Canadian Political Science Association

Conference on Statistics 1964

Prince of Wales College, Charlottetown, P.E.I.

PAPERS ON REGIONAL STATISTICAL STUDIES

edited by
SYLVIA OSTRY and T. K. RYMES

PUBLISHED FOR
THE CANADIAN POLITICAL SCIENCE ASSOCIATION
BY
UNIVERSITY OF TORONTO PRESS

Printed in Canada

EFFECTS OF REGIONAL DIFFERENCES IN TAXES AND TRANSPORTATION CHARGES ON AUTOMOBILE CONSUMPTION*

Frank A. Hanna

A personal observation first started me thinking about the range of problems discussed in this paper. Late in the summer of 1945 I had occasion to drive across the southern part of Ontario from Port Huron to Niagara Falls. From the window of my 1937 Plymouth it became readily apparent that vintage vehicles were, at that time, relatively more frequent in Canada than in the United States. How could there be such a marked difference between countries so closely related? Speculation served mainly to raise additional questions.

The difference in the cost of a new car in Detroit and in Windsor was due largely to excise taxes and import duties, though transportation charges could become significant in other locations. Did these taxes and imposts operate simply to reduce demand? If so, should not one expect cars of approximately the same age distribution in the two countries but only fewer cars in Canada? Or, did the taxes and imposts operate mainly to offset income? The "trickle down" process does allocate older cars to those with lower incomes. At some age, however, the market value of a car becomes so low as to discourage further maintenance and repair. Why should this age have been greater in Canada? Did the taxes and imposts become permanently attached to the car's value and remain with it until the car would run no more?

It occurred to me then - almost two decades ago - that answers to some of these questions should be available by observing the differences among the states within the United States in taxes, in new-car purchases, in age of vehicles, and in used-car values.

The opportunity to look into some of these questions arose when I undertook a study of automobile consumption, a study that would rely heavily on differences among states to estimate the relevant parameters.[1] The consumption function is of the familiar type,

(1) $C=f(y,x_i)+u, \quad (i = 1, 2, , , , n)$

where C is a measure of automobile consumption, Y is a measure of income, the x_i's are a collection of variables designed to eliminate, or at least reduce, the "noise" generated by the differences among states in industrial composition, degree of urbanization, etc., and u is an error term, assumed random and uncorrelated, which contains the combined influence of unknown variables and

*This paper was prepared in connection with a group of studies of the relationships of economic variables being conducted at Duke University with the support of a grant from the National Science Foundation.

1. The study of automobile consumption was undertaken in connection with an investigation of the conditions under which data by states can be used in a cross-section framework to estimate parameters which ordinarily are estimated from time series. Our method of attack on this problem includes the preparation of parameter estimates from state data and then their detailed reconciliation with the parameter estimates obtained from time series and/or from budget studies.

Papers on Regional Statistical Studies

Printed in Canada

errors of measurement. The data consist of a set of observations for each of the states.

In preparing this discussion, I had hoped to have available the results of the consumption study, but they are not ready. Consequently, I shall have to rely on more pedestrian methods to piece together some of the materials prepared for the more elaborate study. In some respects this may be fortunate. Taxes and transportation charges become buried in the dependent variable, consumption, and we would have to rely heavily upon the residuals. Too, it will require that we take a closer look at the basic data and the manner in which the estimates have been prepared.

THE HYPOTHESES

The hypotheses with which I shall be concerned deals first with the effects of taxes and transportation costs on the market values of new and used cars and, secondly, with the effect of this relationship on the age distribution of cars.

Much of the optional equipment sold as an integral part of a car tends to depreciate more rapidly than the basic vehicle and, indeed, in some cases, e.g., an automatic transmission, may come to have a negative value because it is both essential and expensive to repair and the probability of a breakdown increases with age. Our first surmise is that taxes and transportation charges, which add to the purchase price of a car, tend to depreciate no faster than the value of the basic car. If our surmise is correct, both new-car and used-car prices will tend to be higher in states with the higher transportation charges and in those with sales and use taxes.

If the prices of all cars contain elements of the tax, the outlay required to trade up for a higher-priced car will be increased only by the difference in the embodied taxes. But, Houthakker and Haldi have found that households tend to have a preconceived range of investments in cars, below which they will not fall and above which they will not go.[2] If taxes and transportation charges add to the car's value, and if we can accept the assumption that a car's value depreciates at a constant percentage rate, then the car's value will remain above a given level for a longer period. A numerical example may help. Let us assume that cars depreciate by a constant percentage annually[3] and, for purposes of illustration only, let us further assume that this rate is 20 per cent. Under these assumptions a car which sells in state A for $3,000

2. H.S. Houthakker and John Haldi, "Household Investment in Automobiles: An Intertemporal Cross-Section Analysis," Proceedings on the Conference on Consumption and Savings, University of Pennsylvania, 1960, vol. 1, pp. 175-224.

3. The assumption of constant percentage depreciation, while imprecise, appears to be reasonable. J.S. Cramer, "The Depreciation and Mortality of Motor Cars," Journal of the Royal Statistical Society, 128 (1958-A), 18-46, argues that the values of second-hand cars based on such an assumption are superior to those based on observed market prices in that they provide a better stochastic link with observed scrappage rates. While I am unwilling to accept such assumed values when market prices are available, constant percentage depreciation probably provides the most reasonable basis for estimating values when data on market values are not available. Constant percentage depreciation has been used by G.C. Chow, Demand for Automobiles in the United States (Amsterdam, 1957), by Houthakker and Haldi, and by several others. I have used the assumption to estimate the values of cars 6-7 years old and older (see below). The values thus estimated will lie on a straight line, with negative slope, when plotted on semilog paper with value on the Y-axis (log scale) and age of car on the X-scale (arithmetic scale).

will depreciate to a value of $2,000 in 2.2 years. If state B adds $150 in taxes and $160 in transportation charges to the purchase price of the same car, it becomes $3,310; under the same assumptions, $3,310 will depreciate to the $2,000 level only after 2.8 years. If both $3,000 and $3,310 are within the upper limit and $2,000 is the lower limit set by Houthakker's and Haldi's economic man (who has his wife's permission), then there would be a difference of .6 year in the length of time he could drive the car while preserving an acceptable inventory position. (Alternatively, of course, he could use the price differential to enjoy a more expensive car for the longer period in state A.) By much the same reasoning, the car would be older in state B before those who can afford an investment of only $300 in a car could acquire it. Thus, taxes and transportation charges which add to purchase price can be expected to support a tendency for cars to be maintained for a longer period.

MOTOR-VEHICLE TAXES

Taxes in 1960 on passenger cars are estimated to aggregate $8.2 billion (Table 1), about 71 per cent of all motor-vehicle taxes. The federal government collected about 26 per cent of this total. Passenger-car taxes are about 11 per cent of the current market value of cars as of the first of 1960, when used-car prices were relatively high, and 16 per cent of current market values at the end of 1960, after the used-car market had softened. An average of 14 per cent is obtained either by averaging current market values as of the beginning and the end of the year or by using only the beginning-of-the-year market prices but "aging" the cars one year. Taxes were about 54 per cent of the depreciation experienced by the 60 million passenger cars operated during all or a part of 1960 when depreciation is based on constant (beginning of the year) prices, or 33 per cent when depreciation also includes the price decreases during 1960.(4)

To be useful in a study of their regional effects a tax must meet several criteria: first, the rates must differ among states. Federal excise tax rates are uniform for the nation, and while they affect the total demand for cars and, through income, may exert also a differential effect upon demand by state, the uniformity of the rates prevents the use of regional data to find out what their effects on demand might be. Secondly, there must be a close concordance between the taxes collected by a state and the amounts paid by those receiving their income in the state and owning the cars registered there.(5) There is reason to doubt that gasoline purchased in a state is a good measure of the amount used by its residents; too, taxes on gasoline vary by state by less than does the price of gasoline at the pump. Consequently, we omit taxes on gasoline although they account for about five-eighths of all taxes

4. There is some interest in knowing the average amount of taxes one can expect to pay over the life of a car and, thus, to be able to compare that amount with the cost of the car when new. Such a computation involves more assumptions than data, and I have not tried it.

