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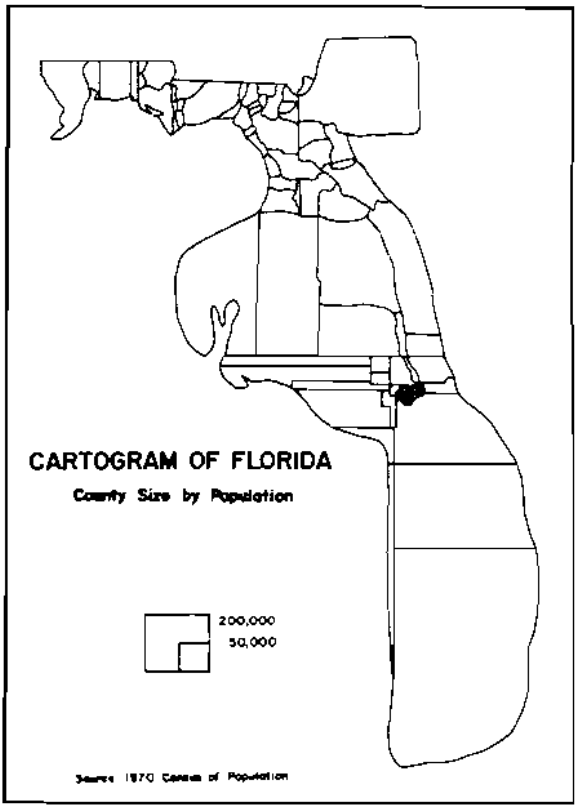

THE FLORIDA GEOGRAPHER

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EARNED DEGREES CONFERRED IN GEOGRAPHY IN FLORIDA SINCE 1948

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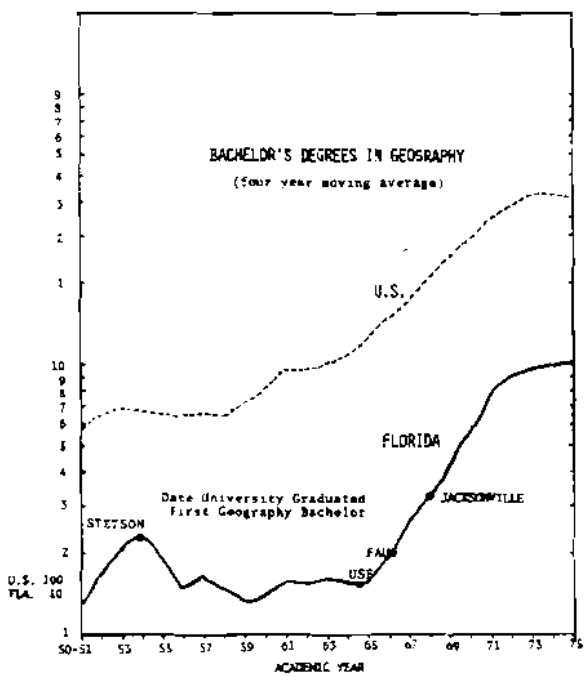
Florida's role in the education of geographers dates to well before World War II. Nevertheless, only since 1945 has its position in that area of education become nationally well established. Presently seven of the state's thirty-four degree granting colleges and universities award bachelor's degrees in the discipline, and four grant graduate degrees. A number of other institutions of higher learning offer courses in the field, but not the degree.

FIGURE 1



This study attempts to assess the vitality of geographical education within Florida using data on degrees awarded by U.S. institutions of higher education collected by the Federal Government since the academic year ending 1948. This data, which is presently being gathered by the National Center for Educational Statistics, is available for over 225 disciplines. Each institution which awards a degree in a discipline is cited, as is the number of degrees awarded by level (bachelor's, master's, and doctoral).

Undergraduate Degrees

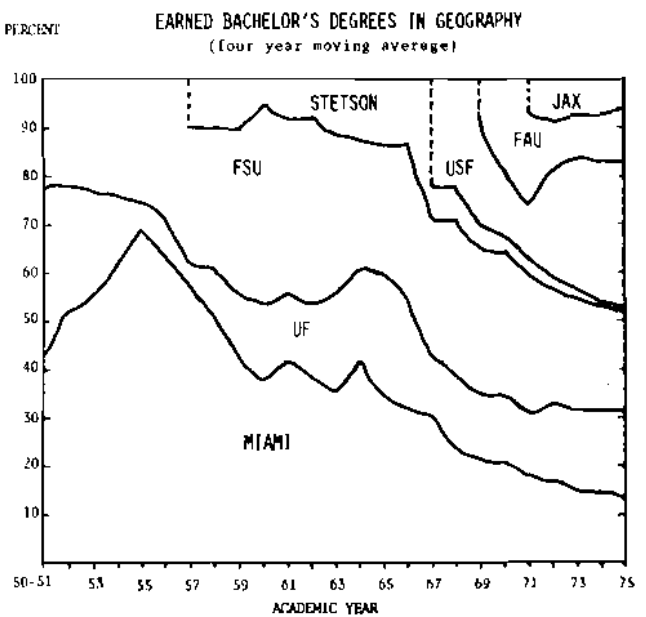
Immediately following World War II the number of bachelor's degrees awarded in geography within Florida was low, more a reflection of the small college population of the state than to a lack of student interest in geography. In the academic years ending 1948 and 1949 two bachelor's degrees in geography were awarded annually, one each year at both the University of Florida and Florida State University. Thereafter, for a brief period, the annual rate of growth in bachelor's degrees earned in geography within the state actually exceeded that for the nation (Fig. 1). This was mainly the result of the introduction of a program in geography at the University of Miami. The first class of geographers at that institution (1950), numbered fourteen. For a first graduating class, that of the University of Miami was large. Yet, the first class proved to be one of the largest the university graduated, and it was not until 1970 that it began to produce larger graduating classes.

