AN ANALYSIS OF SOME OF THE ECONOMIC ASPECTS PERTAINING TO THE OUT-OF-STATE COLLEGE STUDENT WITH PARTICULAR REFERENCE TO OKLAHOMA

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PREFACE

Increasing emphasis is being given to the collection of data pertaining to college students. Other studies have been made in order to explain various characteristics of student behavior--such as, why students enrolled in a certain institution and what are the reasons for drop-outs and transfers. Tabulated data pertaining specifically to the origin of students enrolled in colleges and universities in the various states have been used to describe some general patterns of student migration.

The purpose of this study is to determine, on the basis of more detailed analysis, some of the economic aspects associated with the nonresident student. The relationship of family income of students and nonresident enrollment has been revealed. Employment patterns of some college graduates have been compared on the basis of residence, and various cost aspects of providing education for out-of-state students have been determined.

More and more recognition of the importance of the economics of education has prompted the study of the problems involved with the financing of higher education. Some of the aspects associated with the nonresident student need to be presented in a framework based on economic thinking.

The application of economic theory to various aspects involved with the nonresident student and the out-of-state fee is presented in the second chapter mainly to accommodate those readers whose training is not primarily economic in nature.

Indebtedness is acknowledged to members of my advisory committee for their time, suggestions, comments, and guidance; to the following for their cooperation and assistance in providing data used in this study: Dr. E. T. Dunlap, Dr. John J. Coffelt, and Mr. Dan S. Hobbs, Oklahoma State Regents for Higher Education; Mr. H. N. Buchanan, University Placement Services, Oklahoma State University; Dr. H. B. Brown, Oklahoma University; Mr. R. Girod, Registrar, Oklahoma State University; and to Mrs. Helen Lowe for her editing and typing and to Mr. James Roberts for his assistance in performing the many calculations.

Any errors of the study are solely due to my own shortcomings. Furthermore, I accept responsibility for all statements and conclusions of this study.

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CHAPTER I

INTRODUCTION

Educators are faced today with an increasing college enrollment. The increasing enrollment results from a combination of three forces: the number of college-age youth is increasing rapidly, a larger percentage of high school graduates are desiring more education, and more college graduates are seeking advanced degrees.

New buildings and facilities have been erected on college campuses to meet the needs of the increasing enrollment. These additional building and other costs have been accompanied by higher tuition charges. Higher tuitions for out-of-state students may have been sometimes suggested as a means to alleviate some of the pressure caused by the increasing enrollment.

Statement of the Problem

In an attempt to solve the continuing problem of increasing enrollment, administrators and legislators may propose further alterations in the pattern of nonresident fees. Restricting the movement of students among the states is problematic in itself. The migration of out-of-state students is an integral part of the problem of increasing

enrollment, but the restriction of student migration is not the solution to the enrollment problem.

In a recent letter from a representative of one of the educational compacts,[1] the migration of students was recognized as a problem:

> This problem [the migrating student] is certain to be with us for sometime. . . . and will continue to be a concern of this commission.[2]

Some states are initiating vigorous measures to control the immigration of students. This action is usually defended by rationalizing that the schools are overcrowded; therefore, the nonresident student should be kept out.

The basic problem is to identify the economics of various factors pertaining to the migration of the nonresident student. There are many aspects of this issue that require specific identification. First of all, what are the economic implications associated with restricting the mobility of students? Second, are nonresident students a homogeneous group; that is, are students from contiguous states characteristically the same as students from noncontiguous states? Specifically, are there differences in family income? What influence does proximity of institutions to state boundaries have on the enrollment of nonresident students from different geographic areas? Third, what are the cost issues involved? Fourth, in what way are course offerings affected by the attendance of nonresident students? And finally, what are the postgraduate employment plans of nonresident students as

compared to the plans of resident students after graduation? These are some of the questions that need to be answered.

A framework based on economic theory identifies the theoretical nature of the out-of-state student tuition and some of the economic characteristics or factors associated with the migrating student. A nonresident fee charge should be identified as a tariff. The concept of marginal cost as it is associated with the charging of a nonresident fee is most relevant and should be properly emphasized. Those who are responsible for making policy should be cognizant of the economic aspects and effects of interstate student charges.

Purposes and Objectives of the Study

The general purposes of the study are as follows:

1. To provide legislatures and commissions with analytical information for the development of sound public policy as it pertains to the out-of-state student.

2. To aid various institutions in acquiring a better understanding of their role in providing higher education for the out-of-state student.

3. To suggest methods by which regional cooperation can be useful.

4. To indicate the national aspects of the problem.

Corollary objectives are also sought as follows:

1. To apply economic theory to the nonresident fee in order to identify its theoretical nature and to recognize its economic aspects.

2. To identify some of the economic factors or characteristics associated with the migrating student. This will permit the testing of various propositions that may be useful guides for policy proposals.

3. To identify employment patterns based on the plans of graduating students.

4. To provide policy makers with an understanding of the marginal cost principle as applied to the out-of-state student enrollment in the various class and course offerings of an institution.

Scope of the Study

The main interest of the study is centered on the state-supported institutions and the nonresident undergraduate students. However, to provide as comprehensive a picture as possible, the analysis includes some investigation and comparison at the graduate level and information pertaining to private institutions. Studying the effect of the out-of-state fee is accomplished by theoretical implication. A major part of the analysis concentrates on studying the students in the Oklahoma institutions, but the more general analysis attempts to encompass the fifty states.

Method

Theoretical Procedure

The theoretical procedure involves identifying, developing, and formulating a framework for the economics of

the nonresident fee. Appropriate economic concepts are adapted to the case of the out-of-state tuition charged college students. The approach used to study the effects of the nonresident fee is deductive in nature.

Empirical Procedure

Description

General observations pertaining to the migration of college students are presented as an introduction to the various areas of investigation. Patterns of migration in selected states are observed, some trends and levels of fees are noted, and various characteristics of the Oklahoma student are included for formal reference. The analyses pertaining to Oklahoma are prefaced by a descriptive presentation summarizing the data collected.

Comparisons and Analyses

Regional comparisons and analyses are made regarding fees, enrollment, and other characteristics. Other analyses utilize correlation methods to determine the relationship between fees and nonresident enrollment.

Investigation by Hypothesis

Several propositions are investigated by formulating hypotheses, which are examined empirically. The hypotheses are then accepted or rejected on the basis of the evidence. It must be recognized that this approach to investigating

economic phenomena is not to be identified as testing a statistical hypothesis even though the methods of approach are similar.

The general nature of the propositions subjected to this hypothesis approach is concerned with determining if income is associated with migration of college students. The investigation relies on the data collected by the Oklahoma State Regents for Higher Education. The data on first-time freshmen enrolled in Oklahoma colleges and universities for the fall of 1962 is subjected to chi-square analysis in order to test the hypotheses.

Procedure of Conclusions

Each chapter is concluded with a summary which emphasizes the significant observances and findings based on the various methods outlined previously. Various recommendations, suggestions, and policies which have been proposed by others will be recognized and evaluated in light of the findings of this study. The conclusions will then be used as a basis for suggesting policy.

Limitations

General Limits of the Data and the Approach

The collection of data pertaining to the many reasons that students migrate is beyond the financial capacity of an individual researcher. Even if data were available which

took into consideration most of the factors associated with migration, there is the significant "nonresponse" of those students who did not migrate yet might have migrated and obtained education if there were no differential in fees. In addition, current or detailed data are not available which reflect the movements or attitudes of the Oklahoma residents who migrate to other states for education.

Limits of Inference

The majority of the analyses pertain to the census of selected populations of interest. Sampling procedures are not employed; therefore, no broad inference should be made from the various findings. Inference can be used if one assumes that the observations made represent a sample from a universe relating to time.

Sources of Data

The main sources of data consulted in the study are as follows:

1. Home State and Migration of American College Students, Fall 1958, published by the American Association of Collegiate Registrars and Admission Officers.

2. Questionnaire (Form 3-C, Student Record Form) used by the Oklahoma State Regents for Higher Education to collect data on the first-time freshman enrolled in Oklahoma institutions of higher learning for the fall of 1962.

3. Oklahoma State University Employment Survey Cards used by the Placement Services Office to collect employment data on the 1963 graduates.

4. Class cards of students enrolled for the spring semester of 1963 at Oklahoma State University and the University of Oklahoma.

The following are other sources of reference which were used:

1. Periodic studies and reports published by various government agencies, offices, commissions, and private and public institutions.

2. Robert C. Story, Residence and Migration of College Students, 1949-50, Office of Education, Federal Security Agency.

Approach by Chapters

Chapter I is introductory in nature and prescribes the technique for and approach to the study. Chapter II includes the theoretical treatment. Chapter III presents some general observations as background material for more specific investigations. Chapter IV outlines certain aspects of fees as they are related to migration. Chapter V concentrates on the geographic origin of students in general. It concludes with a detailed study of the origin of nonresident students in Oklahoma, including a thorough breakdown by type of institution. Chapter VI is concerned with the relationship of the

students' family income with migration. A general analysis is performed, concluding with a detailed study pertaining to Oklahoma institutions. Chapter VII contains an abbreviated study of the geographic employment patterns of college graduates, both resident and nonresident. The employment study encompasses data obtained from a survey which collected responses from graduating students at Oklahoma State University. Chapter VIII presents a case study of class and course enrollments with particular reference to the marginal cost concept and its relevance to the out-of-state students. Chapter IX contains a summary of findings and proposals, conclusions, and suggestions.

Footnotes

[1]In a discussion of interstate authorities, an educational compact is usually classified as a quasi-authority. Some agencies have been designated quasi-authorities because of the ways by which they are financed, but an educational compact is included in those types of "interstate agencies which are authorities in name but are quasi-authorities in fact because of the kind of functions they perform." In terms of functions, compacts would thus be described as "study and recommendatory agencies." Cf. Richard H. Leach, "Interstate Authorities in the United States," Law and Contemporary Problems, School of Law, Duke University, XXVI (Autumn, 1961), p. 676.

[2]Letter addressed to H. B. Baltz from T. F. Lunsford, Director of Special Regional Programs, Western Interstate Commission on Higher Education, April 2, 1963.

CHAPTER II

THE APPLICATION OF ECONOMIC THEORY TO THE NONRESIDENT FEE

Prosperity in this country has brought with it high incomes and great increases in spending power in the form of income left over after necessities have been purchased. For a period after World War II, industrial capacity was stimulated by the tremendous pent-up demand for consumer necessities. The war resulted in a shortage of automobiles, appliances, and houses. Now, in the early sixties, the shortages created by the depression and the war are largely satisfied. Consumer spending has shifted away, relatively, from these key industries toward many, many things--services, sports, do-it-yourself projects, cultural activities, travel, and education. This shift in consumer spending and the increased financial ability of families to send their children to college prompted economists to evaluate the adjustment needed in the nation's allocation of resources.

Recognition of the Economics of Education

The increased financial ability of families and the urgent need for more education have resulted in the direction of many recent studies toward the economics and financing of

higher education. The growing concern about higher education in the United States is apparent. Many recognize that education and research play a vital role in our modern society. The rising costs of education demand additional funds which must compete with the funds needed for other increasing public services. These increasing demands upon the tax dollar are resulting in a more careful look at the purposes for which appropriated funds are to be spent. In this area of the allocation of limited resources, the work of economists is most vital.

Conventional methods which have been used are inadequate to cope with problems facing education today. Educators are drawing on their own professional capabilities and on the skills of other disciplines, of which economics is one. The broad issues of policy confronting educators are determined in the light of other considerations, but the costs and economic benefits require application of economic techniques.

Educators are realizing the importance and need for assistance from other disciplines. There is no reason that the approach to problem solving in education cannot take on the form of the operations research method. Operations research teams developed because the complex problems being encountered in other areas required the knowledge and skills from various disciplines to solve the problems.

Not only is financing of education a major problem presently facing the providers of education; but the increasing importance on furnishing programs for the superior

student, besides making the financing even more acute, has required that attention be diverted to other problems. Depending upon the manner in which scholarships are granted and administered, various scholarship plans will influence the enrollment patterns of the gifted or honor students among various institutions.[1] Because of the concern in providing the honor student with maximum freedom of choice, the resulting enrollment patterns have caused controversy among educators. However, when investigating the choice of the majority (or average) students, there is less concern about their freedom of choice for education. The diminution of freedom of choice is due to the various barriers which restrict the majority of students from migrating interstate for their education. Reference is made specifically to the out-of-state tuition as the barrier imposed by the states.

Identifying Education

Education, Its Broad Classification

Goods and services are broadly classified into two groups: those which render immediate satisfaction to consumers are called consumer goods, and those involved in production over the longer period of time are called investment goods.

Education can be thought of as a consumer good, for it is called into existence by consumer demand. Some consumption of education is private in nature because people value it in

itself and spend their money on it; they make decisions either to buy an evening class in amateur photography or to buy a new coat.

Private demand for education would be satisfied if it attracted resources into the field up to the point at which the last dollar invested yielded no more and no less than the last dollar invested in all other alternatives. This equating of marginal productivity per dollar's worth of resources is the economic test of allocating resources adequately. This test is not being satisfied in all instances.

Education is also public consumption, too, to the extent that all levels of government decide to spend some of their revenue on education rather than on other public goods such as health services or cultural projects.

Professor Schultz of the University of Chicago, however, claims that

> . . . much of what we call consumption constitutes investment in human capital. Direct expenditures on education, health, and internal migration to take advantage of better job opportunities are clear examples.[2]

Education is an investment, for it is a means of acquiring skills and abilities for the individual which yield him a material return. People invest in themselves by seeking education which identifies it as private investment. The state also provides education to a large degree which, in this case, would identify it as public investment.

Obviously, education is both an investment and a consumer good. However, recent literature is concerned more with

education as an investment than as a consumer good. Theodore W. Schultz, in his recent book, The Economic Value of Education, maintains that, contrary to the recent trend, the delineation of costs between these two classifications remains unsettled. He concludes by emphasizing:

> In practice, thus far, in estimating the rate of return to schooling from earnings, all the costs of schooling are treated as if they were an 'investment' in such earnings, and none are allocated to 'consumption,' although it is obvious that for much schooling such a unilateral allocation is unwarranted.[3]

It is obvious that no clear-cut dichotomy can be made when labeling education; furthermore, the classification of education may not be the only issue needing consideration. One writer has distinguished between the importance of education as an investment and as consumption by the effect it may have on policy decisions. Vaizey has written the following:

> Oddly, enough, however, what label we choose to give education affects policy decisions. For if it is consumption, then it can be reduced at times of economic stringency with no long-term effects on the economy; while if it is investment it may be that more should be spent on it than people at present really want to because in the long-run it affects (profoundly, perhaps) the rate of economic growth. If education is investment, and 'accumulate, accumulate' is, as Marx said, the first law of capitalist society, then education should be so abundant that knowledge and wisdom should be running out our ears. While if it is consumption, then affluence should have led to educational abundance.[4]

Contrary to Vaizey's pessimistic outlook, Machlup seems to show in his book, The Production and Distribution of Knowledge in the United States, that there may be a relative trend

toward abundance of education as reflected by his estimate that in 1958 almost 29 per cent of the adjusted Gross National Product was spent on "knowledge production."[5]

Education, A Specialized Classification

The doctrine of a minimum of interference in interstate commerce is accepted. In fact, interstate restriction on commerce is deemed unconstitutional. Yet, an interference or barrier is allowed to exist between the states when it is concerned with the product called education. A Justice of the Supreme Court included intelligence as a commodity when he defined commerce and hence interstate commerce. In a decision pertaining to interstate commerce, Justice Johnson, in his concurring opinion, added:

> Commerce, in its simplest signification, means an exchange of goods; but in the advancement of society, labor, transportation, intelligence, care, and various mediums of exchange become commodities, and enter into commerce; the subject, the vehicle, the agent, and their various operations, become the objects of commercial regulation.[6]

It is not difficult to align education with intelligence. One economist has expressed the relationship between intelligence and education in the following way:

> Intelligence in the economics of education corresponds to 'land' in classical economics--the natural resources which the economy brings into production.[7]

Is education to be treated with less emphasis than other commodities which are subject to the regulation of interstate commerce?

Economic Significance of Education As an Interstate Commodity

One could raise a question also on the legality of practicing discrimination in the form of the differential in tuition charged resident and nonresident college students. In John F. Due's book, Government Finance, discrimination against citizens of other states is included in the section pertaining to the implied restrictions on the taxing power of the states. Professor Due relates the equal-protection clauses of the Fourteenth Amendment to "the prohibition of discrimination against citizens of other states; residents and nonresidents must be treated equally."[8] The discriminatory nature of the out-of-state fee seems apparent. Recently the Western Interstate Commission for Higher Education (hereafter referred to as WICHE) has labeled interstate student charges as "artificial tariffs."

WICHE has also pointed out that some of the barriers to students seeking education in the public institutions create problems because of the higher proportion of students in the West enrolling in the public institutions. The charging of an out-of-state fee is characteristic of the public institution. Public institutions enroll almost 60 per cent of the students in the United States; in the West, more than four out of five are enrolled in public colleges.[9]

WICHE convened in the spring of 1962 to discuss the complex issue of out-of-state students in public colleges and universities. In their report, Out-of-State Students in

the West's Public Colleges and Universities, arguments for lowering interstate restrictions are listed. The opening statement of the list shows clear recognition of the problem. It reads as follows: "State barriers to out-of-state students constitute artificial interstate 'tariffs' and 'quotas' on educational opportunity in the U. S."[10] To identify the out-of-state tuition as artificial or superficial when the effects are not artificial is hardly appropriate. The distinguishing features of the "tuition tariff" are presented in the next section in order to outline some of its effects.

The Nonresident Fee Versus the Conventional Tariff

The conventional tariff placed on commodities produced outside a country's boundary is used to prevent the importing of these commodities which compete with the home-made goods in the domestic market. In the case of the conventional commodity, the tariff is used to restrict entry of the commodity. Nevertheless, domestic producers and sellers aim to export as much of their product as possible. In the case of education, the seller does not desire the goods to be purchased by "foreigners" or, if you prefer, to be exported.

Out-of-state fees charged nonresident students in the market for a college education are not tariffs in the conventional sense. Unlike the practice of paying a penalty on a commodity which is imported, the nonresident student is charged an additional fee for receiving a service, education,

which is likely to be exported. In other words, a penalty is imposed on exporting by nonresidents in contrast to the penalty imposed on importing in the case of the conventional foreign commodity.

The most obvious effect of the protective tariff on a conventional good is that it raises the prices of commodities protected by it. The increase in prices represents a gain to domestic producers, at least in the short run, and a loss to consumers. Of course, the tariff on education does not cause the price to be higher for all consumers; the price charged the domestic consumer is not affected. But the price is higher for the out-of-state students, who as consumers must bear some loss, relative to resident consumers. The issue is clearly one of discriminatory subsidizing.

One may get the impression that out-of-state fees are an "artificial" tariff; however, the effects are essentially the same as a true tariff on a conventional commodity. A commodity, education, is not allowed to "flow" entirely unrestricted over geographic boundaries with the exception that resident students are not subjected to a penalty for exporting education. The commodity, education, is not restricted from entry; in fact, most states encourage individuals who have acquired education to become permanent "citizens."

The apparent financial reasons for levying a tariff on nonresidents seems only natural and necessary. It seems at first to be plain horse sense based on simple logic. No one

is eager to subsidize others for the cost of their education. When facilities seem to be limited, some means of rationing is usually appropriate. The simple solution in this case is to charge nonresidents a higher fee, defending it on the grounds that taxpayers do not desire to subsidize the education of the out-of-state student.

The immediate effects are probably harmless, at least to the individual state levying the tariff. But the fact is that other states will retaliate and have done so. Because the states have followed the tariff levying policy, the volume of interstate immigration of college students stands at a prohibitively low level. Furthermore, public institutions can suffer from the lack of "cosmopolitanism" among their student bodies; they are accused of "provincialism." Retaliation by the states, in effect, influences students to receive their education within their home state. The effects of this policy are analogous to the policy of tariff retaliation involved with conventional goods. One economist concluded that "tariff retaliation will however reduce the welfare of all countries."[11] This conclusion is generally accepted by most students of foreign trade. There is no reason to believe that the practice of tariff retaliation in education does not have some effect on reducing the welfare of students and parents.

It is feasible that some states could have scales of educational plants which are operating where marginal costs

are below the resident tuition. Nonresident fees force many students to stay in the home state which causes marginal costs to be above the tuition. Not only does the structure of nonresident fees in this country restrict freedom of opportunity for many of the college "citizens," but the lack of mobility in individuals seeking education can be detrimental to accomplishing the optimum allocation of resources needed to provide ample education.

The main argument for out-of-state barriers derives support from the financial reasons mentioned previously. Local taxpayers are strongly against state tax funds being used to subsidize part of the cost of educating students from other states. This feeling of taxpayers has led to the easy solution of an across-the-board hike in nonresident tuitions. WICHE recently indicated some danger in any "sweeping solution" to a group of dissimilar problems. Their solution suggested a rational approach based on selective action. They warned against an across-the board restriction by a tariff;

> for example, a "quota" may be placed on all nonresidents, when a few states supply most of the out-of-state applicants to the state's colleges.[12]

It seems that "sweeping solutions" would contribute to the loss of consumer welfare.

Trade restrictionism is usually advocated as a frankly nationalistic policy. The arguments which suggest that aggregate world production would be greatest under free trade usually make little impression on those who advocate restrictionism; their objective is not world welfare but national

well-being. The restriction on education in the form of interstate fees seems to suggest a similar "nationalistic type" policy at the state level.

It is widely accepted that a policy of free trade from the point of view of the consumer is beneficial, since it contributes to higher standards of living, even though some producer groups may be adversely affected by foreign trade. Applying one of Adam Smith's views to the education market seems to make the solution simple. If one accepts Adam Smith's view that the interest of consumers and the general welfare are identical, the case against trade restrictions appears to be conclusive. Smith said:

> Consumption is the sole end and purpose of all production; and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer. The maxim is so perfectly self-evident that it would be absurd to attempt to prove it.[13]

A similar view was expressed by Professor Simons as follows:

> All the grosser mistakes in economic policy, if not most manifestations of democratic corruption, arise from focusing upon the interests of people as producers rather than upon their interests as consumers. One gets the right answers usually by regarding simply the interests of consumers.[14]

The views of these two men, when applied to the problem facing many consumers of education, seem no less appropriate.

Excise and processing taxes are sometimes preferred to tariffs because they are easier to legislate and administer and because they are not likely to create as much suspicion in the mind of the public. On economic grounds, however,

these taxes are no less objectionable than tariffs, for they are being used for precisely the same reasons.[15]

The Nonresident Fee as a Rationing Device

Prices, fees, surcharges, taxes, and tolls are used in many cases for rationing out the available supply of the good or service. In general, prices have two functions: they serve as rationing devices to prevent excessive use of the goods, and they also provide means of covering the costs of rendering the service. The practice of levying nonresident fees is classified as an "indirect rationing device" as opposed to a "direct rationing device," which may be in the form of a quota. In the instance of higher education, it is apparent that the nonresident tuition charge levied by most institutions of higher learning is for the purpose of rationing out the available space and is not primarily a financing device to cover the full cost of the facility.

The nonresident fee may be analyzed as an excise tax and as a use tax, which are forms of "rationing" familiar to students of public finance. In the case of these two forms, the emphasis is put on rationing as a restrictive device, since there seems to be a fear of excessive use of educational facilities by nonresident students which would create a shortage for resident students.

The Out-of-State Fee Analyzed as an Excise Tax

Besides the additional revenue that is acquired from the nonresident fee, the main purpose of this fee as a specific excise tax is to ration or regulate. These types of fees or "taxes" have a direct purpose of reducing consumption of education by nonresidents.

The popular image of an excise tax being fully shifted to the consumer is displayed in Figure 1. The diagram is the familiar one of industry supply and demand. The prices and quantity before the tax are shown as P_1 and Q_1, the price and quantity after the tax as P_2 and Q_2. The tax is in the amount of P_1P_2. The imposition of the tax results in a higher price for consumers. The higher price causes a decrease in the quantity demanded. The industry supply curves indicate that long-run average costs are constant.

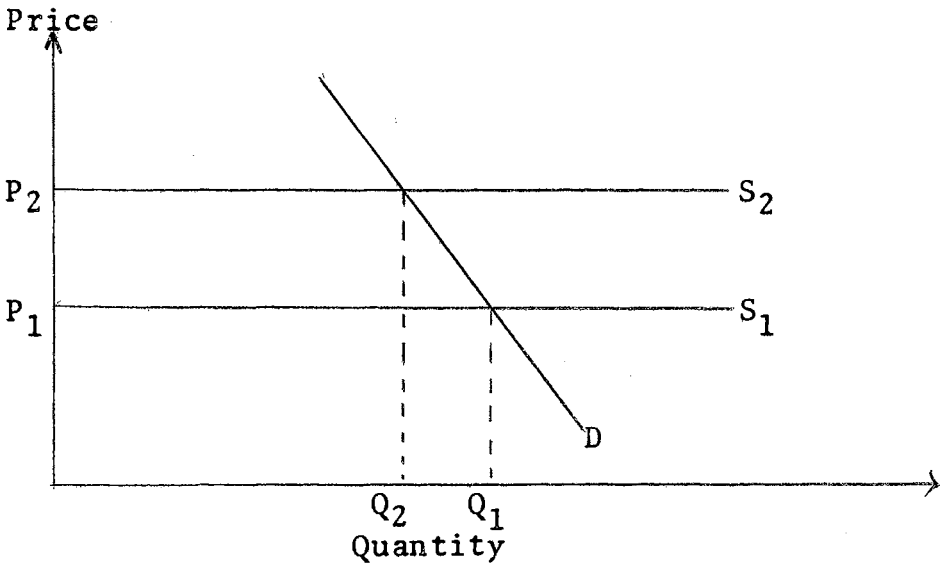


Figure 1. A Picture of the Excise Tax Shifted to the Consumer.

This analytical representation of an excise tax on a consumer good can be directly transformed to display the case of the nonresident "tax"--the out-of-state tuition. Let D be the demand for domestic education by nonresidents. The imposition of an out-of-state fee at P_2 above the resident tuition of P_1 reduces the quantity of domestic education demanded by out-of-state students. Thus, the out-of-state tuition acts as a direct rationing device by deterring a quantity of nonresident students from enrolling in the domestic institutions.

Charging out-of-state students a higher fee for enrolling at state-supported institutions reflects, in effect, results similar to a specific excise tax. The reciprocal action of all states charging a higher fee to nonresidents restricts mobility of students seeking higher education by preventing students somewhat from migrating to other geographic areas for their education. Some people contend that "admission to college study for all students should depend primarily on ability, not geography."[16]

The Nonresident Fee Analyzed as a Use Tax

Goods are sometimes purchased out of state in order to avoid the state sales tax on commodities. But an administrative problem arises with the collection of a sales tax on goods bought outside the taxing jurisdiction and brought into

the state. In fact, states are barred by the federal constitution from applying their sales taxes, as such, to interstate purchases.

Some states employ a use tax, which is essentially a tax on those commodities which are bought out of the state and conveyed into the state and are subject to the in-state tax. The enforcing of a use tax is aimed at preventing those domestic consumers who purchase taxable commodities out of the state from escaping the domestic state taxes. Use taxes are enforced on a limited number of goods, such as, automobiles and items purchased from mail-order houses.

The charging of an out-of-state fee tends to suggest some features of the use tax, although operating in a reverse fashion. The nonresident fee acts as a "use tax" to the extent that nonresidents are taxed for acquiring a product out of state. In this case, the state which is foreign to the consumer, rather than the state in which the consumer resides, levies the tax. The "tax" serves as an equalizer or compensator for the burden borne by residents of the state in which the education is supplied.

Out-of-State Student Charges, A Case of Price Discrimination Not Maximizing Satisfaction

Charging an out-of-state student fee is similar to price discrimination; charging different prices to different consumers for the same commodity. This analysis is made, not for the sake of controversy, but to establish a theoretical

foundation. A review of indifference curve analysis is presented where appropriate: this framework is then used to study the case of differential student charges.

Indifference Curves

An indifference curve indicates the relationship of equivalent satisfaction of a consumer in possessing various combinations of two different goods. A family of indifference curves show the various relative magnitudes of satisfaction of the consumer for various combinations of the goods. Principles of rational choice imply that indifference curves slope downward to the right, are convex to the origin, and do not intersect.

The marginal rate of substitution expresses the rate of exchange of one commodity for another keeping satisfaction constant. This definition corresponds to the slope of a curve. Since the indifference curve is convex to the origin, the marginal rate of substitution is decreasing. As one commodity increases unit-by-unit, any other commodity substitutes for it at a decreasing rate if the level of consumer satisfaction is to be maintained. The degree of convexity increases as the goods are more complementary, approaching and "L" shaped type of relationship. The indifference curve becomes a straight line in the case of goods which are perfect substitutes.

The application of indifference analysis to education begins with symmetrical indifference curves which reflect

equal preference for the two types of education. A stronger preference for one of the commodities over the possible range of choices would be reflected by asymmetry of the indifference curve.

An Indifference Curve for Education

The choice made between the education obtainable in two institutions in different states may be displayed as an individual's indifference curve. The reality of a student obtaining educational credits from two schools located in different states is questionable. There are numerous students who transfer from one college to another. It is usually recommended that students complete graduate work at another institution. But the situation where a student could acquire education from two schools simultaneously is illustrative of a more realistic aggregative relationship developed later. Suppose there are two colleges which are located adjacent to each other. Further, suppose that the only thing separating the two campuses is the boundary line between two states. It would not be uncommon for students to desire to enroll in classes of the two schools simultaneously. This situation is especially true if the nonresident school offers courses which are not offered in the resident institution. The opportunity for cooperation and limited restrictions between the schools for such interchanges to operate freely are assumed.

Two individuals might be selected whose preferences for education at the two different public institutions are displayed as in Figure 2. Student "X" resides in State "X" and student "Y" resides in State "Y."

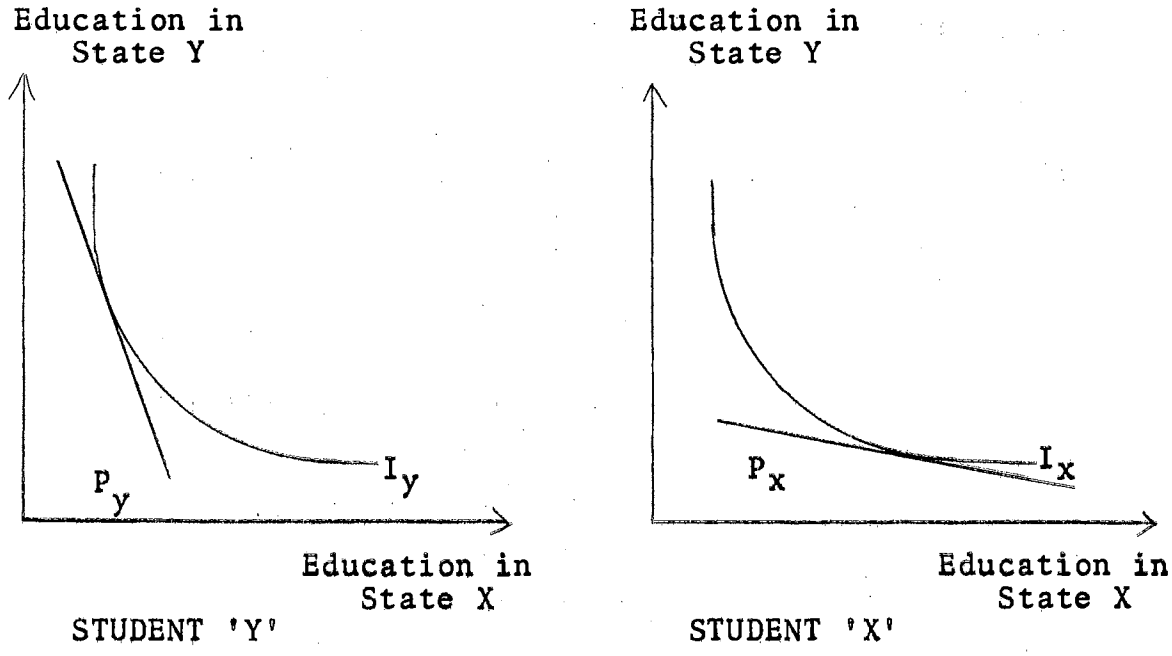


Figure 2. Indifference Curves for Education

As is noted, the indifference curves reflect a symmetry of preference. Also displayed are the price lines representing the relative prices of education for students in the two states. The price lines indicate that different prices are charged the different students. Here student "X" is being charged a high price for education in State "Y" and a low one for education in State "X." Recall that the real price or the cost of education "X" is the amount of education "Y" that the student must give up. The slope of the price line tells us how much of one good the consumer can get by giving up

some of the other. The different prices represent nonresident and resident tuition.

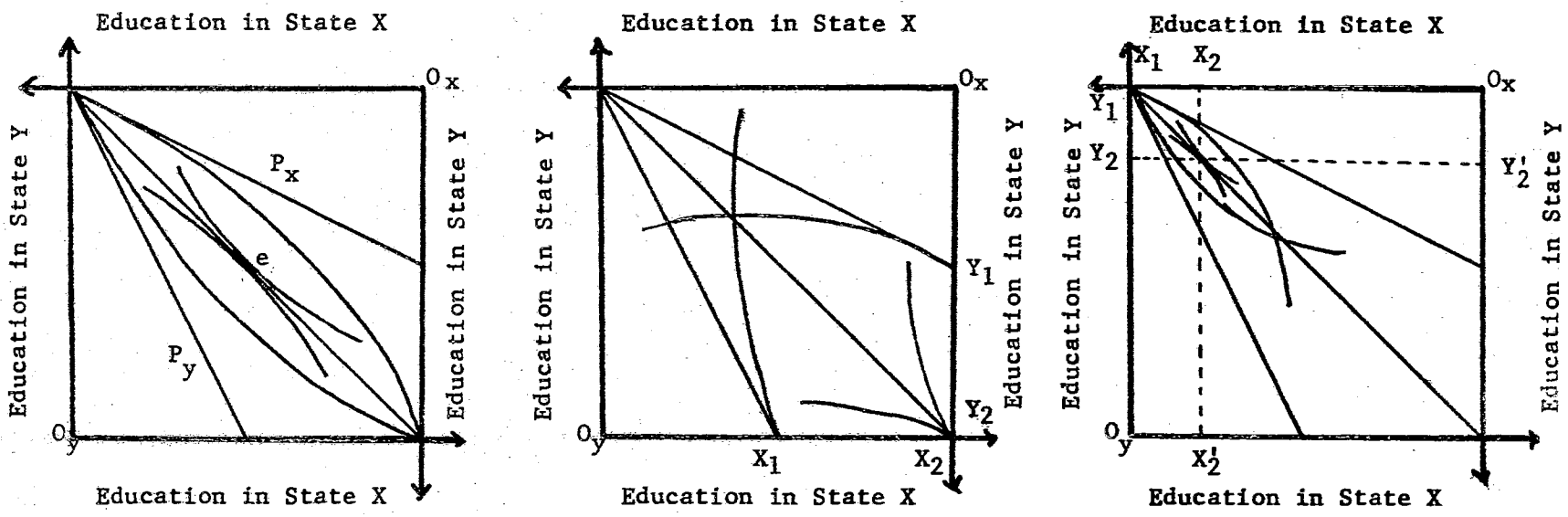
If the student's income available for education increases and the prices of the two units of education remain the same, the price line will move upward parallel to itself. On the other hand, a change in the price of education at one of the schools will result in the price line rotating about one of its intercepts. Most families probably have a limit on the amount of family income that can be budgeted for education. In this analysis the total credit hours that any particular student is allowed to enroll is also limited at any particular time.

Price Discrimination in Education

It can be shown that a transition from price discrimination between residents and nonresidents to a single price for both would increase consumer (student) welfare. If the trick of inverting student "X's" indifference curve is employed, diagrams (Figure 3) familiar to students of economics are formed.

In Figure 3a the typically cigar-shaped area indicates the possibility of gain for both consumers. If one price ratio were to prevail somewhere between the two ratios under price discrimination, both consumers would be on higher indifference curves at a point such as "e."

In this instance, assume that a student attempts to enroll in a fixed amount of education (the normal 16 hours



(a)
Symmetry or
Equal Preference

(b)
Greater Preference for
Out-of-State Education

(c)
Greater Preference for
Home State Education

Figure 3. Superimposed Indifference Maps for Education

per semester) in order to maximize satisfaction by minimizing time to complete requirements for the degree. The indifference curves show that students of both states have equal preference for education from either state. In this case, students will seek to purchase education which is cheaper. The student in State "Y" consumes all his education in State "Y;" and, similarly, the student in State "X" consumes all his in State "X." When prices are equal, each student can increase satisfaction by exchanging until they each acquire education equally from each state.

The optimal allocation of educational units has been reached; neither individual can increase satisfaction without decreasing the satisfaction of the other. This happens automatically through the market when the same fee is charged to the students; the fees, in effect, carry out the process of barter between the students. Thus, a transition from price discrimination to a single price for residents of different states increases consumer welfare. However, total education and total receipts from fees remain constant so that producer welfare is undiminished.

A case of a student who has a stronger preference for out-of-state education is depicted in Figure 3b. When prices are relatively higher for out-of-state education, those students who prefer out-of-state education restrict the quantity of education to the levels of X_1 and Y_1 (for simplicity, no education is assumed to be sought from the home state); but, when prices are equal, these students will acquire the normal

load of X_2 and Y_2 for a fixed amount of money spent on education. The consumption of education is increased to the normal load, which increases the total amount of education, consumer welfare and even perhaps, total fee receipts.

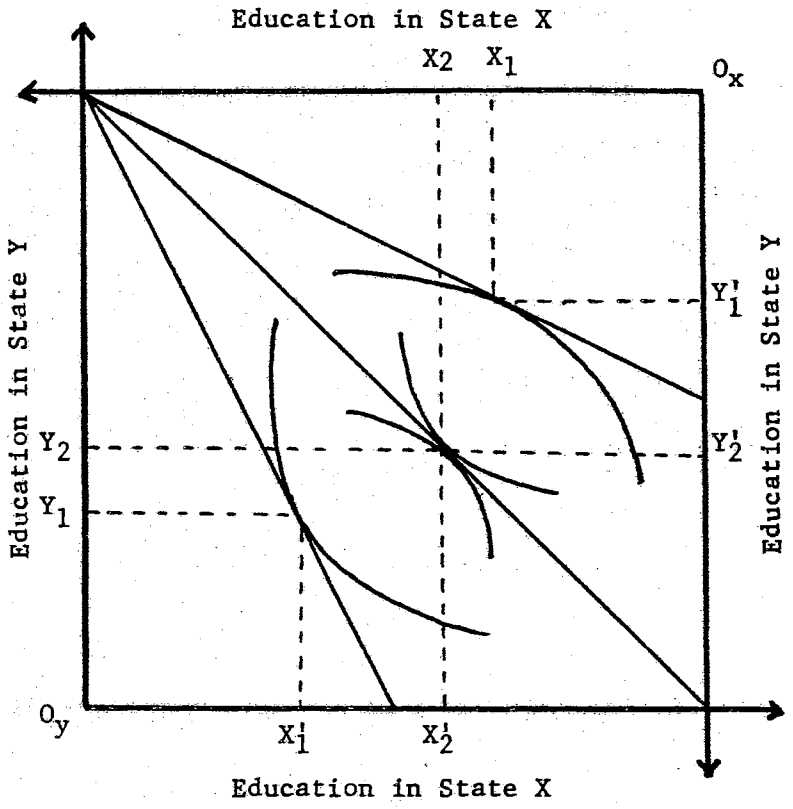
Stronger preference for resident education is shown in Figure 3c. When prices are relatively higher for out-of-state education, students obtain all of their education in their home state at the levels of X_1 and Y_1. But, when prices are equal, there is an opportunity for students to increase satisfaction by exchanging some resident instruction for out-of-state instruction. The resulting mixture of education is the quantity of Y_2 and X_2' for students residing in State Y and is X_2 and Y_2' for the student in State X. Even though the total amount of education obtained is not increased, there is an increase in consumer welfare with no decrease in fee receipts.

The analysis is more realistic when one replaces the individual indifference curves with a group indifference curve developed on the basis of an all or none choice of one or the other for each student. This curve reflects a composite or aggregate indifference of many students who each may have only the choice of attending one school or the other, not both simultaneously. Such a composite curve for education may be derived by using the technique employed by William A. Koivisto in constructing a group indifference curve.[17]

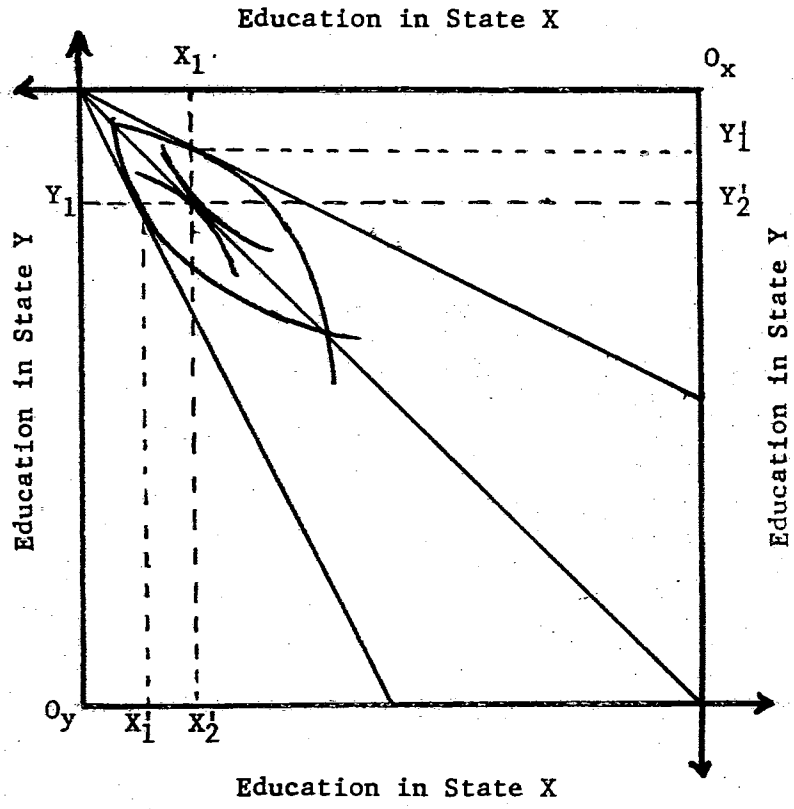
The maps of indifference curves, as depicted in Figure 4, are selected examples representing the most usual cases. The presence of a small proportion of the students in the state preferring resident education is shown in Figure 4a. Consumption of both out-of-state and resident education could be increased with a resulting increase in consumer welfare when fees are equated. The levels for students in State Y increase from Y_1 to Y_2 and from X'_1 to X'_2. Students in State X increase their levels from X_1 to X_2 and Y'_1 to Y'_2. The total amount of education sought is naturally increased since the price of education preferred by most of the students is being decreased relative to price of education in the home state. Whether or not total fee receipts change depends on the relative change in quantity relative to price changes. The case illustrated in Figure 4a indicates a likelihood of an increase in fee revenue at a decrease in revenue per unit.

Even when a large percentage of students prefer education in the home state, as shown in Figure 4b, there is an increase in total education consumed and fee receipts. This increase from X'_1 to X'_2 and from Y'_1 to Y'_2 is due to the relative decrease in out-of-state fees.

Generally, producer welfare is not significantly affected. It is likely that producer welfare is not diminished at the expense of significant increases in consumer welfare. There is some possibility of adverse effects on producer welfare when there is a predominant preference for out-of-state education.



(a) Small Proportion of Students Prefer Home-State Education



(a) Large Proportion of Students Prefer Home-State Education

Figure 4. Superimposed Group Indifference Maps for Education

Conclusions

The single price for resident and nonresident students suggested by this analysis seems to entail the provision of more education to maximize consumer satisfaction. If education faces increasing costs, a higher base price may be needed. The results of this analysis may therefore suggest an increase in resident tuition to ration total education. This is not as drastic a measure as it may first appear, and discriminatory pricing is reduced. James Buchanan is among the group who felt that an increase in fees for higher education, short of full-cost pricing, "might lead to a more efficient over-all allocation of resources."[18]

The Nonresident Fee, A Discriminatory Device

Discrimination exists in many communities. Some people are subjected to social discrimination because they live on the other side of the tracks. They are not entitled to social intercourse with the elite because they do not possess the supposedly pecuniary affluence. The real reason for discrimination is disguised by geographic location.

When one observes the practice of charging a nonresident fee for higher education, he finds that the nonresident student is discriminated against because of his geographic origin. The fee is merely the means or vehicle for accomplishing the desired differentiation. In the case of pure price

discrimination, price is the discriminatory device for maximizing some quantity, not to differentiate in order to restrict or minimize some quantity.

In discriminating in higher education on the basis of geographic location, one should be cognizant of the relationship between the demand for education and distance. The demand for higher education is influenced by distance between origin of the student and the educational institution.

State education commissions have conducted studies which indicate that the institutions within the state attract students according to distance. The analysis of resident enrollment by counties and institution within the state suggests that demand for higher education is closely associated with distance. One would suspect that a similar analysis based on states would be indeterminate or interrupted by the state boundaries, since a nonresident fee is involved. Preliminary investigation suggests that distance is a strong factor, even when migration is subject to a penalty. It seems that if distance is a significant factor, it is not desirable to restrict the acquiring of education on a geographic basis. It does not make sense to allow an "iron curtain" in education to exist in this country.

Let us briefly observe what occurs by using a hypothetical example. Suppose that two schools are located as depicted in Figure 5. The state boundary is also indicated. If distance is an important influence in choosing a college, the individual living at location X should be indifferent

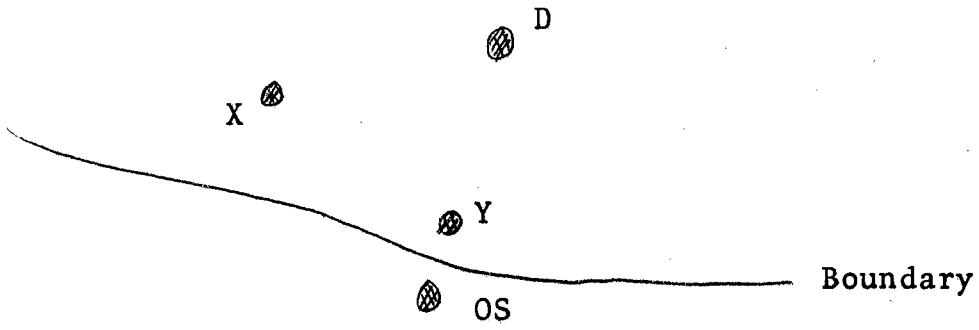


Figure 5. A Hypothetical Example of Institutional Location

(other things being equal) to choosing his resident institution at location D and the out-of-state institution located at OS. Yet, a tariff barrier might be instrumental in influencing a choice to attend the school at D. What if he prefers the course of instruction at the institution located at OS? Furthermore, if he resides at point Y, how strong an influence is distance over the higher or additional fee at the institution at OS?

It seems that institutions of higher learning should have some responsibilities to their local and surrounding community, even though there might be a political boundary. Furthermore, it seems that nonresident students, on the whole, are discriminated against in degrees rather than being segregated into one large category. Proximity establishes varying degrees of discrimination. Those students located close to state borders, especially where a neighboring state's institution is also close to the border, must pay the same price as those who live in states located across the nation. The students in neighboring states derive a demand that is

associated with these relatively shorter distances or proximity and not necessarily with financial ability.

It might appear at first that this association ought to enable an institution to charge a higher fee to students of neighboring states in order to achieve perfect discrimination. One must be reminded, however, that the suppliers are not attempting to maximize utilization by the nonresident students, but he is attempting to control their utilization. At the same time, suppliers implicitly feel their responsibility for furnishing education to the surrounding communities.

One must not overlook the case of discrimination as a desirable practice. The concept of the two-part tariff is applied to the nonresident fee. A pricing structure which would make users pay for each unit consumed on a per-unit basis in addition to a basic or fixed charge is referred to as a two-part tariff.[19] Usually the per-unit fee represents the marginal cost for each unit supplied. The marginal cost in most instances would be a positive amount. In the case of a bridge, the marginal cost is zero. This rule works satisfactorily on a type of service in which most potential customers will not be deterred from making some use on the basis of the standby charge; otherwise, the desired results are not attained. If the service is of such type that the quantities which various persons use differ widely, a heavy standby charge may be regarded as inequitable, since the average cost for those making relatively little use of the service is high.

This method is a simplified version of perfect discrimination of rates whereby charges on each user would be adjusted to obtain the entire amount that the person would pay for the service and still use it.

A parallel exists between the two-part tariff and the charging of a nonresident fee. The fact that all students pay a basic fixed charge with the nonresident paying an additional fee, perhaps at some sort of a marginal cost rate, on the surface appears as a two-part tariff in the pricing of education. It is hard to believe that all the greater benefits accrue only to the nonresident students. In this case, the additional charge takes the form of a tax on something other than the consumption of the service. Generally, resident and nonresident students consume the same number of semester hours for the normal load. Thus, the practice of consuming additional units is not applicable.

W. A. Lewis indicated that the two-part tariff is merely an alternative to price discrimination. The workability of the plan depends on the assumption that price discrimination is practicable. Furthermore, it is made clear that the two-part tariff is an alternative plan where varying charges are based on some rateable ability to pay and implies the identification of different consumer groups based on their amounts of consumption.[20]

While discrimination may have substantial advantages from the standpoint of resource allocation, it is generally regarded as inequitable among the various customers because

some persons would be paying more than others for the same service. Likewise, the establishment of a system of perfectly discriminatory rates is administratively difficult.

Pricing of Education Purchased by Nonresidents

Restating the Ability-to-Pay Principle

Two general approaches to the problem of equity in the field of tax burdens are usually encountered in the study of public finance. These approaches are essentially alternatives to differentiating circumstances and determining appropriate treatment of persons in varying circumstances. One approach is based on benefit received and proration of the burden accordingly. The other approach is the concept that has some relevance to this study. The ability-to-pay approach tends to establish tax burdens on the basis of the degree of taxpaying ability possessed by various persons. John Due includes the ability principle under equity consideration and recognizes ability as follows:

> By "ability," in present-day usage, is meant simply economic well-being or the overall level of living enjoyed by taxpayers. The principle that accepted standards of equity require that persons who have the same ability to pay should pay equal amounts of taxes and that persons who have greater ability should pay more to the government than those who are less well off is today almost universally accepted.[21]

Furthermore, Due states:

> The present day justification, for the ability principle is simply the fact that, from all

> indications, it is in accord with consensus of attitudes toward equity in the distribution of real income and of tax burden.[22]

This principle has been restated in order to apply it to the realm of education and the out-of-state fee.

There are three measures of economic well-being: income, personal wealth, and amount spent. Income is the measure that is most relevant to this study. There seems to be some idea that the pattern of the migrating student may reflect, or is related to, the income level of his family. It is logical to associate to some extent the distance a student travels for his education and the ability to pay for his education. Generally, one would suspect the farther one is displaced, the greater the ability. There is no strong justification to say that it is consistently related to miles; in fact, state boundaries may not even be a good measure. Proximity and population density may be strong factors responsible for the attendance of nonresident students at various institutions.

It does not seem equitable, therefore, to penalize students by charging an additional fee because they live across a geographic boundary. Family income is the relevant criterion for establishing a varying rate. In many cases, students attend school at institutions in neighboring states. Usually the school is located close to the state border, and there is some population concentration in the adjoining state. It is natural and may be even more economical for students to attend school in the adjacent state. If those nonresident

students from contiguous states come because it is advantageous financially, they should be treated differently from those who may travel from several states away, which may reflect an even greater financial ability.

In concluding, there may be evidence to support charging a nonresident fee in cases in which ability to pay is closely associated with the displacement of nonresident students. In other words, the same fee should not be charged to all nonresidents. At one time Seymour Harris wrote:

> An ideal system might be a multi-price system: prices to be adjusted according to need and ability. The able and needy student should pay nothing, and even receive subsidies to cover living costs; the wealthy and lazy or mediocre student (and the wealthy and able) should pay the full costs of his education.[23]

Professor Harris has altered the position cited as it pertains to full cost pricing. His proposal, however, may be applicable to the out-of-state charge and the nonresident student.

Marginal Cost Principle and Pricing as It Applies to the Nonresident Student

The optimum level of prices constitutes resources being allocated most efficiently. This optimum level of prices means that marginal costs equal prices. When supply of a commodity is lacking, price or average revenue is above marginal cost with consumers willing to purchase additional units. The cost of supplying an additional unit is less than the price consumers are willing to pay; and, as a result, total consumer satisfaction could be increased.

In the atmosphere of perfect competition, there is a tendency for forces to cause output to be at a level where marginal cost is equal to average revenue or price. In the case of a monopoly or a government enterprise, there is no automatic tendency for output to be extended adequately. Output is restricted to a level where marginal cost is less than price.

Establishing a price by policy which would be equal to marginal cost poses little difficulty for increasing cost of a monopolistic firm. The policy for treating decreasing cost firms is, however, a difficult problem. In order for marginal cost to be equal to price, in the case of decreasing costs, the producer will be producing an output where marginal cost is below average cost; thus, a loss is incurred. This loss may be offset by a subsidy or taxation. The following two figures are typical displays of these two conditions of increasing and decreasing costs. Linear costs are assumed for ease of presentation.

Under conditions of monopoly, the price of the consumer would be set at P with a cost of C, as shown in Figure 6; thus, a profit of PCP'C'. Output is obviously restricted, for at the price P consumers are willing to pay more for an additional unit than the cost to produce it. This restriction results in an inefficient allocation of resources. Public policy should force a firm to produce at an optimal output where average revenue equals marginal cost, which results in a larger output,

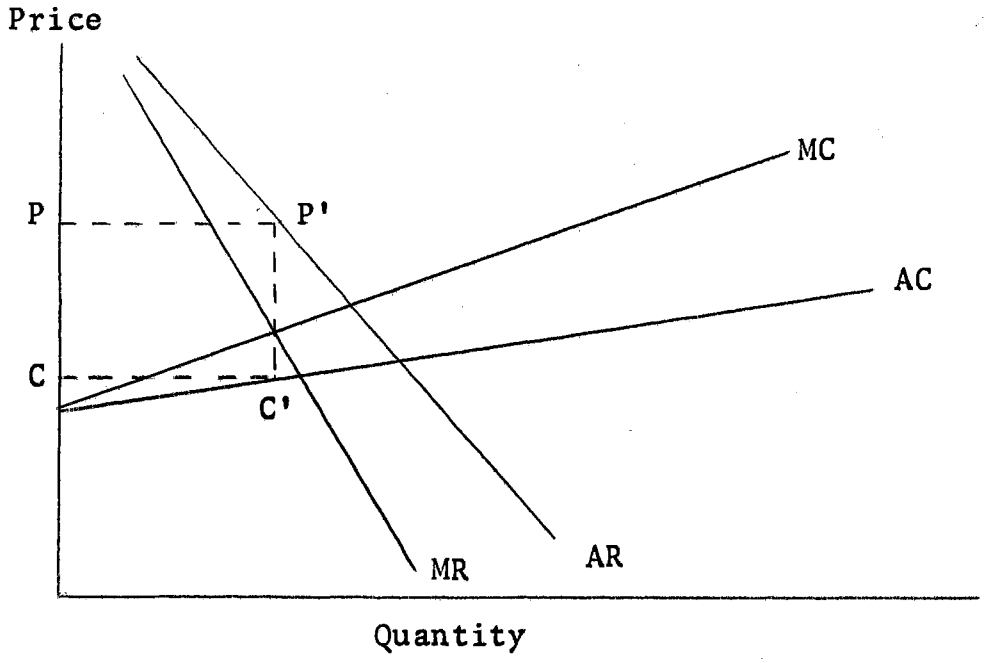


Figure 6. Marginal Cost Pricing and the Increasing Cost Firm

a lower price, and the reduction of monopolistic profits. The producer's costs are recovered; that is, there is no loss incurred.

Establishing output where marginal cost equals marginal revenue, in the case of decreasing costs, also results in a restriction of output indicated at point K in Figure 7. When output is forced to the point where marginal cost equals average revenue, point E, a loss is incurred, for marginal cost is less than average cost. As part of public policy, the loss should be compensated by a subsidy or taxation.

