Variables Related to a Referendum Vote on Creating a County Health Department

CHARLES O. CRAWFORD, Ph.D.

AS A RESULT of referendums, community health programs have been established in many parts of the United States. Fluoridation, particularly, is an issue that has received considerable attention in recent years (*1*). Regulatory measures to curb air and water pollution also are in process and, with the passage of legislation for comprehensive health planning, even more attention will be given to the dynamics of local political action on health issues.

In Pennsylvania, establishment of local and county health departments, singly or in combination, has been a goal, at least since 1948, in organizing health services in that State (*2*). Health departments have been set up in Allegheny, Bucks, Chester, Erie, and Philadelphia Counties. Other States have shown similar interest where units of government lower than counties have been a strong force in local political affairs (*3*). New York has either partial or full departments in 25 of 57 upstate counties, Illinois in 18 of 206 counties, and Michigan in 28 of 83 counties. Rationale for establishing county or multicounty health departments is the assumption that health programs designed and carried out at local levels are more flexible and better meet the needs of local citizens than programs designed for an entire State.

Analyzing the factors involved in this type of community change could shed more light on how to improve the organization and delivery of community health services, both preventive and therapeutic or rehabilitative.

The Problem

Referendum procedures normally are used to establish county health departments in Pennsylvania, although creation of a department can be authorized by resolution of the county commissioners. In a referendum, a simple majority must vote affirmatively.

With this political framework and the goal to establish county or even multicounty health departments, analyzing the factors related to voting behavior on this issue could be helpful to those attempting to understand the factors facilitating or inhibiting the formation of such units.

Two kinds of analyses can be undertaken in examining voting behavior: One is examination of the voter's view on the health issue and his voting behavior; that is, the investigation focuses on how residents voted on the issue and why. A second approach, and the one taken, is examination of the political, demographic, and socioeconomic characteristics of municipalities within a county or group of counties in relation to municipal voting patterns. Knowing the characteristics of municipalities likely to favor such an issue would enable persons interested in establishing county health departments to use their efforts more effectively than if they had no knowledge of voting behavior.

Analyzing voting patterns by these characteristics, however, helps only to the extent that information on such municipalities is available. Published demographic data now are available only for municipalities of counties in Standard Metropolitan Statistical Areas (SMSA's). One

Dr. Crawford is director of the division of behavioral science, Pennsylvania Department of Health, Harrisburg. Dr. Samuel M. Leadley, assistant professor of rural sociology at Pennsylvania State University, contributed to the interpretation of the statistical findings.

example is Chester County, Pa. (A SMSA is defined by the U.S. Bureau of the Census as one or more contiguous nonagricultural counties containing at least one city of 50,000 or more persons, or a pair of contiguous twin cities of at least this joint size, and having a general metropolitan character based on the counties' social and economic integration with the central city.)

Pinpointing communities likely to be for or against establishing a county health department could be accomplished through study of municipalities that have already completed referendums. Not only would such research be of practical value, but it also would contribute to the larger body of literature on community voting behavior.

Chester County

In Pennsylvania a borough is a separate incorporated political entity. Under State Public Law 1656, effective February 1, 1966, a borough may be established when a majority of freeholders within the proposed borough area approves and applies to the appropriate court for incorporation as a borough. None of the proposed borough area can consist of already incorporated areas. Third-class cities may become boroughs if the city electorate votes for such status. There are four classes of cities in Pennsylvania and one class of boroughs. Few boroughs are larger than cities.

Chester County is in southeastern Pennsylvania and in 1960 was part of the Philadelphia SMSA delineated by the Census Bureau. Fifty-seven townships, 15 boroughs, and one city constitute the political subdivisions or municipalities within the county. In this study selected political, socioeconomic, and demographic variables are related to the extent to which these municipalities voted affirmatively on November 8, 1966, for a county health department.

Data from the 1960 census revealed that the average (mean) population of the 15 boroughs was 3,917 and the average (mean) population of townships was 2,438. Distribution of the 15 boroughs by population was as follows: 10,000 to 16,000, two; 3,000 to 9,999, four; 1,000 to 2,999, six; and less than 1,000, three. The City of Coatesville had a 1960 population of 12,971. Chester County therefore did not have a population center of more than 16,000.

