Cost-Effectiveness of Direct Mail Marketing to New Residents

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In January 1989 the Tri-County Metropolitan Transportation District of Oregon (Tri-Met) began offering a promotional packet to new residents in selected ZIP codes within the Tri-Met service district. The primary objective of the program was to increase ridership by attracting new riders and retaining existing riders after they move. In February 1991 Tri-Met launched a year-long study to determine how often and for what period of time new riders who received a direct mail promotion continued to ride Tri-Met. The study found that after a year, 64 percent of these new riders continued to ride, making 21 trips a month on average. The length of time that a person stays with the Tri-Met system appears to be correlated to the number of trips they made on Tri-Met when they first started riding: the more trips respondents made initially, the more likely they were to continue riding. The promotion is cost-effective; the payback period is less than 3 months, including all development, production, mailing, and lost revenue costs. Respondents generally pay their fares using the most economical method for the number of trips that they plan to take in a given month with two exceptions: those who always pay cash (about 10 percent) and those in lower-income brackets who make more than 30 trips a month. Targeted direct mail promotions such as the new residents promotion should be continued because they appear to be effective in terms of both attracting and retaining riders at a relatively low cost to the agency.

In January 1989 the Tri-County Metropolitan Transportation District of Oregon (Tri-Met) began offering a promotional packet to new residents in selected ZIP codes in the Tri-Met service district. New residents include newcomers to the area as well as those who changed residences within the Tri-Met service district. The primary objective of the program was to increase ridership by attracting new riders and retaining existing riders after they move.

Each packet contained a letter outlining the benefits of riding transit, a packet of information about riding Tri-Met, and a response coupon that could be redeemed for 10 free tickets. An individual identification number and a short survey were printed on the response coupon. The survey asked respondents how often they rode transit before and after moving.

A research study analyzing results of the first 2 months of the promotion found that 17 percent of respondents who were nonriders rode Tri-Met at least seven times a month after the promotion (*1*). In fact, 5 percent of all nonriders began riding Tri-Met 30 or more times a month after receiving the promotion.

In February 1991 Tri-Met launched a year-long study to determine how often and for what period of time new residents who starting riding after receiving the direct mail promotion continued to ride Tri-Met. The study was also designed to examine (a) why respondents began riding Tri-Met; (b) the changes, if any, in the respondents' riding frequency; (c) the changes, if any, in fare payment method over 1 year; and (d) if applicable, the reasons respondents stopped riding Tri-Met.

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SAMPLE DESIGN AND SELECTION

Data from the coupon survey contained in the original direct mail packet were used as the basis for selecting a sample for this cost-effectiveness study. Using the unique identification numbers included on the coupons, Tri-Met obtained the names and addresses of new resident respondents who made fewer than two transit trips a month before moving and two or more transit trips a month after moving. This selection method yielded an initial sample size of 1,045.

Names and addresses of those selected were sent to US West Communications to obtain telephone numbers. Of the 1,045 names and addresses submitted, US West was able to find published telephone numbers for 528 persons. The remaining 517 were surveyed by mail and asked to provide their telephone number for future contacts.

The study design called for these new riders to be interviewed once each quarter to determine whether they were still riding, how often they rode, and how they paid their fare. Each quarter respondents were eliminated from further study if they failed to respond to the previous survey or if they had stopped riding Tri-Met within the past 3 months and had no plans to resume riding within the next quarter. Table 1 displays the sample sizes and response rates for each round of interviewing.

RIDING FREQUENCY AND ATTRITION

February 1991

The first round of interviewing was conducted in February 1991, approximately 3 months after respondents to the promotion received their direct mail packets. Of the 1,045 persons selected for the study, initial interviews were completed with 578, a response rate of 55 percent.

Attrition rates are calculated on the basis of responses to the question, "How many trips do you currently make on a Tri-Met bus or MAX each month? Please count each direction as one trip." Respondents who said that they made no transit

TABLE 1 Sample Sizes and Response Rates per Quarter

	Feb.	May	Sept.	Dec.
Sample Size				
Telephone	528	432[a]	332[b]	239
Mail	517	60	19	0
TOTAL	**1,045**	**492**	**352**	**239**
Response Rates %				
Telephone	71	81	78	81
Mail	38	50	63	---
COMBINED	**55**	**77**	**73**	**81**

[a]Includes 124 respondents who provided a telephone number from the previous mail survey.

