INTERRELATIONS OF ALCOHOL POLICIES, CONSUMPTION, AND PROBLEMS IN THE U.S. STATES

Previous analyses of the correlates of state alcohol policies have in general limited themselves to comparisons in terms of "monopoly" vs. "license" states (Jellinek, 1947; New York State Moreland Commission, 1963a) or in terms of "dry sentiment" and indices of urbanization (Jellinek, 1947; Seeley, 1962) in relation to measures of alcohol problems or per-capita consumption. The study for the Moreland Commission also paid some attention to state policies on "liquor by the drink" and to the number of liquor sales outlets per head of population. Generally speaking, investigators have found little difference between "license" and "monopoly" states, but have found that both "dry sentiment" and urbanization are related to per-capita consumption and alcohol problems. The Moreland Commission study presents a number of interesting comparisons, but seems sometimes to overlook the strength of relationships existing in the data presented, in the course of focussing on the existence of deviating cases.

Other cross-sectional comparisons of correlates of alcohol problems and consumption in U.S. geographical units, not including measures specifically of alcohol policy (Schmidt and Bronetto, 1962; New York State Moreland Commission, 1963b; Popham, 1970, p. 299; Tokuhata, Dignon and Ramaswamy, 1971) have also generally confined themselves to relatively few variables. It seemed worthwhile, then, to collect into the same analysis, even if only an exploratory fashion, all the measures of state alcohol policies and state statistics on consumption and problems which were readily available and of any conceivable theoretical or practical importance. We therefore assembled, from a variety of sources listed in the references, available state-by-state data relevant to this framework, including some measures of possible confounding "composition" variables—measures of the region, urbanization, wealth and "dryness" of the state—and measures of trends over time on a few variables. These data

were coded into summary form—in from two to ten categories—as described below, for the 48 contiguous states, and a correlation matrix, of the relation between each of these summary variables and each other, was constructed. Table 1 shows these correlations for the "static" measures—that is, for variables defined at one point in time, usually within a few years of 1960. Table 2 shows the correlations for measures of change over time in consumption and alcohol problems, primarily for twenty- and thirty-year time periods ending around 1960, with all the other variables.

In this study, then, geographically-defined categories—specifically, the 48 U.S. contiguous states—are the fundamental units of analysis. The meanings—indeed, the meaningfulness—of the geographically-defined categories vary from one drinking variable to another. Since the repeal of National Prohibition, the regulation of alcohol consumption has been essentially a matter for the states. There is, then, considerable logic in making comparisons between states when attempting to assess the effects of laws: the states can, indeed, be viewed as a kind of natural laboratory for comparisons of the relations between alcohol policies, consumption patterns, and alcohol problems. Even in the legal area, however, the state is not the only relevant unit of discourse. Most states have some degree of local option concerning some drinking laws, and in many states the variations in policy from one local jurisdiction to another are quite considerable. The meanings of comparisons of state policies are also affected by factors which are properties of broader geographical aggregations. Legislatures undoubtedly pay more attention to the laws of adjacent than of remote states. Furthermore, the Federal government continues to play a role by virtue of its taxing powers and the federal courts, effectively setting limits on the possible variations in state policies.

In the areas of drinking sentiments, behavior, and problems, state boundaries play a less well-defined role. A discussion of sentiments, for example,

inevitably tends to concentrate on either broader or narrower units of analysis. Although the temperance movement was, of course, organized for effective operation in state politics, differences in the strength of temperance sentiment in the general population show more regularity at the regional rather than the state level. On the other hand, it is the attitudes and norms on drinking of the local community rather than the state which form the most obvious informal constraints on individual behavior. In our analysis we have at least allowed for some estimates of the relative strength of state policies and of these factors by including the "composition" variables as indicators of these factors.

There are a number of strong cautions to be borne in mind in looking at these tables. In the first place, the data are not always what they seem. There is the hopefully random possibility of coding and transcription errors in third- or fourth-hand data. The consumption data of course exclude illicit liquors. The "problems" data may well be itself as much a measure of state policy as of the conduct of individuals--for instance, of the availability of and criteria and priorities for mental hospital admission, or of the competency required of coroners and doctors in assigning cause of death. In the second place, a correlation is a useful summary statistic for displaying the general direction and strength of a relationship, but values should not be compared too literally, since they are affected by the number of categories in the variables involved and by the skewness of the distributions. In a "population" of 48 states, a shift of just a couple of states could appreciably affect a correlation. In the third place, the correlations are measures of the "raw" relationship between one variable and another, without paying any attention to the possible effects of third variables in explaining or specifying the relationship. The "composition" variables are intended as a tangible caution of the existence of such confounding variables. It will be seen--without surprise--for instance, that moonshine arrests show a stronger relation with "Southernness" than with any other variable.

