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## Transit Fare Prepayment Innovations in Sacramento

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In October 1977, the Sacramento Regional Transit District received a demonstration grant from the Urban Mass Transportation Administration to expand its monthly-pass program to include employer sales outlets. Although employers showed little interest initially, a temporary promotional discount and a general advertising campaign eventually induced more than 60 firms to sell passes to their employees. The program generated modest increases in pass use and transit ridership. Other benefits included improved cash flow, relatively low administrative costs for both the transit operators and participating employers, and a possible enhancement of ridership retention and commitment. Both the employer program and the general fare prepayment concept became very popular with the Sacramento Regional Transit District. The district has since increased the relative discount of monthly passes compared with daily cash payment and has proposed a new 2-year demonstration to determine which fare prepayment methods are most cost effective.

Transit fare prepayment--the purchasing of transit rides prior to using the service--is offered by almost every transit system in the country. The most common prepayment techniques are passes, allowing unlimited transit use during a specified period of time, and tickets (or tokens) that are valid for individual rides. These prepayment instruments are usually sold by the transit operator and sometimes at government offices, banks, and retail stores. Transit operators offer fare prepayment programs because they enhance the convenience of using transit and their administrative costs are relatively low.

Recently, there has been a growing interest among transit operators in expanding their fare prepayment programs. An important innovation has been the sale of monthly passes or tickets by employers, paralleling the emphasis that carpool programs have placed on employer promotion. Four years ago, there was only a handful of employer pass programs, but a survey conducted by the American Public Transit Association (APTA) in April 1980 disclosed more than 30 such programs today.

One of the pioneers in this field has been the Sacramento Regional Transit District (RT). Assisted by service and methods demonstration funding from the Urban Mass Transportation Administration (UMTA), RT began an employer pass program in 1978 that today includes more than 50 employers. Other innovations involving monthly passes were also implemented, and a follow-up demonstration has recently been pro-

posed. During the next 2 years, RT will introduce new prepayment instruments and several new distribution systems, including mail and telephone ordering, vending machines, credit card sales, and direct account transfers through banks. Each of these will be evaluated to determine their relative cost-effectiveness.

### INITIAL DEMONSTRATION

The first demonstration's primary objective was to get public and private employers to sell monthly transit passes to their employees, thereby increasing pass use. RT had already been selling the monthly pass to the general public at 35 locations, including 2 outlets operated by RT, 4 government office buildings, 6 retail stores, 20 banks, and 3 colleges. Since a fare change in September 1976, the monthly pass has offered a substantial discount over on-board cash payment for the daily commuter (14 percent between 1976 and 1979, and 20 percent after September 1979 based on 40 rides/month). Consequently, about 20 percent of all riders (and 60 percent of the daily bus commuters) were already using monthly passes when the demonstration began.

Preliminary demonstration activities began in November 1977, and employers were actively solicited to sell passes from March through October 1978. The first employer began selling passes in May 1978, with most employers beginning pass sales in the fall of 1978. During the demonstration, employers promoted pass sales in various ways. RT encouraged employers to sell passes through payroll deduction and to subsidize the cost of passes for their employees.

### IMPLEMENTING EMPLOYER PASS SALES

#### Employer Solicitation

Initial employer contact was done with an introductory letter from the RT general manager. This was followed by a telephone call from an RT representative during which more information on the program was supplied. If an employer expressed interest, a meeting was arranged. At this meeting, the project

manager presented and reviewed an information kit with the employer. The kit included a brochure on procedures, the forms to be used, a sample employee survey to be conducted three times during the demonstration, and marketing materials to encourage employee participation. RT also supplied the employer with the Bus Book, a collection of all RT route schedules and user information, and with specific transit service information for the employer's location.

RT also organized a booster committee comprised of 11 local government and business leaders. The booster committee's function was to help develop public awareness and generate employer participation. Two committee meetings were held, with the first one being used as the media publicity kickoff, which was covered by local television, radio, and newspapers. Formal endorsements of the program were obtained from each of the committee members.

