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ABSTRACT

When a college is located in a rural area, its input to that community includes social, economic, political, psychological, and physical factors. The prime purpose of this study was to describe the socioeconomic impact of the college on rural communities of New York State, particularly the New York State University College at Alfred (small village) and at Cortland (rural city, 19,181 pop.) and to predict institution-related inputs which were basic to this impact. The interaction and incidence of this input were studied relative to economic factors (purchases of food, clothing, furniture, amusement, and housing); to social factors (politics, local policy, and social ties); and enrollment and commutation of students. Some of the findings were: input for staff members varied with town size in public colleges but was high in private colleges; the proportion of local students commuting varied with surrounding areas but dropped to zero at 35 miles; college purchasing dollars were diffused into the surrounding area particularly when a small town was near a large city; and the college has impact on the town; the town, on the region; and conversely regional development affects the town and the city. (This document will be available from University Microfilms.) (PT)

CORNELL DISSERTATIONS IN PLANNING

THE EDUCATIONAL INSTITUTION AS AN INSTRUMENT OF CHANGE IN RURAL COMMUNITY DEVELOPMENT POLICY: A STUDY OF THE SOCIO-ECONOMIC IMPACT OF THE COLLEGE IN NEW YORK STATE

Julian Martin Laub

DEPARTMENT OF CITY AND REGIONAL PLANNING
CORNELL UNIVERSITY · ITHACA · NEW YORK
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CORNELL UNIVERSITY

ITHACA, NEW YORK

JANUARY 27, 1970

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THE EDUCATIONAL INSTITUTION AS AN INSTRUMENT OF CHANGE IN RURAL COMMUNITY DEVELOPMENT POLICY: A STUDY OF THE SOCIO-ECONOMIC IMPACT OF THE COLLEGE IN NEW YORK STATE

Julian Martin Laub, Ph.D.
Cornell University, 1970

Colleges established in rural towns can aid in area development. The purpose of this study is (1) to describe social and economic impact of the college on rural communities, and (2) to predict institution related inputs which are basic to this impact. This analysis can assist the town planner in forecasting housing, commercial, and other needs, and the educational planner in making decisions on institutional location, expansion, and programming.

Important factors in community development include increase in retail trade, property values, family income, educational levels, and social interaction. The college presence can strongly affect these factors owing to five major inputs. These are (1) professional and auxiliary staff (2) local and non-local students (3) college purchases (4) physical factors such as buildings, and (5) visotors and miscellaneous agents.

Economic impact of the college basically depends upon the proportion of staff and students living in the rural town, and the proportion of their expenditures made through local vendors. Social impact depends upon the extent of staff and student interaction with local townspeople and institutions. Some proportion of the college input fails

to enter the college town, and instead spills out to the region. Spill-out varies for different localities, and although it may be inconsequential or beneficial for the region, it detracts from benefits obtained by the college town and may lessen its ability to support institution related services.

It was found that residence input for staff members at four year public colleges varies with town size. However input for professional staff at private colleges does not vary in this manner, and in fact is very high for the viable small town. It is possible to forecast residence input for staff at all colleges except those in towns below 1,500 permanent population and low in activity. The high input of social and human capital augurs change. The professional staff are generally above average in community service potential, and are less conservative than the townspeople. College staff influence on school district policy and local government can be substantial especially in the small town with a sizable two year public college. Also, along with the input of college professionals is a high proportion of spouses who serve the community in teaching and other professional capacities.

Student enrollment from sectors within a 50 mile circle about the public college varies with grade 7-12 ADA for the sector. The proportion of local students commuting from these sectors varies with their distance from the college town, and drops to zero near 35 miles out. The college located in a rural city may indicate greater town enrollment than the village, however cumulative enrollments of local students in 35 mile circles may be equalized owing to the presence of large villages or cities near the smaller college town. Many students attending public colleges are from low income families. Substantial benefits accrue to

the college town through local education of its young. However a large proportion of local students leave the area after graduation. Although college students are generally less conservative politically and socially than townspeople, social contact especially for non-local students is low.

College purchasing dollars diffuse into the surrounding region. The proportion of college purchases made in a major locality increases directly with the city's population, and inversely with the square of its distance from the college. If a small college town is located near a large city in the next county, much of the college purchasing dollar will leave the county unless that small town has viable facilities to balance college growth.

Locational analysis of social and economic input combined with the predictive techniques demonstrated in this study can be useful in coordinating educational planning with area development and public investment decisions. Maximum local student enrollment and commutation can be forecast for a potential college location; and a wide number of computer stored items can be similarly examined. The use of spill-out accounting can give a more accurate picture of the impact of the institution.

THE EDUCATIONAL INSTITUTION AS AN INSTRUMENT OF CHANGE IN RURAL COMMUNITY DEVELOPMENT POLICY: A STUDY OF THE SOCIO-ECONOMIC IMPACT OF THE COLLEGE IN NEW YORK STATE

A Thesis

Presented to the Faculty of the Graduate School of

Cornell University for the Degree of

Doctor of Philosophy

by

Julian Martin Laub

January, 1970

BIOGRAPHICAL SKETCH

Julian Martin Laub was born in New York City in 1929. He received a Bachelor Degree in Engineering from New York University in 1951, and a Master of Science Degree from Alfred University in 1965.

After working in industry for General Motors, and Eastern Engineering Consultants, Mr. Laub joined the faculty of The State University of New York, Agricultural and Technical College at Alfred. From 1959 to 1966 Professor Laub taught Architectural and Environmental Technology, and authored a book in this area for Holt-Rinehart and Winston. He entered The Department of City and Regional Planning at Cornell University in 1966, and while completing his doctorate in that field, he was engaged as a Research Associate in The Department of Rural Sociology, and as a part-time lecturer in The College of Architecture, Art, and Planning.

He is a member of The American Institute of Planners, The New York State Society of Professional Engineers, and other associations.

For Naomi and Beth

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I am especially indebted to Professor Kermit C. Parsons, Chairman of The Department of City and Regional Planning, who guided and inspired this work, and to Professors Parker Marden, Joan R. Egner, Wayne Thompson, and Allan Feldt who shaped its form at various stages and offered many helpful suggestions. However, I alone am responsible for errors and limitation in the study.

Many other individuals were of great assistance in various phases of the research. These include President Kenneth Young, Dr. Clarence H. Bagley, Director of Institutional Planning, and Gene Krause, Director of the Computer Center at The State University of New York College at Cortland; President Leland Miles and Charles H. Schultz, Assistant to the President at Alfred University; President David H. Huntington and Orville Johnston, Assistant to the President at SUNY Alfred Agricultural and Technical College at Alfred; President Albert T. Skinner at Auburn Community College; and President Rhea M. Eckel, Dean Malcolm H. Forbes and Peter A. Anderson at Cazenovia College; Dr. William Fuller and Dr. Robert H. McCambridge of The New York State Education Department, Division of Higher Education Planning suggested various approaches and supplied data relative to higher education in New York State. Professor Harold Capener, Head of the Department of Rural Sociology, aided in administrative matters.

My colleagues, John Robson, Courtney Riordan, and Arnold Nadler, at the Graduate School offered constructive ideas at various stages of the research. Mrs. Louisa Massicci was excellently competent in typing the manuscript.

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PART I: THE COLLEGE AND THE COLLEGE TOWN

CHAPTER ONE

I. INTRODUCTION AND RELATED RESEARCH

In college planning and location especially at the two year college level, decision-making has focused on county, two-county, and community benefit. Although the region and state are considered the ultimate client, the latter is definitely subordinated in making the final location decision. Recent wrangles over location in Sullivan County, Tompkins County,[1] and in other areas precisely indicate how the field for decision tapers down to focus the argument between two or three towns, and then to location within a town.

In seeking to extend the benefits of the two year college to rural areas, small towns are frequently considered as possible locations for the institution, and villages have actively lobbied for the placement of State University community colleges in their locality. The actual benefit derived by the small town and its environs is in question and this study is directed toward determining the degree to which the small town and local area benefit when a college is so located.

A. Purpose of the Study

The purpose of this study is (1) to describe social and economic

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[1] Pierre Clavel, "The Genesis of the Planning Process: Experts and Citizen Boards," (Unpublished Ph.D. dissertation, Cornell University, 1966), pp. 70-100. See also The Ithaca Journal, January 4, 1969 to March 6, 1969; Dennis A. Rondinelli, "Establishing a Community College: The Public Decision Process, A Case Study" (Unpublished paper, City and Regional Planning Department, Cornell University, 1966), pp. 33-39.

impact of the college on rural communities, and (2) to predict institution related inputs which are basic to this impact.

This analysis can assist the educational planner in making decisions on institutional location, expansion, and programming. It can aid the town planner in forecasting housing, commercial, and related needs,[2] and in planning the deliberate input of economic, social, and human capital into an area.[3]

In conjunction with the above purpose the variation of input and impact with college town size is to be explored. Of primary interest is whether the small town can retain a goodly portion of the stream of benefits generated by the college presence.

B. College Impact on a Locality

When a college is located in a village or city the input of jobs,

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[2]Coordination between town and educational planners is especially important in rural area development. Governmental planning agencies have great power to shape the development of areas under their jurisdiction. However, tools are needed to effectuate social and economic change. The college is one such tool, and this study is an evaluation of the educational institution as an instrument in town and regional development. The development of rural areas with potential is discussed in Edgar M. Hoover, The Location of Economic Activity (New York: McGraw Hill Book Company, Inc., 1963), pp. 196-200, 241-250. Of interest in planning for urban development is John Friedmann, "The Strategy of Deliberate Urbanization," Journal of the American Institute of Planners, Vol. 34, No. 6, November, 1968. The utilization of the educational institution in planned community change is described in Dorothy D. and James Bourne, Thirty Years of Change in Puerto Rico, A Case Study of Ten Selected Rural Areas (New York: Frederick A. Praeger, Publishers, 1966), pp. 218-265. Social, economic, and political implications in state planning for a community are concisely described in Ada Louise Huxtable, "The State Office Building Dilemma," The New York Times, Section 2, Architecture, November 2, 1969.

[3]Human resources have been referred to as a form of capital by many economists including Adam Smith, H. von Thunen, and more recently, by Irving Fisher, and Theodore Schultz. See Theodore Schultz, "Investment in Human Capital," The American Economic Review, LI, March, 1961, pp. 2-17. See also Gary S. Becker, "Underinvestment in College Education," The American Economic Review, L, May, 1960, pp. 346-54, and Gary S. Becker, Human Capital (New York: Columbia University Press, 1964), p. 50.

students, college purchases, and other economic and social factors has important impact on the locality. Social and economic benefits depend, in large degree, upon what proportion of the input stays in the town at least in the first round of transactions. Benefits diffuse to localities outside the college town and help develop surrounding areas. From the regional or the state's viewpoint, this may be a good thing. From the more parochial viewpoint of the villagers, especially business and real estate components, first round loss of benefits in substantial amount may defeat an important original goal, that of economic development for the town.

Clavel stresses the importance of economic considerations from the viewpoint of a potential college town's hosts:

> The economic value of a community college was evident from the beginning . . . There was sentiment that the college would be "good for the County" economically, but probably this sentiment was at least matched if not overwhelmed in many cases that it would be "good for the Town."[4]

Economic development is a highly important factor in the potential college town's consideration although most often its strongest reasons for establishing a new college center about a sincere desire to bring advanced education and cultural activities to the locality.

A full inventory of college impact on a locality would include a multiplicity of items related to social, economic, and political factors,

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[4]Clavel, op. cit., pp. 70-72. In a broad view Parsons discusses input-output interchanges between societal levels and subsystems with special reference to the area of education; see Talcott Parsons, "General Theory in Sociology," Sociology Today, Problems and Prospects, Robert K. Merton, Leonard Broom, Leonard S. Cottrell, Jr. (eds.) (New York: Harper and Row, 1959), pp. 3-37.

and would involve land use, transportation, environmental health, and other considerations. This study is only concerned with the college impact on selected factors in community development. These involve:

A. Economic factors such as retail sales, property values, taxes, labor force size, family income levels, and demand for town services.

B. Sociological factors including educational levels, housing quality, degree of social interaction, and social attitudes.

C. Political factors affecting local government, school district administration, political attitudes, and community action.

C. State Planning for Higher Education

In most states governmental planning for higher education is centralized at the state level. State agencies affect decisions on disbursement of funds, enrollment, staff size, college location, expansion and long range planning for public colleges, and decide on state financial and other aid for private institutions. Consequently, the decisions of the state agency bear upon the community and region, as well as on educational development.

Many states are expanding their facilities for higher education by establishment or extension of a system of state colleges. The primary intent of these programs of expansion is to broaden the accessibility of higher education to state residents, and to aid economic and social development of urban and rural areas by a beneficial output of the educational plant. The latter aim is to derive direct and indirect economic and social benefits for the community as well as for the student.

In some states large investments in higher educational facilities already have been made. California, New York, and Pennsylvania have matured and extensive systems; Connecticut, Massachusetts, and many

other states more recently have engaged heavily in this area of investment.[5]

In the New York State University system community colleges and technical colleges have been established in over 30 rural and urban locations, and new colleges are in the planning stage; the State University's goal is to have a two year college within commuting distance of 95 percent of the state's population by 1970.[6] Typical of the colleges placed in relatively rural areas are those in Orange, Cayuga, Sullivan, and Allegany Counties.[7] Private colleges have also developed and expanded in response to increased enrollment needs.

The above indicated programs can result in problems of deep concern for urban and rural area development.[8] These problems include the need to estimate potential social and economic benefits and burdens yielded to specific areas in which colleges have been located, and in which future

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[5]"The Campus Boom: A New College A Week," Newsweek, February 20, 1967, pp. 65-73. Expansion of higher education in relation to manpower needs is discussed in Frank Harbison and Charles A. Myers, Education, Manpower, and Economic Growth, Strategies in Human Resource Development (New York: McGraw Hill, 1964), pp. 195-196. See also Herbert S. Parnes, Forecasting Educational Needs for Educational and Social Development (Paris: Organization for Economic Cooperation and Development, 1962), and Fritz Machlup, The Production and Distribution of Knowledge in the United States (Princeton: Princeton University Press, 1962). A. H. Halsey, Jean Floud, and C. Arnold Anderson (eds.), Education, Economy, and Society (New York: The Free Press of Glencoe, 1962), pp. 15-52.

[6]New York State Division of the Budget, The Executive Budget, Fiscal Year April 1, 1968 to March 31, 1969, submitted by Nelson A. Rockefeller, Governor (Albany: New York State Division of the Budget, 1968), p. 980.

[7]The University of The State of New York, The State Education Department, Albany, New York, The Regents Tentative Statewide Plan for the Expansion and Development of Higher Education, 1964, p. 4.

[8]Vincent J. Moore, Buffalo-Amherst Urban Impact Study Design (Albany: New York State Office of Planning Coordination, 1968), pp. 13-15.

locations are planned. On the darker side, "town and gown" conflict can occur;[9] even substantial State University investment can be economically ineffective or weak in rural area development, and there is the possibility that a college ineffectively located can tend toward being a liability for the community. This is especially so when problems of land use, socio-cultural differences, and requirements for town services are weighed against the college's potential as an income generator, and as an educational and cultural factor.

This paper must initially acknowledge that education is the primary task of the college or university. However, from a broader point of view, the college can be a key factor in city, rural, or regional development.[10] When a college is located in a rural area, input to that area includes social, economic, political, psychological, and physical factors transmitted through the presence of the staff, students, and the college

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[9]Kermit C. Parsons, "Universities and Cities: The Terms of Truce Between Them," Journal of Higher Education, XXXIV(April, 1963), pp. 205-216. See also Delbert C. Miller, "Town and Gown: The Power Structure of a University Town," American Journal of Sociology, 68, January 1963, pp. 432-443; Peter H. Rossi and Robert A. Dentler, The Politics of Urban Renewal (New York: The Free Press of Glencoe, 1961). Wilbert E. Moore points out that changes in social structure have wide ramifications. Rural areas lose their rural character. Isolation and self-sufficiency of the village is steadily eroded. No amount of nostalgic regret is likely to preserve or restore the qualities of rural life if economic growth persists and proceeds. The old order is soon transformed. Wilbert E. Moore, The Impact of Industry, Modernization of Traditional Societies Series (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1965), pp. 89-90. The broad impact of the campus on national and local political and social life is demonstrated especially in the peace movement. See The New York Times, November 16, 1969.

[10]A major creative role in the development of downward transitional areas can be played by the university especially in the area of research and planning. See William H. Starbuck, "Evaluation and Prospectus: School of Business Administration, Clarion State College" (Ithaca: Cornell University, 1968), pp. 17-34. (Mimeographed) Also John Friedmann, Regional Development Policy, A Case Study of Venezuela (Cambridge: The M.I.T. Press, 1966), pp. 95-101.

activities. These factors can be thought of as units of economic, political, social and human capital enriching or detracting from an area, and altering its basic characteristics and operation.

D. Fundamental Factors in Input, Spill-out, and the Impact of the College Population

The residential distribution patterns of staff members and students are fundamental in assessing the college's potential effect on social and economic development in an area. The degree of input to a locality, the proportion of leakage, and the amount of interaction of staff, students, and townspeople are important modifiers in determining degree of change or potential for change generated by the presence of a college. In sum, the amount of college town and area change and development depends on initial and operational inputs, and their interaction in the area considered.

Consequently to study impact on a location due to the presence of a college it is first necessary to study the population input and its characteristics, activity, and location. Secondly it is necessary to relate this study to key factors in social and economic growth and community development such as family income, property values, commercial development, attitudes, and educational levels.

A village, city, or region presents a tableau of characteristics depending upon population distribution, activity, and land use. This tableau changes with time. The isolated and relatively inactive village remains stable or may show decline. The large city ferments in rapid change with in-migration of people, and their activity. Interaction within a village, city, or region causes change as well as in- or out-migration.

This study is first concerned with the initial input due to the injection of public and private institutions into an area. Next it is concerned with the impact or internal reaction and interaction of the injected matrix with the previously existing tableau. Rural areas and small cities are the focus of the study since they are increasingly being considered for college location, they serve readily to illustrate the factors involved, and also because rural and regional development are primary concerns. A key point is that if we wish to <u>focus</u> growth and development within a limited area to create a strong point, to create change, or for other reasons of policy, it is necessary to determine the actual input of people, dollars, and other social and economic factors to that area. In seeking to estimate actual input to a locality by the college it is necessary to evaluate the amount of leakage of the basic effort. An important consideration is determination of the proportion of college components that either never enter the locality so as to provide benefits (or costs), and the amount that spills out after entering the locality's boundaries.

E. Format for the Study

Figure 1.1 is a guide to the format of this study. Input and leakage of economic or social units are depicted by use of a flow chart for college components. In the diagram (I) represents a unit of input deposited within the boundaries of a locality and (S) is a unit externally incurred owing to leakage or spill-out.[11] Economic inputs of a similar

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[11] To describe leakage of economic and social factors to areas outside a locality's political boundaries we will use the term spill-out. The terms spill-out and spill-over as used in this paper relate to their use by Burton A. Weisbrod in <u>External Benefits of Public Education</u>,

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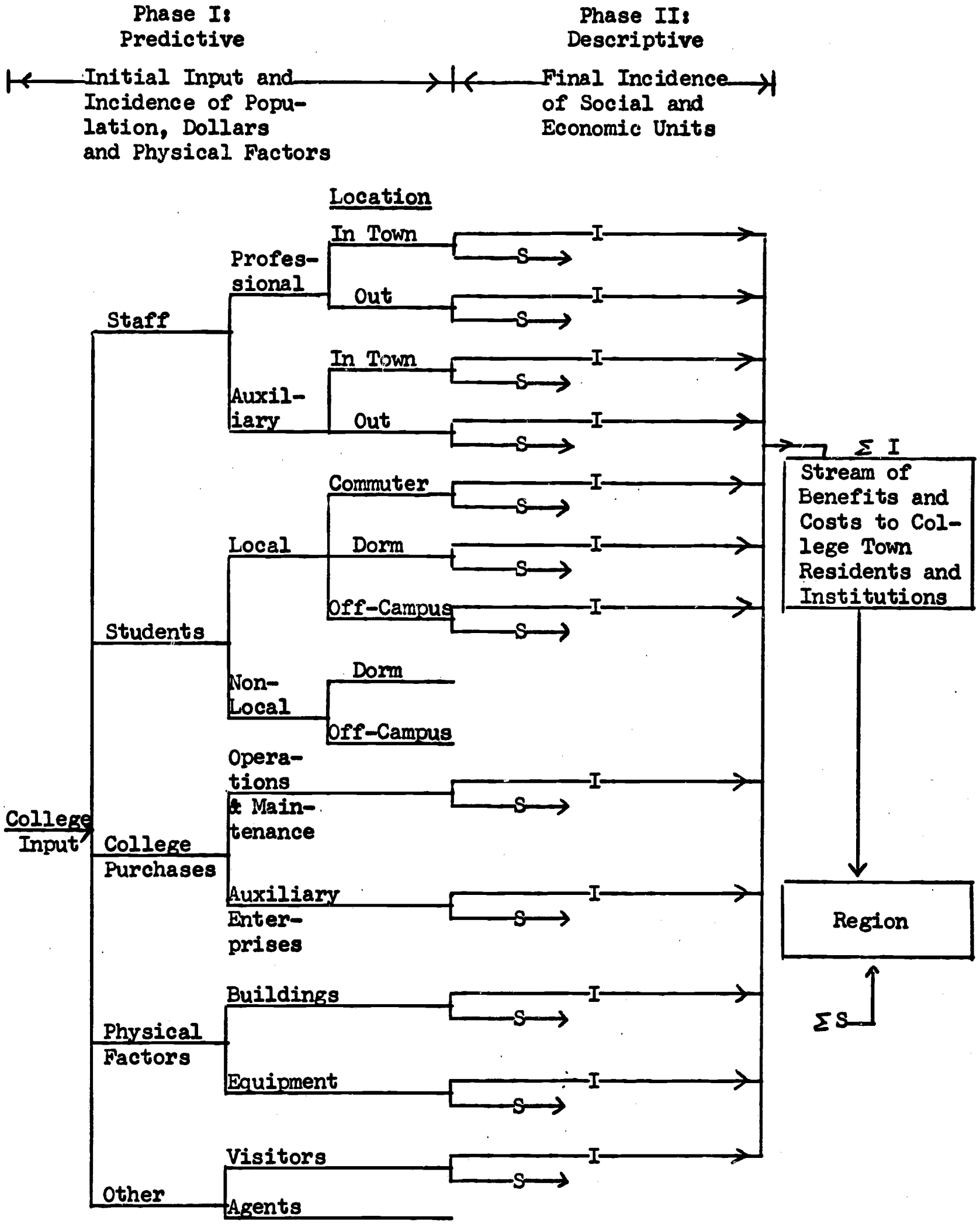

(I) = Units of Input to the Town
(S) = Units of Spill-Out to the External World

FIGURE 1.1 FLOW CHART: DISTRIBUTION OF SOCIAL, ECONOMIC AND PHYSICAL FACTORS RELATED TO COLLEGE INPUT

nature such as flow of funds into a locality can be summed.[12] Social

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11(continued) Industrial Relations Section, Princeton University (Princeton, New Jersey: Princeton University, 1964), pp. 1-8. See also Werner Z. Hirsh, Elbert W. Segelhorst, and Morton J. Marcus, Spillover of Public Education Cost and Benefits, Institute of Government and Public Affairs, University of California (Los Angeles: University of California, 1964), p. 175. Roland N. McKean uses the term spillover in describing neighborhood effect, "impacts of actions by some decision-making units on the activities of others, impacts that are not directly felt by the first group. . . . Thus, the cost of doing the family laundry is increased as smoke-producing factories expand their operation;" see Roland N. McKean, Efficiency in Government Through Systems Analysis (New York: John Wiley & Sons, Inc., 1958), pp. 134-136. Weisbrod uses the term spill-over to describe "geographically externalized benefits . . . which accrue to persons outside a district." Spill-out of benefits are beneficial to those outside the district and represent a loss to those inside the district.

