers Union has amended its pension program to provide increased benefits to workers retiring as early as the age of 55 (normal retirement age is 65). The Automobile Workers Union has claimed that early retirement has created 30,000 jobs in auto and related industries. Many unions have won more paid holidays for their employees. While the pressure for these changes is not only the introduction of automation, technological change is usually one of the justifications offered.

Early retirement appears to be a more popular technique among the countries studied than the other three methods as a means of lessening unemployment. It has its own unique justification as compared with the over-all drive for shorter hours. Thus, it is not uncommon in the countries surveyed to find arrangements permitting early retirement so that workers at 50 or older, can receive all or part of their pension allotments. Tying in such private plans with public pensions will be discussed later. But it should be noted that the effectiveness of early retirement as a method of reducing the total number of hours worked in an industry so that other workers need not be laid off, depends upon the age structure of the workforce. It can be effective in an industry, as in the railroads in the United States, which has large numbers of older workers who will retire shortly at the same time that the decline in the industry's need for workers is resulting in little new hiring. It is a far less effective procedure in a new and rapidly developing industry or firm.

Special Programs for Special Groups

Certain groups of workers face special problems when they are about to be discharged for it is frequently more difficult for them to be rehired. Thus, the older person ; the disabled ; the lesser educated ; the discriminated against, such as the Negro, foreign laborer, or immigrant ; women ; and those discharged in an area with a high and persistent unemployment rate or from a company in an industry with rapidly declining employment all face special problems. To meet these problems, special programs have also been developed for some of these groups. Thus, the older worker who once displaced finds it more difficult to be rehired, has in certain countries a number of protections. In Germany, those jobs in some enterprises which require less speed and concentration are given to these older workers who do not lose income as a result of this arrangement. Some countries have legal requirements as to the number or percentage of their jobs which must be designated for disabled personnel. In addition, many governments have developed widespread publicity campaigns emphasizing the importance of keeping such workers, older and disabled, employed. The problems of some of the other groups will be discussed in the next section.

Assistance to Workers who Lose their Jobs

In spite of efforts to maintain workers' continuity of employment when new technology is introduced, in market economies there will inevitably be occasions when a worker will be separated from the establishment payroll — when his customary source of income stops. In some situations, he may have a good chance to be recalled to the firm — through the operation of formal recall agreements as in the United States and Canada. This section will review the programs which assist workers while unemployed. Programs to provide financial support are first discussed, then programs to assist him to secure employment will follow.

INCOME MAINTENANCE PROGRAMS

Unemployment Insurance

Probably the major method of providing financial assistance is through unemployment insurance programs. Governments use various formulas to raise the money needed, and workers who are discharged or laid off are able to receive some proportion of their former income for

a given period of time while they are unemployed. These funds are collected by the governments and paid out by the government — usually through the employment exchanges which at the same time are trying to find jobs for the unemployed. There are, also, as in France and Sweden, private unemployment insurance schemes.

The countries differ in what unemployed workers receive ; they also differ as to eligibility requirements, contribution rates and the duration of the period during which the unemployed will receive payments. But, in general, unemployment insurance means that the workers will receive such payments as a matter of right — since either he or his employer made the contribution for him. This differs from various types of unemployment assistance which provide financial aid to the unemployed on the basis of a means test. Sometimes, this latter assistance is given to workers not eligible for unemployment insurance ; sometimes in addition to it when the need is sufficiently great.

Generally speaking, the amount the employee will receive as unemployment insurance would depend on his former income (and the rate of his contribution when employed is normally based on his income). In some plans a basic minimum is paid to all qualifying persons and extra amounts are based on the number of dependents. A comparison of the « average » payment in a country with the « average income » of wage-earners when employed must be examined with due regard to the impact of taxes, government transfer payments, period of coverage, wage dispersion, and other factors. Within many of the countries studied, there has been pressure to raise the rates — for example, in the United Kingdom toward the two-thirds of the normal wage that many experts there think ought to be achieved. In the United States, there has been recent discussion concerning another approach, somewhat different, yet related — namely, a guaranteed income plan under which the government would insure that all persons receive a minimum income.