#### Employer Response

The employer response to the initial solicitation efforts was disappointing. Of the more than 140 employers contacted, only 10 agreed to participate. The major reason for employer disinterest was the feeling that few of their employees used the bus, so that it would not be worthwhile to establish a program. Other reasons given by employers were that their working hours started and ended when RT offered little service, that RT provided poor service to their workplace even during peak periods, or that their employees needed their cars during work hours. Several employers were initially interested but, after taking an informal survey of their employees, found insufficient interest to warrant participation. A few were discouraged by possible administrative costs or had a company policy that did not permit involvement in what they perceived to be employees' personal concerns. Several employers also saw little benefit to their employees since the passes were already available at numerous public outlets.

#### Expanded Promotions

After two months, it was apparent that employers did not perceive the pass program to be sufficiently beneficial to induce their participation. As a result, RT made two major changes to the program. First, the originally planned one-month 25 percent discount for employer-sold passes was expanded to three months, and rescheduled to earlier in the demonstration. Second, the solicitation effort began to be directed at employees under the hypothesis that employers would be more responsive to employee pressure to join the program than to RT's solicitations.

The first technique used to create employee interest was a brief on-board survey of all morning peak-period bus riders. This survey, conducted in June 1978, simply described the employer pass program and requested the name of the rider's employer. RT had three reasons for conducting this survey. First, it made the riders aware of the program and its potential benefits to them, which would hopefully result in inquiries to their employers who would then call RT. Second, RT hoped to identify new employers who had substantial numbers of bus-riding employees. Third, RT hoped to produce evidence showing that there were in fact bus riders from those firms where the managers were skeptical regarding employee bus use.

The survey resulted in many employers and employees contacting RT for information on the program, and RT had little need to use the survey re-

sults to find new employers. About 10 of the employers starting pass sales in September, October, and November did so as a result of the interest generated by the survey.

The new solicitation approach also included an advertising campaign directed at the general public. Conducted during August and September 1978, this campaign included newspaper ads, interior and exterior bus advertisements, and ads on bus benches. The initial advertisements were teaser ads with the question, How would you like a \$198 a month raise? This was followed a week later by "Ask your employer about the RT PASSport Program or call 444-BUSS for more information." The \$198 figure was the difference between the average monthly cost of automobile travel, calculated by the California Department of Transportation, and the cost of an RT bus pass. Later advertisements also stressed the 25 percent three-month discount and listed firms already signed up, thus encouraging others to join the bandwagon. In addition to the advertising, RT ran radio public-service announcement spots, the RT project manager appeared on two local television talk shows in August and September, and local newspapers and magazines ran feature articles on the program following several press releases.

#### Results

The new solicitation approach greatly increased employer interest in the program. Forty-two employers began pass sales in September, October, and November, compared with 11 firms between May and August. The demonstration goal of 30 participating employers was greatly exceeded, and RT was forced to institute two restrictions on future employer eligibility in order to limit its administrative costs. First, employers had to commit themselves by October 15 in order to receive the 25 percent discount during October through December. Second, any employers signing up after that time had to guarantee that at least 10 bus passes would be sold each month. Prior to this, RT accepted any employer regardless of their size or the quantity of passes they were able to sell each month.

Although the new solicitation approach was extremely successful in terms of generating employee interest and increasing the number of participating employers, the 25 percent discount had one drawback: RT received considerable criticism for applying a selective discount that benefited only part of the population. From the time the discount was publicly announced in mid-September until the end of October, RT received numerous complaints that the program was unfair to those who were ineligible. RT estimated that 30-50 telephone calls were received daily during that period that were either complaints as to the fairness of the discount, employees wanting a refund because they had purchased their pass at a public outlet for full price instead of from their employer, or employees checking to see if their employer was participating. Pass sales figures suggest that many ineligible employees had others buy discount passes for them. In fact, more than one-half of the passes sold during the discount were through employers.

