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ABSTRACT

Expansion in the South for providing professional education in medicine, veterinary medicine, and law was undertaken to extend access to desirable professionals to young people and to increase the supply of needed professionals in underserved areas. How these objectives have been met is analyzed from an economist's perspective by relating supply and demand of professional manpower. To evaluate supply--and-demand components from the three fields, data are presented primarily for the past decade. (SPG)

LAW MEDICINE VETERINARY MEDICINE

ISSUES IN SUPPLY AND DEMAND

Eva C. Galambos

One of a series of papers commissioned for the 30th anniversary meeting of the Southern Regional Education Board

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FOREWORD

The place of the professions in higher education in some ways is paradoxical. Typically, competition for admission to professional programs is brisk and yet society recognizes an obligation to subsidize high cost professional education heavily, not only to assure adequacy of supply but, in addition, to provide free access to professional education for all qualified residents. Also, the origins of college education in the United States were largely directed toward preparation of those entering the professions; still, for years, much professional training was conducted outside the higher educational structure, through systems of apprenticeship.

Another paradox about professional education is the fact that deficiencies in supply of professional services seem to be difficult to correct simply by increasing production. In our free society it is difficult, if not impossible, to devise a workable, acceptable method of assuring a distribution of professionals, whether geographically or in terms of specialties, to meet all needs.

Another publication in this 30th anniversary series, *The Closing System of Academic Employment*, deals with ways in which institutions are adapting to the over-production of academic personnel. The following paper leads up to a concern about potential overproduction of personnel in three important professions, even while society realizes that many of its needs for services in these professions continue to be unmet.

The Board gratefully acknowledges the contribution made by the author of this report, Eva C. Galambos, Research Associate, Southern Regional Education Board.

Winfred L. Godwin
President

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INTRODUCTION

At no level of higher education has the commitment of the Southern states to its young people been greater than in providing opportunities for professional education. Although professional education, in terms of dollars spent per student, is the most expensive sector of the entire higher educational establishment, the Southern states have been generous in providing opportunities for young people who wish to enter a profession. Until very recent years, the South's share of the nation's first professional degrees exceeded its share of other advanced degrees. The South still produces a higher share of the nation's first professional degrees than of doctorates in the arts and sciences.

TABLE 1

SREB Share of Advanced Degrees Granted in the United States

	Master's	Ph. D.'s	First Professional
1960-61	18.8%	13.1%	22.6%
1970-71	20.0	18.9	25.1
1975-76	25.3	22.0	24.5

First Professional Degrees and Ph.D.'s as a Percentage of Total Degrees Granted

	SREB States		United States	
	First Professional	Ph.D.'s	First Professional	Ph.D.'s
1969-70*	3.5%	2.1%	3.4%	2.8%
1975-76	4.3	2.1	4.6	2.5

*The definition of first professional degrees was changed in 1969, so that the distribution of degrees by levels for prior years is not comparable.

Three professional fields where expansion has been particularly heavy — medicine, veterinary medicine and law — are examined in this paper. Expansion in the South for providing professional education in these fields was undertaken to meet twin objectives — to extend access to desirable professions to young people, and to increase the supply of needed professionals in underserved areas.

The high economic and social status of doctors, lawyers and veterinarians has created particular pressure on public officials in the nation, as well as the region, to facilitate entry into these professions by providing more educational opportunities.

The vestiges of past economic deprivation left the South with a heritage of many severely underserved areas. To overcome the effects of past regional underproduction and net out-migration of professionals from the region, the Southern states have devoted their resources to eradicating these deficits through the expansion of professional education.

Now that much of this expansion is bearing fruit, the time has come to evaluate how the objectives have been met. Just how much expansion has occurred? Has enough progress been made in providing opportunities for professional education in medicine, veterinary medicine and law? Has the expansion of professional education improved supply and demand relationships within the region? Is further expansion of professional education indicated to improve the situation in underserved areas? These are the issues to be examined for the three professional fields upon which this paper will focus.

This analysis proceeds from an economist's perspective, with a quantitative approach. While there are many important problems regarding desirable directions of professional education, such as the eternal struggle between preparation for research or service, this paper deals primarily with those issues related to supply and demand of professional manpower.

In the area of medical education, the current method of financing medical services is taken as a "given," since at this point the effects of any changes would be based only on speculation. Although methods of financing medical services constitute an important national policy issue, they are not evaluated in this paper, which deals with education rather than financing.

Moreover, supply and demand balances in medicine, veterinary medicine and law are evaluated in terms of perceived actual trends rather than of what "ought to be." The approach, therefore, differentiates "effective demand" from "needs," regardless of the desirability of the various criteria which are often used to describe "need." While this orientation may seem callous to some, it recognizes the reality of a world of finite resources which probably cannot be stretched to fulfill all human needs in the foreseeable future.

To evaluate supply and demand components for the three fields, data are presented primarily for the past decade. The starting year chosen for measuring changes in the three fields was varied slightly in order to catch the particular period when the greatest impetus for expansion took place and to accommodate data availability.

MEDICAL EDUCATION

How Much Expansion Has Occurred?

Before evaluating the effects of medical education expansion, it is important to document its dimensions. Medical education in the region has made impressive quantitative gains during this decade. Since 1970, the region has opened, or is in the process of opening, 10 new medical schools — half of all the new medical schools in the nation during this time.

Medical school graduates from schools in the region constitute a growing share of the national output of new doctors. As shown in Table 2, first-year medical school spaces in the region have increased 74 percent since 1969, as compared to 60 percent nationally. The current regional share of first-year spaces is 29 percent, versus 26 percent in 1968-69. The regional share of graduates will rise further when future completions more fully reflect the new schools not yet included in this year's first enrollments — East Tennessee, East Carolina, Texas A&M, Marshall University, and possibly Morehouse College (which has received a letter of reasonable assurance of accreditation) and the expansions of other recently developed medical schools which have not yet reached their projected full class sizes — South Alabama, South Florida, Texas Tech, Eastern Virginia and South Carolina Medical Schools. By 1985, the region is expected to graduate 4,700 physicians annually, as compared to the current 4,000. A somewhat smaller share of the increase in total first-year enrollment in the South (78 percent) was accounted for by expansion of existing schools rather than creation of new schools; for the nation as a whole, existing schools accounted for 87 percent of the expansion.

Not only has the region strengthened its role in providing medical education spaces, but college graduates from Southern states also constitute a rising share of medical school acceptances in the United States. As shown in Table 3, in 1968-69 first-year students hailing from Southern states garnered 26 percent of all medical school acceptances, whether enrolled within or outside of their states of residence. By 1976-77, this regional share had risen to 28 percent.

Although in the region the acceptance rate is still below the national average, measured against total state population, when acceptance rates are viewed against a state's production of bachelor's degrees (the potential pool of medical school applicants), the region ranks above the United States average. In 1976-77, the

TABLE 2

Medical School Enrollments and Graduates SREB States, 1968-69 to 1977-78

	First-Year Enrollments[a]			
	1968-69	1970-71	1977-78	Percent Increase 1969-78
SREB States	2,593	3,133	4,521	74%
United States	9,863	11,362	15,742	60
South as a Percent of U.S.	26%	28%	29%	
	Graduates[a]			
SREB States	2,218	2,451	4,019	81
United States	8,059	8,979	14,856	84
South as a Percent of U.S.	27%	27%	27%	

[a]For 1977-78, 34 medical schools are included in the SREB data, and 116 in the United States. New medical schools in the region not included are East Tennessee, East Carolina, Texas A&M, Marshall University (all currently in operation) and Morehouse University, which has a letter of reasonable assurance of accreditation from the Liaison Committee of Medical Education.

Source: HEW, Public Health Service, Health Resources Administration, *Health Professions Schools Selected Enrollment Data, 1970-71/1977-78*, October, 1976; "Medical Education in the U.S.", *Journal of the American Medical Association*, November, 1969, p. 155.

TABLE 3

State Residents Entering Medical School Related to Population and Bachelor's Degrees, 1968-69, 1976-77

	Number Entering from State[a]		Number Entering per 100,000 Population		State Rank in Population Ratio		Number Entering per 1,000 Bachelor's Degrees		State Rank in Bachelor's Degree Ratio	
	1968-69	1976-77	1968-69	1976-77	1968-69	1976-77	1968-69	1976-77	1968-69	1976-77
Alabama	115	257	3.3	7.0	44	15	12.5	18.0	31	15
Arkansas	121	130	6.1	6.2	6	22	22.0	18.6	5	13
Florida	239	421	4.0	5.0	36	29	16.8	16.0	17	22
Georgia	187	285	4.2	5.7	32	26	17.3	17.0	14	20
Kentucky	172	237	5.4	6.9	13	16	17.9	19.7	10	10
Louisiana	182	365	5.0	9.5	21	7	17.8	22.7	11	5
Maryland	232	348	6.3	8.4	5	10	24.1	21.4	3	6
Mississippi	105	165	4.5	7.0	24	15	15.5	17.1	21	19
North Carolina	129	262	2.6	4.8	50	31	8.9	11.2	44	37
South Carolina	113	184	4.3	6.5	31	19	18.1	17.0	9	20
Tennessee	218	269	5.5	6.4	12	20	17.8	15.3	12	24
Texas	429	762	4.0	6.1	38	23	14.0	15.2	24	25
Virginia	177	363	3.9	7.2	39	13	16.2	19.0	19	11
West Virginia	75	86	4.2	4.7	33	32	12.9	10.2	30	40
SREB States	-	-	4.3	6.4	-	-	16.0	16.7	-	-
United States	-	-	4.9	6.9	-	-	15.4	16.2	-	-
South as a Percent of U.S.	26%	28%								

[a]For whom addresses are known.

Source. Medical Education in the United States, *Journal of the American Medical Association*, December, 1977, p. 2837, and November, 1969, p. 1558.

region placed 16.7 per 1,000 bachelor's degrees in medical schools, while the national average was 16.2 per 1,000.

The disappointment on the part of parents and students upon rejection by medical schools has contributed to the pressure to expand medical education opportunities. Although in 1976-77, in the United States there were still 2.7 applicants per each acceptance to medical schools, this ratio is a slight drop from the previous years, when it had been 2.8. After years of rising, the absolute number of applications has actually decreased during the past three years. Indeed, the Association of American Medical Colleges has recently voiced concern over a precipitous 10 percent drop in applications.[1]

There is evidence, moreover, that medical school applicants from Southern states, on a relative basis, are not faring badly. As shown in Table 4, the average percentage of acceptances of applicants from the 14 Southern states was 39 percent in 1975-76, as compared to 36 percent nationally. The five states with acceptance rates lower than the United States average are Florida, Maryland, North Carolina, South Carolina and West Virginia. Maryland, however, ranked tenth in the nation in 1976-77 in terms of state residents entering medical schools relative to total population, and the other four states have all either added new medical schools or expanded entering classes since the year to which the acceptance data pertain.