Some explanations of the content and significance of the variables may well be needed. The size of state alcohol taxes is affected by at least three considerations: the pressing need for state revenues, perhaps particularly in poorer states (note the negative correlations with median income); a desire to hold alcohol consumption down with high prices (balanced perhaps against the desire to reduce incentive for moonshining); and a desire to shift consumption from one beverage to another--in general, from stronger to weaker beverages, though many states also give tax advantages to beverages produced in the state. Although high taxes on each of the three beverages tend to go together, there is evidence in Table 1 that some states, particularly "coastal" ones, have tended to tax liquor particularly heavily. The dichotomous items on whether state taxes on dessert wines and on champagnes are higher than on table wines attempt to measure two of these motivations directly, although unfortunately on the least-used of the three types of beverage. Charging a higher tax on champagne, although it is no stronger than table wine, suggests a disposition to view alcohol taxes as "luxury" taxes primarily levied to raise revenue. Charging a higher tax on dessert wines, on the other hand, since they are nearly twice as strong as table wines, suggests a concern with shifting consumption to beverages with the least concentration of alcohol.

The "license" states are those that do not hold a state or county monopoly on the selling of spirits at the retail level. The primary motivation for a state monopoly of the liquor business has usually been given as the elimination of private profit as an incentive for increasing sales. Notably in the U.S., however, this principle has been applied only at the level of sales: there is no significant state monopoly of production. With a couple of exceptions, the monopoly states fall in two geographical arrangements: a cluster in the South, and a long line of states along the Canadian border--the state monopoly arrangement is also widespread in Canada. Obviously, the holding of a state monopoly holds implications in the areas of taxes,

controls and availability, which should
be borne in mind in looking at the tables.
One would expect the number of liquor
sales outlets to be smaller, simply by
virtue of the monopoly situation, irres-
pective of social policy. Since there is
often no separation between taxes and pro-
fits in monopoly states, we have adopted
some arbitrary but hopefully reasonable
guidelines in coding them for the size of
taxes. "Package store restrictions" re-
fers to the existence of state laws or
regulations limiting sales of bottled
liquor to stores selling liquor only, or
to specified types of stores. Such limits
were usually intended to underline the
special nature of the alcohol trade--
liquor was not just another grocery--but,
in "license" states, they also have the
effect of restricting competition, pro-
tecting small storekeepers from competi-
tion by chains and department stores (New
York State Moreland Commission, 1964a).
"ABC activity" is a general rough measure
of the level of activity of the state
agency charged with enforcing the liquor
control laws, being simply the number of
prosecutions and license suspensions it
was involved in, per head of the state
population. This is obviously partly de-
pendent on the funding provided for it and
the stringency of state laws, but it should
be kept in mind that it may also reflect
the level of compliance with liquor con-
trol laws by the population. "Liquor ad-
vertising restrictions" is a general
measure of the stringency of state con-
trols on advertising; controls on beer
and wine advertising are so highly related
to the liquor controls that they are not
shown here. "ID card to buy" is a measure
of the stringency of state efforts to bar
sales to minors.

The measures of availability we have used
are simply the number of retail licenses
in various categories per head of popula-
tion. For liquor, licenses issued to
cover both on- and off-premises sales are
included in both categories; for wine,
they could be included only in the off-
premises ("package") licenses. If all
other things were equal, we would expect
the most sparsely-settled states to show
higher numbers of retailers per head of
population, and this seems to be true for

beer, where there are the fewest state
controls on sale. The measure of "low
price liquor" is that used by the New
York State Moreland Commission in its
comparisons of actual retail prices--
whether or not the average price of
leading national brands of whiskey was
50¢ or more below the average New York
prices (New York State Moreland Commis-
sion, 1964b). The measures of aggregate
consumption are traditional--calculated
at per head of population aged 15 or
over, with the beverage types aggregated
into the total consumption figure in
proportion to their content of absolute
alcohol.