[b]Includes 11 respondents who provided a telephone number from the previous mail survey.

trips and had no plans to resume using transit in the next 3 months were included in the attrition calculation. Respondents who planned to resume transit use but failed to do so were included in the attrition calculation after the next round of interviewing.

The overall attrition rate after the first round of surveying was 7 percent, which means that 7 percent of those who responded to the survey stopped riding within 3 months of receiving the promotion. These respondents were excluded from subsequent surveys. The mean number of trips per month among those who continued to ride was 21.5.

May 1991

After eliminating nonriders and those who provided no transit trip information in the first round of surveying, the sample for the second round, conducted in May, was 492. A total of 378 interviews were completed, for a response rate of 77 percent.

The attrition between the February and May surveys was 12 percent—that is, 12 percent of those surveyed in May stopped riding transit between 3 and 6 months after receiving the promotion.

Cumulative attrition rates were calculated on the basis of the original sample of 1,045 with the assumption that those who failed to respond to the surveys stopped riding transit at the same rate as those who did respond. Thus, the cumulative attrition rate at the end of May is 18 percent, calculated as follows:

1,045 (initial sample size) * 0.07 (February attrition) = 73

1,045 − 73 = 972 * 0.12 (May attrition) = 117

117 + 73 = 190/1,045 = 18 percent

September 1991

After eliminating nonriders and those who provided no transit trip information in May, the sample size for the third survey conducted in September was 352. A total of 258 interviews were completed, for a response rate of 73 percent.

The attrition between the May survey and the September survey was 15 percent. The cumulative attrition rate for the initial sample (n = 1,045) was calculated to be 30 percent, representing the total number of new riders who stopped using transit within 9 months of receiving the promotion.

1,045 (initial sample size) * 0.07 (February attrition) = 73

1,045 − 73 = 972 * 0.12 (May attrition) = 117

972 − 117 = 855 * 0.15 (September attrition) = 128

117 + 73 + 128 = 318/1,045 = 30 percent

December 1991

After eliminating nonriders and those who provided no transit trip information in the September survey, the sample for the December study was 239. A total of 194 interviews were completed, for a response rate of 81 percent.

The attrition between the September and December surveys is 8 percent. The cumulative attrition rate 1 year after receipt of the direct mail promotion was calculated to be 36 percent.

1,045 (initial sample size) * 0.07 (February attrition) = 73

1,045 − 73 = 972 * 0.12 (May attrition) = 117

972 − 117 = 855 * 0.15 (September attrition) = 128

855 − 128 = 727 * 0.08 (December attrition) = 58

117 + 73 + 128 + 58 = 376/1,045 = 36 percent

CHANGES IN RIDING FREQUENCY

A comparison of transit trip frequency for each quarter of the survey project shows that riders are fairly stable in terms of the number of trips they make each month. Table 2 shows the percentage of respondents in each transit trip category over the course of the study. Figure 1 displays this same information graphically to better illustrate ridership trends.

FARE PAYMENT

As part of this study, respondents who were still riding Tri-Met at the time each survey was conducted were asked how they pay their fare to track how fare payment methods change over time. The first survey, in February, showed the following results:

Payment Method	*Percentage*
Cash	33
Cash-ticket combination	13
Ticket	35
Monthly pass	19

The mean number of transit trips per month at this time was 21.5.

The Tri-Met fare structure is designed to encourage ridership by providing volume discounts. For example, buying a book of 10 all-zone tickets saves $1.00 over the regular cash fare for 10 all-zone rides. For purposes of this paper, respondents were divided into three groups on the basis of the number of transit trips that they make each month. For those making between 1 and 10 trips per month, cash or ticket fares are the most economical means of payment. Tickets are most economical for those making 11 to 31 trips a month, and passes are most economical for those who make 32 trips or more. Although tickets are always a more economical option than cash, the savings for those making fewer than 10 trips per month is insignificant.

Table 3 presents the method that respondents used to pay their fares by the number of trips they made per month at the time each survey was conducted. The most cost-effective payment method in each category is shown in italics. The majority of respondents selected the most economical fare payment method except, perhaps, initially when a greater percentage paid cash. This finding implies that respondents were uncertain of their level of commitment to transit when they first began riding, but as they became more comfortable, they quickly began to use the most economical method of payment.