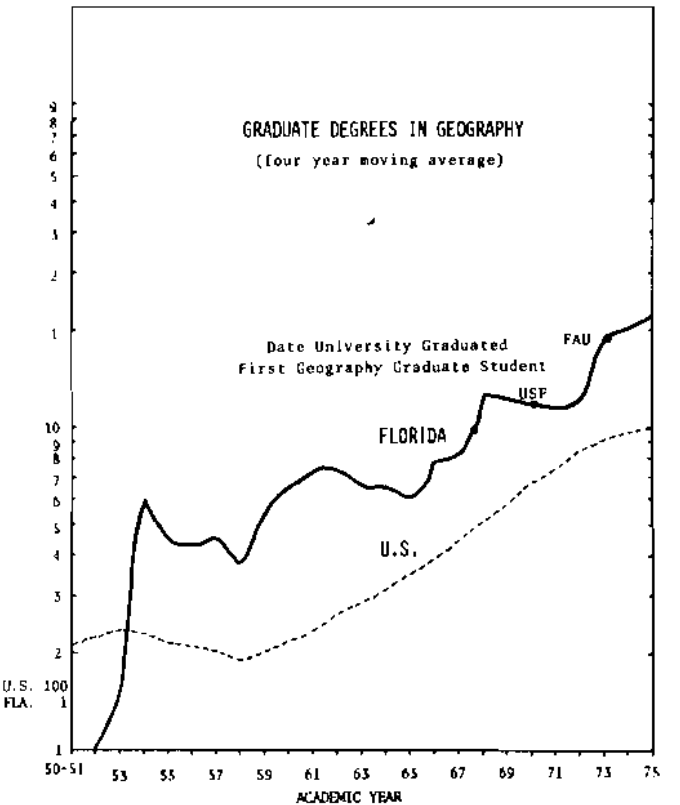
Although between 1954 and 1965 there was a gradual growth in the number of geography bachelor's degrees nationwide, this was a period of stability or actual decline in Florida. The beginning of a degree program in the discipline at Stetson University in 1954 did little to help the situation, since that university has never graduated appreciable numbers of geographers. Whereas the nation began a period of sustained rapid growth in bachelor's degrees awarded in geography in 1959, it was not until 1966 that a high growth rate began in Florida.

Once the state began its period of sustained growth it's rate was considerably more rapid than that for the nation, and its duration has been longer. The state has not experienced a year in which there was a numerical decline in the number of bachelor's degrees awarded from the previous year, while recently this has been the case nationally. Florida's rapid growth in bachelor's degrees awarded in geography reflects both greatly expanded programs in the older state universities and the opening of departments in two of its new ones. In addition, Jacksonville University awards first level degrees in geography. The impressive increase in the rate of annual growth of bachelor's degrees in the field within Florida has brought the state an increased share of the national output of geographers. Whereas in 1963 only one percent of the graduates were from Florida institutions, in the most recent year data is available (1975) the share had risen to 2.7 percent.

The relative percentages of geography undergraduate degrees by institutions within Florida have changed significantly in twenty-five years (Fig. 2). Noteworthy is the steady decline in the relative importance of degrees produced at the University of Miami. Also, the vitality of the programs in the newer departments is impressive. Today the geography degrees awarded by

FIGURE 2


EARNED BACHELOR'S DEGREES IN GEOGRAPHY
(four year moving average)
PERCENT
100
90
80
70
60
50
40
30
20
10
STETSON
JAX
FAU
FSU
USF
UF
MIAMI
50-51
53
55
57
59
61
63
65
67
69
71
73
75
ACADEMIC YEAR


GRADUATE DEGREES IN GEOGRAPHY
(four year moving average)
Date University Graduated
First Geography Graduate Student
FAU
USF
FLORIDA
U.S.
U.S. 100
FLA. 1
50-51
53
55
57
59
61
63
65
67
69
71
73
75
ACADEMIC YEAR

Jacksonville University, Florida Atlantic University and the University of South Florida account for nearly half those conferred within the state. The latter institution has, since 1973, awarded more bachelor's degrees in geography than any other department in Florida.

Graduate Degrees

Florida's graduate education in geography has been almost entirely dominated by the University of Florida and Florida State University. The former has usually produced the greater number of degrees, partially because it is the only state university authorized to award a doctoral degree. Florida State University, however, dominated graduate education in the state throughout most of the 1950s and the early 1960s. In 1970 the University of South Florida began graduating master's level geographers, as did Florida Atlantic University in 1973. The number of graduates from these institutions continues to be low compared to that from the older institutions.

Since Florida began graduating advanced level geographers, the growth rate of degrees conferred has approximated that for the nation (Fig. 3). Actually, during the period when the state was barely able to maintain the same level of output of geography bachelor's degrees each year, there were a number of years in which graduate degree output increased sharply. The temporary emphasis on graduate geographical education within the state during the 1950s, whether by administrative polity or because of the popularity of the discipline among students, is reflected in the state's contribution to the national output of graduate degrees. In the year 1959 Florida produced 3.7 percent of all the nation's advanced geography degrees, but by 1975 that share had fallen to 2.6 percent.

Geography Among the Social Sciences

To ascertain the importance of geography among the social sciences in Florida, its percentage share of the total output of bachelor's degrees earned within the seven social sciences was calculated. This was then compared with the figures for the nation (Fig. 4). The social sciences used for comparison are Anthropology, Economics, History, Political Science, Psychology, and Sociology. It can be seen that in the 1950s geography in Florida was a much more popular subject among students seeking to major in a social science than it was nationally. This may largely be attributed to its popularity at the University of Miami. In time, however, other social science departments increased their output of bachelors, both at Miami as well as at other institutions. This resulted in a decline in geography's popularity to a level where it closely approximated that for the nation. Since 1962 the Florida and the national figures have rarely been far apart.

Approximately 3.5 percent of the nation's social science graduate degrees have been awarded in geography since 1951, the percentage having fluctuated little in 24 years (Fig. 5). The share for Florida, even though smoothed by using a four-year moving average, has shown great fluctuation. Around the beginning of the 1960s, geography's share of social science graduate degrees rose above seven percent, but since then the share has fallen to a figure that more nearly equals that for the nation. Nevertheless, it continues to be above the national percentage. In several Florida universities