The measure of moonshine arrests is simply
the order of magnitude of the arrests
made or participated in within a state
by the federal tax enforcement authori-
ties. The drunk driving arrest rate is
the rate of arrests for "driving while
intoxicated" in cities over 10,000 popu-
lation per head of population 15 years
and over, and was only available for 39
states. The rate of first admissions
to mental hospital for alcoholism, and
the cirrhosis death rate, are, of course,
much-criticized but indispensable re-
sources in measuring alcohol problems
(Popham, 1970).

By "coastal" states is meant all states
east and north from Illinois, plus the
three Pacific Coast states--the New
England, Middle Atlantic, East North Cen-
tral, and Pacific census regions. In
spite of the label, then, southern
states are not included, although the
Great Lakes states are. "Southern"
states is the area stretching east from
Texas and Oklahoma, including also Ken-
tucky, West Virginia, Virginia, Maryland
and Delaware--the South Atlantic and
East and West South Central census re-
gions. The "dry-area population" is a
measure of the proportion of the state
population living in areas legally "dry"
for liquor in 1960. The "dry vote 1933"
is taken from the results of elections
for state constitutional conventions to
repeal Prohibition, or where there are
no such results, from the results of
the 1932 Literary Digest poll, adjusted
to match these elections (Cahalan and

Room, 1974, p. 79). It is, then, a measure of the extent of the historical "dry" sentiment in a state.

On the measures of trends, only a few comments are necessary. The mental hospitals admissions trends data uses first admissions for alcoholic psychoses for the first measurement, but for alcoholism with or without psychosis for the second; this discrepancy is undesirable but probably not very material, since trends in these statistics tend to be similar. The sex ratio for cirrhosis deaths is the male rate over the female rate; thus, the positive direction on sex ratio change over time means an increased discrepancy between the rates for the sexes.

Our discussion of the results in the tables will be somewhat selective--the reader is invited to seek out and ponder the relations which he himself finds instructive. As already noted, high taxes on one beverage are generally associated with high taxes on the others. High taxes, at least as we measured them, are somewhat associated with monopoly states, with small number of wine and liquor licenses, with low consumption, with high moonshine and drunk driving and low cirrhosis rates, and with rural, southern, low income, "dry" states. These trends seem stronger for beer than for wine and liquor taxes. Federal taxes on beer are low, leaving more room for state maneuvering, and we are left with the suspicion that revenue needs in poor states are more important in these correlations than any causal connection between taxes and consumption. It is notable in this regard that "low price" on liquor, somewhat surprisingly, does not show much relation with either taxes or consumption. The measures of dimensions of state tax policy we attempted with the dessert-wine and champagne differentials do not show nearly as much relation to any other variable as they both do to the fact of low table wine taxes. If they do reflect state tax policies, these policies seem to have little relation with our other variables.

Generally speaking, "license" states are associated with a higher proportion of wine and liquor outlets--particularly

liquor package stores--as expected. As previous investigators have found, there is no very strong relation between the license-monopoly distinction and per-capita consumption. There is a moderate relationship between "license" states and cirrhosis rate, but it is matched-tellingly--by the association of "license" states with urbanization. "License" states tend to have few restrictions on liquor advertising, and less stringent provisions aimed at controlling sales to minors.

ABC activity shows its strongest relationship with the proportion of population in dry areas, suggesting that some of the activity may be directed at enforcing intrastate differentiations in the availability of liquor. ABC activity is the only variable in the chart to show positive correlations--however modest--with all four problems indicators, although its relations to alcohol consumption are slightly negative. This may be a chance pattern, or may be explained in several other ways, but it is conceivable that this is reflecting a general local edginess about drinking as a contributing factor to problems indicators--jurisdictions which seek for problems will generally find them.

Stringent advertising restrictions are related essentially to monopoly states and the other availability and control measures associated with monopoly states. Strong controls on sales to minors are a specialty of non-southern, low "dry-area" population states--the northern state-monopoly states.

Beer availability is, as noted, a function of sparseness of population and non-urbanism, and of states with a high dry vote and few liquor and wine outlets. There is, however, a negative relation with beer consumption per capita. The beer availability measure, in fact, is probably simply an indication of "natural retailing patterns in the absence of any stringent state restrictions: more stores per head of population are needed in sparsely-settled areas.