For example, only 47 percent of respondents who made 32 or more transit trips in February bought a monthly pass. The rest paid with cash, tickets, or both. In May, 65 percent of those making 32 or more trips per month bought a pass. Many respondents in this trip category who did not buy a pass are in the lower-income brackets, suggesting that they may not be able to afford the full pass price at the beginning of the month.

Some respondents simply preferred cash. Ten percent of those who participated throughout the entire study always paid with cash regardless of the number of trips they made each month.

Respondents in the 11–31 trips category shifted away from cash toward tickets and monthly passes between February and September. There is a shift among respondents in this group from passes back toward tickets and cash in December. This finding probably reflects an expectation of diminished use during the holiday season. The mean number of transit trips per month did decline slightly between September and December.

A fare survey of the entire Tri-Met system conducted in October 1991 showed that 35 percent of all trips are paid with cash, 15 percent with tickets, and 50 percent with a monthly pass. This study found a somewhat different pattern of fare payment when compared with the systemwide study. As given in Table 4, the use of cash among participants in the direct mail study is significantly less than cash use in the entire Tri-Met system. Moreover, cash use diminished over time while pass use increased from 29 percent after the first round of surveys in February to become comparable with the system average of 50 percent.

TABLE 2 Comparison of Transit Trip Frequency

	Percent of Respondents			
Transit Trips Per Month	**Feb.**	**May**	**Sept.**	**Dec.**
0	7	12	15	8
1 to 6	28	25	27	35
7 to 12	14	15	14	11
13 to 29	20	17	13	14
30 or More	31	31	31	32
TOTAL	**100**	**100**	**100**	**100**
Mean	21.5	22.4	21.9	21.3

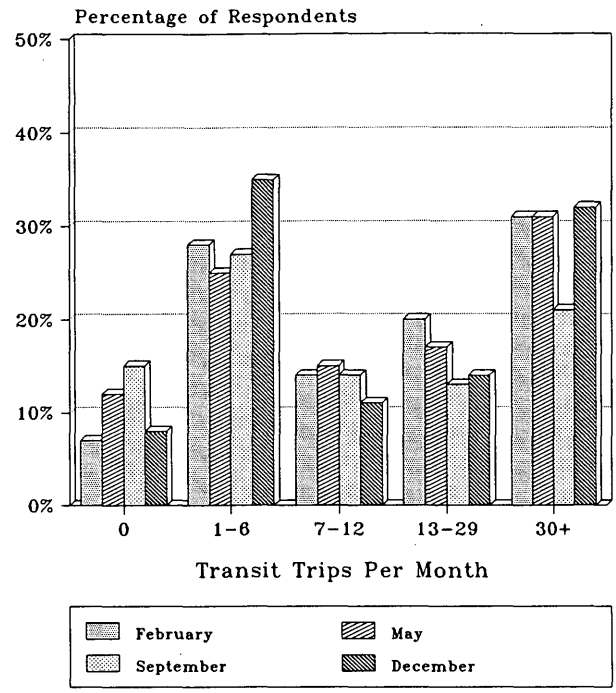


FIGURE 1 Comparison of transit trip frequency.

There are several possible explanations for this finding. The first is that persons making less than one trip per month were dropped from the direct mail study. Systemwide, a number of trips by these very infrequent riders are made every day. These riders generally pay a cash fare.

Trips by very infrequent riders are not sufficient to explain the entire difference between systemwide cash fares and direct mail study cash fares. It is possible that the research design skews results because those most likely to pay with cash were dropped from further study. Another possibility is that those who typically pay with cash live in areas other than those targeted by the promotion. This theory seems unlikely since the promotion primarily targets the inner city, where residents have many transit options and frequent service.

The most likely explanation for the disparity in fare payment methods is that the promotion provided tickets for respondents to use as well as specific information about fares: how much they cost, the types of fares available, where to purchase tickets and passes, and so on. This information, coupled with the experience of using the free tickets provided in the original promotion, enabled respondents to make educated decisions about the most cost-effective fare payment method for their situation.

