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ABSTRACT

This preliminary model deals with manpower requirements to 1980 and jobs for University of Georgia graduates. Emphasis is placed on suggested methodology for dealing with a projected output of graduates in terms of speciality fields and the correlation of this projected output with projected manpower requirements in the related speciality fields. The requirements and outputs are listed for the University of Georgia each year both in Georgia and in the U.S. to 1980. A 29-item bibliography and appendices of related material are included. (Author/MJM)

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Abstract:

This report is a preliminary model and suggested methodology for dealing with the projected output of graduates in terms of speciality fields and the corelation of this projected output with projected manpower requirements in the related speciality fields. The requirements and outputs are listed for the University of Georgia each year both in Georgia and in the United States to 1980.

ERRATA SHEET

Page 7: Footnote 8 should read Donald Dillon. . .

Page 9: Footnote c instead of footnote d.

Page 18, 19, 20:

Fourth column should have the following heading:

"In Georgia
Average Openings
Per Graduate"

Seventh column should have the following heading:

"In U.S.
Average Openings
Per Graduate."

Page 83: Second reference should read Dillon, Donald. . .

MANPOWER REQUIREMENTS REPORT TO 1980;

JOBS FOR UNIVERSITY OF GEORGIA

GRADUATES IN GEORGIA AND THE NATION

January 1973

PREFACE

In restructuring and integrating existing University of Georgia budgetary and planning procedures into a Planning, Programming, Budgeting System (PPBS), it is important to focus attention on outputs and their evaluation. This orientation is important for all users of the PPB System and criteria must be formulated for measuring and evaluating program output. One aspect of the problem is examined here.

This report is the third in a series being produced by the Office of Program Planning and Analysis. The three reports in the series should not be considered as monographs on important subjects, but rather parts of our input into the planning system structure of the PPB System being implemented at the University of Georgia and supported by the Ford Foundation.

The objective of the report series is to suggest a number of approaches to the difficult problem of identifying and measuring higher education output. As such they should be considered initial studies to be periodically updated and revised and the results made available for the decision-making process at all levels of the University.

The first report, entitled Measuring One University Output A Survey of Undergraduate Degree Holders of the University of Georgia From the Classes of 1960-1970 considered one aspect of the problem. There are really two sets of objectives in an instructional program, those of the institution and those of the student. The ideal situation would be complete agreement between the sets of objectives. Unfortunately, they do not always coincide. All too frequently those in higher education fail to measure program performance from the standpoint of the student's objectives. The first study, therefore, suggested one means of approaching this situation.

The second study entitled A Study of the Ph.D. Graduates of the University of Georgia 1966-1970 dealt with the effectiveness of graduate education at the University of Georgia. Concentration was on the opinions of the graduates regarding the effectiveness of their graduate training. This study reflected another approach to measuring program output and performance.

The third study in the series, reported on here, has a somewhat different orientation. In formulating the Modus Operandi to prepare for the development and implementation stages of

the PPBS Project the Project Director has stated, that "we will, by the careful selection and use of known analytical methods... probe into ... historical, economic, and socio-political factors existing in Georgia and effecting institutions of higher learning, .. general manpower studies concentrating on the type, quantity and quality of needed higher education."

Specifically this Manpower Requirements Report looks, first, at the impact of University of Georgia graduates on the manpower supply of Georgia, and secondly, at the projected manpower requirements to 1980. Thus, this report focuses on output requirements which should have an impact on the formulation of output objectives for specific instructional programs in the University of Georgia.

Manpower studies by necessity use statistical data of the past, projections are based on conjecture using variables of doubtful stability. The freshmen entering the institution will be available for the labor market at best in four years and the Ph.D. in eight years. This study will, therefore, be an effort to establish a methodology and only succeeding studies will give sufficient historical information to become viable instruments for indicating reliable trends for decision-making.

The criteria for this study were outlined by the Project Director in May 1971 and the Project Team was briefed as to the form the study should take. Lin Tisdel and Dong Kun Kim did the initial research of statistical material and relevant literature. Joseph B. Waters supervised and participated in assembling the study and presented a preliminary and unpublished paper entitled "Manpower Study: An Analysis of Job Openings in Georgia and The Nation for College Graduates by Major Fields 1975-1980." This preliminary effort established an acceptable methodology. The Project Director, after reviewing both the preliminary paper and the existing literature, decided further study should be made using also more up-to-date data. Joseph S. Lechowicz, who had assisted in compiling the preliminary paper, was thus commissioned, under the supervision of the Associate Director, to present the newly conceptualized, researched, and much expanded study. The major credit for this current study must, therefore, go to him.

Reports in this series on institutional outputs to-date have focused on outputs of instructional programs (degree-majors). Future Studies might well deal with outputs of public service and research programs.

A.A. Sterns, Director

Fred H. Wise, Associate Director

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INTRODUCTION

This report is one of a series being produced by the University of Georgia, Office of Program Planning and Analysis, which focuses on the problem of identifying and measuring institutional output. Specifically, this report deals with projected output of graduates in terms of specialty fields and the correlation of this projected output with projected manpower requirements in related specialty fields. In other words, this study has developed information on the future supply and demand of college trained manpower; it is not a study of the impact of University of Georgia graduates on the economy of the state.

This report is seen as an example of one type of input needed by the program planner in formulating program output objectives. A program can be relevant to society only if it's output objectives match requirements in society.

The personnel who prepared this report do not profess to be manpower specialists They have not attempted to uncover new data but have used the most recent and reputable data available and reorganized it in a form more useful to administrators, instructors and counselors. The Project Team took available data of The U. S. Labor Department, The Department of Health, Education, and Welfare, The Georgia Department of Labor, and the Georgia Board of Regents and formated it for their specific purpose. All the projections used were developed after the 1970 national census.

Although the projections and basic data were taken from available reports, a number of decisions had to be made by the Project Team. Some of the more critical decisions are as follows:

(1) The occupations relevant to University of Georgia graduates and selected for this study.

(2) The major fields in the University and their relationship to the selected occupations — a matching process.

(3) The appropriate data series to be projected to 1980.

Decisions were made with great care. Relevant literature was researched. In individual cases academic advisors and the Chief, Manpower Resources, State of Georgia, were consulted. The procedure and rationale in making decisions are outlined in detail in the section dealing with Methodology.

Finally, these manpower projections in the University of Georgia study have been made within the framework of the assumptions underlying the State[1] and the National[2] projections to 1980. They are the following:

(1) *The international climate* will improve. The United States will no longer be fighting a war, but, on the other hand, a still guarded relationship between the major powers will permit no major reductions in armaments. This would still permit some reduction from the peak levels of defense expenditures during the Vietnam conflict.

(2) *Armed Forces strength* will drop back to about the same level that prevailed in the pre-Vietnam escalation period.

(3) *The institutional framework of the American economy* will not change radically.

(4) *Economic, social, technological, and scientific trends* will continue, including values placed on work, education, income, and leisure.

(5) *Fiscal and monetary policies will* achieve a satisfactory balance between low unemployment rates and relative price stability without reducing the long-term economic growth rate.

(6) *All levels of government* will join efforts to meet a wide variety of domestic requirements, but Congress will channel more funds to state and local governments.

(7) *Efforts to solve the problems posed by air and water pollution and solid waste disposal*, although they may preempt an increasing amount of the Nation's productive resources, will not lead to a significant dampening of our longrun potential rate of growth.

(8) *Fertility rates will be lower* than they have been in the recent past.

This report is meant to be an example of the type of study needed on a continuing basis as input to the planning process particularly at the college and department level. The use of manpower specialists might well improve the level of sophistication and quality of future studies.

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[1] Georgia Department of Labor, Employment Security Agency, Georgia Jobs for the Future, 1971. p.3.

[2] U.S. Department of Labor, Bureau of Labor Statistics, Occupational Manpower Training Needs, Bulletin No. 1701, (Washington: U.S. Government Printing Office, 1971). p. 67.

GROWTH IN NUMBER OF GRADUATES

The University of Georgia has increased its number of graduates from 2,507 in 1964 to 6,018 in 1972. In 1980 the University is expected to be graduating 9,296 students. These projections are based on projected U. S. college enrollment reflecting a moderate increase (C2).[3]

The University System in Georgia had conferred 5,739 degrees in 1964-1965. By 1972-1973, the System is expected to confer degrees to 17,266 students. By 1979-1990 the degrees conferred by the University System will reach 27,539. These totals include bachelor's, 1st professional, master's, and doctoral degrees.

It is also predicted that in 1972-1973, United States institutions of higher learning will graduate 1,251,500; the total graduates in 1979-1980 will number 1,744,100.[4] All the figures have been projected from population studies after the 1970 census.

GROWTH IN OCCUPATIONS

In Georgia the broad occupational makeup is expected to change by 1975. The basic pattern in Georgia will be similar to that of the nation as a whole. White collar workers will increase to 47 percent in 1980. Farm workers will decrease to only 2 percent. Blue collar and service workers are expected to maintain relatively the same proportion of the labor force in Georgia: 36 and 15 percent respectively.[5]

Professional, technical, and kindred workers will represent the fastest growing occupation group in Georgia from 1968-1980 — by 61 percent, making up 14 percent of the labor force.

Managers, officials, and proprietors are expected to increase by 37 percent — a rate that is significantly higher than the comparable national rate.

Sales workers will hold at 6 percent of the job market following closely the trends in retail sales.

Farm managers and farm workers will be affected by automation. They will continue to decrease by 50 percent from 1968 to 1980. Refer to Table 1A and 1B.

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[3]U.S. Department of Commerce, Bureau of the Census, "Projections of School and College Enrollment: 1971 to 2000." Current Population Reports. Series P-25, No. 473. (Washington: U.S. Government Printing Office, January, 1972) pp. 3, 11, 13.

[4]U.S. Department of Health, Education, and Welfare, Office of Education, Projections of Educational Statistics to 1980-81. Publications No. (OE) 72-99. (Washington: U.S. Government Printing Office, 1971.) p. 42.

[5]Georgia, Jobs for the Future, op. cit., p. 32.

On the national scene, the rapid growth in requirements for white collar occupations will continue, faster than the average growth among blue collar workers, slower than the average growth among service workers; farm workers will decline even further.[6]

"The professional and technical occupation group, whose growth rate has outpaced that of all major occupational groups in recent decades, will continue to lead from 1968-1980; its estimated rate of increase in 50 percent, compared with 25 percent for all occupations. Service workers, who will increase nearly 40 percent, will be the second fastest growing group. Clerical workers, whose projected growth rate is 35 percent, will be the third fastest growing occupation. They will be followed by sales workers, managers, officials, and proprietors (22 percent); and operatives (10 percent) are projected to grow less rapidly than total employment. The employment level of non-farm laborers is expected to be about the same in 1980 as in 1968."[7]

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[6] Occupational Manpower and Training Needs, op. cit., p. 8.

[7] Ibid. pp. 8-11.

TABLE IA

EMPLOYMENT BY MAJOR OCCUPATIONAL GROUP

1968 AND PROJECTED 1980 REQUIREMENTS (In Thousands)*

Occupational Group	1968		Projected 1980 Requirements		Change 1968-80	
United States	Number	Percent	Number	Percent	Number	Percent
Total	75,920	100.0	95,100	100.0	19,180	25.3
White-collar Workers	35,551	46.8	48,300	50.8	12,749	35.9
Professional & Technical	10,325	13.6	15,500	16.3	5,175	50.1
Managers, Officials & Proprietors	7,776	10.2	9,500	10.0	4,724	22.2
Clerical Workers	12,803	16.9	17,300	18.2	4,497	35.1
Sales Workers	4,647	6.1	6,000	6.3	1,353	29.1
Blue-collar Workers	27,525	36.3	31,100	32.7	3,575	13.0
Craftsmen & Foremen	10,015	13.2	12,200	12.8	2,185	21.8
Operatives	13,955	18.4	15,400	16.2	4,445	10.4
Nonfarm Laborers	3,555	4.7	3,500	3.7	- 55	- 1.5
Service Workers	9,381	12.4	13,100	13.8	3,719	39.6
Farm Workers	3,464	4.6	2,600	2.7	- 864	- 33.2

* U. S. Department of Labor, Bureau of Labor Statistics, Occupational Manpower and Training Needs, Bulletin No. 1701, (Washington: U. S. Government Printing Office, 1971), p. 11.

TABLE IB
EMPLOYMENT BY MAJOR OCCUPATIONAL GROUP
1968 AND PROJECTED 1980 REQUIREMENTS IN GEORGIA

Occupational Group	1968		Projected 1980 Requirements		Change 1968-80	
State of Georgia*	Number	Percent	Number	Percent	Number	Percent
Total	1,752,005	100.00	2,287,355	100.0	535,350	30.55
White-collar Workers	747,800	42.68	1,084,460	47.41	336,660	45.02
Professional & Technical	196,510	11.22	315,820	13.81	119,310	60.71
Managers, Officials & Proprietors	169,510	9.68	232,030	10.14	62,520	36.88
Clerical Workers	273,430	15.61	386,350	16.89	112,920	41.29
Sales Workers	108,350	6.18	150,260	6.57	41,910	38.68
Blue-collar Workers	675,935	38.58	821,090	35.90	145,155	21.47
Craftsmen & Foremen	216,150	12.34	288,885	12.63	72,735	33.65
Operatives	367,370	20.97	435,770	19.05	68,400	18.61
Nonfarm Laborers	92,415	5.27	96,435	4.22	4,020	04.34
Service Workers	244,725	13.97	339,720	14.85	94,995	38.81
Farm Workers	83,545	4.77	42,085	1.84	– 41,460	– 49.62

* Georgia Department of Labor, Employment Security Agency, Georgia Jobs for the Future, 1971. Interpolated from p. 37-38.

SELECTED OCCUPATIONS

Methodology and Appendix 1 provide detailed information concerning the selection of 64 occupations considered in this study. The selection of these 64 is based on educational requirements of a college degree as outlined by the U. S. Department of Labor for these particular occupations.[8]

The following discussion highlights projections for many of the major occupations in the United States:

Professional and Technical Workers. Employment requirements for professional and technical workers in 1980 are projected at 15.5 million or 50 percent more than the 10.3 million in 1968. The demand for goods and services will be a major factor underlying increasing requirements for these highly specialized workers. Concentration of the population in metropolitan areas will create new demands on their services. Further efforts to develop the nation's resources and industry and the quest for knowledge will also require additions in this field.

Manpower needs will increase in almost every professional and technical occupation; rates of increase will differ among occupations. Table II outlines the differing rates of growth for 64 occupations on the national level.

Teaching. The largest profession is expected to require 2.7 million teachers by 1980 compared with 2.6 million in 1970. Rates of increase among the three major levels of teaching -- elementary, secondary, and college -- will vary greatly. A growth of 1 percent is expected for elementary school teachers. The 5 percent increase in requirements for secondary school teachers is primarily attributable to higher enrollments in secondary schools to 1980.[9]

The demand for college and university teachers is expected to grow almost 18 percent as the number of 18-21 year olds rises nearly 2.2 million between 1970 and 1980.[10]

Physical Scientists. Physicists are projected to grow from 48,000 in 1970 to 75,000 in 1980 – a 56 percent increase. During the same period chemists are expected to reach 200,000 an increase of 63,000 or 66 percent. Increases in requirements in each of the above fields are heavily dependent on projected increasing expenditures for research and development.

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[8]Donald Dillion, "Toward Matching Personal and Job Characteristics," Occupational Outlook Quarterly, Vol. 15, No. 4, Winter 1971, p. 11-23.

[9]Occupational Manpower and Training Needs, op.cit. p. 11.

[10]U.S. Department of Commerce, Bureau of the Census, "Projections of the Population of the United States, by Age and Sex: 1970 to 2020." Current Population Reports, Series P-25, No. 470. Nov. 1971. p. 31,32.

The projected increases for life scientists, including botanists, zoologists, and microbiologists will not be as dramatic. By 1980 there will be 60,000 more life scientists than in 1970 — 240,000 altogether. Growth in this occupation is related to the expanding research in health and environmental quality control.

Medical lab workers are expected to be in great demand by 1980. An increase of 73 percent is envisioned in the ten year period — from 110,000 to 190,000.

Business. Accountants, one of the largest occupations for men, will continue to increase. By 1980 there is a ten year increase expected of 229,000 or 47 percent, bringing their total to 720,000.

Systems analysts win the prize of the greatest percentage increase in the 70's — 183 percent. Where as in 1970 there were estimated 100,000 systems analysts, by 1980 there will be 283,000. Their increase will parallel the increased use of electronic data processing systems by business, government, universities, and other organizations.

Salaried managers are expected to grow very rapidly as business and government depend increasingly on trained management specialists in the 70's. A rapid growth of 44 percent is projected for manufacturer's salesmen — a 225,000 increase to 735,000 in 1980. Insurance agents and underwriters are expected to increase by 38 percent, or 154,000 to 558,000 by 1980.

The 64 selected occupations taken together are seen increasing over 21 percent in the 70's. However, if teachers were exempted in our computations, the percentage increase of occupations would be 29 percent for the ten year period.

TABLE II
JOB OUTLOOK IN U. S. TO 1980

Occupations	Estimated Employment 1970 [a]	Projected Requirement 1980 [b]	Percent Change '70-80	Average Annual Openings 1970-80			Employment Prospects [c]
				Total	Employment Change	Replacement Needs	
Agriculture							
Agricultural Engineers	13,000	14,500	11.53	600	150	450	"Rapid increase due to mechanization"
Food Scientists	7,300	9,800	34.24	400	250	150	"Favorable employment outlook"
Arts & Sciences							
Psychologists	40,000	58,000	45.00	3,700	1,800	1,900	Excellent opportunities for Doctorates
Mathematicians	75,000	110,000	46.66	4,600	3,500	1,100	Competition keen; favorable for Ph. D's
Statisticians	24,000	33,000	37.50	1,400	900	500	Very good opportunities for new graduates
Geologists	23,000	27,100	17.39	500	400	100	Favorable for graduates with advanced degrees
Biochemists	11,000	17,000	54.54	800	600	200	Favorable for graduates with advanced degrees
Life Scientists	180,000	240,000	33.33	9,900	6,000	3,900	Keen competition
Chemists	137,000	200,000	45.98	9,400	6,300	3,100	Favorable opportunities in teaching
Physicists	48,000	75,000	56.25	3,500	2,700	800	Favorable opportunities in teaching
Music & Music Teachers	285,000	318,000	11.57	15,400	3,300	12,100	"Overcrowded field"
Commercial Artists	60,000	65,500	9.16	2,500	550	1,900	Favorable outlook for well-trained
Dancers & Actresses	38,000	46,000	21.05	2,300	800	1,500	Applicants greatly outnumber jobs
Medical Lab Assistants	110,000	190,000	72.72	13,500	8,000	5,500	Excellent opportunities for graduates
Clergy	361,500	377,100	4.31	12,200	1,560	10,640	Depends on denomination
Anthropologists	3,100	4,100	32.25	200	100	100	Good opportunities for Doctorates
Geographers	7,100	9,000	28.16	500	200	300	Strong demand for Ph. D's
Political Scientists	11,000	17,000	54.54	700	600	100	Good for Ph. D's in college teaching
Sociologists	12,000	16,000	33.33	800	400	400	Good prospects for Ph. D's
Historians	15,850	19,000	22.08	1,000	350	650	Keen competition

[a] Neal Rosenthal, "The Occupational Outlook Handbook in Brief", Occupational Outlook Quarterly, Vol. 16., No. 1, Spring 1972, pp. 13-33.

