Saving Fuel and Money Motivates Carpoolers

By Michael T. Eskey

Introduction

THE RISING COST of transportation has become a major concern of Americans at every level of the economic ladder. Indeed, recent price hikes in gasoline have affected practically all other consumer products. An optimistic America has watched the per-gallon price of gasoline rise by 400 percent in the last decade and now helplessly looks to $2.00 per-gallon fuel in the future. The rising cost of transportation cannot be stopped; it must be coped with.

A look toward the future reveals a rather gloomy forecast. The Office of Energy Programs points out that the current demand for petroleum is almost twice as great as current domestic production. World production rates of recoverable oil and natural gas are expected to decline and the United States’ production rates are already doing so. Thus, the United States’ dependence on foreign sources of energy is presently increasing, as is its vulnerability to interruption of supply and the use of threat of such interruption as a political weapon.

Part of the major policy implications and issues emerging from the energy forecast focuses directly on automobile usage. As available supplies of oil and gas decline, greater pressures will be exerted to phase in non-petroleum burning vehicles. One forecast states that 15-20 percent of all automobiles in the next 20 years will be non-gasoline burning. However, if the technology for producing such vehicles is not available by the 1980’s, basic decisions will have to be made regarding alternative modes of transportation for the car-using public.

The American Automobile Association (AAA) has revealed that the national average cost for owning and operating a motor vehicle is $.212 per mile. At $.20 per mile, the average cost in Omaha, Nebraska is slightly lower than the national average; however, this figure is $.04 higher than last year or an increase of 25 percent. The costs for owning and operating a motor vehicle are divided into two major categories, variable and fixed. Fixed costs include such items as insurance, license, registration, taxes, depreciation, and finance charges. Such costs are generally the same even if the car remains parked in the garage. Variable costs include those directly related to operating the vehicle, gasoline and oil, maintenance, and tires. Variable costs can be controlled by the individual driver.

The Metro Area Carpool Program

Carpooling is a form of control which serves as an alternative mode of energy-saving transportation. The major program organized for the purpose of promoting carpools in Omaha is Metro Area Carpool (MAC).

Metro Area Carpool was instituted in Omaha in 1974 through a Federal grant distributed to Metro Area Transit. This funding was discontinued in June, 1978. Metro Area Transit presently funds the MAC program at approximately one-fifth of the operating budget utilized when the program received Federal funds. Naturally, the decreased budget has resulted in certain cutbacks in the program.

The Metro Area Carpool program attempts to match individuals having similar home locations, work hours, and work locations with others for the purpose of forming carpools. A major concern is energy conservation. The program promotes the concept of carpooling throughout the city by advertising, match-up information services, and promotional programs. The benefits derived include gas dollar savings, parking expense, convenience, and other related factors. The savings resulting from carpooling are dependent on several factors such as type of car, distance to work, and the number of individuals in the carpool.

The research staff at CAUR in working with MAC officials became interested in what factors motivated individuals to form carpools and certain other related information. The research centered on broadening the informational base about carpooling by providing data about individuals who had expressed interest in carpooling and their subsequent utilization or non-utilization of carpooling.

Consideration of the motivation issue suggested that one research area should be gathering demographic information that would present a sharper focus on carpool formations. Information was sought on direct motivations for carpooling, present transportation to work of non-carpoolers, past transportation to work of carpoolers, and savings reported by those presently carpooling. The research attempted to concentrate on issues which would contribute to transportation and energy conservation policy matters.

Methods Used

The research focused on the responses of a select random sample who had
expressed an interest in carpooling. The overall population consisted of 4,370 individuals who had requested carpool information from MAC since July, 1977. Since the onset of the original program, approximately $5,000 were requested information about carpooling. This file is periodically updated and names are frequently eliminated from the list. Thus, the present file represents individuals who have contacted MAC since 1977.