FIGURE 4

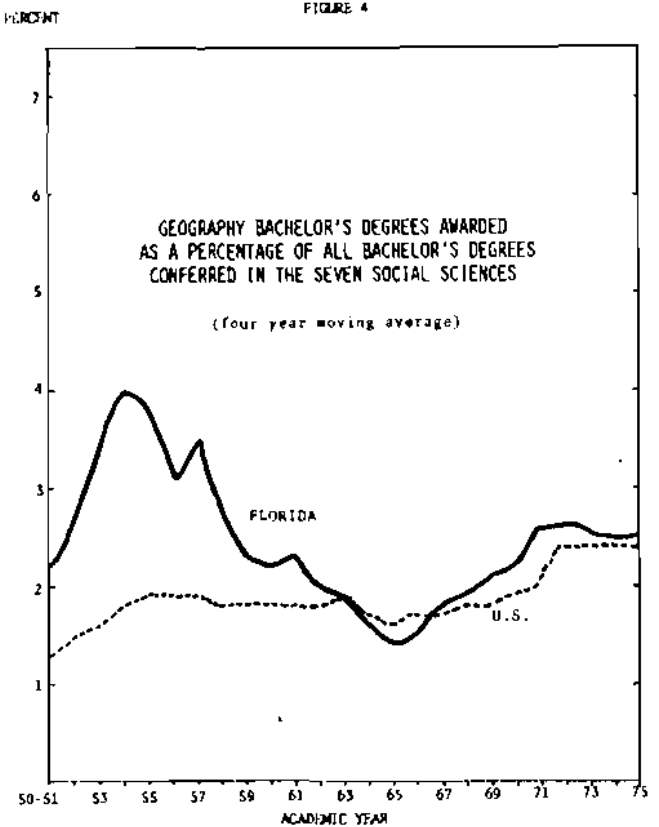
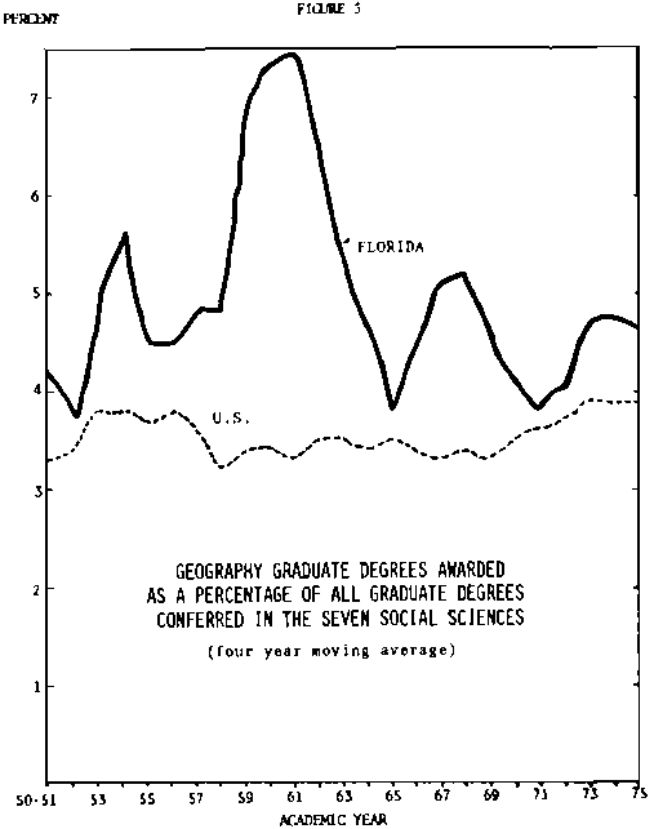


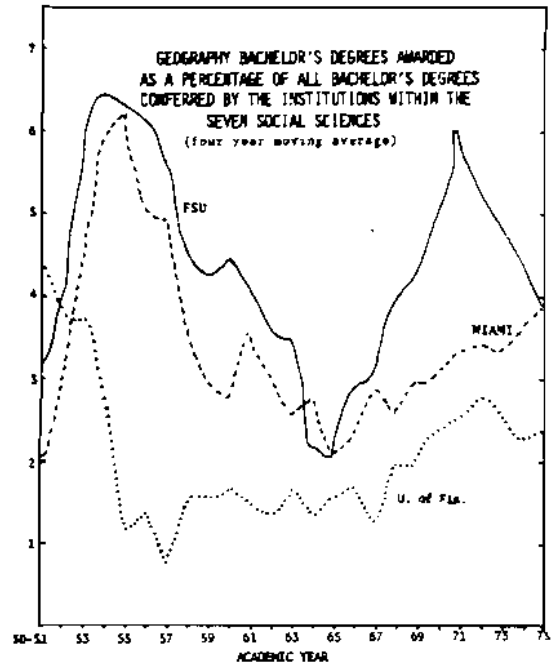
FIGURE 5



graduate education in geography was emphasized earlier than some social sciences. During the 1960s, however, graduate programs in several disciplines were either initiated or greatly accelerated, particularly at Florida State University and the University of Miami.

There is considerable variation among Florida universities in the way geography has faired in competing for students with the other social sciences. Furthermore, at an individual institution, its position may change greatly over time. Figure 6 illustrates geography bachelor's degrees awarded as a percentage of all bachelor's degrees conferred for the three institutions which have produced geography bachelor's for the longest period. Of the three, the department at Florida State University has been most successful in winning a high share of the total earned bachelor's degrees conferred in the seven social sciences at that institution. Nevertheless, since 1971, the share has been

FIGURE 6



falling at a startling rate. The University of Miami in 1966 ended a long period of decline in the geography department's contribution of bachelor graduates relative to the total number of social science graduates. From that year the discipline's percentage share has steadily increased and by 1975 both the University of Miami and Florida State University had the same share. The University of Florida's department normally has produced less than two percent of all the social science bachelor's degrees awarded by that institution, but since 1968 it has begun to increase its share slightly.

The institution whose geography department makes the biggest contribution to its undergraduate social science degree output is Jacksonville University. In recent years the geography program at this school has produced approximately six percent of all social science bachelor's degrees awarded by the institution. The share of geography bachelors in the social science bachelor output at both the University of South Florida and Florida Atlantic University has been approximately four percent throughout the 1970s. At Stetson University undergraduate degree output has faired worse than at any other institution in the state. In 1957 geography had a 6.5 percent share of all social science bachelor's degrees conferred by the university, but by 1972 it had fallen to less than two percent, where it remains today.

Overall, the role of geography in the social science graduate programs of Florida's universities has declined in relative importance over time. This is particularly true of Florida State University. During the early 1960s there were years when twelve percent of all graduate social science degrees were awarded in geography, but during the 1970s it seldom has risen above four percent. At the University of Florida the situation is healthier and there actually has been an improvement in geography's share of graduate degrees conferred within the social sciences. In the 1950s it usually was around four percent, but in the 1970s it often has risen above seven percent. At the University of South Florida the share has been above ten percent several years during the 1970s, while at Florida Atlantic University it has run slightly under five percent.

It would be wrong to attach too great importance to these figures on the share of geography degrees among all social sciences at these institutions. Some universities have opened new, nontraditional social science programs, for example Urban and Regional Planning. This could have a direct or indirect effect upon the share of geography bachelor's degrees among the seven traditional social sciences. Nevertheless, geography appears to be in an excellent position at Jacksonville University and it is doing well at the University of South Florida and Florida Atlantic University. It is now undergoing a considerable change in popularity at Florida State University, but despite a serious drop in the share of bachelor's degrees produced relative to the total social science bachelor's degrees conferred, the percentage still is high. Stetson University's program appears to be in the most serious difficulty, and from the figures it appears as if it could disappear entirely.