Like other counties surrounding large metropolitan cities, Chester County has experienced considerable growth in recent decades. The percentage increase in population declined from 10 percent in the 1920's to 7 percent in the 1930's. Considerable resurgence occurred in the 1940's, with an increase of 17 percent, and this rate nearly doubled during the 1950's, with an increase of 32 percent to 210,600 persons in 1960. The Pennsylvania State Planning Board estimated that during the 1960's the increase would be 33 percent to 280,000 persons in 1970.

The eastern part of Chester County, near Philadelphia, has experienced the greatest growth, doubling in population from 1950 to 1960. The western part of the county, with more agriculture, is considerably less populated and has a lower rate of population growth. In 1960 more than half (56 percent) of the county's population was classified as rural, with 6 percent classified as rural farm. The county is clearly one of contrasts.

Related Variables

Three major categories of variables were chosen to be related to voting patterns: political organization, demographic features, and socioeconomic levels. Political organization was included because it probably affects the kinds of health problems being faced. Boroughs and cities, compared with suburban and rural nonfarm areas, generally have greater population densities, more disadvantaged families, and more blue collar workers. All these characteristics may be related to a strong desire for public-supported health services.

The demographic variable was used because demographic information on Chester County was available at the census tract level (*4*). These data were collected 6 years before the referendum but nonetheless were useful for comparative purposes, especially when updated where possible.

Two indexes were used to measure population growth and mobility: (*a*) average annual percentage population increase in 1950–60 and 1960–64 and (*b*) percentage of population 5 years old and over occupying the same residence in 1960 as in 1955. Population growth could affect the nature and severity of environmental health problems, such as water supply and solid

and liquid waste disposal, and thereby condition the residents' perception of the need for a county health department. Measure of mobility was thought to affect the extent of mobility and, through this and the often-noted relationship between mobility and conservatism, progressivism or the willingness to accept change.

Although no empirical research could be found to document the relationship between community mobility levels and degree of progressivism as reflected in community voting patterns, authors have noted that the characteristics of "moving" people are thought to contribute to a greater degree of progressivism in a community. More mobile persons, particularly those moving into suburban communities, tend to be younger and better educated, to have higher incomes, and to have lived in communities where community services were provided.

Eisenstadt (*5*), in citing a work of Karl Deutsch, noted that change in residence is an indicator of the extent to which older social and psychological commitments are broken down and people are more receptive to new patterns of behavior. These findings and ideas would lead one to suspect that communities with higher rates of residential mobility would reflect greater progressivism.

The two socioeconomic variables used, median family incomes and median number of years of school completed by persons 25 years old or older, were expected to condition voting patterns since residents with high socioeconomic status are known to vote differently from those with low socioeconomic status when social or cultural change is considered (*6*).

Percentage affirmative vote (PAV), the central variable of concern in this research, was measured by data obtained from the Chester County Board of Elections. The question was: "Shall Chester County create a county department of health?" Data on the total number of persons voting on the issue and the number voting affirmatively were used to compute a PAV for each of the county's 73 municipalities. In the analysis, four ranges of PAV were used: less than 40 percent, 40 to 49.9 percent, 50 to 59.9 percent, and 60 percent or more. These ranges allowed distinctions between types of communities at high and low PAV levels.

Although a simple majority of affirmative votes is the minimum needed for passage of a referendum at the county level, it seemed important to identify characteristics of those municipalities with higher rates since they contribute to the county majority at a higher level than those with lower rates of PAV.

It should be made clear that the unit for analysis is the municipality and not the individual voter. The primary reason for choosing the municipality was to establish the predictability of this geographic area. Social and psychological research on the voting behavior of persons is also needed and would be of considerable value.

Analytic Determinations

Political status. One of the most clear-cut relationships obtained was that between political status of the municipality and PAV. The boroughs and city were about 2.5 times as likely to have 60 percent or more affirmative vote as the townships, or 62.4 compared with 24.6 percent (table 1). Townships, on the other hand, were nearly three times as likely as the boroughs and city to have less than 40 percent favorable vote, 17.5 compared with 6.3 percent.

Population growth. Data on the relationship to PAV of population growth for 1950–60 and 1960–64 revealed tendencies toward curvilinear relationships, with the fast- and slow-

Table 1. Percentage affirmative vote, by political organization of municipality

Percentage affirmative vote	Township		Borough and city		Total	
	Number	Percent	Number	Percent	Number	Percent
Total	57	100.0	16	100.0	73	100.0
60 or more	14	24.6	10	62.4	24	32.9
50–59.9	21	36.8	4	25.0	25	34.2
40–49.9	12	21.1	1	6.3	13	17.8
Less than 40	10	17.5	1	6.3	11	15.1

growing municipalities being two or three times more likely to have 60 percent or more affirmative votes than those with moderate growth rates (table 2). At low PAV levels, there were greater proportions of high and low growth municipalities than those with moderate growth.