Supplementary Unemployment Assistance

As just mentioned, some countries provide supplementary unemployment assistance, on the basis of need, to those workers who are unemployed. In other countries, supplements are also achieved through collective bargaining. Thus, particularly in the United States, unions have sought supplementary unemployment benefits (SUB). Under this scheme, a special fund is set up with the contributions coming from management. (Since SUB plans are negotiated in collective bargaining, the union could

technically have negotiated, as an alternative, a wage increase costing the employer the same as the SUB program. Consequently, workers do pay indirectly for their supplementary unemployment benefits.) When a worker is laid off, he receives a certain amount of money — for example, 65 per cent of his customary take-home pay for a given period of time. Part of this money will be his unemployment insurance which the state will pay; the remainder will come from the private supplemental unemployment benefit fund. Unions have been demanding that the amounts payable from these funds be raised, and, in fact, they have been expanded but there has been no marked increase in the number of unions and management who have negotiated such agreements since their start in the mid-1950's.

Through a collectively bargained agreement, employers in Sweden have provided help for workers laid off for short periods of time. Companies pay up to ten days of lay-off pay which normally covers the waiting period for unemployment insurance.

Severance Pay

Another form of income maintenance is severance pay. Under this procedure, a worker, permanently dismissed, receives a lump-sum of money. Sometimes, these sums are tied to specific types of discharge caused by, for example, plant relocation or technological change, but at other times they are not. Sometimes, there is a differential amount paid based upon the cause for the dismissal. The payments, normally, however, are based upon length of service and wages received. One agreement providing severance pay as a result of technological change was negotiated between the United Air Lines Company in the United States and the Flight Engineers in 1959. Flight engineers with adequate seniority who failed to complete a flight training course by a specified date could take one of the alternatives: (1) leave the company with a severance pay of \$20,000 or (2) continue to fly piston-type aircraft as long as seniority permitted him and then have limited severance pay privileges. The president of United Air Lines claimed that these severance payments could cost the firm \$680,000 but he maintained « it's one of the best decisions we ever made. There are people who are going to become obsolete through no fault of theirs. Under such conditions, decisions must be human as well as businesslike. »²

² BLUM, Albert A., « Fourth Man Out : The Background of the Flight Engineer-Airline Pilot Conflict, » *Labor Law Journal*, August 1962, pp. 649-657.

Not all severance payments amount to \$20,000, but they do manage to provide workers with some financial assistance while looking for another job or as payment for the job right the discharged worker has given up. In Japan, severance pay is normally available to a worker who resigns his employment. In consideration of the lifetime employment guarantee, a discharge required by a decline in business conditions will lead to a larger payment than would otherwise be made. In depressed conditions, to stimulate voluntary resignations, firms will also increase the severance for such voluntary departures, sometimes by raising the workers a step in his job classification in order to qualify him for the higher benefit.

In Canada, some workers receive benefits even when they are laid off rather than dismissed. It must be remembered that severance pay is for a person who permanently leaves a company and has no rights to recall. Canada has such severance payments too but under the scheme for laid-off workers, they are kept on a special recall list and receive a smaller sum of money than if they had been discharged. If they elect to take full severance pay, they are no longer on the recall list and are deemed permanently severed from the firm.

In the United Kingdom, to help workers made redundant, the Redundancy Payment Act was passed in 1965. Employers make contributions to a fund and may then claim reimbursement of up to three-quarters of their payments to workers dismissed because the employer's need for their kind of work has diminished or ceased. The payment varies according to the worker's age, length of service and wage level. Thus, a worker with 20 years' service may receive 25 weeks' pay if aged 51, while 19-½ weeks' pay if 41 years old. (Weekly earnings in excess of £40 are not counted ; the maximum payment is £1,200.)

Furthermore, in England, a few firms have fostered special resignation plans in order to handle technological change. Grants were given, for example, by Shell Company to those workers willing to leave. The minimum offered was £150 ; the maximum was 50 weeks' pay. The tinplate industry, faced with a decline, developed a fund which older workers could receive a lump-sum payment varying between £105 and £210 to motivate them to leave the industry. In Sweden, there are now two types of severance payments : the basic one which varies according to years of service and the supplementary one which varies according to the age of the worker. Workers receive their benefits when they are dis-

charged because « of shutdowns or manpower cutbacks » and when a combination of their age and years of work is sufficiently high.

