

IMPACT OF OFFICE AUTOMATION IN THE

Internal Revenue Service

A Study of the Manpower Implications
During the First Stages of the Changeover

Bulletin No. 1364



UNITED STATES DEPARTMENT OF LABOR
W. Willard Wirtz, Secretary

BUREAU OF LABOR STATISTICS
Ewan Clague, Commissioner

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Preface

Concerted efforts to improve efficiency through automation, without causing hardships on employees, are likely to be among the key challenges of public administration in the 1960's. According to Bureau of the Budget estimates, the Federal Government will have about 1,500 computers in use by mid-1966, a 50 percent increase over the number in mid-1962.

This study describes the manpower impact of the introduction of a large-scale electronic computer system in the Internal Revenue Service (IRS), a key Federal Agency with more than 50,000 employees. The report covers: Nature and objectives of the conversion, planning of manpower changes, administration of personnel procedures, impact on employees, staffing of automatic data processing (ADP) jobs, training and retraining of employees, manpower problems, and employment outlook. The experiences described should be useful to other Government Agencies and to private organizations where large-scale technological changes are being planned. Chairman of the Civil Service Commission John W. Macy, Jr., is hopeful that in the IRS conversion ". . . we will have developed some workable formulas for facilitating future transitions."

The report is based on interviews with IRS officials and employees, statistical data collected especially for the study, public documents, and internal IRS memoranda. Representatives from the Bureau of Labor Statistics visited offices in the IRS Atlanta region and interviewed employees, supervisors, and union officials concerned with the new ADP system to obtain first-hand knowledge of problems which arose and techniques developed to alleviate them.

IRS officials and employees were extremely helpful and cooperative in gathering information for this report. Special acknowledgment is due A.J. Schaffer, Director of Personnel, and J.R. Stone, J.G. Fowler, G.H. Finn, and L.W. Peeler of his staff. In Atlanta, Regional Commissioner W.J. Bookholt, James Corley, Jr., Mary King, and the district and service center directors and their staffs provided valuable assistance.

The study is part of the Bureau of Labor Statistics research program on the progress and implications of productivity and technological change and is designed to support the Labor Department's activities in carrying out the objectives of the Manpower Development and Training Act. This bulletin was prepared by Richard Riche and James Alliston, under the supervision of Edgar Weinberg, Chief of the Bureau's Division of Technological Studies, under the general direction of Leon Greenberg, Assistant Commissioner for Productivity and Technological Developments.

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IMPACT OF OFFICE AUTOMATION IN THE INTERNAL REVENUE SERVICE

Highlights and Summary

The introduction of automatic data processing (ADP) continued efforts over the years by the Internal Revenue Service to find ways of handling more efficiently a growing volume of tax returns and documents. During the changeover to a large-scale electronic computer system, the IRS developed innovations in manpower policies and procedures to maintain job security and to utilize the skills of affected employees by productive placements. These measures have broad significance as guidelines for orderly adjustments to office automation.

This bulletin covers the general background of the conversion and some specific manpower developments in offices in the Atlanta region, which comprises seven Southern States. The conversion will not be completed in Atlanta until 1966, and nationally until 1968. Therefore, the full impact has not yet been felt.

Background

A decision to install ADP was reached in March 1959, following more than a year of extensive exploration of technical feasibility by IRS planning experts. The changeover involved establishing a comprehensive data processing system, requiring the introduction of electronic computers, a taxpayer identification system, a centralized master file of taxpayer accounts on magnetic tape, and significant changes in organization, manpower, and flow of work. The original plans provided that many of the routine data processing tasks in 62 district offices will be centralized and processed on computers at 9 new regional computer (or service) centers and the National Computer Center at Martinsburg, W. Va. (A recent decision will reduce the number of regions from 9 to 8, regional service centers from 9 to 7, and eliminate 4 district offices.) Enforcement and public information and assistance activities will remain in the district offices. The new data system is expected to result in the processing of a much greater workload without a commensurate increase in employment and to lead to more efficient and effective enforcement of tax laws. Computer processing first began in December 1961.

Planning Manpower Changes

A unique aspect of the IRS approach to the changeover was the extraordinary attention given at top levels of management to manpower as well as technical planning. Experts were charged with full-time responsibility for planning the manpower shift. At an early stage of the conversion, the IRS Commissioner announced a policy of maintaining job security for affected employees by avoiding, if at all possible, layoffs, downgradings, and compulsory relocation. As part of this policy, the changeover in each region was scheduled over several years to allow enough time to retrain and reassign affected employees.

About 5,000 routine office jobs across the Nation are expected to be eliminated or shifted to regional service centers by July 1968; at the same time, a greater number of new jobs will be created in regional centers to do much more work. Thousands of additional jobs may be indirectly affected by required reassignments.

Administering Manpower Policies

In cushioning the impact of ADP on employees, the IRS, with Civil Service Commission support, was willing to explore new approaches, and to adjust and modify usual personnel policies to meet the special needs posed by an extraordinarily large scale adjustment problem. The IRS approach required that considerable attention be given to the problems of individual employees.

To facilitate transfer of employees to vacant jobs, the IRS took an inventory of the skills of employees in the affected units, made efforts to match displaced employees and job openings, gave employees counseling and guidance about job opportunities, and offered training to improve employee qualifications. The emphasis was to give employees in directly affected activities full opportunity to transfer voluntarily to other jobs, either those vacated through attrition in unaffected units or to new jobs opening in the new regional centers.

To make placement of affected employees easier, the Civil Service Commission allowed the IRS to relax certain qualification standards for positions and to extend periods of temporary appointments and assignments. The use of attrition, as a means of reducing employment, was encouraged and retirement possibilities were clearly explained to eligible employees whose jobs were to be eliminated. The hiring of new employees on a permanent basis was restricted and the hiring of temporary employees to carry on necessary activities was expanded. Special attention was also given to keeping employees informed, improving communications between national, regional, and district offices, and to consulting with employee organizations. Finally, IRS officials contacted other Federal agencies to locate positions for affected employees.

Impact on Employees

The conversion in the Atlanta region, the first area to adopt ADP, was estimated to involve directly about 1,000 of more than 4,000 employees working in units of 7 district offices. These affected employees were primarily older women with most of their working experience in Government. Their duties mainly involved manual processing of tax returns. The remaining 3,000 employees, who were only indirectly affected, worked in enforcement and public information and assistance activities. Of the jobs directly affected, the IRS estimated that nearly 500 will be eliminated by July 1966. Although a greater number of jobs are being created in the Atlanta regional center, many require different skills. Moreover, all are located outside the commuting area of most affected employees. The impact may be cushioned since about

one-fifth of the affected group was eligible (in January 1962) for a retirement annuity. However, some of those eligible may not be willing or financially able to retire.

During the first 2 years of the changeover (July 1960-July 1962), permanent employment in affected units was cut back by 234 employees or 22 percent, partly by attrition and partly by reassignment of employees to other jobs in enforcement and public information and assistance work, not directly affected. Of the reassigned employees, 90 relocated in another city. Nearly all moves were less than 500 miles. No employee was laid off.

Major Occupational Changes

According to occupational projections through July 1966, significant changes are expected in job structure in the affected work. Routine clerical work, involving posting, checking and maintaining records, and lower grade supervisory levels in the districts will show a substantial decline. A great increase in card punch and related jobs at the service center will be needed to prepare data for ADP. In district offices, public information and assistance and correspondence work will be expanded because of enlarged enforcement activities.

New ADP jobs for managing, planning, and programing were created. By July 1962, 261 persons in the IRS were engaged in eight ADP occupations (excluding card punch operators) needed for the new Master File system. Over two-thirds of the 261 employees were programers and management or systems analysts; about one-fifth, managers and administrators; the rest were console and equipment operators, schedulers, and tape librarians. Over three-fourths were located in Washington, where programing was centralized. Only 32 were located in the Atlanta center, and they comprised only a small percent of total employment at the center. The rest operated the National Computer Center in Martinsburg, W. Va.

Recruiting and Selecting ADP Employees

The IRS primarily recruited from within, in order to utilize employee skills and experience. About 4 out of 5 ADP employees initially selected for the eight ADP occupations were IRS employees, most of whom had technical or supervisory experience. Key ADP jobs were filled through a systematic selection procedure which included written tests, interviews, and supervisory evaluations. Those who applied and were selected for planning and programing jobs typically were young men with a relatively high educational level. Relatively few district office employees whose jobs were scheduled for elimination were selected for ADP jobs. Most of the managerial and supervisory positions at the service center, exclusive of ADP positions, were filled by transfers from the districts.

Training and Retraining

An important feature of the IRS manpower program was the effort to retrain those employees in jobs to be eliminated in the Atlanta region and to train those selected for ADP jobs. The IRS' experience in conducting training programs for administering new tax laws proved valuable in this changeover. First, all district office employees, directly or indirectly affected by the change, were given opportunities to attend IRS classes in accounting and income tax law so that they might qualify for other jobs. Between July 1960 and July 1962, 241 employees working in the affected units completed one or more classroom courses. Several employees completed 6 courses. Most training was given after working hours because of skills shortages, heavy workload, and necessary overtime. Second, full-time specialized classroom and on-the-job training during working hours was given those employees who transferred from affected jobs to other permanent jobs. Classes for some types of technical work were conducted in a central location and employees attending from other localities received travel allowances. Third, the IRS gave employees selected for certain new ADP jobs--programers, systems analysts, and ADP administrators--several weeks of expense-paid, full-time classroom training at centralized locations, followed by lengthy on-the-job training. Equipment operators received about a week of formal training by the equipment manufacturer.

Some Manpower Problems

Although the first stages of the changeover (1960-62) have been described as successful by the IRS, some manpower problems involving employee mobility, retraining, reassignment, stress, communications, program delays, and recruitment arose. Some affected district office employees hesitated to take new jobs in Atlanta. Key obstacles mentioned by affected employees were fear of financial loss on sale of a house, concern over loss of spouse's job, and uncertainty about the relative cost of living in a different community. The extent to which employees were reluctant to relocate was not fully anticipated by the manpower planning experts. Another problem, also not fully expected, was uncertainty among some affected employees about the potential effects of ADP on their jobs. As a result, the IRS found it necessary to offer employees encouragement to participate in retraining and to accept transfers and relocation. Some employees, especially women with family responsibilities, were reluctant to take training because it was given after working hours. A few employees and managers reported greater mental stress as more overtime and greater responsibility were required during the changeover period and as shiftwork on ADP operations was introduced. Finally, recruiting card punch operators constituted a serious problem for management because of the difficulty in locating experienced operators and supervisors.

Outlook for Manpower Changes

An estimated 28 percent reduction of jobs (230 jobs) is planned during 1962-66, the final phase of the changeover in the Atlanta region. The

total decline will amount to about 51 percent between 1960-66. Although this impact may be reduced as manpower needs are reassessed, manpower changes may become increasingly difficult to administer during this phase. Factors which could help to avoid layoffs include the availability of funds for a sufficient number of jobs in other IRS activities, continued attrition, and greater willingness of employees to relocate to offices where jobs are available. The final stages may require that even more attention be directed to counsel, guide, and retrain those employees who remain in jobs to be eliminated and to assist them in relocating.

New manpower issues will probably arise as ADP technology is further developed and extended. The experience in the Atlanta region will be useful in modifying the original guidelines for application in the other IRS regions. The possible use of optical scanning, electronic transmission, and other automation systems now under consideration will probably create new problems for manpower planning.

The IRS conversion to ADP involves elimination of large numbers of clerical jobs on which the communities in the region may have relied and the creation of some new jobs with different requirements. These changes may affect labor market conditions and require attention by community educational, guidance and placement services, concerned with opportunities for the growing labor force of the 1960's.

This study suggests that a better understanding of factors affecting employee mobility could be especially helpful to any large organization in planning orderly adjustments to technological changes.

Chapter I. Background

The framework for modern tax collection was established in July 1862, when President Lincoln created an Office of the Commissioner of Internal Revenue in the Treasury Department. The first Commissioner began with a staff of one clerk and personally read all letters received from taxpayers. Today this office is the Internal Revenue Service (IRS), employing more than 50,000 persons in offices across the country.

Growth of Paperwork

The paperwork associated with collecting taxes has grown tremendously, especially during and after World War II. Enforcing the tax laws in 1960 required processing more than 400 million documents annually (including over 94 million tax returns) and mailing out millions of forms, bills, and notices. In 1930, only 6 million returns were filed. The IRS estimates that by 1970, the volume of returns could reach 114 million.

The increasing paperwork reflects not only the expanding population and tax base, but also the greater complexity of tax laws. The creation of exceptions and special cases and proliferation of taxpayer categories contributes to the ever-growing workload.

Past Changes in Technology and Organization

Over the years, the IRS has made major improvements in its equipment and methods. Bookkeeping and other office machines were introduced at an early date. But the massive growth in workload resulting from excise taxes, extensions of social security, and increases in tax returns and related documents required continued improvements.

After World War II, IRS management gave high priority to increasing mechanization and tailoring the organizational structure and work flow to assembly-line processing. Card punch and materials-handling equipments were installed in several of the larger field offices. Although improvements were made, these individual offices lacked sufficient work volume to achieve maximum potential savings in labor and other costs.

The centralization of mechanized data processing at the Kansas City (Mo.) center, in 1954, was a milestone in tax information handling. The new center used card punch tabulating and calculating machines to process a number of short-form income tax returns (Form 1040-A) from several midwestern districts with such efficiency that additional work was transferred to the center and similar mechanized centers were opened in Massachusetts and Utah.

The IRS also made extensive changes in organization and management techniques during the latter half of the 1950's. District offices were re-organized, a work planning and control system was developed, and an executive development program was initiated. A planning and research group was established to investigate and appraise methods of improving the efficiency of operations.

The growth of the IRS workload and employment from 1930 to 1960 is shown in table 1. The volume of work increased substantially, but the employment rise was relatively smaller. Returns filed per employee--a rough indicator of productivity--more than doubled between 1940 and 1960.

Table 1. IRS workload and employment, selected years, 1930-60

Item	Fiscal year				Percent increase 1930-60
	1930	1940	1950	1960	
Tax returns filed (millions) ..	5.9	19.2	89.3	94.4	1,500
Information documents received (millions)	0.3	21.0	(1/)	325.0	3,055
Revenue collected (billions) ..	\$3.0	\$5.3	\$39.0	\$91.8	2,960
Employees (thousands)	2.0	22.4	55.6	50.2	318
Returns filed per employee	492	857	1,606	1,880	282

1/ Not available.

Source: Internal Revenue Service.

Despite improvements in efficiency, it became apparent that the growing workload could not be handled effectively merely by expanding employment and retaining conventional data processing equipment. By the late 1950's, for example, the IRS had to curtail certain enforcement and revenue producing activities, such as verification of forms W-2 filed by employees with wages shown on returns. Management, therefore, decided to explore the feasibility of using high-speed electronic computers for processing the documents.

Chapter 2. Introducing Automatic Data Processing

Converting to a multi-million dollar automatic data processing system affecting a large number of employees required considerable advance preparation. The term "automatic data processing" (ADP) as used by the Federal Government and IRS includes processing data by electronic computers and auxiliary equipment (including card punch machines) and is generally used interchangeably with the term "electronic data processing" (EDP). Nearly 3 years were required for the preinstallation stage of the changeover. Much thought was given to planning for effective use of the equipment, to selecting the appropriate computer equipment, and to setting objectives, human as well as technical.

Initial Steps

Initial planning was undertaken in Washington, D.C., by the newly reorganized Planning and Research organization. Many staff members of this organization had extensive IRS experience in different activities, including establishing the three mechanized centers.

In December 1958, the Planning and Research organization presented a preliminary ADP plan to the Commissioner of Internal Revenue. Several months of investigation had convinced them of the feasibility of electronic computers for processing paperwork related to tax returns. In March 1959, Treasury Department officials approved the plan. It was reviewed by the Bureau of the Budget later that year, and was presented to the Congress in February 1960 as part of the budget for fiscal year 1961. Treasury officials described the program as essential to processing the projected growth in workload.

The IRS Planning and Research organization prepared detailed specifications for an ADP system. The plans provided for computers to be installed in a service center located in each of the IRS regions and for a National Computer Center to be established in Martinsburg, W. Va. A private firm of management consultants, hired to evaluate these plans, found the program sound and the computer applications feasible.

Since personnel and technical problems could not be wholly foreseen, it was decided to introduce the system first in one region and later in other regions over a 6-year period. The schedule called for the beginning of the conversion in 1961 in Atlanta, followed by the introduction in one or more regions each subsequent year. (See table 2.) Conversion will begin in the last regions in 1964. Within each region, the first operation to be converted to ADP is the processing of business tax returns; next, the processing of individual tax returns, and then miscellaneous returns and information reports. The preparatory steps of the conversion in each region begin 1 year before returns processing begins. The entire conversion is presently scheduled for completion by July 1968.

This report highlights the conversion to ADP in the Atlanta region, comprising seven Southern States. The regional office, regional service center, and a district office are in Atlanta, and a district office is in a major city in each of the other States. Nearly 4,000 IRS employees worked in these 7 district offices in July 1961; about 1,000 worked in units which would be directly affected by ADP. About half the jobs in the directly affected units were expected to be eliminated or transferred to the Atlanta center by stages during the conversion. Thus, ADP resulted not only in changes in number and types of jobs but also in their location.