Optimum allocation and use of resources and, thus, optimum standards of living, can be accomplished by applying the principle of marginal cost pricing, provided that the following three requirements are met:

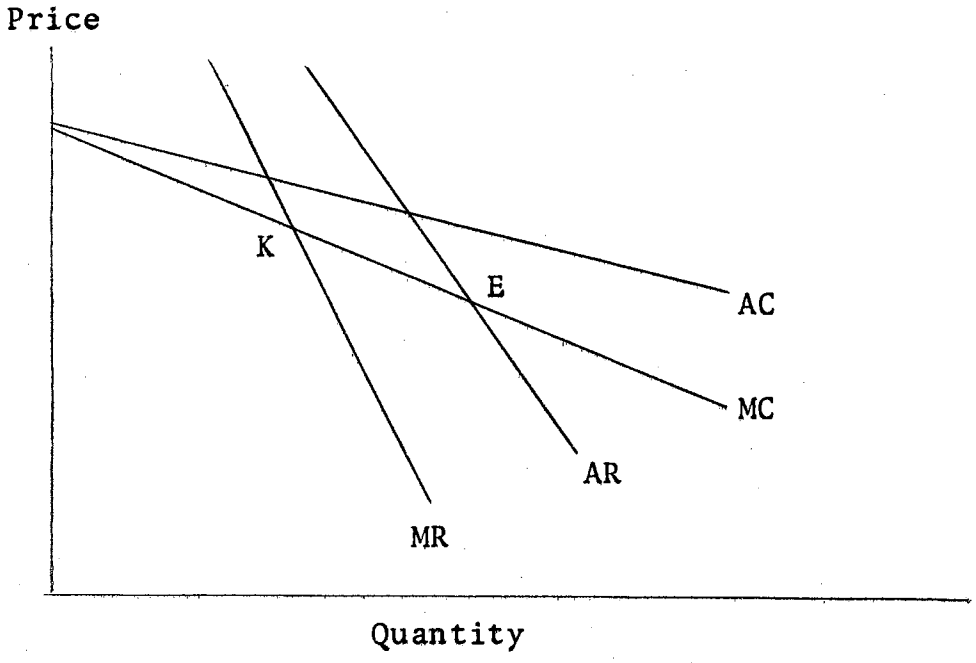


Figure 7. Marginal Cost Pricing and the Decreasing Cost Firm

1. The marginal monetary costs of producing the service cover all marginal social costs.

2. No indirect community benefits accrue.

3. Prices are equal to marginal costs in other sectors of the economy.

The second requirement is most relevant to studying the pricing of education. The use of the marginal cost rule is complicated if benefits accrue to society in addition to the benefits which accrue to the individual. When marginal cost pricing results in restriction of production below optimum, prices should be set below marginal cost in order to insure greater use.

If the services of higher education are to be charged for at all, the indirect benefits justify the setting of

prices below marginal cost and the covering of the remaining cost by taxation. The exact extent to which price should be set below average cost can be determined only on the basis of an estimate of the significance of the indirect benefits.

In the case of the nonresident students, there may be a strong argument for establishing that there are no indirect benefits to the community in the state in which the nonresident acquires his education. Of course, some of the more obvious indirect benefits will tend to accrue to the community where the nonresident resides after graduation. Most people will agree that this argument reflects strong provincial feelings. However, for the nation as a whole, the argument is weak.

The second requirement supports the charging of a nonresident fee below marginal cost on the same basis as established in the case of services of higher education in general. This then seems to be a basis for eliminating the existing differences in resident and nonresident fees, even if one assumes there is a marginal cost in providing education to nonresidents.

It may seem that the charging of a nonresident fee is analogous to the case of charging a toll for crossing a bridge, which has a marginal cost of zero. A. M. Henderson clearly presents the case against charging a toll for crossing a bridge.

> A bridge costs a certain sum to build and the cost is not thereafter affected by the number of times it is used. The marginal cost is nothing and the

> average cost simply represents the spreading of the fixed cost over a variable number of users. . . . Any toll charged will prevent the bridge being used on some occasions. But the cost of using a bridge, once it is built, is nothing and the loss of those people who are prevented from crossing it, is a loss which is not compensated by a gain to anyone else. The best use of resources available is then obtained if everyone who wants to cross the bridge does so, and a toll prevents this.[24]

In providing education for the nonresident, marginal cost is probably not continuously zero as it was in the case of the bridge. It is likely that the marginal cost curve is reflected by a stair-step pattern as shown in Figure 8.

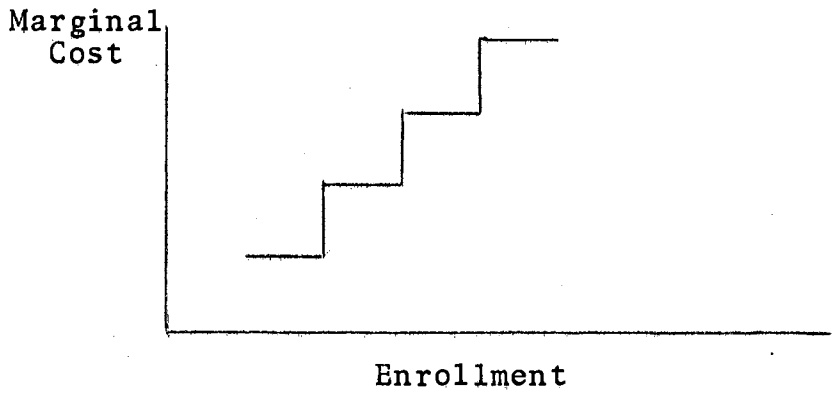


Figure 8. A Theoretical Marginal Cost Curve Applicable to the Nonresident Enrollment

There is no additional cost in providing education for nonresident students as long as the accumulation of nonresident students is not great enough to create the need for another section. The marginal cost rises sharply each time an additional section is created. It then continues to be flat as long as marginal cost is zero.

If marginal cost is not zero, it is worthwhile to emphasize that indirect benefits accrue to the society. These

benefits support pricing education, even to nonresidents, below marginal cost in order to develop more minds.

Professor Seymour Harris presents a hypothetical case which is concerned with the producer's costs which suggests that the charging of an out-of-state fee is not clearly or entirely justified on a cost basis.

> The issue is, not average, but marginal costs. When, for example, marginal costs are less [The logic seems to suggest the word "less" should be "more."] than, say, $500 today for large institutions, a tuition of $500 means a loss of revenue. But the institution may gain on those who enter paying say, $500 where marginal costs are, say, $400. Hence the net gain of the higher fees is measured by the excess of fees over additional costs of those in residence, against the losses resulting from the nonentries who might have paid more than marginal costs if fees were lower.[25]

Summary

The thinking of many educators is being directed toward realizing the importance and need for more teaching of economic understanding in high schools as well as colleges. The lack of economic understanding may be partially responsible for the limited use of economic techniques in solving problems in education and other areas. The increasing demand for education by our society, to some extent, has demanded problem solving based on economic analysis. Recently, an increasing number of studies pertaining to problems facing educators have been approached by economists and/or others using economic analyses.

Education is a product which can be classified as a consumer good or an investment good; recently, the investment aspects of education have been emphasized. Education, however, can be uniquely included in the class of interstate commodities, because the charging of a nonresident surcharge identifies it as a commodity subject to an interstate tariff.

Unlike the conventional tariff, which places a penalty on importing goods, the nonresident fee acts as a tariff on exportation of a good. Most students of economics are aware of the reduction of consumer welfare which results from the use of tariffs. Charging the nonresident students an additional fee disguises the surcharge so that it is not easily recognized as an "interstate tariff."

The nonresident fee acts much like an excise tax and has characteristics similar to the use tax. The indifference curve analysis suggests that equal fees should be charged to both resident and nonresident students in order to eliminate the discriminatory aspects of the nonresident fees and to increase satisfaction.

Certain aspects of pricing education for nonresident students may be justified on the basis of the ability to pay. The usual policies suggested by the classical marginal pricing analyses do not strictly apply; therefore, establishing a nonresident fee at even as high as the marginal cost level is not in the best interest of society. Because of the indirect community benefits which accrue as a result of

education, the marginal cost of providing education for nonresidents resembles the toll charges for a bridge; in both instances, the marginal cost is close to zero. The issue is not, theoretically, one of average cost but one of marginal cost.

Footnotes

[1]Seymour E. Harris, "Scholarships and Choice of College," Higher Education: Resources and Finance (New York, 1962), pp. 176-187.

[2]Charles S. Benson, Perspectives on the Economics of Education (Boston, 1963), p. 13 citing Theodore W. Schultz, "Investment in Human Capital," American Economic Review, LI (March, 1961), pp. 1-16.

[3]Theodore W. Schultz, The Economic Value of Education (New York, 1963), p. 37.

[4]John Vaizey, The Economics of Education (London, 1962), p. 26.

[5]Fritz Machlup, The Production and Distribution of Knowledge in the United States (Princeton, 1962), pp. 361-362.

[6]Vernon A. Mund, Government and Business (New York, 1960), p. 20.

[7]Vaizey, p. 113.

[8]John F. Due, Government Finance (Homewood, Illinois, 1959), p. 88.

[9]Western Interstate Commission for Higher Education (WICHE), Out-of-State Students in the West's Public Colleges and Universities, 1962, p. 1.

[10]Ibid., p. 9.

[11]T. de Scitovszky, "A Reconsideration of the Theory of Tariffs," Review of Economic Studies, IX (1942), p. 109.

[12]WICHE, Out-of-State Students, p. 7.

[13]Adam Smith, Wealth of Nations (New York, 1937), p. 625.

[14]Henry C. Simons, "Some Reflections on Syndicalism," Economic Policy for a Free Society (Chicago, 1948), p. 123.

[15]C. R. Whittlesey, "Excise Taxes as a Substitute for Tariffs," American Economic Review (December, 1937), p. 679.

[16]WICHE, Out-of-State Students, p. 14.

[17]W. A. Koivisto, Principles and Problems of Modern Economics (New York, 1957), p. 593.

[18]James M. Buchanan, The Public Finances (Homewood, Illinois, 1960), p. 393.

[19]W. A. Lewis, "The Two-Part Tariff," Economica (August, 1941), pp. 262-263.

[20]Ibid., p. 262.

[21]Due, Government Finance, pp. 109-110.

[22]Ibid., p. 111.

[23]Harris, Higher Education Resources, p. 124, citing Harris, How Shall We Pay for Education? (1948), pp. 199-201.

[24]A. M. Henderson, "The Pricing of Public Utility Undertakings," The Manchester School, XV (1947), p. 225.

[25]Harris, Higher Education Resources, p. 67.

CHAPTER III

GENERAL ASPECTS OF MIGRATION

The purpose of this chapter is to introduce the general aspects of student migration in colleges and universities and to outline the conditions pertaining to enrollment of nonresident students.

Explanation of Student Migration

The determination of all of the reasons that students migrate to other states for their education would entail a comprehensive study too expensive and time consuming for an individual researcher. Even if such a study were conducted, the conclusions would be questionable because of the apparent and inherent nonresponse bias. The list of explanations given here for student migration, in all likelihood, would be similar to or corroborate the reasons which would be discovered through a more comprehensive study. Therefore, the various factors listed will be assumed as the reasons that students migrate out of state for their education.

WICHE has summarized some of the reasons students migrate by giving the following explanations:

> . . . Some (students) want to study in programs not offered in their home states; others want to attend college where their parents were educated;

> still others wish to enroll in a church-related college, or one they consider distinguishing in a specific field. Many simply want to learn from new sights and new people or just to get away from home. Many others are not "residents" where they attend college only because their families have not lived there long enough to earn legal resident status. All of these reasons reflect the trend toward increasing mobility among the American people, who travel and move their homes in greater numbers than ever before.[1]

The Council of State Governments lists another factor influencing the pattern of migration which should be identified and included in the list of factors explaining migration. The Council states:

> One factor which influences the pattern of student movement out-of-state is institutional location.[2]

The Council recognized further the importance of institutional location at the undergraduate level:

> The influence of proximity of institutions and relatively small differentials in tuition rates on the movement of students across state lines probably is more important at the undergraduate level than at the graduate level.[3]

Similar observations of student migration were made by J. S. Saundle.

> . . . Sometimes, it may be for educational reasons. Again, it may be due to the proximity of the college. At another time, it may be to study under some particular professor to get a certain point of view. Then, too, certain students might want to go to a particular school because of cultural, social, economic, or family ties. Generally speaking, many students like to go away from their home state to get an education for the prestige it brings them. It may be in keeping with the statement: "A prophet is not without honour, save in his own country."[4]

Other factors are total cost of education and the relative level of the resident fee compared to the nonresident

fees. Those states which have a higher proportion of private institutions generally tend to have relatively higher tuition. Some students discover that it is advantageous financially for them to migrate to a state characterized by a predominantly public higher educational system. In order to take advantage of a nonresident fee which is significantly lower than the resident fee, students migrate to such a state. In connection with this is the tendency for students to migrate to a particular area where they feel that living costs are somewhat lower than in their home state. This is true especially where distances do not allow them to commute, and where they must live away from home in any case.

Another factor in student migration is academic admission requirements. Some students are unable to satisfy the admission requirements in their home state. Consequently, they seek enrollment in schools of other states where the admission requirements may not be as restrictive. Scholarships, based on academic or athletic performance, are also responsible for some student migration.

Limiting Migration

Three methods are usually employed to limit participation of out-of-state students in state institutions of higher learning. Residence classification, admission policies, and policies determining nonresident tuition are utilized as means of restricting students.

The definition of residence and the criteria used in determining a student's residence vary greatly from one institution to another. Evidence used in establishing resident status ranges from such factors as length of residence in the state and employment pursuit in the state to such factors in age and resident status of the spouse. Waivers are granted in some instances for military personnel, public school teachers, and graduate students.

Some students, who are classified as nonresident, are allowed to enter as residents. This special consideration varies among the institutions. At times the children of alumni or children of faculty are given preferential treatment in regard to admission and fees.

Some institutions utilize direct quotas based on a percentage of the student body to determine the number of out-of-state students who may enter. Some schools practice a policy of admitting only those out-of-state students who satisfy higher academic standards than those required of their resident students. This practice of admitting the better out-of-state students may result in a student body in which a greater proportion of the upper strata is nonresident students.

Most public institutions charge a nonresident fee, which is a method of restricting students. In fact, all land-grant colleges and state universities in the fifty states, except the University of Hawaii, charge nonresident tuition. Nonresident tuition, like student residence, is established or

determined in various ways. Some tuition policies attempt to establish the nonresident fee on the basis of cost, even varying the fee for the different colleges of the university. In some cases, the nonresident fee is not charged in the summer session; in other instances, the amount of the nonresident fee is influenced by the charges of the institutions in neighboring states.

Some of the reasons for establishing nonresident tuition are obvious:

> . . . to equalize the cost of instruction between parents who live in the area which partially supports the college by taxes, and . . . parents who live outside the geographic limits and are thereby exempt from such taxes.[5]

> The increase in nonresident fee by states may be for the purpose of getting additional money with which to help run their state schools.[6]

The three types of limiting policies outlined previously are interrelated as follows:

> They may be designed so that one policy reinforces another or so that one mitigates against the effect of another. For example, the policy to establish a high nonresident tuition differential may be offset, at least in part, by a less restrictive definition of residence. An institutions's approach cannot be explained in terms of tuition differentials, admission quotas, or definitions of residency, as isolated factors, but only as a combination of policies in these three areas.[7]

These three policies indicate that educators and legislators are cognizant of the potential contributions that nonresident students may make and are appreciative of the national and international character of the educational enterprise.

Recognition of the Desire and Need for Migration

Various opinions set forth the need for a mixed student body. One writer has explained:

> . . . , our states are dependent upon one another for their supply of students with varied backgrounds and experiences, so that each campus in the nation may avoid a narrow provincialism.[8]

WICHE has stressed that this mixture is important for the undergraduate years as well as for the graduate years. Private institutions actively recruit to insure a favorable cross-sectioning of students. It has been claimed:

> Institutions of higher education generally pride themselves on having a student body from different geographic origins.[9]

The Council of State Governments has commented:

> It is desirable that college students have the opportunity to know students from all sections of the United States and from foreign lands. . . . the stimulation of the diverse student body promotes intellectual inquiry. . . . limiting enrollment to residents of a single state fosters a provincialism which is inconsistent with the nature and goals of higher education.[10]

The Coordinating Committee for Higher Education in Wisconsin has stated:

> . . . as for out-of-state tuition charges, the coordinating committee recognizes the educational and social values to be derived from daily association between students from Wisconsin and those from other States and nations and is therefore of the opinion that it would be unwise for the State of Wisconsin to establish charges so high as to discourage the free interchange of students between Wisconsin and other states and nations.[11]

It is most important to recognize that the high degree of mobility of the American people is a reflection, in part,

of the mobility of college students. An address to the Association of Governing Boards of State Universities and Allied Institutions included the following comment:

> . . . , the pressures have now increased them [nonresident fees] to a point where they have now become truly significant with respect to this very interesting characteristic of our institutions of higher education, namely, a social mobility which is also a characteristic of our American society. Our American society is in fact the only one in the world which has this high degree of social fluidity or mobility which is characteristic of all sections of our country. Families think nothing of moving two or three times in the course of a lifetime, and of course the children in the families spread all over.[12]

Another writer has emphasized the importance of mobility for the individual and the nation when he stated:

> A student may receive and use his education in different areas from the one where his parents reside, and the national benefits from his education will probably be diffused throughout the entire society. Only if the greatest mobility of educational resources is allowed can students obtain the greatest returns for themselves and the nation.[13]

There are advantages in promoting migration. In addition to the educational value, migration makes it possible for schools to limit the specialized programs offered in each state without depriving residents of any state of the opportunity to pursue specialized programs. The high costs of instruction of specialized courses make it prohibitively expensive to provide a complete range of professional and specialized programs within each state. Instead, each state is able to develop a strong specialized program in particular fields and rely upon other states to develop other specialized

programs. Through this combination and cooperation, all benefit by such educational opportunities.

The Committee on Institutional Cooperation, formed in 1958 by eleven Midwest Universities, has announced plans to create an "Academic Common Market" designed to:

> . . . enable students to move freely from one school to the other to make use of libraries, laboratories, and teachers in their fields of study. . . . One feature of the plan is to allow the different universities to specialize in certain areas through concentration of resources.[14]

Schools under the auspices of WICHE plan to launch a similar program in 1964. The plan will allow students in their respective states to enroll in specialized programs.[15]

There are two other values which a state derives from enrolling nonresident students. The first pertains to nonresident graduate students who are granted assistantships; "the economic benefits of their services to the institutions may exceed the cost of their education."[16] Secondly, the nonresident students may remain and contribute during many of their productive years to the social and economic environment of the state. One study concluded:

> . . . we made a study several years ago to see what percent of the out-of-state students stayed in the state to teach (those in teacher education). We found 84 per cent of those who were graduated stayed. This was slightly higher than for resident students.[17]

It is recognized that, in the case of teacher education, most nonresident students are seeking their teacher training in the state in which they plan to remain; and they are attempting

to acquire their teaching certificate for that state. Consequently, they teach in the state in which they received their education.

Evidence of Migration in the United States

A comprehensive picture of the nationwide pattern of student migration is created in this section. A detailed analysis of student enrollment is made from the data published in 1958 by the American Association of Collegiate Registrars.

An Aggregate Representation of Migration

Various charts are constructed which are based on a classification of students by type of institution--public or private. The first chart shows the enrollment of students in public institutions; the second shows the enrollment of students in private institutions. Each chart is divided into three parts which display the enrollment by types of students--professional, graduate, and undergraduate. The percentage of students enrolled in the home state, those enrolled outside the home state, and students from other countries are also shown for the various types of students.[18]

In Figure 9 and Figure 10 one observes that approximately 11 per cent of the undergraduate students attending public institutions were enrolled outside their home state, as compared with almost 30 per cent in private institutions. The percentages can be compared with the 17 per cent for all institutions.[19] Almost half of the students enrolled in

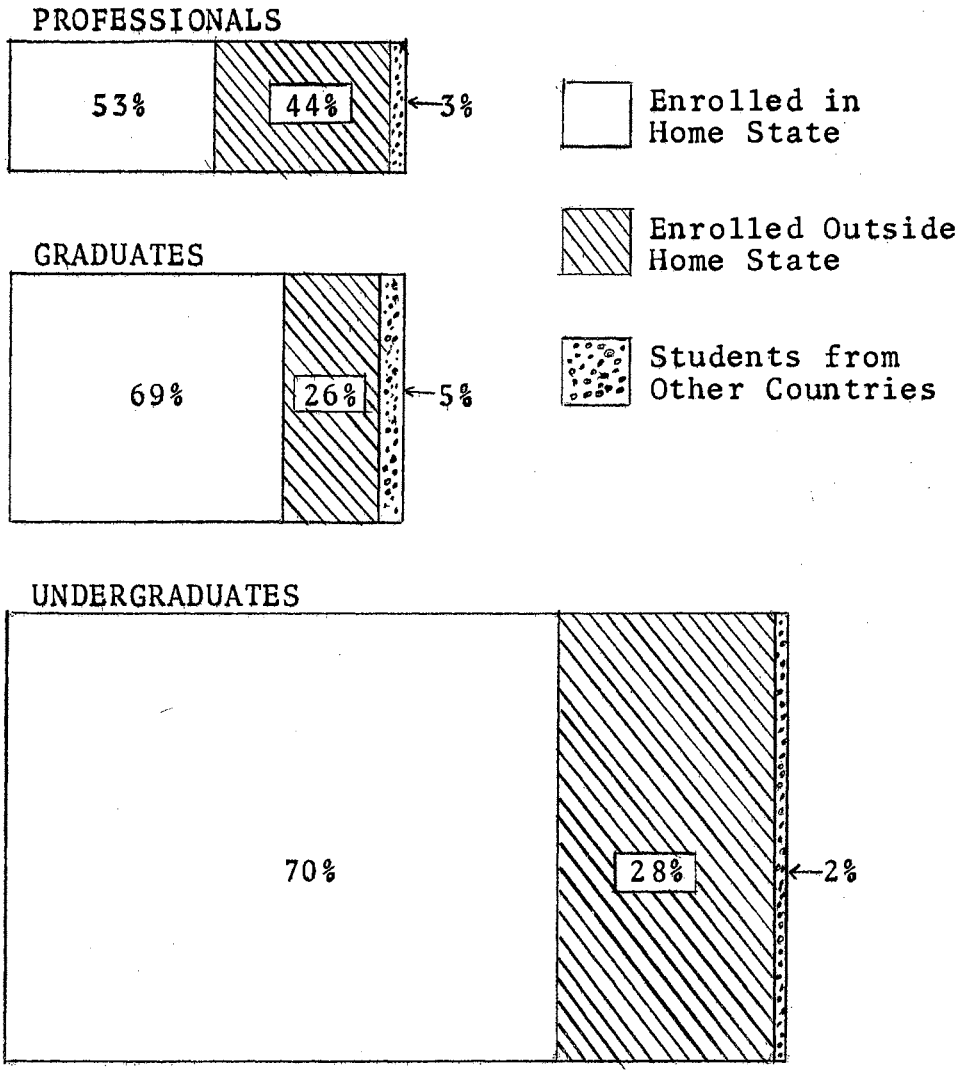


Figure 9. Home State and Migration of College Students in Private Institutions, Fall 1958. (From Home State and Migration of American College Students, Fall 1958, Tables 6, 9, and 12.)

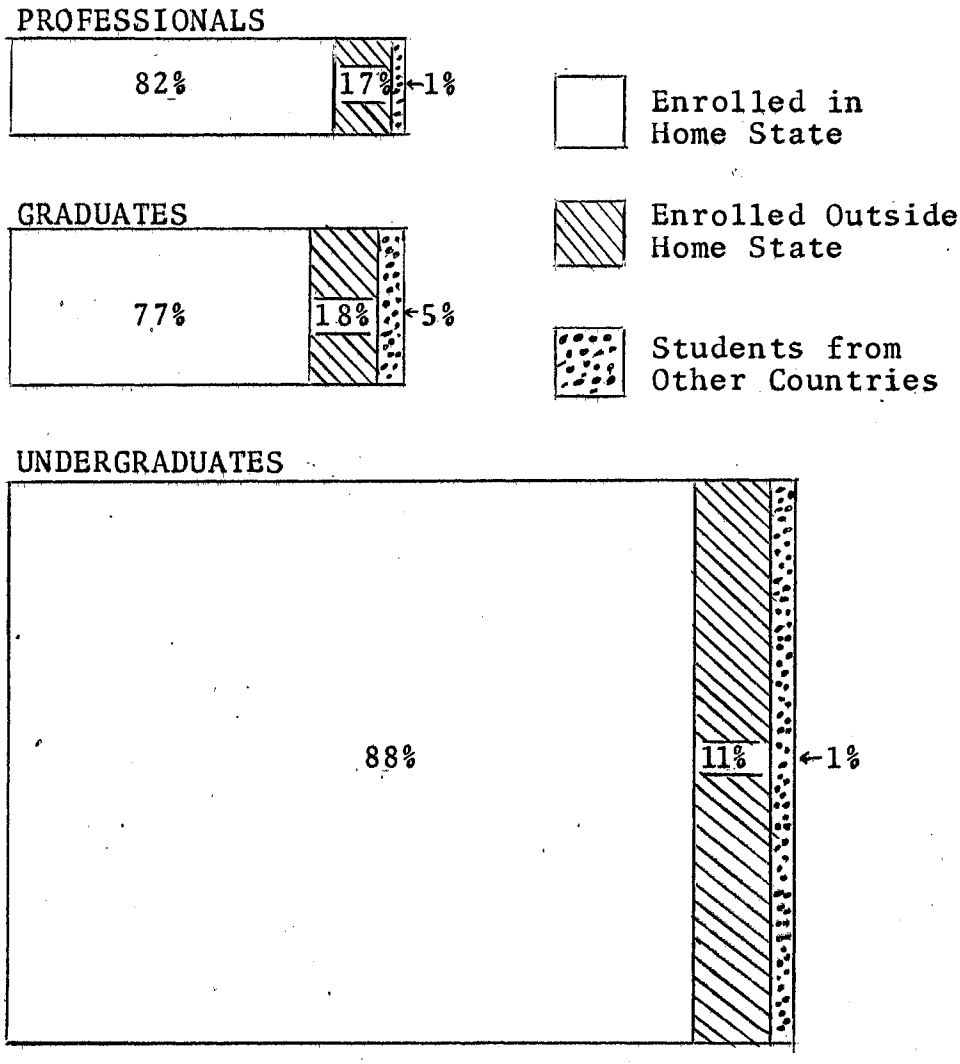


Figure 10. Home State and Migration of College Students in Public Institutions, Fall 1958. (From Home State and Migration of American College Students, Fall 1958, Tables 7, 10, and 13.)

professional programs in private institutions were comprised of nonresident students. Only a little over 17 per cent of the professional students in public institutions came from outside the home state. The difference in graduate enrollment in private and in public institutions was not as striking.

Figure 11 illustrates migration of undergraduate college students from contiguous states as a percentage of total undergraduate nonresident students by type of institution--private and public. The number of out-of-state students enrolled in private institutions was a little over twice the number enrolled in public institutions. In private institutions a slightly greater percentage of nonresident students came from contiguous states than in public institutions; the percentage was roughly one-half in both instances.

The enrollment of first-time undergraduate students in all institutions, as shown in Figure 12, was compared on the basis of public and private schools. The proportion of nonresident students enrolled in private institutions was significantly greater than the proportion of the nonresident students enrolled in public institutions. The percentages were almost the same as in the case of all undergraduates (Figures 9 and 10).

Figure 13 compares enrollments in liberal arts colleges and universities. The bar chart is presented to show the enrollment of first-time undergraduate students. Approximately one-fifth of the students enrolled in universities were from

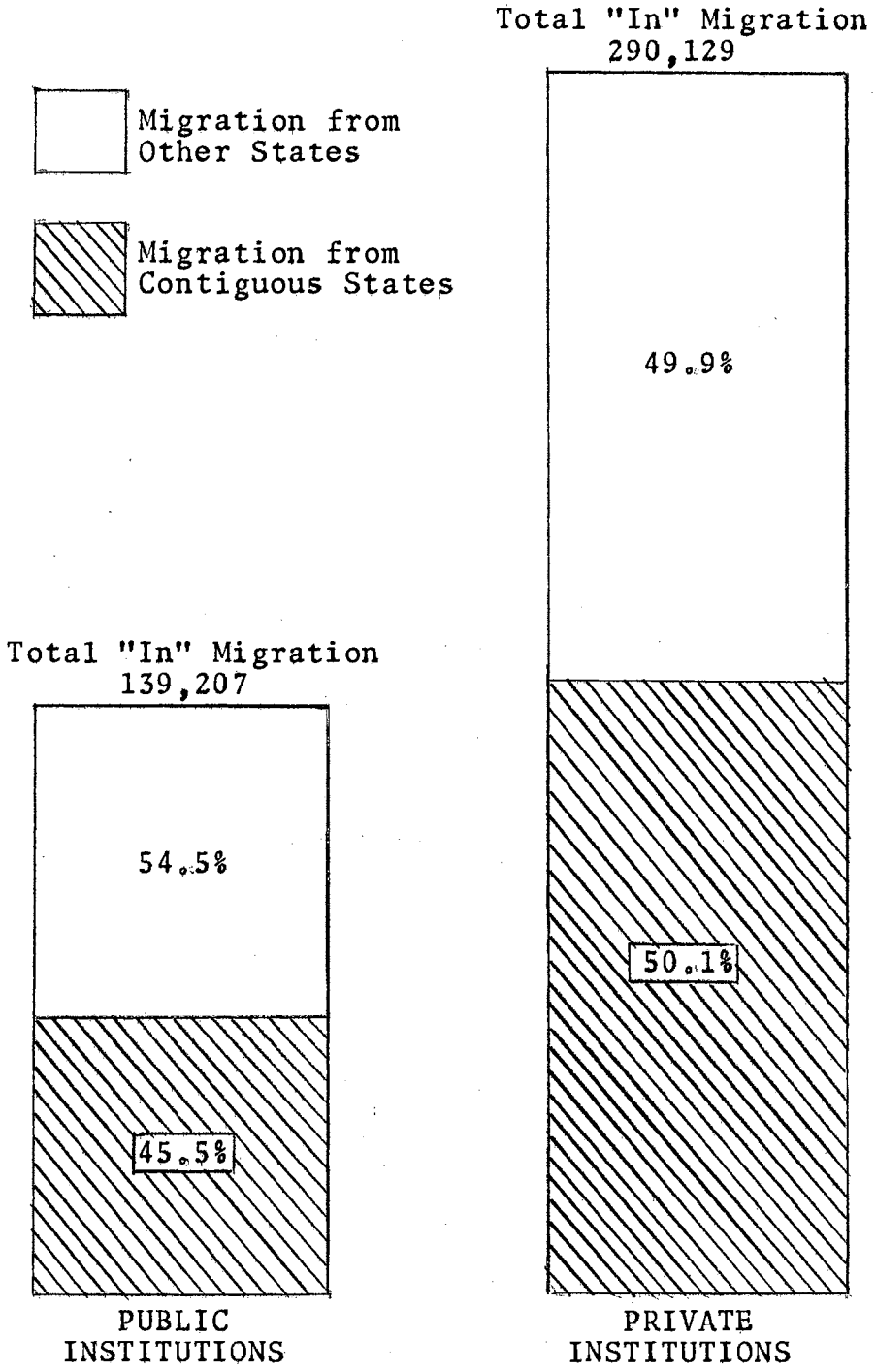


Figure 11. Migration of Undergraduate Students from Contiguous States as a Percent of Total Migration by Type of Institution, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables 6 and 7.)

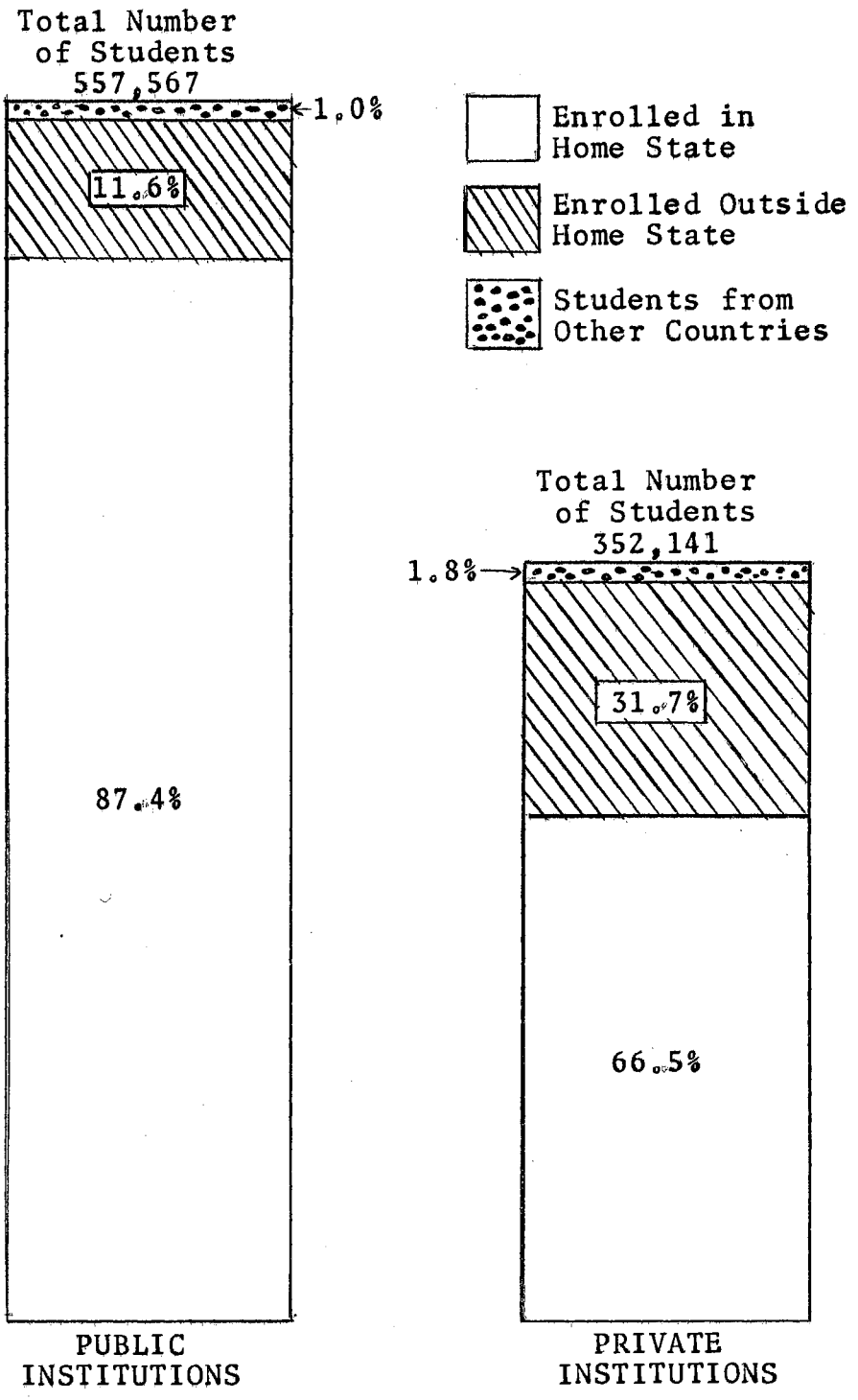


Figure 12. Home State and Migration of First-Time Undergraduate Students in Private and Public Institutions, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables 16 and 17.)

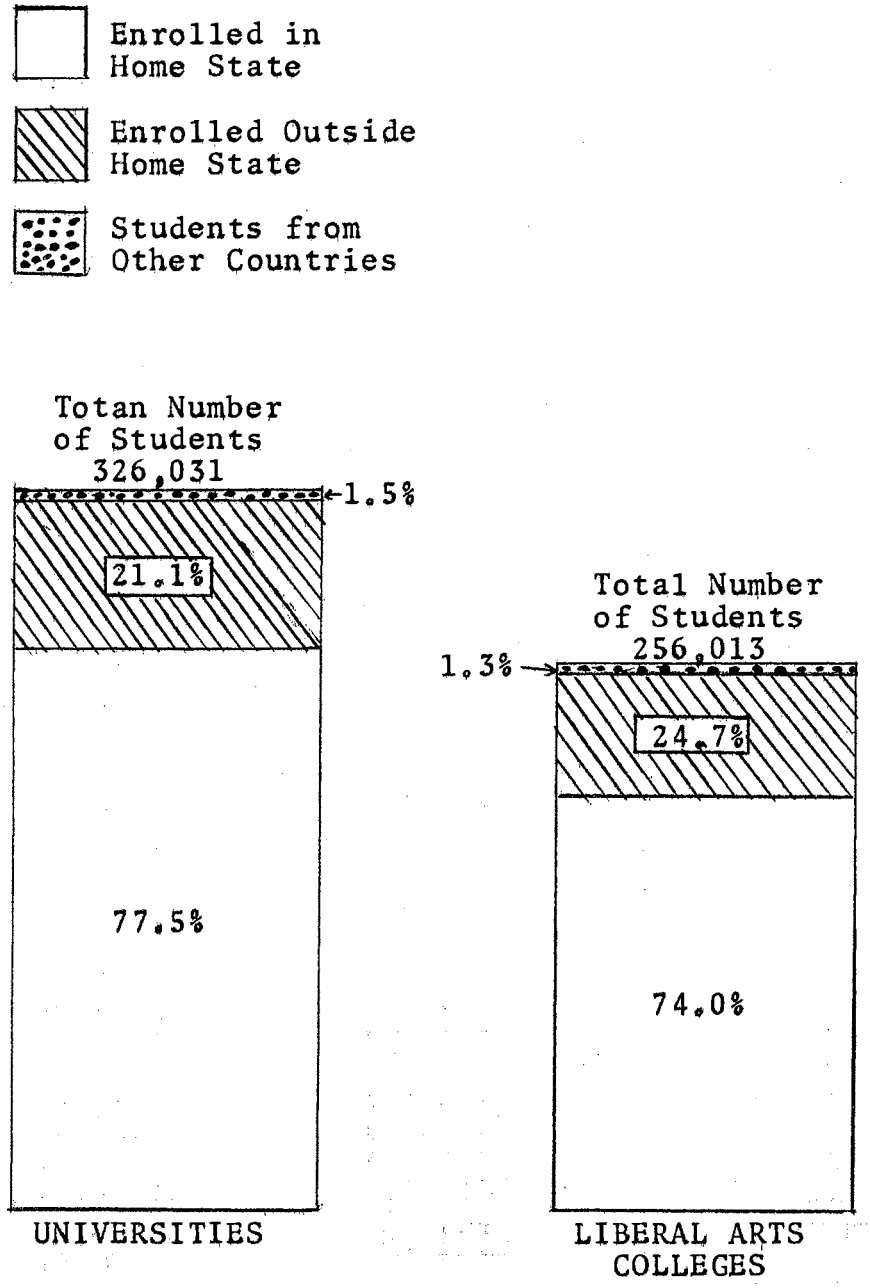


Figure 13. Home State and Migration of First-Time Undergraduate Students in Universities and Liberal Arts Colleges, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables D-10 and D-11.)

outside their home state. In liberal arts colleges almost one-fourth of the students were enrolled outside their home state. Although the difference was not great, the liberal arts colleges enrolled a greater percentage of students from outside the state than did the universities. It would normally be anticipated that universities would tend to enroll a larger proportion of nonresident students. In many states, universities are located near the center of the state, while many of the liberal arts colleges are situated closer to the state boundaries. Therefore, the liberal arts colleges may have the greater opportunity to attract a large number of students from adjacent states.

A similar comparison between universities and liberal arts colleges based on the enrollment of all students rather than first-time undergraduate students is illustrated in Figure 14. It is shown in Figure 14 that, for both types of institutions, about one-fifth of all students came from outside the home state.

Figure 15 shows that for undergraduates enrolled in their home state approximately the same ratio of men and women attended public institutions. Only one-third of the men and women who remained in their home state attended private institutions.

Figure 16 is presented to show the attendance by men and by women in private and public institutions outside their home state. The greater portion of men and women enrolled in private schools. The significant fact is that

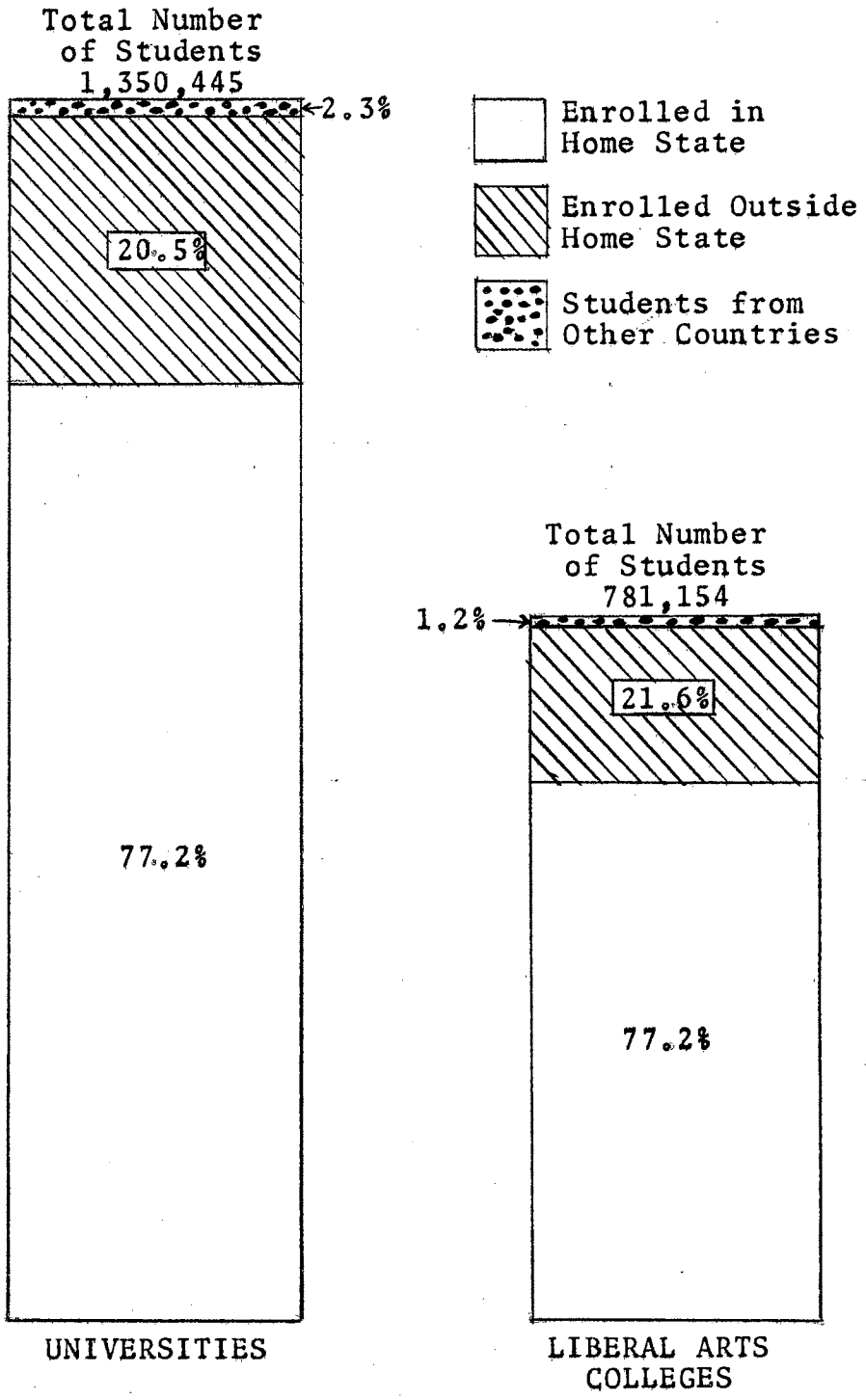


Figure 14. Home State and Migration of Students in Universities and Liberal Arts Colleges, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables D-1 and D-2.)

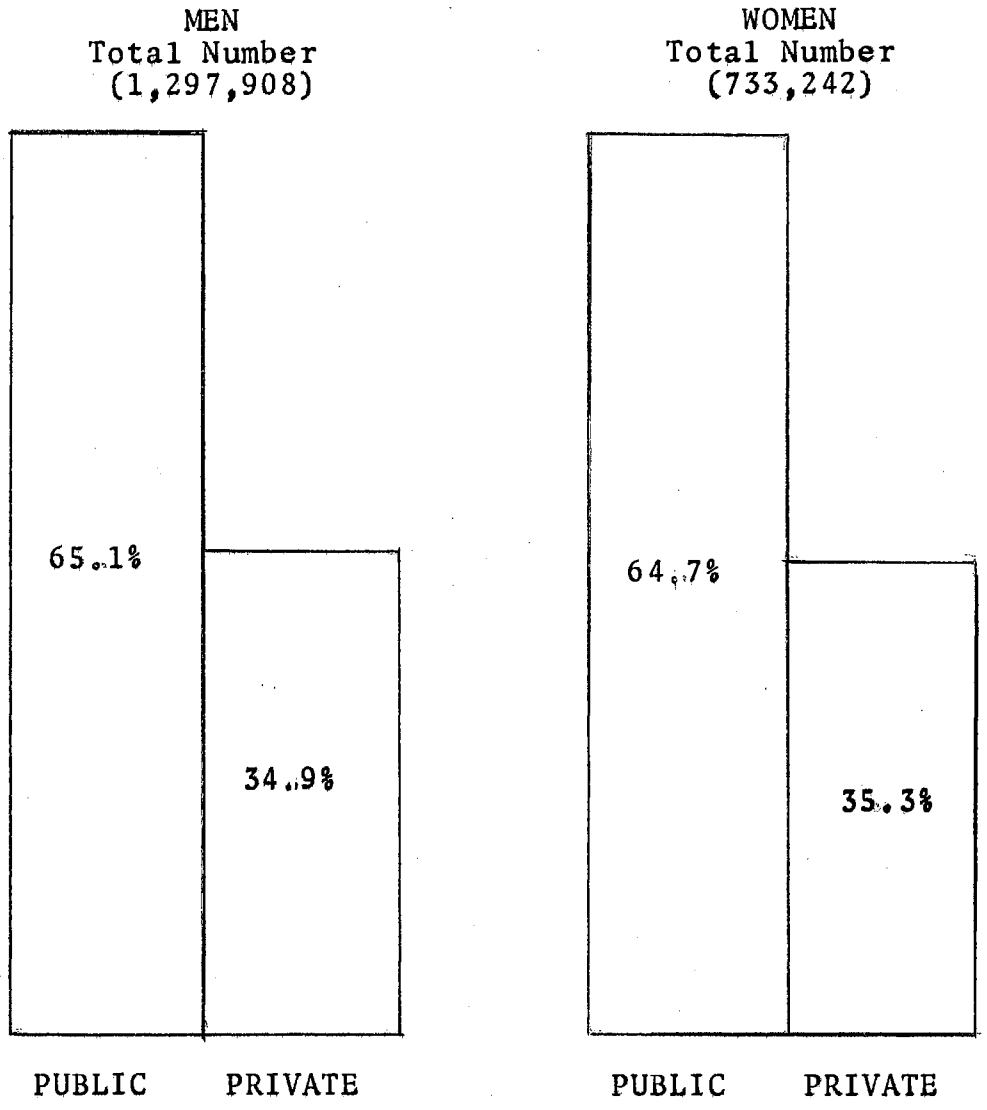


Figure 15. Men and Women Undergraduate Students Enrolled in Public and Private Institutions in the Home State, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Table 7.)

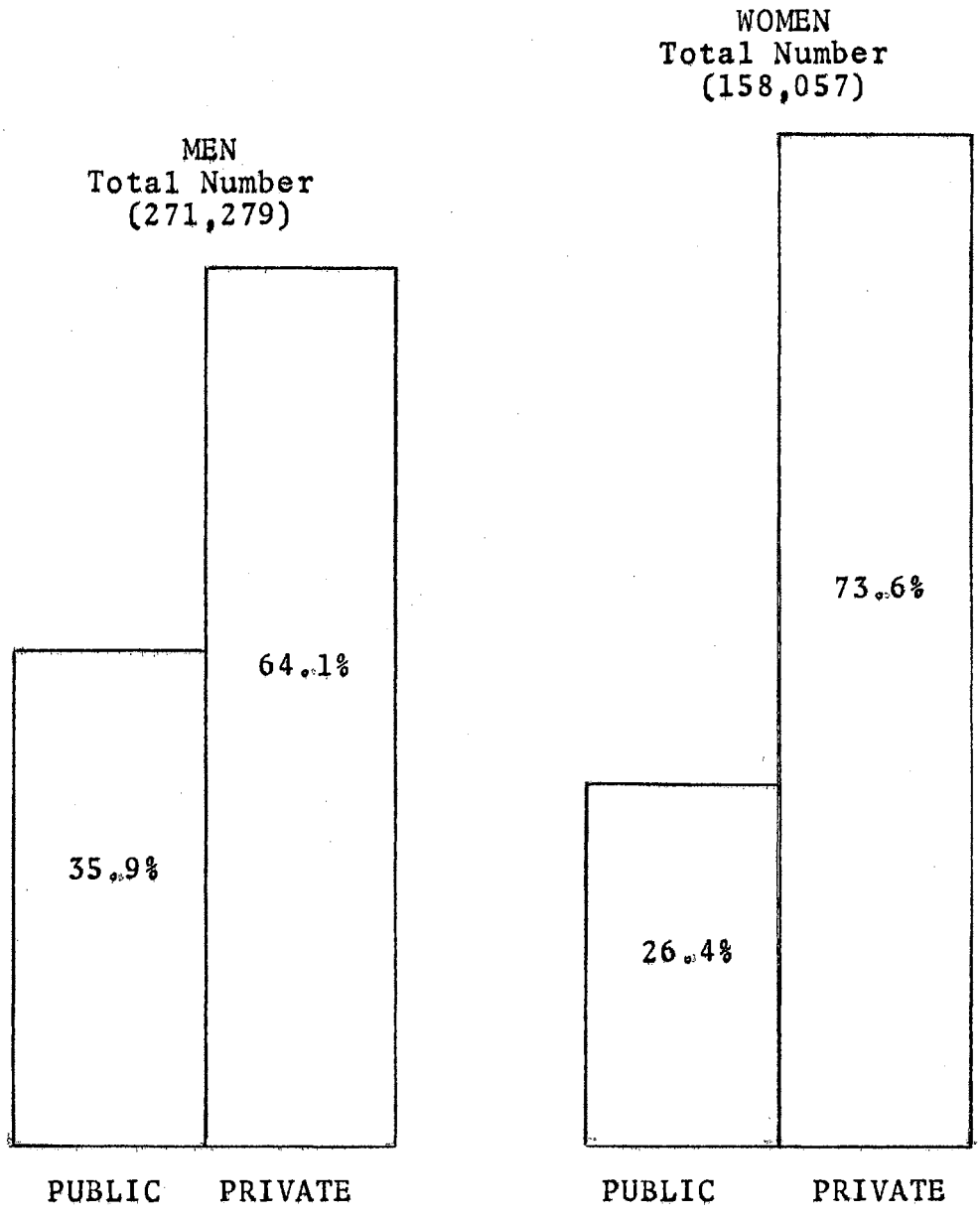


Figure 16. Men and Women Undergraduate Students Enrolled in Public and Private Institutions Outside the Home State, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Table 7.)

three-fourths of the women attended private schools as compared to two-thirds of the men. The explanation for this high percentage of women attending the private institutions outside their home state is partially due to parental influence. When parents permit their daughters to attend schools outside the state, they are likely to prefer private, rather than public, institutions because many of the private institutions are not coeducational or have a religious affiliation.

Figure 17 demonstrates the proportion of nonresident men and women enrolled in private and public institutions as a percentage of total undergraduates. The percentages in the previous chart were based on either total men or total women who migrated; in this chart, the percentages were based on the total enrollment of undergraduate students, both men and women, enrolled in either the public or private schools. Thirty per cent of all the undergraduates enrolled in public institutions outside their home state were women, while in private institutions 40 per cent of the students were women.

A State-by-State Representation of Migration

The purpose of this section is to show the general movement of students into and from each state. Horizontal bar charts demonstrate the rankings of states as to their percentage of migration.

Two ratios were used as measuring devices to depict the variation of migration by states. The first ratio represents

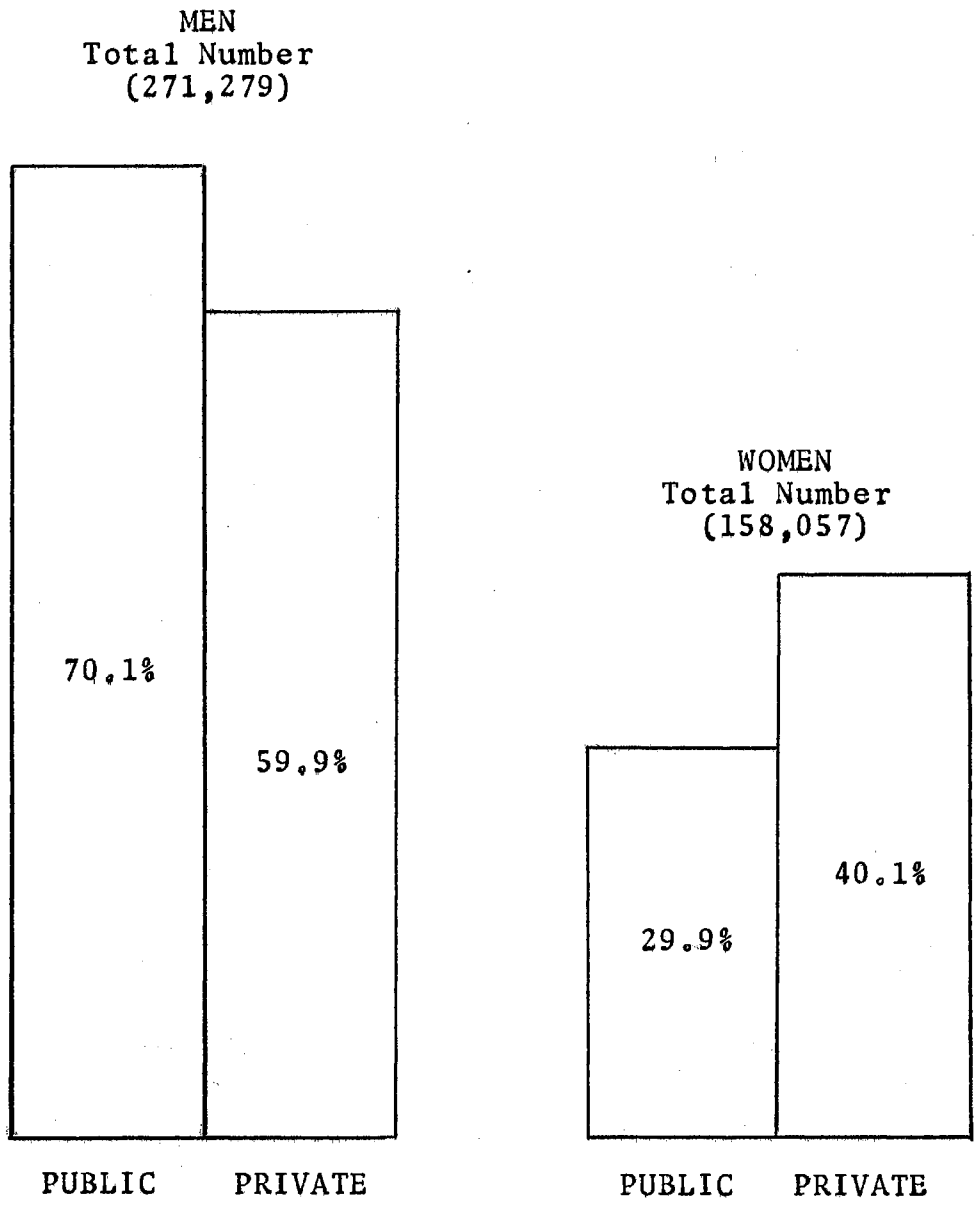


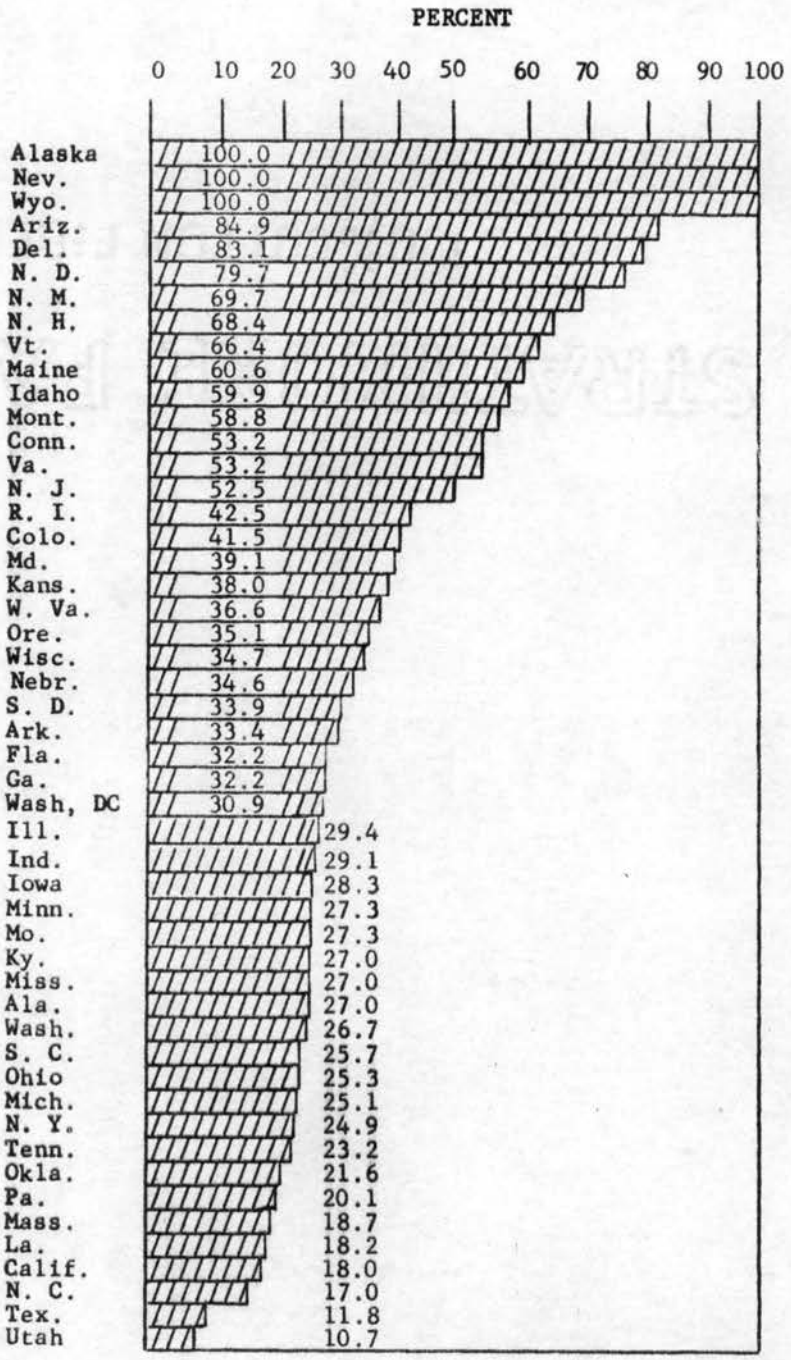
Figure 17. Men and Women Undergraduate Students Enrolled in Public and Private Institutions Outside the Home State as a Percent of Total Undergraduates by Type of Institution, Fall 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Table 7.)

the percent migration of college undergraduates from the home state, that is, the number of students leaving the state divided by the total number of students by home state. The second ratio represents the percentage of migrant college undergraduates in states--the number of students migrating to a state divided by the total number of students attending in that state. Separate computations were made and separate charts were prepared for public and private institutions, which were ranked by state.