PROMOTION PAYBACK PERIOD

A 1989 study of the promotion to new residents found the total cost per person on the mailing list to be $2.50 and the total cost for each new rider or rider retained to be $29.13 (*1*). These costs included promotion development and production costs prorated over the first 6 months of the program, monthly mailing costs, and lost revenue from tickets given to existing riders. Updating these numbers to reflect 1992 fares

TABLE 3 Fare Payment Method by Trips per Month

Month/Payment Method	Transit Trips Per Month %		
	1-10	11-31	32+
FEBRUARY			
Cash	**48**	28	17
Cash/Ticket Combination	15	16	7
Tickets	37	**40**	29
Monthly Pass	1	16	**47**
MAY			
Cash	**42**	22	11
Cash/Ticket Combination	6	7	2
Tickets	47	**48**	22
Monthly Pass	5	22	**65**
SEPTEMBER			
Cash	**43**	26	10
Cash/Ticket Combination	6	2	4
Tickets	48	**44**	22
Monthly Pass	3	26	**64**
DECEMBER			
Cash	**51**	28	5
Cash/Ticket Combination	1	6	4
Tickets	48	**50**	24
Monthly Pass	0	17	**66**

TABLE 4 Comparison of Fare Payment Methods Systemwide with Direct Mail Study Respondents

	Cash	Cash/Ticket Combination	Tickets	Monthly Pass
System-wide Survey %				
(October 1991)	35	N/A	15	50
Direct Mail Study %				
February 1991	19	9	44	29
May 1991	18	4	29	50
September 1991	17	4	30	50
December 1991	14	4	32	50

brings the cost per person on the mailing list to $2.60 and the cost per new rider attracted or rider retained to $30.15.

Tri-Met mails approximately 5,000 promotional packets to new residents each month. The average response rate is 32 percent, of which 8.6 percent are new riders or riders retained at the same or higher level.

The monthly cost of the promotion and the payback period can be calculated using the assumptions that 64 percent of new riders attracted continue to ride for at least 1 full year, and that new riders make an average of 21 transit trips each month at the average cash fare of $1.05/trip.

Incoming Revenue Per Month

Using the values given earlier, the following equations calculate the incoming revenue per month:

5,000 new residents * 0.086 new riders * 0.64 still riding = 275

275 * 21 trips per month * $1.05 = $6,063.75

Monthly Cost to Tri-Met

Tri-Met spends $13,000 on a month's mailings to 5,000 residents:

5,000 new residents * $2.60 per person on mailing list

= $13,000

Payback Period

According to the survey data, Tri-Met will recoup its costs in 2.14 months after mailing the promotion:

$13,000/$6,063.75 = 2.14 months

In reality, Tri-Met could recover the promotional costs much quicker given that attrition in the first quarter was only 7 percent compared with 36 percent at the end of an entire year. When calculated on the basis of 7 percent attrition, the payback period is approximately 1.5 months.

Conversely, the payback could be somewhat longer if those who dropped out of the study stopped riding in proportionally greater amounts than those who remained in the study. It is possible that because study participants knew Tri-Met would contact them quarterly, they remained riders longer than they might have otherwise.

DEMOGRAPHIC CHARACTERISTICS

The initial survey conducted in February collected demographic characteristics of all respondents. As Table 5 indicates, substantially more women participated in the study than men and most study participants had an annual household income of less than $50,000.

Respondents who stopped riding generally rode Tri-Met less often initially, traveled longer distances, paid with cash, and usually went to downtown Portland when they did ride. By comparison, respondents who continued to ride were more likely to pay with tickets or a monthly pass, travel in two zones, and use transit to get to places other than downtown Portland.

TRIP PURPOSE

Each quarter respondents who were still riding Tri-Met were asked what their primary trip purpose was. For the most part, these did not change through the course of the study. As shown in Figure 2, work remained the primary purpose throughout, hovering at about 50 percent. This finding suggests that although work trips are Tri-Met's primary market, a good secondary market may be discretionary trips for shopping and personal business.

The December survey showed a somewhat different distribution of transit trip purposes than the previous surveys. The proportion of work and shopping trips decreased while there was a steady increase in trips for visiting and recreation. These differences are probably due to the holiday season, when people are more likely to use their cars to run errands (such as buying Christmas gifts) on their way home or to take time off to spend with visiting friends and relatives.

