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Explorations in Economic History 42 (2005) 529–546
Explorations in Economic History
www.elsevier.com/locate/eeh

The anti-tobacco movement in the Progressive Era: A case study of direct democracy in Oregon ☆

John Dinan [a], Jac C. Heckelman [b,*]

[a] *Department of Political Science Wake Forest University, USA*
[b] *Department of Economics, Wake Forest University, USA*

Received 17 May 2004
Available online 5 April 2005

Abstract

Little attention has been given to the cigarette bans that were enacted by many states in the late-19th and early-20th century. The recent study by Alston et al. [Explorations in Economic History 39 (2002) 425] represents the only empirical analysis of this issue. Alston et al., as typical for many other studies of historical regulatory movements, rely on legislative vote outcomes. In this article we examine the only occasion when a cigarette ban was put to a popular vote, in Oregon in 1930, and highlight the benefits of studying direct-democratic votes to assess support for regulatory movements. To study the relationship between the anti-cigarette movement and other reform movements of the era, we compare the determinants of support for the cigarette ban with support for an Oregon alcohol prohibition referendum in 1933. Our results suggest that supporters of both reform movements were more likely to be found in counties with higher percentages of women, evangelical Protestants, and rural residents, which contrasts with Alston et al.'s study of state legislative behavior. In addition, greater support for alcohol prohibition in particular was found in counties with a larger percentage of immigrants and, to a lesser extent, more registered Republicans.

☆ An earlier version of this paper was presented at the 2003 Southern Economics Association conference under the title of "Gone in a Puff of Smoke: Rejection of the 1930 Oregon Constitutional Amendment to Ban Cigarettes." We appreciate comments from Robert Whaples and Joe McGarrity. Research assistance was provided by Ethan Dougherty.
* Corresponding author. Fax: +1 336 758 6028.
E-mail address: Jac_C_Heckelman@mta.wfu.edu (J.C. Heckelman).

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doi:10.1016/j.eeh.2005.02.002

Keywords: Regulation; Reform movement; Cigarettes; Prohibition; Referendum

1. Introduction

During the last four decades, concerns about health risks associated with smoking have led federal, state, and local governments in the US to enact restrictions on how cigarettes can be advertised, where they can be smoked, and to whom they can be sold (Derthick, 2002; Studlar, 2002). What has received less attention is the significant amount of political activity in this area in the late-19th and early-20th century that was driven to a significant degree by moral concerns, and which was aimed at securing outright bans on the sale of cigarettes.

Although some scholars took note of this earlier wave of anti-cigarette legislation at the time (Gottsegen, 1940, pp. 153–155; Werner, 1922, pp. 106–108), and a few others have made recent mention of these developments (Burnham, 1993, pp. 86–111; Foster, 2002, pp. 147–150), including one extensive study (Tate, 1999), several questions remain to be answered about this movement. First, we seek to determine the primary supporters of these cigarette bans. Second, we explore the relationship between supporters of these cigarette bans and supporters of other contemporaneous reform movements, such as the movement to ban the sale of alcohol, which has received far more attention in the literature (Blocker, 1989; Clark, 1976; Hamm, 1995; Kerr, 1985).

There has been one effort to address the first of these questions, in the form of an article by Alston et al. (2002) that examined the turn-of-the-20th-century anti-cigarette movement in the US and Canada. In particular, they sought to identify the determinants of support for cigarette prohibition in the US by investigating which state legislatures proposed or enacted anti-smoking statutes. Our purpose in this study is to continue this line of inquiry, but to examine the only occasion when a cigarette ban was put to a direct-democratic vote, which took place in Oregon in 1930 when a constitutional amendment was placed on the ballot through the initiative process and then rejected by the voters.

As Kirchgassner (2002) describes, there are a number of reasons why differences might arise between direct-democratic and legislative votes. Principal-agent problems allow legislators to occasionally indulge their own ideological preferences at the expense of their constituents. Legislators may also be influenced by special-interest pressures which are more effective on the smaller body of legislators than the general public, especially when individual legislators rely on funds from these groups to help finance their campaigns. Bureaucracies might also influence legislative votes in a direction away from public preferences. Even when legislators attempt to faithfully respect their constituents' interests, direct-democratic votes can still differ from legislative outcomes. Due to the skewed distribution of heterogeneous voters, the preferences of the state median voter can differ from the majority preference of the various district median voters, and consequently the median legislator. In addition, when the legislators recognize that the preferences on specific issues are weak, they may be able to trade votes on these issues in return for additional votes on more important issues.

This type of logrolling behavior is not available to the general population in a direct democracy setting. Such differences between legislative and direct-democratic outcomes have been well chronicled in the public finance literature for budgetary issues, such as expenditure and debt levels (Kirchgassner, 2002), and there is good reason to expect similar differences to arise in regard to regulatory policies.

While analyses of legislative outcomes can answer important questions regarding legislator preferences, for the reasons described above we believe the demand for various regulatory policies is better addressed by studying instances of direct democracy. In respect to cigarette prohibition, the 1930 referendum in Oregon on an anti-cigarette amendment represents a unique case for understanding the social forces supporting cigarette prohibition.[1] We seek to determine which characteristics correlate with support for the cigarette prohibition movement by exploiting the variation in county-level voting on the amendment. In doing so, we follow the lead of several scholars who have made use of direct-democratic election results to contribute to our understanding of other Progressive-Era movements (Costa, 1995; Marshall, 1998; McDonagh and Price, 1985; Smith and Lubinski, 2002).

