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Management Recruitment in the Transit Industry

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ABSTRACT

Recruitment of talented transit managers has been identified as a critical problem for the industry. A description is offered of the scope of the problem as reported by transit agencies. It is sought to determine whether the problem is more acute for particular types of transit agencies or is more accurately viewed as an industrywide problem not linked to factors such as agency size or organizational structure. An overview of the recruitment problem as reported by a sample of 207 transit agencies is presented first. The analysis includes identification of those management areas for which recruitment is a particular problem, a listing of the possible reasons for recruitment difficulties, and a summary of steps taken to resolve recruiting problems. Next addressed is whether the problem of attracting new managerial talent to the industry is related to particular characteristics of some agencies or is more generally an industrywide problem. The agency characteristics included in this analysis are size, degree of change, organizational complexity, and institutional setting. The findings of the study establish that no particular type of agency is more likely to experience recruitment problems. This contradicts the expectation that larger, organizationally complex agencies would be more attractive. Thus, recruitment difficulties either are products of local, particularistic factors irrespective of size and complexity or reflect a problem for transit as an industry.

In a 1973 study of managers in the transit industry, transit was accurately described as an "up-from-the-ranks" industry (1). Management personnel were drawn largely from within the industry, and individuals frequently moved up from nonmanagement positions. However, current trends suggest that this is less true in the mid-1980s. The increasing specialization of management functions, changes in services offered, and the institutional changes resulting from the process of governmentalization have required many agencies to recruit management personnel from outside traditional manpower pools. The resulting problem for the industry was described in the proceedings of the Transportation Research Board's 1982

Conference on the Future Directions of Urban Public Transportation (2,p.7):

A long-term fundamental problem has been that new blood cannot be attracted into a declining industry. Only in the last decade has it been possible to attract some new managers as a result of modest growth that has occurred, and now these benefits are threatened by loss of revenues from all levels and by changing federal policy.

Thus, the recruitment problem may be seen as partly a product of the perception that transit is an industry in decline. It would be expected, therefore, that agencies reporting decreases in the numbers of vehicles operated, work force, or numbers of management personnel (or all three) would report greater

difficulties in attracting qualified management personnel.

Shifts in the number of transit modes are expected to show some relationship to the measure of recruiting difficulties, but the direction of that relationship is not anticipated. On the one hand, decreases in the number of modes would support an image of decline that may make the agency less attractive to new managerial talent. On the other hand, adding new transit modes may increase the number of management personnel required, resulting in short-term recruitment difficulties.

The importance of agency size and organizational complexity for managerial recruitment is suggested by the results of an in-depth study of management personnel in 16 California transit agencies (3). Both size and organizational complexity were found to be positively associated with job satisfaction and personnel retention. From this it would be inferred that these two factors would also be associated with fewer difficulties in recruiting new managers. In particular, more organizationally complex agencies are expected to have fewer recruiting problems, because the opportunities for career development and advancement will be greater than those in less complex agencies.

Finally, the institutional setting of transit agencies is expected to have some bearing on their ability to recruit new managerial talent. The shift from private to public ownership resulted in not one, but several different institutional forms. Indeed, a 1981 analysis of the forms of public enterprise in transit concluded that there was no generally accepted model or form of government enterprise for public transit (4). Not only did this outcome add to the general image of turbulence, it produced an almost bewildering array of institutional contexts within which transit managers must function. It cannot be stated at this point that it is expected that one institutional form will experience more recruiting difficulties than any other; that determination is a major goal of the analysis presented here. In a more general sense, it is suspected that this complex range of institutional forms may reduce the clarity with which career tracks and opportunities for advancement can be identified by potential managerial talent, thus adding to industrywide recruitment problems.

For the purposes of this analysis, agency size is measured by four variables: the total number of vehicles operated, the number of full-time employees, the number of management personnel, and the number of modes operated. The degree of change is measured by comparing agency responses for these variables for 1979 with those reported for 1983. Both actual and percentage change data are used. As an additional measure of the change experienced by these agencies, increases or decreases in the the number of transit modes operated are included. Organizational complexity is a composite measure that sums the number of vertical levels, major departments, and administrative specialties exhibited by the organization charts submitted by the responding agencies. Finally, institutional setting is based on the self-characterization selected by the respondents of one of the following institutional types: city or county subdivision, multipurpose agency, special district, nonprofit organization, private company, or other.