[12]Michael K. Mischaikow and Thaddeus H. Spratlen, "A Regional Impact Model For Measuring the Flow-of-Funds and Income Effect Generated by Institutions of Higher Learning," Western Regional Science, December, 1967, pp. 196-212. Mischaikow and Spratlen have developed a model for measuring the economic impact of a college on its locality, and on the external world. Their model can be applied to evaluate total inflow and outflow of funds owing to the college presence. Categories in the model are the external sector (D), the local sector (L), visitors (V), the capital sector (K), auxiliary enterprises (A), faculty and staff (F), the student body (S), and the institution (C). The interaction of these sectors is indicated, and equations are set up to identify the flow of funds (E) between the sectors. For example outflow of funds (Q) from the local sector (L) is indicated by

$$Q_1 = \Sigma E_1 \text{ or}$$

$$Q_1 = E_{1_c} + E_{1_s} + E_{1_f}$$

The first lower case letter shows the source or disbursing sector, and the second indicate the recipient of the outlay. For example, E_{1_c} indicates outlay of the local sector to the college. This can occur as a return on services rendered, rentals, or through other transactions. Flow of funds (Y) to the local sector is indicated by

$$Y_1 = \Sigma E_1 \text{ or}$$

$$Y_1 = E_{c_1} + E_{f_1} + E_{a_1} + E_{k_1} + E_{v_1},$$

where, for example, E_{c_1} indicates the outlay of the college to the local sector. In similar manner a series of other equations are indicated

(continued next page)

units are generally not additive unless they can be assigned an agreed-upon dollar value, or other quantitative evaluation in a given category.

As indicated in the flow chart, the study basically is divided into two phases. The first phase considers predictive factors involving input of college staff and students to the college town or other locations. The second phase is descriptive, and analyzes the interaction of the college population in regard to selected social and economic factors operating within the town.

Another important factor to consider in evaluating impact of the institution is the location of purchases made by the college acting as a corporate unit. In some instances this incidence can be predicted and it then becomes possible to forecast the impact of college purchasing on the local and regional economy.

Physical factors shown in the flow chart are generally fixed by an arbitrary decision to expand or not to expand, and are not analyzed in this study. The impact of visitors, and other agents is also omitted.

As shown in Figure 1.1 a stream of social and economic benefits and costs (I) enter the college town along with the input of population, dollars, and facilities. This has impact upon the town, causing local and regional change and development. When units of spill-out (S), occur they have a direct impact on the area surrounding the locality.

It is important to estimate the extent of spill-out, in determining the actual impact of the instrument of change, in this study, an

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12(continued) for each sector's inflow and outflow of funds. One of our major interests is flow of funds to the local sector and to outside the local sector from the college's components or sectors.

institution.[13] We also wish to determine whether spill-out varies with town size and location.

Spill-out results in cost or benefit to a locality. For example movement of retail trade, or of the wealthier segments of the population to outside a community is most often detrimental to the locality sustaining this loss, but is beneficial to the receiving area. On the other hand increased demand for town services by an increased population can also burden a city. Spill-out may not be a direct problem from the regional point of view (and it may often benefit the region), but it can yield a heavy burden at the county, town, or village level, and even severely hamper the large city.[14] Eventually regional effects become evident.

This study will examine the variation of spill-out with town size and location in predicting factors affecting community change and development. A prime concern is the potential of the public and private college as an instrument for planned input of social and economic factors into a community. A device for prediction of the levels and effects of this input is sought along with a demonstration and explanation of spill-out of college staff, dollars, and other social factors.

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[13] Many other instruments are available to governmental agencies for effecting change. Examples include low cost housing, recreational areas, and armed forces bases; financial instruments include government contracts, federal and state aid, and taxation. The college matrix is treated in this discussion as one component in the total community. Its impact adds to that of others, as it interacts with other components.

[14] Raymond Vernon, The Changing Economic Function of the Central City (New York: Committee for Economic Development, 1959), pp. 40-62.

F. Study Limitations

A complete outline for examination of this thesis would consider the gamut of college and college town characteristics, and the incidence of social and economic factors involved. To explore this fully would require extensive investigation beyond the scope of this effort; this study makes a partial attack on the problem with special concern for predictive elements, and presents a methodology for further analysis.

The college towns studied are necessarily a fraction of the total panoply of college towns in New York State. They cannot offer exact models for educational and town planners. However, they can provide insight into social and economic interaction, and problems found in the college town.

In examining the effect of town size and college impact, we are particularly interested in the colleges at Alfred and the State University of New York College at Cortland. The former are located in a small town, the latter is in a relatively large rural city. Data relative to other colleges and college towns reinforce conclusions relative to these two colleges.

For a study and prediction of staff residential spill-out college communities ranging in size from small village to large rural city were examined for New York State. However size minimums were necessarily imposed on the rural colleges studied in order to obtain data exhibiting significant impact, and to analyze a stabilized situation. Consequently this study can be applied to major public and private two and four year colleges in upstate New York communities outside metropolitan areas; the colleges had enrollments between 400 to 5,000 undergraduate students

in 1964.[15] They are located in villages with 1960 population above 1,000 ranging on up to cities near the 30,000 level.[16]

Techniques and methods used in making this study are described in detail in Appendix A.

G. The Hypotheses

As indicated previously this study is divided into two phases. The first considers the input of the college population, dollars, and other elements into the college town and area. The second considers interaction of these elements with local counterparts.

Area change and the impact of benefits on a college town and its environs depend in good measure upon the input and interaction of the college staff, the proportion of local students attending and commuting to the college, and the point of impact of college purchases. Concurrent with this view, and relative to the colleges selected for study, the following hypotheses were examined in Phase I:

Hypothesis I — The proportion of professional staff residing in a college town is a function of college town size.

Hypothesis II — The proportion of auxiliary staff residing in a college town is a function of college town size.

Hypothesis III— The number of local students enrolled at a college is a function of college town size.

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[15] The State Education Department, Division of Higher Education, The University of the State of New York, Going to College in New York State (Albany, New York: The University of the State of New York, 1965), pp. 112-145. Cornell University was not included in this study because it is remote and alone in its size characteristic.

[16] U.S. Bureau of the Census, U. S. Census of Population: 1960, Vol. I, Characteristics of The Population, Part 34, New York (Washington, D. C.: U.S. Government Printing Office, 1963).

Hypothesis IV -- The proportion of local students commuting to a college from a sector outside the college town is a function of the radial distance from that sector to the college.

Hypothesis V -- Major cities within the region of a college attract its purchasing dollar in accordance to a gravity model.

In Phase II of this study, data obtained at specific colleges were analyzed to determine significant socio-economic factors relating to the Phase I analysis. Basic input and spill-out determinations made in Phase I, were elaborated on, as was the potential of the college as an instrument of change in town and rural area development. A variety of factors which increase the burden and benefit for a locality were given consideration.

H. Historical Factors In New York State Higher Education

Shortly after World War II it became apparent that great expansion would be needed for the system of colleges in New York State. Higher education had been predominantly a private effort. In 1948 the State supported 32 colleges, schools, and institutes of higher education, but enrollment was only about 30 percent of the state total, including the public colleges in New York City. If New York was to meet its growing needs in higher education a larger measure of state and local governmental participation was needed. A commission was appointed to investigate the situation. It recommended a program of greatly expanded operations, and establishment of the State University as a corporate entity.[17]

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[17]State of New York, Report of The Temporary Commission on the Need for a State University (Albany: Williams Press, Inc., 1948), pp. 7-20.

Population factors relative to the college age group had an important influence on the growth of the higher education system. Between 1940 and 1950 the 18 to 21 years age group dropped from 923,000 to 788,000 and decreased again between 1950 and 1955 reaching a low just under 700,000. A turnabout occurred between 1955 and 1960, and by 1965 the college age group rose to above one million.[18]

However college enrollments do not depend solely on the size of the college age group. Social factors exert a high influence. During the 1940 to 1955 period although the college age group decreased substantially, enrollment increased from 195,000 to 325,000. Returning war veterans and societal changes requiring more college training had created a new enrollment pattern.

The above situation applied to both public and private colleges in New York State. At State University colleges enrollment especially increased after 1960. The State University's 59 different campuses, including Community colleges, enrolled 138,027 full-time students and 82,968 part-time students in the Fall of 1967. In the following year, the University's projected full-time enrollment rose to 164,081 with a part-time projected enrollment at 98,383. This represented an increase over 1967 of 18.9 percent and 19.6 percent respectively in these categories. This growth rate, if continued, would bring the University well beyond its 1970 enrollment target of 184,650 full-time students.[19]

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[18] State University of New York, The Master Plan (Albany: The State University of New York, 1960).

[19] New York State Division of the Budget, The Executive Budget, (for the fiscal year April 1, 1968 to March 31, 1969), submitted by Nelson A. Rockefeller, Governor, p. 429.

The rapid growth of the State University can also be seen in the increasing operational budgets of selected colleges in New York State. Table 1.1 indicates that appropriations approximately tripled between 1950 and 1960. It is important to note that the amounts allocated for personal service in these budgets were about 85 percent of the total.[20] A major component in economic impact of the college is salaries and wages to staff. By 1968 recommended budget appropriations were over five times those recommended in 1960, and several of the liberal arts colleges had budgets above the $8.0 million mark.

Many public and private colleges in New York State are located outside metropolitan areas. Consequently college staff and students at these colleges yield a high input of social and economic benefits to the rural areas involved.

I. Related Research: Input of Population To An Area

Formal investigations of social and economic impact of the college on the community are few in number and most researchers in this area have utilized studies and techniques from related fields in seeking to

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[20]Community colleges have operated on a somewhat different budget arrangement. The State University reports that personal service expenditures for 28 community colleges ranged between 58 percent and 82 percent of their total budgets with many of the colleges operating in the 65 to 75 percent range. State University of New York, "Community Colleges, Budget Analysis 1965-1966," (unpublished report, Albany: State University of New York, 1966). The community college derives much of its income from local sources; other colleges in the State system obtain the greater proportion of their funds from non-local sources; these funds being funneled into the area through the State University system. Private colleges operating on similar budget ratios, and funds from student tuition and other sources again bring money to the rural area. Since private colleges generally draw more students from outside the community and from outside the State than do the public colleges, the former act to increase local funds in greater degree.

TABLE 1.1

OPERATIONAL BUDGET OF SELECTED COLLEGES IN NEW YORK STATE

(Recommended Appropriations)

	1949-50					1959-60					1968-69
	Personal Service		Other Maintenance and Operation		Grand	Personal Service		Other Maintenance and Operation		Grand	Grand
	Amount	%	Amount	%	Total	Amount	%	Amount	%	Total	Total
Brockport	$392,952	84.0	$70,567	15.1	$467,519	$1,151,347	85.7	$165,200	12.3	$1,341,547	$8,125,400
Cortland	493,780	84.6	85,398	14.7	582,513	1,545,521	88.8	193,300	11.1	1,738,821	7,698,078
Geneseo	358,102	85.4	61,560	14.7	419,662	1,060,664	85.8	139,700	11.6	1,200,364	7,167,961
New Paltz	404,267	85.4	68,921	14.5	473,688	1,210,168	87.2	178,350	12.8	1,388,518	9,517,900
Alfred Ag & Tech	264,550	87.4	38,250	12.6	302,800	698,432	85.9	114,500	14.1	812,932	4,294,000

Personal service includes: Administration, instruction, maintenance, and temporary service.

Other maintenance and operation includes: Traveling and automotive expense, general office supplies and expense, printing and advertising, communication, fuel, light, power, water, household, laundry and refrigerating supplies and expense, medical, surgical and laboratory supplies and expense, farm and garden supplies and expense, special supplies and expense, repairs, and rentals.

The grand totals for 1949-50 and 1959-60 may include miscellaneous payments for services and expenses such as closed circuit television. These payments are not listed under personal service, and other maintenance and operation categories.

Source: State of New York, The Executive Budget, Volume 1, 1949-1950, 1959-1960 and 1968-69. Albany, New York, 1949, 1959 and 1968.

assemble a pertinent body of literature.[21]

In analyzing the effect of the college on town and area growth and development our approach is to initially determine population input as a fundamental factor in impact, and then to examine the degree of interaction or activity of the population as a modifying factor. We also seek predictive elements for this input.

Isard dramatically describes the impact of population input to an area at the beginning of his text:

> A birth occurs. The need for an additional hospital worker becomes urgent. A Southern field hand and his family migrate to New York. Income of the New York region rises. Gross Regional Product as well as household expenditures and government outlays in New York edge up.[22]

Birth and in-migration are two primary sources of population increase for an area. The latter especially is a familiar situation in the college town, and particularly so during a period of increased enrollment in higher education. Primary sources of in-migration are new staff at the expanding college, and the large body of transient students.

The literature generally predicts total staff employed at a college via student-faculty ratios or other enrollment based relationships.[23] However analysis of the impact of college staff in-migration to the

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[21] Ernest R. Bonner, "The Economic Impact of a University On Its Local Community," Journal of the American Institute of Planners, XXXIV (September 1968), pp. 339-43.

[22] Walter Isard, Methods of Regional Analysis: An Introduction to Regional Science (Cambridge: M.I.T. Press, 1960), p. 1.

[23] State of New York Executive Budget, 1968, op. cit., pp. 446-48. See also Ernest R. Bonner, op. cit.

college town has been largely ignored. An empirical model for estimating population increase in a locality as a result of a defense plant installation has been developed.[24] The model depends on a knowledge of the number of direct personnel needed at the plant, and the size of the town involved. However its application to the collegiate institution is limited.

Researchers have found that population input to the town in response to industrial and other development does not always follow a pattern. This is especially the case in predominantly rural areas.

> We expect to find a strong urban center with tributary rural, suburban, and satellite settlements in the hinterland. We look in vain for this pattern. . . . Although many of the manufacturing activities are located in urban centers, these centers are not large enough in size really to support them. The labor force . . . has to be recruited from a larger region . . . ratios, such as one worker in an industry of this kind would eventually result in eight additional people being added to the population . . . do not seem to apply in this region at all. . .[25]

The labor force is supplied from scattered locations in the region, and commutes to the new employment center.

This is often the case with defense plants; a large proportion of

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[24]Clark N. Crain, A Prediction Model for Population Impact by Military Installations, Part II, Operations Analysis Standby Unit, University of Denver (Springfield, Virginia: U. S. Department of Commerce, Clearing house for Federal Scientific and Technical Information, Sills Building, 1959), pp. 3-10.

[25]Barclay G. Jones and Jon T. Lang, Studies in Regional Development: Population, Activities, and Incomes in Chenango, Delaware, and Otsego Counties (Ithaca: Cornell University, The New York State College of Agriculture, 1965), pp. 120-21. See also Wilbert E. Moore, op. cit., pp. 76-80.

employees commute to their jobs, and pay checks leave the area reducing the economic advantage which would otherwise accrue to local retail businesses and other economic enterprises. When analysis is made at the township level high spill-out rates for employee residence location are evident.[26]

Relative to student input, several investigators have attempted to predict college student enrollment by state and by county with good results. Stewart working on enrollment at Princeton and Harvard, by states, found that the number of undergraduates coming from an area was approximately proportional to its population and inversely proportional to its distance from the college.[27]

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[26]Gerald Breese (comp.), The Impact of Large Installations on Nearby Areas, prepared by the Bureau of Urban Research, Princeton University (Port Hueneme, California: U.S. Naval Civil Engineering Laboratory, 1965), pp. 240-241 and 256. The Breese compilation indicates the impact of additional population on income, employment, housing, schools, utilities, and other municipal services as well as on community attitudes, tax rates, and other problems.

[27]John Q. Stewart, "The 'Gravitation' or Geographical Power of a College," Bulletin of the American Association of University Professors, Vol. 27, 1941, pp. 70-75. The gravity model is derived by analogy from Newton's formulas for mass-distance relationships. When applied to population this model can take the following form:

$$I_{ij} = G \frac{P_i P_j}{D_{ij}^b}$$

Where: I_{ij} = the total number of units resulting from the interaction between factors at points i and j,

P_i and P_j = population at areas i and j respectively

D_{ij} = distance between area i and area j

G = a constant of proportionality

b = an exponent, most often varying between values of 1.0 and 2.0.

(continued next page)

Other investigators have also used a gravity model in predicting student enrollment. McConnell, studying enrollment at the county level used total population, and population weighted by per capita income in the numerator, and distance squared in the denominator. With enrollment as the dependent variable regression equations were obtained, with R squared values of 0.82 and 0.84. Enrollment was over-predicted for those counties closer to other large colleges, and for those most distant from the home base; it was under-predicted for counties with highest population and per capita income.[28]

Kariel, also working at the county level and studying student enrollment, tested population size and highway distance to the estimated population center of the county.[29] Others have used a gravity model with a time-distance-cost variable in the denominator, and empirically derived exponents for distance to obtain better prediction of student enrollment. Still others have applied weights to population and distance or added other relevant variables to form a regression equation.

Additional methods have also been used to predict student enrollment at colleges. They are generally based on high school and population

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27(continued) A broad discussion of the gravity model occurs in Isard, with applications describing population interaction and the spatial distribution of human activities. The gravity model is used in analysis of telephone calls, express shipments, money flows, market potential, social participation, and other phenomena. See Isard, op. cit., pp. 496-533.

28Harold McConnell, "Spatial Variability of College Enrollment as a Function of Migration Potential," The Professional Geographic, Vol. 17, 1965, pp. 29-37.

29Herbert G. Kariel, "Student Enrollment and Spatial Interaction," Annals of Regional Science, Vol. 2, No. 2, December 1968, pp. 114-125.

projections, college age population, and regional trends in enrollment.[30]

J. Socio-Economic Impact of the College Population

The impact of staff and students on the college town can be divided into benefit and burden columns; these subdivide into economic, social, and cultural categories.

A few investigations have been made of the direct financial impact of the college upon its community and region. These involve determination of the amount of institutional input to the area's flow of funds, and include an analysis of college income and disbursements, and student and staff expenditures.

Student purchases have been found difficult to measure; although students living in a college dorm or at home indicate some regularity in outlays, data on students living in private facilities show great variation.[31] A survey in Bridgeport, Connecticut, indicated that durable items are generally purchased at home or outside the college area, and local expenditures are made for food, cigarettes, gasoline, telephone calls, and other items.

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[30]K. C. Parsons, "The Potential Demand for Higher Education in the Chemung Valley Region to 1985" (unpublished report, Ithaca, New York, March 11, 1968). See also Ronald B. Thompson, Enrollment Projections for Higher Education 1961-1978, American Association of Collegiate Registrars and Admissions Officers (Washington, D.C.: American Council on Education, 1961). Michael Brick, The Need for Higher Education Facilities in the Mohawk Valley (New York: Teachers College, Columbia University, 1965). F. Stuart Chapin, Urban Land Use Planning (Urbana, Illinois: University of Illinois Press, 1965), pp. 196-216, 444-448, and Isard, op. cit., pp. 5-79 offer detailed discussions on population projection, migration estimation, and school enrollment.

