

# The Revised Workweek Results of a Pilot Study of 16 Firms



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# The Revised Workweek: Results of a Pilot Study of 16 Firms

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U.S. Department of Labor  
John T. Dunlop, Secretary  
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Julius Shiskin, Commissioner  
1975

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## **Preface**

This study was prepared for the Bureau of Labor Statistics by Sol Swerdloff, of Manpower and Education Research Associates, under the direction of Jerome A. Mark, Assistant Commissioner, Bureau of Labor Statistics. John J. Macut, Chief of the Bureau's Division of Technological Studies, and Janice Hedges, in the Office of Economic Trends and Labor Conditions, participated in planning the study and developing the interview guides. They also reviewed and commented on the draft of the report.

The study was financed through funds made available by the Office of the Assistant Secretary of Labor for Policy, Evaluation, and Research. Mrs. Audrey Freedman of that office provided many useful suggestions and served as liaison for the study.

# Contents

	<i>Page</i>
Introduction . . . . .	1
Chapter 1. Objectives for adopting revised workweek schedule and plans for introduction . . . . .	2
Objectives . . . . .	2
Planning for and introducing new schedules . . . . .	3
Chapter 2. Descriptions of revised work schedules . . . . .	5
Simpler plans . . . . .	5
More complicated plans . . . . .	6
Chapter 3. Assessing the effects of the revised workweek . . . . .	8
Were firms' objectives realized? . . . . .	8
Effect on productivity . . . . .	11
Length of workweek for employees . . . . .	13
Pay and benefits . . . . .	13
Quality of work . . . . .	13
Attendance . . . . .	14
Recruitment . . . . .	15
Turnover . . . . .	15
Overtime . . . . .	16
Part-time employment . . . . .	17
Need for supervision . . . . .	17
Worker fatigue . . . . .	17
Plant safety . . . . .	17
Overall assessment by firms . . . . .	17
Chapter 4. Employee attitudes towards the revised workweek . . . . .	19
Chapter 5. Data and methods for measuring effects of schedule change . . . . .	20
Productivity . . . . .	20
Quality of work . . . . .	23
Attendance . . . . .	24
Turnover . . . . .	24
Overtime . . . . .	25
Summary and conclusions . . . . .	26
Tables:	
1. Objectives for adopting revised workweek schedule . . . . .	2
2. Converting sales data to an output index for a machinery manufacturing firm . . . . .	20
3. Employment and hours reported by a manufacturing establish- ment, selected payroll periods . . . . .	21
4. Employment and hours reported by a wholesale trade firm, selected payroll periods . . . . .	21

## Contents—Continued

Tables:	<i>Page</i>
5. Developing a measure of productivity for an insurance firm . . . . .	22
6. Deriving a measure of output per man-hour for an automobile mechanic . . . . .	22
7. Labor turnover in a boatbuilding firm: Separations and accessions . . . . .	24
8. Proportion of overtime to total man-hours in a boatbuilding firm . . . . .	25
Appendixes:	
A. Description of the study . . . . .	26
B. Interview guides . . . . .	28
Selected bibliography . . . . .	31

## Introduction

Much publicity has been given recently to 4-day, 3-day, or other rearranged workweeks for employees. Although in mid-1974 only about 2 percent of the full-time employees of U.S. firms were estimated to be on such a workweek, some observers of working arrangements have predicted a growth in the number of firms adopting such schedules.

The spread of this innovation has aroused considerable interest in the United States because of the potential effects of the revised workweek on the efficiency of the work force and the job satisfaction of individual employees. Interest in the revised workweek in this country is part of the reexamination of worktime patterns that is going on in most industrialized countries. In some European countries, the interest has centered around flexible work schedules that permit employees, within a prescribed band of time each day, to start and finish work at their discretion as long as they complete the total number of hours required for a week or a month. In some countries, the concern is with length of vacations, length of the working life, or retirement ages. Evidence of this growing interest was the international conference on new patterns for working time held in Paris, France, in late 1972 under the auspices of the Organisation for Economic Co-operation and Development.

The Department of Labor had several purposes for conducting this pilot study on the revised workweek. One was to gain a general idea from a sample of firms of their objectives and methods for introducing the work-

week changes. A second was to evaluate the availability of data and the feasibility of further research into the effects of the new workweek schedule on such economic factors as productivity, absenteeism, capacity utilization, and improved work scheduling, as well as on employee morale.

The survey covered five manufacturing firms, three banks, two insurance companies, two automobile dealers, two government agencies, one wholesale trade firm, and one hospital. Only one firm was unionized. All of the organizations surveyed had been on the new schedule for over a year; twelve considered it to be a permanent arrangement; three considered it to be still on trial; and one was considering discontinuing it.

Chapter 1 presents the objectives of the firms for adopting the revised workweek schedules. Chapter 2 includes detailed descriptions of the types of workweek schedules adopted. Chapter 3 presents the assessments of the effects on the firms of the revised schedules. Chapter 4 discusses the attitudes of the employees, and Chapter 5 investigates the nature and adequacy of the data available to assess the economic effects. Finally, the report offers some conclusions, summarizing the experiences of the firms studied and evaluating the feasibility of large-scale studies of the effects of the new work schedules. The appendixes describe the research plan of the study, the 16 firms studied, and the interview guides.

The findings presented in this report represent only the experiences of the firms studied. Caution should be taken in drawing more general conclusions.

# Chapter 1. Objectives for Adopting Revised Workweek Schedule and Plans for Introduction

## Objectives

Representatives of the firms visited gave many reasons for the adoption of a revised workweek schedule by their companies. Nearly all of the officials mentioned first the benefit to employees as a major reason. However, discussions disclosed other and perhaps more compelling reasons for the change. The officials were requested to indicate the principal objectives from a list of possible reasons offered by the interviewer. Table 1 summarizes the principal objectives and major secondary reasons for the decision of the 16 firms visited to adopt a revised workweek schedule.

Easing recruitment appeared to be the principal reason for adopting a new workweek schedule for five firms and a major secondary reason for one other. The 4-day or 3-day workweek was used extensively by these employers in advertisements in attempting to attract employees who were in short supply. For example, the personnel director of a boatbuilding firm located in a tight labor market remarked that "the 4-day week is my best recruiting tool." The firms pointed to the increased opportunity for leisure time for recreation, more time

with families, and less commuting time and cost as a result of working 3 or 4 days a week instead of 5.

Extending the daily or weekly hours of operation of the organization was listed as the principal objective of four of the firms and a secondary objective for two other firms. The lengthened hours would increase the operating capacity of the firm and enable the company to provide better service to its customers, to its dealers, or to its branch offices around the country. For example, one automobile firm wanted to increase the service capacity of its dealership and extend business hours for its customers' convenience. The company could not increase the size of the building because of zoning regulations. By having each mechanic work 2 hours longer each weekday and work on Saturday, and by adding new employees, the firm was able to increase the number of hours it was open from 46 to 76 per week. An alternative to the revised workweek would have been to add a night shift. However, it was felt that, in a tight labor market, it would not be possible to find mechanics willing to work a night shift. Similarly, a bank wished to be open more hours per day so that its customers could use the bank during periods when they were not at work. The firm was able to achieve this by lengthening the number of hours each employee worked per day and giving each employee a day off on a rotating schedule during the week.

**Table 1. Objectives for adopting revised workweek schedule**

Objective	Number of firms citing as principal objective	Number of firms citing as major secondary objective
Easing recruitment . . . . .	5	1
Providing better service to customers or company by extending daily or weekly hours . . . . .	4	2
Maximizing use of equipment or otherwise obtaining savings . . . . .	2	2
Enhancing image of company . . .	2	—
Improving workflow or schedule . . . . .	1	2
Reducing overtime or absenteeism . . . . .	1	4
Helping morale of employees . . .	1	5

Representatives of two of the firms indicated that the principal objective in adopting the 4-day week was to maximize the use of equipment or otherwise obtain savings for the company. An egg produce company, for example, initiated the 4-day, 40-hour week in 1964 as a means of scheduling 60 hours of work during the week so that it could maximize the use of its equipment. With the 5-day, 40-hour week, the company found it difficult to devise a schedule so that it could operate its packaging line 60 hours a week. As another example, the plant manager of a food processing company said that his firm would obtain savings by operating only 4 days a week instead of 5. The plant is cleaned every night and, therefore, one cleaning would be eliminated each week. Similarly, it is time-consuming to start up the assembly

line each morning; the 4-day week eliminates one startup. Rest periods for employees would be reduced by two a week from 10 to 8. Maintenance work, when needed, could be done on Friday, when other employees were not present, and when it would not interfere with operations.

Representatives of two other organizations stressed that maximizing the use of equipment was one of the major secondary reasons for adopting a revised workweek schedule. Both organizations hoped to make better use of their computers and related equipment.

Representatives of two firms indicated that enhancing the image of the company was the principal reason for adopting the 4-day week. The president of a machinery manufacturing company wanted to affirm the company's image of being a "progressive employer." The company was about to "go public" and a good image might help in selling the stock. Similarly, the board of directors and president of an insurance company felt that adopting the 4-day week would enhance the image of the company as innovative and "looking out for the employees' interests."

Representatives of three firms said that the principal or major secondary reason for moving to a new workweek schedule was to improve the workflow or to solve scheduling problems. For example, the reason given by the vice president of a large bank for adopting a revised workweek schedule was "operational." The purpose was to improve the workflow. The operations center processes a huge amount of paperwork—\$30 million of checks, letters of credit, etc., pass through the home office annually. By changing the work schedule so that a larger proportion of total man-hours would be available at the busiest period, it was expected that the flow of work from one department to another would be smoother.

Reducing the amount of overtime and absenteeism was the principal objective of one firm and a major secondary objective of four others. A large bank has rush periods at the beginning and end of each day in some departments and a relatively "dead" period during the middle of the day. An official of the bank concluded that by having employees come to work earlier and leave later (increasing the daily hours from 7 to 8-3/4), the two rush periods would be better taken care of. Less overtime would be needed to finish jobs at the end of the day and fewer employees would be at work during the slow time in the middle of the day. A number of the firms felt that a 4- or 3-day workweek would result in less absenteeism. One representative expected that 1-day absences could be reduced in his firm because employees could make medical or dental appointments or take care of personal business on their days off. The official said

that, when employees were "kind of sick," they might nevertheless come to work if their scheduled day off was the next day or the day after.

As previously indicated, many of the firms mentioned improving employee morale as one of the reasons for adopting a revised workweek schedule. Less commuting time and costs, less child care need, and long weekends were often cited as employee benefits that would come from shifting to a 4-or 3-day week. A number of companies reported that, since some employees were off each day, considerable cross-training of employees would take place. This would be done so that workers could fill in for their fellow employees who were not scheduled to work on a particular day. The officials believed that this situation would result in more job satisfaction for some workers because they would have a greater variety of duties. (This would also result in a more flexible work force for the employer.)

### **Planning for and introducing new work schedules**

*Research or feasibility studies.* The company representatives interviewed were asked what research or feasibility studies, if any, were performed to help make the decision to adopt a revised work schedule. Officials of six of the organizations reported that no research or feasibility studies, as such, were undertaken to aid in making the decision. However, high officials of several of these firms had read about the 4-day week and decided it should be tried in their firms. (Three officials specifically mentioned reading a particular book on the 4-day week. <sup>1</sup>)

Three of the sixteen firms employed outside consultants to evaluate the feasibility of moving to a 4-day week. The consultants also interviewed the employees about their feelings toward a revised workweek and helped in the development of shifts and other work schedule arrangements.

In five of the firms a management group had considered the advantages and disadvantages of a rearranged workweek schedule and had made recommendations to adopt the change. For example, in a large bank, an internal work measurement group investigated various departments to check on the feasibility of moving into various kinds of revised work schedules. The group used a department which had a regular work load (the vault department) as a test group. Other departments were picked carefully for the ease with which

<sup>1</sup>Riva Poor, ed., *Four Days, 40 Hours: Reporting a Revolution in Work and Leisure* (Cambridge, Mass., Bursk and Poor Publishers, 1970).

they could change work schedules. Similarly, officials of a computer data processing department of a large insurance company, after an internal study, developed a proposal to top management to schedule employees of the department on a 3-day workweek. They arrived at this recommendation because of the difficulty of obtaining personnel, the wish to run the computer more hours a week, and the desire to reduce overtime. The group recognized that the proposed revised workweek schedule might require a 15-percent increase in staff, but could result in a comparable reduction of overtime man-hours. The study had indicated that salaries of the company were already higher than the market and that a moderate salary increase would not succeed in recruiting sufficient manpower.