#### CHARACTERISTICS OF PARTICIPATING EMPLOYERS

Initially, employers were to have been selected based on a careful screening procedure designed to obtain a representative sample according to the number of employees, transit availability, type of industry, geographic location, and parking availability. However, because of the poor response to



Table 1. Characteristics of participating employers.

Characteristic	Percentage
Type of industry	
Government	58
Finance and insurance	15
Retail trade	8
Hospitals	6
Other services	6
Manufacturing	4
Wholesale trade	2
Public utility	2
Size	
1-49 employees	12
50-200	40
201-999	23
$\leq 1000$	25
Location and level of transit service	
CBD	67
NonCBD but served by three or more routes	13
Served by one or two routes	19
Parking availability (off-street spaces provided/employees)	
None	17
0.01-0.25	37
0.25-0.50	22
0.50-0.75	11
0.75-1.00	4
1.00-1.25	9
Perceived parking availability by employer (including available on-street spaces)	
Inadequate	69
Adequate	31

initial solicitation efforts, the program was open to all employers.

Table 1 shows the distribution of participating employers according to type of industry, size, location, and parking availability. Government agencies comprised the majority of participating employers and, because they were generally larger than the participating private firms, included more than 80 percent of the eligible employees. The preponderance of government employers in the program partly reflects their greater propensity to participate but in large part is due to the unique characteristics of Sacramento, where most of the large central business district (CBD) employers are state government agencies. Employers in the CBD were more likely to join the program since these employers received the best transit service and were also least likely to have sufficient employee parking.

#### PASS SALES METHODS

Three methods of pass sales were used by participating employers: over-the-counter, payroll deduction, and subscription. For over-the-counter sales, the employer ordered the quantity of passes it anticipated selling and sold them individually from the 25th of the month preceding the month for which the pass is used through the 5th of the month. For payroll deduction, the cost of the pass was deducted from the employee's paycheck. Some employers required the employee to sign up for the payroll deduction in advance and ordered only the number of passes specifically authorized by employees. Other employers ordered a larger quantity of passes and took the deductions after distributing passes to employees who wanted them. Under the subscription method, employees signed up in advance for the pass, the employer ordered the specific number requested, and employees paid for the passes with cash or checks on receipt of the pass. Under all three methods the employer forwarded all unsold passes and money received for sold passes to RT on the 6th of the month.

Almost 80 percent of the participating employers

sold passes over-the-counter. Employers generally rejected payroll deduction because of the higher administrative costs required for this method. Payroll deduction also proved to be unpopular among employees: Among CBD employers, those employers selling passes by payroll deduction sold about 20 percent as many passes per employee as firms selling passes over-the-counter or by subscription. The extra effort required to order and cancel passes seemed to make payroll deduction an undesirable payment method. The required advance notice also acted as a deterrent.

#### SUBSIDIES AND ADMINISTRATIVE COSTS

Seven employers subsidized the cost of passes for their employees. Three employers provided 100 percent subsidies, three provided 50 percent subsidies, and one subsidized up to 42 percent of the cost during the first two months of pass sales as a start-up promotion. By contrast, one-third of all employers provided free employee parking, and one-half charged well under the current market price for parking. (Most of the latter group were state agencies, which charged \$10.50/month for parking compared with public rates of \$20 and up.) The remaining employers did not provide parking.

Participating employers were asked to record monthly expenditures associated with pass sales through June 1979. Costs were roughly proportional to the number of passes sold, rising by about \$0.50/pass sold. Employers almost unanimously perceived these costs to be negligible. RT's administrative costs for the pass program (including both public and employer outlets), were about \$0.16/monthly pass sold during the first year of the demonstration. Following an administrative reorganization of the pass program in mid-1979 and the start of the county welfare distribution of passes in March 1980 (which greatly increased total pass sales), the administrative costs per pass dropped to about \$0.10, or about \$0.03/bus trip made with the passes.