The research effort utilized one instrument, the Metro Area Carpool Questionnaire, administered to a random sampling of 100 individuals who had requested information about the program. The instrument was designed to gain information on specific research issues and other background attitudinal information. In addition, respondents were asked to provide some basic demographic information in order to pinpoint characteristics that might enable us to compare carpoolers to non-carpoolers, for example, determine whether carpooling interests of different income classes were the same. Of some interest to the research effort was the construction of indices directly comparable the responses of carpoolers with those of non-carpoolers. 5

Motives for Using MAC

The major issue of the study stemmed from a need to determine those factors motivating individuals to carpool and those reasons which individuals give for not carpooling. Further, determinants of whether individuals got to work before they began carpooling was deemed important. The reasons given for carpooling might lend credence to the MAC informational brochure distributed to individuals requesting match-ups or information, in the program’s becoming more widespread. The reasons individuals gave for not carpooling might serve as a starting point for MAC to bolster its efforts in specific areas of service.

Table 1 depicts the reasons given for carpooling by those respondents who were carpoolers at the time of the survey. The majority stated that their motives for carpooling were economic-related. Smaller percentages also cited job-related or personal conditions, such as rush-hour traffic or parking, as influences on their decision to carpool. Another 5.9 percent cited in a combination of the above reasons for their decision to carpool. Other reasons included availability of car, need to car pool, poor bus service, convenience, and companionship.

Table 2 provides information on the reasons for not carpooling at the present time. Of persons not carpooling, 48.1 percent revealed that no others were available to carpool with. Another 30.2 percent gave reasons which were job-related, including unusual work hours, location of employment, and need for their car at work. Reasons related to particular family situations were given by 5.8 percent. This included such things as having only one car, the car was needed to take children to school or the baby-sitter, or their spouse needed the car at work. Other reasons given by 13.8 percent of the sample included the convenience and freedom of having one's own car, work, and lower cost of the ride. Reasons given for not carpooling were economic-related.

Table 3 shows the transportation to work before joining a carpool by those presently carpooling. The largest group, 61.3 percent, stated that they formerly drove alone to work. Another 7.3 percent rode with others or carpooled. A smaller 6.1 percent reported that they had always carpooled, and 21.7 percent stated that they hoped to carpool.

The finding that 63.3 percent of present carpoolers formerly drove alone should be of some satisfactory to MAC officials. Of further satisfaction was the finding that 25.4 percent of those not presently carpooling were getting to work using either the bus or some form of non-energy consuming transportation. Follow-up research might concentrate on those individuals who are presently driving alone to work to determine their current interest in forming carpools.

Economics of Carpooling

The economic-related reasons given for carpooling pointed the researcher toward finding out how much was saved by carpooling. Further, the researcher wanted to determine if carpoolers were spending significantly less than non-carpoolers to drive to work. Table 5 reveals the findings related to these issues.

The data revealed that the median distance traveled to work varied substantially. It was 15.4 miles. At this distance a significant difference in the amount spent for transportation was expected. Differences between the amounts spent traveling to and from work by carpoolers and non-carpoolers were more striking at a distance of 21.40 miles round trip. Table 7 reveals that one-half of the carpoolers driving this distance reported spending between $10.00 and less compared to only eight percent of the non-carpoolers in this category. Over half, 52 percent, of the non-carpoolers reported spending $50.00 or more, as compared to 21.4 percent of the carpoolers in this category.

Funding Sources Investigated

Although the entire sample was comprised of individuals who had expressed an interest in carpooling, the hypothesis was made that carpoolers would be more inclined to want public funds used to support a carpool program. The results indicated that over 56 percent of those responding felt that public funds should be used to support the MAC Program. Although the difference was not significant, non-carpoolers responded more often than carpoolers (38.6 percent and 51.4 percent, respectively) that public funds should be used to support MAC.

Issue Related Information

Certain other factors were at issue in the determination of the demographic characteristics of the sample were compared by carpool status. The demographic factors used included: age, race, income, and size of ear. Of those responding, 95.2 percent were classified into four manageable occupational categories: professional, managerial/administrative, clerical/and technical and skilled labor. Table 6 depicts the comparison of the four occupational categories as to differences and percent significance of this comparison. As expected, the largest percentage, 41.0, of those requesting carpool assistance were employed in the clerical/and technical field. The data did not...
TABLE 8
USE OF PUBLIC FUNDS TO SUPPORT MAC BY CARPOOL STATUS