SATISFACTION WITH TRI-MET

Respondents to the study were overwhelmingly positive about the agency. When asked "Overall, do you feel Tri-Met is doing an excellent, good, fair, or poor job?" 95 percent said either good or excellent. This finding was consistent throughout the study. Even respondents who stopped riding retained their positive perspective about the agency (Figure 3). Not surprisingly, those who continue to ride Tri-Met have the most positive opinion concerning the agency.

CONCLUSIONS

The cumulative attrition over the course of 1 year was 36 percent. In other words, 64 percent of the new riders attracted through the new residents promotion continued to ride Tri-Met more than 1 year after receiving the packet.

A comparison of transit trip frequency between the February and September surveys shows a fairly stable proportion of riders who make between 7 and 12 trips per month and those who make more than 30 trips per month. December survey results show slightly more fluctuation, particularly in the categories of 2 to 6 and 30-plus trips per month. This fluctuation may be an anomaly due to the holiday season.

When asked why they started riding Tri-Met, respondents to the February survey most often mentioned that they encountered convenience and parking problems, that they live near the route, or that it is their only means of transportation.

Several differences exist between respondents who quit riding and those who continue to ride. For example, the more

TABLE 5 Demographic Characteristics of Respondents

	All Respondents % (n=578)	Respondents Who Quit Riding % (n=110)	Respondents Who Still Ride % (n=205)
AGE			
Under 16	2	1	3
16 to 18	1	0	1
19 to 24	16	14	15
25 to 34	35	38	32
35 to 44	30	32	33
45 to 54	7	8	7
55 to 64	4	2	4
65 and Older	6	6	6
INCOME			
Under $10,000	13	14	11
$10,000 to $19,999	25	20	25
$20,000 to $29,999	26	28	24
$30,000 to $39,999	14	16	16
$40,000 to $49,999	11	8	12
$50,000 to $74,999	8	7	8
$75,000 and Above	4	8	4
GENDER			
Male	43	39	43
Female	57	61	57
LENGTH OF RESIDENCE			
Less Than 6 Months	33	37	34
6 Months to 1 Year	56	52	55
1 or More Years	11	12	12
TRANSIT TRIPS PER MONTH AFTER MOVING			
2 to 6	33	39	28
7 to 12	17	17	18
13 to 29	21	18	22
30 or More	28	26	32
USUAL TRANSIT DESTINATION			
Downtown Portland	68	80	73
Somewhere Else in System	14	15	11
About Half & Half	18	5	16

(*continued on next page*)

TABLE 5 (*continued*)

	All Respondents % (n=578)	Respondents Who Quit Riding % (n=110)	Respondents Who Still Ride % (n=205)
FARE ZONES TRAVELLED			
One	17	15	19
Two	51	50	49
All Zones	29	35	27
Don't Know	3	0	5
ORIGINAL FARE PAYMENT			
Cash	34	48	28
Cash/Ticket Combination	13	11	10
Tickets	34	30	36
Pass	19	11	27

transit trips respondents made when they first started riding, the longer they stayed with the system (Figure 4).

A significantly higher percentage of those who quit riding paid their transit fare with cash rather than tickets or a monthly pass. This finding is not surprising, given that 51 percent of these respondents were making six or fewer transit trips per month before they stopped riding.

When asked why they stopped riding, respondents most often mentioned that there was no need to ride, that they had bought a car, that it was inconvenient, or that they needed their car for work. These reasons are consistent with findings from other Tri-Met research studies.

Respondents generally chose the most economical means of fare payment after the initial period, when a greater per-