Table 2. ADP conversion schedule and personnel impact, by region 1/

Region	Directly affected employees (as of July 1961)	Year of beginning of conversion (January 1)	Beginning of year of processing returns	
			Business (January 1)	Individual (January 1)
United States	10,901	----	----	----
Atlanta	1,000	1961	1962	1963
Philadelphia	1,420	1962	1963	1965
Cincinnati	1,257	1963	1964	1965
Dallas	918	1963	1964	1965
Omaha <u>2/</u>	1,024	1964	1965	1966
Boston <u>2/</u>	752	1964	1965	1966
Chicago	1,482	1964	1965	1966
New York	1,467	1964	1965	1966
San Francisco <u>2/</u>	1,581	1964	1965	1966

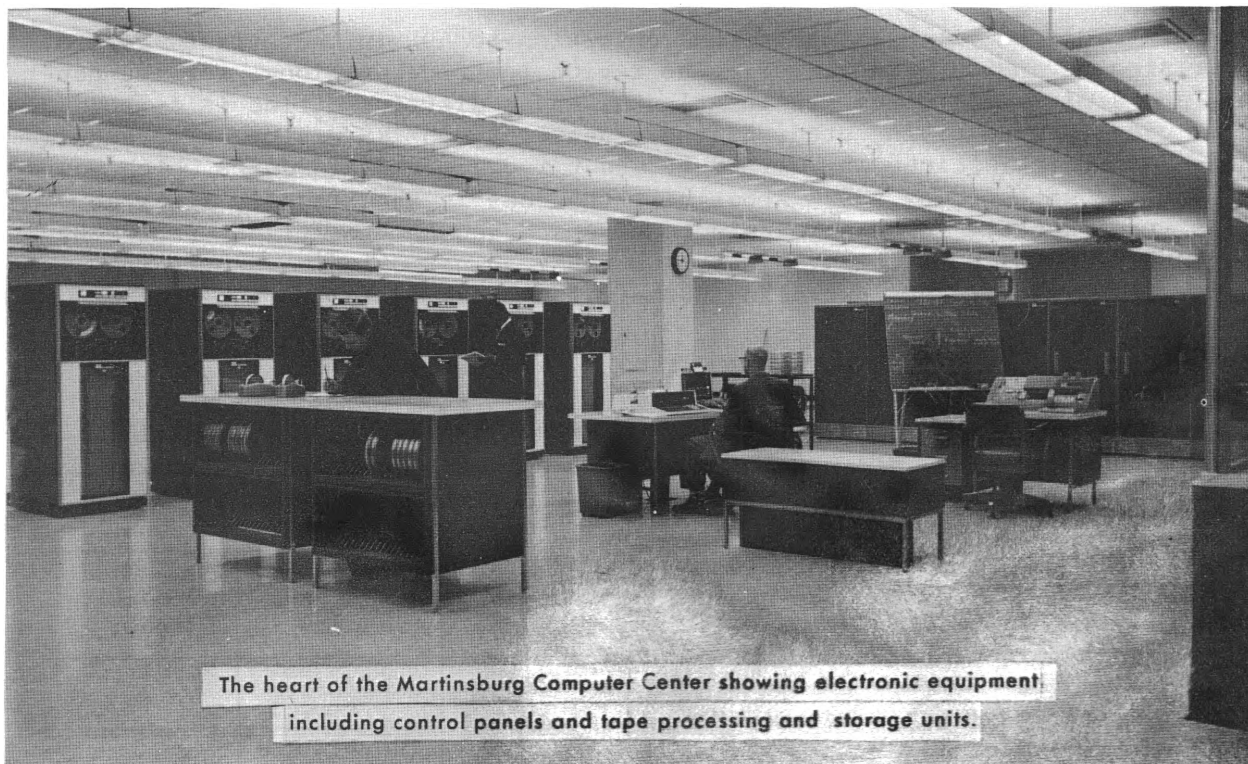
1/ Schedule as of June 1963. A recent decision merged Omaha with the Chicago region as of January 1, 1964.

2/ Conversion of existing mechanized data processing centers.

Source: Internal Revenue Service.

The New Data Processing System

The new equipment was selected by the Planning and Research organization. In January 1960, specifications of the system were sent to 42 manufacturers; after 3 months, 6 manufacturers presented proposals.



The heart of the Martinsburg Computer Center showing electronic equipment including control panels and tape processing and storage units.

In July 1960, an award was made to one of the six firms to provide computer systems in regional service centers and a larger system in the National Computer Center. These machines were to be rented. The first computer in the Atlanta Service Center was installed in August 1961; the second computer in March 1962. A large system was installed in the National Computer Center in September 1961, 3 months prior to the initial processing of business returns.

The application of ADP to tax information handling required more than the replacement of conventional methods with electronic computing equipment. The "total systems approach" to data processing was adopted, and plans were made for extensive changes in work flow, services to taxpayers, and location of jobs. In short, the introduction of ADP required a review of the total functions and organization of the entire IRS.

Three important technical and procedural features of the system are: A three-year master file of taxpayer accounts, a taxpayer identification system, and increased centralization of data processing. This system has been described as the "Master File Plan."

A master file of about 80 million business and individual taxpayer accounts stored on magnetic tape is to be set up at the National Computer

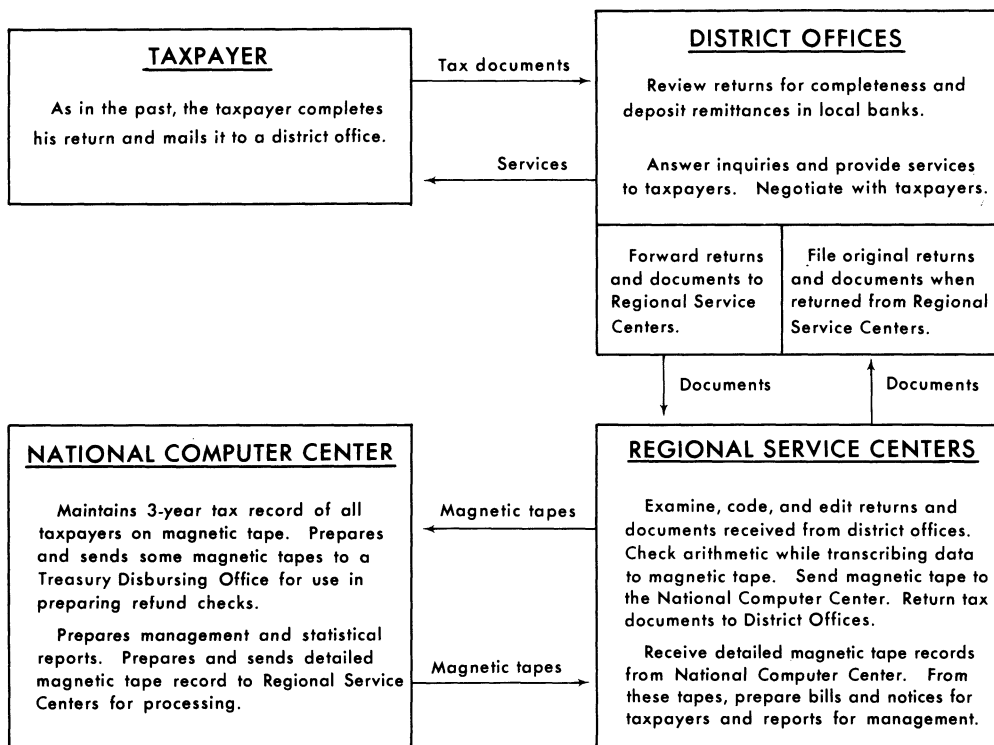
Center. This is an entirely new activity that electronic data processing now makes possible. These accounts contain tax data for several years and are continuously updated to provide quick access to the current status of each taxpayer's account. A single reel of magnetic tape less than 1 foot in diameter can store a 3-year tax record for thousands of taxpayers. In view of great geographical mobility of population, a single master file of records was considered advantageous.

An essential requirement for creating this master file is a comprehensive taxpayer identification system. Taxpayers with social security numbers are required to furnish them to employers and other disbursers of income and to include these numbers on their tax returns. After congressional approval of the system, arrangements were made by IRS for the Bureau of Old Age and Survivors Insurance (BOASI) to assign Social Security numbers to those individuals needing numbers for tax purposes. Special employer identification numbers were assigned to business accounts, including trusts and estates.

Greater centralization of routine data processing is part of the new system. Much of the routine processing of tax returns, now performed in 62 district offices throughout the country, will be shifted to regional service centers in major geographical areas. Tax documents will be interchanged between districts and service centers, and magnetic tapes will be interchanged between service centers and the National Computer Center as part of the integrated system of data handling.

The new system involves changes in the method of processing and routing tax documents with substantial shifts in the location and nature of jobs. Taxpayers will continue to file returns and receive assistance in local district offices, but employees in the district offices will perform only limited operations before documents are sent to regional service centers. These preliminary tasks include checking returns for name, address and account number; depositing and accounting for remittances, and establishing and maintaining initial accounting controls. At the regional service center, employees will transcribe data to punched cards, convert the data to magnetic tapes, and ship the tapes to the National Computer Center where they will be entered in the master file. After the output tapes are returned to the service centers, high-speed printers will post the information to bills and notices to be sent to taxpayers, lists of returns for audit, and other control documents. (See chart 1.) Regional service centers maintain accountability records for internal revenue taxes collected within the region.

Chart I. ADP information flow



The new ADP plan differs radically from the previous system, where processing work on returns was performed manually at each district office by workers using typewriters and adding and bookkeeping machines or at three area processing centers. This system did not involve an integrated master file. By using electronic computers, many accounting entries that are now mechanically or handposted will be eliminated. Summary postings of totals to ledgers and journals and some miscellaneous accounting operations will continue to be performed in the district offices. Centralization of data processing was considered necessary in order to standardize and integrate operations more closely. A more current status of tax accounts and more economic use of large capacity equipment are expected to result.

Organizational Changes

The IRS also made major organizational changes to provide a new administrative framework for the conversion. In late 1959, responsibility for the conversion was assigned to the Director of the national office Collection Division (the organization whose operations were affected directly by the new ADP plan). As ADP activities expanded, management decided to separate that

Division's two major responsibilities; enforcement activities were retained by the Collection Division, and other activities were transferred to a new ADP Division which was organized in January 1961. The ADP Division Director was later given responsibility as an Assistant Commissioner for all aspects of data processing plans and activities. Similar changes in organization were also made in the Atlanta region.

An ADP advisory group was formed by the Atlanta Regional Commissioner, comprising the Assistant Directors from each of seven district offices. This group analyzed problems of the conversion and recommended practical solutions. The Regional Commissioner enlisted the active cooperation of local officials by having them participate in planning the changeover.

Objectives of the System

Significant advantages for the Government, IRS employees, and taxpayers are envisaged. The new system offers the possibility of increasing substantially the IRS capacity to process more quickly, and in greater detail, larger quantities of routine clerical and accounting paperwork, with a minimum increase in the number of clerical employees. Since the volume and complexity of the overall workload, including enforcement as well as data processing, is expected to grow significantly, a reduction in total IRS employment is not expected.

The Service anticipates that laborsavings in routine paperwork will make available manpower resources for improving enforcement activities that are now curtailed. For example, some revenue producing enforcement operations, based on comparing information documents and tax returns can now be undertaken. The consolidated tax account for each taxpayer will help to identify persons failing to file returns. Computer techniques also make it possible to verify all returns and to select those for audit which may yield additional income. This more comprehensive auditing may ultimately lead to requiring more public information and assistance work by employees.

The IRS sees important benefits for taxpayers. Improved enforcement is expected to insure that each taxpayer pays his fair share. Errors will be reduced, undelivered refund checks will be credited to taxpayer accounts, repetitive taxpayer contacts will be eliminated, and more information and assistance may be available to the public in the district offices. Finally, business firms may benefit by being able to submit certain tax information on magnetic tapes.

Manpower in the Changeover

IRS management recognized early that the introduction of automatic data processing would have enormous impact on IRS employees. Between 11,000 and 12,000 permanent employees throughout the Nation were working in units of the Collection Division that would be directly affected. (See Appendix A, table 1, for the number of employees in directly affected units in each

district office as of July 1961.) With the shift of returns processing work from 62 district offices to regional service centers, about half of these jobs were expected to be eliminated by July 1968. Many thousands of additional employees would be indirectly affected by required reassignments. But it was anticipated that a greater number of jobs would be needed because of expanding public service activities and volume of work. The increased employment would be mainly in new regional service centers, while the jobs eliminated would be those in the districts.

Early in the conversion, the IRS affirmed its obligation to minimize adverse effects on the job security of employees. This decision was one reason for introducing automatic data processing gradually over a period of years. Along with technical planning, a special group of personnel experts in the national office was assigned full-time responsibility for planning manpower policies and for assisting regional administrators to carry out the plans.

Personnel planning for technological changes was not new in the IRS or in the Federal Government. The importance of cushioning the impact of automation had been stressed by the Civil Service Commission, congressional committees, and the parent Treasury Department. Federal employee organizations had urged a variety of measures. General public concern over the employment effects of automation reinforced the IRS' interest in an orderly changeover.

Chapter 3. Planning Manpower Changes

Manpower planning steps included making explicit the IRS policy on job security, exploring manpower problems and developing methods for solving them, and keeping informed officials and employees who would be affected. This planning is described in this chapter. The personnel techniques that were used to administer these policies are discussed in the following chapter.

Manpower Policies

At an early date, the IRS announced to all employees that the agency's objective was to:

Avoid, if at all possible, reductions in force and involuntary transfers to other commuting areas and at the same time to place the maximum number of affected employees in productive jobs, thereby utilizing invaluable skills and experience.

The IRS also stated that travel and moving expenses would be paid to employees who accepted new jobs in a regional service center or elsewhere outside their commuting area.

These policies had been tested during the mid-1950's, when some of the clerical work in district offices was shifted to three mechanized area data centers. This work shift, which eliminated from 2,000 to 2,500 district jobs, was accomplished without involuntary separations.

Exploring Manpower Problems

The exploratory phase of manpower planning began in February 1960, shortly after the IRS invited proposals for the ADP equipment. Personnel staff members from the national office were assigned full-time responsibility for estimating the extent of the impact on employees, and problems that might be anticipated during the conversion period. The group was asked to develop procedures for eliminating jobs in units where the work was transferred to a regional service center. They were also charged with developing measures to minimize hardship on employees without causing serious disruption of continuing operations.

This phase of planning proceeded at the Atlanta region in several stages. First, the study group projected the tasks that would remain in the district office and the staffing patterns that would be required after the regional service center opened. From these projections, they identified positions to be eliminated or changed. The group spent several weeks in on-the-scene investigations of two district offices. They estimated the number of potential vacancies from attrition and new job opportunities in the regional service center. Working with individual employee records, they considered a variety of placement possibilities and training needs for each affected

worker. On the basis of experience at the two offices, the study group developed a detailed plan for identifying employee adjustment problems to guide officials in the other district offices.

The next step was to extend planning to all offices in the Atlanta region. Several months prior to the conversion the study group, together with regional and district officials, developed staffing projections for each office and identified jobs likely to be eliminated or changed in grade.

As the manpower implications became clarified, IRS officials realized that certain modifications in civil service procedures would be needed to facilitate the changeover. These officials undertook negotiations in Washington, D. C., with the Civil Service Commission to achieve more flexibility in applying civil service regulations. Regional Civil Service officials were kept continuously informed and actively participated in the conversion program. The resulting changes are described in chapter 4.

Informing Employees

The IRS decided at an early stage to keep all employees informed of the progress of the changeover and its implications for job security. Early communication was considered one means of achieving cooperation in the large-scale changes that were to take place. Thus, District Directors notified their employees as early as 12 to 18 months before any work would be shifted.

During 1961 and 1962, directors issued memoranda to all employees explaining the conversion progress. Articles were also published in newsletters and employee organization publications. Meetings with affected employees were held to discuss problems of the change. The information dealt mostly with career opportunities in ADP, training opportunities, and personnel policies to ease the impact on affected employees. In October 1961, after district staffing charts had been projected, the impact on specific jobs was explained to employees. It was also explained to employees that program changes and other unknown factors would undoubtedly result in later revisions of the staffing projections.

In addition to informing those directly affected, the IRS national office undertook, in a variety of ways, to keep all field employees informed concerning the personnel implications and the progress of the change. A 4-page periodic bulletin, ADP News, first issued in November 1961, described job opportunities in the ADP programs (especially at service centers), retraining of displaced employees, and progress of the installation in each region. (See appendix B.) A sound and color film, ADP and You, first shown in late 1961, portrayed new employment opportunities in the program. A 15-minute film strip, Let's Get Down to Brass Tacks, about the conversion's personnel impact and procedures to aid affected workers, was shown in all district offices of the Atlanta region.

Consulting Employee Organizations

Although formal collective bargaining in the Federal service had not been established, employee organizations were informed and consulted. In July 1961, IRS officials discussed the changeover and its implications with national officers of three employee organizations having IRS membership: the National Federation of Federal Employees (Ind.) (NFFE); the American Federation of Government Employees (AFGE); and the National Association of Internal Revenue Employees (NAIRE), the only active employee group in some of the districts.

At the regional and local levels, employee groups were also informed at an annual conference between regional management and employee representatives and by periodic district meetings. In the Atlanta district office, for example, regular quarterly management-employee conferences were held with NAIRE representatives. At these meetings, questions about the policies that the personnel officials had developed were raised and discussed by leading IRS officials. The conferences provided a means for informing employees and also a channel of communications from employees.

Chapter 4. Administering Manpower Policies

Managing the changeover involved major employee adjustments, including the transfer of affected employees to permanent jobs within the same office or in offices in other cities. This change had to be accomplished without serious disruption of essential IRS tax collection activities.