5. The concordance between car registration and residence has been found sufficiently close in all but a few states to make this study worthwhile. It is necessary to combine the data for Maryland, the District of Columbia, and Virginia since all registrations in these states for persons with addresses handled through the D.C. post office are attributed to D.C. New Mexico must be omitted because of incomplete reporting of registrations in 1960.

on cars. Also omitted are the fees collected on toll roads in the states where the toll road is located, much of it from out-of-state cars, and the small amounts of parking-meter fees. Finally, while all sales taxes increase the purchase price of a car, only those which relieve subsequent purchasers of a tax liability depreciate; tax payments must be written off if a tax is also levied on each used-car sale, whether the tax is based on full purchase price or on the price "net after trade in." The taxes included aggregate some $2.2 billion. To this must be added the transportation charges levied by manufacturers, which vary by state and account for a large part of the interstate difference in the price of cars to consumers. It is convenient to classify them as a tax, though many will disagree with this classification.(6)

Transportation charges and sales taxes are the only basis for a difference among localities in the price of a specific car. These price differentials vary from a low of $52 in Indiana, which close to Detroit and has no sales tax, to a high of $265 in Washington, which is both remote from Detroit and has one of the highest sales taxes (Table 2). To some extent the two elements operate in opposite directions as when a low (or high) transportation cost is accompanied by a high (or low) sales tax. All of the states with differentials in excess of $200 are in the West. In part, the differences among states are attributable to the price composition of the cars sold there, and in part to the vigour with which states enforce their sales taxes. Our estimates of sales taxes are based on reported collections when these are shown separately for new cars. For other states, however, it was necessary to base our estimates on the tax rates and the values of new cars.

Sales taxes levied on the transfer of ownership of a used car and the fees incident to the transfer of title and/or registration have been grouped under the general title, cost of transferring ownership. These are kept separate since they are incurred only when a used car is sold or traded in. The sparsity of state data on the numbers of transactions involving used cars and the meagreness and doubtful reliability of data on the net amounts involved in trades make these estimates particularly suspect, especially for the seventeen states in which the tax base is value "net after trade in."

The other taxes - sales taxes on parts, accessories, and services, licence fees, and property taxes - are incurred on a repetitive basis. Since the excise tax on gasoline is excluded, they range from a low of $8 per car in Louisiana to $59 per car in Mississippi.

6. Whether these charges are classified as taxes or not is not particularly relevant to our paper. It is of some interest that they are fixed arbitrarily by the manufacturer, are not shared with retailers, and for a locality are the same whether the car is assembled in Detroit or in Los Angeles. Those who insist that the levying of a tax is the exercise of a sovereign power will find instructive the history of the industry's role in persuading both state and federal governments to "earmark" the revenues from almost all motor-vehicle taxes for highways. It has seemed to me that our friends among the political scientists, concerned as they are with the acquisition, organization, and exercise of power over the activities of others, have missed a bet by confining their attention to formally organized political states and their subsidiary organizations. Superficially, at least, all of the problems treated by political scientists, including that of sovereignty, appear to be present in the larger corporate organizations. If this is true, the politcal scientists could increase greatly the degrees of freedom attaching to their results by devoting some attention to the internal political aspects of corporate activity. Since the goals of corporate organizations are largely economic, specialized training may be required to obtain and handle the data generated by them and, perhaps, if the political scientists had such training they might pay as little attention to the political aspects of corporate activity as do other economists.

CAR VALUES

There is published in the United States a number of "guides" to the current market values of used cars. The two principal ones now are the Redbook[7] and the N.A.D.A. Official Used Car Guide.[8] We have chosen to use the latter for 1960. It is based on reported prices of actual sales during 10-day periods, and the books of a rotating sample of reporting dealers are audited periodically. However, the reported prices are "adjusted" after tabulation for presumed trends and seasonal factors that will operate between the end of the reporting period and the publication date, and only the adjusted prices are published. Hence the caveat, they are only "guides" to dealers in acquiring and disposing of used cars.

The N.A.D.A. Official Used Car Guide contains a retail price, an average loan value, an average wholesale price, and the manufacturers' recommended retail price for a new car for each make, series, model year, and body style for cars 1-7 years old; for the model year that is 7-8 years old, there is no distinction by body style. The prices relate to a car equipped with a radio and heater in average or better condition. These price data were used to derive an average price for each make and model (the only variables by which the counts of cars are available by state) for each of the eight NADA regions. For a make, only a single series (generally the most popular one) was priced and it is assumed that the prices of other series moved proportionally. Prices were obtained for 4-door sedans, hardtops, and station wagons and these body styles were weighted by the numbers of each body style produced during the model year; a single set of weights was used for all makes and all regions.

For cars more than 7 years old there is little organized information on market prices. Because of the low absolute value level of cars this age dealers probably handle them only when necessary, and many of the sales of these cars are on a person-to-person basis. To obtain a price that would permit us to estimate the values of older cars, we resorted to two assumptions.

7. Published eight times annually by National Market Reports, Inc., Chicago, for each of three regions, which together cover the United States exclusive of Alaska and Hawaii.

8. Published monthly by the National Automobile Dealers Used Car Guide Co., Washington, D.C., for each of eight geographic regions. Started in the early 1950's at the request of the franchised dealers through their trade organization, it is now reputed to be the "guide" most widely used by dealers and by automobile finance companies. The areas included in each NADA guide region follows. Since county data on number of cars are not available, we have used the prices of the region in which most of the state is located as prices for the state.

New England: Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

Eastern: Connecticut, Delaware, District of Columbia, Maryland, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Tennessee (Sullivan County only), Virginia, and West Virginia.

Southern: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, Tennessee (except Sullivan County), and Texas.

Central: Illinois (except Rock Island County), Indiana, Kansas (Wyandotte and Johnson Counties only), Kentucky, Michigan, Missouri, Ohio, and Wisconsin (except Douglas County).

Midwest: Illinois (Rock Island County only), Iowa, Kansas (except Wyandotte and Johnson Counties), Minnesota, Nebraska, North Dakota, South Dakota, and Wisconsin (Douglas County only).

Mountain: Arizona, Colorado, Montana, Nevada (except White Pine County), New Mexico, and Wyoming.

Northwest: Alaska, Idaho, Nevada (White Pine County only), Oregon, Utah, and Washington.

California: California and Hawaii.

First, we assumed that as long as a car would run, no matter how poorly, it would have some value. After talking with several auto wreckers, we adopted an average of $60 as the minimum value an operating car would reach. Secondly, we assumed that after reaching the 7-year mark a car's value would continue to depreciate at the average percentage rate of three previous models (usually cars 3-6 years old).

There is some empirical support for the assumption of a constant percentage depreciation. There is also evidence of large variance by make and by region, which is taken into account by computing a rate separately for each make and region (Table 3). On theoretical grounds there is still another objection: the resulting values are proportional to a count of cars with the count weighted only by the age of the cars. The interstate differences in the percentages the average values of 1951-54 cars are of 1955-59 cars reflect both the composition of the cars by age and make and the use of different rates for each make.

A different method was necessary to obtain the average price by make for current-year models which, since we are dealing with a calendar year, included some 1960 models and some 1961's. We adjusted the manufacturer's recommended retail price for the average discount being offered by dealers during 1960[9], and to this adjusted price added the cost of the least-expensive radio and heater, transportation charges, sales taxes, and licence fees. In this way an average delivered price for each make was obtained for each state (Table 4).

A national total was obtained by multiplying the average prices relevant to the region in which the state was located by the numbers of cars of each make and model registered there and summing (Table 5). Three sets of values were obtained: one is based on NADA guide prices as of January 1960; a second on guide prices as of one year later; and the third by using the January 1960 guide prices for a model that was one-year older. For current-year models their purchase price was assumed to be their value as of the beginning of 1960; guide prices for used 1960 models were available as of January 1, 1961, but 1961 models had not reached the used-car markets. A 1961 model was assumed to have depreciated during 1960 by the difference between its delivered price and its cost to the dealer.