This curvilinear relationship can be explained partly by the political status of the slow-growing counties and the characteristics of expansion in the fast-growing counties. The slow-growing municipalities are much more likely to be boroughs or cities than are the moderate and fast-growing municipalities (table 3) and, as stated previously, residents of the boroughs and cities are more likely to vote affirmatively. Municipal status, then, affects the interpretation of the curvilinear relationship between population growth and PAV. This consideration is particularly important at low growth rate levels.

The second factor affecting the curvilinear relationship between growth and PAV concerns the socioeconomic characteristics of the high growth townships, most of which are in the eastern part of the county. The data in tables 4 and 5 indicate that municipalities with high growth rates are characterized by high educational and income levels as compared with municipalities having low growth rates. The effect of educational and income levels on PAV is discussed later. Suffice it to say that the relationship is rather clear cut and that the higher socioeconomic levels are associated with a higher PAV.

Table 3. Average annual percentage increase in population of municipality, 1960–64 and 1950–60, by political organization of the municipality

Percentage population increase	Number of municipalities by political organization			Total
	Township	Borough	City	
1960–64 growth				
Total	57	15	1	73
Less than 2	15	10	1	26
2–3.9	26	3	------	29
4 or more	16	2	------	18
1950–60 growth				
Total	57	15	1	73
Less than 2	12	13	1	26
2–3.9	21	2	------	23
4 or more	24	----------		24

Population mobility. The data in table 6 show that municipalities with a high percentage of persons occupying the same residence in 1960 as in 1955 (greater immobility) were about half as likely to have 60 percent or more affirmative votes as those with a low percentage of persons in the same residence (greater mobility). None of the 18 more mobile municipalities had

Table 2. Percentage affirmative vote, by average annual percentage increase in population of municipality, 1960–64 and 1950–60

Percentage affirmative vote	Percentage population increase							
	Less than 2		2–3.9		4 or more		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1960–64 growth								
Total	26	100. 0	29	100. 0	18	100. 0	73	100. 0
60 or more	9	34. 6	5	17. 2	10	55. 5	24	32. 9
50–59.9	8	30. 8	14	48. 4	3	16. 7	25	34. 2
40–49.9	5	19. 2	5	17. 2	3	16. 7	13	17. 8
Less than 40	4	15. 4	5	17. 2	2	11. 1	11	15. 1
1950–60 growth								
Total	26	100. 0	23	100. 0	24	100. 0	72	100. 0
60 or more	11	42. 3	3	13. 0	10	41. 7	24	32. 9
50–59.9	7	26. 9	12	52. 2	6	25. 0	25	34. 2
40–49.9	4	15. 4	4	17. 4	5	20. 8	12	17. 8
Less than 40	4	15. 4	4	17. 4	3	12. 5	11	15. 1

a PAV less than 40, while a fifth (or four) of the least mobile had a rate lower than 40.

Again, however, the political organization of the municipality needs to be considered. Mobility is least among the boroughs and city and most in the townships (table 7). None of the most mobile municipalities (less than 50 percent in the same residence in 1960) were boroughs or the city; all were townships. On the other hand, almost half of the least mobile municipalities (47 percent) were boroughs or the city. The trends were very clear cut.

Median family income. Because municipalities with high population growth rates are more likely to have higher PAV and median family incomes than low growth municipalities, one would expect that median family income considered alone would be an effective predictor of PAV. The data in table 8 support this contention, especially among the high PAV municipalities.

Municipalities with median family incomes of $7,000 or more were a little more than twice as likely to have 60 percent or more PAV as those with median family incomes of less than $6,000, or 54.5 compared with 26.1 percent.

Table 4. Average annual percentage increase in population of municipalities, 1960–64, by income and education

Income and education	Percentage increase in population							
	Less than 2		2–3		4 or more		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	19	100.0	24	100.0	17	100.0	[1] 60	100.0
Median family income in 1959:								
Less than $6,000	11	57.9	9	37.5	3	17.6	23	28.3
$6,000–$6,999	8	42.1	9	37.5	9	53.0	26	43.4
$7,000 or more			6	25.0	5	29.4	11	18.3
Total	26	100.0	29	100.0	18	100.0	73	100.0
Years of school completed by persons 25 and over:								
8–9.9	7	26.9	5	17.2			12	16.4
10–11.9	16	61.5	11	37.9	8	44.4	35	48.0
12 or more	3	11.6	13	44.9	10	55.6	26	35.6

[1] No income figures available in census report for 13 municipalities.