If the objective of expanding medical school opportunities was meant to accommodate all who sought admission, then the expansion has not met the objective. If the success of this objective can be measured in terms of the region's success relative to the nation, then the objective has been met. There are two reasons why it is unlikely that medical education should, or would ever, be expanded sufficiently to accommodate all who want "in": 1) a large part of medical education is publicly financed, and 2) maintenance of professional excellence implies a process of selection, which is tantamount to acceptance of some applicants and rejection of others. If expansion is sufficient when the likelihood of acceptance in the region exceeds the nation's, perhaps the objective of providing wider medical educational opportunity for the young people of the South has been met.

The Supply of Physicians

Increasing the supply of physicians has been the foremost objective in the expansion of medical schools. The national supply of physicians per 100,000 population has made dramatic gains, rising from 140 per 100,000 in 1960 to 176 by 1975.[2] There are

currently 100,000 medical students and physicians in training, or approximately one-third as many as in active practice. As they progress through the training pipeline, the supply of physicians is expected to rise to 217 per 100,000 in 1985, and 220-254 per 100,000 in 1990.[3]

The Carnegie Council estimates a ratio of 210-218 per 100,000 by 1985, on the basis of lower projections of population and physician supply than were used by the Bureau of Health Resources Development. Only two nations in 1969 had physician/population ratios exceeding 200 per 100,000 — Israel and the U.S.S.R. Unusual conditions account for the high ratios in both nations, the immigration of physicians to Israel, and the lack of allied health manpower in the Soviet Union.[4]

TABLE 4

First-Year Medical Class Acceptance Rates, 1975-76

	Percent of Applicants Accepted[a]	State Rank
Alabama	43.8%	11
Arkansas	41.8	15.5
Florida	31.7	45
Georgia	41.8	15.5
Kentucky	42.6	13.5
Louisiana	45.2	8
Maryland	34.7	37
Mississippi	43.1	12
North Carolina	36.1	31
South Carolina	35.7	33
Tennessee	38.9	22
Texas	39.6	20
Virginia	39.5	21
West Virginia	35.8	32
SREB States	38.8	-
United States	36.3	-

[a]By state of residence

Source: Travis L. Gordon and Davis G. Johnson, "Medical School Applicants," *Journal of Medical Education*, September, 1977, p. 719.

Although no one is certain what stresses might be placed on medical manpower if or when some form of national health insurance is enacted, there is a widespread agreement in national policy that the overall physician shortage has been corrected. Congress during the past three years has put the brakes on subsidies to expand manpower in the medical and other health professions. The Carter administration, although presumably committed to eventual enactment of some type of national health insurance, in its 1979 budget recommends phasing out capitation support for medical schools because the physician shortage has been overcome.

National policy and the health profession's concerns have shifted dramatically in recent years from increasing the *total* supply to improving the *distribution* of physicians both geographically and by specialties. Progress toward improving geographic distribution is often evaluated by use of physician/population ratios. The use of such ratios as the only criterion to evaluate physician distribution has been seriously questioned. Utilization or demand for physicians varies because of factors such as tradition, age composition, culture, income, attitudes and the availability of other health manpower.[5] An area with lower ratios may or may not consider itself to be an underserved area. Indeed, states with very different physician/population ratios have been shown to have quite similar health indices of their respective populations. The availability of doctors does not seem to be a strong indicator of how healthy a people will be.

Also, if the average ratio is the criterion for measuring distributional shortages then, as averages increase, by definition there would always be shortage areas, regardless of whether by some other substantive criterion the area were well-served. Time rather than distance may be a more relevant factor in measuring access to physicians. Physician/population ratios do not take into account that population in some rural areas without a doctor may be closer to a physician in travel time than people in congested urban areas.

Despite the above caveats, ratios still constitute one important criterion by which to measure shortage areas. The difference in 1976 between 468 active non-federal physicians per 100,000 population in the District of Columbia versus only 92 in Mississippi is obviously so large as to cause concern. Changes in physician/population ratios from 1970 to 1976 are shown in Table 5 and Figure 1. Although the relative increase in these ratios has been faster in the region than for the United States, all the Southern states except Maryland still have ratios lower than the national average.

Many rural areas in Southern states still lack sufficient access to doctors. Approximately 500, or almost one-third of the officially

designated Critical Health Medical Shortage Areas (CHMSA's) in the nation are found in Southern states. (These areas are so designated in order to become eligible for National Health Service Corps assistance.)

TABLE 5

Physicians to Civilian Population Ratios, 1970 and 1976

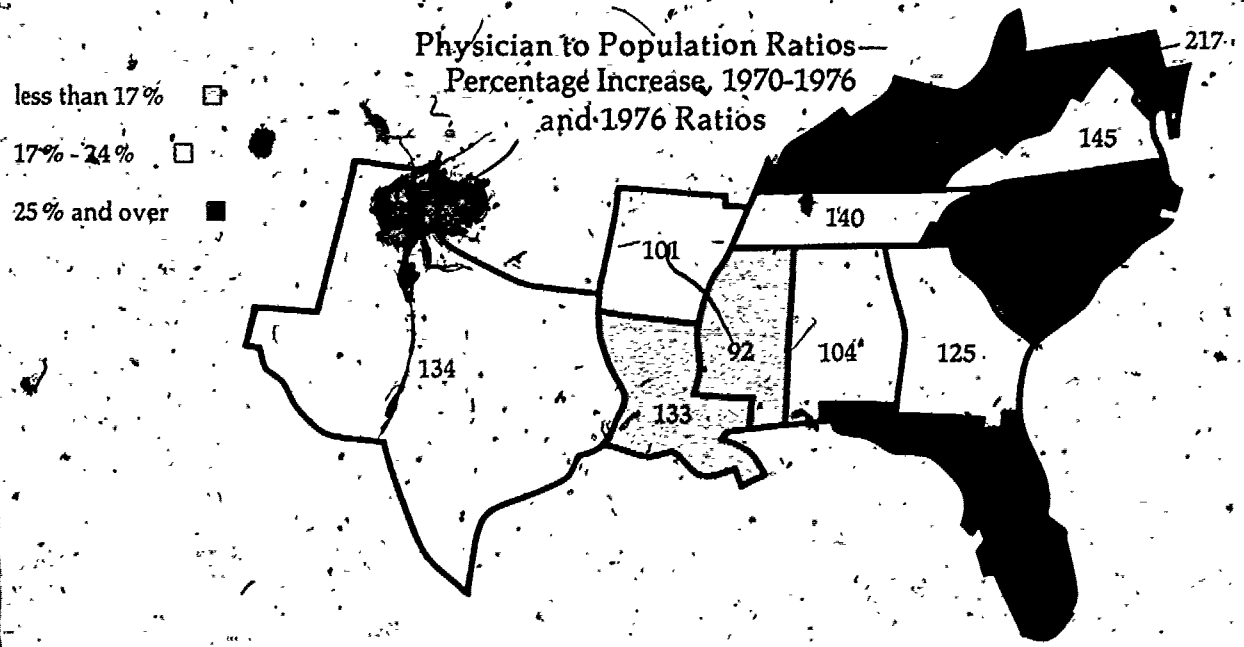
	Physicians[a] per 100,000 Population		Relative Increase
	1970	1976	1970-76
Alabama	85	104	22%
Arkansas	85	101	19
Florida	127	161	27
Georgia	103	125	21
Kentucky	98	133	36
Louisiana	115	133	16
Maryland	174	217	25
Mississippi	79	92	16
North Carolina	105	131	25
South Carolina	87	113	30
Tennessee	114	140	23
Texas	111	134	21
Virginia	117	145	24
West Virginia	98	125	28
SREB States	111	138	24
United States	139	163	17

[a]Active non-federal physicians

Source: HEW, Public Health Service, Health Services and Mental Health Administration, *Health Resources Statistics, 1971*, American Medical Association, *Physician Distribution and Medical Licensure in the United States, 1976*, Chicago, 1977.

FIGURE 1

Physician to Population Ratios—
Percentage Increase, 1970-1976
and 1976 Ratios



NOTE: Percentage increase for the U.S.: 17%
The ratio of active non-federal physicians per 100,000 civilian population, 1976, is shown for each state. The U.S. ratio is 163.

In addition to geographic maldistribution, the other nationally recognized issue centers on the proportion of physicians in specialized versus primary care. Geographic and specialty distribution issues are interrelated, since sparsely populated rural areas cannot support highly specialized physicians. Thus, in order to disperse physicians, it is reasonable to assume that with more primary care physicians, a greater number of doctors would settle in the hinterlands.

Primary care physicians have constituted a declining proportion of total physicians during the past 50 years. As shown in Table 6, this trend has continued in recent years despite national policies to strengthen primary care. In 1970, 42 percent of all non-federal physicians in the United States were in the four primary care areas of general practice, internal medicine, pediatrics and obstetrics-gynecology. By 1976, the proportion had declined to 40 percent. General practice (which includes family practice) had further declined as a share of the total, although internal medicine and pediatrics had gained slightly, thus offsetting to some degree the declines in general practice.

The same trend toward lesser concentration in primary care occurred in most Southern states, although in almost all of them the proportion of physicians in general practice exceeded the national average. As might be expected, the more rural states have the greatest concentration of general practitioners, while in urban Maryland, with one of the highest physician/population ratios of the nation, only nine percent of all non-federal physicians are in general practice.

The explanation of the concentration of physicians in specialties rather than in primary care is the same as in all other professions dealing with scientific or technical subjects and the explosion of knowledge. There is too much to be learned; thus, doctors, in order to feel competent and to master what is known and yet to be learned, tend to specialize. The pattern is similar for engineers, physicists, and other scientists.

Other reasons often cited for the increasing specialization of physicians are the greater monetary returns of specialized practice, and the influence of role models in medical education. (The faculty in medical schools is composed of specialists rather than generalists.)

National policy as enunciated in the 1976 Health Professions Education Act has determined that the trend toward specialization of physicians must be reversed and that special emphasis must be given to expanding the production of physicians who constitute the first point of contact for the population, i.e., family practitioners, internists and other primary care physicians. As an

affirmation of this objective, the 1976 Act decreed that by 1980, 50 percent of all residencies should be in primary care if medical schools are to continue to receive capitation grants to educate doctors. According to the U.S. Congressional Conference Committee report on the 1977 Amendment to the Act, this goal has been met.[6]

TABLE 6

Percentage of Physicians[a] in Primary Care Specialties 1970 and 1976

	General Practice		Internal Medicine		Pediatrics[b]		OB-GYN	
	1970	1976	1970	1976	1970	1976	1970	1976
Alabama	24%	18%	10%	13%	6%	6%	7%	7%
Arkansas	33	27	8	9	4	4	5	4
Florida	14	13	10	11	4	5	6	5
Georgia	18	14	11	13	6	6	8	8
Kentucky	27	21	9	12	5	6	5	5
Louisiana	20	15	10	11	6	5	8	6
Maryland	11	9	15	16	7	7	8	7
Mississippi	31	25	8	9	5	5	7	7
North Carolina	20	16	12	14	6	6	7	7
South Carolina	20	23	8	10	5	5	7	6
Tennessee	18	14	12	14	6	6	6	6
Texas	23	17	10	11	6	5	6	6
Virginia	20	15	12	11	6	6	6	6
West Virginia	24	16	11	11	4	5	5	5
SREB States	20	16	11	12	6	6	6	6
United States	18	14	12	14	5	6	6	6

[a] Active and non-active non-federal physicians
[b] Pediatrics in 1970 includes Pediatrics and Pediatric Cardiology

Source: HEW, Public Health Service, Health Services and Mental Health Administration, *Health Resources Statistics, 1971*, p. 156; American Medical Association, *Physician Distribution and Medical Licensure in the U.S., 1976*, Chicago, 1977, p. 96.