In only one of the organizations (a government unit) did the initiative for the revised workweek come from rank-and-file employees. In this government agency, an employee group, which had been formed to advise management and make suggestions which would improve efficiency and also be responsive to employees' needs, proposed a revised work schedule (3-day week) for a computer unit. The group arrived at the proposal after reviewing literature on revised workweeks and studying their organization.

One of the companies investigated the experience with the 4-day week of a company in the same industry located in another city. Officials of a bank in a small community in New England had learned that a large bank in a nearby city had adopted the 4-day week for its employees. Representatives of the firm visited the larger bank and obtained information on the workweek schedule adopted and its effect on bank operations. These representatives concluded that the 4-day week would be feasible for their bank and would make it possible for the bank to stay open more hours and to provide better service to customers without a large increase in personnel. The experience of the larger bank led them to believe that the 4-day week would benefit employees and would reduce absenteeism.

*How changes were introduced.* All firms consulted with their employees (or union) before adopting a rearranged work schedule. The degree of consultation, however, varied considerably. Some companies took a vote of their employees; others merely met with individual

employees or groups and explained the proposed program and answered questions.

An insurance company gave all its employees a letter explaining the proposed schedule to take home and talk over with their families. A vote of the employees was to be taken a few days later. The workers actively campaigned for the 4-day week. Some made posters and put them up on the employees' bulletin board. The company had decided in a meeting of department heads that at least a 70-percent positive vote of the employees would be required for the 4-day week to be adopted. (Seventy-eight percent of the employees voted for the change.)

A vice president of a large bank characterized the planning and introduction of the revised workweek schedule as "a carefully orchestrated affair." An elaborate orientation program was initiated to communicate information to employees. Brochures were developed, explaining the change. An economic analysis of the savings to employees was prepared. Supervisors were briefed so that they could better answer questions of employees.

In a few of the firms, votes were taken by units or departments. If the majority of the employees of the units voted negatively, the rearranged workweek was not adopted for that unit.

Representatives of a large insurance company said that the company had decided to try the 3-day week as an experiment in one unit, even if the employees had voted against the change. (Employees could be shifted to another unit, if necessary.) The employees of the unit selected as an experiment did vote favorably for the change.

In some firms, all employees whose workweek was changed shifted to the 3- or 4-day week at the same time. This was especially true where the revised workweek schedule covered all or nearly all employees. In some large organizations, in which only a relatively small fraction of employees shifted to a 3- or 4-day week, the revised workweek was introduced piecemeal, that is, unit by unit.

The length of time for introducing the new workweek schedule after the employees were first told of the proposed change ranged from a week or less (for two firms) to as much as 9 months.

## Chapter 2. Descriptions of Revised Work Schedules

The adoption of the revised workweek schedules took many forms. Some were simple. Others involved complicated, sometimes rotating, schedules for employees. Some firms operated more days a week and some firms operated fewer days as a result of the revised workweek schedules. One of the 16 firms was open for business 7 days a week prior to the revised schedules and remained open 7 days a week after. The other 15 firms were open 5 days prior to the schedule change, with four firms still open 5 days after. Four firms are now open 4 days; six firms 6 days; and one firm, 7 days.

The tabulation below summarizes the new workweek schedule adopted by the 16 organizations studied:

<i>Number of firms<sup>1</sup></i>	<i>Weekly schedule</i>	<i>Number of firms with more than 1 shift</i>
8	4 days, 40 hours <sup>2</sup>	5
2	4 days, 38 hours	0
2	4 days, 35 hours	2
1	4 days, 34 hours or 32 hours, depending on day off	1
1	4 days, 40 hours, and 3 days, 30 hours, in alternate weeks	
	3 days, 36 hours (plus makes up 8 hours every 2 weeks)	1
1	3 days, 35¾ hours	1
1	3 days, 35 hours	1

<sup>1</sup> The tabulation contains 17 schedules because one of the firms had employees on both a 3- and a 4-day week.

<sup>2</sup> For one of these firms, employees work 46 hours during 2 out of every 6 weeks.

Eight of the 16 organizations had their employees scheduled to work four 10-hour days each week. In five firms, employees were on a 4-day schedule but worked less than 40 hours a week (32–38 hours). Employees of one firm worked alternately 4 days and 40 hours in one week, then 3 days and 30 hours the next week. Three organizations had employees on a 3-day week schedule; all of these were in computer units. Employees of two of these firms worked slightly less than 12 hours each of the 3 days. Employees of the other organization were scheduled to work 80 hours each 2 weeks. They worked three 12-hour days each week and made up the other 8 hours sometime in the 2-week period.

### Simpler plans

For four firms, the scheduled changeover for employees was simple. The plants were scheduled for operation 4 days a week, instead of 5, and were closed on Fridays. Thus, all employees worked Mondays through Thursdays, but 10 or 9½ hours a day, instead of 8. The other 12 organizations which adopted a 4- or 3-day workweek for their employees had to devise a schedule in which some employees were “off work” at various times during the week.

Two firms remained on a 5-day-a-week operation with employees working 4 days. In one of these firms, employees were divided into two groups. One group worked Mondays through Thursdays, and the other, Tuesdays through Fridays. In the other organization, one unit divided its staff, for example, into three equal shifts, with only two of the shifts on duty each day. The schedule of “off” days was Monday, Wednesday, and Friday, with the days off rotating so that a scheduled shift would be off on Mondays of one week, Wednesdays of the next, and Fridays of the next. This rotation of shifts provided a long weekend, including both Friday and Monday, each third week. (This schedule was later changed so that there were only two shifts alternating Mondays and Fridays off.)

In one firm, the workers were divided into three teams—A, B, and C. Workers had a choice of hours when the new work schedule was initiated, that is, being on Team A, B, or C. The schedules do not rotate. Those with the most seniority had the first choice. As openings occurred in other shifts, those with seniority could move from C to B, B to A, or C to A. The schedule developed was as follows (W=workday; O=off day):

	<i>Team A</i>	<i>Team B</i>	<i>Team C</i>
Monday .....	W	O	W
Tuesday .....	W	O	W
Wednesday .....	W	W	O
Thursday .....	W	W	O
Friday .....	O	W	W
Saturday .....	O	W	W
Sunday .....	O	O	O

Those on the A schedule have Friday, Saturday, and Sunday off each week; those on the B schedule have

Sunday, Monday, and Tuesday off; and those on the C schedule have a 1 day weekend, Sunday, but have Wednesday and Thursday off.

### More complicated plans

The other nine firms designed somewhat more complicated schedules for their employees when adopting the rearranged workweek. The employees of the data processing unit of an insurance company changed from a 5-day week to a 3-day week. However, their total scheduled weekly hours did not change; these remained at 35¾ hours a week, not counting a meal period of 35 minutes. On the old schedule, employees were on one of three shifts:

Shift 1 ..... 7:20 a.m. to 3:05 p.m.  
Shift 2 ..... 3:05 p.m. to 10:50 p.m.  
Shift 3 ..... 10:50 p.m. to 7:20 a.m.

Shift 3 employees worked 45 minutes overtime each day.

On the revised workweek schedule, the actual working time for each shift is 11 hours and 55 minutes, which includes one 25-minute break considered as working time and a 35-minute lunch period not considered as working time. Employees are assigned to shifts permanently, either day or night. For those working either day or night, there are alternating work schedules. These schedules are arranged so an employee will work no more than 2 consecutive days or nights. Employees work from 7:30 a.m. to 8 p.m. on the day shift, and 7:30 p.m. to 8 a.m. on the night shift. This permits a half-hour overlap. The work force is divided into two groups for daytime and five groups for nighttime. It was not possible to divide the staff into two groups with equal hours at night since the employees cannot work Saturday night (after midnight Sunday morning) because of the "blue law".

Prior to the change in the workweek schedule, all employees of a bank were scheduled for five 7-hour days—35 hours a week. Those employees who shifted to a 4-day week work 8¾ hours a day. Most of the departments adopted a progressive rotating schedule. Personnel were divided into five teams, with one team off each day. The teams stayed on a particular schedule 2 to 5 weeks, depending on the department, and progressed to the next schedule up, that is, those who had Monday off next had Tuesday off, etc.

In order to cover the extended hours adopted and with employees working only 4 days a week, both automobile dealers divided their employees into teams and put them on a rotating schedule. One automobile dealer divided his mechanics into four crews. An 8-week

cycle was developed for each crew. Each crew changes its schedule every 2 weeks. For example, Crew 1 starts Week 1 and Week 2 at 12 noon on Monday and works until 10:30 that night (½ hour off for a meal). Tuesday, Wednesday, and Thursday are repeats of Monday. The crew is then off on Friday, Saturday, and Sunday. The schedule for Crew 1 during the third and fourth weeks of the cycle is 7 a.m. to 6 p.m., Monday through Thursday. Again, Friday, Saturday, and Sunday are days off. During the fifth and sixth weeks, the crew works Monday and Tuesday, 7 a.m. to 6 p.m., is off on Wednesday, and works from 7 a.m. to 6 p.m. on Thursday and Friday. During the seventh and eighth weeks, the crew works Wednesday through Saturday, 7 a.m. to 6 p.m.

The other automobile firm has its personnel divided into three teams, working a rotating schedule. The cycle consists of 6 weeks and the employees shift every 2 weeks. Basically, the schedule is as follows:

Team A . . . Monday through Thursday, 7 a.m. to 5:30 p.m. and Saturday, 8 a.m. to 2:30 p.m., 46 hours, ½ hour off each day.  
Team B . . . Monday through Thursday, 12 noon to 10:30 p.m., 40 hours, ½ hour off each day.  
Team C . . . Tuesday through Friday, 7 a.m. to 5:30 p.m., 40 hours, ½ hour for lunch.

One week out of every 6, the mechanics have a 4-day weekend. Three out of every 6 they have a 3-day weekend.

In the bank, employees rotate their time off within each unit. Employees have Monday off the first week, Tuesday off the next, etc. When an employee is off on Friday of one week, this employee is also off on Monday of the following week, so that once every 5 weeks the employee has a 4-day weekend.

Employees of the computer unit of a bank had worked, before the schedule change, a 5-day, 35-hour week. They either worked 9 a.m. to 5 p.m., or 5 p.m. to 1 a.m. (with an hour for meals on each shift). The new shift is 3 days of 11 hours and 50 minutes each, or 35 hours a week. They work either 7:45 a.m. to 8:10 p.m., or 7:45 p.m. to 8:10 a.m. (with 45 minutes for a meal). The computer unit personnel have been divided into four teams, each working 3 days. One team works Monday, Tuesday, and Wednesday, day shift; the second team works Thursday, Friday, and Saturday, day shift; the other two teams work Monday, Tuesday, and Wednesday nights or Thursday, Friday, and Saturday nights. There is no rotation of shifts.

Each of the three computer units of a government organization has moved to a 7-day, 24-hour-a-day operation. Previously, employees had worked five 8-hour

days. The new schedule for all three groups called for three 12-hour days plus additional time to make up the extra 8 hours so that each pay period of 2 weeks covered 80 hours. One group had its employees working three 12-hour days on a rotating shift with two shifts a day. Each employee worked 8 hours every other Sunday. One group had its employees working three 12-hour days and 12 hours every other Sunday, but employees were given 4 hours off sometime during the 2-week period.

Before the revised workweek schedule was adopted by an egg produce company, women on the processing line had worked a 5-day, 40-hour week. Now employees work four 10-hour days. The plant employees are divided into three teams. Each day, two teams are working and one is off. Teams rotate off every 2 months. For example, in one period Team A works Wednesday, Thursday, Friday, and Saturday; Team B, Monday, Tuesday, Wednesday, and Thursday, and Team C, Friday, Saturday, Monday, and Tuesday. With this schedule, employees work every Saturday in 4 out of each 6 months.