Programs for Older Workers

As noted above, severance pay programs usually provide an increasing scale of payments according to the recipient's age and/or seniority ; in this way, older workers receive some additional financial assistance when unemployed. In addition, most pension programs permit a worker to draw a pension at some time earlier than the « normal » retirement age. If such pensions are at a reduced level (to take account of the years during which additional contributions are not made to the pension fund while payments are withdrawn from it), the « early retiree » may find it difficult to maintain an adequate standard of living. Even recent trends to lower the normal age of retirement have not overcome this drawback to « early retirement. » Thus, recognizing that it is generally more difficult for such workers to find alternative employment, some other special programs have been developed to meet their financial needs.

For example, in the Federal Republic of Germany, while statutory retirement age is 65, a worker who is at least 60 years of age and who has been unemployed for one full year can receive his full old-age pension (which would be only slightly less than what he would have received if he had worked until he was 65).

Underground miners in Germany are covered by special retirement provisions permitting them to retire at the age of 60, with a pension equal to or higher than if they waited until the age of 65. Moreover, 1963, to handle a pressing unemployment problem, every miner over the age of 55 who lost his job « for reasons beyond his control » and fulfilled certain other requirements, was to receive a monthly benefit of two per cent of his pension for every year of insurance credited to him. This could be as high as 80 per cent of his pension for every year of insurance credited to him. This could be as high as 80 per cent of his pensionable income.

In addition to such statutory benefits to older workers, a number of collective bargaining agreements in Germany have provided further benefits. Using the coal and steel industry as a example, 750 workers aged 63 or more were to be dismissed by a firm. The firm agreed to pay 100 per cent of the worker's last wage for three months and 65 per cent of that wage for the next nine months. In another case in the coal industry, laid-off underground workers over 50 years of age were guaranteed

DM 500 per month until they became eligible for statutory benefits. This figure can be compared with the maximum statutory retirement pension of DM 750 and the average retirement benefit of about DM 400.

Regulations of the European Coal and Steel Community permit a reimbursement to a firm of 50 per cent of its supplementary payments to unemployed miners and steelworkers, over the age of 50, during their second year of unemployment. This reimbursement provision applies to company payments up to an established maximum — DM 520 in the case of Germany.

In some countries recently, the age requirement for statutory pensions has been reduced, with an upward modification of the pension amount payable. Private pension plans (see for example, the description in the previous section concerning a plan covering automobile workers in the U.S.A.) have also been liberalized in this same way. While technological change may not be the sole or major impetus to such changes, this trend toward earlier retirement at higher pensions does provide an additional financial support for an older worker unable to find a satisfactory employment opportunity.

PROGRAMS TO FACILITATE RE-EMPLOYMENT

Income maintenance is not the panacea for unemployment, it is only a palliative. It provides the means for tiding a worker over until he secures another position. A number of techniques are available which aid him in his search for other employment.

Advance Notice of Dismissal

The advance notice of dismissal mentioned earlier plays a role in the search for alternative jobs. In the period between notification that he is to be discharged and the actual date of discharge, the employee has an opportunity to look for other work. He can contact employment agencies (public or private) and alert the usually more effective informal channels for job-hunting. In Italy, collective agreements often require that opportunities to look for a job be made available for workers who have been notified of their impending dismissal.

Many countries require also that before a large-scale dismissal, a company must report this fact to the employment exchange so that it can ready itself to find jobs for the persons to be laid off. For example, for the company to receive benefits under the U.K. Redundancy Act,

employers have to give advance notice of dismissals to the employment exchange of at least 28 days if more than ten are to be dismissed or 14 days if the number to be dismissed is less.

In Germany, notices to the exchange concerning large-scale dismissal must first be submitted to the works council, as mentioned earlier. The council's opinion must then accompany the notification to the exchange. The dismissal cannot be carried out for one month after the notification to the exchange which can extend the time period, thus giving the exchange and the individuals time to look for jobs, and the company time to see if it can transfer or otherwise place the men scheduled for dismissal.

Employment Exchanges, Placement Services and Special Counseling

In most countries the employment exchange is the key instrument used to facilitate re-employment. These are generally public agencies (in many countries, private employment agencies are illegal) and they carry out several duties. Besides often handling the unemployment compensation scheme, they are responsible for maintaining information as to what jobs are available. They try to match those jobs with the available workers — those who are unemployed, underemployed, or those just wishing to change jobs. To do this matching job better, many of the exchanges are using co-ordinated reporting systems whereby information concerning vacancies is being more rapidly located and collated, in some cases through a computer system. In addition, there appears to be an increase in the amount of testing and evaluating of the skills of the workers seeking employment. It is in the light of these interviews, tests and other diagnostic procedures that the staff of the exchanges are able to provide better guidance to those seeking work.