Comments on the computational results and charts produced are followed by an analysis of rank correlation applied to this same data. The coefficient of rank correlation was calculated to determine the degree of similarity existing between the ranking of states as to the percent migration of undergraduates from home states and the ranking of states as to the percentage of migrant undergraduates in the states. This analysis was made to determine if those states which had a large percentage of students leaving the state were generally the same states which enrolled a large percentage of migrant students. Again, the analysis and computations were based on a separation between enrollment in private and public institutions.

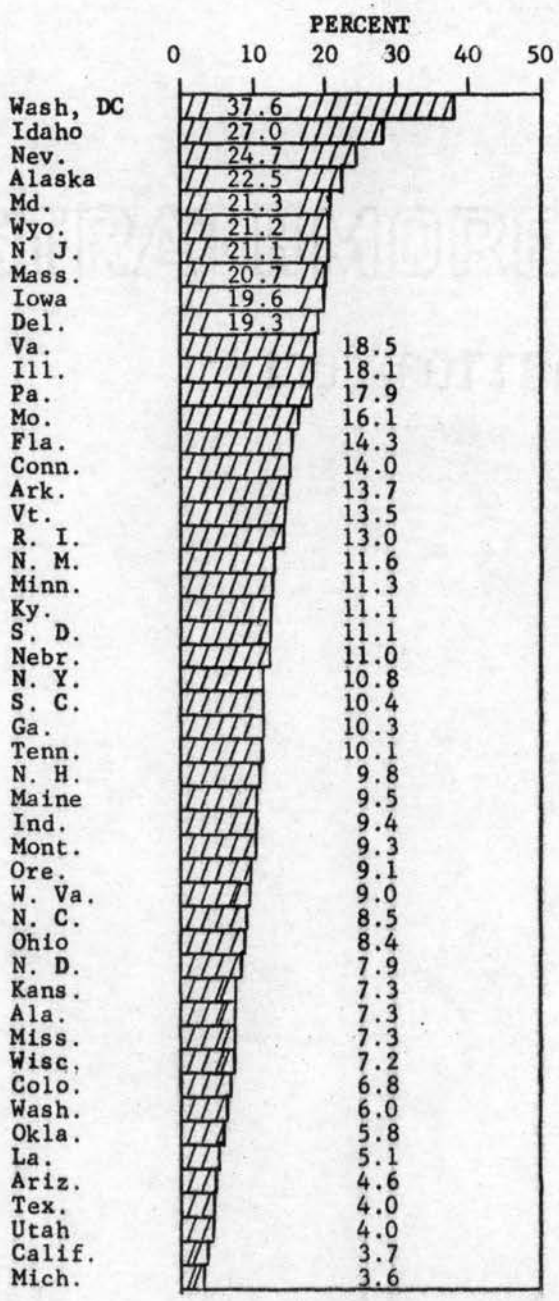
There was a greater range or spread in the percent migration from home state for private institutions than for the public institutions, as depicted in Figures 18 and 19.

In the case of private institutions, Alaska, Nevada, and Wyoming showed 100 per cent migration. This situation



Total Students By Home State	Leaving State For College
293	293
644	644
854	854
1,890	1,604
1,920	1,596
2,112	1,684
2,013	1,404
2,959	2,025
1,754	1,165
3,566	2,161
3,627	2,173
2,750	1,618
24,120	12,837
16,070	8,551
57,105	30,003
5,537	2,351
6,662	2,738
21,119	8,257
8,657	3,286
7,358	2,692
8,390	2,948
17,894	6,206
6,920	2,392
3,772	1,280
5,280	1,761
22,868	7,369
12,335	3,978
7,332	2,268
74,597	21,911
20,164	5,872
17,790	5,027
15,994	4,370
19,981	5,461
13,543	3,660
6,156	1,660
10,383	2,801
12,355	3,302
10,080	2,595
52,762	13,355
32,467	8,136
150,573	37,442
15,062	3,498
11,942	2,576
97,471	19,553
60,672	11,350
11,212	2,037
47,195	8,497
21,579	3,662
36,720	4,337
4,621	494

Figure 18. Percent Migration of College Undergraduates From Home State Enrolled in Private Institutions in the U. S., Fall, 1958. (Compiled from Home State and Migration of American College Students, Fall, 1958, Table 6.)



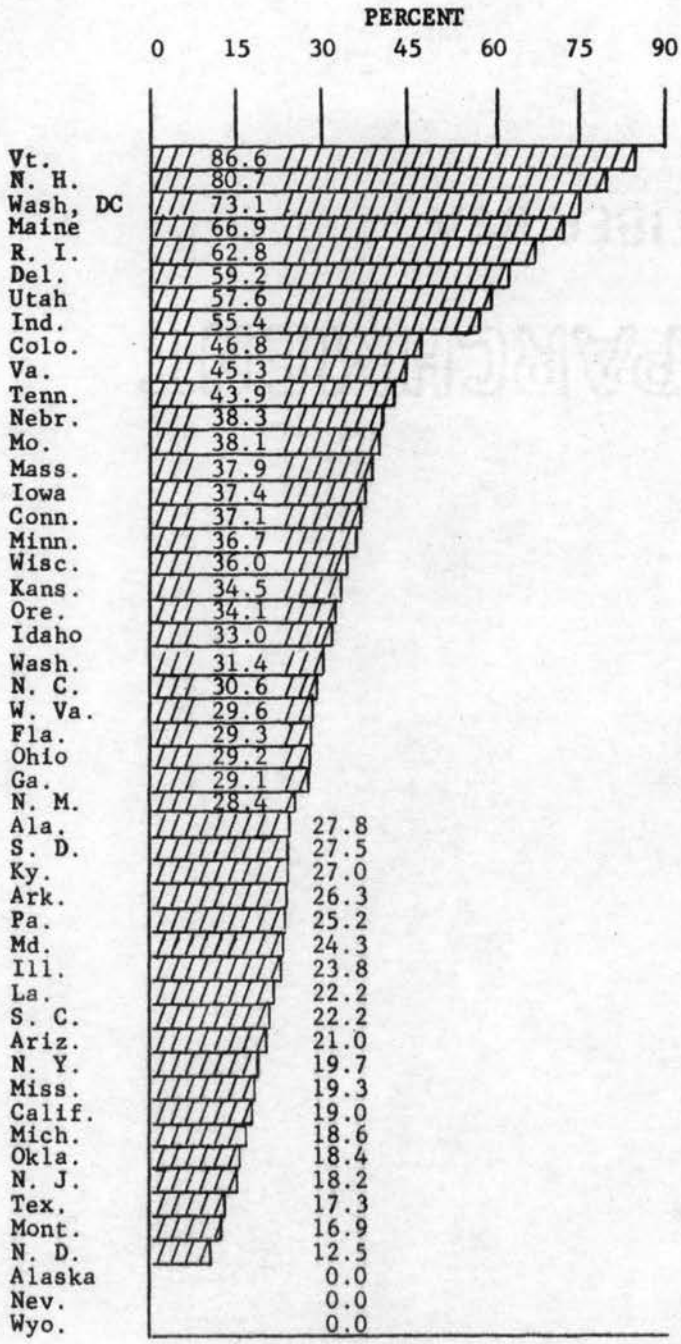
Total Students by Home State	Leaving State for College
3,927	1,238
7,137	1,924
2,614	646
2,083	468
10,180	2,167
4,621	978
30,484	6,429
16,259	3,364
23,408	4,582
2,303	449
17,696	3,267
69,377	12,577
38,257	6,841
29,091	4,675
30,340	4,349
13,681	1,917
16,664	2,277
2,672	361
3,393	442
10,970	1,270
34,827	3,924
23,588	2,620
8,563	950
16,531	1,815
117,456	12,733
11,732	1,223
26,756	2,763
25,703	2,591
3,974	388
5,061	482
38,364	3,596
8,331	775
19,375	1,762
18,236	1,636
26,039	2,210
64,404	5,383
10,389	817
30,353	2,217
28,514	2,075
20,486	1,502
34,472	2,484
18,431	1,248
32,022	1,914
33,618	1,957
33,548	1,708
20,387	932
107,753	4,269
12,223	487
206,916	7,687
84,552	3,011

Figure 19. Percent Migration of College Undergraduates from Home State Enrolled in Public Institutions in the United States for the Fall, 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Table 7.)

existed because these three states either had no private institutions or because no data existed for any such institutions. Thus, all students who attended private institutions left the state for this reason. Arizona and Delaware had 84.9 and 83.1 per cent (Figure 18) respectively. The smallest percentages were slightly over 10 per cent for Utah and nearly 12 per cent for Texas. The median was roughly 33 per cent. The ratio for Oklahoma was far below the median, ranking only eighth with 21.6 per cent.

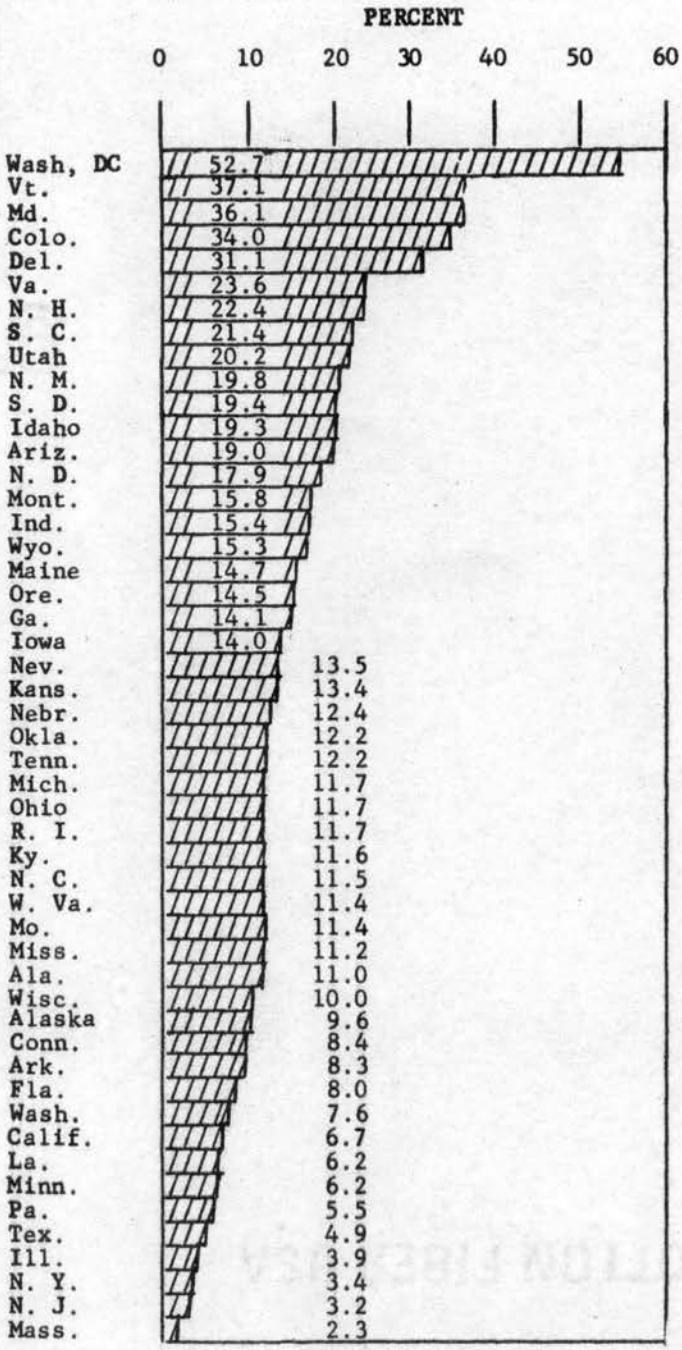
In the case of public institutions, the ratios or percentages did not vary as much; for instance, the highest percentages were 37.6 per cent for Washington, D. C. and about 27 per cent for Idaho. The smallest percentage was 3.6 per cent for Michigan, followed closely by California with 3.7 per cent. The median was 10.6 per cent. Oklahoma ranked seventh with 5.8 per cent.

The percentage of migrants in states also varied to a greater extent for the private institutions than for the public institutions, as shown in Figures 20 and 21. Vermont had a high of 86.6 per cent of students migrating to the state. With the exclusion of Wyoming, Nevada and Alaska, which did not report any data for private institutions, North Dakota ranked lowest with 12.5 per cent of the students migrating into the state. The median was 29 per cent; and Oklahoma, ranking seventh from the lowest, had a percentage of 18.4.



	Total Attending School in State	Total Migrating to State
Vt.	4,387	3,798
N. H.	4,835	3,901
Wash, DC	18,796	13,732
Maine	4,242	2,837
R. I.	8,573	5,387
Del.	795	471
Utah	9,723	5,596
Ind.	32,027	17,735
Colo.	7,314	3,420
Va.	13,757	6,238
Tenn.	20,623	9,059
Nebr.	7,338	2,810
Mo.	23,464	8,944
Mass.	79,469	30,144
Iowa	20,381	7,618
Conn.	17,947	6,664
Minn.	18,354	6,730
Wisc.	18,263	6,575
Kans.	8,194	2,823
Ore.	8,253	2,811
Idaho	2,170	716
Wash.	13,201	4,148
N. C.	25,876	7,919
W. Va.	6,626	1,960
Fla.	21,926	6,427
Ohio	55,621	16,214
Ga.	11,784	3,427
N. M.	850	241
Ala.	10,496	2,914
S. D.	3,439	947
Ky.	13,533	3,650
Ark.	4,773	1,254
Pa.	104,156	26,238
Md.	16,994	4,132
Ill.	69,139	16,453
La.	11,789	2,614
S. C.	9,615	2,130
Ariz.	362	76
N. Y.	140,958	27,827
Miss.	5,574	1,078
Calif.	47,754	9,056
Mich.	29,899	5,568
Okla.	11,481	2,115
N. J.	33,120	6,081
Tex.	39,140	6,757
Mont.	1,362	230
N. D.	489	61
Alaska	0	0
Nev.	0	0
Wyo.	0	0

Figure 20. Percent of Migrant College Undergraduate Students Enrolled in Private Institutions in the U. S., Fall, 1958. (Compiled from Home State and Migration of American College Students, Fall, 1958, Table 6.)



	Total Attending School in State	Total Migrating to School
Wash, DC	4,357	2,298
Vt.	3,674	1,363
Md.	12,539	4,526
Colo.	26,053	8,870
Del.	2,719	845
Va.	18,885	4,456
N. H.	4,621	1,035
S. C.	13,369	2,860
Utah	14,703	2,967
N. M.	12,098	2,398
S. D.	9,442	1,829
Idaho	6,459	1,246
Ariz.	24,027	4,572
N. D.	11,654	2,082
Mont.	8,970	1,414
Ind.	41,089	6,321
Wyo.	4,299	656
Maine	5,371	792
Ore.	20,610	2,992
Ga.	27,918	3,925
Iowa	21,896	3,070
Nev.	2,274	306
Kans.	32,508	4,372
Nebr.	16,792	2,076
Okla.	36,062	4,401
Tenn.	26,319	3,207
Mich.	92,325	10,784
Ohio	66,807	7,786
R. I.	3,342	391
Ky.	23,710	2,742
N. C.	26,925	3,096
W. Va.	18,732	2,132
Mo.	27,572	3,156
Miss.	21,375	2,391
Ala.	29,713	3,274
Wisc.	35,533	3,545
Alaska	1,786	171
Conn.	12,839	1,075
Ark.	15,663	1,296
Fla.	28,263	2,272
Wash.	32,592	2,484
Calif.	213,638	14,409
La.	33,953	2,113
Minn.	32,937	2,034
Pa.	33,245	1,829
Tex.	108,862	5,378
Ill.	59,095	2,295
N. Y.	108,458	3,735
N. J.	24,854	799
Mass.	13,202	307

Figure 21. Percentage of Migrant College Undergraduates Enrolled in Public Institutions in the United States in the Fall of 1958. (Compiled from Home State and Migration of American College Students, Fall 1958, Table 7.)

The percentage of migrant students in states did not vary as much for public institutions as it did for private institutions. The highest percentages were 52.7 for the District of Columbia and 37.1 per cent for Vermont. Massachusetts ranked first with the lowest percentage of 2.3, followed closely by New Jersey and New York. Oklahoma had a median of 12.2 per cent.

A coefficient of rank correlation was computed by matching: (1) the rankings of the states by their percentages of migration of college undergraduates from the home state; and, (2) the rankings of the states by their percentages of of migrant undergraduates in the state. The coefficient of rank correlation for private institutions rendered a value of .0384, while a value of .0862 was established for the public institutions. A much larger coefficient of .2941 was determined when there was no separation of the data on the basis of type of institution.[20]

One may conclude, on the basis of the aggregate data, that there is some relationship among states in that those states which send a large percentage of students to other states receive large percentages of out-of-state students. The evidence is not as convincing when the data are separated by type of institution.

Summary

The reasons given for student migration included a desire to be educated where parents were educated, the religious

affiliation of a school, and relative costs, as well as simply a desire to get away from home. Of course, scholarships and admission requirements are also responsible for migration.

Three methods are commonly used to limit the enrollment of out-of-state students; these are residence classification, admission policies, and nonresident tuition. Of these, the charging of nonresident fees was the main concern of the study. The most obvious reason for levying a nonresident fee is to recover some of the cost from parents of nonresident students, who are exempt from paying the state taxes.

There is a strong desire of many educators to maintain a sufficient proportion of nonresident students in order to avoid a provincial atmosphere on their campuses. The social mobility of today results in a greater potential of quasi-nonresidents enrolling in our educational institutions. In addition to the advantages of a mixed student body, costs can be reduced by cooperating with other states in an academic common market; specialized programs offered at the various institutions need not be duplicated.

Evidence of migration in the United States revealed that private institutions enrolled proportionately a larger number of nonresident students than public institutions. However, the percentage of nonresident students who came from contiguous states was approximately the same for private and public institutions.

The percentage distribution of students by residence classification was approximately the same for universities and liberal arts colleges. A comparison of the enrollment of men and women indicated that approximately the same ratio of men and women, who were enrolled in their home state, attended public institutions. Of the undergraduate women enrolled outside their home state, a greater percentage attended private institutions than public institutions; this percentage was greater for women than for men attending private institutions outside their home state. Women as a percentage of students attending private institutions was greater than women as a percentage of students attending public institutions.

Two migration ratios were used to investigate the variation of migration by states. One ratio represented the percent migration of college undergraduates from the home state; the other represented the percentage of migrant college students in states. Ratios were computed for each state, and they varied to a greater degree for private institutions than for public institutions. The coefficient of rank correlation for the ranking of the two ratios for private institutions was not as great as the coefficient of rank correlation for the two ratios for public institutions.

Footnotes

[1]WICHE, Out-of-State Students, p. 1.

[2]William L. Frederick and Betty S. Greenburg, A Report on Enrollments and Fees at State Colleges and Universities in the Midwest, The Council of State Governments (Chicago, August, 1958), p. 3.

[3]Ibid., p. 4.

[4]J. S. Saundle, "Non-resident Students and Non-resident Fees," The Journal of Negro Education, XXVII (Winter, 1958), p. 87.

[5]Charles Hoff, "Trends in Fees, Salaries, and Enrollments in 497 Colleges and Universities," School and Society, LXXIV (September 1, 1951), p. 136.

[6]WICHE, "Fees for Nonresident Students," Part V, discussion material for conferees (1961), p. 8.

[7]Mildred D. Kosaki, Nonresident Students and the University of Hawaii (Honolulu, Hawaii, Legislative Reference Bureau, University of Hawaii, January, 1963), p. 33.

[8]WICHE, Out-of-State Students, p. 1.

[9]Kosaki, p. 33.

[10]Frederick and Greenburg, p. 3.

[11]Coordinating Committee for Higher Education in Wisconsin, Design for the Future Development of Public Higher Education in Wisconsin (Madison, Wisconsin, December, 1960), p. 23.

[12]WICHE, "Numbers of Nonresident Students," Part III, discussion material for conferees (1961), p. 8.

[13]Selma J. Mushkin, ed., Economics of Higher Education (Washington, D. C., Government Printing Office, 1962), p. 214.

[14]News item in The Wichitan, "Eleven Universities Plan Academic Common Market," (Wichita Falls, Texas, Midwestern University, College Press Service, April 3, 1963), p. 7.

[15]WICHE, "Regional Student Program Planned," Higher Education in the West, X (October, 1963), p. 1.

[16]Frederick and Greenburg, p. 1.

[17]WICHE, "Numbers of Nonresident Students," p. 4.

[18]See the 1958 study of the American Association of Collegiate Registrars and Admissions Officers (hereafter referred to as AACRAO) where a similar presentation was made with institutions not separated by type.

[19]AACRAO, A Supplement to Home State and Migration of American College Students, Fall 1958 (Report prepared by the Committee on Research and Service, December, 1959), p. 4.

[20]See charts 116 and 117 on pages 32 and 33 in the Supplement to Home State and Migration of American College Students for the ranking of states by all institutions. See Appendix A for the calculations.

CHAPTER IV

COMPARISON OF FEES AND THEIR RELATIONSHIP TO MIGRATION

General observations indicate a tendency for nonresident charges to be related to resident charges. A manuscript prepared by personnel in the Office of Education indicated that "the higher the resident charges, the higher the surcharge to nonresidents."[1] Furthermore, the data in the report indicated that the relationship between the resident charge and the surcharge to nonresidents appeared to be on both an absolute and a percentage basis.

Data published in other sources indicated that generally the larger the institution, the higher the fees, both resident and nonresident.[2] General observations showed that fees also tend to vary according to geographic region.

The relationship between fees, enrollment, and migration was investigated by analyzing tuition policies, trends in fees, changes in migration as to type of student and geographic region, and changes in the migration status of states. Correlation and regression techniques were employed to deter- the presence of various relationships in selected institutional data.

Student Fees and Their Relationship To Nonresident Enrollment

Most public institutions charge a nonresident fee. As previously mentioned, all land-grant colleges and state universities charge a nonresident fee with the exception of the University of Hawaii. The following exceptions to the general practice of charging a nonresident fee indicate that there is variation in the policies responsible for establishing the nonresident fee: (1) In some universities the nonresident fee depends on the college in which out-of-state students enroll. (2) Graduate students are exempt from a nonresident charge in the State of Iowa. (3) The University of Indiana allows the children of alumni to attend and pay only the resident fee. The authority for setting the nonresident fee rests with various state governing bodies--a state board, commission or regents; state statutes; or a governing board of the university.

The Office of Education showed in its latest report on basic student charges that there were differences in the level of fees charged resident and nonresident students at public institutions.[3] At the undergraduate level, the median tuition for resident students was slightly lower than the median charge for graduate students enrolled in public institutions. At public institutions, the nonresident fee was approximately the same for graduate and undergraduate students. At private institutions the median tuition was approximately two hundred

dollars higher for graduate students than for undergraduates. Table I offers a summary of the various tuitions reported by the Office of Education.

TABLE I

MEDIAN TUITIONS FOR UNDERGRADUATE AND GRADUATE STUDENTS IN 1962-1963 AT PUBLIC AND PRIVATE INSTITUTIONS

Classification	Public		Private
	Resident Fees	Nonresident Fees	
Undergraduate	$170	$451	$690
Graduate	$226	$468	$900

Source: Louis a. D'Amico and W. Robert Bokelman, Higher Education Basic Student Charges, 1962-1963, Office of Education, Circular No. 711 (Washington, D. C., 1963), Chapter 2.

An analysis of data in the same report indicated that there was some variation in charges to out-of-state students by geographic region. Institutions were included in one of the following four regions: North Atlantic, Great Lakes and Plains, the Southeast, or the West and Southwest. Institutions in the North Atlantic region reported the highest charges at the five percentile points; namely, the 10th, 25th, 50th, 75th, and 90th percentile.

The North Atlantic institutions reported $381 at the 10th percentile and reported a high of $706 at the 90th percentile. The $706 for the 90th percentile was the highest figure for

all regions for all percentile points. The lowest charge was reported by the Great Lakes and Plains Region at the tenth percentile in which a charge of $174 was recorded for all public institutions. The Great Lakes and Plains regions also recorded the lowest figure for three of the other four percentile points. The West and Southwest region reported the lowest figure at the 75th percentile.

Public institutions in the West and Southwest region charged, on the average, the lowest resident fee. A brief look at the charges of private institutions showed that the North Atlantic region had the highest resident fee being charged, and the Southwest region showed the lowest fee for their students.

Comparison of fees is not complete without an analysis of the trend in fees--nonresident fees in particular. The trend is that nonresident fees have been increasing; however, this trend is not recent, as indicated in a study which appeared in 1951:

> Nonresident fees have been increased 117 per cent in 128 tax-supported colleges and universities since 1941. In addition, 17 institutions plan to increase their nonresident fees an average of 80 per cent during the next 12 months.[4]

Average tuition and fees in western public institutions showed:

> Nonresident tuition and fee charges are far higher than resident charges, and in recent years have increased by a greater amount.[5]

On the average, resident fees increased in the West by $28 and nonresident fees increased by $78 from 1957 to 1962.[6]

Figures compiled from the WICHE's Fact Book on Western Higher Education display the trend in resident and nonresident tuition and fees at the western public institutions from 1957-58 to 1960-61. The average resident tuition and fees for 1957-58 was $151 as compared to $179 for the average fee in 1960-61 (an increase of 18.5 per cent). Nonresident tuition and fees increased from $344 in 1957-58 to $422 in 1960-61; this represents a 22.7 per cent increase.[7] WICHE is cognizant that the rise in nonresident tuition in western public colleges has been more rapid than the rise in resident fees. The U. S. Office of Education has reported:

> . . . while resident tuition fees rose in 1961, the largest rate of increase was in nonresident tuition and fees in state universities--11 per cent.[8]

"There has also been a tendency to increase nonresident tuition more rapidly than resident tuition" in the land-grant colleges and state universities.[9] It is apparent that nonresident fees have increased more than resident fees in recent years.

Analysis of the trend in nonresident fees pertaining to the midwestern region is based on public universities and colleges located in these states. The out-of-state enrollment as a percentage of total undergraduate enrollment in the state schools in the Midwest was compared with the nonresident fees at these institutions for the years 1947, 1952, and 1957. The state institutions which have registered with the Midwestern Interstate Committee for Higher Education are indicated in Figure 22. (No figures were available for Nebraska.)

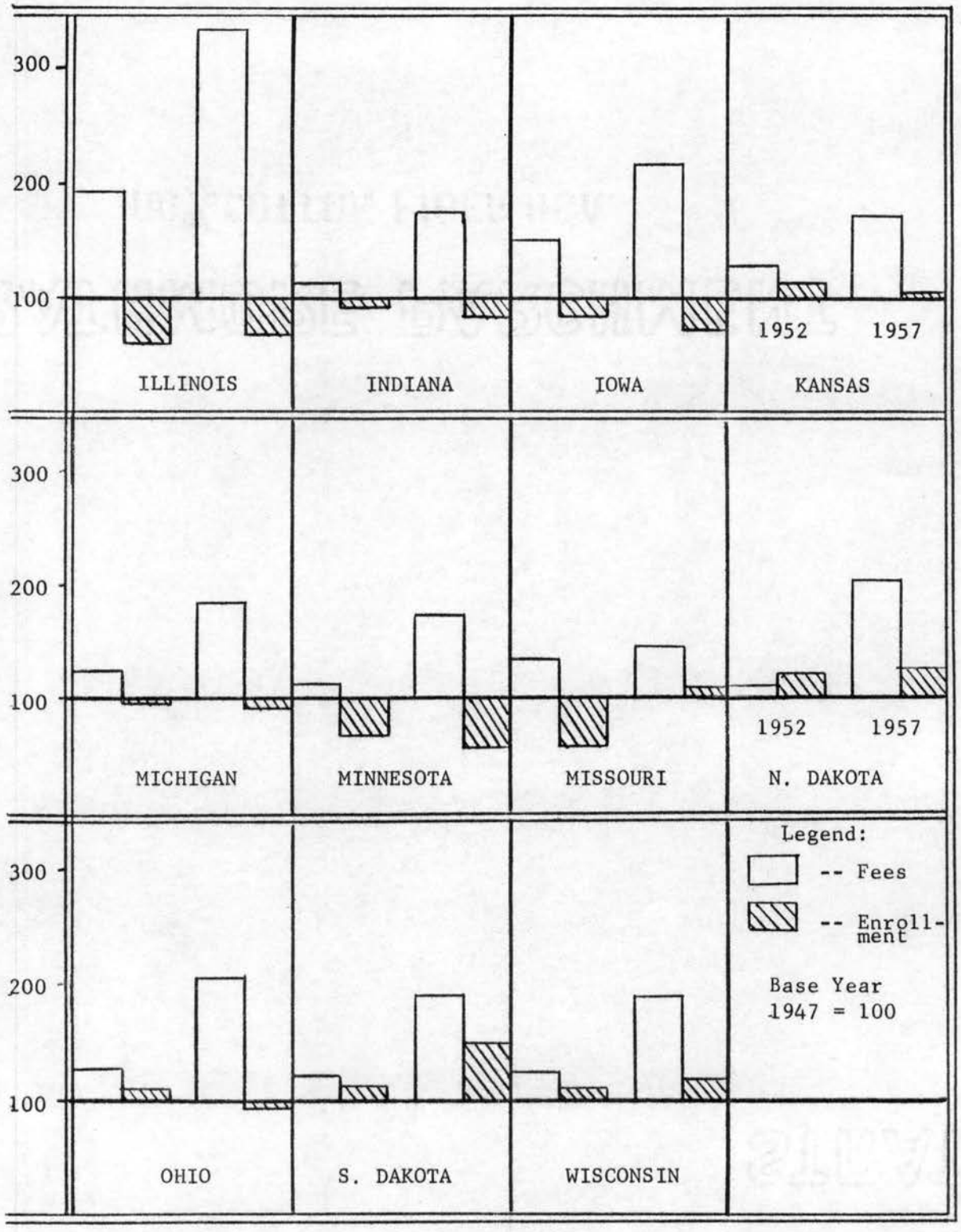


Figure 22. A Comparison of Out-of-State Enrollments to Nonresident Fees at State Colleges and Universities in Eleven Midwestern States for the Years 1947, 1952, and 1957. (Compiled from The Council of State Governments, A Report on Enrollments and Fees at State Colleges and Universities in the Midwest, August 1958, Tables V and VIII.)

Enrollment and fee data used in the chart are presented as index numbers. The indexes were compiled from data appearing in the Council of State Government's report.[10] In the case of the eleven states for which data are presented, the nonresident fee was at a considerably higher level in 1957 than in 1947. The trend in the upward direction was supported by the level of the nonresident fees in all eleven states in 1952. The greatest percentage increase in fees occurred in Illinois where the increase was 234 per cent by 1957 over the level in 1947.

Four states experienced an increase in the percentage of nonresident enrollment in spite of the percentage increase in the nonresident fees for the ten-year period. The greatest enrollment increase occurred in North Dakota and South Dakota. Nonresident enrollment in Missouri was lowest in 1952 of the three years.

The change in the net migration status of the twelve Midwestern states was investigated in regard to undergraduate students enrolled in public institutions. Eight states had a net positive migration status, and four states had a net negative migration status. Of the eight states which had a positive status in 1948, two changed to a negative status by 1958. Of the four states having a negative status in 1948, three experienced a change to positive status by 1958. This trend tends to de-emphasize the effect that nonresident fees have on the nonresident student enrollment.[11]

The pattern of change in the net migration status for the forty-eight states and the District of Columbia was not as dynamic as for the twelve midwestern states.[12] Of the thirty-one states which were of a positive status in 1948, only four became negative by 1958. Only seven of the eighteen states which were of a negative status in 1948 changed to a positive status by 1958. As a result, there was a net addition of only three states which received more students than left the state. Although this number was small, this change occurred during a time when nonresident fees increased significantly.

A study which dealt with a small group of colleges indicated that the nonresident fee was a factor in reducing enrollment by nonresident students. This was particularly the case in the smaller school which usually charged the lower fees and consequently served the poorer student. Saundle summarized his findings as follows:

> . . . all reduction in nonresident student enrollments are due to an increase in nonresident fee alone. However, when a substantial raise was made in non-resident student fee by a college in this study, a reduction in non-resident student enrollment usually followed the next year.
>
> The students in the small colleges indicated from this study, more than in the larger ones, seem to feel the pinch of increase in the non-resident fee, and drop out because of inability to pay. It may be that many poor students seek their education in small colleges. Anyway the facts seem to point in that direction.[13]

Nonresident fees have increased steadily during the past decade. This trend has had varied effects on the enrollment

and migration of nonresident students. The overall effect is not clear. Some speculation suggests that, after the peak enrollment of veterans in our educational institutions following World War II, many of our educational institutions may have felt the pinch of finances due to the decrease in enrollment and the consequent decrease in revenue. Educators sought ways to replace the revenue lost from the veteran enrollment. One way of increasing revenue which could easily be supported was to increase the nonresident tuition. After the veteran enrollment subsided and before the war babies began to appear on college campuses, nonresident fees began to increase significantly.

Changing Patterns in Student Migration

The change in migration of students by various major categories is presented. The changes pertain to the data in the 1949-50 migration study conducted by the Office of Education[14] and the AACRAO migration data for enrollment in the fall of 1958 in colleges and universities.[15] The following comparisons are restricted to undergraduate and graduate students in private and public institutions.

A graphic comparison is provided in Figures 23, 24, and 25, which show the patterns of the general classifications of the 1958 data (as used in Chapter III) with the migration of students in 1949-50. The general comparisons will be followed by an investigation of changes in migration based on geographic areas. A comparison based on all institutions is

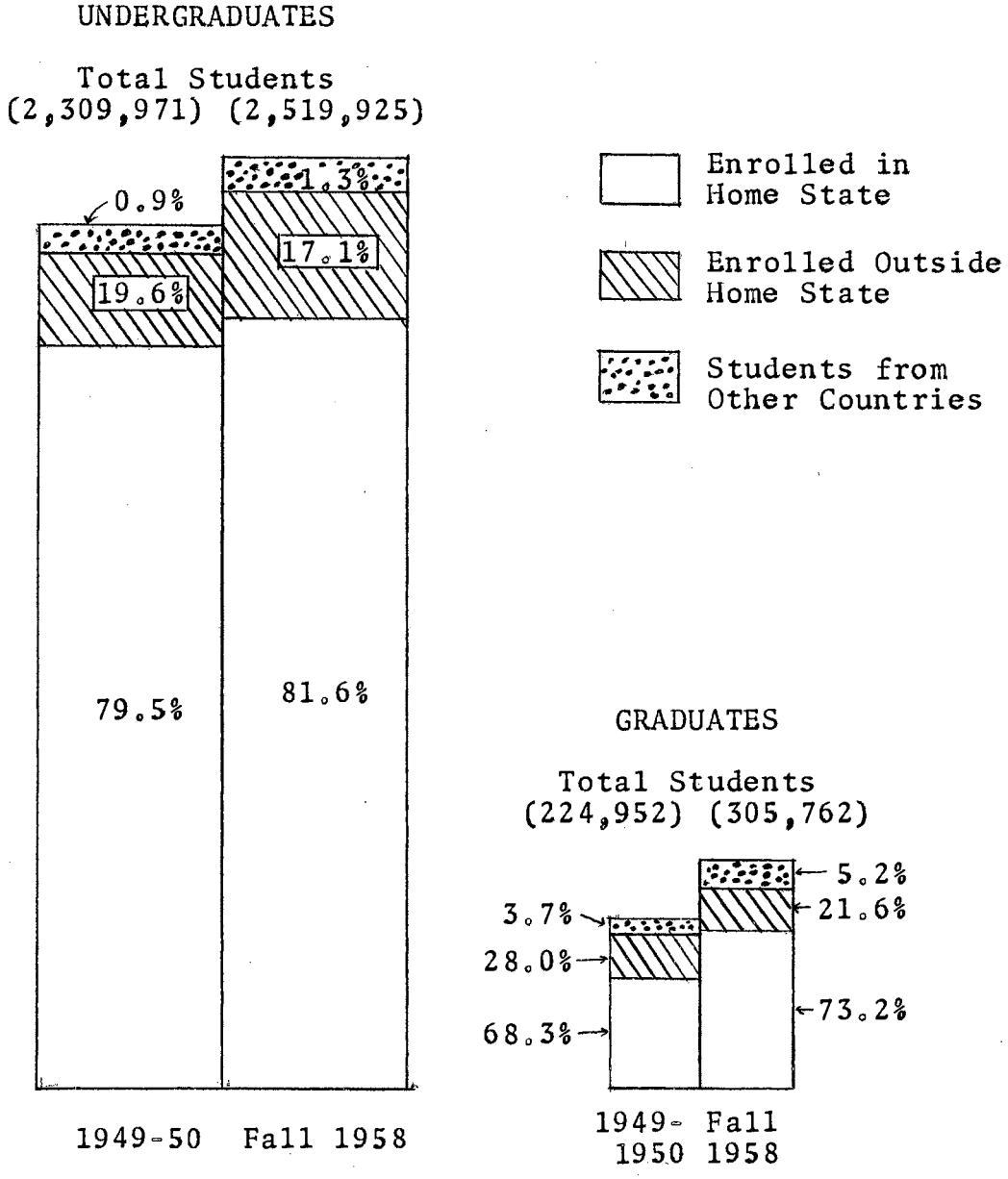


Figure 23. Change in Student Migration Patterns from 1949 to 1958 for All Institutions. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables 5 and 8, and Residence and Migration of College Students, 1949-50, pages 20-1 and 26-7.)

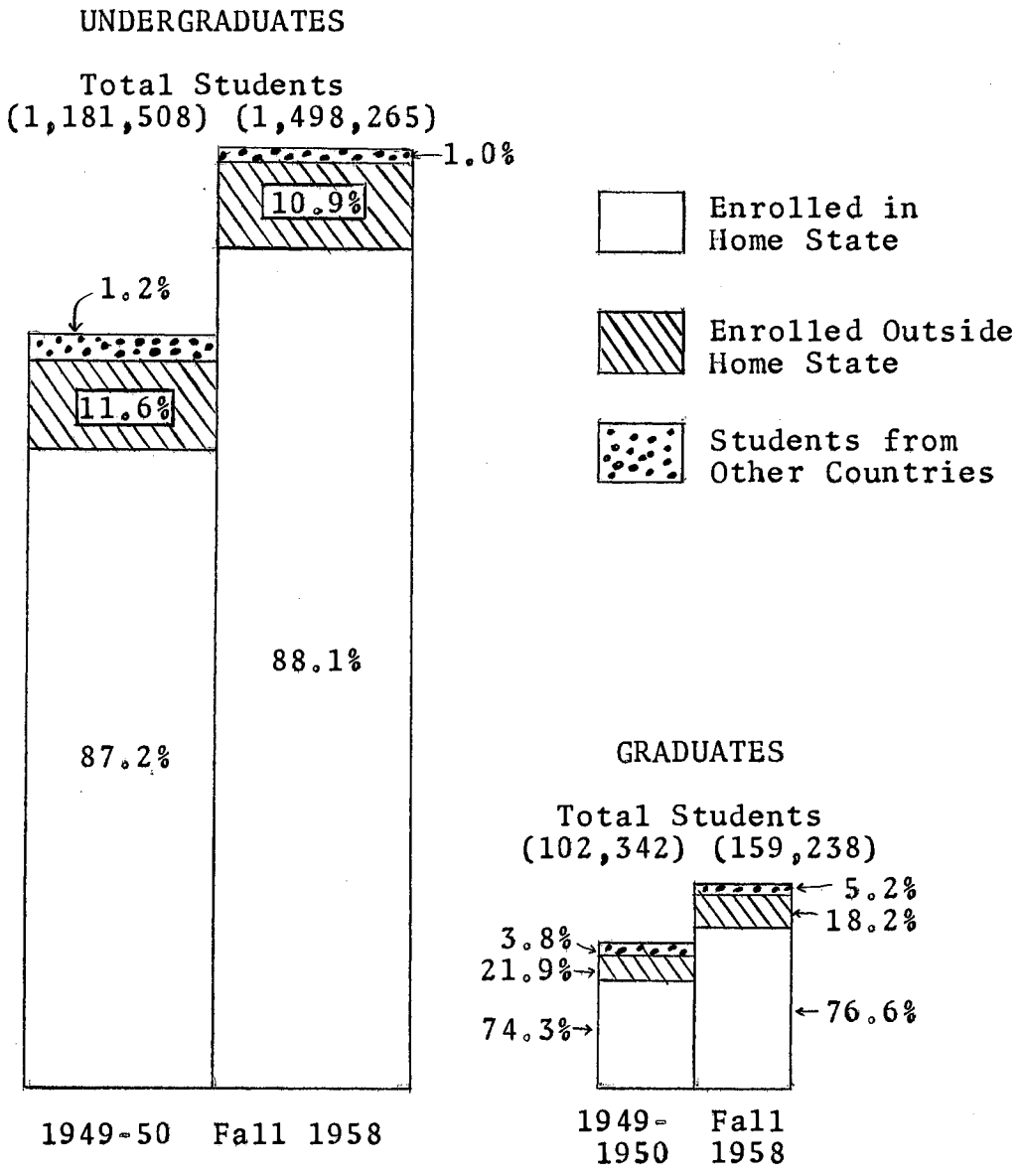


Figure 24. Change in Student Migration Patterns from 1949 to 1958 for Public Institutions. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables 7 and 10 and Residence and Migration of College Students, 1949-50, Tables 5 and 8.)

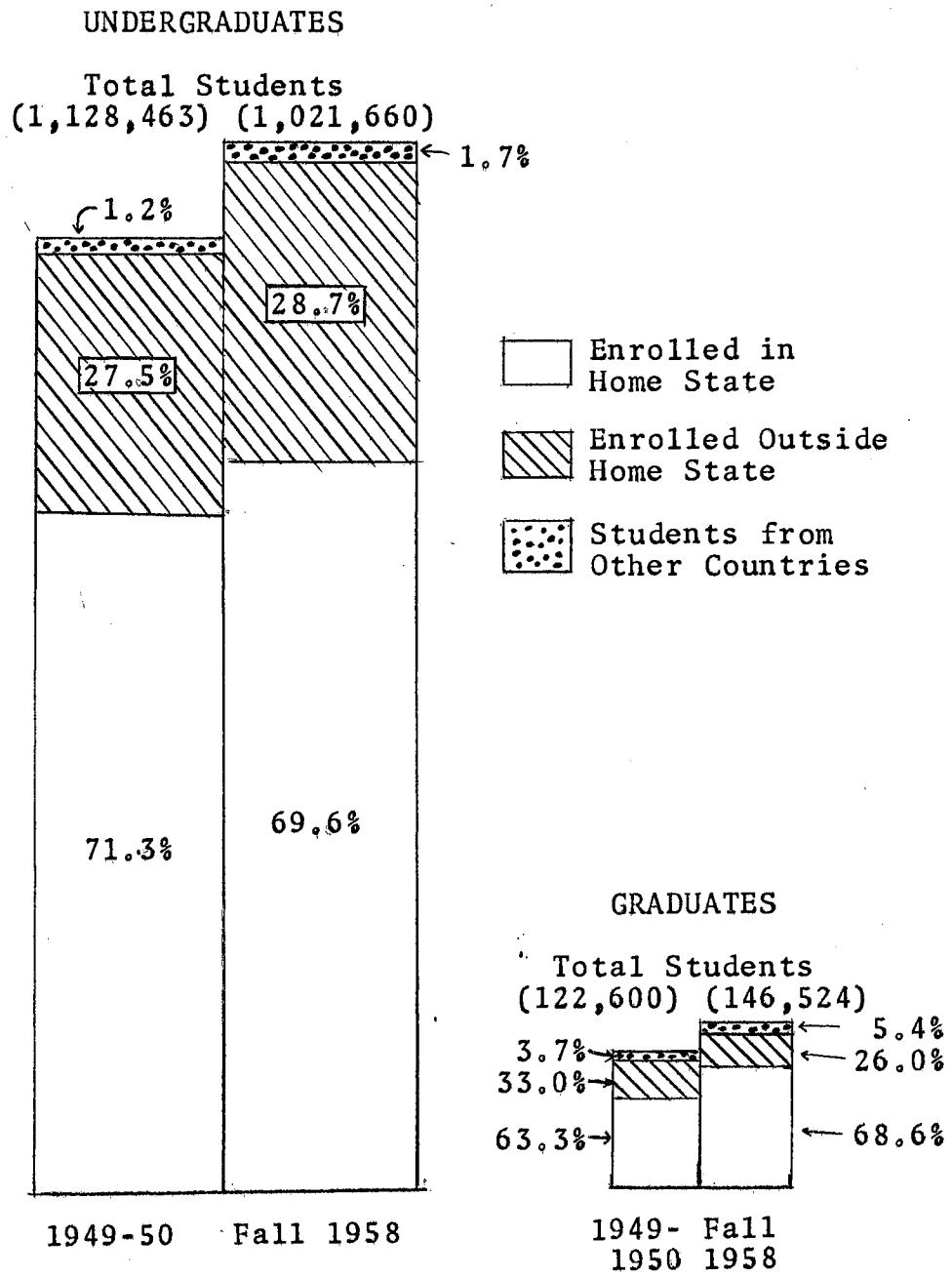


Figure 25. Change in Student Migration Patterns from 1949 to 1958 for Private Institutions. (Compiled from Home State and Migration of American College Students, Fall 1958, Tables 6 and 9, and Residence and Migration of College Students, 1949-50, Tables 6 and 9.)

portrayed in Figure 23, and Figures 24 and 25 show the change in public and private institutions, respectively.

The overall percentage of undergraduate students outside the home state has decreased slightly from 1949 to 1958. The percentage of graduate students enrolled outside the home state has declined a little more than twice as much as the decline in undergraduate percentage. This change represents a steady decline in the percentage of graduate students enrolled outside their home state, for it has been reported:

> In 1922-23 thirty-five per cent of all graduate students were being educated in out-of-state institutions.[16]

This 35 per cent in 1922-23 was compared to the level of 28 per cent in 1949 and 22 per cent in 1958.

In 1949 the enrollment of students in private and public institutions was analyzed separately. In the case of public institutions, the percentage of undergraduates enrolled in schools outside the home state declined slightly as compared to private institutions where the percentage of students enrolled increased slightly for the period from 1949 to 1958.

A comparison of the graduate student enrollment in private and public institutions, however, changed in the same direction with a slightly greater percentage change in private institutions. In comparing the enrollment of undergraduate and graduate students, the percentage of nonresidents enrolled was greater in the case of the private institutions.

Change in migration by geographic areas was compared on the basis of the 1949-50 and the 1958 AACRAO study. In the

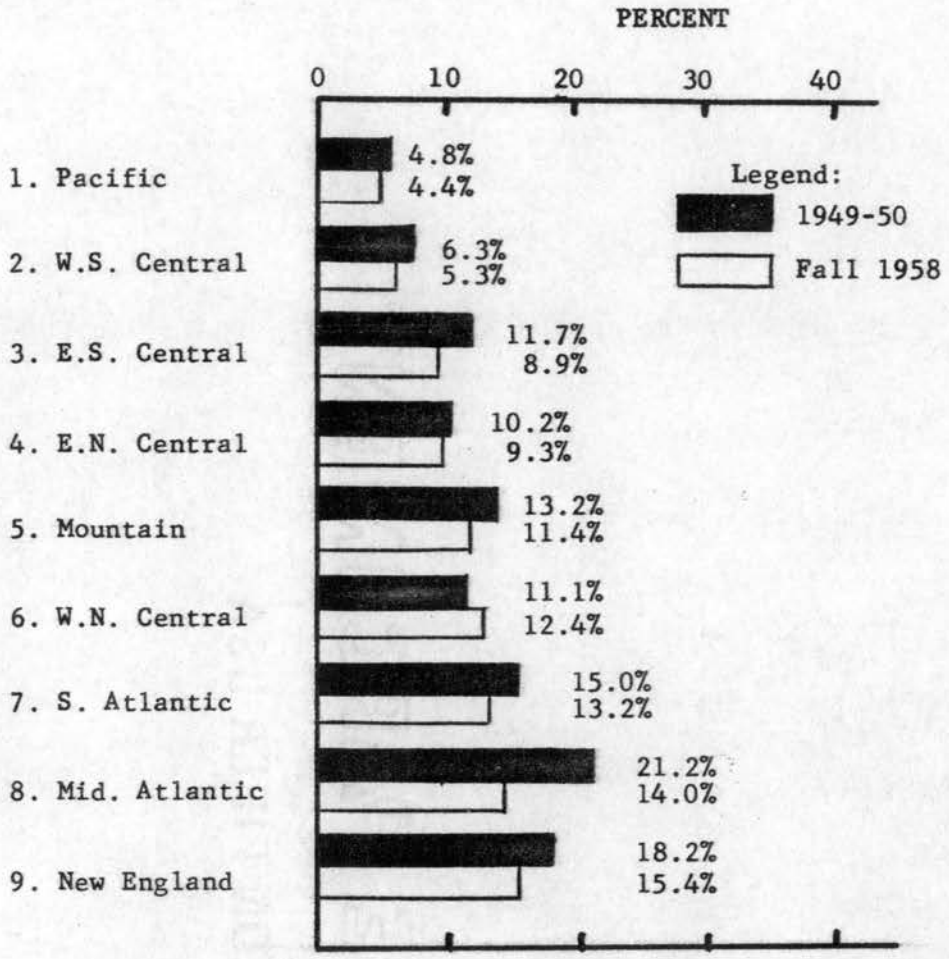
1949-50 Office of Education study, the author summarized:

> By and large students in the states west of the Mississippi tend to migrate less than those of the Eastern states.[17]

An analysis of the data furnished by these two studies was completed by the Office of Statistical Information and Services for the American Council on Education. The results as published in their Fact Book on Higher Education showed that, as one continues westward, there is a definite trend of a lower percentage of all undergraduates migrating from their home areas.[18]

A comparison of migration in nine selected regions in the United States, as used by the Bureau of Census, is provided graphically in Figures 26 and 27. The first chart pertains to public institutions; the second pertains to private institutions; both show the percentage of college undergraduates migrating from home state areas to the respective types of institutions. The comparisons were based on data in the Office of Education study of 1949-50 and the AACRAO study in 1958. A general decrease in a regional migration of undergraduates attending public institutions is indicated. There was only one case of an increase in the percentage of undergraduates in public institutions migrating from their home areas from 1949-50 to 1958. This was Region No. 6, the West North Central Region.

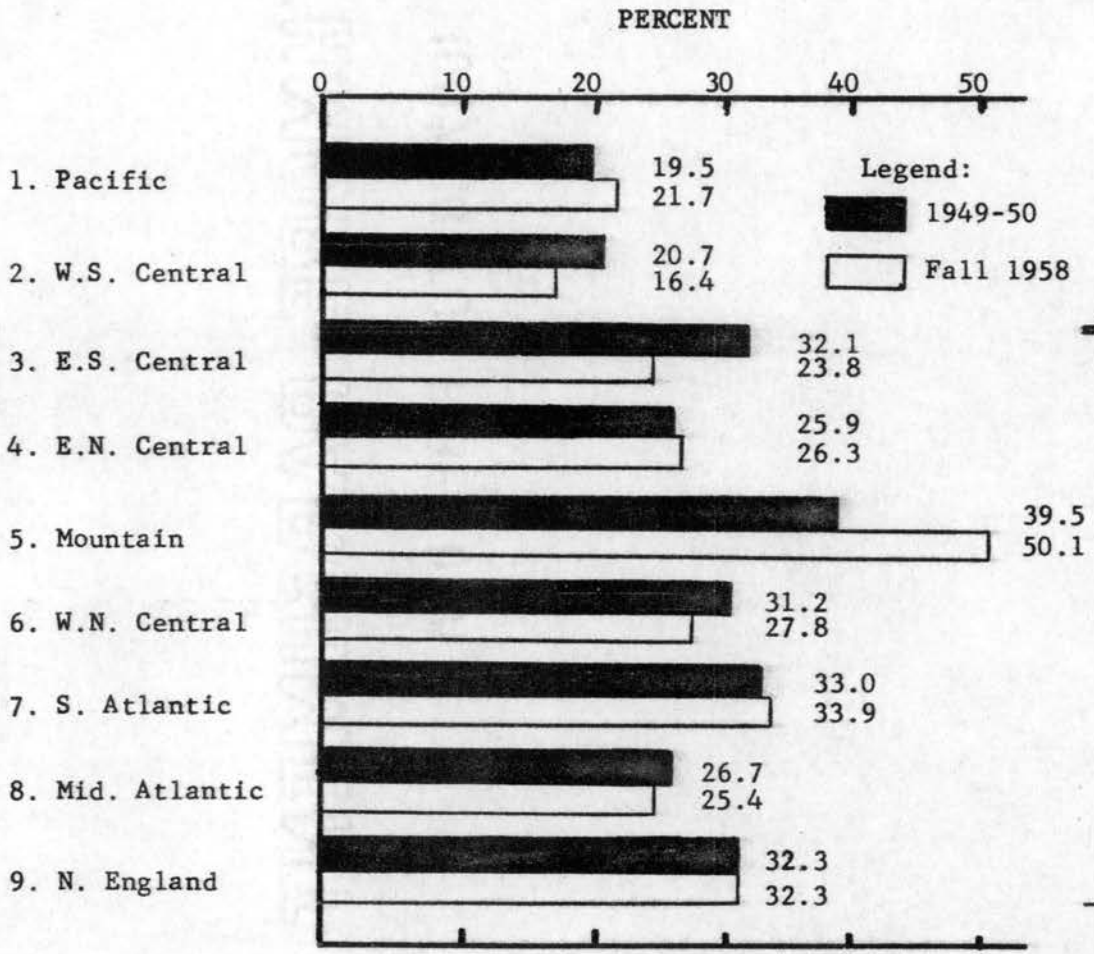
There was a marked contrast in the change of migration in the private institutions, as shown in Figure 27. Four of the regions showed increases in the percentage of migration



	Number of Students			
	Home in Area		Migrating Out	
Area*	1949-50	Fall 58	1949-50	Fall 58
1	180,087	258,313	8,567	11,363
2	148,043	191,563	9,369	10,211
3	79,392	98,291	9,250	8,788
4	250,216	291,169	25,596	27,051
5	55,425	72,491	7,297	8,260
6	131,966	153,162	14,605	18,980
7	134,363	146,599	20,115	19,302
8	126,719	186,197	26,828	26,003
9	41,662	45,040	7,590	6,954

*Breakdown used by Bureau of Census, see Stat. Abstract of the US, 1959, p. 10.

Figure 26. Percentage of College Undergraduates Migrating from Home State Areas to Public Institutions in the U. S., 1949-50 and Fall 1958. (Compiled from (1) Home State and Migration of American College Students, Fall 1958, pp. 18-19 and (2) Residence and Migration of College Students, 1949-50, pp. 28-31.)