Table 3 shows data, on a fiscal year basis, relative to the changeover in the district offices of the Atlanta region. The reduction in employment in district offices was scheduled to take place gradually between January 1961 and July 1966. The groups directly affected were engaged in processing business and individual income taxes. Some district office activities such as public information and assistance and enforcement work were not directly affected.

Responsibility for administering the policies to protect job security was placed on key officials of district offices. To assist these officials, a personnel coordinator was appointed. The coordinator, who had many years of government personnel experience and graduate work in public administration, traveled extensively within the Atlanta region consulting with and advising managers in carrying out the policies. Her knowledge and experience contributed much to the solution of some complex personnel problems that arose.

Table 3. Atlanta region: Employment in affected units, by district office, fiscal years 1960-62 and projected, 1966

District office	Actual <u>1/</u>			Projected <u>2/</u>	Percent decline	
	1960	1961	1962	1966	1960-62	Projected 1962-66
All districts ..	1,045	1,000	811	581	22.4	28.4
Atlanta, Ga.	160	148	121	97	24.4	19.8
Birmingham, Ala. ..	125	119	90	64	28.0	28.9
Columbia, S. C. ...	87	84	75	54	13.8	28.0
Greensboro, N. C. .	201	197	144	110	28.4	23.6
Jackson, Miss.	73	71	62	39	15.1	37.1
Jacksonville, Fla.	240	230	194	138	19.2	28.9
Nashville, Tenn. ..	159	151	125	79	21.4	36.8

1/ Number of permanent employees in July. Excludes temporary employees.

2/ Number of permanent jobs projected for June 30, 1966 (as of July 1962)

Source: Internal Revenue Service.

Reassigning Displaced Employees

In reassigning displaced employees, the first step was to identify the jobs that would be eliminated by ADP, created in enforcement activities and in the service center, or vacated through reassignment, transfer, or retirement. Vacancies from all sources were to be used as opportunities for displaced employees.

The IRS relied heavily on encouraging employees in the affected office units to seek voluntarily the permanent positions that were opening up, particularly in the regional service center. The approach was to try to place in available job openings all individuals who must be reassigned, without using formal seniority and reduction-in-force procedures that are usually applicable when jobs are abolished. Major emphasis was placed in assigning each employee to a suitable productive job, at the same or better grade, if possible.

Since the transfer of employees was to be a personal, tailor-made procedure of matching employee and job, the personnel officials required a complete account of each individual's experience, education, qualification, retirement plans, and ability to relocate. Accordingly, a special placement data card for each employee in the affected work units was filled out from records, interviews, and questionnaires. (See appendix C.) During the interviews, officials counseled employees about their job security and the advisability of taking training needed for available jobs.

Office managers estimated the extent to which employment would be reduced by quits, deaths, and retirements. It was readily apparent that these sources would not take care of all employees in jobs that had to be eliminated. Transfer to jobs at the newly created regional service center and to district activities not directly affected by automation became the principal means of placement for displaced workers. For many, this involved retraining and/or relocation to another city.

IRS made efforts to find jobs for some displaced employees in two other Federal agencies--the BOASI and the Treasury Department's Bureau of Accounts. National officials of the two agencies agreed to cooperate in hiring IRS employees and directed their field offices in the Atlanta and Philadelphia regions accordingly. The BOASI and IRS have offices in many of the same cities.

Measures to Facilitate Placement

To facilitate placement of employees who demonstrated potentialities for certain positions but who lacked formal qualifications under civil service standards, the IRS obtained from the Civil Service Commission special authority to waive certain formal requirements. This procedure gave the IRS increased flexibility to reassign some displaced employees, particularly at the supervisory levels.

Some employees who did not fully meet normal CSC standards followed a personal development plan, arranged by supervisors, to improve their qualifications for their job. (A full account of the retraining is presented in chapter 7.) For example, a 36-year-old male administrative assistant in an affected unit was reassigned to a position as training officer. A college graduate with over 14 years' Federal Service, he was sent to a 2-week management development school and received on-the-job training.

Affected employees who requested transfer to the service center were given preference if these employees had a satisfactory work record and were recommended by their supervisors.

Early Retirement of Displaced Employees

Older employees with many years of service whose jobs were eliminated had the alternative of "discontinued service" retirement instead of transfer and reassignment. To be eligible for these benefits, employees must have had at least 25 years of service, or must be 50 years old or over and have 20 years of Federal Service. The annuity was reduced for employees under age 60. Potential beneficiaries in affected offices were advised of the eligibility requirements but, in keeping with Federal policy, employees were not forced to retire if they did not elect to do so.

The usefulness of "discontinued service" benefits in easing the impact appeared to depend on the employees' economic circumstances. For example, a 51-year-old supervisor with 22 years of Federal Service welcomed the opportunity to retire because her children had finished college and, as the family's secondary wage earner, her full-time salary was no longer essential. On the other hand, a 62-year-old bookkeeping-machine operator with 21 years of service who was already eligible for voluntary retirement preferred to continue work because her annuity would be inadequate.

Use of Temporary Employees

It was necessary to continue tax collection activities efficiently while experienced employees were being reassigned to permanent jobs before their work was shifted to the computer. Management had to find a way to replace these employees without jeopardizing the job security rights of other permanent employees.

One solution was to hire temporary employees for a period longer than that customarily allowed. The Civil Service Commission granted the IRS authority to hire temporary employees to do essential jobs for temporary periods which can be extended up to 3 years. Ordinarily, temporary appointments are limited to 1 year. Former IRS employees and retired workers are preferred, under arrangements with the Commission, so that training can be minimized. Employees given temporary appointments do not acquire seniority rights for separation purposes, but are entitled to vacation and sick leave.

Temporary employees were also placed in continuing activities where it was essential to reserve permanent job vacancies for permanent employees who would be displaced. They also filled continuing jobs in unaffected activities when the incumbents were temporarily reassigned to facilitate the changeover.

Between July 1960, near the beginning of the conversion, and July 1962, a total of 274 temporary appointments were made. In July 1962, a total of 177 permanent jobs were held by temporary employees. About 20 percent of these temporary appointments were to jobs outside the affected units, but were made to facilitate future placement of affected employees by saving positions until they could be released.

Use of Temporary Promotions

As supervisors and higher grade employees were transferred, some remaining permanent employees were assigned to higher grade duties until such jobs were eliminated. It was felt that these employees should receive higher pay but promoting them permanently would create problems in reassigning them later without jeopardizing the rights of other permanent employees. To avoid these problems, the IRS made promotions on a temporary basis. They thereby avoided increasing the number of higher grade permanent employees and, at the same time, compensated employees for the level of work being performed.

Restriction on Hiring

To increase the use of temporary employees, it was decided by regional officials to restrict permanent appointments. District officials were also urged to abolish positions scheduled for eventual elimination as they became vacant, or to reconstruct them by assigning the simpler tasks to temporary employees. A checklist for filling vacancies was issued to insure that all available alternatives were considered. (See appendix D.)

In July 1961, offices in the Atlanta region began to restrict permanent hiring for jobs which could be used directly or indirectly to place affected employees. For example, when a job became vacant for which no affected employees qualified, management encouraged an employee in an unaffected unit to transfer, thus opening a job for which an affected employee could qualify. The freeze, however, did not apply to jobs requiring scarce skills for stenographic, professional, and technical work.

Another procedure for reassigning displaced personnel without disrupting tax collection activities was temporary reassignment (or detail) of unaffected employees from permanent jobs to jobs scheduled to be abolished. Affected employees were also detailed to continuing jobs for training before transfer. The Civil Service Commission approved an extension of the usual 6-month detail limit to 1 year.

The Commission also approved the procedure of hiring new employees with qualifications in two fields of work--first in a job to be abolished and then in an unaffected job. The employee, when hired for the continuing job, agreed to an immediate detail to the surplus job for the duration of the job. Regular civil service rules provide that employees cannot be detailed until 90 days following initial competitive appointment.

Chapter 5. Impact on Employees

To understand the implications of the changeover for IRS employees, their personal characteristics were considered. Data on age, sex, education, seniority, and occupation of 1,074 district office employees in affected units were compiled from placement data cards which had been filled out during the early part of the changeover. Trends in occupational requirements were estimated from the staffing patterns projected by the planning staff, and the extent of reassignment and attrition over the first 2 years was determined.

Age and Sex of Affected Employees

Of the 1,074 employees affected, 893 or 83 percent were women. More than 50 percent of the affected employees were 45 years of age or over. (See table 4 and appendix A, table 2.) Many of the older women had been hired during World War II to handle expanded tax collection activities.

Table 4. Atlanta region: Age of affected employees, by sex 1/

Age group	All employees		Men		Women	
	Number	Percent	Number	Percent	Number	Percent
All ages	1,074	100.0	181	100.0	893	100.0
Under 25 years ...	41	3.8	6	3.3	35	3.9
25-44 years	445	41.4	106	58.6	339	38.0
45-64 years	543	50.6	68	37.6	475	53.2
65 years and over.	45	4.2	1	.6	44	4.9

1/ Age data as of January 1962.

Note: Because of rounding, sums of individual items may not equal totals.

Educational Level

The educational level of the affected group was relatively high, as shown in table 5. Only 8 percent of the group had not finished high school, although this proportion was significantly higher among employees 45 and over. More than 25 percent of the group had some college education.

Table 5. Atlanta region: Educational level of affected employees, by age group

Highest educational level attained	All employees		Employees age 45 and over		Employees under age 45	
	Number	Percent	Number	Percent	Number	Percent
All levels	1,074	100.0	587	100.0	487	100.0
Less than high school graduate	87	8.1	74	12.6	13	2.7
High school graduate	443	41.2	184	31.3	259	53.2
Business school graduate ...	254	23.6	149	25.4	105	21.6
College nongraduate	214	19.9	138	23.5	76	15.6
College graduate	68	6.3	37	6.3	31	6.2
College postgraduate	8	.7	5	.9	3	.6

Note: Because of rounding, sums of individual items may not equal totals.

Federal Service and Retirement Eligibility

Employment in the Federal Government constituted the major job experience of employees in the affected group. Table 6 shows the years of Federal Government service, by age group. The average (median) years of service of employees in the group was about 15. About 20 percent had 20 years or more of Federal Government service.

Under the eligibility requirements of the civil service retirement system, 100 employees (9.3 percent of the total) had enough service and age to be eligible for retirement annuities. (See appendix A, table 3.) They included employees who had at least 30 years' service at age 60 (or age 55 at reduced annuity), or at least 5 years' service at age 62. Retirement is mandatory at age 70 with 15 or more years service. Of those eligible, 60 had less than 20 years of service and may wish to work for 5-10 more years to increase their retirement benefits.

The "discontinued service" retirement provision (described earlier) allowed employees to receive reduced annuities after 20 years of service at age 50 or 25 years of service, regardless of age, provided their jobs were abolished. A total of 118 employees (in addition to the 100 described above) were eligible under this provision (appendix A, table 3).

Table 6. Atlanta region: Years of Federal Government Service of affected employees, by age group 1/

Age group	All groups (percent)	Years of Federal Government Service							
		Less than 10		10-19		20-29		30 and over	
		Employ- ees	Per- cent	Employ- ees	Per- cent	Employ- ees	Per- cent	Employ- ees	Per- cent
All groups	100.0	267	24.9	584	54.4	212	19.7	11	1.0
Under 25 years	100.0	41	100.0	0	----	0	----	0	----
25-44 years	100.0	177	39.8	235	52.8	33	7.4	0	----
45-64 years	100.0	48	8.8	322	59.3	166	30.6	7	1.3
65 years and over ...	100.0	1	2.2	27	60.0	13	28.9	4	8.9

1/ Includes military service. Seniority as of January 1962.

Occupational Background

Table 7 presents an occupational distribution of affected employees by age and sex; occupational groups listed in this table are described in appendix A, table 4. Over half of the employees are included in three occupational groups. Of the 1,074 employees, the largest proportion were in examining and statistical work. Administrative and supervisory occupations included 19 percent of the employees.

Table 7. Atlanta region: Age and sex of affected employees, by occupational group 1/

Occupational groups	All employees		Age		Sex	
			45 and over	Under 45	Women	Men
	Number	Percent	Percent of total	Percent of total	Percent of total	Percent of total
All groups	1,074	100.0	54.8	45.2	83.1	16.9
Administrative	43	4.0	62.8	37.2	7.0	93.0
Supervisory	156	14.5	51.3	48.7	67.3	32.7
Public information and assistance	50	4.7	64.0	36.0	80.0	20.0
Correspondence	91	8.5	70.3	29.7	96.7	3.3
Posting, checking, and maintaining records	166	15.5	56.6	43.4	95.2	4.8
Examining and statistical..	244	22.7	62.8	37.2	89.3	10.7
Stenographic and secretarial	67	6.2	31.3	68.7	100.0	----
Keyboard and other machine operations	103	9.6	31.1	68.9	88.3	11.7
Sorting, routing, classifying, and filing ..	154	14.3	55.2	44.8	79.9	20.1

1/ Positions were classified in one occupational group on the basis of principal duties. See appendix A-4 for definitions. Age data as of January 1962.

Note: Because of rounding, sums of individual items may not equal totals.

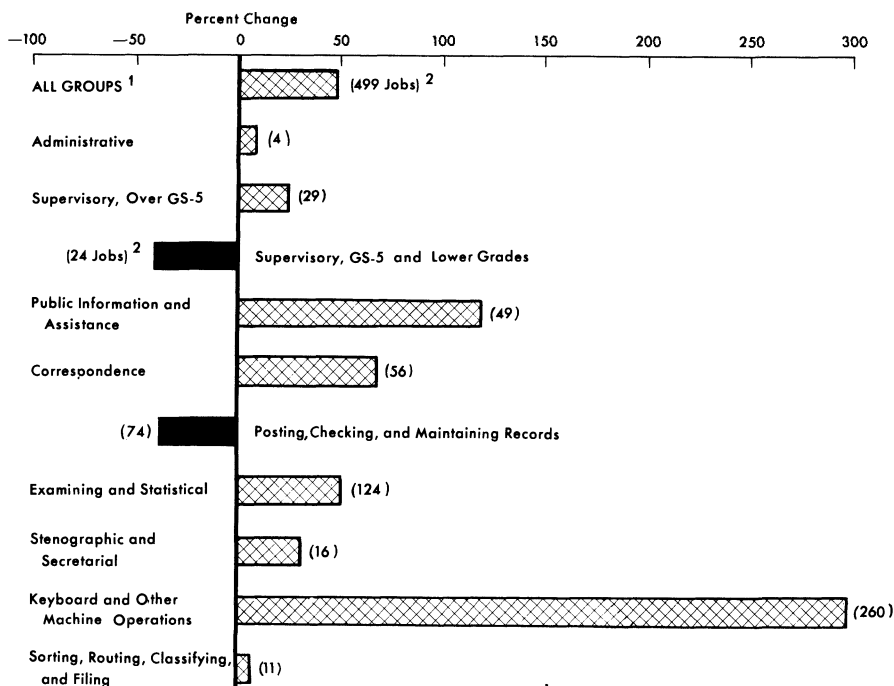
The majority of administrative jobs and about a third of the supervisory positions were held by men. Stenographic and secretarial positions were staffed completely by women.

All occupational groups but two were composed primarily of older workers. Most stenographic, secretarial, keyboard and other machine jobs were filled by younger employees.

Projected Changes in Employment and Occupational Requirements

According to tentative IRS projections of occupational requirements, the new system using automatic data processing will result in significant changes in employment and occupational structure. (See chart 2.) Although it was expected that 479 jobs in affected units of district offices probably would be eliminated during 1960-66, over 900 new full-time jobs in the Atlanta Service Center are planned by 1966. If projections are realized, this will result in a net employment gain of more than 40 percent in affected units and the service center combined. More than half the employees in the service center will process documents and perform other duties similar to those previously performed in district offices; the remainder will consist primarily of card punch operators, ADP personnel and administrative staff.

Chart 2. Atlanta region: Projected changes in occupational groups in affected units and service center, 1960-66



¹ Includes 48 new ADP jobs at service center.

² Increase or decrease in number of jobs.

