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Variables Influencing Performance Measures of Rural Transit Providers

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Abstract: Planners have relied on selected criteria of transit service quality to evaluate usage levels of public transit systems. Most transit development plans (TDPs) place heavy emphasis on a comprehensive description of the area: its population, geography, economic base, and the various forms of transportation available. The purpose of this paper is to examine a range of variables that influence the rural transit systems. The data for this research paper were obtained from a survey of twenty-seven Alabama's rural transit providers carried out in year 2000 by the Center for Urban and Rural Research, Alabama A&M University. A statistical computer package SPSS was used for data analysis. The questionnaire response data was analyzed by the use of Pearson's product moment correlation's to measure the strength of relationship between two interval level variables. The results of the analysis reveals that some aspects of Rural Transit Agency organizational planning affect the ability of the agency to meet counties goals. The paper concludes that in formulating policy to evaluate performance measures of rural transit providers, rural transit planners can begin to apply the information from these empirical studies toward the development of a rationale for their transit agency's planning priorities and also that performance evaluation is a vital and important element of any successful business.

Key words: Performance Evaluation, rural transit providers, organizational structures

INTRODUCTION

Evaluation is a vital and important element of any successful business. Levinson[1] reported that business managers monitor programs and conduct evaluations to determine whether goals and objectives are achieved and how well the business is functioning. Similarly, in the transportation industry, evaluations enable system operators to monitor efficiency, to measure effectiveness, and to generate data that can be used to improve overall service delivery. According to Radow and Winters[2], performance evaluations are essential to the rural transit system planning process and to the achievement of transit goals and objectives. Without proper evaluation data, transit managers have no yardstick or benchmark to improve or plan for future services, or to justify the continuation of existing transit services. Both Fielding[3] and Smerk[4] believe that good transit management practices require regular evaluations of performance. Fielding[3] argues that a transit manager who does not measure and monitor performance is merely supervising operations. Data from evaluations must be used to identify and remedy problems, to justify budgets and expenditures, to gauge improvements in performance, and to document the system's impact on the community[4]. Smerk[4] recommends yearly internal evaluations on key functional areas (e.g., maintenance, finances, and staff performance) and 3-year comprehensive evaluations on each aspect of transit management and operation. Regular evaluations provide the database to document performance and use to persuade funding agencies that more money is needed to improve service delivery[2].

WHAT TO MEASURE?

Traditionally, state, local, and regional government agencies use Transportation System Management (TSM) strategies to plan, develop, operate, and evaluate public transit systems. In theory, TSM strategies are designed to improve the effectiveness and operating efficiency of an urban transportation system. Since TSM strategies require a significant volume of data and time, they are not considered to be cost effective for evaluating rural transit systems[5]. Similar to TSM, most rural transit management literature also identifies efficiency and effectiveness as key measures in a performance evaluation. The concept of efficiency refers to the transit system's ability to produce the most service at the least cost. It is concerned with obtaining a return on investments and is generally expressed in monetary or economic terms, such as fare

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box revenue and cost per passenger or vehicle mile. The concept of effectiveness stems from the application of a system analysis approach to performance evaluation. In the system analysis framework, effectiveness weighs how much a service is used against how much service is provided. Also, it is used to determine the extent to which goals or objectives are achieved[6] .

In addition to measuring efficiency and effectiveness, some authors[2,6] recommend nontraditional methods to measure the performance of rural systems. For example, Kosky[6] suggests using quality and benefits as performance measures, and Radow and Winters[2] suggest using quality and impact as performance measures.

Quality measures focus on elements of the transit system that affect passengers, such as speed, safety, reliability, and comfort, while impact measures are results oriented. Impact measures assess how well the transit system achieves goals and objectives. Both impact and benefit measures consider the transit systems contributions to the community as a whole. Specifically, both document how the transit system affects business, employment, and health care, pollution levels, or other issues important to the community. More importantly, the measures address what would happen if the transit system did not exist[2].