[b] U.S. Department of Labor, Bureau of Labor Statistics, Occupational Manpower and Training Needs, Bulletin 1701, 1971, pp. 67-74.

[c] Determine from above data — cf. Methodology section.

TABLE II cont.

JOB OUTLOOK IN U. S. TO 1980

Occupations	Estimated Employment 1970	Projected Requirement 1980	Percent Change 70-80	Average Annual Openings 1970-80			Employment Prospects
				Total	Employment Change	Replacement Needs	
Business							
Accountants	491,000	720,000	46.63	31,200	22,900	8,300	Excellent chances for college trained
Marketing & Research Workers	23,000	42,000	82.60	2,600	1,900	700	Excellent opportunities for advanced degrees
Personnel & Employment Workers	168,000	228,000	35.71	9,200	6,000	3,200	"Favorable outlook"
Economists	33,000	48,000	45.45	2,300	1,500	800	Excellent prospects for graduate degrees
Systems Analysts	100,000	283,000	183.00	22,700	18,300	4,400	Excellent opportunities
Bank Officials & Security Officers	374,000	496,000	32.62	22,800	12,200	10,600	Employment expected to grow
Managers	362,000	445,000	22.92	20,300	8,300	12,000	Favorable outlook
Insurance & Underwriters	405,000	558,000	37.90	21,740	15,350	6,390	Keen competition
Real Estate	226,000	270,000	19.46	14,800	4,400	10,400	Many new positions opening
Manufacture's Salesmen	510,000	735,000	44.11	25,000	22,500	2,500	Favorable for well-trained
Education							
College Teachers	335,000	395,000	17.91	10,800	6,000	2,800	Many Ph. D's face strong competition
College Counselors	2,800	4,000	42.85	200	120	80	Prospects good for beginning positions
Kindergarten & Elementary Teachers	1,260,000	1,270,000	.79	52,000	1,000	51,000	New graduates may face keen competition
Secondary School Teachers	1,015,000	1,065,000	4.92	38,000	5,000	33,000	Supply will exceed requirements
School Counselors	54,000	75,000	38.88	5,200	2,100	3,100	"Rapid employment increase"
Speech Pathologist & Audiologists	22,000	33,000	50.00	2,200	1,100	1,100	Good opportunities for advanced degrees
Librarians	125,000	155,000	24.00	11,500	3,000	8,500	Good opportunities
Park & Recreation Workers	13,500	23,500	74.07	1,700	1,000	700	Excellent opportunities for well-qualified
Rehabilitation Counselors	13,000	21,000	61.53	1,600	800	800	"Excellent opportunities"

TABLE II cont.
JCB OUTLOOK IN U. S. TO 1980

Occupations	Estimated Employment 1970	Projected Requirement 1980	Percent Change 70-80	Average Annual Openings 1970-80			Employment Prospects
				Total	Employment Change	Replacement Needs	
Environmental Design							
Landscape Architects	18,000	23,000	27.77	1,350	500	850	Professional opportunities will expand
Forest Resources							
Foresters, Range Managers Fish & Game Workers	36,600	57,200	56.28	2,360	2,060	300	Supply may exceed demand
Home Economics							
Dietitians	30,000	42,100	40.00	2,300	1,200	1,100	Very good opportunities
Food Process Managers	3,400	4,500	32.35	150	110	40	Opportunities for technically trained
Home Economists	105,000	130,000	23.80	6,700	2,500	4,200	Greatest demand in teaching
Journalism							
Newspaper Reporters	39,000	45,000	15.38	1,650	600	1,050	Favorable opportunities for talented
Technical Writers	20,000	25,000	25.00	1,000	500	500	Good prospects — need writing ability
Advertising	141,000	155,000	9.92	5,400	1,400	4,000	"Slow growth"
Public Relations Workers	175,000	115,000	22.85	4,400	4,000	400	Good opportunities — training demands differ
Law							
Lawyers	280,000	335,000	19.64	14,000	5,500	8,500	Good opportunities for high ranking graduates
Pharmacy							
Pharmacists	129,000	136,000	5.42	5,100	700	4,400	"Employment to grow"
Social Work							
Social Workers	170,000	270,000	58.82	18,000	10,000	8,000	"Very good prospects"
Veterinary Medicine							
Veterinarians	25,000	35,000	36.00	1,500	900	600	"Very good outlook"
Average for the Selected Occupations	8,298,900	10,070,100	21.34 [d]				

[d] Percent Change without Teachers is equal to 29 02 .

SELECTED OCCUPATIONS IN GEORGIA

The following analysis of the selected occupational groups will highlight the major developments in Georgia over the period 1970-1980. We have attempted to interpolate and extrapolate our data for the State of Georgia during the same period as was done for the U.S. occupational groups. In this way we would hope to facilitate comparison of Georgia's occupational growth with that of the nation. Throughout the entire study, all data on occupations in Georgia have been interpolated from Georgia Jobs For the Future, Georgia Department of Labor. Refer to Table III as well as Appendices 6 and 7 of this study.

For the state of Georgia all occupations are projected to increase from 1,841,250 in 1970 to 2,287,350 in 1980 or 24.2 percent. Professional Technical and Kindred workers are expected to rise from 216,410 to 315,820, an increase of 45.9 percent, in the same ten year period. This increase is close to the increase of all the selected occupations of this study for Georgia. The increase for the 64 selected occupations of this study was 42.6 percent from 1970 to 1980.

Agricultural Scientists. The agricultural scientists are projected to increase from 1350 to 1950 in the ten year period – a 44.4 percent increase. No doubt this increase reflects the fact that as agriculture becomes more and more automated, the demand for the trained person will be more acute. However, the overall number of workers on farms will decrease from 1970 to 1980 by 34,550 if existing economic and social conditions prevail to 1980. The percentage of decrease is expected to be 45 percent from 76,600 to 42,000, a noteworthy statistic for the University and especially the College of Agriculture.[11]

Physical Scientists. Physicists are seen to increase by 800 in the 70's to 1540 – the greatest increase of all Georgia occupations studied. Chemists are also projected for a healthy increase of 1810 in the ten year period to 4,345 – a 71.4 percent rise. Mathematicians are expected to increase from 800 to 1200 for 1970-1980. Psychologists can be seen to increase from 585 to 975 – a 67 percent increase. Biological scientists are projected to increase from 850 to 1470 by 1980 – a 73 percent change.

Teaching. The demand for teachers in Georgia will continue to rise by 39.7 percent. 60,130 teachers in 1970 is seen increasing to 84,010 by 1980. The demands will vary in the different groups of teachers. For instance college teachers are expected to increase by 40.5 percent or 3600. Secondary school people are envisioned to have the greatest gain – 10,650 or

[11] Georgia Jobs for the Future, op. cit. p. 33-36.

51.7 percent in the ten year period. Elementary school teachers are projected to increase by 7,050 from 1970 to 1980 – a 29.3 increase. These projected increases seem to belie the experience of many young teachers seeking employment. But as Mr. Lawrence Bixby of the University of Georgia Placement Center contends, there are many positions in teaching (primary and secondary) to be filled in small cities and communities of the State.

Business. Accountants and auditors are expected to increase by 4750 to 17,115 by 1980 – a ten year increase of 38 percent. Personnel and labor relations workers have a projected increase of 1550 to 4745, a 48.5 percent rise. Economists have a healthy projected increase of 66.7 percent, though this represents 360 positions or a total of 900 by 1980. Similarly creditmen are seen to increase by 54.8 percent to 2600 – an increase of 920 positions in ten years.

The increase in insurance agents and real estate agents is relatively close to 45 percent and 48 percent respectively. In the former, 45 percent represents an increase of 8,120 to 26,020. In the latter 48 percent represents an increase of 1,120 to 3,460, in both cases to 1980.

Other Groups. In the state, managers, officials, and proprietors are expected to rise from 179,900 to 232,000 in the ten year period – nearly 29 percent. Sales workers will rise from 115,400 to 150,300 – a 30.2 percent increase in the 70's. These broad groups are not given in Table III.

Positions in social work are expected to rise by 41.9 percent between 1970 to 1980 – representing an increase of 1260 to 4270.

TABLE III
JOB OUTLOOK IN GEORGIA TO 1980

U. S. Occupational Titles	State of Georgia Occupational Titles	Estimated Employment 1970 [a]	Projected Requirement 1980 [a]	Percent Change 1970-1980	Average Annual Openings 1970-1980 [b]		
					Total	Employment Change	Replacement Needs
Agriculture [c]							
Agricultural Engineers Food Scientists	Agricultural Scientist with Other Natural Scientists	1,350	1,950	44.44	81	60	21
Arts & Sciences							
Psychologists	Psychologists	585	975	66.66	52	39	13
Mathematicians	Mathematicians	800	1,200	50.00	55	40	15
Statisticians	Statisticians & Actuaries	680	1,000	47.05	50	32	18
Geologists	Geologists	330	350	6.06	17	2	15
Biochemists	Biological Scientists	850	1,470	72.94	82	62	20
Life Scientists	Other Natural Scientists	665	675	1.50	8	1	7
Chemists	Chemists	2,535	4,345	71.40	211	181	30
Physicists	Physicists	740	1,540	108.10	86	80	6
Music & Music Teachers Commercial Artists Dancers & Actresses	Workers in Arts & Entertainment	13,325	19,815	48.70	1,092	649	443
Medical Lab Assistants	Technical Medical & Other Workers	8,760	12,560	43.37	758	380	378
Clergy	Clergy	5,985	10,195	70.34	588	421	167
Anthropologists Geographers Political Scientists Sociologists Historians	Other Social Scientists	225	375	66.66	21	15	6

[a] Appendix 7. Interpolated from 1975 totals and "Average Annual Change".
[b] Appendix 8. "Total Demand", "Expansion Needs", "Replacement Needs" divided by eight.
[c] Negative projections for the industry in State of Georgia.

TABLE III cont.

JOB OUTLOOK IN GEORGIA TO 1980

U. S. Occupational Titles	State of Georgia Occupational Titles	Estimated Employment 1970	Projected Requirement 1980	Percent Change 1970-1980	Average Annual Openings 1970-1980		
					Total	Employment Change	Replacement Needs
Business							
Accountants	Accountants & Auditors	12,365	17,115	38.41	779	475	304
Marketing & Research Workers *		—	—	—	—	—	—
Personnel & Employment Workers	Personnel & Labor Relations Workers	3,195	4,745	48.51	233	155	78
Economists	Economists	540	900	66.66	49	36	13
Systems Analysts *							
Bank Officials & Security Officers	Creditmen	1,680	2,600	54.76	132	92	40
Managers	Managers [d]	—	—	—	—	—	—
Insurance & Underwriters	Insurance Agents	17,940	26,060	45.26	1,187	812	375
Real Estate	Real Estate Agents	2,340	3,460	47.86	216	112	104
Manufacture's Salesmen *		—	—	—	—	—	—
Education							
College Teachers College Counselors	College Teachers	8,890	12,490	40.49	594	360	234
Kindergarten & Elementary Teachers	Elementary Teachers	25,515	32,565	29.30	1,853	750	1,148
Secondary School Teachers School Counselors	Secondary School Teachers	20,585	31,235	51.73	1,790	1,065	725
Speech Pathologist & Audiologists	Other Teachers	5,140	7,720	50.19	455	258	197
Librarians	Librarians	2,530	3,410	33.99	225	86	139
Park & Recreation Workers *		—	—	—	—	—	—
Rehabilitation Counselors *		—	—	—	—	—	—

[d] No meaningful corresponding projections between U. S. & State of Georgia.

* *No corresponding occupation in Georgia Data.*

TABLE III cont.

JOB OUTLOOK IN GEORGIA TO 1980

U. S. Occupational Titles	State of Georgia Occupational Titles	Estimated Employment 1970	Projected Requirement 1980	Percent Change 1970-1980	Average Annual Openings 1970-1980		
					Total	Employment Change	Replacement Needs
Environmental Design							
Landscape Architects		—	—	—	—	—	—
Forest Resources							
Foresters, Range Managers	Foresters [c]	—	—	—	—	—	—
Fish & Game Workers							
Home Economics							
Dietitians							
Food Process Managers	Dietitians & Nutritionists	615	805	30.89	49	19	30
Home Economists							
Journalism							
Newspaper Reporters	Editors, Reporters & Photographers	2,680	3,620	35.07	173	94	79
Technical Writers							
Advertising [e]		—	—	—	—	—	—
Public Relations Workers [f]		—	—	—	—	—	—
Law							
Lawyers	Lawyers & Judges	4,120	4,680	13.59	177	56	121
Pharmacy							
Pharmacists	Pharmacists	2,655	2,945	10.92	104	29	75
Social Work							
Social Workers	Social Workers	3,010	4,270	41.86	252	126	126
Veterinary Medicine							
Veterinarians	Veterinarians	550	530	- 3.63	9	- 2	11
Average for the Selected Occupations		151,180	215,600	42.61 [h]			

[f] With Personnel & Labor Relations Workers.

[e] Average projections for the industry in the State of Georgia.

[h] Percent change without teachers = 44.5?.

JOBS PER GRADUATE IN GEORGIA AND IN THE U.S. TO 1980

After reviewing the varying growths in occupations in the State and in the Nation, the average job market for college and university graduates during the 70's will be discussed. The reader will recall that our graduates include bachelors, masters, doctorate, and professional degree winners. In Table IV, average annual job openings in Georgia have been computed and compared with the average annual number of graduates of the University of Georgia System. This comparison has produced an average opening per graduate for each of the selected occupations in the 70's. The same has been done on the national level producing the average annual openings per graduate in the Nation.

TABLE IV

JOBS PER GRADUATE IN GEORGIA 1972-80

Occupation	Average Openings Georgia[a]	Average Graduate Georgia[b]	In Georgia Percent of Average Opening Per Graduate	Average Openings U. S.[c]	Average Graduates U. S.[d]	In U. S. Percent Of Average Openings Per Graduate
Agriculture						
Agricultural Engineers	Ag. Scientists 81	50	1.620	600	912	.657
Food Scientists	---	36	---	---	---	---
Arts & Scientists						
Psychologists	52	102	.509	3,700	7,475	.494
Mathematicians	55	582	.094	4,600	49,100	.093
Statisticians	50	38	1.316	1,400	1,470	.952
Geologists	17	55	.309	500	4,500	.111
Biochemists	Biological Scientists 82	20	.050	800	1,645	.486
Life Scientists	Natural Scientists 8	1,747		9,900	154,000	.064
Chemists	211	569	.370	9,400	23,685	.396
Physicists	86	437	.196	3,500	15,200	.230
Music & Music Teachers		192		15,400	23,830	.646
Commercial Artists	1,092	280	2.153	2,500	15,560	.160
Dancers & Actresses		35		---	---	---
Medical Lab Assistants	758	67	11.313	---	---	---
Clergy	588	36	16.333	12,200	22,560	.540
Anthropologists		34		200	5,432	.036
Geographers		88		500	5,866	.085
Political Scientists	Other Social Scientists 21	505	.010	700	46,008	.015
Sociologists		785		800	43,320	.018
Historians		686		1,000	69,365	.014

[a] Appendix 8 "Total Demand" divided by eight

[b] Appendix 4 Average of 1972-1980 Totals

[c] Appendix 5 Difference of 1980 Total and 1970 Total divided by ten

[d] Appendix 6 Average of 1972-1980 Totals

TABLE IV cont.

JOBS PER GRADUATE IN GEORGIA 1972-80

Occupation	Average Openings Georgia	Average Graduate Georgia	In Georgia Percent Of Average Opening Per Graduate	Average Openings U. S.	Average Graduates U. S.	In U. S. Percent Of Average Openings Per Graduate
Business						
Accountants	779	730	1.067	31,200	32,390	.963
Marketing & Research Workers		761		2,600	22,320	.116
Personnel & Employment Workers	233	10	.035	10,200	7,760	1.314
Economists	49	432	.113	2,300	30,950	.074
Systems Analysts	—	75	—	22,700	3,050	7.442
Bank Officials & Security Officers	132	239	.552	22,800	9,590	2.377
Managers	—	2,520	—	20,300	20,847	.973
Insurance & Underwriters	1,187	84	14.130			
Real Estate	216	135	.625	36,500	1,510	24.172
Manufacture's Salesmen	—	310	—	25,000	84,860	.294
Education						
College Teachers	594	285	2.084	10,800	25,970	.415
College Counselors	—	32	—	—	—	—
Kindergarten & Elementary Teachers	1,853	3,630	.510	52,000	196,100	.265
Secondary School Teachers	1,790	2,434	.631	38,000	94,300	.402
School Counselors				5,200	15,450	.336
Speech Pathologist & Audiologists	455	280	1.625	2,200	8,975	.245
Librarians	255	61	3.813	11,500	10,513	1.093
Park & Recreation Workers	—	144	—	1,700	2,303	.738
Rehabilitation Counselors	—	65	—	1,600	972	1.646
Environmental Design						
Landscape Architects	—	74	—	1,350	7,030	.192

TABLE IV cont.

JOBS PER GRADUATE IN GEORGIA 1972-80

Occupation	Average Openings Georgia	Average Graduate Georgia	In Georgia Percent Of Average Opening Per Graduate	Average Openings U. S.	Average Graduates U. S.	In U. S. Percent Of Average Openings Per Graduate
Forest Resources						
Foresters, Range Managers	---	203	---	2,360	4,860	.485
Fish & Game Workers						
Home Economics						
Dietitians		13		2,300	1,615	1.424
Food Process Managers	49	18	.205	150	524	.286
Home Economists		208		6,700	13,225	.506
Journalism						
Newspaper Reporters	173	247	.148	2,650	9,184	.288
Technical Writers		916				
Advertising	---	188	---	---	---	---
Public Relations Workers	with Personnel & Labor Relations ---	58	---	4,400	1,900	2.315
Law						
Lawyers	177	160	1.099	14,000	27,180	.515
Pharmacy						
Pharmacists	104	207	.502	5,100	6,713	.759
Social Work						
Social Workers	252	271	.929	18,000	13,165	1.367
Veterinary Medicine						
Veterinarians	9	106	.085	1,500	1,825	.821

SUMMARY OUTLOOKS

Table V is our attempt to summarize the job outlook for the graduates in Georgia and for the U.S. graduates. If there were projected one or more jobs per graduate annually in any individual occupation, this situation was judged to be "very good." If our projections indicated .75 to 1 job per graduate annually, it was felt to be "good." If projected averages for an occupation were between .50 and .75 job per graduate annually, this situation was characterized as "fair." Projections less than "fair" were seen to be "difficult." Some selected occupations with projections on the national level did not lend themselves to Georgia projections. These were included in a category of "no direct data" on the state level.

It is the contention of the Project Team that up-to-date and bi-annual totals as presented in Tables IV and V are essential to the University information system. Information regarding the occupational needs of the State and the Nation must be current not only for the planning, programming, and budgeting system of the University but also for the meaningful counseling of students and planning at the department and school level.