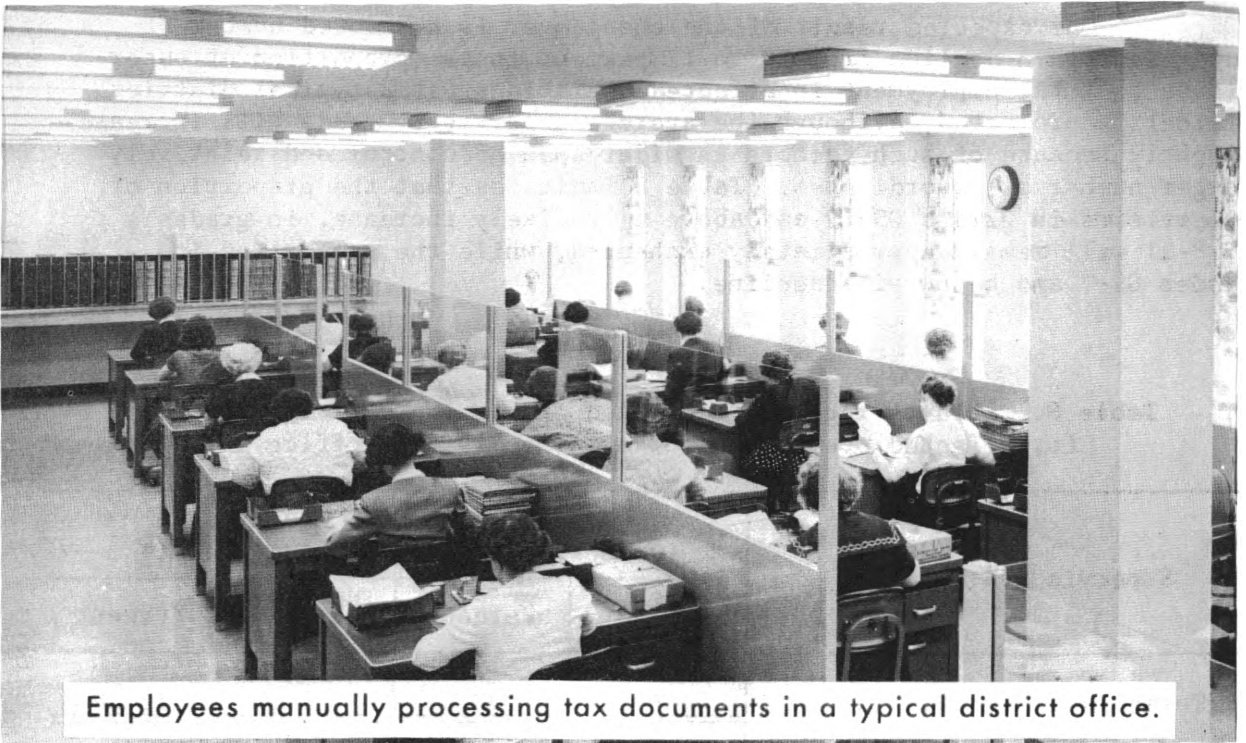
This larger work force in Atlanta will be able to perform a much larger workload than was accomplished manually. For example, all tax supporting documents, such as W-2 Forms, may be transcribed to magnetic tape in Atlanta and matched against information in the master file at Martinsburg. Previously, only a small sample of these documents could be checked. Preparation of such material for ADP requires personnel to check and code documents carefully and precisely and to prepare punchcards. Centralization of the keypunch and other data processing functions in the Atlanta Service Center was considered essential for control and to assure high quality output.

Expanding Occupations. The category of jobs expected to grow fastest is keyboard and other machine operators (including typists, card punch operators, and calculating machine and other office equipment operators). This group will likely grow by nearly 300 percent by 1966 and its relative importance will be increased sharply, primarily because of the need for large numbers of card punch operators at the Atlanta Regional Service Center to transcribe data for computers. (See chart 2 and appendix A, tables 4 and 5.) Card punch jobs were not needed before ADP. The number of machine operators in the district offices will be reduced as work shifts to the service center.

Three other occupational groups expected to increase relatively more than total office employment between 1960 and 1966 are: public information and assistance, correspondence, and examining and statistical. Groups that are expected to increase less than total office employment are: Higher grade supervisory, stenographic and secretarial, administrative, and sorting, routing, classifying, and filing.

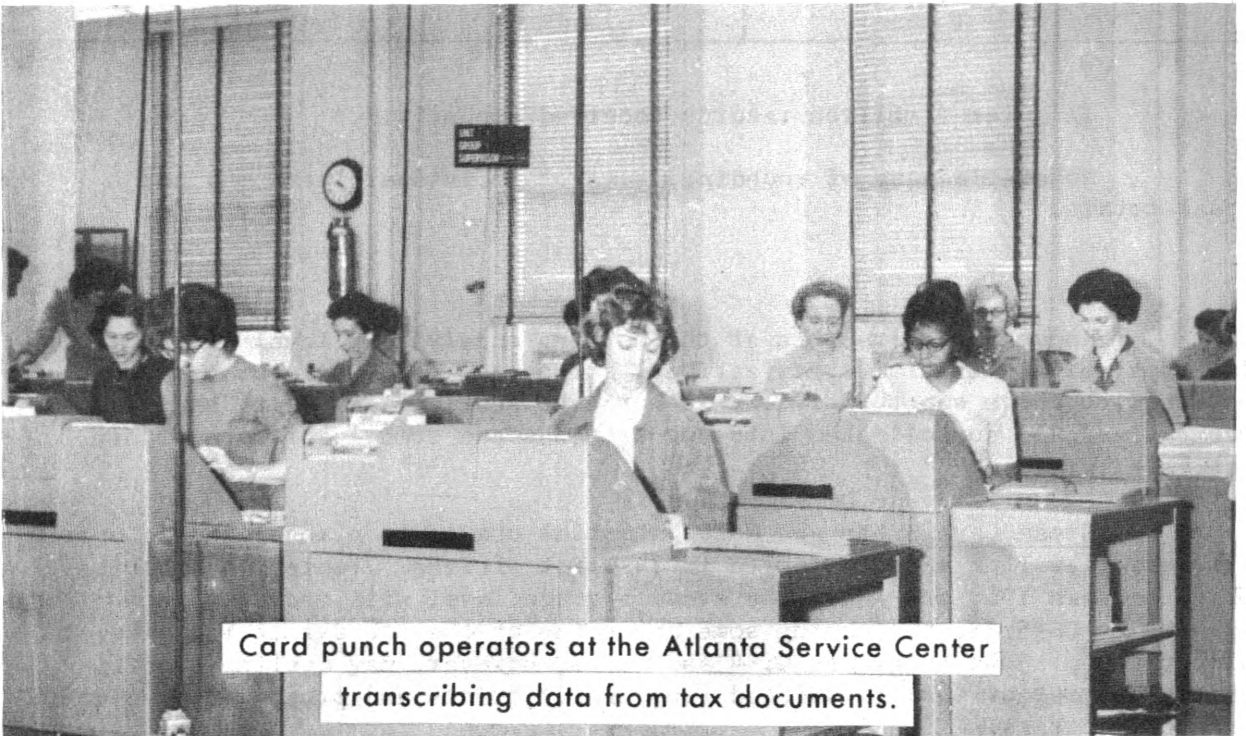
Many occupations in the Atlanta Regional Service Center will be similar to those formerly found in the district offices. Tax examiners, for example, will comprise up to 28 percent of the service center staff. The ADP jobs at the service center will be new in the Atlanta region, but only 5 percent of the projected service center work force for 1966 will be classified as ADP occupations (jobs directly concerned with planning, programing, and operating the system).

Declining Occupations. The number of lower grade supervisory jobs and jobs related to posting, checking, and maintaining records, even when considering those established at the service center, will be significantly reduced. The greatest reduction will be in jobs such as posting, since nearly all of this work will be programed on computers. About 60 percent of the 186 jobs involving posting, checking, and maintaining records will be transferred to the service center from the districts and the remaining jobs will be abolished. Appendix A, table 5 shows two occupational groups that will be virtually eliminated in affected district units, although it is expected that similar jobs will be needed in the service center. Some work in these groups may remain in the districts, but it will be performed by employees whose primary duties are classified in other occupational groups.



Employees manually processing tax documents in a typical district office.

Courtesy of Internal Revenue Service



Card punch operators at the Atlanta Service Center transcribing data from tax documents.

Courtesy of Internal Revenue Service

One expected result of the changeover is a reduced number of supervisors. A decline from 18 to 12 percent in the proportion of supervisors to total employment in affected operations (at a typical district office) is projected, although the average supervisory grade will increase slightly because of such factors as wider span of control and relatively larger number of subordinates. Table 8 indicates that the proportion of supervisors in grades GS-12 and above will likely increase, in grades GS 8-11 will remain approximately unchanged, while the proportion in grades GS-7 and below will decline.

Table 8. Atlanta region: Projected change in supervisory jobs for affected operations for a large district office 1/

Supervisory level	Actual (October 1960)		Projected (June 1966)	
	Number of jobs	Percent	Number of jobs	Percent
Total	44	100.0	16	100.0
Upper (GS-12 and above)	5	11.4	3	18.8
Middle (GS-8 to 11)	16	36.4	6	37.5
Lower (GS-7 and below)	23	52.3	7	43.8

1/ Over 1 million returns received annually.

Note: Because of rounding, sums of individual items may not equal totals.

Reduced requirements at the working supervisory level are partially due to simplification of organizational structure. The three-branch organization with three supervisory levels (branch, section, and unit) has been reorganized and consolidated into two branches and some lower supervisory levels eliminated.

Grade Level Change. No substantial change is planned in the overall grade level of affected units in district offices. Table 9 indicates that, between 1960 and 1966, the average grade level will increase from GS-5.01 to GS-5.33, indicating some upgrading of the job structure. The proportion of jobs in grades GS-4 and below, however, may decline significantly as routine work is shifted from the districts and programmed on electronic computers.

Table 9. Atlanta region: Average grade and distribution of jobs by grade, affected district units and Atlanta Service Center, before and after ADP

Grade	Affected district units		Affected district units and service center after ADP <u>2/</u>				
	Before ADP <u>1/</u>	After ADP <u>2/</u>					
Average grade <u>3/</u>	GS-5.01	GS-5.33	GS-5.30				
All grades ...	Distribution of jobs, by grade						
	Number	Percent	Number	Percent	Number	Percent	
	1,060	100.0	581	100.0	1,559	100.0	
	GS-14 and over ..	7	.7	7	1.2	14	.9
	GS-11 to 13	43	4.1	21	3.6	85	5.5
	GS-8 to 10	73	6.9	35	6.0	70	5.1
	GS-5 to 7	366	34.5	261	44.9	683	43.8
GS-4 and under ..	571	53.9	257	44.2	698	44.8	

1/ Grade structure, October 1, 1960.

2/ Projected grade structure for fiscal year 1966, as of August 1962.

3/ The average grade was determined by adding the numerical grade assigned to each job in the 1960 and 1966 staffing patterns, and dividing these sums by the total number of positions. (For example, two GS-8 positions and two GS-9 positions would yield an average grade of GS-8.50.)

Note: Because of rounding, sums of individual items may not equal totals.

The average grade level projected for affected units of district offices and the service center combined is grade GS-5.30. Although the average grade of ADP occupations in the Atlanta Service Center is relatively high (GS-8.4), these occupations comprise only 5 percent of the total service center staff. They are offset by the large number of relatively routine jobs such as card punch operators (about 30 percent of all jobs), the bulk of which are grade GS-3.

Impact at Midconversion

Between July 1960 and July 1962, 315 employees, or one-fourth of the 1,254 individuals employed in affected district units at some time during this period, were reassigned and 128 employees (10 percent) quit, retired, or died. (See table 10.) During this same time, however, 209 new permanent employees were hired. Net employment declined by 22 percent--from 1,045 in July 1960 to 811 in July 1962. Most of the new permanent employees were hired during the first year, before Atlanta regional officials received Civil Service Commission authority to fill permanent jobs with temporary employees. Many new appointments were in occupations such as clerk-stenographer, for which displaced employees did not qualify, and in jobs at lower grades than the displaced employees. Some men were appointed to file clerk jobs that required heavy lifting.

Of the 315 employees who transferred out of the affected units, 202 employees or about 64 percent were reassigned within their same district (State), generally within the same commuting area. Of these, 177 employees or 88 percent were reassigned to the Audit Division and the Delinquent Accounts and Returns Branch which perform enforcement activities. About half of this group transferred into technical and semitechnical occupations, such as interviewer, reviewer, and audit technicians. Over 30 percent went into clerical, stenographic, and typist jobs and the remainder to semiprofessional or administrative jobs. The remaining group (113 or 36 percent) transferred to other IRS units or to other Federal agencies. A majority were reassigned to the Atlanta Service Center, generally in technical jobs as tax examiners and accounting technicians.

Of the 315 reassigned employees, 90 relocated in another city. Two transferred to Washington, D.C. All the other moves were less than 500 miles. About 40 percent of the employees moved to other locations within their States. The others moved to Atlanta, generally from 200 to 400 miles away. Many of these moves included promotion or were to jobs with promotional opportunities.

Attrition provided 128 vacancies, only a fraction of those needed. During the 2-year period, 74 employees or 6 percent of the original group quit, 4 percent retired, and three employees died. Information on the reasons for quitting was not available.

Table 10. Atlanta region: Progress of employment changeover in affected units of district offices, July 1960 to July 1962

Employment and type of action	Permanent employees	
	Number	Percent
Total employed at some time, July 1960-July 1962	<u>1/</u> 1,254	100.0
Employment, July 1960	1,045	83.3
New hires, July 1960-July 1962	<u>2/</u> 209	16.7
Employment separations	443	35.3
Transfers	315	25.1
Within IRS district	202	16.1
To Atlanta Service Center	81	6.5
Elsewhere in IRS	11	.9
To other Federal agencies	21	1.7
Attrition	128	10.2
Quits	74	5.9
Retirement	51	4.1
Deaths	3	.2
Employment, July 1962	811	64.7

1/ In addition, there were 144 temporary employees in July 1960 and 146 in July 1962.

2/ Includes permanent employees hired to maintain essential operations before authority was granted to use temporary employees. Most appointments were to clerk-stenographer and other jobs for which affected employees could not qualify. Some men were hired for file clerk jobs requiring heavy lifting.

Note: Because of rounding, sums of individual percentages may not equal totals.

Chapter 6. Staffing ADP Positions

A major step in introducing ADP is the recruitment and selection of employees for positions in management, planning, programing, and operating computers. In the IRS, these jobs are located in three cities. Eventually, they will be located in additional cities.

Number and Location of ADP Positions

A total of 261 persons were employed in ADP positions as of April 1962. This included only those in the eight occupational categories related to the management, programing, and operation of the system (table 11). Card punch operators, tax examiners, and other clerical employees who prepare data for computers were excluded. Systems analysts and programers comprised more than half of the total. Those concerned with operating the equipment only comprised about 8 percent. The distribution of ADP jobs, by grade, is shown in appendix A, table 6.

Only 32 or 12 percent of these positions were in the Atlanta region where the impact was first felt. The bulk--192 or 74 percent--were in the Washington national office. These comprised most of the administrative, analysis, and programing positions. The National Computer Center at Martinsburg, W. Va., employed only 37 in ADP positions, as of April 1962, mostly in operating jobs.

Table 11. ADP employment, by occupation and location, as of April 1962

Occupation	Total employment	Washington national office	Martinsburg Computer Center	Atlanta Service Center
Total ADP employment	261	192	37	32
Administrators and managers ..	47	34	6	7
Management analysts	30	22	0	8
Systems analysts	69	64	3	2
Programers	75	72	0	3
Schedulers and controlers	9	0	7	2
Console operators	18	0	13	5
Peripheral equipment operators	3	0	0	3
Tape librarians	10	0	8	2

Recruitment and Selection

The general policy of the IRS was to select employees from within the Service for ADP positions, in order to use skills and experience from different program areas. Employees were recruited from other Government agencies and private industry only when qualified applicants were not available from within the Service.

The recruitment of programers was directed from Washington and undertaken in IRS offices throughout the country. (See appendix E for example of recruitment announcement.) Employees were generally recruited as programer trainees (usually GS-7 and 9 levels) and had opportunities to advance to systems analyst and higher level managerial positions. Initially, a few employees were recruited directly as systems analysts.

The selection procedure involved a series of steps directed by the national office. Candidates in programer trainee positions were solicited from among all IRS employees. Applicants were first required to pass the Federal Service Entrance Examination and a programer aptitude test, administered in the district offices. Next, supervisors evaluated candidates on 14 aptitude and skill elements. Among the general abilities sought, good memory, accuracy, reasoning and arithmetical ability, and capacity to follow complex instructions were considered highly important. (See appendixes E and F.)

Employees who successfully passed this testing and evaluation program were next interviewed by a panel. Employees from affected units were given priority for programer trainee jobs, provided they passed the written tests. Finally, an overall rating based on test scores and ratings, education, experience, and interviews was given. Those finally selected by ADP management were detailed on a trial basis to the national office for 8-1/2 weeks of programer training. Final selections were made upon completion of the training.

Officials report that relatively few programers so far have left the IRS (after training) for employment elsewhere. Trainees agree to remain employed with the IRS for a minimum of 6 months. Promotion opportunities in this occupation are considered excellent.

Staffing the Martinsburg Center

The original plan was to fill as many positions as possible with IRS employees in affected positions. A recruitment drive was conducted within the IRS to fill both technical and clerical positions. An adequate number of applications were received for the clerical area, but only a few applied or were qualified for the technical computer positions (Console operator GS-5-11).

At first, all console operator applicants were required to pass the Federal Service Entrance Examination and a programmer aptitude test, and to receive a supervisor's evaluation of satisfactory. It was later decided that both tests were measuring the same aptitudes and the programmer aptitude test was eliminated. The candidates who qualified were detailed to Martinsburg for 2 weeks of observation before selections were made. It was necessary to use Civil Service registers and outside recruitment sources to supplement the inservice recruitment for console operators.

Experience of the appropriate level of difficulty was required for the tape librarians (GS-5-8) and scheduling clerks (GS-5). No written tests were required.

Staffing the Atlanta Service Center

Applicants for ADP and related jobs at the Atlanta Center were solicited from all district offices within the region and elsewhere within the IRS. Top regional ADP officials visited district offices to interview qualified employees. Those considered best qualified for higher grade positions were invited to visit the center at government expense for panel interviews.

In recruiting systems and management analysts, a small number of experienced IRS employees were transferred to these positions, some at their same grade and others with one-grade promotions under a Civil Service Commission training agreement. Formal qualifications were waived. After training, some were assigned to administrative and managerial positions. In making selections for systems analyst trainee jobs, all district employees, grade GS-11 and above, were considered and some were appointed to grade GS-12 and 13 positions.