Types of performance evaluations: Whether traditional or nontraditional, performance measures can be classified as either quantitative or qualitative. Quantitative evaluations use financial and operation data such as cost benefit ratios (cost per trip or cost per mile) to determine how well a system is performing[4]. Concerned with measuring efficiency, quantitative methods produce metric units and ratios as analytical tools to compare past performance to present performance and to compare performance among peer systems. However, quantitative measures only permit a one-dimensional (somewhat limited) assessment of performance.

When evaluating rural transit systems, Radow and Winters[2] warn against over reliance on traditional quantitative evaluation models because the models can produce skewed results in rural areas. Instead, the use of qualitative measures that incorporate social values and goals, such as reducing air pollution, providing access to jobs and medical facilities, serving the elderly or handicapped, or addressing other important community issues is encouraged.

In contrast to traditional quantitative evaluations, qualitative methods use non-numeric data from a variety of sources (such as surveys, management reports, complaints, and public meetings) to examine the cause of exemplary or poor performance. Rather than measuring efficiency, qualitative methods examine effectiveness (i.e., the ability of the service to meet consumer needs). Effective measures are used to explain why a certain performance level was reached and offer solutions to performance problems[7]. To obtain a comprehensive picture of how well a rural transit system is performing, most researchers recommend using both quantitative and qualitative evaluation methods.

Burkhardt[8] used both methods to conduct a case study of high performance rural transit systems in different sections of the United States. The purpose of the case study was to discover characteristics common to high performing systems. Focusing on how the systems performed in the areas of cost efficiency, service effectiveness, cost effectiveness, and quality of service, the researchers uncovered five common characteristics of high performing systems.

First, it was revealed that high performers take advantage of local geographic and demographic patterns. Second, high performers focus on general public transportation rather than particular client groups. Third, they aggressively manage cost through a variety of cost-saving measures. Fourth, high performers maintain good relations with their employees, and lastly, high performing systems fully and accurately allocate costs among all programs and participating agencies[8]. As shown in the next section, some states incorporate similar measures in their evaluation system.

Rural transit performance evaluation studies in other states: In 1984, the Virginia Department of Highways and Public Transportation contracted with MacDorman and Associates to recommend performance data that transit systems receiving state financial assistance should report. The study reviewed five other state transit reporting procedures and fifteen rural transit systems in the State of Virginia. Overall, the study found that most small and rural transit systems adopted financial management and evaluate procedures similar to those used by their local government sponsors. Most of the systems failed to maintain independent financial performance accounts or evaluation procedures that were not directly tied to funding decisions[8].

The study recommended that the state develop and maintain a database on trends in rural transit performance that transit managers can use to assess the performance of their systems. It also recommended that the state provide technical support to assist transit managers in improving data collection, analysis, and reporting procedures.

In 1998, under contract to the Tennessee Department of Transportation, CGA Consulting Service recommended

nine categories of performance measures for evaluating rural transit systems in the State of Tennessee. These were: unlinked passenger trips per unit of service, expenses per unit of service, deficit per unit of service, deficit per unlinked passenger trip, deficit per vehicle hour, operating revenue per unit of service, consumption per unit of service units of service per revenue vehicle per operating, and other measures or performance[9].

CGA Consulting[9] recommended grouping rural transit systems by service area population and service modes. Service area population typologies were:
Rural-under 50,000 persons with no official urban area;
Small urban-up to 200,000 persons and containing an urbanized area;
Large urban-between 200,000 and 1,000,000 persons;
Rural and small urban combined and Rural and large urban combined;

Service modes typologies recommended by CGA Consulting (1998) were: fixed route regular, commuter services, inter-city transit, express bus, route deviation, point deviation, subscription service, demand response, and van and carpools. The definitions of these modes are similar to those used by other states. The performance measures recommended apply to all service modes. However, comparisons between different service modes and service area populations are not recommended.