	Number of Students			
	Home in Area		Migrating Out	
Area	1949-50	Fall 58	1949-50	Fall 58
1	68,489	67,940	13,375	14,747
2	84,788	65,154	17,526	10,711
3	44,438	48,804	14,264	11,619
4	221,239	211,239	57,349	55,480
5	25,264	23,061	9,984	11,559
6	87,820	75,226	24,412	23,500
7	125,690	120,661	41,484	40,928
8	360,700	342,591	96,222	86,998
9	105,609	98,611	34,077	31,889

Figure 27. Percent of College Undergraduates Migrating from Home State Areas to Private Institutions in the United States, 1949-50 and Fall, 1958. (Compiled from (1) Home State and Migration of American College Students, Fall 1958, pp. 18-19 and (2) Residence and Migration of College Students, 1949-50, pp. 28-31.)

in 1958 from 1949-50, with one showing no change. A change or trend associated with a westward or eastward movement was not apparent among the private institutions.

There was a significant change in the percentage of migration in the Mountain Region. The percentage of college undergraduates migrating from their home state areas in this region increased by over 10 per cent. A higher percentage of migration in the East results from the greater number of private institutions in this area.

The decline in the percentage of migration in the public institutions can be partially explained by the fact that the public schools may be offering more programs than they did in 1949-50. This partially eliminates the need to migrate for a special curriculum. The decline can also be attributed somewhat to the increase in the nonresident fees during the past decade.

In the case of the private institutions, however, there appeared to be a trend toward greater cosmopolitanism, as evidenced by the regional analysis. This may reflect an increase in family income, which makes it possible for more families to send students to private institutions outside the home state. It may also reflect a migration of students from public institutions to private institutions because of higher nonresident fees.

In conclusion, there was a definite trend in private institutions to increase their proportion of out-of-state

students; and public institutions have experienced a decline in the proportion of nonresidents enrolled in their institutions, at least on a regional basis.

Summary

Not only were fees different for nonresident and resident students; but fees were different, on the average, for undergraduate and graduate students. Fees varied also among geographic regions. The schools in the North Atlantic Region charged the highest average nonresident fee. Public institutions in the West and Southwest charged, on the average, the lowest resident fee. Most of the evidence supported a rising trend in nonresident fees; however, increases in nonresident enrollment were not unusual. Generally, there was a slight increase in the number of states which received more students than left the state; this was in a time of rising nonresident fees. One study, however, concluded that the nonresident enrollment decreased more in smaller schools than in larger schools when the nonresident fee was increased substantially.

The percentage of nonresident undergraduates has declined slightly since 1948, but the percentage of nonresident graduate students has declined more. This is consistent with a trend which goes back as far as 1922-23. A comparison of the change in nonresident enrollment of private and public institutions showed opposite results, with the percentage decreasing for public institutions from 1948-49 to 1958.

A regional analysis showed public institutions have decreased in the percentage of nonresident students for all but one of of the nine regions as defined by the Bureau of Census. The private institutions showed decreases in four of the nine regions.

Footnotes

[1]Louis A. D'Amico, W. Robert Bokelman, and Herbert S. Conrad, "Resident and Nonresident Charges for Tuition and Fees to Undergraduates in Public Institutions: 1961-1962," (manuscript), p. 3.

[2]Louis A. D'Amico and W. Robert Bokelman, Higher Education Basic Student Charges, 1961-62, U. S. Office of Education, Circular No. 685 (Washington, 1962), p. 6.

[3]D'Amico and Bokelman, Higher Education Basic Student Charges, 1962-63, Office of Education, Circular No. 711, Chapter 2.

[4]Hoff, p. 136.

[5]WICHE, Out-of-State Students, p. 15.

[6]Ibid.

[7]WICHE. "Fees for Nonresident Students," p. 1.

[8]Kosaki, p. 47.

[9]Ibid., p. 35.

[10]Frederick and Greenburg, pp. 27-37.

[11]Data pertaining to tuition and enrollment at public institutions in Iowa was provided by the State Board of Regents in Iowa. Nonresident fee at Iowa State University increased from $360 in 1952 to $600 in 1962. The nonresident enrollment for the same period of time increased relatively the same. At the State University of Iowa the nonresident fee increased from $376 in 1952 to $620 in 1962; the nonresident enrollment, however, increased slightly more, relatively. The analysis of fees and enrollment at these two institutions tend to point out that nonresident fees have little effect on nonresident enrollment. In any case, the fee does not cause a reversal in the trend of nonresident enrollment. As a matter of fact, an increase in the percentage of nonresidents at both institutions for the ten-year period was reflected by the data. The data were included in a report in mimeograph form entitled Survey and Comparisons of Tuition-fees, dated October 30, 1962.

Nonresident enrollment and nonresident fees in the thirteen Western states were subjected to correlation analysis. The migration of students among the thirteen Western states was provided by the Western Interstate Commission for Higher Education in their Fact Book on Western Higher Education (Colorado, 1962). Included in the Fact Book were data

pertaining to enrollment and fees for each institution located in the Western states. Tuition for the various institutions was weighted by the enrollment in each institution in order to derive a weighted mean nonresident tuition for each state. These weighted mean tuitions for each state were correlated with the nonresident enrollment represented as a percentage of the total enrollment in each state. The percentage of nonresident enrollment in the noncontiguous states was correlated with the differential in the weighted mean nonresident tuition and the weighted resident tuition of the various states. The coefficient of correlation calculated was zero. This tends to indicate that a causal relationship between nonresident enrollment and the differential in nonresident and resident fees is absent as far as the Western states are concerned.

[12]Data for Alaska and Hawaii were not available for 1948.

[13]Saundle, p. 87.

[14]Robert C. Story, Residence and Migration of College Students, 1949-50, Office of Education, Federal Security Agency, Misc. Circular No. 14, 1950.

[15]AACRAO, Home State and Migration.

[16]Story, p. 7.

[17]Ibid., p. 5.

[18]American Council on Education, A Fact Book on Higher Education (Washington, D. C., June 20, 1960), p. 119.

CHAPTER V

GEOGRAPHIC ORIGIN OF COLLEGE STUDENTS

College administrators recognize that the enrollment of resident students is influenced by institutional location. The enrollment patterns of nonresident students are not as apparent. The origin of nonresident students was classified in two groups--those from contiguous states and those from other states--in order to test the following hypothesis:

> Hypothesis: Undergraduate students who attend colleges out of state tend to migrate principally to contiguous geographic areas.

The patterns of the origin of resident students for various states are summarized. These studies indicate the significance that distance has on resident enrollment.

The approach used for studying the enrollment of resident students is extended to the study of the nonresident students on a state-by-state basis. Students were classified as originating from either contiguous or other states. Various ratios of nonresident migration were used to test the above hypothesis. The chapter is concluded with a detailed description of the geographic origin of nonresident students in Oklahoma.

Resident Students in Oklahoma and Selected States

Oklahoma

The enrollment of first-time freshmen in Oklahoma institutions of higher education, expressed as a ratio of the high school graduates by county, is illustrated in a self-study report of the Oklahoma State Regents for Higher Education. In the fall of 1961 the first-time freshmen comprised about one-fourth of all students enrolled in Oklahoma institutions.[1] The two state universities attracted first-time enrollees from the greatest number of counties--nineteen counties in central and north central Oklahoma.[2] The influence of the state-supported, four-year colleges was not as widespread as the state universities, as indicated in the following statement:

> The majority of their freshmen students originated from the three to four counties within commuting distance of their respective institutional locations. The state-owned two-year colleges drew the bulk of their students from a smaller attendance area than either the universities or the four-year colleges, attracting the majority of their students from their home and adjoining counties.[3]

In contrast,

> The private institutions . . . drew a much larger proportion of their students from the county in which the institution was located, . . .[4]

One conclusion of the Oklahoma regents' report stated:

> With the exception of Oklahoma State University and Langston University, a majority of the resident freshmen enrolled in institutions of the State System in Oklahoma live within a 50-mile radius of the college in attendance.[5]

When one investigates the geographic origin of all students enrolled in Oklahoma institutions, as presented in the self-study report, the pattern is similar to that for first-time freshmen enrollees. The regents summarized their findings pertaining to all students as follows:

> . . . there was great variation between the state-supported institutions and the private colleges in the distances that students traveled in the fall of 1961 to enroll in the various types of institutional situations. The private colleges were both more local and more cosmopolitan in the composition of their student bodies than were the public institutions. More than four-fifths of all students enrolled in these latter institutions came either from the home county of residence or from outside the state, leaving less than one-fifth of their student bodies to be drawn from other Oklahoma counties.[6]

> That the public colleges were more regional and less local in their attraction for students was attested by the fact that 46.8 per cent of the Oklahoma students who were on the campuses of the public institutions traveled across one or more counties to enroll, while only 16.3 per cent of the students in the private colleges did so.[7]

Specific analysis of the state of origin of the nonresident students attending Oklahoma colleges and universities appears later in this chapter.

Selected States

Reports which contain data pertaining to origin of resident students, either by county or other geographic region, were available for Texas, Iowa, Kentucky, Florida, and Nebraska. The data provided in these reports were investigated and summarized for each of the respective states.

Texas

It is interesting to examine the pattern in Texas, a state which is unique because of its relatively large land area. In Texas, the effect of distance is easily isolated from other factors responsible for student enrollment.

A report by the Texas Commission on Higher Education published in March 1963[8] revealed the percentage distribution of the student body living within a 100-mile radius of each of the nineteen fully state-supported senior academic institutions. The median of these percentages, based on the fall 1960 enrollment, was 72.3 per cent; the six highest percentages were above 89 per cent.[9]

In the same report the commission prepared geographic charts showing the distribution of students enrolled for the 1961 fall semester.[10] The charts were constructed on the basis of six circular areas for each of the nineteen state-supported institutions. The six circular areas are defined as follows: (1) within a 50-mile radius of the school, (2) a 50- to 100-mile radius, (3) a 100- to 200-mile radius, (4) a 200- to 300-mile radius, (5) a 300- to 400-mile radius, and (6) an area beyond a 400-mile radius. There was a strong tendency for the schools to attract a greater portion of their students from the first defined area; this was true for fourteen of the nineteen institutions. Two schools drew the greatest portion of students from the 50- to 100-mile radius. The University of Texas, A. and M. College of Texas, and Prairie View A. and M. College attracted their greatest number

from the 200- to 300-mile radius. (It is interesting to note that, in Oklahoma, the agricultural university also drew a larger portion of students from a wider area than did the non-agricultural university.) The more dispersed patterns may reflect the large range of specialized programs offered in these latter institutions.

Not only did the greatest portion of students come from the closest 50-mile radius in the majority of schools, but there was also a definite trend for the number of students to diminish directly with distance in terms of radius miles. This relationship is more consistent for the smaller and medium-sized institutions than for the larger ones.

Iowa

The Higher Education Studies in Iowa showed student enrollment by home counties.[11] Of the three public senior colleges in Iowa, two were located in the only two counties that had over sixteen students per thousand population attending Iowa public colleges in 1956.[12] One county was located in the center of the state; the other was in the eastern portion.

A county outline map showing the number of students per one thousand population was presented for those students who attended college in Iowa and the six adjoining states in 1956.[13] Counties having the high figure of over sixteen students per thousand population were concentrated in the northwestern part of the state.

A map demonstrating the geographic distribution showed the percentage of students in each county attending public senior colleges in Iowa. Counties with high percentages--ranging from 67 to 100 per cent--were concentrated around the three public senior institutions.[14] A similar depiction, which includes all public colleges in Iowa, also showed a concentration in the center part of the state.[15] There was a strong tendency for students to attend the institution closest to home. Border counties had a very low ratio of students attending institutions in the state.

Kentucky

A study of higher education in Kentucky, prepared by the Legislative Research Commission utilizing maps, showed college enrollment by counties on the basis of a "college-going rate." The college-going rate is the percentage of Kentucky high school graduates who enter college in the fall immediately following graduation. The college-going rates for each of the 114 counties are displayed on Map 1 of the study.[16] Of the thirty-one counties in which an institution of higher learning was located, only ten had a rate below the state average of 34.2 per cent. Only one county of the remaining eighty-three counties had a rate above the state average.

Map 7 showed the ratio of the 1960 Kentucky undergraduates in Kentucky colleges from each county to the total number of students who graduated from high school in that county from 1956 to 1960; the state average ratio was 19.2 per cent.[17]

Of the thirty-one counties in which an institution of higher learning was located, only nine had a percentage below the average. Of the eighty-three counties which did not have an institution of higher learning within their boundaries, slightly more than two-thirds had a percentage below the state average.

Both approaches indicate that the rate of college attendance by county is influenced by the location of educational institutions.

Florida

In the spring of 1963, the Board of Control in Florida completed a report of the fall 1962 enrollment in the institutions of higher learning in Florida. In each of the four state universities, more students came from the county in which the school was located than from any other county in the state. Enrollment of Florida students in Florida public junior colleges generally followed the same pattern as that for the state universities. Each of the private, degree-granting institutions also drew the greatest number of students from the county in which the school was situated.[18]

Nebraska

The Nebraska Legislative Council prepared a study of higher education in Nebraska in which it defined the college-going rate in a manner similar to the definition of the Kentucky commission. The Nebraska Council, however, called it the "college enrollment potential" or "CEP." Their report

showed the percentage of the college enrollment potential for each county as full-time undergraduates enrolled in Nebraska institutions for the fall of 1959. The highest CEP's were registered by those counties in which the state universities or state teachers colleges were located. Other relatively high CEP's were registered in those counties in which either a private or a public institution other than the university or teachers college was located.[19]

Synopsis of the Selected States

In the studies prepared for these six states, proximity of institutions was a strong factor in the enrollment of students from within the state. An awareness of patterns within the selected states prompted the investigation of the enrollment of nonresident students in order to discover the influence of institutional location on the enrollment behavior of such students.

An Analysis of the Migration of Nonresident Students

The National Pattern of Migration with Emphasis on the Contiguous States

The data published in the 1958 Home State and Migration Study of AACRAO were used to calculate the "migration ratio"--the ratio of the number of students migrating to a particular state to the total number of students originating in the home state of the migrating students. The ratios for each state were calculated and displayed on maps of the United States.[20] The analytical summaries of the maps are presented in Table II

TABLE II

SUMMARY OF MIGRATION RATIOS FOR CONTIGUOUS STATES BY TYPE OF STUDENT AND INSTITUTION, FALL ENROLLMENT, 1958

Classification[a]	Contiguous States			Contiguous State With Highest Ratio	
	Total Number	No. Ranked In Top Five	Per Cent	Number	Per Cent
All Institutions--Grads (Except Hawaii)	220	136	61.8	40	80.0
1st Time Undergrads--Colleges (Excludes Nevada, Wyoming, and Hawaii)	209	143	68.4	43	89.6
1st Time Undergrads--Universities (Excludes Alaska and Hawaii)	219	157	71.7	41	83.7
Undergrads--Public Institutions (Excludes Hawaii)	220	170	77.3	47	94.0
Undergrads--Private Institutions (Excludes Alaska, Nevada, Wyoming, and and Hawaii)	208	159	76.4	47	100.0

[a]Data was not available by classification for those states excluded.

Source: Appendix B.

and Table III, which focus on the migration of college students in relation to contiguous states. The various categories investigated include graduate students at all institutions, first-time undergraduate students in universities or colleges, and undergraduates in public and private institutions.

Percentage of States with the Highest Migration Ratio by Type of Institution and Classification of Student

The map summaries presented in Table II show the total number of contiguous states for each category and the total number of times those contiguous states had a ratio which was one of the five highest. The latter total is expressed as a percentage of the first total. The table also shows on a percentage basis, the number of times the state with the highest ratios was a contiguous state.

The proportional number of times that the ratio of a contiguous state was one of the five highest was approximately the same for undergraduates in public institutions and for undergraduates in private institutions--77.3 per cent and 76.4 per cent respectively. In each of the forty-seven states having private institutions, the highest ratio occurred for a contiguous state. This figure was also high in the case of public institutions. The state from which the highest ratio of students migrated was a contiguous state in forty-seven of the fifty states.

The results were not consistent when comparing first-time undergraduates in colleges with first-time undergraduates in

universities. Universities showed the higher percentage for the top five ratios; colleges displayed the higher percentage for the highest ratio.

As shown in Table II, relative to the other four categories investigated, the lowest percentages occurred in the case of graduate students enrolled in all institutions, as one would expect. Surprisingly, however, the absolute level of these percentages was higher than expected. In regard to the influence that contiguous states have in student migration, there was no difference in public and private institutions.

Percentage of States with the Highest Migration Ratio According to Educational Compacts

Identical procedures were used to analyze the same data based on geographic regions as encompased by the various educational compacts.[21] The totals and percentages shown in Table III are defined the same as those used previously in the foregoing analysis. The only difference in this analysis is that the data are grouped on a regional basis rather than on a state-by-state basis.

Included in Table III are the results pertaining to undergraduates enrolled in public institutions. Enrollment of students from contiguous states was most influential in the Midwestern region as demonstrated by the high percentage of contiguous states with the highest five ratios--87.3 per cent. The group comprised of the independents had the lowest

TABLE III

SUMMARY OF MIGRATION RATIOS FOR CONTIGUOUS STATES BY TYPE OF STUDENT AND INSTITUTION ACCORDING TO EDUCATIONAL COMPACTS, FALL ENROLLMENT, 1958

Classification	Contiguous States			Contiguous State with Top Ratio	
	Total No.	No. In Top Five	Per Cent	No.	Per Cent
All Insts.--Grads					
WICHE	55	28	50.9	8	67
MICHE	58	35	60.3	10	83
SREB	74	50	67.6	16	100
NEBHE	17	12	70.6	3	50
Independents	16	11	68.8	3	75
1st Time Undergrads--Colleges					
WICHE	44	33	78.6	8	80
MICHE	58	41	70.7	12	100
SREB	74	47	63.5	13	81
NEBHE	17	14	82.4	6	100
Independents	16	8	50.0	4	100
1st Time Undergrads--Universities					
WICHE	54	33	61.1	7	64
MICHE	58	45	77.6	11	92
SREB	74	56	77.8	16	100
NEBHE	17	13	76.5	3	50
Independents	16	10	62.5	4	100
Undergrads--Public Institutions					
WICHE	55	39	70.9	10	85
MICHE	58	51	87.9	11	92
SREB	74	56	75.7	16	100
NEBHE	17	13	76.5	6	100
Independents	16	11	68.8	4	100
Undergrads--Private Institutions					
WICHE	43	32	74.4	9	100
MICHE	58	48	82.8	12	100
SREB	74	54	73.0	16	100
NEBHE	17	14	82.4	6	100
Independents	16	11	68.8	4	100

Source: See Appendix B.

percentage, which may be partially explained by the absence of "compact" agreements.

Similar results occurred for undergraduates in private institutions. In both the public and private institutions, as shown in Table III, the Midwestern region had the highest percentage of states with migration ratios in the top five; however, the percentage figure was smaller for private institutions. In private institutions, as in the case of public institutions, a contiguous state had the highest migration ratio for each of the states.

Some differences occurred when migration ratios for first-time enrollees in the universities were compared with the ratios for first-time undergraduates in colleges. The New England region had the highest percentage of states for colleges, and the Southern region had the highest percentage of states for universities. The percentage of states with the highest ratios for the Southern region was only slightly greater than for the Midwestern and New England regions.

Table III may be used to compare the differences in the percentages of states with the highest migration ratios for colleges or universities on a regional basis. In the Western region, for instance, a higher percentage of states was present for colleges than for universities. This higher percentage may reflect, in part, the stronger influence of colleges in the Western states in attracting students from the contiguous states. In the Midwestern and Southern regions, the results are reversed.

The results for graduate students in all institutions, also depicted in Table III, showed a smaller dispersion in the percentages. The New England region possessed the highest percentage; the Western region had the lowest percentage. Not once was there a percentage below the 50 per cent mark. This emphasizes the importance of migration of college students from contiguous states. The regional analysis tends to designate differences in policy and regional characteristics as to migration for the various types of institutions.

An Institutional Approach to Migration Patterns with Emphasis on Oklahoma

The distribution of nonresident students attending Oklahoma institutions in 1963 is shown in Figure 28 by type of institution. Nonresident students are divided into three categories according to the area of their residence; these categories are: (1) students from contiguous states, (2) students from noncontiguous states, and (3) students from foreign countries and U. S. territories.

The four-year state colleges had the greatest percentage of nonresident students coming from contiguous states. The private and municipal two-year colleges had the smallest percentage of students coming from contiguous states. The percentage of students from contiguous states enrolled in private four-year colleges was 11.2 percentage points below the high of 68.4 per cent for the public four-year colleges. The percentage of students from states other than contiguous states

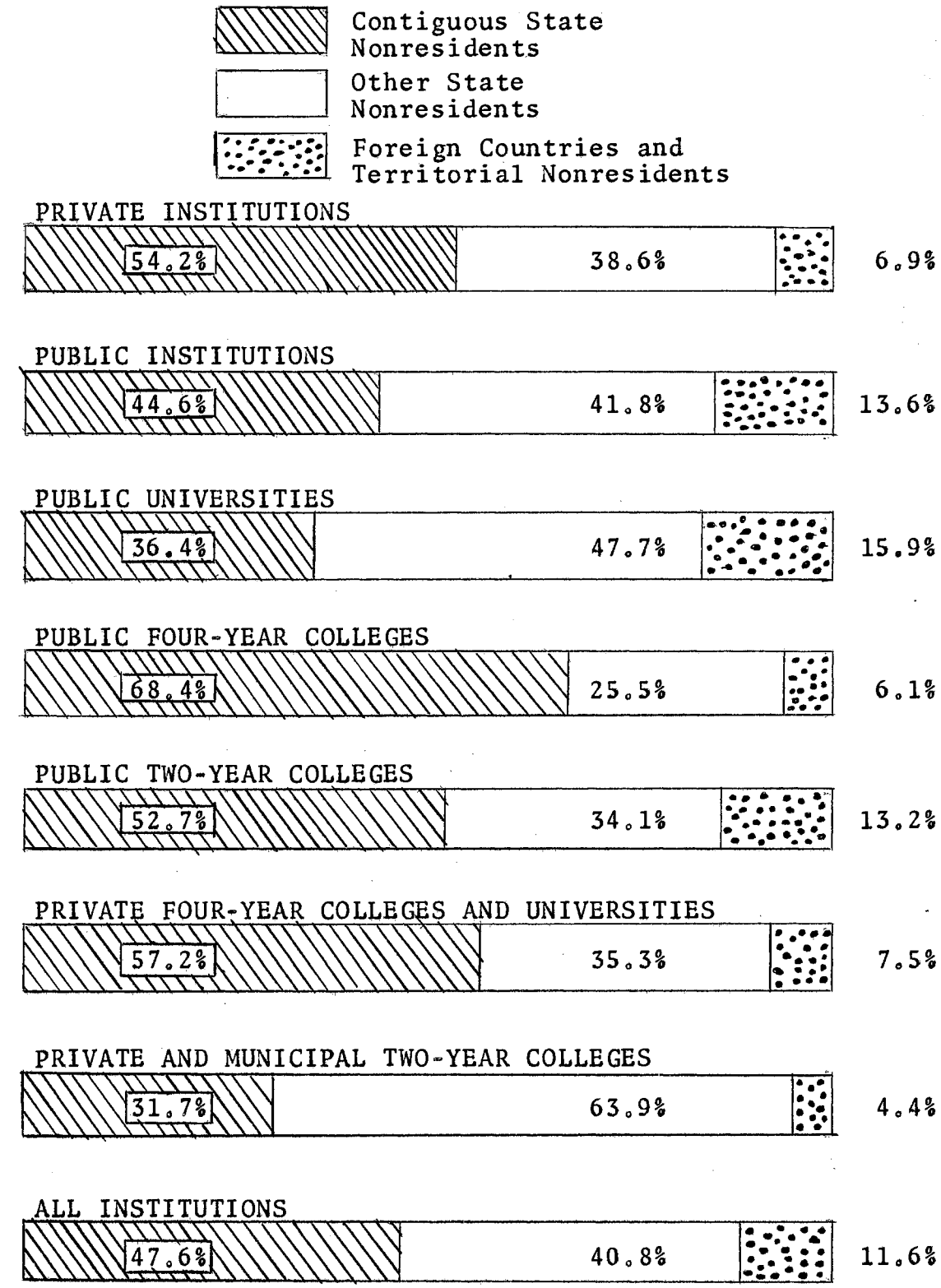


Figure 28. Clasification of Nonresident Students Enrolled in Oklahoma Institutions in the Fall of 1963 by Type of Institution. (Compiled from unpublished material on file in the Oklahoma State Regents Office, Oklahoma City, Okla.)

and foreign territories enrolled in private and municipal two-year colleges was over 16 percentage points above the percentage for state universities.

The seventeen state-supported institutions in Oklahoma were arrayed according to the percentage of nonresident students from contiguous states. All seven schools located within thirty-five miles of the state boundary ranked within the top eleven percentages.

Similar patterns resulted when only first-time freshman students were analyzed. Figure 29 contains pie charts which show the division of nonresident students. (Students from foreign countries and U. S. territories were included in the category of states other than contiguous.) The number of nonresident students in private and municipal two-year colleges was more evenly distributed than it was when all students were considered.

A striking pattern of nonresident enrollment was discovered in Florida due to the relative locations of the two state universities. Florida State University, located close to a northern border, enrolled a lesser number of nonresident students from the noncontiguous states than the University of Florida, which is located in the center of the state. On the other hand, Florida State University enrolled a larger number of nonresident students from contiguous states than did the University of Florida.[22]

At the graduate level, the public and private institutions enrolled approximately the same number of resident students;

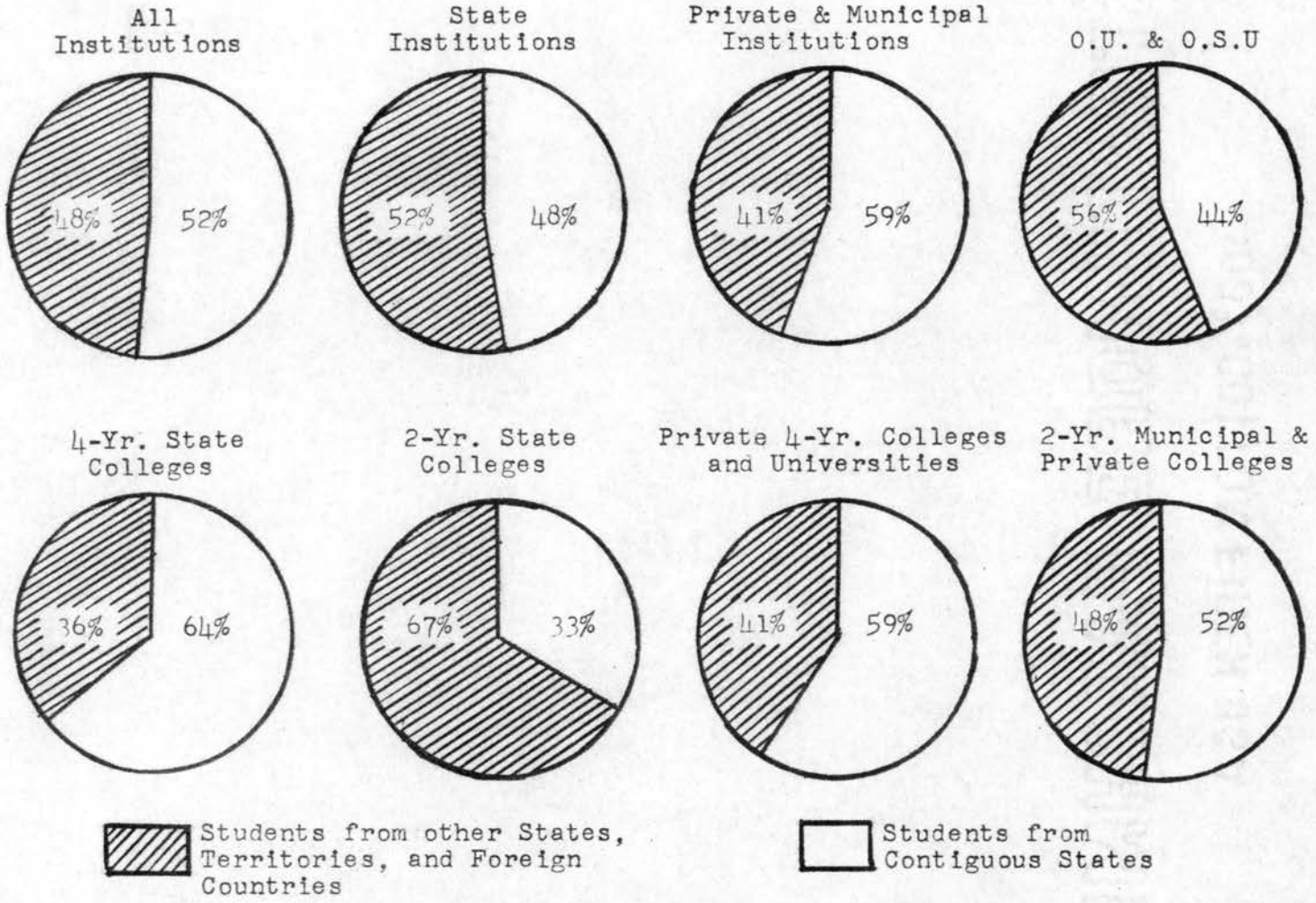


Figure 29. First-Time Freshmen Nonresident Students from Contiguous States and Other States, Territories, and Foreign Countries as a Percent of Nonresident Enrollment for the Fall of 1962 by Type of Institution. (Office of the Oklahoma State Regents for Higher Education, Oklahoma City, Oklahoma.)

but the private schools enrolled only seven of the slightly more than eleven hundred students from out of the state.[23]

A candid summary of some patterns in the Midwest is given in the following statement:

> . . . a large Ohio enrollment of Michigan institutions. The bulk of these students attended the University of Michigan which is located near the Ohio border. North Dakota enrolled a large number of Minnesota residents at the University of North Dakota and North Dakota Agricultural College, both which are located on the Minnesota border. In this connection, it may be of interest to note that in 1957 there was a relatively small differential between resident tuition at the University of Minnesota and nonresident tuition at the two North Dakota institutions. . . . In South Dakota there was a large out-of-state enrollment from Iowa and Minnesota. The University of South Dakota which is located on the Iowa border, enrolled a large number of Minnesota residents. Again, the differential between resident tuition at the state universities in Iowa and Minnesota and non-resident tuition at the two South Dakota institutions was relatively small.[24]

The proximity of schools explains, to a great extent, the migration of college students from contiguous states.

Summary

The resident student enrollment at Oklahoma institutions showed that private institutions were both more local and cosmopolitan than public institutions. The public institutions, however, drew a greater number of students from outside the county; and their enrollment was more regional than the private schools.

Resident enrollment patterns of various other states suggested that student enrollment was strongly influenced by institutional location.

A study of the national pattern of migration, based on migration ratios, emphasized the dominance of nonresident student enrollment from contiguous states. A contiguous state supplied, proportionately, the highest number of migrating students for over 80 per cent of the states. In fact, for undergraduates in private institutions, the percentage of states was 100. The regional analysis indicated variation in the degree of contiguous migration.

Institutional migration patterns were summarized for Oklahoma by type of institution. The four-year colleges enrolled, percentagewise, the greatest number of nonresidents from contiguous states. The public institutions located close to the state boundary ranked high in the percentage of students enrolled from contiguous states. Summaries pertaining to other institutional enrollments supported the strength of a relationship between institutional proximity to state boundaries and the enrollment of students from adjacent states.

Footnotes

[1]Dan S. Hobbs and John J. Coffelt, Oklahoma Higher Education Enrollments and Projections, Self-Study of Higher Education in Oklahoma, Report 3, Oklahoma State Regents for Higher Education (Oklahoma, February, 1963), p. 16.

[2]Ibid., p. 21. [3]Ibid. [4]Ibid.

[5]Ibid., p. 71. [6]Ibid., p. 26. [7]Ibid., p. 71.

[8]Texas Commission of Higher Education, Public Higher Education in Texas, 1961-1971, Report to the Governor and the Legislature of the State of Texas, (March 25, 1963).

[9]Ibid., p. 30. [10]Ibid., Appendix C, pp. 64-73.

[11]Marshall R. Beard and Arthur M. Gowan, Iowa Higher Education Studies, Data Report One, College Enrollment and Population, Study Committee on Higher Education in Iowa (January, 1958).

[12]Ibid., p. 10. [13]Ibid., p. 14.

[14]Ibid., p. 15. [15]Ibid., p. 18.

[16]Legislative Research Commission, Some Aspects of Higher Education in Kentucky, Research Report No. 14 (January, 1963), Map 1, p. 15.

[17]Ibid., p. 24.

[18]Board of Control, Enrollment in Florida's Institutions of Higher Learning, Fall 1962 (Tallahassee, Florida, April 10, 1963), pp. 29-35.

[19]Lyman A. Glenny and Walter E. Neece, The Nebraska Study of Higher Education, Nebraska Legislative Council Committee on Higher Education (January, 1961), p. 12.

[20]The calculated ratios are furnished in Appendix B. The calculation of the 12,500 ratios needed for the analysis in this section would have been too time consuming to have undertaken without the use of an IBM 1620 electronic computer.

[21]The regional compacts are as follows: (1) Western Interstate Commission for Higher Education (WICHE) which includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. (2) Midwestern Interstate Committee on Higher Education (MICHE) which includes Illinois, Indiana, Iowa, Kansas, Michigan,

Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. (3) Southern Regional Education Board (SREB), which includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. (4) New England Board of Higher Education (NEBHE), which includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. (5) A group of independent states which are New York, New Jersey, Pennsylvania, and the District of Columbia.

[22]Board of Control, Enrollment in Florida's Institutions of Higher Learning, Fall 1961 (Tallahassee, Florida, January 25, 1962), pp. 31 and 33.

[23]Ibid., pp. 67-68.

[24]Frederick and Greenburg, pp. 4-5.

CHAPTER VI

INCOME AND THE MIGRATING STUDENT

Income obviously influences college attendance. According to the Kentucky Legislative Research Commission, "a higher relative income coincides with a higher relative proportion of college enrollment among the states."[1]

Often during the first half of this century, the attainment of a college education was considered out of reach, financially, for the lower income families; only wealthy families could afford to send their children to college. Today, education is available to sons of janitors, unskilled laborers, tenant farmers, and many others through expanded public facilities and relatively higher income levels of the various occupations. One study indicated that the rising income levels and their effect on increasing relative expenditure for education will be the basis of adequate financial resources to support higher education.[2]

The relationship between financial ability and college attendance was not clearly specified in the studies encountered. Income and college enrollment were investigated on an aggregate basis, with particular reference to family income and student enrollment in Oklahoma colleges.

Aggregative Analysis

The aggregative analysis was divided into three parts. First, the conclusions of an earlier study were summarized and evaluated. Second, an investigation by states was made, utilizing the coefficient of rank correlation to determine the degree of relationship which existed between the ranking of state per-capita income and the ranking of the state's percentage of undergraduate students migrating out of their home state. Finally, the net-migration status of states was related to the per-capita income of the states.

The Ostheimer Findings

In 1953, Richard H. Ostheimer conducted a study for the Commission on Financing Higher Education.[3] The study dealt with student charges and the financing of higher education. Ostheimer related average charge paid by students to the average percentage of attendance by nonresident students and by students who emigrated. In summary he stated:

> . . . , the evidence provides no reason for believing that students migrated between states in order to attend institutions which charged less than institutions in their home states. To the contrary, the average student who emigrated paid a higher charge than the student who enrolled within the state, and migration was greatest to states whose institutions charged the highest fees. This accords with the fact that among private institutions, the best institutions tend to charge high tuitions and to enroll students whose homes are widely dispersed. The implication is, of course, that what these institutions have to offer in the way of prestige, a quality education, a specialized service, or the like outweighs their higher tuitions, and that migrating students typically come from wealthier families.[4]

Ostheimer's conclusions seem biased and distorted, since his analysis was based on the fact that "70 percent of the emigres attended private institutions."[5] An analysis pertaining to public institutions is more relevant and useful, especially as it pertains to any policy toward the out-of-state fee. His implications about migrating students typically coming from wealthier families were not based on a direct investigation of family income and had no basis for meaningful generalization.

Investigation by Rank Correlation

The forty-eight states were ranked according to the percentage of students leaving the state to attend college. These rankings were paired with the state's rank in per-capita income. These paired rankings were the basis for computing the coefficient of rank correlation in order to determine the degree of relationship existing between state per-capita income and the percent migration of college students. If the states which rank high in per-capita income are generally the states which rank high in the migration percentage, the coefficient reflects a strong association between income and the migration of students on a basis of data by state.

The coefficient of rank correlation was computed for the following three situations: (1) total college undergraduates, (2) college undergraduates enrolled in public institutions, and (3) college undergraduates enrolled in

private institutions. In no case was the coefficient greater than .25.[6] The coefficient for private institutions was .156 as compared to the coefficient of .235 for public institutions, The overall coefficient was .246.

Even though the coefficients were relatively low, which suggests a weak relationship, the coefficient was somewhat smaller for the private institutions. This is not generally expected and indicates that income, as related to migration, is a factor to be considered in public institutions.

The Relationship Between Per-Capita Income and the Net-Migration Status of States

Table IV illustrates the relationship between the positive states and negative states in respect to the per-capita income rankings of the forty-eight states. In this

TABLE IV

RELATIONSHIP OF PER-CAPITA INCOME TO NET-MIGRATION STATUS OF STATES FOR PUBLIC INSTITUTIONS, 1958

	Per-Capita Income Rankings					
Migration Status	1-8	9-16	17-24	25-32	33-40	41-48
Positive States	7	7	6	6	5	2
Negative States	1	1	2	2	3	6

Source: AACRAO, Home State and Migration of American Students, Fall 1958 (Report prepared by the Committee on Research and Service, March, 1959), pp. 18-19. California State Department of Education, California's Ability to Finance Higher Education, 1960-1975 (Prepared by the Technical Committe, 1961), Table 32.

instance, the postive states had more students enroll in public institutions than leave the state to attend public institutions. The negative states had more students leave the state to go to public institutions than to come into the state and attend public institutions. Per-capita income of the states was ranked from low to high values; i.e., the states with the lowest per-capita income would be ranked 1-8 in Table IV.

According to Table IV, a proportionately larger number of positive-status states had a low per-capita income; the negative-status states were states with high per-capita income. The number of students who emigrated from states with the high per-capita income exceeded the number of students who immigrated to those states with high income, and visa versa. Fewer students emigrated than immigrated where the per-capita income was low. In general, a high per-capita income was associated with negative-status states. This reiterates that income is a factor to be considered in the migration of college students to public institutions.

An Analysis of Oklahoma Students and Family Income by Chi-Square Criteria

Recognition of the Problem and Preliminary Investigation

There is a general consensus that the migrating student represents a group whose family income is relatively higher than that of the resident student. If this is true, the

charging of an out-of-state fee may not be a strong deterring factor for many students seeking education. Thus, attending college out of the state may be considered a status symbol. In this case, the charging of an out-of-state fee is justified by the principle of ability-to-pay. There is, however, the possibility that this ability to pay is not as strongly relevant when the student comes from a contiguous state.

An analysis of students in the State of Oklahoma seems apropos because Oklahoma typifies many states with a mixture of public and private institutions, universities, and colleges. The Oklahoma Regents for Higher Education recently conducted surveys from which the data pertaining to family income of college students were extracted. Other states which indicated interests along this line had not collected the data or did not have the data published by institution.

Statistics on family income as associated with college students enrolled in Oklahoma institutions were obtained from the State Regents' office. These data, displayed in Figures 30 and 31, show the general distribution of family income of students attending Oklahoma schools. Figure 30 classifies family income of first-time freshmen students according to resident and nonresident status. Figure 31 shows a breakdown of family income of first-time freshmen enrolled in the various types of public institutions.

Proportionately, over twice as many nonresident freshmen students as resident students enrolled in Oklahoma institutions came from families in the $10,000 or over income

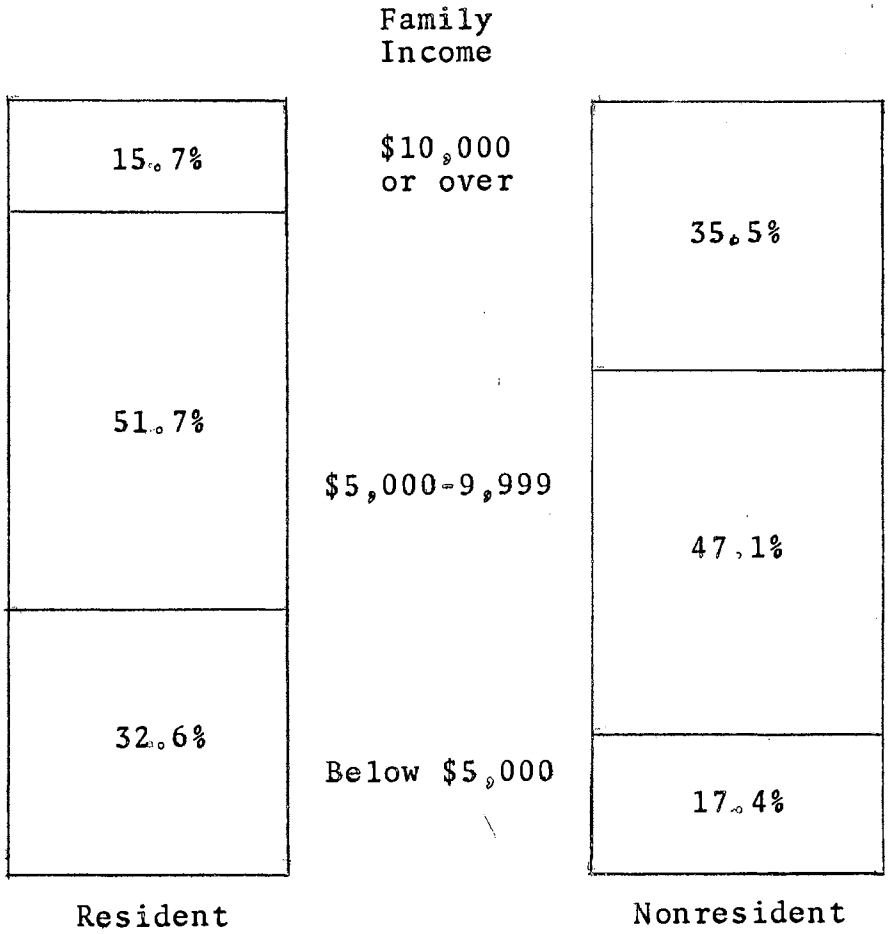


Figure 30. Distribution of Family Income of Resident and Nonresident First-Time Freshmen Enrolled in Oklahoma Institutions of Higher Education in the Fall of 1962. (From unpublished material on file at the Oklahoma State Regents for Higher Education in Oklahoma City, Oklahoma.)

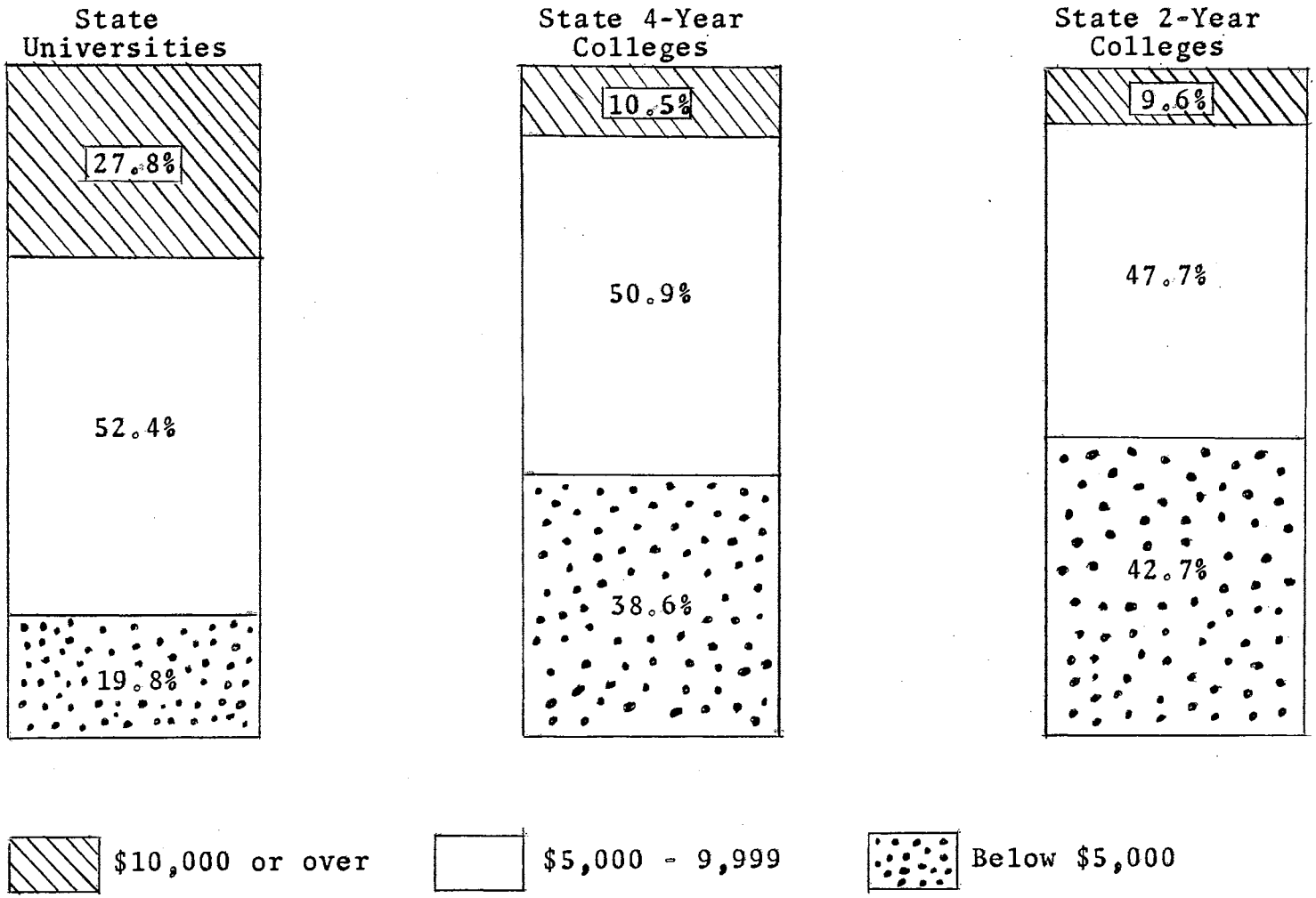


Figure 31. Distribution of Family Income of First-Time Freshmen Students Enrolled in Public Institutions of Higher Education in Oklahoma in the Fall of 1962, by Type of Institution. (Unpublished material on file in the office of the Oklahoma State Regents for Higher Education.)

bracket. This indicated that, generally, nonresident students came from families which were better able to pay the higher nonresident tuition. This analysis will be extended in a later section by separating the nonresident students into two groups: those coming from contiguous states and those coming from other than contiguous states.

In Figure 31 the distribution of the family income of freshmen students is divided according to the three types of public instituions. The patterns varied somewhat according to the type of institution. A significantly larger proportion of students from the high-income bracket attended the state universities, and the distribution was almost identical for the four-year and two-year colleges.

Testing an Income Hypothesis

Statement of the Hypothesis

The researcher formulates a hypothesis or tentative explanation of phenomenon resulting from casual observations. The next step is to test whether the hypothesis is or is not true. Such tests are fundamental in making decisions about populations on the basis of sample information and are very often statistical in nature. Sometimes the test is not based on a sampling procedure; therefore, it is not strictly a statistical hypothesis. The approach, however, is similar.

The hypothesis to be tested in this chapter may be classified as a statistical hypothesis in the sense that the data represent a sampling of student enrollment in a time

span. Any discrepancies of income over time can be easily adjusted on the basis of real income. Changes in institutional factors also require some adjustment.

A statistical hypothesis may be formulated for the sole purpose of rejecting or nullifying it; such hypotheses are often called null hypotheses. The null hypothesis for the problem investigated here is as follows:

> Hypothesis: Income is not a factor associated with migration of college students to Oklahoma institutions, especially, when proximity of institutions and the contiguous geographic areas are relevant.

Method of Investigation and the Evidence

Explanation of method. An analysis was made of the family income level of 1962 first-time freshmen students attending colleges and universities in Oklahoma. Several 3 by 3 contingency tables were constructed, and the chi-square values were computed for two purposes: (1) to test whether there existed a significant relationship between family income, expressed in the three income categories, and enrollment of resident and nonresident students; and, (2) to measure the degree of relationship by computing the coefficients of contingency.

The chi-square method is suitable for most cases in which observations can be classified into discrete categories and treated as frequencies. The chi-square values are used in connection with testing the compatibility of observed and expected frequencies in two-way tables known as contingency

tables. A contingency table is usually constructed for the purpose of studying the relationship, if any, between the two variables of classification.

Once the chi-square criterion has shown that a correlation between two qualitative variables is significant, the strength of the relationship may be measured. Contingency coefficients are similar to ordinary correlation coefficients in that they are close to zero when there is no correlation and close to one when the relationship is strong. (For a 3 by 3 table, the maximum value of the coefficient is .816.)

The coefficients of contingency which were computed measured the degree of relationship between family income and the distance students traveled, expressed by the three classifications of the states from which students came--Oklahoma, contiguous states, and other states.

Adjustment and treatment of data. The data used for testing the hypothesis were furnished by the Oklahoma State Regents for Higher Education. The necessary data were extracted from punched data cards which contained various information pertaining to the first-time freshmen enrolled in Oklahoma educational institutions for the fall of 1962.

The information came from replies made by first-time freshmen students to a questionnaire containing a question on family income. Their replies furnished income data according to the three following classifications: (1) below $5,000, (2) $5,000 to $10,000, and (3) $10,000 or over. The

questionnaire also provided the student's state of origin based on the last high school attended.

The contingency table utilized the data according to these classifications of the two variables, with two adjustments. First, those students classified as nonresident students who received scholarships were excluded. Second, students from foreign countries were excluded.[7] These data used in testing the null hypothesis were considered as a sample over time.

The computational procedure involved summarizing the data into contingency tables for each of the following classifications of undergraduate students:

(1) Students in all institutions

(2) Students in public institutions grouped according to:

    (a) all public institutions

    (b) universities

    (c) four-year colleges

    (d) two-year colleges

(3) Students in private institutions

    (a) all private institutions

    (b) universities and colleges

    (c) private and municipal two-year colleges

(4) Students in institutions located in counties adjacent to the state boundary.

The chi-square analysis was performed on the basis of the categories outlined above.

Computational Results and Findings

Table V contains the chi-square values and the coefficients of contingency which were computed. The coefficients of contingency indicated a significant, though not particularly strong, correlation between the two variables--family income and geographic origin of students. The fact that they were significant in each case was shown by means of the chi-square criterion.

TABLE V

CHI-SQUARE VALUES AND COEFFICIENTS OF CONTINGENCY FOR FIRST-TIME FRESHMEN ENROLLED IN OKLAHOMA SCHOOLS OF HIGHER EDUCATION BY TYPE OF INSTITUTION, FALL 1962[a]

Institutional Classification	Chi-Square[b]	Coefficient of Contingency
All	218.48*	.1396
Public	255.42*	.1664
Universities:	126.16*	.1918
A	73.54*	.1855
B	124.50*	.3027
4-Year	38.16*	.1005
2-Year	23.09*	.1077
Border Institutions	18.74*	.1085
Private	16.25*	.0899
4-Year & Universities	12.69*	.0907
2-Year	14.74*	.1752

[a]See Appendix C for contingency tables and calculations of chi-square and coefficients of contingency.

[b]The asterisk indicates a .05 level of significance, based on the critical value of 9.4877.

The relationship was relatively stronger for public institutions than for private institutions. Descriptive charts (Figures 32, 33, and 34) display the relationships for the previously mentioned two variables according to the various classifications which were investigated. The various income categories are displayed along with the classification of students to demonstrate the relationship which was present.

Basically, the displayed patterns showed an increase in the proportion of nonresident students who came from families in the highest income group as the student came from the more distant states. The proportion of students from the $10,000-and-over group was larger for those students who came from the noncontiguous states. The only significant exception appeared in the case of private and municipal two-year colleges.

Five of the public institutions were located in counties adjacent to the state boundary.[8] Students who came from contiguous states to attend those five institutions represented proportionately a larger group in the lowest income bracket than for all public institutions. These "border institutions" attracted proportionately more students, however, from the highest income category than did either the state four-year colleges or state two-year colleges, as a group, but less than all public institutions. The difference in Oklahoma's per-capita income of contiguous states may be significant for border institutions. Another contributing factor may be the relative location of the institutions in the contiguous state. For example, East Central State College attracted only

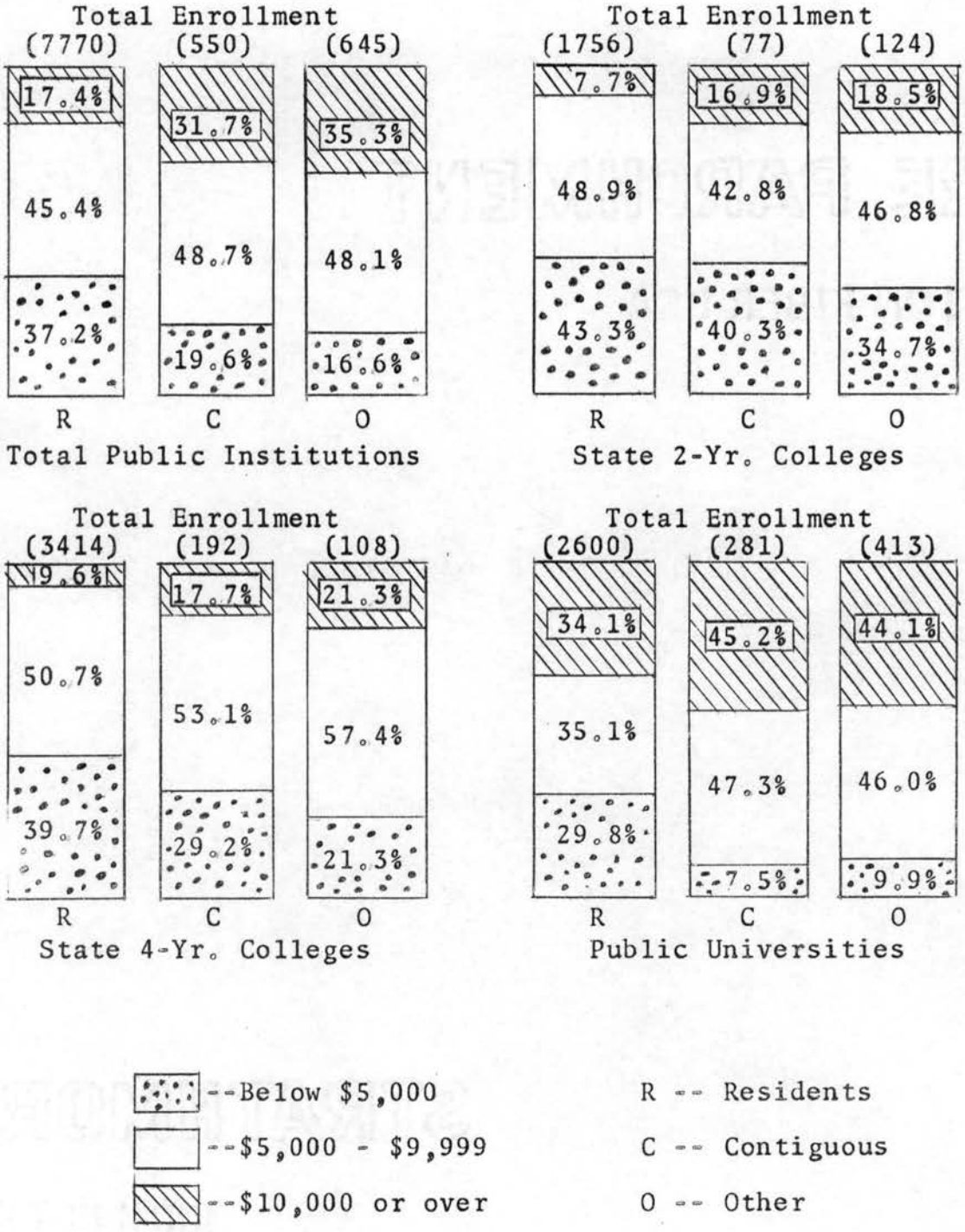


Figure 32. A Description of the Cross-Classification of Students, According to Family Income and State of Origin, Enrolled in the Fall of 1962 in Oklahoma Public Colleges and Universities by Type of Institution. (Extracted from Form 3-C, Student Record Form, Oklahoma State Regents for Higher Education, Oklahoma City, Oklahoma.)