Conclusion

The data generally portrays geography in Florida to be in a healthy condition. Florida departments are still increasing the number of bachelor's and advanced degrees conferred more rapidly than is the nation. In addition,

the share of geography degrees in the total degrees granted in the seven social sciences is greater in Florida than for the nation. This has been true both for graduate degrees since 1951 and for bachelor's degrees between 1951 and 1965, and since 1967. In most individual universities the discipline continues to show greater vitality than the other social sciences, since it has succeeded in increasing its share of degrees produced.

Lest members of those institutions where geography is in a particularly healthy position become sanguine about the future, a cautionary note must be added. The state continues to receive a net immigration of people in the productive age groups. Nevertheless, though later than some states, it will soon experience a drop in the size of the age cohort 18-24. It is from this group that we draw the majority of our students. Even using the most optimistic data on deaths and migration, the age cohort 18-24 in 1985 will be approximately the same size as it was in 1967. As university enrollments begin to stabilize, and in some cases actually decline, the competition among departments for students will intensify. The question which we must confront today is how will the departments respond. The answer will greatly affect the future importance of geography in Florida higher education.

SPATIAL PERSPECTIVES OF INFANT HEALTH CARE DELIVERY IN HILLSBOROUGH COUNTY, FLORIDA

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Southern Health Foundation, Inc.

Introduction

The purpose of the study is to explore the causes of Hillsborough County's relatively high infant mortality rate and how the rate might be lowered. Specifically, the purpose is to: 1) examine the location of the infant health care facilities in Hillsborough County; 2) identify the infant mortality rate (deaths under one year of life) and the postneonatal mortality rate (deaths from twenty-eight days through 365 days of life) by census tract; 3) rank the census tracts by socioeconomic level; and 4) compare the relationship between the location of infant health care facilities, infant death rates, and census tract socioeconomic status.

The infant mortality rate has long been considered one of the most reliable indexes of the general health of a population (1). Whenever a change occurs in the standard of living in a nation, that change will be reflected with a change in the number of infant deaths. Infant mortality is also a sensitive barometer of the availability and effectiveness of certain types of social and medical services (2). Insufficient medical and health services, along with under-utilization of existing services, contribute to excessive infant mortality levels (3). Existing medical techniques and knowledge, if applied properly, could prevent most causes of infant deaths in the United States (4).

The infant mortality rate in Hillsborough County from 1971-1973 averaged 20.4 infant deaths per 1,000 live births (5). Meanwhile, over the same period of time, the state of Florida averaged 19.4 infant deaths per 1,000 live births (6). Although Hillsborough County's infant mortality rate may not be cause for alarm, it is above the state average and is considered unnecessary in light of existing medical knowledge.

Infant Health Care Facilities

Infant health care delivery in Hillsborough County is achieved through a combination of public and private infant health care facilities. A variety of local, state, and federal governmental agencies are involved in the implementation of infant health care. The scope of this section will be: 1) the identification of the available types of infant health care facilities; 2) the location of the various infant health care facilities; and 3) the means of transportation servicing the facilities.

Types and Location of Facilities

The location of infant health care facilities is an important factor in determining the patterns and frequency of neonatal and postneonatal care because of people's inclination to obtain medical treatment close to home. Hillsborough County, for the purpose of this study, is served by hospitals, health clinics, and private pediatric physicians.

There are seven hospitals in Hillsborough County that provide medical treatment for infants. Out of the total, four are within the city limits of Tampa; two are in the unincorporated area of the county, just outside the city limits of Tampa; and one is in Plant City, in the eastern part of Hillsborough County (7). Five health clinics provide medical treatment for infants, three within the city limits of Tampa, and one each in both the unincorporated area of Hillsborough County and Plant City (8).

The thirty-nine pediatricians in Hillsborough County are located in clusters with other pediatricians (9). Most notable is their location near large, new hospitals. Pediatricians are found at eleven locations in Tampa. However, five of the offices are groups of four or more pediatric clusters representing 81% of the pediatricians in Tampa, and 33% are clustered around St. Joseph's Hospital. There are four clusters of pediatricians in the unincorporated area, all in groups of four or more. Significantly, 65% are located around the University Community Hospital and the University of South Florida Medical School in the northern part of the county. Eight pediatricians are in Temple Terrace. Since Temple Terrace covers a rather small geographic area, the occurrence of the pediatricians in one location is of little significance. Only one pediatrician is available in Plant City to meet the needs of the city residents as well as those of the residents of eastern Hillsborough County.

Methods of Transportation

The residents of Hillsborough County have limited methods of transportation available for reaching infant health care facilities. The private automobile is the most frequently used form; however, many families in Hillsborough County are without automobiles because of financial reasons. The only bus service available is provided by the City of Tampa. Bus service is not available at all hours, but it is possible to reach five of the seven hospitals during the regular operating times. Of the five health clinics, only one is located adjacent to public bus transportation. Fifty percent of the county pediatricians can be reached by bus, but the remainder are not situated on bus routes. Commercial taxicab service is available throughout all areas of the county.

A small number of infant patients are transported to health care facilities, mostly hospitals, by means of the county ambulance service. However, the number is quite insignificant and probably has very little influence on the county's infant death rate (10).

Infant Death Rates

Many methods are employed for calculating infant mortality rate. Usually it is based on the number of infant deaths (under one year of age) per number of recorded live births. Infant mortality rates, calculated in this manner, are an accepted method of measurement of the health care facilities in a community (11). Two types of infant death rates are used in this section. The infant mortality rate is the number of infant deaths under one year of life, by place of residence, per 1,000 of live births. The postneonatal mortality rate is the number of infant deaths from twenty-eight days through 365 days of life, by place of residence, per 1,000 of live births.