Strategies to Effect Improved Distribution of Physicians

Various strategies have been developed to improve the distribution of physicians, and the Southern states have been in the forefront in the implementation of many such policies. The most important strategy from an educational perspective has been the one of expanding medical schools in the region and reserving the major portion of the expansion for in-state students in the hope that, when they graduate, they will remain within the state. The expansion of medical school slots has been tremendous, as detailed earlier, but residency training of young doctors is probably more important in affecting final practice locations. The state in which doctors finish their training has a greater bearing on where they will practice than where they attend medical school.[7]

How successful has the region been in providing medical residency training? The signals are not as clear as they are in regard to expanding medical school education. In terms of the total number of residencies, in 1976 there were almost four times as many residency positions offered in the South as the number of graduates of medical schools (see Table 7). If average residency training is assumed to last 3.5 years, the total number offered from this standpoint would seem sufficient. For the first-year residencies, there were 5,580 offered positions as compared to 4,521 first-year medical school enrollments for the current year.

From a different perspective, however, medical residency education in the region may not be adequate since it does not have the same holding power on medical school graduates in several Southern states as is true nationally. In 1976, 43 percent of interns and residents who were educated within medical schools in the region remained in their states of graduation for further training. This is approximately the same as the national 44 percent who remained in the same state after graduation from medical school.

Thus, approximately 60 percent of all medical school graduates move to different states for residencies. A huge game of musical chairs takes place upon graduation from medical school, which presents no net drain on the state *if* as many graduates enter a state for training as the number who leave the state. On that score, several states in the region are net exporters, i.e., they graduate more medical students than the sum total they attract to further training from their own and other states. For example, as shown in Table 8, in 1976, 286 interns and residents originated from West Virginia medical schools (column 1). Of these, 119 remained in training in West Virginia (column 2), representing 42 percent of the medical school output in the state. With the addition of graduates from other states' medical schools, a total of 185 interns and

residents (column 4) were training in West Virginia; but this total represents only 65 percent of the number the state educated. Thus, West Virginia was a net exporter of medical school graduates. Since graduate medical training is an important factor in practice location, the net export of medical school graduates hurts the state's ability to attract physicians. Arkansas, Kentucky, Louisiana and Tennessee are all marked exporters, while Georgia and Mississippi are moderate exporters. States do change: only two years earlier North Carolina had been an exporter.

TABLE 7

Residencies Offered and Filled, 1976

	Total Positions Offered	Total Positions Filled	Percent Vacant Positions	Percent of Foreign Graduates in Filled Positions
Alabama	647	541	16%	17%
Arkansas	298	247	17	8
Florida	1,695	1,606	5	23
Georgia	1,110	974	12	10
Kentucky	693	647	7	20
Louisiana	861	754	12	16
Maryland	1,826	1,747	4	36
Mississippi	331	292	12	5
North Carolina	1,301	1,206	7	6
South Carolina	629	521	17	8
Tennessee	1,322	1,108	16	14
Texas	3,069	2,854	7	11
Virginia	1,258	1,123	11	13
West Virginia	341	292	14	38
SREB States	15,381	13,912	10	17
United States	64,660	60,318	7	26

Source: American Medical Association, *1977-78 Directory of Accredited Residencies*. Chicago, Illinois, 1978.

TABLE 8

Medical School Origin and Training Location[a] of Interns and Residents, 1976

	Graduating from Medical Schools in Specified State	Remaining in Same State for Graduate Training	Percent Remaining in Same State	Total in Training in State	Total Training Within State as Percent of Those Originating from That State
Alabama	468	228	49%	482	103%
Arkansas	375	198	53	257	69
Florida	854	323	38	1,121	131
Georgia	926	367	40	834	90
Kentucky	745	286	38	546	73
Louisiana	991	341	34	543	55
Maryland	913	382	42	1,145	125
Mississippi	349	166	48	290	83
North Carolina	1,022	362	36	1,136	111
South Carolina	406	168	41	440	108
Tennessee	1,190	512	43	839	71
Texas	2,247	1,264	56	2,428	108
Virginia	896	335	37	1,121	125
West Virginia	286	119	42	185	65
SREB States	11.668	5.051	43	11,367	

[a] United States-trained only

Source: Medical Education in the U.S., *Journal of the American Medical Association*, December, 1977, pp. 2785 and 2786.

Florida is the greatest importer in the region. It attracts 31 percent more United States-educated house staff to train in Florida hospitals than the total number of Florida-educated doctors who are training anywhere in the nation. Maryland and Virginia are also healthy importers.

Unfilled residency positions offer additional evidence of problems in graduate medical education. Despite a steady decrease of foreign medical graduates in the United States, unfilled residency positions are showing a definite decline nationally, as medical schools expand faster than residencies. The region parallels the nation in the decline of unfilled positions. As shown in Table 7, however, the 10 percent vacant residency rate in the region exceeds the national seven percent rate for 1976. When viewed in conjunction with the net export status, unfilled residency positions signal problems regarding the quality of graduate medical education.

Hospitals not affiliated with medical schools have the least attraction for residency training. Therefore, one of the ways to improve residencies, and thus attract more doctors to train in those states that seek more physicians, is to provide closer ties between medical schools and hospitals. In both affiliated and non-affiliated hospitals, greater emphasis on the quality of medical training will reduce the number of unfilled positions.

The importance of residency training as an element in a physician retention strategy has prompted the Alabama Comprehensive Health Planning Administration to recommend a cutback in the projected expansion of first-year medical school spaces, and an increase in the number of residencies in family practice and certain other specialities.[8]

Expansion of Primary Care Residencies

Related to the strategy of generally improving the attractiveness of residency training in exporting states is the strategy of focusing on expansion of family practice or other primary care residencies. Such a policy relates simultaneously to the geographic and specialty distribution issues, since family practitioners are expected to be more likely to locate in rural areas than in well-served metropolitan centers. Southern states have been active in this regard, and many are promoting such residencies through direct financial support. This marks the first full-scale financing through state educational budgets of graduate medical education, since residency slots in hospitals heretofore have generally been supported through other budget categories.

Kentucky, in 1976, authorized 76 primary care residencies at a cost of $25,000 per residency. The legislation was not specific as to whether it entailed only 76 first-year residencies or 228 total residencies for the three-year training period. Since not all the offered positions have been filled, the projected number of first-year residencies has now been reduced to 28, but the current recommendation is that funds should be appropriated to cover the three years of training for this number at a cost of $2.2 million annually.

Tennessee is planning to support 246 family practice residencies by 1980-81 in decentralized locations. The cost of the program has risen from $500,000 in 1975 to a current level of $2.8 million, and is estimated to reach $5 million in 1980. Texas is currently supporting 127 family practice residencies, and further expansion is planned.

The Community Hospital Education Program in Florida is another example of state support for primary care residencies in community hospitals. Of the 197 physicians completing training under the program in 1977, 40 percent are practicing in Florida, and an additional 20 percent are pursuing further training in the state. Although since the inception of the program the number of doctors training under its auspices has increased, there is some concern over drop-out rates from family practice and pediatric training programs. For fiscal 1978, the program will receive almost $3 million in state funds.[9]

A strategy related to state financing of primary care residencies is to decentralize medical education through the Area Health Education Center (AHEC) program in which North Carolina has been especially active. Participating students obtain part of their training in hospitals in smaller cities where teaching relationships are developed between a medical school, the hospital, and local practitioners. The effect is to diminish the professional isolation of local practitioners (a serious deterrent in the past to dispersal of young physicians), thus enhancing these geographic areas as practice locations. Students are exposed less to metropolitan practice locations and more to ambulatory care, which may prompt them to choose smaller communities for final practice sites. The program offers promise, although it will never serve all rural areas, since many are either too small to support an AHEC or are too far from medical schools.

Development of arrangements whereby advanced medical students could receive clinical training from practicing physicians in rural areas (rural preceptorships) constitutes another effort to expose medical students to rural areas and improve the chances of their choosing such practice sites. A recent study, however, found

that these preceptorships have no real impact on final location decisions,[10] although they do entail additional costs to medical students and raise the issue of whether compensation should be paid to preceptors, and how much.

Financing Incentives

In addition to strategies that affect medical school slots and post-graduate training programs, a variety of other strategies related to medical education has been used to induce physicians to enter underserved areas or family practice and other primary care specialties. Some are based on financial incentives, such as scholarships or loans. The general consensus is that federal and state loan forgiveness programs, whereby physicians repay loans by serving in shortage areas, have not been very successful. One study found that only 14 percent of federal loan recipients repaid through the service option.[11] State programs have fared better, with 41 percent and 65 percent repayment through service rates reported in two different studies.[12]

The National Health Service Corps (NHSC), which provides scholarships repayable by recipients' service on a year-for-year basis in critical shortage areas, until recently was too small to have made much impact. Under the 1976 Health Professions Education Act, it has been vastly expanded, but it is too early to know whether or not physicians will stay in the shortage areas once their commitments have been repaid. To the extent that they don't, critical shortage areas still benefit with NHSC physicians who replace one another, as contrasted to a lack of physicians altogether.

Preferential Admissions

Another strategy to redistribute physicians has been to concentrate on the origin of medical students under the assumption that minority students or those from rural areas will be more likely to serve in underserved ghetto or rural areas. A study in Michigan did show that graduates reared in non-metropolitan areas were more likely to return to non-metro areas than those who came from large cities,[13] but non-metropolitan areas are not synonymous with rural or critical shortage areas. Although the likelihood of settling in rural areas was found to be greater for physicians reared in rural areas, still most physicians reared in these areas (including even general practitioners) have chosen an urban practice.[14]

A National Planning Association study found that recent Meharry and Howard medical school graduates were more likely to settle in central cities than was true for all graduates, but again this does not assure that they are serving ghetto areas.[15]

A strategy based on preferential admissions for rural or minority students implicitly assumes that to some extent these "origin" criteria are to supersede academic and scientific achievement admission criteria. Medical school deans, however, listed this as one of the least likely changes that they expect to occur when they were queried about direction of medical education.[16] Recent admissions of minority students do not indicate any major changes in minority representation among medical graduates. In 1976, 6.7 percent of the entering class was black (9 percent for all minorities). These first-year enrollments show some improvement over the 2.7 percent in 1968 (before affirmative action plans went into effect), but are still below the 11.1 percent which the black population constitutes of total population. Among graduates last year, only 5.5 percent were black (7.1 percent for all minorities).[17]

Although the underrepresentation of blacks in the profession is a serious problem, no immediate or dramatic increase in the percentage of black enrollment is expected. The proportion of black applicants to medical schools has varied little from 1970 to 1975. Despite the fact that acceptance rates have been higher for black applicants than for all applicants,[18] the percentage of blacks among the total pool of applicants has remained stable and, thus, the percentage of blacks accepted has risen slowly. The percentage of black graduates remains lower than the percentage of black first-year students four years earlier because of higher attrition rates for black medical students. Some who have studied the issue of greater black representation in medical schools conclude, ". . .the key to affirmative action lies in increasing the pool of qualified black applicants to medical schools."[19]

Market Adjustment Strategy

One possibility to effect an improved distribution of physicians is to rely on the law of supply and demand. When the current supply of physicians absorbs the 100,000 doctors now in training — or approximately one-third as many as already in practice — market forces may force their dispersion. Some in the profession believe this is already happening. Major metropolitan areas are becoming saturated, and more young doctors are choosing the next tier (medium-size cities) than was true in past years. They are still unlikely, however, to disperse to really small towns or rural areas where they feel professionally isolated.

