

Impact of Labor Contract Provisions on Transit Operator Productivity

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The research was designed to obtain a better understanding of the cost impacts of different labor contract provisions. Three main items within the labor contract influence costs and productivity: work rules, absenteeism, and fringe benefits. The cumulative impact of the provisions was measured using the ratio of pay hour to platform hour. To quantify how these contract provisions affect costs, an extensive literature review was conducted, followed by case studies of the transit systems in Indianapolis, New Orleans, and Philadelphia. The contract provisions added an average of 47 min to the basic service hour, measured in terms of platform time. A system must therefore pay for an average of 1 hr 47 min to put 1 hr of service on the street. Performance within the three case study systems ranged from a low of 1 hr 36 min to a high of 2 hr 4 min. The research demonstrated the importance of considering the three components of labor contract provisions simultaneously; focusing on one element does not measure the overall productivity impact accurately. When local cost reduction and productivity improvement strategies are developed, they should encompass all labor contract provisions.

Labor costs account for a large portion of the operating expenses in bus transit service. Three main items within the labor contract influence costs and productivity: work rules, absenteeism, and fringe benefits.

Work rules are the regulations, principles, and guidelines that set parameters on how transit managers can allocate their resources. Work rules generally fall into two categories:

1. Restrictive—constraining the hours of work that may be performed, and
2. Compensatory—providing premium payment for work done in excess of what is established.

Absenteeism is the condition that a worker is not available for work. It can take two forms:

1. Scheduled—because of vacations, holidays, or other situations for which management has received advance notice of the absence, and
2. Unscheduled—because of illness or not reporting to work and not providing advance notice.

Fringe benefits include the host of programs available to workers as part of their employment package, such as vacation pay, holidays, sick leave, health and life insurance, retirement, free transportation, and uniform allowance. Incentive plans offered by some transit systems would be included in this category.

Past research has focused on one or two of these issues. Although it has yielded valuable findings, it has not presented a comprehensive review of all labor costs. Nor have the prior studies quantified the total impact of all the provisions in a typical contract.

The objective of this research effort was to obtain a better understanding of the cost impacts of different contract provisions. The research was conducted in three steps. The first was a literature review, in which the findings from past research efforts were summarized to identify the remaining research needs. The second step included a detailed analysis of the cost and productivity impacts at three selected transit systems. In the final step, the findings from the case studies were synthesized.

LITERATURE REVIEW AND STUDY DESIGN

This project was designed to study the impacts of all contract provisions on the ratio of pay hour to platform hour. To determine what research had already been done, the literature on the subjects of work rules, absences, and fringe benefits was reviewed. The findings are summarized in the following subsections.

Work Rules

The impact of work rules on transit productivity has received more attention than any other issue included in this review. The number and complexity of work rules have increased over the years. One researcher (1) tied the expansion of work rules and the concurrent decline of labor productivity to a significant part of the transit industry's losses during the 1970s. Much of the literature on work rules deals with the use of part-time operators (PTOs). When PTOs were introduced, early research focused on how they could be used to ease the labor requirements of the peak periods (2). It was found that potential cost savings were greatest when the PTOs, who were not subject to the same work rules as their full-time operator (FTO) counterparts, were used for tripper runs.

As PTO usage became more widespread, research focused on the lessons learned from the earliest systems that employed them. Findings were often in direct conflict with each other, with some systems reporting that PTOs had higher absence and accident rates than FTOs and others reporting the opposite (3,4). Transit systems using PTOs reported cost savings, mainly because the part-timers were subject to less restrictive work rules. However, it was found that potential savings could be eroded by concessions to gain the right to hire PTOs.

Absences

Considerable emphasis has been given to the issue of operator absences. Studies have found that transit operator absences have a substantial impact on productivity and cost. One study (5) found that the cost of all absences was equal to about one-fourth of the total amount provided in federal operating subsidies during the study year. Costs are driven by the need to pay absent employees as well as the others who are paid to take their places. It was found that, although the absence problem is widespread, most absences are accounted for by a small group of employees. At one system, 1 percent of the employees accounted for 10 percent of the absences (6).

Several studies (7,8) examined the causes of absenteeism. Fatigue and the desire for increased leisure time were found to be important reasons for high rates of absence. Stress played a limited role in absenteeism. Using overtime employees to fill vacant runs added to the absenteeism problem because the overtime employees subsequently became absent to recover from long shifts or to make up for lost leisure time.