[31]Francis S. Doody, The Immediate Economic Impact of Higher Education in New England (Boston: Boston University Bureau of Business Research, 1961); Ralph G. Wells, ed., New England Council Education Study, The Economic Value of Educational Institutions to New England (Boston: Bureau of Business Research, Boston University, College of Business Administration, 1951).

In Bridgeport, about 70 percent of the full-time students were drawn from outside the region. Higher education thus is an important source of employment and income for the area, and functions as an "export" industry.

Impact studies at Cornell University concluded that this institution generated over one hundred million dollars in income in Tompkins County through payrolls, college purchasing, student rentals, state aid, local taxes, construction, student spending, and in other categories. In another study in New York State Gerard investigated the economic impact of LeMoyne College on Onondaga County. This included an analysis of staff, student, and college expenditures.[32]

At a theoretical and practical level an input-output approach to analysis of college expenditures was used to determine the extent of the University of Colorado's impact on Boulder, Denver, and the State of Colorado. The multiplier derived by Bonner indicated that for every dollar spent by the University $1.37 worth of sales resulted in the Boulder area. The multiplier was based on a summation of direct, indirect, and induced expenditures. A regression equation was also developed to show the relationship between enrollment and annual operating

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[32]John L. Kraushaar, "How Much of an Asset is a College," College and University Business, Vol. 36, No. 2 (February 1964), pp. 43-45; Ithaca (New York) Journal, April 9, 1969. See also Roy Gerard, Impact I, Economic Impact of Le Moyne College on the Syracuse, New York Community (Syracuse: LeMoyne College, 1962); Warren J. Winstead, "The Economic Impact of a New University Upon its Community," Investment Dealers Digest, November 27, 1967, pp. 51-52, discusses the new trends for the cluster of research parks and educational institutions. For an examination of the importance of export-type industries to an area see Charles M. Tiebout, The Community Economic Base Study (New York: Committee For Economic Development, 1962), pp. 27-55.

expenditures, and these were indirectly related to sectoral employment.[33] Hirsh and Weisbrod have analyzed the direct and indirect benefits and costs of public education for a school district. In addition to direct costs featured in the usual educational budget, indirect costs cited include (1) costs for community, county, and district services, (2) expenses for students and parents, and (3) earnings foregone by students while at college. Among the benefits cited are (1) the incremental productivity and disposable income of students and their parents, (2) increased money inflow into the county, (3) tax reduction and service improvement for non-student families resulting from the graduating student's increased income, (4) increased literacy and more effective citizenry,[34] and (5) increased income for interacting area inhabitants and firms.

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[33] Ernest R. Bonner, op. cit. The annual operating expenditure of the University, O, is related to the FTE enrollment, E, at the University by the following regression equation:

$$O = -28,835,581 + 3,453\,E$$

An increase of one FTE student yields an increase of $3,453 in operating expenditures in accordance with this equation. For a more detailed description of input-output techniques see Isard, op. cit., pp. 309-374. For basic multiplier theory see Charles M. Tiebout, op. cit., pp. 57-61.

[34] Werner Z. Hirsh and others, op. cit., pp. 24-30, and Werner Z. Hirsh, Decision Tools for Education (Los Angeles: Institute of Government and Public Affairs, 1964), pp. 6-9. See also Burton A. Weisbrod, op. cit., p. 104. The literature on cost-benefit analysis is rather extensive and demonstrates impact of public investment at various governmental levels. Some basic sources are: O. Eckstein, Water Resource Development: The Economics of Project Evaluation (Cambridge: Harvard University Press, 1958); Robert H. Haveman, Water Resource Investment And The Public Interest (Nashville, Tennessee: Vanderbilt University Press, 1965); N. Lichfield, Cost-Benefit Analysis in Urban Redevelopment (Berkeley: University of California, Institute of Business and Economic Research, 1962); D. Novick, Program Budgeting, Program Analysis and The Federal Budget, A Rand Corporation Study (Washington: U.S. Government Printing Office, 1965), a section on educational program budgeting at the National level is especially pertinent; see pp. 131-154; Arthur Maass, "Benefit-Cost Analysis: Its Relevance to Public Investment Decisions," Quarterly Journal of Economics, Vol. 80, No. 2, May 1966, pp. 208-226.

The economic burden of the college presence on the town is most often evident in its use of community services, in traffic congestion and parking, and in tax exemption. Other disadvantages to the town may result from campus expansion, and heavy demand on local housing.

Although universities often provide their own police, fire, and refuse disposal services some overflow frequently falls upon the locality. To compound the problems involved, college towns may experience a decrease in their taxable property along with an increase in non-taxable property especially when universities seek to expand in locations where there is insufficient land to provide for community needs. Also insufficient dormitory facilities may cause neighborhood decay, and poor housing for students and other community residents, subsequently increasing the need for town services.[35] These, and other burdens become greater as universities and their college population grow.

In a broader perspective studies have indicated that every increment of 1,000 residents necessitates additions of 4.8 elementary schoolrooms, and 3.6 high school rooms, 100,000 gallons of water, 1.8 policemen and 1.5 new firemen, and 8.8 acres of land for schools and recreation areas.[36] These needs multiply as the graduate, undergraduate, and staff population grows.

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[35]Spencer M. Hurtt, "The Impact of Institutional Growth on Urban Land Use," Urban Land, January 1968, pp. 3-10. The author indicates that 40 percent of Boston's assessed property is tax exempt. But he also indicates that there is hardly a community that has not benefited more from its institutions than it has lost in taxes. "In most situations proper land use, adjacent to an institution will increase in value rather than decrease."

[36]These data apply to metropolitan residents and were obtained through The World Health Organization and an article in Graduate School

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The college town must be able to supply the needed services and functions which develop when a college is newly implanted or expanded. It can only do this with a sound financial base which expands with the college.

Hogan identified three primary measures of the fiscal ability of local governments.[37] These are based upon per capita values of personal income, property values, retail sales,[38] and related modifiers. These measures depend highly upon population and labor force characteristics, and commercial development and, when a college staff composed of professional and auxiliary personnel with salary levels above those

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36(continued) of Public Affairs, State University of New York, Metropolitan and Area Problems: News and Digest Vol. VII, No. 5 (Albany, New York; State University of New York, 1964), p. 7. Hospital beds needed is over 10 beds per 1,000 population in some areas of the U.S. Another source indicates that 100 new factory workers bring the following to a town: 359 more people, 100 more households, 91 more school children, 65 more employed in non-manufacturing, 3 more retail establishments, $331,000 more retail sales per year, 97 more passenger cars registered, $710,000 more personal income per year and $229,000 more in bank deposits, Fred D. Lindsay, What New Industrial Jobs Mean to a Community, Economic Research Department, Chamber of Commerce of the United States, Washington, D.C., 1965. See also John Fischer, "Survival U: Prospectus For a Really Relevant University," The Easy Chair, Harper's Magazine, September 1969, pp. 12-22.

37Lloyd L. Hogan, Measurement of the Ability of Local Governments to Finance Local Public Services, Bureau of Educational Finance Research, The State Education Department (Albany: The University of the State of New York, 1967), pp. 21-26, 64-66, 94-95. Hogan found that the three measures of fiscal ability were all higher for counties in SMSA. He concluded that in general cities possess greater abilities to support all functions. But high taxes are not necessarily associated with relatively high ability; nor are low taxes necessarily related to low ability.

38Costs and benefits of a central business district have been evaluated in Raymond J. Green, The Impact of the Central Business District on the Municipal Budget (Washington, D.C.: Urban Land Institute, 1962), pp. 175-195.

generally prevailing in the typical rural area, are injected into a town through the college instrument, the area obtains greater fiscal ability along with the added burden. However the amount of additional fiscal ability depends on the actual input of staff to the community and its contribution to the locality's tax revenues, and economic health.

Analysis of the economic impact of a college on a community indicates only a part of the total benefits accrued.[39] It is necessary also to consider social and political factors, especially when institutions of higher education are involved. Reliable social indexes can assist in this broader analysis and their utilization is described in later chapters.

K. Regional Planning Considerations

In evaluating impact of the college on the rural community it is also important to consider regional implications. In effect, the college has impact on the town, and the town on the region. Conversely, regional development affects the town and college.

Existing regional and urban theory presents some insight into the relationship between college impact and town size, and also offers guidance for the planning of college location with a view toward city and regional benefit.

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[39] Stefan H. Robock, "A Socio-Economic Evaluation of the TVA Experiment," John R. Moore, The Economic Impact of TVA (Knoxville: The University of Tennessee Press, 1967), pp. 105-120. Fowler evaluated the impact of industry on the social welfare of the community in Irving A. Fowler, Local Industrial Structures, Economic Power, and Community Welfare, Thirty Small New York State Cities, 1930-1950 (Totowa, New Jersey: The Bedminister Press, 1964), pp. 77-202. In a broader approach Dror advises that optimal public policy making combines economic rationality with extra-rational processes. See Yehezkel Dror, Public Policymaking Reexamined (San Francisco: Chandler Publishing Company, 1968), pp. 129-216.

Friedmann assigns a major creative role to the university in regional development. For maximization of its benefit, the institution should be located at a regional growth point selected for activation.[40] Friedmann favors the concentration of large public infrastructure investments in the bigger cities. A cost-benefit analysis should be made, and the investment's relationship to other projects and programs should be carefully considered.[41]

The city is a device for organizing economic life, and its efficiency in the collecting, processing, and distributing function determines the vitality of the region. Incidence of economic growth generally varies with distance from the central city. However for regional development, it is important to activate new core regions and corridors of growth, and to draw population from poor and undeveloped districts.

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[40] John Friedmann, Regional Development Policy, A Case Study of Venezuela (Cambridge: The M.I.T. Press, 1966), pp. 95-101. The effect of a small college in the State University system is briefly discussed in Barclay G. Jones, Richard L. Ragatz, and Phaichitr Uathavikul, Regional Analysis For Economic Development: A Demonstration Study of Schoharie County (Ithaca: Cornell University, Center for Housing and Environmental Studies, Division of Urban Studies, 1964), pp. 119-137.

[41] Friedmann, op. cit., p. 213. See also John R. P. Friedmann, The Spatial Structure of Economic Development in the Tennessee Valley, A Study of Regional Planning (Chicago: The University of Chicago Press, 1955), pp. 131-133. The importance of the educational institution is also indicated by John H. Thompson (ed.), Geography of New York State (Syracuse: Syracuse University Press, 1966), pp. 320-29 and by Harvey S. Perloff and Vera W. Dodds, How A Region Grows, Area Development in the U.S. Economy, Supplementary Paper No. 17 (New York: Committee for Economic Development, 1963), pp. 144-45.

[42] The Appalachian Regional Commission has identified a number of urban complexes or growth centers in rural areas of New York State. These include one or more urban places and non-urban territory with a direct economic relationship to the central urban places, and not limited by political boundaries. See Appalachian Regional Commission, A Regional Investment Plan For The Appalachian Region of New York State (Albany: Appalachian Regional Commission, State of New York, 1967), pp. 22-24.

The small college can serve the rural area and the small city which is in a position to take advantage of its impact. Placing a college in a locality can help attract additional central services and amenities, and can draw industry and tertiary activity. The college can help diversify the community, increase social interaction, and offer a strong center, or focal point.

In evaluating the small town as a place for public investment, caution is advised by some, optimism generated by others, and judgment delayed by a third group of theorists and researchers. Firstly, the low economic multiplier of the small town lessens the local impact of the investment dollar. Secondly, the economic uncertainty and instability of small towns and urban areas causes concern. There are no clear-cut answers as to their future and for many years writers have predicted the decline or demise of the small town. These predictions have been based upon technological changes in farming and transportation, and the increased concentration of activities and population in large centers. More recently, with industry moving into rural areas a cautious optimism has developed,[43] and demographers in the U.S. Department of Agriculture have indicated that the twentieth century flow of population from rural areas to the cities has levelled off and is at a low point.[44]

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[43] Gustav E. Larson, Can Our Small Towns Survive? (Washington: U.S. Department of Agriculture, Resource Development Aid, July 1960); Wilbur Zelinsky, "Changes in Geographical Patterns of Rural Population in the United States 1790-1960," The Geographic Review, Vol. 52, 1962, pp. 492-524. Zelinsky analyzes growth and decline of rural areas in the United States. Edmund des. Brunner and T. Lynn Smith, "Village Growth and Decline, 1930-1940," Rural Sociology, Vol. 9, 1944, pp. 103-115. Brunner and Smith conclude that most of the larger small towns indicate satisfactory growth rates. See also Adna N. Weber, The Growth of Cities in the Nineteenth Century (Ithaca: Cornell University Press, 1963), pp. 446-475.

[44] New York Times, March 23, 1969. The statement was made by Calvin

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Thompson states that with the development of the highway system and the widespread ownership of automobiles, small and medium-sized urban areas tend to interrelate in a loose network. By engaging in complementary functions, a grouping of towns and small cities may attain the critical size in development needed to preserve the collective existence of the member localities. A college or university may play an important part in this informal federation by providing additional educational, cultural, and social factors, and in generating recreational amenities.[45]

If location factors are favorable, economic growth will readily take place, but where natural economic advantages are low, economic development programs have only limited success.[46] The small college acting alone, and without appreciable commercial and industrial development to complement its activities cannot be expected to economically and socially transform an area. On the other hand, adding a college to the existing infrastructure of a large town may yield more efficient use of that infrastructure, in addition to the attraction of new industry and services.

44(continued) L. Beale, Chief Demographer of the United States Department of Agriculture, Professor Edward Lutz in the School of Agriculture at Cornell University has indicated that rural counties are now gaining population at a greater rate than urban counties.

45Wilbur R. Thompson, A Preface to Urban Economics (Baltimore: The Johns Hopkins Press, 1968), pp. 20-35. Thompson discusses the "urban size ratchet" which insures the existence and growth of an urban area after a minimum point of development has been reached. He describes the Chapel Hill-Durham-Raleigh triangle in North Carolina which encloses 250,000 people in an area. See also Robert E. Dickinson, City, Region, and Regionalism (New York: Oxford University Press, 1947), and F. S. Chapin, Jr. and Shirley F. Weiss (editors), Urban Growth Dynamics: In A Regional Cluster of Cities (New York: John Wiley & Sons, Inc., 1962).

46Committee for Economic Development, Community Economic Development Efforts, Five Case Studies (New York: Frederick A. Praeger, 1966), pp. 19-20.

CHAPTER TWO

STUDY OF SELECTED COLLEGE TOWNS: ALFRED AND CORTLAND

This study began with an investigation of the impact of the State University Colleges in the Village of Alfred, and in the City of Cortland. These localities are very different in population, size, economic characteristics, and physical setting. Their disparities were used to obtain survey data which clearly exhibit variation in impact and spill-out. A better understanding of these variations was then achieved by adding additional colleges to the study.

A. Alfred Technical College and its College Town

Alfred Village is located in Allegany County and is the home of Alfred Technical College, The New York State Ceramics College, and Alfred University.[1] It is a college town in the full sense of the word with a permanent population close to seventeen hundred, closely associated with the colleges. Its co-ed student population, well over three thousand, is undergraduate except for about 250 students in the Graduate School at the University. Alfred Village, in southwestern New York, is nestled in the foothills of the Allegheny Mountains. It is the home of the Davis Memorial Carillon, and Glidden Galleries and bears some renown in art and

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[1]The full names of the colleges will be abbreviated or otherwise shortened to suit the exposition. The Alfred Agricultural and Technical College is also known as Ag Tech, Alfred Tech, or SUNY Alfred. The State University of New York College at Cortland may be abbreviated to SUNY Cortland or simply Cortland. The Ceramics College at Alfred is a Contract College of the State University of New York administered by Alfred University.

pottery primarily in relation to the College of Ceramics. The small town has a mix of faculty and students, both local and foreign in origin, which has invested its initially rural culture with a cosmopolitan flavor, and a scholarly, and artistic mien.

Alfred is 70 miles south of Rochester, 90 miles southeast of Buffalo, 70 miles west of Elmira, and 15 miles from the Pennsylvania border. In its narrow valley it is somewhat isolated through easily accessible north-south through nearby U.S. 15, and east-west by Route 17. The City of Hornell, about 20 minutes away by motor, is served by the Erie Lackawanna Railroad and a chartered air service. Chautauqua, Corning, and the Finger Lakes are within easy reach. The Agricultural and Technical College was formerly housed in several of the buildings now part of the Alfred University complex. But within the past five years a completely new campus has been built for the two year college. Dormitories were provided for a great majority of its students in State University buildings, and in property owned by the Benevolent Association, an auxiliary enterprise.[2] Curriculums are offered in agriculture, business, and engineering, and health technologies. Total full-time enrollments for 1950, 1960, and 1967 were 739, 1,375, and 1,991 respectively.[3]

As indicated previously in Table 1.1 the Alfred Technical College annual budget increased from $302,800 in 1949-50 to $4.29 million in 1968-69. Close to 85 percent of this expenditure is for professional

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[2]In spite of its high number of students living in dormitories, in March 1968 the Alfred Technical College office indicated that 806 students had registered cars on the campus. Faculty and staff added 737 vehicles to this, to make a total of 1,543 cars registered on campus.

[3]The source of this information is the State University of New York Office of Institutional Research.

and auxiliary staff salaries, and in 1968 the average annual salary for faculty was $10,668; maintenance staff salaries averaged $5,598 as shown in Appendix Table G.1. In 1960 persons employed in educational services comprised 41 percent of the Town's employed labor force and helped raise economic levels in the area.

The country around Alfred Village is generally characterized by forestland, agricultural cropland, and pastureland as shown in Figure 2.1. Alfred University is at the center of town, and occupies several buildings in the very small commercial area. The new campus of the State University Agricultural and Technical College lies to the west, just outside the business center, on an adequate site with a sloping terrain. Steep slopes standing close on the center of the village impose a "Y" shape and tend to limit residential, and commercial construction. New housing has developed south along Elm Valley Road up Jericho Hill, and west toward Moland Hill Road. Also the lower slopes of Pine Hill, south of the University, have been developed and attractive housing overlooks the valley. There is little new construction within village limits as shown in Appendix Table G.2. In 1964, a peak year, the value of new construction was $306,100 but its more common value has been close to the $100,000 annual level.

Although the full-time instructional staff at Alfred Technical College increased from 82 in 1960 to 173 in 1967,[4] and the colleges expanded their administrative and auxiliary staffs over this period, construction in the village did not match the needs of newcomers. Suitable lots and homes in Alfred Village have become expensive and scarce.

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[4]The source of this information is the State University of New York Office of Institutional Research.

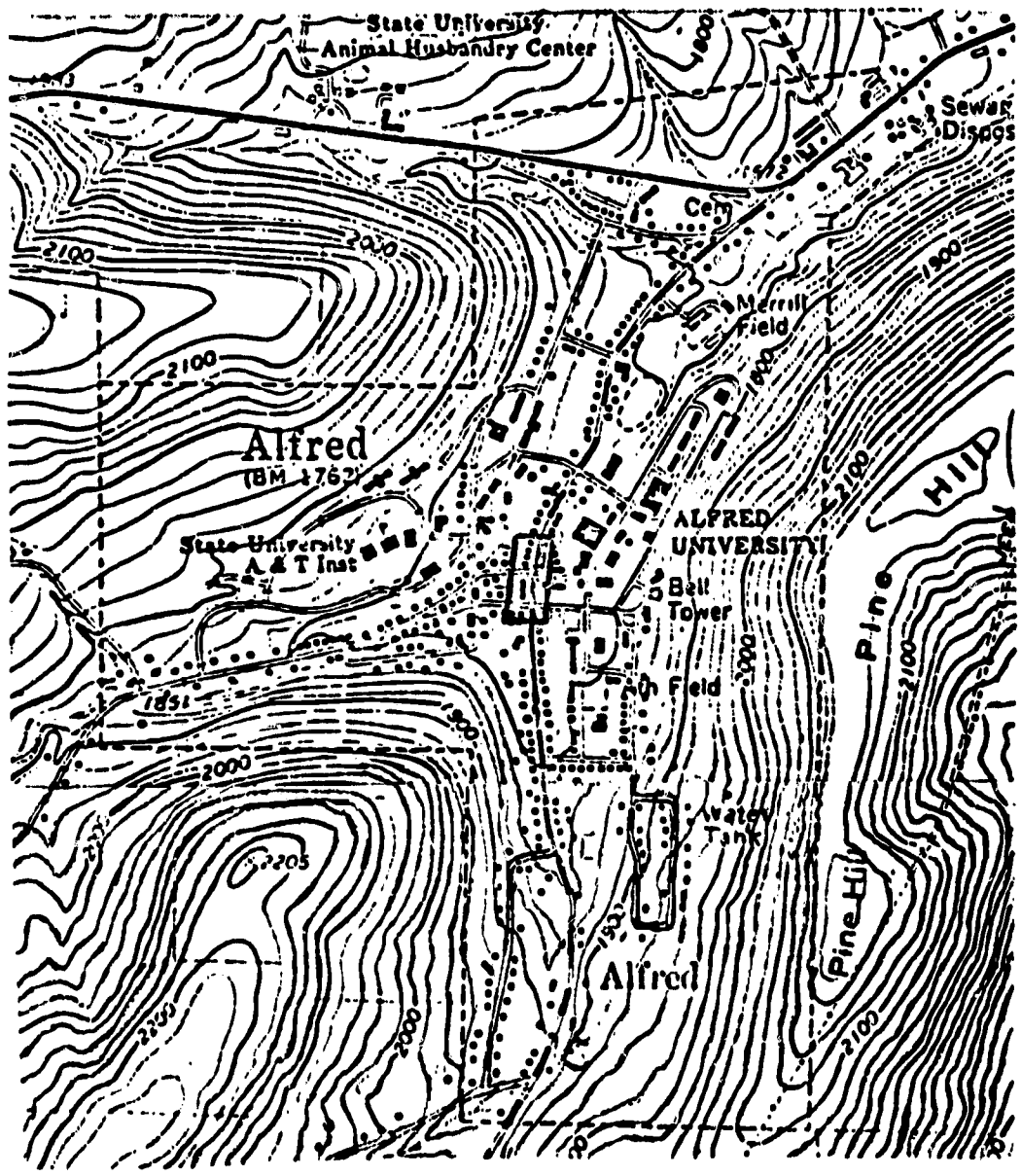

FIGURE 2.1

TOPOGRAPHICAL MAP OF ALFRED VILLAGE

(Most retail trade in the village occurs in the shaded area. The village boundary is indicated by the line of dashes.)