TABLE V

AVERAGE JOB OUTLOOK 1973-1980

UNITED STATES ↓	GEORGIA → NO DIRECT DATA	DIFFICULT	FAIR	GOOD & VERY GOOD
VERY GOOD	Systems Analysts Public Relations Workers Rehabilitation Counselors Dietitians	Personnel & Employment Workers	Bank Officers	Librarians Social Workers Insurance & Real Estate Agents[a]
GOOD	Managers & Purchasing Agents	Veterinarians Pharmacists		Accountants Statisticians
FAIR	Park & Recreation Workers	Home Economists Foresters	Psychologists	Agricultural Engineers Lawyers
DIFFICULT	Manufacture Salesmen Landscape Architects Marketing & Research Workers	Chemists[d] Reporters & Writers Physicists[d] Mathematicians Economists Geologists[d] Life Scientists Liberal Arts Majors[b]	Secondary School Teachers School Counselors Kindergarten & Elementary Teachers	Workers in Music & Art College Teachers[c] Speech Pathologist & Audiologists

[a] Insurance & Real Estate V. G.: Non-college graduates are also eligible making the ratings inflated.
[b] Interpolated from Table IX percent of graduates going into fields.
[c] Does not include Masters Level College Teachers.
[d] Ratings in some occupations in the Natural Sciences may be low because bachelor's graduates are included.

GEORGIA'S SHARE IN THE OCCUPATIONAL OPENINGS OF THE NATION

In Table VI, the writers have attempted to answer the question: "What slice of the national 'pie' is Georgia getting?" They have attempted to demonstrate this by comparing Georgia's average annual openings and the U.S. average annual openings. The result has been a percent of Georgia share of the national occupations.

It can be noted that the average annual openings in Georgia of all workers versus the same figure for the Nation show Georgia receiving an average of 2.79 percent of all jobs in the Nation. A comparison of the job openings annually in the State and the Nation in professional, technical, and kindred workers shows Georgia's share to be 2.30 percent.

In the 1970's Georgia will have about 2.27 percent of the Nation's population.[12] Each occupation of individual interest may be compared with the 2.30 percentage to see whether Georgia is getting its fair share of the Nation's jobs.

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[12]U.S. Department of Commerce, Bureau of the Census. "Preliminary Projections of the Population of States: 1975 to 1990." Current Population Reports. Series P-25, No. 477, March 1972. p 4.

TABLE VI
GEORGIA OPENINGS COMPARED TO U. S. OPENINGS
1972-1980 AVERAGES

Occupation	Georgia Average Annual Openings[a]	U. S. Average Annual Openings[b]	Georgia/United States Percent
All Workers	44,610	1,598,300	2.79
Professional, Technical, Kindred Workers	9,940	431,250	2.30
Agriculture			
Agricultural Engineers	81	600	13.500
Food Scientists	—	—	—
Arts & Scientists			
Psychologists	52	3,700	1.405
Mathematicians	55	4,600	1.196
Statisticians	50	1,400	3.571
Geologists	17	500	3.400
Biochemists	82	800	10.250
Life Scientists	8	9,900	0.081
Chemists	211	9,400	2.245
Physicists	86	3,500	2.457
Music & Music Teachers Commercial Artists Dancers & Actresses	1,092	17,900	6.101
Medical Lab Assistants	758		
Clergy	588	12,200	4.820
Anthropologists Geographers Political Scientists Sociologists Historians	21	15,400	0.136

[a] Appendix 8 "Total Demand" divided by eight years

[b] Appendix 5. Difference of 1980 and 1970 totals divided by 10.

TABLE VI cont.

GEORGIA OPENINGS COMPARED TO U. S. OPENINGS

1972-1980 AVERAGES

Occupation	Georgia Average Annual Openings	U. S. Average Annual Openings	Georgia/United States Percent
Business			
Accountants	779	31,200	2.497
Marketing & Research Workers	—	22,320	—
Personnel & Employment Workers	233	10,200	2.284
Economists	49	2,300	2.130
Systems Analysts	—	22,700	—
Bank Officials & Security Officers	132	22,800	.579
Managers	—	20,300	—
Insurance & Underwriters	1,403	36,500	3.844
Real Estate			
Manufacture's Salesmen	—	25,000	—
Education			
College Teachers	594	10,800	5.500
College Counselors	—	—	—
Kindergarten & Elementary Teachers	1,853	52,000	3.563
Secondary School Teachers	1,790	43,200	4.143
School Counselors			
Speech Pathologist & Audiologists	455	2,200	20.682
Librarians	255	11,500	2.217
Park & Recreation Workers	—	1,700	—
Rehabilitation Counselors	—	1,600	—
Environmental Design			
Landscape Architects	—	1,350	—

TABLE VI cont.

GEORGIA OPENINGS COMPARED TO U. S. OPENINGS

1972-1980 AVERAGES

Occupation	Georgia Average Annual Openings	U. S. Average Annual Openings	Georgia/United States Percent
Forest Resources			
Foresters, Range Managers Fish & Game Workers	—	2,360	—
Home Economics			
Dietitians Food Process Managers Home Economists	49	9,150	0.536
Journalism			
Newspaper Reporters Technical Writers	173	2,650	6.528
Advertising	—	—	—
Public Relations Workers	—	4,400	—
Law			
Lawyers	177	14,000	1.264
Pharmacy			
Pharmacists	104	5,100	2.039
Social Work			
Social Workers	252	18,000	1.400
Veterinary Medicine			
Veterinarians	9	1,500	0.600

UNIVERSITY OF GEORGIA'S SHARE OF GEORGIA'S GRADUATES

Table VII is an attempt to point out the built-in competition the graduates of the University of Georgia must face within the State from other University System degree winners. From 1972 to 1980 the average number of graduates for the University will be about 8,134. The average number of degree winners in the University System of Georgia for the same period will be 22,368. The University's share of the degrees won in the State will be 36.36 percent. All occupational categories of graduates may be compared to this figure. A study of these statistics by any graduate may convince him that he must have a broader and more flexible view of his position in the State job market.

TABLE VII
UNIVERSITY OF GEORGIA'S SHARE OF GEORGIA'S GRADUATES
AVERAGE 1972-1980

Occupation	Average University of Georgia Graduates Per Year[a]	Average University System Graduates Per Year[b]	University of Georgia Graduates / Univ. System of Georgia Graduates Percent
All Graduates	8,134	22,368	36.36
Agriculture			
Agricultural Engineers	50	50	100.00
Food Scientists	34	34	100.00
Arts & Sciences			
Psychologists	68	102	66.70
Mathematicians	174	582	29.90
Statisticians	22	38	57.89
Geologists	25	55	45.45
Biochemists	16	20	80.00
Life Scientists	637	1,747	36.46
Chemists	175	569	30.76
Physicists	43	437	9.84
Music & Music Teachers	83	192	43.23
Commercial Artists	184	280	65.71
Dancers & Actresses	27	35	77.14
Medical Lab Assistants	3	67	4.48
Clergy	20	36	55.56
Anthropologists	18	34	52.94
Geographers	56	88	63.64
Political Scientists	223	505	41.16
Sociologists	169	785	21.53
Historians	220	686	32.07

[a] Appendix 3: Average of 1973-1980 Totals.

[b] Appendix 4: Average of 1972-1980 Totals.

TABLE VII cont.

UNIVERSITY OF GEORGIA'S SHARE OF GEORGIA'S GRADUATES

AVERAGE 1972-1980

Occupation	Average University of Georgia Graduates Per Year	Average University System Graduates Per Year	University of Georgia Graduates / Univ. System of Georgia Graduates Percent
Business			
Accountants	230	730	31.51
Marketing & Research Workers	273	761	35.87
Personnel & Employment Workers	9	10	90.00
Economists	158	432	36.57
Systems Analysts	9	74	12.16
Bank Officials & Security Officers	120	239	50.21
Managers	296	2,520	11.75
Insurance & Underwriters	52	84	61.90
Real Estate	73	135	54.07
Manufacture's Salesmen	294	310	94.84
Education			
College Teachers	237	285	83.16
College Counselors	25	32	78.13
Kindergarten & Elementary Teachers	1,000	3,630	27.55
Secondary School Teachers	901	2,434	37.02
School Counselors	160	402	39.80
Speech Pathologist & Audiologists	69	280	24.64
Librarians	61	61	100.00
Park & Recreation Workers	44	144	30.56
Rehabilitation Counselors	32	65	49.23
Environmental Design			
Landscape Architects	57	74	77.03

TABLE VII cont.

UNIVERSITY OF GEORGIA'S SHARE OF GEORGIA'S GRADUATES

AVERAGE 1972-1980

Occupation	Average University of Georgia Graduates Per Year	Average University System Graduates Per Year	University of Georgia Graduates / Univ. System of Georgia Graduates Percent
Forest Resources			
Foresters, Range Managers Fish & Game Workers	181	203	89.16
Home Economics			
Dietitians	4	13	30.77
Food Process Managers	9	18	50.00
Home Economists	120	208	57.69
Journalism			
Newspaper Reporters	148	247	59.92
Technical Writers	77	916	8.41
Advertising	159	188	84.57
Public Relations Workers	58	58	100.00
Law			
Lawyers	160	160	100.00
Pharmacy			
Pharmacists	207	207	100.00
Social Work			
Social Workers	145	271	53.51
Veterinary Medicine			
Veterinarians	106	106	100.00

MANPOWER NEEDS AND GRADUATES

Table VIII is an attempt to add specificity to this study in a way that may be easily examined by anyone interested in the graduates of the University of Georgia with planning and programming in mind. A break-down of the projections of Appendices 2, 3, 4, 5, and 6 is given below.

It will be noted that the selected occupations corresponding to an individual school in the University can be compared "across the board" in the following way: Openings in the State of Georgia versus Graduates of the University System versus Graduates of the University of Georgia versus Openings in the United States versus Graduates in the United States. These comparisons have been made for the years 1972-1980. The reader will note that the openings in Georgia and in the United States are constant throughout the eight year period. Table VIII presents "Average Annual Openings" for these two categories as researched in the manpower literature.

TABLE VIII
UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980 [a]	Graduates – University System of Georgia[b] 77-78	78-79	79-80	Graduates University of Georgia[c] 1978	1979	1980	Average Annual Openings in U.S. to 1980[d]	Graduates in United States[e] 77-78	78-79	79-80
Agriculture											
Agricultural Engineers	81	54	56	57	54	56	57	600	982	1,028	1,064
Food Scientists	with Life Sciences	37	38	39	37	38	39	400	--	--	--
Arts & Sciences											
Psychologists	52	113	121	126	75	77	79	3,700	8,047	8,429	8,720
Mathematicians	55	643	684	716	188	194	199	4,600	52,885	55,395	57,311
Statisticians	50	38	41	42	24	25	25	1,400	1,577	1,652	1,709
Geologists	17	61	65	68	27	27	28	500	4,844	5,074	5,250
Biochemists	82	22	23	25	17	18	18	800	1,770	1,854	1,919
Life Scientists	8	1,933	2,057	2,152	689	711	730	9,900	165,688	173,553	179,555
Chemists	211	629	669	700	189	195	200	9,400	25,477	26,686	27,609
Physicists	86	483	514	538	46	48	50	3,500	16,352	17,128	17,720
Music & Music Teachers		211	225	235	90	93	95	15,400	25,638	26,855	27,784
Commercial Artists	1,092	309	329	344	199	205	211	2,500	16,738	17,532	18,139
Dancers & Actresses		38	41	43	30	31	32	2,300	--	--	--
Medical Lab Assistants	758	75	80	83	3	3	3	13,500	--	--	--
Clergy	588	40	42	44	21	22	23	12,200	24,270	25,422	26,301
Anthropologists		38	41	42	19	20	20	200	5,842	6,119	6,331
Geographers		98	104	109	60	62	64	500	6,309	6,608	6,837
Political Scientists	21	558	594	621	241	249	255	700	49,441	51,788	53,579
Sociologists		868	923	966	182	188	193	800	46,608	48,821	50,509
Historians		758	807	845	238	246	252	1,000	74,644	78,187	80,891
Liberal Arts	--	1,373	1,461	1,529	420	433	444	--	201,738	211,315	218,623

[a] Appendix 8: Total Demand divided by eight.
[b] Appendix 4:
[c] Appendix 3:
[d] Table 2. "Total" of Average Annual Openings
[e] Appendix 6.

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates – University System of Georgia 77-78	78-79	79-80	Graduates University of Georgia 1978	1979	1980	Average Annual Openings in U.S. to 1980	Graduates in United States 77-78	78-79	79-80
Business											
Accountants	779	807	859	899	249	257	263	31,200	34,860	36,514	37,777
Marketing & Research Workers	—	842	896	937	295	305	312	2,600	24,012	25,152	26,022
Personnel & Employment Workers	233	11	12	12	9	10	10	10,200	8,240	8,631	8,930
Economists	49	479	509	533	171	176	181	2,300	33,315	34,896	36,103
Systems Analysts	—	81	87	91	10	10	10	22,700	3,283	3,439	3,558
Bank Officials & Security Officers	132	265	282	295	130	135	138	22,800	10,316	10,806	11,180
Managers	—	2,791	2,971	3,108	320	331	339	20,300	22,419	23,483	24,295
Insurance & Underwriters	1,187	93	99	104	57	59	60	21,740	1,625	1,703	1,762
Real Estate	216	149	159	166	79	81	84	14,800			
Manufacture's Salesmen	—	343	365	382	318	328	337	25,000	91,301	95,635	98,943
Education											
College Teachers	594	316	336	352	256	265	272	10,800	27,939	29,265	30,278
College Counselors		35	37	39	27	28	29	200	—	—	—
Kindergarten & Elementary Teachers	1,853	3,464	3,686	3,857	1,080	1,115	1,143	52,000	210,976	220,992	228,634
Secondary School Teachers	1,790	2,690	2,863	2,996	974	1,005	1,031	38,000	106,848	92,003	105,760
School Counselors		445	474	496	173	178	183	5,200	16,625	17,414	18,016
Speech Pathologist & Audiologists	455	309	329	344	74	77	79	2,200	9,656	10,115	10,464
Librarians	225	67	69	71	67	69	71	11,500	11,314	11,851	12,261
Park & Recreation Workers	—	159	169	177	48	49	51	1,700	2,478	2,596	2,686
Rehabilitation Counselors	—	72	76	80	34	35	36	1,600	1,046	1,096	1,134
Environmental Design											
Landscape Architects	—	88	94	98	61	63	65	1,350	7,564	7,923	8,197

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates – University System of Georgia 77-78	78-79	79-80	Graduates University of Georgia 1978	1979	1980	Average Annual Openings in U.S. to 1980	Graduates in United States 77-78	78-79	79-80
Forest Resources											
Foresters, Range Managers	---	225	239	250	196	202	207	2,360	5,263	5,513	5,703
Fish & Game Workers											
Home Economics											
Dietitians	49	15	16	16	5	5	5	2,300	1,738	1,821	1,884
Food Process Managers		20	22	23	10	10	10	150	563	590	610
Home Economists		230	245	256	130	134	138	6,700	14,227	14,902	15,418
Journalism											
Newspaper Reporters	173	218	232	243	159	164	169	1,650	9,882	10,351	10,709
Technical Writers		106	113	118	84	86	88	1,000			
Advertising	---	207	221	231	172	177	182	5,400	---	---	---
Public Relations Workers	---	63	65	66	63	65	66	4,400	2,044	2,141	2,215
Law											
Lawyers	177	172	176	182	172	176	182	14,000	29,243	30,631	31,690
Pharmacy											
Pharmacists	104	223	230	236	223	230	236	5,100	7,226	7,569	7,831
Social Work											
Social Workers	252	300	320	334	156	161	165	18,000	14,163	14,835	15,348
Veterinary Medicine											
Veterinarians	9	115	119	122	115	119	122	1,500	1,963	2,057	2,128

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates – University System of Georgia 74-75	75-76	76-77	Graduates University of Georgia 1975	1976	1977	Average Annual Openings in U.S. to 1980	Graduates in United States 74-75	75-76	76-77
Agriculture											
Agricultural Engineers	81	47	50	52	47	50	52	600	844	889	934
Food Scientists	with Life Sciences	32	34	36	32	34	36	400	—	—	—
Arts & Sciences											
Psychologists	52	91	98	105	65	68	72	3,700	6,919	7,284	7,600
Mathematicians	55	520	560	601	164	173	181	4,600	45,472	47,870	50,341
Statisticians	50	31	33	36	21	22	23	1,400	1,356	1,428	1,501
Geologists	17	50	53	57	23	25	26	500	4,165	4,385	4,611
Biochemists	82	18	19	21	15	16	17	800	1,522	1,602	1,685
Life Scientists	8	1,565	1,684	1,806	599	635	664	9,900	142,462	149,978	157,719
Chemists	211	509	548	588	164	174	182	9,400	21,906	23,061	24,252
Physicists	86	391	420	452	40	43	45	3,500	14,059	14,801	15,565
Music & Music Teachers	1,092	171	184	197	78	83	87	15,400	22,044	23,206	24,405
Commercial Artists		250	269	289	173	183	192	2,500	14,392	15,209	15,933
Dancers & Actresses		31	33	36	26	27	29	2,300	—	—	—
Medical Lab Assistants	758	60	65	70	3	3	3	13,500	—	—	—
Clergy	588	32	35	37	19	20	21	12,200	20,868	21,969	23,103
Anthropologists	21	31	33	36	17	18	19	200	5,023	5,288	5,561
Geographers		79	85	91	52	56	58	500	5,425	5,711	6,005
Political Scientists		452	486	522	210	222	232	700	42,510	44,753	47,063
Sociologists		702	756	811	159	168	176	800	40,075	42,189	44,367
Historians		614	661	709	207	219	229	1,000	64,181	63,633	71,054
Liberal Arts		1,112	1,192	1,283	365	386	404	—	173,459	182,610	192,036

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates -- University System of Georgia 74-75	75-76	76-77	Graduates University of Georgia 1975	1976	1977	Average Annual Openings in U.S. to 1980	Graduates in United States 74-75	75-76	76-77
Business											
Accountants	779	654	703	754	216	229	240	31,200	29,973	31,554	33,183
Marketing & Research Workers	--	682	733	787	257	272	284	2,600	20,646	21,735	22,857
Personnel & Employment Workers	233	9	10	10	8	9	9	10,200	7,085	7,459	7,844
Economists	49	388	417	447	148	157	164	2,300	28,645	30,156	31,712
Systems Analysts	--	66	71	76	9	9	9	22,700	2,823	2,972	3,125
Bank Officials & Security Officers	132	214	231	247	114	120	126	22,800	8,870	9,338	9,820
Managers	--	2,260	2,432	2,609	279	295	308	20,300	19,276	20,293	21,341
Insurance & Underwriters	1,187	76	81	87	49	52	55	21,740	1,398	1,471	1,547
Real Estate	216	121	130	139	69	73	76	14,800			
Manufacture's Salesmen	--	278	299	321	276	293	306	25,000	78,503	82,644	86,910
Education											
College Teachers	594	256	275	295	223	236	247	10,800	24,023	25,290	26,596
College Counselors		28	31	33	24	25	26	200	--	--	--
Kindergarten & Elementary Teachers	1,853	2,604	3,018	3,237	939	995	1,040	52,000	181,402	190,972	200,830
Secondary School Teachers	1,790	2,178	2,344	2,515	847	897	938	38,000	91,870	96,717	101,709
School Counselors		361	388	416	150	159	166	5,200	14,295	15,049	15,826
Speech Pathologist & Audiologists	455	250	269	289	65	69	72	2,200	8,303	8,741	9,192
Librarians	225	59	61	64	59	61	64	11,500	9,728	10,241	10,770
Park & Recreation Workers	--	128	138	148	42	44	46	1,700	2,131	2,243	2,359
Rehabilitation Counselors	--	58	62	67	30	32	33	1,600	899	947	996
Environmental Design											
Landscape Architects	--	71	77	82	53	57	59	1,350	6,504	6,847	7,200