Regarding the relationship between the supporters of the anti-cigarette and anti-liquor movements, there has been much discussion in the literature about the basic similarity in the goals of the two movements and the various alliances among the groups that were advocating these goals (Burnham, 1993, pp. 5–6, 42–43, 95–96; Foster, 2002, pp. 147–150), but there are also suggestions that the movements diverged in important respects in their goals and strategies, particularly after World War I (Tate, 1999, pp. 123–124, 149–150). The fact that the November 4, 1930, Oregon popular vote on the anti-cigarette constitutional amendment was followed on July 21, 1933, by a popular vote on the repeal of the state constitutional alcohol prohibition amendment provides an excellent opportunity to conduct an empirical study of this relationship between the two movements and to determine the extent of the similarities and differences between their supporters.

2. The context of the 1930 Oregon Anti-Cigarette Amendment

The 1930 vote on the Oregon Anti-Cigarette Amendment came at the tail end of a movement that saw 15 states ban the sale, and occasionally manufacture and use, of cigarettes, beginning in 1895 and ending in 1927 (Gottsegen, 1940, p. 154). In contrast with the current anti-cigarette movement, this turn-of-the-20th-century movement was driven to a great extent by moral concerns. Even "[m]ost of the doctors who attacked cigarettes during the progressive era regarded health as a secondary issue in the debate over smoking." (Tate, 1999, p. 52).

The anti-cigarette movement enjoyed its first significant success during the 1890s, when Washington, North Dakota, Iowa, and Tennessee all enacted cigarette bans of

[1] The only other occasion when cigarette regulation was put to a popular vote was in North Dakota in 1920, when voters rejected an initiated statute that would have legalized the sale of cigarettes but prohibited them from being sold to minors (Graham, 1978, p. 133).

some sort. The movement reached its height between 1900 and 1909, when bans were enacted in Oklahoma, Indiana, Wisconsin, Arkansas, Illinois, Nebraska, Kansas, Minnesota, and South Dakota, and reenacted in Washington. For a variety of reasons, World War I had the effect of dampening state legislatures' enthusiasm for these bans, and the only other states to enact bans after the war were Idaho and Utah, both of which acted in 1921. To be sure, many of these bans were only weakly enforced. In addition, several of these bans were overturned within the year, whether by the state supreme court (as in Illinois) or by the same legislature later in the same session (as in Idaho). Moreover, the bans that were not repealed immediately were all repealed several years, or at most, a few decades after their enactment. When the Kansas Legislature repealed its ban in 1927, this was the last statute to be removed from the books, and no other states had any success in enacting new bans after that time. (Tate, 1999, pp. 159–160).

In part because it took place at the tail end of this movement, the 1930 Oregon Anti-Cigarette Amendment has, with a few brief exceptions (Brooks, 1952, p. 275; Gottsegen, 1940, p. 155), been largely ignored in the literature. The amendment sought to "prevent the manufacture, importation, possession, advertising, sale or giving away any cigarettes, cigarette papers, or materials for their manufacture within the state of Oregon." The measure would also prohibit cigarettes from being "advertised in any newspaper or other periodical published therein, nor upon any billboard or in any other manner whatsoever." Any person who violated this provision would be guilty of a misdemeanor and "fined not less than $25 nor more than $250, or confined in the county jail for not less than 30 nor more than 90 days, or both fine and imprisonment in the discretion of the court." (State Ballot Measures: No. 10—Anti-Cigarette Amendment 1930).

Voters overwhelmingly rejected the Anti-Cigarette Amendment by a rate of almost three-to-one. Yet despite being placed 10th on the ballot, the total number of votes cast on this amendment exceeded the number of votes cast on any of the other 12 ballot measures, as well as for the US Senate election, suggesting this was a matter of great concern to the typical voter. As shown in Table 1, votes were cast on the Anti-Cigarette Amendment by 83% of the voters present in the election, and 50% of all registered voters. Only the gubernatorial election generated more total votes, but roll-off for the Anti-Cigarette Amendment was small, as total votes on this amendment amounted to 86% of the gubernatorial total.