Source of ADP Personnel

About 4 out of 5 employees initially selected for ADP positions were IRS employees. (See table 12.) Only a small number of jobs, however, were filled by affected employees from district offices. Apparently, few directly affected employees had the background or desire to relocate and retrain for ADP positions. Employees from outside the Government constituted only a small portion.

Accepting an ADP position involved relocating for many IRS employees. A large proportion of the programmers were former revenue agents or revenue officers from field stations who transferred to the national office. Many of these employees received promotions upon transfer. They received travel expenses and moving allowances upon transfer from a different locality.

Table 12. Source of ADP employees, by occupational group

Occupational group	Sources of employees				
	All sources	Within IRS <u>1/</u>		Another Federal Government agency	Outside Federal Government
		Affected field units	Elsewhere		
Total employment: Number ..	261	22	195	31	13
Percent .	100.0	8.4	74.7	11.9	5.0
Administrators and managers	47	4	30	9	4
Management analysts	30	3	25	1	1
Systems analysts	69	4	53	9	3
Programers	75	4	69	1	1
Schedulers and controlers ..	9	1	4	2	2
Console operators	18	2	8	7	1
Peripheral equipment operators	3	0	1	1	1
Tape librarians	10	4	5	1	0

1/ All IRS regions.

Characteristics of ADP Employees

To understand the criteria used for selecting ADP personnel, the characteristics of employees in ADP positions are contrasted with those for employees in the affected units.

Age and Sex. Most new ADP jobs were filled by young men. (See table 13.) Four out of five were under age 45. About a third of the administrators and managers, however, and nearly half of the management analysts were age 45 and over. Employees in affected district units were mostly women aged 45 or over.

Table 13. Age and sex of ADP employees, by occupational group ^{1/}

Occupational group	All employees		Percent of all employees in occupation			
	Number	Percent	By age		By sex	
			45 and over	Under 45	Women	Men
All groups	261	100.0	19.9	80.1	5.0	95.0
Administrators and managers.	47	18.0	34.0	66.0	2.1	97.9
Management analysts	30	11.5	46.7	53.3	10.0	90.0
Systems analysts	69	26.4	27.5	72.5	4.3	95.7
Programers	75	28.7	1.3	98.7	1.3	98.7
Schedulers and controlers ..	9	3.4	----	100.0	11.1	88.9
Console operators	18	6.9	----	100.0	----	100.0
Peripheral equipment operators	3	1.1	----	100.0	----	100.0
Tape librarians	10	3.8	20.0	80.0	40.0	60.0

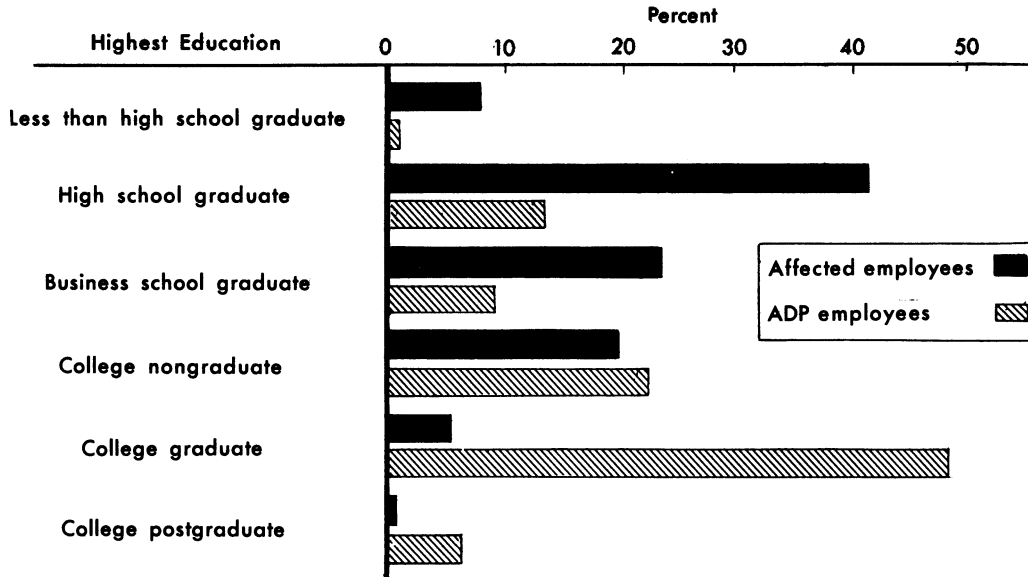
^{1/} Age data as of January 1962.

Note: Because of rounding, sums of individual items may not equal totals.

Education. Almost all ADP employees had completed high school and a majority were college graduates. On the other hand, only 7 percent of the affected district employees had finished college. (See chart 3.)

Seniority. In general, ADP employees had fewer years of service in the IRS than employees in affected district units. (See appendix A, table 7.) About 67 percent of the ADP employees had less than 10 years of IRS service, while only 40 percent of the affected group had less than 10 years of service. The higher percentage of employees with over 20 years of service in ADP jobs, however, was mostly in the administrator and manager categories.

Chart 3. Atlanta region: Educational level of employees in affected units and in ADP



Occupational Background. Most of the employees in ADP jobs were recruited from technical and supervisory IRS occupations. (See table 14.) About 79 percent of the programmers and 45 percent of the systems analysts were formerly revenue agents and revenue officers. A few were former supervisors, some from the affected units. Most ADP equipment operators and schedulers were recruited from technical and clerical occupations. Fifty percent of the console operators had been operators of some type of office machine.

Table 14. Occupational background of ADP employees, by selected ADP occupations

Prior occupation	All employees		Selected ADP occupations					
	Number	Percent	Systems analysts	Programers	Schedulers and controllers	Console operators	Peripheral equipment operators	Tape librarians
All prior occupations ..	<u>1/</u> 184	100.0	69	75	9	18	3	10
Revenue agents	45	24.5	20	21	0	1	0	3
Revenue officers	49	26.6	10	38	0	0	0	1
Supervisors	21	11.4	10	7	0	0	2	2
Analysts	19	10.3	15	1	2	1	0	0
Programers	2	1.1	0	1	1	0	0	0
Personnel specialists	7	3.8	4	0	2	1	0	0
Technicians (clerical)	2	1.1	0	0	2	0	0	0
Equipment operators	10	5.4	0	0	1	9	0	0
Office auditors	12	6.5	1	4	0	4	1	2
Clerks	1	.5	0	0	1	0	0	0
Student or Armed Forces ...	3	1.6	2	1	0	0	0	0
Other	13	7.1	7	2	0	2	0	2

1/ Excludes administrators, managers, and management analysts.

Chapter 7. Training and Retraining Employees

The extensive retraining and training for new ADP jobs constituted an important step in preparing employees for the changeover. This training was the primary means of obtaining skilled personnel needed to make the ADP system effective. More important perhaps for the employees was the opportunity that retraining programs provided to improve knowledge and skill for a greater degree of lasting job security at better pay. Retraining also appeared to be contributing to employee acceptance of the change.

Employee Training Programs

IRS experience in former training programs proved useful in organizing the training that was necessary for the conversion. Changing tax laws have necessitated major retraining efforts on a continuing basis and development of a professional training staff. Retraining employees to operate ADP equipment in the three mechanized area data centers also provided valuable background. In addition, formal basic training programs for recruits had already been developed for practically every major occupation. These basic courses are available for employees reassigned to such positions.

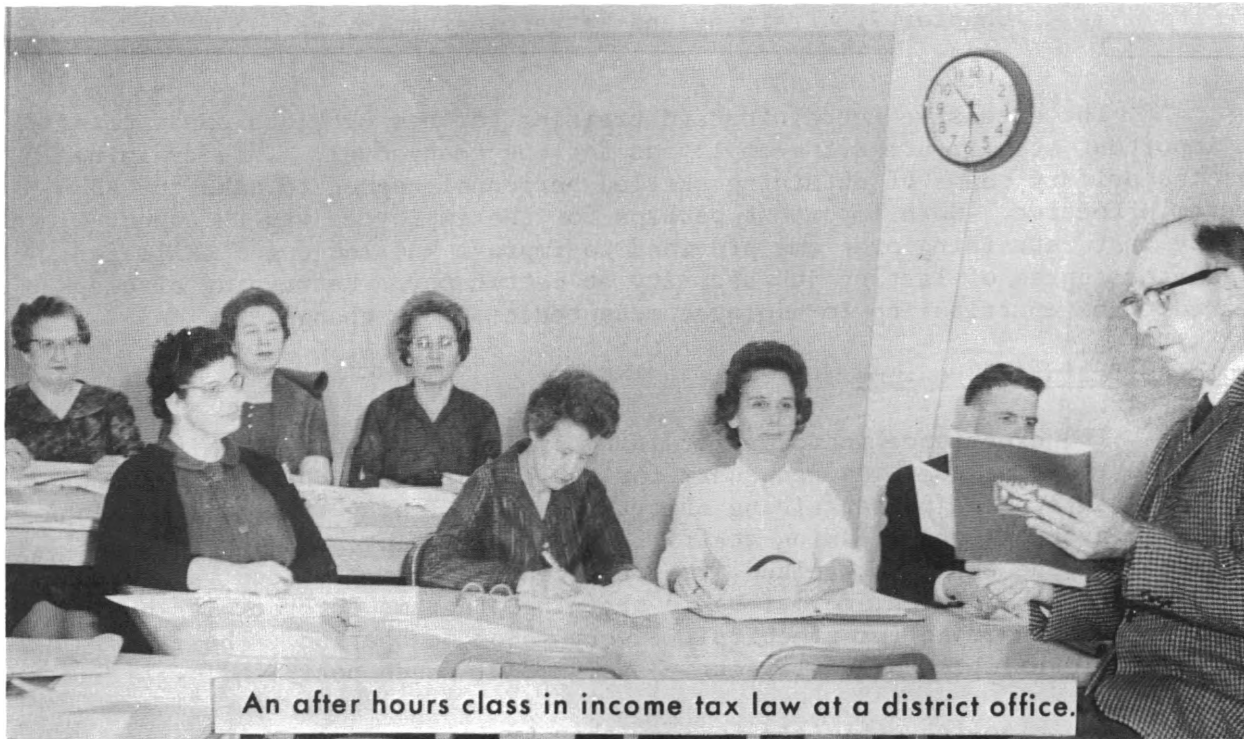
The planning officials foresaw that training and retraining activities would have to be expanded substantially with the introduction of new ADP equipment. When training needs of the conversion were ascertained with some accuracy, a three-man group in the Washington headquarters was assigned to work full time in planning and coordinating training programs. A special training staff was also established at the Atlanta center.

Retraining Affected Employees

Retraining employees for new jobs was carried out in two phases. The first phase, given on a voluntary basis and not specifically related to a particular position, was designed to provide skills in accounting, income tax law, typing and shorthand. This training was given by correspondence and in classes after working hours. Although intended to increase employability in the IRS, the skills acquired could also be useful outside the Government.

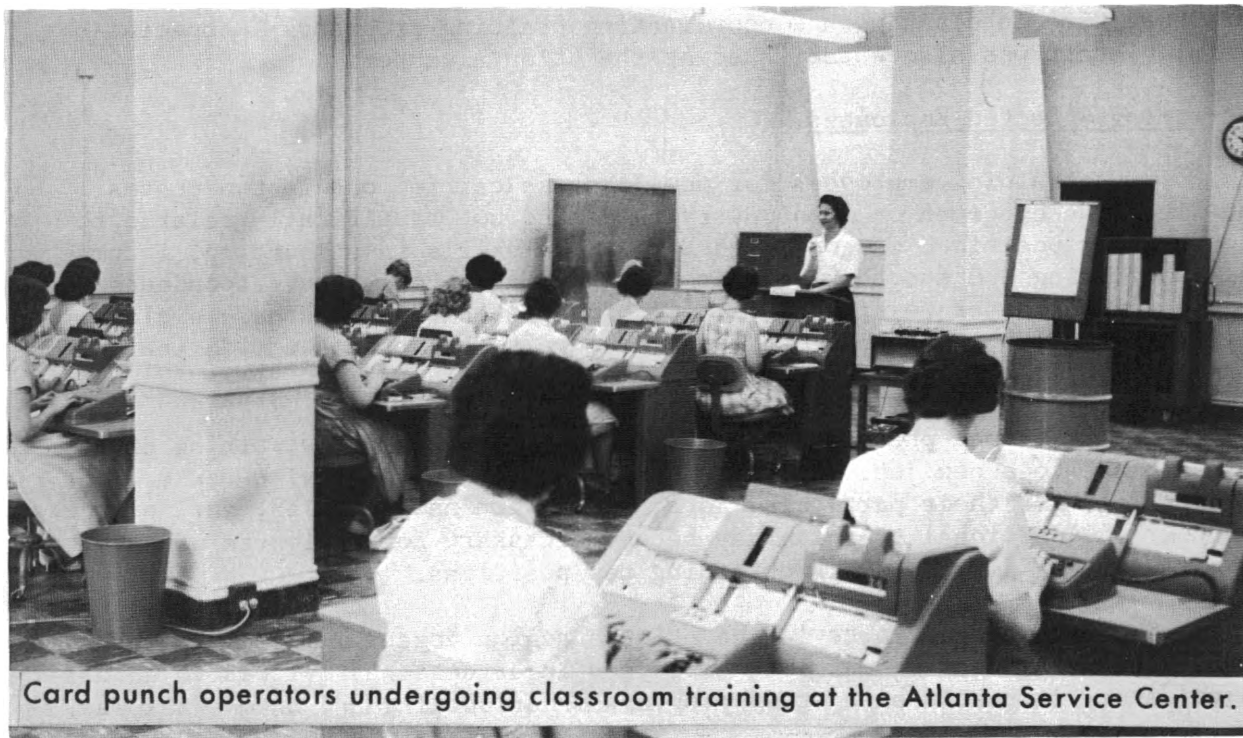
The second phase provided specialized occupational training after reassignment to a new job. Employees who transferred to service center jobs were trained for their particular jobs, along with new recruits, during working hours. Additional training may become necessary for employees who prove to have extreme difficulty in obtaining new positions.

Retraining efforts in the Atlanta region began in mid-1960, when local officials began encouraging employees in affected activities to enroll in voluntary correspondence study programs in accounting and income tax law.



An after hours class in income tax law at a district office.

Courtesy of Internal Revenue Service



Card punch operators undergoing classroom training at the Atlanta Service Center.

Courtesy of Internal Revenue Service

These officials soon realized that classroom instruction, using the correspondence texts and tests, would be more effective in preparing employees for reassignment to other jobs. By late 1961, classes in accounting or income tax law, or both, were being conducted in all seven district offices.

Between July 1960 and July 1962, one district office reported that 50 affected employees had completed the income tax law course by attending classes after working hours; in another district office, 21 workers completed the same course by correspondence. During the same period, one office trained 91 affected employees in various accounting courses.

Selecting Trainees. Classes in most district offices were open to all employees. Employees directly affected by the changeover, however, were encouraged, through personal interviews, to enroll in courses most likely to result in job placement. Those already enrolled in correspondence courses were advised to join the classroom sessions. In one large district office, the response by employees to the classes was so favorable that enrollment had to be limited to affected employees in grades most difficult to place until additional courses could be scheduled.

Content of Training. Training classes were based on IRS home study correspondence materials. This program includes five progressively advanced courses in accounting and one longer course in income tax law. Only the two most elementary accounting courses were given by classroom instruction, and those employees who demonstrated special ability were encouraged to take the more advanced courses by correspondence.

Contents and length of the courses given in the Atlanta region are described in table 15. Successful completion of five accounting courses helps qualify an affected employee for a field (revenue) agent job. Knowledge of income tax law is required for taxpayer information and assistance work, another growing activity.

Typing and shorthand training was given in only a few districts. It was not offered more widely because secretarial grades were generally lower than grades of affected employees. Although difficulties arose in recruiting instructors and arranging satisfactory training time, several districts conducted this training. In cities where educational institutions offered free or nominal cost adult evening training in typing and shorthand, local officials urged some affected employees to attend to increase their employability. One district arranged for refresher training after-hours at a local high school, and the IRS paid the enrollment fees. An after-hours course in office skills was established in one large office and was under consideration in others.

Table 15. Contents and length of retraining courses 1/

Name of course	Contents of course	Length <u>2/</u>
Fundamental accounting	Deals primarily with preparation of financial statements rather than bookkeeping. Includes recent developments in basic theory and relationship between accounting and income taxation.	14 lessons.
Constructive accounting	Presents accounting principles and practices as they relate to tax cases.	14 lessons.
Corporation accounting	Study of accounting phases related to preparation and examination of corporation records. Presents intermediate and advanced principles.	14 lessons.
Special review accounting ..	Provides a review of fundamental, constructive, and corporation accounting procedures.	14 lessons.
Analytical accounting	Deals with analysis of transactions into their double entry elements; of accounts to determine if content and values are in accordance with generally accepted principles; and of statements to ascertain earning power and financial position.	14 lessons.
Individual income tax law, 1954 code	Covers tax liability of individuals under the 1954 Internal Revenue Code and amendments. References are made to pertinent IRS rulings and court decisions.	20 lessons.

1/ One or more courses had been offered in each district office, Atlanta region, by July 1962.

2/ Generally a 2-hour classroom session was devoted to each lesson.

Selecting Instructors. Instructors were selected from local IRS experts in accounting and tax law (typically revenue agents) who volunteered to teach. Employees with teaching experience or with special IRS instructor training were preferred. Those selected were given an IRS training course in "Principles and Methods of Instruction" by the regional training officer; this course consisted of 40 hours of classroom instruction and practice teaching.