Table 5. Average annual percentage increase in population of municipalities, 1950–60, by income and education

Income and education	Percentage increase in population							
	Less than 2		2–3		4 or more		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	21	100.0	18	100.0	21	100.0	[1] 60	100.0
Median family income in 1959:								
Less than $6,000	8	38.1	10	55.5	5	23.8	23	38.3
$6,000–$6,999	12	57.1	7	38.9	7	33.3	26	43.4
$7,000 or more	1	4.8	1	5.6	9	42.9	11	18.3
Total	20	100.0	23	100.0	30	100.0	73	100.0
Years of school completed by persons 25 and over:								
8–9.9	6	30.0	4	17.4	2	6.6	12	16.5
10–11.9	8	40.0	13	56.5	14	46.7	35	47.9
12 or more	6	30.0	6	26.1	14	46.7	26	35.6

[1] No income figures available in census report for 13 municipalities.

None of the high income municipalities had less than 40 percent PAV whereas, in the two lower income groups the percentages of municipalities with less than 40 percent PAV were 17.4 and 19.2, or between one-sixth and one-fifth of the total for municipalities with low income levels.

Median years of school completed. Consistent with the data on incomes, but not as defined, are the data on educational levels. According to table 9, municipalities with high educational levels (12 or more years of school completed) are twice as likely to have 60 percent or more PAV as those with low educational levels. But when the 50 to 59.9 percent PAV group is examined, the reverse trend is true, and municipalities with high educational levels have a lower percentage than those with low educational levels.

When the two upper PAV groups are combined into one category of 50 percent PAV or more, the percentage PAV rises slightly with increases in educational level. The likelihood that a municipality in the highest educational

Table 6. Percentage affirmative vote, by percentage of persons 5 years old and over in 1960 living in same residence as in 1955

Percentage affirmative vote	Percentage in same residence						Total	
	Less than 50		50–59.9		60 or more			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	18	100. 0	36	100. 0	19	100. 0	73	100. 0
60 or more	9	50. 0	10	27. 8	5	26. 3	24	32. 9
50–59.9	5	27. 8	13	36. 1	7	36. 8	25	34. 2
40–49.9	4	22. 2	6	16. 7	3	15. 8	13	17. 8
Less than 40			7	9. 4	4	21. 1	11	15. 1

Table 7. Percentage of population 5 years old and over in 1960 living in same residence in 1960 as in 1955, and political organization of municipality

Percentage of population	Political organization				Total	
	Township		Borough or city			
	Number	Percent	Number	Percent	Number	Percent
Total	57	78. 1	16	21. 9	73	100. 0
Less than 50	18	100. 0			18	100. 0
50–59. 9	29	80. 6	7	19. 4	36	100. 0
60 or more	10	52. 6	9	47. 4	19	100. 0

Table 8. Percentage affirmative vote, by median family income of municipality, 1959

Percentage affirmative vote	Median family income						Total	
	Less than $6,000		$6,000–6,999		$7,000 or more			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	23	100. 0	26	100. 0	11	100. 0	[1]60	100. 0
60 or more	6	26. 1	10	38. 5	6	54. 5	22	36. 6
50–59. 9	11	47. 8	5	19. 2	3	27. 3	19	31. 7
40–49. 9	2	8. 7	6	23. 1	2	18. 2	10	16. 7
Less than 40	4	17. 4	5	19. 2			9	15. 0

[1] Family income figures not available from census report for 13 municipalities.

Table 9. Percentage affirmative vote and median years of school completed by persons 25 years old and over in municipalities, 1960

Percentage affirmative vote	Years of school completed							
	Less than 10		10–11. 9		12 or more		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	12	100. 0	35	100. 0	26	100. 0	73	100. 0
60 or more	3	25. 0	8	22. 8	13	50. 0	24	32. 9
50–59. 9	6	50. 0	12	34. 3	7	27. 0	25	34. 2
40–49. 9	2	16. 7	8	22. 8	3	11. 5	13	17. 8
Less than 40	1	8. 3	7	20. 0	3	11. 5	11	15. 1

level will be found in the lowest PAV category is notably less than for a municipality in the middle educational level but a little more than for a municipality in the lowest educational level.