<table>
<thead>
<tr>
<th>Carpool Status</th>
<th>Use Public Funds</th>
<th>Do Not Use Public Funds</th>
<th>Do Not Know</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Presently</td>
<td>55</td>
<td>51.4</td>
<td>43</td>
<td>40.2</td>
</tr>
<tr>
<td>Not Presently</td>
<td>109</td>
<td>58.6</td>
<td>62</td>
<td>33.3</td>
</tr>
<tr>
<td>Total</td>
<td>164</td>
<td>56.0</td>
<td>105</td>
<td>35.8</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 1.54 \quad df = 2 \quad V = .06 \quad p > .05 \]

TABLE 9
OCCUPATION OF RESPONDENTS BY CARPOOL STATUS

<table>
<thead>
<tr>
<th>Carpool Status</th>
<th>Professional</th>
<th>Managerial/Administrative</th>
<th>Clerical/Kindred</th>
<th>Technical/Skilled</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Presently</td>
<td>30</td>
<td>28.8</td>
<td>24</td>
<td>23.1</td>
<td>40</td>
</tr>
<tr>
<td>Not Presently</td>
<td>37</td>
<td>21.0</td>
<td>34</td>
<td>19.3</td>
<td>74</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>23.9</td>
<td>58</td>
<td>20.7</td>
<td>114</td>
</tr>
</tbody>
</table>

Note: 3.7% of non-carpoolers were not working and 2.2% of the sample refused to respond.

\[ \chi^2 = 5.18 \quad df = 3 \quad V = .14 \quad p > .05 \]

TABLE 10
ANNUAL FAMILY INCOME OF RESPONDENTS BY CARPOOL STATUS

<table>
<thead>
<tr>
<th>Carpool Status</th>
<th>Below $10,000</th>
<th>$10,001-$15,000</th>
<th>$15,001-$25,000</th>
<th>$25,001-$35,000</th>
<th>$35,001-</th>
<th>Over $35,000</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Presently</td>
<td>6</td>
<td>5.9</td>
<td>20</td>
<td>19.6</td>
<td>49</td>
<td>48.0</td>
<td>20</td>
</tr>
<tr>
<td>Not Presently</td>
<td>11</td>
<td>6.0</td>
<td>42</td>
<td>23.0</td>
<td>83</td>
<td>45.3</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>6.0</td>
<td>62</td>
<td>21.8</td>
<td>132</td>
<td>46.3</td>
<td>56</td>
</tr>
</tbody>
</table>

\[ \chi^2 = .52 \quad df = 4 \quad V = .04 \quad p > .05 \]

TABLE 11
SIZE OF AUTOMOBILE BY CARPOOL STATUS

<table>
<thead>
<tr>
<th>Carpool Status</th>
<th>No Car</th>
<th>Full-size</th>
<th>Intermediate</th>
<th>Compact</th>
<th>Sub-compact</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Presently</td>
<td>12</td>
<td>11.4</td>
<td>32</td>
<td>30.5</td>
<td>25</td>
<td>23.8</td>
</tr>
<tr>
<td>Not Presently</td>
<td>21</td>
<td>11.7</td>
<td>48</td>
<td>26.7</td>
<td>41</td>
<td>22.8</td>
</tr>
<tr>
<td>Total</td>
<td>33</td>
<td>11.6</td>
<td>80</td>
<td>28.0</td>
<td>66</td>
<td>23.2</td>
</tr>
</tbody>
</table>

\[ \chi^2 = .84 \quad df = 4 \quad V = .05 \quad p > .05 \]

reveal any statistically significant differences in the carpool status of respondents when controlling for occupational status.

Table 10 depicts the comparison of the annual family income of respondents by carpool status. The largest percentage of respondents were found in the middle-income category, $15,000-$25,000. Individuals in this category were slightly more inclined to carpool than other income classes. The differences between the two groups were not, however, found to be statistically significant.

The size of the automobile driven by respondents did not reveal significant differences between carpoolers and non-carpoolers. Table 11 does, however, reveal some interesting and useful information. Although no percentage differences were found between respondents with no car, the 11.7 percent not presently carpooling could be assumed to be getting to work through some non-energy consuming form of transportation. Further, 42 percent of those respondents who reported having a car drove either compact or sub-compact cars. Even though the differences between the number of carpoolers and non-carpoolers was not significant, a large percentage of the sample appeared to be making an effort to conserve energy by driving smaller cars.