Others believe that relying on the market to disperse physicians is impractical. Dr. Rashi Fein is among the group of economists who point to the ability of physicians to generate their own demand and to "overdoctor" as a response to high concentration of physicians in well-served areas.[20]

The almost doubled first-year enrollment in medical schools is too recent to have had a full impact or to permit analysis of its impact on the distribution problem. Until the facts are known about practice location of the expanded graduating classes of the 1970s who are entering practice or still working their way through the training pipeline, it is hazardous to maintain that market forces do or do not affect the distribution problem.

There is also uncertainty whether the increased supply of emerging physicians will improve the distribution by specialties. The increase in residencies in primary care is promising, but here too, it is too early to make definitive projections as to a reversal of the long-run trend toward greater specialization.

The Costs of Medical Education

As might be expected, the expansion of medical education has entailed a tremendous rise in expenditures for medical schools. The state share in financing medical education has escalated even more rapidly. The state share of total general operating revenues for public and private medical schools in the United States rose from 31.9 percent in 1966-67 to 35.3 percent in 1975-76.

In addition to general operating revenues, state and local governments also support sponsored research and other programs, which in 1975-76 amounted to $225 million (see Table 9).

Since public medical school enrollments play a larger role in the region than in the United States (77 percent of first-year enrollments in 1976-77 versus 59 percent for the United States), for many Southern states, the financial burden is relatively heavier than throughout the nation.

Although private medical schools do not exert as heavy a burden on state budgets as public medical schools, state responsibility for financing private schools has increased on a relative basis even more rapidly than for public institutions. Each of the Southern states with private schools has in recent years adopted capitation grants or contract financing through the Southern Regional Education Board to help support or increase the number of state residents in private medical schools. The cost of these programs is expected to continue to grow, especially if private medical schools encounter financial difficulties.

TABLE. 9

State Participation in Financing Medical Schools, United States, 1967 and 1976

(in millions)

	1966-67		1975-76	
	Amount	Percent of Total	Amount	Percent of Total
Total General Operating Revenues, All Sources	$429	100 %	$1,772	100 %
State Appropriations to Public Medical Schools	133	31.0	627	35.3
State & Local Grants, Subsidies to Private Schools, and Regional Compact Income	9.1	.9	70	3.9
Total State & Local Revenues	$142.1	31.9	$697	39.2

Source: "Medical Education in the United States, 1976-77," *Journal of the American Medical Association*, December, 1977, pp. 2776-2779, and November, 1969, p. 1486.

In terms of state effort[21] in appropriations for medical school operations in 1967, eight Southern states ranked among the top 15 states. By 1976, seven Southern states ranked among the top 15 (see Table 10).

Current support of medical school education in South Carolina and Tennessee is illustrative of the high proportion which medical school costs comprise of total higher education state budgets. In 1977-78, the two South Carolina medical schools are slated to receive $51.7 million, or 28.5 percent of total state appropriations for current operating expenses for higher education. The proportion will rise to 29.5 percent for the next year, according to South Carolina Budget and Control Board allocations.[22] Over two-thirds of the modest funding increase for higher education is slated to go to the state medical schools.

Tennessee reports that in 1973 state appropriations to the public health science centers comprised $10 million or 7.7 percent of higher education current operating appropriations. By 1978, this has risen to $28 million, or 12.4 percent of the total. Future state

support, by 1984-85, will add $8 million for the new East Tennessee Medical School, and $2 million for development of family practice residency programs.[23]

Other states, especially those with new medical schools, will face similar pressure on financing medical education as the requirements for full development of fledgling medical schools drain off modest state appropriation increases for higher education. Additional pressures for funding of medical education may impinge upon state

TABLE 10

State Expenditure on Educational General Purpose Programs of Medical Schools[a] per $10,000 Personal Income in State, 1965-67 and 1975-76

	1965-67[a]		1975-76		Percent
	Amount	Rank	Amount	Rank	Increase
Alabama	$3.82	11	$13.46	2	252%
Arkansas	4.82	7	5.54	23	15
Florida	2.30	30	4.12	33	79
Georgia	2.35	28	4.53	27	93
Kentucky	7.31	3	9.07	9	24
Louisiana	5.25	6	7.43	13	42
Maryland	1.65	33	2.66	41	61
Mississippi	3.94	10	9.29	8	136
North Carolina	1.64	34	5.87	22	258
South Carolina	4.33	8	9.89	5	128
Tennessee	3.30	15	3.70	[redacted]	12
Texas	3.04	17	14.37	1	373
Virginia	2.42	26	6.12	20	153
West Virginia	5.59	5	9.76	7	75

[a]Including public and private schools, average for two years

Source: Carnegie Council on Policy Studies in Higher Education, *Purposes and Problems in Medical and Dental Education*, Jossey-Bass Publishers, 1976, p. 161, and "State Roles in Financing Medical Education," *Journal of Medical Education*, Vol. 52, No. 7, July, 1977, p. 607.

budgets if the federal capitation grants are not continued when the 1976 Health Professions Education Act expires in 1980. If capitation grants are lost, Southern medical schools will lose approximately $38 million annually.

Veterans' Administration funding played a considerable role in the recent establishment of four of the new medical schools in the region. Such funding was independent of planning by the Health Resources Administration of the Public Health Service, where the federal responsibility lies for coordinating health manpower development. Several of the Southern medical schools were established with the aid of Veterans' Administration funding in response to political pressure, and ran counter to the recommendations of their respective state higher education agencies. While such Veterans' Administration funding was instrumental in developing the new schools, the vagaries of federal funding may eventually result in a shift of the burden of continued support for these schools upon state budgets.

Unfortunately, there are no financial shortcuts in providing quality medical education. Acceleration of the education program from four to three years has not caught on. Where three years are optional, most students have chosen the four-year option. Several schools that tried the three-year program have reverted to the four-year schedule. Reducing the cost of medical education through substituting decentralized existing community hospitals for new teaching hospitals also does not seem to be a panacea. The University of South Florida this year is requesting funding for a teaching hospital, after determining it could not do without it. There is also a question of how far ambulatory patient care settings, staffed by part-time preceptors, may be used to provide clinical training. Moreover, preceptors, too, seek payment, and students in remote locations may have to be subsidized.

The financing through medical education budgets of family practice residencies, as was discussed above, is also a heavy financial commitment. Although it has the worthy objective of enhancing family and other primary care specialties, it may open the door to additional requests for funding of other residencies. There is already a good deal of ferment in the hospital-medical education community as to which budgets should carry the burden of paying residents and their faculties. The hospitals claim that the training programs constitute education, while the medical schools point out that the residents provide service which, to a large extent, would have to be provided by the hospital or other physicians in some manner in the absence of graduate medical training. Coming at a time when there is already considerable dispute as to whether or not educational budgets should carry the load of graduate

training, the state higher education financing of family practice residencies may open a "Pandora's Box," in terms of additional requests to shift financing of other existing training programs. If the average salary for residents is assumed to be a modest $10,000, and if this is shifted to state education budgets, state financing of medical education in the region would almost double.

Summary

It is phenomenal that the number of medical school graduates in the region has almost doubled in just 10 years. Yet the full impact of this expansion has not yet been reached as recently established medical schools in the region move to their projected capacities. The rapid expansion of medical education bears witness to the region's full commitment to provide opportunities for its young people.

The increase of medical graduates is of such recent vintage that it is difficult to make definitive judgments as to whether or not market forces will alleviate the distribution problem of medical manpower. To some extent, sheer numbers will encourage physicians to locate in communities other than the already well-served metropolitan areas; yet it is doubtful that such dispersion will reach into the hinterlands. Thus, there will be a continued need for carefully evaluated public policy strategies that encourage physicians to disperse.

One of the most obvious of such strategies is to strengthen graduate medical education, especially in states that have experienced net exports of their medical school graduates. It makes no sense for a state to increase medical school enrollments if residencies are insufficient in number or too poor in quality to retain these students or to attract other states' graduates for further training. Yet improvement of medical residency training as well as support of new programs in family practice medicine inflict heavy financial burdens on educational budgets. Additionally, with the probable phase-out of federal capitation grants, it is clear that state support of medical education will comprise a larger share of total spending for higher education.

VETERINARY MEDICAL EDUCATION

The Region's Role in Providing Education

The Southern states long have played an important role in veterinary medical education. The impetus for the South's commitment to the field has been due in large part to its agricultural base, including the growth in the number of farm animals. The importance of the profession in the South is attested to by the fact that veterinary medicine is one of the first fields of study for which the Southern states developed regional cooperative agreements through the Southern Regional Education Board.

In 1960, four of the then 18 existing schools of veterinary medicine in the United States were in the South. In 1974-75, a nineteenth school was added — in Louisiana. In rapid succession three more Southern states opened new schools — Mississippi, Tennessee and Florida, so that now eight of the 22 schools in the nation are located within the region.[24]

Concurrent with the development of new schools, the South has produced an important share of the supply of new veterinarians. As shown in Table 11, in 1970-71, Southern schools accounted for 24 percent of all first-year enrollments. During the current year, the enrollment share has risen to 32 percent, slightly higher than the population share in the 14 Southern states. By 1985, when all the new schools in the nation will have reached their projected first-year classes, the Southern states will account for 709 first-year slots, or 32 percent of the national total.

Graduating veterinarians, by 1985, will show a similar increase, with a projected national output of over 2,000 veterinarians annually, or two-thirds more than at the beginning of this decade. The South's output during the same period will more than double.

In terms of access to veterinary medical education, enrollments of residents of the Southern states in veterinary programs anywhere within the United States have been slightly lower than the national average relative to the population.

By 1976-77, the first-year enrollment rate per 100,000 population for students originating from Southern states was .88, slightly below the .98 rate for the nation (see Table 12). As might be expected, all the states with schools of veterinary medicine had rates in excess of the national average. In each period shown in Table 12, however, there was at least one state with a rate in excess of the national average that had no school within its own borders (Arkansas in 1976-77, Mississippi in 1973-74, and Kentucky and Mississippi in 1970-71).