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates – University System of Georgia 74-75	75-76	76-77	Graduates University of Georgia 1975	1976	1977	Average Annual Openings in U.S. to 1980	Graduates in United States 74-75	75-76	76-77
Forest Resources											
Foresters, Range Managers											
Fish & Game Workers	—	182	196	210	170	180	189	2,360	4,525	4,764	5,010
Home Economics											
Dietitians		12	13	14	4	4	4	2,300	1,495	1,573	1,655
Food Process Managers	49	18	19	20	8	9	9	150	484	510	536
Home Economists		201	215	230	113	120	125	6,700	12,233	12,878	13,543
Journalism											
Newspaper Reporters		177	190	204	139	147	153	1,650			
Technical Writers	173	86	92	99	73	77	80	1,000	8,497	8,945	9,406
Advertising	—	154	181	194	150	159	160	5,400	—	—	—
Public Relations Workers	—	54	58	60	54	58	60	4,400	1,757	1,850	1,946
Law											
Lawyers	177	150	159	166	150	159	166	14,000	25,144	26,470	27,836
Pharmacy											
Pharmacists	104	194	206	217	194	206	214	5,100	6,213	6,541	6,879
Social Work											
Social Workers	252	300	320	334	136	144	150	18,000	12,177	12,820	13,482
Veterinary Medicine											
Veterinarians	9	100	106	111	100	106	111	1,500	1,688	1,777	1,869

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates – University System of Georgia 72-73	73-74	Graduates University of Georgia 1973	1974	Average Annual Openings in U.S. to 1980	Graduates in United States 72-73	73-74
Agriculture								
Agricultural Engineers	81	41	44	41	44	600	763	795
Food Scientists	with Life Sciences	28	30	28	30	400	—	—
Arts & Sciences								
Psychologists	52	79	84	56	61	3,700	6,257	6,518
Mathematicians	55	449	477	142	152	4,600	41,124	42,839
Statisticians	50	27	28	18	19	1,400	1,250	1,278
Geologists	17	43	46	20	22	500	3,767	3,924
Biochemists	82	15	16	13	14	800	1,376	1,434
Life Scientists	8	1,349	1,434	520	559	9,900	128,842	134,215
Chemists	211	439	467	142	153	9,400	19,811	20,637
Physicists	86	337	358	35	37	3,500	12,715	13,246
Music & Music Teachers		148	157	68	73	15,400	19,936	20,768
Commercial Artists	1,092	216	229	150	161	2,500	13,015	13,558
Dancers & Actresses		27	29	22	24	2,300	—	—
Medical Lab Assistants	758	52	55	2	3	13,500	—	—
Clergy	588	28	30	16	17	12,200	18,872	19,660
Anthropologists		27	28	14	16	200	4,543	4,732
Geographers		68	72	45	49	500	4,906	5,110
Political Scientists	21	390	414	182	195	700	38,446	40,050
Sociologists		606	644	138	148	800	36,243	37,755
Historians		530	563	179	193	1,000	58,045	60,466
Liberal Arts	—	958	1,019	316	340	—	156,875	163,419

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates -- University System of Georgia 72-73	73-74	Graduates University of Georgia 1973	1974	Average Annual Openings in U.S. to 1980	Graduates in United States 72-73	73-74
Business								
Accountants	779	564	599	188	201	31,200	27,107	28,238
Marketing & Research Workers	—	588	625	222	239	2,600	18,672	19,451
Personnel & Employment Workers	233	8	8	7	8	10,200	6,408	6,675
Economists	49	334	355	129	138	2,300	25,906	26,987
Systems Analysts	—	57	60	7	8	22,700	2,553	2,660
Bank Officials & Security Officers	132	184	196	98	106	22,800	8,022	8,357
Managers	—	1,949	2,071	242	260	20,300	17,433	18,161
Insurance & Underwriters	1,187	65	69	43	46	21,740	1,264	1,434
Real Estate	216	104	111	60	64	14,800		
Manufacture's Salesmen	—	239	254	240	258	25,000	70,998	73,489
Education								
College Teachers	594	220	235	193	208	10,800	21,726	22,632
College Counselors		25	26	21	22	200	—	—
Kindergarten & Elementary Teachers	1,853	2,418	2,570	814	876	52,000	164,059	1,709,021
Secondary School Teachers	1,790	1,878	1,997	734	790	38,000	83,087	86,553
School Counselors		311	331	130	140	5,200	12,928	13,467
Speech Pathologist & Audiologists	455	216	229	56	60	2,200	7,509	7,822
Librarians	225	50	54	50	54	11,500	8,798	9,165
Park & Recreation Workers	—	111	118	36	39	1,700	1,927	2,008
Rehabilitation Counselors	—	50	53	26	27	1,600	813	847
Environmental Design								
Landscape Architects	—	61	65	46	50	1,350	5,883	6,127

TABLE VIII cont.

UNIVERSITY OF GEORGIA MANPOWER NEEDS AND GRADUATES

Occupations	Average Annual Openings in State of Georgia to 1980	Graduates — University System of Georgia 72-73	73-74	Graduates University of Georgia 1973	1974	Average Annual Openings in U.S. to 1980	Graduates in United States 72-73	73-74
Forest Resources								
Foresters, Range Managers	—	157	167	148	159	2,360	4,092	4,203
Fish & Game Workers								
Home Economics								
Dietitians		10	11	4	4	2,300	1,351	1,408
Food Process Managers	49	14	15	7	8	150	438	456
Home Economists		161	171	98	106	6,700	11,063	11,525
Journalism								
Newspaper Reporters	173	152	162	120	129	1,650	7,684	8,025
Technical Writers		74	79	63	68	1,000		
Advertising	—	145	154	130	139	5,400	—	—
Public Relations Workers		47	50	47	50	4,400	1,589	1,656
Law								
Lawyers	177	130	140	130	140	14,000	22,739	23,688
Pharmacy								
Pharmacists	104	168	181	168	181	5,100	5,619	5,854
Social Work								
Social Workers	252	209	223	118	127	18,000	11,013	11,473
Veterinary Medicine								
Veterinarians	9	87	93	87	93	1,500	1,526	1,591

UNDERGRADUATE MAJOR 1960-1970 VERSUS FULLTIME EMPLOYMENT

It is the contention of the Project Team that although it has assigned various major fields in the University to singular and specific occupations, it is aware that every profession includes people from a variety of backgrounds. The research has shown that the above is true; there is, however, a close correspondence between major-studied and occupation in many fields.

The National Opinion Research Center in its 1964 study of student patterns concluded that field switches between college majors and jobs do occur but this is more the exception than the rule.[13]

Dr. Laure M. Sharp has demonstrated the conclusions in a table of broad occupational groupings. The table is included as Appendix 9 of this study. Following his lead we have taken the responses of 470 undergraduate majors of 1960 to 1970 randomly selected from the Alumni files of the University of Georgia.[14] The majors of these graduates were compared with their full time employment in 1971-1972 in Table IX. Although Table IX is crude and the broad occupational groupings include jobs at many levels, the Table does convey some notion of how graduates sort themselves out along occupational lines with respect to the undergraduate field. Where the undergraduate major implies a relatively specialized training such as in business or in education, the full time employment percentages in the respective field are relatively high; in the case of education majors, 65 percent were employed as teachers; 58 percent of the business majors were employed in business and managerial positions.

According to Sharp (p. 11), an important consequence of taking a job unrelated to one's training has to do with the kind of job this will be. It is likely to be a nonprofessional job rather than a job in another profession. It is especially noteworthy to look at the social science majors: a relatively large proportion were employed in business and in professionally marginal jobs.[15] Data on graduates of the University of Georgia, 1960-1970 in the social sciences favor this view. We find that 47 percent of the undergraduate majors in the fields of political science, psychology and sociology were employed in business, managerial and sales occupations.

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[13] Laure M. Sharp, Education and Employment, (Baltimore: The Johns Hopkins Press, 1970). p. 7.

[14] Lin Tisdel and others, Measuring One University Output: A Survey of Undergraduate Degree Holders From the University of Georgia From the Classes of 1960-1970. Office of Program, Planning and Analysis, University of Georgia (Athens: University of Georgia.) pp. 3-4.

[15] Sharp, op. cit. p. 11.

While business may actually be a satisfactory or deliberately chosen occupation, evidence from other studies suggests that a business career is a reluctant choice for many students who were not business or economics majors.[16]

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[16] Ibid. p 12.

TABLE IX

UNIVERSITY OF GEORGIA UNDERGRADUATE MAJOR 1960-1970

EMPLOYED FULL TIME 1971-1972

Undergraduate Major	Occupation in 1971-72											
	Natural Scientist	Social Scientist	Humanist Professional	Health Professional	Teacher	Business & Managerial	Agricultural & Forestry	Other Professional & Military	Clerical & Sales	Non-Professional Graduate Sch	No Answer	Total
Natural Sciences	.298	—	.017	.140	.087	.157	—	.122	.017	.052	.105	.995
Social Sciences	—	.086	.051	.068	.068	.344	—	.137	.034	.086	.120	.994
Humanities & Arts	—	—	.140	—	.218	.296	—	.140	.062	.031	.109	.996
Health	—	—	—	.85	—	—	—	—	—	.150	—	1.000
Agriculture & Forestry	.075	—	—	—	.090	.212	.363	.151	.015	.075	.015	.997
Business & Commerce	.016	.016	.016	—	.048	.576	.008	.256	.024	.016	.024	1.000
Education	.024	.024	—	.024	.654	.037	—	.024	.049	.024	.135	.995
Home Economics	.111	—	—	—	.555	—	.111	—	.055	—	.166	.998
Total	.057	.018	.030	.063	.200	.280	.055	.139	.032	.044	.077	.995

OCCUPATIONAL SUGGESTIONS

In its projection to 1980, the Project Team has been unable to give relevant data on degree winners in the Liberal Arts. Yet from past experience almost 5 percent of the University's graduates have majored in Foreign Languages, English, English Literature, Classics, Speech, etc.

A summary of recent U.S. Labor Department literature[17] offers occupational suggestions directly applicable to liberal arts majors. There is a wide variety of employment available in both the public and private sectors. However, the liberal arts student should develop career goals as early as possible. He need not necessarily specialize in one occupational area; he should know his vocational interest and talents and realistically evaluate his chances for obtaining a job in the field of his interests. The liberal arts student should be aware that employers, especially those hiring for nontechnical jobs, look closely at extracurricular activities, leadership roles, interests and abilities.

The following is a group of occupational areas which are generally open to liberal arts graduates. For most of the jobs, a pleasing personality, a broad education and ability to learn are more important than any specific academic preparation.

Administration: Liberal arts graduates who wish to enter administrative work may find positions as administrative assistants, workers who help executives by coordinating and directing office programs, records control or budget preparation and control.

Advertising: Various types of jobs are available in advertising: advertising copywriters, media directors, production managers, research directors, artists and layout men, art buyers, account executives or advertising managers.

Art – related jobs: Museums and art galleries have a limited number of positions for those who can combine a bachelor's degree with artistic interests.

Banking: A wide range of positions is available in banking. Many large city banks have well-organized officer training programs open to liberal arts graduates. Some of these positions include loan officers, trust officers, branch bank managers, correspondent bank officers or international officers.

Book Publishing: In general, entry-level jobs are either in the editorial or sales departments of publishing houses; jobs in sales outnumber those in editorial work.

[17] Gloria Stevenson, "Putting a Bachelor of Arts Degree to Work," Occupational Outlook Quarterly, Vol. 15, No. 4, Winter 1971. pp. 3-12.

Computer Programming: Some organizations hire liberal arts graduates for training courses in computer programming. Employers look for trainees having the aptitude for logical thinking and exacting analysis.

Industrial Traffic Management: First jobs are often in shipping rooms or in general traffic offices. Experience in these offices leads to more technical work such as analyzing transportation costs.

Insurance: Before new agents sell, they usually receive a few weeks or months of training at insurance company home offices or at the agencies and brokerage firms where they will be working.

Magazine Publishing: Entry-level positions existing on larger and better known magazines are for editorial secretary, editorial assistant and editorial researcher. Jobs with trade magazines are more numerous and competition is less fierce.

Newspaper Reporting: Many beginners work on weekly or small daily newspapers where they are hired as general reporters. Others start on large city papers as reporter trainees or copy boys or girls.

Personnel Administration: Recruiters for these jobs look for graduates who have a better-than-average ability to work with people and who can also speak and write effectively.

Public Relations: Specific duties may include writing pamphlets or newspaper and magazine articles, participating in community affairs, planning conventions, writing speeches for company officials, or arranging events designed to spark favorable publicity. All types of organization are included.

Purchasing: The beginner in the purchasing field must spend considerable time learning about his employer's operations and purchasing procedures. Following the initial training period, the trainee may become a junior buyer of standard catalog items.

Sales: Manufacturers sales representatives sell mainly to other businesses; securities salesmen furnish customers with information about the advantages and disadvantages of various types of investments.

Government: Many liberal arts graduates work for state, local and federal government agencies. Occupational fields frequently include personnel administration, program administrators, computer programming, writing and editing, social work, research, planning, banking, and investigatory, and regulatory work.

This list does not include all opportunities open to liberal arts graduates but offers a summary of interesting and promising fields. Detailed information can be found in the 1970-71 editions of the Occupational Outlook Handbook and the Occupational Outlook for College Graduates.

METHODOLOGY

In an effort to produce a viable and meaningful manpower study for the University of Georgia, the Project Team has followed one overriding policy: Base all decisions and projections on the most recent data and recognized authority. The Project Team will attempt to demonstrate this policy in the description of methodology to follow:

Three major critical decision-areas of this study:

1. Occupations relevant to University of Georgia graduates and selected for this study.
2. Major fields in the University and their relationship to the selected occupations.
3. Data series projected to 1980.
   - A. Estimated graduates:
     - (1) University of Georgia.
     - (2) University System of Georgia.
     - (3) Aggregate United States.
   - B. Estimated employment:
     - (1) State of Georgia.
     - (2) United States.

1. U.S. Labor Department in its Occupational Outlook Quarterly, Winter 1971, had determined 91 occupations that require a bachelor's degree, graduate work or first professional degree. These 91 occupations were the basis for selecting the final 64 occupations considered in this report. A few occupations requiring college work but not a bachelor's degree were selected because they corresponded directly to major fields at the University of Georgia. Examples of these were insurance agents, real estate agents, or medical lab workers.

2. The Higher Education General Information Survey (HEGIS) reports for the years 1967-1968, 1968-1969, 1969-1970, 1970-1971, 1971-1972 were studied to determine the major fields of University of Georgia graduates. The Project Team then matched these major fields with the occupations selected for the study. When questions arose as to the correspondence of the major field to a selected occupation, the "training and qualifications" section of the Occupational Outlook Handbook 1972-1973 and the draft, Handbook for Projecting Employment by Occupation for States and Major Areas, 1970 were researched. In some cases,

academic advisors were consulted as to the correspondence of a major field and a selected occupation. Winners of bachelors, masters, doctorate, and professional degrees were classified together in selected occupations unless otherwise specified. Refer to Appendix I.

3. In general, data series projections for graduates to 1980 were obtained by means of a regression equation.[18] The particular equation used was:

$$\hat{Y} = b_1 x_1 + b_o$$

$$\text{where } b_1 = \frac{N\Sigma xy - \Sigma x \Sigma y}{N\Sigma x^2 - (\Sigma x)^2}$$

$$b_o = \bar{y} - b_1 \bar{x}$$

A. Estimated Graduates:

(1) University of Georgia Graduates.

In particular, University of Georgia graduates for the calendar years 1965 to 1972 were compared with U.S. college enrollment figures for the calendar years 1965 to 1972. The University of Georgia figures were obtained from the Fact Book, 1971, University of Georgia and from data obtained from the Registrar's Office of the University of Georgia on the number of University graduates in 1972.

Data concerning enrollment in the United States were obtained from "Current Population Reports", January, 1972[19] Information in this same publication projected the U.S. enrollment to 1980. Series C2 was selected since it reflected a moderate increase in enrollment and seemed to fit best the information available on college enrollment to 1980.[20] The above cited regression method was used to determine the projected total number of graduates per year to 1980. Refer to Appendix 3.

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[18] Gene Glass and Julian Stanley, Statistical Methods in Educational Psychology, (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1970.) p. 137.

[19] "Projections of School and College Enrollment: 1971-2000." Series P-25, No. 473, op. cit. p. 25.

[20] Western Interstate Commission for Higher Education, "Western College Vacancies Zoom, Applications Off: WICHE Survey." Reports on Higher Education, Vol. XVIII, June-July, 1972. No. 243, p. 1,2.

The University of Georgia HEGIS (Higher Education General Information Survey) reports were studied for the years 1967-68, 1968-69, 1969-70, 1970-71, 1971-72 to obtain the number of graduates per year in each occupation. The percent of the total graduates for the five year period was calculated in each occupation. For example, during the years 1967-72, 2.149 percent of the graduates of the University of Georgia majored in chemistry, 2.833 percent majored in accounting, etc. With the data, estimated University of Georgia graduates in each occupation were generated from 1973 to 1980. Refer to Table VIII or Appendix 3.

(2) University System of Georgia Graduates.

The total number of graduates for the University System of Georgia was calculated in a similar fashion. The total graduates in the University System were compared with the graduates in the United States for the fiscal years, 1964 to 1971. University Systems graduates data were obtained from the published Annual Report University System of Georgia.

Data concerning graduates of the United States for the fiscal years 1964 to 1971 were obtained from the Department of Health, Education, and Welfare document Projections of Educational Statistics to 1980-81.[21] The same publication projected United States graduates to 1980. The regression method cited above was used to determine the projected total number of graduates per year to 1980. Refer to Appendix 4.

Reports to the State of Georgia Board of Regents were obtained directly from the Board of Regents for the years 1968-69, 1969-70, 1970-71. The reports provided detailed information on the major fields of graduates in the University System. The percent of the total graduates for the three year period was calculated in each occupation. The University System graduates in each occupation were projected from 1972-1980. Refer to Table VIII or Appendix 3.

(3) Aggregate United States Graduates.

The projected aggregate of graduates in the United States for the fiscal years 1972 to 1980 was obtained from Projections of Educational Statistics to

[21] Projections of Educational Statistics to 1980-81, No. (OE) 72-99, op.cit. p. 43.