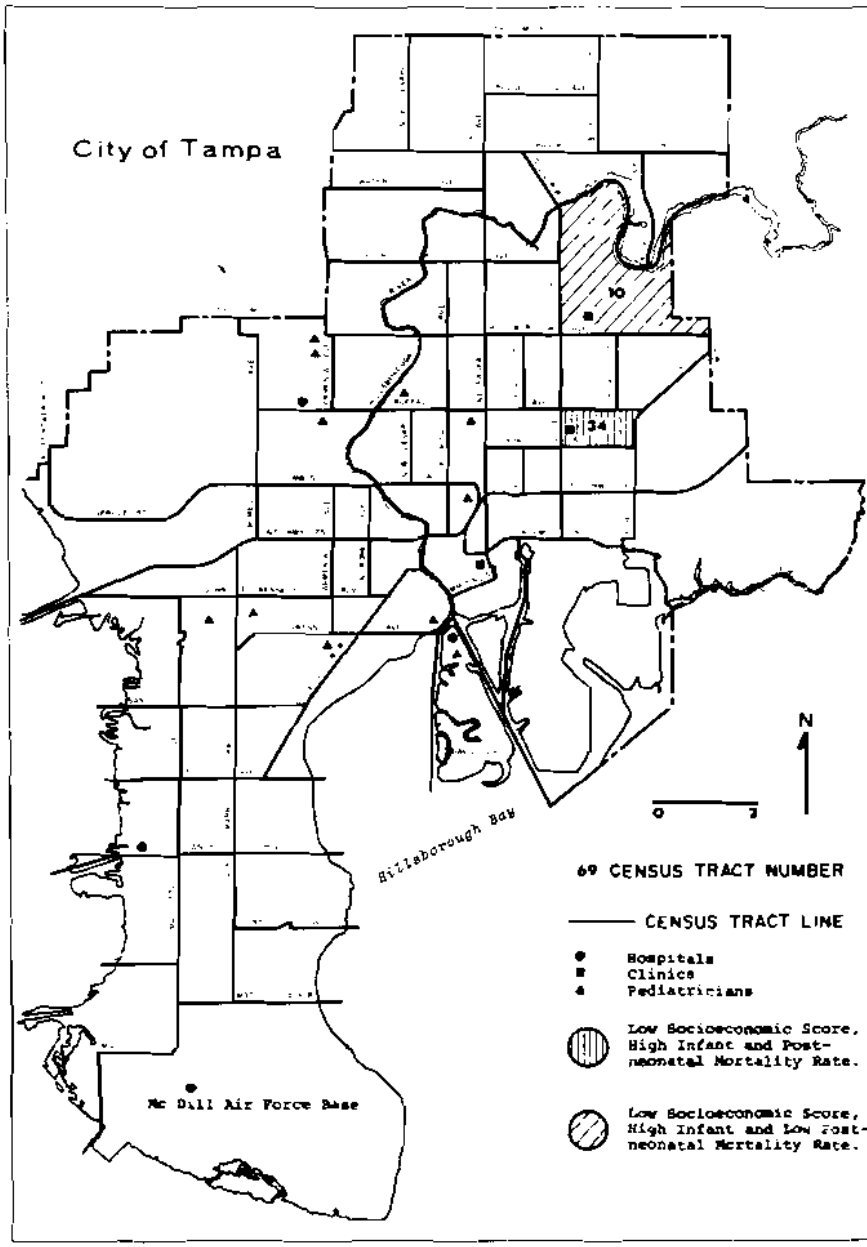

Fig. 1. Spatial Distribution of Infant Health Care Facilities and Tampa Census Tracts Ranked by Socioeconomic and Infant Death Rate.

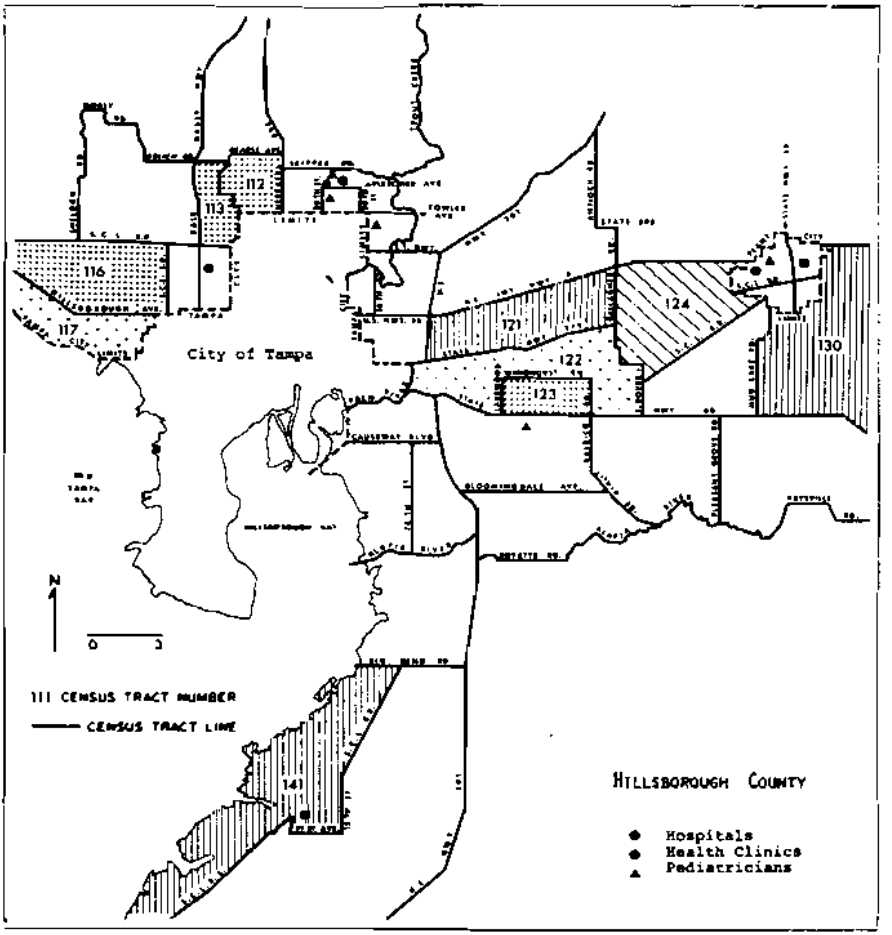

Fig. 2. Spatial Distribution of Infant Health Care Facilities and Hillsborough County Census Tracts Ranked by Socioeconomic Score and Infant Death Rate.

Low Socioeconomic Score, High Infant and Postneonatal Mortality Rate.

Low Socioeconomic Score, Low Infant and Postneonatal Mortality Rate.

High Socioeconomic Score, Low Infant and Postneonatal Mortality Rate.

High Socioeconomic Score, High Infant and Postneonatal Mortality Rate.