Table 1
1930 election statistics

	Total number	Percentage of age-eligible population	Percentage of registered voters	Percentage of actual voters
Age-eligible population	621,375			
Registered voters	420,037	67.6		
Actual voters	253,779	40.8	60.4	
Gubernatorial election votes	244,882	39.4	58.3	96.5
Cigarette amendment votes	210,496	33.9	50.1	82.9
Senate election votes	203,270	32.7	48.4	80.1

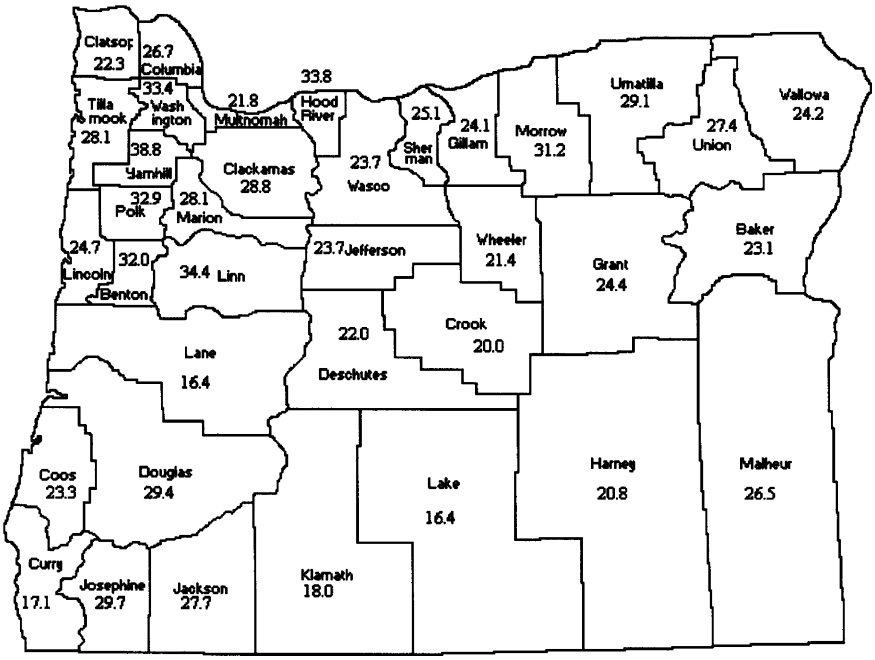

Fig. 1. Oregon county map with percentage support of cigarette amendment.

Fig. 1 provides vote returns on the Anti-Cigarette Amendment by county, taken from the Official Abstract of Votes.[2] Only seven counties exceeded 30% support for the amendment, five of which share a border in the northwest portion of the state. At the other extreme, four counties yielded less than 20% support, three of which are in the southern portion of the state.

3. Contextual variables and data description

Alston et al. (2002) is the only previous multi-variate analysis of cigarette bans of which we are aware. Their study differs in that they seek to explain the variation in which state legislatures considered and passed such laws. Their independent variables include the percentage voting for the Progressive Party for presidency in 1912, percentage of the population that are members of the "socially active" Protestant churches,[3] urbanization rate (a proxy for cigarette consumption), and the amount of cigarette production in the state. The Progressive vote and percentages of Protestants were found to be positively statistically significant in explaining laws considered when each was included separately, but not for explaining laws actually passed.

[2] We thank the Oregon Secretary of State office for sending these data.

[3] These include Episcopalians, Methodists, Baptists, Presbyterians, Disciples of Christ, Congregationalists, and Northern Brethren.

Urbanization never had a significant impact, and cigarette production negatively affected the likelihood of a law passing, but not of its being considered. They also reported to have run regressions including per capita income but never found a significant result for that variable. We try to follow their framework for explaining direct voting in Oregon, but by using county-level data and making modest modifications to better represent our particular case study.

We include measures for Protestantism, urbanization, and wealth, as did Alston et al., but we also modified one of their measures, removed another, and added new variables. As a proxy for political ideology, the Progressive Party vote for the presidency in 1912 is too far removed from our voting study of 1930, and so we relied instead on party registration rates in 1930.[4] Since Oregon is not a tobacco state, a cigarette production variable could not be included. Given the association of cigarette use with immigrants during this period (Tate, 1999), we include a variable for immigrants, as proxied by the percentage of foreign-born whites. In addition, the influence of women in the western states and the importance of the Women's Christian Temperance Union in particular (Foster, 2002, pp. 148–149) suggest that gender may be a relevant factor. Therefore, we include a variable representing the percentage of the female population.

Basic demographic data, including the number of residents that are female, live in rural areas, or are immigrants, are taken from the 1930 census. Oregon's immigrant population was comprised of relatively high percentages of Canadians (non-French), and Germans and Swedes, concentrated in the rural areas. The overall composition of immigrants in Oregon appeared to be roughly similar to its neighbor to the north in Washington (except the German contingent was much larger) but quite different from the other border states of Idaho, Nevada, and California.

A special census in 1926 was taken of the religious bodies, from which we cull the number of individuals affiliated with a Protestant church. The "socially active" Protestant denominations considered by Alston et al. include Episcopalians, Methodists, Baptists, Presbyterians, Disciples of Christ, Congregationalists, and Northern Brethren. These last two groups were not enumerated in the Census for Oregon. The only other Protestant denomination included in the Census is for Lutherans. Supporting the decision of Alston et al., we find weaker results when including the Lutheran population in our regression so they are dropped from our Protestant variable.[5]

Due to the absence of county-level data for per capita income, wealth is proxied by the per capita total value of property assessed in each county by the state tax com-

[4] We also considered instead the percentage of the vote for the Progressive Party candidate (Robert La Follette) in the 1924 election as a proxy for ideology but this variable was never significant, so we do not report those results. This should not be surprising since as noted by Alston et al. (2002, p. 435, n. 17), La Follette "shied away from supporting the regulation of social behavior" and even took a "strong stance against alcohol prohibition."