Source: United States Geological Survey, Washington, D.C., Map of Alfred, 1964, and based upon field study and information from the Center for Air Photo Studies, Cornell University, Ithaca, New York, New York State Land Use Study, July 1968. (Files of the Center).

Therefore many new faculty have settled in nearby Almond and other villages.

Distribution of the places of residence of staff at Alfred Technical College is displayed by village in Table 2.1. If Alfred Village is considered by itself, only 41.5 percent of the professional staff and 14.2 percent of the auxiliary staff live within its boundaries; for the total staff this figure is 25.2 percent. However, considering administrative and social factors, housing in the Alfred area is perhaps more properly observed as an agglomeration, that is, at the Town level. This suggests the combination of data on Alfred and Alfred Station and includes the housing on Jericho Hill, in Tinkertown, and elsewhere just outside the village boundary. Thus combined, the percent of professional and auxiliary staff living in the Town comes to 60.0, and 26.4 percent respectively.

Comparison with data from 1960 shows a tendency especially for new professional staff to reside in Alfred Station, on Jericho Hill, in Almond, Hornell, Wellsville, and other locations outside Alfred Village.[5] This results from the hiring of personnel from among county and area residents as well as from newcomers settling outside the village.

Officials and planners in the Village of Alfred are highly concerned about the fact that new professional and auxiliary staff, coming from outside the general area, and seeking residences in the college town cannot be accommodated within village limits[6] where the scarcity of

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[5]Due to the restricted possibilities for residential expansion the proportion of professionals residing in the Village drops at a rapid rate with every increase in staff; for 1968-69 a 12 percent increase in staff positions was recommended for the college in the State of New York, Executive Budget, op. cit., p. 572. Many of these individuals will live outside the Village. The number of professionals in the Village stays almost constant over the years; those outside increase in proportion rapidly.

[6]This problem was discussed several times with college, business

(continued next page)

TABLE 2.1

PLACES OF RESIDENCE AND INCIDENCE OF ESTIMATED PAYROLL FOR STAFF AT THE STATE UNIVERSITY OF NEW YORK, ALFRED AGRICULTURAL AND TECHNICAL COLLEGE IN 1967

City or Village	Number and Percent of Staff Residing at the Indicated Location				Estimated Payroll to Residents at the Indicated Location	
	Professional Staff		Auxiliary Staff			
	No.	%	No.	%	Professional Staff	Auxiliary Staff
Alfred Village	81	41.5	42	14.2	$ 874,800	$ 218,400
Alfred Station	36	18.5	36	12.2	388,800	187,200
Almond	15	7.7	27	9.2	162,000	140,400
Andover	5	2.6	53	18.0	54,000	275,600
Belmont	4	2.1	12	4.1	43,200	62,400
Hornell	21	10.8	59	20.0	226,800	306,800
Scio	3	1.5	9	3.1	32,400	46,800
Wellsville	18	9.2	28	9.5	194,400	145,600
Whitesville	0	0.0	11	3.7	---	57,200
9 Other locations	12	6.2	-	-	129,600	---
14 Other locations	-	-	18	6.1	---	93,600
Total	195	100.0	295	100.0	2,106,000	1,534,000
Alfred-Alfred Station	117	60.0	78	26.4	1,263,600	405,600

Errors due to rounding.

NOTE: Average Staff salary for professional staff in 1967 is assumed at $10,800, and for auxiliary staff member at $5,200 per year.

lots and high cost of housing compel withdrawal to other nearby localities. The village lies in a vise imposed by boundary limitations and terrain, its economic growth hampered in construction, property development, retail trade, and other categories. Its tight little business district has expanded slightly by take-over of residential property, a difficult process at best in this village, and a new commercial strip has developed in the Tinkertown area, on the road to Alfred Station. This development has been attracting staff and students and competing with elements in the older center of town. In addition, Alfred's expanded non-taxable properties occupy a large proportion of the usable and centrally located land areas.

Some idea of Alfred's losses and gains can be obtained by examining the data in Table 2.2. Retail sales in its two-block commercial area have been extremely low and in 1963 were at $315 per capita.[7] The Business Fact Book indicates that in the same year, Alfred Village possessed 16 retail trade establishments, 10 with payroll, including 29 employees.[8] There were no stores for general merchandise, furniture, and lumber and both retail trade and selected services indicated small operations.

On the plus side, persons in educational service made up slightly over 40 percent of Alfred's employed industrial labor force of 759

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6 (continued) and town leaders, and in a group meeting at the Alfred Technical College on April 26, 1968. At a meeting with President Leland Miles of Alfred University on December 18, 1968 this issue was again mentioned.

7 Even when this figure is adjusted to include only permanent residents in the college town, annual retail sales are somewhere between $500-600 per capita.

8 New York State Department of Commerce, Business Fact Book, 1967-68, Albany, New York, 1968, Part 1.

TABLE 2.2

SOCIAL AND ECONOMIC CHARACTERISTICS OF SELECTED LOCATIONS IN ELMIRA-SYRACUSE AREA OF NEW YORK STATE, 1960

Location	Retail Sales per Capita 1963	Persons in Educational Services, % of Employed Labor Force	Housing Median Value	Median Family Income	Full-time Faculty Average Salary	Full-time Faculty No. on Staff
New York State	$ 1,449	4.8	$15,300	$ 6,371		
Upstate New York	1,394	6.1	12,600	6,072		
Allegany County	1,039	12.2	7,600	4,828		
Alfred(T)	-	41.2	12,000	5,649		
Alfred(V)	315	40.4	-	5,800	$6,994	82
Almond(T)	-	21.7	-	4,817		
Wellsville(T)	-	7.7	11,300	5,715		
Wellsville(V)	3,281	8.8	11,800	5,828		
Steuben County	1,278	5.6	9,400	5,607		
Hornell(C)	1,790	6.2	7,500	5,541		
Hornellsville(T)	-	8.1	10,900	5,493		
Cortland County	1,502	8.0	10,600	5,505		
Cortland(C)	2,038	9.3	11,700	5,715	7,531	161
Cortlandville(T)	-	5.7	11,280	5,566		
Homer(T)	-	6.3	11,460	5,771		
Homer(V)	2,581	8.9	11,500	6,018		
Cayuga County	1,191	6.2	10,300	5,384		
Auburn(C)	1,681	3.8	11,000	5,518	N.A.	N.A.
Madison County	1,346	9.6	9,800	5,451		
Cazenovia(T)	-	14.9	14,500	6,604		
Cazenovia(V)	2,571	-	14,500	6,808	N.A.	N.A.

NOTE: (C) = City
(T) = Town
(V) = Village
Data on Alfred faculty is for the Agricultural and Technical College only; data for the University was not published in the AAUP Bulletin.

Source: Department of Commerce, State of New York, Business Fact Book, Part I Business and Manufacturing, 1968, Part II Population and Housing, 1963, Albany, New York; American Association of University Professors, "The Economic Status of The Profession," AAUP Bulletin, Vol. 47, No. 2, Washington, D.C., 1961.

individuals. Those in professional and technical occupations contributed 33 percent to the total. Both groups were primarily associated with the colleges, and were instrumental in raising median family income levels in the village and town above that for the county. Median housing values in the town of Alfred were at the peak level for the county, and considerably above those for Steuben County. But it is evident that the village and town are incurring a type of opportunity loss relative to professional and auxiliary staff location, retail trade, and probably in tourist trade.[9]

It is possible to estimate the outflow of the Alfred Tech payroll from the Village of Alfred as shown in Table 2.1. If we assume an average annual salary for professional staff of $10,800 in 1967 and note that 81 or 41.5 percent of the professional staff reside in the village, the professional payroll distribution to village residents is estimated at $874,800 per year before taxes; for professional staff residents in Alfred Station this comes to $388,800 annually. In total, benefit in terms of professional staff payroll to residents in communities outside Alfred Village is estimated at $1,231,200 per year. Auxiliary staff payroll for residents outside the village is estimated at $1,315,600 annually when the average auxiliary staff member's salary is $5,200 per year. It

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[9]The concept of opportunity loss at the regional level is treated at great length by Phaichitr Uathavikul in "Decision Theory and Regional Economic Growth: A Model of Resource Utilization in the Context of Regional Opportunity Loss" (unpublished Ph.D. dissertation, Cornell University, Department of City and Regional Planning, 1966); see also Jones, Ragatz, and Uathavikul, op. cit., pp. 3-5, and William Woodbridge Goldsmith, "The Impact of Tourism and Travel Industry on a Developing Regional Economy: The Puerto Rican Case" (unpublished Ph.D. dissertation, Cornell University, Department of City and Regional Planning, 1966), pp. 4-6.

should be emphasized here that some of this payroll may still be brought back into the village through purchases, transfers, and other means. Also, payroll monies remaining outside the village serve to develop other towns in the region.

When residential settlement is considered from the point of view of the county rather than the village, residence ratings are high as noted in Table 2.3. About 85 percent of the professional staff reside in Allegany County, and 12.8 percent in Steuben; for auxiliary staff these figures are 76.5 and 22.7 respectively. Allegany County itself shows strong benefit in payroll, housing, and related categories, but exhibits opportunity losses in the area of retail trade and selected services. Steuben County through Hornell is the beneficiary in the latter categories.

TABLE 2.3

COUNTIES OF RESIDENCE OF STAFF AT THE STATE UNIVERSITY OF NEW YORK, ALFRED AGRICULTURAL AND TECHNICAL COLLEGE, 1967-68

County	Number of Locations in Each County	Number of Staff in County					
		Professional		Auxiliary		Total	
		No.	%	No.	%	No.	%
Allegany	17	166	85.1	226	76.5	392	80.0
Chemung	2	1	0.5	1	0.3	2	0.4
Livingston	1	1	0.5	0	0.0	1	0.2
Steuben	7	25	12.8	67	22.7	92	18.8
Wayne	1	1	0.5	1	0.3	2	0.4
Tioga, Pa.	1	1	0.5	0	0.0	1	0.2
Total	29	195	100.0	295	100.0	490	100.0

Errors due to rounding.

B. The College at Cortland and its College Town

The situation at Cortland is quite different from that in Alfred. The City of Cortland had a population of 19,181 in 1960 with 9.3 percent of the employed labor force of 7,617 engaged in educational services, and 11.6 percent in professional and technical categories. Manufacturing plants in the area include Smith-Corona Marchant Corporation now employing over 4,000 workers. The chief export industries for Cortland County are agriculture, manufacturing, and public education, the latter being represented by Cortland College.

The City of Cortland is rather amply planned compared to Alfred. The college is located on a hilltop a few city blocks from the main commercial center of the city. Its campus of 140 acres is readily accesible to more distant areas by the north-south Interstate Highway 81, and more locally by Routes 13, 11 and 41. Ithaca, Syracuse, and Binghamton are respectively about 20, 25, and 35 miles distant. The college also operates the Hoxie Gorge Campus, a 140 acre natural preserve about seven miles from the main campus, and a 400 acre facility at Raquette Lake in the Adirondacks.

Cortland College had enrollments of 2,399, 3,195, and 3,611 in 1960, 1965 and 1967, respectively and plans for a projected maximum enrollment of 4,000 undergraduates, and 500 graduate students by 1971. The college's major academic divisions include (1) the Arts and Sciences, (2) Education, (3) Health, Physical Education, and Recreation, and (4) Graduate Studies and Research. The Institution is primarily residential in character, and ninety-one percent of the College's students live on or in the immediate vicinity of the campus.[10] Accommodations

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[10]State University of New York, College at Cortland, General Catalog, 1968-69, (Cortland: State University of New York, 1968), p. 10.

in state dorms were available for 2,164 students in 1967. Seven sororities and three fraternities offered room and board for their members, and some students lived in private homes and other buildings in town.

Cortland College is surrounded by a residential district in the north and east, a cemetery and residences on the south, and a public water reserve on the west. At its current state of development the campus and its $30.5 million complex of 22 buildings is fairly adequate, but an increased enrollment is expected to bring with it problems in expansion especially in the categories of student housing, academic space, and parking.

The college staff is primarily housed in the Cortland-Homer area; the agglomeration is continuous with no sharp breaks in settlement at boundary lines. Ample room for additional residential settlement in the vicinity of the city is evident. However commercial and residential construction in the City of Cortland has not been very high as indicated in Appendix Table G.3.

In 1967, 323 members (82.0 percent) of the professional staff and 261 auxiliary staff members (80.6 percent) lived in the Cortland-Homer agglomeration as shown in Table B.1 of Appendix B. Using these values and the data on average annual salary for staff at the College at Cortland as indicated in Appendix Table G.4 the professional staff payroll distribution to Cortland-Homer area residents is estimated at $3,779,100 before taxes. Residents in communities outside this area receive an estimated $830,700 in professional staff payroll. If the average salary for auxiliary staff members is assumed to be $5,400 per year, those living in the Cortland-Homer area draw $1,409,400, and $340,200 goes to auxiliary staff residents living outside this area. It is likely that

Cortland and Homer firms recapture some of the external $1,170,900 through local trade.

At the county level, as shown in Table 2.4, only a slight increase occurs in the residence-rating for professional staff and 333 or 84.5 percent live in Cortland County. The auxiliary staff residence-rating comes close to 90 percent with 292 members living in Cortland County.

TABLE 2.4

COUNTIES OF RESIDENCE OF STAFF AT THE

STATE UNIVERSITY OF NEW YORK AT CORTLAND (1967-68)

County	Number of Locations in Each County	Staff in County: Professional No.	Professional %	Auxiliary No.	Auxiliary %	Total No.	Total %
Cortland	9	333	84.5	292	90.1	625	87.1
Broome	1	1	0.3	0	0.0	1	0.1
Cayuga	3	1	0.3	3	0.9	4	0.6
Chenango	2	1	0.3	3	0.9	4	0.6
Hamilton	1	1	0.3	2	0.6	3	0.4
Herkimer	1	1	0.3	0	0.0	1	0.1
Madison	1	0	0.0	2	0.6	2	0.3
Onondaga	10	27	6.9	1	0.3	28	4.0
Oneida	1	0	0.0	1	0.3	1	0.1
Seneca	1	1	0.3	0	0.0	1	0.1
Schuyler	1	0	0.0	1	0.3	1	0.1
Steuben	1	2	0.5	0	0.0	2	0.3
Tompkins	7	26	6.6	19	5.9	45	6.3
Total		394	100.0	324	100.0	718	100.0

In all, the Cortland-Homer area, the City of Cortland, and the county derive strong benefit from the location of the college in the City. Staff residence characteristics indicate a strong effect on local housing

and property tax levels, and as shown in Table 2.2 salaries for full-time faculty have a substantial effect in raising median family income levels for the City of Cortland, and the general area.

It is difficult to separate out the effect of the college staff on retail trade in the City of Cortland. However, this will be further discussed in a later chapter. Table 2.2 shows Cortland with $2,038 per capita retail sales in 1963, somewhat below the Homer level but well above county, state, and upstate New York levels. Per capita sales levels are lessened a bit for the college town by the inclusion of dormitory students in the population base; if this is adjusted, the per capita sales level for the City of Cortland comes much closer to that of Homer.[11]

In conservative estimate[12] the average full-time student benefits retail trade in an area by spending $300 per year for occasional meals, clothing, entertainment, and personal services; this amount varies for

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[11] As shown in the Business Fact Book, 1967-68, op. cit., the City of Cortland had 264 retail trade establishments in 1963. Retail sales were $38.9 million, and had increased since 1958 at a faster rate than that of either New York State as a whole, or Upstate New York taken as a region. Cortland had 1,425 employees engaged in retail trade with a payroll of over $4.3 million, with 9 general merchandise stores, 21 apparel stores, 22 furniture stores, 15 automotive dealers, 34 gasoline service stations, 36 food stores, 48 eating and drinking places, and other outlets. In addition, in the category of selected services, 155 establishments were listed. The Village of Homer supported 75 establishments engaged in retail trade, and 32 in selected services.

[12] Doody op. cit., pp. 33-35 found in 1958 that the average undergraduate expenditure for New England students living in a college facility was $461.70 (26,886 students were sampled in 55 institutions), state averages ranged from $302 to $549; in a private facility, away from home average expenditure was $826.10 (3,460 students sampled at 42 institutions); and for those living at home the expenditure was $549.49 (17,619 students sampled at 56 institutions). These expenditures are exclusive of tuition, board and room, and other fees paid directly to the institution.

students living at home, in dorms, and those living off campus in private facilities; it is considerably higher for the latter group. For an enrollment of 3,700 students, using the $300 average, an expenditure of about $1.1 million per year spent in the Cortland area results. For Alfred, the sales potential for an enrollment of 2,000 students, comes to $600,000. In addition to these expenditures, purchases by the colleges, and auxiliary enterprises add to the income for the area. These will be discussed in a later chapter.

C. Summary

Alfred Village is an example of a college town with relatively high economic spill-out. The Village is small in population and has limited shopping facilities (16 retail establishments in 1963). It houses a private and a public college (in addition to the Ceramics College); and largely depends upon these institutions for growth and development. However, less than 50 percent of the colleges' professional staffs and below 20 percent of their auxiliary staffs reside in the village. The spill-out in payroll, residential construction, and related economic benefits is accordingly substantial. The village is limited in expansion by a topography and settlement pattern that restricts expansion of its shopping district, its housing, and its institutions. This situation can be ameliorated; however the cost would be high, and governmental assistance would probably be needed.[13]

On the other hand, the City of Cortland has retained a high proportion of the benefits generated by its college. Residential ratings

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[13]Pertinent discussions of governmental assistance are discussed in Hoover, op. cit., pp. 272-278, Hurtt, loc. cit., and Haveman, op. cit., pp. 133-147.

for both professional and auxiliary college staff are relatively high, and there is a high college payroll input to the town. The college is a factor in drawing new industry to the Cortland area, and the City is additionally provided with a substantial "export industry" in education, owing to the large number of non-local students in attendance at the college.

PART II: STAFF IMPACT ON THE COLLEGE TOWN

CHAPTER THREE

RESIDENCE LOCATION OF THE COLLEGE STAFF: A MULTICOLLEGE STUDY

Because staff residence location is a key variable in determining social and economic impact of the college on the college town, the variation of this factor was studied for 39 colleges in New York State. This multicollege study was made to determine the degree of correlation between the percent of staff members living in the college town,[1] the population (size) of the college town, and other factors.

In some cases the college town is more accurately represented by an agglomeration which includes the population of two adjacent villages or a city and a village. These cases are clearly indicated in the tables and discussion which follow (see Tables 3.1A and 3.1B). For example in the case of the State University at Cortland, the City of Cortland houses 296 professional and 225 auxiliary staff members. This represents 75.1 and 69.5 percent of the staff respectively. The village of Homer is within 2 miles of the city line and forms part of the total population agglomeration in the area. This village houses 27 professional and 36 auxiliary staff members or 6.9 percent and 11.1 percent of the staff respectively. The data for the two locations are listed individually in Appendix Table B.1 and summed to make up the Cortland-Homer agglomeration.

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[1] Where useful the term "town-residence rating" will be used to denote the percent of staff members living in the college town.