#### EMPLOYEE RESPONSE

##### Monthly-Pass Sales

Employer pass sales began while monthly-pass sales at regular outlets were still rising (Figure 1). The growth, while continuous, was punctuated by a strong seasonal pattern. Sales during December, January, and the summer months, when people took vacation, were notably lower than other months. By comparing sales totals with the same month in the previous year (Figure 2), the seasonal effects were eliminated, and a consistent predemonstration growth pattern emerged. At the time that employer pass sales began, pass sales were growing at an approximately 30 percent annual rate, but the rate of growth was decreasing.

Spurred by the three-month 25 percent discount in the fall of 1978, pass sales rose significantly during the demonstration. Among employees of firms selling passes, there were about three times as many first-time buyers during the discount period as would normally occur, and pass use by this group rose by 89 percent. This caused total systemwide pass sales to increase, and during the last month of the discount, sales were 26 percent above the existing sales trend extrapolation. As discussed later in the article, only part of this increase was due to new transit riders; most of the new pass users previously rode the bus but paid cash fares.

The three-month discount, limited to employer-sold passes, was also responsible for shifting where

Figure 1. Monthly-pass sales.

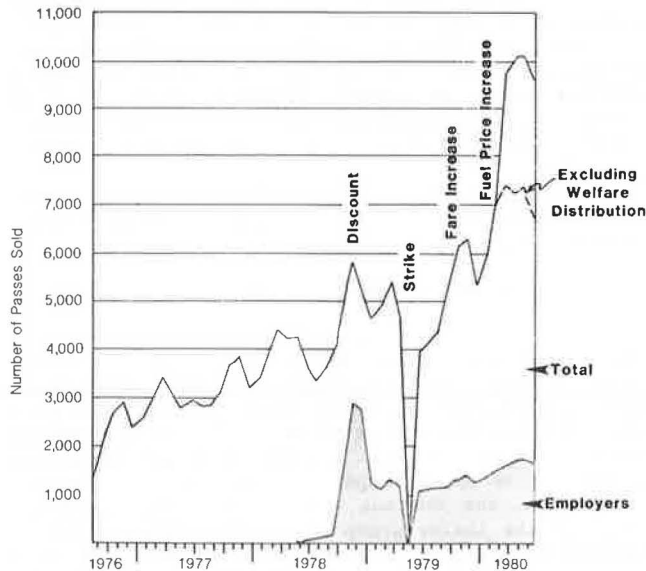
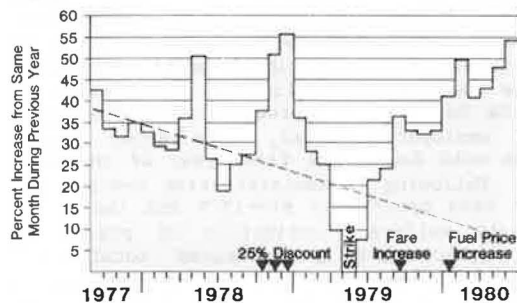


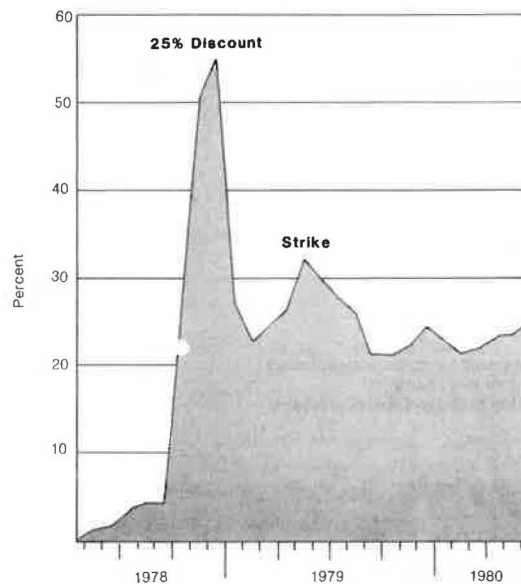
Figure 2. Increases in pass sales (excluding welfare distribution).