In France, for example, employers, by law, must inform the employment exchange of all vacancies, and all unemployed workers must register if they are to collect unemployment insurance. Theoretically, the exchange should be able to match the workers with the job vacancies. The experience with the influx of repatriates from Algeria resulted in a special program for this group of workers. It also brought about a more recent reorganization in the system. More attractive housing for local exchanges so that unemployed workers would come to it for help, better co-ordination of activities, increased dissemination of information covering available jobs, improved guidance, specialized orientation and information

services, experimental forecasting of needs, and special regional employment studies are among the changes being integrated into the exchange.

In Germany, the Federal Institute for Labor Placement and Unemployment Insurance does what both parts of its title implies. It handles unemployment insurance but it also tries to match jobs and skills at a local, regional and national level, provide vocational guidance, supervise apprenticeship programs and develop training and retraining activities.

As the experience in Germany indicates, many employment exchanges are involved in two other important functions which are closely related to that of job placement — namely, training and retraining and mobility programs. If an elevator operator loses his job in Munich and wants another one and there are no jobs for elevator operators or for other work requiring this worker's skill in Munich, it becomes necessary to provide him with some training or he remains among the unemployed. Or, if there is a job in Cologne for a man of his qualifications, some arrangement has to be made that, first, the Munich exchange knows of the job and that, second, the resident of Munich can move to Cologne.

Programs for Training and Retraining

For the bookkeeper who sees his skills erased by a computer, or for a lathe operator whose job disappears into a numerically controlled operation, or for a fireman on a diesel-run railroad whose job goes up in smoke, there is the problem of acquiring the skills needed for other employment.

When an unemployed worker's skills are inadequate for the jobs for which there is a labor demand, a training course may serve to bridge the gap. Obviously, there are limits to such a technique — the time for the training program may make it too costly, the worker's natural abilities may be inadequate to the needs of the training curriculum, or the worker may resist learning new skills. But training programs provide a flexibility in the workforce which permits an expanding economy to accommodate shifts among industries and occupations.

In different countries, training programs are organized by government agencies, by management (either of a particular firm or through management organizations), or, in some cases, by workers' organizations. There are also frequent reports in the country studies of programs run by management or worker groups with financial support from a government agency.

Training for the unemployed takes many forms. First, many of the countries, making use of their employment exchanges and various research and statistical groups, try to assess potential occupational needs and then make available the training to fill the needed gaps.

The training that is given takes many forms. Often it is given within the regular schools ; sometimes special training centers are organized ; or the unemployed worker receives some assistance from the government while he pursues on-the-job training. Since this is training for the unemployed worker, most of the financial support for the training is provided by the governments even though the increase in skills which results also benefits industry.

For example, in the Federal Republic of Germany, the Federal Institute for Labor Placement and Unemployment Insurance has as one of its important functions the improvement of the skills of unemployed workers. The Institute provides loans or grants to private employers conducting on-the-job training programs for formerly unemployed workers. The government will refund up to 70 per cent of the gross wage paid to a formerly unemployed worker by a company giving such training. The Institute will financially assist private organizations which run such courses. It will also run its own programs. The worker will receive unemployment insurance benefits during training and if his benefits are exhausted, he will be entitled to unemployment relief.

In Italy, a high unemployment rate after the Second World War prompted the start of a government-sponsored training program. This program was often used mainly to give financial aid to unemployed. Courses are of three types — preliminary, regular and advanced and can last no longer than eight months. Special licensed agencies and associations provide the training. All unemployed workers up to 40 years of age may attend ; if they attend regularly they are paid special unemployment subsidies, in addition to or substituting for unemployment insurance benefits. Successful passing of the final test results in the trainee receiving a bonus plus preferential rights in the placement procedures.

A good deal of experimentation is now going on in some countries concerning the best training procedures to be followed — particularly for those with little education and so that workers will receive the appropriate kind of training that will permit them to be able to change jobs frequently. As previously noted, these training programs also provide

financial assistance of varying amounts to those workers pursuing the training so that their income is maintained, to some extent, while securing the new skills needed in order to secure positions. Moreover, the government frequently aids those organizations which are willing to carry on these training programs.