The nursing service of the hospital had the following schedule for its employees before the revised workweek was adopted:

Three shifts: ..... 7 a.m. to 3:30 p.m.  
3 p.m. to 11:30 p.m.  
11 p.m. to 7 a.m.

The first two shifts had half-hour meal periods. The third shift did not. Employees on each shift worked 8 hours a day. Employees were given every second weekend off. Thus, nursing personnel sometimes had to work as many as 10 days in succession. In addition,

many part-time workers were hired to work the 2 days employees were off each week. An article describing the nursing service stated that "part-time nurses outnumbered full-time 2 to 1, compared to an industry average of about 1 to 4."

The following is a schedule of the rearranged workweek which continued from the end of 1969 to January 1972:

Three shifts: ..... Day—7 a.m. to 5 p.m.  
Evening—5 p.m. to 10 p.m.  
Morning—9 p.m. to 7 a.m.

Note the 1-hour overlap from 9 to 10 p.m. in the evening to take care of the busy period when patients are being put to bed. The evening shift is generally 5 hours long (but some employees work 4 hours, 5 to 9 p.m.), and is filled by regular part-time employees. These are married women, many of whom had previously left nursing. The other two shifts are 10 hours long. Thirty minutes allowed for lunch and 15 minutes for coffee break are included in the 10 hours each day.

For each shift, employees were distributed into two teams, Group A and B. Group A worked 4 days 1 week and 3 days the second week, and Group B worked 3 days the first week and 4 days the second week. Thus, all 7 days were accounted for. Employees thus worked 70 hours every 2 weeks. The schedule rotated every 2 weeks. When on the 3-day week, employees work Sunday, Wednesday, and Thursday; on the 4-day week, they work Monday, Tuesday, Friday, and Saturday.

The schedule above was discontinued because of its cost; most employees now work four 10-hour days each week.

## Chapter 3. Assessing the Effects of the Revised Workweek

In assessing the effects of the change, in many cases one can only measure a before-and-after situation and speculate whether the change resulted from the revised workweek schedule or from other factors. For example, recruitment or turnover might be affected by a change in economic climate as well as a shift to the 3- or 4-day week. Productivity may be affected by the introduction of new equipment or technology or the presence of more space per person for assembly operations which came into being at about the same time as the revised workweek.

This chapter first assesses the effects of the revised workweek schedules in terms of the firms' stated objectives and then examines some significant economic factors which may have been affected by the change-over. An evaluation of the adequacy of the data and of some of the problems in their use is presented in chapter 5.

### Were firms' objectives realized?

The amount of success of the revised work schedules in meeting the objectives for which they were initiated varied by the reason for the new schedule.

*To extend operating hours.* Six of the sixteen establishments visited had as a principal objective or major secondary objective for adopting the rearranged workweek the extension of hours that the firm was open. The lengthened hours would increase the operating capacity of the firm or increase the ability to service customers or branches or sales offices. These firms include an automobile dealer and a bank in the New England region, a wholesaler and an automobile dealer in the Border States region, an insurance company in the Midwest, and a local government agency in the Southeast.

The experience of these organizations would indicate that the major objective for instituting the rearranged workweek was being realized. Both automobile dealers greatly increased the hours when they were open to service customers' automobiles. One had been open 5 days a week for a total of 52½ hours. The revised workweek schedule resulted in the service department

being open 84 hours a week, an increase of 60 percent. The number of hours for the service department of the other automobile dealer increased from 46 to 76 hours per week, or 65 percent. Both firms are now open evenings and Saturdays. The extended hours apparently met with favorable responses from the firms' customers. Data provided by one of the automobile dealers indicated that dollar receipts for mechanics' labor time for the first 6 months of the calendar year just after the rearranged workweek went into effect were about 22 percent greater than the receipts for the first 6 months of the previous year. The president of the firm credited the increase to the extended hours. The president of the other automobile firm reported a more than 20-percent increase from a comparable period before the change in the workweek.

The bank had previously been open for customers 35 hours a week. Now the bank is open 47½ hours a week, or 36 percent more. The bank reported an increase in business beyond what it might have expected without the extension of hours. At first, customers did not greatly utilize the earlier and later bank operating hours. But as they became aware of this convenience, customers began using the bank more and more in the extended period.

The wholesaling firm increased the operating hours of its warehouse by 50 percent. It was done by increasing the hours of its employees by 2 hours each weekday and adding 10 hours of work on Saturday. This made it possible to handle a greatly increased workload with the same warehousing space. In addition, the new workweek schedule resulted in a smoothing of the daily output of the firm (that is, the amount of work done varies much less from day to day than it had on the 5-day week).

The revised workweek schedule of the insurance company resulted in the central office being open 7½ hours longer a week. Sales offices (100 around the country) now have a longer period to call in for service and information. This is especially helpful for those located in different time zones. For example, sales offices on the West Coast have 1 hour more in the afternoon for reaching the home office. Those on the East Coast, open a half-hour earlier, have this additional time in the morning.

The workweek schedule apparently was having mixed results in the local government organization. For example, the personnel department's extended hours made it possible to provide better service to applicants for city positions by being open early and late in the day. However, since most departments continued to be open 8, rather than 10, hours a day, applicants could not be referred during the other 2 hours nor could information be obtained from these departments during these 2 hours. Moreover, since the personnel department operated with many fewer employees on Mondays and Fridays as a result of the revised workweek, it could provide less service to the public on these days. This also resulted in a backlog of paperwork.

*To aid in recruitment.* A major objective of six firms adopting a rearranged workweek was to aid in recruitment of employees. It would appear that the revised workweek was having some success in meeting the objectives of easing recruitment for some firms, but was providing little help for others.

The hospital has been very successful in recruiting married nurses to work the 4- or 5-hour evening shift (instituted with the revised workweek schedule). Officials of the boatbuilding firm believed that the 4-day week had helped in recruiting new workers. The company mentions the 4-day week extensively in its advertisements. The personnel director indicated that most new applicants knew about the 4-day week schedule when they applied for work. The company has exit interviews whenever possible. In answer to the question, "What did you like most about the company?", about 9 out of 10 of those leaving say the 4-day week. Monthly statistics of job openings indicate that there was a reduction of unfilled jobs after the adoption of the 4-day week relative to a comparable earlier period.

The recruitment of data processing personnel in the insurance company did greatly improve after the adoption of the 3-day workweek. However, factors other than the 3-day week may have contributed to this improvement. The labor market for data processing personnel changed greatly about the time the rearranged workweek was adopted. The slowdown in business activity, especially in financial and stock brokerage firms, resulted in a greater availability of data processing personnel in the New York City area. Moreover, the company moved part of its data processing work out of the New York City area. (This decentralization was not due to the shortage of personnel.)

The plant manager of the clothing factory believed that the change in the workweek schedule was helping in recruitment. He said that, out of each 10 applicants for jobs, about 6 mentioned the 4-day week as the reason

for applying for work at this plant. However, despite extensive advertising on radio for personnel, with an emphasis on the 4-day week in such advertisements, the company has found it difficult to keep employment at a relatively stable level. There has not been a period in the last few years when the plant did not have vacancies for operators. A review of its monthly employment data indicates that employment actually declined in the first 6 months after the adoption of the 4-day week. This was not a result of the changeover since only a few employees left at that time.

An automobile dealer has not found that the revised workweek schedule has been a great help in recruiting mechanics. Despite considerable advertising in which the 4-day week is featured, the change in the workweek has not been successful in attracting mechanics to the firm. Recruiting in other nearby states has also proved a failure, despite the offer of higher wages. The company has filled its employment needs by training and is now about to hire some mechanics from another country (Korea). The other automobile firm has apparently had a little more success in attracting employees by the 4-day week.

*To improve utilization of equipment.* The principal objective of two firms in adopting the 4-day week was to maximize the use of equipment, or otherwise obtain savings for the company. This was also a major secondary objective of two other firms. A representative of the egg produce company felt that the objectives for adopting the 4-day week had been realized. The firm now operates its processing line 10 hours a day, instead of 8, and on Saturdays, increasing hours of operation by 50 percent. The 4-day schedule of employees, with a 6-day-a-week operation of the plant, also gives the company a labor reserve to fall back on in emergencies. Workers off on a particular day can be called on to fill in for absent coworkers. The plant manager of the other food processing firm felt that the company had achieved savings from the 4-day week schedule. As indicated previously, the plant has to be cleaned one night less a week; the assembly line is started up one fewer time a week; uniforms are provided for only 4 days instead of 5 days a week; and there are two less rest periods per week.

Both a government organization and a bank apparently have been able to better utilize their computer facilities. The bank reported that its computer is operated 50 percent more than before the revised schedule was adopted. Before the workweek change, with employees on a 2-shift schedule, the computer was not used between 1 a.m. and 9 a.m. Now it is used 24 hours a day. The government organization also utilized

its computers more on the new schedule. Before the workweek change, the three computer units of the government organization had their employees working 8 hours a day and 2 shifts. One of the units operated 6 days a week and the other two 5 days. With the revised workweek schedule, the computers are now utilized 24 hours a day, 7 days a week.

It is interesting to note that, despite the greater usage of the computers, there actually has been less downtime for computer repair than previously. There is some belief that cutting off the computer and starting it up again may result in more downtime in working hours than does continuous operation.

*To improve scheduling.* Improved scheduling was a major objective of a bank and the hospital. The reason given by the vice president of a large bank for adopting a revised workweek schedule was "operational." The purpose was to improve the workflow. In the operations center there is a great deal of paperwork; about \$30 million of checks, letters of credit, etc. pass through the home office each year. By changing the work schedule so that employees work longer hours at the end of the day, the bank has a greater proportion of its employees at work during the busiest times. For example, branch deposits generally arrive at the home office between 5 and 6 p.m. In some units where checks and other deposits are processed, economies result if they are processed faster. Having employees on duty at the right time facilitates the work in these units.

The hospital found that it was easier to handle scheduling by working nursing personnel alternate periods, either morning or evening, with two teams each period covering the entire week. By scheduling the short evening shift (4 or 5 hours), the two 10-hour shifts each day covered the 24-hour period without needing part-time help.

*To reduce overtime or absenteeism.* One firm had as a primary objective and five firms had as a secondary objective for adopting the revised workweek schedule, the reduction of overtime or absenteeism. The representative of a bank said that, in the departments in which they had checked the records, a decrease of overtime has been evident since the changeover. In the vault department, the first department to go on the 4-day week, overtime had been virtually eliminated. This department has to be open to take securities out and bring them back during the time the bank is open. The 4-day week gives the firm more flexibility and allows employees to be on duty for a longer period at the end of the day. From the first 3 months of 1971 to the first 3 months of 1972 (the latter after the workweek

change), overtime pay was reduced from about \$7,000 to about \$90 for the 100 employees in the unit. The representative of the bank also believed that there has been a relatively big improvement in absenteeism since the workweek change, but does not feel that the period has been long enough to warrant definite conclusions about the effect on absenteeism.

One of the major effects of the change in the work schedule, according to the plant manager of the clothing manufacturing company, was the reduction in overtime. He thought that, as a whole, overtime may have decreased by as much as 70 percent. Data confirmed the large decrease in the amount of overtime for 1971, after the workweek change, compared with 1970, before the change. An examination of individual pay cards indicated that, when employees were working on the 8-hour day, they often worked 9 or 10 hours in order to meet schedules, in addition to working on Saturdays some of the time. Since moving to the 10-hour day schedule, there appears to be little or no overtime on Monday through Thursday. Overtime takes place mostly on Fridays. The plant manager also thought there had been a considerable decrease in absenteeism. The memorandum to employees announcing the revised workweek stipulated that, because everyone would have a full weekday to take care of personal business, no absences would be excused from Monday through Thursday except in emergencies. The plant manager guessed that absenteeism had been reduced by about 25 percent. A check of payroll records for six 2-week periods before and after the change in the workweek schedule also showed a significant drop in days of recorded absences.