TABLE 11

First Year Veterinary Medical Enrollments and Graduates, SREB Region, 1970-1985

	1970-71		1977-78		1985 Estimated
	First-Year	Graduates	First-Year	Graduates	First-Year
Region Population as % of U.S.	29%		30%[b]		
Auburn	105	101	115	113	115
Tuskegee	39	24	50	42	65
University of Florida	—	—	80	—	80
University of Georgia	69	59	86	85	86
Louisiana State	—	—	80	47	80
Mississippi State	—	—	25	—	65
University of Tennessee	—	—	40	—	80
Texas A&M	128	126	138	139	138
SREB States	341	310	614	426	709
United States	1,432	1,239	1,936[a]	1,667	2,205[c]
South as a Percent of U.S.	24%	25%	32%	26%	32%

[a]This includes 25 at Mississippi State University enrolled in Fall, 1977 not yet included in *Health Professions Schools, Selected Enrollment Data*

[b]Based on 1976 population

[c]Includes full capacity first-year enrollment in present schools within region, plus 100-Tufts University, 25-Washington State University, 40-University of Minnesota and 9-University of Pennsylvania. Current discussions between Mississippi State University and the University of Arkansas indicate first-year class may be expanded from 65 to over 100.

Source: HEW, Public Health Service, Health Resources Administration. *Health Professions Schools, Selected Enrollment Data, 1970-71/1977-78.* Washington, D.C., October, 1976.

TABLE 12

State Residents Entering Veterinary Medicine Schools Per 100,000 Population, 1970-71 to 1976-77 and Per 1,000 Baccalaureate Degrees, 1976-77

	1970-71	1973-74	1976-77	
			Per 100,000 Population	Per 1,000 Baccalaureates[a]
Alabama	1.10*	1.07*	1.58*	4.07
Arkansas	.36	.49	1.14	3.43
Florida	.44	.44	.49	1.56
Georgia	.50*	.75*	.82*	2.45
Kentucky	.75	.63	.93	2.67
Louisiana	.60	.96*	1.46*	3.49
Maryland	.38	.47	.60	1.54
Mississippi	.86	.91	.93	2.28
North Carolina	.37	.51	.64	1.52
South Carolina	.46	.44	.49	1.30
Tennessee	.38	.59	1.02*	2.44
Texas	1.09*	1.15*	1.11*	2.77
Virginia	.39	.43	.58	1.52
West Virginia	.63	.62	.60	1.31
SREB	.64	.72	.88	2.30
United States	.70	.77	.98	2.30

*States with veterinary medicine schools operating in that year.

[a]Degrees as of 1974-75

Source. *Journal of the American Veterinary Medical Association*, Vol. 170, No. 5, p. 487, and Clarence R. Cole and LaVerne D. Khézek, *A Plan for the New England College of Veterinary Medicine*, New England Board of Higher Education, Wellesley, Mass., 1974, p. 21.

Perhaps a more meaningful measure by which to evaluate access of a state's residents to veterinary medical education is the number of admissions relative to the number of baccalaureates granted in the state. Although a baccalaureate is not a requirement for admission in most schools of veterinary medicine, many applicants do obtain such a degree, so that baccalaureate degrees serve as a proxy for the pool of persons from which to expect veterinary medical applicants.

On the basis of bachelor's degrees granted per state, the 1976-77 admission rate for the South was the same as the national rate (Table 12). Generally, the states with schools of veterinary medicine do have higher admission rates than the SREB-state or United States averages, although Kentucky and Arkansas, without schools, also exceed these two averages.

As impressive as the expansion of veterinary medical education has been, every aspiring veterinarian will, of course, still not be accommodated. As in other much-coveted professional fields, there is an abundance of persons seeking entry. It has never been the case that all applicants to professional schools will be sufficiently qualified. If schools of veterinary medicine are to insure continued high standards of the profession, it is to be expected that the number of applicants should exceed available spaces. Also, some who seek entry may be motivated by expected financial rewards which will depend to some extent upon the supply and demand balances in the market. Yet current applicants may be receiving false signals about future financial rewards, since there is a lag in how quickly students are able to react to changed market conditions (witness the recent glut of teacher education majors).

Finally, expansion of veterinary medical education to a level accommodating all who might desire admission would be extremely costly. Such expansion would be justified from a public policy perspective only if the foreseeable supply of veterinarians in traditional practice areas fell short of projected demand, or if certain publicly-financed programs that require veterinary expertise were to be placed high on the agenda of national priorities.

Projected Demand for Veterinarians

Supply and demand relationships for veterinarians have been explored in numerous reports in recent years. The importance of determining what the current balance might be has prompted the American Veterinary Medical Association (AVMA) to commission a $200,000 study which should be completed later in 1978.

A common standard for measuring the adequacy of veterinary manpower has been on the basis of veterinarian-to-population

ratios. Although there is no definite way of ascertaining what constitutes the ideal ratio, two studies independently reached similar conclusions. The 1961 study by the Senate Committee on Government Operations suggested a goal of 17.5 veterinarians per 100,000 population.[25] This ratio was widely quoted in various studies on veterinarian needs.

In 1972, a National Academy of Sciences report (widely known as the "Terry Report") projected a demand of 42,000 veterinarians by 1980,[26] which would represent a ratio of 18.9 per 100,000, slightly higher than the 17.5 ratio used in earlier reports. To arrive at the total National Academy projection, the number of veterinarians in each type of practice or specialty was calculated separately, according to relavant factors. For example, federal budgetary growth was related to animal research, the number of horses to equine practice; population, per capita income and pet food production trends to small animal practice, and meat and dairy production to food animal practice.

The supply of active veterinarians and their ratios to population for 1970 and 1974 are shown in Table 13 and Figure 2. For 1970, the ratio in the South was 11.6 per 100,000 population, slightly below the 12.6 rate for the nation. By the end of 1974, the average ratio for the United States had risen to 13.6 (a seven percent improvement), and the Southern states' ratio had risen to 12.6 (a nine percent gain). Southern states with ratios higher than the national average in both years are Alabama, Georgia and Texas, states with schools of veterinary medicine, and Maryland with none. American Veterinary Medical Association membership rose 45 percent from 1970 to 1978, indicating that the ratios of active veterinarians shown for 1974 in Table 13 by now have probably risen considerably higher.

Although the current supply of veterinarians is still below the ratios discussed above, indications are that the gap will be closed by 1985. On the basis of its "medium" assumptions, HEW's Health Resources Administration (HRA) projects a supply of 36,400 active veterinarians by 1980, and 41,100 by 1985. The HRA projections, however, are conservative, since even on the basis of their "high" assumptions, the number of anticipated graduates in *1985* is below *current* first-year enrollment in schools of veterinary medicine.[27] It is certain, therefore, that the total supply in the United States by 1985 will meet the demand postulated by the National Academy report for 1980.

The future demand for veterinarians may be affected by the degree to which animal health technicians alleviate the work load of veterinarians. Since the late 1960s, when allied health paraprofessional programs were hailed as one answer to inadequate supplies of professional health manpower, animal technician

TABLE 13

Active Veterinarians and Ratios to Population, 1970 and 1974

	1970		1974	
	Number of Active Veterinarians	Ratio Per 100,000	Number of Active[a] Veterinarians	Ratio Per 100,000
Alabama	440	12.8	509	14.2
Arkansas	210	11.0	253	12.2
Florida	850	12.4	1,071	13.2
Georgia	620	13.4	706	14.5
Kentucky	350	10.9	389	11.6
Louisiana	310	8.0	368	9.8
Maryland	640	16.3	730	17.9
Mississippi	210	9.7	223	9.6
North Carolina	410	8.0	463	8.6
South Carolina	200	7.8	223	8.0
Tennessee	340	8.7	400	9.6
Texas	1,640	14.6	1,910	15.9
Virginia	570	12.2	617	12.6
West Virginia	90	5.1	108	6.1
SREB States	6,880	11.6	7,970	12.6
United States	25,800	12.7	28,700	13.6

[a]Estimated from the total number of veterinarians in 1974 on the assumption that 95 percent of all veterinarians are active.

Source: HEW, Public Health Service, Bureau of Health Resources Administration, *The Supply of Health Manpower*, 1974, p. 113 and *Health Resources Statistics*, 1975, p. 301, U.S. Government Printing Office, Washington, D.C.

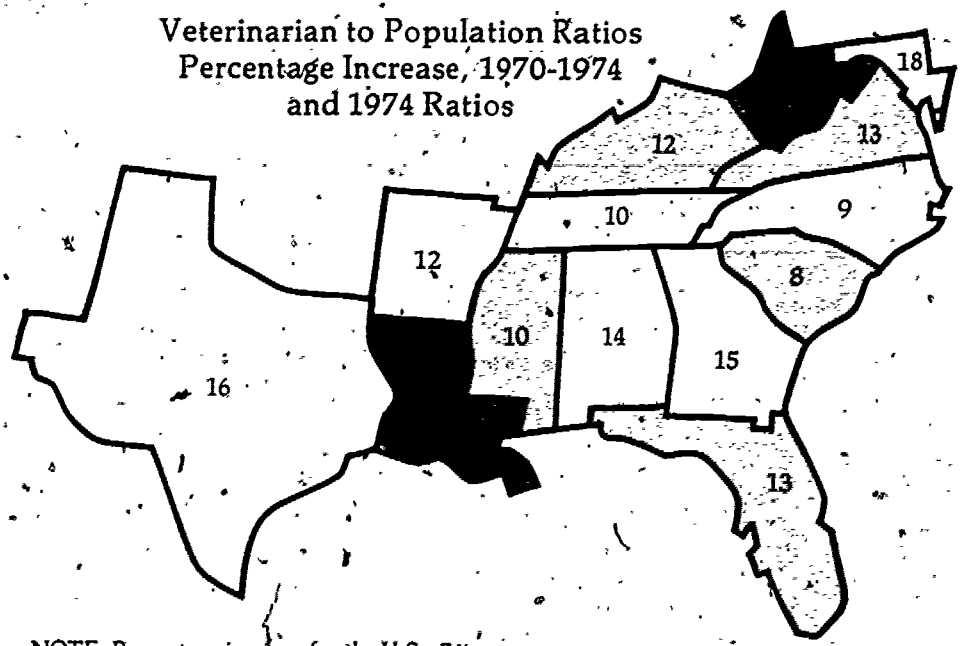
FIGURE 2

Veterinarian to Population Ratios
Percentage Increase, 1970-1974
and 1974 Ratios

less than 7%

7% - 19%

20% or over



NOTE: Percentage increase for the U.S.: 7%
The ratio of active veterinarians per 100,000 population, 1974, is shown for each state. The U.S. ratio is 14.

programs were developed throughout the nation. The AVMA has accredited seven such programs within the region. Over 5,000 animal technicians have graduated from training programs in the United States, and over 4,000 students are now enrolled in such programs.

There is little information at the present time as to how persons trained in these programs may affect the demand for veterinarians. To some extent, these technicians are performing the same functions, albeit more expertly, than assistants with on-the-job training. Historically, in all health fields, there is a tendency for professionals to restrict what paraprofessionals may do when supply of professional manpower tends to catch up with demand. While it may be cheaper from society's viewpoint to train paraprofessionals to perform certain routine duties in place of professionals, the success of such a policy will depend on its acceptance by the profession.

