

RESIDENTIAL RELOCATION AS A
CONSERVATION STRATEGY TO COPE WITH RISING
GASOLINE PRICES AND UNCERTAIN SUPPLY

by

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and
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INTRODUCTION AND RESEARCH QUESTION

This study seeks to determine if workers have modified their commuting patterns during the recent period of increasing gasoline prices and uncertain supplies. The study focuses on one particular aspect of commuting behavior, the length of the work trip.

One long-term strategy to conserve gasoline and reduce expense is to shorten the length of the commute to work. This study examines the extent to which individuals have reduced commuting distance by relocating their residence closer to the workplace. The research focuses on changes in the work trip patterns of individuals who have recently moved.

The study seeks to determine how recent movers have modified their commuting patterns during a period of increasing gasoline prices and uncertain supplies. To answer this general question, three research areas have been identified:

- (1) What is the magnitude and direction of the change in commuting distance? The average work trip length of commuting is hypothesized to decrease.
- (2) What types of work trips are most likely to be decreased? The authors hypothesize that longer commutes are more apt to be reduced than short trips.
- (3) Which commuters are most likely to shorten the length of their work trip? The authors hypothesize that socioeconomic characteristics such as age, income, and family size affect the change in commuting distance.

LITERATURE REVIEW

Four fields of research pertain to this study: (1) economic theory of urban structure, (2) residential relocation behavior, (3) journey to work behavior, and (4) travel behavior during the energy crisis.

Economic Theory of Urban Structure

A considerable body of economic theory on the spatial structure of cities is available (Alonso, 1964; Kain, 1962; Wingo, 1961). Much of that literature focuses on the issue of home-work separation. Many researchers hypothesize that wealthier individuals have longer work trips than people with lower incomes. The wealthy are more able to afford higher commuting costs and therefore can choose residential sites distant from their place of employment.

Residential Relocation Behavior

Many sociologists and geographers who have conducted research on residential relocation have concluded that work trip distance is not an important factor in the decision to move. (See Simmons, 1968 and Moore, 1972 for extensive literature reviews.) This conclusion is based largely on the low frequency with which movers list work access as a reason for moving. A significantly greater number of movers, however, list commuting distance as an important factor in selecting the location of the new residence. For example, a 1973 study found that only ten percent of movers listed work access as an important reason for moving, but eighteen percent listed it as a factor in selecting their new home (Thibeault, et al, 1973). In addition, the importance of work access in the relocation decision appears to increase as the length of the pre-move work trip increases (Catanese, 1970).

Journey to Work Behavior

Much of the journey to work literature has focused on empirical studies showing the relationship between income and length of the work trip. Although some of the empirical research has attempted to test the economic theory of urban structure, most studies have not based their approach on theory. The results of these empirical studies are inconclusive. Some researchers found evidence that commuting distance increases with income level (Kain, 1962; Hecht, 1974), which others did not (Murawski and Boyce, 1978; Halvorson, 1973).

One aspect of the research on the journey to work that has received little attention is how the length of the work trip is affected when people move. From the limited research available, the pre-move commuting distance appears to predict the length of the post-move work trip best. The vast majority of movers make little or no change in the length of the work trip. However, people with long pre-move commutes tend to reduce the length of the work trip when they relocate (Clark and Burt, 1980; Halvorson, 1975).

Travel Behavior During the Energy Crisis

Evidence from available research indicates that moving closer to the workplace is seldom used as a method of conserving gasoline (Corsi and Harvey, 1977a; Sacco, 1976; Flachsbart, 1977). However, previous research in this area has focused on short-term responses to gasoline shortages. Long-term responses to frequent price increases and periodic shortages have not been studied in depth.

Residential relocation could potentially play an important role in long-term energy conservation. The manner in which movers adjust their commute

could be related to their socioeconomic characteristics. This conclusion can be inferred from the observed relationships between short-term adjustments and socioeconomic characteristics (Corsi and Harvey, 1977b; Becker et al., 1976; Nevev, 1977).

SURVEY PROCEDURE

In order to test the hypotheses presented earlier, the authors examined the changes in commuting patterns of people who recently moved. Information on such changes was obtained through a survey of recent movers which was conducted especially for this study.

The authors explored numerous sources for the sample of movers in the survey, finally deciding to select movers from the files of the Department of Motor Vehicles. According to state law, all individuals who register an automobile or maintain a driver's license in Connecticut must report a residential change to this department. From the collection of change in address records filed between January and June 1980, a random sample of movers was selected for the survey. Only Hartford area residents between the ages of 25 and 60 were included in the sample.

After considering various survey procedures, the authors decided to interview the sample population by telephone. Directory Assistance operators provided telephone numbers for the majority of individuals selected in the random sample. However, a relatively large percentage of individuals had an unlisted telephone, one listed under another person's name, or no telephone at all. Each of these people was sent a self-addressed, stamped return post-

card requesting them to furnish a telephone number for use in the survey. These procedures produced approximately 700 telephone numbers for the interviews.

The Center for Social Inquiry at The University of Connecticut conducted the telephone survey over a five day period in early December, 1980. The sessions produced 305 completed telephone interviews. The large number of unsuccessful responses was the result of numerous factors, including disconnected telephones, language problems, and refusals to answer questions (Table 1). The post-move residential and workplace locations of the survey respondents are mapped by town in Figures 1 and 2.