The plant manager of the egg produce company also believed that there had been a reduction in the amount of absenteeism (because employees know well in advance which days they are scheduled to work). He believed that overtime had been greatly reduced and is only worked by employees when they are filling in on their days off because of absences of fellow workers. The plant manager, however, had no data to substantiate the reduction in overtime or absenteeism (the workweek change had taken place 8 years previously).

A large insurance company reported a significant drop in overtime. Overtime as a percent of total man-hours for the units which went to the 3-day week in September 1969, was: 1968, 15 percent; 1969, 17 percent; 1970, 8 percent; 1971, 4 percent.

The president of the wholesaling firm believed that there had been a decrease in the amount of absenteeism. Data had not been summarized but during the visit information was compiled for 6 weeks before the changeover and 6 weeks after the changeover. These data showed that, on the average, the number of workers off

per day was 11 in the earlier period and 6 in the latter period. (It should be noted that a worker had only 4/5 as much opportunity to be off in the latter period.) The expected decrease in overtime in this firm did not appear to have materialized. For the 6 weeks before and after the change in the workweek, overtime pay was \$3,800 and \$3,900, respectively.

The change in the workweek schedule has not had an appreciable effect on the amount of overtime in the boatbuilding company, according to representatives of the firm. Data were available on the number of production worker overtime hours. However, the fluctuations in the company's production results in great variation in the amount of overtime work required from month to month, and probably masks the effect on the amount of overtime resulting from a revised workweek schedule.

*To improve employee morale.* Several organizations indicated that helping morale of employees was one of the major objectives of adopting the revised workweek schedule. Information from company officials and employee attitude surveys and interviews conducted by university groups or by the company itself seem to indicate that the great majority of employees were most favorably inclined to the 4-day or 3-day week. A discussion of employees' attitudes is provided in chapter 4.

*To enhance image of firm.* As indicated previously, the principal objective of two of the firms adopting a revised workweek schedule was to enhance the image of the firm. It is, of course, not possible to evaluate whether, in fact, the two firms had enhanced their image by adopting the revised workweek schedule. Both firms had obtained considerable publicity at the time of adopting the 4-day week.

### **Effect on productivity**

Productivity may be defined to mean the relationship between a given quantity of output to one or more of the various input factors required for such production. As used in this study, the input factor concerned is labor. Therefore, the concept used, output per man-hour, indicates how much labor is expended in providing a given volume of output. The gain (or loss) in productivity after the workweek schedule change may result from many factors in addition to the revised workweek. Change in output per man-hour may reflect technological innovations, scale of production, the skill of management, etc. Therefore, it is difficult to single

out the productivity change arising from one factor such as the change in the workweek schedule. Over a short period, however, the other factors may not change significantly or would be known, and the effects on production of changes in the workweek can be deduced.

Representatives of 10 of the 16 firms believed that productivity had increased since the workweek schedule was revised. One organization reported increases in some units and decreases in others. Officials of two firms felt that there had been little change in productivity as a result of adopting the 4-day week. Officials of one firm felt that there had been a decrease in productivity. Representatives of two firms said that adequate data were not available on which to base an opinion as to productivity change.

There was a considerable range in the estimates of productivity gains provided by officials of the 10 firms, and several of these firms did not provide data to verify these estimates. The plant manager of the machinery manufacturing firm estimated that the total value of output had increased by about 25 to 30 percent with little growth in the number of employees. However, measuring the effects of the 4-day week on productivity is complicated by the fact that the company moved to a new building about 1 month after the change to the 4-day week. The new building has more work space, a better layout, and better working conditions. On the other hand, a vice president of a large bank maintained that the increase in output and productivity in the bank's computer unit had occurred without a change in computer equipment. The plant manager of a food processing company said that productivity had increased by about 10 percent in 1971 (the first year after adopting the 4-day week) over 1970. This estimate was based on monthly computations of labor cost per unit.

Officials of some firms based their belief regarding an increase in productivity in part on the fact that the amount of work (output) had increased or remained the same with fewer man-hours of employment expended. For example, an official of an insurance company said that, in the period immediately after the change in the workweek schedule, about the same amount of work was done as before, with fewer employees, and with each employee working fewer hours per week. Similarly, a bank reported that when the 4-day week was adopted for its workers no employees were added and about the same amount of work was done despite a decrease of about 3 hours in the workweek of employees. An official of an automobile firm indicated that mechanics were turning out about the same amount of work in 40 hours (under the 4-day week) as they had in 42 hours (under the 5-day week schedule).

Where data were available, as illustrated in chapter 5,

they appear to verify the belief of the officials in regard to productivity gains. Representatives of these firms provided reasons for the increases in productivity. Less startup time and less closedown or cleanup time were most often mentioned. (With a 4-day week operation of the firm, there is one less startup and closedown each week.) A number of officials mentioned fewer rest periods. Those firms giving employees two rest periods a day had 8 rather than 10 a week after moving to the 4-day week. A unit of a government agency reported one less day of travel to and from work sites. An official of another government agency observed that having two (12-hour) shifts a day, rather than three (8-hour) shifts, resulted in an increase in efficiency. He said that at the beginning of every shift there was about a 45-minute period when the new arrivals received instructions, etc., which was "time lost." Similarly, at the end of the shift, there was about a 30-minute period of "time lost." Going from a 3-shift to a 2-shift operation, he estimated, resulted in a reduction of this lost time from 6 hours and 15 minutes to 3 hours and 45 minutes.

The revised workweek may have had indirect effects on productivity. For example, the shift to a 10-hour-a-day, 6-day-a-week operation resulted in a 50-percent increase in capacity of the wholesaler. Thus, fewer employees were at work at any given time. More work space per employee (in order filling units, for example) was credited as a factor in greater output per man-hour. Similarly, greater ease in recruitment (resulting in part from the 3-day week) permitted an insurance company to become more selective in hiring personnel and made it more feasible for them to release the least productive employees. Officials of two firms reported that by lengthening the day for employees the revised workweek schedule resulted in a higher number of man-hours scheduled in the busiest periods (at the beginning and end of the day) and fewer man-hours scheduled for the "dead period" in the middle of the day.

Officials of two firms believed that there had been little change in productivity since adopting the revised workweek schedule. Data from one of these firms, the clothing manufacturer, substantiated this belief. Data on the number of slacks produced per man-hour and piece-rate earnings of the same employees both indicated little change in output per man-hour. The other firm had adopted the 4-day week about 8 years before the interview and records were not available to measure a before-and-after situation. However, the plant manager believed there had been little change. The line operation of the plant is timed and would not have varied much.

Officials of two firms would not venture an estimate on productivity change. An official of a bank said that the workweek change had been too recent for many of

its units to arrive at conclusions. Moreover, the periods since the change were abnormal and the volume of work was less than normal, which might affect productivity. For the hospital, data are available for such measures as nursing man-hours per patient day. However, with this data, it is difficult to know whether a difference in man-hours per patient day or some comparable measure would mean a difference in productivity or efficiency, or would just mean that patients were getting more or less nursing care. The hospital had asked a research organization to evaluate the new 10-hour shift of nursing personnel and to provide information, among other things, on per unit costs for nursing services and productivity of nursing personnel. However, comparable data for the period before and after the workweek change were not available. Moreover, other innovative practices were introduced at the same time as the 10-hour day. As a result, the cost and productivity aspects of the study were dropped.

Officials of the boatbuilding firm believed that there had been a gradual decrease in productivity since the 4-day week was adopted. When the revised workweek was first put into effect and was on a trial basis, employees put out greater effort in order to induce the company to make this change permanent. However, as time went on, the officials believed output per worker had declined. They provided the following indications:

1. The coffee breaks were discontinued and employees were given a half hour shorter workday as a tradeoff. However, as time went on, personnel took longer periods to go to the restroom, to get a smoke, to get coffee from the vending machines, etc., so in fact, the managers believe, employees are taking as long a break as they did when the breaks were official.
2. The new management hired an industrial engineering firm to look into the operation of the establishment. One of the things that the engineering firm did was to observe the employees at work. One finding was, for example, that at the end of the day, at the last hour, only about 40 percent of the people were working at one time. This was a much smaller percentage than at any other time during the day.

It was not possible to obtain adequate data to measure output and productivity for this firm. Man-hour data for production workers and total employment are available. However, an adequate measure of output would be very difficult to develop. At about the time the workweek change was instituted, new technology of production was introduced; some new laborsaving equipment was installed; the product was changed; the boats produced were larger than prior to the workweek change; instead of performing some operations themselves (for example, laminating), products were pur-

chased from other companies; and work standards for particular operations were revised because of these changes. As a result, it was felt that output measures such as the number of boats produced or the dollar value of products sold would not provide valid data on which to estimate productivity change.

### **Length of workweek for employees**

In addition to resulting in a longer workday and fewer days worked a week, the 4-day or 3-day week had other effects on the work schedule of employees of some of these companies. Employees of some firms moved to rotating shifts in which their scheduled workday and hours changed periodically (as was explained in chapter 2). The number of hours worked per week was reduced for employees of six firms. However, employees of these firms did not benefit as much as it would first appear as a result of this decrease in scheduled hours. The employees of the two automobile firms are on a piece-rate (standard hours produced) pay basis. Any decrease in weekly hours would reduce the amount of time spent by mechanics to produce earnings. A bank and an insurance company both reduced weekly hours for their employees. However, in both firms, employees received less holiday time off after the workweek change. When a holiday fell on a scheduled workday, an employee made up that day on his day off that week. So, in effect, part of the reduction in weekly hours was offset by loss of holiday time off to employees. A boatbuilding firm reduced the workweek for employees by a half hour a day or 2 hours a week, but employees "lost" the two 15-minute rest periods which they had prior to adopting the 4-day week. The hospital, under its first revised schedule, provided for a reduction in working hours for nursing personnel from 80 hours every 2 weeks to 70 hours every 2 weeks with little change in pay. (This schedule was later changed because of cost.)

### **Pay and benefits**

For most firms, as far as vacations and holidays were concerned, employees were given the same number of hours off under the 4-day or 3-day week as they previously had on the 5-day week. For example, employees on a 3-day week in an insurance company received approximately 3/5 as many days for vacations as the 5-day-a-week employees. In most cases, fractional days have been rounded up in favor of the 3-day-a-week employees. Employees of a bank are given 12 holidays a year. Those on a 3-day week are given 8; these

employees thus gain a fraction of a day a year. Several firms provided employees the same number of days off for holidays. However, employees received 10-hour days off compared with 8-hour days off prior to the workweek change. In a few companies, employees who were not scheduled to work on the day a holiday falls are given another day off as compensatory time. As indicated previously, employees of two firms work on their day off when a holiday occurs on a scheduled workday. One firm now pays overtime for all hours after 38 a week. The hospital, in its first revised schedule, paid overtime for all hours after 8 a day. (This was later discontinued and no other firm visited paid overtime for hours worked above 8 in a given day.)

### **Quality of work**

Only a few of the 16 firms had data to show the change in quality of work for a comparable period before and after adopting the revised workweek schedule. A number of the officials interviewed had impressions of what effect the 4-day week had had on quality of work, but no clear picture was evident.

One automobile dealer provided data as an example for the same calendar month in the year before the 4-day week and the year after. For the earlier month, there were 474 "comeback" hours on a volume of work of \$26,700. For the latter month, there were 357 comeback hours on a volume of work of \$32,100. Thus, the latter month had 37 percent fewer comeback hours per \$1,000 of repair work. The other automobile firm did not have records of comeback hours before the 4-day workweek was adopted. Both automobile dealers attributed an improvement in quality of work to the team approach which was instituted with the 4-day week. The supervisor is responsible for fewer cars for inspection and advice in terms of repair. (It should be noted that the team approach introduced with the 4-day week resulted in an increase in the amount of supervision.)

An official of a government agency believed that there had been an improvement in quality as a result of the 12-hour day shift. Many of the errors in computer operation occur at the time of the change in shifts. Because there were now only two changes in 24 hours instead of three, the amount of necessary communication and direction between employees on different shifts had lessened, and the number of errors had declined.