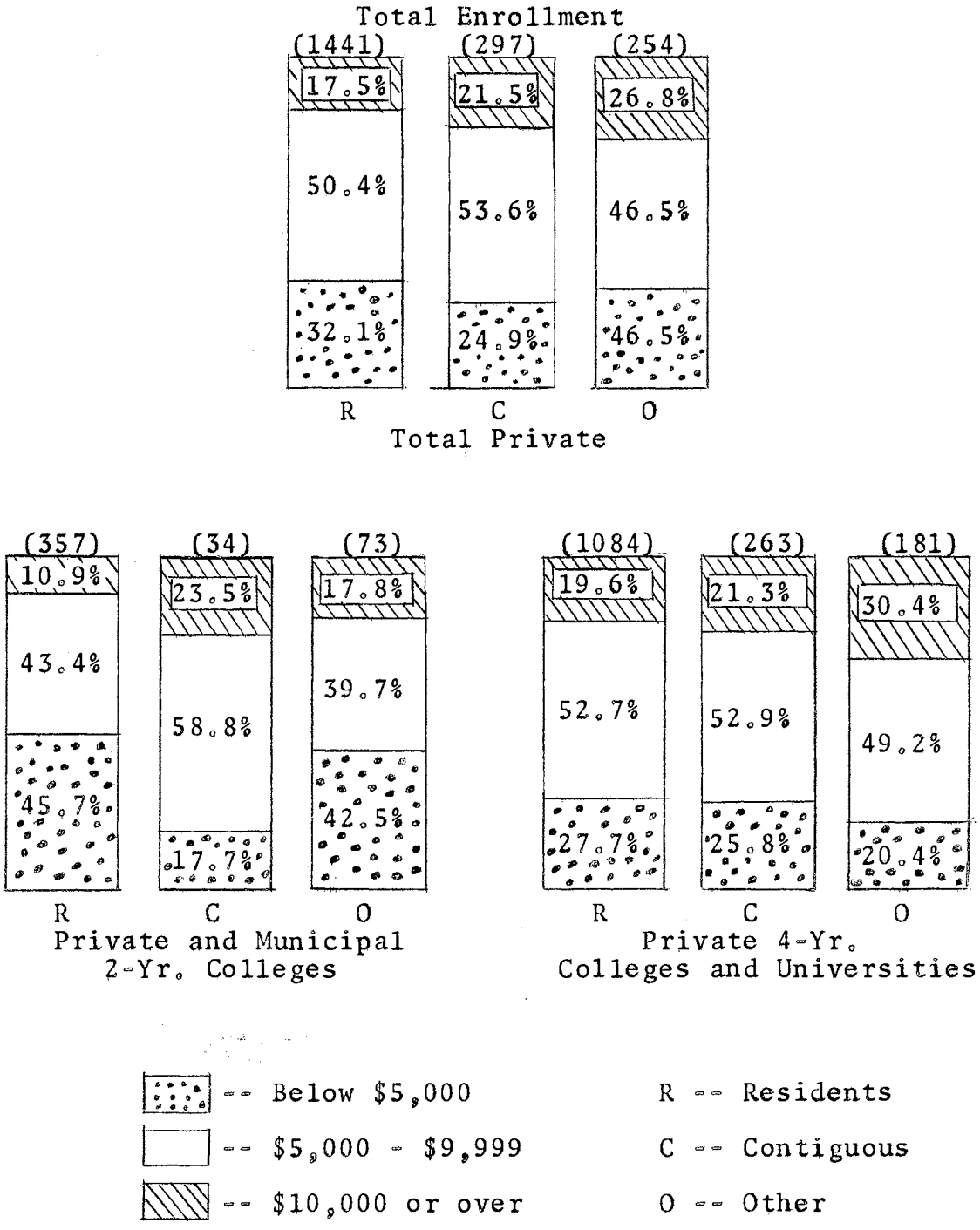


Figure 33. A Description of the Cross-Classification of Students, According to Family Income and State of Origin, Enrolled in the Fall of 1962 in Oklahoma Private and Municipal Colleges and Universities by Type of Institution. (Extracted from Form 3-C, Student Record Form, Oklahoma State Regents for Higher Education, Oklahoma City, Oklahoma.)

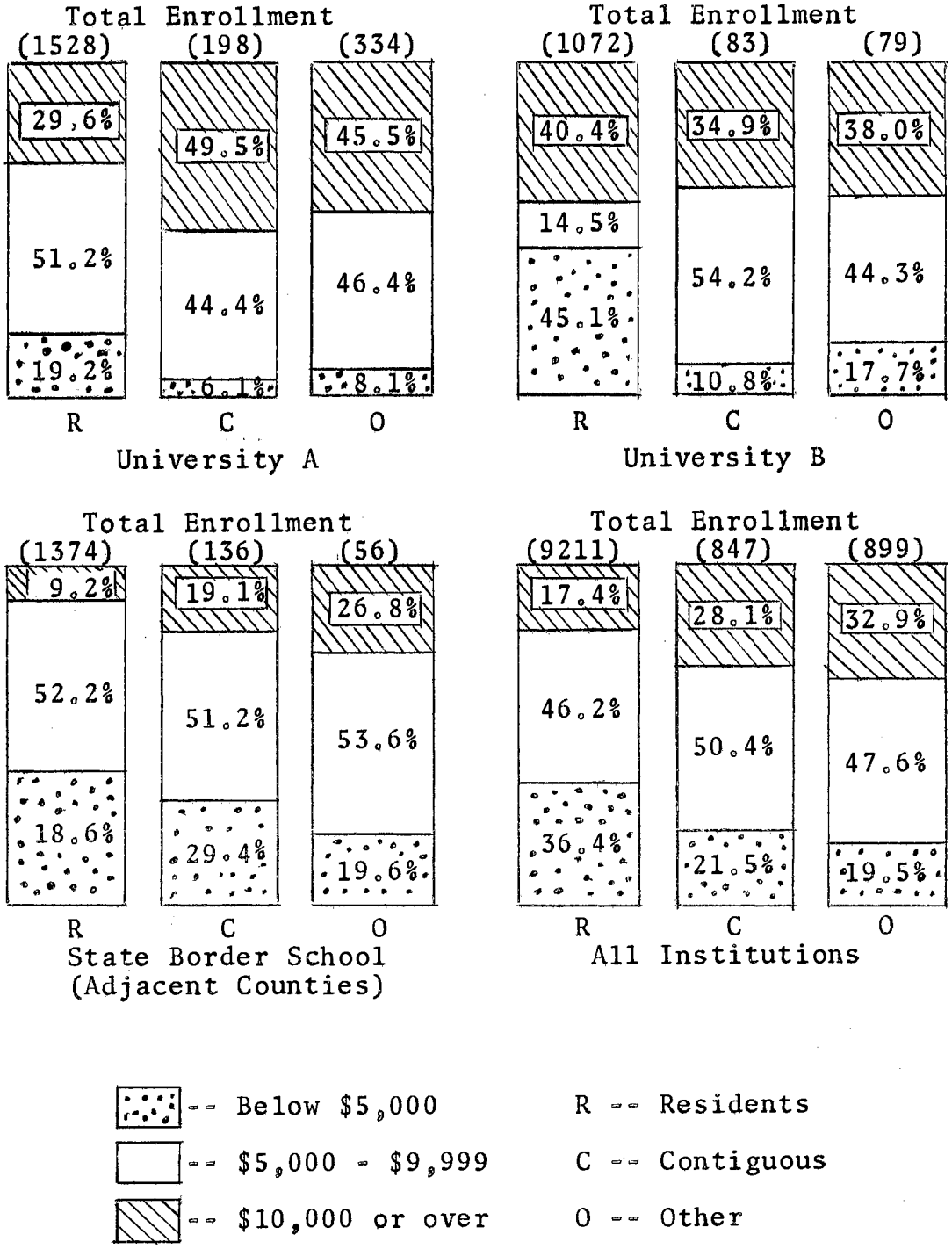


Figure 34. A Description of the Cross-Classification of Students, According to Family Income and State of Origin, Enrolled in the Fall of 1962 in Selected Groups of Oklahoma Colleges and Universities by Type of Institution. (Extracted from Form 3-C, Student Record Form, Oklahoma State Regents for Higher Education, Oklahoma City, Okla.)

fourteen students from out of state, which represented less than 1 per cent of its student body in 1961.[9] Such a small number is due to the fact that the institution is centrally located. However, those institutions located near the eastern border of Oklahoma may not receive as many students as expected from Arkansas because the University of Arkansas is located relatively close to the eastern border of Oklahoma.

Little difference appeared between the two state universities in the distribution of the two groups of nonresident students. The noticeably small proportion in the middle income group for resident students in School B partially explains the relatively large chi-square value responsible for the relatively high coefficient of contingency value of .3027.

The chi-square value was significant for all institutions when only nonresident students were analyzed. The coefficient was .1396.

Conclusions

The null hypothesis--income is not a factor associated with migration of college students to Oklahoma institutions, especially, when proximity of institutions and the contiguous geographic areas are relevant-- was rejected on the basis of the chi-square criterion. Therefore, the evidence supported the absence of independence between the two variables-- income and the state of origin of students. As expressed by the coefficient of contingency, the degree of relationship between family income of students and the state of origin of students

who attended Oklahoma schools of higher education was not strong; however, the description of the income distribution in Figures 32, 33, and 34 showed the relationship.

Summary

The Ostheimer study inferred a relationship between family income of students and the migrating student; it suggested that the migrating student came from wealthier families with no distinction between students migrating to public or private institutions. The lack of a direct investigation of family income and student resident status seems to be a valid criticism of his approach.

Per-capita income of states was related to percentage migration of college students by rank correlation procedure. There was a stronger relationship for public institutions than for private institutions.

The comparison of per-capita income ranking of states to net-migration status of states showed a strong tendency for states with high income to be the same states with a negative status in regard to the public institutions.

The study of the Oklahoma freshman student and his family income revealed the lack of independence between various levels of income and geographic origin of the student. Preliminary data indicated that a greater percentage of the nonresident students came from families with income of $10,000 or over. The chi-square values for the various categories of institutions were statistically significant. The coefficients

of contingency, though not strong, indicated correlation between income and origin of students. Generally, the degree of relationship was stronger for public institutions than for private institutions. Public institutions located close to the state boundary attracted a larger percentage of students with low income from the contiguous state than did all public instituions in the state considered as a group.

Footnotes

[1]Kentucky Legislative Research Commission, Report No. 14, p. 23.

[2]Eli P. Cox and Roger L. Bowlby, "Financing Higher Education," The Michigan Economic Record, V, 10 (November, 1963), p. 2.

[3]Richard H. Ostheimer, Student Charges and Financing Higher Education (Columbia University Press, 1953).

[4]Ibid., p. 109-110. [5]Ibid., p. 108.

[6]See Appendix C for calculations.

[7]These adjustments explain any difference in enrollment figures based on unpublished material as presented in another part of this study.

[8]The five schools are Panhandle A and M, Northwestern State College, Northern Oklahoma Junior College, Northeastern Oklahoma A and M College, and Southeastern State College.

[9]Hobbs and Coffelt, p. 27.

CHAPTER VII

RESIDENCE OF STUDENTS AFTER GRADUATION

Taxpayers generally are not interested in paying the cost of educating students who come from out of state; however, as parents, they are willing to pay the cost of educating their own children. There seems to be a conflict of interest on the part of taxpayers. There are those nonresident students who may remain in the state and be useful in improving conditions in the state while there are those resident students who may leave the state at a time when they have become more productive.

Many college graduates leave the state in which they were educated and seek employment in other states where opportunities seem to be more abundant. This outflow of college graduates is a burden to those states which are unable to retain the needed skills of their own educated youth. Parents may even encourage their children to leave the state if they can be more productive or receive higher returns elsewhere.

Many parents have accepted the responsibility of providing educational opportunities for their children, but whether their children remain in the state after graduation is only secondary to the main objective of parents.

This point must be emphasized, for on the surface many people argue that it is senseless for resident parents to pay for the education of their children and then allow them to leave the state after they have developed their intellect. These critics suggest that graduates should be encouraged to make a contribution to the development of the state which supported their education to pay back some of the cost of their education. As indicated, this may be only of secondary importance to taxpaying parents; their main concern is to help their children to provide for themselves in the future as educated citizens.

Arguments have been presented which favor giving nonresident students a more favorable treatment than they receive because those who remain may assume a beneficial role in the state's development. The future taxes paid by these individuals will partially compensate the cost of their education. Elimination of nonresident fees may be warranted because:

> . . . students who come to a state for their education may remain as residents and through use of their skills and knowledge contribute to the social and economic advancement of the state for many years.[1]

Two comments made by college presidents when asked about current policies toward out-of-state students at their schools are as follows:

> . . . We find that many of the students who have come from other states tend to develop a liking for the state and make every effort to become permanent residents of the state after graduation. If the resources of the state are to be developed,

> it is essential that aid be given in this manner to the encouragement of population growth and increase in the technical and vocational skills necessary for such growth.[2]
>
> . . . We made a study several years ago to see what percent of the out-of-state students stayed in the state to teach (those in teacher education). We found 84 percent of those who were graduated stayed. This was slightly higher than for resident students.[3]

The geographic distribution of resident and nonresident students after graduation was determined in order to establish uesful guide lines for policies directed toward the nonresident student. The various distributions of students graduating from Oklahoma State University in the spring of 1963 are described to preface the analysis of the role of the students after graduation.

Explanation of Data and Analytical Approach

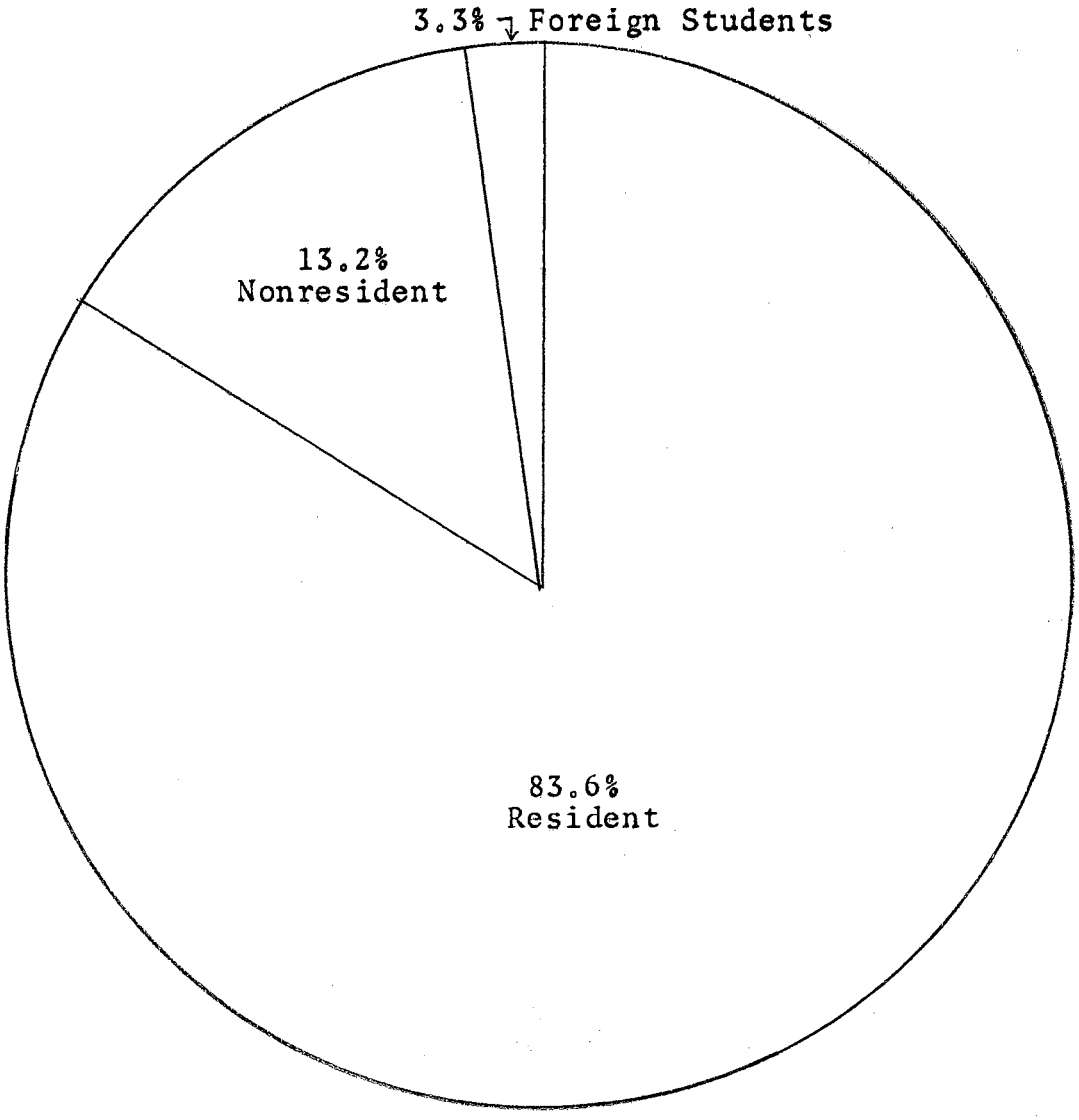
The employment status and future plans of students who graduated from Oklahoma State University in the spring of 1963 were recorded on survey cards collected by the Oklahoma State University Placement Service Office.[4] These employment survey cards contained the information used in this analysis. The survey card was primarily aimed at acquiring data pertaining to the employment plans of students after graduation. Plans which are not classified as employment plans, however, are considered relevant also. The various other plans that students may have had included marriage, military service, and further education. The student responses recorded on the survey cards were then related to the resident status of

the student. This relationship was accomplished by utilizing a coding procedure which identified resident, nonresident, and foreign students with the various categories of anticipated plans. The coding also allowed subdividing according to broad geographic situations.

Figure 35 shows a descriptive pattern in pie chart form of the distribution of graduating students according to their resident status. Figure 36 shows the distribution of these students according to resident status and the three types of degrees conferred; namely, associate, bachelor, and graduate degrees. The proportional distribution of resident students, nonresident students, and foreign students was similar to those figures which represented the distribution of total enrollment of students at Oklahoma State University.[5]

As indicated in Figure 36, the number of nonresident students as a percentage of those who received associate degrees was greater than the number of nonresident students as a percentage of those who received bachelor degrees. As expected, the percentage of nonresident students receiving graduate degrees was higher than the percentages for those receiving associate and baccalaureate degrees. This breakdown of resident and nonresident students according to the type of degrees conferred was used to emphasize the relative importance of these various categories as they were investigated in the remaining analysis.

The analytical approach was divided into two parts. The first part involved construction of classification tables in



TOTAL STUDENTS -- 1,521

Figure 35. Geographic Origin of Students Who Received Degrees in May, 1963, from Oklahoma State University. (Compiled from Oklahoma State University Employment Survey Cards and records in the Registrar's Office.)

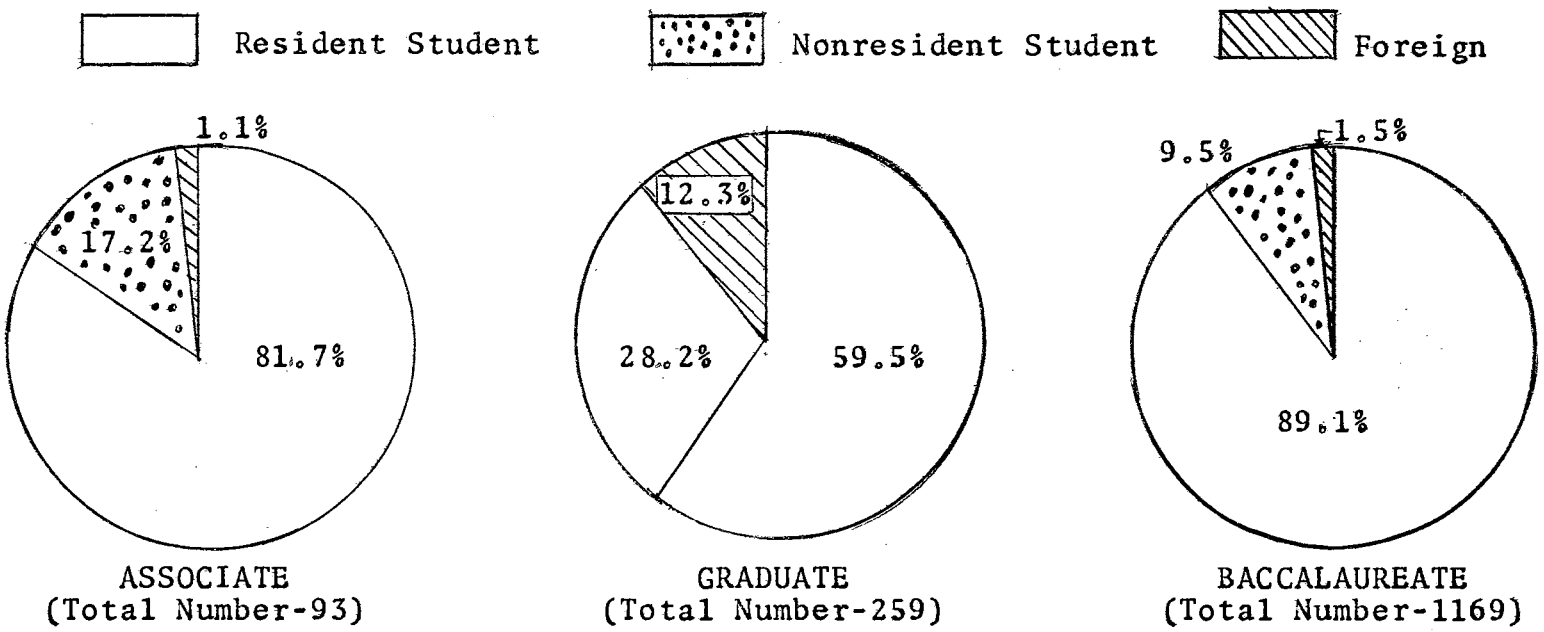


Figure 36. Geographic Origin of Students by Type of Degree Received from Oklahoma State University in May 1963. (Office of the Registrar, Oklahoma State University, Stillwater, Oklahoma.)

order to determine the proportion of nonresident and resident students whose anticipated plans reflected either to remain or to leave Oklahoma. The first part was concluded with a detailed analysis based on the various colleges located on the Oklahoma State University campus.

In the second part of the analysis, the plans of students were directly compared with nonresident and resident status and the type of degree conferred. Mainly, the analysis was accomplished by comparing various descriptive pie charts.

Comparison and Analysis of the Anticipated Plans of Students and Their Resident Status

Once the student responses were extracted from the employment survey cards and the resident status was verified and related to the data, a coding was established which summarized the information according to the eight categories listed as follows:

(1) Resident students who stayed in the state,

(2) Resident students who went out of state,

(3) Nonresident students who stayed in Oklahoma,

(4) Nonresident students who went to their home state,

(5) Nonresident students who went to states other than their home state or Oklahoma,

(6) Foreign students,

(7) Resident students whose plans were unknown, and

(8) Nonresident students whose plans were unknown.

General Classification Tables

Frequency tables were constructed which showed the number of resident and nonresident students who remained in Oklahoma and who left Oklahoma after graduation. Table VI contains data pertaining to graduating students according to type of degrees obtained.

TABLE VI

MIGRATION OF STUDENTS WHO RECEIVED BACCALAUREATE AND GRADUATE DEGREES AT OKLAHOMA STATE UNIVERSITY IN THE SPRING, 1963

Classification	Remained	Left
Baccalaureate Degrees:		
Nonresident students	25	59
Resident students	597	293
Graduate Degrees:		
Nonresident students	6	38
Resident students	76	58

Source: Placement Office, Oklahoma State University.

Approximately 15 per cent of the nonresident and 55 per cent of the resident students who received graduate degrees stayed in Oklahoma. A greater proportion of nonresident students who received baccalaureate degrees planned to remain in Oklahoma than did nonresident students who received graduate degrees.

Students who received baccalaureate degrees from Oklahoma State University were classified according to the respective colleges at the school. Table VII shows the distribution of resident and nonresident students who remained in Oklahoma and those who left the state.

TABLE VII

MIGRATION OF BACCALAUREATE DEGREE REDIPIENTS OF OKLAHOMA STATE UNIVERSITY IN THE SPRING OF 1963, BY COLLEGE

Classification	College					
	Educ	A&S	Bus	Eng	Agr	HEc
Resident students:						
Remained in Oklahoma	96	138	118	65	113	67
Left Oklahoma	48	67	37	78	35	28
Nonresident students:						
Remained in Oklahoma	3	3	1	13	5	0
Left Oklahoma	10	12	9	12	11	5

Source: Placement Office, Oklahoma State University.

The College of Engineering was the only college which had a pattern contrary to the other colleges. A larger number of their resident students left the state than remained in the state, and more nonresident students remained in Oklahoma than left the state. Even though the number of nonresident students leaving and staying was approximately the same, the other colleges had an average of about one-fourth

of the students staying in Oklahoma. The other colleges showed much smaller proportions of resident students leaving the state.

Generally, 40 per cent of the resident students, excluding engineering students, left the state; and almost 55 per cent of the engineering students left the state. With engineering students excluded, a greater proportion of nonresident students left Oklahoma. A little over 50 per cent of nonresident students who graduated from the College of Engineering remained in Oklahoma.

Comparison of the Geographic Patterns of Resident and Nonresident Students upon Graduation

The eight categories of classifying employment data, described previously in this chapter, were the basis for establishing a comparison of resident and nonresident student patterns. The nonresident-student patterns and the resident-student patterns were analyzed or investigated separately. The overall differences between the resident and nonresident students were identified. Figure 37 incorporates the six pie charts used for the analysis.

Nonresident-Student Analysis

Nonresident students were analyzed according to four categories: (1) those who went to states other than their home state or Oklahoma, (2) those who stayed in Oklahoma, (3) those who went to their home state, and (4) those whose location was unknown.

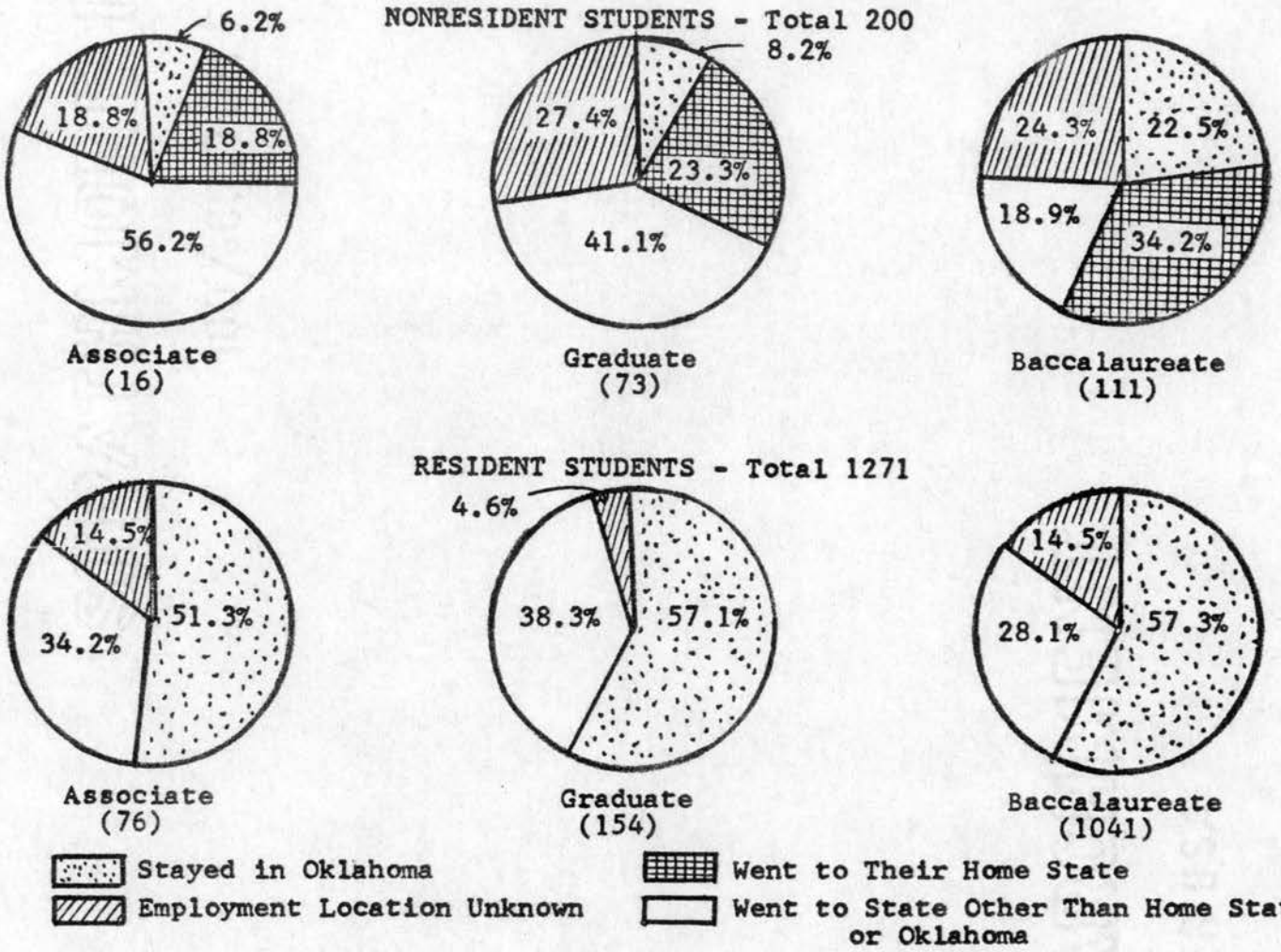


Figure 37. Geographic distribution of Resident and Nonresident Students After Graduating from Oklahoma State University in May of 1963 by Type of Degree. (Compiled from Employment Survey Card, Placement Office, Stillwater, Oklahoma.)

The patterns were basically the same for nonresident students who received associate degrees and those who received advanced degrees. The largest percentage of students in both cases went to states other than their home state or Oklahoma; the smallest percentage stayed in Oklahoma, and the second smallest group went to their home state.

The pattern of those students who received baccalaureate degrees, for all practical purposes, was diametrically opposite the patterns of the students who received graduate and associate degrees. All four categories were more evenly distributed for recipients of baccalaureate degrees than for the other degrees. The largest percentage returned to their home state; the smallest percentage went to states other than their home state or Oklahoma. There was a significantly larger percentage of bachelor-degree recipients staying in Oklahoma compared to the percentage of graduate and associate-degree recipients remaining in Oklahoma. This can be partially explained by the fact that many of the nonresident students who received bachelor degrees planned to seek advanced degrees in Oklahoma institutions.

Students who received graduate degrees or associate degrees had a stronger tendency to move to states other than their home state or Oklahoma than did students who received baccalaureate degrees. A partial explanation of this may be fewer opportunities for the more technical training of the associate programs and the maturity of the graduate students who are not as strongly attached to their home area.

Resident-Student Analysis

Resident students were analyzed by type of degree received and by the following three geographic categories: (1) those who stayed in Oklahoma, (2) those who left Oklahoma, and (3) those whose location was unknown. The percentage of those staying in Oklahoma was relatively large for all three degrees compared to the percentages for the other geographic categories. These percentages, for all practical purposes, were about the same in each case.

A large percentage of students who received graduate degrees had plans to leave Oklahoma, and a relatively low percentage of the group indicated unknown situations. Again, the more definite plans and goals of graduate students reflected the maturity associated with age.

Comparison of Resident and Nonresident Degree Recipients

In making a comparison between the resident and nonresident patterns, it was necessary to re-group the nonresident students in order to facilitate the comparison. The two groups leaving Oklahoma after graduation were grouped together because it enabled a more direct comparison with the three categories of resident students.

The first analysis investigated the patterns of the graduate recipients. Resident students who received advanced degrees had a much better idea of their employment location than did nonresidents who received advanced degrees. This may be due to their familiarity with employment opportunities

in their home state. The nonresident students, having been away from their home state, were possibly not as much aware of or as interested in the opportunities in their home state as were resident students.

Those resident students who stayed in Oklahoma were compared with those nonresident students who went back to their home state. As expected, the percentage of nonresidents returning to their home state was smaller than the percentage of resident students who planned to remain in Oklahoma.

Of those who received baccalaureate degrees, there was about the same percentage of nonresidents who stayed in Oklahoma as there were resident students leaving Oklahoma.

Summary

A general comparison was made of resident and nonresident students who remained in or left Oklahoma by type of degree conferred. The analysis showed that, proportionately, more nonresidents students receiving baccalaureate degrees remained in Oklahoma than nonresident students who received graduate degrees.

An investigation revealed that the College of Engineering, contrary to the enrollment in other colleges at Oklahoma State University, had more resident students leave the state than remained; and a smaller number of nonresident students left than remained in Oklahoma.

The post-graduation plans of nonresident students receiving baccalaureate degrees were more evenly divided into the four defined categories than was the case for the other degrees conferred. The greater percentage of the associate-degree recipients planned neither to stay in Oklahoma nor to return to their home state.

For resident students, there was little difference in the three categories by degrees received except that relatively fewer advanced-degree recipients had indefinite plans. Resident students had more certainty about their future plans than the nonresident students.

Footnotes

[1]Frederick and Greenburg, p. 1.

[2]WICHE, "Numbers of Nonresident Students," Part III, discussion material for conferees (1961), p. 2.

[3]Ibid., p. 4.

[4]The survey card is included in Appendix D.

[5]See Hobbs and Coffelt, Self-Study No. 3 for distribution of total enrollment of all students at Oklahoma State University, p. 27.

CHAPTER VIII

THE EFFECT OF NONRESIDENT ENROLLMENT ON CLASS OFFERINGS

Determining the marginal[1] effect of accommodating or restricting nonresident students can be useful to policy makers. For instance, expenditures for faculty salaries could be reduced by eliminating courses in which duplicate sections have a substantial accumulation of nonresident students. Courses without duplicate sections, however, could not be eliminated by the withdrawal of the nonresident students.

A recent article about the nonresident student referred to a study which analyzed the actual course programs of nonresident students at the University of Michigan.[2] The results of the findings are summarized as follows:

> The elimination of the nonresident student would cost money rather than save money, since the fee income lost would be greater than the savings from reducing the size of the student body.[3]

In light of these findings, it seems natural that the study should have been supplemented with an analysis designed to determine the costs associated with retaining nonresident students on a resident fee basis. Charging nonresident students the resident fee would increase total enrollment, in all likelihood, depending on the elasticity of demand for

education by nonresident students. Applying simple deductive logic to the results of the Michigan study seems to support the theoretical implications of Chapter II, in which equal fees for resident and nonresident students were suggested.

Procedural Qualifications

Data were secured from schools with different ratios of nonresident to resident enrollments but with similar total enrollments. A comparative analysis of the data was made to establish the impact that the proportion of nonresidents had upon the class offerings of the institution. The relationship of the nonresident attendance to course offerings was analyzed on a marginal basis.

Class enrollments of students at the two Oklahoma public universities were examined for the proportion of nonresident students enrolled in each section of the courses offered.[4] The difference in the percentage of the nonresident enrollment at Oklahoma State University and Oklahoma University (approximately 12 and 21 per cent, respectively)[5] was considered sufficient basis for making a comparison.

Public institutions in Oklahoma must obtain approval from the State Regents to offer a class with fewer than ten enrolled. Therefore, it is relevant to examine the effect of nonresident enrollment on classes which might fall into this category without nonresident students. The marginal approach was used to determine whether any classes could be dropped by eliminating nonresident students. For courses with sections

which could be eliminated, the marginal cost, theoretically, is greater than zero.

The Analysis by Hypothesis

The usual method of stating and testing hypotheses was employed. The two pairs of hypotheses which were tested are listed, and the evidence and conclusions follow.

Hypotheses

Two main hypotheses were tested; each was divided into two parts in order to make a separation between lower and upper division courses.

The first pair of hypotheses, 1A and 1B, are as follows:

> Hypothesis 1A: No additional lower division single-section courses of less than ten students results when undergraduate nonresident students are eliminated from class rolls.
>
> Hypothesis 1B: No additional upper division single-section courses of less than ten students results when undergraduate nonresident students eliminated from class rolls.

The two hypotheses were tested by investigating the student enrollment in courses which appeared to be marginal offerings in the sense that they were single-section courses with less than ten students when nonresident students were excluded.

The other pair of hypotheses are as follows:

> Hypothesis 2A: No additional sections of upper division courses are offered mainly to accommodate undergraduate nonresident students.
>
> Hypothesis 2B: No additional sections of lower division courses are offered mainly to accommodate undergraduate nonresident students.

The testing of hypotheses 2A and 2B was approached by determining the number of multiple-section courses in which the accumulation of nonresident students exceeded the largest section for each particular course. The total number of multiple-section courses was determined in order to facilitate a meaningful comparison.

Evidence

The data used for testing the hypotheses were derived from the class enrollment figures obtained from the registrar's office at Oklahoma State University and the data processing center at Oklahoma University. The class enrollments enumerated resident and nonresident separately. Certain courses were excluded from the analysis because of their special nature.[6] In order to observe differences due to the disparity in the proportion of nonresident students attending Oklahoma State University and Oklahoma University, a separation of the evidence was maintained for the two schools.

In testing the first pair of hypotheses, 1A and 1B, single-section courses were enumerated according to lower- and upper-division classification. Single-section courses with fewer than ten students enrolled were listed. Next, a count was made of the single-section courses with fewer than ten students after nonresident students were eliminated. The difference between these two enumerations provided the number of "marginal courses." This procedure was applied to the

class enrollment figures at both universities. A summary of the tabulations is provided in Table VIII, which also shows the marginal offerings expressed in relative terms.

TABLE VIII

NUMBER OF MARGINAL COURSES OFFERED AT OKLAHOMA STATE UNIVERSITY AND OKLAHOMA UNIVERSITY, SPRING 1963 (Single-Section couses with fewer than ten.)

Classification	Number of Courses Offered	Number when Nonresidents were Eliminated	Marginal Courses No.	Marginal Courses % Change
Oklahoma State Univ. (12% nonresidents)				
Lower Division	17	28	11	65
Upper Division	47	70	23	49
Oklahoma University (21% nonresidents)				
Lower Division	22	55	33	150
Upper Division	166	231	65	39

Source: Class enrollment data on file in registrar's office of Oklahoma State University and office of data processing services at Oklahoma University.

According to Table VIII, Oklahoma University offered more single-section courses than Oklahoma State University. The most significant finding was the increase of single-section, lower-division courses (marginal courses) at Oklahoma University when the nonresident students were eliminated. Combining the upper and lower-division courses at the two universities resulted in equal percentage increases in the marginal single-section courses.

The criteria for testing hypotheses 2A and 2B involved examining multiple-section courses on the basis of the accumulation of nonresident students enrolled in each section. The number of multiple-section courses in which the accumulation of nonresident students exceeded the largest section of each course was compared to the total number of multiple-section courses which existed. The comparison was extended in order to observe the difference in the proportion of nonresident students at Oklahoma State University and Oklahoma University. The results are summarized in Table IX; however, a listing of the data according to college is provided in Appendix E.

TABLE IX

SUMMARY ANALYSIS OF NONRESIDENT ENROLLMENT IN MULTIPLE-SECTION COURSES FOR SPRING, 1963

Classification / University	M-S[a] Courses Accumulation of N.R. Students Exceeds Largest Section of Course[b]		Total No. of M-S[a] Courses
Oklahoma State University			
Lower Division	5	(3.9)	127
Upper Division	3	(2.9)	103
Total	8	(3.5)	230
Oklahoma University			
Lower Division	52	(28.0)	63
Upper Division	10	(15.9)	186
Total	62	(24.9)	249

[a]M-S stands for multiple-section.

[b]The figures enclosed in parentheses denote the percentage of multiple-section courses which the accumulated number of nonresident students exceeded the largest section.

Oklahoma State University and Oklahoma University offered approximately the same number of multiple-section courses; however, the ratio of lower-division to upper-division courses was reversed. Oklahoma University had a significantly larger number of multiple-section courses than did Oklahoma State University in which an accumulation of nonresident students exceeded the largest section. At Oklahoma University there were over five times as many lower-division courses as upper-division courses in which the nonresident enrollment exceeded the largest section in the particular course.

The percentages of courses in which the number of nonresidents exceeded the largest section for all courses at Oklahoma State University and Oklahoma University were 3.5 per cent and 24.9 per cent, respectively. This disparity shows that a nonresident enrollment of approximately 12 per cent (at Oklahoma State University) would have relatively little effect on the cost of education by eliminating the nonresident students. But, 21 per cent (at Oklahoma University) of nonresidents indicates that approximately one-fourth of the sections could be eliminated because of an accumulation of nonresident students.

Conclusions

Hypotheses 1A and 1B stated that no additional courses of less than ten students result when undergraduate nonresident students are eliminated. Both hypotheses are clearly rejected, for there are a number of "marginal courses"

created at both Oklahoma State University and Oklahoma University. More "marginal courses" resulted at the lower division than at the upper division. This may be due to the large number of lower-division "marginal courses" at Oklahoma University (see Table VIII). When the lower-division courses of both institutions were combined, the percentage of marginal courses increased 106 per cent; for the upper-division courses, there was a 41 per cent increase. To a certain extent, nonresident students support and are responsible for certain courses being offered. Thus, a broad curriculum is provided for the resident students and is partially subsidized by the nonresident students.

Hypotheses 2A and 2B were tested on the basis of determining the accumulation of nonresident students in multiple-section courses. These hypotheses stated that no section of a course was offered mainly to accomodate nonresident students. From the evidence presented, these two hypotheses were also rejected.

Both schools registered a larger number of lower-division than upper-division courses which accumulated an excessive number of nonresident students. The rejection of the hypotheses needs to be qualified because of the relatively greater number of instances of over-accumulation at Oklahoma University than at Oklahoma State University. This is partially explained by Oklahoma University having a greater proportion of nonresident students and a smaller average size of sections in the multiple-section courses, as shown in Table X. Contrary to

logical explanation, there was a smaller average number of sections per course at Oklahoma University than at Oklahoma State University. Because the average size of sections at Oklahoma University was smaller than at Oklahoma State University, one would normally expect a larger average number of sections per course at Oklahoma University; the larger variety of courses offered at Oklahoma University partially explains this inconsistency.

TABLE X

PERCENTAGE OF MULTIPLE-SECTION COURSES IN WHICH NONRESIDENTS EXCEEDED THE LARGEST SECTION, SPRING, 1963

Classification	Average Per Course	Average Size of Section
Oklahoma University		
Lower Division	9.48	28.02
Upper Division	4.10	22.50
Oklahoma State University		
Lower Division	17.80	32.00
Upper Division	6.67	30.00

Source: Class enrollment data on file in registrar's office of Oklahoma State University and office of data processing services at Oklahoma University.

The rejection of these two latter hypotheses must be evaluated, however, in light of the rejection of hypothesis 1A. A rejection of hypothesis 1A indicated the advantage of having nonresident students to help support a broad offering.

The rejection of hypothesis 2A suggested, however, the possibility of additional costs because of the accumulation of nonresident students, especially at Oklahoma University, which had the greater percentage of nonresident students.

These conclusions have been focused toward policy making and should be useful to legislators and administrators in determining (1) whether they favor the support of a broad curriculum partially supported by nonresident students, or (2) whether they prefer a restricted offering without nonresident students.

Summary

The number of "marginal courses" at the two state universities varied. Oklahoma University apparently offered a greater number of courses than did Oklahoma State University which accumulated enough nonresident students to justify the elimination of some sections and thereby reduce costs. Other evidence, however, supported the need for nonresident students in order to help subsidize the variety of course offerings at Oklahoma University.

The "marginal courses" at Oklahoma State University had less effect on course offerings, mainly, because of the smaller percentage of nonresidents enrolled.

Footnotes

[1]The marginal approach is fundamental in economic analysis. A "change on the margin," a meaningful expression to the economist, refers to the measure or degree of differences resulting from the change in economic variables.

[2]Robert L. Williams, "The Nonresident Student," College and University, XXXIX, 2 (Winter, 1964), p. 161.

[3]Ibid., p. 162.

[4]Since the University of Colorado had close to 44 per cent nonresident students in attendance, it was to be included as one of the schools in the comparison. A request for data, however, was denied because of plans to conduct a similar study in Colorado.

[5]Frederick and Greenburg, p. 27.

[6]Thesis, defense or military science, applied music, and applied teaching were excluded.

CHAPTER IX

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The basic problem of this study was to identify the economics of various factors pertaining to the migration of the nonresident student. The migration data which were available needed further investigation and analysis.

A summary of the findings pertaining to the broad issues is given, and the conclusions are presented in a question-and-answer form. The various questions which were stated in Chapter I, are answered on the basis of the findings of this study. Brief reference is made to various possible solutions which have been proposed in related studies. Several recommendations are made on the basis of the conclusions of this study.

Summary of Findings and Conclusions

Provincialism is a strong force demanding restriction of nonresident students, and cosmopolitanism is a desired element on the college campus. Which of these two forces is dominant depends on the point of view of the interest group. Taxpayers do not want to subsidize nonresident students, but educators and students favor mobility across state boundaries. In addition, there are those who are aware of the problem of state

development and they are concerned about resident students who leave the state after graduation. Parents are not aroused too much about this development problem, but they are mainly concerned about their children's future regardless of the community in which they decide to reside. Another part of the issue which needs to be recognized is the contribution to the state rendered by nonresident students who remain in the state.

The point of view of taxpayers seems to have prevailed, for nonresident fees have been increasing during the last decade and the percentage of nonresident students has declined. The decline in nonresident enrollment can be partially explained by the increase in tuition and by the increase in course offerings of the various state institutions, especially the expansion of graduate programs.

In spite of the increased fees, the various patterns of student migration indicated a strong desire on the part of certain students to acquire education on an interstate basis. The location of an institution influenced the enrollment of many students--both resident and nonresident. Geographic enrollment patterns of nonresident students were similar to the resident enrollment patterns. The main difference was in the relative size of the political divisions involved. In the case of the resident patterns, the county was relevant; for the nonresident patterns, the state was the relevant geographic area.

A study of the geographic origin of students enrolled in colleges and universities disclosed a heavy concentration of students from the immediate area where the school was located. This concentration was prevalent even among the nonresident patterns with the presence of a nonresident fee. A state-by-state analysis revealed the dominance of nonresident enrollment from contiguous states.

The conclusions of this study are explicit in the answers to the five groups of questions stated in Chapter I. The questions and answers are enumerated in the following paragraphs.

1. What are the economic implications associated with restricting the mobility of students? Theoretically, the charging of a nonresident fee results in the exchange restriction usually associated with a tariff. Unlike the conventional tariff, which places a penalty on importing goods, the nonresident fee acts as a tariff on exportation of a good--namely, education. The nonresident fee is a disguised interstate tariff on education which is discriminatory in nature. Use of a nonresident fee to discourage students from crossing state boundaries to acquire education restricts the free movement of students and diminishes consumer welfare with little or no adverse effects on producer welfare.

2. Are nonresident students a homogeneous group; that is, are students from contiguous states characteristically the same as those from other states? Specifically, are there differences in family income? What influence does proximity

have on the enrollment of students from contiguous states? These three questions are answered in reverse order.

The study of the migration of students in all states indicated that there was a strong tendency for students to migrate in greater proportion and to a stronger degree from contiguous states than from farther away.

The study of family income of freshmen students enrolled in Oklahoma institutions indicated that there was a relationship between income and the distance of the state from which the student originated. Higher family incomes were associated with nonresident students coming from non-contiguous states. Nonresident students who attended Oklahoma schools were not a homogeneous group in regard to family income and the geographic origin of the student. These findings about family income should be used with an awareness of the dilemma of interpersonal comparisons of individuals and the marginal utility of income. However, it seems safe to imply that an increase in migration and consumer welfare is possible if the financial barriers are eliminated, since at present it seems that acquiring education out of state is "reserved" for those with the better financial ability.

These conclusions about income and origin of students pertain only to students enrolled in Oklahoma institutions; therefore no generalizations or inference should be made about other states in regard to these findings and conclusions.

3. What are the cost issues? From a theoretical standpoint, it seems that marginal cost rather than just

average cost is revelant. Indirect community benefits which accrue as a result of education should be considered if marginal cost pricing is emphasized. Theoretically, the marginal cost of instruction would be close to zero so long as no additional teacher was needed to instruct an additional course section because there was not a large accumulation of nonresident students. The marginal cost would increase abruptly, however, when the enrollment of nonresident students becomes excessive and requires the creation of another course section. Abrupt increases in marginal costs were more prevalent at the institution which had the higher percentage of nonresident students.

4. Are there any benefits to the course offerings because of the attendance of nonresident students? The institution which had the higher percentage of nonresident students also had an accumulation of nonresident students which may justify the elimination of some courses. However, the presence of nonresident students was advantageous in supporting a larger variety of courses than would otherwise have been justified.

5. What are the post-graduate plans of nonresident students as compared to plans of the resident students. The post-graduate plans mainly pertained to employment; however, plans for marriage, military service and further education were included.

A proportionately larger number of nonresidents who received baccalaureate degrees planned to remain in Oklahoma

than nonresidents who received advanced degrees. The percentage of nonresident students who planned to return to their home state was smaller than the percentage of resident students who planned to remain in Oklahoma. Resident students expressed more certainty about their plans than the nonresident students.

Generally, the students who were enrolled in the various colleges at Oklahoma State University, except the College of Engineering, expressed expected desires as follows: A large proportion of resident students planned to remain in Oklahoma and a large proportion of the nonresident students indicated plans to leave Oklahoma. This general pattern was reversed in the case of the College of Engineering.

Proposals and Recommendations

A summary of proposals made by others is outlined. Suggestions are made on the basis of the findings of the analyses completed in this study.

A Summary of Proposals

The Western Interstate Commission for Higher Edcuation has indicated some of the possible solutions to the educational economic problems associated with migrating college students. These are briefly summarized as follows:

1. The first solution called for a placement bureau for the purpose of coordinating the student migration among the

public colleges in the different states. This solution would be administratively cumbersome and expensive.

2. A plan of reciprocity suggested a solution on a unilateral basis. These arrangements do exist in some instances already. There is an allowance for nonresident students from New Mexico to attend West Texas State University at the resident fee so long as the student lives within a 50-mile radius of the institution.

3. A clearinghouse procedure similar to the method used in the banking system was proposed. This would require balancing of payments over a period of time between the states. As the commission indicated, this procedure would be administratively elaborate and would be politically difficult to establish in many states. However, the findings of this study which established the high proportion of nonresident students migrating from contiguous states suggest a simplified approach to this clearinghouse procedure. Since there is a high degree of migration on a contiguous-state basis then there is an argument for elimination of nonresident fees for contiguous states since at least on a proportional basis the "accounts" among contiguous states are "balanced".

4. A proposal was suggested that nonresident fees be raised to approximately average costs and that liberal scholarships be awarded on the basis of financial need. This proposal seems to agree with the ability-to-pay principle. In addition, it does not restrict those who do not have the financial ability to attend college out of state. This plan

would relieve some of the burden of taxpayers in those states which have a large number of out-of-state students. However, the plan does not answer the question of how many nonresident students to admit.

5. A placement plan called for a procedure in which the nonresident students are restricted from entry only when qualified resident students are available. This does not indicate the elimination of the higher fee for the nonresident student and resembles a flexible quota plan.

6. Another solution advocated that a balance be maintained between the number of students that a state sends out of state and the number that it receives from other states. This balance should be flexible so that the number of nonresident students a state receives can be determined by the number of resident students who attend elsewhere.

7. In the final solution, the commission proposed that all qualified students be admitted regardless of their state of residence. The procedure would minimize the educational problems.

A fringe-benefit plan which appeared in the AAUP Bulletin, was a policy of tuition reciprocity which would allow children of faculty members of land-grant colleges and state universities to attend as residents at other institutions.[1] Although it is not a broad solution to the nonresident problem, it does place emphasis on the importance of the nonresident fee as a restrictive device.

The administration of these various proposals would be difficult. There are instances in which the various policies would alleviate some of the burden associated with the migration of students. A plan is needed which would be adminstratively simple, equitable, politically feasible, and economically sound.

Recommendations

The common market idea seems to have some popularity in certain educational circles. For instance, institutions in eleven Midwestern states have agreed on a common market in which students may migrate from state to state in certain programs without paying the nonresident fee. WICHE has announced a regional program, known as the Western Regional Student Program, which enables western students to enroll in selected specialized programs in public institutions outside their home state without paying nonresident fees. The Southern Regional Educational Board has a policy in which the home state pays the nonresident fee for particular types of professional education. The schools participating in the Southern Regional Statistics Institute give resident credit to nonresident students at the nonresident fee. These procedures are a start in the right direction in the sense that a framework for cooperation exits which facilitates the prescribing of solutions to problems which are regional in scope.

The solution to the migration problem must be approached on a regional or national scale rather than on the basis of "retaliating" because of the policy of an individual state whose situation is atypical. Often the practice towards nonresident students in Colorado is used as the excuse for raising nonresident fees in other states. It is often overlooked that Colorado is among the states which have the highest percentage of nonresident students. The broad solution to the migration problem should not be derived from an isolated or special situation. Regional areas tend to have more homogeneous problems and conditions. Solving the problem on a regional basis may have an overlapping effect which may pave the way for broader applications.

Colorado is concerned about the high rate of nonresident attendance in its schools and prefers to limit it on the basis of the classical argument. Yet, Colorado ranks high in the states that receive a high proportion of state income from their tourist trade. Is this not an indirect way of having nonresidents pay for their education in Colorado? It is all right for the State of Colorado to receive income and support its many industries from tourist spending because it is endowed with the vacation climate. However, Colorado apparently does not recognize or accept the fact that out-of-state families support its schools through the taxation of income earned from the tourist trade.

The use of quotas seems to have some advantage over the nonresident fee. Quotas allow the handling of specific

migration problems rather than solving different problems in an across-the-board approach. A direct approach is responsible for the success of critical-path-scheduling methods used in business and industrial activities.

The application of economic theory to the migration problem of college students suggests that the nonresident surcharge be eliminated. The political acceptance of this policy would be difficult to obtain.

Eliminating nonresident fees for students from contiguous states is an approach which resembles and has the advantages of regional policies. The policy could be quasi-reciprocal in nature. A simple agreement is all that would be necessary. Many of the administrative details inherent in other proposals would be practically nonexistent. The effects of the policy would be extensive and would not require complex negotiation among states.

A contiguous-state plan would be a step in the right direction and would help alleviate the injustice and hardship resulting from the nonresident fee. A contiguous-state policy has strong support from the findings in this study, which revealed the high rate of nonresident enrollment from contiguous states.

The findings which established proportionately higher family incomes of students from contiguous states than students from Oklahoma but less than from noncontiguous states seems to disfavor any proposal of eliminating the nonresident fee. But a conclusion must be based on two other findings

which are as follows: (1) the tendency for a large degree of migration from contiguous states, (2) the relatively lower family income of students from contiguous states enrolled in border institutions than in the public institutions. The proportionately high family income of students from contiguous states in view of the high rate of migration from contiguous states seems to suggest that there may be a strong tendency for students to migrate from contiguous states but many students are denied the education of their choice unless they have the additional financial resources.

Another proposal is to substitute a quasi-resident fee for the nonresident fee. If the student enrolls in an out-of-state college, payment of either the resident fee of his home state or the resident fee of the college attended, whichever is the higher, would be paid by the student. Therefore, the nonresident student would pay a resident fee. This procedure obviously would prevent students from taking advantage of the relative differences in fees among states.

The national aspects of education associated with the interstate migration of students suggest a potential role of responsibility for the federal government. The delineation of the federal government's responsibilities between higher education and elementary and secondary education has been indicated by Kosaki, who stated:

> Higher education, in contrast with elementary and secondary education, is oftentimes considered as a national, rather than a state, enterprise because of the highly mobile college population and in recognition of the fact that many advanced degree

> recipients and professional school graduates do not receive their advanced training in their home state.[2]

The national aspects of higher education in Kosaki's statement implies support for the elimination of nonresident fees, at least, at the graduate and professional level.

If the elimination of nonresident fees is not feasible, there may be an opportunity for the federal government to aid students of higher education. "Many think of federal aid to education and control as being synonymous terms,"[3] but this would not be the case in the following proposal. The migrating student would receive a reimbursement from the federal government based on the difference in his home state resident fee and the nonresident fee of the state in which he attends school, assuming the latter is the higher of the two fees.

The proposal as stated, however, would encourage states to raise the nonresident fee without limit. It is, therefore, proposed that the federal subsidy to the student be restricted to nonresident students from contiguous states. This part of the plan is supported by the two major findings in this study as follows: (1) the high rate of contiguous migration and (2) the ability to pay as indicated by the family income associated with the distance students migrate.

Astronomical rises in the nonresident fee according to this plan would be checked by the desire of educators to maintain a melting pot of students from all regions of the country. Therefore, it would not be advisable for the nonresident fee to be so high that it would restrict even the students from

farther away, who generally have a greater ability to pay. The second part of the plan would contain an additional check on a high fee by establishing the subsidy at some fixed multiple of the resident fee of the land-grant colleges and state universities.

A proposal that would apply specifically to Oklahoma, as well as other states which have state income taxes, is to allow an income tax credit for nonresident students who remain in the state after graduation. This proposal is recommended in light of the employment plans revealed by the graduates from Oklahoma State University in the spring of 1963 and would encourage graduates who possess productive skills to remain in the state.

These recommendations are concluded with several suggestions for futher study of the migration problem. First, it is recommended that the procedures of this study be applied to the migration data currently being collected by the Department of Health, Education and Welfare. Second, an accounting study of the costs involved with the nonresident fee and the migrating student should be undertaken. Third, a study of producer welfare should be investigated more thoroughly. Fourth, the migration ratios resulting from this study should be studied to see if they can be applicable to a clearinghouse approach. Fifth, it is encouraged that a spatial econometric approach be attempted. Sixth, there may be some merit in studying the income of students with some adjustment for the per-capita income of the home state of the migrating student.