1980-81.[22] Data on graduates in the individual occupations were obtained from the Department of Health, Education, and Welfare publications, Earned Degrees Conferred, 1967-68, 1968-69, 1969-70. These three publications are the most recent, containing the specific information needed for this study. The percent of the total graduates for the three fiscal years was again calculated in each occupation. The aggregate of U.S. graduates in each occupation was projected from 1972 to 1980. Refer to Table VIII or Appendix 6.

B. Estimated employment:

(1) State of Georgia.

All projections concerning the estimated employment in the State of Georgia were developed and generated from the recent publication of the Georgia Department of Labor, Georgia: Jobs for the Future, 1971. The first step in the process of our projections was to mesh the selected occupations of this study with the occupations studied in the Georgia Department of Labor report. The correspondence was not seen to be a direct one in all cases. The endeavor has been facilitated through the cooperation of Maria M. Mallet, Chief, Manpower Resources, State of Georgia. Ms. Mallet provided her own views on how we could mesh the occupation titles of the Bureau of Labor Statistics with the occupation titles of the Georgia publication. She also suggested two documents for our research — The U.S. Labor Department Draft Publication, Handbook for Projecting Employment by Occupation for States and Major Areas and Conversion Table; Bureau of the Census — Dictionary of Occupational Titles, 1970. Many of the questions of the Project Team were answered by researching these documents. Refer to Appendices I and II.

The derivation of the projection in each Georgia occupation was developed in the following manner: In the publication Georgia, Jobs for the Future there are tables indicating "Expansion and Replacement Needs by Occupation in Georgia from 1967-1975." Refer to Appendix 8. "Expansion Needs," "Replacement Needs" and "Total Demand" of employees are projected for the years 1967-1975. The Project Team postulated that the assumptions on which these projections were developed would hold true to 1980. In fact, the Georgia study states: "The

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[22] Ibid., p. 43.

manpower forecasts in the Georgia study have been made within the framework of the assumptions underlying the national manpower projection to 1980."[23] Thus, the average annual openings 1970-1980 in Georgia (Table III) were generated by dividing the 1967-75 projections by eight, producing average *annual* openings. In developing Table III, the Project Team followed the form of the Bureau of Labor Statistics publication Occupational Manpower and Training Needs.[24]

Having determined the *average* annual expansion needs and knowing the estimated employment in the State of Georgia for 1975 from the same Georgia Labor Department document, the writers generated the yearly total employment in each occupation by adding the average annual expansion need five times to get to 1980 and subtracting the same figure over and over again to get back to 1970. Refer to Appendix 5.

(2) United States.

The main sources in the generation of the working tables in this case were the two Bureau of Labor Statistics publications: Occupational Outlook Quarterly, Spring, 1972, and Occupational Manpower and Training Needs, 1971. From the former document the Project Team obtained the "Estimated employment in the U.S. 1970." In the latter document the projected requirements for 1980 were obtained. The difference in the totals indicated the "Employment change in the U.S." for the ten year period. With this figure the average *annual* employment change was calculated. By adding this annual figure to the 1970 estimated employment figure over and over again, ten times, the writers determined each occupation for each year of the 70's. Refer to Appendix 5.

In Table II, the average annual openings 1970-1980 have been included. Again the general form of the Tables in the publication, Occupational Manpower and Training Needs, 1971, was used.[24]

Having obtained the total average annual openings 1970-1980 from the Occupational Outlook Quarterly, Spring 1972, for each occupation and having calculated the average annual employment change 1970-1980, the writers determined the average annual replacement needs for the ten year period by a subtraction process.

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[23] Georgia Jobs for the Future, op. cit. p. 3.

[24] Occupational Manpower and Training Needs, op. cit. pp. 67-74.

CONCLUSION

Having followed the methodology outlined in the last section of the study and based on most recent available statistics, we have brought together the highlights of the growth in the number of graduates and occupations, concentrating on Georgia and relating to the nation as a whole.

It must be emphasized again that the outlook, the indicated manpower needs of University graduates and the tangent suggestions have been extrapolated from present available information. Tommorrow's changes can change the scenario.

Clark Kerr in concluding his "point" on "Policy Concerns of the Future" as a result of the Carnegie Commission made a remark appropriate also to conclude this study: "Predictions and prescriptives are much easier to make when we have fairly clear trends and definite information about what affects those trends. In higher education, the many uncertainties make predictions hazardous at the present time."[25]

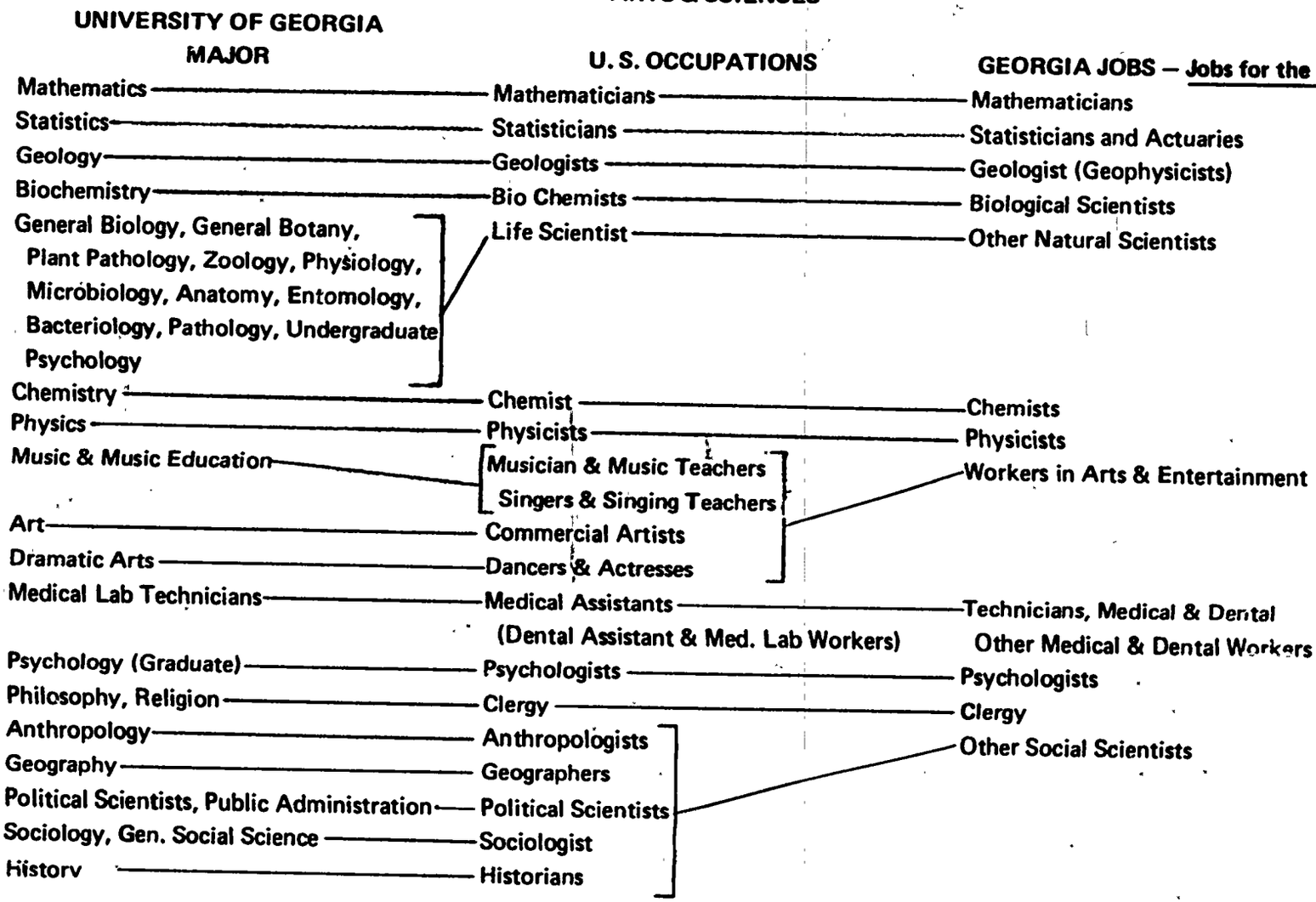
[25]Clark Kerr. "Policy Concerns for the Future" in The Expanded Campus (ed. by) Dyckman W. Vermilye (Washington: Jossey–Bass, Inc., 1972) p. 20.

APPENDIX

APPENDIX 1

UNIVERSITY OF GEORGIA MAJOR FIELDS GROUPED BY OCCUPATIONAL CLASSIFICATION IN THE STATE OF GEORGIA AND IN THE UNITED STATES

ARTS & SCIENCES



APPENDIX 1 continued

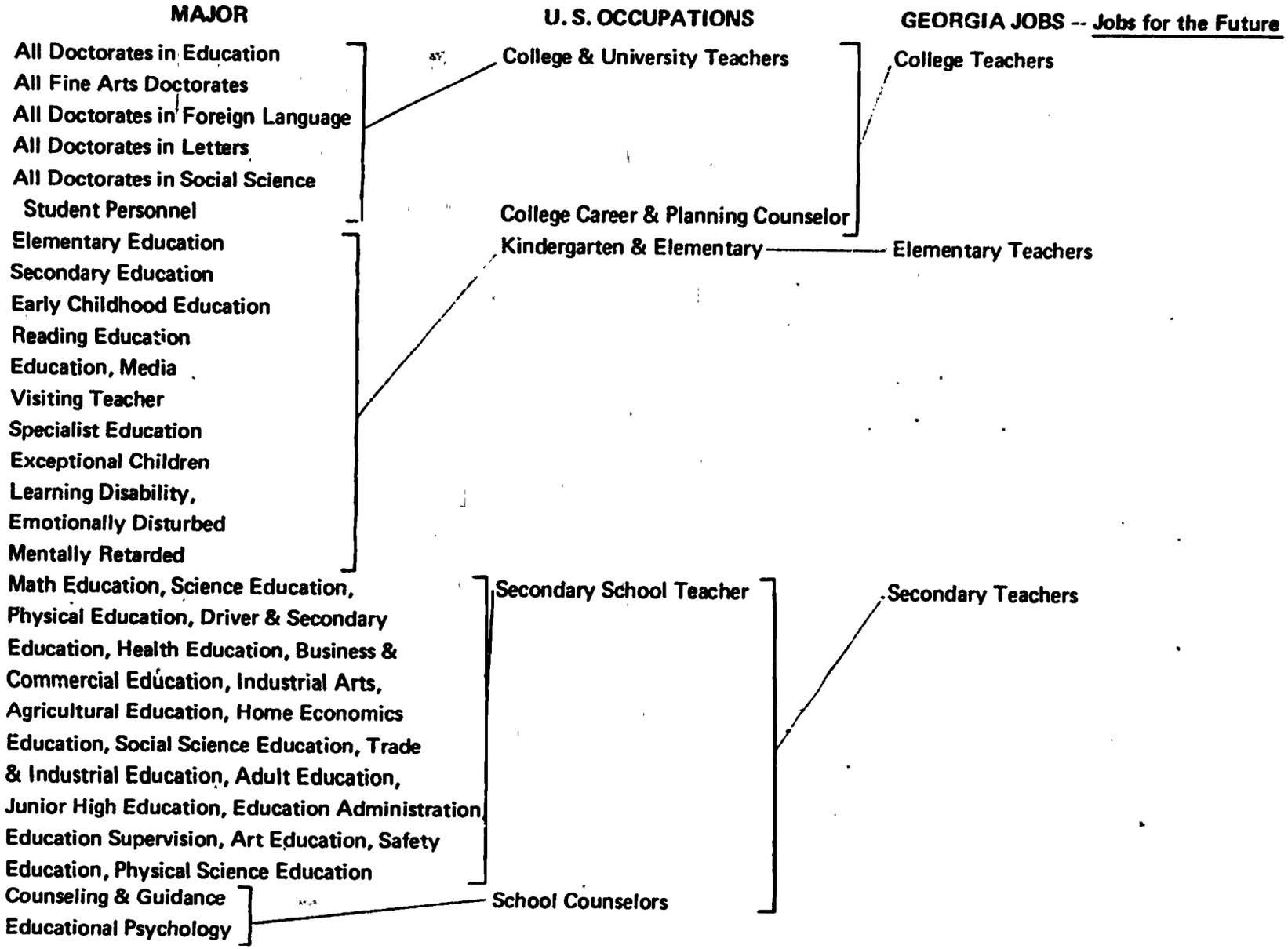
ARTS & SCIENCES continued

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Foreign Languages, Latin, General English, English Literature, Comparative Literature, Classics, Speech	Liberal Arts	None

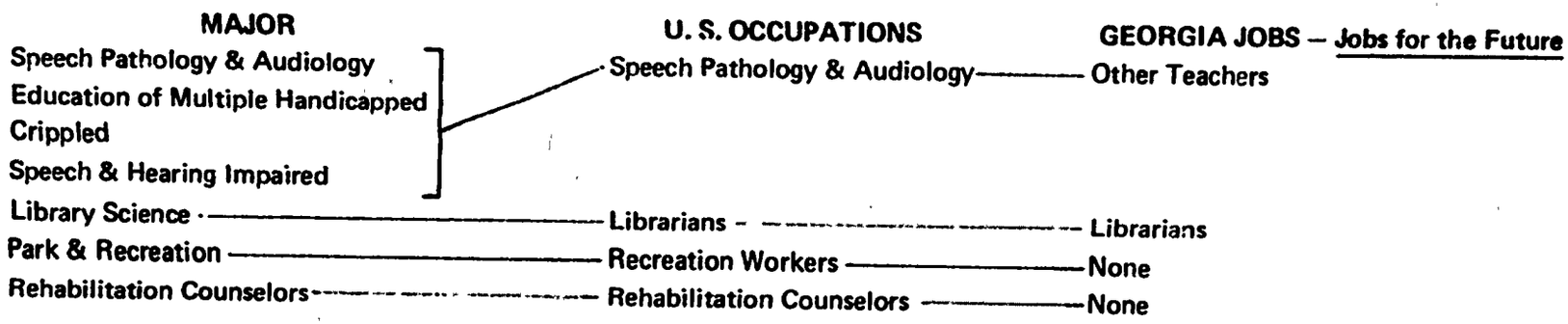
BUSINESS

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Accounting	Accountants	Accountants & Auditors
Marketing, International Trade	Marketing Research Workers	
Personnel Management – Labor & Industrial Relations	Personnel Workers, Employment Counselors	Personnel & Labor Relations
Public Relations	Public Relations Workers	
Economics, Business Economics, Agricultural Economics	Economists	Economists
Business Systems	Systems Analyst	None
Banking and Finance	Bank Officers – Securities Salesmen	Credit Men
Business Management & Administration	Managers, Assistants & Purchasing Agents	Managers
Insurance	Insurance Agents, Underwriters	Insurance Agents & Brokers
Real Estate	Real Estate Salesmen	Real Estate Agents & Brokers
Business & Commerce	Manufacturers Salesmen	None

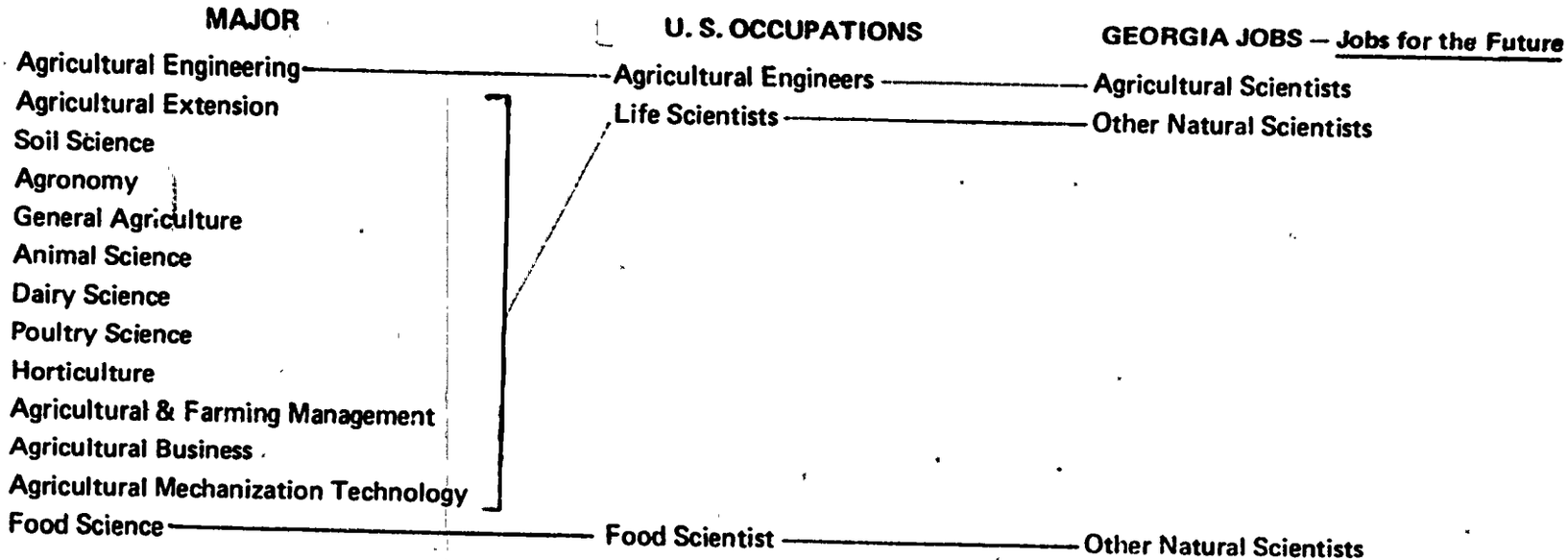
EDUCATION


MAJOR
U. S. OCCUPATIONS
GEORGIA JOBS -- Jobs for the Future
All Doctorates in Education
All Fine Arts Doctorates
All Doctorates in Foreign Language
All Doctorates in Letters
All Doctorates in Social Science
College & University Teachers
College Teachers
Student Personnel
College Career & Planning Counselor
Elementary Education
Secondary Education
Early Childhood Education
Reading Education
Education, Media
Visiting Teacher
Specialist Education
Exceptional Children
Learning Disability,
Emotionally Disturbed
Mentally Retarded
Kindergarten & Elementary
Elementary Teachers
Math Education, Science Education, Physical Education, Driver & Secondary Education, Health Education, Business & Commercial Education, Industrial Arts, Agricultural Education, Home Economics Education, Social Science Education, Trade & Industrial Education, Adult Education, Junior High Education, Education Administration, Education Supervision, Art Education, Safety Education, Physical Science Education
Secondary School Teacher
Secondary Teachers
Counseling & Guidance
Educational Psychology
School Counselors