A good deal of effort has been spent studying uses for extraboard operators. Research has focused on when to use extraboard drivers and when to use regular operators on overtime. Several techniques for optimal extraboard usage have been developed and offer significant potential savings (9).

Fringe Benefits

The current literature is limited in its discussion of fringe benefits. Only three sources dealt with benefits as a primary topic (10–12). All three focused on incentive plans as a way to reduce costs. These plans, also known as gain-sharing programs, offer rewards in return for the achievement of tangible goals. They are offered to reduce absenteeism. All three sources cautioned that incentive plans should not be used as a substitute for good benefits or sound management.

Other research noted that fringe benefit costs make up a large portion of total system costs in many cases. Fringe benefits tend to represent a much greater share of compensation

costs in the public transit sector than in the private sector (13). However, PTOs were seen as a partial solution to the high costs of fringe benefits because they are not eligible for most of the benefits received by FTOs.

ANALYSIS FRAMEWORK

Improvements in cost efficiency can be achieved through more efficient labor utilization. An important indicator of transit operator utilization is the ratio of pay-hours (an input statistic) to platform-hours (an output statistic). These two statistics are defined as follows:

1. Pay-hours represent all hours for which a driver is paid. In addition to platform-hours, there are hours for other time associated with revenue service. There are also hours associated with holidays, vacations, illnesses, and other paid absences.

2. Platform hours represent the time an operator is on board the bus, either preparing for service or carrying passengers.

The ratio of the two statistics reflects the productivity of an hour of service—that is, the amount of pay time over and above scheduled service. Control of the factors influencing this ratio has a major impact on labor utilization efficiency and operating costs.

Total driver pay-hour costs accumulate in several key steps. At each step, 1 hr of service continues to cost more to provide. The basic platform hour, also known as a service hour or work hour, is the basic product that the transit system delivers to its patrons.

It costs much more than the cost of one platform-hour to provide 1 hr of service. Various work rule constraints require paying additional time to operate the scheduled service. Adjustments must be made to operate the service despite operator absences. In addition, expenses must be incurred for operator benefits such as health insurance and pension contributions. The step-by-step progression of this framework is shown in Figure 1.

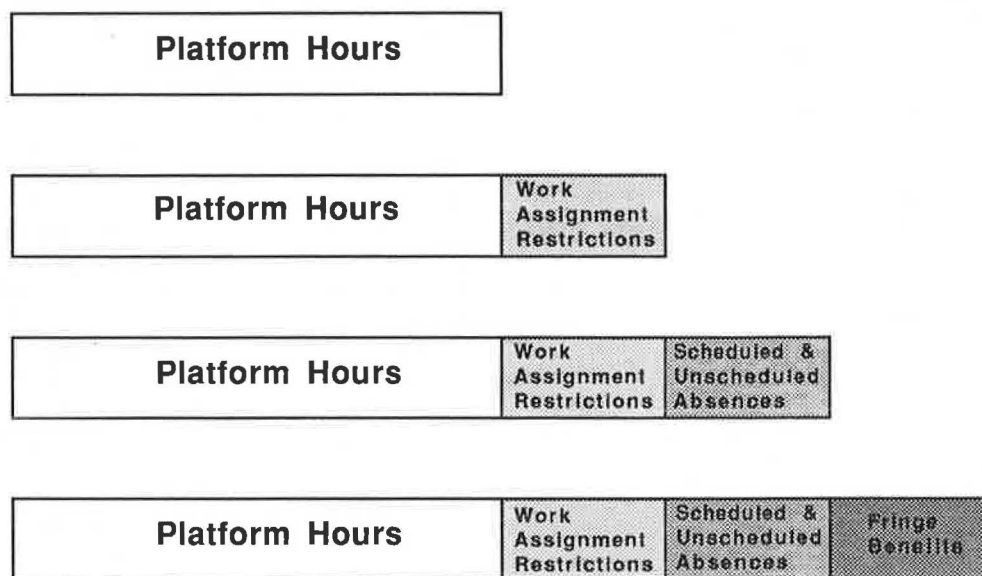


FIGURE 1 Cumulative effect of labor contract provisions on operator pay hours and cost.