DATA COLLECTION

The first step in determining the sample was to compile a list of every transit agency operating 10 or more vehicles. The sources used were

- Bus Ride: Bus Industry Directory 1982-1983
- UMTA Urban Directory
- UMTA Rural Directory
- Section 15 Report, 1981
- 1982 and 1983 Membership Directories of American Public Transit Association (APTA)

It should be noted that there were some differences among these sources even as to the names and addresses of transit agencies. After duplicate names, agencies no longer in existence, those that did not actually operate vehicles, and listings for subunits of larger agencies had been removed, the final population consisted of 493 agencies. Each agency was sent a questionnaire, a request for an organization chart, and a request for a listing of management personnel. Extended follow-up procedures produced responses from 207 agencies, a response rate of 42 percent.

Strictly speaking, this sample is not a scientifically drawn, random sample of the population of transit agencies. Rather, it is a self-selected sample that, as is explained in the following, includes a broad cross section of the industry. For this reason, the findings must be interpreted cautiously. In addition, for the same reason, tests of statistical significance are not used to establish the probability that a particular result is characteristic of the industry. Instead, these tests are used to indicate those differences or relationships that appear particularly important.

The sample includes agencies from 44 states, the District of Columbia, and Puerto Rico. Figure 1 shows that the responses from each region are approximately equal to the region's percentage share of the total number of agencies contacted.

Figure 2 presents a comparison of respondents and nonrespondents on the basis of agency size as measured by the number of vehicles operated. The distribution shows somewhat lower response rates for the smallest and largest agencies. However, all size categories are represented, indicating that the sample includes a broad range of transit agencies as measured by this characteristic.

OVERVIEW OF RECRUITMENT PROBLEM

To determine the extent to which the sample has experienced problems in recruiting qualified managerial personnel, each agency was asked to respond to the following request:

It has been suggested that one of the difficulties currently facing the transit industry is the recruitment of qualified "managerial" personnel. With a "1" indicating that this has been a major problem for your agency and a "5" indicating that your agency has no problem at all recruiting qualified personnel, please indicate how serious this difficulty has been for your agency.

In Figure 3 it may be seen that a majority (55.7 percent) of the 196 agencies responding indicated that managerial recruitment has been either a minor problem or no problem at all. Conversely, nearly 20 percent reported that recruitment has been a serious or major problem for their agency. The remainder (24.5 percent) have experienced a moderate degree of difficulty in their recruitment efforts. Whether these figures are descriptive of an industry generally experiencing trouble in its attempts to replace and expand the managerial core is unclear, because no general measurement standard exists. The results indicate that recruitment of qualified managerial

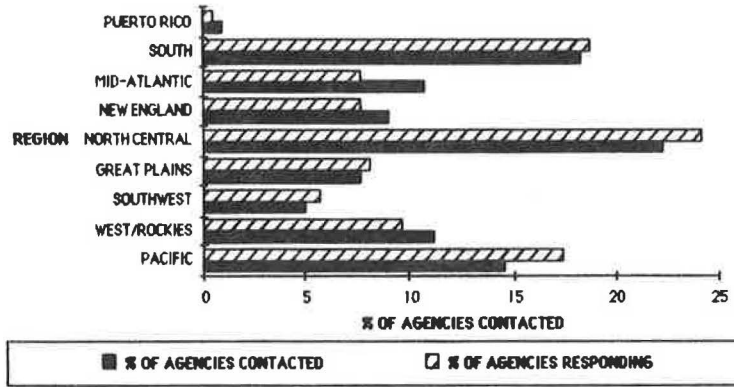


FIGURE 1 Percent distribution of agencies contacted and responding by region.

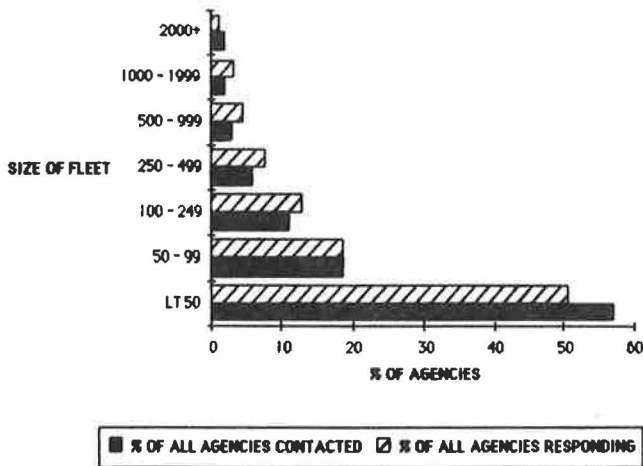


FIGURE 2 Percent distribution of all agencies contacted and responding by agency size.

personnel is not perceived to be a problem by a substantial proportion of those agencies responding to this question.