[5] Individually, the percent of Lutherans is never statistically significant, and when Lutherans are included in the Protestant variable the *t* ratio of this coefficient and overall fit of the regression is lessened. As detailed below, this is also true for some of the other denominations but they are included to retain consistency with Alston et al.

Table 2
Descriptive statistics

	Mean	SD	Median	Minimum	Maximum
Support cigarette ban	26.3	5.3	25.8	16.4	38.8
Oppose prohibition repeal	37.6	8.6	37.5	19.3	53.5
Female	45.3	2.5	45.9	40.7	49.8
Protestant	9.7	5.0	9.7	2.1	20.4
Republican	70.3	6.4	71.1	54.3	84.3
Urban	24.7	22.6	21.6	0.0	86.3
Wealth	405.7	344.9	290.6	23.5	1506.3
Immigrant	7.9	4.2	6.8	2.5	26.6

mission.[6] Our ideological measure is proxied by the percentage of registered Republicans. The total value of property and number of registered Republicans are taken from the Oregon Blue Book. All data are then converted to per capita or percentage basis by dividing by the total population in each county, taken from the 1930 census. The exception is the percentage of registered Republicans, which is measured as a percentage of those registered either as Republican or Democrat. The Oregon Blue Book lists the number of people registered as Republican, Democrat, Progressive, Prohibition, Socialist, or Miscellaneous. The number of voters registered as other than the first two is a trivial amount and is ignored in our study.[7] Descriptive statistics for all variables are presented in Table 2.

4. Regression analysis of the Anti-Cigarette Amendment

Regression results are presented in Table 3 under the Cigarette column. The dependent variable is the percentage of votes cast in favor of the cigarette ban.[8] Controlling for the other factors, our results suggest that counties with larger female populations voted more heavily in favor of the ban. A 1 percentage point increase in the female population would result on average in a 0.86 percentage point increase in support of the ban. This is the largest marginal effect we find for the level of support among the potential factors considered. As shown by the standardized beta, a one standard deviation change to the female population in a county is estimated to result in a .4 standard deviation change in support of the ban.

[6] This state tax commission primarily measures the value of infrastructure (railroads, utilities, etc.) and thus represents only a small portion of total property value in each county, such as the value of land, animals, etc. Thus, our measure may be a poor proxy for wealth. However, the bulk of the property values in each county is assessed by the county assessor, and therefore may not be consistently measured across counties.

[7] Out of 420,127 total registered voters for the state, only 323 are Progressive, 929 are Prohibition, and 1302 are Socialist, compared to 300,121 Republicans and 108,642 Democrats.

[8] Linear estimates from ordinary least squares analysis were found to be quantitatively similar to those from logistic analysis on the log of the odds ratio. For transparency of information, only the OLS estimates are reported below.

Table 3
Determinants of support for reform measures

	Cigarettes	Prohibition	Prohibition	Reform support difference (Prohibition – cigarettes)
Constant	−23.7	−22.4	−10.3	1.3
	−1.387	*−1.014*	*−0.483*	*0.059*
Female	0.863**	0.954**	0.514	0.092
	2.351	*2.011*	*1.061*	*0.195*
	(0.41)	(0.28)	(0.15)	(0.04)
Protestant	0.608**	1.044**	0.734**	0.436*
	3.469	*4.606*	*2.910*	*1.937*
	(0.57)	(0.61)	(0.43)	(0.38)
Republican	0.092	0.220*	0.173	0.128
	0.909	*1.681*	*1.394*	*0.985*
	(0.11)	(0.16)	(0.13)	(0.14)
Urban	−0.090**	−0.187**	−0.141**	−0.097**
	−2.989	*−4.789*	*−3.375*	*−2.495*
	(−0.38)	(−0.49)	(−0.37)	(−0.38)
Wealth	0.0002	0.0010	−0.0001	−0.0002
	0.107	*0.001*	*0.044*	*−0.082*
	(0.01)	(0.04)	(−0.00)	(−0.01)
Immigrant	0.085	−0.548**	−0.591**	−0.633**
	0.510	*−2.539*	*−2.917*	*−2.952*
	(0.07)	(−0.27)	(−0.29)	(−0.47)
Support cigarette ban			0.511**	
			2.273	
			(0.31)	
R^2	.689	.803	.834	.559
Adjusted R^2	.625	.763	.792	.468
Mean, dependent variable	26.3	37.6	37.6	11.2

Note. *t* statistics in italics and standardized betas in parentheses below coefficients.
* Significant at 10%.
** Significant at 5%.

Religious affiliation also appears to play a role, partially consistent with the analysis of Alston et al., who found that variation in the percentage of Protestants in a state helped explain if cigarette bans were considered in the state legislature, but concluded it was not a contributing factor to explain which states enacted bans. We find that, controlling for the other factors, counties with larger Protestant populations may have voted more heavily in favor of the cigarette amendment. A one standard deviation change in the "socially active" Protestant church membership (recall that this does not include Lutherans) in a county is estimated to lead to a .57 change in the standard deviation of support for the ban. The percentage of Protestants in a county is estimated to be the strongest individual contributing factor to explain the variation in voter support across the counties and is consistent with the conventional wisdom that certain Protestant groups were actively involved in the reform movement.

