Works Progress Administration Reemployment Opportunities and Recent Changes in Industrial Techniques

Preliminary statement

RPA-1

WORKS PROGRESS ADMINISTRATION
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NATIONAL RESEARCH PROJECT
on
Reemployment Opportunities and Recent Changes in Industrial Techniques
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PRELIMINARY STATEMENT AND OUTLINE OF THE STUDY

INTRODUCTION - The public attitude toward the floating army of the unemployed has even within very recent years been characterized by a callousness and resignation to fate which expressed itself by a disposition to "explain" the striking volume of unemployment by a statement that even during "normal" years one or two million workers are unemployed in the United States. This attitude is, however, rapidly giving way to an increasing social regard concerning the persistently high levels of unemployment. The concern is further accentuated by the observation that as industry turns to the resumption of former production levels, reemployment and new employment does not keep pace with the growth of the volume of production due, at least in part, to the improved production techniques which are continually being introduced.

To modern industrial society, characterized by mass p[illegible]ti[illegible] technological development has been a necessary conditio[illegible] improvement in production technique is simultaneously[illegible] the operation of economic forces and itself a fo[illegible] the balance of other economic factors as to make the [illegible] further improvements appear profitable and desira[illegible] logical changes have resulted in tremendous in[illegible]

goods and services produced and have thus made possible the potential attainment of ever higher standards of living, they have been accompanied by a cumulation of conditions making for greater economic insecurity of the individual worker. While in the past the increase in the volume of production resulted in the eventual absorption of a number of workers equal to or greater than the number displaced by improved production techniques, the individual workers involved often became either temporarily or permanently subject to loss of employment and claims to income.

During the period from 1920 to 1929 the physical volume of production in manufacturing industries increased 37 percent while employment dropped about two percent; freight car loadings increased 6 percent from 1923 to 1929 while employment on steam railroads declined 10 percent; the production of coal increased 10 percent from 1919 to 1929 and was accompanied by a decrease in employment of about 14 percent; despite an increase in the production of agricultural commodities, 800,000 agricultural workers were displaced between 1919 and 1927. These are some of the facts of common observation which even prior to 1930 served to concentrate attention on a problem commonly referred to as "Technological Unemployment". That the trend shown by some of the data given above has continued since 1929 is indicated by the fact that the output per man-hour in manufacturing industries is estimated to have increased approximately 25 percent between 1929 and 1935.

In the light of the facts described above, the question of the relative potency of the forces making for displacement and absorption in the near future is of immediate practical importance, particularly to

governmental agencies charged with the task of either creating employment opportunities or caring for the victims of unemployment. The extent of unemployment during the past four years has been variously estimated at 14 to 17 millions at its peak, or approximately one-third of the total number of gainful workers. And even during the current period of partial resumption of production the volume of unemployment remains at extremely high levels. The appreciation of these facts and of the recent attempts to ameliorate the condition of the unemployed through relief measures which are estimated to have consumed over five billion dollars of public funds since 1933, are more and more persistently forcing some of the following questions to the foreground: What are the prospects for the re-employment of a substantial number of the unemployed? How many of the unemployed would be absorbed by a return to former production levels? What groups of workers are likely to remain unabsorbed? To what extent is the present volume of unemployment the result of recent changes in industrial techniques? To what extent has the volume of employment been affected by technological improvements? Has employment in the machinery industries offset the declines in other industries caused by the introduction of new machines? Is there an appreciable number of workers who may be classified as "permanently displaced"? Do workers displaced by the introduction of new techniques become public charges or are they able to adapt themselves to other work? To what extent are displaced workers forced to take employment at less skilled work, at lower wages? Has the introduction of high speed processes resulted in the reduction of the hiring age of workers? To what extent are "stranded" communities the result of technological changes?

These and a multitude of related questions arise in one form or another according to the interests or social functions of individuals, sections of the population or governmental bodies. Among members of the business community these questions spring from the desire for relief from taxation and the simultaneous safeguarding of the monetary structure; among the members of the labor community, the questions reflect an anxiety for the security of their livelihood and the will to maintain a reasonably adequate standard of living; in the administration of government, these questions represent the appreciation of the need for guide posts to the road along which lie effective measures for relief and for a program of social security - a financial program to meet these measures and a social program to further the ends of the community at large.

PLAN OF WORK - An effective approach to the basic questions here involved requires a comprehensive examination of the human and economic resources, of the development of the techniques of production and of the effect of changes in these techniques on the volume of production, on production capacity, on the volume of employment and unemployment and other related factors within the framework of the national economy.