Infant Mortality Rates

The average infant mortality rate for Hillsborough County during the years 1971-1973 was 20.4 deaths per 1,000 live births. While this figure is slightly higher than the Florida average of 19.4 during the same time period, there is no cause for immediate alarm. However, when the infant mortality rate for each individual census tract in Hillsborough County is examined, it is evident that in some areas the rates are exceptionally high (12). It must be noted, however, that if an infant mortality rate is calculated on less than 100 live births, the results are of limited significance (13). Of the 114 census tracts in Hillsborough County, only fifteen had over 100 live births for each of the three years from 1971-1973. Using the three-year county average infant mortality rate (20.4) as a standard of measurement, it was concluded that ten of the census tracts had an infant death rate higher than the county as a whole.

The spatial distribution of infant mortality rates in Hillsborough County reveals a significant pattern. A cluster of census tracts with above average infant mortality rates is located in the center of the county. Other tracts with above average infant mortality rates are located in the western, eastern, and southern sections of Hillsborough County. There are no tracts in northern Hillsborough County with above average infant mortality rates, and no census tracts with below average infant mortality rates are located within the city of Tampa. The five tracts with infant mortality rates below the average are all located in the unincorporated areas of the county.

Postneonatal Mortality Rates

The average postneonatal mortality rate in Hillsborough County during the years 1971-1973 was 5.4 deaths per 1,000 live births. This figure is slightly above the Florida average of 5.3 for the same time period. A closer look at the figures by census tract reveals that the postneonatal mortality rate in some areas is unusually high (14). Again, it must be noted that in all cases where the postneonatal mortality rates were extraordinarily high, there were less than 100 live births on which to base the rates, so they are of limited significance.

Only the fifteen census tracts which recorded a live birth rate in excess of 100 from 1971-1973 were considered for analysis. The measurement used in this case was the three-year county average postneonatal mortality rate (5.4). Only five census tracts displayed postneonatal death rates higher than the county average using this criterion.

The cluster of census tracts in the center of the county with above average infant mortality rates is reduced substantially when only the postneonatal mortality rates are considered. Tracts with high postneonatal mortality rates are found mostly in the eastern and southern section of Hillsborough County. There are no tracts in northern or western Hillsborough County with above average postneonatal mortality rates. All of the tracts with below average postneonatal mortality rates are found in the center and in the western portion of the county.

Socioeconomic Factors

The social, economic, and cultural status of the family has a direct influence on infant death rates. In general, there is an inverse relationship between socioeconomic status and infant mortality rate. The postneonatal period is greatly influenced, however, by environmental conditions. Many distinct socioeconomic factors in the environment influence the rate of infant death. Therefore, the scope of this section is to establish a hierarchy of Hillsborough County's census tracts based upon socioeconomic status.

Census tracts were assigned a standardized socioeconomic score based upon the method described by Donabedian, Rosenfeld, and Southern (15). Using data from the 1970 census (16), calculations were made based upon: 1) the median income of families and unrelated persons; 2) the percentage of persons twenty-five years of age or older who graduated from high school; and 3) the percentage of persons employed in the work force sixteen years of age or older that were professionals, technicians, managers, officials, administrators, or proprietors.

The census tracts' standardized scores were calculated using the following formula:

$$\text{STANDARDIZED SCORE} = \frac{Cv - Lv}{Hv - Lv} \times 100$$

with Cv representing the median value of the tract and Hv and lv representing the highest and lowest median values among 113 of the 114 census tracts in Hillsborough County. (The University of South Florida is represented by its own census tract; this tract is clearly atypical in all regards, and was omitted from the analysis.) The income, education, and occupational scores were calculated by this method, and the scores for each of the three variables were averaged to obtain a combined socioeconomic status score for each tract in the county. These scores ranged from a low of 2.62 for tract 40 and a high of 96.32 for tract 59. The average score was 38.18; some 56.6% of the tracts in Hillsborough County fell below the average.

In terms of location, census tracts with above average socioeconomic scores are found in the northwestern section of Hillsborough County, in the southwestern section of Tampa, and in the central part of the county where middle and higher income housing developments are found. The census tracts which rank below the county average are in two sections. Most noticeable is eastern Hillsborough County where, except for tract 128 in Plant City, all the tracts are below average. The other significant area is in east Tampa, extending southeast into the unincorporated area of Hillsborough County. These areas are mostly rural with lower income housing.

Relationship of Infant Health Care Facilities, Infant Death Rates, and Socioeconomic Status

The fifteen census tracts which recorded 100 or more live births for each of the years between 1971-1975 were ranked according to their socioeconomic standardized score (Table 1). Of these, the six lowest and the six highest were selected for comparison with infant death rates. The results show that infant death rate decreases as socioeconomic level increases.

TABLE 1

COMPARISON OF INFANT AND POSTNEONATAL MORTALITY RATES IN CENSUS TRACTS (REGISTERING OVER 100 LIVE BIRTHS) WITH SIX LOWEST AND SIX HIGHEST SOCIOECONOMIC SCORES: HILLSBOROUGH COUNTY, 1971-1973

Census Tract	Standardized Socioeconomic Score	Infant Mortality Rate (1971-73)	Postneonatal Mortality Rate (1971-73)
34	15.32	26.436	8.743
124	24.63	10.340	0.000
10	29.62	26.816	5.420
141	30.33	26.786	12.543
130	33.79	29.920	8.043
112	48.75	7.006	2.583
116	57.75	19.313	4.216
117	63.01	24.376	5.333
123	64.51	10.910	4.406
113	95.46	12.860	2.506

Census tract 34, with the lowest socioeconomic score (59.8% below the county average), records an infant mortality rate which is 29% above the average. The postneonatal mortality rate, a factor which is extremely sensitive to the socioeconomic condition, is 8.7, or 61% above the average of 5.4 for Hillsborough County.

By comparison, census tract 113 which has the highest socioeconomic score (150% above the county average), records an infant mortality rate 36.8% below the average. The postneonatal mortality rate is 53.9% below the postneonatal mortality rate of 5.4 for the county.

It is important to note that even though the socioeconomic score of tract 113 is 150% above the average score for the county, the infant and postneonatal mortality rates do not reflect a comparable percentage of decrease. There is a point at which the socioeconomic level of the family overcomes the disadvantages connected with low socioeconomic status, and above which, an increase in socioeconomic status does not result in a further decrease in the infant death rate. However, as the socioeconomic level decreases the infant death rate generally increases substantially.