Those agencies indicating that managerial recruitment was a moderate to major problem were asked whether there were any particular positions for which they had experienced recruiting problems. Sixty-nine percent responded that there were specific managerial areas that posed a recruitment problem rather than management positions in general.

Agencies indicating specific problem areas were

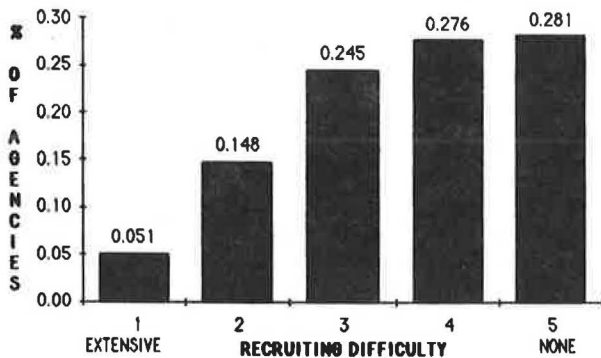


FIGURE 3 Extent of recruiting difficulty.

asked to identify them; the results are summarized in Table 1. Some agencies identified more than one problem area, which accounts for a greater number of areas identified than agencies responding.

Nearly half of the 58 responding agencies identified maintenance supervisors as the most widely experienced recruitment difficulty. Operations manage-

TABLE 1 Specific Problem Areas for Management Recruitment

Management Area	Responses		Percent of Agencies Mentioning (N = 58)
	No.	Percent of Total	
Maintenance supervisor	27	32.9	46.6
Administration management	6	7.3	10.3
Operations management	16	19.5	27.6
Directors and executives	9	11.0	15.5
Special skills			
Administration	12	14.6	20.7
Operations	6	7.3	10.3
Dispatcher	3	3.7	5.2
Other	3	3.7	5.2
Total	82	100.0	141.4

ment and administrators with special skills also appear to be problem positions for the sample. These results suggest that the recruitment problem for many agencies is the need for a mix of specific knowledge of transit functions or particular administrative skills coupled with training or experience, or both, in management.

Those agencies indicating that they had had recruiting problems were asked to identify the reasons for those difficulties. Seventy-nine agencies responded to the question, some identifying more than one reason (Table 2).

The frequency with which financial issues are mentioned is not especially surprising. More intriguing is that nearly 60.8 percent of the responding agencies indicated a lack of qualified applicants as a reason for their recruitment difficulties. Although the survey instrument does not allow the pursuit of this finding in more detail, the frequency with which it is mentioned suggests that applicant qualifications may be a broad-based problem within the industry. It may be that the requirements for and demands on some particular management positions in transit require a combination of unique skills and training, thus limiting the available pool for recruitment. It may also be true that the industry

TABLE 2 Reasons for Recruitment Problems

Reason	Responses		Percent of Agencies Mentioning (N=79)
	No.	Percent of Total	
Financial	45	38.8	57.0
Lack of qualified applicants	48	41.4	60.8
Lack of qualified in-house personnel	6	5.2	7.6
Lack of career opportunities	1	0.9	1.3
Regulatory issues	2	1.7	2.5
Organizational issues	9	7.8	11.4
Other	5	4.3	6.3
Total	116	110.0	146.8

is not able to attract personnel with the appropriate skills.

The importance of applicant qualifications is further supported by the steps agencies are taking to resolve recruitment problems they have encountered. Table 3 shows that the most frequent action has been to provide in-house training. Thus, at least for these agencies, training is a more common response to recruitment difficulties than is enhancing financial incentives.

TABLE 3 Steps Taken to Resolve Recruitment Problems

Solution	Responses		Percent of Agencies Mentioning (N=71)
	No.	Percent of Total	
Internal training	36	35.6	50.7
Financial incentives	17	16.8	23.9
Increased incentives	6	5.9	8.5
Stronger recruitment	12	11.9	16.9
Have not overcome	14	13.9	19.7
Other	16	15.9	22.5
Total	101	100.0	142.3

EXTENT AND BASIS OF RECRUITMENT PROBLEM

Is the problem of managerial recruitment shared generally by agencies throughout the industry or is it centered on particular types of agencies defined by size, change, organizational complexity, and institutional setting? If all or some of these factors are related to managerial recruitment, the recruitment problem would appear to be an issue for certain classes of transit agencies and not others. Conversely, if no relationships are found, the perception that recruitment of qualified managers is an industrywide problem would tend to be supported.