Definitions and Information Needs

As mentioned earlier, there are three basic categories of labor contract provisions: work rules, absences, and fringe benefits. In this study, common definitions were developed for each category to permit the standardization of collected data among systems. The definitions used in the case studies were based on findings from the literature review. In cases where multiple modes were operated, only motorbus operators were studied. The analysis was done for fiscal year 1987.

Work rules govern how work is assigned, scheduled, and performed at a transit system. A study by the University of Tennessee (14) defined this as a broad subject covering six categories of work procedures. Work rules regarding the scheduling of operator assignments were most pertinent to this study. The UMTA Section 15 report lists work rules associated with the pay hour, and their costs, on Form 321. Information was requested from the case study systems in a format similar to that of Form 321, separately for FTOs and PTOs.

In the literature review, sources on absences focused on distinct aspects of the issue; a complete definition was not available from any one source. Thus, the following definitions were developed for this study:

- *Scheduled.* A scheduled absence was defined as any day on which an operator ordinarily would report to work but does not, under prior arrangement. This type of absence includes vacation and holiday allowances, funeral leaves, military leaves, maternity and paternity leaves, jury duty, court appearances, union business, suspensions, and requested days off. It excludes weekly scheduled days off.

- *Unscheduled.* An unscheduled absence occurs when an operator fails to report to work without giving management advance notice of the absence. There are two further distinctions within this category:

- Involuntary.* An involuntary absence occurs when an operator is unable to report to work due to circumstances beyond his or her control. This type of absence may be caused by illness on or off duty, injury on duty (IOD), injury outside the workplace, or family emergency.

- Voluntary.* A voluntary absence occurs when an operator is able to report to work but chooses not to do so. It includes being absent without leave (AWOL) and abusing sick leave or other work rules.

The data collected on absences included separate information for FTOs and PTOs.

Fringe benefits are programs available to transit workers as part of their employment package. Included are health, medical, and dental insurance; retirement; free transportation; uniform allowances; and worker's compensation. Vacation, holiday, and sick leave policies are often found within the fringe benefit framework; however, for this analysis, they are classified under absences. This effort relied heavily on the detailed definitions of fringe benefits compiled by The Urban Institute (15). The costs of all fringe benefits were quantified separately for FTOs and PTOs.

Site Selection

The study resources were sufficient to conduct three case studies. The systems selected were

- Indianapolis Public Transportation Corporation (IPTC), Indianapolis, Indiana;
- Regional Transit Authority (RTA), New Orleans, Louisiana; and
- Southeastern Pennsylvania Transportation Authority (SEPTA), Philadelphia, Pennsylvania.

Case study reports were prepared separately for each of the three transit systems. Key findings are synthesized in the following section, organized according to the three components of labor contract provisions.

SYNTHESIS OF FINDINGS

Work Rules

Each of the three case study systems provided detailed information on the number of operator hours in a wide variety of work rule categories. These hours were compared with a base number of platform hours. The total hours associated with work rules were related back to platform hours to calculate the first component of the ratio of pay-hours to platform-hours. The impact of work rules on this ratio at each system is shown graphically in Figure 2 and summarized as follows:

System	Work Rules as a Percentage of Platform Time (%)
IPTC	38.89
RTA	19.50
SEPTA	33.82
Average	30.74

On average, approximately 31 percent more pay-hours were needed because of work rules. This 31 percent added 18 min of pay for every hour of platform service.

Some work rule categories were significant at one system but not necessarily at the others. Other categories, however, had a consistent impact at all three. The five largest categories are presented in Table 1, ranked by the average percentage of platform time.

Spread-time premiums, the largest individual category on average, was the largest work rule category at IPTC and SEPTA yet ranked eighth at RTA. Scheduled overtime premiums was a significant category at all three systems and the second largest average category. Unscheduled overtime premiums, the third largest average category, had a substantial effect at two systems. Report time had a noticeable effect at all three systems. The fifth category, the Fair Labor Standards Act (FLSA), was one of the largest categories at RTA but had a minuscule effect at the other two systems. The FLSA requires that anyone working over 40 hr per week must be paid overtime rates. In Table 1, the percentages indicate the difference between the overtime payments made under the contractual agreement and the payments required by the FLSA.