In the Mountain Plains Region (Minnesota, North Dakota, South Dakota, Colorado, Wyoming, and Utah), rural and small urban transit systems use a guidebook developed by[7] to evaluate performance. The guidebook describes different types of performance measure and discusses the merits and deficiencies of each measure. Furthermore, it provides formulas for converting raw data into various performance indicators. Bitzan and Hough[7] grouped rural transit systems in the Mountain Plains Region into seven (7) homogeneous peer groups. Using a clustering technique, peer groups were formed based on similarities in service area characteristics and the number of vehicles operated by the transit agency. Service area characteristics compared were: population density, percentage of population over 65, percentages of households with vehicles, per capita income, and land area in square miles. The peer groups devised by[7] assume that all transit systems in a peer group can achieve the same level of performance as the best system in the group. Bitzan and Hough[7] divided performance measures into the following efficiency and effectiveness categories.

The efficiency categories used are: cost, operations, labor administrative, revenue, maintenance, and vehicle. The effectiveness categories used are: social, service, and cost. Each category contains general measures that can be used to evaluate the overall system performance, as well as to evaluate the performance of specific parts of the system.

In Missouri Oats, Inc., a statewide transit provider uses performance measures that are very similar to those used in the Mountain Plains Region. Taking in consideration vehicle type, geography, population density, client needs, and system size, Oats uses quantitative performance measures to make time based (quarterly and yearly) comparisons within and between systems[6]. Oats performance categories are: total expenses, variable expenses, (i.e., fuel costs, maintenance cost, insurance, employee salaries), vehicle hours, passengers, and vehicle miles and hours. Also, Oats uses qualitative measures such as on-time performance, and passenger complaints, and passenger and staff surveys to assess performance. Oats evaluations found that passengers and staff can provide essential and valuable information on the perceived quality of service[6]. This is similar to findings from high performance systems.

Some states have developed performance measures specifically to allocate state transit funds[7]. Mississippi, for example, allocates state funds to rural transit systems through a competitive process. In Mississippi, state and federal funds are initially allocated to specific planning districts and are reallocated to alternative districts if applications for the funds are not completed in a timely manner. The reallocation process occurs on a competitive basis, which is gauged by the economic and innovative performance of applicants. Economic performance measures examine accounting indices, such as cost recovery ratios. Innovative performance is measured by assessing the benefits of new innovations implemented by the transit system[7].

The Community Transportation Association of America (CTAA) performed the most comprehensive study of rural transit evaluation methods in 1986. CTAA inventoried over 1000 Section 18 funded systems and found a significant difference in cost effective measures between transportation-only agency and multi-purpose agencies. Among transportation-only agencies, the most effective and productive systems provided fixed-route and demand responsive services[8].

Cost effective ratio reported were:

Cost per trip of less than $1.00;
Cost per mile of less than $0.60;
Cost per hour of $6.00;
2 passengers per revenue vehicle hour; and
Over 20 passengers per revenue vehicle hour.

Among multi-purpose agencies, the most cost effective and productive services were those that provided demand response services, or demand response and other services[8]The best of these systems reported the following effectiveness ratios:

Cost per trip of less than $1.30;
Cost per mile around $0.90;
Cost per hour of $7.00;
More than 2 passengers per vehicle mile; and
Almost 30 passengers per vehicle hour.

According to the CTAA, not many rural transit systems can achieve the above levels of performance. However, the CTAA maintains a database on best performing systems and provides the most reliable information on evaluating the performance of rural transit systems. Information on database used to assist other rural transit providers in enhancing performance and operation. Also, many states individually and collectively have developed performance measures for rural systems. The literature review revealed no uniform set of measures used to assess the performance of rural transit systems. However, the review did identified some common contributing factors to high levels of performance. The common factors seem to be: population density, geography, demographics, and mode of service delivery. Differences and variations in these factors influence levels of efficiency and effectiveness.

PURPOSE

The purpose of this research paper is to identify the factors influencing the organizational characteristics of rural transit providers and to evaluate statistical data to test the relationship of rural transit system related variables to county rural transit systems.