Following a brief review of the measures used for agency characteristics, contingency table analysis is used to determine the relationships between agency characteristics and recruitment difficulties. This is followed by an application of regression analysis to determine whether agency characteristics acting in combination explain the different recruiting experiences reported by the sample.

Agency Characteristics

Agency size is measured by four variables: total number of vehicles operated, number of full-time employees, number of management personnel, and number of modes operated. The distribution of the sample along these dimensions is summarized in Table 4.

TABLE 4 Measures of Agency Size

Measure	Distribution	
	No.	Percent
Total No. of Vehicles ^a		
Less than 50	95	48.5
50-99	33	16.8
100-249	29	14.8
250-499	19	9.7
500-999	10	5.1
1,000-1,999	6	3.1
2,000 or more	4	2.0
Total	196	100.0
No. of Full-Time Employees ^b		
Less than 25	30	15.4
25-99	75	38.5
100-499	55	28.2
500-999	12	6.2
1,000-1,999	8	4.1
2,000 or more	15	7.7
Total	195	100.1
No. of Management Personnel ^c		
Less than 5	64	34.2
5-9	47	25.1
10-24	33	17.6
25-49	18	9.6
50-99	10	5.3
100 or more	15	8.0
Total	182	99.8
No. of Modes Operated		
1	95	51.6
2	56	30.4
3	29	15.8
4	4	2.2
Total	184	100.0

^a Mean = 195.64; median = 52.17; SD = 387.75.

^b Mean = 529.2; median = 81.3; SD = 1,395.07.

^c Mean = 36.1; median = 6.9; SD = 100.62.

The data are presented in categorical form, with the mean, standard deviation, and median calculated from the noncategorized results. It is anticipated that larger agencies will report managerial recruitment to be less of a problem than smaller agencies.

As measures of the degree and direction of change experienced by the sample, the figures reported for 1979 were compared with those for 1983 for each of the foregoing variables. The percentage change for each measure was also computed. In addition, it was determined whether the number of modes operated by agencies increased, decreased, or stayed the same between 1979 and 1983. In general, it was expected that those agencies that had experienced declines in size or number of modes operated would be more likely to report problems in recruiting qualified managers (Table 5).

Organizational complexity is a composite measure that is a sum of the following three structural attributes: number of vertical levels, number of major departments, and number of administrative specialties. Each of these was determined from an analysis of the organization charts or listing of management positions submitted by 175 agencies. It was expected that more organizationally complex agencies would have experienced fewer recruiting problems than those that are less differentiated (Table 6).

Figure 4 shows the distribution of the sample with respect to institutional setting. Even though most of these agencies fall within either the city-

TABLE 5 Measures of Agency Change, 1979-1983

Measure	Distribution	
	No.	Percent
Change in No. of Vehicles^a		
Decrease of more than 10	21	13.0
Decrease of 1-10	21	13.0
No change	20	12.3
Increase of 1-9	45	27.8
Increase of 10-49	33	20.4
Increase of 50 or more	22	13.6
Total	162	100.1
Percentage Change in No. of Vehicles^b		
Decrease of more than 10 percent	25	15.4
Decrease of 1-10 percent	17	10.5
No change	20	12.3
Increase of 1-9 percent	23	14.2
Increase of 10-24 percent	28	17.3
Increase of 25-49 percent	21	13.0
Increase of 50 percent or more	28	17.3
Total	162	100.0
Change in No. of Full-Time Employees^c		
Decrease more than 10	21	13.7
Decrease of 1-10	38	24.8
No change	15	9.8
Increase of 1-9	31	20.3
Increase of 10-49	25	16.3
Increase of 50 or more	23	15.0
Total	153	99.9
Percentage Change in No. of Full-Time Employees^d		
Decrease more than 10 percent	26	17.0
Decrease of 1-10 percent	33	21.6
No change	15	9.8
Increase of 1-9 percent	29	19.0
Increase of 10-24 percent	21	13.7
Increase of 25 percent or more	29	19.0
Total	153	100.1
Change in No. of Managers^e		
Decrease	25	17.2
No change	57	39.3
Increase of 1-9	47	32.4
Increase of 10 or more	16	11.0
Total	145	99.9
Percentage Change in No. of Managers^f		
Decrease	25	17.2
No change	57	39.3
Increase of 1-49 percent	33	22.8
Increase of 50 percent or more	30	20.7
Total	145	100.0
Change in No. of Modes Operated		
Decrease	7	4.7
No change	115	77.7
Increase	26	17.6
Total	148	100.0