TABLE 1: RESULTS OF ATTEMPTED TELEPHONE CALLS

<u>Result</u>	<u>Number of Telephone Calls</u>
Completed Interview	305
Ineligible/Uncooperative Respondent	221
No Answer	29
Disconnected	28
Communication Difficulty	12

All survey respondents were asked to give information about their pre- and post-move commuting distances. Data was also gathered on socioeconomic characteristics of the respondents including age, income, education, race, and family size. Using the survey responses concerning pre- and post-move commuting distances, the authors calculated the change in work trip distance. A copy of the interview form appears in the appendix.

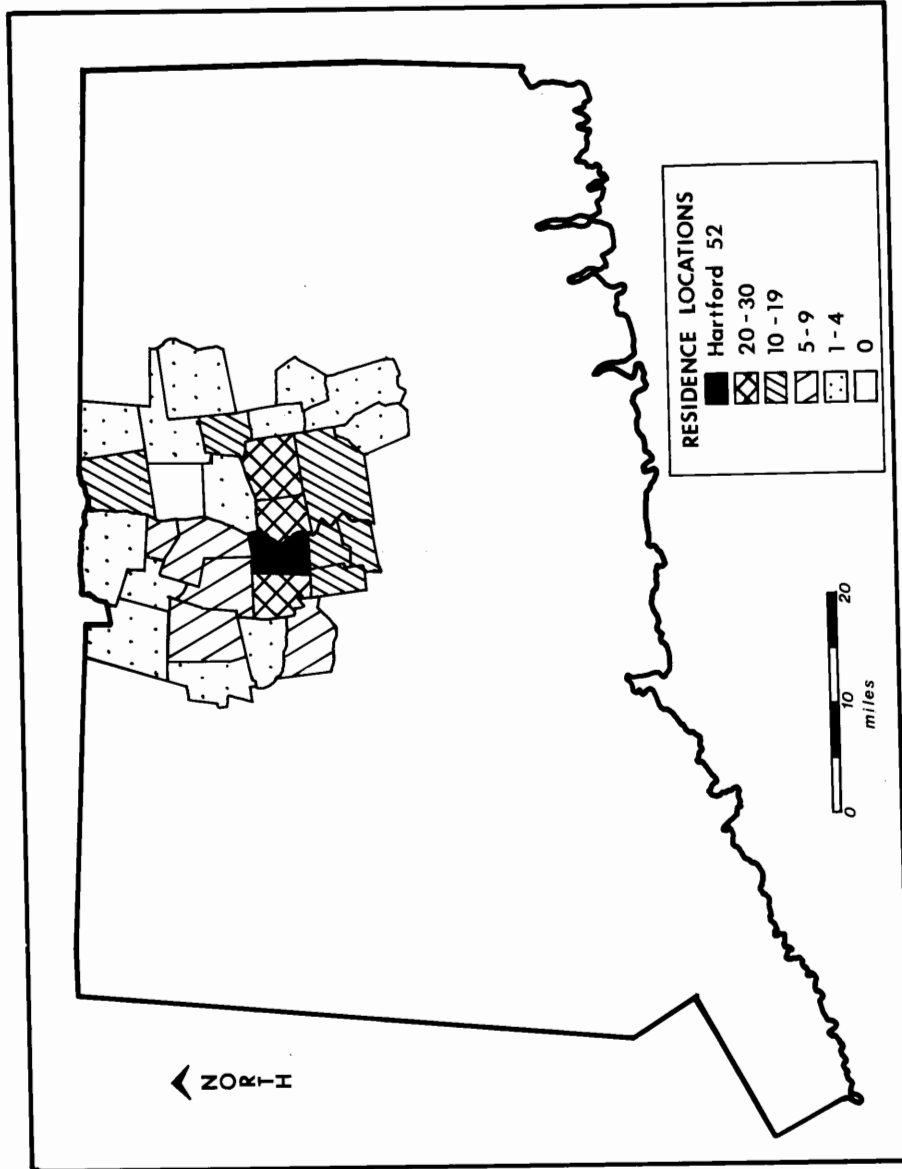


Figure 1: Residential locations by town within the Hartford region for the respondents in the relocation survey