Research Questions / Hypotheses

(RQ1) Does the percentage of service provided to low-income vary as a function of the rural transit agency years in operation?

(RH1) The rural transit agency years in operation is likely to be negatively related to the percent of service provided to:

H1. Low-income population across the counties

(RQ2) How do the annual one-way passenger trips supplied by the rural transit agency impact the success of the rural transit project?

(RH2) The annual one-way passenger trips the rural transit agency supply is likely to be positively related to:

H2a. Percent of service provided to general population
H2b. Number of vehicles in operation
H2c. Source of income-ALDOT
H2d. Source of income-Other
H2e. Fixed route/Fixed schedule

(RQ3) Does the exposure of rural transit agency to other sources of income vary as a function of number of vehicles and annual budget?

(RH3) The exposure of rural transit agency to others sources of income is likely to be positively related to:

H3a. Number of vehicles
H3b. Annual budget

(RQ4) How important is the annual transit budget to elderly and handicapped ?

(RH4) The annual transit budget is likely to be positively related to elderly and handicapped as a section of the county population they served.

DATA COLLECTION

The data for this research was obtained from a survey of twenty-seven of Alabama's rural transit providers. The questionnaire was designed to be brief and gather particular information. However, the variables tested were limited by the scope of the questionnaire.

Table 1 ranks the responding rural transit systems according to population county of their respective service area. Included in the list are transit systems that have great variance in service area size, years in operation and annual budget and represent annual transit budget across the Alabama counties. The annual transit budget figures range from less than $100,000 to more than $200,000. Years in operation also vary considerably from less than 10 to greater than 20 years.

DESCRIPTIVE ANALYSIS

Table 1 presents a summary description of the variables included in this study. As indicated in Table 2, rural transit agency responding to the survey had been doing business in rural transit for 10-20 years (>10- 20 years, 63.30%) had been operating rural transit service for ten years (<10 years, 26.31%) and operating for more than 20 years (>20 years, 10.53%). The rural transit agency annual budget across the

Table 1: Ranges, means and standard deviation

Characteristics	Range	Mean	Standard deviation
Year in operation (var01)	10-20	14.263	3.034
Number of rural transit vehicles (var02)	4-42	13.895	10.252
Annual Budget (var03)	100,000- 200,000	157894	53393.605
Annual one-way transit passengers (var04)	8,000-842,000	88491.945	190351.500
%Population sector served Elderly/Handicapped (var05)	30.93	60.632	26.937
%Population sector served- Youth (var06)	1-40	7.474	11.102
%Population sector served- Low income (var07)	3-60	18.211	16.887
%Population sector served- General Pop (var08)	2-30	7.316	8.473
Source of income- ALDOT (var09)	10-80	43.947	25.774
Source of income- Country (var10)	10-80	25.947	23.249
Source of income- Others (var11)	20-80	27.474	27.218
Service provided by rural transit agency- Fixed Route/Fixed schedule (var12)	0-1	0.158	0.375
Service provided by rural transit agency- Fixed Route/Flexible schedule (var13)	0-2	0.316	0.749
Service provided by rural transit agency- Fixed Route/Flexible schedule (var14)	0-3	1.263	1.522
Service provided by Rural Transit Agency- Demand- Response (var15)	0-4	3.579	1.261
Service provided by Rural Transit Agency- Contracts	0-5	3.947	2.094

Table 2: Responding Rural Transit Providers According to the Population of their Service Areas