TABLE 3.1A

CHARACTERISTICS OF SELECTED PUBLIC AND PRIVATE COLLEGES IN NEW YORK STATE, 1967

College	Degree Offered No. of Years	Full-time Undergraduate Enrollment 1959	1964	Professional Staff No.	% Live in College Town	Auxiliary Staff No.	% Live in College Town	Doctorates on Teaching Staff %	No. of Places Where Staff Reside Prof.	Auxil.
Four Year Colleges										
1. Public Colleges										
1 Brockport	27	1,366	2,130	451	70.3	291	45.2	34.0	22	18
2 Cortland *	28	2,246	3,045	394	82.0	324	80.6	42.8	29	24
3 Fredonia *	29	1,050	2,098	308	89.6	321	87.8	54.0	19	14
4 Geneseo	29	1,123	1,998	333	71.5	363	25.6	42.8	32	39
5 New Paltz	27	1,456	2,758	442	75.5	391	43.8	35.0	44	34
6 Oneonta	27	1,608	2,503	386	82.6	327	66.7	31.6	27	34
7 Oswego	27	2,256	3,573	498	87.4	-	-	36.0	20	-
8 Plattsburgh	28	1,305	2,097	339	85.3	426	52.6	41.9	21	30
9 Potsdam	29	1,130	2,003	-	-	-	-	30.1	-	-
2. Private Colleges										
10 Alfred *	90	1,131	909	210	76.6	193	40.9	46.8	9	18
11 Clarkson	69	1,490	1,837	194	86.1	160	51.3	54.8	13	19
12 Colgate	147	1,342	1,492	244	94.6	147	63.3	58.0	9	21
13 Hartwick	37	577	1,256	114	88.6	112	72.3	44.6	12	13
14 Hobart	57	1,018	1,372	153	88.8	161	81.9	51.0	9	11
15 Houghton	44	719	1,024	96	92.7	98	83.1	35.2	4	9
16 Ithaca	73	1,319	2,330	252	87.3	177	69.5	30.0	17	17
17 St. Bonaventure*	95	-	1,619	231	89.2	229	88.6	33.0	15	13
18 St. Lawrence	104	1,355	1,537	199	93.9	304	55.3	46.8	9	30
19 Skidmore	45	1,250	1,334	195	79.9	126	77.0	46.5	24	14
20 Vassar *	102	1,410	1,598	293	91.7	534	79.0	74.8	17	28

(continued)

TABLE 3.1A (continued)

	College	Degree Offered No. of Years	Full-time Undergraduate Enrollment 1959	Full-time Undergraduate Enrollment 1964	Professional Staff No.	Professional Staff % Live in College Town	Auxiliary Staff No.	Auxiliary Staff % Live in College Town	Doctorates on Teaching Staff %	No. of Places Where Staff Reside Prof.	No. of Places Where Staff Reside Auxil.
	Two Year Colleges										
	1. Public Community Colleges										
21	Adirondack *	8	-	525	66	72.8	36	80.5	8.2	15	9
22	Auburn	16	442	878	81	64.2	32	75.0	14.0	13	8
23	Corning *	3	130	1,040	127	66.1	101	77.1	8.9	12	13
24	Dutchess *	19	205	1,427	150	70.6	109	78.0	6.8	27	16
25	Fulton *	5	-	335	63	66.7	26	76.9	8.8	9	6
26	Genesee	-	-	-	63	42.9	20	75.0	NA	22	6
27	Jamestown *	35	154	546	68	67.6	27	66.6	6.7	13	8
28	Jefferson	7	-	359	56	76.8	31	77.4	2.9	11	7
29	Orange	19	405	1,147	132	60.6	81	70.4	9.5	24	16
30	Rockland	10	92	653	182	14.8	76	5.3	21.0	12	12
31	Sullivan	7	-	288	93	5.4	46	15.2	10.4	24	18
32	Ulster	7	-	369	81	11.1	46	21.8	35.0	20	8
	2. Agricultural and Technical Colleges										
33	Alfred *	21	1,308	1,598	195	60.0	295	26.4	5.8	17	23
34	Canton	32	530	828	149	79.2	198	56.1	3.3	7	13
35	Cobleskill	21	466	1,021	132	72.0	235	54.0	7.6	15	28
36	Delhi	21	420	999	122	83.5	240	60.0	3.4	13	15
37	Morrisville	21	673	1,046	91	51.7	154	32.5	6.8	22	28
	3. Private Colleges										
38	Cazenovia	35	280	410	84	75.0	72	54.2	18.4	9	16
39	Paul Smiths	23	-	821	56	50.0	68	41.1	13.0	7	3

TABLE 3.1B

CHARACTERISTICS OF SELECTED COLLEGE TOWNS IN NEW YORK STATE, 1960

	College Town	Land Area Sq. Miles	College Town Density P/sq.mi.	Town and City Population	Village or City Population	Village or City Population 1940	Monthly Rent
Four Year Colleges							
1. Public Colleges							
1	Brockport	1.7	3,091	7,224	5,256	3,590	39.96
2	Cortland *	5.4	4,918	30,592	22,803	18,809	34.23
3	Fredonia *	10.2	1,513	31,205	26,682	23,451	31.62
4	Geneseo	2.7	1,216	4,337	3,284	2,144	46.79
5	New Paltz	1.0	3,041	5,841	3,041	1,492	39.98
6	Oneonta	4.1	3,271	17,480	13,412	11,731	31.77
7	Oswego	7.8	2,840	24,951	22,155	22,062	34.74
8	Plattsburgh	5.0	4,034	24,172	20,172	16,351	38.14
9	Potsdam	3.9	1,991	14,045	7,765	4,821	28.77
2. Private Colleges							
10	Alfred *	1.1	2,552	3,730	3,730	1,410	35.10
11	Potsdam	3.9	1,991	14,045	7,765	4,821	29.77
12	Hamilton	1.6	2,093	5,438	3,348	1,790	34.92
13	Oneonta	4.1	3,271	17,480	13,412	11,731	31.77
14	Geneva	4.1	4,216	19,889	17,286	15,555	41.21
15	Houghton	-	-	-	-	-	-
16	Ithaca	5.8	4,965	37,871	28,799	19,730	51.54
17	St. Bonaventure *	9.5	3,527	30,619	23,932	22,945	36.79
18	Canton	1.4	3,604	8,935	5,046	3,018	33.98
19	Saratoga Springs	26.8	621	20,145	16,630	13,705	37.94
20	Poughkeepsie *	5.3	9,126	83,175	40,309	40,478	32.48

(continued)

TABLE 3.1B (continued)

	College Town	Land Area Sq. Miles	College Town Density P/sq.mi.	Town and City Population	Village or City Population	Village or City Population 1940	Monthly Rent
	Two Year Colleges						
	1. Public Community Colleges						
21	Hudson Falls *	10.6	4,532	54,525	36,923	32,191	35.54
22	Auburn	8.5	4,147	35,249	35,249	35,753	31.15
23	Corning *	4.6	5,511	29,646	19,655	18,549	34.57
24	Poughkeepsie *	5.3	9,126	83,175	40,309	40,478	32.48
25	Johnstown *	8.4	2,474	37,251	32,131	33,995	31.75
26	Batavia	5.2	3,502	22,535	18,210	17,267	38.40
27	Jamestown *	10.9	4,224	52,269	45,161	45,860	28.01
28	Watertown	9.2	3,620	35,798	33,306	33,385	33.98
29	Middletown	4.1	5,725	31,651	23,475	21,908	34.30
30	Suffern	1.5	3,396	35,064	5,094	3,768	42.63
31	So. Fallsburg	3.0	430	6,748	1,290	-	51.80
32	Stone Ridge	-	-	-	-	-	-
	2. Agricultural and Technical Colleges						
33	Alfred *	1.1	2,552	3,730	3,730	1,410	35.10
34	Canton	1.4	3,604	8,935	5,046	3,018	33.98
35	Cobleskill	3.0	1,157	4,964	3,471	2,617	36.91
36	Delhi	1.5	1,538	3,398	2,307	1,841	29.81
37	Morrisville	1.0	1,304	3,196	1,304	666	30.53
	3. Private Colleges						
38	Cazenovia	1.2	2,153	4,968	2,584	1,689	38.48
39	Paul Smiths	-	-	-	-	-	-

TABLE 3.1A and B (Continued)

Notes on methods and sources:

Agglomerations are asterisked. Data on individual localities as well as on agglomerations are listed in Appendix Tables A.1 to A.3. As discussed in Chapter Two, where settlement around the college is more accurately represented by combination of the populations of several localities in close proximity (within two miles apart), the sum of the populations were used in the regression analysis for college staff residence location. These agglomerations occur in the following areas: Cortland-Homer, Fredonia-Dunkirk, Alfred-Alfred Station, St. Bonaventure-Olean-Allegany, Poughkeepsie-Hyde Park, and Corning-Painted Post. Agglomerations not included in the regression analysis are at Hudson Falls-Ft. Edward-South Glens Falls-West Glens Falls-Glens Falls, Johnstown-Gloversville, and Jamestown-Falconer. The values for density are not agglomerated in Table 3.1B and are for the college town only.

Sources: United States Office of Education, Total Enrollment in Institutions, 1959-60 (Washington: Government Printing Office, 1960. The State Education Department, Division of Higher Education, The University of the State of New York, Going to College in New York State (Albany, New York: The University of the State of New York, 1965), pp. 112-145. U.S. Bureau of Census, U.S. Census of Population: 1960, Vol. I, Characteristics of the Population, Part 34, New York (Washington, D.C.: U.S. Government Printing Office, 1963). Otis A. Singletary (ed.), American Universities and Colleges, 10th Edition (Washington: American Council on Education, 1968), pp. 939-1082.

Other agglomerations listed in these tables are Fredonia-Dunkirk, Alfred-Alfred Station, St. Bonaventure-Allegany-Olean, Glens Falls-South Glens Falls-Hudson Falls-Fort Edward, Corning-Painted Post, Poughkeepsie-Hyde Park,[2] Johnstown-Gloversville and Jamestown-Falconer.

Summary data on professional and auxiliary staff are listed in Table 3.1A along with other pertinent information on college characteristics. Data are aggregated for agglomerations as shown by asterisk, Table 3.1B lists data relative to the college-town; its population data conforms to the individual and agglomerated college-town listings as discussed above.

The range of town-residence ratings for college staff is shown in Table 3.2. The highest professional staff rating (94.6 percent) was registered by Colgate University, a private four year college; the lowest (51.7 percent) was obtained for Morrisville, a two year college in the State University.

For colleges in agglomerated areas, the ranges listed in the table are based upon combined data. This considerably increases town-residence ratings for the staff. For example, if uncombined data are used for the two year State University College at Alfred (considering only Alfred Village residency), the professional staff residence rating for the college town drops to a low of 41.5 percent as indicated in Table B.3 of Appendix B in contrast to its rating of 60.0 based on the aggregate.

Highs in college town area residence for the auxiliary staff are indicated for the St. Bonaventure-Allegany-Olean complex (88.6 percent),

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[2]The Dutchess Community College is located near the Northern boundary of the City of Poughkeepsie and within two miles of the Township of Hyde Park.

TABLE 3.2

PERCENT OF PROFESSIONAL AND AUXILIARY STAFF RESIDING IN THE COLLEGE TOWN OF EMPLOYMENT, FOR SELECTED COLLEGES IN NEW YORK STATE, 1967-68[a]

	College Location	
	In a city (10-40,000 population)	In a village (1-8,000 population)
1. Professional Staff		
Four year colleges		
Public	82.0 - 89.6	70.3 - 75.5
Private	79.9 - 91.7	76.6 - 94.6
Two year colleges		
Public and Private	60.6 - 70.6	51.7 - 83.5
2. Auxiliary Staff		
Four year colleges		
Public	52.6 - 87.8	25.6 - 45.2
Private	69.5 - 88.6	40.6 - 63.3
Two year colleges		
Public and Private	70.4 - 78.0	26.4 - 60.0

NOTE:

[a]Only those colleges which were included in the regression analysis are used as a basis for this table. Also the ranges indicated include only combined villaga data for certain colleges as discussed in the text. If for example the data were uncombined for the two year college at Alfred, the percent staff college town residence input for professional and auxiliary staff would be at lows of 41.5 percent and 14.2 percent respectively. Extremely low staff inputs were indicated by Sullivan and Rockland County Community Colleges. The percents for professional staff for these colleges were 51.4 and 14.8 respectively; for auxiliary staff the inputs were 15.2 and 5.3 percent respectively. However these colleges were excluded from the regression analysis for reasons mentioned in Chapter II.

and the Fredonia-Dunkirk area (87.8 percent). Lows occur for The State University four year college at Geneseo (25.6 percent), and for the two year college at Alfred (26.4 percent). If the latter is disaggregated, auxiliary staff residence in Alfred Village alone stands at a low of 14.2 percent.[3]

A. Regression Analysis of Professional Staff Location

In accordance with Hypothesis I, our basic task is to determine if the percent of college staff living in the college-town varies with the size of the college-town. This must be done separately for professional and auxiliary staff members.

To determine the relationship between town-residence ratings for the college professional staff and town population a scatter diagram using these two variables was made as depicted in Figure 3.1. A clustering of values can be seen in the graph. In the larger rural cities values for the percent of four year professional staff living

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[3]Some of the colleges not included in the regression analysis, for reasons previously given, show extremely low college town residence ratings for staff. For example, at Sullivan and Rockland County Community Colleges, professional staff native to the college town were at 5.4 percent and 14.8 percent respectively; for auxiliary staff these figures were at 15.2 percent and 5.3 percent. Among other economic and social considerations, this indeed presupposes a low payroll input to the college towns at this stage of the college's development. It is interesting to note that these colleges grew at a rapid rate. Rockland Community College listed a full-time undergraduate enrollment of 92 in 1959, and 653 in 1954, with its estimated Fall 1967 enrollment at 1,824 full-time and 1,658 part-time students. Sullivan Community College, established after 1960, indicated a 1964 enrollment of 288, and estimated full and part-time enrollments at 905 and 151 respectively. (See State of New York, Executive Budget, op. cit., pp. 980-82.) Professional and auxiliary staff at these colleges grew at a correspondingly rapid rate, but many appear either to have been drawn from outside the college town or to have obtained residence in other localities. In Table A.3 of Appendix A note the influence of New York City on Rockland Community College staff residence.

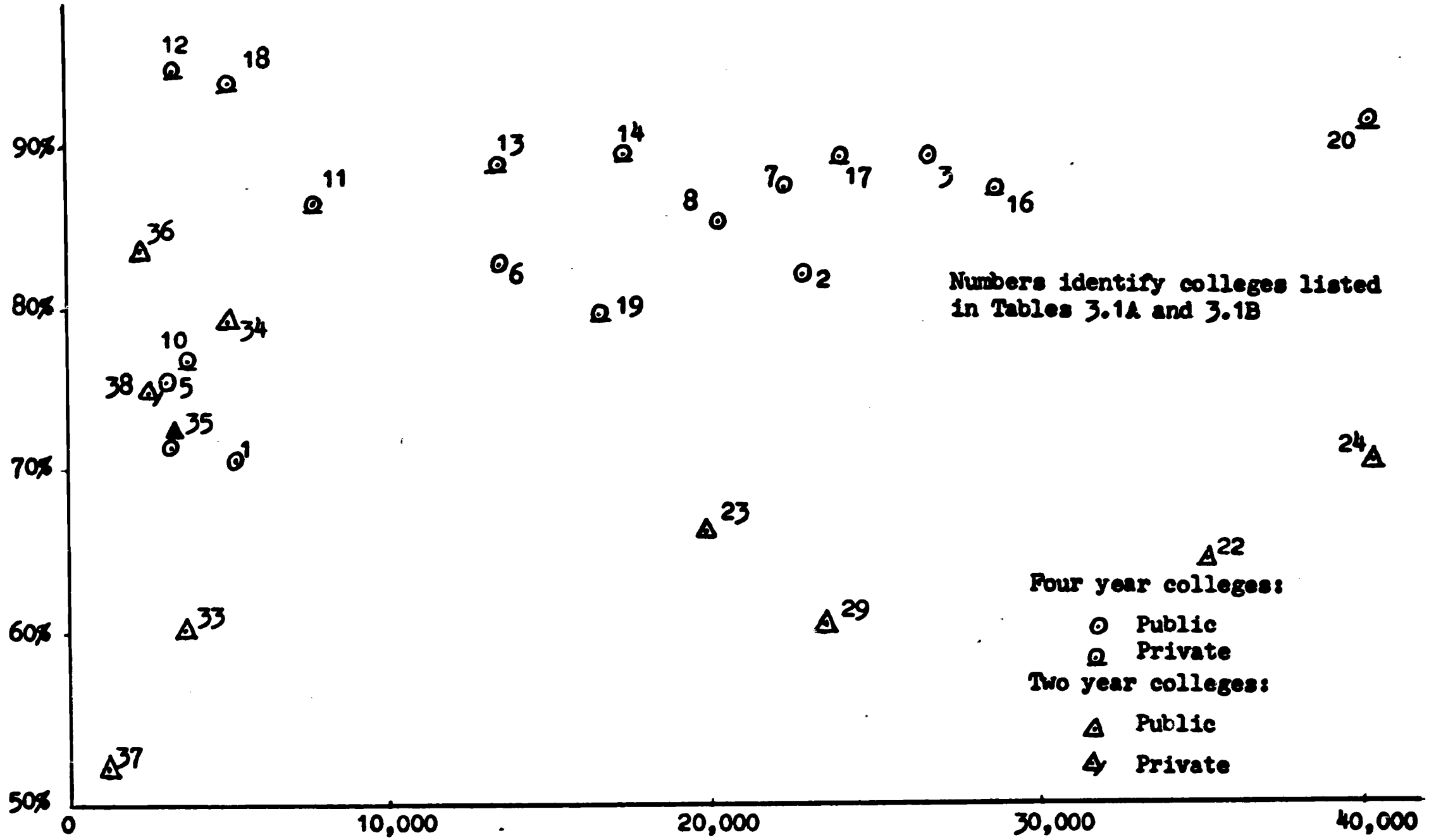

FIGURE 3.1

SCATTER DIAGRAM OF VILLAGE (CITY) POPULATION, 1960
VS. PERCENT OF PROFESSIONAL STAFF RESIDENCE INPUT

in the college town lie in the 80 to 90 percent range. Data from two year colleges in the larger college towns form a group almost completely in the 60 to 70 percent range. The situation changes for the small town. For professional staff at four year colleges the values vary between the 70 and 95 percent levels, and for two year colleges the variation is greatest of all in the small towns, lying between the 52 to 84 percent levels.[4]

From the distribution of values on the graph it would appear that a critical range exists for the small college town group, in which professional staff college town residence can go to either an extremely low or a rather high level. This appears to depend on certain characteristics of the college and the college town and will be discussed later in this chapter. The lower level is predominantly represented by the two year college and the higher level by the four year college, with a mix occurring at intermediate levels. This juxtapositioning of values for two and four year colleges holds throughout the scatter diagram.

Some relationship between the percent of professional staff living in the college town and the population of the college town can be detected by examination of the graph, and the tabular data. This is especially noted in the case for the four year colleges in the State University system. To examine the situation in more detail, regression analyses were made. Their purpose was to statistically determine relationships, and to also seek predictive factors relative to professional staff town residence ratings.

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[4]Figure 3.1 does not include data on colleges excluded from the regression analysis. Some of these, as shown in Table B.3 of Appendix B, exhibit extremely low professional staff residence ratings.

The distinct lineal pattern for the four year public colleges in Figure 3.1 suggested a regression analysis for this group. Also the location of data points on the scatter diagram suggested a separate regression analysis for small and large college-towns, and a combined analysis for all towns. The clustering of values in separate and distinct two and four year college groups indicated that some variable should be found and applied to reflect the difference between the junior college and the baccalaureate institution. The variable decided upon was the percentage of Ph.D.s on the full-time teaching staff of each college; this variable would not only help differentiate the above categories, but also show differences within the four year college group.

Other independent variables selected for the regression analyses relate to college and town characteristics, and are listed in Table 3.3 along with their code names. These variables include density, and square miles of land area of the college town, as well as college town (village or city) population in 1940 and 1960, and township and city population for 1960. Data for these variables are listed in Table 3.1B.

First, a regression analysis for all colleges in both large and small towns was made. Its primary purpose was to note variation in staff residence input with factors related to town size. The correlation matrix for this regression analysis may be used to determine simple correlation of variables. An excerpt of correlation data pertaining to Hypothesis I is presented in Appendix Table B.4; this includes information relative to both professional and auxiliary staffs at the colleges and gives information on small and large towns separately and as a group.

The matrix for large and small towns as a group shows very low correlation (.06 to .11) between the percent of college professionals

TABLE 3.3

VARIABLES TESTED IN STAFF REGRESSION ANALYSIS

Subscript No.	Variables	Code Names
	Dependent Variables:	
4	Percent college professional staff living in the college town	%-PROF-IN
6	Percent of college auxiliary staff living in the college town	%-AUXIL-IN
	Independent Variables:	
1	Square miles of land area of the college town, 1960	SQM
2	Density, population per square mile 1960	DEN
3	Number of individuals on the professional staff at the college, 1967	PROSTAF
5	Number of individuals on the auxiliary staff at the college, 1967	AUXSTAF
7	Percent of Ph.D.s on the teaching staff, 1967	T-PHD
8	Town(minor civil division) and city population, 1960	TOWN-CTY-POP
9	College town population, 1960	POPUL-60
10	Median contract monthly rent, 1960	RENT
11	Number of years degree has been offered by the college, as of 1969	DEGREE-YRS
12	Number of villages professional staff live in, 1967	PROF-VILL
13	Number of villages auxiliary staff live in, 1967	AUXIL-VILL
14	Population of nearby city, P_n	NER-CITY
15	Radial distance between the college town and nearby city, miles, d_{1-2}	DIST.
16	P_n/d^2_{1-2}	P/D^2
17	P_n/d_{1-2}	P/D
18	College town population, 1940	POPUL-40
19	The number of college owned dwelling units for faculty and staff in the college town	HOUSG
20	Percent of Ph.D.s on the teaching staff of a four year college in the State University system	%-PHD-4
21	College town population, 1960 for a town with a four year college in the State University system	POPUL-60-4

Note: The above independent variables are important in explaining the value of the dependent variables for the college towns studied.

(continued next page)

All were used in the initial regression analysis. However, only the best explaining variables for college towns taken as a group were retained for the final regression analysis. These are listed in later tables. The deviation of a specific college town's dependent variable from the line of regression can be explained in part by use of one or more of the above listed independent variables.

living in the college town and town size based on population data. Also population density and square miles of land area of the college town are in low association (.02 and .13 respectively) with the town-residence rating for professional staff. This was expected from the scatter diagram previously discussed. The situation changes little for small and large towns taken separately. However, the small towns do show a slightly greater association (.40) between professional staff town-residence ratings and population. For large towns there is a slightly negative association (-.17) between these two variables and as large town density increases correlation (-.25) with the professional staff residence rating suggests a slight tendency toward exurbia.