Holding constant the other factors, we find no independent effect from political ideology, as represented by party registration rates. Alston et al. found political party

support to be a significant factor in explaining state legislatures' consideration of anti-cigarette laws, but not for their adoption, and only then when religious composition was not included as an additional explanatory variable. If Protestants tended to disproportionately support the progressive parties, then there might be significant overlap with our ideology variable, but dropping the Protestant variable from the regression did not significantly affect the Republican result.

Urbanized counties typically showed greater opposition to the ban. Since cigarette smoking is expected to be greater in urban areas (Alston et al., 2002), this is consistent with smokers trying to protect their ability to smoke. Alternatively, it might simply reflect differences in political or moral views between those living in the city and those in the country, regardless of their personal cigarette consumption habits. Our finding contrasts with Alston et al.'s regression analysis which never found urbanization rates to play a significant role in state legislative behavior. Our estimates imply that a one standard deviation change in the county urban population would result in a .4 standard deviation change in voter support for the ban, an effect roughly comparable to a one standard deviation change in the male–female ratio of a county.

Finally, it appears that neither wealth nor immigrant status played much of a role in explaining voter behavior. Controlling for the other factors, wealthier counties and counties with greater immigrant populations are estimated to have had roughly the

Table 4
Protestant support for reform measures, by denomination

	Cigarettes	Prohibition	Reform support difference (Prohibition − cigarettes)
Baptist	1.38**	1.64**	0.26
	2.44	*1.96*	*0.37*
	(0.36)	(0.27)	(0.06)
	[.635]	[.699]	[.504]
Methodist	1.15**	2.28**	1.13*
	2.23	*3.35*	*1.86*
	(0.35)	(0.42)	(0.32)
	[.624]	[.754]	[.555]
Disciples of Christ	1.21**	1.85**	0.64
	3.17	*3.46*	*1.28*
	(0.46)	(0.43)	(0.22)
	[.673]	[.759]	[.529]
Episcopal	0.67	0.25	−0.43
	0.74	*0.19*	*−0.41*
	(0.10)	(0.02)	(−0.06)
	[.568]	[.660]	[.505]
Presbyterian	−0.10	1.36	1.46**
	−0.14	*1.43*	*1.96*
	(−0.02)	(0.19)	(0.31)
	[.560]	[.682]	[.560]

Note. t statistics in italics, standardized betas in parentheses and R^2 in brackets below coefficients. Each denomination represents a separate regression with control factors as in Table 3 (except Protestant).

* Significant at 10%.

** Significant at 5%.

same level of support for the cigarette ban as any other county. Alston et al. also found a non-significant result regarding wealth for consideration and passage of laws by the state legislature, but they did not examine the percentage of immigrants.

As described above, the "socially active" Protestants represent several distinct denominations. To determine which particular denominations were strongest in their support of the cigarette ban, we replaced the total "socially active" Protestant percentage in the county with the percent of each particular denomination in the county, one at a time. None of these substitutions affected the significance of any of the other variables. Our results imply that the greatest impact on voting in support of the cigarette ban may have come from counties with greater Baptist, Methodist, and Disciples of Christ populations, whereas the percentage of Episcopalians and Presbyterians in the county had statistically and quantitatively insignificant impacts on the vote. As judged by the standardized betas and R^2 values, differences in the county vote patterns were impacted most by variation in Disciples of Christ population, followed closely by Baptists and Methodists, and then a large drop-off for Episcopal and Presbyterian populations. Thus, even among the "socially active" churches, our analysis suggests that in particular it was the evangelical denominations at the forefront of support for cigarette reform. For brevity, these results are summarized in Table 4 without reproducing estimated coefficients from the other variables.

5. Support for the repeal of alcohol prohibition

In their analysis of the women's suffrage movement in the Midwest, McDonagh and Price (1985) relate their findings to voter support for alcohol prohibition at roughly the same time (1913–1915). We follow here the spirit of their methodology. Our regression analysis suggested support for a cigarette ban was strongest among women, (certain types of) Protestants, and rural voters. We next seek to discover if these results are limited to the anti-cigarette movement or if they also hold for the other major social reform movement of the time involving the prohibition of alcohol. Just three years after the cigarette ban was voted down, voters in Oregon had the opportunity to repeal the state's amendment prohibiting alcohol. [9]

Voters across Oregon supported repeal of the state alcohol ban by a two-to-one margin, which is significant but not quite as strong as the level of opposition to the cigarette ban 3 years prior. In every county except one (Harvey County), the percentage of voters supporting the cigarette ban was less than the percentage of voters supporting the continuation of alcohol prohibition. A slight majority of the voters in Linn and Benton counties supported retaining alcohol prohibition, and three addi-

[9] In repealing the state constitutional prohibition amendment in 1933, Oregon voters were repealing a constitutional provision that had originally been initiated and then ratified by the voters in 1914, The Oregon legislature had proceeded at its next session, in 1915, to adopt a state prohibition statute, for the purpose of enforcing the constitutional provision. A decade and a half later, in 1932, Oregon voters repealed the 1915 state prohibition statute. The effect of this 1933 ballot measure was to complete the repeal of state prohibition by repealing the 1914 state prohibition constitutional amendment.

tional counties reached at least 47% in their support. Overall, there is a strong but not perfect positive correlation of .76 in voting to ban cigarettes and to maintain a ban on alcohol, at the county-level, as shown in Table 5 and Fig. 2.