Veterinarians and Food Animals

Agricultural area spokesmen in recent years have emphasized the need for more veterinarians in rural areas to serve the needs of food-producing animals, whose distribution is unrelated to that of the human population; yet the percentage of veterinarians in large animal practice has declined moderately (see Table 15). How realistic is it to expect a marked shift of veterinarians to treat large animals in rural areas?

Evidence about the distribution of veterinarians throughout the nation indicates that concentration of food-producing animals visibly translates into economic demand for veterinarians if and when the concentration of such animals is great enough. In 1970, the West North Central region of the United States had the highest veterinarian-to-population ratio in the nation: 25 per 100,000, as compared to 12.6 per 100,000 for the nation. In 1974, this relatively sparsely populated area, with less than eight percent of the population, attracted 15 percent of all veterinarians because it accounted for 30 percent of all cattle and 50 percent of the national hog census. Thus, when food-producing animals are sufficiently concentrated, they do produce the economic incentive to attract veterinarians.

Several studies of veterinary medicine in Southern states also illustrate that when food animals become sufficiently concentrated in an area, veterinarians will be attracted. A southwest Georgia Congressional district, for example, has a greater veterinarian-to-population ratio than does Atlanta because of the high animal concentration in that farm area.[28] In Kentucky, the only crop-

reporting area where the percentage of the state's veterinarians vastly exceeds the proportion of the state's population is the Bluegrass area, where large animals are an important part of the economy.[29]

On the whole, however, in contrast to the West North Central region, food animal concentration in the South has not yet reached the threshold at which it becomes a sufficient magnet to attract

TABLE 14

Food Animal and Veterinarian Distribution

	Percent of[a] Total Cattle in U.S.	Percent of[a] Total Swine in U.S.	Percent of[a] Broilers in U.S.	Percent of[b] Veterinarians in the U.S.	Percent of[a] U.S. Population
	1976	1975	1975	1974	1974
Alabama	2.2%	1.6%	13.4%	1.7%	1.6%
Arkansas	1.8	.6	16.4	.8	.9
Florida	2.2	.4	2.1	3.7	.8
Georgia	1.8	2.6	14.2	2.4	2.3
Kentucky	2.6	2.0	.2	1.3	1.5
Louisiana	1.4	.3	1.7	1.2	1.7
Maryland	.3	.4	6.1	2.5	1.9
Mississippi	2.1	.7	7.8	.8	1.1
North Carolina	.8	3.8	9.6	1.6	2.5
South Carolina	.5	1.0	.9	.7	1.3
Tennessee	2.4	1.8	.6	1.3	1.9
Texas	12.1	1.5	5.5	6.6	5.6
Virginia	1.2	1.3	2.6	2.1	2.3
West Virginia	.4	.1	.5	.3	.8
South as a Percent of U.S.	32%	19%	82%	28%	30%

[a]U.S. Department of Commerce, *Statistical Abstract of the U.S. 1976*, Washington, D.C., 1976.

[b]U.S. Department of HEW, Public Health Service, National Center for Health Statistics, *Health Resources Statistics 1975*, Washington, D.C., 1976.

increasing proportions of large animal veterinarians. The proportions of various types of food animals accounted for by the Southern states in 1975 are shown in Table 14. The 32 percent of cattle accounted for by the region is only slightly above the 28 percent of the proportion of veterinarians and the 30 percent of the population within the region. An example of where high food animal concentration does pull relevant veterinary services is the broiler industry, which is heavily concentrated in Alabama, Arkansas and Georgia. In 1978, one-third of all AVMA members who list "poultry" as their specialty are residents of the South. When concentration of other food animals reaches similar levels, it should serve to attract veterinarians who specialize in large animal practice into rural areas of the region. In the absence of such concentrations, it would appear that subsidies will be required if veterinarians are to be pulled into rural areas for large animal practice. Increasing centralization of herd management in the cattle business may also serve as a catalyst to attract veterinarians who could not afford to practice in such locations if herds are widely scattered geographically or by ownership.

The need for a concentration of food animals to attract veterinarians is important not only from the demand perspective, but also for training veterinarians for large animal practices. One of the problems in providing education for large animal practitioners is the insufficiency of clinical material for students. Schools of veterinary medicine are not always located where food animals are concentrated, thus limiting the exposure of students to sick animals. The creation of clinical centers in areas where the animals are concentrated is one way to overcome this problem. Such centers are being developed in some regions of the nation with shared facilities for students from various schools of veterinary medicine. Similar arrangements in metropolitan areas would provide clinical material for small animal practice training.

The shift of veterinarians to small animal practice, both regionally and nationally, as shown on Table 15, is a reflection of the realities of consumer demand for their services. Pets are companions to humans, and contribute to their psychological well-being. Therefore, it is not surprising that the health care of pets in a society with rising incomes will determine effective economic demand for veterinarian services, and that veterinarians in choosing a type of practice will respond to this demand while such practice remains lucrative. Although there has been a good deal of rhetoric about the value to society of veterinarians because of their contribution to food animal production, today it might be realistic to acknowledge that the largest demand for veterinarians is actually the demand by humans for the health care of their pets. So long as this nation values an economic system that is free to

respond to consumer signals, the shift of veterinarians to small animal practice is perfectly natural.

Veterinary Services in Other Areas

Approximately one-fifth of all veterinarians in the United States are engaged in areas other than small or large animal practice. Included in this group are those who teach specialized subjects, or

TABLE 15

Distribution of Veterinarians by Small and Large Animal Practices, 1970 and 1978

	Percent in Small Animal Practice[a]		Percent in Large Animal Practice[b]	
	1970	1978	1970	1978
Alabama	34%	33%	14%	12%
Arkansas	30	42	16	15
Florida	57	70	12	10
Georgia	35	53	13	10
Kentucky	25	35	41	38
Louisiana	41	55	16	15
Maryland	26	36	10	10
Mississippi	33	48	25	14
North Carolina	47	64	7	9
South Carolina	39	63	6	7
Tennessee	42	50	22	17
Texas	35	50	17	16
Virginia	39	52	11	9
West Virginia	41	57	16	23
SREB States	38	52	15	14
United States	38	50	23	21

[a]Small animal, exclusive or over 50%.

[b]Large animal, exclusive or over 50%, including bovine, equine, and porcine. Percentages are calculated on the basis of total AVMA members, active and non-active.

Source: *American Veterinary Medical Association Directory.*

who work in regulatory capacities, in research, and other areas. Leaders in veterinary medical education suggest that it is in these specialities that demand for veterinarians may expand in the coming years. They point to the increasing complexity of regulating those substances which may have harmful effects on both human and animal populations. Research in prevention of animal diseases, as opposed to the present emphasis on treating individual specimens after they contract diseases, is another area that may require additional attention. All these activities, while certainly valuable, are likely to require new governmental funding. Until such funding becomes available, it is hazardous to predict manpower demands which may or may not be forthcoming.

Summary

By 1985, first-year enrollments in veterinary medicine in the region will have more than doubled from 1970. The addition of four schools of veterinary medicine in the region during the 1970s and the expansion of existing schools will result in the South producing a greater share of the nation's veterinarians than has been true in past years. While not every aspiring veterinary medical applicant will be admitted, acceptance rates for Southern students, relative to baccalaureate degrees, now equal the national average, and may well exceed this rate, as further expansion of existing schools takes place.

If a shortage of veterinarians were evident, further expansion of veterinary medicine to accommodate additional aspirants to the field might be justified. Current indications, however, show that the number of veterinarians in the early 1980s will meet the goals established by past studies of adequacy in veterinary manpower. Adequacy of veterinarians in terms of overall supply, however, will not result in any marked redistribution to food animal or rural area practice. The trend in veterinary medicine continues to show a shift to small animal practice. Until the concentration of food animal production is high enough to create an economic incentive to attract veterinarians, it is unlikely that the additional supply of veterinarians in the nation and the region will disperse to large animal practices.

If the experience in human medicine is to be any guide as to what will happen in veterinary medicine as supply is expanded, then saturation of supply in metropolitan areas will not lead to rapid dispersion of veterinarians to rural areas or to food animal practices. Although supply and demand forces may eventually have the effect of dispersing the veterinarian supply, additional incentives may be needed in the meantime to spur the process. One form for such incentives might be subsidized group practice, in rural areas, for large animal practices.

LEGAL EDUCATION

In legal education, too, the region has kept pace with the nationwide expansion of professional educational opportunities. Of the 18 law schools newly accredited by the American Bar Association (ABA) in the last decade, eight are in Southern states, bringing the regional total to 44 ABA-approved law schools of the national total of 164. In addition, numerous private non-approved law schools operate within the region and add their output to already burgeoning admissions to the bar.

The expansion of legal education, a matter of previous concern in two studies prepared for the Southern Regional Education Board by Dean A. Kenneth Pye of Duke University, is detailed in Table 16.[30] Since 1960, first-year enrollments in approved law schools in the 14 Southern states have increased almost threefold, while first professional law degrees (J.D. and LL.B.) have quadrupled. Unlike other first professional programs examined in this paper, however, the expansion has apparently crested. In some states, first-year enrollments have declined slightly during the last two years, and the number taking the Law School Admission Test (LSAT) nationally has also declined. To some extent the modest declines may be a reaction by students to news of a crowded profession.

Although the pressure for entrance to law schools has leveled off, this is not to say that available spaces equal the number of applicants. There are still more than three times as many students taking the LSAT as the number of first-year slots, but this imbalance overstates the competition for admission. Dean Pye in 1975, at the zenith of the pressure for law school admission, estimated that probably 20 percent of the qualified applicants were then being turned away.[31] Although no comprehensive data exist on applicants, by states, versus admission results, some states have analyzed their own situation. For example, a study of applicants to law schools in Texas in 1972 showed that only eight percent of state resident applicants with adequate scores were denied admission, and the number so denied was smaller than those with inadequate scores who were enrolled.[32]

The rapid increase in law school enrollments is having one salutary effect, namely to increase black representation in the legal profession. In 1970, according to the United States Census, only one percent of all lawyers and judges in the nation were black. Since then, law school admission affirmative action programs have had some effect on raising black representation in the profession, at least insofar as the new supply of lawyers is concerned. In 1976-77, minorities comprised nine percent of first-year enrollments in the nation's ABA-approved schools. A 1977 study finds that had

quantitative admission criteria been the only factors considered, the number of minority students admitted would have been 70 percent less.[33] Therefore, affirmative action programs relating admissions to criteria other than LSAT's and grades appear to be making a significant impact in encouraging blacks to enter a profession where they continue to be underrepresented.