Thus, the median years of schooling completed by persons 25 years old and over in a municipality serves as a limited predictor, and only that. In this research, the factor distinguished rather well those communities likely to have the highest PAV. Beyond this observation, not much can be said.

Discussion

The results of this study offer several tentative guidelines for public health programers interested in encouraging the development of county health units. Further research would clarify the relationships discovered in the present study. At first glance it would appear that in counties with ecological and political structures like those of Chester County, most efforts for gaining support for a county health department should be directed toward townships rather than boroughs and cities, slow growth rather than fast growth municipalities, and municipalities with lower rather than higher education and income levels. In each comparison, the first category would have a lower PAV than the second category.

An important question, unanswered in the present research, is whether greater publicity for a "yes" vote was given in the categories of municipalities with high PAV and greater publicity for a "no" vote was given in those with a low PAV or whether publicity was given and received relatively equally among all municipalities and the resulting differences in PAV were due to different inclinations among voters in the municipalities. Further research including analysis of publicity efforts, available news media, and the psychology of individual voters is needed to answer questions of behavioral dynamics.

Other research needing attention is social and psychological analysis of the voter's opinion of the issue and why he voted for or against it. This analysis focuses on communities. But what does a higher PAV signify? In terms of political ideology, it could signify conservatism and a desire to return to the county powers previously held by the State—a return to "home rule." On the other hand, it could signify progressivism or a desire to take certain powers from municipalities and give them to the county—a loss of home rule and a move toward centralization.

Still another view of the problem could assert that a higher PAV merely reflects a rational desire to have a form of health service organization that is flexible and more responsive to local health needs and that considerations of political ideologists are not important. Only a series of personal interviews during or immediately after the referendum could provide answers to such questions.

It seems plausible to conclude tentatively, though, that some rather basic differences in the inclinations of voters in different municipalities are reflected in different PAV levels.

Unfortunately, the number of counties in the present study was not large enough to introduce tabular controls and perform more refined statistical analysis. In particular, the curvilinear

relationships suggested should be explored and analyzed by using appropriate curve fitting models. As data are collected on other counties, the results can be analyzed with the Chester County data if statistical tests reveal that this can be done validly.

Summary

The extent to which political, demographic, and socioeconomic characteristics of municipalities in Chester County, Pa., were related to percentage affirmative vote (PAV) on a referendum to establish a county health department was investigated. Chester County has 57 townships, 15 boroughs, and one city. Whether the municipality was a township, borough, or city proved to be a factor closely related to the percentage affirmative vote. The boroughs and city were more likely to vote for a department than were the townships.

Municipalities with higher and lower population growth rates had a higher PAV than those with moderate growth rates. Two intervening variables, however, were political organization and socioeconomic status. Boroughs and the city tended to have lower growth rates than townships. The municipalities with higher growth rates tended to have higher socioeconomic levels when measured by income and education.

Mobility was related to percentage affirmative vote in that municipalities with more mobile populations had a higher PAV than those with less mobile populations. Political organization of the municipalities had to be seriously considered when examining this relationship.

Income and education were related to PAV levels, with income data yielding more distinct relationships than educational levels. Municipalities with high socioeconomic ratings were more likely to have high PAV levels.

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PHS Staff Appointments

Dr. Harry W. Bruce, Jr., has been appointed director of the Division of Educational and Research Facilities and **Dr. Daniel Whiteside,** director of the Division of Health Manpower Educational Services in the Bureau of Health Professions Education and Manpower Training, National Institutes of Health. Both are career commissioned officers of the Public Health Service and will serve under Dr. Leonard D. Fenninger, director of the manpower bureau.

Dr. Bruce, formerly assistant director for manpower and education in the Bureau's Division of Dental Health, will direct a new division which will administer construction programs authorized under the Nurse Training Act, the Allied Health Professions Personnel Training Act, the Health Professions Educational Assistance Act, the Medical Library Assistance Act, and the Health Research Facilities Act.

Dr. Whiteside was deputy director of the Division of Health Manpower Educational Services from the Bureau's inception in January 1967 until February 1969 when he was designated acting director. The Division of Health Manpower Educational Services administers a wide variety of grant, loan, and scholarship programs for the education and training of students of health professions and operates the Health Manpower Intelligence Center.

The Bureau of Health Manpower was created January 1, 1967, as the Federal focus for programs to increase the quality and availability of health service personnel. It was merged with the National Institutes of Health in April 1968 and renamed the Bureau of Health Professions Education and Manpower Training in January 1969.