employees purchased passes. At the 17 employers who were selling monthly passes before the discount, pass sales at those firms more than tripled during the discount. Prior to the discount, about one-third of the employees purchasing passes bought the pass at their work place. During the discount, almost all bought the pass at work, while after the discount, about three-quarters of the employees purchasing passes continued to buy their passes at work.

Although the number of passes sold by employers dropped by 50 percent following the discount, employer-sold passes have continued to comprise about 25 percent of all monthly passes sold, excluding county welfare pass distribution (Figure 3). Furthermore, the employer pass program has caused total pass sales to be 6 percent higher than would otherwise occur. This conclusion is derived from a comparison of pass sales following the discount with the prediscount sales trend extrapolation. Only five-month data (January-March and July-August 1979) are considered, because April-through-June sales were depressed by the 24-day transit strike in April and May, and a fare increase in September 1979 changed the relative discount of passes versus daily cash payment (14.3 percent to 20 percent, based on 40 trips/month). Following the fare change, total pass sales rose an additional 10 percent, and the sharp gasoline price increases in January 1980 appear to have increased pass sales an additional 8 percent.

Figure 3. Percentage of total monthly passes (excluding welfare distribution) sold by employers.



### Transit Ridership

Information on travel behavior and transit ridership changes induced by the demonstration is derived from three comprehensive employee surveys conducted in May-October 1978 (before an employer joined the program), in December 1978 (during the discount), and in August 1979 (after the discount). Altogether, more than 11 000 survey responses were tabulated.

Almost 15 percent of the persons buying discounted monthly passes at work were new transit users. However, about one-third of these new users would have bought passes anyway as part of the usual turnover of people who use transit. Altogether, a 9.5 percent increase in transit ridership occurred during the discount period among employees of participating firms. About a 7.5 percent increase was attributed to the new transit riders and a 2 percent increase resulted from former cash-paying riders using transit more often now that they had passes. Altogether, the increases caused an estimated 1.6 percent increase in systemwide transit ridership.

In the first few months after the discount, the increased trip making by former cash-paying customers had mostly ceased, but there was an approximate 60 percent retention rate for new transit riders attracted during the discount. This rate was about the same as the retention rate for those who started using transit at other times, as part of the normal turnover of transit ridership. The overall residual ridership impact of the demonstration, then, was a 4.5 percent increase among eligible employees. This represents a 0.7 percent increase in systemwide ridership.

### Revenue Impacts

The three-month 25 percent discount on monthly passes resulted in an estimated 11.4 percent decline in transit revenues from employees of participating organizations. The estimated dollar loss in revenue over the three months of the discount was just under \$12 000. However, this revenue loss was made up in about six months by new users attracted by the discount, and an estimated \$18 500 in extra revenues from these new riders was estimated to result over

the following year. The discount was thus economically beneficial in the long run.

#### Fare Prepayment and Transit Commitment

One unexpected result of the employee surveys was the extent that individuals started and stopped using transit. Among employees commuting by transit and still working at the same location 16 months later, 30 percent had stopped using transit. Since transit ridership was growing slightly over this period, this group was replaced by a slightly larger group of new riders.

Limited data suggest that monthly-pass users were a little less likely to stop using transit than daily cash payers. Based on a sample of 140 regular bus commuters, the dropout rate after 16 months was 33 percent for cash payers, compared with 27 percent for monthly-pass users. However, the difference was not statistically significant, and the results are therefore not conclusive. Given the extremely high turnover rates for transit use, the issue of whether fare prepayment enhances rider retention is an extremely important one and deserves further investigation by researchers.