The eight regions for which NADA guides are published need explicit consideration. Apparently dealers and dealer's organizations have questioned whether used-car prices are substantially the same in all of the states included in one NADA region. The compilers maintain they they are and the tabulations of reported sales are regularly reviewed to ascertain that this situation has not changed. If in two states, one with a sales tax on new cars and one without, the market price of a used car is identical, would not this be inconsistent with the hypothesis that taxes which add to the purchase price of a new car depreciates no faster than the remainder of the car's value? Would not such an identity of used-car prices imply that the cost added by the sales tax had been written off immediately? Nor do we get much help by looking at this problem in another way. Let us assume that market prices do in fact

9. Computed from the NADA management survey, Automotive News (1961 Almanac Issue), p. 89. This figure, 13.1 per cent, is surprisingly close to discounts found by Allen F. Jung to be offered by Chicago dealers. Journal of Business, 33 (1960) 31-42, 121-26, 252-57, 342-47.

reflect differences based on sales taxes but that these differences, along with differences among individual cars, are average out in the process of compiling a guide price. If, then, we use these regional averages to estimate the value of used cars in a state, how can we hope to ascertain the effect of a sales tax imposed on a new car on its subsequent price on the used-car market? These are serious obstacles to the type of analysis we have undertaken, even in the few states which tax the entire value of a car once and then permit its subsequent transfer without additional tax.(10)

The dollar amounts of transportation charges are generally larger than the average sales tax, at least at the regional level, and the interstate range of transportation charges within regions tends to be smaller.(11) The latter tendency operates to make the regional price-level more meaningful and removes much of the objection to using a price common to all of the states within a region. Even when the interstate price-differential includes both transportation charges and sales taxes, it is significantly related to the level of used-car prices (Chart 1).(12) When sales taxes are excluded from the price differential, the relationship is improved, at least nominally.(13) It would probably be improved further if average values related to a single model-year, rather than to all cars 1-6 years old with the inadvertent introduction of interstate differences in age-composition. Many of the low-income states in the South are below the regression line and this may be accounted for in part by the age-composition of the cars found there in 1960, many of which had been purchased new in another region and first sold to a resident of a southern state after it had depreciated 2 years or more. The entire level of values is affected by the relatively large numbers of 5-6 year old cars which remained from the industry's all-out sales effort in 1955.

Chart 1 is sufficient to indicate that the interstate differences in used-car prices are related to taxes and transportation

10. An accurate count of the states in each category is difficult. The manuals generally available are concerned more with cars moved from one state to another than with a car which remains in one state. Most sales-tax states tax cars which are registered there for the first time and in mentioning this the manuals leave it ambiguous as to whether cars already in the state are taxed upon each transfer.

11. The interstate range of transportation charges and sales taxes per car by NADA regions are shown with the regions listed in the approximate order of used-car prices, from lowest to highest.

NADA regions	Transportation	Sales taxes	Total
Central	$ 27- 83	$ 0-106	$158-144
Southern	79-139	18- 77	129-178
Eastern	65-100	0- 79	89-161
Midwest	82-119	0-113	82-195
New England	91-106	0- 78	96-174
Mountain	134-164	31- 54	186-220
California	164-164	88- 88	252-252
Northwestern	164-168	0-101	164-265

12. The regression line may be express as, $Y = 1438 + .665\ X$, where Y is average value and X is the price differential. The coefficient of correlation, $r = .49$, is significant at the .01 level.

13. The correlation coefficient between the average values of 1955-59 models and transportation costs is .70, which is not significantly difference from $r = .49$, at the .05 level. The computation of the average values involved summing the products of the numbers of cars and average prices for fourteen makes for each model, but only the sums for three age-groups were recorded. Consequently, values for specific models are not available.

charges. The question remains whether depreciation rates are approximately the same in states with high used-car prices and in those with lower ones. Some data on this question have been presented in Table 3, where the NADA guide regions are arrayed by the level of prices at the beginning of 1960.(14) There is little in this table to suggest that regional differences in rates of depreciation are significant; it does suggest that price-differentials are maintained, though at a depreciated level. Since the costs of transporting a new car and a used one are approximately the same, this is consistent with other evidence that the higher-income areas closer to Detroit are a substantial source of used cars for the more remote markets.(15)

When the market for used cars softened late in 1960, the relationships among car prices of various ages and among regions were disturbed (Charts 2a and 2b). The prices of older cars decreased more than did those of newer ones, and decreases were more marked in some regions than in others.(16) The relevant question here is the old one of whether the intermodel and interstate relationships found at the beginning of the year or those associated with the lower prices at the end of the year should be considered the more nearly "normal." Having raised this question, there is little that I can say about it. My analyses of the beginning-of-the-year data have been the more extensive; partly, I am afraid, because the relationship of taxes and transportation costs to used-car values appeared to be more orderly for that time.

14. Using July prices, the level of prices in the Midwest region was higher than those in the New England and Mountain regions. In explaining this seasonal shift, one student of the industry told me that no matter how well cars are protected from snow and salt, Midwesterners tend not to buy cars when there is snow on the ground.

15. Driving or towing a new car from Detroit to a remote market may destroy some of its newness; such is not the case with a used car. Two types of evidence have been developed regarding the interstate movement of used cars. The more detailed is based on a comparison of the numbers of cars of each make and model that are registered in a state in two successive years. An increase from 1959 to 1960 in the numbers of, for example, 1956 Buicks registered in South Carolina can be explained only by some interstate movement of cars. Although some of these cars moving across state lines are guided by human migrants, it takes no account of scrappage and this method is likely to yield an underestimate. The other is based on a comparison of the numbers of new cars purchased during the 10-year period, 1952-1961, with the numbers of cars registered as of January 1962. For the United States these numbers were substantially equal. Consequently states which had more cars in January 1962 than had been purchased new during the previous 10 years are assumed to have "imported" used cars from other states. In general, the highly populated states along the eastern seaboard and the Central states are the "exporters," and states in the South and West are the "importers" of used cars. If we treated state population growth as due entirely to migration, migration could explain these findings in only four states - Connecticut, Florida, Louisiana, and California.

16. The interstate range within regions of the percentages which end-of-year values were of beginning-of-the-year values are shown below by region for 1955-59 models and for 1951-54 models. The regions have been arrayed approximately from the one with the largest decreases in prices to the one with the smallest.

	1955-1959 models	1951-1954 models
New England	63.2 - 63.5	47.0 - 47.5
California	64.0	49.3
Southern	65.3 - 66.2	50.5 - 51.0
Central	65.2 - 66.3	49.6 - 50.1
Mountain	65.9 - 66.5	52.4 - 53.0
Northwestern	66.3 - 66.6	53.8 - 54.4
Eastern	66.9 - 67.6	53.4 - 54.0
Midwestern	69.8 - 70.0	58.2 - 58.5

NUMBER OF CARS AND THEIR AGE DISTRIBUTION

The second part of our hypothesis was stated in such a way as to make it depend upon a finding that sales taxes and transportation costs depreciate no faster than do other portions of the car's purchase price. It is not necessary, however, to make the second part of our hypothesis, that higher prices for cars support a tendency for cars to be maintained for longer periods, depend upon the source of the price differential.

The number of cars per thousand inhabitants varies from 218 in Mississippi to approximately twice this number, 441 in Nevada (Table 6). To some extent this variation reflects income differences, but many of the interstate differences in the level of car ownership persist after the effects of income and household composition have been taken into account. The results of the 1960 census of housing sample show that relatively fewer of the households with money incomes of $7,000-10,000 are without cars (or relatively more have cars) than households with smaller incomes and this is the case for every state (Table 7). But of more importance here is the finding that in a state in which a smaller percentage of the households are without cars there is a marked tendency for a smaller percentage of the households in every income class to be without cars. The results are similar with respect to other household characteristics - size of household, age, education, and occupation of the household head, residence, colour, etc. For the most part, these persistent differences remain unexplained.[17] Their geographic distribution is readily apparent in both Tables 6 and 7.[18] One of the more striking contrasts is in the percentage of households without cars in our two largest metropolitan centres: in New York, 41 per cent of the households are without cars; in Los Angeles, only 16 per cent.

Interstate differences in the age composition of cars are large and have a definite geographic pattern (Tables 8 and Chart 3). New cars tend to be more prevalent among the band of states stretching from New England and the Middle Atlantic states through Illinois, Wisconsin, and Minnesota. The older cars are found more frequently in the West and in some of the states in the South. This geographic pattern suggests that the role played by income is a major but insufficient one. Income distributions by state do not seem to differ sufficiently to account for the larger proportions of older cars in many of the West North Central and Mountain states. These states tend to have more cars per inhabitant and there is a tendency for households in the lowest income class in them to have a car more frequently than elsewhere.[19]

17. The difference can be "controlled" to some extent by proxy variables. Bandeen, for example, found that "population per square mile" as a proxy variable provided a significant improvement in the relationship between per capita income and per capita automobile consumption. It yet remains to be explained how and why this proxy works. See Robert A. Bandeen, "Automobile Consumption, 1940-50," Econometrica, 25 (April 1957), p. 239.