Absences

Data were collected from the three case study sites regarding time lost because of operator absences. The effect of absences on the ratio of pay-hours to platform-hours was calculated in

Indianapolis Public Transportation Corporation



Regional Transit Authority (New Orleans)



Southeastern Pennsylvania Transportation Authority (Philadelphia)



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PAY HOUR TO PLATFORM HOUR RATIO

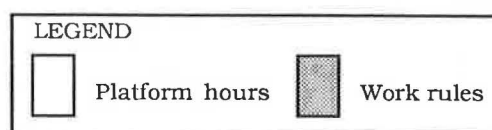


FIGURE 2 Effect of work rules on the ratio of pay-hours to platform-hours.

TABLE 1 RANKING OF WORK RULE CATEGORIES

Five Largest Categories	Percentage of Platform Time			
	IPTC	RTA	SEPTA	Average
Spread-time premiums	10.67	0.58	8.47	6.57
Scheduled overtime premiums	6.85	4.60	5.06	5.50
Unscheduled overtime premiums	5.18	0.03	8.13	4.45
Report time	2.70	1.87	4.15	2.91
Fair Labor Standards Act	0.01	4.55	0.00	1.52

a manner similar to that used for work rules. Results are presented graphically in Figure 3 and summarized as follows:

System	Average Absences per Operator (days)	Absences as a Percentage of Platform Time (%)
IPTC	25	11.74
RTA	30	13.07
SEPTA	44	28.37
Average	33	17.73

On average, the case study systems added another 18 percent of a platform hour for absences. The time lost because of absences and the resulting costs added approximately 10 min more of pay for every hour of platform service.

Unlike the largest work rule categories, the absence categories were significant at all three systems in terms of both hours and costs. The five largest categories, ranked by the average percentage of platform time, are presented in Table 2.

Vacations, holidays, and sick leave were the largest categories at all three systems. These categories accounted for most of the impact of absences on the ratio of pay-hours to platform-hours. The effects of injury on duty and requested days off were not identified separately at IPTC and RTA.

The three case study systems reported varying provisions for absences. At IPTC and SEPTA, sick leave is unpaid for the first few consecutive days of absence and paid thereafter. All sick leave at RTA is unpaid. The amounts in Table 2 include the combined effect of paid and unpaid sick leave.

Fringe Benefits

Fringe benefits typically are described in terms of premium cost or dollars of contribution. The ratio of pay-hours to platform-hours uses units of time as its input; therefore, the costs of the benefits were converted into hour equivalents by dividing the fringe benefit cost by the average operator wage

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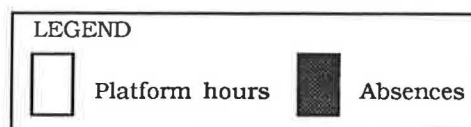


FIGURE 3 Effect of absences on the ratio of pay-hours to platform-hours.

TABLE 2 RANKING OF ABSENCE CATEGORIES

Five Largest Categories	Percentage of Platform Time			
	IPTC	RTA	SEPTA	Average
Vacations	6.52	7.34	9.47	7.78
Holidays	2.90	3.73	5.29	3.97
Sick leave	2.09	0.67	6.94	3.23
Injury on duty	N/A	N/A	3.97	1.32
Requested days off	N/A	N/A	1.18	0.39

On average, the time equivalents of the fringe benefits costs were more than one-third over the base of platform-hours. This added 19 min more of pay for every hour of platform time.

The largest fringe benefit categories are also the largest of all types of categories. The five largest fringe benefit categories, ranked by the average percentage of platform time, are presented in Table 3.

The three transit systems provide the same basic benefits package to their employees, although the total costs of the fringe benefits as a percentage of platform time were quite different. Health insurance was the largest fringe benefit category at all three systems; retirement was the second largest for all three.

SUMMARY AND CONCLUSIONS

The significant findings from the literature review were documented, the process used to conduct the study was discussed, and the most significant results were summarized.

per hour. The effect of fringe benefits on the ratio of pay hours to platform hours at each system is shown graphically in Figure 4 and summarized as follows:

System	Fringes as a Percentage of Platform Time (%)
IPTC	22.35
RTA	26.85
SEPTA	44.23
Average	31.14

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PAY HOUR TO PLATFORM HOUR RATIO

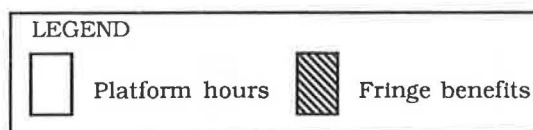


FIGURE 4 Effect of fringe benefits on the ratio of pay-hours to platform-hours.