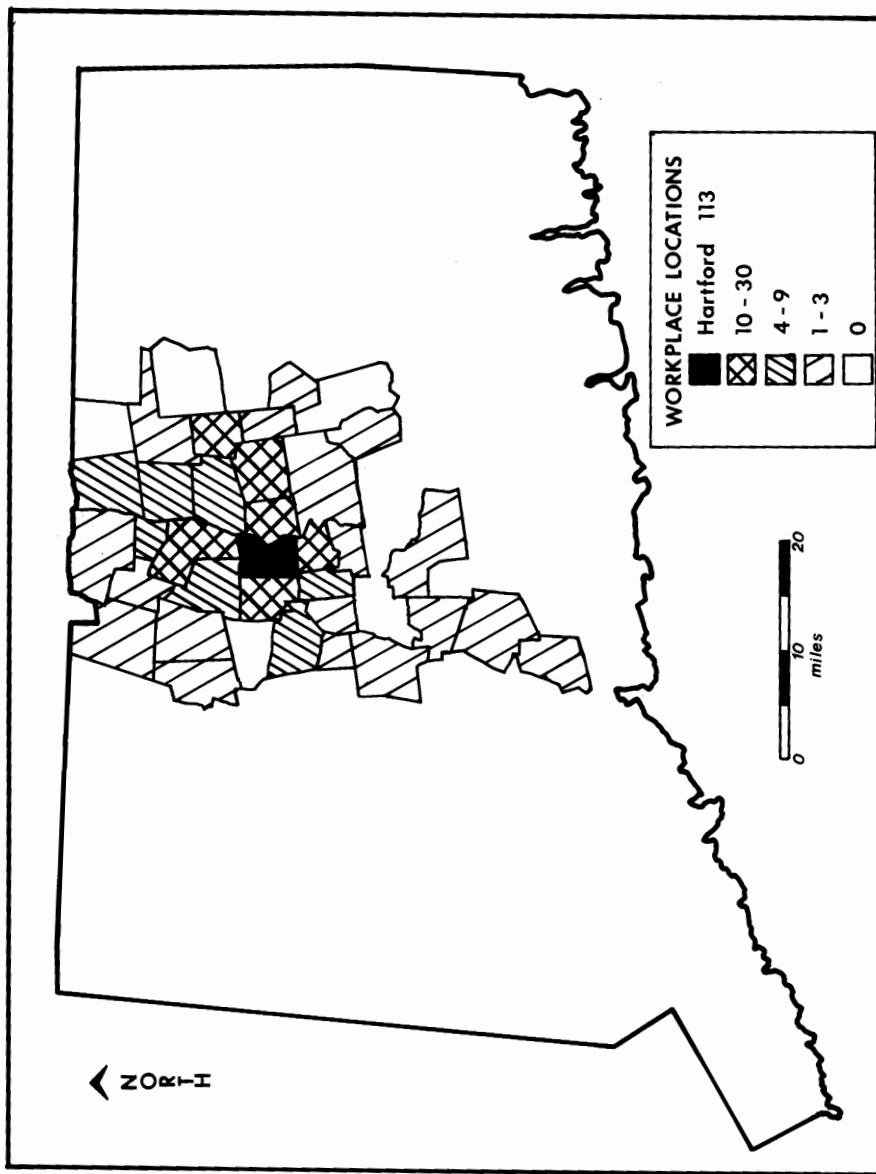


Figure 2: Workplace locations by town within the Hartford region for the respondents in the relocation survey

SURVEY RESULTS

Magnitude and Direction of Change in Work Trips

Analysis of the data from the telephone interviews shows that the average respondent reduced his work trip distance by approximately ten percent (Table 2). Two hundred seventy four survey respondents gave a pre-move commuting distance which averaged 10.2 miles. The corresponding post-move commuting distance for 277 respondents was only 8.9 miles. For the 264 workers who specified both pre- and post-move commuting distances, the average work trip decreased by over 1.1 miles or 10 percent. However, the commuting distances of individuals and the changes in these distances varied greatly about the average values. For example, the standard deviation for the change in work trip distance was 10.6 miles (Table 2).

TABLE 2: SUMMARY STATISTICS FOR
COMMUTING DISTANCES OF SURVEY RESPONDENTS (IN MILES)

	<u>Mean</u>	<u>Standard Deviation</u>	<u>N</u>	<u>Maxi- mum</u>	<u>Mini- mum</u>
Pre-move Commuting Distance	10.2	10.1	274	70	1
Post-move Commuting Distance	8.9	7.0	277	49	1
Change in Commuting Distance	1.1	10.6	264	34+	64+

A variation on the "difference of means" test was used to determine if the decrease in commuting distance found in the survey was representative

of the total population of Hartford area movers. In this procedure, the sample mean (\bar{X}) was compared to a hypothesized population mean (μ). The objective of the test was to determine whether the observed difference between the sample mean and the hypothesized population mean was too large to have occurred solely from sampling error (Table 3). (See Blalock, 1979 for further explanation of this statistical test.)

TABLE 3: T TEST FOR SIGNIFICANCE OF THE
AVERAGE CHANGE IN COMMUNITY DISTANCE FOR SURVEY RESPONDENTS (SEE TEXT)

$$H_0 = \mu_{D2-D1} = 0$$

$$H_1 = \mu_{D2-D1} < 0$$

$$\text{where } t = \frac{\bar{X} - \mu}{\text{S.d.}/\sqrt{n-1}} = \frac{1.11-0.00}{10.6/\sqrt{263}} = 1.71^*$$

H_0 = null hypothesis

H_1 = research hypothesis

D_1 = pre-move commuting distance

D_2 = post-move commuting distance

μ = population mean: change in commuting distance

\bar{X} = sample mean: change in commuting distance

Sd = sample standard deviation: change in commuting distance

n = sample size

*significant at $p=0.046$ (one tail test).