Our expectation is that the same groups that supported instituting a cigarette ban would also support retaining the alcohol ban. Women had long been seen as strong supporters of liquor prohibition (Knight, 1976); hence the name of the Women's Christian Temperance Union, one of the leading prohibition organizations of the time. Indeed, Prohibitionists tended to support female suffrage to further their own cause (McDonagh and Price, 1985). Protestants, and particularly evangelical denominations, were also expected to incline toward support of prohibition (Clark, 1976, p. 89). Rural

Table 5
Voting support by county (percentages)

County	Cigarette ban	Alcohol prohibition
Baker	23.1	29.5
Benton	32.0	53.4
Clackamas	28.8	34.0
Clatsop	22.3	25.6
Columbia	26.7	32.5
Coos	23.3	33.1
Crook	20.0	36.9
Curry	17.1	27.8
Deschutes	22.0	29.4
Douglas	29.4	48.3
Gilliam	24.1	31.4
Grant	24.4	33.9
Harney	20.8	19.3
Hood River	33.8	45.3
Jackson	27.7	41.5
Jefferson	23.7	47.0
Josephine	29.7	40.9
Klamath	18.0	23.6
Lake	16.4	23.9
Lane	33.4	45.9
Lincoln	24.7	35.4
Linn	34.4	53.5
Malheur	26.5	41.1
Marion	28.1	38.1
Morrow	31.2	42.9
Multnomah	21.8	24.2
Polk	32.9	44.9
Sherman	25.1	43.9
Tillamook	28.1	40.2
Umatilla	29.1	42.4
Union	27.4	39.7
Wallowa	24.2	44.7
Wasco	23.7	36.5
Washington	33.4	36.5
Wheeler	21.4	36.7
Yamhill	38.8	48.3

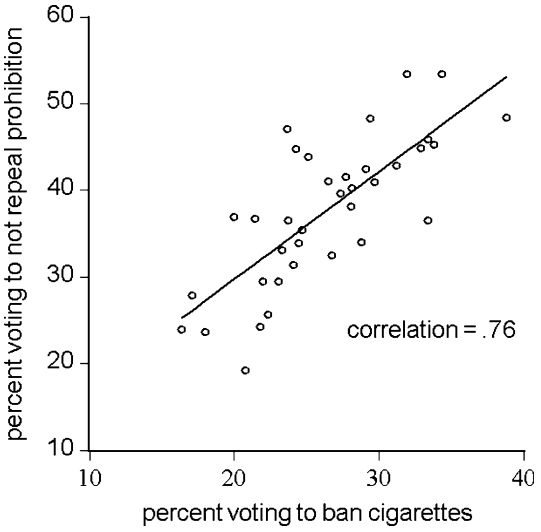

Fig. 2. Comparison of county-level referendum voting.

residents were viewed as particularly strong supporters of liquor prohibition, to the point that the 21st Amendment to the US Constitution is the only one that Congress ever directed to be ratified by state conventions rather than state legislatures, out of a concern that it would not be approved by mal-apportioned and rural-dominated state legislatures of the time (Clark, 1976, pp. 205–206). Republicans would also be expected to generally support the alcohol ban; in fact the Republican Party platform in 1932 did not call for the repeal of national prohibition, in contrast with the Democratic Party platform that year (Kyvig, 1979, pp. 154–159). Finally, given the association in the public mind of alcohol use with immigrants (Keller, 1994, p. 140), we hypothesize that this variable would correlate inversely with support for liquor prohibition.

To keep expected signs of the estimated coefficients the same as in the cigarette regression, the dependent variable in the alcohol regressions measures the percentage of voters in a county *opposing the repeal* of prohibition. In other words, we seek to find which counties were in essence more likely to show support for alcohol prohibition than for prohibiting cigarettes. Estimates from the alcohol prohibition regression are presented in the first Prohibition column in Table 3. We find very similar results, consistent with counties of greater female, Protestant, and rural populations showing greater opposition to repealing prohibition than other counties, although the estimated marginal impacts are all somewhat larger. Urbanization rates explain more of the variation in voter support for alcohol prohibition, compared to the cigarette ban, whereas the reverse is true for county gender ratios. Likewise, we again find no impact from the counties' per capita wealth. The only strong difference we find between the two regressions is that counties with a larger immigrant population appear to have had a significantly lower percentage of voters supporting the retention of alcohol prohibition, consistent with the notion of immigrants opposing alcohol prohibition, whereas we found no impact from immigrant populations on

explaining voting for or against the cigarette ban. Although we now find that the percentage of registered Republicans in a county may have affected voting for alcohol prohibition by a larger degree than for banning cigarettes, the estimated coefficient is only borderline on achieving statistical significance, its standardized beta is smaller than for any of the other statistically significant variables, and a Wald test is unable to reject equivalence for this coefficient across the two equations.