18. The two tables are not entirely comparable. Table 6 includes all automobiles registered. Table 7 includes only those automobiles which are regularly available to the household. There is evidence that some pick-up trucks are included in the household data, especially in the West where pick-up trucks are popular as substitutes for passenger cars.

19. The percentage of cars which were 6-years old and older was entered as an independent variable in a regression analysis of the numbers of cars per thousand inhabitants. It was significant only when 1950-60 income changes were omitted.

There must also be other differences, such that an older car will be satisfactory in some cases but not in others.

If the hypothesis we have stated is correct, it could operate in either of two ways. First, the cost of trading a used car for a new one can be affected by the increases in new-car prices attributable to transportation charges and taxes and by the rates at which these increased costs depreciate. If the value added by transportation charges and sales taxes remained with the car throughout its life in an undepreciated amount, the costs of trading for a new car would be practically the same everywhere. However, if they depreciate at a rate equal to or somewhat faster than the basic car, depreciation would be somewhat greater in areas where these costs were higher, and the dollar cost of trading-up would be increased. Secondly, until they are written off completely, transportation charges and sales taxes will help maintain the absolute value of a car. A higher absolute value can affect a car's useful life either by withholding the car for a longer time from those at the lower end of the income distribution or by supporting a decision to repair the car rather than to scrap it. Presumably, a 10-year-old car in which a new transmission has just been installed will command no more on the used-car market than will a similar car with its original transmission in working order. Consequently, one can expect a major repair to be undertaken only when the value of the repaired car exceeds the cost of the repair by more than the car's junk-value in its unrepaired condition.

The gross relationship between the relative frequency of older cars and their estimated values, although significant, is less clear-cut than might be expected (Chart 4).(20) South Carolina, for example, has a very large percentage of older cars, presumably as a reflection of low incomes. Similarly, the values of older cars in the West North Central states are appreciably lower than those father West, yet the percentage of older cars in these states is of the same order. This may be a consequence of the methods chosen to estimate the values of the older cars. These values reflect a regional average rate of depreciation for each make, and the composition by age and by make found in each state. For the states in a NADA price guide region much of the difference in average prices is thus likely to be the age-composition of the cars within the 10-year-old and older group. Washington, for example, with the largest percentage of older cars, has a lower average value per car than does Oregon, Idaho, or Utah, the other three states in the same NADA region. This seems to indicate that not only does Washington have relatively more older cars but also that among the older cars they have, the cars tend to be older. The reverse effect may account for the relatively high average values found for New York and the District of Columbia.

Seldom can one find a pair of states which differ in respect to one variable of interest (in this cases, taxes) but which are substantially alike in respect to related variables, so that "other things" are constant. Washington and Oregon, which provide our only case, are similar in respect to 1960 per capita income ($2,300 and $2,225),

20. The correlation coefficient ($r = .57$) is significant at the .01 level.

growth in per capita income from 1950 to 1960 (38 per cent and 39), percentages of their 1960 populations who had lived in another state in 1955 (15 per cent and 13), the average transportation charge per car ($164 in both), and number of cars per thousand inhabitants (350 and 361). Washington, however, levies a 4 per cent sales tax on the purchase price of new and used vehicles each time their ownership is transferred, with no allowance for the value of a car traded in or for the sales or use taxes which have been paid to another state; and, in lieu of a property tax, it also levies a 2 per cent "excise tax" annually on the market value of a car. Oregon does not have a sales tax and it specifically exempts cars from property taxes. The two states differ markedly in respect to the age composition of the cars they drive. Washington in 1960 had relatively fewer new cars (i.e., current-year models) and relatively more cars 10-years old or older than any other state (see Chart 3); Oregon was close to the median state in both respects. Apparently Washington has been a poor market for new cars for some time. The number of cars purchased new in Oregon during the 10-year period 1952-61 approximates closely the number registered as of January 1, 1962 - an approximation that is close also for the United States. In Washington, new-car purchases during this 10-year period were some 30 per cent below their January 1962 registrations. Too, there is direct evidence that Washington, but not Oregon, is a market for used cars which had been purchased new in another state. Such evidence seems to indicate clearly that the higher taxes in Washington and efforts to minimize the tax burden, have encouraged the use of older cars.

SOME CONCLUSIONS

So many factors affect the numbers, values, and age distribution of cars within the states that the separation and measurement of the influence of a specific set of factors are difficult. Moreover, we are largely dependent for data upon the compilations supported by manufacturers and dealers to meet their own needs, and their interest is principally in the new car or the newer ones. This has meant that value estimates have had to be prepared for the older cars, often when the visible alternatives were not too satisfactory. Nevertheless, I believe some tentative conclusions can be reached.

Our statistical evidence regarding the effects of sales taxes imposed by the states and local governments on new cars and/or on the transfer of ownership of used cars fails to reveal any lasting effects. Whether this is due to deficiencies of the data, to the spreading by many states of the sales tax over the life of the car by taxing only the value "net after trade in," or to a dimunition of their effects through interstate competition, I am unable to say.

Interstate differences in transportation charges are large enough to contribute to a regional pattern of price differentials. These differentials continue to be reflected in used-car prices, though they may diminish as the car becomes older. There is little evidence of any significant regional difference in the rates at which car values depreciate. From this we may infer that the transporta-

tion charges become an integral part of the purchase price and depreciate at about the same rate as does the f.o.b. price of the bare car.

There appears to be some relationship between the regional level of used-car prices and the relative frequency of older cars. Until the effects of income differences and other factors can be eliminated, it is not possible to gauge how strong this tendency may be. Even with a complete analysis of existing data, we may not be able to ascertain whether this relationship operates mainly through new-car markets, through used-car markets to withhold cars for a longer period from those near the bottom of the income scale, or by making it worthwhile to repair and maintain a car for a longer period.

Cars have become too thoroughly imbedded in our affluent society for taxes, especially those levied by local governments, to "destroy" them. It does appear to be within the capabilities of a taxing power, however, to influence appreciably the useful life of a car, though the cleverness of citizens in avoiding taxes is a factor that we have not explicitly considered. Whether tax policies should be directed toward prolonging the life of existing cars or toward their early replacement with new cars is a question about which others can and will speculate.

Table 1

Estimated Taxes on Passenger Cars, 1960

Type of tax		Amount ($ million)	
Federal excise taxes:			3,116
Automobiles and motorcycles		1,137	
Parts and accessories		152	
Tires and tubes		181	
Gasoline and oil		1,646	
State and local taxes:			5,053
Sales and use taxes:		689	
New cars	391		
Used cars	144		
Accessories and repairs	154		
Excise taxes - Gasoline		2,411	
Registration and licence fees, car		771	
Drivers' licences		108	
Tolls and parking fees		408	
Property taxes and taxes "in lieu"		666	
Collected by state governments	156		
Collected by local governments	510		
Memorandum item:			
Manufacturers' transportation charges			635

Sources: Federal excise charges: Automobile Facts and Figures (1963) edition), p. 58. Automobiles and motorcycles is a separately shown category and it was not thought worthwhile to adjust it to exclude motorcycles. Parts and accessories were allocated between cars and trucks in accordance with the ratio of the excise taxes on these classes of vehicles. Tires-and-tubes taxes were allocated between cars and trucks in accordance with the value of shipments of car tire and tubes to all tires and tubes, Census of Manufactures, 1958. Gasoline-and-oil excises were allocated in accordance with the consumption of gasoline by cars and trucks estimated by the Bureau of Public Roads, table MV-1, 1960.

State and local taxes: Bureau of the Census, Detail of State Tax Collections in 1961, G-SF-61, No. 4; Alice M. Rivlin and Selma J. Mushkin, Measures of State and Local Fiscal Capacity, Advisory Commission on Inter-Governmental Relations, 1962; and Bureau of Public Roads, table MV-2, 1960, "State Motor-vehicle and Motor-carrier Tax Receipts, 1960." Gasoline excise collections were allocated between cars and trucks by the same methods used for federally collected excises on gasoline.