^a Mean = -2.57; median = 3.75; SD = 217.59.
^b Mean = 63.8 percent; median = 8.6 percent; SD = 358.8 percent.
^c Mean = 53.88; median = 1.0; SD = 264.32.
^d Mean = 22.5 percent; median = 1.8 percent; SD = 96.7 percent.
^e Mean = 4.28; median = 0.33; SD = 21.45.
^f Mean = 30.2 percent; median = 0.1 percent; SD = 108.9 percent.

county or special-district categories, these results illustrate the diverse array of institutional settings that characterizes the industry. However different these categories may be with respect to decision making, autonomy, or organizational structure, it was not possible to anticipate which were likely

TABLE 6 Measure of Organizational Complexity

Score	Distribution	
	No.	Percent
1-10	26	15.0
11-20	81	46.8
21-30	40	23.1
31 or more	26	15.0
Total	173	99.9

Note: Mean = 19.69; median = 17.64; SD = 9.43.

to have experienced greater or fewer recruitment difficulties.

Contingency Table Analysis

As presented in Table 7, the results of the contingency table analysis show that only two measures, number of modes currently operated and the percentage change in the number of managers, are significantly related ($p < .05$) to the level of recruitment problems reported by the sample. The results indicate that agencies operating three modes and those that increased their management personnel by 50 percent or more were more likely to view managerial recruitment as a serious problem.

To the extent that the addition of service modes increases the need for management personnel, these findings suggest that recruitment difficulties emerge when agencies attempt to rapidly increase their managerial core. Though the relationships are not statistically significant, a similar trend is found for each of the change variables. That is, those agencies experiencing increases appear more likely to consider recruitment of qualified managers as a moderate to major problem for their agency. Obviously, these results are counter to the expected association between agency decline and recruitment difficulties.

The absence of statistically significant associations between agency characteristics and the measure of recruitment problems indicates that no particular type or class of transit agency is more likely to experience difficulties recruiting replacement of or additions to its managerial core. Rather, these results imply that recruitment may become a problem for agencies irrespective of their size, organizational structure, institutional setting, and the degree and direction of change.

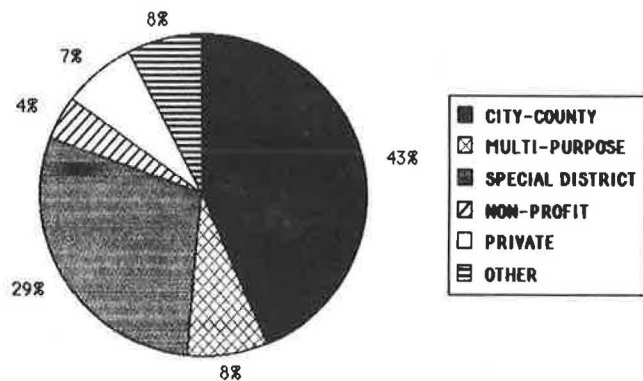


FIGURE 4 Distribution of institutional types.

TABLE 7 Cross-Tabulations of Measure of Recruitment Problems with Agency Characteristics