The null hypothesis states that the average change in commuting distance for the total population of movers is zero ($H_0: \mu_{D2-D1} = 0$, where D_1 and D_2

are the pre- and post-move commuting distances and μ is the population mean). The research hypothesis states that the average change in work trip distance for the population is less than zero, indicating a decrease in the length of commute ($H_1 = \mu D_2 - D_1 < 0$). Because increasing gasoline prices and periodic shortages are expected to cause people to move closer to their workplace, the research hypothesis represents the average change in commuting distance as negative. Since the direction of the difference between pre- and post-move commuting distance is being predicted, a one-tail test of significance is used.

The decrease in commuting distance for the 264 survey respondents averaged 1.1 miles. This sample mean shows too large a deviation from zero (no change in distance) for the sample to come from a population whose mean change in commuting distance was zero. The sample mean deviates by 1.71 standard errors from the hypothesized population mean, too large a difference to have occurred only from sampling error (Table 3). The resulting t value is significant at the 0.046 level, which means that the probability of obtaining a difference in commuting distances as large as 1.1 miles by chance is only 4.6 percent. Thus, the research hypothesis can be accepted, showing that the average commuting distance for the Hartford area movers has decreased.

To determine further patterns in the commuting adjustments of the survey respondents, the authors also examined the distribution of the change in work trip distances. The data was first plotted as a histogram (Figure 3). The same information on changes in work trip distance was then partitioned into seven categories and the frequencies calculated (Table 4). In both Table 4 and Figure 3, the data is distributed symmetrically around the "no change"

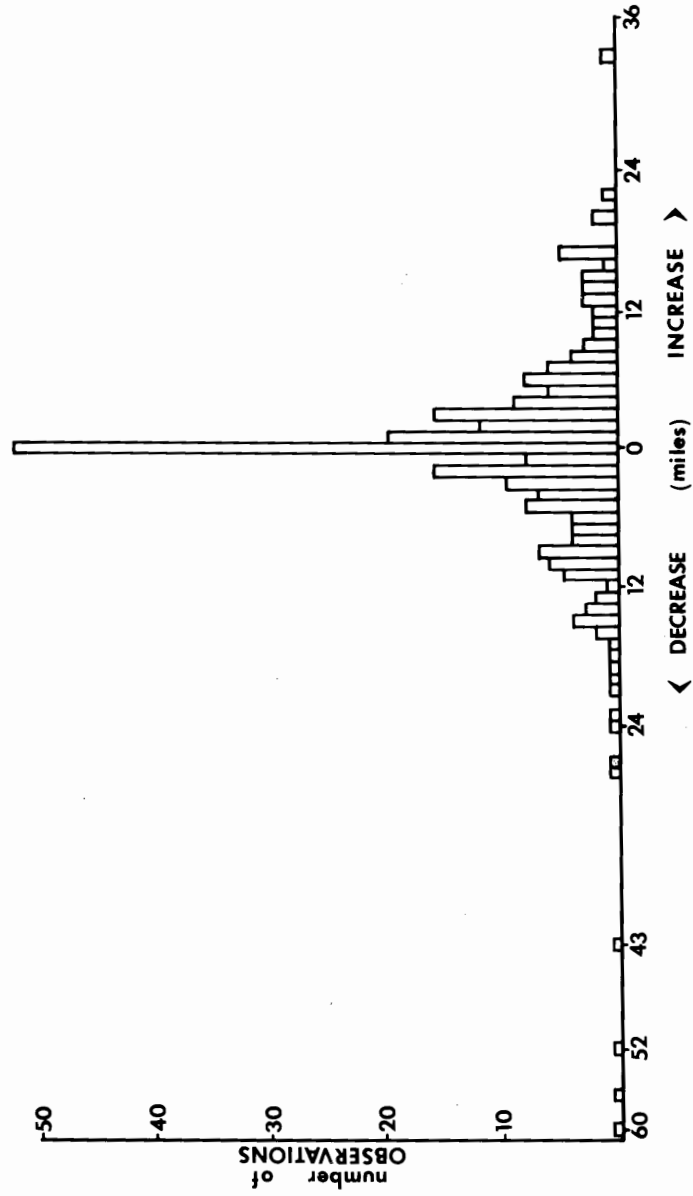


Figure 3: Frequency distribution of the change in work trip distance for the survey respondents

position in commuting distance. Only slight differences in frequency occur when the corresponding distance intervals on either side of this central position are compared. While 105 respondents decreased their work trip distance after moving, 107 individuals increased their commuting distance. Fifty-two respondents commuted the same distance before and after their move.

TABLE 4: DISTRIBUTION OF CHANGE IN COMMUTING DISTANCES

		<u>Absolute Frequency</u>	<u>Percent</u>
Increase	20 or more miles	4	1.5
	10 to 19 miles	21	8.0
	3 to 9 miles	50	18.9
	-2 to 2 miles	108	40.9
Decrease	3 to 9 miles	46	17.4
	10 to 19 miles	25	9.5
	20 or more miles	<u>10</u>	<u>3.8</u>
	Total sample	264	100.0

Although the majority of values in Figure 3 lie close to the "no change" position, numerous "outliers" exist, representing individuals with large increases or decreases in commuting distance. This pattern agrees with the large standard deviation values found in the summary statistics for the survey (Table 2).