As mentioned previously regression analysis was used to test for Hypothesis I and also to determine more pertinent factors for explanation of the variation in the town-residence ratings for staff. Table 3.4 lists information relative to this regression analysis. The town-residence rating for professional staff is the dependent variable. When both large and small college towns are examined as a group, against selected town and college characteristics, the value of the multiple correlation coefficient R is .78 (and R.Squared is .62.) Therefore, the variables indicated in the regression equation account for 62 percent of the possible variance in the dependent variable.[5] The R Squared value

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[5]The Mureg Ben David program was used for multiple regression analysis. This program was obtained through the School of Agriculture Department of Agricultural Economics and was run on the IBM 360/65 computer. When the multiple regression was begun all of the variables in Table 3.3 were used. The R Squared values obtained were in the .80 to .90 range, with many small contributions by a large number of variables but with low statistical significance. Also the variable for number of villages professional staff live in (LOC) contributed substantially to the explanation of the dependent variable; since this variable would be difficult

(continued on page 66)

TABLE 3.4

DATA FOR REGRESSION EQUATIONS FOR COLLEGE STAFF

(MULTI-COLLEGE ANALYSIS)

1. Percent of college professionals living in the town (town-residence rating), for large and small rural college towns

Dependent variable:	%-PROF-IN		
R Squared	0.62	Significance level	0.001
Constant	64.21	Standard error of estimate	7.49

Independent Variables	Beta	R Squared Without this Variable
%-PHD	0.027	0.49
DEGREE-YRS	0.127	0.54
POPUL-40	0.00002	0.62

2. Percent of college professionals living in the larger rural college-towns (town-residence rating)

Dependent variable:	% AUXIL-IN		
R Squared	0.82	Significance level	0.005
Constant	63.75	Standard error of estimate	54.4

Independent Variables	Beta	R Squared Without this Variable
%-PHD	0.028	0.69
DEGREE-YRS	0.135	0.74
PROSTAF	0.020	0.79
TOWN-CTY	-0.0001	0.79

3. Percent of college auxiliary staff living in the town (town-residence rating), for large and small college towns

Dependent variable:	%-AUXIL-IN		
R Squared	0.65	Significance level	.005
Constant	46.91	Standard error of estimate	11.65

Independent Variables	Beta	R Squared Without this Variable
POPUL-60	0.001	0.30
SQM	0.073	0.61
AUXSTAF	-0.028	0.61
DEGREE-YRS	0.084	0.62

See Table 3.3 for definitions of code names.

decreases if an important independent variable is omitted from the regression equation. The values of R Squared without each of the several independent variables is listed in the Table and these values indicate the relative importance of the independent variable under consideration.

As Table 3.4 demonstrates, the principal factors in the equation are the percent of Ph.D.s on the teaching staff (%-PHD) and the number of years a degree has been offered by the college (DEGREE-YRS). Population of the town has virtually no effect on the dependent variable.[6] The R Squared value remains at .62 when the variable for population is omitted, but changes appreciably without the %-PHD or DEGREE-YRS variable.

The beta values and the constant term can be used to form the multiple regression equation:

$$Y_{41} = 64.21 + 0.027X_7 + 0.13X_{11} + 0.00002X_{18}$$

where Y_{41} is the percent of college professional staff living in the college town (computed for large and small rural college towns as a group) and the variables are as defined in Table 3.3.

A positive relationship exists for the variables represented. Thus the percent of professional staff living in the college town will increase with increase in the percent of Ph.D.s on the teaching staff, and years as a degree granting institution. Since the four year college is closest to this description it generally will exhibit higher town-residence

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5(continued from page 64) to apply in planning, it was dropped from consideration along with others. The remaining variables shown in Table 3.4 result in a lesser R Squared but yield a stronger statistical statement. The ECON Regression Program was used for the regression analysis for four year colleges in the State University System.

6The population variable is included in the regression equation only because of our special interest in this relationship.

ratings for the professional staff than the two year college. This was also expected from the display in Figure 3.1.

The regression analysis for college professionals living in the larger rural college towns (or cities) resulted in higher predictive values. In this case the multiple correlation coefficient R is slightly over .90. The variables applied account for 82 percent of the possible variance in the dependent variable.

However, as shown in Table 3.4, the population factor is still relatively low in importance. The principal explaining variables are again %-PHD and DEGREE-YRS. The beta values and the constant term can be used to form the multiple regression equation:

$$Y_{42} = 63.75 + 0.028X_7 + 0.135X_{11} + 0.02X_3 - 0.0001X_8$$

where Y_{42} is the percent of college professional staff living in the college town (computed for larger rural towns separately) and the variables are as indicated in Table 3.3.

Except for the population variable all terms show a positive relationship, and as these variables increase the town-residence rating increases. Again this analysis indicates that town-residence ratings for the professional staff at the four year college will be higher than at the two year college.

A regression analysis was also made for college professionals living in the small rural college-towns (villages). The R Squared value for this analysis was .69, but its level of significance was slightly above the .05 limit and it is therefore not detailed.[7]

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[7]For this regression analysis the independent variables of importance were DEGREE-YRS and POPUL-40.

Correlation matrices for the independent variables used in the professional staff regression analyses are exhibited in Appendix Table B.5. These show moderate relationships between institutional age, the percent of Ph.D.s on the staff, and the staff size.

As indicated at the beginning of this section the scatter diagram (Figure 3.1) displayed a distinct pattern in residence ratings (vs. town size) for professional staff at four year colleges in the State University system. Therefore, a regression analysis was made to test this small group of colleges. The results obtained are indicated in Table 3.5.

TABLE 3.5

DATA FOR REGRESSION EQUATION FOR STATE UNIVERSITY STAFF

(MULTI-COLLEGE ANALYSIS)

Percent of college professionals at baccalaureate institutions of the State University living in the respective college towns (town-residence rating vs. town size)

Dependent variable:	%-PROF-IN	Significance level = .005	
R Squared = 0.84		Standard error	
Constant =70.45		of estimate	=3.20
Independent variable:	POPUL-60-4		
Beta = .0067			

See Table 3.3 for description of variables.

The town-residence rating for professional staff at these public colleges is the dependent variable and college town size (population) the independent variable. Both large and small college towns were examined as a group and the value of R is .91. Town size accounts for 84 percent

of the possible variance in the dependent variable. This indicates a strong variation in professional staff input to the college town with town size.

The beta value and the constant term can be used to form the regression equation:

$$Y_{20} = 70.45 + .0067X_{21}$$

where Y_{20} is the percent of college professional staff at a four year college in the State University System living in the college town (computed for large and small rural college towns as a group), and X_{21} is college town size as qualified in Table 3.3. As can be readily seen in the equation, as the college town population increases, the percent of college professionals living in the town increases, and the reverse. Cortland and Fredonia (agglomerated) are at the high end of the pattern and New Paltz and Geneseo are at the low point. The important fact is that many of the State University professional staff employed in the smaller college towns live outside of these towns. This contrasts with professional staff input to the small college town for the private colleges; in the latter case residence ratings do not decrease with decrease in town size. This is indicated particularly for Colgate University (in Hamilton), St. Lawrence University (in Canton), and to a lesser extent, for Clarkson College (in Potsdam) and Hartwick College (in Oneonta).

There is a consistently high input (86 to 95 percent) to private college towns except for Skidmore College (somewhat lower at 80 percent), and Alfred University (at 77 percent). Thus the small college town, above a critical minimum, is generally as capable as the large town in attracting and containing a large proportion of the professional staff

for the private colleges examined.

The situation is different for the four year State University Colleges. As indicated in the analysis professional staff residence ratings vary with town size for the four year public colleges. Those colleges in small towns draw a substantial number of professionals from the surrounding villages and cities; Brockport (near Rochester), Geneseo (near Rochester and Mt. Morris), and New Paltz (near Poughkeepsie and Highland) are prominent in this regard. These State University Colleges have larger enrollments, and larger professional staffs than the private colleges (see Table 3.1A), and this may influence the situation. New staff coming from distant points may be settling outside the small college town, or new staff may be commuting from residences previously established in nearby towns or cities.

In sum, except for Alfred, most of the small college towns with four year private colleges have high residential input for professional staff. The relatively large State University Colleges in the small towns studied draw a substantial proportion of their staff from towns and cities outside the college town; also, professional staff residence (input) ratings for these four year public colleges increase with town size.

B. Regression Analysis of Auxiliary Staff Location

To evaluate Hypothesis II it is necessary to determine if the percent of auxiliary staff members living in the college town varies with the size of the college town.

As done previously for the professional staff analysis the scatter diagram depicted in Figure 3.2 was made using auxiliary staff town-residence ratings and village or city population data for 1960. The

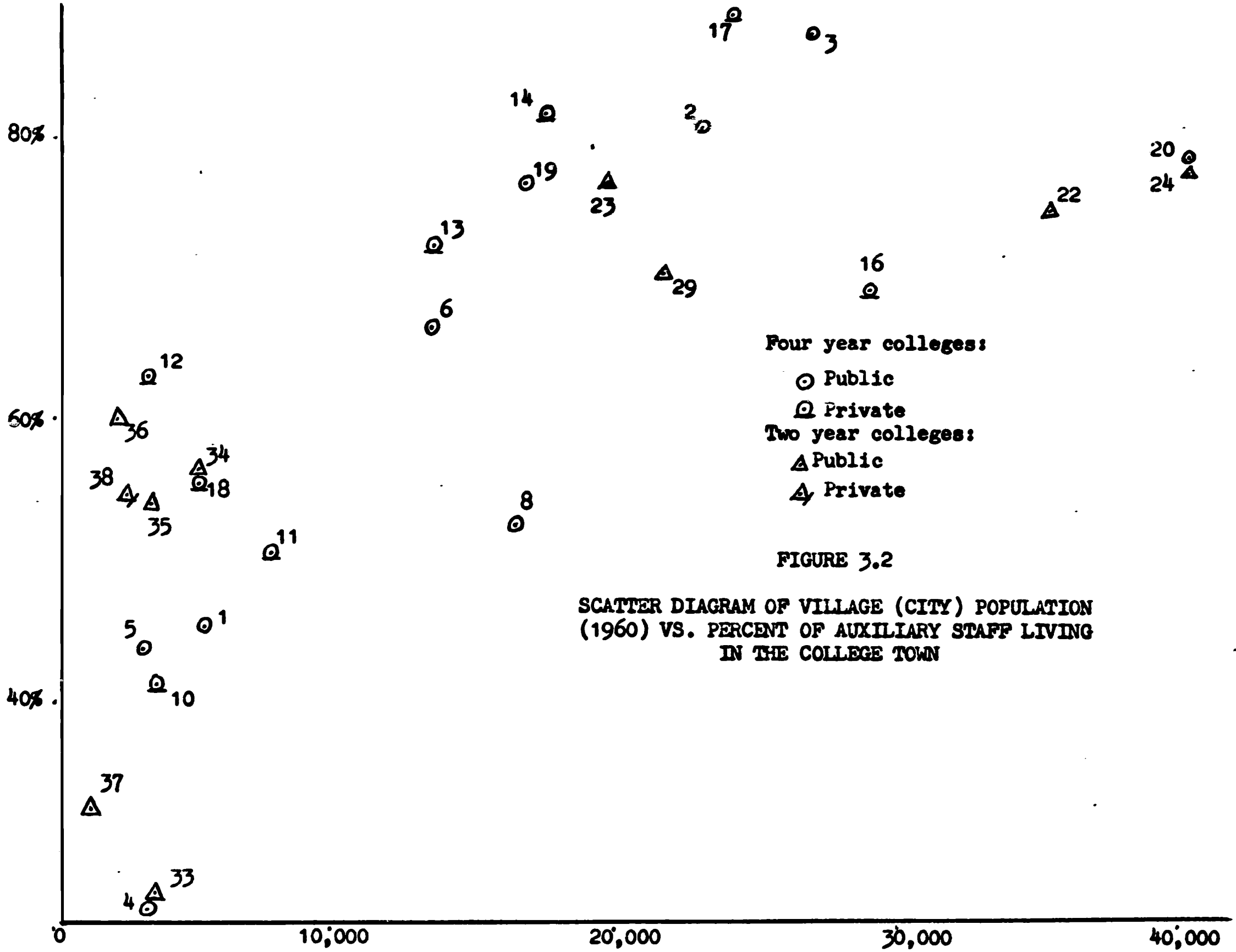

FIGURE 3.2

SCATTER DIAGRAM OF VILLAGE (CITY) POPULATION (1960) VS. PERCENT OF AUXILIARY STAFF LIVING IN THE COLLEGE TOWN

latter variable was employed because it indicated fairly high correlation in initial analysis.

In examination of the graph a relationship appears to exist between college town size and the percent of auxiliary staff living in the college town when all the college towns are considered. However, this association is dubious for small towns or large towns grouped separately. Generally, large towns can and do supply a greater portion of the college auxiliary labor force; but when the town labor force is small, sources outside the town and county are drawn upon. Commutation is a high factor for college auxiliary staff in the small college town, but a much lower factor when professional staff are considered. About half of the colleges in towns below the 8,000 population level indicated that less than 50 percent of their auxiliary staff lived in the college town. This is the case for both four and two year colleges. Thus much of the college payroll for auxiliary staff personnel employed in the small college town is distributed outside the immediate college area.

Regression analysis was made for large and small towns individually, and for all college towns as a set. Only the latter analysis was productive in yielding a substantial explanation of the dependent variable with a statistically significant result.[8]

Appendix Table B.4 can be used in noting the extent of simple correlation between town size and town residence ratings for auxiliary staff.

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[8]The variables listed in Table 3.3 were used in the initial multiple regression analysis for this phase of the study. Only those indicating a significant and substantial effect on the multiple correlation coefficient were retained for the final analysis. Only linear regression was used in this case. However Figure 3.2 suggests that curvilinear regression would probably yield a higher R Squared value.

For the large and small town grouping the correlations are rather high between variable 6 and the variables for size; correlation with 1960 and 1940 college town population is at .74 and .73 respectively, and correlation with square miles of land area is .51. For small towns considered individually, only the correlation with towns (minor civil divisions) plus city population appears to yield a substantial result (.59); low correlation (.19) is indicated for the large town (city) analysis.

Multiple regression analysis confirmed the fact that town size (college town population, variable 9) is a key factor in explaining auxiliary staff town-residence ratings. Other variables contributing slightly to the multiple correlation coefficient are the square miles of land area of the college town, the number of individuals on the auxiliary staff, and the number of years a degree has been offered by the college.

The value of the multiple correlation coefficient R is .81. The independent variables listed in Table 3.4 for the auxiliary staff regression analysis explain 65 percent of the possible variance in the auxiliary staff town-residence rating. The R Squared value would show drastic change (to .30) if the factor for population (variable 9) is omitted.

The multiple regression equation takes the form

$$Y_{63} = 46.91 + 0.001X_9 + 0.073X_1 - 0.028X_5 + 0.084X_{11}$$

where Y_{63} is the percent of college auxiliary staff living in the college town (computed for large and small college towns as a group) and the variables are as indicated in Table 3.3.

Except for the variable for auxiliary staff size all the terms in the equation are positive. In accordance with this, it is reasonable to suggest that as auxiliary staff at the college increases in size, more personnel will be drawn from outside the college town. This applies to both large and small towns.

C. Additional Explanations

Multiple regression analysis is a partial explanation of the variation of town size and other factors with town-residence ratings. Many of the variables listed in Table 3.3 apply to some of the college towns but not to all of them, and therefore do not enter the final regression equations.[9] In offering an additional explanation for the above relationships it is necessary to consider some of the unique situations applying in several of the college towns.

As an overall effect, general employment levels for professional and auxiliary personnel in the area will affect commutation or migration of individuals. For example, if a particular town loses a manufacturer, there is good likelihood that the auxiliary staff of a newly established or expanding college will obtain a good part of its new employees from the local unemployed. Also, education and skills of the local labor force relate importantly to possible employment at the college. The scope of this study does not allow for more than brief mention of these variables. The fact that the towns and cities under consideration have a commonality in being rural, and are in a limited region helps somewhat to equalize the situation in the above regard, but differences do exist; we are concerned with a search for commonalities.

At a more specific level, interesting comparisons can be made between colleges in small and large towns, between two colleges in the

same town, and for other situations. The reader is referred to the Tables B1, 2, and 3 in Appendix B for data on this part of the discussion. We are first concerned with factors which corroborate the above regression analyses, and then with additional factors which have an effect upon certain college towns.

Three cases investigated involve college towns which house both a four year and a two year college. These are Vassar and Dutchess County Community College, St. Lawrence and SUNY Canton, and Alfred University and SUNY Alfred. In each of these college towns the professional staff residence ratings for the four year institutions (91.7, 93.9 and 76.6 respectively) are considerably greater than those for the two year colleges (70.6, 79.2, and 60.0). This is in part explained by four year colleges sponsoring some faculty housing as well as by the percent of Ph.D.s on staff, and the age of the institution as shown in the regression analysis.

In all of the above locations except for the Town of Alfred auxiliary staff ratings for four and two year colleges are extremely close (Vassar and Dutchess 79.0 and 78.0, St. Lawrence and SUNY Canton 55.3 and 56.1, and for Alfred University and SUNY Alfred 40.9 and 26.4). These are presented as additionally interesting parallels in the larger towns and strengthen the statistical evidence on variation of auxiliary staff residence location with town size.

In the case of Alfred the auxiliary staff at both colleges indicate low town-residence ratings, with the two year college drawing a substantially higher percentage of its auxiliary staff from outside the village. This may in part be due to recent expansion and a good wage level at SUNY Alfred for auxiliary staff compared to that in surrounding towns.

Both colleges draw considerable personnel from Alfred Station, Almond, Andover, Hornell, and Wellsville. In this sense the Village of Alfred is part of a growing complex of towns. From another view it is a village which finds residential and other expansion difficult. This will be discussed in greater detail in a later chapter. For now, observing the pattern in Figures 3.1 and 3.2, and reviewing Table B.3 in the Appendix, it is noted that Morrisville and Alfred Villages experience an extremely low town-residence input for both professional and auxiliary personnel and the villages surrounding these towns gain a proportionate share of benefits due to the presence of the colleges. In regard to professional staff residence, these college towns appear to be below what could be a minimum level, substantially reducing the moderate rating characteristic for the two year college in the small town.

Other cases studied involved two baccalaureate institutions in the same town. Evidence of a narrow range for residential input is shown by the fact that ratings closely resemble each other; thus SUNY Oneonta, and Hartwick, at the same location, show only a 6 percent difference in their town-residence ratings for professional and auxiliary staff. Full data are not available for a Clarkson-SUNY Potsdam comparison, but their ratings for the <u>total</u> staff are about 4 percent apart.

As previous discussion has shown small college towns vary considerably in their staff town-residence ratings. Further discussion is warranted for some with relatively high ratings. These include Hamilton (3,348 population) and Delhi (population 2,307), homes of Colgate University and SUNY Delhi, respectively.

As Table B.2 in Appendix B and other data indicate the village of Hamilton serves the great majority of its professional and auxiliary

college staff, and exhibits considerable centrality. Except for Oneida and Norwich, each about 20 miles distant, it is the largest central place in its area. Utica and Syracuse close to thirty and forty miles away respectively, house a little over one percent of the college's professional staff and none of its auxiliary staff. Hamilton is an attractive village with a strong college tradition. With per capita retail sales in 1963 at $1,723 compared to that for New York State at $1,449, and for Madison County at $1,346, it is not a shopping mecca, but an attractive dominant marketing point in its locality.

Delhi lies somewhat isolated in a steep and picturesque valley near the western gateway to the Catskill Mountains. About twenty miles from Oneonta (population 13,412), it draws less than 5 percent of its professional staff, and less than 3 percent of its auxiliary staff from this city. It ranks high in per capita income for its region,[10] and has adequate residential and commercial facilities with room for some expansion.

A perusal of the data on some of the newer two year colleges not included in the regression analysis may be helpful in further judgment of the factors previously discussed. Table B.3 in Appendix B is useful in this regard.

Although some colleges exhibit low town-residence ratings, most colleges compare well with other institutions and industry, especially in drawing professional personnel to an area.[11]

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[10] Barclay G. Jones and Jon T. Lang, Studies in Regional Development: Population, Activities, and Incomes in Chenango, Delaware and Otsego Counties (Ithaca: Cornell University, Center for Housing and Environmental Studies, Division of Urban Studies, 1967), pp. 113-115.

[11] Three major manufacturing plants surveyed in the Ithaca-Cortland area indicated town-residence ratings for the total staff between 35.1

(continued next page)

D. Summary

To sum up, relative to staff population input to the college town, professional staff residence (input) ratings for public and private four year colleges taken as a group show relatively small variation with town size (see Table 3.2). However, when considered as a set, the four-year public colleges studied show increasing professional staff input as town size increases; these colleges are individually larger than the private institutions and this may affect residence ratings for small towns. Also of interest is the fact that four year colleges indicate higher professional staff residence input than two year colleges.

As for auxiliary staff, all the colleges studied show an increase in residential (input) ratings as town size increases; high occupational commutation generally occurs to the college in the small town.

We can conclude that low spill-out of professional staff residence prevails in the large town for all colleges, and also for the private college in the viable small town. Using regression equations, it is possible to predict professional staff input for public four year institutions, and auxiliary staff residence ratings for all colleges. This can be used in long range planning for professional staff housing, campus parking, college staff expansion, and other related services. For reasons of possible high spill-out, caution should be observed in selecting the small town for college location, however the active small town with good potential for growth can do well relative to professional staff input and interaction.