Variable	Percentage of Total by Ranking of Problem ^a					No.
	1	2	3	4	5	
Institutional Setting (p > .05)						
City-county	4.7	16.5	25.6	22.1	31.4	86
Multipurpose	—	—	35.3	23.5	41.2	17
Special district	7.3	20.0	21.8	30.9	20.0	55
Nonprofit	11.1	11.1	33.3	22.2	22.2	9
Private	—	6.7	—	53.3	40.0	15
Other	7.7	15.4	30.8	30.8	15.4	13
Overall	5.1	14.9	24.1	27.7	28.2	195
No. of Vehicles (p > .05)						
Less than 50	4.4	14.3	26.4	22.0	33.0	91
50-99	6.1	12.1	33.3	27.3	21.2	33
100-249	11.5	19.2	15.4	30.8	23.1	26
250-499	—	11.1	11.1	44.4	33.3	18
500-999	14.3	28.6	28.6	28.6	—	7
1,000-1,999	—	16.7	33.3	33.3	16.7	6
2,000 or more	—	—	50.0	50.0	—	4
Overall	5.4	14.6	25.4	27.6	27.0	185
No. of Full-Time Employees (p > .09)						
Less than 25	6.9	10.3	24.1	17.2	41.4	29
25-99	4.1	13.7	23.3	23.3	35.6	73
100-499	7.5	18.9	24.5	28.3	20.8	53
500-999	—	16.7	—	58.3	25.0	12
1,000-1,999	—	—	33.3	33.3	33.3	6
2,000 or more	7.7	15.4	38.5	38.5	—	13
Overall	5.4	14.5	23.7	27.4	29.0	186
No. of Managers (p > .05)						
Less than 5	3.2	14.5	32.3	17.7	32.3	62
5-9	6.7	4.4	22.2	28.9	37.8	45
10-24	12.5	21.9	21.9	25.0	18.8	32
25-49	—	17.6	11.8	29.4	41.2	17
50-99	—	12.5	12.5	50.0	25.0	8
100 or more	—	23.1	23.1	53.8	—	13
Overall	5.1	14.1	24.3	27.1	29.4	177
No. of Modes (p < .05)						
1	3.3	13.3	28.9	20.0	34.4	90
2	5.7	22.6	13.2	41.5	17.0	53
3	11.1	3.7	37.0	22.2	25.9	27
4	—	25.0	—	50.0	25.0	4
Overall	5.2	14.9	24.7	27.6	27.6	174
Score of Organizational Complexity (p > .05)						
1-10	4.3	13.0	17.4	21.7	43.5	23
11-20	5.1	13.9	25.3	29.1	26.6	79
21-30	5.3	15.8	31.6	26.3	21.1	38
31 or more	8.7	13.0	17.4	34.8	26.1	23
Overall	5.5	14.1	24.5	28.2	27.6	163
Change in No. of Vehicles (p > .05)						
Decrease of more than 10	—	15.8	26.3	36.8	21.1	19
Decrease of 1-10	5.0	20.0	25.0	20.0	30.0	20
No change	—	5.0	35.0	20.0	40.0	20
Increase of 1-9	4.4	13.3	24.4	31.1	26.7	45
Increase of 10-49	3.3	13.3	33.3	26.7	23.3	30
Increase of 50 or more	10.5	15.8	15.8	26.3	31.1	19
Overall	3.9	13.7	26.8	27.5	28.1	153
Percentage Change in No. of Vehicles (p > .05)						
Decrease of more than 10 percent	—	17.4	26.1	21.7	34.8	23
Decrease of 1-10 percent	6.3	18.8	25.0	37.5	12.5	16
No change	—	5.0	35.0	20.0	40.0	20
Increase of 1-9 percent	—	19.0	14.3	38.1	28.6	21
Increase of 10-24.9 percent	3.7	11.1	29.6	22.2	33.3	27
Increase of 25 to 49.9 percent	4.8	4.8	33.3	33.3	23.8	21
Increase of 50 percent or more	12.0	20.0	24.0	24.0	20.0	25
Overall	3.9	13.7	26.8	27.5	28.1	153

TABLE 7 Continued.