TABLE 16

First-Year Enrollments and Degrees, ABA Approved Schools, 1961-1976

	First-Year Enrollments			J.D. and LL.B. Degrees		
	1960-61	1969-70	1975-76	1960-61	1969-70	1975-76
Alabama	93	352	437	71	153	356
Arkansas	89	314	347	33	95	183
Florida	426	1,292	1,451	223	483	1,024
Georgia	225	480	568	110	230	520
Kentucky	148	460	593	74	168	460
Louisiana	293	754	987	193	324	715
Maryland	182	297	560	92	87	482
Mississippi	94	203	311	63	117	164
North Carolina	301	616	697	184	240	614
South Carolina	97	349	250	47	119	277
Tennessee	208	545	613	95	252	536
Texas	1,019	2,116	2,299	487	937	1,789
Virginia	429	652	762	229	307	704
West Virginia	67	103	131	42	54	103
SREB States	3,641	8,533	10,006	1,943	3,566	7,927
United States	16,489	34,713	39,996	8,903	17,085	32,597
South as a Percent of U.S.	22%	25%	25%	22%	21%	24%

Source: Section of Legal Education and Admissions to the Bar, American Bar Association, *Review of Legal Education 1961, 1971 and 1976.*

Pressure for new law schools, although abating now that enrollments have crested, was sparked in some cases by a desire to provide legal education to commuters and in urban centers, especially since some state-supported law schools are located in university towns away from population concentrations. Countervailing this laudable objective to bring legal education within reach of more people is the problem of whether society's demand for legal services is sufficient to justify further educational outlays.

The Availability of Lawyers in the Region

Expanded legal educational opportunity has been translated into remarkable increases in members of the bar. As shown in Tables 17 and 18, almost two-thirds as many persons were admitted to the bar in the region in the last seven years as the total number of lawyers counted in 1970. After accounting for attrition, the number of lawyers in the region increased 28 percent from 1970 to 1977, a slightly larger relative gain than for the nation. Larger gains in the South than in the U.S. (occurring in all Southern states except Mississippi, Virginia and Georgia) were needed to offset the lower availability of lawyers in most Southern states.

All Southern states except Maryland had a higher population-to-lawyer ratio[34] than the national average in each of the three time periods shown in Table 19. (Florida and Texas have been and continue to be near the national average). To some extent the higher population-to-lawyer ratios in Southern states are justified by economic factors. "Urbanization" is a proxy for several variables that exert unique demands for legal services, namely, the concentration of corporate headquarters, financial institutions and real estate transactions. The less urbanized South, therefore, has not required population-to-lawyer ratios as low as those in some other parts of the nation.

Additions to state bars in recent years have somewhat narrowed the gap in population-to-lawyer ratios in most Southern states (see Figure 3). As shown by comparing the 1970 and 1977 indices of columns 3 and 5, Table 19, all states except Florida, Georgia, Mississippi and Virginia have improved their ratios faster than the national average. Florida and Texas have approximately the same ratios as the national average, while Maryland has a lower population-to-lawyer ratio than the U.S.

TABLE 17

Admissions to the Bar 1960-1977

	1960	1970	1974-76 Avg. Annual
Alabama	84	128	351
Arkansas	47	112	204
Florida	452	871	1,917
Georgia	151	449	932
Kentucky	86	180	379
Louisiana	180	363	568
Maryland	371	436	663
Mississippi	76	166	232
North Carolina	140	206	457
South Carolina	65	131	288
Tennessee	144	214	494
Texas	563	1,048	1,827
Virginia	287	396	765
West Virginia	52	87	148
SREB States	2,698	4,787	9,225
United States	10,505	17,922	34,830
South as a Percent of U.S.	26%	27%	27%

Source: National Conference of Bar Examiners, *The Bar Examiner*, Vols. 30, 40 and 46.

TABLE 18

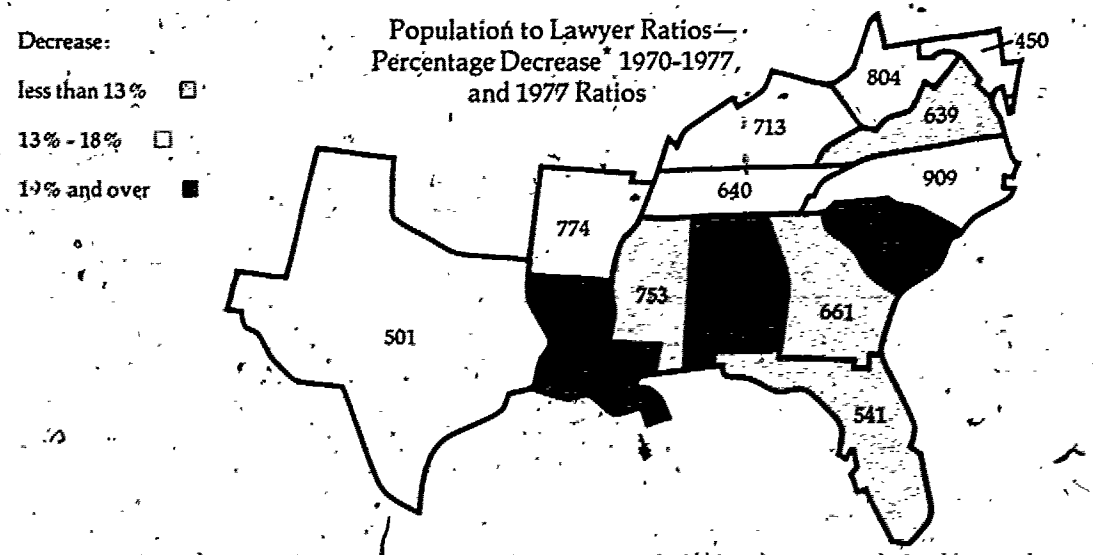
Lawyer Population, 1970-77

	Lawyers 1970	New Admittees to the Bar 1970-76	Lawyers 1977[1]	Percent Increase, of Lawyers 1970-77
Alabama	3,537	1,779	4,700	33%
Arkansas	2,107	1,135	2,726	29
Florida	11,510	10,650	15,561	35
Georgia	6,140	4,949	7,520	22
Kentucky	3,875	2,037	4,805	24
Louisiana	5,502	3,307	7,153	30
Maryland	7,447	3,913	9,212	24
Mississippi	2,766	1,500	3,128	13
North Carolina	4,638	2,623	6,016	30
South Carolina	2,379	1,579	3,221	35
Tennessee	5,184	2,637	6,580	27
Texas	19,074	10,849	24,910	31
Virginia	6,893	4,321	7,872	14
West Virginia	1,820	836	2,264	24
SREB States	82,872	52,115	105,668	28
United States	355,242	195,821	431,918	22
South as a Percent of U.S.	23%	27%	24%	

[1] Estimated number of lawyers less retirees. ABA reports the number of lawyers may be somewhat inflated by multiple bar memberships, judges and honorary members, but it is presently ABA's best estimate.

Source: A *1971 Lawyer Statistical Report*, and communication from American Bar Association.

FIGURE 3



*Contrary to the practice in medicine and veterinary medicine, ratios in the legal profession are calculated by population per lawyer, rather than lawyers per 100,000 population. Therefore a decrease in the ratio is an improvement in the availability of professional manpower in the legal profession.

NOTE: Percentage decrease for the United States: 13%
The population to lawyer ratio, 1977, is shown for each state. The U.S. ratio is 497.

TABLE 19

Population to Lawyer Ratios*
1950-1977

	1950	1970	1977	Index of Population/ Lawyer Ratio Relative to U.S. Average 1970	1977
Alabama	1,391	974	780	170%	157%
Arkansas	1,085	913	774	159	156
Florida	656	590	541	103	109
Georgia	854	748	661	130	133
Kentucky	910	831	713	145	143
Louisiana	905	662	537	115	108
Maryland	670	527	450	92	90
Mississippi	1,288	802	753	140	152
North Carolina	1,358	1,095	909	191	183
South Carolina	1,395	1,089	884	190	178
Tennessee	913	757	640	132	129
Texas	702	587	501	102	101
Virginia	917	674	639	117	129
West Virginia	1,128	958	804	167	162
SREB States	905	711	614	124	123
United States	696	572	497	100	100

*Contrary to the practice in medicine and veterinary medicine, ratios in the legal profession are calculated by population per lawyer, rather than lawyers per 100,000 population. Therefore a decrease in the ratio is an improvement in the availability of professional manpower in the legal profession.

Source: A. Kenneth Pye, *Meeting the Needs for Legal Education in the South*, Southern Regional Education Board, Atlanta, 1975, p. 6, and personal communication, American Bar Association, 1978.

Demand for Lawyers

Much has been written about the need for lawyers in underserved areas. It is indisputable that lower income families have limited access to lawyers. Rural areas, too, suffer from a dearth of legal services in comparison with the urban areas. Do these unmet needs constitute a demand for additional lawyers?

If funding arrangements were expanded or developed to make legal services more affordable to those who are now underserved, unmet needs might be translated into effective demand for lawyers. Such arrangements include prepaid legal services through insurance programs, union contracts or group legal arrangements. To date, however, the movement in this direction has been relatively slow, with some four million persons in the United States estimated to be covered by such arrangements. Such programs do not provide vast new opportunities for young lawyers. A national placement survey of 1976 law graduates found only 4.2 percent of all graduates employed in programs for indigent or prepaid legal services.[35]

During the early 1970s there was considerable momentum to develop legal aid services under public funding for lower income families. Such programs are still in operation, but have not expanded rapidly. More open competition between lawyers (including advertising and store-front services) may result in greater access to and therefore utilization of lawyers by persons who could not afford legal services otherwise, thus creating an additional demand for lawyers. Yet all of these changes are very gradual and cannot be expected to create large new reservoirs of effective demand in the near future.

The increasing complexity of life (just in terms of the government regulations and forms with which an average person must cope) suggests that more lawyers will be needed in the future, although this is difficult to quantify. Offsetting tendencies (no-fault insurance, uncontested divorces or small claims courts) may reduce demand but, again, these influences are not readily quantifiable. How then may effective demand for legal services be estimated for comparison with the fairly predictable supply of new lawyers? Three methods are used below which yield a range of demand estimates for 1985, depending in each case upon the respective assumptions.

The first method accepts the present population/lawyer ratios in the various states under the assumption that rural-urban differences, which are strongly associated with demand for lawyers, will remain fairly constant between states to 1985. Under this method the incremental demand for lawyers depends entirely on population growth, as projected by the National Planning Association.[36] A five percent annual retirement or attrition rate of the 1977 lawyer

population is used to calculate the demand for replacement lawyers.[37] The resulting numbers of additional lawyers, by states, that would be required through 1985 are shown in column 1, Table 20. This method yields a total demand for the region of approximately 66,500 additional lawyers for the 1978-85 period.

TABLE 20

Incremental Demand for Lawyers 1978-1985

	Method 1[a]	Method 2[b]	Method 3[c]	Estimated Additions to Bar, 1977-85
Alabama	2,269	4,417	2,192	2,808
Arkansas	1,382	2,766	1,400	1,632
Florida	10,813	19,869	10,000	15,336
Georgia	3,900	9,290	5,120	7,456
Kentucky	2,376	3,599	2,800	3,032
Louisiana	3,493	4,031	3,280	4,544
Maryland	4,867	5,209	5,800	5,304
Mississippi	1,748	2,681	1,224	1,856
North Carolina	3,358	9,428	3,424	3,656
South Carolina	1,617	4,145	2,880	2,304
Tennessee	3,556	6,760	2,800	3,952
Texas	21,822	22,684	21,440	14,616
Virginia	4,173	8,453	5,224	6,120
West Virginia	994	1,321	352	1,184
SREB States	66,468	104,653	67,936	73,800

[a]Maintain present population to lawyer ratios

[b]Tied to FIRE employment

[c]Employment Security Agency

Source: See Text.