High availability of wine and liquor, whether for on- or off-premises sale, is associated with "license" states, with generally high consumption and high cirrhosis rates. High availability for on-premises consumption--in bars and restaurants--in particular, is associated with "coastal," non-southern, urban, high income states, and is strongly related to "wet" sentiment, at least as measured in 1933. This last relationship may result partly from the fact that the laws restricting availability are often essentially unchanged from when they were written in 1933 or 1934.

Consumption rates for all three kinds of beverage are highly associated with each other, with the availability of wine and liquor, and with the cirrhosis rate. They are just as strongly related, however, with urbanization, median income, and "wet" sentiment. There is generally a negative relation with moonshine arrests and drunk driving.

Moonshine arrests and drunk driving arrests are modestly related to each other, as are cirrhosis and mental hospital admission rates--but there are consistently negative relations between members of one pair and members of the other. Moonshine arrests are, as is well known, largely specific to the South; apparently, however, drunk driving arrests are also characteristic of non-"coastal," non-urban, low-consumption states.

Turning to a consideration of the trends data (Table 2), we find patterns differing considerably from the static patterns of Table 1. Consumption of all beverages generally rose more in areas where less beer is consumed, and where there are fewer wine and liquor licenses. Consumption of beer and liquor rose more in the South than in the "coastal" states, and more in the less urban, lower-income, and drier states. As we might expect from the Table 1 findings, rises in beer and liquor consumption are thus negatively associated with cirrhosis and mental hospital admission rates, but positively associated with moonshine arrests and drunk driving arrests.

In view of the very strong relationship investigators have invariably found between cirrhosis deaths and per-capita consumption statistics, it is interesting and surprising to find essentially no relationship between change in overall consumption and change in cirrhosis rates. Previous findings have always been based either on static comparisons, as in Table 1, or on time-series in a single population. The static comparisons are perforce heavily compounded with other relationships such as income and urbanization, and time-series in a single population may be viewed as measuring primarily two indices of the fluctuations in behavior of the very small segment of the population responsible for both the bulk of consumption and the deaths from cirrhosis (Room, forthcoming). Neither, in fact, is very appropriate for determining the extent to which shifts in consumption in the general population are associated with changes in the cirrhosis rate. Although we cannot pretend that our essentially zero correlations between two measures of change in a variety of populations are conclusive, they do at least strongly underline the necessity for more conclusive research in this area.

Mental hospital admissions seem to have gone up in the period under consideration primarily in lower income, lower consumption "interior" states, while cirrhosis rates--particularly as compared with prior to the end of Prohibition-- have tended to rise in "coastal," though not particularly in urban states. Although a rise in the sex ratio for cirrhosis deaths (more male deaths per female death) is positively associated with a high sex ratio, there seems to be a tendency for the ratio to be higher but declining in the southern states, but the obverse in the "coastal" states.

All in all, the trend data would seem to support a conclusion that state policies as we have measured them have very little relation to changes in the consumption and problems rates. In fact, the correlations in the trend data are altogether distinctly secondary to the correlation we found in the static data in

Table 1. In an exploratory factor an-
alysis using all the items of Table 1
and 2, a strong first principal-components
factor, accounting for 30% of the commun-
ality, appeared. Eleven items loaded .7
or over on this factor--including all
four measures of per-capita consumption,
measures of wine and liquor on-premises
licenses, cirrhosis rate, income, urbani-
zation, low beer taxes, and a history of
"wet" sentiment. Only in a secondary
list of items loading less strongly on
this factor did a trend measure appear--
the factor was associated with a lack of
increase in beer consumption. The measures
of control we have found associated with
"monopoly" states in the discussion above
were by and large loaded on a moderate-
strength second factor.