Similar results obtain using the averages of the six highest and lowest tracts. The average socioeconomic score of the lowest six is 27.88 (26.9% below the county average); the mean infant mortality rate of this group is 23.73 (16.3% above the county average), and the mean postneonatal mortality

rate is 6.72 (23.9% above the county average). The six highest tracks show a mean socioeconomic score of 63.5 (66.4% above the county average), and the mean infant and postneonatal mortality scores are respectively 15.99 (21.6% below) and 3.17 (41.5% below the county average).

These figures clearly indicate that socioeconomic status has a greater impact on postneonatal mortality rates than on overall infant mortality rates. Among the six census tracts with the highest socioeconomic scores, the reduction in postneonatal mortality rates are nearly double that of the infant mortality rates.

An examination of spatial distribution of the six lowest and six highest socioeconomic scoring census tracts with the corresponding infant and postneonatal mortality rates reveals several distinct patterns (Figs. 1 and 2). The census tracts with low socioeconomic scores, and high infant and postneonatal mortality rates, are located in the eastern part of Hillsborough County. The only exception is census tract 34, which is located in east Tampa. The census tracts with above average socioeconomic scores, and below average infant and postneonatal mortality rates, are located in the northwest section of Hillsborough County. The one exception is tract 123 located in the center of the county. There are no census tracts with above average socioeconomic scores, and below average infant death rates located within the city limits of Tampa; although such tracts were located just outside the city limits.

The influence of infant health care facilities on the infant death rate is dependent upon complex socioeconomic influences. The presence or absence of a hospital, health clinic, or pediatrician in a census tract does not automatically increase or decrease the infant mortality rate in that tract. However, the access to those infant health care facilities, as influenced by family socioeconomic level, does seem to have an impact on postneonatal mortality rates.

The spatial distribution of infant health care facilities exhibits several patterns (Figs. 1 and 2). Notable is the complete lack of hospitals in the six census tracts with below average socioeconomic status, and above average infant death rates. The average distance, as measured from the center of the census tract, is 5.5 miles. Another noticeable feature is the absence of a pediatrician in any of these tracts. The average distance to the nearest pediatrician is 4.9 miles. Neither of these distances seems particularly great, but without adequate transportation available, the problem of access to the infant care facilities becomes insurmountable.

There is a lack of health clinics in fifty percent of the census ttacts with below average socioeconomic scores. The infant mortality rate remains above average in all three tracts which did have a health clinic located within their boundaries. However, since the health clinic provides treatment mostly during the postneonatal period, it could have been responsible for the below average postneonatal mortality rate in tract 10.

Other patterns can be found in the relationship of infant health care facilities with the six census tracts of above average socioeconomic status and mostly below average infant death rates. There are no hospitals, health clinics, or pediatricians in any of these six census tracts. The average

distance to a hospital is 6.6 miles, slightly greater than the average distance to a hospital in the tracts with below average socioeconomic scores. The average distance to a health clinic is 7.3 miles, or about 2½ times greater than the distance to a health clinic in the census tracts with below average socioeconomic scores. However, the difficulties in gaining access caused by greater distance from the infant health care facilities are more easily overcome due to the higher socioeconomic level of the residents. Pediatricians are located closer to the above average socioeconomic status tracts, the average distance being 3.5 miles. Some reductions in the postneonatal mortality rates for these six tracts are probably attributable to the proximity of the pediatricians.

Conclusion

The assumption of an inverse relationship between socioeconomic status and infant death rates is clearly supported by the data from Hillsborough County. Postneonatal mortality rates are particularly sensitive to socioeconomic conditions. During this period death occurs largely from accidents or infectious, digestive and respiratory diseases.

Less clearly established is any significant relationship between high infant death rates and distance to health care facilities. This study has shown that distances are greater to some such services in those tracts scoring low on death rates than tracts which score high. The population of the high-ranking tracts apparently are financially able to overcome the friction of distance between home and health care. The converse is also evident: proximity to health care services by itself does little to ameleorate the depressed socioeconomic conditions which undoubtedly contribute to a high rate of infant mortality.

* * *

(1) Gary W. Shannon and G. E. Alan Dever, *Health Care Delivery* (New York: McGraw-Hill, 1974), p. 58.

(2) Brian MacMahon, "Infant Mortality in the United States," in *Mortality and Morbidity in the United States*, ed. Carl L. Erhardt and Joyce E. Berlin (Cambridge: Harvard University Press, 1974), p. 189.

(3) U.S. Department of Health, Education, and Welfare, "Health, Education and Welfare Indicators," in *Mortality of White and Nonwhite Infants in Major U.S. Cities*, ed. E. P. Hunt and E. E. Huyck (Washington: U.S.G.P.O., 1966) p. 58.

(4) MacMahon, "Infant Mortality in the United States," pp. 206-207.

(5) State of Florida, Department of Health and Rehabilitative Services, Division of Health, Hillsborough County Health Department. *Vital Statistics Summary 1971-1973* (Jacksonville, 1975), p. 1.

(6) State of Florida, Department of Health and Rehabilitative Services, Division of Health, Bureau of Vital Statistics, *Florida Vital Statistics 1971*; State of Florida, Department of Health and Rehabilitative Services, Division of Health, Bureau of Vital Statistics, *Florida Vital Statistics 1972*; State of Florida, Department of Health and Rehabilitative Services, Division of Health, Bureau of Vital Statistics, *Florida Vital Statistics 1973* (Jacksonville, 1975).

(7) Hillsborough-Manatee Health Planning Council, "Hospital Locations in Tampa-Hillsborough County" (Tampa, 1975).

(8) Hillsborough-Manatee Health Planning Council, "Health Clinic Locations in Tampa-Hillsborough County" (Tampa, 1975).

(9) Hillsborough County Medical Association, "Membership Roster" (Tampa, 1975).

(10) James Allgood, Director, Emergency Medical Services. Tampa, 1975.

(11) Victor R. Fuchs, ed., *Essays in the Economics of Health and Medical Care* (New York: Columbia University Press, 1972), p. 31.

(12) State of Florida, *Florida Vital Statistics 1971 . . . 1973.*

(13) Andy Fernandez, Department of Health and Rehabilitative Services, Division of Health, Hillsborough County Health Department. Tampa, 1975.

(14) State of Florida, *Florida Vital Statistics 1971 . . . 1973.*

(15) Avedis Donabedian, Leonard S. Rosenfeld, and Edward M. Southern, *Infant Mortality and Socioeconomic Status in a Metropolitan Community*, Public Health Report vol. 80, no. 12 (Washington: U.S. Department of Health, Education and Welfare, 1965), p. 1085.