Footnotes

[1]Thomas L. Davidson and Robert L. Stutz, "Tuition Reciprocity: A New Approach," AAUP Bulletin, XLIX, 3 (September, 1963), p. 243.

[2]Ansel M. Sharp and Bernard F. Sliger, Public Finance, An Introduction to the Study of Public Economy (Homewood, Illinois, 1964), p. 342.

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APPENDICES

APPENDIX A

COMPUTATIONS OF COEFFICIENT OF RANK CORRELATION

The coefficients of rank correlation were computed according to the following formula, where $\underline{d}$ is the algebraic difference between the paired rankings:

$$r' = 1 - \frac{6(\sum d^2)}{n(n^2 - 1)}$$

The coefficient of rank correlation for undergraduates in public institutions is based on the percentages in Figure 19, page 78 of this study, (with the highest percentage ranked as $\underline{1}$) which are paired with the percentages in Figure 21, page 81. Using the preceding formula, the coefficient was calculated as follows:

$$r' = 1 - \frac{114,180}{50(2500 - 1)}$$

$$= .0862$$

The coefficient of rank correlation for undergraduates in private institutions is based on the percentages in Figure 18, page 77, which are paired with the percentages in Figure 20, page 80. The coefficient was calculated as follows:

$$r' = 1 - \frac{120,156}{50(2500 - 1)}$$

$$= .0384$$

APPENDIX A--Continued

Similar calculations were obtained for undergraduates in all institutions. The coefficient was calculated as follows:

$$r' = 1 - \frac{93,609}{51(2601) - 1)}$$

$$= .2941$$

APPENDIX B

CALCULATION OF MIGRATION RATIOS

The number of students who migrated to another state was divided by the total number of students originating in the home state. This procedure tended to compensate for variation in the student population of states. The five categories of students for which ratios were computed are as follows:

1. Undergraduates in Public Institutions
2. Undergraduates in Private Institutions
3. First-Time Undergraduates in Colleges
4. First-Time Undergraduates in Universities
5. Graduate Students in All Institutions

The enrollment data was obtained from Tables 6, 7, 8, D-10, and D-11 of the AACRAO study. The data was prepared for processing by an IBM 1620 electronic computer, and calculation of the migration ratios were accomplished by the following FORTRAN program:

```
    1  FORMAT (I2,I2,F6.0)
    2  FORMAT (I2,I2,F4.0,F4.0,F4.0,F4.0,F4.0)
    3  FORMAT (I2,I2,F8.6,F8.6,F8.6,F8.6,F8.6)
    4  FORMAT (22H CARDS OUT OF SEQUENCE)
    5  FORMAT (20H PROCESSING COMPLETE///)
   10  READ 1, NCOL, NSEQ, B
       I = 1
       IF(NSEQ - 1) 30,15,30
   15  READ 2,ICOL,ISEQ,A1,A2,A3,A4,A5
       I = I + 1
       IF(NCOL - ICOL) 30,20,30
   20  IF(ISEQ - I) 30,40,30
   30  PRINT 4
       PAUSE
       GO TO 10
   40  C1 = A1/B
       C2 = A2/B
       C3 = A3/B
       C4 = A4/B
       C5 = A5/B
```

APPENDIX B--Continued

```
      K = I - 1
      PUNCH 3,NCOL,K,C1,C2,C3,C4,C5
      IF(NCOL - 51) 50,70,70
50    IF(I - 11) 15,10,10
70    PRINT 5
      PAUSE
      GO TO 10
      STOP
      END
```

Each group of ratios for the five classifications are separated by a title sheet. The listing of the states across the page indicates the home state and the listing down the table indicates the state the students migrated to.

APPENDIX B--Continued

UNDERGRADUATES IN PUBLIC INSTITUTIONS

MIGRATION RATIOS

	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIF
ALABAMA	.000000	.000421	.000134	.001049	.000074
ALASKA	.000000	.000000	.000000	.000045	.000090
ARIZONA	.000257	.008424	.000000	.000502	.005510
ARKANSAS	.000282	.000000	.000179	.000000	.000098
CALIF	.002391	.022746	.015536	.008397	.000000
COLORADO	.000951	.006318	.006151	.001140	.004364
CONN	.000102	.000421	.000134	.000136	.000192
DELAWARE	.000000	.000000	.000000	.000000	.000003
FLORIDA	.003368	.000000	.000224	.000775	.000082
GEORGIA	.007046	.000421	.000179	.002464	.000133
IDAHO	.000000	.004633	.000449	.000091	.000909
ILLINOIS	.000180	.000421	.000269	.000456	.000185
INDIANA	.000308	.000421	.000359	.000547	.000283
IOWA	.000128	.000842	.000449	.000273	.000263
KANSAS	.000334	.000421	.000942	.002053	.000385
KENTUCKY	.000848	.000842	.000000	.000502	.000047
LA	.002160	.000421	.000179	.009401	.000133
MAINE	.000000	.000421	.000000	.000000	.000007
MARYLAND	.001131	.002948	.001257	.001186	.001150
MASS	.000000	.000000	.000000	.000000	.000007
MICHIGAN	.001028	.001263	.000628	.001779	.000563
MINN	.000051	.000842	.000179	.000228	.000189
MISS	.014658	.000000	.000179	.009036	.000074
MISSOURI	.000282	.000421	.000449	.003514	.000220
MONTANA	.000051	.009267	.000269	.000136	.000472
NEBRASKA	.000128	.000421	.000224	.000319	.000181
NEVADA	.000000	.000000	.000044	.000045	.001000
N HAMP	.000000	.000000	.000000	.000000	.000015
N JERSEY	.000000	.000000	.000044	.000000	.000023
N MEXICO	.000334	.001684	.003996	.001004	.001020
NEW YORK	.000874	.001263	.000898	.001095	.000567
N CAROL	.000900	.000000	.000000	.000319	.000090
N DAKOTA	.000025	.002527	.000044	.000000	.000066
OHIO	.000900	.000421	.000134	.000182	.000228
OKLAHOMA	.000411	.001263	.000898	.015928	.000519
OREGON	.000025	.038753	.000404	.000136	.005269
PENN	.000077	.000000	.000000	.000000	.000031
R ISLAND	.000025	.000000	.000000	.000000	.000003
S CAROL	.001388	.000000	.000044	.000273	.000059
S DAKOTA	.000025	.000000	.000089	.000091	.000086
TENN	.007483	.000000	.000179	.007484	.000055
TEXAS	.001182	.001263	.002379	.031080	.000898
UTAH	.000102	.000842	.002200	.000273	.001725
VERMONT	.000000	.000000	.000000	.000000	.000011
VIRGINIA	.001902	.000421	.000179	.000365	.000256
WASH	.000077	.085088	.000763	.000410	.001394
W VIRG	.000205	.000000	.000000	.000000	.000000
WISC	.000180	.000000	.000269	.000273	.000232
WYOMING	.000077	.000421	.000269	.000091	.000236
WASH D C	.001337	.000000	.000359	.000365	.000204

MIGRATION RATIOS

	COLORADO	CONN	DELAWARE	FLORIDA	GEORGIA
ALABAMA	.000039	.000476	.001414	.012073	.023721
ALASKA	.000119	.000079	.000000	.000131	.000051
ARIZONA	.005223	.000873	.000943	.000413	.000230
ARKANSAS	.000478	.000026	.000471	.000432	.000076
CALIF	.009929	.003070	.003065	.002219	.002047
COLORADO	.000000	.002964	.003301	.017302	.000818
CONN	.000159	.000000	.000471	.004701	.000204
DELAWARE	.000000	.000158	.000000	.001504	.000076
FLORIDA	.000319	.000952	.001414	.000000	.008802
GEORGIA	.000279	.000952	.002357	.016399	.000000
IDAHO	.000438	.000185	.000471	.000188	.000076
ILLINOIS	.000398	.000291	.000943	.000752	.000153
INDIANA	.000797	.001217	.001178	.001241	.000460
IOWA	.001036	.000476	.000235	.000376	.000076
KANSAS	.003469	.001005	.000707	.000564	.000255
KENTUCKY	.000039	.000211	.000235	.003159	.001049
LA	.000438	.000211	.000471	.002049	.000921
MAINE	.000000	.001561	.000235	.000018	.000025
MARYLAND	.001276	.002011	.013911	.002820	.001688
MASS	.000039	.000661	.000000	.000037	.000000
MICHIGAN	.001276	.003546	.008016	.002031	.000844
MINN	.000478	.000185	.000471	.000263	.000127
MISS	.000039	.000185	.000471	.003103	.000972
MISSOURI	.001276	.000264	.000235	.000545	.000332
MONTANA	.000797	.000211	.000000	.000075	.000000
NEBRASKA	.001874	.000105	.000000	.000131	.000230
NEVADA	.000000	.000026	.000000	.000018	.000025
N HAMP	.000000	.001402	.000707	.000056	.000000
N JERSEY	.000039	.001085	.001886	.000075	.000051
N MEXICO	.004226	.000502	.000943	.000526	.000409
NEW YORK	.001076	.004816	.005894	.001485	.001100
N CAROL	.000079	.001693	.007545	.004005	.003710
N DAKOTA	.000279	.000105	.000235	.000000	.000000
OHIO	.000398	.002381	.006130	.001711	.000665
OKLAHOMA	.003190	.000582	.000471	.000526	.000307
OREGON	.000558	.000079	.000000	.000018	.000025
PENN	.000039	.001164	.012497	.000319	.000076
R ISLAND	.000000	.001058	.000000	.000075	.000000
S CAROL	.000119	.001931	.003301	.007127	.009263
S DAKOTA	.000319	.000052	.000471	.000056	.000025
TENN	.000199	.000211	.000943	.004870	.006090
TEXAS	.002552	.000899	.001886	.002651	.001100
UTAH	.001834	.000158	.000000	.000131	.000051
VERMONT	.000199	.003863	.001178	.000094	.000000
VIRGINIA	.000319	.004075	.014619	.002952	.001381
WASH	.000996	.000158	.000000	.000112	.000204
W VIRG	.000039	.000582	.002593	.000771	.000435
WISC	.000478	.000476	.000943	.000658	.000051
WYOMING	.001993	.000079	.000471	.000037	.000051
WASH D C	.000039	.001032	.001650	.001654	.002149

MIGRATION RATIOS

	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS
ALABAMA	.000000	.000270	.000410	.000194	.000051
ALASKA	.000185	.000055	.000051	.000000	.000102
ARIZONA	.002882	.002473	.001880	.001699	.002333
ARKANSAS	.000185	.000402	.000290	.000315	.000589
CALIF	.016830	.004405	.003880	.007673	.005667
COLORADO	.008554	.006635	.003008	.006750	.008180
CONN	.000092	.000173	.000085	.000024	.000076
DELAWARE	.000000	.000000	.000017	.000000	.000025
FLORIDA	.000000	.000653	.000974	.000315	.000230
GEORGIA	.000278	.000305	.000410	.000072	.000128
IDAHO	.000000	.000396	.000222	.000388	.000205
ILLINOIS	.000371	.000000	.003418	.003375	.000359
INDIANA	.000557	.016599	.000000	.000801	.000538
IOWA	.000371	.009296	.000598	.000000	.000410
KANSAS	.000836	.001625	.001093	.002209	.000000
KENTUCKY	.000092	.002230	.009537	.000145	.000076
LA	.000092	.000340	.000564	.000194	.000256
MAINE	.000000	.000013	.000000	.000000	.000000
MARYLAND	.001394	.001014	.001281	.001189	.001102
MASS	.000000	.000013	.000051	.000048	.000000
MICHIGAN	.000836	.012471	.010785	.001991	.001000
MINN	.000371	.001042	.000290	.006969	.000564
MISS	.000185	.000472	.000564	.000388	.000153
MISSOURI	.000092	.002800	.000854	.026153	.011463
MONTANA	.006044	.000687	.000324	.000485	.000512
NEBRASKA	.000464	.000479	.000427	.024137	.003026
NEVADA	.000092	.000020	.000000	.000048	.000025
N HAMP	.000000	.000013	.000000	.000000	.000000
N JERSEY	.000000	.000062	.000000	.000000	.000000
N MEXICO	.001394	.001139	.000837	.001554	.001487
NEW YORK	.000743	.000847	.000786	.000922	.001025
N CAROL	.000000	.000145	.000290	.000121	.000025
N DAKOTA	.000092	.000222	.000068	.000291	.000025
OHIO	.000278	.005016	.012101	.000655	.000359
OKLAHOMA	.000464	.001188	.000427	.001165	.012361
OREGON	.015064	.000187	.000170	.000267	.000205
PENN	.000000	.000083	.000068	.000024	.000076
R ISLAND	.000000	.000006	.000000	.000000	.000000
S CAROL	.000000	.000298	.000478	.000072	.000076
S DAKOTA	.000278	.000326	.000119	.014230	.000025
TENN	.000000	.000653	.001128	.000194	.000153
TEXAS	.001115	.000993	.001128	.001262	.002179
UTAH	.093639	.000416	.000444	.000655	.000384
VERMONT	.000000	.000013	.000000	.000000	.000000
VIRGINIA	.000185	.000465	.000256	.000169	.000333
WASH	.022224	.000312	.000239	.000461	.000333
W VIRG	.000000	.000069	.000119	.000048	.000000
WISC	.000371	.008949	.000974	.002428	.000179
WYOMING	.000650	.000396	.000136	.000558	.000153
WASH D C	.000650	.000409	.000410	.000267	.000205

MIGRATION RATIOS

	KENTUCKY	LA	MAINE	MARYLAND	MASS
ALABAMA	.001077	.001675	.000231	.000415	.000169
ALASKA	.000026	.000000	.000115	.000095	.000013
ARIZONA	.000538	.000379	.001391	.000639	.000585
ARKANSAS	.000053	.002837	.000115	.000095	.000039
CALIF	.002290	.005206	.005450	.002333	.003224
COLORADO	.000943	.001094	.001971	.002173	.001872
CONN	.000107	.000044	.004058	.000799	.002808
DELAWARE	.000000	.000022	.000115	.002205	.000091
FLORIDA	.000808	.000379	.000695	.001214	.000793
GEORGIA	.002505	.001720	.000463	.003004	.000338
IDAHO	.000107	.000022	.000347	.000191	.000143
ILLINOIS	.001212	.000357	.000347	.000351	.000585
INDIANA	.007732	.000223	.000927	.000894	.000689
IOWA	.000188	.000111	.000579	.000351	.000286
KANSAS	.000350	.000245	.000927	.000543	.000364
KENTUCKY	.000000	.000156	.000463	.000607	.000208
LA	.000727	.000000	.000231	.000127	.000091
MAINE	.000053	.000000	.000000	.000095	.004317
MARYLAND	.001212	.000871	.003479	.000000	.002171
MASS	.000000	.000000	.000695	.000031	.000000
MICHIGAN	.001481	.000558	.003131	.002620	.003016
MINN	.000080	.000044	.000347	.000159	.000169
MISS	.002290	.006256	.000000	.000191	.000091
MISSOURI	.000969	.000357	.000927	.000191	.000156
MONTANA	.000053	.000022	.000115	.000095	.000208
NEBRASKA	.000026	.000067	.000463	.000159	.000169
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.012176	.000095	.006007
N JERSEY	.000000	.000022	.000231	.000607	.000312
N MEXICO	.000242	.000402	.000347	.000543	.000559
NEW YORK	.000862	.000737	.003363	.001949	.002340
N CAROL	.000916	.000424	.000579	.004346	.000780
N DAKOTA	.000026	.000022	.000115	.000095	.000091
OHIO	.026324	.000335	.000927	.002940	.001170
OKLAHOMA	.000458	.001787	.000695	.000799	.000520
OREGON	.000000	.000022	.000115	.000095	.000078
PENN	.000107	.000067	.000347	.004922	.000585
R ISLAND	.000000	.000022	.000463	.000031	.001469
S CAROL	.000808	.000201	.001159	.002205	.000442
S DAKOTA	.000053	.000022	.000000	.000127	.000039
TENN	.009457	.000692	.000115	.000863	.000234
TEXAS	.001320	.009161	.001275	.001022	.000728
UTAH	.000107	.000022	.000347	.000735	.000169
VERMONT	.000000	.000000	.001739	.000127	.002678
VIRGINIA	.002101	.000536	.001855	.012977	.001547
WASH	.000026	.000134	.000579	.000127	.000143
W VIRG	.001939	.000000	.000115	.010260	.000104
WISC	.000350	.000223	.000927	.000831	.000416
WYOMING	.000053	.000022	.000231	.000127	.000117
WASH D C	.000296	.000558	.000000	.003452	.000273

MIGRATION RATIOS

	MICHIGAN	MINN	MISS	MISSOURI	MONTANA
ALABAMA	.000102	.000098	.008336	.000346	.000000
ALASKA	.000085	.000078	.000000	.000040	.000270
ARIZONA	.000897	.001082	.000262	.001243	.003883
ARKANSAS	.000076	.000000	.001877	.008115	.000090
CALIF	.002197	.005492	.004092	.005750	.008760
COLORADO	.001607	.003405	.000976	.004180	.010025
CONN	.000094	.000118	.000037	.000163	.000090
DELAWARE	.000025	.000000	.000000	.000020	.000000
FLORIDA	.000538	.000255	.001051	.000407	.000180
GEORGIA	.000196	.000177	.003191	.000693	.000180
IDAHO	.000179	.000236	.000037	.000183	.002528
ILLINOIS	.000615	.000374	.000413	.006830	.000270
INDIANA	.002462	.000413	.000413	.003486	.000812
IOWA	.000478	.004173	.000187	.002344	.000722
KANSAS	.000316	.000925	.000337	.033726	.001625
KENTUCKY	.000606	.000078	.000563	.001427	.000180
LA	.000170	.000059	.014419	.000611	.000000
MAINE	.000017	.000019	.000000	.000000	.000000
MARYLAND	.000906	.001240	.000826	.001406	.000722
MASS	.000025	.000000	.000000	.000000	.000000
MICHIGAN	.000000	.002834	.000826	.002446	.001083
MINN	.000401	.000000	.000037	.000346	.003612
MISS	.000128	.000059	.000000	.000999	.000090
MISSOURI	.000333	.000196	.000600	.000000	.000090
MONTANA	.000145	.000787	.000075	.000428	.000000
NEBRASKA	.000162	.000905	.000225	.000937	.000903
NEVADA	.000008	.000000	.000000	.000000	.000000
N HAMP	.000008	.000000	.000000	.000000	.000000
N JERSEY	.000042	.000000	.000000	.000020	.000000
N MEXICO	.000487	.000354	.000375	.000897	.000722
NEW YORK	.000606	.001102	.000976	.001162	.001174
N CAROL	.000111	.000019	.000225	.000163	.000000
N DAKOTA	.000111	.030593	.000037	.000020	.005960
OHIO	.005223	.000334	.000751	.002711	.000270
OKLAHOMA	.000359	.000393	.001201	.004914	.001174
OREGON	.000085	.000118	.000075	.000122	.003793
PENN	.000051	.000059	.000037	.000122	.000000
R ISLAND	.000017	.000019	.000000	.000000	.000000
S CAROL	.000162	.000059	.000488	.000265	.000180
S DAKOTA	.000051	.011949	.000000	.000346	.000903
TENN	.000461	.000078	.007697	.001773	.000180
TEXAS	.000692	.000925	.003567	.003303	.001806
UTAH	.000170	.000374	.000075	.000203	.004064
VERMONT	.000034	.000000	.000000	.000020	.000000
VIRGINIA	.000487	.000236	.000488	.000428	.000180
WASH	.000153	.000570	.000112	.000407	.010296
W VIRG	.000119	.000019	.000037	.000020	.000000
WISC	.001632	.006221	.000262	.001325	.000361
WYOMING	.000453	.000118	.000075	.000142	.001896
WASH D C	.000265	.000255	.000788	.000367	.000270

MIGRATION RATIOS

	NEBRASKA	NEVADA	N HAMP	N JERSEY	N MEXICO
ALABAMA	.000000	.000613	.000144	.001176	.000231
ALASKA	.000000	.000000	.000000	.000102	.000000
ARIZONA	.001961	.015039	.000433	.000742	.010250
ARKANSAS	.000085	.000613	.000000	.000057	.000847
CALIF	.009255	.061694	.005196	.002364	.011175
COLORADO	.021027	.017802	.003031	.002695	.023506
CONN	.000042	.000306	.003031	.000970	.000000
DELAWARE	.000000	.000000	.000288	.003289	.000000
FLORIDA	.000127	.000613	.000577	.001336	.000000
GEORGIA	.000298	.000613	.000433	.001256	.000385
IDAHO	.000767	.005831	.000144	.000228	.000385
ILLINOIS	.000298	.000306	.000144	.000970	.000000
INDIANA	.000853	.001841	.001154	.001953	.000539
IOWA	.009084	.000613	.000577	.000833	.000693
KANSAS	.007208	.001227	.000433	.001028	.002235
KENTUCKY	.000042	.000000	.000144	.001050	.000154
LA	.000085	.000000	.000288	.000159	.000154
MAINE	.000000	.000000	.004763	.001210	.000000
MARYLAND	.001322	.003069	.004618	.002935	.000924
MASS	.000000	.000000	.006351	.000148	.000000
MICHIGAN	.001450	.000613	.003608	.005517	.001078
MINN	.000980	.001227	.000144	.000262	.000000
MISS	.000127	.000306	.000144	.000411	.000308
MISSOURI	.001748	.000613	.000000	.000502	.000539
MONTANA	.000938	.000920	.000721	.000296	.000539
NEBRASKA	.000000	.001227	.000433	.000102	.000385
NEVADA	.000042	.000000	.000000	.000022	.000154
N HAMP	.000000	.000000	.000000	.000845	.000000
N JERSEY	.000000	.000000	.000288	.000000	.000000
N MEXICO	.000853	.004604	.000577	.000628	.000000
NEW YORK	.000895	.003069	.003752	.006704	.001078
N CAROL	.000042	.000306	.000577	.002729	.000154
N DAKOTA	.000341	.000000	.000144	.000045	.000154
OHIO	.000426	.000000	.000721	.005048	.000077
OKLAHOMA	.002132	.002455	.000433	.001107	.005934
OREGON	.000213	.013812	.000866	.000045	.000154
PENN	.000000	.000000	.000577	.006899	.000231
R ISLAND	.000000	.000000	.000433	.000731	.000154
S CAROL	.000042	.000000	.001443	.002078	.000462
S DAKOTA	.006227	.000306	.000288	.000102	.000000
TENN	.000000	.000000	.000000	.000845	.000154
TEXAS	.002175	.003376	.000577	.000890	.028978
UTAH	.000980	.050337	.000433	.000456	.002620
VERMONT	.000000	.000000	.005340	.002570	.000000
VIRGINIA	.000127	.000306	.001299	.005905	.000693
WASH	.000341	.003990	.000288	.000148	.000847
W VIRG	.000000	.000306	.000144	.001393	.000000
WISC	.000767	.000000	.000144	.000776	.000462
WYOMING	.003795	.000306	.000144	.000091	.000231
WASH D C	.000085	.000000	.000000	.001416	.000385

MIGRATION RATIOS

	NEW YORK	N CAROL	N DAKOTA	OHIO	OKLAHOMA
ALABAMA	.000649	.000945	.000000	.000230	.000109
ALASKA	.000033	.000021	.000000	.000025	.000021
ARIZONA	.000880	.000609	.001920	.001246	.001624
ARKANSAS	.000093	.000063	.000240	.000093	.002415
CALIF	.002978	.001533	.006400	.003448	.006850
COLORADO	.002018	.000714	.002640	.002381	.002613
CONN	.001063	.000168	.000000	.000196	.000021
DELAWARE	.000272	.000105	.000000	.000051	.000000
FLORIDA	.000895	.001176	.000160	.000811	.000197
GEORGIA	.001041	.004201	.000240	.000554	.000175
IDAHO	.000126	.000000	.001120	.000196	.000329
ILLINOIS	.000791	.000084	.000240	.000665	.000219
INDIANA	.001466	.000546	.000480	.007811	.000592
IOWA	.000488	.000084	.002160	.000571	.000307
KANSAS	.000910	.000378	.000960	.000486	.008431
KENTUCKY	.000671	.000588	.000000	.003201	.000131
LA	.000235	.000315	.000000	.000076	.000439
MAINE	.000585	.000000	.000000	.000025	.000021
MARYLAND	.001772	.002352	.000800	.001425	.000768
MASS	.000235	.000000	.000000	.000000	.000000
MICHIGAN	.007221	.000840	.001040	.009689	.000505
MINN	.000205	.000063	.024961	.000110	.000109
MISS	.000246	.000378	.000000	.000187	.000153
MISSOURI	.000287	.000021	.000480	.000239	.001866
MONTANA	.000227	.000063	.005680	.000341	.000153
NEBRASKA	.000149	.000189	.000960	.000247	.000263
NEVADA	.000000	.000000	.000240	.000000	.000021
N HAMP	.000529	.000021	.000000	.000017	.000000
N JERSEY	.001220	.000021	.000160	.000110	.000021
N MEXICO	.000507	.000231	.001040	.000640	.001844
NEW YORK	.000000	.000903	.000800	.001417	.000746
N CAROL	.001306	.000000	.000000	.000384	.000065
N DAKOTA	.000052	.000000	.000000	.000025	.000021
OHIO	.004534	.000609	.000320	.000000	.000592
OKLAHOMA	.000821	.000252	.000480	.000409	.000000
OREGON	.000082	.000042	.000880	.000085	.000241
PENN	.001802	.000189	.000000	.000520	.000087
R ISLAND	.000466	.000000	.000000	.000008	.000000
S CAROL	.001074	.013487	.000000	.000418	.000065
S DAKOTA	.000078	.000042	.006400	.000102	.000043
TENN	.000347	.005420	.000000	.000554	.000614
TEXAS	.000768	.001029	.001440	.001135	.008563
UTAH	.000317	.000168	.000320	.000221	.000109
VERMONT	.002332	.000021	.000000	.000025	.000000
VIRGINIA	.002489	.004180	.000000	.001195	.000241
WASH	.000119	.000126	.001120	.000162	.000263
W VIRG	.000425	.000483	.000080	.002065	.000000
WISC	.001373	.000210	.001040	.001374	.000197
WYOMING	.000074	.000021	.000320	.000102	.000219
WASH D C	.001041	.003298	.000080	.000452	.000373

MIGRATION RATIOS

	OREGON	PENN	R ISLAND	S CAROL	S DAKOTA
ALABAMA	.000036	.000420	.000336	.002521	.000000
ALASKA	.000180	.000029	.000000	.000045	.000081
ARIZONA	.005477	.000891	.001904	.000229	.002027
ARKANSAS	.000000	.000117	.000000	.000045	.000000
CALIF	.021225	.002948	.004256	.001238	.008351
COLORADO	.002270	.001591	.002352	.000871	.010946
CONN	.000180	.000361	.005040	.000183	.000000
DELAWARE	.000000	.002292	.000112	.000000	.000000
FLORIDA	.000072	.000781	.000560	.001742	.000081
GEORGIA	.000108	.000596	.000784	.017057	.000324
IDAHO	.004000	.000184	.000336	.000045	.000567
ILLINOIS	.000036	.000405	.000224	.000320	.000567
INDIANA	.000468	.001864	.000000	.000504	.000648
IOWA	.000108	.000302	.000224	.000183	.006567
KANSAS	.000540	.000810	.000560	.000183	.001864
KENTUCKY	.000000	.000773	.000224	.000137	.000000
LA	.000000	.000243	.000000	.000366	.000000
MAINE	.000000	.000147	.002240	.000045	.000000
MARYLAND	.001297	.003758	.004368	.002659	.001459
MASS	.000000	.000058	.005376	.000000	.000000
MICHIGAN	.000360	.003699	.002464	.000641	.001054
MINN	.000288	.000147	.000224	.000000	.010297
MISS	.000144	.000265	.000336	.000229	.000162
MISSOURI	.000108	.000412	.000224	.000091	.001054
MONTANA	.001009	.000412	.000112	.000000	.002351
NEBRASKA	.000180	.000117	.000224	.000229	.010054
NEVADA	.000108	.000029	.000000	.000000	.000000
N HAMP	.000000	.000125	.004144	.000000	.000000
N JERSEY	.000072	.001886	.000336	.000091	.000000
N MEXICO	.000468	.000751	.000448	.000229	.000972
NEW YORK	.001045	.002793	.002576	.001558	.000810
N CAROL	.000072	.001569	.001568	.011738	.000081
N DAKOTA	.000072	.000103	.000000	.000000	.007297
OHIO	.000108	.005785	.000336	.001192	.000405
OKLAHOMA	.000252	.000604	.000224	.000366	.000729
OREGON	.000000	.000088	.000112	.000000	.000891
PENN	.000000	.000000	.000784	.000091	.000000
R ISLAND	.000000	.000058	.000000	.000000	.000000
S CAROL	.000036	.001090	.000896	.000000	.000162
S DAKOTA	.000180	.000051	.000224	.000000	.000000
TENN	.000000	.000434	.000336	.001971	.000000
TEXAS	.001009	.000862	.000560	.001192	.001702
UTAH	.001369	.000147	.000336	.000091	.001054
VERMONT	.000000	.000162	.001120	.000000	.000000
VIRGINIA	.000072	.003346	.002016	.003484	.000000
WASH	.019388	.000147	.000000	.000137	.000891
W VIRG	.000000	.004746	.000112	.000550	.000000
WISC	.000180	.000508	.000224	.000137	.000810
WYOMING	.000216	.000206	.000112	.000045	.002351
WASH D C	.000216	.001002	.000336	.003484	.000243

MIGRATION RATIOS

	TENN	TEXAS	UTAH	VERMONT	VIRGINIA
ALABAMA	.008171	.000214	.000059	.000226	.001777
ALASKA	.000000	.000041	.000000	.000226	.000088
ARIZONA	.000245	.000810	.004691	.008141	.000325
ARKANSAS	.002282	.000844	.010451	.000000	.000236
CALIF	.003239	.004327	.000000	.003392	.002399
COLORADO	.001104	.002825	.004513	.005201	.002902
CONN	.000147	.000034	.000000	.003618	.000681
DELAWARE	.000098	.000013	.000000	.000000	.000414
FLORIDA	.001374	.000214	.000059	.001809	.001629
GEORGIA	.008883	.000318	.000178	.000452	.003050
IDAHO	.000000	.000055	.000950	.000226	.000088
ILLINOIS	.000834	.000193	.000059	.000226	.000385
INDIANA	.001104	.000339	.000118	.001130	.001184
IOWA	.000269	.000152	.000178	.000678	.000503
KANSAS	.000466	.000962	.000415	.001130	.000977
KENTUCKY	.005398	.000124	.000059	.000452	.003050
LA	.001595	.001751	.000059	.000226	.000118
MAINE	.000000	.000000	.000000	.004296	.000059
MARYLAND	.001325	.000872	.000890	.004522	.008323
MASS	.000000	.000000	.000000	.002035	.000059
MICHIGAN	.001521	.000429	.000356	.002713	.003228
MINN	.000098	.000076	.000059	.001130	.000236
MISS	.009668	.000318	.000000	.000000	.000562
MISSOURI	.000711	.000560	.000059	.000000	.000266
MONTANA	.000049	.000083	.000831	.000678	.000325
NEBRASKA	.000073	.000221	.000118	.000000	.000236
NEVADA	.000000	.000006	.000178	.000000	.000000
N HAMP	.000000	.000006	.000000	.018543	.000148
N JERSEY	.000024	.000006	.000000	.000678	.000503
N MEXICO	.000343	.003129	.000534	.000226	.000473
NEW YORK	.000834	.000588	.000475	.008819	.002369
N CAROL	.002650	.000096	.000000	.001130	.019253
N DAKOTA	.000049	.000013	.000000	.000000	.000059
OHIO	.001472	.000221	.000000	.001809	.003791
OKLAHOMA	.001742	.007450	.000415	.000226	.000651
OREGON	.000049	.000069	.000593	.000000	.000059
PENN	.000024	.000027	.000000	.000904	.002725
R ISLAND	.000000	.000000	.000000	.000226	.000059
S CAROL	.001521	.000124	.000000	.000226	.003080
S DAKOTA	.000098	.000027	.000059	.000000	.000177
TENN	.000000	.000276	.000059	.000226	.012381
TEXAS	.002110	.000000	.000534	.002487	.001125
UTAH	.000122	.000193	.000000	.000226	.000325
VERMONT	.000000	.000000	.000000	.000000	.000148
VIRGINIA	.002233	.000415	.000000	.000678	.000000
WASH	.000049	.000207	.001068	.000452	.000414
W VIRG	.000147	.000013	.000000	.000000	.008323
WISC	.000294	.000090	.000118	.001130	.000622
WYOMING	.000073	.000096	.000356	.000226	.000207
WASH D C	.000785	.000422	.000118	.000000	.006575

MIGRATION RATIOS

	WASH	W VIRG	WISC	WYOMING	WASH D C
ALABAMA	.000112	.000664	.000171	.000000	.000847
ALASKA	.000496	.000039	.000114	.000182	.000470
ARIZONA	.001150	.000390	.001241	.003289	.000941
ARKANSAS	.000045	.000039	.000171	.000548	.000094
CALIF	.012788	.002657	.003897	.010964	.006211
COLORADO	.001669	.000976	.003477	.055555	.004423
CONN	.000202	.000078	.000133	.000000	.000188
DELAWARE	.000000	.000000	.000000	.000000	.002164
FLORIDA	.000090	.001172	.000630	.000182	.001882
GEORGIA	.000067	.001836	.000286	.000365	.001600
IDAHO	.005503	.000195	.000401	.002558	.000752
ILLINOIS	.000202	.000429	.002368	.000365	.000752
INDIANA	.000180	.002032	.002292	.001096	.002070
IOWA	.000180	.000351	.002273	.000365	.001035
KANSAS	.000338	.000351	.000745	.002741	.001035
KENTUCKY	.000045	.003946	.000229	.000182	.000658
LA	.000045	.000156	.000133	.000182	.000000
MAINE	.000000	.000039	.000000	.000000	.000094
MARYLAND	.001240	.002266	.001318	.001461	.026070
MASS	.000000	.000000	.000000	.000000	.000000
MICHIGAN	.000383	.001719	.009361	.001096	.004800
MINN	.000270	.000117	.007622	.000182	.000282
MISS	.000067	.000195	.000191	.000182	.000658
MISSOURI	.000135	.000078	.000248	.000913	.000376
MONTANA	.002278	.000078	.000802	.016812	.000094
NEBRASKA	.000112	.000117	.000229	.016081	.000282
NEVADA	.000000	.000000	.000038	.000182	.000000
N HAMP	.000000	.000000	.000000	.000000	.000188
N JERSEY	.000022	.000312	.000000	.000000	.000658
N MEXICO	.000496	.001211	.000496	.002375	.000658
NEW YORK	.000811	.001055	.001108	.001644	.002352
N CAROL	.000045	.001797	.000076	.000000	.007529
N DAKOTA	.000360	.000039	.000534	.000730	.000188
OHIO	.000135	.016568	.002025	.000182	.007811
OKLAHOMA	.000270	.000508	.000554	.002192	.001129
OREGON	.009946	.000117	.000191	.001096	.000470
PENN	.000067	.000742	.000057	.000000	.006964
R ISLAND	.000045	.000000	.000000	.000000	.000000
S CAROL	.000045	.001289	.000095	.000000	.001882
S DAKOTA	.000202	.000039	.000534	.014437	.000188
TENN	.000248	.001211	.000171	.000000	.001882
TEXAS	.000654	.000859	.001050	.000913	.001223
UTAH	.000744	.000117	.000706	.034722	.000752
VERMONT	.000022	.000000	.000038	.000000	.000564
VIRGINIA	.000202	.016686	.000286	.000548	.014588
WASH	.000000	.000078	.000248	.002923	.000282
W VIRG	.000045	.000000	.000038	.000000	.006870
WISC	.000135	.000429	.000000	.000548	.002164
WYOMING	.000067	.000039	.000286	.000000	.000000
WASH D C	.000135	.000742	.000133	.000365	.000000

APPENDIX B--Continued

UNDERGRADUATES IN PRIVATE INSTITUTIONS

MIGRATION RATIOS

	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIF
ALABAMA	.000000	.000000	.000179	.001460	.000090
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000077	.000000	.000000	.000045	.000051
ARKANSAS	.000720	.000421	.000359	.000000	.000263
CALIF	.000900	.018955	.028558	.001460	.000000
COLORADO	.000051	.001684	.001796	.000684	.001047
CONN	.000385	.000421	.000763	.000638	.000559
DELAWARE	.000000	.000000	.000000	.000000	.000000
FLORIDA	.002545	.001263	.000359	.000821	.000236
GEORGIA	.009592	.000000	.000044	.000912	.000051
IDAHO	.000025	.001684	.000134	.000000	.000228
ILLINOIS	.001851	.002527	.002963	.002327	.002311
INDIANA	.001208	.003369	.001571	.001643	.001394
IOWA	.000360	.002527	.000853	.000456	.000657
KANSAS	.000128	.000421	.000404	.000912	.000441
KENTUCKY	.001800	.000421	.000134	.000638	.000074
LA	.006171	.000000	.000314	.004244	.000165
MAINE	.000025	.000000	.000044	.000045	.000051
MARYLAND	.000642	.000000	.000224	.000136	.000165
MASS	.001748	.002527	.002649	.001643	.002296
MICHIGAN	.000180	.000421	.000493	.000319	.000539
MINN	.000102	.002527	.000628	.000182	.000476
MISS	.003214	.000000	.000089	.003057	.000031
MISSOURI	.001902	.001684	.001257	.009721	.001291
MONTANA	.000025	.001263	.000044	.000000	.000031
NEBRASKA	.000051	.001263	.000583	.000502	.000417
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000077	.000000	.000314	.000091	.000449
N JERSEY	.000642	.000000	.000314	.000091	.000425
N MEXICO	.000025	.000000	.000224	.000136	.000070
NEW YORK	.001440	.003369	.001436	.001551	.001662
N CAROL	.003163	.000421	.000089	.001277	.000173
N DAKOTA	.000000	.000421	.000000	.000000	.000011
OHIO	.000745	.002948	.000718	.000821	.000744
OKLAHOMA	.000565	.000421	.000718	.008260	.000248
OREGON	.000025	.014321	.000673	.000091	.003166
PENN	.000617	.000842	.001212	.000547	.000779
R ISLAND	.000128	.000000	.000134	.000000	.000133
S CAROL	.001440	.000000	.000089	.000228	.000043
S DAKOTA	.000000	.000421	.000089	.000000	.000070
TENN	.020984	.000421	.000853	.012505	.000397
TEXAS	.002725	.006318	.003412	.018255	.001484
UTAH	.000180	.005897	.014683	.000365	.006297
VERMONT	.000077	.000000	.000089	.000000	.000102
VIRGINIA	.003780	.000000	.000134	.002601	.000129
WASH	.000077	.042122	.000942	.000182	.003036
W VIRG	.000025	.000421	.000000	.000000	.000019
WISC	.000231	.000421	.000942	.000365	.000354
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001260	.001263	.000449	.001004	.000622

MIGRATION RATIOS

	COLORADO	CONN	DELAWARE	FLORIDA	GEORGIA
ALABAMA	.000199	.000211	.000943	.011923	.013741
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000638	.000000	.000000	.000000	.000000
ARKANSAS	.000558	.000026	.000707	.000583	.000460
CALIF	.013517	.002143	.002122	.001617	.000665
COLORADO	.000000	.000979	.000471	.000282	.000179
CONN	.001914	.000000	.008252	.001560	.001484
DELAWARE	.000000	.000052	.000000	.000000	.000025
FLORIDA	.000558	.004896	.004951	.000000	.008035
GEORGIA	.000079	.000317	.002593	.021909	.000000
IDAHO	.000199	.000000	.000000	.000000	.000051
ILLINOIS	.007735	.004684	.003772	.004946	.001816
INDIANA	.003748	.005848	.006602	.003911	.001407
IOWA	.004665	.000688	.000235	.000545	.000127
KANSAS	.010208	.000344	.000235	.000206	.000051
KENTUCKY	.000638	.000423	.003065	.002482	.002149
LA	.000438	.000555	.001178	.004419	.002738
MAINE	.000079	.011935	.003772	.000206	.000000
MARYLAND	.000398	.003996	.025229	.001466	.000818
MASS	.006061	.099880	.034190	.006939	.001944
MICHIGAN	.001674	.001376	.001178	.001053	.000179
MINN	.002791	.000714	.000235	.000639	.000051
MISS	.000039	.000052	.000000	.002708	.000972
MISSOURI	.007018	.001270	.003536	.002369	.001714
MONTANA	.000279	.000026	.000000	.000018	.000000
NEBRASKA	.008174	.000132	.000000	.000225	.000051
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.002272	.008151	.004244	.000733	.000230
N JERSEY	.001036	.008892	.011082	.001278	.000793
N MEXICO	.001196	.000052	.000000	.000000	.000025
NEW YORK	.004027	.085563	.035369	.007447	.002431
N CAROL	.000279	.003440	.013676	.013540	.011003
N DAKOTA	.000039	.000000	.000000	.000000	.000000
OHIO	.001874	.011591	.011789	.002896	.001305
OKLAHOMA	.003349	.000132	.000000	.000545	.000332
OREGON	.001355	.000185	.000471	.000037	.000051
PENN	.001674	.025459	.148314	.004814	.001868
R ISLAND	.000638	.024268	.003301	.000601	.000153
S CAROL	.000039	.000291	.000707	.004964	.008930
S DAKOTA	.000558	.000158	.000000	.000018	.000153
TENN	.001236	.000608	.005187	.015252	.022902
TEXAS	.006699	.000793	.001178	.003385	.003736
UTAH	.006659	.000423	.000707	.000940	.000639
VERMONT	.000398	.012359	.002122	.000319	.000051
VIRGINIA	.000438	.004843	.015562	.006243	.006218
WASH	.002432	.000291	.000707	.000225	.000127
W VIRG	.000159	.003175	.001886	.000432	.000000
WISC	.001315	.001429	.000943	.000883	.000179
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001036	.007066	.015798	.003817	.001944

MIGRATION RATIOS

	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS
ALABAMA	.000464	.000451	.000461	.000048	.000153
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000000	.000020	.000000	.000000	.000025
ARKANSAS	.000185	.000389	.000649	.000315	.001359
CALIF	.014785	.003015	.001350	.002816	.002872
COLORADO	.002510	.002848	.001025	.003108	.004975
CONN	.000185	.001910	.000957	.000655	.000538
DELAWARE	.000000	.000000	.000000	.000000	.000000
FLORIDA	.000092	.003022	.002580	.000849	.000230
GEORGIA	.008926	.000236	.000170	.000024	.000102
IDAHO	.000000	.000083	.000068	.000194	.000102
ILLINOIS	.003905	.000000	.028373	.023409	.005642
INDIANA	.002510	.034004	.000000	.007625	.003846
IOWA	.000836	.022518	.001794	.000000	.003333
KANSAS	.002045	.001368	.000376	.004565	.000000
KENTUCKY	.000092	.000868	.007230	.000267	.000359
LA	.000278	.000750	.000769	.000097	.000230
MAINE	.000000	.000083	.000017	.000072	.000000
MARYLAND	.000371	.000423	.000205	.000194	.000230
MASS	.003068	.006357	.003093	.002476	.002667
MICHIGAN	.000185	.005002	.008512	.003375	.000461
MINN	.000650	.008893	.001675	.015322	.001128
MISS	.000092	.000222	.000239	.000121	.000179
MISSOURI	.001859	.015605	.005931	.011000	.025235
MONTANA	.001952	.000041	.000000	.000024	.000025
NEBRASKA	.001022	.000771	.000444	.018431	.006180
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000278	.001104	.000290	.000607	.000435
N JERSEY	.000278	.001181	.000376	.000388	.000179
N MEXICO	.000092	.000055	.000051	.000169	.000076
NEW YORK	.001301	.005676	.003145	.001966	.001077
N CAROL	.000092	.000764	.000888	.000291	.000128
N DAKOTA	.000092	.000000	.000000	.000024	.000000
OHIO	.001580	.008303	.012716	.002501	.001154
OKLAHOMA	.000929	.000667	.000649	.000801	.010719
OREGON	.019527	.000243	.000085	.000704	.000333
PENN	.000371	.002376	.001333	.001019	.001128
R ISLAND	.000000	.000833	.000461	.000242	.000128
S CAROL	.000000	.000382	.000205	.000072	.000102
S DAKOTA	.000278	.000152	.000119	.005196	.000128
TENN	.000557	.002987	.005230	.000752	.000769
TEXAS	.001487	.001980	.002119	.002039	.004539
UTAH	.093360	.000375	.000341	.000412	.000512
VERMONT	.000185	.000180	.000017	.000000	.000051
VIRGINIA	.000000	.000409	.000905	.000412	.000333
WASH	.033940	.000347	.000239	.000509	.000487
W VIRG	.000000	.000048	.000307	.000048	.000000
WISC	.000929	.020483	.003743	.007697	.001333
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.000743	.001674	.001076	.001117	.000769

MIGRATION RATIOS

	KENTUCKY	LA	MAINE	MARYLAND	MASS
ALABAMA	.001239	.003932	.000463	.000319	.000130
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000000	.000022	.000000	.000000	.000013
ARKANSAS	.000404	.001027	.000000	.000127	.000013
CALIF	.000646	.001139	.001739	.002109	.001690
COLORADO	.000215	.000178	.000695	.000479	.000806
CONN	.001239	.000424	.006958	.004059	.009999
DELAWARE	.000000	.000000	.000000	.003611	.000000
FLORIDA	.002667	.000558	.004986	.003483	.003432
GEORGIA	.000943	.000849	.000231	.000926	.000195
IDAHO	.000053	.000044	.000000	.000031	.000013
ILLINOIS	.003772	.002078	.005682	.004123	.003770
INDIANA	.013498	.001541	.005914	.005433	.004096
IOWA	.000269	.000223	.001043	.000447	.000429
KANSAS	.000188	.000268	.000115	.000351	.000234
KENTUCKY	.000000	.000558	.001043	.001054	.000715
LA	.000700	.000000	.000347	.000415	.000234
MAINE	.000026	.000000	.000000	.000703	.015513
MARYLAND	.000538	.000335	.000927	.000000	.002314
MASS	.002936	.001966	.137655	.016429	.000000
MICHIGAN	.000727	.000134	.001507	.001374	.000806
MINN	.000511	.000223	.000695	.000511	.000325
MISS	.000727	.002234	.000231	.000191	.000000
MISSOURI	.004445	.001631	.001043	.001086	.000741
MONTANA	.000000	.000000	.000000	.000000	.000026
NEBRASKA	.000080	.000335	.000811	.000063	.000130
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000404	.000111	.012292	.001566	.009039
N JERSEY	.000754	.000424	.003131	.004123	.003237
N MEXICO	.000026	.000759	.000000	.000063	.000039
NEW YORK	.002721	.001675	.020178	.017387	.031052
N CAROL	.004014	.000625	.001159	.011410	.001261
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.021689	.000603	.003479	.010388	.005721
OKLAHOMA	.000161	.000469	.000347	.000223	.000091
OREGON	.000134	.000000	.000115	.000095	.000169
PENN	.001374	.000960	.007422	.041264	.011091
R ISLAND	.000080	.000089	.013916	.002397	.018945
S CAROL	.000996	.000223	.000000	.000767	.000052
S DAKOTA	.000000	.000022	.000000	.000063	.000039
TENN	.021177	.002636	.001391	.002844	.000481
TEXAS	.002155	.013719	.001043	.001374	.000650
UTAH	.000107	.000312	.000231	.000447	.000143
VERMONT	.000053	.000000	.005914	.001342	.012145
VIRGINIA	.004176	.001787	.001159	.013712	.001404
WASH	.000107	.000111	.000463	.000319	.000195
W VIRG	.000269	.000000	.000115	.002173	.000676
WISC	.000754	.000402	.001739	.000575	.000832
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001454	.000804	.004406	.104008	.004564

MIGRATION RATIOS

	MICHIGAN	MINN	MISS	MISSOURI	MONTANA
ALABAMA	.000239	.000059	.008261	.000407	.000090
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000000	.000000	.000000	.000122	.000180
ARKANSAS	.000453	.000019	.001126	.003466	.000000
CALIF	.001487	.002441	.000713	.002528	.008670
COLORADO	.000410	.001693	.000075	.002834	.007406
CONN	.000777	.001496	.000262	.002895	.000541
DELAWARE	.000008	.000000	.000037	.000000	.000000
FLORIDA	.001402	.000767	.000863	.001325	.000541
GEORGIA	.000213	.000098	.002065	.000224	.000000
IDAHO	.000017	.000551	.000112	.000142	.002167
ILLINOIS	.011276	.011654	.001952	.019962	.005238
INDIANA	.014182	.005000	.001502	.007911	.002709
IOWA	.001590	.017265	.000337	.006708	.002528
KANSAS	.000487	.000807	.000187	.010949	.005780
KENTUCKY	.000948	.000452	.001164	.001529	.000000
LA	.000239	.000098	.012954	.000999	.000090
MAINE	.000094	.000059	.000000	.000000	.000000
MARYLAND	.000376	.000295	.000037	.000428	.000180
MASS	.003582	.005925	.000788	.006932	.004244
MICHIGAN	.000000	.002283	.000187	.001243	.001174
MINN	.002521	.000000	.000112	.001855	.021356
MISS	.000059	.000019	.000000	.000754	.000000
MISSOURI	.002000	.002519	.001464	.000000	.004244
MONTANA	.000017	.000078	.000075	.000081	.000000
NEBRASKA	.000256	.003287	.000150	.002773	.002167
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000718	.001712	.000000	.000836	.003070
N JERSEY	.000530	.000610	.000337	.001529	.000090
N MEXICO	.000025	.000019	.000000	.000101	.000090
NEW YORK	.004231	.002913	.000938	.004567	.002167
N CAROL	.000478	.000137	.001164	.000693	.000090
N DAKOTA	.000017	.000236	.000000	.000000	.001535
OHIO	.008403	.001889	.000788	.003099	.000722
OKLAHOMA	.000076	.000118	.000375	.004180	.000541
OREGON	.000145	.000570	.000037	.000142	.009302
PENN	.001436	.000925	.000300	.001712	.001174
R ISLAND	.000478	.000452	.000112	.001080	.000270
S CAROL	.000145	.000019	.000450	.000061	.000090
S DAKOTA	.000153	.004941	.000000	.000346	.002257
TENN	.001692	.000689	.013593	.004914	.000541
TEXAS	.000948	.000807	.005181	.006790	.001716
UTAH	.000316	.000433	.000337	.000407	.011289
VERMONT	.000205	.000196	.000000	.000163	.000090
VIRGINIA	.000512	.000196	.002515	.001101	.000451
WASH	.000239	.001181	.000262	.000203	.037572
W VIRG	.000170	.000000	.000000	.000061	.000000
WISC	.004796	.009784	.000300	.001590	.002077
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001102	.001240	.001126	.001529	.000993

MIGRATION RATIOS

	NEBRASKA	NEVADA	N HAMP	N JERSEY	N MEXICO
ALABAMA	.000213	.000000	.000000	.000434	.000231
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000000	.000306	.000000	.000000	.000077
ARKANSAS	.000298	.000000	.000144	.000217	.000539
CALIF	.005502	.069367	.003752	.001279	.013949
COLORADO	.009724	.004604	.001154	.001039	.008786
CONN	.000511	.000613	.007938	.007653	.000385
DELAWARE	.000000	.000000	.000000	.001416	.000000
FLORIDA	.000255	.001227	.001876	.006967	.000231
GEORGIA	.000000	.000000	.000000	.000422	.000154
IDAHO	.000170	.003376	.000000	.000011	.000231
ILLINOIS	.008316	.004604	.003752	.005734	.001926
INDIANA	.004137	.002148	.004763	.006328	.001310
IOWA	.011601	.000613	.000144	.001107	.001926
KANSAS	.013264	.000000	.000433	.000468	.002466
KENTUCKY	.000938	.000000	.000577	.000982	.000539
LA	.000127	.000306	.000144	.000399	.000693
MAINE	.000042	.000000	.023094	.002524	.000000
MARYLAND	.000298	.000920	.000866	.007436	.000154
MASS	.003241	.003683	.151991	.031411	.003468
MICHIGAN	.000298	.000613	.000577	.003266	.001310
MINN	.005800	.000920	.000866	.000593	.000770
MISS	.000127	.000000	.000000	.000045	.000231
MISSOURI	.012240	.002762	.001443	.001450	.005394
MONTANA	.000042	.000306	.000144	.000045	.000077
NEBRASKA	.000000	.001841	.000000	.000011	.002235
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.001023	.000306	.000000	.004306	.000462
N JERSEY	.000554	.000306	.002886	.000000	.000770
N MEXICO	.000042	.000306	.000000	.000045	.000000
NEW YORK	.003326	.002455	.032765	.091390	.002620
N CAROL	.000170	.000000	.001443	.005322	.000308
N DAKOTA	.000042	.000000	.000000	.000034	.000000
OHIO	.001364	.002455	.005918	.012050	.002080
OKLAHOMA	.002388	.003069	.000000	.000068	.002851
OREGON	.000511	.003683	.000000	.000171	.000616
PENN	.000853	.001841	.007650	.114007	.001156
R ISLAND	.000213	.000613	.015300	.005414	.000077
S CAROL	.000042	.000000	.000433	.000719	.000000
S DAKOTA	.004435	.000000	.000000	.000011	.000000
TENN	.000639	.000613	.000288	.002478	.001001
TEXAS	.002644	.001227	.001154	.000845	.036608
UTAH	.000469	.077655	.000721	.000285	.008940
VERMONT	.000042	.000000	.012846	.004991	.000308
VIRGINIA	.000298	.000000	.001154	.005048	.000385
WASH	.000938	.003069	.000000	.000491	.000539
W VIRG	.000127	.000000	.000721	.003837	.000000
WISC	.003454	.000920	.001299	.000970	.001078
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001279	.000920	.004041	.008703	.001310

MIGRATION RATIOS

	NEW YORK	N CAROL	N DAKOTA	OHIO	OKLAHOMA
ALABAMA	.000440	.001848	.000000	.000315	.000592
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000000	.000042	.000000	.000000	.000043
ARKANSAS	.000093	.000105	.000000	.000358	.003118
CALIF	.001350	.000525	.002880	.001656	.002371
COLORADO	.000761	.000105	.001440	.000529	.001471
CONN	.007348	.000336	.000160	.002526	.000746
DELAWARE	.000070	.000000	.000000	.000000	.000000
FLORIDA	.004948	.003067	.000320	.002595	.000307
GEORGIA	.000332	.006239	.000000	.000213	.000087
IDAHO	.000014	.000000	.001280	.000008	.000065
ILLINOIS	.004683	.002962	.004800	.011960	.002459
INDIANA	.006120	.001638	.003920	.022537	.002986
IOWA	.000675	.000084	.007520	.000665	.000790
KANSAS	.000179	.000063	.001600	.000435	.004194
KENTUCKY	.000466	.005567	.000720	.004661	.000153
LA	.000455	.000651	.000240	.000290	.000900
MAINE	.001425	.000042	.000000	.000170	.000000
MARYLAND	.003157	.000735	.000160	.001425	.000153
MASS	.031023	.001890	.002080	.009006	.002744
MICHIGAN	.002571	.000420	.000320	.008827	.000131
MINN	.000548	.000126	.071685	.001007	.000263
MISS	.000033	.000210	.000080	.000110	.000461
MISSOURI	.000903	.000441	.002640	.003133	.007839
MONTANA	.000022	.000000	.001920	.000042	.000021
NEBRASKA	.000074	.000168	.006240	.000170	.001295
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.002623	.000273	.000240	.001425	.000329
N JERSEY	.009341	.000819	.000240	.001545	.000680
N MEXICO	.000044	.000021	.000000	.000093	.000153
NEW YORK	.000000	.002226	.001280	.009962	.001339
N CAROL	.002257	.000000	.000000	.002023	.000417
N DAKOTA	.000011	.000000	.000000	.000008	.000000
OHIO	.010203	.002163	.000960	.000000	.000768
OKLAHOMA	.000104	.000126	.000560	.000153	.000000
OREGON	.000171	.000084	.002240	.000179	.000087
PENN	.025418	.001953	.000400	.010244	.000636
R ISLAND	.004060	.000147	.000080	.000896	.000109
S CAROL	.000283	.013424	.000080	.000256	.000109
S DAKOTA	.000089	.000000	.008080	.000000	.000021
TENN	.000877	.009264	.000160	.003423	.001624
TEXAS	.000765	.001344	.000720	.001391	.014338
UTAH	.000283	.000945	.000480	.000307	.000351
VERMONT	.004687	.000021	.000000	.000298	.000065
VIRGINIA	.002578	.011617	.000320	.001801	.000900
WASH	.000212	.000147	.005520	.000153	.000219
W VIRG	.001272	.000126	.000000	.001852	.000000
WISC	.001048	.000273	.002720	.002518	.000219
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.005635	.003718	.000640	.002791	.000878