Effects of Pre-move Distance on Commuting Behavior

As the literature has shown, the length of work trip prior to moving can be used to predict the post-move commuting distance with some success. To

test this relationship against the data collected in the survey, the authors divided the respondents into four subgroups based on pre-move commuting distance (Table 5). Average pre- and post-move distances as well as average change in commuting distance were calculated for each subgroup.

TABLE 5: AVERAGE COMMUTING DISTANCES (IN MILES) OF
FOUR SUBGROUPS, DEFINED BY PRE-MOVE DISTANCE

<u>Subgroups</u> ¹	<u>Average Pre-move Commuting Distance</u>	<u>Average Post-move Commuting Distance</u>	<u>Average Change in Commuting Distance</u>	<u>Sample Size</u>
1-5 Miles	2.73	7.09	4.33↑	101
6-10 Miles	8.20	9.00	0.77↑	82
11-20 Miles	14.31	9.74	4.59↓	49
21+ Miles	<u>31.35</u>	<u>13.19</u>	<u>17.78↓</u>	<u>32</u>
Total Sample	10.16	8.90	1.11↓	264

¹Defined by Pre-move Commuting Distance.

These results show distinct differences among the average distance values for the four subgroups of respondents. For example, respondents who travelled less than five miles before moving had an average work trip distance of approximately seven miles after relocation (Table 5). Length of commute increased an average of over four miles per respondent in this first subgroup. Individuals in the next subgroup, who commuted between six and ten miles before their move, had smaller changes in their commuting distances. Their post-move work trips, averaging nine miles, represent an average increase of less than one mile.

The results for the last two subgroups in Table 5, commuters with pre-move distances of 11-20 miles and over 20 miles, are far different from the findings for the earlier subgroups. These last subgroups have much shorter post-move distances with average decreases of 4.6 and 17.8 miles, respectively. Those individuals with short work trips before moving are rarely decreasing the commuting distance with relocation. However, the respondents who had large pre-move distances tend to reduce their work trips considerably following relocation.

A scatter diagram, with axes measuring the pre- and post-move distances shows the same general commuting behavior discussed previously (Figure 4). Each respondent is represented by a dot depicting his commuting distance before and after the move. A "no change" line separates those commuters who increased work trip distance (dots above the line) from those who decreased travel (dots below the line). Individuals who commuted the same distance to work before and after the relocation appear as dots on the line. The size of the dots reflects the number of commuters located at various positions on the graph.

As seen in Figure 4, the respondents with short pre-move distances appear as dots scattered mostly above the "no change" line. This pattern implies that these commuters are not able to or interested in decreasing their work trip distance. Most of the workers represented by dots in this section of the graph show increases in commuting distance.

As pre-move commuting distance increases (along the horizontal axis), a larger percentage of dots fall below the "no change" line (Figure 4). This pattern shows that workers with longer commuting distances are