(16) U.S. Department of Commerce, Bureau of the Census, *United States Census of Population, 1970: Census Tracts Tampa-St. Petersburg, Florida*, Pubn. No. PHC(1)-212 (Washington: U.S.G.P.O., 1971).

APPLIED GEOGRAPHY AT THE UNIVERSITY OF SOUTH FLORIDA[1]

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Several years ago, L. Dudley Stamp, one of Britain's leading geographers of this century, stated:

> [Geography's] interest is to describe and reflect the physical build and the natural resources, the sequence of human occupation and social organization - which have built the world we know, and will change and develop it in years to come. To know and understand these causes and their certain or probable effects is vital in all planning for the future; and this is the field of applied geography (2).

This report focuses upon this kind of geography as it pertains to university life.

Geographers at the University of South Florida are conscious of their responsibility to serve the region in which they reside. The Department offers course work in applied geography at the undergraduate as well as the graduate levels. While several courses of a general nature ranging from conservation of natural resources to urban geography may have units of an applied nature, it is especially at the senior and graduate levels that courses with a strong emphasis on the application of geographic principles are found. This is the case with such courses as cartography, aerial photo interpretation, urban planning, water resources management, field methods, meteorology, and the very special internship program described below.

Several members of the faculty have a keen interest in applied geography which is reflected in both their research endeavors and services rendered especially to the Southwestern Region of Florida. Three members of the geography staff, including the chairman, participated in a study on the impact of off-shore oil exploration on the coastal zone of Florida. One geographer is investigating on-farm water management problems in an underdeveloped area of the world. Several members of the department are engaged in local community activities through serving on technical and citizens advisory committees especially concerning natural resources planning. In addition, the department provides weather information obtained from its meteorological station to the community at large.

Because of the department's interest in applied geography, it has been relatively easy to initiate and sustain a student internship program with the aid of local public agencies. This program was started by the present chairman several years ago and has now grown to where two faculty members are involved in expanding and supervising the program on two of the campuses. Likewise the number and variety of agencies accepting interns has grown to where now approximately twenty agencies participate. These organizations include city and regional planning agencies; and environmental groups focusing on water, soil, and forest resources, pollution matters, and solid waste disposal. At the present some six to eight students per quarter enroll in this program at the Tampa and St. Petersburg campuses.

The mechanics of this internship program are described in an announcement from the department chairman to interested students:

> The purpose of the internship in geography is to provide a meaningful work experience and an opportunity to utilize geographic techniques, insights, and methodologies in problem solving. To be eligible for consideration a student must have completed thirty or more hours of geography and be a graduate student or senior. Because the success of the program is closely related to the quality of students involved, a careful screening of candidates will be necessary. Although a fairly good grade point average will probably be a major advantage, other qualities to be considered will include attitude, motivation, and maturity. Each student selected for the program will be expected to work a minimum of twelve hours per week for a public agency. No salary will be paid but the agency will be responsible for supervising and evaluating the student's performance. In addition, several brief written progress reports, a final major summary paper, and an oral review will be required. Grades will be assigned on the basis of the job evaluation and the written reports. Depending on the circumstances, a student may be permitted to repeat the internship a second quarter.

Upon successful completion of this program a student can earn up to five hours of credit.

This program benefits the students and the respective agency alike. Most students who have participated in the internship program have been offered full time positions with the agency or a similar organization upon graduation. Likewise these agencies find it advantageous to utilize geography students in order to disseminate a good name for themselves within the University community; obviously they also appreciate having free semi-trained technicians.

A few negative points should also be mentioned. One issue that continuously confronts the department as well as the student is insuring that meaningful work is scheduled for the student intern. In many cases this comes more naturally in a small agency where the student has a better opportunity to learn the entire operation and observe how diverse programs are handled and decisions are made. At times, especially in the larger planning offices, a student becomes pigeonholed into one menial job such as coloring land use maps or conducting "windshield surveys" of an area, but even this latter task has its merits in the training of a geographer. There are also some legal questions such as the possible violation of the minimum wage law, and assessment of liability for an accident or injury to a student on the job.

In summary, geographers at the University of South Florida, by utilizing their knowledge, skills and insights to confront fundamental questions facing their community, have been able to apply their discipline to public policy issues. The department provides a service to the community as well as to students by relating academic training to the solving of real-world issues.

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(1) This report was presented at the annual meeting of the Association of American Geographers in Salt Lake City, Utah, April, 1977. The author is grateful to the Chairman of the Geography Department of the University of South Florida, John Stafford, as well as Harry Schaleman and Harry Kim for critical comments on an earlier draft of this report.

(2) L. Dudley Stamp, *Applied Geography* (Harmondsworth, Middlesex, England: Penguin Books, 1960), frontispiece.

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From the Editor

The Florida Geographer is the official publication of The Florida Society of Geographers, and is distributed without cost to members of the Society. Two numbers per year will be published, pending receipt of an adequate number of acceptable manuscripts.

The Florida Geographer is a state-wide journal, with broad coverage of geographical topics relating to the state and its several regions. No restrictions are placed on the content of articles, providing that they deal with some aspect of the geography of Florida, i.e., local studies within the state, matters of the state generally, or the relation of Florida to other areas.

Manuscripts are solicited from all who feel they have research worth of dissemination. No specific format requirements are presently in force, although the editor would prefer manuscripts to be typed double-spaced following the general format of the articles in the present number. However, authors should not be dissuaded from submitting manuscripts because of format considerations; the editor is willing to undertake extensive revisions. As this number demonstrates, we are able to reproduce maps, charts, and tables.

We would like to establish a policy of publishing an original map on the cover of each number, so a special request is made to all who have maps of the state or regions of the state which would be of interest to the Society's membership.

The editor is gratified at the response to his solicitation for manuscripts sent out in the spring. More manuscripts are needed, however. So students, faculty, and others with research interests, please consider *The Florida Geographer* as an outlet for your research.

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Florida Society of GEOGRAPHERS

The Florida Society of Geographers was chartered in 1964 as a non-profit organization, for the purpose of furthering professionalism in geography through the application of geographic techniques in all areas of education, government, and business in Florida. The society supports these objectives by promoting acquaintance and discussion among its members and with scholars and practitioners in related fields by stimulating research and field investigation, by encouraging publication of scholarly studies, and by performing services to aid the advancement of its members and the field of geography in Florida.

Persons interested in membership in The Florida Society of Geographers should send a membership blank to

Dr. Elizabeth F. Abbott
155 Building E
University of Florida
Gainesville, FL 32611

Regular membership is $4.00 for a calendar year; student membership is $2.00.

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