A Wald test does confirm non-equivalence of the two equations overall. Individual Wald tests reveal that the differences are limited to the estimated marginal effects for Urban (strongly significant in both regressions) and Immigrant (significant only for alcohol prohibition). Residuals for the two regressions are correlated only at a modest .388, suggesting voting on each measure can be treated independently. Only the counties of Curry and Lake, which have the two lowest levels of support for the cigarette ban, and also relatively low support for alcohol prohibition, generate large (negative) errors in both regressions.

As with voting on cigarettes, the primary contributors among the Protestant populations to the variation across the counties in voting on alcohol prohibition seem to be the Baptist, Methodist, and Disciples of Christ populations, whereas the percentage of Episcopalians and Presbyterians are not statistically significant. In particular, the percentage of Methodists and Disciples of Christ in the county generate the highest t statistics, standardized betas, and R^2s when they individually serve as the classification for the Protestant denomination variable in the regression equations. The percentage of Baptists in a county, while an important factor to supporting alcohol prohibition, has slightly smaller estimated effects compared to the latter two Protestant populations. The partial correlations for the individual Protestant denominations are listed in the Prohibition column of Table 4.

To further explore differences between voting on the two reform measures, we include the percent voting in support of the cigarette ban as an additional explanatory variable in the prohibition regression. This variable can be interpreted as representing the underlying support in the county for general reform. Regression results for this specification are presented in the next to last column of Table 3. As expected, counties which showed greater support for the cigarette ban also tended to cast a higher percentage of votes in opposition to the repeal of prohibition. Controlling for cigarette reform support, we still find that the percentages of Protestants, urban residents, and immigrants in a county were statistically significantly related to support levels on prohibition. Thus, these factors appear to be of even greater importance to determining county support for alcohol prohibition than for banning cigarettes. However, the female variable is no longer statistically significant, which suggests that gender played a roughly equal role for both measures, and its standardized beta falls to roughly that of the percentage of registered Republicans, which is considered to not be of much explanatory power. As expected, the standardized betas drop across the board when county support for the cigarette ban is included as an additional explanatory variable, except for the percentage of immigrants. This confirms that immigration status was more important for explaining variation in alcohol prohibition voting than for banning cigarettes. Except for the Protestant impact, these results all support the individual Wald tests discussed above.

We also regressed the difference in county support across the two reform measures on the same set of socio-economic variables as a further way of identifying any differences in groups' support for the two reform movements. The results are given in the final column of Tables 3 and 4, and largely support the previous finding, except that the level of significance for the Protestant variable falls between the high level of statistical significance in the previous regression, and the low level of statistical significance (below the 10% threshold) determined by the Wald statistic. Among Protestant populations, the differences in voting behavior across the two measures of reform appear limited to county variation in the percentage of Presbyterians, and to a slightly lesser extent, Methodists. Their standardized betas are roughly equivalent indicating that a one standard deviation change to the size of either group would result in about the same level of difference in county-level support across the two measures of reform. The percentage of Baptists in a county appears to have had a roughly equally strong influence on support for each measure, as did the percentage of Disciples; the percentage of Episcopalians seems to have played an equally unimportant role for each measure of reform.

6. Determinants of reform turnout

A further benefit to analyzing direct-democratic elections rather than legislative behavior is that the intensity of citizen preferences might be gauged from the voter turnout data, since those who are basically indifferent to the proposed policy change would not bother to cast a ballot, whereas those who care intensely about the issue will typically vote, even when the outcome does not seem in doubt (Kirchgassner, 2002).

In this section, we explore which county demographics helped to explain the decision to cast a vote on the referenda. The most influential determinants of the referenda outcome would be those groups who tended to lean heavily in one direction *and* came out to vote. Turnout rates for both amendments were 34% of the age-eligible population. The equality in turnout for the two referenda existed despite the presence of elections for governor and for the US Senate and House when the Anti-Cigarette Amendment appeared in 1930, all of which were absent in 1933 at the time of the state Prohibition vote. The mean (unweighted) county average and median county turnout for both amendments were also 34%, but the correlation among the counties is only a modest .64, implying that the importance of demographic factors may differ across the two reform measures.[10] We present regressions in Table 6 similar to those presented above, replacing the dependent variable with the county turnout rate, in turn, for each of the two amendments.

In the case of the cigarette amendment, counties with a greater proportion of female and rural populations experienced higher turnout rates at the margin. These

[10] Wheeler is the outlier county with a 15 percentage point difference in turnout. Our results explaining turnout differences are robust to dropping this observation.