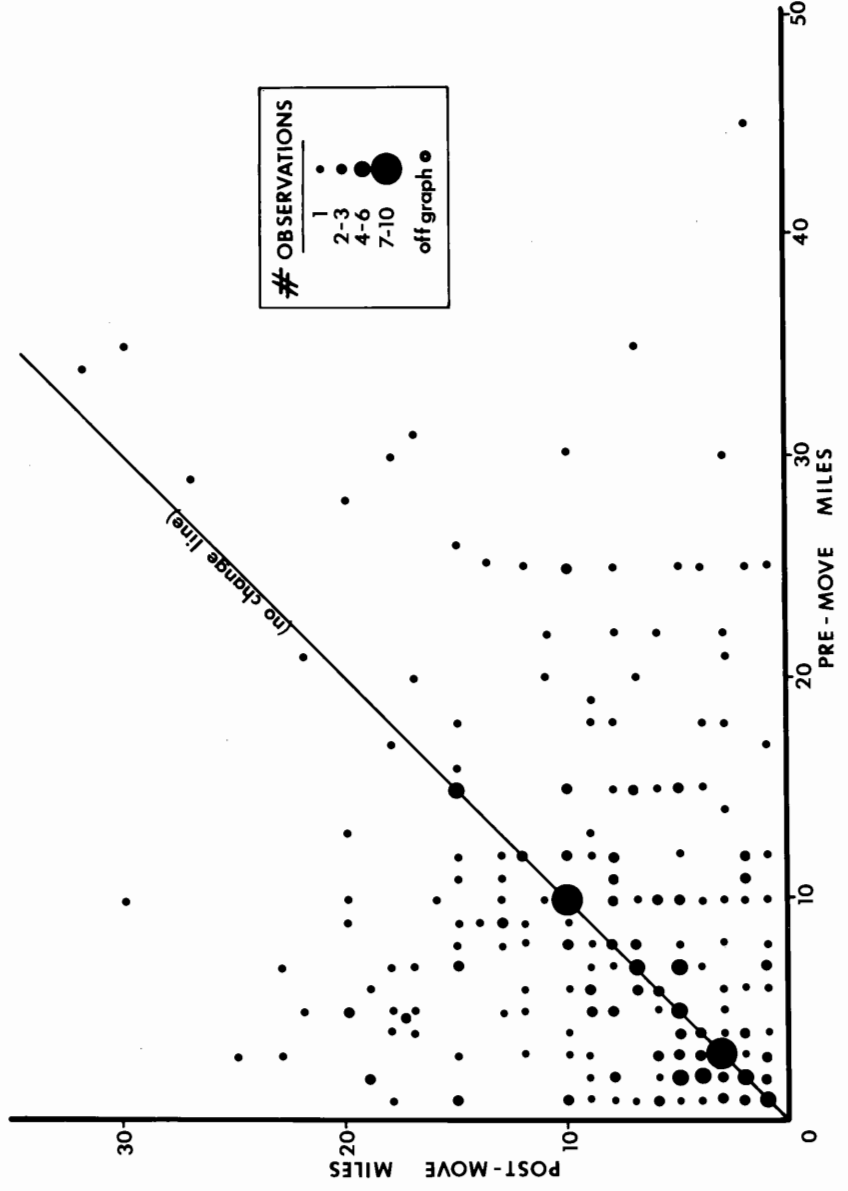


Figure 4: Scatter diagram relating the pre-move work trip distance to the post-move distance for the survey respondents (see text)

decreasing work trip distances after changing residence. For pre-move commuting distances exceeding fifteen miles, virtually no dots lie above the line.

The results from the scatter diagram concur with the findings from the literature. Most workers with short work trip distances are insensitive to the length of their commute. However, as the pre-move commuting distance gets longer, the probability of decreasing work trip distance increases steadily.

Effects of Socioeconomic Characteristics on Change in Work Trips

The authors also examined the relationship between the change in work trip distance and socioeconomic characteristics of the sample population. Various independent variables, including income, education, tenancy status, and workplace location were tested to see if they showed any relation to the patterns of change in commuting distance. Income and pre-move tenancy status were the only two variables which appeared to exhibit a significant relationship.

The sample population was partitioned into four subgroups based on income (Table 6). An analysis of variance (F) test revealed a relationship, significant at the 0.046 level, between the average change in work trip and level of income. The relationship, however, was not linear; both low and high income groups showed increased commuting distances, while the middle income groups tended to decrease work trip distances.

TABLE 6: ANALYSIS OF VARIANCE FOR INCOME AND CHANGE IN WORK TRIP DISTANCE

<u>Income Level</u>	<u>Average Change in Commuting Distance (in miles)</u>	<u>Sample Size</u>
Less than \$10,000	+3.13	19
\$10,000 to \$15,000	-2.61	46
\$15,000 to \$30,000	+0.07	121
\$30,000 and Over	+1.00	52

H_0 : No significant difference in average change in commuting distance between the subgroups of respondents defined by income.

<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>Degrees of Freedom</u>	<u>Mean Square</u>	<u>F Value</u>
Explained (between)	552.91	3	184.30	2.70
Residual (within)	15958.45	234	68.199	
Total	16511.36	237 ¹		

¹Sample size is less than 264 due to missing data

²F value significant at 0.046 level

Pre-move tenancy status--whether respondents owned or rented their previous residences--showed a weaker relationship to the change in work trip distance. Previous owners tended to decrease commuting distance after moving, while previous renters tended to increase work trip distance (Table 7). This relationship was significant at the 0.091 level with an analysis of variance (F) test.

TABLE 7: ANALYSIS OF VARIANCE FOR PRE-MOVE TENANCY STATUS AND CHANGE IN
WORK TRIP DISTANCE

<u>Pre-Move Tenancy Status</u>	<u>Average Change in Commuting Distance (in miles)</u>	<u>Sample Size</u>
Own	-1.40	72
Rent	+0.57	176

H_0 : No significant difference in average change in commuting distance
between respondents who previously owned and those who rented

<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>Degrees of Freedom</u>	<u>Mean Square</u>	<u>F Value</u>
Explained (between)	197.48	1	197.48	2.88
Residual (within)	16893.42	246	68.67	
Total	17090.90	247 ¹		

¹Sample size is less than 264 due to missing data

²F value significant at 0.091 level

SUMMARY AND CONCLUSIONS

The findings reported are evidence that Hartford area residents are making long term adjustments in their commuting behavior. Specifically the survey shows that Hartford area commuters who changed their residence tended to select locations closer to their workplace. The average decrease in commuting distance for the sample population was 1.1 miles or ten percent of their pre-move distance.

A decrease in average commuting distance of slightly over one mile per mover may not seem significant when considering the totality of miles travelled by the population. However, the change in commuting distance by the 264 survey respondents from the Hartford region represents an estimated reduction in commuting travel of about 140,000 miles per year. When these estimates are extended to all movers in the Hartford region and movers within the State of Connecticut or nationwide, the savings in distance travelled and energy consumed are even more significant.

If the findings are truly representative of an ongoing adjustment process, then they represent a significant reversal in the historical trend of increasing separation between home and workplace. Since the introduction of the automobile and modern highways, the average commuting distance for Americans has been increasing.

The results of the survey also indicate that the pre-move commuting distance is very important in predicting the length of the commute following the move. Almost all respondents with long pre-move commutes (over fifteen miles) shortened their work trip, while most of those with short pre-move commutes (less than five miles) either did not change or increased their work trips. These findings are consistent with the results of previous studies (see Burt and Clark, 1980).