Manufacturers' transportation charges: Starting with the freight rates for automobiles, supplied by the Interstate Commerce Commission, from Detroit to each of the state capitols and to large metropolitan centres which were some distance from the state capitols, rates were computed for each make and these were adjusted, on the basis of a small sample of transportation charges listed on "stickers" carrying manufacturer's recommended retail sales prices, to conform to the policies announced by the manufacturers at or shortly after the 1956 Congressional Hearings. The aggregate here was obtained by applying these adjusted estimated charges to the numbers of each make registered in a state in 1960, and summing over all makes and all states.

Table 2

Taxes and Transportation Charges per Car, 1960, by State

State	Average per new car: Transportation charges	Average per new car: Sales (use) taxes	Average per new car: Total	Mean annual taxes per car	Mean cost of transferring ownership
Maine	$106	$ 53	$159	$ 49	$ 18
New Hampshire	96	-	96	39	2
Vermont	91	21	112	40	3
Massachusetts	96	-	96	50	2
Rhode Island	96	78	174	50	25
Connecticut	91	63	154	47	18
New York	91	24	115	11	10
New Jersey	89	-	89	23	3
Pennsylvania	82	79	161	19	21
Ohio	57	78	135	15	24
Indiana	52	-	52	32	5
Illinois	68	70	138	41	20
Michigan	27	106	133	19	22
Wisconsin	58	-	58	17	3
Minnesota	82	-	82	24	2
Iowa	82	113	195	31	17
Missouri	83	53	136	41	18
North Dakota	116	37	153	32	16
South Dakota	119	53	172	24	6
Nebraska	97	-	97	39	3
Kansas	95	46	141	38	15
Delaware	92	-	92	14	2
Maryland	87	52	139	30	19
D.C.	84	50	134	25	2
Virginia	93	-	93	29	3
West Virginia	65	40	105	44	3
North Carolina	97	25	122	29	7
South Carolina	100	53	153	22	4
Georgia	94	55	149	29	20
Florida	132	18	150	25	9
Kentucky	63	81	144	24	3
Tennessee	79	54	133	42	22
Alabama	102	27	129	19	10
Mississippi	107	52	159	59	15
Arkansas	99	77	176	51	24
Louisiana	121	44	165	8	17
Oklahoma	115	56	171	38	6
Texas	139	39	178	45	13
Montana	165	31	196	52	3
Idaho	168	-	168	14	3
Wyoming	134	54	188	35	18
Colorado	136	50	186	30	18
New Mexico	158	27	185	28	13
Arizona	164	54	218	44	19
Utah	166	91	257	15	24
Nevada	168	52	220	26	13
Washington	164	101	265	41	30
Oregon	164	-	164	16	2
California	164	88	252	33	25

Table 3

Percentage Market Prices of 1955 Models were of 1956 Models, January 1, 1960, by Make and by NADA Regions

NADA region	Low priced					Medium priced			
	Chevrolet	Ford	Plymouth	Rambler	Studebaker	Dodge	De Soto	Mercury	Pontiac
Central	80	75	74	70	72	78	77	79	81
Southern	80	76	76	71	88	78	78	78	82
Eastern	81	76	75	71	76	79	78	79	81
Midwestern	81	77	77	72	76	78	78	79	82
New England	81	77	76	73	77	78	79	80	82
Mountain	81	78	76	74	78	78	79	80	81
California	80	78	77	75	79	78	79	80	81
Northwestern	83	80	77	76	79	79	80	80	81

	Medium priced			High priced		
	Buick	Chrysler	Oldsmobile	Cadillac	Lincoln	Imperial
Central	76	74	77	83	64	78
Southern	76	74	78	83	64	79
Eastern	76	75	77	84	64	79
Midwestern	77	75	77	84	65	80
New England	78	75	77	84	65	80
Mountain	78	76	78	84	66	80
California	79	76	78	84	66	80
Northwestern	80	76	78	84	67	80

Table 4

Average Value per Car, as of January 1, 1960, by Age Group

State	Current-year models	1955-1959 models	1951-1954 models	1950 & earlier models	All models
Maine	$2,897	$1,547	$576	$224	$1,258
New Hampshire	2,800	1,539	585	223	1,309
Vermont	2,817	1,559	582	218	1,327
Massachusetts	2,894	1,572	568	231	1,197
Rhode Island	2,929	1,555	573	240	1,210
Connecticut	2,916	1,491	524	204	1,238
New York	2,970	1,544	532	207	1,375
New Jersey	2,949	1,520	521	211	1,279
Pennsylvania	2,999	1,502	521	182	1,211
Ohio	2,973	1,466	496	190	1,257
Indiana	2,900	1,460	489	190	1,206
Illinois	3,032	1,515	499	189	1,341
Michigan	2,997	1,509	508	187	1,400
Wisconsin	2,885	1,473	484	189	1,218
Minnesota	2,923	1,586	548	217	1,238
Iowa	3,003	1,592	551	218	1,204
Missouri	2,969	1,468	490	193	1,189
North Dakota	3,037	1,609	546	214	1,228
South Dakota	3,019	1,601	546	219	1,170
Nebraska	2,953	1,584	546	215	1,151
Kansas	3,039	1,574	547	218	1,194
Delaware	2,886	1,536	535	209	1,340
Maryland	2,948	1,510	532	207	1,282
D.C.	2,926	1,533	530	206	1,382
Virginia	2,842	1,495	526	212	1,240
West Virginia	2,941	1,470	515	214	1,134
North Carolina	2,911	1,477	526	220	1,156
South Carolina	2,939	1,465	521	220	1,066
Georgia	2,964	1,481	525	213	1,180
Florida	2,922	1,517	523	206	1,309
Kentucky	2,940	1,418	488	200	1,064
Tennessee	2,970	1,463	524	216	1,152
Alabama	2,938	1,461	522	220	1,138
Mississippi	3,014	1,460	519	220	1,117
Arkansas	3,069	1,469	524	216	1,177
Louisiana	2,998	1,509	536	216	1,265
Oklahoma	3,137	1,468	528	208	1,154
Texas	3,085	1,511	534	214	1,270
Montana	3,015	1,631	576	224	1,257
Idaho	2,993	1,659	605	249	1,228
Wyoming	2,962	1,655	582	230	1,295
Colorado	3,006	1,606	579	228	1,210
New Mexico	3,094	1,626	594	238	1,337
Arizona	3,146	1,601	579	233	1,253
Utah	3,086	1,647	616	260	1,242
Nevada	3,046	1,636	573	222	1,274
Washington	3,004	1,592	599	237	1,049
Oregon	2,904	1,627	607	253	1,236
California	3,097	1,611	596	236	1,272

Table 5

Estimated Value and Depreciation of Basic Cars in Use during 1960, Contiguous United States

Line	Item	1961 and earlier models	1960 and earlier models(1)	1959 and earlier models(2)
1	Thousands of cars	60,034	7,181	52,853
	Estimated value ($ billions), based on:			
2	Market prices as of January 1, 1960	73	20	54
3	Market prices as of January 1, 1961	49	15	34
4	Value of a model one year older at January 1, 1960 market prices	59	17	42
	Depreciation during 1960 ($ billions) based on:			
5	Changes in market prices (lines 2 - 3)	24	5	20
6	Aging of cars (lines 2 - 4)	15	3	12
	Depreciation as a percentage of values based on (line 2), market prices as of January 1, 1960, when depreciation is based on:			
7	Changes in market prices (line 5)	33.0	23.0	36.7
8	Aging of cars (line 6)	20.0	14.6	22.0
	Average value per car, based on:			
9	Market prices as of January 1, 1960	$1,223	$2,755	$1,015
10	Market prices as of January 1, 1961	819	2,121	642
11	Value of a model one year older at January 1, 1960 market prices	979	2,354	792
	Depreciation per car, based on:			
12	Changes in prices during 1960 (line 5)	$404	$634	$373
13	Aging of cars (line 6)	244	401	223

1. Includes all 1960 models registered by December 31, 1960. The value of 1961 models is based on the estimated purchase price of the car equipped only with radio and heater, delivered and ready for operation in the state where it was registered. Since 1961 models had not entered the used-car markets by the end of 1960, depreciation was estimated as the difference between its value, computed as above, and its wholesale value, f.o.b. factory.