Table 6
Determinants of turnout for reform measures

	Cigarettes	Prohibition	Prohibition	Turnout difference (Prohibition− cigarettes)
Constant	−6.8	−40.1*	−36.7**	−33.2
	−0.274	*−1.869*	*−2.061*	*−1.549*
Female	0.910*	1.592**	1.138**	0.682
	1.698	*3.457*	*2.844*	*1.480*
	(0.45)	(0.71)	(0.51)	(0.37)
Protestant	−0.119	0.142	0.201	0.261
	−0.467	*0.645*	*1.101*	*1.187*
	(−0.12)	(0.13)	(0.18)	(0.29)
Republican	0.099	0.068	0.018	−0.031
	0.668	*0.531*	*0.172*	*−0.245*
	(0.12)	(0.08)	(0.02)	(−0.04)
Urban	−0.111**	−0.158**	−0.103**	−0.0047
	−2.532	*−4.182*	*−2.962*	*−1.236*
	(−0.49)	(−0.64)	(−0.42)	(−0.23)
Wealth	−0.0022	−0.0021	−0.0010	0.0001
	−0.877	*−0.985*	*−0.566*	*0.036*
	(−0.15)	(−0.13)	(−0.06)	(0.01)
Immigrant	−0.281	0.093	0.233	0.373*
	−1.153	*0.443*	*1.311*	*1.781*
	(−0.23)	(0.07)	(0.17)	(0.34)
Turnout on cigarette amendment			0.499**	
			3.772	
			(0.45)	
R^2	.300	.568	.713	.340
Adjusted R^2	.155	.478	.642	.203
Mean, dependent variable	34.3	34.2	34.2	−0.12

Note. *t* statistics in italics below coefficients, standardized betas in parentheses.
* Significant at 10%.
** Significant at 5%.

results carry over to voting on prohibition as well, with the female effect generating a higher level of statistical significance. Recall that counties with greater proportions of these groups, along with Protestant populations, were more likely to show greater support for both reform measures (see Table 3). Thus, one interpretation is that the groups that most heavily favored reform were also well mobilized (except for Protestants as a whole). Despite the similarities in the mean turnout rates and our estimated effects, our list of determinants explains almost twice as much variation in turnout for alcohol compared to cigarette reform. The difference is even greater when comparing the adjusted R^2 measures. The difference in explanatory power of the regressions comes from the two main individual contributors, namely gender and urbanization rates.

Counties with greater turnout for one measure might also be more likely to have higher turnout for the other measure, either because voters in those counties are similarly motivated on both reform measures or because they are more likely to vote in general. In the second prohibition column we add the county turnout on the cigarette

amendment as an additional explanatory variable. As expected, the estimated coefficient for this variable is positive and statistically significant, indicating a strong positive correlation for county-wide turnout across the two reform measures, independent of the other socio-economic demographics for which we controlled. Controlling for past turnout on the cigarette amendment does not alter the conclusion of the effects for the various county demographic characteristics in the previous column.

Finally, we directly compare differences in turnout in the final column of Table 6. None of the county demographics individually help explain (when controlling for the other factors) turnout differentials for a given county, except for the immigrant population, which appears to have been marginally more likely to vote on prohibition than on cigarettes. Recall from Table 3 that we found a statistically significant inverse relationship between the percentage of immigrants in a county and support for prohibition, but a significant relationship did not appear for banning cigarettes. This was the only variable that was found on a consistent basis to generate a statistically significant coefficient for one reform measure but not the other. [11]

With the exception of the Protestant variable, the same factors that help explain levels of reform support also help explain variation in turnout on these measures. This is consistent with the notion that those groups that felt strongly regarding these reform movements were also more likely to express their views by voting on reform referenda when they appeared.

7. Conclusion

Alston et al. (2002) represent the only empirical study of turn-of-the-20th-century cigarette bans. They sought to explain the variation in which state legislatures considered, or passed, cigarette bans in the late-19th and early-20th century. The purpose of our study is to make use of direct-democratic voting data to identify the principal supporters of the anti-cigarette movement and assess the relationship between support for this movement and support for other contemporaneous reform movements.

Our analysis is limited to Oregon since this is the only state holding a referendum on banning cigarettes. However, one can reasonably infer from our results that states across the country with higher levels of women, evangelical Protestants, and rural residents, would have been more likely to show higher proportions of support for the anti-cigarette movement in a direct-democratic vote. This conclusion contrasts with the study by Alston et al. (2002) regarding bans enacted through the state legislature. While their study may adequately capture the factors explaining legislator behavior, a direct democracy analysis, such as is conducted here, can more directly capture voter preferences. It is also important to remember that voting patterns at the time

[11] The percentage of registered Republicans was statistically significant at the 10% level in the initial prohibition regression, but fell below this threshold when county support for the cigarette ban was included as an additional explanatory variable. In contrast, the percentage of immigrants was statistically significant at the 5% level for both prohibition regressions in Table 3.

may have been driven largely by moral rather than health concerns, and as such might not be strongly related to current views on cigarettes, but are potentially more similar to contemporary voter preferences on other issues with strong moral overtones.

Although we have chosen in this paper to investigate the relationship between support for cigarette prohibition and other reform movements by focusing specifically on alcohol prohibition, there are still other reform movements that are also worthy of consideration, and that were the subject of state-level ballot initiatives for which county-level election data are available. Previous studies have been conducted by McDonagh and Price (1985) for women's suffrage in Michigan and Ohio, and Costa (1995) for state health insurance in California. Further exploration of direct democracy during the Progressive Era can lend additional insights into the alliances involved in these reform movements. Moreover, the study of direct-democratic votes throughout US history can provide insights into support for various other reform movements that have previously been explored primarily through analyses of legislative votes and outcomes.

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