Socioeconomic characteristics had little effect on the change in the work trip. Only income and pre-move tenancy status exhibited weak relationships to the change in commuting distance. This finding is not entirely unexpected (see Halvorson, 1973), but previous research is too limited to draw firm conclusions.

Most of the results concur with the authors' original hypotheses. However, it is premature to conclude that these results are characteristic of the population as a whole. The scope of the study is limited to residents of the metropolitan Hartford area who have recently changed residence. Because only recent movers were surveyed, there could be an overrepresentation of highly mobile segments of the population and an underrepresentation of sedentary groups. The research design could be extended by sampling from the entire adult population rather than only recent movers.

Although the average commuting distance of the survey respondents showed an absolute decrease of 10.1 to 8.9 miles, which was statistically significant, the results should be viewed cautiously. More studies are needed to confirm these findings and to explore related questions. Replication of the results in different geographic areas is needed before generalizations can be made about the American population as a whole.

LITERATURE CITED

- Alonso, W. (1964) Location and Land Use. Cambridge, MA.: Harvard University Press.
- Becker, B., D. Brown, and P. Schary (1976) "Behavior of Car Owners During the Gasoline Shortage". Traffic Quarterly 30:469-483.
- Blalock, H. (1979) Social Statistics. New York: McGraw-Hill.
- Catanese, A. (1970) "Commuting Behavior Patterns of Families". Traffic Quarterly 24:439-457.
- Clark, W. and J. Burt. (1980) "The Impact of Workplace on Residential Relocation". Annals of the Association of American Geographers 70:59-67.
- Corsi, T. and M. Harvey. (1977a) "Energy-Crisis Travel Behavior and the Transportation Planning Process". Transportation Research Record 648:30-36.
- Corsi, T. and M. Harvey. (1977b) "Travel Behavior Under Increases in Gasoline Prices". Traffic Quarterly 31:605-624.
- Flachsbart, P. (1977) "Impacts of the OPEC Oil Embargo on Urban Travel Behavior, Gasoline Consumption and Attitudes Toward Access to Urban Opportunities: A Case Control Study", unpublished paper, cited in S. Liff, 1978, "Travelers' Attitudes and Energy Conservation".
- Halvorson, P. (1973) "The Income Factor in the Journey-to-Work: Attitudes and Behavior". Professional Geographer 25:357-362.
- Halvorson, P. (1975) "The Critical Isochrone: An Alternative Definition" Proceedings, Association of American Geographers 5:84-87.
- Hecht, A. (1974) "The Journey-to-Work Distance in Relation to the Socio-Economic Characteristics of Workers". Canadian Geographer 18:367-378.
- Kain, J. (1962) "The Journey-to-Work as a Determinant of Residential Location". Papers and Proceedings of the Regional Science Association 9:137-160.

- Liff, S. (1978) "Travelers' Attitudes and Energy Conservation" in Transportation and Energy. New York: American Society of Civil Engineers, pp. 89-108.
- Moore, E. (1972) Residential Mobility in the City. Commission on College Geography, Resource Paper No. 13, Washington, D.C.: Association of American Geographers.
- Murawski, C. and D. Boyce. (1978) "Variation in Urban Work Trip Length by Mode, Location, and Worker Characteristics". Transportation Research 12: 97-109.
- Nevev, A. (1977) "The 1973-74 Energy Crisis: Impact on Travel", unpublished paper, cited in S. Liff, 1978, "Travelers' Attitudes and Energy Conservation".
- Sacco, J. (1976) "Impact of the Energy Shortage on Travel Patterns and Attitudes". Transportation Research Record 561:1-10.
- Simmons, J. (1968) "Changing Residence in the City" A Review of Intra-Urban Mobility". Geographical Review 58:621-651.
- Thibeault, R., E. Kaiser, E. Butler, and R. McAllister. (1973) "Accessibility Satisfaction, Income, and Residential Mobility". Traffic Quarterly 27: 289-305.
- Wingo, L. (1961) Transportation and Urban Land. Washington, D.C.: Resources for the Future.

DRAFT CONNECTICUT POLL RESIDENTIAL LOCATION SURVEY

Follow the general directions on the interview sheet. If the CWE is the one to whom you are speaking, just begin the interview with the first question. If not, do not write anything on the questionnaire, but save it for later. If you actually start the interview, record the 7-digit phone number here (without hyphen).

 col 1 -7

 TIME STARTED

 NUMBER SHEET
 col 8-10

 CALL NUMBER.
 col 11

 DATE
 col 12-13

Q01. In what month and year did you move to where you now live?

_____ (14-15)

_____ (16-17)

NOTE: IF BEFORE JANUARY 1979, RESPONDENT IS INELIGIBLE.
 THANK AND TERMINATE INTERVIEW

Q02. (Interviewer note, but DO NOT ASK) Sex

- (1) Male
 (2) Female (18)
 (9) DK, etc.

Q03. In what town do you live? _____ (19-21)

Q04. Do you own or rent the place you are living in now?

- (1) Own
 (2) Rent (22)
 (3) Other
 (9) DK, etc.