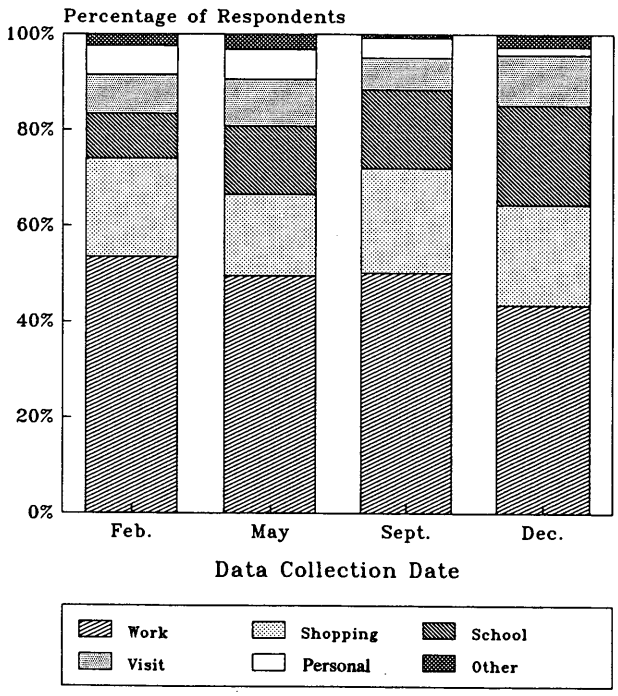
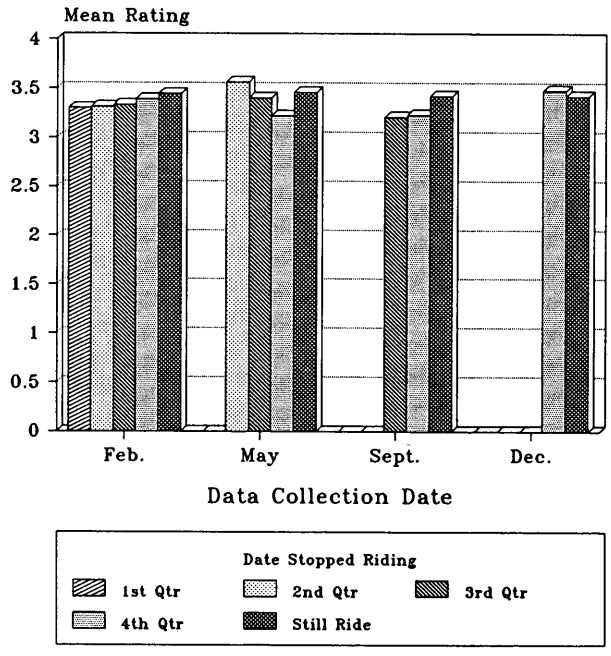


FIGURE 2 Transit trip purpose over time.



Rating scale: 4 = Excellent, 1 = Poor

FIGURE 3 Satisfaction with Tri-Met by date that respondents stopped riding.

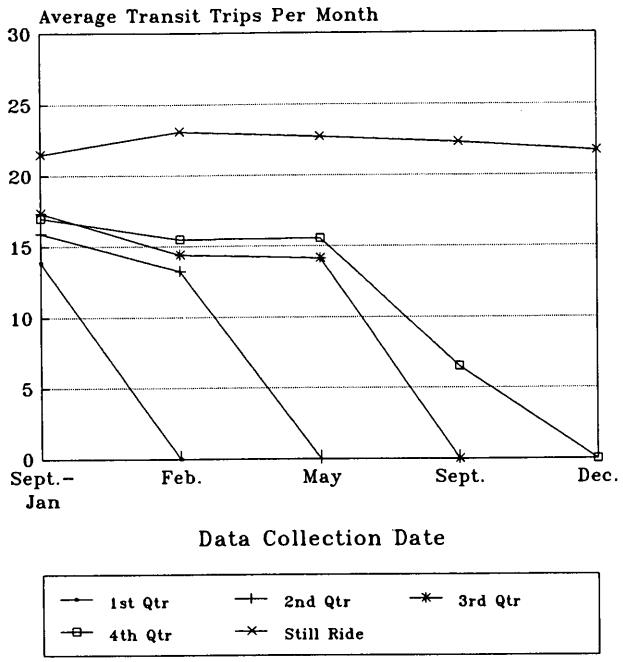


FIGURE 4 Average transit trips per month by date that respondents stopped riding.

centage paid with cash. Exceptions to this rule include the 10 percent who paid with cash throughout the study regardless of the number of trips they made and riders in lower-income brackets. This latter group may have found it easier to pay cash or buy tickets as needed rather than pay the lump sum pass price at the beginning of the month.

Women were more likely to stop riding than men, as were respondents between 25 and 34 years old. Their reasons for stopping did not differ significantly from those of other respondents who quit riding.

Results of this year-long study support the new residents promotion specifically, and direct mail in general as an effective method to recruit new transit riders. The promotion appears to cost-effective given the number of new riders attracted and the short payback period.

REFERENCE

1. C. P. Ambrose. Direct Mail Marketing to New Residents. In *Transportation Research Record 1297*, TRB, National Research Council, Washington, D.C., 1991, pp. 40–49.

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