The audit of hospital service was not begun until after the revised workweek was adopted and so cannot provide an indication of any change in quality of work. The attitude survey of nursing personnel, however,

might provide an indication of quality of patient care. Twenty-six percent of the nursing employees thought that the quality of patient care provided by the 10-hour shift was better than that when on the 8-hour shift; 11 percent thought it was worse; the remainder either thought that it was no different or did not answer the question. Thirty-nine percent of the nursing staff thought more time and attention was given to the patient since being on the 10-hour shift; only 7 percent thought there was less time and attention.

The limited data available for the machinery manufacturer indicated that there apparently had been little change in the quality of work, although the plant manager thought it might have been improved somewhat. Information on the cost of replacing or repairing products returned by customers was provided for the year after and the year before instituting the 4-day week. In 1970, the cost of "charge-back" was about \$33,000 from net sales of \$10.8 million. For the year 1969, it was about \$27,000 from net sales of \$7.9 million. This would indicate a "charge-back" for returns or repairs of 0.34 percent in 1969, and 0.31 percent in 1970.

Officials of the boatbuilding firm indicated that there had been an increase in the quality of operations during the past 2 years, but that the improvement had not resulted from the change in the workweek schedule. New quality standards had been set and there has been a concentrated effort by the company to maintain these standards.

The plant manager of a food processing firm said that there had not been any change in the quality of work. The plant has a rigid quality control system and there has not been a noticeable change since the revised workweek schedule went into effect.

An official of an insurance company said that error rates for their operating employees run about 3 to 4 percent and have not changed. When new employees come in, error rates are high. The company did not provide any actual data on error rates.

### Attendance

Thirteen of the sixteen firms reported an improvement in attendance (decrease in absenteeism) since adopting the new workweek schedule and most attributed the improvement to the revised workweek. Data to show the improvement in attendance were provided by a number of companies. An insurance company, as indicated previously, provided some data for short-illness absences (less than 8 consecutive calendar days). For the units which went to the 3-day workweek, the number of

working days lost per employee in 1968, before adopting the 3-day week, was 4.77. In 1971, the number of working days lost per employee in these units was 4.22. A check of the records of the wholesaler at the time of the interview for a sample period, covering the 6-week period just prior to the workweek change and a 6-week period just after the change, showed that the number of workers absent per day averaged 11 in the earlier period and 6 in the latter period. Similarly, during the plant visit to the clothing manufacturer, payroll records were checked to indicate the number of days absent for the same individuals for six 2-week pay periods before the workweek was changed and six 2-week pay periods after the change. The number of persons having at least 1 day of absence was exactly the same — 59 of the 97 persons surveyed. However, in the earlier period, 201 days of recorded absences were shown, compared with 120 days in the latter period. In the examples of the wholesaler and the clothing manufacturer which showed reduction of absences, it should be noted that employees were scheduled to work only 4 days a week in the latter period and 5 days in the earlier period. Therefore, each employee had 20 percent fewer opportunities to be absent in the latter period.

One of the computer units in a government organization reported that, in the first 3 months after the 3-day week was instituted, the employees of the unit had used only 57 hours of sick leave compared with 200 hours for the 3 months prior to the workweek change. The other government organization showed that absenteeism declined in three of the units, but actually increased in one unit. For a 5-month period in 1970 and 1971, the tabulation below shows the absence rate for the four units:

	<i>Absence rate (percent)</i>	
	<i>1970</i>	<i>1971</i>
Bridge department . . . . .	5.5	4.2
Personnel department . . . . .	2.6	2.1
Purchasing department . . . . .	2.7	1.1
Building inspection department . . . . .	3.3	3.8

A number of the other firms indicated that significant decreases in absenteeism had occurred but did not provide actual data on attendance.

Officials of these firms mentioned as reasons for the improvement in attendance such things as: employees know their work schedules well in advance so they can schedule medical, business, or other appointments on their days off; and employees lose 25 percent of their weekly pay for being absent 1 day. Some firms permitted employees to trade days off with other employees in the same unit when they had a good reason. The biggest improvement in attendance was

claimed by the plant manager of a food processing firm who said that absenteeism now ran 1 to 2 percent compared with 5 to 6 percent before the workweek change.

Officials of two of the firms indicated that there had been no change in the amount of absenteeism. The plant manager of a machinery manufacturing company said that absenteeism was not a problem now nor had it been before the workweek change. Workers are now often permitted to make up time lost during the week by working on Fridays. Officials of an insurance company reported that absenteeism measured by the number of hours absent divided by the number of hours scheduled had held steady—at about 3 percent—after the workweek schedule change. Fewer persons are absent each day. However, when a person is absent for a day, he is absent 10 hours now compared with 8 hours on the previous schedule. This has about offset the smaller number of persons absent. The company had hoped that the attendance rate would show a marked improvement. The 4-day week has, however, made the company's operation more flexible. Persons absent on Monday can work on Friday to make up, and vice-versa. Moreover, the company finds it easier now to get employees to work on their days off than it had been to persuade employees to work extra hours per day or on Saturday on the old schedule.

The employee attitude surveys sometimes included the employees' opinions as to the amount of absenteeism. Fifty-five percent of the employees of the clothing manufacturer indicated that they felt absenteeism had decreased, 11 percent that absenteeism had increased, and 34 percent that there had been no change in the amount of absenteeism.

Officials of only a few of the firms had impressions as to the amount of tardiness before and after the workweek change. Officials of three of the firms thought that tardiness may have increased. Employees found it harder to get to work on time because of earlier starting times, getting their cars started in the winter mornings, and child care problems. Tardiness may have decreased in some firms (such as one of the automobile dealers) in which the team approach was instituted with the workweek change. Members of the team "policed" the starting time.

### **Recruitment**

Nearly all of the firms used the 4- or 3-day week in their newspaper or radio advertisements to attract new employees. For example, the personnel director of the boatbuilding firm said that the 4-day week was her best recruiting tool. Officials of 11 of the firms felt that the

revised workweek schedule had significantly helped in recruiting new employees. However, officials of two of these firms said it was difficult to know how much effect the revised workweek had because, just after the revised workweek was adopted, the labor market became more favorable for hiring workers. In two other of these 11 firms (a food processor and a bank) a considerable amount of newspaper publicity heralded their adoption of the 4-day week. These stories resulted in a flood of applicants which provided these firms with a list of potential employees. A number of the officials interviewed said that a relatively high proportion of new applicants mentioned the 4-day week as the reason for applying for work at the firm. Officials of 3 of the 16 firms said that their companies had no trouble in recruitment before or after the workweek change. One firm, an automobile dealer, said that the 4-day week had not been successful in helping to recruit new mechanics, despite considerable newspaper advertising featuring long weekends off, etc. One organization provided no information on recruitment.

### **Turnover**

There appeared to be little relationship between the revised workweek schedule and the amount of turnover. About half of the firms indicated that there was no significant change in the amount of turnover since adopting the revised workweek. Two of the firms reported having high turnover rates both before and after the workweek change. These high rates reflect working conditions at the companies, the relatively tight labor market, or the high proportion of women employees, and have little to do with the workweek schedule. Officials of some firms indicated that few, if any, employees resigned at the time of the workweek change. Some of the larger of these organizations offered to transfer, to units not changing the workweek schedule, those employees who found it difficult to adjust to the 3- or 4-day week. In a few firms, some employees who would find it difficult to adjust to the revised schedule (child care, transportation problems, conflict with spouses' working time, etc.) were permitted to stay on the old schedule.

Officials of a few firms indicated that there had been a decrease in turnover in their companies since adopting the revised workweek schedule. The loosening of the labor market may have been the principal reason for the lower turnover of at least one of these companies. Officials of two organizations reported a higher rate of separations. An official of one of these firms reported that the separation rate had been up somewhat (from an annual rate of 30 to 33 or 34). He blamed the Wage

Board wage increase limit (rather than the 4-day week) for the increase in the number of employees quitting. Employees could receive greater wage increases than the company was permitted to grant by transferring to other firms. One of the units of a government agency showed an increase in the number of resignations. However, none of the employees gave the 4-day week as a reason for leaving.

### Overtime

Seven of the thirteen firms which had data or impressions of the amount of overtime for a comparable period before and after the workweek change reported significant decreases in the amount of overtime. The clothing manufacturer showed a significant decrease in the amount of overtime after the change in the workweek schedule. An examination of the pay cards for individual employees of this firm for a period before and after the workweek change revealed that, prior to the adoption of the 4-day week, employees often worked 1 or 2 hours overtime on weekdays and also often worked on Saturdays. After employees shifted to the 10-hour, 4-day week, there appeared to be little or no overtime on Mondays through Thursdays. Overtime takes place primarily on Fridays.

An insurance company also reported a significant drop in overtime. Officials of the company indicated this was partially due to the 3-day workweek (as a result of eliminating the almost regularly scheduled overtime on Saturdays) and partially due to its expanded computer capacity. Overtime as a percent of total man-hours for the units which adopted the 3-day week was: 1968, 15 percent; 1969, 17 percent; 1970, 8 percent; 1971, 4 percent. (The first unit shifted to the 3-day week in September 1969 and the last section was converted in May 1970.)

In one department of a bank, overtime had been almost eliminated. Comparing the first 3 months of 1972 with the first 3 months of 1971, the amount of overtime was reduced to \$90 from \$7,000 for the approximately 100 employees in this unit. The amount of overtime in another bank had decreased as a result of the revised workweek schedule. In the computer unit, there had been considerable overtime when employees were on the old schedule. Now there is practically none. The principal reason for this decrease is the 50 percent longer time that the computer is now regularly operated. An official of the third bank, during the interview, checked overtime in the July quarter of the year before the adoption of the 4-day week and the same quarter in the year after the change. The record indicated that overtime was somewhat higher in the earlier period.

Officials reported that one computer unit of a government agency sharply curtailed the amount of overtime. In the first 3 months after the revised work schedule was adopted, only 2 hours of overtime were worked. In the previous 3 months (before the revised work schedule), this unit had worked 1,237 hours of overtime. (It should be noted that this unit increased its staff so that it could operate seven 24-hour days a week, so that the decrease in overtime is not entirely a savings.) The plant manager of the egg produce company said that overtime had been greatly reduced and is generally only worked now when employees come in on their day off to fill in for absent fellow workers.

Four firms reported little change in the amount of overtime worked. The plant manager of the food processor indicated little change in the amount of overtime, although he provided no data to substantiate this. Before the workweek change, employees worked overtime at the end of the 8-hour day and sometimes on Saturdays; now overtime is worked only on Fridays. To give an indication of the amount of overtime, the president of the wholesaling firm obtained data for a sample period (6 weeks before and 6 weeks after the change in the workweek). Overtime pay was \$3,800 for the earlier period and \$3,900 for the latter period, when employment was up somewhat. The rule under which one of the government agencies operated in the 4-day week experiment was that no additional costs would be incurred as a result of the pilot project — overtime would be restricted to emergency situations and would have to be approved in advance. Officials of the boatbuilding firm did not think that the change in the workweek schedule had had an appreciable effect on the amount of overtime. However, fluctuations in the company's production result in great variation in the amount of overtime worked from month to month and probably mask the effect on the amount of overtime resulting from the revised workweek schedule.

Two firms reported an increase in the amount of overtime. In the hospital, a big increase in the amount of overtime resulted from the initial (but later changed) decision to pay overtime on all time worked beyond 8 hours a day. Thus, when employees' schedules were changed to a 10-hour day, the last 2 hours of each day were paid at the overtime rate. An official of the machinery manufacturing company indicated that the firm had more overtime now than before the workweek change. Overtime now primarily occurs on Fridays. Overtime is voluntary, but the company has no trouble in getting the employees to come in. The plant manager felt that overtime is much more productive on Fridays now than before the change in the workweek schedule, when employees worked 1 or 2 hours extra per day,

after their regular tour of duty. There is considerable advantage in having Fridays a nonworkday for plant employees because it provides flexibility in getting rush work out by having another 10-hour day. Maintenance personnel especially have more overtime. They often work on Fridays when they can do their work without interrupting the work of other employees.

In three companies, officials had no records or opinions on the amount of overtime worked by their employees before and after adopting the revised workweek.