Q05. In what town do you work? _____ (23-24)

(991 for MA; 992 for NY; 993 for other; 994 home; 995 no fixed place)

INTERVIEWER NOTE: IF MORE THAN ONE WORKPLACE, INQUIRE ABOUT
 LOCATION OF PRIMARY JOB

IF RESPONDENT HAS NOT WORKED SINCE MOVE, THANK AND CONCLUDE.
 IF TOWN OF WORK IS OTHER THAN HARTFORD, SKIP TO QUESTION 07.

Q06. Is your job within a ten minute walk of the Isle of Safety?

- (0) Not asked (doesn't work in Hartford)
- (1) Yes (25)
- (2) No
- (9) DK, etc.

Q07. How many miles is it from your home to where your work?

(26-27) (Code actual

distance in miles, 90= 90 or more, 96=at home, 97=multiple workplaces, 98=no fixed workplace, 99=DK, etc.)

Q08. What town did you live in before you moved to where you live now?

(28-30)

(991 for MA; 992 for NY; 993 for other)

Q09. Did you own or rent the place you lived in then?

- (1) Own
- (2) Rent (31)
- (3) Other
- (9) DK, etc.

Q10. What town did you work in when you lived at your previous residence?

(00 if didn't have job)

(32-34)

(991 for MA; 992 for NY; 993 for other; 994 home; 995 no fixed place)

IF TOWN WAS OTHER THAN HARTFORD, SKIP TO QUESTION 12.

IF HAD NO JOB, SKIP TO QUESTION 13.

Q11. Was your job within a ten minute walk of the Isle of Safety?

- (0) Not asked (didn't work in Hartford)
- (1) Yes (35)
- (2) No
- (9) DK, etc.

Q12. How many miles was it from where you used to live to your old job?

(Code actual distance in miles, 00=no job, 90= 90 or more,

96=at home, 97=multiple workplaces, 98=no fixed workplace, 99=DK, etc.)

(36-37)

Q13. Over the next several years, do you think we will have gas shortages, like gas lines, restricted hours, or rationing?

- (1) Yes
- (2) No (38)
- (9) DK, etc. IF NO or DK, SKIP TO QUESTION 16.

Q14. Do you think these shortages will be minor, or major?

- (0) Not asked
- (1) Major (39)
- (2) Minor
- (9) DK, etc.

Q15. Do you think they will happen only occasionally, or will we have to deal with shortages a lot?

- (0) Not asked
- (1) A lot (40)
- (2) Occasionally

Q16. Now how about gasoline prices. Do you think gasoline prices will go up over the next year, or stay pretty much where they are now?

- (1) Go up
- (2) Stay same (includes go down) (41)
- (9) DK, etc. IF STAY SAME OR DK, SKIP TO QUESTION 18.

Q17. Do you think prices will go up quite a bit, or only some?

INTERVIEWER NOTE: IF R ASKS "WHAT IS QUITE A BIT?",
SAY--AS LAST RESORT--"25 CENTS A GALLON OR MORE"

- (1) Quite a bit
- (2) More than 25 cents a gallon (42)
- (3) Only some
- (9) DK, etc.

Q18. Do you think there will be further increases within the next five years?

- (1) Yes
- (2) No (43)
- (9) DK, etc. IF NO, or DK, SKIP TO QUESTION 20.

Q19. In the next 5 years, do you think prices will go up quite a bit, or only some?

INTERVIEWER NOTE: IF R ASKS "WHAT IS QUITE A BIT?",
SAY--AS LAST RESORT--"\$1 A GALLON OR MORE"

- (1) Quite a bit
- (2) More than \$1 a gallon (44)
- (3) Only some
- (9) DK, etc.

Q20. How many cars do you and your family own? _____ (Code actual number, 9 for DK, etc.)

(45)

Q21. How many children under 18 are there living at home with you now?

_____ (Code actual number, 99 for DK, etc.)

(46-47)

Q22. (If any) And how many of them are pre-school age? (Code actual number, 99 for DK, etc.)

(48-49)

Q23. In what year were you born? _____ (00= 1900 or before, 99=DK, etc.)

(50-51)

Q24. What is your occupation? _____

(52-53)

Q25. Are you the only wage earner in your household?

- (1) Yes
- (2) No (54)
- (9) DK, etc. IF YES, or DK, SKIP TO QUESTION 27.

Q26. Would you say you earn the most, does someone else earn the most, or do you and someone else earn about the same?

- (0) Not asked (R is only wage-earner)
- (1) R is primary wage-earner
- (2) R is co-primary wage earner (55)
- (3) Someone else is primary wage-earner

Q27. What is your race or ethnic background?

- (1) White
- (2) Black (56)
- (3) Hispanic
- (4) Other
- (9) DK, etc.

Q28. Finally, about how much was your TOTAL FAMILY INCOME LAST YEAR before taxes? Was it.....

- (1) Less than \$10,000
- (2) \$10,000-\$15,000
- (3) \$15,000-\$20,000
- (4) \$20,000-\$30,000 (57)
- (5) \$30,000-\$50,000
- (6) over \$50,000
- (7) Had no income
- (9) DK, etc.

Thank you very much, you've been very helpful. We really appreciate your cooperation.

TIME COMPLETED

INTERVIEWER NAME