EDUCATION

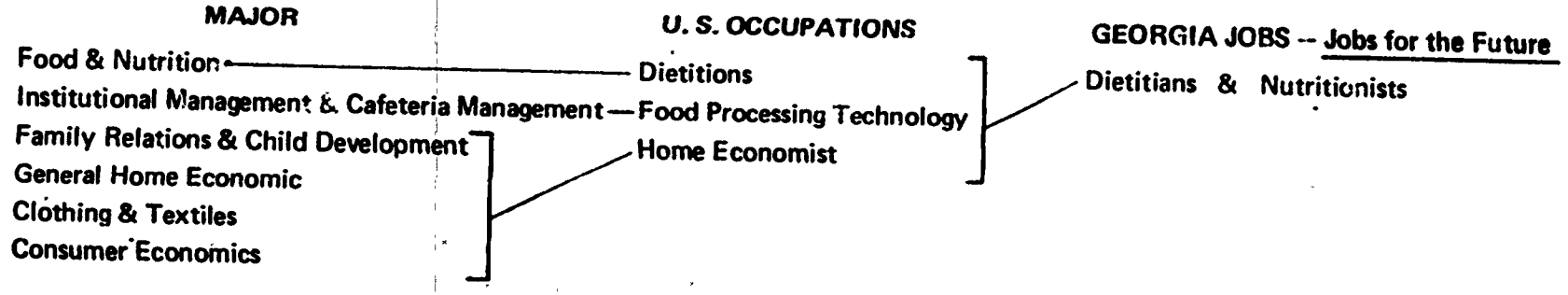


AGRICULTURE

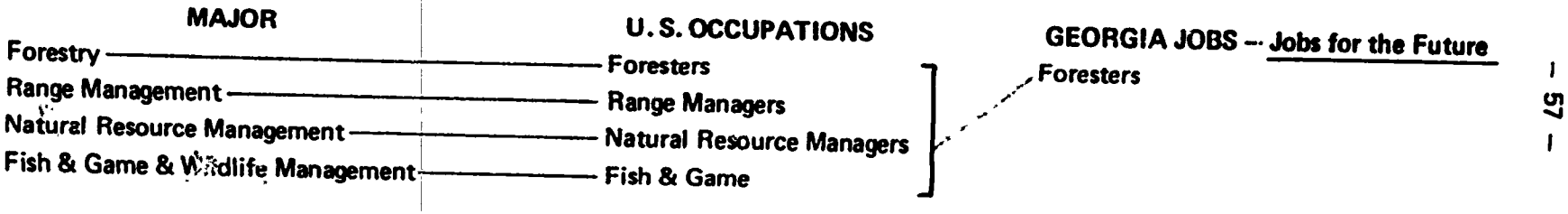


APPENDIX 1 continued

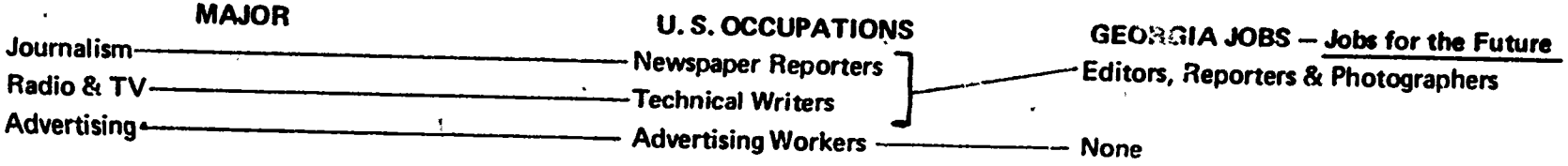
HOME ECONOMICS



FOREST RESOURCES



JOURNALISM



ENVIRONMENTAL DESIGN

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Landscape Architecture	Landscape Architects, Landscape Design & City Planning	None

PHARMACY

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Pharmacy	Pharmacists	Pharmacists

VETERINARY MEDICINE

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Veterinary Medicine	Veterinarians	Veterinarians

LAW

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Law Pre-Law	Lawyers	Lawyers & Judges

SOCIAL WORK

MAJOR	U. S. OCCUPATIONS	GEORGIA JOBS – Jobs for the Future
Social Work Pre-Social Work	Social Workers	Social Workers

Appendix 2

State of Georgia — Estimated Employment to 1980

U.S. Occupations	State of Georgia Occupations	1972	1973	1974	1975	1976	1977	1978	1979	1980
Agriculture[a]										
Agriculture										
Agronomists										
Soil Science	with Other									
Cooperative Extension	Natural Scientists	—	—	—	—	—	—	—	—	—
Food Scientists										
Agricultural Engineers	Agricultural Scientists	1,470	1,530	1,590	1,650	1,710	1,770	1,830	1,890	1,950
Arts & Sciences										
Mathematicians	Mathematicians	880	920	960	1,000	1,040	1,080	1,120	1,160	1,200
Statisticians	Staticians & Actuaries	744	776	808	840	872	904	936	968	1,000
Biochemists	Biological Scientists	974	1,036	1,098	1,160	1,222	1,284	1,346	1,408	1,470
Chemists	Chemists	2,897	3,078	3,259	3,440	3,621	3,802	3,983	4,164	4,345
Physicists	Physicists	900	980	1,060	1,140	1,220	1,300	1,380	1,460	1,540
Music & Music Teachers										
Commercial Artists	Workers in Arts	14,623	15,272	15,921	16,570	17,219	17,868	18,517	19,166	19,815
Dancers & Actresses	& Entertainment									
Medical Lab Assistants	Technical Medical & Other Workers	9,520	9,900	10,280	10,660	11,040	11,420	11,800	12,180	12,560
Clergy	Clergy	6,827	7,248	7,669	8,090	8,511	8,932	9,353	9,774	10,195
Psychologists (graduate)	Psychologists	663	702	741	780	819	858	897	936	975
Geologists	Geologists	334	336	338	340	342	344	346	348	350
Anthropologists										
Geographers										
Political Scientists	Other Social Scientists	225	270	285	300	315	330	345	360	375

[a] Negative projections for Agricultural Industry in Georgia

Appendix 2 cont.

State of Georgia – Estimated Employment to 1980

U.S. Occupations	State of Georgia Occupations	1972	1973	1974	1975	1976	1977	1978	1979	1980
Sociologists Historians	With Other Social Scientists	—	—	—	—	—	—	—	—	—
Psychologists (bachelor's) Life Scientists	Other Natural Scientists	667	668	669	670	671	672	673	674	675
Business										
Economists	Economists	612	648	684	720	756	792	828	864	900
Accountants	Accountants & Auditors	13,315	13,790	14,265	14,740	15,215	15,690	16,165	16,640	17,115
Marketing & Research Workers [b]		—	—	—	—	—	—	—	—	—
Personnel & Employment Workers	Personnel & Labor Relations Workers	3,505	3,660	3,815	3,970	4,125	4,280	4,435	4,590	4,745
Systems Analysists [b]		—	—	—	—	—	—	—	—	—
Bank Officials & Security Officers	Creditmen	1,864	1,956	2,048	2,140	2,232	2,324	2,416	2,508	2,600
Managers	Managers [c]	—	—	—	—	—	—	—	—	—
Insurance & Underwriters	Insurance Agents	19,564	20,376	21,188	22,000	22,812	23,624	24.436	25,248	26,060
Real Estate	Real Estate Agents	2,564	2,676	2,788	2,900	3,012	3,124	3,236	3,348	3,460
Education										
College Teachers Student Personnel	College Teachers	9,610	9,970	10,330	10,690	11,050	11,410	11,770	12,130	12,490
Elementary Teachers	Elementary Teachers	26,925	27,630	28,335	29,040	29,745	30,450	31,155	31,860	32,565
Secondary School Teachers & School Counselors	Secondary Teachers	22,715	23,780	24,845	25,910	26,975	28,040	29,105	30,170	31,235
Speech Pathologists	Other Teachers	5,656	5,914	6,172	6,430	6,688	6,946	7,204	7,462	7,720
Library Science	Librarians	2,702	2,788	2,874	2,960	3,046	3,152	3,238	3,324	3,410
Parks & Recreation [b]		—	—	—	—	—	—	—	—	—
Rehabilitation Counselors [b]		—	—	—	—	—	—	—	—	—

[b] No corresponding occupations in Georgia

[c] No meaningful correspondence between U.S. occupation and State of Georgia occupation

Appendix 2 cont.

State of Georgia – Estimated Employment to 1980

U.S. Occupations	State of Georgia Occupations	1972	1973	1974	1975	1976	1977	1978	1979	1980
Environmental Design										
Landscape Architect [b]		—	—	—	—	—	—	—	—	—
Landscape Design [b]		—	—	—	—	—	—	—	—	—
Forest Resources										
Foresters, Range Managers, Fish & Game, Natural Resources	Foresters[d]	—	—	—	—	—	—	—	—	—
Home Economics										
Dietitians Food Process Managers Home Economists	Dietitians & Nutritionists	653	672	691	710	729	748	767	786	805
Journalism										
Newspaper Reporters Technical Writers	Editors, Reporters & Photographers	2,868	2,962	3,056	3,150	3,244	3,338	3,432	3,526	3,620
Advertising[e]		—	—	—	—	—	—	—	—	—
Public Relations Workers[f]		—	—	—	—	—	—	—	—	—
Law										
Law & Pre-Law	Lawyers & Judges	4,232	4,288	4,344	4,400	4,456	4,512	4,568	4,624	4,680
Pharmacy										
Pharmacy	Pharmacists	2,713	2,742	2,771	2,800	2,829	2,858	2,887	2,916	2,945
Social Work										
Social Workers & Pre-Social Work	Social Workers	3,262	3,388	3,514	3,640	3,766	3,892	4,018	4,144	4,270
Veterinary Medicine										
Veterinarians		546	544	542	540	538	536	534	532	530

[d] Negative projections for Forestry Industry in Georgia

[e] Average projections for Advertising Industry in Georgia

[f] With Personnel & Labor Relations Workers

APPENDIX 3

ESTIMATED UNIVERSITY OF GEORGIA GRADUATES TO 1980

Occupations	1973	1974	1975	1976	1977	1978	1979	1980
University of Georgia Graduates	6,621	7,121	7,638	8,090	8,459	8,780	9,064	9,296
Agriculture								
Farm Managers[a]	—	—	—	—	—	—	—	—
Agronomists[a]	—	—	—	—	—	—	—	—
Cooperative Extension[b]	—	—	—	—	—	—	—	—
Agricultural Engineers	41	44	47	50	52	54	56	57
Food Scientists	28	30	32	34	36	37	38	39
Arts & Sciences								
Psychologists	56	61	65	68	72	75	77	79
Mathematicians	142	152	164	173	181	188	194	199
Statisticians	18	19	21	22	23	24	25	25
Geologists	20	22	23	25	26	27	27	28
Biochemists	13	14	15	16	17	17	18	18
Chemists	142	153	164	174	182	189	195	200
Physicists	35	37	40	43	45	46	48	50
Music, Singers & Teachers	68	73	78	83	87	90	93	95
Commercial Artists	150	161	173	183	192	199	205	211
Dancers & Actresses	22	24	26	27	29	30	31	32
Medical Lab Assistants	2	3	3	3	3	3	3	3
Clergy	16	17	19	20	21	21	22	23
Anthropologists	14	16	17	18	19	19	20	20
Geographers	45	49	52	56	58	60	62	64
Political Scientists	182	195	210	222	232	241	249	255
Sociologists	138	148	159	168	176	182	188	193

[a] with Life Scientists

[b] Insufficient Data; Included with Life Scientists

APPENDIX 3 continued

ESTIMATED UNIVERSITY OF GEORGIA GRADUATES TO 1980

Occupations	1973	1974	1975	1976	1977	1978	1979	1980
Arts & Sciences (continued)								
Historians	179	193	207	219	229	238	246	252
Liberal Arts (major)	316	340	365	386	404	420	433	444
Psychology (bachelors)	} 520	559	599	635	664	689	711	730
Life Scientists								
Business								
Economists (including Ag. Ec.)	129	138	148	157	164	171	176	181
Accountants	188	201	216	229	240	249	257	263
Marketing & Research Workers	222	239	257	272	284	295	305	312
Personnel & Employment Workers	7	8	8	9	9	9	10	10
Systems Analysis	7	8	9	9	9	10	10	10
Bank Officials & Security Officers	98	106	114	120	126	130	135	138
Managers & Purchasing Agents	242	260	279	295	308	320	331	339
Insurance & Underwriters	43	46	49	52	55	57	59	60
Real Estate Agents	60	64	69	73	76	79	81	84
Manufacture's Salesmen	240	258	276	293	306	318	328	337
Education								
College Teachers	193	208	223	236	247	256	265	272
College & Career Counselors	21	22	24	25	26	27	28	29
Kindergarten & Elementary Teachers	814	876	939	995	1,040	1,080	1,115	1,143
Secondary School Teachers	734	790	847	897	938	974	1,005	1,031
School Counselors	130	140	150	159	166	173	178	183
Speech Pathologist & Audiologists	56	60	65	69	72	74	77	79
Librarians	50	54	59	61	64	67	69	71
Parks & Recreation workers	36	39	42	44	46	48	49	51
Rehabilitation Counselors	26	27	30	32	33	34	35	36

APPENDIX 3 continued

ESTIMATED UNIVERSITY OF GEORGIA GRADUATES TO 1980

Occupations	1973	1974	1975	1976	1977	1978	1979	1980
Environmental Design								
Landscape Architects Designers & City Planners	46	50	53	57	59	61	63	65
Forest Resources								
Foresters, Range Managers Fish & Game workers	148	159	170	180	189	196	202	207
Home Economics								
Dietitians	4	4	4	4	5	5	5	5
Food Process Managers	7	8	8	9	9	10	10	10
Home Economists	98	106	113	120	125	130	134	138
Journalism								
Newspaper Reporters	120	129	139	147	153	159	164	169
Technical Writers	63	68	73	77	80	84	86	88
Advertising	130	139	150	158	166	172	177	182
Public Relations	47	50	54	58	60	63	65	66
Law								
Lawyers	130	140	150	159	166	172	176	182
Pharmacy								
Pharmacists	168	181	194	206	214	223	230	236
Social Work								
Social Workers	118	127	136	144	150	156	161	165
Veterinary Medicine								
Veterinarians	87	93	100	106	111	115	119	122

APPENDIX 4

ESTIMATED UNIVERSITY SYSTEM OF GEORGIA GRADUATES TO 1980

Occupations	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
University System Graduates	17,266	18,355	20,025	21,548	23,116	24,730	26,323	27,539
Agriculture								
Farm Managers[a]	—	—	—	—	—	—	—	—
Agronomists[b]	—	—	—	—	—	—	—	—
Cooperative Extension[b]	—	—	—	—	—	—	—	—
Agricultural Engineers	41	44	47	50	52	54	56	57
Food Scientists	28	30	32	34	36	37	38	39
Arts & Sciences								
Psychologists	79	84	91	98	105	113	121	126
Mathematicians	449	477	520	560	601	643	684	716
Statisticians	27	28	31	33	36	38	41	42
Geologists	43	46	50	53	57	61	65	68
Biochemists	15	16	18	19	21	22	23	25
Chemists	439	467	509	548	588	629	669	700
Physicists	337	358	391	420	452	483	514	538
Music, Singers & Teachers	148	157	171	184	197	211	225	235
Commercial Artists	216	229	250	269	289	309	329	344
Dancers & Actresses	27	29	31	33	36	38	41	43
Medical Lab Assistants	52	55	60	65	70	75	80	83
Clergy	28	30	32	35	37	40	42	44
Anthropologists	27	28	31	33	36	38	41	42
Geographers	68	72	79	85	91	98	104	109
Political Scientists	390	414	452	486	522	558	594	621
Sociologists	606	644	702	756	811	868	923	966

[a] with Life Scientists

[b] Insufficient Data; Included with Life Scientists

APPENDIX 4 continued

ESTIMATED UNIVERSITY SYSTEM OF GEORCIA GRADUATES TO 1980

Occupations	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
Arts & Sciences (continued)								
Historians	530	563	614	661	709	758	807	845
Liberal Arts (major)	958	1,019	1,112	1,196	1,283	1,373	1,461	1,529
Psychology (bachelors)*	—	—	—	—	—	—	—	—
Life Scientists	1,349	1,434	1,565	1,684	1,806	1,933	2,057	2,152
Business								
Economists (including Ag. Ec.)	334	355	388	417	447	479	509	533
Accountants	564	599	654	703	754	807	859	899
Marketing & Research Workers	588	625	682	733	787	842	896	937
Personnel & Employment Workers	8	8	9	10	10	11	12	12
Systems Analysts	57	60	66	71	76	81	87	91
Bank Officials & Security Officers	184	196	214	231	247	265	282	295
Managers & Purchasing Agents	1,949	2,071	2,260	2,432	2,609	2,791	2,971	3,108
Insurance & Underwriters	65	69	76	81	87	93	99	104
Real Estate Agents	104	111	121	130	139	149	159	166
Manufacture's Salesmen	239	254	278	299	321	343	365	382
Education								
College Teachers	220	235	256	275	295	316	336	352
College & Career Counselors	25	26	28	31	33	35	37	39
Kindergarten & Elementary Teachers	2,418	2,570	2,804	3,018	3,237	3,463	3,686	3,857
Secondary School Teachers	1,878	1,997	2,178	2,344	2,515	2,690	2,863	2,996
School Counselors	311	331	361	388	416	445	474	496
Speech Pathologist & Audiologists	216	229	250	269	289	309	329	344
Librarians	50	54	59	61	64	67	69	71
Parks & Recreation workers	111	118	128	138	148	159	169	177
Rehabilitation Counselors	50	53	58	62	67	72	76	80

APPENDIX 4 continued

ESTIMATED UNIVERSITY SYSTEM OF GEORGIA GRADUATES TO 1980

Occupations	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80
Environmental Design								
Landscape Designers, Architects & City Planners	61	65	71	77	82	88	94	98
Forest Resources								
Foresters, Range Managers Fish & Game workers	157	167	182	196	210	225	239	250
Home Economics								
Dietitians	10	11	12	13	14	15	16	16
Food Process Managers	14	15	16	18	19	20	22	23
Home Economists	161	171	186	201	215	230	245	256
Journalism								
Newspaper Reporters	152	162	177	190	204	218	232	243
Technical Writers	74	79	86	92	99	106	113	118
Advertising	145	154	168	181	194	207	221	231
Public Relations	47	50	54	58	60	63	65	66
Law								
Lawyers	130	140	150	159	166	172	176	182
Pharmacy								
Pharmacists	168	181	194	206	217	223	230	236
Social Work								
Social Workers	209	223	243	262	281	300	320	334
Veterinary Medicine								
Veterinarians	87	93	100	106	111	115	119	122