Country	Service Area	Years in Population	Annual budget	Rank operation
Autauga	43671	16	0	11
Baldwin	140415	10-20	>$200,000	02
Bibb	20826	20+	<100,000	18
Blount	51024	10-20	>$200,000	10
Convington	37631	<10	<$100,000	14
Cullman	77483	10-20	>$200,000	07
De Kalb	64452	10-20	$100,000-200,000	08
Escambia	38440	<10	$100,000-200,000	13
Etowah	103459	10-20	$100,000-200,000	04
Houston	88787	<10	>$200,000	05
Jackson	53926	10-20	>$200,000	09
Lawerence	34803	10-20	>$200,000	15
Macon	24105	>20	>$200,000	16
Madison	276700	10-20	$100,000-200,000	01
Marshall	82231	<10	$100,000-200,000	06
Morgan	111064	<10	>$200,000	03
Pickens	20949	10-20	>$200,000	17
Tallapoosa	41475	10-20	<$100,000	12
Washington	18097	10-20	$100,000-200,000	19

counties with >$200,000, 50%; $100,000- $200,000, 33.33%; and <$100,000, 16.67%. The county provider of lowest number of rural transit vehicles is Bibb with 4 vehicles, provides over 40,000 one-way passenger trips and rank 18th based on service area population (Table 1) while Baldwin has the highest county provider of number of rural transit vehicles with 42 vehicles, provides more than 80,000 one-way passenger trips and rank 2nd. The types of service provide by rural transit providers ranges from fixed route/schedule to contracts. 94.4% of demand services provided by the rural transit providers across the 17 counties while 83.3% of contracts services provided by the rural transit providers. Furthermore, rural transit providers provided 44% of flexible route/schedule provided across 8 counties and 16.6% fixed route/schedule and 16.6% fixed route/flexible schedule across 3 counties.

CORRELATION ANALYSIS

Variable were analyzed by SPSS package. Correlation analysis was used to compare a particular variable with annual one-way passengers. Also, cross-correlation between variables is presented in matrix form in Table 3.

Each variable in Table 3 is represented by var0001, var0002……var00012 as indicated in top of the table. For each pair of variables correlated, the matrix presents three figures: (1) the correlation coefficient, (2) the significance of the correlation, and (3) the number of cases. The first figure, correlation coefficient, indicates the strength of relationship between the pair of tested variables. By reading down the column of correlation coefficients for one variable, one can determine the strength of correlation between that particular variable and the other variables. Strong correlations approach 0.999 (or-0.999 for strong inverse relationships); weak correlations are much closer to 0.000. A correlation coefficient of 1.000 represents an identify matrix (the same variables).

RESULTS OF PEARSON'S PRODUCT MOMENT CORRELATION

The primary concern of this analysis is to find variables that influence annual one-way passengers trips, annual rural transit budget, and service provided by rural transit providers. The coefficients indicate that of the five tested variables, annual one-way passengers trips is most influenced number of vehicles (Var005/var 002), source of incomes from ALDOT (var005/var004), other source of incomes (var005/var009), population sector served-general population (var005/var010), fixed route/fixed schedule (var005/var012). The exhibit below shows strong positive and negative correlations.