The training programs for the unemployed are not usually conducted in a vacuum separate from the training programs made available for those still employed. And surely, in those countries with full employment, the separation would be even more difficult to make. But all the countries agree that technological change makes it even more imperative that the unemployed workers be able to undertake training or retraining. As we shall see, this is also felt to be a basic need for many workers who still are at work.

Mobility Programs

Having a skill is not enough if the plant which needs the skill is in another community or if the plant in which one has worked closes down and moves elsewhere. Some procedures then have to be developed to facilitate moves to a new community. As a result, countries make available to their unemployed all or some of the following : information concerning jobs available in other areas ; pay for transportation so that they can explore the new job location ; transportation to move to the new location if they take the job ; travel back and forth if the worker's family has not moved ; family allowances if the workers keep up two households ; moving expenses for themselves, their family, as well as their household goods ; per diem expenses to cover incidental expenses ; and assistance in securing housing. Moreover, to move workers out of areas with a labor surplus into areas with labor shortages, some countries have developed special programs. In fact, some of the benefits listed above are made available only to workers who move to labor shortage areas. There are other mobility plans in England which are directed toward certain workers : those who have no prospect of finding jobs where they are ; those regarded by firms moving from overcrowded areas to labor surplus areas are essential to the new plant or office ; and those recruited from areas of high unemployment to be trained elsewhere.

The Soviet Union has initiated special programs to move workers, young people and agricultural workers into newly developed areas as an essential part of the over-all manpower planning process. It offers material incentives to those who move by paying them higher wages, providing

longer vacations, offering travel benefits to their « home » community, and special credits toward pension entitlements. It also emphasizes the social importance of a worker moving.

Research on mobility indicates that it is frequently difficult to motivate people to move to other locations. But the countries studied still are involved in planning for mobility. It ought to be noted also that some unions are striving for clauses in contracts, which some have won, insuring a worker the right to a job at another plant of the same company with relocation expenses often being paid by the employer.

Programs for Special Groups

Because of the disadvantage suffered by certain groups, as was pointed out earlier, special programs have been developed to keep them on the job. Similarly, programs have been developed to secure them employment — once they are discharged. Special arrangements for counseling and testing are often made available at the employment exchanges, for example, for older workers and for the disabled. Work relief programs have, on occasion, been established for the hard-core unemployed.

In the United States, several new approaches have been developed to assist disadvantaged persons find gainful employment. These persons would include those with an inadequate education, the poor, the long-term unemployed, untrained youth, older persons, women, those who suffer discrimination and persons in areas with large labor surpluses. A host of acts have been passed by the Congress to provide training and education and to give financial assistance to disadvantaged members of the labor force.

Similarly, the European Coal and Steel Community and the European Economic Community have provided assistance with special programs for groups in various countries.

Other countries have tried similar co-ordinated approaches. And the key work is a co-ordinated approach. A target where there is mass actual or potential unemployment is chosen, and the arsenal of programs, most of which, in one form or another, are mentioned in this study, are aimed at that target in the hope that the unemployment can be eliminated. Mobility programs, training, education, unemployment insurance, worker involvement are all among the methods used for those most hard hit by structural and other changes in the economies of their countries.

LA TECHNOLOGIE ET LE CHÔMAGE : ÉTUDE COMPARATIVE

Le souci causé par les effets nocifs possibles de l'automatisation sur le chômage a poussé l'Organisation internationale du travail à subventionner une étude entreprise par des experts de neuf pays sur les façons de reclasser la main-d'oeuvre suite aux changements technologiques : ces neuf pays sont le Canada, la France, la République fédérale d'Allemagne, l'Italie, le Japon, la Suède, le Royaume-Uni, les États-Unis et l'U.R.S.S. Ce texte est un résumé des parties de cette étude traitant de la façon dont les pays essaient de prévenir les pertes d'emploi causées par les changements technologiques et comment ils aident les travailleurs congédiés à la suite de l'acquisition de nouvelles machines.