### **Part-time employment**

The number of part-time workers was not affected by the revised work schedule in most of the firms visited. Two of the banks reported an increase in the use of part-time personnel. For example, there is some operation for which phone calls are made to customers of one bank each morning. Because, under the 4-day week, fewer employees are at work each day, part-time personnel are employed for 2 or 3 hours in the morning to help out in this operation. Similarly, the other bank employs part-time personnel in busy times at the first of the month and to make up for the reduced number of employees at work resulting from the 4-day week. The automobile firms employed part-time workers such as cashiers and "car jockeys" for the new evening and Saturday hours.

### **Need for supervision**

About half of the firms indicated that an increase in supervision was required as a result of the revised workweek schedule. Representatives of the automobile dealers said that the new team arrangement increased the number of supervisors. An insurance company reported a need for supervisory backup because, on the 4-day week schedule, supervisors are not scheduled to work either on Mondays or Fridays. With regular supervisors off, the company had to train other persons to be the backup supervisors. A bank increased the number of supervisors because of the lengthened workday (supervisors were not put on a longer workday schedule as a result of the revised workweek in this bank).

### **Worker fatigue**

Few of the companies interviewed had information or impressions that the revised workweek was resulting in a significant increase in fatigue for the firms' employees. A large bank was in the process of studying the effects of

the nearly 12-hour-a-day work schedule of its employees. One insurance company, on the basis of its medical department's recommendation, has scheduled not more than 2 consecutive days of work for persons on the 12-hour shift. The medical staff of one government organization had been concerned with fatigue of its employees on the 12-hour schedule. At some times when shifts are changing, individuals may be on four 12-hour days in a row, and there had been some complaints. A check of sick leave for one 3-month period just after the revised workweek was adopted showed that employees in the unit had taken only 57 hours of sick leave compared with 200 hours for the 3-month period just before the changeover.

Questions regarding fatigue were included in the employees' attitude surveys. A question in the survey of employees of a food processing firm asked for an opinion on the statement: "With a longer workday and an extra day off, I am more tired now than before." The replies were: Strongly agree, 7.0 percent; agree, 8.0 percent; neutral, 14.8 percent; disagree, 39.3 percent; strongly disagree, 26.9 percent; and did not answer, 4.1 percent. Thirty-five percent of the clothing manufacturer's employees indicated that fatigue had increased with the 4-day week; 11 percent felt it had decreased; and 54 percent said that the revised workweek had no effect. About 39 percent of the employees of an insurance company indicated that the longer workday resulted in fatigue. However, it should be noted that more than 88 percent of the employees of this firm voted for the 4-day week in this same survey. Although 81 percent of the employees of a government organization favored the 4-day week schedule on which they were working, some cited as a disadvantage "10 hours is too long in a day."

### **Plant safety**

All the companies surveyed now keep records on work injuries as required under the Occupational Safety and Health Act (OSHA). Several of the firms displayed their log of accidents during the interview. However, since the new reporting system under OSHA was not in effect before the revised workweek schedule was initiated by most of the firms studied, data were not obtained on injuries or illnesses. Future surveys, however, could obtain these data for a period before and after a revised workweek schedule was adopted.

### **Overall assessment by firms**

One indication of a firm's assessment of the effects of

the revised workweek might be the current status of the new schedule. Is it permanent, still on trial, or is the firm considering dropping the new work arrangements? Fourteen of the sixteen firms have been on the rearranged schedule for more than a year. Four firms have 3 years or more of experience with the new schedule; one of these has been on the 4-day week for 8 years. Twelve of the firms apparently are pleased with the results and indicated that they had no plans for reverting to the old schedule. As the president of an automobile dealership said, indicating that the new schedule would continue, "the workers like it, the customers like it, and we are getting better utilization of our building." One of these twelve organizations had changed the work schedule from that first adopted (because of cost). The president of a wholesale trade firm said that the rearranged workweek is permanent but not necessarily in its present form (a 4-day week for employees with operation of the firm on a 6-day a week basis). He said that he would like to see if a 3-day week were possible and also would consider a 4-day week but no Saturday work for employees.

The rearranged workweek was still on a trial basis for

a bank and both of the government organizations. In one of the government organizations the trial period had been extended, although indications were that the 4-day week had not been working well in some of the units in which it had been tried.

One firm had decided that the 4-day week was not advantageous to the firm. At the time of the interview, the firm was planning to return to the 5-day week. A later phone call to the personnel director of this company disclosed that the salaried employees—office and sales—had returned to the 5-day week. This would eliminate some of the problems of the rearranged workweek schedule. The firm, however, had postponed temporarily the return to the 5-day week for its production workers because of concern with employee morale (employees very much liked the 4-day week). The company was considering revising its wage and benefit schedule to go into effect at the same time that the workweek is changed, in order to offset the loss of long weekends. Unemployment in this area was very low and the personnel director thought the company might lose some workers when the 4-day week was discontinued.

## Chapter 4. Employee Attitudes Toward The Revised Workweek

Nine of the 16 firms had undertaken surveys of employee attitudes toward the rearranged workweek. These surveys were taken from a few months to more than 2 years after the adoption of the revised schedules. For several firms, surveys were conducted by university groups; in the remainder, the firm itself conducted the survey.

Five of the firms provided copies of the survey results. The questions in the surveys included employees' feelings toward the revised workweek before the new schedule was adopted as well as after experience with it. In some surveys, employee attitudes were analyzed by age, sex, marital status, and kind of work performed by employees covered. Some surveys asked employees to report attitudes of their spouses toward the revised workweek. Some surveys also provided indications of workers' feelings in regard to the effect of the revised work schedule on absenteeism, tardiness, overtime, productivity, and employee morale in the firm. Questions were included in some surveys regarding fatigue, home problems resulting from the revised schedule, and use of leisure time.

Most of the firms that had not conducted surveys of employee attitudes had obtained impressions of employees' feelings toward the revised workweek schedule from discussions with individual workers. Officials of these firms, and the firms which had conducted surveys but did not provide the detailed results of these, all reported very favorable attitudes by employees towards the revised workweek schedule. An official of an automobile firm said that all except one employee liked the workweek schedule. Employees gave such reasons as having time to do things that they weren't able to do before, such as home repairs, on their long weekends. One significant benefit mentioned by a number of employees with school-age children was that, while formerly they had had very little time alone with their wives, now they had at least one day, and sometimes two, each week at home with their wives while their children were in school. This has meant a change in their marital relationship. Officials of an insurance company felt that the employees of the firm were very much in favor of the new schedule. The commuting time was now outside of rush hours. In addition, moving from three to two shifts had eliminated traveling to or from

work late at night. Employees save 2 commuting days a week, and parking has now been provided for those on a 3-day week.

The vice president of a bank said that in a survey of computer personnel, taken 9 months after the 3-day week went into effect, 95 percent of the employees were enthusiastic about the revised work schedule. Officials of the boatbuilding firm reported that informal discussions with employees indicated that the workers generally liked the 4-day week and did not complain about the 9½-hour day. However, indications were that some employees did not know what to do with the extra day off, and some wives of employees had complained about their husbands being home while they were at work.

The president of an automobile dealership said that the firm's employees seemed to like the revised work schedule. He had had a test of this recently when he tried to change the work schedule to include more night work. The employees indicated they liked the schedule the way it was and did not want to work nights and Saturdays more often than they did now. The trade-off between long weekends and night work was about equal. If they were scheduled for more night work, the long weekends might not be worth it.

The business agent of a union local which had organized employees of one firm studied reported that, although the 4-day week was voted in as part of the labor-management contract, it was greeted with mixed emotions by the workers. Men were generally enthusiastic about it, but women (making up about two-thirds of the work force) were somewhat skeptical. Many employees complained about the work schedule when it was first introduced. However, the number of complaints has greatly diminished. Some women complained about fatigue, child care problems, and having days off when their husbands were working. Employees reported liking the 4-day week because the long weekends gave them greater recreational opportunities. Also, they can now do errands or schedule appointments (bank, doctor, beauty parlor, etc.) on Fridays when they are not at work. The business agent believed that the workers would not want to go back to the 5-day week. However, before the new contract came up, the union was going to arrange to survey employee attitudes toward the workweek schedule.

## Chapter 5. Data and Methods for Measuring Effects of Schedule Change

As indicated earlier, one of the principal purposes of this study was to assess the availability of data to measure the impact of the change in the workweek schedule. Data were sought on such indicators as changes in productivity, turnover, attendance, quality of output, and amount of overtime. The availability of the data varied widely by type of indicator and by firm.

### Productivity

Few of the firms visited had current measures of productivity change calculated at the time of the interview. Many of them, however, had basic data from which productivity measures might be developed.

*Output.* The output of an establishment (in manufacturing industries) is the number of physical units produced. When only one product is made, a count of the number produced represents the output. One of the firms produced only men's and boys' slacks and could provide data for this fairly homogeneous product. A boatbuilding firm also had essentially one product but the number of boats would not be a good measure of output because the size of the boat had changed since the earlier period. Moreover, the company had begun buying some components, rather than producing these itself.

For establishments producing more than one product (the more common case) or for which the production mix changes from period to period, the different products could be combined (with base-year weights) to derive a production measure. The product should be combined in terms of the different man-hours required

to produce each unit in a base period. However, man-hour weights are not likely to be available for individual products. Other weights, such as unit value, might be substituted, particularly if labor costs are a substantial proportion of total costs. The use of price weights, however, may pose other problems. A food producer, for example, makes 280 different items and the product mix varies from week to week. For some firms, the only figure available to measure output is total value of production or total sales. For example, a machinery manufacturer provided total sales by year, as shown in table 2. To convert total sales for a number of years to a measure of output, the effect of price changes would have to be eliminated. In the example of the machinery manufacturer, the BLS wholesale price index for pumps and compressors could be used to deflate the sales to a base year, as shown in table 2, provided the products manufactured are close to those used to derive the wholesale price index.

As will be discussed later, a number of firms have other measures of output (and productivity) for the entire establishment or for a particular operation.

*Labor input.* Labor input data available from the employers visited consisted of the number of employees in the firm or establishment (or for the units involved) or man-hours of production or nonsupervisory workers. Several of the firms visited reported regularly as respondents to the Bureau of Labor Statistics—Cooperating State Agencies Employment Statistics Program. Tables 3 and 4 show data collected in the program from a manufacturing establishment and a wholesale trade firm.

**Table 2. Converting sales data to an output index for a machinery manufacturing firm**

Year	Sales	BLS wholesale price index for pumps, compressors, and equipment (1967 = 100)	Index relative	Deflated sales	Output index (1968 = 100)
1968 ..	\$ 5,673,919	104.6	1.000	\$ 5,673,919	100.0
1969 ..	7,880,249	109.8	1.050	7,504,999	132.3
1970 ..	10,806,775	115.1	1.100	9,824,340	173.1
1971 ..	12,641,333	121.6	1.163	10,869,589	191.6

**Table 3. Employment and hours reported by a manufacturing establishment, selected payroll periods**

Month	Payroll period		All employees	Production workers	
	From	Through		Number	Man-hours
December 1970 .....	3	11	227	168	11,707
January 1971 .....	11	21	231	173	12,342
February 1971 .....	8	18	238	178	13,110

*Productivity measures.* The productivity measure can be derived by dividing the output measure by the corresponding labor input measure. Perhaps the simplest measure of overall output per man-hour can be illustrated from data provided by the clothing manufacturer. For example, the number of slacks produced in the first quarter of 1971 (after the change in the workweek) was about 4.8 percent less than the number produced in the third quarter of 1970 (before adopting the 4-day week). The number of man-hours of production workers in the latter period was about 4.6 percent less than the number of man-hours in the earlier period. This would indicate little change in output per man-hour (-0.2 percent). One insurance firm used as an indicator of productivity the relationship of new applications for automobile insurance (as an output measure) and total employment in the central office. Table 5 illustrates the development of a productivity index using these data.

A representative of a bank said that data available in their computer – the number of active accounts and the number of employees – could provide an indication of overall productivity.