Relationship of Rural Transit Agency Years in Operation

Table 3: The exposure of rural transit agency to other sources of income

		VAR00001	VAR00002	FAR00003	VAR00004	VAR00005	VAR00006	VAR00007	VAR00008	VAR00009	VAR00010	VAR00011	VAR00012	VAR00013	VAR00014	VAR00015	VAR00016
VAR00001	Pearson Correlation	1.000															
	Sig. (2-tailed)	.															
	N	19															
VAR00002	Pearson Correlation	-0.096	1.000														
	Sig. (2-tailed)	0.697	.														
	N	19	19														
VAR00003	Pearson Correlation	-0.099	0.443	1.000													
	Sig. (2-tailed)	0.686	0.057	.													
	N	19	19	19													
VAR00004	Pearson Correlation	-0.149	-0.604	-0.169	1.000												
	Sig. (2-tailed)	0.543	0.006	0.489	.												
	N	19	19	19	19												
VAR00005	Pearson Correlation	-0.029	0.789"	0.32	-0.415	1.000											
	Sig. (2-tailed)	0.906	0	0.182	0.077	.											
	N	19	19	19	19	19											
VAR00006	Pearson Correlation	0.162	-0.123	0.437	0.311	-0.323	1.000										
	Sig. (2-tailed)	0.507	0.615	0.062	0.196	0.177	.										
	N	19	19	19	19	19	19										
VAR00007	Pearson Correlation	-0.273	0.25	0.27	-0.325	0.195	-0.322	1.000									
	Sig. (2-tailed)	0.259	0.301	0.264	0.175	0.424	0.179	.									
	N	19	19	19	19	19	19	19									
VAR00008	Pearson Correlation	-0.398	-0.234	0.38	0.395	0.075	-0.479	0.124	1.000								
	Sig. (2-tailed)	0.092	0.334	0.877	0.094	0.76	0.038	0.614	.								
	N	19	19	19	19	19	19	19	19								
VAR00009	Pearson Correlation	0.308	0.352	0.105	-0.113	0.653	-0.218	-0.224	0.19	1.000							
	Sig. (2-tailed)	0.2	0.139	0.67	0.645	0.002	0.37	0.356	0.436	.							
	N	19	19	19	19	19	19	19	19	19							
VAR00010	Pearson Correlation	-0.136	0.25	0.212	-0.062	0.455	-0.121	-0.166	0.267	0.316	1.000						
	Sig. (2-tailed)	0.578	0.301	0.384	0.8	0.05	0.623	0.497	0.27	0.188	.						
	N	19	19	19	19	19	19	19	19	19	19						
VAR00011	Pearson Correlation	-0.372	0.04	0.052	0.178	-0.104	-0.046	0.476	0.083	-0.09	-0.127	1.000					
	Sig. (2-tailed)	0.117	0.871	0.833	0.467	0.672	0.853	0.039	0.735	0.715	0.606	.					
	N	19	19	19	19	19	19	19	19	19	19	19					
VAR00012	Pearson Correlation	0.198	0.479	0.571	-0.562	0.528	0.117	0.236	-0.154	0.24	0.21	-0.487	1.000				
	Sig. (2-tailed)	0.416	0.038	0.011	0.012	0.02	0.634	0.33	0.53	0.321	0.388	0.034	.				
	N	19	19	19	19	19	19	19	19	19	19	19	19				
VAR00013	Pearson Correlation	0.108	0.352	0.212	-0.062	0.473	0.1	-0.166	-0.172	0.403	0.604	-0.127	0.21	1.000			
	Sig. (2-tailed)	0.66	0.14	0.384	0.8	0.041	0.685	0.497	0.48	0.087	0.006	0.606	0.388	.			
	N	19	19	19	19	19	19	19	19	19	19	19	19	19			
VAR00014	Pearson Correlation	0.213	0.308	0.281	-0.194	0.278	0.122	-0.136	-0.186	0.433	0.215	0.261	0.045	0.215	1.000		
	Sig. (2-tailed)	0.382	0.199	0.244	0.427	0.249	0.619	0.579	0.446	0.064	0.376	0.28	0.855	0.376	.		
	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19		
VAR00015	Pearson Correlation	-0.144	0.048	0.382	0.601	0.063	0.532	-0.398	0.171	0.304	0.149	0.242	-0.162	0.149	0.293	1.000	
	Sig. (2-tailed)	0.557	0.845	0.106	0.007	0.798	0.019	0.092	0.483	0.205	0.544	0.319	0.507	0.544	0.224		
	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	
VAR00016	Pearson Correlation	-0.173	0.331	0.451	0.004	0.234	-0.027	0.274	0.313	0.27	0.224	0.307	0.17	0.224	-0.083	0.244	1.000
	Sig. (2-tailed)	0.48	0.166	0.053	0.987	0.335	0.913	0.257	0.192	0.263	0.357	0.201	0.486	0.357	0.737	0.315.	
	N	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19

To
Percent of service provided (var001)
Low-income (var008)
Percent of service provided (var001)
Low-income (var008)

As indicated in Table 3 the rural transit agency year in operation showed a significant difference in its relationship to the percent of service provided to low-income. This was an inverse relationship (-0.385*).