#### OTHER INNOVATIONS DEVELOPED

Besides employer pass sales, several other innovations were developed and tested during the first Sacramento demonstration.

#### Commercial Discounts for Transit Pass Users

In May 1979 the first commercial discount for pass holders was arranged with the Sacramento Jazz Festival, a Memorial Day weekend event. Discounts worth \$12, the full cost of the bus pass, were available to all holders of May and June 1979 monthly passes. Unfortunately, the RT strike limited the effectiveness of the promotion, and only about 40 persons took advantage of the offering. A second commercial discount was negotiated with the California State Fair in August 1979. Each pass purchaser received a \$.50-coupon good toward general admission to the state fair. Of the approximately 6700 coupons distributed, 227 were ultimately cashed in. The third commercial discount was with the Circus Vargas in May 1980. Each pass purchaser received a coupon worth \$2.00 toward purchase of a Circus Vargas ticket. Results from this promotion are unavailable. The state fair discount will be repeated in 1980, and RT is trying to repeat the other discounts and establish additional commercial discount programs. The concept is attractive to commercial ventures because they get substantial free publicity, and the discount is made available to a group that is less affluent than the overall public.

#### State Employee Payroll Deduction

RT designed a legislative bill that would allow a payroll deduction for all California state employees for any monthly transit prepayment instrument. The bill went into effect January 1, 1980, and is currently going through legislative interpretation. RT is working with the state controller's office to establish the procedures for the program.

#### Welfare Distribution of Passes

As part of Sacramento County's general assistance program, the county purchases an RT monthly bus pass for each welfare recipient. This program began in March 1980 and has resulted in almost 3000 additional pass sales per month, boosting total pass

sales by about 40 percent. The county also purchases RT bus tokens for persons who start receiving welfare assistance between the 16th and the end of the month. The exact fiscal impact of this program is unknown, but it seems likely to have generated a significant net revenue increase for RT.

#### Passes as Fringe Benefits

RT is currently working on a plan with several government agencies to have a transit pass as an employee fringe benefit. The success of this proposal will be determined in the coming months.

#### New-Home Buyer Promotion

In 1980, a major residential developer agreed to provide a roll of bus tokens (worth \$10) and area-specific transit information to all purchasers of new homes. This will introduce new residents to the transit service available in their neighborhood. RT is now trying to enlist other developers and real estate agents in this program.

#### NEW DEMONSTRATION

A new 2-year UMTA-funded demonstration has been proposed to follow the first demonstration. During these 2 years, existing prepayment programs will be expanded, and additional distribution methods will be tested and evaluated. The new demonstration's objectives are to further increase the availability of fare prepayment instruments and to determine the relative cost-effectiveness of different sales methods. Specific tasks to be undertaken include the following:

1. Development of 10- and 20-ride ticket booklets to supplement the monthly pass (Employee surveys during the first demonstration found that for every five people commuting by bus five days a week, and likely to buy a monthly pass, there are four persons who ride one to four days a week, and are unlikely to buy a pass. Discounted ticket books can reach this large market);
2. An expansion of public pass-sales outlets, maintaining RT's policy of not paying sales commissions;
3. Expansion of the employer pass-sales program;
4. Implementation of mail-order pass sales with payment by check or credit card;
5. Implementation of telephone sales with credit card payment;
6. Implementation of direct bank account transfers as a payment technique; and
7. Use of vending machines at major activity centers to sell prepayment instruments.

#### CONCLUSIONS AND IMPLICATIONS

The results of the Sacramento monthly-pass program have led to several conclusions regarding fare prepayment and employer pass sales. Although the ridership impacts of the demonstration were modest, several additional benefits of fare prepayment have made the Sacramento Regional Transit District a strong supporter of fare prepayment.