Les gouvernements, les syndicats et les directions ont développé plusieurs politiques afin de prévenir les pertes d'emploi. L'avis de congédiement préalable est souvent considéré comme le point d'approche primordial parmi les diverses méthodes envisagées pour éviter le congédiement des travailleurs en trop. Il en existe deux sortes. La première consiste à aviser le travailleur comme individu afin qu'il ait le temps de se trouver un nouvel emploi. Le second est un avis envoyé à l'organisation — qu'il s'agisse d'un syndicat, d'un conseil du travail ou de bourse du travail — afin qu'elle puisse mettre au point des programmes propres à éviter ou à minimiser le nombre de congédiements ou trouver des emplois pour les travailleurs mis à pied. Une seconde approche à ce problème des pertes d'emploi dues aux changements techniques consiste à mettre en vigueur un programme d'attrition afin d'éviter la mise-à-pied de ceux qui désirent continuer à travailler. La base de cette méthode repose sur le fait qu'une certaine quantité de travailleurs quitteront volontairement la compagnie à cause d'une grossesse, de la retraite, etc., permettant ainsi aux autres travailleurs de conserver leur emploi. L'attrition fonctionne mieux lorsque combinée avec d'autres programmes, par exemple l'initiation aux changements techniques. La planification de la main-d'oeuvre peut être intégrée à la technique, puisque les changements techniques majeurs exigent souvent de longues étapes de préparation et sont fondées sur approche progressive. Cette intégration et le laps de temps requis, permettent la mise en place d'autres programmes d'adaptation, telles l'attrition et la mutation de travailleurs. Les mutations sont utilisées fréquemment dans l'industrie. Cependant, les engagements de l'industrie se sont vus accroître, parfois à la suite de conventions collectives, mais parfois aussi à cause de la loi et de plus en plus le cas de travailleurs déplacés à cause de machines sera chose courante.

Une autre solution au problème des pertes d'emploi, bien que peu utilisée jusqu'à date, a trait à la diminution des heures ouvrables. Le partage du travail en est un exemple mais fut rarement utilisé. Il n'est mis en vigueur que lorsque les autres solutions ne sont pas possibles, puisqu'il implique une réduction de la semaine de travail normale et partant, une diminution de salaire. Quelques syndicats, bien que s'opposant au partage du travail, ont conseillé une diminution des heures de travail sans perte de salaire comme moyen de prévenir les pertes d'emploi. Leur raisonnement est le suivant : l'automatisation exige un moins grand nombre d'heures pour produire : or, étant nécessaire de maintenir le même niveau de

production, le moyen de protéger l'emploi consiste non à réduire le nombre de travailleurs mais bien à réduire le nombre d'heures de travail de chaque travailleur. Les syndicats ont donc défendu des propositions visant à diminuer la semaine de travail, augmenter les jours de vacances et de congé et à favoriser une retraite anticipée.

Il y aura certes des cas dans les économies de marché où un travailleur sera exclu de la liste de paie, et ce en dépit des efforts pour conserver aux travailleurs la continuité d'emploi quand on utilise un nouveau procédé technique. Les pays analysés ici ont tenté de résoudre ce problème de deux façons : premièrement, fournir au travailleur mis à pied un certain revenu lorsqu'il ne travaille pas, puis, en second lieu, l'aider à trouver une autre position.

La méthode la plus fréquemment utilisée pour fournir l'aide financière est probablement celle de l'assurance-chômage. Les pays diffèrent selon que leur système est public ou privé ; selon les montants que le travailleur mis à pied reçoit ; selon les conditions d'éligibilité, les taux de contribution et la période de temps durant laquelle le chômeur pourra percevoir cette assurance, mais, de façon générale, l'assurance-chômage signifie que le travailleur va recevoir ces revenus comme un droit inaliénable. De plus, cependant, certains pays accordent une aide additionnelle aux chômeurs dans les cas de besoin. Qui plus est, certains syndicats américains ont obtenu dans leurs conventions collectives des revenus de chômage additionnels tels que le travailleur mis à pied reçoit d'autres revenus en plus de l'assurance-chômage. Une autre façon de procéder est celle de la paie de séparation. Selon celle-ci, un travailleur congédié de façon permanente reçoit une somme globale d'argent. Parfois, ces sommes sont liées à des formes spéciales de congédiement dues, par exemple, au déménagement de l'équipement ou à un changement technologique. Parfois le montant payé peut varier selon la cause du congédiement. Cependant de façon normale, les paiements sont fixés suivant l'ancienneté.

Une troisième méthode de maintien du revenu concerne les travailleurs plus anciens. Les pays de plus en plus avancent l'âge à laquelle un travailleur peut se retirer et recevoir une pension. Ces diminutions de l'âge de la retraite ont été obtenues soit grâce à des lois, soit grâce aux négociations collectives.