As a preliminary test of the possible
cumulative relationships of state policies
with drinking behavior and problems mea-
sures, a series of stepwise multiple re-
gressions was run using as "predictors"
those items which might be regarded as
reflective of state action (the first 16
items in Table 1), and as the "outcome"
variable total consumption level, con-
sumption change 1940-1960, cirrhosis level,
cirrhosis change 1940-1960, drunk driving
arrests, alcoholism admissions to mental
hospitals, and change in admissions 1940-
1960. The effects on the regressions of
controlling for the "composition" vari-
ables and for the extent of "dry" senti-
ment were tested. The combined relation-
ship of the "alcohol policy" items with
the level of consumption was strong, as
strong as the relationship of the "com-
position" variables and of dry sentiment
with consumption; the three variables of
number of liquor "on" licenses, number
of wine package licenses, and low price
together accounted for 72% of the variance
on consumption level, and the relationship
was relatively unaffected by controlling
for composition and dry sentiment. Regres-
sions on the change in consumption level
were uniformly weaker: the first three
predictors--beer taxes, beer retailers,
and license state--accounted for only 32%
of the variance, and the list of prevail-
ing predictors changed when composition
and when dry sentiment were controlled for.
Regressions on cirrhosis level were not
quite as strong as those on consumption:

liquor "on" licenses, wine package li-
censes, and license state together ac-
counted for 55% of the variance, although
the strongest predictors changed somewhat
when composition and dry sentiment were
controlled for. In interpreting these
results for consumption and cirrhosis
level, it should be kept in mind that
the multiple r for the first three state-
policy variables still falls short of
the correlations of consumption and cir-
rhosis with the dry-sentiment indicator.
Regressions on change in cirrhosis were
relatively low and unstable: low liquor
advertising restrictions, high liquor
taxes, and low price together accounted
for 27% of the variance.

While the "composition" variables by
themselves showed quite a strong relation-
ship with drunk driving arrests (45% of
the variance), state-policy variables
showed a relatively weak prediction (low
ID card to buy, high wine taxes and low
liquor taxes accounted for 32% of the
variance), with the prevailing predictors
changing when composition and dry senti-
ment are controlled. Alcoholism admis-
sions to mental hospitals also show these
patterns: low ABC activity, number of
liquor "on" licenses and wine taxes to-
gether account for 24%. Changes in
mental hospital admissions show somewhat
stronger relations, particularly with
the composition variables; among the
state-policy variables, package restric-
tions, low number of wine "on" licenses
and high beer taxes account for 28% of
the variance.

In general, the results of the multiple
regressions conform to the patterns shown
in the raw correlations. It should be
stressed that while the results for con-
sumption level and cirrhosis level, in
particular, would suggest on their face
a fairly strong relationship between
state policies and these variables, the
fact that the results for consumption
change and cirrhosis change are consider-
ably less impressive cautions us that
these "ecological correlations" are re-
flecting general cultural factors of dif-
ferences between the states of which both
state policies and the "outcome variables
are manifestations.

The general finding which emerges is that variations in alcohol policies appear to be secondary to other factors in their association with drinking behavior and drinking problems, and particularly with the few indicators of change in behavior and problems we managed to find. This should not be taken, however, to mean that alcohol policies are irrelevant to behavior. In the first place, state alcohol policies appear to be considerably more alike in their actual functioning than in their formal laws. In the second place, our analysis is essentially static, in that, in general, U.S. state alcohol policies have not changed substantially during the period within which all our measures of sentiment, behavior and problems are defined--since the end of Prohibition. The effect of a policy on behavior can only be properly tested by changing the policy and testing for changes in behavior.

The dominating pattern in the data we have considered is the strong mutual association of availability, consumption, income and urbanization with high cirrhosis rates. The easy and conventional explanation for this is a short disquisition on the ancient theme of the rich decadent anomic city--everything bad is worse in the city. But how then are we to explain the negative association with drunk driving--particularly since the drunk driving data themselves are only for cities? Or what would seem to be a similar relationship with arrests for drunkenness, which also seem to be generally higher outside the "coastal" states?(New York State Moreland Commission, 1963, p. 24)

The next conventional recourse is a retreat to discussions of sectional pecularities. Before we thus retreat, however, it is worth noting that Nils Christie has found an exactly similar pattern in comparing the Scandinavian countries--the lowest consumption per capita is in Finland, the country with the highest alcohol-related arrest statistics and the lowest degree of urbanization. On the basis of the Scandinavian experience, he concludes that "a strict system of legal and organizational control of accessibility of alcohol seems to be related to low alcohol

consumption, but also to a high degree of public nuisance" (Christie, 1965,p.107). Obviously, data other than the present will be needed to illuminate the chains of causation which may be at work here. When we are thinking of the effects of liquor controls, however, it is certainly worth bearing in mind the possibility that a change in controls may lead to gains in one kind of problem but losses in another.