APPENDIX 5

ESTIMATED U. S. EMPLOYMENT 1970 – 1980

Occupations	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Agriculture											
Agricultural Engineers	13,000	13,150	13,300	13,450	13,600	13,750	13,900	14,050	14,200	14,350	14,500
Food Scientists	7,300	7,550	7,800	8,050	8,300	8,550	8,800	9,050	9,300	9,550	9,800
Cooperative Extension[b]	—	—	—	—	—	—	—	—	—	—	—
Agronomists[b]	—	—	—	—	—	—	—	—	—	—	—
Farm Managers[b]	—	—	—	—	—	—	—	—	—	—	—
Arts & Sciences											
Psychologists	40,000	41,800	43,600	45,400	47,200	49,000	50,800	52,600	54,400	56,200	58,000
Mathematicians	75,000	78,500	82,000	85,500	89,000	92,500	96,000	99,500	103,000	106,500	110,000
Statisticians	24,000	24,900	25,800	26,700	27,600	28,500	29,400	30,300	31,200	32,100	33,000
Geologists	23,000	23,400	23,800	24,200	24,600	25,000	25,450	25,800	26,200	26,600	27,100
Biochemists	11,000	11,600	12,200	12,800	13,400	14,000	14,600	15,200	15,800	16,400	17,000
Life Scientists	180,000	186,000	192,000	198,000	204,000	210,000	216,000	222,000	228,000	234,000	240,000
Chemists	137,000	143,300	149,600	155,900	162,200	168,500	174,800	181,100	187,400	193,700	200,000
Physicists	48,000	50,700	53,400	56,100	58,800	61,500	64,200	66,900	69,600	72,300	75,000
Music, Singers & Teachers	285,000	288,300	291,600	294,900	298,200	301,500	304,800	308,100	311,400	314,700	318,000
Commercial Artists	60,000	60,550	61,100	61,650	62,200	62,750	63,300	63,850	64,400	64,950	65,500
Dancers & Actresses	38,000	38,800	39,600	40,400	41,200	42,000	42,800	43,600	44,400	45,200	46,000
Medical Lab Assistants	110,000	118,000	126,000	134,000	142,000	150,000	158,000	166,000	174,000	182,000	190,000
Clergy	361,500	363,060	364,620	366,180	367,740	369,300	370,860	372,420	373,980	375,540	377,100
Anthropologists	3,100	3,200	3,300	3,400	3,500	3,600	3,700	3,800	3,900	4,000	4,100
Geographers	7,100	7,300	7,500	7,700	7,900	8,100	8,300	8,500	8,700	8,900	9,100
Political Scientists	11,000	11,600	12,200	12,800	13,400	14,000	14,600	15,200	15,800	16,400	17,000
Sociologists	12,000	12,400	12,800	13,200	13,600	14,000	14,400	14,800	15,200	15,600	16,000
Psychology (bachelors)[a]	—	—	—	—	—	—	—	—	—	—	—
Historians	15,500	15,850	16,200	16,550	16,900	17,250	17,600	17,950	18,300	18,650	19,000
Liberal Arts (major)	—	—	—	—	—	—	—	—	—	—	—

[a] With Life Scientists

[b] Insufficient Data; Included with Life Scientists

APPENDIX 5 continued

ESTIMATED U. S. EMPLOYMENT 1970 -- 1980

Occupations	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Business											
Accountants	491,000	513,900	536,800	559,700	582,600	605,500	628,400	651,300	674,200	697,100	720,000
Marketing & Research Workers	23,000	24,900	26,800	28,700	30,600	32,500	34,400	36,300	38,200	40,100	42,000
Personnel & Employment Workers	168,000	174,000	180,000	186,000	192,000	198,000	204,000	210,000	216,000	222,000	228,000
Economists	33,000	34,500	36,000	37,500	39,000	40,500	42,000	43,500	45,000	46,500	48,000
Systems Analysts	100,000	118,300	136,600	154,900	173,200	191,500	209,800	228,100	246,400	264,700	283,000
Bank Officials & Securities	374,000	386,200	398,400	410,600	422,800	435,000	447,200	459,400	471,600	483,800	496,000
Managers & Purchasing Agents	362,000	370,300	378,600	386,900	395,200	403,500	411,800	420,100	428,400	436,700	445,000
Insurance & Underwriters	405,000	420,350	435,700	451,050	466,400	481,750	497,100	512,450	527,800	543,150	558,500
Real Estate Agents	226,000	230,400	234,800	239,200	243,600	248,000	252,400	256,800	261,200	265,600	270,000
Manufacture's Salesmen	510,000	532,500	555,000	577,500	600,000	622,500	645,000	667,500	690,000	712,500	735,000
Education											
College Teachers	335,000	341,000	347,000	353,000	359,000	365,000	371,000	377,000	383,000	389,000	395,000
College & Career Counselors	2,800	2,920	3,040	3,160	3,280	3,400	3,520	3,640	3,760	3,880	4,000
Kindergarten & Elementary Teachers	1,260,000	1,261,000	1,262,000	1,263,000	1,264,000	1,265,000	1,266,000	1,267,000	1,268,000	1,269,000	1,270,000
Secondary School Teachers	1,015,000	1,020,000	1,025,000	1,030,000	1,035,000	1,040,000	1,045,000	1,050,000	1,055,000	1,060,000	1,065,000
School Counselors	54,000	56,100	58,200	60,300	62,400	64,500	66,600	68,700	70,800	72,900	75,000
Speech Pathologists & Audiologists	22,000	23,100	24,200	25,300	26,400	27,500	28,600	29,700	30,800	31,900	33,000
Librarians	125,000	128,000	131,000	134,000	137,000	140,000	143,000	146,000	149,000	152,000	155,000
Parks & Recreation workers	13,500	14,500	15,500	16,500	17,500	18,500	19,500	20,500	21,500	22,500	23,500
Rehabilitation Counselors	13,000	13,800	14,600	15,400	16,200	17,000	17,800	18,600	19,400	20,200	21,000
Environmental Design											
Landscape Architects, Designers & City Planners	18,000	18,500	19,000	19,500	20,000	20,500	21,000	21,500	22,000	22,500	23,000
Forest Resources											
Foresters, Range & Natural Resource Managers, Fish & Game	36,600	38,660	40,720	42,780	44,840	46,900	48,960	51,020	53,080	55,140	57,200

APPENDIX 5 continued
ESTIMATED U.S. EMPLOYMENT 1970 – 1980

Occupations	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Home Economics											
Dietitians	30,000	31,200	32,400	33,600	34,800	36,000	37,200	38,400	39,600	40,800	42,100
Food Processing Managers	3,400	3,510	3,620	3,730	3,840	3,950	4,060	4,170	4,280	4,390	4,500
Home Economists	105,000	107,500	110,000	112,500	115,000	117,500	120,000	122,500	125,000	127,500	130,000
Journalism											
Newspaper Reporters	39,000	39,600	40,200	40,800	41,400	42,000	42,600	43,200	43,800	44,400	45,000
Technical Writers	20,000	20,500	21,000	21,500	22,000	22,500	23,000	23,500	24,000	24,500	25,000
Advertising	141,000	142,400	143,800	145,200	146,600	148,000	149,400	150,800	152,200	153,600	155,000
Public Relations Workers	75,000	79,000	83,000	87,000	91,000	95,000	99,000	103,000	107,000	111,000	115,000
Law											
Lawyers	280,000	285,500	291,000	296,500	302,000	307,500	313,000	318,500	324,000	329,500	335,000
Pharmacy											
Pharmacists	129,000	129,700	130,400	131,100	131,800	132,500	133,200	133,900	134,600	135,300	136,000
Social Work											
Social Workers	170,000	180,000	190,000	200,000	210,000	220,000	230,000	240,000	250,000	260,000	270,000
Veterinary Medicine											
Veterinarians	25,000	25,900	26,800	27,700	28,500	29,500	30,400	31,300	32,200	33,100	34,000

APPENDIX 6

ESTIMATED U.S. GRADUATES TO 1980

Occupations	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979	1979-1980
United States Graduates	1,251,500	1,303,700	1,383,800	1,456,800	1,532,000	1,609,400	1,685,800	1,744,100
Agriculture								
Farm Managers[a]	—	—	—	—	—	—	—	—
Agronomists[a]	—	—	—	—	—	—	—	—
Cooperative Extension[a]	—	—	—	—	—	—	—	—
Food Scientists[b]	—	—	—	—	—	—	—	—
Agricultural Engineers	763	795	844	889	934	982	1,028	1,064
Arts & Sciences								
Psychologists	6,257	6,518	6,919	7,284	7,600	8,047	8,429	8,720
Mathematicians	41,124	42,834	45,472	47,870	50,341	52,885	55,395	57,311
Statisticians	1,250	1,278	1,356	1,428	1,501	1,577	1,652	1,709
Geologists	3,767	3,924	4,165	4,385	4,611	4,844	5,074	5,250
Biochemists	1,376	1,434	1,522	1,602	1,685	1,770	1,854	1,919
Chemists	19,811	20,637	21,906	23,061	24,252	25,477	26,686	27,609
Physicists	12,715	13,246	14,059	14,801	15,565	16,352	17,128	17,720
Music/Singers Teachers	19,936	20,768	22,044	23,206	24,405	25,638	26,855	27,784
Commercial Artists	13,015	13,558	14,392	15,209	15,933	16,738	17,532	18,139
Dancers & Actresses	—	—	—	—	—	—	—	—
Medical Lab Assistants	—	—	—	—	—	—	—	—
Clergy (Philosophy & Religion)	18,872	19,660	20,868	21,969	23,103	24,270	25,422	26,301
Anthropologists	4,543	4,732	5,023	5,288	5,561	5,842	6,119	6,331
Geographers	4,906	5,110	5,425	5,711	6,005	6,309	6,608	6,837
Political Scientists	38,446	40,050	42,510	44,753	47,063	49,441	51,788	53,579
Sociologists	36,243	37,755	40,075	42,189	44,367	46,608	48,821	50,509
Historians	58,045	60,466	64,181	63,633	71,054	74,644	78,187	80,891

[a] with Life Scientists

[b] Insufficient Data; Included with Life Scientists

APPENDIX 6 cont.

ESTIMATED U.S. GRADUATES TO 1980

Occupations	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979	1979-1980
Liberal Arts (major)	156,875	163,419	173,459	182,610	192,036	201,738	211,315	218,623
Psychology (bachelors)[a]								
Life Scientists	128,842	134,215	142,462	149,978	157,719	165,688	173,553	179,555
Business								
Economists (including Ag. Ec.)	25,906	26,987	28,645	30,156	31,712	33,315	34,896	36,103
Accountants	27,107	28,238	29,973	31,554	33,183	34,860	36,514	37,777
Marketing & Research Workers	18,672	19,451	20,646	21,735	22,857	24,012	25,152	26,022
Personnel & Employment Workers	6,408	6,675	7,085	7,459	7,844	8,240	8,631	8,930
Systems Analysts	2,553	2,660	2,823	2,972	3,125	3,283	3,439	3,558
Bank Officials & Security Officers	8,022	8,357	8,870	9,338	9,820	10,316	10,806	11,180
Managers & Purchasing Agents	17,433	18,161	19,276	20,293	21,341	22,419	23,483	24,295
Insurance & Underwriters Real Estate	1,264	1,434	1,398	1,471	1,547	1,625	1,703	1,762
Manufacture's Salesmen	70,998	73,489	78,503	82,644	86,910	91,301	95,635	98,943
Education								
College Teachers	21,726	22,632	24,023	25,290	26,596	27,939	29,265	30,278
College & Career Counselors	—	—	—	—	—	—	—	—
Kindergarten & Elementary Teachers	164,059	170,902	181,402	190,972	200,830	210,976	220,992	228,634
Secondary School Teachers	83,087	86,553	91,870	96,717	101,709	106,848	111,920	115,900
School Counselors	12,928	13,467	14,295	15,049	15,826	16,625	17,414	18,016
Speech Pathologist & Audiologists	7,509	7,822	8,303	8,741	9,192	9,656	10,115	10,464
Librarians	8,798	9,165	9,728	10,241	10,770	11,314	11,851	12,261
Parks & Recreation	1,927	2,008	2,131	2,243	2,359	2,478	2,596	2,686

APPENDIX 6 cont.

ESTIMATED U.S. GRADUATES TO 1980

Occupations	1972-1973	1973-1974	1974-1975	1975-1976	1976-1977	1977-1978	1978-1979	1979-1980
Rehabilitation Counselors	813	847	899	947	996	1,046	1,096	1,134
Environmental Design								
Landscape Design Architects & City Planners	5,883	6,127	6,504	6,847	7,200	7,564	7,923	8,197
Forest Resources								
Foresters, Range Managers Fish & Game	4,092	4,263	4,525	4,764	5,010	5,263	5,513	5,703
Home Economics								
Dietitians	1,351	1,408	1,495	1,573	1,655	1,738	1,821	1,884
Food Process Managers	438	456	484	510	536	563	590	610
Home Economists	11,063	11,525	12,233	12,878	13,543	14,227	14,902	15,418
Journalism								
Newspaper Reporters Technical Writers	7,684	8,025	8,497	8,945	9,406	9,882	10,351	10,709
Advertising	—	—	—	—	—	—	—	—
Public Relations	1,589	1,656	1,757	1,850	1,946	2,044	2,141	2,215
Law								
Lawyers	22,739	23,688	25,144	26,470	27,836	29,243	30,631	31,690
Pharmacy								
Pharmacists	5,619	5,854	6,213	6,541	6,879	7,226	7,569	7,831
Social Work								
Social Workers	11,013	11,473	12,177	12,820	13,482	14,163	14,835	15,348
Veterinary Medicine								
Veterinarians	1,526	1,591	1,688	1,777	1,869	1,963	2,057	2,128

APPENDIX 7. TOTAL EMPLOYMENT IN GEORGIA BY OCCUPATION

1960, 1967 AND PROJECTIONS TO 1975*

Occupational Title	Annual Average Employment			Net Change	
	1960	1967	1975	1960-1975	1967-1975
Total	1,380,500	1,707,400	2,064,300	683,800	356,900
Professional, Technical, and Kindred	135,840	186,570	266,110	130,270	79,540
Engineers, technical	10,920	17,480	25,860	14,940	8,380
Engineers, aeronautical	860	1,820	2,110	1,250	290
Engineers, chemical	510	730	1,010	500	280
Engineers, civil	2,850	3,840	5,490	2,640	1,650
Engineers, electrical	1,820	2,980	4,820	3,000	1,840
Engineers, industrial	990	1,720	2,860	1,870	1,140
Engineers, mechanical	1,860	3,000	4,090	2,230	1,090
Engineers, metallurgical	150	260	410	260	150
Engineers, mining	70	130	100	30	-30
Other engineers, technical	1,810	3,000	4,970	3,160	1,970
Medical, and other health workers	24,000	29,820	39,560	15,560	9,740
Dentists	1,340	1,480	2,050	710	570
Dietitians, nutritionists	560	560	710	150	150
Nurses, professional	9,370	11,750	15,170	5,800	3,420
Optometrists	280	290	330	50	40
Osteopaths	210	190	270	60	80
Pharmacists	2,050	2,570	2,800	750	230
Physicians, surgeons	3,620	4,330	6,250	2,630	1,920
Psychologists	290	470	780	490	310
Technicians, medical, dental	2,550	4,190	6,780	4,230	2,590
Veterinarians	440	560	540	100	-20
Other medical and health workers	3,290	3,430	3,880	590	450
Teachers	38,330	52,970	72,070	33,740	19,100
Teachers, elementary	19,290	23,400	29,040	9,750	5,640
Teachers, secondary	11,860	17,390	25,910	14,050	8,520
Teachers, college	4,050	7,810	10,690	6,640	2,880
Teachers, other	3,130	4,370	6,430	3,300	2,060
Natural scientists	3,930	5,880	9,400	5,470	3,520
Chemists	1,440	1,990	3,440	2,000	1,450
Agricultural scientists	860	1,170	1,650	790	480
Biological scientists	460	660	1,160	700	500
Geologists, geophysicists	140	220	340	200	120
Mathematicians	340	680	1,000	660	320
Physicists	350	500	1,140	790	640
Other natural scientists	340	660	670	330	10
Social scientists	840	1,190	1,860	1,020	670
Economists	290	430	720	430	290
Statisticians, actuaries	420	580	840	420	260
Other social scientists	130	180	300	170	120
Technicians except medical and dental	11,290	16,540	26,260	14,970	9,720
Draftsmen	3,120	4,900	5,950	2,830	1,050
Surveyors	870	940	1,690	820	750
Air traffic controllers	340	450	520	180	70
Radio operators	330	450	590	260	140
Technicians, other	6,630	9,800	17,510	10,880	7,710
Other professional, technical and kindred workers	46,530	62,690	91,100	44,570	28,410
Accountants and auditors	7,450	10,940	14,740	7,290	3,800
Airplane pilots, navigators	760	1,830	2,520	1,760	690
Architects	650	740	790	140	50

* Georgia Department of Labor, Employment Security Agency, Georgia Jobs for the Future, 1971. p. 56 - 59.

APPENDIX 7 Continued. TOTAL EMPLOYMENT IN GEORGIA BY OCCUPATION

1960, 1967 AND PROJECTIONS TO 1975

Occupational Title	Annual Average Employment			Net Change	
	1960	1967	1975	1960-1975	1967-1975
Clergymen	7,460	4,720	8,090	630	3,370
Designers except design draftsmen	1,330	1,940	2,730	1,400	790
Editors and reporters	1,220	1,510	2,170	950	660
Lawyers and judges	2,840	3,950	4,400	1,560	450
Librarians	1,570	2,270	2,960	1,390	690
Personnel and labor relations workers	1,730	2,730	3,970	2,240	1,240
Photographers	790	890	980	190	90
Social and welfare workers	2,020	2,630	3,640	1,620	1,010
Workers in arts, entertainment	8,470	11,380	16,570	8,100	5,190
Professional, technical, kindred, n.e.c.	10,240	17,160	27,540	17,300	10,380
Managers, Officials, Proprietors	137,480	164,300	205,980	68,500	41,680
Conductors, railroad	860	1,000	760	-100	-240
Officers, pilots, engineers, ship	400	480	680	280	200
Creditmen	1,020	1,400	2,140	1,120	740
Purchasing agents	2,060	2,970	3,550	1,490	580
Postmasters and assistants	770	780	660	-110	-120
Managers, officials, proprietors, n.e.c.	132,370	157,670	198,190	65,820	40,520
Clerical and Kindred Workers	187,630	264,020	339,300	151,670	75,280
Stenographers, typists, secretaries	44,010	63,970	84,840	40,830	20,870
Office machine operators	7,380	10,650	16,240	8,860	5,590
Other clerical and kindred workers	136,240	189,400	238,220	101,980	48,820
Accounting clerks	7,450	9,700	10,980	3,530	1,280
Bookkeepers, hand	13,480	17,480	21,190	7,710	3,710
Bank tellers	2,520	4,440	6,560	4,040	2,120
Cashiers	9,260	15,140	22,080	12,820	6,940
Mail carriers	4,050	4,730	5,590	1,540	860
Postal clerks	4,790	6,070	6,550	1,760	480
Shipping, receiving clerks	6,840	8,740	9,720	2,880	980
Telephone operators	6,590	8,730	11,820	5,230	3,090
Clerical and kindred, n.e.c.	81,260	114,370	143,730	62,470	29,360
Sales Workers	86,910	104,860	132,800	45,890	27,940
Insurance agents & brokers	10,000	15,500	22,000	12,000	6,500
Real estate agents & brokers	1,600	2,000	2,900	1,300	900
Other sales workers, n.e.c.	75,310	87,360	107,900	32,590	20,540
Craftsmen, Foremen and Kindred	157,620	210,090	258,580	100,960	48,490
Construction craftsmen	49,700	62,810	71,900	22,200	9,090
Carpenters	16,840	19,690	21,380	4,540	1,690
Brickmasons, stone, tile setters	3,650	4,900	5,340	1,690	440
Cement, concrete finishers	930	1,300	1,800	870	500
Electricians	6,480	8,680	10,200	3,720	1,520
Excavating, grading machine operators	5,050	6,500	8,120	3,070	1,620
Painters and paperhangers	8,110	10,540	10,570	2,460	30
Plasterers	1,010	1,240	1,450	440	210
Plumbers and pipefitters	5,640	7,300	9,490	3,850	2,190
Roofers and slaters	1,010	1,280	1,650	640	370
Structural metalworkers	980	1,380	1,900	920	520
Foremen, n.e.c.	22,100	31,050	39,170	17,070	8,120
Metalworking, craftsmen except mechanics	11,690	16,930	18,100	6,410	1,170
Machinists and related occupations	5,080	7,320	6,990	1,910	-330
Blacksmiths, forgemen, hammermen	370	420	350	-20	-70
Boilermakers	290	560	440	150	-120