Initially, all districts compensated their instructors with time off in return for time spent teaching. Later, payment of instructors' travel expenses and overtime pay (one and a half times regular salary up to grade GS-9) was authorized because compensatory time off was not feasible in some offices due to the heavy workload.

Training Temporary Employees. Temporary employees who were assigned to the more routine jobs required limited formal training. They generally received from 2 to 4 hours of formal training and some on-the-job instruction by working supervisors. Where the unit supervisor had already been permanently reassigned, temporary employees were trained by an employee who had just been temporarily promoted to the supervisory job. To reduce the amount of training, some district offices rehired former employees and retirees on a temporary basis.

Temporary Reassignments for Training. Temporary reassignments were used frequently to supplement classroom training and provide affected employees with on-the-job experience useful in qualifying them for positions scheduled to remain in district offices. Such assignments were also used to evaluate the employees' potentialities in a new kind of work.

Training for ADP Jobs

An extensive training program was set up for persons selected for ADP positions--especially systems analysts, administrators, and programmers. These programs are summarized in table 16.

Systems Analysts. The training program for systems analysts consisted of a combination of formal and informal courses amounting to 17 weeks: 10 weeks of full-time classroom training, 4 weeks of observation of processing operations in a district office and a service center, and 3 weeks' on-the-job training in the Statistics Division at Washington. The 10 weeks' classroom training included 3 weeks at the George Washington University in Washington to study systems orientation and analysis, 1 week in the national office to study operations analysis and methods improvement, and 6 weeks at the national office or a data processing center to study ADP programming.

Table 16. Training programs for ADP occupations

Job title	Description of training	Length of training
Systems analyst <u>1</u> / ...	System orientation and analysis, at a Washington, D. C. university Operations analysis and methods improvement, at the national office Programing, at the national office or a service center Observation of processing operations in a district office and a service center . On-the-job training at the national office	3 weeks. 1 week. 6 weeks. 4 weeks. 3 weeks.
Programer	General orientation on ADP concepts at the national office Basic programing methods by equipment manufacturer's instructors, at the national office or a service center On-the-job training in data processing and techniques On-the-job training in development and maintenance of programs for the ADP system	1 week. 8 weeks. 4 weeks. 36 weeks.
Console operator	Training in punchcard and tape processing techniques (basic programing, arithmetic and logical functions), at equipment manufacturer's school. Consists of 24 lecture hours and practice problems On-the-job training	8 days. 4 weeks.
Peripheral equipment operator <u>2</u> /	Training includes lectures and class problems in wiring, printing, and control at equipment manufacturer's school On-the-job training	1 week. 4 weeks.
Tape librarian	On-the-job training	1 week.
Cardpunch operator ...	Classroom training in procedures, documents, and programs used to prepare input data On-the-job training	8 hours. 40 hours.

1/ On-the-job training for Atlanta Service Center trainees was more extensive: Up to 8 weeks on planning the ADP system in Washington and 36 weeks on specific projects in Atlanta. They also received 4 weeks' training in basic computer operations and programing at the Atlanta IBM educational center.

2/ Hired as console operators and qualified as peripheral equipment operators before employment.

Key Service Center Employees. Twelve tax collection experts from district offices were retrained to qualify for key jobs in the Atlanta Service Center by agreement with the Civil Service Commission in April 1961. These employees were reassigned as administrators, managers, and management and systems analysts at their former grade. The center's director and assistant director received training on an individual basis.

In addition to regular training given systems analysts, these employees were assigned for extended periods (up to 8 weeks) to the national office where they helped devise programs and systems which they would later administer in the Atlanta region. Since a number of analysts in the national office have limited field experience in tax collection, the experience of the Atlanta trainees proved useful in developing the ADP system. This group also undertook about 4 weeks of classroom training in basic machine operations and programming given by the equipment manufacturer in Atlanta. In addition, they received up to 36 weeks of on-the-job training at the service center. Assignments were made to specific projects, based on the interest and aptitude of individual employees and the needs of the center.

Programers. Training for programmer positions required about 9 weeks of formal classroom lectures and practice problems and 40 weeks of on-the-job training. The formal training covered one week of general orientation in ADP concepts at the national office by IRS computer experts and administrators and 8 weeks of classes at a location convenient to a data processing center or the National Computer Center. For example, the initial programmer course, given at Manchester, N. H., near the old IRS data center for the Northeast, consisted mostly of formal classes, conducted by instructors from the equipment manufacturer. One week's study was devoted to basic electric accounting machines; 3 weeks to programming a small computer system; and 5 weeks to programming a larger system. Trainees were given opportunities to prepare actual machine instructions and test them on IRS computers. The IRS paid the entire cost, including travel, salary, and per diem.

Equipment Operators. Training for operators of computers was much shorter. Console operators received about 8 days of classroom training by the equipment manufacturer, followed by 4 weeks of on-the-job training. Lecture subjects included basic programming techniques, arithmetic functions, logical functions, and other tape or card tape machine operations, or both. Problems in programming, planning, and timing were covered. Peripheral equipment operator candidates were given 90 hours of free training to qualify them for employment. Lectures and class problems in wiring techniques and accounting machine operations were included.

Card Punch Operators. After card punch applicants passed civil service typing and clerical tests, the equipment manufacturer made available to inexperienced applicants at least 40 hours of preemployment classroom training to qualify as card punch operators, grade GS-2. Following appointment, they received up to 8 hours of classroom training and approximately

40 hours on-the-job instruction at the service center. The purpose of this training was to acquaint the new employees with the procedures, techniques, documents, and programs used to prepare input data for the computers.

Chapter 8. Manpower Problems of the Changeover

This chapter describes some manpower problems that arose in the Atlanta Region during the first half of the conversion period. Information about these problems was obtained from personal interviews with affected district employees and managers. The problems are illustrative only. No survey of employees was made to determine the extent of these problems.

Obstacles to Mobility

Overcoming obstacles to employees transferring to new work within a district office or relocating to the Atlanta Service Center constituted one of the major problems of the conversion. Since more new jobs were projected for the service center than would be eliminated in the district offices, voluntary transferring could substantially ease the longrun job displacement problem. Many district office employees could be retrained for tax examiner and other jobs, in the Atlanta Service Center, which involved work similar to that formerly performed in the district offices.

Although a number of experienced employees transferred from district offices, the response by mid-1962 was not as great as had been expected. Personal problems were reported by some employees as preventing or discouraging them from accepting new jobs. Among the reasons cited were reluctance to sever close family ties, spouses' employment, and health and age problems. Financial burdens were important to others. Forced sale of their homes at a loss and higher living costs at Atlanta were cited by some.

For example, several employees who transferred to the Atlanta Service Center considered requesting reassignment back to their districts because they were unable to sell their home without loss. Other employees stated that their moving expenses could not be fully compensated by the Government. In some instances, transportation and related charges exceeded the maximum payable by the Government.

The following examples illustrate some of the problems of employees who did not transfer:

A 49-year-old supervisory tax examiner (GS-10) did not wish to transfer to Atlanta, even though her job might be abolished and no vacancy at her grade level was expected in the district. Her major reasons given were fear of loss on sale of home because of a depressed housing market and responsibility for caring for an aged mother. She was eligible, however, with 28 years of Government service, for discontinued service retirement.

A 50-year-old file supervisor (GS-6) with only filing experience and no retraining courses was not interested in moving to Atlanta because her husband was the primary wage earner. She was also a homeowner. When informed her job would be abolished, she expressed "shock" and a willingness to take a grade reduction rather than relocate.

A 30-year-old tax examiner (GS-4) declined a service center job at the same grade because he expected difficulty in selling his home and his wife was employed locally. His job was scheduled to be abolished during 1962.

Within the city of Atlanta, some jobs were transferred from the local office in downtown Atlanta to the new service center in the suburbs. To plan an orderly conversion, the Chief of Collection (the unit affected) made a survey in November 1961 to determine how many employees would transfer. About 56 percent of his staff (156 employees) were willing to transfer. Of this group, about 7 percent would transfer only if they were promoted. The remaining employees (about 44 percent of the total surveyed) were unwilling to transfer, some because of the longer commuting distance and inadequate public transportation.

Some employees felt that the advantages of transferring to the service center more than offset problems of relocating. The advantages of promotion upon transfer, better opportunity for advancement in expanding activities, and more interesting and challenging work seemed to outweigh inconveniences.

The following examples illustrate some of the problems of employees who transferred:

A 48-year-old tax examiner (GS-6) received a promotion upon transfer to Atlanta. She had previously been detailed to the service center and decided she would like to work there. Although unable to sell her home at her previous location immediately, she rented her house to meet mortgage payments. There was some financial loss in moving. After transfer, she was given about 8 weeks of full-time classroom training to prepare her for new work.

A 49-year-old supervisory tax examiner whose job was eliminated (GS-9), was promoted upon her transfer to the service center. Since she was eligible for discontinued service retirement (27 years service), her decision to relocate away from family friends was a difficult one. She reported personal adjustment problems during the first 5 to 6 weeks in Atlanta and greater living costs. Since she was single, problems of relocating were not as great as for an employee with a family. She received about 6 weeks of classroom training at the center, including supervisory training.

Maintenance of Adequate Communications

Providing a flow of information concerning progress of the conversion, especially between national, regional, and local offices, constituted a complex problem of administration. When communications were slow, rumors and uncertainty spread among employees and supervisors. It was rumored, for example, that employees in many jobs in the service center would be required to do shift work. This was an exaggeration that may have temporarily impeded acceptance of jobs by a few affected employees. While there is some shift work, it is done on a voluntary basis.

In retrospect, some officials felt that the policy of frequently assuring employees that, if at all possible, no one would suffer any hardship resulted in an undue amount of complacency about the change and a tendency to postpone decisions. The longrun readjustment of some employees was sometimes impaired. For example:

The case of a 47-year-old tax examiner at the service center with 22 years of Federal service illustrates the reaction of some employees. When service center officials visited her district office to recruit employees, she was uninterested. Later she explained that she was not fully aware of the severity of the employment cutback or how it might affect her job. Soon thereafter, management began to stress the potential displacement impact of the conversion and revealed that her job as supervisory cashier would probably be abolished. She began therefore to consider transferring to the service center. By that time, however, the supervisory jobs of interest to her were filled and she had to transfer at the same grade. She also felt that the initial group of service center employees were in a more favorable position for future promotions.

By mid-1961, Washington officials were stressing that employees must take some initiative in retraining and accepting new work when jobs became available. Managers were cautioned to stay ahead of the conversion schedule and not to delay reassignments until the later part of the conversion cycle, thereby compounding problems.

Placement Problems

Placing supervisors in jobs at comparable grade levels in the districts constituted another problem of the changeover. While there are a number of supervisory positions at the service center, few district supervisors accepted transfer, and little attrition is expected in these jobs in the districts.

The case of a 42-year-old supervisory teller (GS-8) whose experience was limited to cashier and cash accounting work illustrates some problems. Her experience was not needed in the service center and she had not

taken retraining courses in accounting. In the 1966 staffing pattern for the district, the two units of the cashier section are to be combined and the supervisory jobs reduced in grade.

Particular difficulty was encountered in placing employees who were approaching retirement age and did not wish to transfer for a short period. For example, a 67-year-old tax examiner (GS-4) with 19 years service did not wish to transfer to Atlanta since she was considering retirement the following year. Retirement is mandatory for her in 1964. The districts plan to reserve positions for such employees.

Some older employees voluntarily transferred to the service center, but felt some anxiety about the change. For example, a 49-year-old supervisory tax examiner (GS-9) with 27 years service transferred to similar work at a higher grade. She reported that her decision to transfer followed several weeks of deliberation. During the first few weeks after relocation, she was still unsure that the decision to transfer was wise.

Employees in affected units who had only minimum skill and were not sought after by supervisors in other activities presented a difficult problem. Officials expect that eventually some jobs may be redesigned to fit the qualifications of such employees. A concerted effort has been made to bring administrators with potential job vacancies in unaffected activities into the planning for placement of affected employees, stressing the fact that this is a Service-wide problem, not the problem of one activity only. Since new hiring was restricted, some employees were considered for jobs for which they might otherwise have been rejected.

Finally, problems arose in reassigning experienced employees who were uncertain about their ability to learn new skills or disliked the kind of work offered. For example, a 41-year-old supervisor (GS-7) declined reassignment at her grade in an office audit job because it involved extensive personal dealings with taxpayers.

Training Problems

Retraining presented some difficulties as well as opportunities. Employees were asked to attend classes after working hours--an obstacle for women with family responsibilities. Arrangement for transportation after classes also presented impediments. For some, immediate personal problems of attendance outweighed possible future benefits.

Although some districts paid the cost of typing courses at local business or high schools, arousing interest in after hours typing and stenographic training in other offices was difficult. In one district, for example, out of 12 employees who expressed some interest in typing and stenographic training, none wished to attend classes after work. Among reasons given were family responsibilities, and the low-pay jobs and lack of promotion

opportunities in this type of work. Although administrators generally had no difficulties in recruiting competent instructors from among district employees for the accounting and income tax law courses, they reported that typing and stenographic instructors were extremely hard to find.

Some employees reported that they felt compelled to take the training courses because nonparticipation might result in loss of a job, even though participation was entirely voluntary.

The usefulness of classroom training was also doubted. A few employees did not believe that the courses had increased their placement potential or helped in performing their new job duties. Others, however, especially those already placed, considered the training very helpful.

While some administrators reported that many employees learned faster by attending classes than by correspondence, some employees complained that the classes were too difficult and covered the subjects too rapidly. As a consequence, one district slowed the pace of the classes from one lesson completed each week to one every other week.

One drawback to the unrestricted admission policy for training was that employees who were not considered well suited for the type of program by their supervisors sometimes entered training. The IRS preferred, however, to rely on counseling and persuasion, rather than setting up rigid requirements, to guide individuals into the training considered most likely to result in reassignment to permanent jobs. Few dropouts have been reported.

Increased Stress and Shift Work

Some instances of considerable stress arising out of the changeover were reported. One district manager stated that activating the service center produced periods of intense pressure for supervisors and employees when overtime was required to continue the work at the same pace, despite the loss of experienced employees.

Although temporary employees filled in to keep critical operations moving, one manager reported that more supervisory attention was required, and that a heavier workload was placed on those remaining. Temporary employees were reported in some cases as being only 50 percent effective during the first 3 months and did not reach peak efficiency until after working about 1 year. Some officials reported difficulty in meeting workload deadlines, an unusual amount of employee illness, and employee frustration due to changes in procedures.

Operation of electronic computers at the Atlanta Service Center involved putting a small number of employees on shift work. Eight employees were employed on the first shift (7:30 a.m. to 4:00 p.m.) and seven on the second shift (3:30 p.m. to midnight). A three shift operation may eventually be needed. Shift arrangements had not yet been permanently worked out, so

there was no rotation between shifts. Hourly earnings were increased 10 percent for hours worked between 6:00 p.m. and 6:00 a.m. All employees on the late shift were men. In the Martinsburg center, computers were operated 24 hours daily (three shifts), 7 days a week. This schedule may eventually be reduced to 6 days. The requirement for shift work for operators caused some candidates to reject employment offers.

Recruiting Specialized Employees

Management had difficulty in obtaining qualified employees to fill Atlanta Service Center positions. Only a small proportion of affected employees transferred to Atlanta from district offices. The bulk of these jobs involved perfecting and routing tax documents and preparing computer input data. Positions of card punch operator, tax examiner, and accounting technician were expected to account for at least 85 percent of total service center employment.

Recruiting qualified card punch operators, especially for part-year employment, was difficult. These positions were announced through civil service procedures, with an entrance level of GS-2 for trainees and GS-3 for those with both 6 months' experience and a superior score on the Civil Service Commission test. Because of the low entrance grade and routine nature of the work, there was little interest among affected employees in transferring to Atlanta for these jobs. There was also competition from other Government agencies and private firms for qualified card punch operators.

Another problem was recruiting a sufficient number of experienced tax examiners from the district offices for full-time positions in Atlanta, and obtaining adequate numbers of tax examiners for part-year employment. These jobs are estimated to account for about 45 percent of the total service center staff. Since the duties of these positions involve perfecting, coding, and controlling tax documents, knowledge of accounting and experience in IRS operations is desirable. Although a number of tax examiners have transferred from the districts, the response has not been as great as IRS officials expected. Some of the factors that discouraged employees from relocating are discussed in the section "Obstacles to Mobility," in this chapter.

Chapter 9. Outlook for Manpower Changes

ADP preparations, which began in January 1961, introduced the preliminary stage of the changeover in the Atlanta region. The application of ADP to business tax returns in January 1962 marked the first operating phase. In January 1963, the second phase of the changeover began with the application of ADP to processing individual income tax returns. The entire conversion in the Atlanta region is scheduled for completion by July 1966. This process will be repeated, with some variations in timing, in the other regions.

As the completion of the changeover in the Atlanta region approaches, a number of manpower questions become apparent. While the conversion thus far has been described as successful, the possibility that important manpower problems lie ahead is not ruled out. This chapter briefly outlines some issues that may arise, some implications for employment trends in the communities where IRS offices are located, and some areas for future research.

Placement of Employees

Placing employees whose jobs are eliminated in the district offices may become much more complicated in the final phases of the conversion. Between July 1962 and July 1965, employment in the affected units was projected to decline from 811 to 581.