----Robin Room

(This paper is a revised version of a paper prepared for the Symposium on Law and Drinking Behavior at the Center for Alcohol Studies, University of North Carolina, Chapel Hill, N.C. November 1970)

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NOTES TO TABLE 1 AND 2

Beer taxes, wine taxes, liquor taxes: states taxes per gallon (case), for monopoly states based on markup over 40%. (Joint Committee of the States, 1953, pp. 40-45).

Dess. wine, Champagne: Whether or not the dessert wine taxes or champagne taxes respectively, were higher than the taxes on the table wine. (Joint Committee of the States, 1953, pp. 43-44).

"Lic." state: License state (vs. monopoly state). (New York State Moreland Commission, 1963a, p. 12).

Pkg. rest.: Degree of restrictions on types of stores in which package liquor is sold. Monopoly states are all in most restrictive group. (New York State Moreland Commission, 1964a, p. 54).

ABC activ.: State ABC activity 1959 per head of population 1960 (licenses revoked or suspended plus whichever of arrests or violations referred was higher). (Joint Committee of the States, 1960, p. 114).

Liq. adv.: rating of restrictiveness of liquor advertising restrictions, Joint Committee of the States study (1963, pp. 87-94).

ID card-buy: documentary evidence required and penalties for misrepresentation of age in buying alcohol. (Joint Committee of the States, 1952, pp. 57-58).

Beer retailers, liquor "on" licenses, liquor package licenses, wine "on" licenses, wine package licenses: rate per 1000 population (including combined licenses in each applicable category)-- beer for 1946, others for 1958. (Joint Committee of the States, 1960, pp. 98-102; and Golenpaul, 1965, p. 397).

"Low price": major brand prices for liquor averaged 50¢ or more below New York prices (New York State Moreland Commission, 1964b, pp. 17-18).

Beer consumption, Wine consumption, Liquor consumption, Total consumption: per capita, beer and wine for 1957 (Keller and Efron, 1959, p. 4); liquor and total (in absolute alcohol) for 1962 (New York State Moreland Commission, 1963a, p. 12).

Moonshine arrests: 1965-66 (U.S. Internal Revenue Service, 1965, Table 89; 1966, Table 89).

Driving while intoxicated: arrests/1000 population aged 15 and over in cities of 10,000+ populations. (New York State Moreland Commission, 1963a, p. 37).

Alc MH Adm: First admission for alcoholism to Mental Hospital 1958-1960/1000 population. (New York State Moreland Commission, 1963a, p. 48).

Cirrhosis rate: 1960 alcoholism rate/1000 by Jellinek formula (a linear transformation of the death rate from cirrhosis). (New York State Moreland Commission, 1963a, p. 33).

"Coastal" states: states east and north of Illinois, plus California, Oregon, Washington; vs. the remainder.

"Southern" states: states east and south of Oklahoma, plus Kentucky, Virginia, West Virginia, Maryland, Delaware; vs. the remainder.

Population per square mile: 1960 (Golenpaul, 1965, p. 397).

Percent urban; median income: 1960 (U.S. Bureau of the Census, 1962).

Percent of the population in legally dry areas: 1959 (Joint Committee of the States, 1960, p. 78).

Dry vote 1933: (Jellinek, 1947, p. 30); for states where no vote was taken, proportion polling dry minus 1 1/2% from Literary Digest Poll (1932, p. 7).

Beer consumption change, wine consumption change, liquor consumption change, Total consumption change: 1940 figures (Jellinek, 1947, pp. 12-15) compared with 1957 and 1962 figures cited above.

MH admission change: figures for 1928-30 (American Academy PSS, 1932, p. 83) compared to 1958-60 figures cited above.

Cirrhosis change, 1940-60; Cirrhosis change 1930-1960: 1940 data (Keller and Efron, 1955, p. 637) and 1930 data (Jellinek, 1947, p. 26) compared with 1960 data cited above.

Sex ratio change, sex ratio : increase in the sex ratio for cirrhosis 1940-1953, and the level of that ratio in 1953 (sex ratio = male rate/female rate) (Keller and Efron, 1959, p. 637).