Summary

The present research was designed to examine certain issues related to those motives which respondents reported for forming or not forming carpools. Related issues included savings reported by carpoolers, respondents' views on funding a carpool program, and comparisons of demographic characteristics of respondents by carpool status.

Those presently carpooling most often gave economic-related reasons for their decisions to carpool. Carpoolers reported saving more money per month the further they drove to work, and carpoolers driving 11 to 40 miles to work round trip spent significantly less than non-carpoolers.

Several reasons were given by respondents for not carpooling. The majority of non-carpoolers stated that no others were available to carpool with. About one-third of those not carpooling stated that their present employment did not allow them to match either hours or locations with other carpoolers.

The majority of carpoolers formerly drove to work alone, and about nine
percent always utilized carpooling. About 70 percent of those not carpooling stated that they presently drove to work alone. Another 25 percent of those not carpooling utilized either the bus or some form of non-energy consuming transportation. Comparisons of the demographic characteristics of respondents by carpool status revealed no statistically significant differences between the groups. However, certain findings were revealed which are of interest:

- 64.6 percent of the respondents who had requested carpool assistance worked in either professional or administrative/management positions.
- 72.2 percent of the sample came from households having an annual income of $15,000 or greater.
- 42 percent of the sample who responded that they had a car reported driving either compact or sub-compact cars to work.

The present study presents a starting point for community leaders and employers. The findings revealed that the majority reported a willingness to support a carpool program with tax dollars. The demographic characteristics of carpoolers and non-carpoolers were very similar. What was most striking, perhaps, was that the majority of respondents were not carpooling because they had no others to carpool with. An extensive coordinated effort by employers, community leaders, and carpool officials, therefore, is needed. The findings revealed that: 70 percent of those not carpooling stated they presently drove to work alone. Further, Cramer's V, a measure of association, was utilized.

Dr. Vincent Webb, formerly chairman of the Department of Criminal Justice at UNO and acting assistant CPACS dean, will assume the directorship of the Center for Applied Urban Research on July 1, subject to approval of his appointment by the Board of Regents.

Dr. Webb, presently on leave to act as principal investigator for the Joint Commission on Criminology and Criminal Justice Education and Standards at the University of Illinois in Chicago, will be returning to UNO where he has been a faculty member since 1973.

He received both his B.A. and M.A. degrees from UNO and his Ph.D. from Iowa State University. All three were in sociology.

He has had extensive teaching, administrative, and research experience both at UNO and Iowa State University. A member of Phi Kappa Phi and Alpha Kappa Delta, he is the author of numerous articles in professional publications and papers presented at professional meetings.

Three New Members Join CAUR Staff

Three new staff members have joined the Center for Applied Urban Research, Michael Eskey, the author of the article in this issue, has been named to the newly created position of senior research assistant.

A native of Lincoln, Mike attended Northeast Nebraska Technical Community College in Norfolk where he received an associate of arts. He obtained the bachelor of science degree in Criminal Justice from the University of Nebraska in Lincoln and his master's, also in CJ from UNO. His work toward the doctorate, for which he has only to complete his dissertation, was at Florida State.

His dissertation will integrate two theories dealing with teen-age alcohol and marijuana use.

Dr. Holley is a new community development/research assistant.

She received the bachelor of science degree in sociology from UN-L and also her master's in community and regional planning plus her doctorate in community and human resources.

"A Study in Community Goal Achieve·
ment, which her dissertation, involved an interdisciplinary look at neighborhood organizations in Omaha.

Dr. Sharon Davis is a new half-time research/community development assistant who, prior to this appointment to this position, had been working part time as a consultant to the day care training program.

Dr. Davis obtained her bachelor of science degree in health, physical education, and recreation from the University of South Dakota in Vermillion and also her master's with an endowed chair in guidance and counseling. This past year she received her doctorate in administration, curriculum, and improvement of instruction from UN-L.

At CAUR she has been involved in a Title V study of female entrepreneurs in Nebraska.