2. An average price for each make and model, equipped only with radio and heater, was first computed from the N.A.D.A. Official Used Car Guide for each region, and this was multiplied by the number of each make and model registered in the region. These multiplications were carried out by state to yield state estimates. The sum of the state estimates are given here; Hawaii and Alaska are excluded. The registration data were supplied by R.L. Polk and Co.

Table 6

Number of Cars Registered as of July 1, 1960 per Thousand Inhabitants, by State

State	Cars	State	Cars	State	Cars
Maine	292	New York	259	Minnesota	354
New Hampshire	311	New Jersey	337	Iowa	360
Vermont	300	Pennsylvania	310	Missouri	309
Massachusetts	301			North Dakota	339
Rhode Island	310	Ohio	341	South Dakota	340
Connecticut	344	Indiana	345	Nebraska	358
		Illinois	320	Kansas	382
Delaware	339	Michigan	356		
Maryland, D.C.,		Wisconsin	327	Montana	346
& Virginia	273			Idaho	361
West Virginia	276	Kentucky	279	Wyoming	382
North Carolina	270	Tennessee	268	Colorado	385
South Carolina	276	Alabama	290	Arizona	333
Georgia	273	Mississippi	218	Utah	333
Florida	373			Nevada	441
		Arkansas	250		
Washington	350	Louisiana	265		
Oregon	361	Oklahoma	338		
California	390	Texas	320		

Registration data supplied by R.L. Polk & Co.

Table 7

Percentage of Households without Cars in Each Household-Income Class, by State, 1960

State	All classes	Household-income: Under 3,000	3,000 under 5,000	5,000 under 7,000	7,000 under 10,000	10,000 under 15,000	15,000 under 25,000	25,000 and over
Maine	20.5	43.6	16.1	8.5	5.7	4.4	2.4	30.8
New Hampshire	17.2	42.6	17.4	9.2	3.9	3.2	2.5	23.9
Vermont	17.0	37.9	12.5	7.1	5.2	1.6	4.8	24.2
Massachusetts	23.7	60.0	28.9	13.7	8.2	5.8	3.7	24.4
Rhode Island	20.2	51.0	18.1	8.4	5.2	3.4	3.7	21.2
Connecticut	16.5	52.9	24.1	9.8	5.7	3.4	2.0	17.5
New York	37.0	68.7	47.8	29.0	20.8	15.1	12.9	41.0
New Jersey	19.9	54.1	28.4	13.6	8.0	5.1	3.1	21.8
Pennsylvania	23.5	53.2	24.6	13.5	9.0	6.5	3.5	30.9
Ohio	16.9	45.9	18.6	8.1	4.5	3.2	2.3	24.1
Indiana	15.8	40.1	14.7	7.2	4.0	2.6	2.3	24.0
Illinois	23.4	52.6	29.3	16.0	10.2	7.2	5.3	28.6
Michigan	14.3	41.0	14.9	6.9	3.5	2.2	1.8	21.8
Wisconsin	15.6	38.3	14.9	7.9	5.1	4.0	2.7	24.2
Minnesota	15.2	34.7	13.7	6.1	3.3	2.8	1.2	27.1
Iowa	13.7	30.5	9.5	4.6	2.7	1.8	1.7	24.2
Missouri	22.2	43.9	19.1	9.4	5.7	3.7	2.7	28.4
North Dakota	13.2	26.9	8.6	4.8	2.7	2.2	2.9	30.3
South Dakota	13.6	25.5	8.2	4.7	2.7	3.0	3.6	24.2
Nebraska	15.3	31.8	11.0	5.5	4.2	2.6	2.4	26.9

(Cont'd)

Table 7

Percentage of Households without Cars in Each Household-Income Class, by State, 1960 (Cont'd)

State	All classes	Household-income: Under 3,000	3,000 under 5,000	5,000 under 7,000	7,000 under 10,000	10,000 under 15,000	15,000 under 25,000	25,000 and over
Kansas	12.9	32.1	8.0	3.7	2.2	1.6	1.9	21.9
Delaware	16.7	41.0	20.7	8.2	6.3	3.3	3.8	25.0
Maryland	21.4	52.0	27.8	14.4	8.4	4.7	2.9	25.7
D.C.	47.2	74.3	59.1	44.6	29.0	19.4	12.9	43.6
Virginia	22.1	46.0	20.0	9.6	5.4	3.0	2.0	32.1
West Virginia	26.7	51.2	19.3	11.0	7.1	4.7	4.8	38.8
North Carolina	23.6	44.0	15.5	7.0	3.5	2.5	2.3	32.2
South Carolina	25.2	46.5	14.9	5.7	3.7	3.3	.0	30.3
Georgia	25.7	49.0	17.6	7.4	4.1	2.8	2.1	34.5
Florida	18.5	38.7	13.8	5.9	3.4	2.0	1.7	25.4
Kentucky	25.4	45.0	17.7	8.9	5.1	4.2	2.9	28.4
Tennesee	25.0	45.7	16.4	8.0	4.4	2.8	2.6	31.6
Alabama	28.2	51.8	18.3	7.5	4.1	2.6	2.3	36.0
Mississippi	33.4	51.9	15.7	7.5	4.9	3.4	3.4	44.8
Arkansas	29.7	47.3	14.0	7.4	5.2	2.9	3.7	39.0
Louisiana	29.7	54.7	21.5	9.8	5.7	4.1	2.9	31.9
Oklahoma	18.5	38.7	9.7	4.2	2.7	2.1	2.1	20.6
Texas	17.7	39.2	12.2	4.7	2.6	1.7	1.5	19.7
Montana	15.5	39.1	11.0	5.5	3.1	2.7	2.4	15.9
Idaho	11.8	31.6	7.1	2.8	1.9	2.2	2.6	14.8
Wyoming	11.5	35.0	8.2	4.4	2.6	2.1	3.4	13.6
Colorado	15.1	39.3	13.3	5.6	3.0	1.7	1.4	15.9
New Mexico	15.3	39.4	10.4	5.2	2.1	2.5	1.4	12.0
Arizona	14.0	38.8	9.5	3.9	2.6	.9	1.0	13.3
Utah	12.6	40.6	10.0	4.5	2.1	1.9	.0	15.0
Nevada	12.7	34.5	14.5	7.2	4.1	4.3	5.6	11.4
Washington	16.6	46.7	16.4	6.1	3.2	2.2	1.6	20.3
Oregon	14.4	39.7	12.1	4.9	2.3	2.6	1.4	18.6
California	15.7	44.7	18.6	7.6	3.5	2.2	1.7	16.3
U.S.	21.5	46.8	21.1	11.1	7.1	5.1	4.1	26.8

Source: Census of Housing, 1960.