An approximation to measuring output per man-hour is to use piece rate earnings per hour. In this, the assumption is made that the task performed on a particular product is related, by its piece rate, to the time required to perform the job. Data from the clothing manufacturer can illustrate this procedure. The piece rate paid had not changed in the period measured so that the earnings per hour of individuals would be equal to output per hour for the same individual. Total productivity data in a manufacturing plant such as this are significantly affected by the amount of turnover. New employees produce much less at the beginning of their employment than do experienced ones (as their piece rate work shows). Thus, it was decided that productivity data for individuals (only those on a piece rate basis)

would be obtained for comparable periods before and after the change in the workweek schedule. For the post-schedule change period, the six (2-week) pay periods following the first of the year were used. For the period before the schedule change, it was necessary to use various pay periods in the second half of 1970 because not all records could be located for all employees. Thus, the pay periods ending July 24, August 7 and 21, September 18, and October 2 and 16 were used. Only persons on a piece rate basis were included in the analysis. It was assumed that piece rate pay was equivalent to output for each individual. The earnings from piece rates for each day were used and not the wage paid to the employee, because whenever the employee did not earn the \$1.60 per hour minimum, the employer made up the difference. Overtime hours and payments were not included in the analysis. Those employees who might be working on a salary in a particular pay period were excluded for those pay periods. The results of the analysis indicated that output per worker (as measured by average hourly earnings) for 94 workers as a group (who were employed in both periods, who were not learners, and who were on a piece rate basis) was the same before and after the schedule change. Many individual workers, however, had very different hourly earnings for the two periods.

A measure of output per man-hour, similar to piece rate earnings per hour, illustrated above, was that available for the auto mechanics. This measure is the number of standard hours produced by a mechanic per hour worked. (Standard hours are the predetermined “book hours” charged to a customer to do a particular job, for example, 1 hour to install a muffler.) This information was available for individual workers or could be combined for all mechanics. An example is shown in table 6 for one employee. Using this measure, output per man-hour for this employee might be

**Table 4. Employment and hours reported by a wholesale trade firm, selected payroll periods**

Month	Payroll period		All employees	Nonsupervisory employees	
	From	Through		Number	Man-hours
January 1971 .....	9	16	480	433	16,423
February 1971 .....	6	13	503	454	15,914
March 1971 .....	6	13	484	434	16,187

**Table 5. Developing a measure of productivity for an insurance firm**

Year and month	New auto insurance applications			Employment			Applications per employee
	Monthly number	Quarterly		Monthly number	Quarterly		
		Number	Index <sup>1</sup>		Number	Index <sup>1</sup>	Index <sup>1</sup>
<b>1970:</b>							
January .....	6,800			274			
February .....	7,900			273			
March .....	7,600			277			
First quarter .....		22,300	92.7		276	98.2	94.4
April .....	8,150			285			
May .....	8,100			271			
June .....	7,800			286			
Second quarter .....		24,050	100.0		281	100.0	100.0
July .....	8,000			296			
August .....	8,400			286			
September .....	8,800			287			
Third quarter .....		25,200	104.8		290	103.2	101.6
October .....	8,500			294			
November .....	8,600			280			
December .....	8,400			288			
Fourth quarter .....		25,500	106.0		287	102.1	103.8
<b>1971:</b>							
January .....	8,100			278			
February .....	8,300			277			
March .....	9,000			290			
First quarter .....		25,400	105.6		282	100.4	105.2
April .....	9,200			284			
May .....	9,200			279			
June .....	9,500			282			
Second quarter .....		27,900	116.0		282	100.4	115.5
July .....	9,200			284			
August .....	9,200			277			
September .....	9,600			280			
Third quarter .....		28,000	116.4		280	99.6	116.9
October .....	9,900			278			
November .....	9,200			276			
December .....	8,800			274			
Fourth quarter .....		27,900	116.0		276	98.2	118.1
<b>1972:</b>							
January .....	8,300			272			
February .....	8,000			272			
March .....	7,800			282			
First quarter .....		24,100	100.2		275	97.9	102.3

<sup>1</sup>Second quarter 1970 = 100.

considered to be 3.6 percent higher in April 1972 than in April 1971 (1.44 ÷ 1.39).

A large bank has a measure somewhat similar to that which can be developed from data from the automobile firms. Standards are set on the amount of time per function (for example, time to process a letter of credit).

The total of hours available (spent) on a particular function is developed in a Work Measurement-Performance Report. A separate entry is the average standard hours allowed per day to produce the volume of work. The number of standard hours allowed is divided by the number of hours available to arrive at a percent of

**Table 6. Deriving a measure of output per man-hour for an automobile mechanic**

	April 1971			April 1972		
	Hours worked	Standard hours produced	Standard hours per hour worked	Hours worked	Standard hours produced	Standard hours per hour worked
<b>Employee 6:</b>						
Week 1 .....	45	59		37	57	
Week 2 .....	45	51		38	50	
Week 3 .....	38	55		30	43	
Week 4 .....	38	65		33	49	
Average .....	41.50	57.50	1.39	34.50	49.75	1.44

effectiveness (per month). The trend in this ratio might be considered a measure of productivity change.

Another example of the potential use of standards data for the measurement of productivity is that utilized by a midwest insurance company. This measure is the percent of norm obtained in each pay period for each operation (and each employee). For example, for the operation in which employees decide whether applications for insurance are to be approved, a norm of 12 minutes may have been determined (to examine the files and process the application). The actual time per unit is measured and the utilization rate (actual rate divided by norm) is calculated. The change in the utilization rate over time would be an indicator of change in productivity.

An official of a large bank said that his firm had data on output for individual units which could be related to employment in the unit to show trends in output per employee. He mentioned (but did not provide) output data such as the number of checks processed in an operations unit and the number of transactions made by tellers.

A wholesaler has a measure of output for its order filling (pickers) and pricing employees. (A large proportion of the firm's employees are engaged in these activities.) Pickers fill the orders for each customer. (Customers get one shipment a week.) Each customer may have only a small number of units of a particular item. Each item for each customer is "a line" on the computer printout for that customer's order; for example, 12 tubes of Blank toothpaste. Pickers fill each line for each customer for the goods in their area and initial it. As the baskets for a particular customer go down the line, the customers' orders are filled and initialed by each picker. The company, from its computer printout, has a record of the number of lines filled for each order and for each day. It also has the number of hours in each operation. Thus, one productivity measure might be the number of lines picked per hour. The president of the firm obtained some data, at the interview, for a period of 8 weeks before the revised workweek and a 3-month period after the revised workweek. The measures provided for picking of two lines: houseware items, and items for a particular customer - Super X. For the period before the workweek change, the average number of lines per hour for the houseware items was 190. For the period after the change, the average number of lines was 210 an hour (about a 10-11 percent increase). For the Super X items, the average increased from 147 to 160 an hour, an increase of about 9 percent.

In summary, there are many problems in deriving output measures (when heterogeneous products and

services are produced) and corresponding labor input measures. Various alternative approaches have been indicated to devise output measures, including weighting physical output, removing price changes, and using piece rate earnings as output measures. Productivity measures have been derived utilizing percentages of standards attained. Although the firms themselves generally have not derived these measures, data are available in most firms with which to develop this information.

### Quality of work

Several of the companies are now maintaining records on quality of work. The two automobile firms have a measure which they call "comeback hours." This is the amount of time required to redo service work not acceptable to the customer. One of the automobile dealers provided data (as an example) for the same calendar month in the year before and the year after adopting the 4-day week. The other automobile firm now keeps records of comeback hours but did not do so before the 4-day week was adopted. The machinery manufacturer had a similar measure of quality. This was the cost of replacing or repairing products returned by the customers.

The wholesaler now has a measure of quality which the company did not have prior to the adoption of the 4-day week. An inspector checks a particular customer's order. This check indicates whether too few or too many items are contained in the order shipped to that customer. (The net error in terms of retail dollars now runs about 0.584 percent.) In addition to this measure, sales workers check orders when they are delivered to the stores (for those customers for which sales workers put orders on customers' shelves). If there is an overage, it is brought back to the warehouse. When there is a shortage, the customer is given a credit. Presumably, the amount of returns and the amount of credits, as related to the amount of sales, could be compared over time.

The vice president of a bank maintained that the firm did have a measure of quality for some units. He said that, for example, in the branch office, one measure is whether the tellers can "prove out" at the end of the day, that is, whether they have more or less money than they should. The bank, however, did not provide any actual data on changes in quality of the work.

An official of the hospital said that a measure of quality of nursing care is now being obtained at the hospital. It is called an audit of nursing services. In the audit, charts of patients are examined and compared with doctors' orders and nursing notes. From these, it is determined whether the patient received the exact order that the physician prescribed. For example, the variance

from that prescribed of the order filled is measured (if medicine was supposed to be given at 10 a.m. and was given at 10:10 a.m.; if some service or medication was supposed to be 4 hours apart, but was 4½ hours; if some medication or service was omitted; or if a patient fell out of bed). With an audit system and sampling, one might weight the variance in services provided and compare the results from one period to another. Unfortunately, the audit did not begin until after the 4-day workweek schedule had been adopted.

### Attendance

Nearly all companies interviewed maintained some records on attendance, but some have not summarized such data. Data on attendance might be viewed as a percent of persons employed who are at work each day. It can be measured by the amount of time (hours) employees are at work as a percent of the total time (hours) scheduled. An insurance company has such a measure—the number of hours actually worked divided

by the number of scheduled hours. Most of the firms kept records merely of the number of employees absent per day, which could be related to total employment (potential absentees) per day. One firm kept records of short absences (illnesses) separately from longer absences of 8 calendar days or more.

These firms did not maintain records of tardiness.

### Turnover

The great majority of the 16 firms visited have records on hiring and separations of individual workers, but most of the firms have not summarized the data. It would appear that, with varying degrees of difficulty, these firms could trace their hirings and separations. A few of the firms report labor turnover data to the Bureau of Labor Statistics and cooperating State agencies. An example of the data for one firm for the same number of employees before and after the schedule change is shown in table 7.

**Table 7. Labor turnover in a boatbuilding firm: Separations and accessions**

Type of turnover and month	1970 Before change to 4-day week				1971 After change to 4-day week			
	Total separations	Quits	Discharges	Lay-offs	Total separations	Quits	Discharges	Lay-offs
<b>Separations:</b>								
January .....	139	57	82	—	75	38	37	—
February .....	125	41	84	—	74	38	35	1
March .....	104	43	40	21	101	23	25	53
April .....	83	32	15	36	22	14	4	4
May .....	38	22	9	7	18	12	6	—
June .....	94	17	3	74	15	9	6	—
July .....	31	13	14	4	17	11	6	—
August .....	38	22	15	1	22	17	5	—
September .....	29	19	6	4	39	22	16	1
Total (January to September) .....	681	266	268	147	383	184	140	59
Percent change, 1970 to 1971 .....	—	—	—	—	-43.8	-30.8	-47.8	-59.9
<b>Accessions:</b>								
	1970 Before change to 4-day week		1971 After change to 4-day week					
	Total accessions	New hires	Total accessions	New hires				
January .....	273	273	111	97				
February .....	115	108	78	73				
March .....	8	6	15	14				
April .....	13	8	8	7				
May .....	10	9	20	13				
June .....	20	5	23	20				
July .....	41	36	36	32				
August .....	30	20	51	38				
September .....	36	32	70	68				
Total (January to September) .....	546	497	412	362				
Percent change, 1970 to 1971 .....	—	—	-24.5	-27.2				

## Overtime

Nearly all of the firms visited had basic records from which the amount of overtime worked by their employees could be compiled. Many of these firms, however, have not regularly summarized the data. Several of the firms reported overtime hours of production workers (on BLS Form 790-C) as part of the Federal-State

cooperative employment statistics program. Neither of the two automobile dealers kept track of overtime for their service employees.

Where employment may be fluctuating, a refinement of reviewing just the number of overtime man-hours might be to derive the proportion of overtime man-hours to total man-hours. This is illustrated by table 8 which describes the overtime situation before and after the workweek change for the boatbuilding company.

**Table 8. Proportion of overtime to total man-hours in a boatbuilding firm**

Month <sup>1</sup>	Before change to 4-day week		After change to 4-day week	
	Overtime man-hours of production workers	Percent of total man-hours	Overtime man-hours of production workers	Percent of total man-hours
January .....	2,921	13.3	1,192	7.9
February .....	849	4.3	2,532	15.1
March .....	488	2.7	232	1.7
April .....	291	2.0	16	0.1
May .....	587	4.2	327	2.9
June .....	323	2.9	328	2.9
July .....	243	2.2	901	7.9
August .....	799	6.8	1,876	13.4
September .....	395	3.5	2,703	17.4

<sup>1</sup> Pay period including 12th of month.