#### Operations and Cash Flow

RT perceives an improved cash flow situation as a result of fare prepayment. Revenues are generated early in the month, and cash flow over the month can be more accurately projected. RT also views fare prepayment, including future ticket sales, as the means by which customer use of dollar bills in fare-



boxes can be eliminated. Such current use results in a considerable inefficiency in revenue collection.

#### Transit Commitment

RT feels that monthly-pass users, particularly persons purchasing their passes at work, are more committed to transit than cash users. Several demonstration findings support this belief, although the evidence is not yet fully conclusive. First, cash payers who bought passes during the 25 percent discount increased their transit use by 10 percent. Second, among regular transit users surveyed over a 16-month period, pass users were slightly less likely to stop using transit than cash users. Finally, pass users, and particularly pass users buying their passes at work, were quickest to return to transit following the May 1979 strike.

Since almost 30 percent of Sacramento's regular transit riders stop using transit each year, any strategy that lowers this dropout rate even slightly is highly desirable. In recognition of this, RT increased the relative discount of monthly passes compared with daily cash payment in September 1979, when all fares were raised.

#### Administrative Costs

The costs of administering the monthly-pass program were perceived by both the transit operator and the individual employers to be small. RT's administrative costs totaled only about \$0.03/bus trip taken with a pass (exclusive of special demonstration costs). Through the results of the second demonstration, RT hopes to further reduce this figure. While the unit costs incurred by employers were higher (\$0.50/pass, or about \$0.01/bus trip), only a handful of the more than 60 firms that participated in the program felt that their costs were significant.

#### Recruitment of Employers

The initial recruitment of employers to sell passes proved to be extremely disappointing, with few employers viewing the program as beneficial. The Sacramento experience demonstrated that a strong incentive is necessary to induce employer involvement. Generating employee interest, rather than appealing only to management, is also very helpful. Little success can be expected if a transit operator only appeals to an employer's social

conscience, even if the employer heavily subsidizes employee parking, as was the case for most Sacramento employers.

#### Payroll Deduction

The initial demonstration plan called for employers to sell passes by payroll deduction, but this requirement was subsequently relaxed, and the vast majority of firms sold passes over-the-counter. Payroll deduction was viewed as a burdensome technique, and few employers offered it. Among those who did offer payroll deduction, pass sales per employee were 15-20 percent of those occurring at firms selling passes over-the-counter. The implied long-term commitment of signing up for payroll deduction discouraged pass use, and this sales technique is not very promising for transit fare prepayment.

#### Pass Sales and Ridership Impacts

Although monthly-pass sales and transit ridership increased substantially over the course of the first demonstration, much of the increase can be attributed to two exogenous events that occurred during this time: a fare restructuring that decreased the relative cost of passes and an increase in gasoline prices that encouraged transit ridership. Nevertheless, the employer pass program, including the three-month 25 percent discount, caused a long-term increase in total monthly-pass sales of 6 percent. Transit ridership among participating employees rose by 4.5 percent, resulting in an 0.7 percent increase in systemwide ridership. While these gains are not spectacular, the additional revenue that they brought in far exceeded the lost revenue due to the three-month pass promotion discount.

#### ACKNOWLEDGMENT

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## Factors That Influence Choice Among Transit Payment Methods: A Study of Pass Use in Sacramento

ELIZABETH PAGE

During the 1960s, as exact change requirements were instituted on most transit systems, many operators developed transit fare prepayment (TFP) programs as a convenience to their passengers. In recent years, operators have broadened their views of these programs and attention has focused on identification of the market for TFP, determination of the magnitude of any benefits realized by purchaser or operator, and development of ways to promote its use. In this

paper, a choice model is developed and estimated to explain the factors that influence a transit rider's decision to purchase a monthly pass or to pay cash fare on a daily basis. The population under study is a sample of employees at worksites participating in an Urban Mass Transportation Administration service and methods demonstration project of employer-sponsored pass sales. The estimation results indicate that the initial cash outlay required to purchase a