Table 8

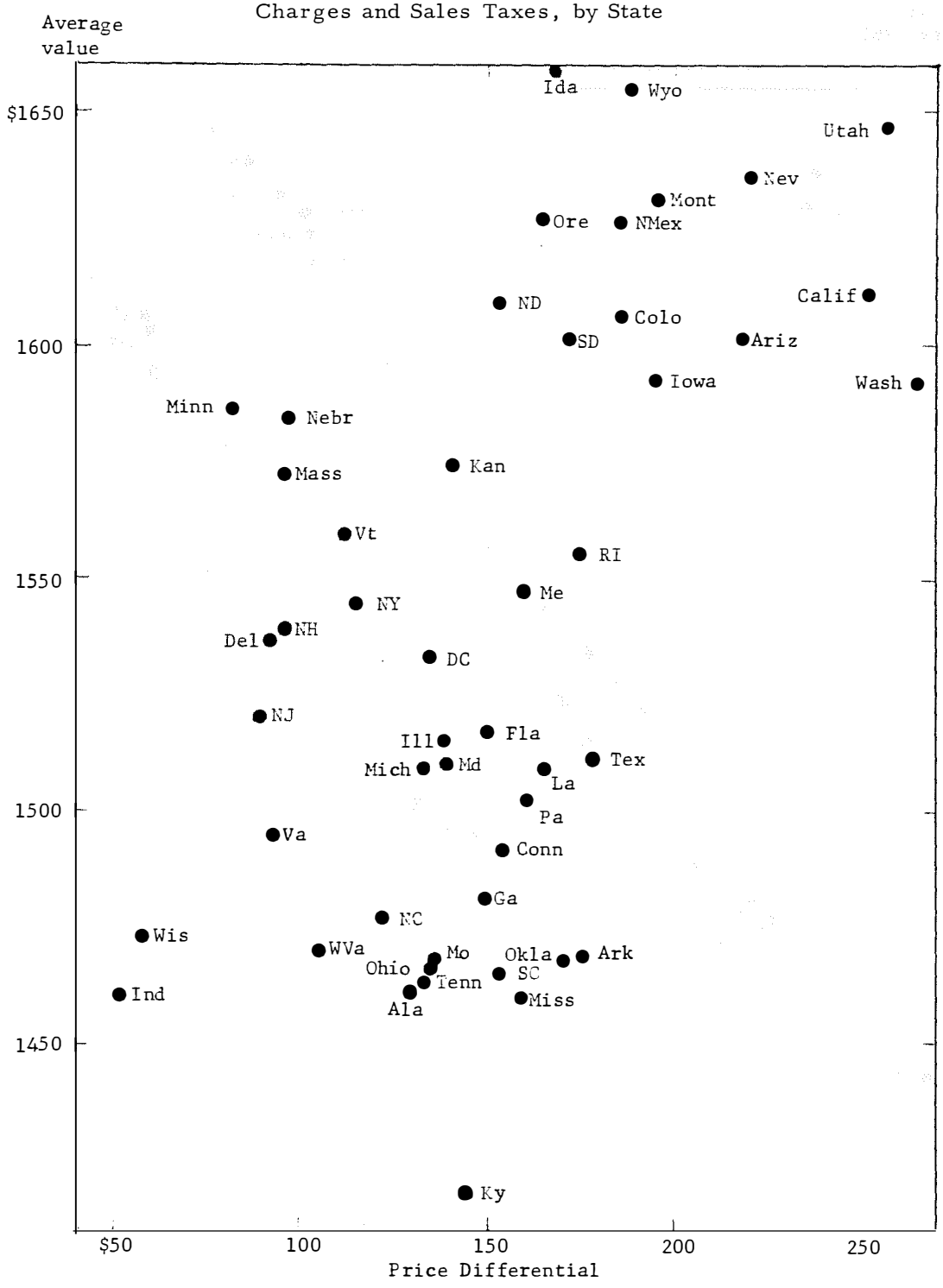
Age Distribution of Cars, 1960, by State
(Percentages of all cars registered during 1960)

State	Age[1] 0-1 years	1-6 years	6-10 years	Over 10 years
Maine	12.5	45.3	28.3	13.8
New Hampshire	13.5	48.4	26.9	11.1
Vermont	13.8	48.5	27.0	10.6
Massachusetts	10.5	43.8	29.6	16.1
Rhode Island	11.1	43.4	30.2	15.3
Connecticut	12.3	47.6	27.1	13.0
New York	14.6	51.0	25.2	9.2
New Jersey	13.6	46.5	27.2	12.6
Pennsylvania	11.6	45.9	27.1	15.4
Ohio	12.2	50.7	26.1	11.0
Indiana	11.7	48.7	27.0	12.7
Illinois	13.9	51.4	24.5	10.2
Michigan	15.9	52.2	23.7	8.2
Wisconsin	13.3	46.1	26.8	13.8
Minnesota	12.1	44.2	27.1	16.6
Iowa	10.7	43.4	27.3	18.6
Missouri	12.3	45.2	26.6	15.9
North Dakota	10.7	44.8	26.5	18.0
South Dakota	9.6	42.6	28.4	19.4
Nebraska	10.8	40.0	28.5	20.8
Kansas	10.2	44.1	27.4	18.3
Delaware	14.1	50.8	24.1	11.0
Maryland	13.2	48.2	26.4	12.2
D.C.	14.3	53.8	22.7	9.2
Virginia	12.7	47.5	26.6	13.2
West Virginia	9.6	45.4	29.0	16.0
North Carolina	10.5	44.8	29.0	15.7
South Carolina	9.0	40.9	30.4	19.7
Georgia	10.5	46.4	27.8	15.3
Florida	13.5	50.3	24.5	11.7
Kentucky	9.5	42.3	30.7	17.5
Tennessee	10.3	45.2	29.0	15.6
Alabama	10.2	44.5	29.5	15.8
Mississippi	9.5	43.8	30.1	16.7
Arkansas	9.9	47.4	28.0	14.8
Louisiana	11.2	50.6	25.7	12.5
Oklahoma	10.1	44.4	28.5	17.0
Texas	11.5	49.8	25.4	13.4
Montana	10.4	46.3	26.1	17.2
Idaho	10.2	42.6	27.2	19.9
Wyoming	11.8	45.5	25.9	16.8
Colorado	10.2	43.8	27.0	19.0
New Mexico	10.3	51.5	25.1	13.1
Arizona	10.1	46.2	26.7	17.0
Utah	10.2	42.7	28.3	18.8
Nevada	10.7	46.8	25.1	17.5
Washington	6.9	38.3	28.4	26.4
Oregon	10.6	44.2	26.3	18.9
California	11.0	45.6	25.6	17.7
Alaska	11.8	52.1	25.5	10.6
Hawaii	10.2	38.9	27.5	23.4

1. Cars 0-1 years are current year models; 1-6 years include 1955-1959 models; 6-10 years include 1951-1954 models; and over 10 years, cars of 1950 and earlier models.

Chart 1

Average Value of 1955-59-model Cars, January 1960, and New-car Price Differentials Attributable to Transportation Charges and Sales Taxes, by State