It thus becomes necessary to assemble and organize the existing data which bear on these questions and to augment these data by systematic surveys and analyses designed to meet the following objectives:

A. A comprehensive statement of the economic role played by changes in techniques of production.

B. Measurement of the net effects on total employment of changes in production techniques and the incidence of such changes with respect to employment in the various industries, occupations, age-groups, etc.

C. Analysis of social problems arising out of changes in production techniques and

1. The extent to which present or imminent economic developments may be expected to relieve or accentuate these problems, and

2. The basis of and requisites for a remedial program.

The core of these objectives may be expected to lie in the economic role of the changing techniques of production and the attendant social consequences. The central problem therefore revolves around the determination of the net displacement of man-hours and man-years of labor by improved production techniques and the measurement of such increases in the volume of production and employment as may result from the economies introduced.

With respect to the question concerning the number of workers who may be said to be unemployed as a result of changes in industrial techniques, our analysis starts with the recognition of the fact that the volume of employment (in terms of man-hours) depends upon the total volume of output and the output per man-hour. From this it follows that, given a continuously rising output per man-hour, an increase in the physical volume of output is accompanied by a less than proportionate increase in the volume of employment, and a decline in the physical volume of output results in a more than proportionate shrinkage in employment. Therefore, a national economy with a progressive technology must either contrive to raise the total physical volume of output at a rate which is at least as fast as the increase in the output per man-hour, or prepare to deal with the problem of an ever increasing number of unemployed. The situation

is further complicated if the national economy in question is faced with the problem of a growing population and an ever increasing number seeking gainful employment.

Technological unemployment is the net result of simultaneous and continuing processes of displacement and absorption. Quite aside, though not apart from the other unemployed, there exists a pool of unemployed persons which is being fed by the displacement effect of technological improvements, and simultaneously either drained or fed by the effects of the increasing or decreasing volume of production. The volume of technological unemployment rises or declines depending upon whether the forces making for displacement are more, or less potent than the simultaneous forces making for absorption.

In the case of a rapidly growing economy or industry, the fact of technological unemployment is primarily a reflection of the lag between displacement and absorption. However serious a personal or social problem this lag may represent, it is temporary in character and is engendered by the interaction of economic forces which are in the process of readjustment upward, toward a greater volume of production, toward more employment, and toward a potentially higher general standard of living. A declining economy or industry, on the other hand, is faced not only with the problem of displacement but also with an absorption process which is at all times insufficient to absorb those displaced as well as those newly entering the labor market; the personal and social problems engendered are thus no longer the results of temporary unemployment, they become problems arising out of permanent unemployment.

When confined to individual industries, or plants, or occupations, a study of the effects of improved production techniques can be fruitful

only in a very limited sense because of the interdependence of the various aspects of modern economic society. Within such limitations, the measurement of the effects of technological improvements would have to confine itself to the determination of the volume of displacement and absorption separately without being able to determine the net effects upon total employment or unemployment because of the inability to determine what happened to those who remained unabsorbed by the particular industry, plant, or occupation studied. For example, employees laid off in a New York plant as a result of the failure to meet the price set by a San Francisco firm which reduced its labor costs and prices by introducing modern machinery, are as much displaced by the machinery as if that machinery had been installed in the New York plant. An approximately similar situation arises when silk workers are displaced by the development of the rayon industry or when coal miners are displaced by the introduction of improved means of utilization of coal. Thus while "displacement" and "absorption" can be studied in individual industries or plants, the net effect of the two processes, "technological unemployment", can be appreciated and measured only in terms of the interrelated parts which adequately reflect the whole of the national economy. It is proposed to accomplish this objective by the following investigations:

I - <u>Measurement of the Volume of Technological Unemployment</u> - A series of statistical studies, based primarily upon data already available, will be undertaken and directed toward the development of a statistical method designed to yield a reasonably reliable approximation of the total number of technologically unemployed workers.