Table 1. Correlations of measures of state policies, levels of consumption, alcohol problems, and state composition in the 48 contiguous U.S. states, circa 1960

Table 2. Correlations with trends in alcohol consumption and problems, c. 1940 - 1960

	Beer c. chg.	Wine c. chg.	Liq. c. chg.	Tot. c. chg.	Mental hosp. Adm. chg.	Cirrhosis chg. 1940-1960	Cirrhosis chg. 1930-1960	Sex ratio chg. (Cirrhosis)	Sex ratio, Cirrhosis
Beer taxes	.69	.07	.52	.40	.17	.02	.26	-.14	.09
Wine taxes	.33	.10	.02	.18	.01	.00	.23	-.15	-.06
Liq. taxes	.04	.09	.02	.04	-.09	.24	-.02	-.07	-.16
Dess. wine	.03	.27	.25	.15	.02	-.09	.01	.08	.14
Champagne	.14	.20	.04	-.05	-.04	-.01	.17	.08	.04
"Lic." state	-.01	-.01	.15	.15	.07	.06	.14	-.27	-.00
Pkg. rest.	-.21	-.12	-.12	-.12	.28	.07	.16	-.32	.02
ABC activ.	.49	-.04	.09	.33	-.14	-.07	-.18	-.15	.04
Liq. adv.	-.14	.02	-.07	-.15	-.02	-.38	-.19	.09	.25
ID card-buy	-.32	.05	-.35	-.33	-.18	-.16	-.10	.30	-.09
Beer retail	.07	.14	.18	.37	.07	-.07	.11	-.09	-.09
Liq. on lic.	-.47	-.17	-.24	-.26	-.19	.17	.24	.14	-.10
L. pkg. lic.	-.22	-.21	-.11	-.05	.00	-.02	.05	-.01	.14
Wine on lic.	-.33	-.42	-.27	-.16	-.28	.04	.08	.01	-.19
W. pkg. lic.	-.19	-.17	-.14	-.01	-.21	-.02	.21	.09	-.12
"Low price"	.02	-.05	.03	.03	-.03	.16	.03	.26	.24
Beer consum.	-.62	.01	-.36	-.40	-.37	.14	.26	.18	-.18
Wine consum.	-.30	-.30	-.03	-.16	-.38	.09	.16	.08	-.24
Liq. consum.	-.40	-.19	.09	-.06	-.41	.05	.35	.08	-.06
Tot. alco.	-.52	-.19	-.13	-.26	-.40	.11	.31	.14	-.18
Mshine. arr.	.42	-.12	.18	.15	.04	-.07	-.31	-.24	.05
Drunk Driv.	.46	-.23	.06	.27	.15	-.16	-.14	-.14	.35
Alc. MH adm.	-.33	.05	-.00	-.24	.53	.17	.17	.08	-.10
Cirr. Rate	-.47	-.17	-.12	-.25	-.35	.35	.50	.14	-.20
"Coast." sts.	-.37	.01	-.12	-.19	-.36	.26	.33	.33	-.13
"So." states	.51	-.03	.33	.25	.14	-.09	-.27	-.24	.13
Pop/sq mile	-.27	-.06	-.06	-.29	-.43	.18	.17	.10	-.05
Urban pop.	-.44	-.28	-.18	-.31	-.61	-.18	-.02	-.01	-.30
Med. income	-.74	-.16	-.36	-.44	-.48	-.12	.21	.11	-.21
Dry-pop.	.58	.16	.42	.30	.14	.11	-.19	-.10	.19
Dry vote '33	.49	.18	.27	.35	.30	-.16	-.29	-.05	.11
Beer c. chg.		.10	.53	.66	.19	-.00	-.33	-.16	.14
Wine c. chg.	.10		.11	.05	.21	.14	.14	.16	.11
Liq.c.chg.	.53	.11		.57	.05	.08	.03	-.11	-.01
Tot. c.chg.	.66	.05	.57		.03	-.02	.02	-.05	.19
MH adm. chg.	.19	.21	.05	.03		.12	-.05	-.14	.14
Cirr. chg. '40	-.00	.14	.08	-.02	.12		.62	.13	-.08
Cirr. chg. '30	-.33	.14	.03	.02	-.05	.62		.17	.05
Sex rat. chg.	-.16	.16	-.11	-.05	-.14	.13	.17		.58
Sex ratio	.14	.11	-.01	.19	.14	-.08	.05	.58	