11(continued) and 42.1 percent. About 61 percent of the supervisory staff at National Cash Register Company plant lived in Ithaca at the time of the survey.

CHAPTER FOUR

COLLEGE STAFF INTERACTION IN THE COMMUNITY: ECONOMIC AND SOCIAL FACTORS

Although college staff and students reside in the college town many of their purchases are made in neighboring villages or cities. Consequently their economic impact on the town is reduced substantially. As discussed previously, and as will be further demonstrated in this chapter, economic spill-out depends on the size of the college town, the extent of its commercial activity, its distance from competing and attractive commerce centers, and other factors.

In like manner social interaction between the college population and the townspeople may show a high or a low level of exchange. Social attributes of the college family can cause substantial change in the community or may have only a moderate effect.

In this chapter we will examine the social and economic characteristics of the college population, and its interaction with community components. We are concerned not only with the input of economic, social, and human capital into a town, but also with the extent of the interaction of these inputs with the town structure and population, at least in the first round of transactions.

Many social and economic factors in the community change when a college is established or expands. Only a limited number of these factors can be examined in this study. Our primary concern is to identify selected factors which act to build the town and affect its institutions.

In the economic sphere measures of these effects include per capita personal income, retail sales, and property values.[1] When these decrease the town is less able to support its services. Social factors of interest include community service activity by college related persons, and inter-relations of these individuals with townspeople.[2] When these increase there is greater potential for community change and development.

This chapter further develops the earlier treatment of information on SUNY Alfred Tech and SUNY Cortland. Data on Cazenovia College and the Auburn Community College are presented to supplement the argument. Cazenovia is a two year private college for girls in a small but viable town characterized by a relatively high socio-economic level. Auburn Community College is a two year college in a city of close to 35,000 population.[3]

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[1] See Hogan, op. cit.

[2] Answers received in a questionnaire survey of staff and students are used in this part of the study. The responses to questions are displayed in tables indicating the percentage distribution for the variables considered. Juxtapositioning data and using one table for the several colleges examined is not done with the intent of comparison, but rather to contrast college town situations. The small town with a two year college should not exhibit the same characteristics as the large town with a four year institution. This would not be possible. Nor are two small towns or colleges necessarily alike.

Chi square analysis was used where applicable to test for the existence of a possible association between the variables. The .05 probability level was taken as the level determining acceptance or rejection of association.

The survey was made in the Fall of 1968. Unfortunately resources and time did not permit distribution of a similar questionnaire to townspeople (not associated with the college) in the respective areas. This would have been helpful. Instead interviews and meetings with townspeople were held to supplement data obtained through the questionnaires.

[3] In 1960 Auburn's industrial labor force included 38.6 percent in manufacturing, 15.7 percent in retail trade, and 12.8 percent in professional and related services.

Of special interest are the data on Alfred University vis-a-vis that for Alfred Tech because these two colleges are located in the same town. Their comparison strengthens conclusions derived previously relative to town size and spill-out, and affords an interesting contrast for the two and four year college. Conclusions based upon these data apply only to the colleges examined. Generalizations for other colleges should be made with caution.

A. Selected Economic Characteristics and Interaction of the College Staff

College Staff Impact on Retail Trade

Categories of retail trade which are especially important to the college town include food stores, eating and drinking places, and apparel stores. These obtain a high proportion of the total volume of retail sales and are key indicators of the health of retail trade in a locality. College staff purchases in each of these categories can boost college town retail sales considerably unless spill-out occurs.

Food Purchases

Per capita food sales are considerably higher than sales in other categories such as apparel, furniture, drugs, gasoline, and restaurants. When food sales are low in a college town other consumer goods on the shopping itinerary are generally affected and a major gap in the retail trade sector is thereby created.

Data obtained indicates that in 1968 the majority of the professional and auxiliary staff at Alfred Technical College made their food purchases outside the college town. The auxiliary staff were especially high in this regard. In this group close to 78 percent made no food purchases at all in Alfred Village. Data in Table 4.1 indicate that

TABLE 4.1

PERCENT OF STAFF MAKING VARIOUS PERCENTAGES OF FOOD (GROCERIES) PURCHASES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech.		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
0- 10	50.4	86.1	12.7	13.3	25.1	33.3	34.0	13.0	17.6	0.0	31.9
20- 40	14.5	5.6	0.0	3.3	33.3	11.1	4.3	0.0	3.8	0.0	9.0
50- 80	21.3	2.8	11.2	16.6	23.0	25.0	21.3	21.8	13.8	14.2	17.4
90-100	13.7	5.6	76.0	66.7	18.7	30.5	40.5	65.2	65.1	85.7	41.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	36	71	30	48	36	48	25	80	14	502

Errors due to rounding.

less than 15 percent of the professionals, and 5 percent of the auxiliary staff bought 90 percent or more of these staples locally, and at a lesser purchasing level, only 35 percent of the professional staff and about eight percent of the auxiliary staff purchased 50 percent or more of their meats, groceries, and other foods in the college town.

These data reflect the previous discussion on staff location. Many staff members live outside the Village of Alfred and therefore make their purchases outside of Alfred. But in addition to this, the Village is not able to attract purchasing dollars from staff who work in the college town and frequently pass through its shopping district en route to work. In fact, since the percentage of staff shopping for food in the Village is far less than the percentage of staff living in the college town, a spill-out of purchasing dollars is indicated for these basic items. Thus not only do staff members at the college reside outside the village in substantial numbers, but also many of those residing in the college town make their food purchases elsewhere. Our data indicate that other places in Allegany County, and the City of Hornell absorb the bulk of these purchases.

The situation at Cortland is quite different from that at Alfred. In 1968 the majority of professional and auxiliary staff at Cortland College made their food purchases in the City of Cortland. Both staff groups exhibited similar behavior in this regard, with 56 percent of each buying 100 percent of their food staples in the college town. Although some leakage in purchasing is apparent a very high proportion (79 percent) of the professional and auxiliary staff bought 80 percent or more of these items locally. Reviewing our data on staff residence at Cortland, a fair balance is noted between the proportion of staff

living in Cortland and those who buy their foods in this City.

Information from the University largely corroborates the data from the Technical College at Alfred. The professional staff at Alfred University indicated a slightly higher percentage of food purchases in the Village than those at Alfred Technical College. However, they are still considerably below levels at Cazenovia,[4] Auburn, and Cortland in this regard. The auxiliary staff at the University also made many more of their food purchases in Alfred Village than did those at the Technical College, but they too fell substantially below auxiliary staff at Cazenovia, Auburn and Cortland in this category. Details are indicated in Table 4.1; forty-two percent of the professional staff at Alfred University made 50 percent or more of their food purchases in the college town compared to 35 percent at Alfred Technical College, 62 percent at Cazenovia College, 79 percent at Auburn Community College, and 87 percent at Cortland College.

Well over half (56 percent) of the auxiliary staff at Alfred University made 50 percent or more of their food purchases in the college town compared to 8 percent at Alfred Technical College, 87 percent at Cazenovia, 100 percent at Auburn, and 83 percent at Cortland. The above difference between the two institutions in Alfred is expected since previous data (Table 3.1A) indicate that more individuals on the professional (77 percent), and auxiliary staff (41 percent) at Alfred University

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[4] In 1940, Cazenovia Village had a population of 1,689 compared to 694 for Alfred Village; their Town populations were 3,424 and 1,410 respectively. In 1960, the Alfred Town population was at 3,730 (including resident college students), and that for Cazenovia was at 4,968. (Refer to Table B.3 in the Appendix for information on staff residence location and to Table 4.5 for data on retail sales.) The 1959 full-time undergraduate enrollments were 1,308 at Alfred Technical College, 1,131 at Alfred University, and 280 at Cazenovia.

live in Alfred Town than those on staff at the Technical College (60 and 26 percent respectively). However the fact remains that Alfred is incurring a high opportunity loss in its retail food sales.

Cazenovia shows a far better situation. Here three-fourths of the professional staff and more than half (54 percent) of the auxiliary staff live in the Village, and although Cazenovia shows some losses in food sales relative to professional staff, it appears to attract food purchasers among its auxiliary staff who live outside the village.

Clothing Purchases

In the category of clothing the situation for Alfred retail trade is even worse, than for food. In 1968 about 90 percent of the staff at Alfred made 10 percent or less of their clothing purchases in the Village (Table 4.2). This applies to work, dress, and play clothing. Although a small clothing shop exists in the village it caters mostly to college students, and draws very few of the college staff. About 50 percent of the professional and auxiliary staff make half of their clothing purchases in the nearby City of Hornell. Others are attracted to other in-county locations, and over 30 percent of the professional staff make 50 percent or more of their clothing purchases outside the county. The majority (over 80 percent) of professional and auxiliary staff living either in and outside of Alfred make the bulk of their clothing purchases outside the Village.

Although the percentage of clothing purchases by college staff is far higher in Cortland, this city with 21 apparel and nine general merchandise stores in 1963 lagged in attracting clothing purchases by staff. This was especially noticeable when these expenditures are compared with food purchases previously discussed. Only about 27 percent of the

TABLE 4.2

PERCENT OF STAFF MAKING VARIOUS PERCENTAGES OF

CLOTHING PURCHASES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech.		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
0 - 10	89.8	91.9	32.4	20.0	83.4	77.8	66.7	43.5	15.0	0.0	57.5
20 - 40	8.6	5.4	7.0	10.0	14.7	19.4	22.2	17.4	17.6	7.1	12.6
50 - 80	0.9	2.7	33.8	33.3	2.1	2.8	8.8	34.8	37.6	28.6	16.8
90 - 100	0.9	0.0	26.8	36.7	0.0	0.0	2.2	4.4	30.0	64.3	13.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	37	71	30	48	36	45	23	80	14	501

Errors due to rounding.

professional staff and 37 percent of the auxiliary staff buy 90 percent or more of their clothing in the City of Cortland. From the data in Table 4.2 it would appear that many faculty make their major clothing purchases outside the college town. Syracuse, within a half hour's driving time via Route 81, draws slightly over 30 percent of the professional staff 20 or more days during the year, and during these visitations clothing purchases are likely; also the fact that 50 percent of the auxiliary staff visit Syracuse during 10 or more days during the year, and 36 percent make 50 percent or more of their clothing purchases outside of Cortland County indicates that Syracuse may also draw auxiliary staff purchases for clothing.

In clothing sales, the larger cities surveyed demonstrate their centrality, and attraction compared to the villages. As depicted in Table 4.2, well over half of the college professional staffs at Cortland and Auburn made 50 percent or more of their clothing purchases in their cities; only a very small percentage of the professional staff (1.8 percent at Alfred Technical College, (2.1 percent) Alfred University and (11.0 percent) Cazenovia did likewise in their college towns. Auxiliary staff at these colleges indicated somewhat higher clothing purchases in the college towns. Especially notable are the data on Cazenovia, Cortland, and Auburn where 39, 70, and 93 percent of the auxiliary staff made 50 percent or more of their clothing purchases in the respective locations.

Demand for Restaurant Services

Restaurant services and eating and drinking places comprise substantial dollar volume in retail trade in New York State, and are responsible for a considerable revenue to local and state government

through the sales tax. In addition, good restaurants add to the social quality of a town and increase its attraction.

Relative to restaurant services, the Village of Alfred had only four establishments classified as eating and drinking places in 1963. These had luncheon facilities and attracted a good number of college students but few college staff. In 1968, 70 percent of the professional and auxiliary staffs at Alfred Technical College made almost no use of eating places in the Village (Table 4.3). Forty-three percent of the professional and 80 percent of the auxiliary staff sought all of their restaurant services outside the village. In the latter case, many of the auxiliary staff living in Alfred left the village to obtain this service.

Cortland far surpassed Alfred Tech in this regard with close to 50 percent of the college's professional staff and 53 percent of its auxiliary staff making 80 percent or more of their expenditures in restaurants in the college town. The City of Cortland listed 48 eating and drinking establishments in 1963 with per capita sales ($142) well above those for upstate New York ($110).[5] In spite of this about 25 percent of the professional staff used restaurants outside the city most of the time.

The staff at Alfred University indicated somewhat higher local patronage for restaurants and eating and drinking places than did the staff at Alfred Tech, but the predominant tendency here also was to obtain restaurant services outside the village. The situation in the Village of Cazenovia resembled that in Alfred Village. However, college

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[5] Business Fact Book, op. cit.

TABLE 4.3

PERCENT OF STAFF FAMILIES MAKING VARIOUS PERCENTAGES OF

RESTAURANT PURCHASES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
0 - 10	70.0	85.7	14.0	9.9	61.3	59.9	51.1	26.0	12.7	7.1	43.2
20 - 40	17.0	8.5	11.2	3.3	15.8	8.5	13.9	17.1	10.1	0	12.1
50 - 80	10.0	5.6	42.1	46.5	20.2	14.2	34.7	43.4	47.2	42.7	28.3
90 - 100	2.5	0	38.3	40.0	2.2	17.0	0	13.0	49.9	32.3	15.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	35	71	30	44	35	43	23	78	14	490

Errors due to rounding.

Note: This table includes Restaurant services, drinks, and ice cream purchases.

staff in the City of Auburn showed a pattern more related to that in the City of Cortland. Thus restaurants in the larger cities studied demonstrated greater attraction for college staff than those in the small towns.

Furniture Purchases

In this study the data obtained relative to college staff purchases of furniture differentiates the small from the large rural town. The large town can generally support one or more furniture outlets which draw a substantial proportion of the college staff. Although furniture sales generally show a considerably lower dollar volume than do food sales, the former are a good source of local revenue through the sales tax. However the small town usually lacks retail furniture establishments.

Alfred Village has no real furniture outlets. Glidden Galleries may sell special pieces from time to time and a few appliances are available through the local hardware store, but generally Hornell, Wellsville, or other cities are the primary sources in this category. This situation is reflected in Table 4.4. About 90 percent of the professional and almost 95 percent of the college's auxiliary staff buy their furniture and appliances outside the village.

At Cazenovia a like situation holds. Eight percent of the professional and close to half the auxiliary staff make only a small fraction (ten percent or less) of their furniture purchases in the Village. Over half of the professional and a fourth of the auxiliary staff choose Syracuse for almost all (90 percent or more) furniture purchases. Town size evidently is a big factor in furniture sales. The City of Auburn indicates high performance in this category. Over 75 percent of the

TABLE 4.4

PERCENT OF STAFF FAMILIES MAKING VARIOUS PERCENTAGES OF FURNITURE PURCHASES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
0 - 10	94.8	97.0	19.6	26.6	89.1	97.0	79.9	47.8	18.1	7.1	61.5
20 - 40	3.4	2.8	5.6	3.3	6.4	2.9	11.0	13.0	3.9	0	5.0
50 - 80	1.7	0	25.2	19.9	4.3	0	4.4	21.6	25.7	28.4	11.9
90 - 100	0	0	49.2	50.0	0	0	4.4	17.3	51.8	64.2	21.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	35	71	30	46	34	45	23	77	14	492

Errors due to rounding

Note: This table includes furniture, TV and appliance purchases.

professional, and 92 percent of the auxiliary staff make more than half their furniture purchases in this city of over 34,000 people.

The City of Cortland had 22 furniture and equipment stores in 1963. Sales in this category were at $111 per capita compared to county, upstate, and New York State values at $58, $54, and $71 respectively. About 60 percent of the college's professional and auxiliary staff made 80 percent or more of their furniture and appliance purchases in the city. Only 13 percent of the professional and 20 percent of the auxiliary staff made no purchases in the City of Cortland. When this is compared to the percent of staff living outside the City it is evident that in the furniture category Cortland attracts staff members living in other localities. This offers some evidence of Cortland's centrality in the area.

Additional data obtained indicate that primary reasons for shopping outside the college town are residence outside the town, unavailability of goods, and better variety elsewhere. Price of goods, and comparative quality of goods in other localities are minor factors in the college towns surveyed. This would imply an opportunity loss for local entrepreneurs, but its extent would depend on general demand by the entire community rather than only by the college staff. The volume of local retail sales in the small town may not warrant additional investment by the entrepreneur in a greater variety of stock. On the other hand, the larger rural city's centrality counteracts staff residential spill-out, attracts people from outlying areas, and may justify the added investment.

Additional Factors in Retail Trade

There are other retail and service categories which could be addi-

tionally discussed. These indicate a condition similar to those analyzed above.

Comparison of data obtained in this study with data on retail trade in the Business Fact Book 1963 shows some interesting and useful parallels. As indicated in Table 4.5 retail trade at Alfred in all categories was extremely low. Cazenovia, larger in permanent population than Alfred but still a very small town, had a comparatively high retail sales record especially in food, lumber and hardware, gasoline service stations, and other retail stores; its eating and drinking classification was at a lower level but was still substantial. However lower sales in furniture and clothing appear evident in Cazenovia and this conforms to our data especially on professional staff at the college, which indicate attraction to Syracuse and other localities in these categories. Nearby Hamilton, the home of Colgate University, does not show as high a retail sales record as Cazenovia. Its overall retail sales per capita was $1,723 compared to $2,571 per capita at the latter location.

Cortland and Auburn with retail sales per capita at $2,038 and $1,681 respectively are well above the Upstate level ($1,394); however, neither city displays an enviable record in this regard. Commercial areas in larger cities experience substantial competition from shopping centers outside city limits and from larger cities in the region. As indicated in our data Cortland and Auburn show high retention of college staff retail purchases. Although spill-out applies to the large city as well as the village, the smaller locality with less slack in its operation and infrastructure may experience proportionately greater fiscal difficulties owing to the concomitant spill-out of tax revenues, and the added demand for services related to the college presence.

TABLE 4.5

RETAIL TRADE 1963 AT SELECTED LOCATIONS IN NEW YORK STATE

(NUMBER OF ESTABLISHMENTS AND PER CAPITA SALES)

	Population 1960	College Enrollment 1964	Sales Per Cap. 1963	General Merchandise Stores Est.	General Merchandise Stores Per Cap.	Apparel Stores Est.	Apparel Stores Per Cap.	Furniture Stores Est.	Furniture Stores Per Cap.	Drug Stores Est.	Drug Stores Per Cap.
1 New York State	16,544,897		$1,449	4,502	$ 186	16,271	$ 123	9,297	$ 71	5,525	$ 42
2 Upstate New York	5,977,137		1,394	1,759	163	4,128	77	2,990	54	1,740	43
Cities:											
3 Syracuse Area	673,056	26,068	1,388	180	169	417	81	303	56	171	44
4 Auburn	33,607	878	1,681	16	275	41	119	22	—	8	42
5 Cortland	19,102	3,045	2,038	9	248	21	126	22	111	6	58
6 Oneida	11,648	—	2,208	9	213	12	84	10	112	5	124
7 Ithaca	28,727	16,053	2,204	15	238	33	148	20	113	12	63
8 Hornell	13,855	—	1,790	6	217	13	172	13	75	5	70
Villages:											
9 Alfred	2,807	2,507	315	0	0	0	0	0	0	1	-
10 Wellsville	5,945	—	3,281	3	254	13	157	7	74	4	72
11 Cazenovia	2,584	410	2,571	4	-	3	-	4	35	2	-
12 Hamilton	3,331	1,492	1,723	2	-	7	90	0	0	1	-
13 Potsdam	7,724	3,840	2,526	7	420	13	85	5	67	3	-
14 Canton	4,995	2,365	2,497	1	-	6	135	5	32	2	--
15 Cobleskill	3,455	1,021	3,693	2	-	12	202	4	67	2	--
16 New Paltz	3,041	2,758	2,278	3	-	8	114	1	-	3	-
17 Brockport	5,231	2,130	2,168	3	-	7	126	5	197	4	125

(continued)

TABLE 4.5 (continued)

	Gasoline Stations		Lumber Hardware Dealers		Food Stores		Eating Places		Other Retail Stores	
	Est.	Per Cap.	Est.	Per Cap.	Est.	Per Cap.	Est.	Per Cap.	Est.	Per Cap.
1 New York State	12,010	$ 69	6,630	$ 54	35,817	$ 368	35,026	$ 154	26,292	$ 152
2 Upstate New York	6,669	84	3,397	77	11,386	384	14,356	110	9,459	135
Cities:										
3 Syracuse Area	697	83	359	70	1,103	358	1,449	115	1,013	118
4 Auburn	42	86	25	116	82	434	79	102	83	152
5 Cortland	34	133	17	108	36	613	48	142	43	166
6 Oneida	20	147	7	83	31	659	35	97	27	243
7 Ithaca	42	157	18	80	35	470	75	176	57	298
8 Hornell	24	113	9	131	26	390	35	115	28	115
Villages:										
9 Alfred	2	-	0	0	5	131	4	32	4	96
10 Wellsville	9	148	13	216	25	683	21	179	18	160
11 Cazenovia	7	181	3	270	5	700	7	178	8	322
12 Hamilton	3	56	3	148	7	437	13	138	9	328
13 Potsdam	19	214	5	73	16	717	29	183	25	311
14 Canton	6	98	11	327	15	590	15	123	23	493
15 Cobleskill	10	179	4	228	7	1,046	9	104	21	814
16 New Paltz	6	256	6	407	6	-	14	189	10	292
17 Brockport	10	131	3	110	11	682	15	140	15	115

Stores listed above are classified in the Business Fact Book as follows: General merchandise stores; apparel accessory stores; furniture, home furnishings, equipment stores; drug stores, proprietary stores; gasoline service stations; lumber, building materials, hardware, farm equipment dealers; food stores; eating, drinking places; and other retail stores. Automotive dealers, and nonstore retailers have been omitted from the above list.