MIGRATION RATIOS

	OREGON	PENN	R ISLAND	S CAROL	S DAKOTA
ALABAMA	.000036	.000316	.000112	.004401	.000000
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000072	.000007	.000000	.000000	.000081
ARKANSAS	.000252	.000110	.000112	.000229	.000162
CALIF	.026054	.001356	.001232	.000779	.002594
COLORADO	.001369	.000655	.001232	.000091	.003810
CONN	.000792	.004532	.012096	.001054	.000324
DELAWARE	.000000	.001415	.000112	.000000	.000000
FLORIDA	.000144	.004282	.004816	.002888	.000810
GEORGIA	.000072	.000243	.000224	.018203	.000000
IDAHO	.007207	.000022	.000000	.000000	.000486
ILLINOIS	.003711	.005704	.004480	.001558	.006810
INDIANA	.001765	.009301	.003136	.001054	.003729
IOWA	.000684	.000442	.000560	.000137	.013135
KANSAS	.000864	.000375	.000112	.000045	.002432
KENTUCKY	.000108	.000854	.000224	.001696	.000324
LA	.000216	.000265	.000112	.001696	.000081
MAINE	.000036	.000501	.008848	.000045	.000000
MARYLAND	.000252	.005461	.001344	.000504	.000162
MASS	.003099	.013273	.143033	.001971	.003000
MICHIGAN	.000216	.001842	.000784	.000183	.002189
MINN	.000792	.000434	.000336	.000045	.031784
MISS	.000000	.000058	.000000	.000458	.000000
MISSOURI	.001333	.001363	.001904	.000596	.003243
MONTANA	.000180	.000000	.000112	.000000	.001135
NEBRASKA	.000756	.000110	.000112	.000000	.013378
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000540	.001591	.007616	.000320	.000405
N JERSEY	.001549	.007377	.003584	.000733	.000162
N MEXICO	.000072	.000036	.000000	.000091	.000324
NEW YORK	.001405	.025169	.027777	.001650	.001216
N CAROL	.000108	.003677	.002576	.053372	.000000
N DAKOTA	.000036	.000022	.000000	.000000	.000324
OHIO	.000576	.030004	.003584	.000825	.000972
OKLAHOMA	.000540	.000287	.000000	.000045	.000729
OREGON	.000000	.000110	.000112	.000000	.000891
PENN	.000684	.000000	.014560	.001100	.000324
R ISLAND	.000252	.002211	.000000	.000137	.000000
S CAROL	.000000	.000619	.000112	.000000	.000000
S DAKOTA	.000072	.000051	.000000	.000000	.000000
TENN	.000288	.001945	.001120	.010133	.000000
TEXAS	.001549	.001326	.000784	.001283	.000972
UTAH	.010991	.000221	.000672	.001375	.001297
VERMONT	.000036	.000972	.004704	.000091	.000081
VIRGINIA	.000360	.004385	.002016	.007794	.000081
WASH	.035965	.000198	.000336	.000045	.002108
W VIRG	.000000	.003906	.001904	.000045	.000000
WISC	.000540	.001061	.000448	.000091	.003081
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.000612	.005925	.006384	.002200	.001135

MIGRATION RATIOS

	TENN	TEXAS	UTAH	VERMONT	VIRGINIA
ALABAMA	.005889	.000789	.000000	.000000	.001954
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000049	.000048	.000118	.000000	.000000
ARKANSAS	.002380	.000810	.000000	.000000	.000236
CALIF	.001325	.002181	.010214	.002261	.001777
COLORADO	.000269	.000907	.001484	.001356	.000385
CONN	.000957	.000609	.000593	.006105	.002547
DELAWARE	.000000	.000000	.000000	.000000	.000266
FLORIDA	.002036	.000463	.000118	.002035	.003791
GEORGIA	.006576	.000290	.000000	.000000	.003850
IDAHO	.000000	.000048	.000653	.000000	.000059
ILLINOIS	.003484	.001481	.001662	.005201	.003406
INDIANA	.002478	.001190	.001484	.007688	.004117
IOWA	.000294	.000235	.000356	.000678	.000414
KANSAS	.000073	.000505	.000356	.000678	.000385
KENTUCKY	.009251	.000173	.000000	.001130	.006190
LA	.002601	.003199	.000000	.000000	.000740
MAINE	.000000	.000006	.000000	.010628	.000592
MARYLAND	.000392	.000193	.000178	.004070	.007168
MASS	.002822	.001800	.001722	.108322	.007908
MICHIGAN	.000613	.000145	.000237	.001130	.000533
MINN	.000368	.000180	.000000	.000678	.000503
MISS	.005521	.000387	.000000	.000000	.000444
MISSOURI	.003190	.002423	.000296	.000904	.001540
MONTANA	.000000	.000000	.000118	.000904	.000000
NEBRASKA	.000098	.000643	.000534	.000000	.000088
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000392	.000159	.000296	.018091	.000947
N JERSEY	.001079	.000353	.000237	.003618	.003021
N MEXICO	.000000	.000152	.000118	.000000	.000000
NEW YORK	.002306	.001571	.002137	.048620	.009952
N CAROL	.007411	.000401	.000000	.000904	.041350
N DAKOTA	.000000	.000006	.000000	.000000	.000000
OHIO	.003460	.000484	.000593	.009045	.005776
OKLAHOMA	.000613	.001918	.000356	.000226	.000503
OREGON	.000073	.000152	.001306	.000226	.000236
PENN	.001153	.000602	.000950	.008819	.011522
R ISLAND	.000147	.000117	.000118	.010854	.001214
S CAROL	.001595	.000110	.000000	.000452	.004383
S DAKOTA	.000000	.000000	.000000	.000000	.000029
TENN	.000000	.001738	.000118	.001130	.017535
TEXAS	.005987	.000000	.000415	.001356	.002399
UTAH	.000147	.000519	.000000	.000226	.001421
VERMONT	.000073	.000076	.000059	.000000	.000622
VIRGINIA	.008490	.001350	.000000	.000452	.000000
WASH	.000171	.000318	.001840	.000226	.003850
W VIRG	.000098	.000103	.000000	.000226	.001925
WISC	.000368	.000318	.000000	.001130	.000503
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001521	.000761	.000653	.004070	.094223

MIGRATION RATIOS

	WASH	W VIRG	WISC	WYOMING	WASH D C
ALABAMA	.000022	.000156	.000267	.000000	.001035
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000022	.000039	.000019	.000182	.000000
ARKANSAS	.000180	.000703	.000171	.000548	.000094
CALIF	.017367	.000859	.002617	.010782	.003105
COLORADO	.001443	.000195	.002158	.022478	.000941
CONN	.001060	.000859	.001184	.000730	.008282
DELAWARE	.000000	.000000	.000000	.000000	.000282
FLORIDA	.000180	.002422	.001910	.000548	.004329
GEORGIA	.000045	.001211	.000076	.000000	.001035
IDAHO	.003293	.000078	.000057	.010416	.001976
ILLINOIS	.003699	.003907	.028962	.004751	.005552
INDIANA	.001263	.004103	.010469	.002192	.006400
IOWA	.000857	.000078	.014462	.002010	.001129
KANSAS	.000315	.000156	.000439	.005847	.000188
KENTUCKY	.000067	.009339	.000248	.000365	.000376
LA	.000067	.000312	.000420	.000548	.000564
MAINE	.000000	.000039	.000057	.000000	.001223
MARYLAND	.000180	.002071	.000343	.000365	.017882
MASS	.003405	.002852	.004317	.003289	.034917
MICHIGAN	.001466	.000820	.004566	.000365	.000282
MINN	.001623	.000234	.025275	.004020	.001317
MISS	.000000	.000000	.000038	.000000	.000094
MISSOURI	.000879	.000664	.003266	.004934	.001505
MONTANA	.000541	.000000	.000019	.007858	.000000
NEBRASKA	.000541	.000000	.001814	.011878	.000470
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000496	.000273	.000534	.000548	.003388
N JERSEY	.000270	.000820	.000573	.000365	.005929
N MEXICO	.000045	.000078	.000114	.000000	.000000
NEW YORK	.002323	.003712	.002903	.003106	.025317
N CAROL	.000112	.007033	.000401	.000000	.011576
N DAKOTA	.000022	.000000	.000000	.000365	.000000
OHIO	.001037	.021766	.003400	.001096	.011482
OKLAHOMA	.000428	.000195	.000171	.004020	.000188
OREGON	.021878	.000156	.000152	.003472	.000188
PENN	.000586	.011488	.001356	.000913	.027952
R ISLAND	.000045	.000312	.000420	.000182	.004141
S CAROL	.000202	.000586	.000019	.000182	.001129
S DAKOTA	.000157	.000000	.000477	.001279	.000188
TENN	.000157	.006760	.000974	.001279	.003294
TEXAS	.001217	.001055	.001260	.003654	.001694
UTAH	.005300	.000468	.000420	.031432	.001411
VERMONT	.000067	.000039	.000229	.000000	.001035
VIRGINIA	.000090	.012075	.000171	.000000	.017505
WASH	.000000	.000078	.000573	.005482	.000847
W VIRG	.000000	.000000	.000057	.000000	.002164
WISC	.000541	.000859	.000000	.002010	.001035
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.000902	.006330	.001184	.001644	.000000

APPENDIX B--Continued

FIRST-TIME UNDERGRADUATES IN COLLEGES

MIGRATION RATIOS

	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIF
ALABAMA	.000000	.000000	.008528	.001846	.000452
ALASKA	.000000	.000000	.000000	.000000	.000565
ARIZONA	.000766	.000000	.000000	.000000	.000263
ARKANSAS	.004596	.000000	.010660	.000000	.001244
CALIF	.001532	.021103	.388059	.002077	.000000
COLORADO	.000000	.000000	.021321	.000461	.001545
CONN	.000000	.000000	.002132	.000230	.000490
DELAWARE	.000000	.000000	.000000	.000000	.000000
FLORIDA	.003830	.000000	.002132	.000461	.000226
GEORGIA	.030898	.000000	.002132	.001615	.000150
IDAHO	.000000	.006493	.006396	.000000	.002676
ILLINOIS	.001276	.001623	.014925	.001385	.003619
INDIANA	.001787	.001623	.012793	.001615	.003129
IOWA	.000255	.001623	.010660	.000461	.001508
KANSAS	.000510	.000000	.014925	.002308	.002111
KENTUCKY	.008426	.000000	.000000	.000692	.000188
LA	.017620	.001623	.000000	.017774	.000754
MAINE	.000255	.000000	.002132	.000000	.000075
MARYLAND	.003064	.000000	.002132	.000230	.000490
MASS	.002298	.004870	.014925	.001615	.003204
MICHIGAN	.000255	.003246	.006396	.000230	.001922
MINN	.000510	.004870	.008528	.000230	.002035
MISS	.014811	.000000	.000000	.009926	.000113
MISSOURI	.003830	.001623	.006396	.013157	.000829
MONTANA	.000000	.000000	.002132	.000000	.000113
NEBRASKA	.001021	.001623	.010660	.001846	.001432
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.000000	.000000	.000000
N JERSEY	.000000	.000000	.000000	.000230	.000188
N MEXICO	.000255	.000000	.000000	.000461	.000037
NEW YORK	.001276	.000000	.008528	.000461	.001922
N CAROL	.008171	.000000	.000000	.000923	.000301
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.005362	.009740	.006396	.001615	.002299
OKLAHOMA	.000766	.000000	.014925	.013157	.000490
OREGON	.000000	.017857	.006396	.000000	.013044
PENN	.000766	.000000	.012793	.000461	.001244
R ISLAND	.000000	.000000	.000000	.000000	.000037
S CAROL	.003575	.000000	.000000	.000000	.000188
S DAKOTA	.000000	.001623	.002132	.000000	.000452
TENN	.071501	.001623	.008528	.018698	.001168
TEXAS	.007660	.006493	.072494	.029316	.004448
UTAH	.000000	.001623	.008528	.000000	.001093
VERMONT	.000255	.000000	.002132	.000000	.000377
VIRGINIA	.018896	.000000	.002132	.006001	.000867
WASH	.000000	.022727	.019189	.000230	.009425
W VIRG	.001021	.001623	.000000	.000000	.000150
WISC	.000000	.000000	.006396	.000230	.000452
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001276	.000000	.006396	.000923	.001206

MIGRATION RATIOS

	COLORADO	CONN	DELAWARE	FLORIDA	GEORGIA
ALABAMA	.000841	.000770	.008928	.070737	.044435
ALASKA	.000841	.000128	.000000	.001657	.000209
ARIZONA	.006728	.000000	.000000	.000000	.000000
ARKANSAS	.006728	.000000	.002976	.007736	.001676
CALIF	.060555	.001668	.005952	.003868	.000628
COLORADO	.000000	.000513	.000000	.000276	.000000
CONN	.002523	.000000	.014880	.003315	.000000
DELAWARE	.000000	.000513	.000000	.000552	.000000
FLORIDA	.000000	.003593	.005952	.000000	.019702
GEORGIA	.000841	.000641	.002976	.069908	.000000
IDAHO	.001682	.000000	.000000	.000276	.000209
ILLINOIS	.034482	.004235	.002976	.012710	.001257
INDIANA	.021867	.003465	.017857	.014092	.001886
IOWA	.025231	.001155	.000000	.001381	.000419
KANSAS	.097560	.000770	.002976	.001381	.000628
KENTUCKY	.000000	.000641	.014880	.018237	.006078
LA	.005046	.000256	.000000	.017684	.005868
MAINE	.000841	.017838	.017857	.000276	.000000
MARYLAND	.002523	.006160	.077380	.009118	.005030
MASS	.012615	.067248	.080357	.011605	.002305
MICHIGAN	.014297	.001026	.008928	.004421	.000209
MINN	.014297	.001925	.000000	.002763	.000419
MISS	.000841	.000000	.000000	.014921	.002095
MISSOURI	.020185	.001155	.008928	.005802	.001257
MONTANA	.000841	.000128	.000000	.000000	.000000
NEBRASKA	.055508	.000128	.000000	.001105	.001047
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000841	.002310	.002976	.000000	.000209
N JERSEY	.000000	.006160	.005952	.000552	.000628
N MEXICO	.004205	.000000	.000000	.000000	.000209
NEW YORK	.007569	.051976	.059523	.010223	.001467
N CAROL	.000841	.004748	.026785	.042553	.024313
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.014297	.018095	.032738	.010223	.003563
OKLAHOMA	.051303	.000128	.000000	.002763	.000838
OREGON	.005887	.000641	.000000	.000552	.000000
PENN	.004205	.030800	.267857	.009671	.002095
R ISLAND	.000000	.009881	.000000	.000276	.000000
S CAROL	.000000	.000256	.008928	.023487	.024942
S DAKOTA	.005887	.000256	.000000	.000276	.000419
TENN	.010092	.001155	.020833	.094224	.060364
TEXAS	.037005	.001155	.000000	.015750	.003982
UTAH	.005887	.000000	.000000	.000000	.000209
VERMONT	.004205	.016042	.002976	.001381	.000419
VIRGINIA	.005887	.009881	.095238	.039513	.019073
WASH	.021867	.000000	.000000	.000552	.000209
W VIRG	.001682	.007058	.014880	.003592	.000209
WISC	.001682	.000256	.000000	.001657	.000419
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001682	.002823	.023809	.006631	.001047

MIGRATION RATIOS

	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS
ALABAMA	.000000	.001511	.002402	.000000	.000984
ALASKA	.000773	.000525	.000600	.000000	.000492
ARIZONA	.000000	.000197	.000000	.000000	.000000
ARKANSAS	.001547	.002365	.004205	.001461	.004920
CALIF	.036377	.004993	.002202	.007931	.004674
COLORADO	.001547	.005912	.003003	.005426	.010578
CONN	.000000	.002168	.001201	.001461	.000246
DELAWARE	.000000	.000000	.000000	.000000	.000000
FLORIDA	.000000	.004139	.008009	.001043	.000246
GEORGIA	.000000	.000459	.000800	.000208	.000246
IDAHO	.000000	.000394	.000800	.001043	.000738
ILLINOIS	.002321	.000000	.042651	.043206	.008856
INDIANA	.004643	.064516	.000000	.012940	.010824
IOWA	.000000	.071611	.006007	.000000	.008118
KANSAS	.005417	.005518	.001201	.012940	.000000
KENTUCKY	.000000	.003284	.033440	.000417	.001476
LA	.000773	.001576	.004805	.000208	.001476
MAINE	.000000	.000328	.000000	.000000	.000000
MARYLAND	.000000	.001116	.001201	.000626	.000492
MASS	.003095	.008935	.005206	.002295	.002214
MICHIGAN	.000000	.016227	.019823	.010853	.000492
MINN	.002321	.030418	.007008	.039031	.003936
MISS	.000773	.000459	.001001	.000000	.000246
MISSOURI	.003095	.017935	.012014	.018367	.071832
MONTANA	.005417	.000197	.000000	.000000	.000246
NEBRASKA	.000773	.001445	.001001	.077019	.013038
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000131	.000000	.000000	.000000
N JERSEY	.000000	.000131	.000000	.000000	.000000
N MEXICO	.000773	.000131	.000000	.000417	.000246
NEW YORK	.001547	.006307	.002803	.000626	.000984
N CAROL	.000000	.000459	.002002	.000208	.000000
N DAKOTA	.000000	.000000	.000000	.000208	.000000
OHIO	.006191	.018067	.035642	.008140	.002952
OKLAHOMA	.002321	.001051	.002202	.003339	.042066
OREGON	.047987	.001051	.000200	.001878	.000738
PENN	.000000	.005650	.001802	.001043	.001476
R ISLAND	.000000	.000000	.000000	.000000	.000000
S CAROL	.000000	.001511	.000200	.000000	.000246
S DAKOTA	.000000	.000591	.000400	.019620	.000246
TENN	.000773	.009394	.023628	.001043	.001968
TEXAS	.003095	.004401	.008810	.005635	.010086
UTAH	.006191	.000065	.000000	.000208	.000246
VERMONT	.001547	.000591	.000000	.000000	.000000
VIRGINIA	.000000	.002102	.003804	.002504	.002706
WASH	.066563	.000394	.000800	.000626	.000246
W VIRG	.000000	.000394	.001601	.000208	.000000
WISC	.000773	.042835	.005006	.013358	.000492
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001547	.001511	.002202	.002713	.002214

MIGRATION RATIOS

	KENTUCKY	LA	MAINE	MARYLAND	MASS
ALABAMA	.007692	.006024	.001818	.001937	.000178
ALASKA	.000284	.000000	.001818	.000000	.000178
ARIZONA	.000000	.000111	.000000	.000000	.000000
ARKANSAS	.001709	.006693	.000000	.000322	.000178
CALIF	.001709	.001115	.003636	.003874	.003757
COLORADO	.000284	.000446	.000000	.001291	.001252
CONN	.000569	.000000	.021818	.009363	.040257
DELAWARE	.000000	.000000	.000000	.000000	.000536
FLORIDA	.009401	.000557	.009090	.002906	.005009
GEORGIA	.003988	.001004	.001818	.001937	.000536
IDAHO	.000284	.000000	.000000	.000000	.000715
ILLINOIS	.008547	.002231	.007272	.004843	.009661
INDIANA	.051282	.000669	.000000	.014207	.007693
IOWA	.001424	.000000	.001818	.002583	.001431
KANSAS	.000854	.000780	.005454	.000968	.002147
KENTUCKY	.000000	.001004	.009090	.002260	.003041
LA	.005128	.000000	.001818	.000645	.000357
MAINE	.000000	.000000	.000000	.000645	.062444
MARYLAND	.001139	.000669	.003636	.000000	.011272
MASS	.005413	.001227	.180000	.033903	.000000
MICHIGAN	.001709	.000111	.007272	.004197	.002862
MINN	.000569	.000223	.000000	.001937	.001789
MISS	.003133	.005020	.001818	.000645	.000178
MISSOURI	.006552	.001004	.000000	.000968	.001610
MONTANA	.000000	.000000	.000000	.000000	.000000
NEBRASKA	.000284	.000780	.007272	.000645	.000894
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.040000	.000000	.018429
N JERSEY	.000284	.000111	.007272	.001937	.005725
N MEXICO	.000284	.001561	.000000	.000645	.000178
NEW YORK	.003988	.000780	.023636	.020665	.064054
N CAROL	.007122	.000223	.003636	.019696	.003757
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.020797	.001004	.016363	.033580	.023796
OKLAHOMA	.000284	.000780	.001818	.001291	.000536
OREGON	.000284	.000000	.000000	.000645	.000894
PENN	.003418	.000669	.014545	.085889	.030595
R ISLAND	.000854	.000000	.007272	.000322	.020397
S CAROL	.001994	.000334	.000000	.002906	.000536
S DAKOTA	.000000	.000111	.000000	.000322	.000357
TENN	.071794	.005131	.009090	.010655	.002504
TEXAS	.007407	.019076	.003636	.005166	.002862
UTAH	.000000	.000000	.000000	.000000	.000000
VERMONT	.000000	.000000	.020000	.003874	.046877
VIRGINIA	.017948	.003904	.014545	.056829	.007872
WASH	.000854	.000000	.003636	.000968	.000357
W VIRG	.009116	.000000	.001818	.012915	.006441
WISC	.000854	.000334	.003636	.001614	.001610
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.002279	.000000	.016363	.183403	.007514

MIGRATION RATIOS

	MICHIGAN	MINN	MISS	MISSOURI	MONTANA
ALABAMA	.000840	.000186	.030501	.001773	.000000
ALASKA	.000315	.000186	.000000	.000443	.001141
ARIZONA	.000000	.000000	.000000	.000443	.001141
ARKANSAS	.002415	.000186	.011619	.038802	.000000
CALIF	.002625	.005790	.001452	.006208	.017123
COLORADO	.000630	.004856	.000000	.010864	.005707
CONN	.001260	.000933	.000000	.001995	.003424
DELAWARE	.000000	.000000	.000000	.000000	.000000
FLORIDA	.003045	.000933	.001815	.002882	.000000
GEORGIA	.000630	.000373	.008714	.000665	.000000
IDAHO	.000315	.001867	.000000	.000886	.010273
ILLINOIS	.024887	.012700	.002178	.065853	.010273
INDIANA	.039168	.010272	.001815	.026607	.005707
IOWA	.005985	.051550	.001089	.011086	.010273
KANSAS	.002100	.003548	.001089	.048558	.038812
KENTUCKY	.004410	.001867	.004357	.001773	.000000
LA	.001680	.000373	.041394	.003547	.001141
MAINE	.000525	.000560	.000000	.000000	.000000
MARYLAND	.001470	.000747	.000363	.001330	.000000
MASS	.006720	.007284	.000363	.015077	.009132
MICHIGAN	.000000	.007844	.000363	.001773	.002283
MINN	.008505	.000000	.000726	.007982	.101598
MISS	.000105	.000186	.000000	.001995	.000000
MISSOURI	.002730	.001307	.001815	.000000	.011415
MONTANA	.000210	.000560	.000363	.000221	.000000
NEBRASKA	.001470	.008591	.001452	.008425	.009132
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.000000	.000000	.000000
N JERSEY	.000525	.000186	.000000	.000221	.000000
N MEXICO	.000105	.000186	.000000	.000443	.000000
NEW YORK	.006090	.005416	.000726	.004434	.004566
N CAROL	.000420	.000000	.003631	.000221	.000000
N DAKOTA	.000000	.001120	.000000	.000000	.007990
OHIO	.026042	.006537	.002541	.011086	.002283
OKLAHOMA	.000420	.000186	.001815	.012638	.004566
OREGON	.000840	.001680	.000000	.000886	.041095
PENN	.003780	.001867	.000726	.002660	.001141
R ISLAND	.000000	.000186	.000000	.000000	.000000
S CAROL	.000525	.000000	.002178	.000000	.000000
S DAKOTA	.001050	.023907	.000000	.001995	.006849
TENN	.009135	.002428	.054466	.014412	.001141
TEXAS	.003360	.003361	.015250	.021064	.003424
UTAH	.000000	.000186	.000000	.000000	.001141
VERMONT	.000945	.000560	.000000	.001108	.000000
VIRGINIA	.002835	.001680	.009440	.005543	.003424
WASH	.000525	.001494	.000000	.000665	.102739
W VIRG	.001050	.000000	.000000	.000000	.000000
WISC	.009765	.024467	.001089	.004212	.003424
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.002205	.002241	.001452	.001995	.003424

MIGRATION RATIOS

	NEBRASKA	NEVADA	N HAMP	N JERSEY	N MEXICO
ALABAMA	.000329	.000000	.000000	.001941	.000000
ALASKA	.000000	.000000	.000000	.000342	.000000
ARIZONA	.000000	.000000	.000000	.000000	.002083
ARKANSAS	.000658	.000000	.000000	.001027	.010416
CALIF	.004608	.574468	.003120	.001256	.108333
COLORADO	.010533	.000000	.001560	.001599	.056250
CONN	.000658	.000000	.017160	.020217	.002083
DELAWARE	.000000	.000000	.000000	.001599	.000000
FLORIDA	.000329	.000000	.001560	.006967	.000000
GEORGIA	.000000	.000000	.000000	.001027	.004166
IDAHO	.000658	.085106	.000000	.000456	.004166
ILLINOIS	.010204	.021276	.004680	.010850	.008333
INDIANA	.011849	.042553	.004680	.006510	.016666
IOWA	.024687	.000000	.000000	.004568	.029166
KANSAS	.048716	.010638	.006240	.002969	.033333
KENTUCKY	.001645	.000000	.000000	.004454	.002083
LA	.000658	.000000	.000000	.001370	.004166
MAINE	.000329	.000000	.070202	.009251	.000000
MARYLAND	.000000	.000000	.000000	.024900	.002083
MASS	.001645	.021276	.159126	.047858	.014583
MICHIGAN	.000329	.010638	.001560	.010279	.016666
MINN	.013166	.010638	.006240	.003083	.006250
MISS	.000329	.000000	.000000	.000000	.006250
MISSOURI	.010533	.010638	.003120	.001370	.022916
MONTANA	.000000	.000000	.000000	.000228	.000000
NEBRASKA	.000000	.000000	.001560	.000114	.018750
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.000000	.001941	.000000
N JERSEY	.000000	.000000	.000000	.000000	.000000
N MEXICO	.000000	.000000	.000000	.000228	.000000
NEW YORK	.003620	.000000	.043681	.087949	.002083
N CAROL	.000000	.000000	.004680	.014391	.000000
N DAKOTA	.000329	.000000	.000000	.000114	.000000
OHIO	.002633	.021276	.029641	.037578	.018750
OKLAHOMA	.007899	.010638	.000000	.000114	.035416
OREGON	.000658	.042553	.000000	.001027	.008333
PENN	.001316	.010638	.009360	.212678	.004166
R ISLAND	.000000	.000000	.004680	.002284	.000000
S CAROL	.000000	.000000	.000000	.002284	.000000
S DAKOTA	.021066	.000000	.000000	.000114	.000000
TENN	.000987	.010638	.003120	.010508	.008333
TEXAS	.004279	.000000	.006240	.001827	.329166
UTAH	.000000	.095744	.000000	.000000	.002083
VERMONT	.000000	.000000	.029641	.011650	.004166
VIRGINIA	.000987	.000000	.007800	.023415	.004166
WASH	.001316	.021276	.000000	.000571	.004166
W VIRG	.000658	.000000	.004680	.012678	.000000
WISC	.005266	.000000	.001560	.001256	.006250
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.002962	.000000	.004680	.013135	.016666

MIGRATION RATIOS

	NEW YORK	N CAROL	N DAKOTA	OHIO	OKLAHOMA
ALABAMA	.001327	.004522	.000000	.002340	.003157
ALASKA	.000265	.000000	.000000	.000090	.000000
ARIZONA	.000000	.000000	.000000	.000000	.000000
ARKANSAS	.000303	.000145	.000000	.001710	.017795
CALIF	.002580	.000291	.011065	.004140	.003157
COLORADO	.000910	.000000	.004149	.001080	.005740
CONN	.017718	.000000	.000000	.003060	.000861
DELAWARE	.000265	.000000	.000000	.000000	.000000
FLORIDA	.004894	.005252	.000000	.003690	.000861
GEORGIA	.000796	.010796	.000000	.000360	.000287
IDAHO	.000227	.000000	.009681	.000090	.001722
ILLINOIS	.006298	.002918	.012448	.017641	.003157
INDIANA	.007095	.001604	.013831	.055445	.007749
IOWA	.002580	.000145	.042876	.001620	.002870
KANSAS	.001138	.000583	.011065	.001350	.020091
KENTUCKY	.002162	.011380	.008298	.016921	.000861
LA	.001138	.001750	.000000	.000180	.005166
MAINE	.004818	.000000	.000000	.000450	.000000
MARYLAND	.011344	.004377	.000000	.005940	.000574
MASS	.046213	.001604	.001383	.017551	.003731
MICHIGAN	.004932	.000291	.002766	.016921	.000000
MINN	.001972	.000437	.511756	.003150	.001435
MISS	.000113	.000729	.000000	.000540	.001148
MISSOURI	.000796	.000000	.008298	.002790	.035878
MONTANA	.000000	.000000	.013831	.000000	.000000
NEBRASKA	.000379	.000729	.031811	.001080	.003444
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000872	.000000	.000000	.000180	.000000
N JERSEY	.015783	.000000	.002766	.000270	.000000
N MEXICO	.000265	.000145	.000000	.000270	.000574
NEW YORK	.000000	.001313	.001383	.011071	.002296
N CAROL	.004742	.000000	.000000	.001980	.000000
N DAKOTA	.000075	.000000	.000000	.000000	.000000
OHIO	.027925	.004960	.002766	.000000	.004879
OKLAHOMA	.000189	.000437	.001383	.000990	.000000
OREGON	.000986	.000291	.005532	.000270	.000287
PENN	.061617	.003647	.001383	.018541	.000287
R ISLAND	.002921	.000000	.000000	.000810	.000000
S CAROL	.000569	.033557	.000000	.001440	.000574
S DAKOTA	.000607	.000000	.038727	.000000	.000287
TENN	.003604	.023198	.001383	.013771	.009184
TEXAS	.002655	.002188	.001383	.003780	.049655
UTAH	.000037	.000000	.000000	.000180	.000000
VERMONT	.012748	.000000	.000000	.000810	.000574
VIRGINIA	.011648	.026407	.001383	.007740	.006027
WASH	.000227	.000000	.020746	.000000	.000861
W VIRG	.004932	.000583	.000000	.011431	.000000
WISC	.001176	.000000	.005532	.002160	.000574
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.007398	.004085	.002766	.003240	.002009

MIGRATION RATIOS

	OREGON	PENN	R ISLAND	S CAROL	S DAKOTA
ALABAMA	.000217	.001420	.000000	.008669	.000000
ALASKA	.001086	.000193	.000000	.000000	.000000
ARIZONA	.000000	.000000	.000000	.000000	.000830
ARKANSAS	.000651	.000580	.001321	.000597	.000000
CALIF	.036505	.001549	.003963	.000000	.006644
COLORADO	.001738	.000387	.000000	.000000	.007475
CONN	.000217	.006777	.038309	.000000	.000000
DELAWARE	.000000	.001226	.000000	.000000	.000000
FLORIDA	.000000	.004002	.001321	.003886	.000000
GEORGIA	.000217	.000451	.000000	.034977	.000000
IDAHO	.017601	.000258	.001321	.000000	.000830
ILLINOIS	.002390	.007164	.005284	.001195	.005813
INDIANA	.001086	.010715	.001321	.001195	.008305
IOWA	.000651	.001161	.001321	.000298	.040697
KANSAS	.001521	.001420	.000000	.000597	.007475
KENTUCKY	.000217	.002711	.001321	.002989	.001661
LA	.000000	.001355	.000000	.000896	.000000
MAINE	.000000	.001678	.030383	.000000	.000000
MARYLAND	.000217	.015233	.009247	.002391	.000000
MASS	.002390	.020849	.163804	.001195	.001661
MICHIGAN	.000651	.003162	.002642	.000000	.008305
MINN	.002172	.000903	.003963	.000000	.121262
MISS	.000000	.000322	.000000	.000298	.000000
MISSOURI	.001521	.003227	.001321	.000000	.007475
MONTANA	.000651	.000000	.000000	.000000	.006644
NEBRASKA	.001738	.000580	.001321	.000896	.028239
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.013210	.000000	.000000
N JERSEY	.003259	.002775	.010568	.000000	.000000
N MEXICO	.000217	.000064	.000000	.000597	.001661
NEW YORK	.000651	.024528	.058124	.000597	.000000
N CAROL	.000217	.006519	.005284	.087593	.000000
N DAKOTA	.000000	.000064	.000000	.000000	.000000
OHIO	.001521	.084624	.005284	.003288	.001661
OKLAHOMA	.001303	.000387	.000000	.000000	.004983
OREGON	.000000	.000193	.000000	.000000	.002491
PENN	.000651	.000000	.019815	.000896	.000000
R ISLAND	.000000	.000322	.000000	.000000	.000000
S CAROL	.000000	.001742	.001321	.000000	.000000
S DAKOTA	.000217	.000064	.000000	.000000	.000000
TENN	.001086	.005551	.000000	.026905	.000000
TEXAS	.003476	.002323	.001321	.002690	.002491
UTAH	.000000	.000000	.000000	.000000	.000000
VERMONT	.000000	.002130	.018494	.000000	.000000
VIRGINIA	.001521	.020139	.011889	.025112	.000830
WASH	.070621	.000258	.000000	.000000	.006644
W VIRG	.000000	.016266	.007926	.000597	.000000
WISC	.000434	.000839	.000000	.000000	.002491
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001086	.006519	.003963	.002989	.004983

MIGRATION RATIOS

	TENN	TEXAS	UTAH	VERMONT	VIRGINIA
ALABAMA	.012286	.002649	.000000	.000000	.003641
ALASKA	.000000	.000467	.000000	.000000	.000383
ARIZONA	.000170	.000233	.008583	.000000	.000000
ARKANSAS	.012116	.005767	.000000	.000000	.000000
CALIF	.001706	.004520	.124463	.006535	.002108
COLORADO	.000341	.002026	.017167	.000000	.000383
CONN	.000341	.000155	.004291	.006535	.001725
DELAWARE	.000170	.000000	.000000	.000000	.000575
FLORIDA	.003754	.001246	.004291	.006535	.005942
GEORGIA	.013310	.001246	.000000	.000000	.005750
IDAHO	.000000	.000311	.017167	.000000	.000191
ILLINOIS	.003412	.003663	.017167	.016339	.002491
INDIANA	.002901	.002727	.025751	.019607	.004983
IOWA	.000170	.000467	.000000	.000000	.000766
KANSAS	.000511	.002260	.012875	.000000	.001341
KENTUCKY	.016211	.000779	.000000	.006535	.011117
LA	.007679	.012781	.000000	.000000	.000766
MAINE	.000000	.000000	.000000	.045751	.000766
MARYLAND	.001023	.000467	.004291	.026143	.018018
MASS	.001877	.002883	.008583	.196078	.013417
MICHIGAN	.001023	.000233	.004291	.006535	.000575
MINN	.000682	.000935	.000000	.000000	.000958
MISS	.017235	.000779	.000000	.000000	.000191
MISSOURI	.004607	.005923	.004291	.000000	.001916
MONTANA	.000000	.000000	.004291	.000000	.000000
NEBRASKA	.000341	.002649	.012875	.000000	.000383
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000170	.000000	.000000	.006535	.000000
N JERSEY	.000000	.000000	.000000	.009803	.000383
N MEXICO	.000000	.000857	.004291	.000000	.000000
NEW YORK	.001194	.001636	.008583	.091503	.005750
N CAROL	.008020	.000389	.000000	.003267	.058654
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.008191	.001558	.012875	.058823	.011500
OKLAHOMA	.001706	.011612	.000000	.000000	.001725
OREGON	.000000	.000701	.042918	.003267	.000191
PENN	.001194	.001091	.008583	.022875	.016101
R ISLAND	.000000	.000000	.000000	.000000	.000000
S CAROL	.005290	.000311	.000000	.000000	.009775
S DAKOTA	.000000	.000000	.000000	.000000	.000191
TENN	.000000	.007170	.000000	.006535	.036802
TEXAS	.008191	.000000	.004291	.006535	.003258
UTAH	.000000	.000000	.000000	.000000	.000191
VERMONT	.000170	.000233	.004291	.000000	.001341
VIRGINIA	.022184	.008183	.000000	.006535	.000000
WASH	.000511	.000701	.034334	.000000	.000575
W VIRG	.000170	.000077	.000000	.000000	.005367
WISC	.000000	.000077	.000000	.003267	.000383
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.000853	.001792	.008583	.003267	.098907

MIGRATION RATIOS

	WASH	W VIRG	WISC	WYOMING	WASH D C
ALABAMA	.000000	.000549	.000587	.000000	.005940
ALASKA	.002874	.000274	.000881	.005988	.000000
ARIZONA	.000000	.000000	.000000	.005988	.000000
ARKANSAS	.001596	.000824	.001468	.000000	.000660
CALIF	.050463	.001374	.005581	.119760	.005280
COLORADO	.003193	.000000	.011457	.077844	.001980
CONN	.000638	.000549	.002056	.005988	.009900
DELAWARE	.000000	.000000	.000000	.000000	.005280
FLORIDA	.000638	.003023	.005287	.005988	.005940
GEORGIA	.000000	.002199	.000293	.000000	.001980
IDAHO	.021079	.000000	.000587	.041916	.000660
ILLINOIS	.008304	.004672	.055522	.005988	.005280
INDIANA	.004152	.003298	.043184	.005988	.012541
IOWA	.000958	.000000	.081668	.017964	.003300
KANSAS	.002235	.000274	.001468	.083832	.000000
KENTUCKY	.000319	.018691	.002350	.005988	.001980
LA	.000319	.000549	.002643	.005988	.000000
MAINE	.000000	.000000	.000000	.000000	.004620
MARYLAND	.000638	.004947	.000881	.000000	.052145
MASS	.004152	.003023	.009694	.011976	.040264
MICHIGAN	.008623	.000549	.033783	.000000	.000000
MINN	.010220	.000274	.124853	.035928	.003300
MISS	.000000	.000000	.000000	.000000	.000000
MISSOURI	.000958	.000274	.004700	.017964	.001320
MONTANA	.002874	.000000	.000293	.167664	.000000
NEBRASKA	.003513	.000549	.006462	.113772	.000000
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.000000	.000000	.000000
N JERSEY	.000319	.000000	.000293	.000000	.001980
N MEXICO	.000000	.000549	.000000	.000000	.000000
NEW YORK	.003193	.003298	.004700	.000000	.018481
N CAROL	.000000	.006597	.000293	.000000	.024422
N DAKOTA	.000319	.000000	.000000	.005988	.000000
OHIO	.004471	.043430	.012338	.000000	.031023
OKLAHOMA	.001596	.000274	.001468	.023952	.001320
OREGON	.105078	.000274	.000881	.035928	.001980
PENN	.000638	.009345	.003819	.005988	.041584
R ISLAND	.000000	.000000	.000000	.000000	.001320
S CAROL	.000000	.001649	.000000	.000000	.001980
S DAKOTA	.000319	.000000	.004112	.011976	.000660
TENN	.001277	.014293	.005287	.029940	.011221
TEXAS	.004471	.001924	.003819	.023952	.001980
UTAH	.000638	.000000	.000000	.041916	.000000
VERMONT	.000000	.000000	.001468	.000000	.002640
VIRGINIA	.001277	.021165	.001468	.000000	.059405
WASH	.000000	.000274	.001175	.065868	.000000
W VIRG	.000000	.000000	.000881	.000000	.011881
WISC	.003513	.000274	.000000	.005988	.000660
WYOMING	.000000	.000000	.000000	.000000	.000000
WASH D C	.001596	.003573	.002056	.011976	.000000

APPENDIX B--Continued

FIRST-TIME UNDERGRADUATES IN UNIVERSITIES

MIGRATION RATIOS

	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIF
ALABAMA	.000000	.000000	.000427	.003582	.000605
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000802	.039473	.000000	.004030	.039268
ARKANSAS	.000200	.000000	.000213	.000000	.000495
CALIF	.002007	.032894	.016035	.002686	.000000
COLORADO	.001003	.032894	.011545	.004030	.021754
CONN	.000602	.000000	.000213	.000895	.002368
DELAWARE	.000000	.000000	.000000	.000447	.000000
FLORIDA	.008831	.013157	.000641	.004478	.001376
GEORGIA	.006623	.000000	.000000	.000895	.000165
IDAHO	.000000	.026315	.000641	.000000	.002423
ILLINOIS	.001806	.019736	.002138	.002686	.006609
INDIANA	.002810	.006578	.001496	.007165	.004461
IOWA	.000200	.000000	.001069	.001343	.002258
KANSAS	.000602	.006578	.001069	.004926	.001431
KENTUCKY	.000000	.000000	.000000	.000895	.000385
LA	.008631	.000000	.000855	.017913	.000826
MAINE	.000000	.006578	.000000	.000000	.000000
MARYLAND	.000602	.000000	.000000	.000895	.000275
MASS	.002408	.000000	.000855	.000895	.003084
MICHIGAN	.002007	.006578	.000855	.001343	.003139
MINN	.000200	.006578	.000213	.000447	.000771
MISS	.005620	.000000	.000000	.026869	.000440
MISSOURI	.000802	.000000	.001069	.010747	.001817
MONTANA	.000200	.072368	.000213	.000447	.001872
NEBRASKA	.000000	.000000	.000641	.000447	.000936
NEVADA	.000000	.000000	.000000	.000447	.007214
N HAMP	.000200	.000000	.000213	.000447	.001652
N JERSEY	.001204	.000000	.000000	.000000	.001211
N MEXICO	.001003	.006578	.005772	.005821	.006058
NEW YORK	.001204	.000000	.000855	.003134	.004130
N CAROL	.004415	.006578	.000213	.003582	.001211
N DAKOTA	.000000	.013157	.000000	.000000	.000165
OHIO	.002007	.000000	.000641	.000895	.001707
OKLAHOMA	.002810	.000000	.000427	.036721	.003414
OREGON	.000200	.190789	.000641	.000447	.030401
PENN	.000802	.000000	.002779	.001343	.001266
R ISLAND	.000401	.000000	.000213	.000000	.000385
S CAROL	.001806	.000000	.000213	.000000	.000165
S DAKOTA	.000000	.000000	.000213	.000000	.000275
TENN	.011240	.000000	.000000	.018360	.000385
TEXAS	.006423	.000000	.003848	.049261	.006774
UTAH	.001806	.052631	.033140	.002239	.049622
VERMONT	.000000	.000000	.000000	.000000	.000000
VIRGINIA	.001806	.006578	.000213	.000447	.000110
WASH	.000401	.440789	.001496	.002686	.012612
W VIRG	.000000	.000000	.000000	.000000	.000000
WISC	.001405	.006578	.001496	.001791	.002258
WYOMING	.000000	.006578	.000855	.000000	.001597
WASH D C	.007226	.000000	.000427	.000895	.003304

MIGRATION RATIOS

	COLORADO	CONN	DELAWARE	FLORIDA	GEORGIA
ALABAMA	.000223	.001212	.005924	.017867	.071880
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.019252	.003879	.001184	.001922	.002329
ARKANSAS	.000895	.000000	.000000	.000339	.000332
CALIF	.010969	.011396	.001184	.001583	.001663
COLORADO	.000000	.008486	.002369	.002487	.002329
CONN	.002014	.000000	.005924	.001357	.003327
DELAWARE	.000000	.000484	.000000	.000565	.000000
FLORIDA	.002462	.015518	.013033	.000000	.045257
GEORGIA	.000000	.000727	.000000	.019337	.000000
IDAHO	.000447	.000242	.001184	.000339	.000332
ILLINOIS	.004925	.007032	.003554	.006671	.005324
INDIANA	.005148	.009456	.007109	.004975	.003660
IOWA	.003357	.002909	.000000	.001130	.000000
KANSAS	.004477	.001697	.000000	.000678	.000332
KENTUCKY	.000000	.000969	.001184	.003279	.002995
LA	.001119	.001939	.003554	.008707	.010648
MAINE	.000000	.001939	.000000	.000000	.000000
MARYLAND	.000223	.002909	.009478	.000565	.000332
MASS	.002686	.096508	.011848	.003731	.002662
MICHIGAN	.003805	.009214	.011848	.003392	.003660
MINN	.001119	.000484	.002369	.000678	.000665
MISS	.000000	.000242	.000000	.002148	.002662
MISSOURI	.003134	.001212	.002369	.002035	.002662
MONTANA	.002014	.000727	.000000	.000339	.000000
NEBRASKA	.004477	.000969	.000000	.000113	.000998
NEVADA	.000000	.000000	.000000	.000113	.000332
N HAMP	.002686	.015033	.004739	.001470	.000998
N JERSEY	.001343	.010911	.005924	.001470	.002662
N MEXICO	.009402	.001454	.000000	.001470	.003327
NEW YORK	.004253	.056013	.033175	.004410	.002995
N CAROL	.000895	.008971	.014218	.016849	.024292
N DAKOTA	.000671	.000000	.000000	.000000	.000000
OHIO	.000671	.014791	.010663	.006445	.002662
OKLAHOMA	.006268	.002909	.001184	.000452	.003327
OREGON	.001567	.000242	.000000	.000000	.000332
PENN	.000223	.029340	.052132	.003618	.002995
R ISLAND	.002014	.027885	.003554	.001243	.000332
S CAROL	.000000	.000000	.001184	.003844	.020965
S DAKOTA	.000671	.000242	.000000	.000226	.000000
TENN	.000223	.001939	.005924	.008481	.037603
TEXAS	.010969	.004607	.005924	.007011	.014642
UTAH	.019923	.002667	.001184	.002940	.002995
VERMONT	.000223	.009214	.004739	.000226	.000000
VIRGINIA	.000223	.003637	.008293	.001357	.001996
WASH	.004477	.001454	.001184	.000791	.001331
W VIRG	.000000	.000000	.000000	.000452	.000000
WISC	.001790	.005577	.001184	.003166	.000000
WYOMING	.003581	.000242	.001184	.000113	.000332
WASH D C	.001567	.017216	.015402	.006785	.010648

MIGRATION RATIOS

	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS
ALABAMA	.000000	.000826	.000480	.000166	.000000
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.008949	.009737	.004245	.008658	.007457
ARKANSAS	.000471	.000688	.000160	.000999	.000745
CALIF	.012246	.004363	.002002	.001665	.003728
COLORADO	.012246	.013642	.003844	.013486	.017524
CONN	.000000	.002158	.000961	.000166	.000372
DELAWARE	.000000	.000000	.000080	.000000	.000000
FLORIDA	.000471	.006706	.005206	.001332	.001491
GEORGIA	.000471	.000413	.000000	.000000	.000000
IDAHO	.000000	.000643	.000240	.000000	.000559
ILLINOIS	.008478	.000000	.022346	.014818	.006338
INDIANA	.004239	.041936	.000000	.006660	.004474
IOWA	.001413	.030958	.002883	.000000	.001304
KANSAS	.000000	.002985	.001682	.004329	.000000
KENTUCKY	.000471	.001607	.011373	.000166	.000372
LA	.000471	.001975	.001521	.001332	.000932
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.000471	.000459	.000240	.000166	.000372
MASS	.002826	.003720	.001121	.001665	.002609
MICHIGAN	.000942	.026640	.016419	.004162	.002423
MINN	.000942	.001883	.000720	.007492	.001491
MISS	.000000	.000734	.000320	.000333	.000372
MISSOURI	.002355	.021588	.002883	.008491	.006711
MONTANA	.010362	.001423	.000720	.001165	.001304
NEBRASKA	.000471	.001745	.001041	.035964	.005406
NEVADA	.000471	.000091	.000000	.000000	.000186
N HAMP	.000471	.002158	.000480	.001332	.000559
N JERSEY	.000000	.002434	.000240	.000166	.000186
N MEXICO	.005181	.002985	.002002	.006160	.005406
NEW YORK	.001413	.005925	.001762	.001665	.001491
N CAROL	.000000	.001240	.001121	.001332	.000559
N DAKOTA	.000000	.000413	.000240	.000333	.000000
OHIO	.000471	.018235	.024189	.001998	.000932
OKLAHOMA	.000942	.004179	.000640	.004329	.020320
OREGON	.023080	.000826	.000240	.001165	.000372
PENN	.000471	.001423	.000560	.000666	.000186
R ISLAND	.000000	.001332	.000640	.000832	.000372
S CAROL	.000000	.000137	.000240	.000166	.000186
S DAKOTA	.000000	.000826	.000000	.036963	.000000
TENN	.000000	.001240	.001521	.000166	.000372
TEXAS	.001413	.003353	.001682	.004995	.009694
UTAH	.396137	.002664	.002322	.002497	.004287
VERMONT	.000000	.000045	.000000	.000000	.000000
VIRGINIA	.000471	.000413	.000160	.000166	.000372
WASH	.035798	.001240	.000881	.002497	.001864
W VIRG	.000000	.000045	.000000	.000000	.000000
WISC	.000000	.035230	.003764	.012820	.002050
WYOMING	.001884	.001102	.000160	.001998	.000372
WASH D C	.001413	.003169	.001441	.001665	.001304

MIGRATION RATIOS

	KENTUCKY	LA	MAINE	MARYLAND	MASS
ALABAMA	.005572	.005899	.000000	.001360	.000510
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.004012	.001747	.006425	.006120	.003232
ARKANSAS	.000222	.001747	.000803	.000000	.000000
CALIF	.000891	.001966	.003212	.005440	.005018
COLORADO	.000891	.003714	.000803	.009860	.004083
CONN	.001114	.000873	.009638	.007140	.008421
DELAWARE	.000000	.000000	.000000	.010200	.000170
FLORIDA	.004904	.002840	.012048	.015300	.009782
GEORGIA	.000668	.001747	.000803	.002380	.000340
IDAHO	.000222	.000000	.001606	.000340	.000170
ILLINOIS	.006464	.002184	.004819	.007820	.003572
INDIANA	.037004	.005025	.007228	.011560	.006464
IOWA	.001114	.000655	.000803	.001360	.001786
KANSAS	.000445	.001092	.000000	.001020	.000510
KENTUCKY	.000000	.000000	.000000	.001700	.000595
LA	.003343	.000000	.001606	.001360	.000340
MAINE	.000000	.000000	.000000	.000680	.008251
MARYLAND	.000000	.000218	.001606	.000000	.000850
MASS	.001114	.001529	.128514	.013940	.000000
MICHIGAN	.004904	.002403	.005622	.010880	.005869
MINN	.000222	.000218	.000000	.000680	.000510
MISS	.003566	.005899	.000000	.000000	.000170
MISSOURI	.006018	.001966	.000803	.002720	.000935
MONTANA	.000000	.000218	.000803	.001020	.000510
NEBRASKA	.000000	.000655	.000803	.000000	.000340
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.001783	.000218	.036947	.005100	.017778
N JERSEY	.001560	.000655	.003212	.009520	.003402
N MEXICO	.000668	.001529	.001606	.002380	.001871
NEW YORK	.002452	.000873	.016867	.026521	.023137
N CAROL	.007356	.003714	.002409	.036042	.002636
N DAKOTA	.000000	.000218	.000000	.000680	.000170
OHIO	.059964	.001092	.003212	.021081	.005784
OKLAHOMA	.001783	.007209	.000803	.003060	.000765
OREGON	.000000	.000218	.000000	.000000	.000170
PENN	.001560	.001529	.008032	.047262	.009271
R ISLAND	.000000	.000218	.006425	.005100	.015991
S CAROL	.000000	.000000	.000000	.001700	.000340
S DAKOTA	.000222	.000000	.000000	.000340	.000000
TENN	.024966	.002840	.000000	.000680	.000510
TEXAS	.005795	.038890	.003212	.006120	.001531
UTAH	.001337	.001092	.001606	.007140	.001020
VERMONT	.000000	.000000	.002409	.001360	.004933
VIRGINIA	.002674	.000655	.002409	.023121	.001616
WASH	.000222	.001092	.000000	.001020	.001020
W VIRG	.000000	.000000	.000803	.006120	.000170
WISC	.003120	.001310	.004016	.004080	.001616
WYOMING	.000445	.000218	.000000	.000680	.000595
WASH D C	.003343	.003932	.006425	.108126	.007740

MIGRATION RATIOS

	MICHIGAN	MINN	MISS	MISSOURI	MONTANA
ALABAMA	.000276	.000123	.032011	.001316	.000000
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.004903	.005202	.002866	.008064	.008460
ARKANSAS	.000138	.000123	.000955	.007241	.000423
CALIF	.002071	.002725	.003344	.004608	.009729
COLORADO	.004143	.007927	.001433	.014154	.018612
CONN	.001312	.002229	.000955	.003949	.000423
DELAWARE	.000069	.000000	.000000	.000164	.000000
FLORIDA	.005179	.002849	.007166	.001974	.000423
GEORGIA	.000000	.000247	.001433	.000493	.000000
IDAHO	.000552	.000123	.000000	.000000	.001692
ILLINOIS	.008218	.008423	.005733	.025345	.003384
INDIANA	.015331	.005078	.005255	.016951	.001269
IOWA	.002486	.012634	.000955	.011520	.002538
KANSAS	.000690	.001238	.000477	.068466	.001269
KENTUCKY	.001035	.000123	.000955	.000987	.000846
LA	.000828	.000371	.063067	.003291	.000000
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.000414	.000247	.000000	.000658	.000423
MASS	.001726	.003716	.001433	.003456	.003384
MICHIGAN	.000000	.003220	.002866	.005924	.002961
MINN	.001104	.000000	.000000	.000822	.005922
MISS	.000276	.000247	.000000	.002468	.000000
MISSOURI	.002417	.002477	.001433	.000000	.001692
MONTANA	.000414	.001610	.000477	.000493	.000000
NEBRASKA	.000552	.002601	.000000	.003127	.002538
NEVADA	.000069	.000000	.000000	.000000	.000000
N HAMP	.001035	.002972	.000000	.001974	.004653
N JERSEY	.000897	.000867	.000955	.003127	.000423
N MEXICO	.001933	.000990	.002388	.003456	.001269
NEW YORK	.003453	.001858	.001911	.004443	.000423
N CAROL	.001174	.000371	.002866	.002139	.000000
N DAKOTA	.000552	.050910	.000477	.000000	.003384
OHIO	.023204	.001858	.001911	.009545	.001269
OKLAHOMA	.001104	.001486	.005733	.014483	.002538
OREGON	.000345	.000371	.000477	.000493	.006768
PENN	.000483	.000867	.000000	.001152	.001269
R ISLAND	.001104	.000867	.000000	.001974	.000423
S CAROL	.000138	.000123	.000955	.000164	.000423
S DAKOTA	.000000	.025764	.000000	.001316	.000000
TENN	.000414	.000247	.020066	.003291	.000846
TEXAS	.001864	.001486	.016244	.015470	.004653
UTAH	.002002	.002105	.003344	.003291	.034686
VERMONT	.000207	.000000	.000000	.000000	.000000
VIRGINIA	.000276	.000123	.000477	.000658	.000000
WASH	.001035	.003096	.001911	.000822	.043147
W VIRG	.000000	.000000	.000000	.000000	.000000
WISC	.007734	.011767	.000000	.006418	.001692
WYOMING	.002002	.000495	.000000	.000329	.002538
WASH D C	.002831	.001486	.005255	.002633	.001269

MIGRATION RATIOS

	NEBRASKA	NEVADA	N HAMP	N JERSEY	N MEXICO
ALABAMA	.000000	.000000	.000000	.002087	.000592
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.008605	.028242	.002830	.004771	.021043
ARKANSAS	.000000	.000000	.000000	.000099	.000296
CALIF	.006812	.048117	.016981	.004075	.008595
COLORADO	.048045	.015690	.004716	.008648	.017190
CONN	.000717	.001046	.011320	.008151	.000296
DELAWARE	.000000	.000000	.000000	.010736	.000000
FLORIDA	.001075	.001046	.006603	.023063	.000296
GEORGIA	.000358	.000000	.000000	.001888	.000000
IDAHO	.001792	.002092	.000000	.000497	.000592
ILLINOIS	.007171	.003138	.004716	.010140	.001185
INDIANA	.005736	.002092	.012264	.012625	.001778
IOWA	.029401	.001046	.000943	.003777	.000889
KANSAS	.024022	.001046	.001886	.001590	.001481
KENTUCKY	.000000	.000000	.000000	.001590	.000000
LA	.000358	.000000	.001886	.001192	.001481
MAINE	.000000	.000000	.004716	.002485	.000000
MARYLAND	.000717	.002092	.000943	.002286	.000000
MASS	.003585	.000000	.120754	.029326	.001185
MICHIGAN	.004302	.000000	.006603	.016204	.000592
MINN	.002509	.001046	.000000	.000198	.000296
MISS	.000000	.000000	.000000	.000497	.000296
MISSOURI	.006095	.003138	.000000	.003678	.000889
MONTANA	.002151	.000000	.001886	.000596	.000889
NEBRASKA	.000000	.005230	.000000	.000198	.000889
NEVADA	.000000	.000000	.000000	.000099	.000592
N HAMP	.003226	.001046	.000000	.011730	.000592
N JERSEY	.001075	.001046	.004716	.000000	.001481
N MEXICO	.003944	.006276	.002830	.001590	.000000
NEW YORK	.003226	.003138	.028301	.102395	.001481
N CAROL	.000000	.000000	.003773	.012327	.000592
N DAKOTA	.000000	.000000	.000943	.000000	.000000
OHIO	.002509	.000000	.000943	.023262	.000592
OKLAHOMA	.009680	.001046	.000943	.004274	.006816
OREGON	.000717	.024058	.000000	.000198	.000000
PENN	.000358	.002092	.004716	.106173	.000296
R ISLAND	.000358	.000000	.006603	.011134	.000000
S CAROL	.000000	.000000	.000943	.002485	.000000
S DAKOTA	.015417	.000000	.000000	.000298	.000296
TENN	.000000	.000000	.000000	.001988	.000296
TEXAS	.006453	.004184	.000000	.003578	.040604
UTAH	.007888	.151673	.004716	.002783	.021636
VERMONT	.000000	.000000	.005660	.007754	.000000
VIRGINIA	.000000	.001046	.001886	.005666	.000592
WASH	.001792	.010460	.000943	.001590	.000889
W VIRG	.000000	.000000	.000943	.000795	.000000
WISC	.008605	.000000	.000943	.004374	.001185
WYOMING	.011832	.001046	.000943	.000099	.000592
WASH D C	.002151	.000000	.003773	.017397	.002074