Whether this or a possibly smaller reduction in the number of permanent employees can be accomplished without layoff, relocation, or downgrading of permanent employees will depend first on the existence of enough vacant positions in enforcement and public information and assistance activities in the commuting area--where most transfers were made during the first 2 years. It will also depend on the willingness of employees to relocate to areas where jobs are available, especially to Atlanta. Adequacy of budgetary funds for positions as well as of the attrition rate (both in affected and unaffected activities), therefore, will have an important bearing on the magnitude of the placement problem. If there are not sufficient vacancies, layoffs may be necessary.

Since many of the most adaptable employees may have already transferred voluntarily, those who remain at the end of the conversion may constitute a group requiring much more counseling, guidance, and retraining to make them qualified for available jobs, either in the IRS or in other Federal Government agencies. Two measures that were scarcely used during the early stages (July 1960-July 1962)--waiver of qualifications (used for six employees), and discontinued service retirement (used by only one employee)--may be more intensively used to facilitate the changeover.

Incentive for Mobility

Since adjustment for many employees may ultimately require transfer to new jobs in the Atlanta Service Center, more attention will probably be directed to stimulating employees to relocate and to take retraining. The fear of financial loss in the sale of their homes, for example, tended to make some employees in the district offices reluctant to transfer to the Atlanta Service Center where they were needed. Provision of assistance in such cases, however, will depend on congressional action. In the future, training arrangements such as after-hours classes which discourage some employees from taking training, may be examined more closely for improvement. Such changes, however, must be weighed against work requirements, since untrained temporary employees, loss of skilled employees, procedural changes, and unforeseen ADP generated work may create severe workload problems.

Future Innovations

The introduction of electronic computers provides opportunities for using other innovations that may have significant manpower impact. Thus, the IRS is studying the possibility of using optical scanning devices and other source data automation devices that may reduce the need for card punch operators, and of installing electronic data transmission devices that would speed communications between IRS offices.

If it is decided to transfer other processing functions now in district offices to the service center, some of the remaining jobs in district collection and other divisions may be reduced further. On the other hand, recent delays in transfer of work to the service center may decrease the rate of reassignments.

The IRS is also studying enforcement and other functions outside collection work, where ADP equipment may be used. Under consideration are applications of ADP for selection of tax returns for audit (presently done by hand by revenue agents as part-time duties), for data processing for special agents in fraud investigation, for interchange of tax information between Federal and State governments, for information retrieval in legal tax work, and for operations research in tax administration. Reporting of tax information on magnetic tape by private firms may also result in fewer additional jobs for the last phases of the conversion program.

Implications for Community Employment

Although the conversion may not result in greater unemployment, it will, in the long run, reduce the demand for clerical workers in the local labor markets where district offices are located, except when, as in the Atlanta District, the service center and district office are in the same metropolitan area. Of the seven district areas in the Atlanta region, six were classified in December 1962 as areas of moderate unemployment, and one, Birmingham, Ala., was listed as an area of substantial unemployment.

Although the IRS conversion affects only a small proportion of the labor force in these communities, the elimination of clerical jobs on which the communities relied underscores the importance of the general problem of adequately preparing the growing labor force of the 1960's for available jobs and therefore may require attention by community educational, guidance, and placement services.

Research Outlook

This study outlines the background and scope of manpower policies and their application in one region. Since the conversion is still underway, a complete account remains for future study. Although the experiences so far probably foreshadow changes that offices in other regions may undergo, the results may suggest specific policy improvements for future conversions. Further research, therefore, may be concerned with the implications of such policy changes for an orderly changeover to ADP.

The present study also suggests the importance of having a better understanding of the economic, social, and psychological factors that encourage and impede individuals in relocating and retraining. This subject is of deep interest to those concerned with the general manpower problems of automation. Since this subject was only touched upon in this study, future research may be concerned more specifically with this aspect of manpower adjustment to automation.

Appendix A. Tables

Table A-1. Total district office employment and employees in affected units, by district, July 1961

Region and district office	Total employees <u>1/</u>	Employees in directly affected units	
		Number <u>2/</u>	Percent of total
All districts	40,898	10,901	26.7
Atlanta region	3,951	1,000	25.3
Atlanta, Ga.	650	148	22.8
Birmingham, Ala.	425	119	28.0
Columbia, S. C.	336	84	25.0
Greensboro, N. C.	672	197	29.3
Jackson, Miss.	268	71	26.5
Jacksonville, Fla.	1,026	230	22.4
Nashville, Tenn.	574	151	26.3
Boston region	2,600	752	28.9
Augusta, Maine	204	67	32.8
Boston, Mass.	1,240	365	29.4
Burlington, Vt.	100	29	29.0
Hartford, Conn.	678	186	27.4
Portsmouth, N. H.	144	42	29.2
Providence, R. I.	234	63	26.9
Chicago region	5,212	1,482	28.4
Chicago, Ill.	2,127	549	25.8
Detroit, Mich.	1,747	480	27.5
Milwaukee, Wis.	745	251	33.7
Springfield, Ill.	593	202	34.1
Cincinnati region	4,390	1,257	28.6
Cincinnati, Ohio	817	230	28.2
Cleveland, Ohio	1,256	316	25.2
Indianapolis, Ind.	845	273	32.3
Louisville, Ky.	526	157	29.8
Parkersburg, W. Va.	314	84	26.8
Richmond, Va.	632	197	31.2
Dallas region	3,376	918	27.2
Albuquerque, N. Mex.	187	51	27.3
Austin, Tex.	955	257	26.9
Dallas, Tex.	957	243	25.4
Little Rock, Ark.	280	85	30.4
New Orleans, La.	553	155	28.0
Oklahoma City, Okla.	444	127	28.6

See footnotes at end of table.

Table A-1. Total district office employment and employees in affected units, by district, July 1961--Continued

Region and district office	Total employees <u>1/</u>	Employees in directly affected units	
		Number <u>2/</u>	Percent of total
New York region	6,236	1,467	23.5
Albany, N. Y.	420	121	28.8
Brooklyn, N. Y.	1,830	464	25.4
Buffalo, N. Y.	583	148	25.4
Manhattan, N. Y.	2,931	612	20.9
Syracuse, N. Y.	472	122	25.8
Omaha region	3,702	1,024	27.7
Aberdeen, S. Dak.	142	45	31.7
Cheyenne, Wyo.	99	28	28.3
Denver, Colo.	426	105	24.6
Des Moines, Iowa	522	153	29.3
Fargo, N. Dak.	130	40	30.8
Kansas City, Mo.	430	115	26.7
Omaha, Nebr.	298	87	29.2
St. Louis, Mo.	552	150	27.2
St. Paul, Minn.	637	178	27.9
Wichita, Kans.	466	123	26.4
Philadelphia region	5,655	1,420	25.1
Baltimore, Md.	1,172	275	23.5
Camden, N. J.	505	127	25.1
Newark, N. J.	1,253	312	24.9
Pittsburgh, Pa.	913	217	23.8
Philadelphia, Pa.	1,323	351	26.5
Scranton, Pa.	328	98	29.9
Wilmington, Del.	161	40	24.8
San Francisco region	5,776	1,581	27.4
Anchorage, Alaska	49	-----	----
Boise, Idaho	157	45	28.7
Helena, Mont.	167	49	29.3
Honolulu, Hawaii	147	46	31.3
Los Angeles, Calif.	2,091	577	27.6
Phoenix, Ariz.	252	65	25.8
Portland, Oreg.	440	129	29.3
Reno, Nev.	129	32	24.8
Salt Lake City, Utah	177	52	29.4
San Francisco, Calif.	1,498	382	25.5
Seattle, Wash.	669	204	30.5

1/ Includes 1,167 temporary employees.

2/ Permanent employees only.

Source: Internal Revenue Service.

Table A-2. Atlanta region: Age and sex of affected employees, by district offices 1/

Age and sex	Total		Atlanta		Birmingham		Columbia		Greensboro		Jackson		Jacksonville		Nashville	
	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent	Number	Per-cent
All employees	1,074	100.0	169	100.0	116	100.0	85	100.0	198	100.0	72	100.0	281	100.0	153	100.0
Under 25 years	41	3.8	17	10.1	2	1.7	1	1.2	5	2.5	2	2.8	14	5.0	0	-----
25-34 years	132	12.3	22	13.0	4	3.4	12	14.1	37	18.7	2	2.8	36	12.8	19	12.4
35-44 years	313	29.1	36	21.3	24	20.7	33	38.8	58	29.3	14	19.4	90	32.0	58	37.9
45-54 years	306	28.5	39	23.1	43	37.1	27	31.8	48	24.2	31	43.1	82	29.2	36	23.5
55-64 years	237	22.1	42	24.9	36	31.0	10	11.8	40	20.2	22	30.6	53	18.9	34	22.2
65 years and over	45	4.2	13	7.7	7	6.0	2	2.4	10	5.1	1	1.4	6	2.1	6	3.9
Men	181	16.9	23	13.6	14	12.1	23	27.1	43	21.7	13	18.1	36	12.8	29	19.0
Under 25 years	6	0.6	2	1.2	0	-----	1	1.2	1	0.5	0	-----	2	0.7	0	-----
25-34 years	43	4.0	6	3.6	2	1.7	1	1.2	16	8.1	2	2.8	10	3.6	6	3.9
35-44 years	63	5.9	6	3.6	6	5.2	8	9.4	14	7.1	3	4.2	14	5.0	12	7.8
45-54 years	48	4.5	6	3.6	5	4.3	9	10.6	6	3.0	5	6.9	8	2.8	9	5.9
55-64 years	20	1.9	3	1.8	1	0.9	3	3.5	6	3.0	3	4.2	2	0.7	2	1.3
65 years and over ...	1	0.1	0	-----	0	-----	1	1.2	0	-----	0	-----	0	-----	0	-----
Women	893	83.1	146	86.4	102	87.9	62	72.9	155	78.3	59	81.9	245	87.2	124	81.0
Under 25 years	35	3.3	15	8.9	2	1.7	0	-----	4	2.0	2	2.8	12	4.3	0	-----
25-34 years	89	8.3	16	9.5	2	1.7	11	12.9	21	10.6	0	-----	26	9.3	13	8.5
35-44 years	250	23.3	30	17.8	18	15.5	25	29.4	44	22.2	11	15.3	76	27.0	46	30.1
45-54 years	258	24.0	33	19.5	38	32.8	18	21.2	42	21.2	26	36.1	74	26.3	27	17.6
55-64 years	217	20.2	39	23.1	35	30.2	7	8.2	34	17.2	19	26.4	51	18.1	32	20.9
65 years and over ...	44	4.1	13	7.7	7	6.0	1	1.2	10	5.1	1	1.4	6	2.1	6	3.9

1/ Age data computed as of January 1962.

Note: Because of rounding, sums of individual items may not equal totals.

Table A-3. Atlanta region: Years of Federal Government Service of affected employees, by retirement age group 1/

Age group	Affected employees		Years of Federal Government Service							
			Under 20 years		20-24 years		25-29 years		30 years and over	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
All groups	1,074	100.0	852	100.0	154	100.0	57	100.0	11	100.0
Under 50 years	642	59.8	567	66.5	64	41.6	10	17.5	1	9.1
50-54 years	150	14.0	104	12.2	29	18.8	15	26.3	2	18.2
55-59 years	139	12.9	88	10.3	34	22.1	15	26.3	2	18.2
60-64 years	98	9.1	64	7.5	18	11.7	14	24.6	2	18.2
62-64 years	52	4.8	<u>2/</u> 31	3.6	13	8.4	7	12.3	1	9.1
65 years and over	45	4.2	29	3.4	9	5.8	3	5.3	4	36.4
Employees eligible for retirement <u>3/</u>	100	9.3	60	7.0	22	14.3	10	17.5	8	72.7
Employees who may be eligible for discontinued service retirement only <u>4/</u>	118	11.0	0	-----	68	44.2	47	82.5	3	27.3

1/ Includes military service. Seniority as of January 1962.

2/ All employees in this group had over 5 years' service.

3/ Age 62 with at least 5 years' service or age 60 with 30 years' service. Age 55 with 30 years' service at reduced annuity.

4/ Age 50 with 20 years' service or 25 years of service at any age (reduced annuity under age 60) if: (1) employed under Civil Service Retirement Act for at least 1 year within 2 years preceding separation; and (2) performing duties which are eliminated or combined with the duties of another position as a result of organizational modification or as a result of continuing reorganization around remaining skills; or if job duties are transferred from a district to a regional service center.

Note: Because of rounding, sums of individual items may not equal totals.

Table A-4. Description of job duties in clerical classifications 1/

Occupational classification	Description of job duties in classification
Administrative	Jobs primarily concerned with directing, controlling, and administering a specific department or function. Responsible for the successful outcome of the undertaking. Works through subordinate managers or supervisors. Also includes management staff jobs such as administrative assistants, management analysts, and technicians.
Supervisory	Jobs primarily concerned with supervising a group of workers engaged chiefly in one general type of clerical function. Determining work procedures, assigning duties and checking results, compiling composite reports, maintaining worker harmony, and related duties.
Public information and assistance	Jobs primarily concerned with making records in conjunction with carrying out transactions involving meeting and dealing with the public; also receiving, examining, depositing, and processing cash items.
Correspondence	Jobs primarily concerned with composing correspondence and related documents for the purpose of obtaining or supplying information; editing or proofreading prepared copy for accuracy of syntax and typography.
Posting, checking, and maintaining records	Jobs primarily concerned with posting and checking various data, maintaining basic accounting records, filling in special forms, recording transactions, balancing accounts, evaluating, estimating, tallying, and verifying data.

See footnote at end of table.

Table A-4. Description of job duties in clerical classifications 1/--Continued

Occupational classification	Description of job duties in classification
Examining and statistical	Jobs primarily concerned with statistical treatment of data, such as assembling, collating and analyzing, examining, perfecting, and making adjustments to tax returns, which includes computing or making calculations of taxes and penalties.
Stenographic and secretarial ...	Jobs primarily concerned with making records by taking and transcribing shorthand or speedwriting notes.
Keyboard and other machine operations	Jobs primarily concerned with recording information by means of keyboard operated machines and operating machines that automatically analyze, make calculations, and translate or divide information represented by holes punched in groups of tabulating cards, and print this information on a variety of records and reports. Related jobs include sorting and verifying punched cards.
Sorting, routing, classifying, and filing	Jobs primarily concerned with sorting and routing communications; inserting or extracting particular data into or from various types of records for keeping files, compiling lists, or providing and cataloguing information.

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1/ Classifications were adapted from A Functional Classification of Recording of Jobs, U.S. Department of Labor, Bureau of Employment Security (Washington, November 1950).

Table A-5. Atlanta region: Projected changes in occupational requirements for affected district units and Atlanta Service Center

Occupational group	Before ADP 1/		After ADP 2/						Change in affected district units		Change in affected units and service center	
	Jobs in affected district units		Jobs in affected district units		Jobs in service center		Jobs in affected units and service center		Number of jobs	Percent	Number of jobs	Percent
	Number	Percent	Number	Percent	Number	Percent	Number	Percent				
All groups	1,060	100.0	581	100.0	978	100.0	1,559	100.0	-479	-45.2	499	47.1
Administrative	45	4.2	28	5.1	21	2.1	49	3.1	-17	-37.8	4	8.9
Supervisory	174	16.4	58	10.0	121	12.4	179	11.5	-116	-66.7	5	2.9
Grades GS-6 and over	117	11.0	58	10.0	88	9.0	146	9.4	-59	-50.4	29	24.8
Grades GS-5 and under	57	5.4	0	-----	33	3.4	33	2.1	-57	-100.0	-24	-42.1
Public contact	41	3.9	87	15.0	3	.3	90	5.8	46	112.2	49	119.5
Correspondence	82	7.7	138	23.8	0	-----	138	8.9	56	68.3	56	68.3
Posting, checking and maintaining records	186	17.5	0	-----	112	11.5	112	7.2	-186	-100.0	-74	-39.8
Examining and statistical	244	23.0	59	10.2	309	31.6	368	23.6	-185	-75.8	124	50.8
Stenographic and secretarial ..	53	5.0	49	8.4	20	2.0	69	4.4	-4	-7.5	16	30.2
Keyboard and other machine operations	87	8.2	26	4.5	321	32.8	347	22.3	-61	-70.1	260	298.9
Sorting, routing, classifying and filing	148	14.0	136	23.4	23	2.4	159	10.2	-12	-8.1	11	7.4
Electronic data processing	0	-----	0	-----	48	4.9	48	3.1	-----	-----	48	-----

1/ Occupational structure, October 1, 1960.

2/ Projected occupational structure for Fiscal Year 1966 as of August 1962.

Note: Because of rounding, sums of individual items may not equal totals.

Source: Data derived from IRS staffing patterns. Positions were classified in one occupational group on the basis of principal duties.

See table A-3 for descriptions of job duties in occupational groups.