Relationship of annual one-way passengers trips the rural transit supply (var005)
To
The percent of service provided to general population (var009),
Number of vehicles in operation (var002)
Source of income-ALDOT (var004),
Source of income-Other (var012),
Fixed route/Fixed schedule (var010)

The annual one-way passengers trips the rural transit supply showed a significant difference in its relationship, a positive relationship (0.789^{***}), to the number of vehicles in operation, a positive relationship (0.653^{***}), to the percent of service provided to general population, a negative relationship (-0.415 **), to source of income from ALDOT and a positive relationship (0.455**), to other source of income, a positive relationship (0.528**) to fixed route/fixed schedule.

Relationship of Exposure of rural transit agency to other sources of income (var012)
To
Number of vehicles rural transit in operation (var002),
Annual transit budget (var003)

Table 3 also shows that the exposure of rural transit agency to other sources of income showed a significant difference in its relationship, a positive relationship (0.479**), to number of vehicles rural transit in operation. Exposure of rural transit agency to other sources of income also positively related to annual transit budget (0.571**).

***significant at the 0.01 level (2 tailed)
2** significant at the 0.05 level (2 tailed)
3* significant at the 0.10 level (2 tailed)

Relationship of annual transit budget (var003)
To
County Population of elderly and handicapped that they served (var006)

The annual transit budget showed a significant difference in its relationship to county population they served-elderly and handicapped (0.437*). All of the transit agencies listed elderly/handicapped as a section of the population they serve.

DISCUSSION

The hypothesis that the rural transit agency is years in operation in rural transit business would have a negative relationship with the percent of service provided to low-income was supported by the relationship of the organizational characteristic, and years in rural transportation. This indicated that as the rural transit agency is years in operation increases, the percentage of service provided low-income decreases.

The hypothesis that the annual one-way package trips the rural transit supplies was positively related to: the percent of service provided to general population, number of vehicles in operation, Source of income-Other, and Fixed route/Fixed schedule were supported by the data. This indicated that as the annual one-way passenger trips increase there is increase in the percent of service provided to general population, number of vehicles in operation, other source of income, and fixed route/ schedule across the countries. However, the hypothesis that the annual one-way package trips the rural transit supplies was positively related to source of income from Alabama Department of Transportation (ALDOT) was not supported by the data. This indicated that as sources of revenue from Alabama Department of Transportation decrease the annual one-way package trips the rural transit provider=s supply increases. This is an indicator of rural transit project success.

The hypothesis that exposure of rural transit agency to other sources of income is positively related to: number of vehicles; annual transit budget and annual one-way passengers were supported by the data gathered as a result of this study. This indicated that with increase in number of vehicles on the road could be attributes to increase in exposure of rural transit agency in search for other sources of income. However, increases in annual transit budget also increase the chance of rural transit agency to other sources of income. Finally the more the rural passengers the more the rural transit agency pursuing other source of income.

The hypothesis that the annual transit budget is positively related to elderly and handicapped as a section of the county population they served was supported. This indicated that the increase in county elderly and handicapped population served is related to increase in rural transit agencies annual transit budget.

***significant at the 0.01 level (2 tailed)
** significant at the 0.05 level (2 tailed)
* significant at the 0.10 level (2 tailed)

CONCLUSIONS

Most hypotheses proposed were supported by the result using Pearson=s correlations. However, further research needs to be conducted regarding the variables analyzed in this study and other variables not tested here. The analysis in this paper has provided some insights into the operation of rural transit providers. This paper stresses the importance of regular program assessment as a means of monitoring the efficiency and effectiveness of operations and data generations and its statistical analysis that can be used to improve service delivery. The results from the survey show that on the whole the rural transit agencies identified four categories of county population that they served:
elderly/handicapped, youth (under 16), low-income, and general population.
In formulating policy to evaluate performance measures of rural transit providers, rural transit planners can begin to apply the information from these empirical studies toward the development of a rationale for their transit agency = s planning priorities.

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