MIGRATION RATIOS

	NEW YORK	N CAROL	N DAKOTA	OHIO	OKLAHOMA
ALABAMA	.001707	.004507	.000000	.000416	.000148
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.006286	.004225	.008799	.003502	.002821
ARKANSAS	.000232	.000000	.001035	.000166	.007720
CALIF	.004462	.001408	.004658	.001167	.003563
COLORADO	.007839	.000281	.008281	.002918	.005048
CONN	.009663	.001126	.000000	.002710	.001187
DELAWARE	.001280	.000281	.000000	.000208	.000000
FLORIDA	.022314	.009295	.002070	.004503	.001187
GEORGIA	.002328	.014366	.000000	.000208	.000000
IDAHO	.000271	.000000	.002587	.000208	.000296
ILLINOIS	.010827	.001971	.006211	.008631	.002227
INDIANA	.012767	.003661	.004140	.020139	.004899
IOWA	.002988	.000845	.008281	.001667	.000890
KANSAS	.001591	.001126	.003105	.000542	.009502
KENTUCKY	.001319	.001126	.000000	.003335	.000296
LA	.002173	.003098	.000000	.000708	.002672
MAINE	.001823	.000000	.000000	.000083	.000000
MARYLAND	.001901	.000845	.000000	.000416	.000148
MASS	.039894	.002535	.001552	.002710	.001484
MICHIGAN	.025535	.004225	.001035	.016761	.000742
MINN	.000582	.000563	.018115	.000333	.000148
MISS	.000620	.000845	.000000	.000166	.000296
MISSOURI	.002406	.000563	.004140	.002168	.002821
MONTANA	.000853	.000281	.017080	.000792	.000593
NEBRASKA	.000776	.000563	.004140	.000416	.001039
NEVADA	.000000	.000000	.001552	.000000	.000148
N HAMP	.007373	.001126	.001035	.001667	.000445
N JERSEY	.013505	.001971	.000517	.001084	.000890
N MEXICO	.002250	.001971	.001552	.001417	.004751
NEW YORK	.000000	.003098	.000000	.006754	.000445
N CAROL	.007101	.000000	.000000	.002626	.001187
N DAKOTA	.000271	.000000	.000000	.000041	.000148
OHIO	.025380	.002253	.000000	.000000	.000742
OKLAHOMA	.003221	.002253	.004140	.000416	.000000
OREGON	.000426	.000281	.001552	.000375	.000593
PENN	.025613	.001408	.000517	.004169	.000445
R ISLAND	.008498	.000000	.000000	.001000	.000148
S CAROL	.001474	.045352	.000000	.000166	.000148
S DAKOTA	.000349	.000000	.002587	.000166	.000148
TENN	.001435	.016056	.000000	.001167	.000890
TEXAS	.003221	.004225	.001035	.001834	.023162
UTAH	.002949	.009014	.001035	.001000	.002078
VERMONT	.008033	.000281	.000000	.000083	.000000
VIRGINIA	.004113	.005633	.000000	.001084	.000148
WASH	.001086	.001408	.008799	.000625	.000890
W VIRG	.000543	.000281	.000000	.000291	.000593
WISC	.006985	.001126	.004140	.005920	.000296
WYOMING	.000155	.000000	.000517	.000166	.001930
WASH D C	.013466	.017464	.001035	.003127	.000000

MIGRATION RATIOS

	OREGON	PENN	R ISLAND	S CAROL	S DAKOTA
ALABAMA	.000227	.000957	.000880	.005704	.000000
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.006605	.006358	.002640	.000713	.011481
ARKANSAS	.000000	.000205	.000000	.000000	.000000
CALIF	.026423	.002803	.002640	.000713	.004592
COLORADO	.004783	.003692	.004401	.000713	.025258
CONN	.001366	.004854	.014964	.001782	.000000
DELAWARE	.000000	.007931	.000000	.000000	.000000
FLORIDA	.000455	.015588	.010563	.008199	.001148
GEORGIA	.000000	.000888	.000880	.019251	.000000
IDAHO	.004555	.000546	.000880	.000000	.001148
ILLINOIS	.002961	.007520	.004401	.001782	.009758
INDIANA	.001138	.013879	.001760	.001782	.004592
IOWA	.000227	.001367	.000880	.001426	.029276
KANSAS	.000455	.001299	.000880	.000000	.003444
KENTUCKY	.000000	.001640	.000880	.000000	.000000
LA	.000683	.000957	.000880	.002139	.000000
MAINE	.000000	.000683	.003521	.000000	.000000
MARYLAND	.000455	.002939	.000000	.000713	.000574
MASS	.003872	.009708	.176936	.000713	.004018
MICHIGAN	.000455	.011212	.007922	.000713	.001722
MINN	.001366	.000546	.000880	.000000	.019517
MISS	.000227	.000478	.000000	.000000	.000574
MISSOURI	.000455	.003076	.004401	.000713	.003444
MONTANA	.002050	.002324	.000880	.000000	.005740
NEBRASKA	.000227	.000341	.000880	.000356	.024684
NEVADA	.000227	.000000	.000000	.000000	.000000
N HAMP	.000683	.003350	.023767	.000713	.000574
N JERSEY	.000455	.011691	.003521	.000356	.000574
N MEXICO	.000911	.002734	.000000	.001069	.006888
NEW YORK	.001594	.031245	.024647	.000356	.000000
N CAROL	.000683	.007657	.005281	.025668	.000574
N DAKOTA	.000455	.000341	.000000	.000000	.004592
OHIO	.000683	.029809	.000880	.002495	.000574
OKLAHOMA	.000227	.002529	.000000	.000713	.004018
OREGON	.000000	.000341	.000880	.000000	.002870
PENN	.000683	.000000	.013204	.002495	.000000
R ISLAND	.000227	.005264	.000000	.000000	.000000
S CAROL	.000227	.001709	.001760	.000000	.000574
S DAKOTA	.000000	.000068	.000000	.000000	.000000
TENN	.000227	.001367	.000000	.002852	.000000
TEXAS	.000683	.002803	.000880	.002852	.002870
UTAH	.035535	.001914	.004401	.005347	.008036
VERMONT	.000000	.000683	.005281	.000000	.000000
VIRGINIA	.000000	.004033	.000880	.005347	.000000
WASH	.039407	.000820	.000880	.000713	.006314
W VIRG	.000000	.011828	.000000	.000356	.000000
WISC	.000683	.002392	.000880	.000000	.008610
WYOMING	.000683	.000615	.000000	.000000	.005740
WASH D C	.001138	.012853	.008802	.008912	.002870

MIGRATION RATIOS

	TENN	TEXAS	UTAH	VERMONT	VIRGINIA
ALABAMA	.019131	.000577	.000000	.001287	.007204
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.001226	.004149	.012302	.009009	.003430
ARKANSAS	.002207	.001628	.000000	.000000	.000343
CALIF	.001226	.003414	.007112	.000000	.006518
COLORADO	.001716	.007353	.004421	.002574	.007890
CONN	.001716	.001050	.000961	.015444	.008233
DELAWARE	.000490	.000052	.000000	.000000	.002058
FLORIDA	.006867	.001260	.000000	.009009	.014408
GEORGIA	.014716	.000157	.000000	.001287	.004802
IDAHO	.000000	.000105	.000192	.001287	.000343
ILLINOIS	.004660	.001838	.001730	.007722	.006861
INDIANA	.006131	.002626	.000384	.007722	.006861
IOWA	.001226	.000630	.000192	.001287	.004459
KANSAS	.000245	.001418	.000192	.003861	.001029
KENTUCKY	.004415	.000525	.000000	.001287	.006174
LA	.009811	.008036	.000192	.000000	.003087
MAINE	.000000	.000000	.000000	.005148	.000686
MARYLAND	.000490	.000157	.000000	.002574	.006861
MASS	.001962	.000630	.000961	.082368	.008919
MICHIGAN	.003679	.001523	.000576	.003861	.011663
MINN	.000490	.000210	.000000	.000000	.001029
MISS	.025263	.000630	.000000	.000000	.002058
MISSOURI	.005396	.001785	.000192	.001287	.002058
MONTANA	.000000	.000157	.000961	.001287	.002058
NEBRASKA	.000000	.000315	.000192	.000000	.000000
NEVADA	.000000	.000052	.000192	.000000	.000000
N HAMP	.000490	.000315	.000000	.027027	.004116
N JERSEY	.002943	.000525	.000192	.005148	.009262
N MEXICO	.001716	.012448	.000961	.001287	.001029
NEW YORK	.003924	.001890	.000961	.024453	.019210
N CAROL	.013735	.001050	.000000	.000000	.075471
N DAKOTA	.000000	.000052	.000000	.000000	.000000
OHIO	.006622	.000735	.000000	.007722	.014065
OKLAHOMA	.003924	.015390	.000384	.000000	.003430
OREGON	.000245	.000105	.001153	.000000	.000343
PENN	.001962	.000735	.000576	.005148	.024013
R ISLAND	.000000	.000262	.000000	.006435	.003430
S CAROL	.001471	.000315	.000000	.000000	.006861
S DAKOTA	.000000	.000052	.000000	.000000	.000686
TENN	.000000	.000892	.000000	.000000	.014751
TEXAS	.016678	.000000	.000961	.005148	.008576
UTAH	.002207	.002416	.000000	.000000	.008919
VERMONT	.000000	.000000	.000000	.000000	.000686
VIRGINIA	.004905	.000210	.000000	.000000	.000000
WASH	.000245	.001103	.002306	.003861	.001372
W VIRG	.000000	.000000	.000000	.000000	.004116
WISC	.000735	.001050	.000000	.002574	.002401
WYOMING	.000245	.000262	.000384	.000000	.001372
WASH D C	.005641	.001523	.000384	.005148	.157804

MIGRATION RATIOS

	WASH	W VIRG	WISC	WYOMING	WASH D C
ALABAMA	.000538	.000973	.000725	.000000	.001316
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.004036	.004381	.005801	.015820	.005266
ARKANSAS	.000134	.000000	.000241	.000000	.000000
CALIF	.017085	.000486	.003625	.004995	.007241
COLORADO	.002018	.001460	.008339	.074937	.007899
CONN	.001479	.003407	.001450	.000832	.009216
DELAWARE	.000000	.000000	.000000	.000000	.003949
FLORIDA	.000269	.010223	.004109	.000832	.011849
GEORGIA	.000000	.000973	.000120	.000000	.001974
IDAHO	.008206	.000486	.000604	.002497	.001316
ILLINOIS	.002959	.006815	.019821	.004995	.009874
INDIANA	.001479	.014118	.010998	.003330	.010533
IOWA	.000538	.001460	.007614	.000832	.003291
KANSAS	.000807	.000973	.000966	.003330	.002633
KENTUCKY	.000000	.011197	.000000	.000832	.000658
LA	.000403	.001460	.001087	.000832	.001974
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.000000	.001947	.000120	.000000	.006583
MASS	.002690	.003407	.003021	.003330	.032258
MICHIGAN	.001479	.010223	.007735	.003330	.006583
MINN	.000269	.000000	.014019	.000832	.001316
MISS	.000000	.000000	.000241	.000000	.001316
MISSOURI	.000672	.000973	.003504	.000832	.001316
MONTANA	.004708	.000000	.003021	.030807	.000000
NEBRASKA	.000403	.000000	.001450	.009991	.002633
NEVADA	.000000	.000000	.000120	.000000	.000000
N HAMP	.001210	.001460	.000846	.001665	.010533
N JERSEY	.000403	.002434	.000604	.000832	.007899
N MEXICO	.001345	.003407	.001329	.004995	.001974
NEW YORK	.002690	.007302	.002538	.000000	.021724
N CAROL	.000134	.017526	.000483	.000000	.024358
N DAKOTA	.000807	.000486	.001208	.000000	.000000
OHIO	.000134	.078383	.007130	.000832	.014483
OKLAHOMA	.000403	.001947	.002054	.002497	.000000
OREGON	.020314	.000973	.000604	.002497	.000658
PENN	.000941	.017526	.000846	.000000	.038183
R ISLAND	.000000	.000000	.000725	.000000	.005924
S CAROL	.000000	.003894	.000000	.000000	.002633
S DAKOTA	.000403	.000000	.000725	.000832	.000000
TENN	.000403	.005355	.000483	.000000	.001316
TEXAS	.001345	.002434	.002658	.002497	.001974
UTAH	.017758	.003894	.003504	.117402	.006583
VERMONT	.000000	.000000	.000000	.000000	.000658
VIRGINIA	.000269	.044303	.000241	.000000	.014483
WASH	.000000	.000973	.002054	.003330	.001316
W VIRG	.000000	.000000	.000000	.000000	.001316
WISC	.000941	.002434	.000000	.003330	.007241
WYOMING	.000403	.000486	.001087	.000000	.000000
WASH D C	.001748	.009250	.002538	.000000	.000000

APPENDIX B--Continued

GRADUATE STUDENTS IN ALL INSTITUTIONS

MIGRATION RATIOS

	ALABAMA	ALASKA	ARIZONA	ARKANSAS	CALIF
ALABAMA	.000000	.000000	.000337	.005311	.000126
ALASKA	.000000	.000000	.000000	.000000	.000031
ARIZONA	.001342	.028571	.000000	.000000	.006126
ARKANSAS	.001342	.000000	.000337	.000000	.000157
CALIF	.010738	.128571	.037761	.019726	.000000
COLORADO	.003131	.042857	.005731	.009863	.004168
CONN	.002237	.000000	.000337	.005311	.001578
DELAWARE	.000000	.000000	.000000	.000758	.000000
FLORIDA	.021476	.028571	.000674	.009104	.000631
GEORGIA	.025503	.000000	.000337	.005311	.000252
IDAHO	.000000	.000000	.000000	.000758	.000126
ILLINOIS	.015212	.028571	.007080	.021244	.004926
INDIANA	.009843	.014285	.005731	.019726	.003410
IOWA	.004026	.028571	.004720	.007587	.002715
KANSAS	.004026	.000000	.001348	.006069	.000536
KENTUCKY	.006711	.000000	.000000	.008345	.000094
LA	.020134	.000000	.001348	.039453	.000600
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.001789	.000000	.000337	.003034	.000315
MASS	.008053	.042857	.004045	.002276	.005968
MICHIGAN	.009395	.000000	.001685	.009863	.002905
MINN	.004474	.028571	.001011	.009104	.002273
MISS	.011633	.000000	.000000	.006828	.000063
MISSOURI	.005816	.000000	.002022	.018209	.001610
MONTANA	.000000	.028571	.000000	.000758	.000252
NEBRASKA	.000000	.000000	.000337	.003034	.000473
NEVADA	.000000	.000000	.000000	.000000	.000315
N HAMP	.000000	.000000	.000000	.000000	.000063
N JERSEY	.002684	.000000	.001348	.006069	.002936
N MEXICO	.002684	.000000	.004383	.004552	.001357
NEW YORK	.026398	.071428	.006743	.020485	.010831
N CAROL	.024161	.000000	.001011	.012139	.000821
N DAKOTA	.000000	.000000	.000000	.000000	.000031
OHIO	.009395	.028571	.001011	.007587	.001894
OKLAHOMA	.002237	.000000	.001348	.020485	.000315
OREGON	.000000	.042857	.001011	.000758	.003284
PENN	.005816	.000000	.002697	.006828	.001705
R ISLAND	.000894	.000000	.000000	.000758	.000315
S CAROL	.000000	.000000	.000337	.000758	.000031
S DAKOTA	.000000	.000000	.000000	.002276	.000189
TENN	.112304	.000000	.000674	.027314	.000568
TEXAS	.033557	.014285	.009440	.130500	.003126
UTAH	.000447	.000000	.007754	.000000	.002936
VERMONT	.000447	.000000	.000000	.000000	.000063
VIRGINIA	.008948	.000000	.000674	.003034	.000189
WASH	.002237	.157142	.001685	.000758	.005747
W VIRG	.000000	.000000	.000000	.000000	.000000
WISC	.005369	.085714	.002697	.008345	.001768
WYOMING	.000000	.000000	.000000	.000000	.000378
WASH D C	.012080	.028571	.002697	.003793	.003031

MIGRATION RATIOS

	COLORADO	CONN	DELAWARE	FLORIDA	GEORGIA
ALABAMA	.000363	.000321	.000929	.006039	.024844
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.006906	.001125	.000000	.001838	.000414
ARKANSAS	.000000	.000160	.000000	.000525	.000828
CALIF	.039621	.010768	.006505	.018119	.007453
COLORADO	.000000	.002089	.000000	.003413	.002484
CONN	.002181	.000000	.002788	.003939	.004140
DELAWARE	.000000	.000321	.000000	.000262	.000000
FLORIDA	.002908	.001928	.002788	.000000	.034782
GEORGIA	.000000	.000160	.001858	.016544	.000000
IDAHO	.000363	.000160	.000000	.000262	.000414
ILLINOIS	.010541	.007875	.008364	.013392	.013250
INDIANA	.008724	.005625	.014869	.011292	.007867
IOWA	.009451	.003857	.002788	.004464	.004968
KANSAS	.006543	.001125	.000000	.002100	.003312
KENTUCKY	.000000	.000160	.000000	.003676	.007039
LA	.001090	.001285	.000000	.013392	.015320
MAINE	.000000	.000642	.000000	.000000	.000000
MARYLAND	.000363	.000803	.003717	.002363	.000828
MASS	.008724	.034715	.013940	.013130	.014492
MICHIGAN	.008360	.005785	.010223	.010766	.007039
MINN	.005089	.003857	.007434	.002888	.001242
MISS	.000000	.000000	.000000	.002888	.002070
MISSOURI	.009451	.001607	.002788	.004464	.002898
MONTANA	.001817	.000321	.000000	.000000	.000414
NEBRASKA	.002181	.000642	.000929	.000262	.000000
NEVADA	.000000	.000000	.000000	.000000	.000414
N HAMP	.000000	.000000	.000000	.000525	.000000
N JERSEY	.003998	.003535	.008364	.004726	.005383
N MEXICO	.006543	.000482	.000000	.002363	.000828
NEW YORK	.021446	.216168	.042750	.035714	.047619
N CAROL	.004362	.004178	.004646	.025735	.057556
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.005089	.004821	.003717	.009716	.011180
OKLAHOMA	.002181	.000321	.000000	.001313	.001656
OREGON	.004725	.000482	.000929	.000000	.000000
PENN	.005089	.012696	.115241	.011029	.013250
R ISLAND	.000363	.003696	.000000	.000000	.000828
S CAROL	.000363	.000160	.000000	.000262	.010766
S DAKOTA	.001090	.000000	.000929	.000000	.000414
TENN	.002181	.001285	.000929	.018907	.043064
TEXAS	.009814	.001446	.002788	.023634	.026501
UTAH	.005452	.000000	.000000	.001050	.000414
VERMONT	.000000	.001125	.000000	.000000	.000000
VIRGINIA	.001090	.001767	.002788	.004464	.003726
WASH	.006543	.000642	.001858	.002363	.000828
W VIRG	.000000	.000321	.000000	.000262	.000000
WISC	.006179	.004178	.002788	.006039	.006211
WYOMING	.003271	.000160	.000000	.000262	.000000
WASH D C	.004362	.013018	.013940	.015756	.011180

MIGRATION RATIOS

	IDAHO	ILLINOIS	INDIANA	IOWA	KANSAS
ALABAMA	.000000	.000248	.000260	.000393	.000597
ALASKA	.000000	.000049	.000000	.000000	.000000
ARIZONA	.025449	.002240	.001170	.004323	.005676
ARKANSAS	.000000	.000348	.000130	.001179	.002987
CALIF	.094311	.015386	.013520	.030267	.020914
COLORADO	.026946	.005626	.004160	.026729	.025993
CONN	.001497	.002041	.002340	.005503	.002390
DELAWARE	.000000	.000199	.000260	.000000	.000000
FLORIDA	.004491	.002041	.002730	.003930	.002091
GEORGIA	.000000	.000697	.000910	.000393	.000896
IDAHO	.000000	.000149	.000000	.000786	.001195
ILLINOIS	.029940	.000000	.037181	.043238	.022706
INDIANA	.019461	.024498	.000000	.019261	.017926
IOWA	.020958	.012298	.005720	.000000	.018225
KANSAS	.005988	.002589	.001300	.007075	.000000
KENTUCKY	.000000	.000946	.007280	.002358	.000298
LA	.005988	.001444	.000520	.002358	.001493
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.001497	.000547	.000390	.000393	.000896
MASS	.013473	.007220	.005330	.012185	.008066
MICHIGAN	.025449	.012049	.014560	.017688	.011054
MINN	.011976	.005576	.003120	.034198	.007469
MISS	.000000	.000199	.000000	.000000	.000298
MISSOURI	.001497	.017925	.005590	.027908	.023005
MONTANA	.008982	.000348	.000130	.002358	.000000
NEBRASKA	.001497	.000995	.000260	.025157	.005676
NEVADA	.002994	.000000	.000000	.000000	.000000
N HAMP	.000000	.000248	.000130	.000000	.000000
N JERSEY	.004491	.002240	.001950	.007075	.002390
N MEXICO	.004491	.001244	.001040	.007861	.005975
NEW YORK	.032934	.014539	.014300	.040094	.017926
N CAROL	.008982	.001543	.001300	.003930	.002091
N DAKOTA	.000000	.000149	.000130	.000000	.000000
OHIO	.010479	.005925	.014950	.011792	.003286
OKLAHOMA	.002994	.001493	.001040	.002751	.013444
OREGON	.043413	.001294	.000390	.003930	.001493
PENN	.001497	.003983	.004290	.006289	.004780
R ISLAND	.000000	.000846	.001300	.000786	.000298
S CAROL	.000000	.000597	.000260	.000000	.000298
S DAKOTA	.000000	.000398	.000520	.013757	.000896
TENN	.002994	.002240	.002470	.004323	.005377
TEXAS	.010479	.003485	.002210	.009827	.015536
UTAH	.194610	.000946	.000650	.001965	.001493
VERMONT	.000000	.000000	.000000	.000000	.000000
VIRGINIA	.001497	.000597	.000520	.000000	.000597
WASH	.088323	.002091	.001690	.009040	.002390
W VIRG	.000000	.000000	.000000	.000000	.000000
WISC	.014970	.010954	.006370	.017688	.012249
WYOMING	.000000	.000298	.000520	.001965	.000298
WASH D C	.011976	.005427	.005980	.011399	.006573

MIGRATION RATIOS

	KENTUCKY	LA	MAINE	MARYLAND	MASS
ALABAMA	.001887	.006851	.001763	.000282	.000000
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.001258	.000622	.003527	.000564	.001609
ARKANSAS	.000943	.006228	.000000	.000000	.000378
CALIF	.008178	.010588	.024691	.011864	.013724
COLORADO	.000943	.006540	.010582	.002824	.002555
CONN	.001887	.001868	.010582	.004519	.015806
DELAWARE	.000000	.000000	.000000	.025423	.000283
FLORIDA	.006605	.004048	.008818	.004802	.001987
GEORGIA	.003774	.004360	.001763	.003672	.000283
IDAHO	.000000	.000000	.000000	.000000	.000000
ILLINOIS	.031141	.009031	.029982	.010734	.011452
INDIANA	.051273	.009654	.040564	.009887	.007761
IOWA	.004718	.006540	.017636	.005084	.003312
KANSAS	.000314	.007162	.003527	.000000	.000662
KENTUCKY	.000000	.001245	.003527	.001129	.000189
LA	.003145	.000000	.000000	.000847	.000946
MAINE	.000000	.000000	.000000	.000282	.000283
MARYLAND	.000943	.000311	.001763	.000000	.001987
MASS	.006920	.004360	.162257	.015819	.000000
MICHIGAN	.007864	.007474	.028218	.010734	.009370
MINN	.005033	.001557	.010582	.003107	.003123
MISS	.000629	.013080	.000000	.000000	.000283
MISSOURI	.009751	.011211	.001763	.004519	.001514
MONTANA	.000000	.000000	.000000	.000000	.000473
NEBRASKA	.000314	.000622	.000000	.000282	.000378
NEVADA	.000000	.000000	.000000	.000282	.000000
N HAMP	.000000	.000622	.019400	.000564	.003691
N JERSEY	.002201	.001245	.019400	.011016	.004827
N MEXICO	.002516	.002180	.001763	.001977	.001041
NEW YORK	.019817	.014325	.169312	.045197	.056128
N CAROL	.011324	.006540	.008818	.010451	.003975
N DAKOTA	.000314	.000000	.000000	.000000	.000000
OHIO	.069204	.002802	.021164	.009322	.006341
OKLAHOMA	.001572	.004671	.001763	.001129	.000662
OREGON	.000314	.000934	.000000	.000564	.004164
PENN	.004089	.003737	.031746	.086158	.014387
R ISLAND	.000000	.000000	.024691	.001977	.006814
S CAROL	.000314	.000311	.000000	.000282	.000094
S DAKOTA	.000314	.000000	.000000	.000282	.000094
TENN	.040264	.009342	.001763	.001977	.001514
TEXAS	.009751	.054811	.021164	.004802	.001798
UTAH	.000943	.000311	.000000	.001129	.000378
VERMONT	.000000	.000622	.001763	.000000	.000473
VIRGINIA	.004089	.001868	.005291	.005649	.002366
WASH	.000629	.001557	.001763	.002542	.001798
W VIRG	.006605	.000311	.000000	.002824	.000000
WISC	.004089	.000311	.026455	.005649	.005300
WYOMING	.000314	.000000	.000000	.000282	.000094
WASH D C	.009751	.008408	.054673	.458474	.011168

MIGRATION RATIOS

	MICHIGAN	MINN	MISS	MISSOURI	MONTANA
ALABAMA	.000064	.000297	.018156	.000835	.000000
ALASKA	.000064	.000000	.000000	.000000	.001298
ARIZONA	.001218	.004756	.002793	.002505	.003896
ARKANSAS	.000320	.000297	.003491	.003966	.001298
CALIF	.009877	.025564	.013966	.020250	.061038
COLORADO	.003399	.018430	.004189	.010020	.033766
CONN	.001090	.005053	.001396	.002087	.001298
DELAWARE	.000064	.000000	.000000	.000000	.000000
FLORIDA	.000641	.004458	.015363	.003966	.007792
GEORGIA	.000448	.001486	.016759	.000208	.001298
IDAHO	.000064	.000297	.000000	.000000	.001298
ILLINOIS	.013405	.032996	.023044	.040918	.023376
INDIANA	.010134	.014268	.018854	.015240	.012987
IOWA	.004040	.030915	.004189	.016701	.010389
KANSAS	.000577	.004756	.004189	.036325	.003896
KENTUCKY	.000256	.001486	.009776	.003340	.000000
LA	.000577	.002080	.103351	.003131	.001298
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.000577	.002080	.002094	.000835	.001298
MASS	.006029	.015160	.007681	.008141	.012987
MICHIGAN	.000000	.012782	.009078	.011064	.014285
MINN	.002758	.000000	.004189	.007515	.031168
MISS	.000064	.000594	.000000	.001043	.000000
MISSOURI	.002116	.010998	.009078	.000000	.007792
MONTANA	.000128	.000594	.000000	.000000	.000000
NEBRASKA	.000256	.006539	.000000	.002713	.002597
NEVADA	.000128	.000000	.000698	.000000	.000000
N HAMP	.000064	.000000	.000000	.000000	.000000
N JERSEY	.001731	.006242	.000698	.005010	.002597
N MEXICO	.001026	.001486	.003491	.003131	.006493
NEW YORK	.010903	.030321	.025837	.021085	.040259
N CAROL	.001090	.001783	.021648	.002713	.005194
N DAKOTA	.000064	.028537	.000000	.000000	.007792
OHIO	.006606	.007728	.007681	.009185	.005194
OKLAHOMA	.000448	.001189	.004888	.006263	.006493
OREGON	.000705	.001783	.001396	.001252	.019480
PENN	.002693	.005648	.003491	.007098	.015584
R ISLAND	.000513	.000891	.000000	.000626	.000000
S CAROL	.000256	.001783	.000698	.000417	.000000
S DAKOTA	.000064	.005053	.000698	.000208	.003896
TENN	.000897	.002972	.044692	.004384	.002597
TEXAS	.001795	.007431	.045391	.024008	.005194
UTAH	.000448	.001486	.002793	.001670	.015584
VERMONT	.000064	.000000	.000000	.000000	.000000
VIRGINIA	.000641	.001783	.006284	.001252	.000000
WASH	.001154	.005945	.000698	.002505	.041558
W VIRG	.000000	.000000	.000000	.000000	.000000
WISC	.006029	.019322	.002793	.011691	.020779
WYOMING	.000128	.000891	.000698	.000208	.001298
WASH D C	.004233	.012485	.011871	.007724	.009090

MIGRATION RATIOS

	NEBRASKA	NEVADA	N HAMP	N JERSEY	N MEXICO
ALABAMA	.000000	.003745	.000000	.000191	.000558
ALASKA	.000000	.000000	.000000	.000063	.000000
ARIZONA	.002842	.022471	.006622	.000831	.004466
ARKANSAS	.001421	.000000	.000000	.000000	.002233
CALIF	.033159	.108614	.019867	.009209	.025683
COLORADO	.043581	.011235	.006622	.001790	.016750
CONN	.001421	.000000	.016556	.003581	.001675
DELAWARE	.000000	.000000	.000000	.002622	.000000
FLORIDA	.003315	.011235	.004966	.001982	.002791
GEORGIA	.000473	.000000	.001655	.001023	.000000
IDAHO	.000947	.003745	.000000	.000191	.000000
ILLINOIS	.026054	.011235	.028145	.006971	.008375
INDIANA	.013263	.022471	.008278	.005436	.008375
IOWA	.029369	.003745	.008278	.003261	.003908
KANSAS	.012316	.000000	.000000	.000639	.004466
KENTUCKY	.000473	.000000	.000000	.000575	.001675
LA	.001421	.003745	.004966	.000895	.002233
MAINE	.000000	.000000	.001655	.000383	.000000
MARYLAND	.001894	.007490	.006622	.001407	.000000
MASS	.007105	.007490	.221854	.014389	.007816
MICHIGAN	.010895	.007490	.016556	.004348	.007258
MINN	.019422	.022471	.003311	.001790	.003350
MISS	.000000	.000000	.000000	.000000	.000558
MISSOURI	.019895	.000000	.003311	.001534	.006700
MONTANA	.000947	.000000	.000000	.000191	.000558
NEBRASKA	.000000	.000000	.001655	.000127	.000558
NEVADA	.000473	.000000	.000000	.000127	.000000
N HAMP	.000473	.000000	.000000	.000447	.000000
N JERSEY	.003789	.003745	.009933	.000000	.000558
N MEXICO	.005684	.007490	.004966	.000767	.000000
NEW YORK	.018000	.026217	.089403	.262790	.010050
N CAROL	.004263	.003745	.014900	.003133	.001116
N DAKOTA	.000473	.000000	.000000	.000000	.000000
OHIO	.004737	.003745	.013245	.004093	.001675
OKLAHOMA	.004737	.003745	.001655	.000511	.004466
OREGON	.001421	.018726	.004966	.000383	.000558
PENN	.004737	.000000	.031456	.098874	.003908
R ISLAND	.000000	.003745	.014900	.000767	.000000
S CAROL	.000473	.000000	.000000	.000255	.000000
S DAKOTA	.001894	.000000	.000000	.000063	.000558
TENN	.004263	.003745	.006622	.001407	.002233
TEXAS	.008526	.003745	.006622	.001534	.037409
UTAH	.006631	.097378	.001655	.000703	.005583
VERMONT	.000000	.000000	.000000	.000063	.000000
VIRGINIA	.000473	.000000	.009933	.001790	.000558
WASH	.005684	.026217	.009933	.001343	.003908
W VIRG	.000000	.000000	.001655	.000511	.000000
WISC	.011842	.003745	.019867	.003645	.004466
WYOMING	.003315	.003745	.000000	.000191	.001675
WASH D C	.009474	.011235	.031456	.007802	.003908

MIGRATION RATIOS

	NEW YORK	N CAROL	N DAKOTA	OHIO	OKLAHOMA
ALABAMA	.000204	.003116	.000000	.000245	.000518
ALASKA	.000018	.000000	.000000	.000000	.000000
ARIZONA	.001506	.000849	.003048	.001388	.001295
ARKANSAS	.000241	.000566	.000000	.000653	.006217
CALIF	.009353	.006232	.022865	.013640	.016839
COLORADO	.001934	.002549	.030487	.004329	.006476
CONN	.005132	.004532	.001524	.002858	.001554
DELAWARE	.000204	.000000	.000000	.000081	.000000
FLORIDA	.001841	.010481	.001524	.004247	.003108
GEORGIA	.000688	.011614	.001524	.000490	.001295
IDAHO	.000111	.000000	.009146	.000163	.000000
ILLINOIS	.008498	.014447	.025914	.022216	.015284
INDIANA	.006899	.006515	.018292	.026545	.008549
IOWA	.002491	.004815	.047256	.005880	.006735
KANSAS	.000781	.001133	.007621	.001225	.009844
KENTUCKY	.000371	.008498	.000000	.002123	.001813
LA	.000762	.003399	.004573	.001715	.004922
MAINE	.000111	.000000	.000000	.000000	.000000
MARYLAND	.001301	.001983	.003048	.001143	.000518
MASS	.014895	.010764	.012195	.012741	.004922
MICHIGAN	.007252	.011048	.013719	.024503	.010103
MINN	.002008	.004249	.092987	.003593	.003367
MISS	.000092	.001983	.000000	.000000	.000000
MISSOURI	.001190	.001983	.006097	.004329	.004922
MONTANA	.000130	.000283	.010670	.000163	.000000
NEBRASKA	.000092	.000849	.007621	.000571	.000518
NEVADA	.000018	.000000	.001524	.000000	.000000
N HAMP	.000185	.000000	.000000	.000081	.000259
N JERSEY	.010990	.007648	.003048	.004002	.001554
N MEXICO	.000836	.000000	.007621	.001715	.003108
NEW YORK	.000000	.031728	.021341	.027035	.010621
N CAROL	.002250	.000000	.000000	.002368	.004663
N DAKOTA	.000111	.000000	.000000	.000081	.000000
OHIO	.004407	.004815	.006097	.000000	.003886
OKLAHOMA	.000502	.003116	.004573	.000735	.000000
OREGON	.000390	.000566	.007621	.000980	.001036
PENN	.011957	.012181	.004573	.025483	.002849
R ISLAND	.001506	.000849	.000000	.001306	.000000
S CAROL	.000260	.008215	.000000	.000081	.000518
S DAKOTA	.000018	.000000	.021341	.000081	.000518
TENN	.001097	.015014	.004573	.003185	.003108
TEXAS	.001562	.012181	.004573	.004083	.064248
UTAH	.000464	.001699	.006097	.000326	.001554
VERMONT	.000204	.000000	.000000	.000081	.000000
VIRGINIA	.001004	.009631	.000000	.001225	.001295
WASH	.001004	.000566	.007621	.001388	.002331
W VIRG	.000130	.000000	.000000	.004982	.000259
WISC	.004332	.003399	.027439	.008658	.005958
WYOMING	.000185	.000000	.001524	.000326	.000000
WASH D C	.006862	.018130	.010670	.008984	.004922

MIGRATION RATIOS

	OREGON	PENN	R ISLAND	S CAROL	S DAKOTA
ALABAMA	.000000	.000218	.000000	.003059	.002490
ALASKA	.001490	.000000	.000000	.000000	.000000
ARIZONA	.010928	.001471	.000865	.000509	.007471
ARKANSAS	.000496	.000163	.000865	.000000	.002490
CALIF	.079483	.008940	.023376	.008669	.032378
COLORADO	.016890	.002889	.002597	.001529	.042341
CONN	.005961	.002889	.016450	.003569	.000000
DELAWARE	.000000	.006323	.000000	.000000	.000000
FLORIDA	.002483	.002671	.003463	.015298	.004981
GEORGIA	.000000	.001035	.000865	.038755	.000000
IDAHO	.002980	.012484	.000000	.000000	.001245
ILLINOIS	.018877	.010412	.008658	.007139	.038605
INDIANA	.010928	.002671	.012987	.012748	.023661
IOWA	.007948	.000763	.005194	.002549	.057285
KANSAS	.002980	.000000	.000000	.001529	.009962
KENTUCKY	.000000	.000545	.002597	.008159	.001245
LA	.001987	.000763	.000000	.007649	.002490
MAINE	.000000	.000109	.000000	.000000	.000000
MARYLAND	.001490	.005233	.005194	.002549	.002490
MASS	.008445	.012375	.166233	.007139	.017434
MICHIGAN	.008445	.008940	.017316	.004079	.011207
MINN	.009438	.003489	.004329	.001529	.068493
MISS	.000000	.000163	.000000	.000000	.001245
MISSOURI	.006954	.002453	.004329	.001019	.016189
MONTANA	.001987	.000054	.000000	.000000	.008717
NEBRASKA	.000000	.000272	.000000	.000000	.021170
NEVADA	.000000	.000218	.000000	.000000	.000000
N HAMP	.000496	.000218	.000865	.000000	.000000
N JERSEY	.001490	.018263	.007792	.004079	.003735
N MEXICO	.002483	.000763	.000865	.000509	.009962
NEW YORK	.033283	.050646	.062337	.026007	.018679
N CAROL	.001490	.003707	.007792	.104028	.004981
N DAKOTA	.000496	.000000	.000865	.000000	.009962
OHIO	.003477	.014883	.003463	.005609	.008717
OKLAHOMA	.000000	.000654	.000000	.001019	.006226
OREGON	.000000	.000381	.000000	.001019	.006226
PENN	.004967	.000000	.012987	.008159	.003735
R ISLAND	.000993	.001308	.000000	.000000	.001245
S CAROL	.000993	.000545	.000000	.000000	.000000
S DAKOTA	.000496	.000109	.000000	.000000	.000000
TENN	.000993	.002126	.000000	.016318	.003735
TEXAS	.010432	.003925	.002597	.024477	.004981
UTAH	.008941	.000708	.000000	.000509	.004981
VERMONT	.000000	.000163	.000000	.000000	.000000
VIRGINIA	.000496	.001580	.006926	.010708	.002490
WASH	.054644	.001362	.000865	.001529	.008717
W VIRG	.000000	.006869	.000000	.000509	.000000
WISC	.010928	.005070	.011255	.001019	.034869
WYOMING	.000993	.000272	.000865	.000000	.012453
WASH D C	.010432	.015700	.017316	.011728	.006226

MIGRATION RATIOS

	TENN	TEXAS	UTAH	VERMONT	VIRGINIA
ALABAMA	.004246	.000586	.000615	.000000	.001438
ALASKA	.000000	.000000	.000000	.000000	.000000
ARIZONA	.000653	.002848	.016605	.013333	.000862
ARKANSAS	.000326	.001340	.000000	.003333	.000287
CALIF	.009474	.014075	.065805	.033333	.011504
COLORADO	.003920	.006618	.007995	.013333	.001150
CONN	.003266	.002094	.003075	.030000	.004314
DELAWARE	.000000	.000251	.000000	.003333	.000287
FLORIDA	.010454	.001926	.000615	.016666	.008052
GEORGIA	.011434	.001843	.000000	.006666	.009778
IDAHO	.000326	.000167	.000615	.000000	.000000
ILLINOIS	.020581	.008964	.015990	.040000	.020132
INDIANA	.009474	.006199	.008610	.030000	.014092
IOWA	.006207	.005278	.009840	.010000	.005176
KANSAS	.000653	.002848	.001230	.003333	.000862
KENTUCKY	.018948	.000921	.000000	.000000	.006614
LA	.013394	.007372	.001230	.000000	.004314
MAINE	.000000	.000000	.000000	.000000	.000287
MARYLAND	.002613	.000670	.001230	.003333	.008915
MASS	.010127	.008461	.012915	.160000	.014955
MICHIGAN	.008493	.005361	.013530	.023333	.012366
MINN	.004573	.003183	.014760	.006666	.005752
MISS	.011760	.000418	.000000	.000000	.001150
MISSOURI	.006860	.004356	.003690	.003333	.003163
MONTANA	.000326	.000083	.000000	.000000	.000000
NEBRASKA	.000326	.000586	.000615	.003333	.000000
NEVADA	.000000	.000000	.000000	.000000	.000000
N HAMP	.000000	.000000	.000000	.006666	.000000
N JERSEY	.006207	.002178	.003075	.020000	.006902
N MEXICO	.001960	.009467	.005535	.003333	.002013
NEW YORK	.020908	.012315	.033825	.183333	.041990
N CAROL	.025481	.003853	.001845	.006666	.057520
N DAKOTA	.000000	.000000	.000000	.000000	.000000
OHIO	.008820	.003602	.003075	.020000	.008628
OKLAHOMA	.001960	.005780	.000000	.003333	.001150
OREGON	.000326	.000670	.007995	.000000	.000287
PENN	.006860	.003686	.003690	.033333	.015530
R ISLAND	.000653	.000502	.000615	.013333	.001438
S CAROL	.000980	.000167	.000000	.000000	.001725
S DAKOTA	.000000	.000083	.000000	.003333	.000000
TENN	.000000	.004775	.001230	.006666	.014955
TEXAS	.039529	.000000	.004920	.000000	.013229
UTAH	.000653	.001843	.000000	.000000	.000862
VERMONT	.000000	.000000	.000000	.000000	.000000
VIRGINIA	.002940	.001256	.000615	.003333	.000000
WASH	.001633	.001759	.011685	.020000	.003451
W VIRG	.000326	.000000	.000000	.000000	.002013
WISC	.002940	.003770	.016605	.013333	.004889
WYOMING	.000653	.000418	.000615	.000000	.000287
WASH D C	.008167	.004691	.004920	.026666	.417888

MIGRATION RATIOS

	WASH	W VIRG	WISC	WYOMING	WASH D C
ALABAMA	.000000	.000594	.001524	.000000	.000000
ALASKA	.000268	.000594	.000000	.000000	.000000
ARIZONA	.002145	.001189	.002794	.020547	.000374
ARKANSAS	.000268	.000000	.000762	.002283	.000000
CALIF	.062483	.010707	.023622	.043378	.016491
COLORADO	.006972	.000594	.009652	.086757	.001499
CONN	.002949	.001189	.002794	.006849	.005997
DELAWARE	.000000	.000000	.000254	.002283	.001124
FLORIDA	.002413	.011302	.002540	.004566	.002998
GEORGIA	.000268	.005353	.000762	.000000	.000374
IDAHO	.006167	.000000	.000000	.002283	.000000
ILLINOIS	.016894	.022605	.051054	.022831	.008620
INDIANA	.010190	.024390	.011938	.002283	.005997
IOWA	.005899	.002379	.019812	.018264	.001499
KANSAS	.000804	.003569	.009906	.013698	.000374
KENTUCKY	.000268	.005948	.001270	.000000	.000000
LA	.001609	.002379	.002032	.000000	.001874
MAINE	.000000	.000000	.000000	.000000	.000000
MARYLAND	.000536	.001189	.002032	.000000	.008245
MASS	.012067	.008923	.013208	.009132	.011619
MICHIGAN	.009385	.014872	.019304	.009132	.008995
MINN	.007776	.002379	.042164	.015981	.002623
MISS	.000000	.000594	.000254	.000000	.000374
MISSOURI	.005095	.009518	.016510	.015981	.002248
MONTANA	.002413	.000000	.001016	.015981	.000000
NEBRASKA	.001072	.001189	.002286	.018264	.000374
NEVADA	.000268	.000594	.000508	.000000	.000000
N HAMP	.000268	.000594	.000000	.000000	.000000
N JERSEY	.005899	.008923	.004318	.009132	.006371
N MEXICO	.002681	.002974	.002794	.004566	.000374
NEW YORK	.024135	.029149	.023368	.018264	.037106
N CAROL	.002413	.018441	.004318	.004566	.005247
N DAKOTA	.000000	.000000	.001524	.000000	.000000
OHIO	.004022	.046995	.011938	.011415	.002623
OKLAHOMA	.000268	.001189	.002286	.002283	.000374
OREGON	.054706	.000594	.002286	.006849	.000374
PENN	.003754	.045806	.006096	.011415	.017616
R ISLAND	.001072	.000000	.001016	.002283	.001499
S CAROL	.000000	.000594	.000508	.000000	.000000
S DAKOTA	.000804	.000000	.002286	.002283	.000000
TENN	.001609	.013682	.003810	.002283	.000749
TEXAS	.007240	.005948	.006350	.006849	.003373
UTAH	.005095	.001189	.002032	.052511	.000749
VERMONT	.000000	.000000	.000000	.000000	.000000
VIRGINIA	.000536	.015466	.001524	.000000	.007121
WASH	.000000	.001784	.007620	.013698	.000374
W VIRG	.000000	.000000	.000000	.000000	.000749
WISC	.005631	.007733	.000000	.013698	.004122
WYOMING	.000536	.000594	.001270	.000000	.000000
WASH D C	.005363	.032123	.015494	.011415	.000000

APPENDIX C

CHI-SQUARE VALUES AND COEFFICIENTS OF CONTINGENCY FOR FIRST-TIME FRESHMEN ENROLLED IN OKLAHOMA SCHOOLS OF HIGHER EDUCATION, FALL 1962

The data used for investigating the relationship between family income and geographic origin of first-time freshmen enrolled in Oklahoma educational institutions was summarized and presented in contingency tables. The data was classified according to three levels of family income and three classsifications of students. The income levels were (1) below $5,000, (2) $5,000 through $9,999 and (3) $10,000 or over. The geographic origin of students were grouped according to three broad state classifications--namely, (1) resident students of Oklahoma, (2) nonresident students from contiguous states, and (3) nonresident students from non-contiguous states.

A contingency table was constructed and is presented for each of the various classifications of educational institutions as follows:

1. All institutions
2. All public institutions
3. State universities
4. University A
5. University B
6. State 4-year institutions
7. State 2-year institutions
8. State border institutions
9. All private institutions
10. Private 4-year colleges and universities
11. Private and municipal 2-year colleges.

The observed frequencies for each category are listed and the expected frequencies for each cell are enclosed in parentheses.

APPENDIX C--Continued

The chi-square criterion used for this analysis was based on the statistic:

$$X^2 = \sum_{i,j} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

where O_{ij} is the observed frequency and E_{ij} is the expected frequency for the ijth cell.

If the X^2 criterion indicates that the correlation between two qualitative variabled is significant, then it is desirable to obtain some measure of the strength of the relationship. The following formula defines a measure of correlation known as the contingency coefficient:

$$C = \sqrt{\frac{X^2}{X^2 + n}}$$

where n is the grand total of the frequencies of the contingency table while X^2 is the value obtained from the formula above.

The chi-square values and coefficients of contingencies calculated are presented in the contingency table for each category.

APPENDIX C--Continued

Contingency Table 1--All Institutions
(Private and Public)

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	3355 (3120)	4253 (4294)	1603 (1796)
Nonresident--Contiguous States	182 (287)	427 (395)	238 (165)
Nonresident--Non-Contiguous States	175 (305)	428 (419)	296 (175)

$X^2 = 218.4750$ $\quad C = \sqrt{\frac{218.48}{218.48 + 10957}} = .1396$

Contingency Table 2--All Public Institutions

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	2892 (2693)	3527 (3558)	1351 (1519)
Nonresident--Contiguous States	108 (191)	268 (252)	174 (108)
Nonresident--Non-Contiguous States	107 (224)	310 (295)	228 (126)

$X^2 = 255.4189$ $\quad C = \sqrt{\frac{255.42}{255.42 + 8965}} = .1664$

APPENDIX C--Continued

Contingency Table 3--State Universities

Origin of Student	Family Income Classification: Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	776 (661)	938 (995)	886 (943)
Nonresident--Contiguous States	21 (71)	133 (108)	127 (102)
Nonresident--Non-Contiguous States	41 (105)	190 (158)	182 (150)

$X^2 = 38.16$ $\quad C = \sqrt{\frac{38.16}{38.16 + 3714}} = .1005$

Contingency Table 4--University A

Origin of Student	Family Income Classification: Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	292 (246)	783 (761)	453 (521)
Nonresident--Contiguous States	12 (32)	88 (99)	98 (68)
Nonresident--Non-Contiguous States	27 (54)	155 (166)	152 (114)

$X^2 = 73.54$ $\quad C = \sqrt{\frac{73.54}{73.54 + 2060}} = .1855$

APPENDIX C--Continued

Contingency Table 5--University B

Origin of Student	Family Income Classification: Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	484 (440)	155 (204)	433 (427)
Nonresident--Contiguous States	9 (34)	45 (16)	29 (33)
Nonresident--Non-Contiguous States	14 (32)	35 (15)	30 (31)

$X^2 = 124.50$ $\quad C = \sqrt{\frac{124.50}{124.50 + 1234}} = .3027$

Contingency Table 6--State 4-Year Colleges

Origin of Student	Family Income Classification: Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	1355 (1318)	1730 (1741)	329 (355)
Nonresident--Contiguous States	56 (74)	102 (98)	34 (21)
Nonresident--Non-Contiguous States	23 (42)	62 (55)	23 (11)

$X^2 = 38.16$ $\quad C = \sqrt{\frac{38.16}{38.16 + 3714}} = .1055$

APPENDIX C--Continued

Contingency Table 7--State 2-Year Colleges

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	761 (749)	859 (852)	136 (154)
Nonresident--Contiguous States	31 (33)	33 (37)	13 (7)
Nonresident--Non-Contiguous States	43 (53)	58 (60)	23 (11)

X^2 $X^2 = 23.0946$ $C = \sqrt{\frac{23.09}{23.09 + 1957}} = .1077$

Contingency Table 8--State Border Institutions

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	531 (511)	716 (716)	127 (147)
Nonresident--Contiguous States	40 (51)	70 (71)	26 (15)
Nonresident--Non-Contiguous States	11 (21)	30 (29)	15 (6)

$X^2 = 18.74$ $C = \sqrt{\frac{18.74}{18.74 + 1566}} = .1086$

APPENDIX C--Continued

Contingency Table 9--All Private Institutions

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	463 (438)	726 (726)	252 (278)
Nonresident--Contiguous States	74 (90)	159 (150)	64 (57)
Nonresident--Non-Contiguous States	68 (77)	118 (128)	68 (49)

$X^2 = 16.2512$ $\quad C = \sqrt{\frac{16.25}{16.25 + 1992}} = .0899$

Contingency Table 10--Private Four-Year Colleges and Universities

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	300 (287)	571 (567)	213 (230)
Nonresident--Contiguous States	68 (70)	139 (137)	56 (56)
Nonresident--Non-Contiguous States	37 (48)	89 (95)	55 (38)

$X^2 = 12.7100$ $\quad C = \sqrt{\frac{12.71}{12.71 + 1528}} = .0908$

APPENDIX C--Continued

Contingency Table 11--Private and Municipal Two-Year Colleges

Origin of Student	Family Income Classification		
	Below $5,000	$5,000-$9,999	$10,000 or over
Resident State	163 (154)	155 (157)	39 (46)
Nonresident-- Contiguous States	6 (15)	20 (15)	8 (4)
Nonresident-- Non-Contiguous States	31 (31)	29 (32)	13 (9)

$X^2 = 14.7425$ $\quad C = \sqrt{\frac{14.74}{14.74 + 464}} = .1752$

EMPLOYMENT SURVEY CARD

UNIVERSITY PLACEMENT SERVICES - OSU EMPLOYMENT SURVEY-

NOTE: This information is for statistical purposes and will be treated as confidential.

Degree: (Check one) Assoc. ___ Bacc. ___ Master ___ Doctor ___

(Check one) Jan. ___ May ___ Aug. ___

Name: _____
Last First Middle

Permanent Address: _____
Street City State

Temporary Address (If Different) _____
Street City State

Graduate of College of _____ Dept. _____ Major _____

Employment Status: (As of Date of Commencement)

( ) Plan to enter Graduate School. Where _____
( ) Plan to enter Armed Forces _____ Presently career Armed Forces personnel _____
( ) Do not plan to seek employment due to marriage, etc.
( ) SEEKING EMPLOYMENT
( ) Self-employed. Type of business _____
( ) Have accepted employment: Are you returning to former position? Yes ____ No ____

Employer _____

Address _____
City State

Position _____
(Be specific)

Starting Salary: Monthly -- 1/12 of Annual income:

___ Below $249 ___ $250-299 ___ $300-349 ___ $350-399
___ $400-449 ___ $450-499 ___ $500-549 ___ $550-599
___ $600-649 ___ $650-699 ___ $700-749 ___ $750-799
___ $800-849 ___ Above $850 OR Total Yearly Salary $_____

APPENDIX E

SUMMARY ANALYSIS OF NONRESIDENT ENROLLMENT IN MULTIPLE-SECTION COURSES BY COLLEGE FOR THE SPRING, 1963

College	M-S Courses Accumulation of N.R. Students Exceeds Largest Section of Course		Total No. of M-S Courses	
	OSU	OU	OSU	OU
Agriculture (Total)	0	N.A.[a]	14	N.A.
Lower	0	N.A.	3	N.A.
Upper	0	N.A.	11	N.A.
Arts & Science (Total)	6	36	107	121
Lower	5	32	85	105
Upper	1	4	22	16
Business (Total)	0	4	32	33
Lower	0	4	7	22
Upper	0	0	25	11
Education (Total)	0	3	24	15
Lower	0	3	9	9
Upper	0	0	15	6
Engineering (Total)	2	19	24	43
Lower	0	13	4	25
Upper	2	6	20	18
Fine Arts (Total)	N.A.	0	N.A.	29
Lower	N.A.	0	N.A.	23
Upper	N.A.	0	N.A.	6
Home Economics (Total)	0	N.A.	23	N.A.
Lower	0	N.A.	13	N.A.
Upper	0	N.A.	10	N.A.
Professional[b] (Total)	0	0	6	8
Lower	0	0	6	2
Upper	N.A.	0	N.A.	6

[a]Not applicable.

[b]At Oklahoma University included Law, Nursing, and Pharmacy; at Oklahoma State University included Technical Institute.

Source: Class enrollment data on file in Registrar's Office of Oklahoma State University and Office of Data Processing Services at Oklahoma University.

VITA

Howard Burl Baltz

Candidate for the Degree of

Doctor of Philosophy

Thesis: AN ANALYSIS OF SOME OF THE ECONOMIC ASPECTS PERTAINING TO THE OUT-OF-STATE COLLEGE STUDENT WITH PARTICULAR REFERENCE TO OKLAHOMA.

Major Field: Economics

Biographical:

Personal Data: Born in St. Louis, Missouri, July 27, 1930, a twin son of Arthur W. and Ollie May Batdorf.

Education: Graduated from East St. Louis Senior High School in 1948 as a member of the National Honor Society; selected for a scholarship at Washington University, but attended Belleville Junior College and received the Associate of Arts degree in May, 1950; attended St. Louis University, Northwestern University, Elmhurst College, and received the bachelor degree from Baylor University, with a major in Economics, in November, 1956; received the Master of Science degree from Baylor University, with a major in Economics and a minor in Statistics, in May, 1958; completed requirements for the Doctor of Philosophy degree in August, 1964.

Professional Experience: Entered the United States Air Force in 1951, and is now a Captain in the Air Force Reserves. The four and one-half years service included graduation from navigation school and the awarding of an aeronautical rating. While pursuing studies at Baylor University, employment was secured with an investment firm and the Bureau of Business and Economic Research at Baylor University; employed as an instructor in Statistics at Baylor University in 1958-59; resident requirements for the Doctor of Philosophy degree at Oklahoma

State University were completed while assigned as a graduate assistant to Dean Eugene Swearingen of the College of Business; the thesis was completed while assigned as an Assistant Professor of Economics and Statistics at Midwestern University, Wichita Falls, Texas, for two years. Member of the American Statistical Association and Southwest Social Science Association, Omicron Delta Epsilon, and Delta Sigma Pi. Titles of articles which have been published are "An Analysis of the Waco 'Cotton Mall'" and "Index of Waco Retail Food Prices: Calculating Procedures and Findings;" and "Is Economics Liberal or Conservative?" has been accepted for publication.