Variable	Percentage of Total by Ranking of Problem ^a					No.
	1	2	3	4	5	
Change in No. of Full-Time Employees (p > .05)						
Decrease of more than 10	—	16.7	11.1	44.4	27.8	18
Decrease of 1-10	2.8	11.1	22.2	22.2	41.7	36
No change	—	—	26.7	26.7	46.7	15
Increase of 1-9	—	9.7	22.6	32.3	35.5	31
Increase of 10-49	8.0	20.0	36.0	24.0	12.0	25
Increase of 50 or more	10.0	10.0	25.0	30.0	25.0	20
Overall	3.4	11.7	24.1	29.0	31.7	145
Percentage Change in No. of Full-Time Employees (p > .05)						
Decrease of more than 10 percent	4.2	12.5	8.3	37.5	37.5	24
Decrease of 0.1-10 percent	—	13.3	26.7	23.3	36.7	30
No change	—	—	26.7	26.7	46.7	15
Increase of 0.1-9.9 percent	—	10.7	25.0	39.3	25.0	28
Increase of 10-24.9 percent	5.0	20.0	30.0	25.0	20.0	20
Increase of 25 percent or more	10.7	10.7	28.6	21.4	28.6	28
Overall	3.4	11.7	24.1	29.0	31.7	145
Change in No. of Managers (p > .05)						
Decrease	4.2	16.7	8.3	33.3	37.5	24
No change	—	7.1	26.8	30.4	35.7	56
Increase of 1-9	7.0	9.3	30.2	23.3	30.2	43
Increase of 10 or more	7.1	21.4	21.4	28.6	21.4	14
Overall	3.6	10.9	24.1	28.5	32.8	137
Percentage Change in No. of Managers (p < .05)						
Decrease	4.2	16.7	8.3	33.3	37.5	24
No change	—	7.1	26.8	30.4	35.7	56
Increase of 0.1-49.9 percent	—	10.0	20.0	36.7	33.3	30
Increase of 50 percent or more	14.8	14.8	37.0	11.1	22.2	27
Overall	3.6	10.9	24.1	28.5	32.8	137
Change in No. of Modes Operated (p > 0.5)						
Decrease	16.7	50.0	16.7	16.7	—	6
No change	2.7	11.8	27.3	25.5	32.7	110
Increase	8.0	16.0	24.0	36.0	16.0	25
Overall	4.3	14.2	26.2	27.0	28.4	141

^aRank of 1 indicates major problem; rank of 5 indicates no problem.

Regression Analysis

Regression analysis was employed to explore the foregoing results in more detail and to examine the joint effects of agency characteristics on recruitment problems. Institutional setting, number of modes operated, and change in the number of modes operated were treated as categorical data and represented by dummy variables, which were created by a "1" or "0" to the response categories.

As the first step in the analysis, each of the independent variables was separately correlated with the reported degree of recruitment problems. The results (Table 8) establish that size, change, and organizational complexity are not significantly related to the recruitment problems reported by the sample. Indeed, most of the correlations are extremely weak, with several approaching zero. These findings generally confirm the contingency table results.

The second step in the analysis was to construct regression models for the categorical variables (institutional setting, number of modes operated, and change in the number of modes operated) using a dummy-variable approach. For these models the regression coefficients represent the difference between that category and the base category. The regression model for institutional setting is as

follows (base category = city-county; significance of $F = 0.056$; $R^2 = 0.055$; adjusted $R^2 = 0.030$; b = regression coefficient; S_b = standard error of b):

Category	b	S_b
Multipurpose	0.473	0.310
Special district	-0.223	0.202
Nonprofit	-0.253	0.410
Private	0.680	0.327
Other	-0.279	0.348
Constant	3.586	0.126

The regression model for number of modes operated is as follows (base category = one mode; significance of $F = 0.337$; $R^2 = 0.106$; adjusted $R^2 = 0.011$):

Category	b	S_b
Two modes	-0.208	0.254
Three or more modes	-0.275	0.197
Constant	3.690	0.110

The regression model for change in number of modes operated is as follows (base category = no change; significance of $F = 0.015$; $R^2 = 0.043$; adjusted $R^2 = 0.033$):

Category	b	S _b
Decrease modes	-1.333	0.486
Increase modes	-0.307	0.251
Constant	3.667	0.091

TABLE 8 Correlations of Measures for Size, Change, and Complexity with Measure of Degree to Which Recruitment Is a Problem

Variable	r	N	Significance of F (p)
No. of vehicles	-0.31	185	0.676
No. of full-time employees	-0.048	186	0.519
No. of managers	-0.020	178	0.790
Change in no. of vehicles	-0.007	153	0.933
Percentage change in no. of vehicles	-0.066	153	0.416
Change in no. of employees	-0.010	145	0.908
Percentage change in no. of employees	0.004	145	0.962
Change in no. of managers	-0.104	137	0.229
Percentage change in no. of managers	0.001	137	0.994
Organizational complexity	-0.051	163	0.521

The models for the relationships of recruitment problems with institutional setting and number of modes operated are not statistically significant. Also the proportion of variance explained by these characteristics (R^2) and the explained variance adjusted for the degrees of freedom (adjusted R^2) approach zero in both cases. These coefficients do not establish meaningful distinctions among the categories.

The model for the change in the number of modes operated is statistically significant, though the proportion of variance explained is marginal. The regression coefficients indicate that agencies that have increased the number of modes operated report managerial recruitment to be somewhat less of a problem than do those that experienced no change. The coefficient for those agencies that decreased their number of vehicle modes is significantly less than that for the base category.