APPENDIX 7 Continued. TOTAL EMPLOYMENT IN GEORGIA BY OCCUPATION 1960, 1967 AND PROJECTIONS TO 1975

Occupational Title	Annual Average Employment			Net Change	
	1960	1967	1975	1960-1975	1967-1975
Heat treaters, annealers, temperers	150	230	250	100	20
Millwrights	1,240	1,530	1,900	660	370
Molders, metal (except coremakers)	290	430	540	250	110
Pattern makers, metal and wood	440	670	740	300	70
Rollers and roll hands	120	180	240	120	60
Sheetmetal workers	2,050	3,030	3,770	1,720	740
Toolmakers, diemakers, setters	1,660	2,560	2,880	1,220	320
Mechanics and repairmen	42,140	60,590	78,770	36,630	18,180
Air conditioning, refrigeration & heating mechanics	1,000	1,500	2,200	1,200	700
Airplane mechanics and repairmen	2,780	5,250	5,710	2,930	460
Motor vehicle mechanics	15,730	20,750	23,590	7,860	2,840
Office machine mechanics	930	1,650	2,470	1,540	820
Radio and T.V. mechanics	2,020	2,650	3,070	1,050	420
Railroad and car shop mechanics	780	860	750	-30	-110
Other mechanics and repairmen	18,900	27,930	40,980	22,080	13,050
Printing trades craftsmen	3,580	4,490	5,330	1,750	840
Compositors and typesetters	2,190	2,600	2,580	390	-20
Electrotypers and stereotypers	90	80	70	-20	-10
Engravers except photoengravers	160	220	270	110	50
Photoengravers, lithographers	260	440	810	550	370
Pressmen and plate printers	880	1,150	1,600	720	450
Transportation, and public utility craftsmen	6,920	9,160	11,850	4,930	2,690
Linemen and servicemen	5,200	7,710	10,900	5,700	3,190
Locomotive engineers	890	960	840	-50	-120
Locomotive firemen	830	490	110	-720	-380
Other craftsmen and kindred workers	21,490	25,060	33,460	11,970	8,400
Bakers	2,320	2,580	2,820	500	240
Cabinetmakers	1,430	1,550	1,800	370	250
Cranemen, derrick, hoistmen	1,560	2,180	3,010	1,450	830
Glaziers	310	420	670	360	250
Jewelers and watchmakers	640	740	690	50	-50
Loomfixers	2,680	2,860	3,030	350	170
Opticians, lens grinders	240	310	340	100	30
Inspectors, log and lumber	790	760	950	160	190
Inspectors, other	1,690	2,020	2,830	1,140	810
Upholsterers	1,230	1,410	1,790	560	380
Craftsmen, kindred, n.e.c.	8,600	10,230	15,530	6,930	5,300
Operatives and Kindred Workers	278,630	361,670	407,270	128,640	45,600
Drivers and deliverymen	49,130	59,990	79,890	30,760	19,900
Drivers, bus, truck, tractor	38,060	45,850	60,210	22,150	14,360
Deliverymen, routemen	11,070	14,140	19,680	8,610	5,540
Semiskilled metalworkers	13,320	22,500	24,980	11,660	2,480
Assemblers, metalworking, Class A	690	1,450	1,510	820	60
Assemblers, metalworking, Class B	4,070	6,480	6,570	2,500	90
Inspectors, metalworking, Class B	1,450	2,530	2,630	1,180	100
Machine tool operators, Class B	2,290	3,730	3,330	1,040	-400
Electroplaters	80	160	180	100	20
Electroplater helpers	140	270	280	140	10
Furnacemen, smeltermen	260	420	520	260	100
Heaters, metal	30	50	70	40	20
Welders, flamecutters	4,310	7,410	9,890	5,580	2,480

APPENDIX 7 Continued. TOTAL EMPLOYMENT IN GEORGIA BY OCCUPATION 1960, 1967 AND PROJECTIONS TO 1975

Occupational Title	Annual Average Employment			Net Change	
	1960	1967	1975	1960-1975	1967-1975
Transportation and public utility operators	2,770	3,040	3,060	290	20
Brakemen, switchmen	2,000	2,100	1,880	-120	-220
Powerstation operators	400	490	650	250	160
Sailors and deckhands	370	450	530	160	80
Semiskilled textile occupations	42,880	60,720	58,970	16,090	-1,750
Knitters, loopers, toppers	4,810	5,610	5,590	780	-20
Spinners, textile	5,310	5,690	3,680	-1,630	-2,010
Weavers, textile	6,510	7,090	4,950	-1,560	-2,140
Sewers and stitchers, manufacturing	26,250	42,330	44,750	18,500	2,420
Other operatives and kindred	170,530	215,420	240,370	69,840	24,950
Asbestos, insulation workers	330	460	590	260	130
Attendant, auto service, parking	9,170	10,830	14,080	4,910	3,250
Blasters and powdermen	70	100	130	60	30
Laundry, dry cleaning operators	9,240	10,940	11,640	2,400	700
Mine operatives, laborers, n.e.c.	2,120	2,040	2,180	60	140
Meat cutters, except meat packing	3,830	4,690	5,220	1,390	530
Operatives and kindred, n.e.c.	145,770	186,360	206,530	60,760	20,170
Service Workers	189,700	236,810	300,140	110,440	63,330
Private household workers	81,370	94,730	110,690	29,320	15,960
Protective service	12,210	16,110	18,260	6,050	2,150
Firemen	2,190	3,050	3,410	1,220	360
Policemen, other law enforcement officers	4,170	6,230	7,150	2,980	920
Guards, watchmen, doorkeepers	5,850	6,830	7,700	1,850	870
Food service workers	26,410	37,500	51,900	25,490	14,400
Bartenders	2,380	3,260	4,270	1,890	1,010
Cooks except private household	8,920	12,430	17,400	8,480	4,970
Counter, fountain workers	2,640	4,460	6,670	4,030	2,210
Waiters, waitresses	12,470	17,350	23,560	11,090	6,210
Other service workers	69,710	88,470	119,290	49,580	30,820
Airline stewards, stewardesses	390	960	1,790	1,400	830
Attendants, hospital and other	9,190	13,720	19,430	10,240	5,710
Charwomen and cleaners	4,140	5,600	8,060	3,920	2,460
Janitors and sextons	12,780	17,280	23,060	10,280	5,780
Nurses, practical	5,410	6,460	8,420	3,010	1,960
Other service workers, n.e.c.	37,800	44,450	58,530	20,730	14,080
Laborers except Farm and Mine	83,370	92,080	94,760	11,390	2,680
Farmers and Farm Workers	123,320	87,000	59,360	-63,960	-27,640

APPENDIX 8. EXPANSION AND REPLACEMENT NEEDS BY OCCUPATION IN GEORGIA FROM 1967 – 1975*

Occupation	Expansion Needs 1967-1975	Replacement Needs 1967-1975	Total Demand 1967-1975
Total	356,900	429,670	786,570
Professional, Technical, and Kindred	79,540	50,860	130,400
Engineers, technical	8,380	2,240	10,620
Engineers, aeronautical	290	100	400
Engineers, chemical	280	60	340
Engineers, civil	1,650	710	2,360
Engineers, electrical	1,840	310	2,150
Engineers, industrial	1,140	200	1,340
Engineers, mechanical	1,090	400	1,490
Engineers, metallurgical	150	30	180
Engineers, mining	-30	10	-20
Other engineers, technical	1,970	410	2,380
Medical, and other health workers	9,740	10,530	20,270
Dentist	570	350	920
Dietitians, nutritionists	150	240	390
Nurses, professional	3,420	4,950	8,370
Optometrists	40	60	100
Osteopaths	80	50	130
Pharmacists	230	600	830
Physicians, surgeons	1,920	1,060	2,980
Psychologists	310	110	420
Technicians, medical, dental	2,590	1,730	4,320
Veterinarians	-20	90	70
Other medical and health workers	450	1,290	1,740
Teachers	19,100	18,430	37,530
Teachers, elementary	5,640	9,180	14,820
Teachers, secondary	8,520	5,800	14,320
Teachers, college	2,880	1,870	4,750
Teachers, other	2,060	1,580	3,640
Natural scientists	3,520	810	4,330
Chemists	1,450	240	1,690
Agricultural scientists	480	170	650
Biological scientists	500	160	660
Geologists, geophysicists	120	20	140
Mathematicians	320	120	440
Physicists	640	50	690
Other natural scientists	10	50	60
Social scientists	670	290	960
Economists	290	100	390
Statisticians, actuaries	260	140	400
Other social scientists	120	50	170
Technicians except medical and dental	9,720	2,360	12,080
Draftsmen	1,050	350	1,400
Surveyors	750	130	880
Air traffic controllers	70	20	90
Radio operators	140	30	170
Technicians, other	7,710	1,830	9,540
Other professional, technical and kindred workers	28,410	16,200	44,610
Accountants and auditors	3,800	2,430	6,230
Airplane pilots, navigators	690	230	920
Architects	50	150	200

* Georgia Department of Labor, Employment Security Agency, Georgia Jobs for the Future, 1971. p. 60 - 63.

APPENDIX 8 Continued. EXPANSION AND REPLACEMENT NEEDS BY OCCUPATION IN GEORGIA FROM 1967 – 1975

Occupation	Expansion Needs 1967-1975	Replacement Needs 1967-1975	Total Demand 1967-1975
Clergymen	3,370	1,330	4,700
Designers except design draftsmen	790	440	1,230
Editors and reporters	660	470	1,130
Lawyers and judges	450	970	1,420
Librarians	690	1,110	1,800
Personnel and labor relations workers	1,240	620	1,860
Photographers	90	160	250
Social and welfare workers	1,010	1,010	2,020
Workers in arts, entertainment	5,190	3,550	8,740
Professional, technical, kindred, n.e.c.	10,380	3,730	14,110
Managers, Officials, Proprietors	41,680	36,990	78,670
Conductors, railroad	-240	270	30
Officers, pilots, engineers, ship	200	100	300
Creditmen	740	320	1,060
Purchasing agents	580	470	1,050
Postmasters and assistants	-120	240	120
Managers, officials, proprietors, n.e.c.	40,520	35,590	76,110
Clerical and Kindred Workers	75,280	94,550	169,830
Stenographers, typists, secretaries	20,870	30,360	51,230
Office machine operators	5,590	4,200	9,790
Other clerical, kindred workers	48,820	59,990	108,810
Accounting clerks	1,280	3,400	4,680
Bookkeepers, hand	3,710	6,390	10,100
Bank tellers	2,120	1,790	3,910
Cashiers	6,940	5,880	12,820
Mail carriers	860	660	1,520
Postal clerks	480	990	1,470
Shipping, receiving clerks	980	1,320	2,300
Telephone operators	3,090	4,110	7,200
Clerical and kindred, n.e.c.	29,360	35,450	64,810
Sales Workers	27,940	27,470	55,410
Insurance agents and brokers	6,500	3,000	9,500
Real estate agents and brokers	900	830	1,730
Other sales workers, n.e.c.	20,540	23,640	44,180
Craftsmen, Foremen and Kindred	48,490	34,020	82,510
Construction craftsmen	9,090	10,540	19,630
Carpenters	1,690	3,780	5,470
Brickmasons, stone, tile setters	440	610	1,050
Cement, concrete finishers	500	190	690
Electricians	1,520	1,210	2,730
Excavating, grading machine operators	1,620	760	2,380
Painters and paperhangers	30	2,110	2,140
Plasterers	210	180	390
Plumbers and pipefitters	2,190	1,210	3,400
Roofers and slaters	370	230	600
Structural metalworkers	520	260	780
Foremen, n.e.c.	8,120	5,340	13,460
Metalworking, craftsmen except mechanics	1,170	2,640	3,810
Machinists and related occupations	-330	1,150	820
Blacksmiths, forgemen, hammermen	-70	110	40
Boilermakers	-120	80	-40

APPENDIX 8 Continued. EXPANSION AND REPLACEMENT NEEDS BY OCCUPATION IN GEORGIA FROM 1967 – 1975

Occupation	Expansion Needs 1967-1975	Replacement Needs 1967-1975	Total Demand 1967-1975
Heat treaters, annealers, temperers	20	40	60
Millwrights	370	260	630
Molders, metal (except coremakers)	110	60	170
Pattern-makers, metal-and-wood	70	110	180
Rollers and roll hands	60	30	90
Sheetmetal workers	740	410	1,150
Toolmakers, diemakers, setters	320	390	710
Mechanics and repairmen	18,180	8,980	27,160
Air conditioning, refrigeration & heating mechanics	700	190	890
Airplane mechanics and repairmen	460	440	900
Motor vehicle mechanics	2,840	2,310	5,150
Office machine mechanics	820	150	970
Radio and T.V. mechanics	420	210	630
Railroad and car shop mechanics	-110	170	60
Other mechanics and repairmen	13,050	5,510	18,560
Printing trades craftsmen	840	690	1,530
Compositors and typesetters	-20	390	370
Electrotypers and stereotypers	-10	10	0
Engravers except photoengravers	50	20	70
Photoengravers, lithographers	370	100	470
Pressmen and plate printers	450	170	620
Transportation, and public utility craftsmen	2,690	1,020	3,710
Linemen and servicemen	3,190	670	3,860
Locomotive engineers	-120	320	200
Locomotive firemen	-380	30	-350
Other craftsmen and kindred workers	8,400	4,810	13,210
Bakers	240	590	830
Cabinetmakers	250	350	600
Cranemen, derrickmen, hoistmen	830	350	1,180
Glaziers	250	50	300
Jewelers and watchmakers	-50	150	100
Loomfixers	170	400	570
Opticians, lens grinders, polishers	30	40	70
Inspectors, log and lumber	190	140	330
Inspectors, other	810	470	1,280
Upholsteters	380	220	600
Craftsmen and kindred, n.e.c.	5,300	2,050	7,350
Operatives and Kindred Workers	45,600	72,830	118,430
Drivers and deliverymen	19,900	6,980	26,880
Drivers, bus, truck, tractor	14,360	5,090	19,450
Deliverymen, routemen, cab drivers	5,540	1,890	7,430
Semiskilled metalworkers	2,480	2,840	5,320
Assemblers, metalworking, Class A	60	150	210
Assemblers, metalworking, Class B	90	1,010	1,100
Inspectors, metalworking, Class B	100	330	430
Machine tool operators, Class B	-400	400	0
Electroplaters	20	20	40
Electroplater helpers	10	30	40
Furnacemen, smeltermen, pourers	100	60	160
Heaters, metal	20	10	30
Welders, flamecutters	2,480	830	3,310

APPENDIX 8 Continued. EXPANSION AND REPLACEMENT NEEDS BY OCCUPATION IN GEORGIA FROM 1967 – 1975

Occupation	Expansion Needs 1967-1975	Replacement Needs 1967-1975	Total Demand 1967-1975
Transportation and public utility operators	20	440	460
Brakemen, switchmen	-220	290	70
Powerstation operators	160	90	250
Sailors and deckhands	80	60	140
Semiskilled textile occupations	-1,750	19,020	17,270
Knitters, loopers, toppers	-20	1,630	1,610
Spinners, textile	-2,010	1,180	-830
Weavers, textile	-2,140	1,230	-910
Sewers and stitchers, manufacturing	2,420	14,980	17,400
Other operatives and kindred	24,950	43,550	68,500
Asbestos insulation workers	130	60	190
Attendant, auto service, parking	3,250	1,000	4,250
Blasters and powdermen	30	10	40
Laundry, dry cleaning operators	700	3,460	4,160
Mine operatives, laborers, n.e.c.	140	240	380
Meat cutters, except meat packing	530	790	1,320
Operatives and kindred, n.e.c.	20,170	37,990	58,160
Service Workers	63,330	88,370	151,700
Private household workers	15,960	38,620	54,580
Protective service	2,150	3,920	6,070
Firemen	360	670	1,030
Policemen, other law enforcement officers	920	750	1,670
Guards, watchmen, doorkeepers	870	2,500	3,370
Food service workers	14,400	13,390	27,790
Bartenders	1,010	750	1,760
Cooks except private household	4,970	4,720	9,690
Counter, fountain workers	2,210	1,580	3,790
Waiters, waitresses	6,210	6,340	12,550
Other service workers	30,820	32,440	63,260
Airline stewards, stewardesses	830	550	1,380
Attendants, hospital and other institutions	5,710	4,610	10,320
Charwomen and cleaners	2,460	2,150	4,610
Janitors and sextons	5,780	6,450	12,230
Nurses, practical	1,960	3,330	5,290
Other service workers, n.e.c.	14,080	15,350	29,430
Laborers except Farm and Mine	2,680	12,710	15,390
Farmers and Farm Workers	-27,640	11,870	-15,770

APPENDIX 9
UNDERGRADUATE MAJOR OF 1958 COLLEGE GRADUATES WHO WERE EMPLOYED IN 1963*

Undergraduate Major	Number Employed Full-Time	OCCUPATION IN 1963												
		Natural Scientist	Engineer	Social Scientist	Humanistic Professional	Health Professional	Teacher	Business & Managerial	Other Professional	Semiprofessional	Clerical & Sales	Other Nonprofessional	No Answer	Total Percent
							MEN							
Total	*14,812*	*6.0*	*18.8*	*1.1*	*5.1*	*5.8*	*21.6*	*21.7*	*7.5*	*1.6*	*7.2*	*2.4*	*1.1*	*99.9*
Natural Sciences	2,146	25.5	10.8	0.3	1.0	21.9	20.6	6.0	5.3	2.2	3.8	1.8	0.9	100.1
Engineering	2,953	2.0	77.3	0.3	0.7	0.2	3.0	7.5	3.4	0.9	2.8	1.0	1.0	100.1
Social Sciences	2,753	1.8	2.3	4.3	7.9	2.7	25.6	24.8	16.3	1.1	8.8	3.5	1.1	100.1
Humanities and Arts	1,472	1.0	1.4	1.1	28.3	1.8	34.6	14.0	7.5	2.0	4.8	2.4	1.2	100.1
Health	286	4.1	–	–	–	87.1	4.1	0.3	0.7	0.7	2.1	–	0.7	99.8
Agriculture	417	35.7	1.4	1.2	1.4	2.9	15.6	11.0	9.1	2.6	7.0	10.3	1.7	99.9
Business and Commerce	3,164	0.5	4.7	0.2	1.2	–	5.3	58.7	6.8	1.9	16.8	2.6	1.2	99.9
Education	1,545	2.4	1.9	0.7	2.5	0.8	75.9	4.3	5.0	1.7	1.7	1.9	1.1	99.9
General Courses	76	5.3	10.5	–	3.9	14.5	43.4	6.6	10.5	1.3	2.6	1.3	–	99.9

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