Table A-6. Grade of ADP employees, by occupation

GS grade (average)	All groups (GS 11.3)		Adminis- trators and managers (GS 14.0)	Manage- ment analysts (GS 12.2)	Systems analysts (GS 12.2)	Program- ers (GS 10.8)	Schedulers and controllers (GS 8.6)	Systems operators (GS 6.8)	Peripheral equipment operators (GS 3.3)	Tape librar- ians (GS 5.6)
	Num- ber	Per- cent								
All grades	261	100.0	47	30	69	75	9	18	3	10
16 (\$16,000-\$18,000) ..	3	1.1	3	0	0	0	0	0	0	0
15 (\$14,565-\$17,925) ..	12	4.6	12	0	0	0	0	0	0	0
14 (\$12,845-\$16,245) ..	27	10.3	19	5	3	0	0	0	0	0
13 (\$11,150-\$14,070) ..	45	17.2	9	6	30	0	0	0	0	0
12 (\$9,475-\$11,995) ...	65	24.9	2	13	23	26	1	0	0	0
11 (\$8,045-\$10,165) ...	48	18.4	2	4	9	30	1	2	0	0
10 (\$7,290-\$9,495)	1	.4	0	0	0	0	0	0	0	0
9 (\$6,675-\$8,700)	27	10.3	0	2	4	16	4	2	0	0
8 (\$6,090-\$7,935)	1	.4	0	0	0	0	0	0	0	1
7 (\$5,540-\$7,205)	12	4.6	0	0	0	3	2	6	0	1
6 (\$5,035-\$6,565)	1	.4	0	0	0	0	0	0	0	1
5 (\$4,565-\$6,005)	16	6.1	0	0	0	0	0	8	1	7
4 (\$4,110-\$5,370)	1	.4	0	0	0	0	1	0	0	0
3 (\$3,820-\$4,830)	1	.4	0	0	0	0	0	0	1	0
2 (\$3,560-\$4,505)	1	.4	0	0	0	0	0	0	1	0

Note: Because of rounding, sums of individual percentages may not equal 100.

Source: IRS records. Grade data as of December 1962.

Table A-7. Years of IRS service, all ADP employees and affected employees in Atlanta region

Years of IRS service	All ADP employees		Affected employees, Atlanta region	
	Number	Percent	Number	Percent
Total	261	100.0	1,074	100.0
Less than 1	26	10.0	16	1.5
1-4	87	33.3	156	14.5
5-9	62	23.8	260	24.2
10-14	42	16.1	275	25.6
15-19	14	5.4	283	26.3
20-24	10	3.8	53	4.9
25-29	16	6.1	25	2.3
30 and over	4	1.5	6	.6



ADP NEWS



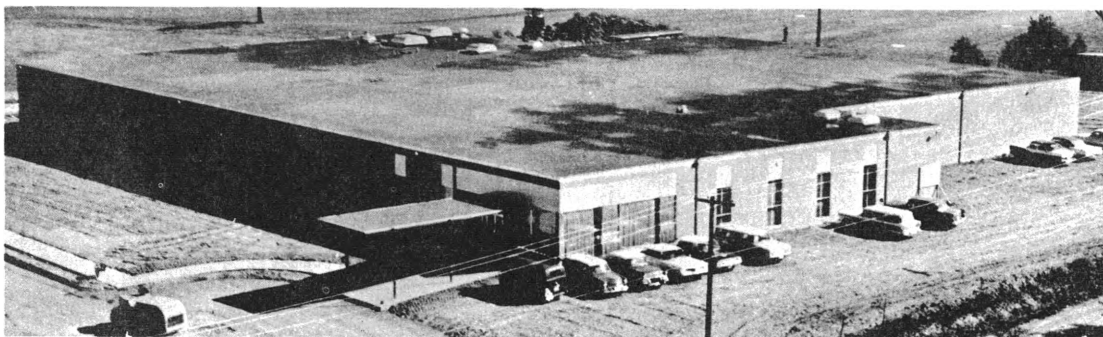
U. S. TREASURY DEPARTMENT

INTERNAL REVENUE SERVICE

Vol. 1, No. 1

November 1961

NATIONAL COMPUTER CENTER DEDICATED NOV. 6



New Automatic Data Processing Center at Martinsburg, West Virginia

The National Computer Center at Martinsburg, West Virginia, was formally dedicated on November 6.

Treasury Secretary Douglas Dillon gave the principal address. Commissioner Mortimer Caplin, Governor William W. Barron of West Virginia and Mayor C. Leslie Golliday of Martinsburg also spoke.

Other federal, state and city officials were in attendance, including some of the members of the Congressional Committees which deal with Internal Revenue matters, Congressional representatives from West Virginia and top officials of Treasury and IRS.

The annual fall conference of Regional Commissioners and District Directors in Washington

coincided with the dedication, permitting that entire group to attend.

A number of these officials made the eighty mile trip from Washington via airplane. Others traveled via bus.

The National Computer Center occupies a five acre tract about four miles east of Martinsburg (15,179 population). The land was formerly part of the grounds of the Newton D. Baker Veterans' Administration Hospital.

Building Design

Building exterior is finished in rose brick, supplied by a Martinsburg manufacturer.

The building is one of the first to be specifically designed and constructed for the exclusive occupancy of a federal electronic data processing operation.

The structure is not large by present building standards. But out of a total usable area of 39,000 square feet, 7,500 square feet constitute computer area. By comparison the Atlanta Service Center, under construction and scheduled for completion by June, 1962, will have 200,000 square feet of usable area with only 5,000 square feet of computer area, approximately.

Present capacity of the Center is expected to fulfill Service needs at least through 1969. The building is designed to permit horizontal expansion of any key operational area without interference with any other.

Why . . . ADP News ?

Much is happening and happening very fast in IRS' necessary change to data processing by electronic computers. Even those on the scene find themselves running to keep up.

It's new and big! Commissioner Caplin has said it will "revolutionize the tax field."

Many of you will have vital roles as we change our IRS way of doing things. Challenge and opportunity particularly await those who are ready. For this you will need to be informed. ADP News is dedicated to this task.

As often as news is adequately available, ADP News will gather the facts to bring them to you. Here you will find on-the-spot accounts, pictures, views and interviews of and by people working to bring about this improvement in the job we do.

Appendix C. Qualifications Inventory Card

1. NAME		2. POSITION AND GRADE			3. SCD	
4. HQ AND POD		5. DOB	6. SEX	7. RETIREMENT POSSIBLE? <input type="checkbox"/> NO <input type="checkbox"/> YES (Date) _____	8. TYPING SKILL <input type="checkbox"/> YES <input type="checkbox"/> NO	9. SHORTHAND SKILL <input type="checkbox"/> YES <input type="checkbox"/> NO
10. AVAILABILITY (willingness or unwillingness to relocate; conditions and exceptions, etc.)						
11. EDUCATION				12. IRS AND CSC TEST SCORES AND DATES		
13. IRS TRAINING (courses and dates, including correspondence courses) (Show redeployment training on reverse)						
14. IRS EXPERIENCE (List chronologically)	POSITION TITLE	SERIES	GRADE	ORGANIZATIONAL UNIT	YEARS AND MONTHS	
15. OUTSIDE EXPERIENCE	POSITION TITLE	YEARS AND MONTHS		16. QUALIFIED IN OTHER SERIES (present or higher grade)		
17. TENTATIVE SOLUTIONS (positions to which employee could be reassigned, with alternatives)						
18. REQUIRED FOR ABOVE SOLUTION (training, waivers, etc.)						
19. NAME OF IMMEDIATE SUPERVISOR				20. EST. DATE POS. ADVERSELY AFFECTED		21. DATE PREPARED
				EARLIEST	LATEST	

U. S. TREASURY DEPARTMENT - INTERNAL REVENUE SERVICE **QUALIFICATIONS INVENTORY CARD** FORM **3190** (3-62)

22. PLACEMENT ATTEMPTS

POSITIONS FOR WHICH CONSIDERED		WAS EMPLOYEE OFFERED POSITION? (Check which)		DID EMPLOYEE ACCEPT POSITION? (Check which)		REMARKS (reason for rejection or withdrawal of offer, etc.)
IN DISTRICT (Show title, series, grade, and organization)	OUTSIDE DISTRICT (Show title, grade, agency and location)	YES	NO	YES	NO	

23. REDEPLOYMENT TRAINING (type and date)

24. REMARKS (other pertinent information such as physical impairment, awards or commendations, etc.)	25. DATE AND NATURE OF FINAL PLACEMENT ACTION

26. FOLLOW-UP ACTION	FINDING	DATE OF REVIEW	REVIEWER
	A.		
	B.		
	C.		
	D.		

FORM **3190** (3-62)

Appendix D. Checklist for Filling Vacancies Occurring Before and During ADP Conversion

CHECK LIST FOR FILLING VACANCIES OCCURRING BEFORE AND DURING ADP CONVERSION		DISTRICT MAKING EVALUATION		
POSITION TITLE		SERIES	GRADE	
ORGANIZATIONAL LOCATION		SF-52 REQUEST NUMBER	DATE	
TYPE OF ACTION REQUESTED				
	CONCURRENCES	INITIALS OR SIGNATURE	DATE	
	SUPERVISOR INITIATING ACTION			
	CHIEF OF DIVISION INITIATING ACTION			
	PERSONNEL OFFICIAL			
	REDEPLOYMENT OFFICIAL			
	OTHER (If more than one division concerned)			
PART I - EVALUATION OF VACANT POSITIONS			YES	NO
ALL VACANCIES				
1a. Does the most recent classification maintenance survey flag the position as requiring some action?				
b. If "Yes," has the action been taken?				
2. If a continuing position, can it be restructured as a utility or trainee position and used for retraining or qualifying employees in activities directly affected by conversion, without unduly affecting work operations?				
VACANCIES IN AN ACTIVITY DIRECTLY AFFECTED BY CONVERSION				
3. Can the position or function be consolidated with another, thereby eliminating the vacancy?				
4. Will the position continue without change after ADP conversion?				
5. Will part or all of the duties of the position be eliminated by ADP conversion? If "Yes," When? _____				
6. Will part of the duties continue after conversion, but probably be downgraded as a result of ADP impact? If "Yes," When? _____				
7. If upgrading is warranted, can the position be restructured and classified at a lower grade?				
8. If the position will be affected by ADP, can it be restructured:	a. So as to be filled by a temporary employee?			
	b. So as to be filled by detail of an employee from another activity?			
9. If a supervisory position, can it be:	c. To eliminate specialized skills so as to be filled at a lower grade?			
	a. Performed as part of an existing higher grade supervisory position?			
	b. Filled on an acting or working supervisory basis?			
c. Performed by a senior or staff assistant?				
PART II - FILLING VACANT POSITIONS (Complete if a vacant position is to be filled)				
VACANCIES IN AN ACTIVITY DIRECTLY AFFECTED BY CONVERSION				
1. Can the vacancy be filled by:	a. Detail of an employee to a position at the same or lower grade?			
	b. Temporary appointment of a new or former IRS employee?			
	c. Appointment, by selective certification, of someone who has dual qualifications for a continuing position into which he later can be moved, and for immediate detail to the vacancy?			
	d. Reassignment of an employee from another position at the same grade?			
	e. Limited temporary promotion, as a last resort?			
VACANCIES OUTSIDE ACTIVITIES DIRECTLY AFFECTED BY CONVERSION				
2. Can the position be filled by an employee in an activity directly affected by conversion?				
3. If "Yes," can this be accomplished by:	a. Promotion?			
	b. Detail at the same grade level?			
	c. Reassignment (at the same grade) and, if necessary, authorized waiver of qualification requirements?			
	d. Limited temporary promotion, as a last resort?			
4. If the position cannot be filled directly by an employee in an activity directly affected by conversion, can a series of placements be made that will ultimately make possible the placement of such an employee? If "Yes," outline on reverse side the series of placements used.				
If the position is not filled from a directly affected activity, outline considerations given and reasons for decision.				

Appendix E. Recruitment Announcement, The Digital Computer Programmer in the Internal Revenue Service



U. S. TREASURY DEPARTMENT

INTERNAL REVENUE SERVICE

To All National Office Employees

**THE DIGITAL COMPUTER PROGRAMMER
IN THE INTERNAL REVENUE SERVICE**

What Is He?

The Digital Computer Programmer is a key member of the Automatic Data Processing team. Along with the administrator and the systems analyst, the programmer develops the essential instructions which ADP equipment needs to function.

What Does He Do?

Working from general guides and concepts, the programmer translates a data processing problem into a program for the machine to follow. After he gains a complete understanding of what needs to be accomplished, the programmer prepares a detailed flow chart to indicate the essential operations, logical as well as arithmetical, to be performed by the computer. He then works out detailed machine instructions, based on the design of the flow chart and the language of the machine. These must be checked and tested carefully by the programmer before the production run starts. The programmer must also prepare the instructions which the operator of the machine needs to run the program on the machine.

What Abilities Does He Need?

Among the personal skills and abilities needed by a programmer, these stand out as highly important:

- Ability to follow complex instructions
- Reasoning ability
- Good memory
- Accuracy
- Arithmetical ability
- Ability to absorb training

A programmer needs to apply these skills in sustained concentration on problems of infinite detail. A quality product is needed and time schedules must be met. A programmer needs to be constantly aware that the computer doesn't "think" -- it needs step-by-step instructions for every job it is to handle.

What Are The Career Possibilities?

Programmer jobs exist at grades GS-5 through GS-12. For men and women of ability, advancement possibilities appear unusually bright -- into senior programmer positions, and as the ADP program expands, into supervisory and other types of technical jobs as well.

How To Apply

Submit a memo to your Personnel Office, Room 1108, and arrangements will be made for the administration of the Federal Service Entrance Examination. If you pass or have previously passed this examination, you will take the Programmer Aptitude Test. Those who previously took this examination, but failed to score A or B are eligible to re-take this examination six months later. In all cases, those who previously applied but were not selected, must resubmit a memo.

Appendix F. Automatic Data Processing Supervisory Evaluation

AUTOMATIC DATA PROCESSING SUPERVISORY EVALUATION		Date			
Name of applicant		Post of duty			
ELEMENTS	Check appropriate block below				
	Improvement necessary	Average	Well above average	Extremely high	
1. Ability to absorb training					
2. Ability to use complex oral and written instructions					
3. Ability to see relationships of things to each other					
4. Adaptability					
5. Initiative					
6. Ability to plan projects or programs					
7. Ability to analyze systems or procedures					
8. Ability to work with a team					
9. Ability in written expression, including report writing					
10. Tact in dealing with people					
11. Ability to make decisions					
12. Ability to work independently					
13. Ability to handle varied programs					
14. Ability in oral expression					
15. For those elements for which a rating cannot be assigned, please provide your opinion as to the applicant's potential ability in the element.					
16. Please provide below an overall recommendation and any other information which would be useful to the selecting official in considering the candidate for this position.					

Appendix G. Selected Bibliography on Government Automation

I. U.S. Government Documents

- Astin, A. V. "Statement to the Subcommittee on Automation and Energy Resources," New Views on Automation, U.S. Congress, Joint Economic Committee, 86th Cong., 2d sess. (Washington, 1960), pp. 157-165.
- Latham, Dana. "Internal Revenue Service--salaries and expenses. Testimony before the Subcommittee on Treasury-Post Office Departments Appropriations." Treasury-Post Office Departments Appropriations for 1961; Hearings, U.S. House of Representatives, Committee on Appropriations, 86th Cong., 2d sess., February 2, 1960 (Washington, 1960), pp. 457-516.
- U.S. Bureau of the Budget. Inventory of Automatic Data Processing (ADP) Equipment in the Federal Government, Including Costs, Categories of Use, and Personnel Utilization (Washington, August 1962). 126 pp.
- U.S. Congress, House of Representatives, Committee on Post Office and Civil Service. Office Automation and Employee Job Security; Hearings, Subcommittee on Census and Government Statistics, 86th Cong., 2d sess., March 2 and 4, 1960 (Washington, 1960). 84 pp.
- U.S. Congress, House of Representatives, Committee on Post Office and Civil Service. Report on the Use of Electronic Data Processing Equipment in the Federal Government. Prepared by Subcommittee on Census and Government Statistics, 86th Cong., 2d sess. (Washington, 1960). 113 pp.
- U.S. Congress, House of Representatives, Committee on Post Office and Civil Service. Use of Electronic Data Processing Equipment; Hearings, Subcommittee on Census and Government Statistics, 86th Cong., 1st sess., June 5, 1959 (Washington, 1959). 142 pp.
- U.S. Congress, House of Representatives, Committee on Post Office and Civil Service. Use of Electronic Data Processing Equipment; Hearings, Subcommittee on Census and Government Statistics, 87th Cong., 2d sess., October 2, 3 and 5, 1962 (Washington, 1962). 328 pp.

II. Reports and Articles

- Bell, James R. and Steedman, Lynwood B. Personnel Problems in Converting to Automation, The Inter-University Case Program 44 (University, Ala., University of Alabama Press, 1960). 14 pp.

Appendix G. Selected Bibliography on Government Automation--Continued

- Bergamini, David. "Government by Computers," The Reporter (August 17, 1961), pp. 21-28.
- "Electronic Data Processing in Public Administration," Public Administration Review, American Society for Public Administration, Chicago (September 1962), pp. 129-152.
- Gerold, Charles. "ADP in Federal Personnel Management: The Sleeping Giant," Public Administration Review, American Society for Public Administration, Chicago (Spring 1962), pp. 71-74.
- Phillips, Charles A. "The Government--a \$1.5-billion factor," Datamation, F. D. Thompson Publications, Inc., New York (January 1962), pp. 23-24.
- Riche, Richard W. and Alli, William E. "Office Automation in the Federal Government," Monthly Labor Review (September 1960), pp. 933-938.
- Ronayne, Maurice F. "The Personnel Side of Automatic Data Processing," Public Personnel Review (October 1960), pp. 243-248.
- Siegman, Jack and Karsh, Bernard. "Some Organizational Correlates of White Collar Automation," University of Illinois Bulletin, Reprint Series No. 110 (February 1962), pp. 108-116.
- Smith, William H. "Automatic Data Processing in the Internal Revenue Service," Computers and Automation, Berkeley Enterprises, Inc., Newtonville, Mass. (October 1962), pp. 10-13.