As the final step in this analysis, three regression models were constructed to determine whether agency characteristics acting in combination could explain the variation in recruiting problems reported by the sample. The first model introduced the measures of agency size; the second, those for change; and the final model included all the measures of size, change, organizational complexity, and institutional setting. None of these models was statistically significant, and the measures for the proportion of variance explained were extremely low. The results indicate that placing any importance on the separate regression coefficients is unwarranted, and for this reason only the summary measures for these models are reported in Table 9.

TABLE 9 Summary Statistics for Multiple Regression Models of Measures of Size, Change, and All Agency Characteristics with Degree to Which Recruitment Is a Problem

Model	R	R ²	Adjusted R ²	Significance of F (p)
Measures of agency size (no. of vehicles, no. of employees, no. of managers)	0.028	0.001	-0.017	0.988
Measures of change (actual and percentage change of size measures)	0.143	0.020	-0.029	0.870
All measures of agency characteristics	0.41	0.17	0.03	0.256

CONCLUSIONS

This analysis revealed that a substantial proportion (28.1 percent) of the sample did not consider management recruitment to be a problem at all, and only 5.1 percent considered recruitment to be a serious problem. Overall, 55.7 percent of the responding agencies considered management recruitment to be only a slight problem. Those agencies that considered recruitment to be a moderate to severe problem tended to identify particular management areas (operations and maintenance) as especially troublesome. They considered limited financial compensation and a lack of qualified applicants as important reasons for the difficulties encountered.

Analysis of the association between agency attributes and the level of recruitment difficulties established that no particular class of agencies was more likely to experience problems than any other. No statistically significant association was found between agency size, organizational complexity, change, or institutional type. It was found, however, that the number of modes operated was related to the degree of difficulty in recruiting managers. Perhaps those agencies with a range of services require more specially qualified, experienced managers. This finding also would be consistent with the perception of some agencies that their recruitment difficulties center on specially qualified managers.

The percentage change in the number of managers is also statistically significant in relation to recruitment problems. Agencies experiencing declines or large percentage increases in management personnel were likely to report recruitment difficulties. The addition or subtraction of a particular service would significantly affect the management pool of a given agency. Total size of management staff or gross change (raw numbers) were not statistically associated with recruitment difficulty, indicating the kind of spotty recruitment problems associated with recruiting for one or two specialists.

More troubling perhaps is the failure to find any association between recruitment problems and the organizational characteristics expected to be associated with job satisfaction. None of the measures produced a statistically significant relationship except change in the number of modes and percentage change in the number of managers. Thus, although it would have been expected that larger and more complex organizations would have reported less difficulty in recruitment, they provided responses comparable with the remainder of the sample. More important, the variation explained by the regression models is minor and not statistically significant. Although this may reflect a recruitment problem of individual agencies intermittently looking for unique talent, it may also suggest a broader, more complex difficulty. That is, the particularized products of local histories with respect to funding patterns and organizational base may create important disincentives for the attraction of new managers.

A further observation is that the problem may not be one of isolated hiring difficulties. Rather, the issue may reflect a broader industry dilemma--increasing the human resource pool of transit managers. If the most attractive organizations (in terms of size and complexity) are having the same success as less attractive organizations, then an absolute scarcity of talent in the pool may be the problem. As the 1983 TRB report acknowledges, it has been hard to attract talent to a declining industry.

In sum, the problem of recruiting qualified, talented managers into the transit industry may be related to one of the following factors or to all

three: characteristics of the industry, characteristics of particular classes of transit agencies, or particularistic factors related to the localized development of transit agencies. The results of this study establish that no particular type of agency is more likely to experience more difficulties than any other. Therefore, recruitment problems are products of either the general attractiveness of the industry or the particular situations of individual transit agencies. The authors suspect that these factors are interrelated and affect the available pool of qualified personnel.

FUTURE RESEARCH

The second phase of this research will examine the perceptions of individual managers, about which at this time the authors can only speculate. Certainly the turbulence of federal policy and recent fiscal stresses would decrease confidence in industry employment opportunities.

It is hoped to examine in future analyses the extent to which the lack of clear and consistent career paths discourages entry to the industry. Because organizational size and complexity were not found to relate significantly to recruitment problems, there may be a lack of commitment to transit as a lifelong career base for managers. This may reflect uncertainties or ambiguities on the part of individual managers concerning advancement opportunities. If true, this would be a major disincentive to the recruitment of necessary management talent.

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