## Summary and Conclusions

Does a revised work schedule such as the 4-day week increase productivity, reduce turnover and absenteeism and, in general, raise plant performance? Does it increase job satisfaction, aid in recruitment of workers and improve work scheduling? These are some of the questions being asked as the 4-day week gains a foothold in the United States.

This pilot study of 16 firms was undertaken to attempt to find out what kind of a survey would be necessary to answer some of these questions. The goals of the study were to ascertain what records were available; what types of measures would be useful in assessing the economic effects of the compressed schedules; what data were available to develop these measures; and the manner in which a large-scale study might be conducted. In addition, readily available data at the 16 organizations were collected and a number of measures developed to discover what they would show.

The Bureau study showed that most of the employers had basic records from which an evaluation of the economic factors could be made, although very few had done so. For example, productivity measures can be developed from existing records of output (physical quantity, value of production, piece-rate earnings, standard hours) and input records (man-hours worked or paid). The study concluded that definitive answers to these questions could be determined by an extensive nationwide survey. Such a study would be very costly for it would have to cover firms of varying size in many industries. In addition, the questionnaire would have to be carefully planned to include the various character-

istics of the firm and industry. However, a less ambitious study of one or a few industries may be feasible.

Although this study consisted of too small a sample to draw substantive conclusions, the findings do provide some observations on popularly held beliefs. For example, productivity is generally believed to increase with a compressed workweek. However, survey results show that, while productivity did in fact increase at some organizations, there was no change at others, and a decrease for the remainder. Turnover is also generally thought to improve, but there appeared to be little confirmation at the organizations surveyed. Other benefits usually associated with the revised workweek are reduced absenteeism, ease in recruitment, improved work scheduling, improved use of plant and equipment, and reduced overtime. The findings did show a reduction in absenteeism among the 7,000 employees covered and progress in recruitment. While improvement in use of plant and equipment and work scheduling was not common to all employers, there was a hint that such benefits may be obtained in firms with large computer operations or in service industries, such as banking. The effect of a compressed workweek on overtime varied: at some organizations overtime was reduced, at others it remained unchanged, while at others it increased. Pay, benefits, and weekly hours did not appear to have changed greatly. No attempt was made by the author to survey employee attitudes directly. Nine of the firms had undertaken attitude surveys and five of these made the results available for this study. In general, employees liked the new schedule and did not wish to change back.

## Appendix A. Description of the Study

### Research plan

The original plan of the project was to make eight case studies of firms which had adopted a revised work schedule. In order to cover a wider range of work schedule situations, the number of case studies was increased to 16.

A list of organizations which had adopted a revised workweek schedule was developed from a number of sources. Selection of the organizations for the case studies was made to cover a variety of schedules, industries, firm sizes, and geographic locations.

A general interview guide was developed and tested and personal visits were made to each of the organizations selected. A copy of the interview guide which was used to solicit information from company officials is included in appendix B of this report. Information contained included a description of the firm or organization, such as size, industry or principal products, location, and union status. A description of the changes made in the work schedule was obtained and included (a) the length of time the company or department had been on the revised work schedule; (b) the current status of the schedule (e.g., on trial, permanent, discontinued); (c) how the work schedule changed for employees. This included information on the new and old weekly hours, the number of days, the time worked each day, the days off, and the description of shifts, if any; (d) the changes that occurred in pay practices; (e) how the work schedule changed for the firm (weekly hours, daily hours, number of days of week closed, number of shifts); and (f) who was covered by the revised work schedule. A similar interview guide was prepared for use with union officials and is also included in appendix B.

Reasons for changing the workweek schedules were discussed with the officials of the firms visited. An attempt was made to learn the companies' major objectives in adopting a revised work schedule. The representatives were asked why the changes were necessary and why they thought the new work schedule might improve the situation. The officials interviewed were questioned regarding research or feasibility studies that were done to help make the decision to adopt the revised work schedule. A description of how the changes

were introduced in the firm was obtained. Were the changes introduced piecemeal or all at one time? What preparation or consultation with employees was undertaken? What was the length of the period for introducing the new work schedule?

A major aspect of the interview was an evaluation of the effects of the workweek change on a number of economic factors and on employee morale. This included an investigation of the kinds of data available to assess the effects of the changes in the workweek. Data were obtained, where possible, and opinions of the officials of the firms visited, on the effect of the workweek change on productivity, quality of work, attendance, ease in recruitment, turnover, overtime, change in cost of other fringe benefits, supervision, safety, occupational distribution of employment, age, sex, and other characteristics of employees, amount of part-time personnel, ability to service customers, change in pay methods and pay scheduling, and the effects on employee morale.

### The 16 firms selected

The 16 organizations studied consisted of 5 manufacturing firms, 3 banks, 2 insurance companies, 2 automobile dealers (automobile repair personnel), 2 government agencies, 1 hospital, and 1 wholesale trade concern.

The selected organizations ranged in size from one with fewer than 50 employees to two with more than 17,000. The tabulation below gives the size distribution of the 16 firms studied:

<i>Number of employees</i>	<i>Number of organizations</i>
Fewer than 100 .....	4
100-249 .....	3
250-499 .....	2
500-999 .....	3
1,000-2,499 .....	0
2,500 and over .....	4

In some firms, nearly all employees were included in the revised workweek schedule. In some of the larger firms, however, only a small percentage of the employees were, at the time of the interview, on a 4- or 3-day workweek. Whereas 2,100 of the 7,000 employees of a

large bank were on a revised workweek schedule, only 500 of the 17,000 employees of a large insurance company were on such a schedule. Only nursing personnel of the hospital were on a rearranged work schedule. Both government organizations had only a very small percentage of their employees on a revised workweek schedule, and, even for these workers, the arrangement

was still "on trial."

The 16 firms studied were located on the Eastern seaboard, in the South, and in the Midwest, in the following States: Florida, 1; Georgia, 2; Indiana, 1; Iowa, 1; Kentucky, 1; Maryland, 1; Massachusetts, 2; Minnesota, 2; New York, 3; Rhode Island, 1; and Virginia, 1.

## Appendix B. Interview Guides

### Guide for Interview with Company Officials

- I. Description of firm (or organization)
- Size (include number of employees, value of sales or production, number of establishments, etc.)
  - Industry and/or principal products
  - Location
  - Union status
  - Names of persons interviewed
- II. Description of changes made in work schedule
- When did your company (or department) go on the revised work schedule?
- What is the current status of the new schedule (that is, on trial, permanent, discontinued)?
- How did the work schedule change for workers?
- |                      | <u>New</u> | <u>Old</u> |
|----------------------|------------|------------|
| Weekly hours         |            |            |
| Days                 |            |            |
| Number               |            |            |
| Length               |            |            |
| Starting/ending time |            |            |
| Days off             |            |            |
| Rotating shifts      |            |            |
- What changes occurred in pay practices (changes in overtime, take-home pay, wage incentives)?
- How did the work schedule change for the firm?
- |                     | <u>New</u> | <u>Old</u> |
|---------------------|------------|------------|
| Weekly hours        |            |            |
| Daily hours         |            |            |
| Days of week closed |            |            |
| Number of shifts    |            |            |
- Who was covered by the revised work schedule?
- If only one part of the firm or department is under a revised work schedule, why was this department selected? (number of persons affected, kinds of occupations and their physical and mental demands) Who were excluded? Why? If possible, obtain some information on economic climate for firm just preceding and during change.
- III. Reasons for changing workweek schedule
- What was the company's objective in adopting a revised work schedule?
- Checklist: (Indicate most important objectives)
- a. Increase output and/or productivity through:
    1. better equipment (capital) utilization
    2. better scheduling
    3. less startup and/or closedown time
    4. less downtime of equipment (e.g., use fifth day for maintenance)
    5. other
  - b. Reduce absenteeism
  - c. Reduce tardiness
  - d. Reduce employee turnover
  - e. To aid in recruitment of qualified personnel (also reduce training costs)
  - f. Reduce overtime
  - g. Reduce amount of injuries and illnesses
  - h. Reduce waste of material
  - i. To better service customers (e.g., longer workday or open more days)
  - j. Better employee morale (e.g., less time commuting, fresher after long weekend, etc.)
- (Why were changes necessary? Why did management think that changes in work schedule would improve situation?)
- IV. What research or feasibility studies, if any, were performed to help make decision to adopt revised work schedule?
- Who made studies? Can we obtain these?
- V. How were the changes introduced?
- Piecemeal or all at once
  - Preparation of (or consultation with) employees
  - Length of period for introducing new work schedule
- VI. Effects of change
- (Obtain immediate reaction and longer term changes)
- What kind of data are available to assess the changes in the workweek?
- If available, obtain information for the following items for comparable periods before and after the change in schedule:
- a. Output (by commodity for whole plant or department)

- b. Labor input (for whole plant or department) (or as an alternative to output and labor input, something like value of goods produced per labor cost. If such an alternative is available, information should be sought on price changes and wage changes. If data on which to measure productivity are obtained, ask for information regarding introduction of new equipment, change in organization, methods, etc.)
- c. Quality of work (include such things as waste, errors, etc.)
- d. Attendance (absenteeism) Indicate reason—amount of sick leave, leave for personal business, etc.
- e. Tardiness
- f. Ease in recruitment (job vacancy data) (Include information on kinds of employees—economic climate)
- g. Turnover  
Separations (quits, discharges, retirements, and accessions)
- h. Amount of overtime
- i. Change in cost of other fringe benefits (vacations and other benefits)
- j. Safety record
- k. Change in number and length of official rest periods (coffeebreaks, washup time, startup time, shutdown, etc.)
- l. Change in supervision (number of supervisors, kind, schedule)
- m. Change in occupational distribution of employment
- n. Change in characteristics of employees (age, sex, etc.)
- o. Change in the amount of part-time personnel
- p. Ability to service customers (e.g. open more hours; open fewer days)
- q. Scheduling (e.g. longer runs, better use of equipment)
- r. Changes in related overhead costs (e.g. extra guard for fifth day; no cafeteria on Friday) Indicate importance.
- s. Change in pay methods and pay scheduling; holiday-vacation problems (if holidays come on Monday do employees work on Friday? Do they receive 4-day or 5-day pay?)
- t. Change in annual hours of employment per individual
- u. Legal considerations  
Walsh-Healey Act  
Contract Work Hours and Safety Standards Act  
Fair Labor Standards Act  
State laws (if any)
- v. Union (if any) relations
- w. Effect on employees' morale (amount of grievances, expressions of satisfaction or dissatisfaction with changes, commuting time, carpools, complaints of married women regarding home responsibilities, such as caring for children and making meals)  
moonlighting  
fatigue (e.g. visits to health units)

## Guide for Interview with Union Officials

1. Do your members generally approve of the changes that have been made in their work schedule?  
What kind of changes would they have preferred? (e.g., fewer hours per week, fewer days, rotating or nonrotating schedules, etc.)
2. What advantages or disadvantages does the new schedule have for individual workers?  
More leisure time—more time with family  
Ability to obtain basic services while off (banks, doctors, etc.)  
One or two less days for commuting (less travel costs, less day care costs)  
Time to do volunteer work or receive education or training  
Time for moonlighting  
Fatigue  
Carpool scheduling  
Spouses working different hours  
Leisure time expenses  
Women not home in time to make meals  
Interferes with education courses or volunteer work
3. What are the overtime provisions of the current contract? How do they differ from those in effect before going on the new workweek?
4. What effect do you think the 4-day week will have in the long run in shortening weekly hours?
  - a. Speed up the reduction in weekly hours
  - b. No effect
  - c. Retard the reduction in hours
5. What problems, if any, have been created for labor by:
  - a. schedules for individual workers (e.g. 4-day) that differ from the schedule for the establishment (e.g. 5-7 days).
  - b. hiring of more part-time workers
  - c. changes in pay schedules
  - d. less overtime
6. Do you think that the employees turn out more, the same, or less work per hour under the new work schedule?

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