TABLE 3 RANKING OF FRINGE BENEFIT CATEGORIES

Five Largest Categories	Percentage of Platform Time			
	IPTC	RTA	SEPTA	Average
Health insurance	9.93	12.19	17.59	13.24
Retirement	8.79	7.45	13.19	9.81
Worker's compensation	0.73	1.35	6.01	2.70
Dental insurance	1.56	1.00	1.65	1.40
Free transportation	N/A	N/A	3.96	1.32

Summary

Case studies were conducted to determine the effects of three types of contract provisions (work rules, absences, and fringe benefits) on the ratio of pay-hours to platform-hours. These effects are shown graphically in Figure 5 and summarized as follows:

- Work rules represented a range from 19.50 percent of the platform time at RTA to 38.89 percent at IPTC. The

average was 30.74 percent. On average, the largest categories were spread time and overtime premiums, both scheduled and unscheduled.

- Absences represented a range from 11.79 percent of the platform time at IPTC to 28.37 percent at SEPTA. The average was 17.73 percent. The largest categories uniformly were vacations, holidays, and sick leave.

- Fringe benefits represented a range from 22.35 percent (IPTC) to 44.23 percent (SEPTA) of the platform time. The average was 31.14 percent. The largest categories were health insurance, retirement, and worker's compensation.

The largest categories across all of the components (work rules, absences, and fringe benefits) were health insurance, retirement, and vacations. These three categories alone represented over 25 percent of the platform time at each of the three systems.

The sum of all contract provisions represented a range from 59.42 percent of the platform time at RTA to 106.42 percent at SEPTA. The average was 79.61 percent. This average comprised the following building blocks:

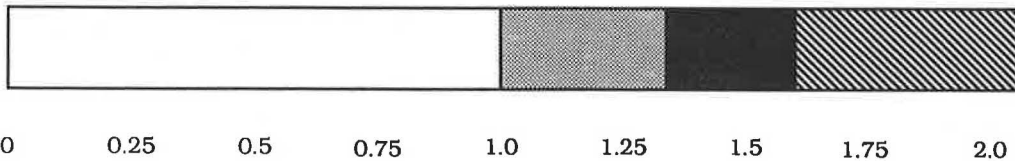
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Regional Transit Authority (New Orleans)



Southeastern Pennsylvania Transportation Authority (Philadelphia)



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FIGURE 5 Comparison of cumulative effects of labor contract provisions on the operator ratio of pay-hours to platform-hours.

Component	Percentage of Platform Time (%)	Additional Time (min)
Work rules	31	18
Absences	18	10
Fringe benefits	31	19
Total	80	47

These contract provisions mean that, on average, a system must pay for 1 hr 47 min to get 1 hr of service. The range across the three case study systems was from 1 hr 36 min to 2 hr 4 min.

Conclusions

In this research project, the ratio of pay hours to platform hours was used to quantify the cumulative effect of labor contract provisions on transit productivity. The three case studies yielded information on the extent to which different contract provisions affect this ratio. The three data points provided by these three cases were insufficient for projecting the potential industrywide impacts of labor contract provi-

sions. However, they did permit several key conclusions regarding the research approach.

The effort demonstrated the importance of considering the three components of labor contract provisions simultaneously. Focusing on one element does not measure the overall productivity impact accurately. However, the ratio of pay-hours to platform-hours is typically calculated with only the effect of work rules. Hence, there is a wide discrepancy between the way this ratio is used and the way it should be used.

Transit systems should gather and evaluate the types of information shown in these case studies. This procedure would provide an important measure of labor productivity over time. Further, when cost reduction and productivity improvement strategies are developed locally, they should encompass all components of the labor contract provisions. Productivity improvements will not be achievable unless all three areas are addressed simultaneously. For example, if a system focuses on absences, it may find it has bargained away some fringe benefits that offset any savings in the area of absences. In other words, these programs should produce overall improvements, not just improvements in single areas.

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