Le maintien d'un revenu n'est cependant pas le remède au chômage ; il n'est qu'un palliatif. Il fournit le moyen de faire survivre un travailleur jusqu'à ce qu'il trouve un autre emploi. Plusieurs méthodes de l'aider à se trouver un autre travail sont possibles.

Une de celles-ci, déjà citée plus haut, est le préavis de congédiement. Cette méthode est particulièrement utile lorsqu'une compagnie prévoit la mise-à-pied d'un grand nombre d'employés. Si le marché du travail en prend connaissance assez à l'avance, il peut planifier afin d'aider ces travailleurs mis à pied.

Les bourses du travail sont l'instrument le plus fréquemment utilisé afin de faciliter le réengagement. Il s'agit en général de services publics remplissant plusieurs tâches. En plus de mettre en oeuvre les systèmes d'assurance-chômage, ils ont à obtenir l'information concernant les emplois disponibles et à trouver les employés qualifiés pour remplir ces tâches. Plusieurs de ces services utilisent des systèmes

coordonnés d'information, dans lesquels l'information sur les emplois disponibles est plus rapidement déterminée et assemblée, afin de mieux accomplir ce travail de pairage ; dans certains cas on utilise les ordinatrices. Ces systèmes ont aussi mis au point deux autres importantes tâches de nature à aider les chômeurs, ce sont les cours de formation et de recyclage et les programmes de mobilité des travailleurs.

La formation est la solution espérée au problème des chômeurs amenés par les innovations technologiques. Les qualifications essentielles dans une société en changement constant, seront aussi fournies. La formation des chômeurs peut prendre plusieurs aspects. Plusieurs pays, se servant de leur bourse du travail et de divers groupes de chercheurs, tentent de déterminer les besoins du marché du travail puis d'offrir les cours correspondant aux travailleurs afin de remplir ces besoins. Cette préparation est souvent offerte au sein des écoles ordinaires et parfois dans des centres spéciaux de formation. De plus, il arrive souvent que les chômeurs reçoivent de l'aide financière, lorsqu'ils suivent ces cours. Nous devons ajouter que plusieurs pays sont à considérer quelles sont les meilleures méthodes de formation à suivre — spécialement dans le cas de chômeurs possédant peu d'instruction et de façon à ce que les travailleurs reçoivent une formation propre à leur permettre de changer d'emploi si nécessaire.

Donner aux travailleurs la possibilité de s'adapter à des changements d'emploi est un des buts des cours de formation. Motiver les travailleurs à se déplacer géographiquement pour trouver un nouvel emploi est un but des programmes de mobilité. Le fait de posséder une qualification ne suffit pas si l'usine qui a besoin de cette qualification se trouve à l'extérieur ou si l'usine dans laquelle quelqu'un travaillait ferme ses portes et déménage. Il y a donc lieu de mettre au point des processus facilitant les déplacements dans un autre milieu. En conséquence, les pays offrent à leurs chômeurs tous ou quelques-uns des services suivants : les renseignements concernant les emplois disponibles dans d'autres régions, les frais de déplacement de façon à ce que le travailleur puisse voir son nouveau lieu de travail ; le transport pour s'y déplacer s'ils acceptent l'emploi ; le voyage aller et retour si la famille du travailleur ne s'est pas déplacée ; des allocations familiales si les travailleurs conservent deux maisons ; les frais de déménagement ; enfin l'aide afin d'obtenir un logement dans leur nouveau milieu.

En plus de tous les programmes cités plus haut, certains pays ont mis au point des procédures d'aide aux groupes le plus durement frappés par le chômage : les groupes minoritaires tels les noirs aux États-Unis et les Algériens en France, ainsi que les femmes en sont quelques exemples. De plus, quelques pays ont tenté de coordonner ces différentes approches au problème du chômage. Il s'agit de choisir un emplacement où il y a beaucoup de chômage en fait ou en prévision ; puis une pléiade de programmes, la plupart cités au cours de ce texte, sont mis en vigueur afin de tenter d'éliminer ou de prévenir le chômage.

En conclusion, une chose ressort clairement de cette étude faite par les neuf nations. Toutes les neuf sont déterminées à conserver une économie de plein-emploi et sont prêtes à mettre en force toutes sortes de méthodes (que l'on peut retrouver sous les divers titres des parties de ce texte) à cette fin.