Average Value of a 1955-59-model Car, 1961 and 1960, by State

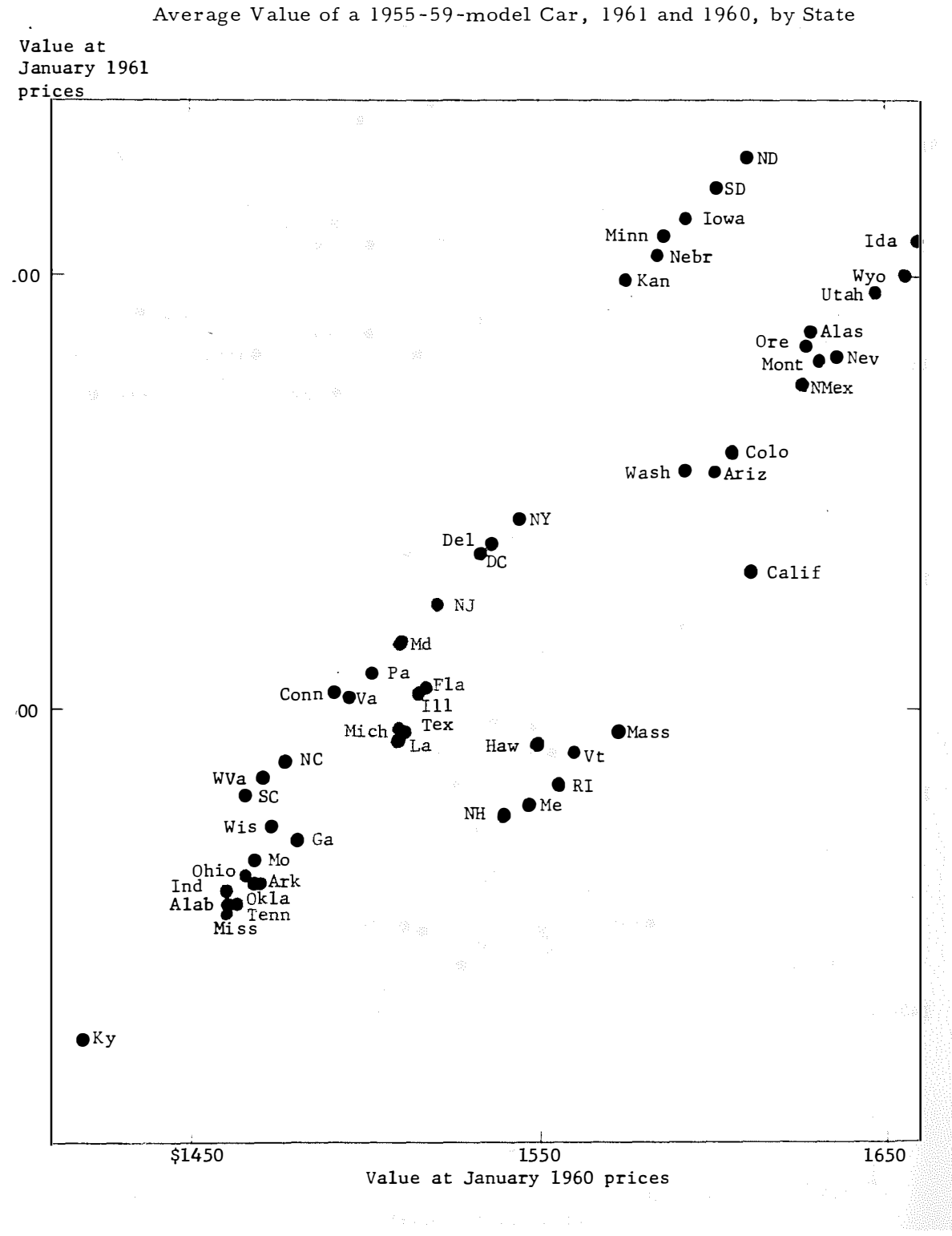


Chart 2b

Average Value of a 1951-54-model Car, 1961 and 1960, by State

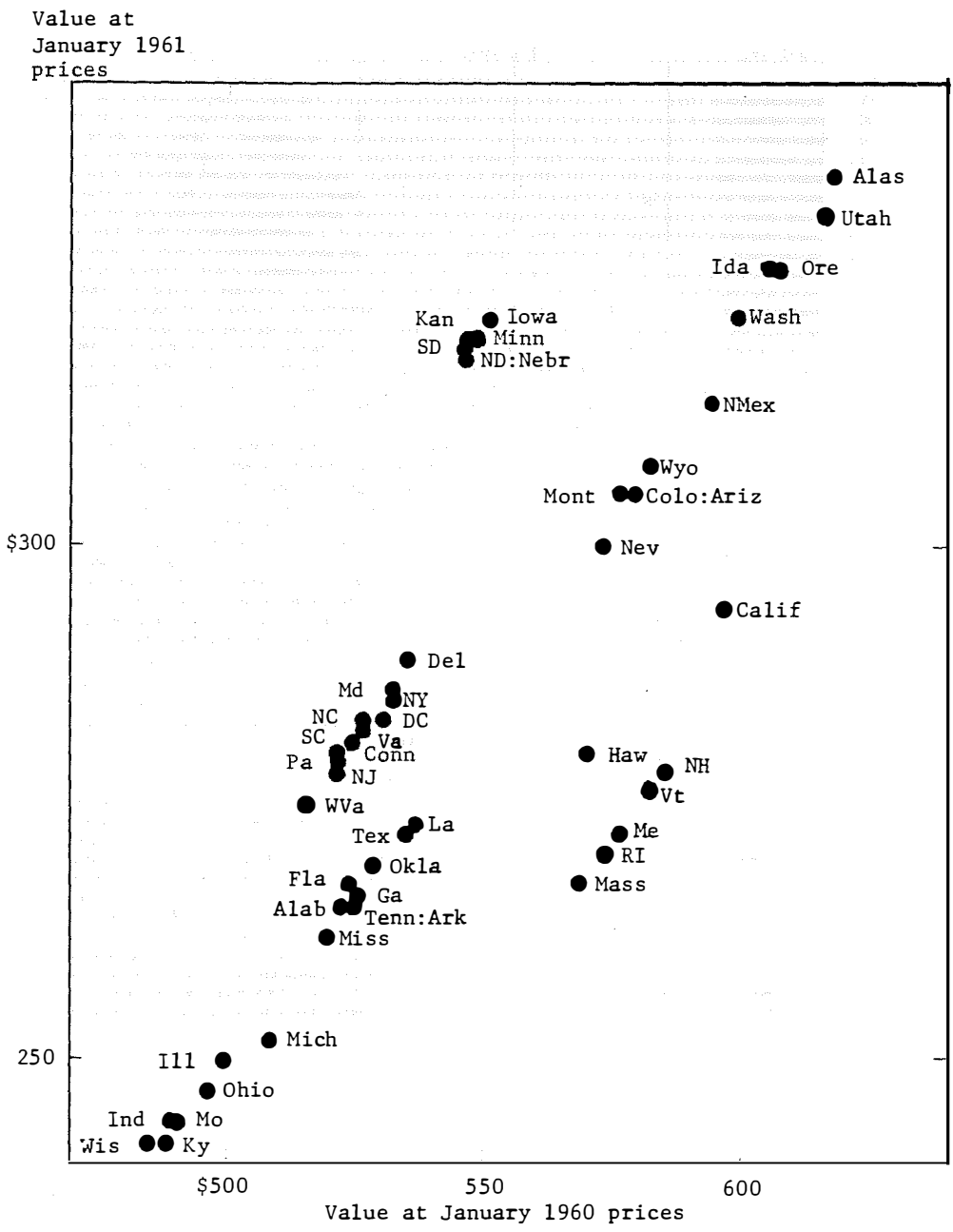
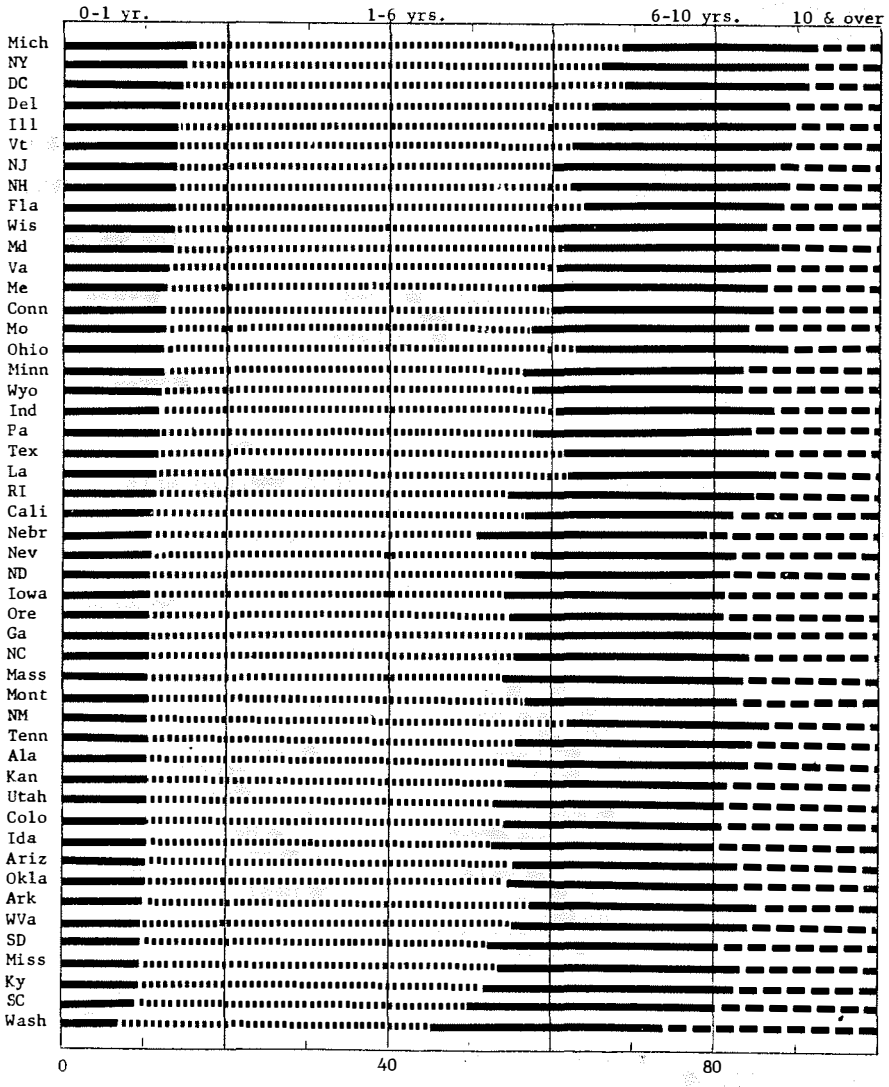


Chart 3

Age Distribution of Cars by State, 1960



Percent of All Cars

Chart 4

Relative Frequency and Value, Cars 10-years-Old and Older, by State