II - Changes in Productivity in Selected Groups of Industries -

In order to make possible a more concrete appreciation of the economic role of the changing industrial techniques and the social consequences which flow from these changes, a number of productivity surveys will be carried out in co-operation with the U. S. Department of Labor, Bureau of Labor Statistics, and will be conducted approximately along the lines already established by that Bureau in connection with its previous studies in that field. The major differences will concern the scope of the studies. Whereas the Bureau's past studies covered only single commodities such as: rubber tires, electric lamps, brick, etc., the surveys which are now being planned are designed to comprise not only a sample covering the entire industry, but groups of industries comprising the whole of the vertical process of production from the raw material to the finished product. It is hoped that it will thus be possible to consider not only the displacement and absorption within single industries but also the new opportunities for employment arising out of the production and development of the new technical equipment and out of the demands made for the requisite raw materials. In addition to yielding concrete data on specific industries and providing the opportunity for bringing certain of the Bureau of Labor Statistics studies up to date, these surveys will also provide an important check on the statistical analyses mentioned earlier.

III - Surveys of Social Consequences of Displacement

(A) It is expected that the productivity surveys carried out in cooperation with the Bureau of Labor Statistics will yield, as a by-product, the basic data needed for some of the surveys of the social consequences of displacement due to changes in industrial techniques. These basic data are expected to consist of the names and personnel records of persons laid off or dismissed as a result of the introduction of certain technological changes or managerial improvements. It is proposed to accumulate an appreciable number of such records and to survey the unemployment history of as many displaced persons as can be traced with a view of determining:

1. How long the displaced workers remained unemployed.
2. How many were compelled to resort to public or private unemployment relief.
3. How many of the skilled workers found employment in the same occupation in the same industry, in a different industry, at what difference in wage rates and earnings.
4. How many of the skilled workers found employment in a semi-skilled or unskilled occupation in the same industry, in a different industry, at what difference in wage rates and earnings.

5. What were the differences in the experience between
   a. Older workers and young workers
   b. Male and female workers
   c. Skilled and unskilled workers
   d. Manual workers and clerical, professional and technical workers
   e. Workers in manufacturing, mining and agriculture.

(B) An attempt will be made to determine whether and where changes in industrial techniques resulted in the migration of industries and consequent "stranded" areas and communities and to survey such areas and communities for the purpose of determining:

1. The character of the social and economic adjustments imposed upon such communities.
2. The degree of success with which such adjustments are accomplished.
3. The extent to which public bodies have aided or can aid in bringing about desirable adjustments.

(C) Concurrently with the studies to be conducted under (B) above, it is planned to survey the objectives and activities of the "Subsistence Homesteads", "Rural-Industrial Communities" and "Suburban Rehabilitation Communities" in order to determine:

1. The extent to which these emergency programs have addressed themselves to the problems of the industrially "stranded" areas, and
2. The extent to which they were successful in meeting these problems.

(D) Plans are being drawn for additional studies, to be conducted in cooperation with Federal agencies whose regular functions are related to the problems outlined above.

IV - Supplementary Studies - It is also expected that as a by-product of the study as a whole, it will be possible to assemble certain types of information which, with little additional effort, will yield:

(A) A comprehensive bibliography of the literature on unemployment, specifically "technological unemployment" and "rationalization in industry". This bibliography will not only list the titles, authors, publishers, etc., but will also contain comprehensive abstracts of the important theoretical and technical work in these subjects.

(B) A historical analysis of the development of industrial techniques in relation to the development of industries and standards of living. This analysis will also cover the contribution of organized industrial research to the development of industrial techniques.

DMINISTRATIVE ORGANIZATION - The study outlined above is one of the research rojects being conducted under the WPA National Research Program which is o secure, tabulate, analyze and report information necessary to aid the orks Progress Administration in carrying on its program. The entire ational Research Program has been allotted 12 million dollars. From this otal, sub-allocations will be made to the several studies as funds are eeded.

All of the studies under this program are sponsored by the Federal WPA and will be conducted under the supervision of Mr. Corrington Gill, Assistant Administrator, who will appoint the Directors of the individual studies. Mr. David Weintraub has been appointed Director of the study on "Reemployment Opportunities and Recent Changes in Industrial Techniques", with headquarters at 12 South Twelfth Street, Philadelphia, Pennsylvania. It is expected that this study will find it necessary to set up temporary branch offices from time to time in various parts of the country in order to facilitate the collection of the necessary data.

DURATION OF STUDY - In view of the character of the Works Program, it is impossible to fix the duration of the study. However, it is expected that sufficient information will be collected and analyzed during the next twelve months period to permit the presentation of findings in the form of a report.

ADDITIONAL INFORMATION - All inquiries concerning this research project should be addressed to Mr. Corrington Gill, Assistant Administrator, Works Progress Administration, 1734 New York Avenue, Washington, D. C.