The second method ties the demand for lawyers to the number of persons employed in each state in the finance, insurance and real estate industries (FIRE). The number of lawyers per state has been shown to be strongly correlated to the level of employment in that industry.[38] Development of FIRE is associated with the degree of urbanization; therefore, estimating demand for lawyers on the basis of projected employment in FIRE also relates demand to urbanization trends. Demand for additional lawyers (including replacements) through 1985 is shown in column 2, Table 20, on the basis of projected employment in FIRE[39] in each state in 1985, and yields a total for the region of 104,650 additional lawyers.

The third method is the projection of average annual openings for lawyers developed by the employment security agencies of the various states under the National Occupational Employment Statistics Program.[40] The projections reflect the current distribution of lawyers across industries, as well as projections of total employment in each industry in 1985. Replacement needs are included in the total. These state projections yield a total that is close to that of the first method, namely, 68,000 additional lawyers for the region through 1985 (column 3, Table 20). In Maryland, where the current population/lawyer ratio is already among the highest in the nation, this method yields the highest estimate of demand of the three methods used.

The three projections yield a range of demand from 66,400 to 104,650 lawyers in the region through 1985, counting both additional and replacement lawyers. The projected supply is shown in column 4, Table 20, and represents an eight-year total (1977-1985) of the average annual admissions to the bar in the Southern states for 1974-76, as shown earlier in Table 17. For the region, the 73,800 supply projection is considerably higher than two of the remarkably close demand projections, but below the highest one, based on employment in FIRE. Most states follow the same pattern. Current evidence suggests that oversupply is the more likely outcome, as evidenced by two of the projections, rather than a balance or scarcity of lawyers.

The United States Department of Labor during the past several years has warned of a continuing oversupply of lawyers through the mid-Eighties.[41] Popular anecdotes about hungry lawyers in search of suits mirror the present saturation of lawyers in many large cities. This glut has focused attention on law as an excellent preparation not only for legal practice, but for administration of business and public agencies. The greater availability of legally trained minds has doubtlessly had the effect of spreading legal talent to new areas. Whether or not this solution is satisfying to lawyers, or constitutes a sound payoff for publicly funded legal education, has not been established. (To the extent that a legal

perspective may obfuscate decision-making instead of simplifying it, some might question this benefit.)

The survey of 1976 law graduates conducted by the National Association for Law Placement (in which 123 ABA-approved schools representing approximately three-fourths of that year's graduates participated) found that eight percent had not found employment by March 1977. Private practice accounted for 52 percent of those employed. Government and corporate employment accounted for another 28 percent, although not all of these were in purely legal work.[42]

The general consensus is that graduates in the top of their classes have no problems in finding employment. For the remainder, the situation is highly competitive, and thus may promote dispersion of lawyers to underserved areas. The simultaneous and, no doubt, related occurrence of a swelling supply of lawyers and more open competition in the profession may well result in a gradual improvement of the distribution problem.

Summary

Legal education is one professional education field in which enrollments have already leveled off. To some extent the past surge for admission to law schools was a reflection of tightness in other fields. Students turned to legal education as they realized that the job market was tight for graduates in the social sciences and humanities. Yet so many of them pursued this route that the legal profession, too, was saturated in many geographical areas.

On a regional basis, under present arrangements of paying for legal services, there will be an ample, and probably excessive supply of lawyers for the next decade. A few states may find a somewhat different situation. In Texas, for example, the three demand projections examined in this paper point to a deficit of lawyers relative to extension of past trends of admissions to the bar. Yet, even in Texas, with one of the lowest population-to-lawyer ratios in the region, there is evidence of crowding in the legal profession.

Records on admission to the bar indicate that "growth" states do attract many candidates for admission to the bar who have been educated in other states.[43] Migration of law school graduates from other states does augment supply. The most economical alleviation of deficits in the few states that today might not be producing as many attorneys as eventually they could absorb is through migration by graduates from overserved states rather than through construction of expensive new law schools.

PAST OBJECTIVES AND NEW DIRECTIONS

How, then, has the South met the objectives of providing professional education? In some ways the record is clear. The Southern states have extended opportunities to their young people for entering the professions at least as well as the rest of the nation. Professionalism calls for high levels of intellectual achievement and standards of behavior, as well as a level of commitment to which only selected college graduates will dedicate themselves. Whether society can ever provide sufficient opportunities to accommodate each aspirant to "the professions" is highly questionable. Expansion in the South of the educational opportunities in the three fields examined in this paper has been generous. Indeed in legal education, expansion seems to have almost surpassed student demand, with enrollments recently registering their first, though modest, declines.

Minorities, however, continue to be underrepresented in the professions, and more emphasis is needed on improving their preparation as undergraduates in order to accelerate their admission to professional schools. Underrepresentation of women no longer appears to be as serious an issue, with their percentage of first-year enrollments in the three fields examined in this paper up to at least 25 percent.

Whether or not the expansion has met the second objective — of eliminating professional manpower shortages throughout the region — is a much more difficult question. In each field, improvements have occurred in statewide professional manpower-to-population ratios. In most states, in all three fields, such improvements have been larger than for the nation as a whole, thus, to some extent, narrowing regional deficiencies. Yet gaps persist both on statewide and specific area bases, even after adjustments are made for compensating factors such as lower urbanization in the case of legal services, or fewer animal concentrations in the case of veterinary medicine. In medicine, despite statewide improvements in physician/population ratios, there is no denying that the South continues to lead the nation in terms of critical shortage areas scattered through rural counties in most states.

In no field other than medicine have so many different strategies been initiated to overcome distribution problems. With typical American optimism and verve for finding answers, each strategy has been embraced by some as the final solution. Strategies were seldom pilot-tested to determine their ultimate value. Experience suggests that no one strategy will achieve distributional objectives but that, selectively, each may be useful to some extent in encouraging some dispersal of professional manpower.

The experience and knowledge gained through the various public policy initiatives that have been tried in medicine may be of value for veterinary medicine. Current concern in veterinary medicine about wider dispersal of services both by type of practice and location is reminiscent of what a decade ago prompted the various state and federal strategies to redistribute physicians. The experience in medicine would indicate that there are no "quick fixes" to the problem of distribution, and that increasing total numbers will not quickly achieve the objective of improved distribution. Until professional saturation in well-served areas becomes quite high, market forces are not likely to hasten dispersal. Even when they do, dispersal will not gravitate in all directions, but only to the next tier of population concentrations. For veterinary medicine, large animal populations in rural areas apparently must reach some threshold of concentration before they constitute effective demand.

Mechanisms that tie educational institutions to practitioners for the purpose of overcoming professional isolation (such as Area Health Education Centers in medicine) will play a role in determining which of the smaller cities will be successful in attracting and holding professional manpower. Such mechanisms, however, will not insure each remote area with professional services. Instead, present trends of improving access for dispersed populations in rural areas to professional services in nearby towns via transportation and other communication modes will continue as the effective economic response for providing professional services. In the final analysis, professional services are highly specialized human activities that depend upon a concentration of population that is either resident in the area or has access to that location. It will never be economical to scatter professional services into every nook and corner.

The focus of this paper has been on quantitative aspects of professional education — numbers of first-year slots and graduates, ratios of professional manpower to population, and so forth. This preoccupation with quantitative measures deflects attention from what may be at least as important — the quality of professional education. In each of the professions examined in this paper there exist professional schools or departments within the region that have achieved national reputations. Yet there are not many examples. As the South enters an era when some predict it will lead the nation in economic development, it may not be extravagant to pursue the goal of excellence in addition to numerical expansion. Describing in advance of its occurrence what such excellence consists of is a difficult task. Retrospectively, however, few would argue that institutions of excellence are those that are first in research funds, that produce Nobel Prize winners and are

synonymous with the names of nationally known scientists and scholars. How many such institutions are there in the South now? What might be the score card fifty years hence?

Whether prospects for excellence are enhanced when the focus is on expansion rather than quality is questionable. But state and federal emphasis on expanding professional education may be largely behind us. Thus, attention may perhaps now be shifted away from the constant pressure of catching up numerically to the pursuit of excellence in professional education.

The professions themselves have a large stake in the quest for quality as they are confronted with pressures to clean their houses. Although malpractice suits and the accusation from the Chief Justice of the United States that fifty percent of all trial attorneys are incompetent may represent exaggerated charges against professions, they are nevertheless signals that not all is well. The signals address themselves to those in the professions who are already providing service, as well as to those who are still preparing educationally to enter these professions. Indeed, the leadership role for expanding the horizons of the professions, both in terms of new knowledge and in the values that guide professional service, traditionally has emanated from the educational sector rather than the practicing sector of the professions. The responsibility to respond to public demands for higher professional standards falls heavily on higher education.

The rapid escalation of scientific knowledge, the movement toward recertification of physicians, and the increasing complexity of the law are examples of pressures that compel professionals to continuous updating in their respective fields. The responsibility for providing continuing education in the professions is now dispersed among educational institutions, professional societies, and other private postgraduate training sponsors. The educational institutions, now that they face less pressure from increasing enrollments, will be in a better position to assess their roles in providing continuing education for the professions.

The quest for excellence and the need for constant updating if professionals are to live up to the standards which the public expects may provide the new theme for professional education in the South, now that objectives related to numbers have been largely met.

NOTES

1. "Sharp Drop in Applications Alarms Medical Schools," *The Chronicle of Higher Education*, March 20, 1978, p. 1.

2. U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, Bureau of Health Resources Development, *The Supply of Health Manpower*, Washington, D.C. December 1974, p. 54.

3. *Ibid.*

4. *Feldshers*, or paramedical workers, are not included as physicians in Russia. Carnegie Council on Policy Studies in Higher Education, *Progress and Problems in Medical and Dental Education*, Jossey-Bass Publishers, 1976, pp. 30-32.

5. See Eli Ginzberg in National Health Council, Inc., *1976 National Conference on Health Manpower Distribution*, New York, 1976, pp. 3-5.

6. "Primary" care for capitation funding under the Act refers to *general* internal medicine, general pediatrics and family practice. Residencies are not usually reported as "general" internal medicine or pediatrics, and there is disagreement as to whether the intent of the Act has been met despite the fact that the numerical goals have been reached. National Association of State Universities and Land-Grant Colleges, *Circular Letter*, No. 26, December 22, 1977, p. 3.

7. Donald E. Yett and Frank A. Sloan, "Migration Patterns of Recent Medical School Graduates," *Inquiry*, June 1974, p. 133.

8. Comprehensive Health Planning Administration, Alabama Department of Public Health, *Physician Manpower Study, Supplemental Report*, February 1976, pp. 14-15.

9. Florida Community Hospital Education Council, *Annual Report*, January 1978.

10. Sinclair Coleman, *Physician Distribution and Rural Access to Medical Services*, Rand Corp. Santa Monica, 1976, p. 66.

11. CONSAD Research Corp., *An Evaluation of the Effectiveness of Loan Forgiveness as an Incentive for Health Practitioners to Locate in Medically Underserved Areas*, Pittsburg, Pa., January 1973.

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