Population data exclude inmates of institutions.
Est. = Number of establishments
Per Cap. = Per capita sales
College enrollment indicated is undergraduate full-time enrollment, 1964, except for Ithaca and Syracuse in which case data are obtained from the Business Fact Book and include only students enrolled for degrees, Fall 1965.

As our data indicate the small town need not necessarily exhibit low patterns in retail sales and high spill-out. It can do relatively well in food, restaurant services, clothing and in other retail trade with the proper entrepreneurship, attractive facilities, some amount of centrality in its area, and boundaries which permit expansion. Relative to the college, the degree of spill-out of staff payroll and student expenditures will largely determine the economic benefit and burden of the institution.

In general we can conclude that the small college town with a weak and static commercial district, within a short distance from other competing centers with relatively high centrality, will experience high spill-out of the purchasing dollar. With low retail sales a rapid outflow of funds occurs, and with a low economic multiplier the small town's benefits from the college presence are considerably lessened. When in addition to this, new faculty buy property, and build homes in other localities additional sources of financial strength are removed. The college may expand at a rapid rate requiring additional services, but the town sometimes forced to develop much more slowly, is weakened by spill-out and a low financial base that cannot provide for growth. This is not to say that the small town must inevitably experience this condition; as previously discussed, data on Hamilton (Colgate University), and other villages indicate the contrary.

We can conclude that important qualifications for college location in the small town are (1) readily available room for town growth to balance the expansion of the college, and (2) an attractiveness which will assure town development and growth. A college town cannot serve every need of the college, its staff, and students, but it must experience

a reasonable amount of growth as the college increases in size in order to successfully carry the cost of services related to the college operation.

The situation in Alfred Village can be ameliorated basically by expansion of its commercial operation and housing capability, and probably by expansion of the village boundaries. These courses of action present difficulties and the village will probably need outside help in their accomplishment.

Impact on Housing

In addition to a college's effect on retail sales, important gains in community economic health and financial capability occur through an upgrading of housing, occupational, and personal income levels in a locality. Some of this has already been discussed in previous chapters; what follows will supplement this material.

Professional staff at the colleges studied generally live in homes which are above the average in market value. Consequently property values and tax revenues in the expanding college town are increased by influx of these individuals.

Data obtained at the Alfred Technical College (Table 4.6) indicate that a significant difference exists between professional and auxiliary staff housing in the area. For college staff close to 50 percent of the professional staff owning homes indicated their residences were in the $20,000 to $35,000 range, compared to 10 percent for auxiliary employees in this category. The great majority of auxiliary staff members (close to 80 percent) live in housing valued below the $15,000 level; professional staff members show a much smaller group (22 percent) below this mark. If these ranges are compared to the median housing value for

TABLE 4.6

CURRENT MARKET VALUE OF HOMES OWNED BY COLLEGE STAFF

Market Value, Dollars	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Below $10,000	2.4	41.3	2.0	15.0	6.6	31.0	0	21.4	1.7	16.6	9.7
10 - 14,900	20.4	37.9	8.1	20.0	10.0	17.2	3.3	35.7	13.7	33.3	17.2
15 - 19,900	24.1	10.3	24.4	35.0	23.3	20.6	10.0	14.2	24.1	33.3	21.8
20 - 24,900	15.6	3.4	30.6	15.0	33.3	13.7	30.0	7.1	36.2	16.6	22.4
25 - 29,900	19.2	6.9	18.3	10.0	20.0	10.3	16.6	14.2	10.3	0	14.6
30 - 34,900	13.2	0	10.2	0	6.6	0	23.3	0	10.3	0	8.9
35 - 39,900	3.6	0	4.0	0	0	3.4	3.3	7.1	0	0	2.3
40,000 and over	1.2	0	2.0	5.0	0	3.4	13.3	0	3.4	0	2.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	83	29	49	20	30	29	30	14	58	6	348

Errors due to rounding

Alfred Town in 1960 ($12,000) as indicated in Table 2.5, considerable upgrading of housing and property values by the college professional staff is apparent although former (1960) housing values have increased considerably with time. However, in the case of Alfred Tech the extensive spill-out of professional staff to residences outside the village as previously discussed, drastically reduces the potential benefit of additional good housing for the community.

Cortland shows a similar upgrading of housing levels owing to the influx of professional staff. But there is not a significant difference between professional and auxiliary staff residential levels; more of the latter group enter into the higher ranges than at Alfred. About 60 percent of the college's professional staff live in homes in the $20,000 to $35,000 range, and 25 percent of the auxiliary staff occupy this category. In the lower cost range fewer (10 percent) professional and (35 percent) auxiliary staff live in housing below the $15,000 level. It is possible to conclude that the impact on housing values is considerably greater in Alfred than in Cortland if the housing levels for auxiliary staff are considered typical for each area. Also, using housing as an indicator, Alfred Tech appears to employ many more auxiliary staff members coming from lower socio-economic levels than at Cortland.

At Alfred University, Cazenovia and Auburn professional and auxiliary staff also differ in the market values of their homes. About half of the auxiliary staff at these colleges live in homes valued below $15,000, however only about 15 percent of the professional staff are at this level. Close to 60 percent of these professionals live in homes valued above $20,000, but only about 30 percent of the auxiliary staff are in this category.

Rental housing is the characteristic mode for newer staff members coming from outside the area. Monthly rental costs for housing show a somewhat greater spread in the Cortland area than in the Alfred vicinity. In the Alfred area a small number of staff have rentals below the $75 level and monthly rentals between $125 to $175 are fairly common for staff members renting. In Cortland rentals between $75 to $175 are frequent, with many staff members renting around the $125 monthly level. This form of housing especially for professional staff has raised property values and monthly contract rent levels in college towns studied.

Impact on Local Employment

The town labor force is substantially affected by the new or expanding college. As previously discussed, an input of better paying jobs enters the area through the institution. The bulk of the college's auxiliary staff positions go to individuals already resident in the county. However professional staff are generally attracted from outside the county.

The four year college tends to have higher in-town residence ratings for professional staff than the two year college. However the college in or near a large city generally draws a high proportion of auxiliary and professional staff from that locality. The college town's labor force statistics vary for each situation accordingly.

Chi square values for both Alfred Tech and Cortland College show that a significant difference exists between professional and auxiliary staff members relative to the location of their previous employment.[6] This conclusion was readily anticipated but the proportions obtained in

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[6] This is also indicative of their residence location before joining the college staff.

survey are of interest.

Close to 70 percent of the professional staff at both colleges were previously employed at distant locations outside the county or adjacent counties (Table 4.7). And conversely, for the auxiliary staffs at both colleges, close to 70 percent (a bit higher for Cortland College, and a bit lower for Alfred Tech) were previously employed in the local area, including the college town, county, or in adjacent counties. At Alfred 26 percent of the professional and 6 percent of the auxiliary staff were employed outside New York State; at Cortland this proportion was considerably higher at 38 percent, and 11 percent for these staff groups respectively.

Another important consideration is the fact that Alfred Tech has a considerably greater draw of individuals previously employed in the county than does Cortland College; at Alfred Tech 19 percent of its professional and 55 percent of its auxiliary staff were so employed, compared to 11 percent and 39 percent respectively for Cortland College. Thus at the county level Alfred Tech has a greater effect as an employer of area residents. Industry in Cortland probably offers more competition for the area employee than is the case in Allegany County. The situation evens out when the area under consideration is extended to adjacent counties. Relative to college town residence ratings it is possible that individuals who worked in the county previous to their employment at the college also had lodging fairly near the college town; many of these individuals probably maintained their former lodging rather than move into the college town. Since Alfred Tech had 14 percent of the professional and 39 percent of the auxiliary staff previously employed in the county this would considerably lower its town residence ratings.

TABLE 4.7

LOCATION OF PREVIOUS EMPLOYMENT BY COLLEGE STAFF
(Percent)

	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
Location	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Collegetown	4.2	16.1	8.4	32.1	14.8	32.3	8.3	33.3	15.1	66.6	15.5
This County	14.2	38.7	2.8	7.1	2.1	17.6	4.1	16.6	10.1	6.6	11.0
Adjacent County	11.7	12.9	19.7	35.7	6.3	17.6	39.5	33.3	18.9	6.6	18.9
New York State	43.7	25.8	30.9	14.2	29.7	20.5	29.1	8.3	32.9	13.3	30.4
Outside New York State	26.0	6.4	38.0	10.7	46.8	11.7	18.7	8.3	22.7	6.6	23.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	119	31	71	28	47	34	48	24	79	15	496

Errors due to rounding

Auxiliary staff at Alfred University, Auburn, and Cazenovia also indicate that a considerable amount of local recruitment occurs. The latter college draws heavily on the Syracuse area for auxiliary personnel. However professional staffs at these colleges are primarily non-local in origin. Over three-fourths of Alfred University's professionals were attracted from outside the region of the college, and Auburn Community College and Cazenovia College required extra-regional recruitment for about two-thirds and one-half of their professional staffs respectively.

Spouse Employment

When newcomers enter an area in considerable numbers, as do professional staff at a college, there is a good possibility that employment of their spouses will bear upon economic and social factors in the area. At the five colleges studied between 40 to 70 percent of the professional staff indicated their spouses were employed. The higher percentages occurred at the two year colleges.

Faculty wives frequently engage in teaching or in other professions, and rural areas in which these skills are scarce generally benefit by this increased supply of qualified personnel. In Table 4.8 the high percentage of employed spouses engaged in teaching is indicated. Many of these individuals find employment in rural schools, nurseries and other educational institutions.

For the professional staff the percentages of employed spouses engaged in teaching, professional and technical activities were high at all the colleges studied, with Cazenovia at 82 percent, Cortland at 70 percent, Alfred Tech at 67 percent, Auburn at 60 percent, and Alfred University at 56 percent. In most cases employment was in the county or the college town, but many of the professional and auxiliary staff at

TABLE 4.8

MAJOR OCCUPATION OF SPOUSE
(indicated by college staff)

	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
Occupation	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Teacher	45.9	4.7	53.3	14.2	35.7	13.6	45.8	0	39.5	12.5	33.0
Professional	22.9	4.7	20.0	0	21.4	13.6	37.5	11.1	20.9	0	18.5
Craftsman	3.2	19.0	3.3	14.2	0	9.0	0	22.2	6.9	62.5	8.5
Clerk	21.3	23.8	10.0	7.1	10.7	9.0	4.1	0	2.3	0	10.7
Other	6.5	47.4	13.3	64.1	32.1	54.3	12.4	56.5	30.2	25.0	28.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	61	21	30	14	28	22	14	24	43	8	269

Errors due to rounding

Note: Occupations include: (1) Teacher, (2) Other Professional or Technical, (3) Craftsman, foreman, service worker, or equipment operator, (4) Clerk, salesworker, secretary, (5) Other.

these colleges indicated that their spouses worked in an adjacent county.

B. Selected Social Characteristics and Interaction of the College Staff

In addition to their economic input, incoming professionals bring social qualities which have value to the community or affect its change and growth. A quantitative measure of a part of this input to a locality can be obtained by utilization of common statistical information on age, sex, educational level, occupational level, intelligence quotient, and other characteristics which can be summed, averaged or otherwise manipulated.

Measurement of Input and Spill-out of Human and Social Capital By Use of Indexes

Statistical measures for determining input of human and social capital to a community can be obtained by the use of reliable indexes which are formed from a composite of basic characteristics. Examples of indexes used to describe social and economic characteristics of a community include indexes of socio-economic status, community solidarity, neighborliness, and others; these have been demonstrated by a number of sociologists, planners, and human ecologists.[7]

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[7]Delbert C. Miller, Handbook of Research Design and Social Measurement (New York: David McKay Company, Inc., 1964), pp. 91-327, compiles selected sociometric scales and indexes. Eshref Shevsky and Wendell Bell, Social Area Analysis (Stanford: Stanford University Press, 1955), utilizes indexes of social rank, urbanization, and segregation. Douglass Boardman Lee, Jr., "Urban Models and Household Disaggregation, An Empirical Problem in Urban Research," Ithaca: unpublished Ph.D. dissertation, Cornell University, Department of City and Regional Planning, 1968, pp. 308-315, 334-344, develops similar indexes. Raymond A. Bauer (ed.), Social Indicators (Cambridge: M.I.T. Press, 1966), pp. 154-271, includes a section on social systems accounting. See also United States Department of Health, Education and Welfare, Toward a Social Report (Washington: Government Printing Office, 1969). A General Social Welfare Index which includes factors such as purchasing power, home ownership, housing adequacy, health needs, educational provisions, political expression, and municipal wealth and service is used in Irving A. Fowler, op. cit., pp. 68-69.

It is possible to measure socio-economic development in a town by use of the above quantitative values. It is also possible in some degree to plan an input of human and social qualities into a locality, just as an input of dollars is plannable as previously discussed relative to college establishment or expansion. However to assess this input, spill-out must be considered.

Application of the Community Service Activity Index can illustrate how an element of human and social input to the college town can be measured. The Community Service Activity Index[8] was used to determine professional and auxiliary staff participation in community activity. This, and related measures, offer quantitative indications of the potential of the college, through its personnel, as an instrument for social development and change. Fifteen behavioral items related to community service activity form the index. The individual scores one point for each activity he has engaged in. Scores have been standardized, and a score of 0-5 indicates a low participating member, 6-9 is average, and 10-15 is the range for an outstanding member of the community. The input of outstanding individuals to a town can be considered an asset in community development.

Survey results are indicated in Table 4.9. Chi square values indicate a significant difference between professional and auxiliary staff personnel in community service activity scores. As previously indicated, professionals are generally imported to the area while auxiliary staff are primarily local in origin.

At Alfred Tech 28 percent of the professional and 11 percent of the

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[8]Delbert C. Miller, Handbook of Research Design and Social Measurement (New York: David McKay Company, Inc., 1964), pp. 205-207.

TABLE 4.9

COMMUNITY SERVICE ACTIVITY SCORES OF COLLEGE STAFF

Score	Alfred Tech Prof.	Alfred Tech Auxil.	Cortland Prof.	Cortland Auxil.	Alfred University Prof.	Alfred University Auxil.	Cazenovia Prof.	Cazenovia Auxil.	Auburn Prof.	Auburn Auxil.	Total
					Percent						
0 - 5	20.6	54.3	25.4	48.2	31.3	44.5	25.1	52.0	22.0	42.8	30.7
6 - 9	51.3	34.2	38.0	41.3	47.9	55.6	45.8	32.0	45.2	42.9	44.9
10 - 15	28.2	11.5	36.6	10.5	20.9	0	29.2	16.0	33.0	14.3	24.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	35	71	24	48	36	48	25	82	14	505

Errors due to rounding.

auxiliary staff scored as outstanding members in the community; 21 percent of the professional and 54 percent of the auxiliary staff scored as low participants in community activity. Mean score for the professionals was close to 8, and for the auxiliary staff members close to 5.5. The proportions of individuals in the oustanding service category are most important, since it is this group that would be most active in creating change in the area.

At Alfred University a lower percentage of staff members rated high scores, with only 21 percent of the professional and none of the auxiliary staff scoring as outstanding members of the community. At Cortland close to 37 percent of the professionals scored in the outstanding community activity range and the percentages were somewhat lower at Auburn (33 percent) and Cazenovia (29 percent). However, at all the colleges studied the proportion of professionals indicating outstanding service was at least double that of the auxiliary staff.

It is possible to calculate the input of community service potential to each locality and to the general area around the college town owing to the influx of professional staff, in similar manner to the payroll input exhibited in Table 2.4. For example, for Alfred Tech with an assumed 70 percent of the 195 member professional staff newly entering the area and bringing a community service potential score of 8, the community service activity input amounts to .7 x 195 x 8 = 1092 units. This represents an input of human and social capital to the area which is of value in its growth. In per capita form, or when totaled as a neighborhood or community rating, it may represent a potential for development. The precise value of this potential for a community is difficult to fully assess at present. Miller suggests research to

indicate the relationship between community service activity and other community characteristics such as solidarity, and quality of community life.[9]

Political Input of the College Staff

Related to community service activities are the political views of the college staff. These may effect change in an area if they differ substantially from those of other townspeople (businessmen, farmers, etc.), and especially if the college professional staff is politically active and potent in the locality. The professional staff are largely newcomers. Except in the small villages, the size of this group makes it a minority. Generally the rural areas of upstate New York are strongly conservative and predominantly Republican. They resist change. Any differing political input via the college's professional staff may represent a threat to the conservative position.[10] As expected the five colleges studied indicate that auxiliary staff generally have political views which closely resemble those of other townspeople. However professional staff members at the colleges are considerably less conservative.

At the Alfred Technical College close to half (46 percent) of the professional staff indicated that they held less conservative political

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[9]Delbert C. Miller, Handbook, op. cit., pp. 192-207. Other socio-economic and political indexes may be used in the same manner. Each index and its total value is an indication of the extent of vested human and social capital which determines the characteristics of the locality.

[10]See Delbert C. Miller, "Town and Gown," op. cit., pp. 432-443. Miller studied a university town and found that business and governmental associations dominated the educational institutions in resolving community issues. For additional discussion of political power in the small town see A. J. Vidich, and J. Bensman, Small Town in Mass Society (Princeton: Princeton University Press, 1958), pp. 79-105. For a more general discussion see Robert Allan Dahl, Who Governs? Democracy And Power In An American City (New Haven: Yale University Press, 1961), pp. 63-103, 150-159.

views than other townspeople (businessmen, farmers, etc.) in the area (Table 4.10). About 15 percent considered themselves far less conservative, and if political change was to come it would probably be stimulated by individuals in this minority. The auxiliary staff, primarily native to the area, indicated political views largely similar (at 78 percent) to those of the townspeople in the general area, and the chi square value indicated that a significant difference existed between professional and auxiliary staff groups.

At Cortland College a still higher number (75 percent) of the professional staff show less conservative political views than the townspeople in the general area. A substantial number (38 percent) indicated that they were far less conservative. With about 29 percent of the auxiliary staff members also indicating less conservative views, a sizable potential for community change is apparent at the College.

Several factors may influence the relative conservativeness of the Alfred Tech professional staff compared to that at Cortland. As indicated in Table 4.7 a higher proportion of the Alfred Tech contingent previously worked and lived in the county or came from adjacent counties which were predominantly rural and generally conservative. Additional data from this survey indicate that close to 70 percent of the professional staff at Cortland have lived in a large city or its suburb for at least one year, compared to 50 percent of those at Alfred Tech. Conversely, 45 percent of the professionals at Alfred Tech never lived in a large city compared to 23 percent at Cortland. Other factors influence political views (and certainly, individuals coming from large cities need not be less conservative), but the above-mentioned variables appear to suggest a relationship.

TABLE 4.10

POLITICAL VIEWS OF COLLEGE STAFF COMPARED TO TOWNSPEOPLE IN GENERAL AREA
(Percent)

Political Views	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Far more conservative	0.8	2.7	2.9	3.5	2.0	3.0	0	0	0	7.1	1.6
Fairly more conservative	10.2	11.1	4.4	21.4	14.5	9.0	2.0	20.0	8.5	21.4	10.2
At same level of opinion	42.7	77.7	17.6	46.4	29.1	69.7	20.8	64.0	26.8	57.1	39.2
Fairly less conservative	30.7	8.3	36.7	21.4	35.4	12.1	39.5	12.0	34.1	14.2	28.6
Far less conservative	15.3	0	38.2	7.1	18.7	6.0	37.5	4.0	30.4	0	20.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	36	68	28	48	33	48	25	82	14	499

Errors due to rounding

Note: Townspeople were defined as businessmen, farmers, and workers in the area.

The professional and auxiliary staff at Alfred University do not differ significantly from the respective staffs at Alfred Tech in conservative tendencies. However a considerable proportion (77 percent) of the professional staff at Cazenovia indicated their political views were less conservative than those of the townspeople. Many (88 percent) of the professional staff at Cazenovia come from outside the county and a considerable number (68 percent) have lived previously in a large city or its suburb. This again may substantially account for the less conservative view of these professionals. Also from the standpoint of the townspeople themselves, historical data on gubernatorial elections in New York State indicate a predominantly conservative inclination for the town.

The data obtained from Auburn Community College again indicate a high proportion (65 percent) of the professional staff less conservative politically than the townspeople. This information is also supported by additional survey data which indicate that a large number of these professionals come from large cities outside the county.

Staff Influence on Local Policy

An important area of interaction between college staff and townspeople can occur especially in the establishment of school district policy. This area of decision-making is usually of special concern to the professionals. As educators, the faculty and administrators tend to favor greater expenditures for schools. The local townspeople are frequently divided on this issue. A proportionately large and active professional group may swing the vote, and substantially influence school district policy.

The opinions of college staff on influence of the college in local government and school district policy were solicited in this survey. The results are indicated in Tables 4.11 and 4.12. At Alfred Tech over 50 percent of the professional and auxiliary staff were of the opinion that college and staff influence is high or fairly high; both groups were quite agreed in this opinion especially relative to local government policy as can be seen in the chi square value. The staff at Alfred University corroborated this opinion.

At Cortland the college was rated as a moderate or fairly low influence. However, some disagreement is evident in that the professional group assigned lower influence to the college than the auxiliary group; at Cortland close to half (49 percent) of the professional staff felt that the college had fairly low or no influence in local government and school district policy, but only about a quarter of the auxiliary staff gave this opinion. On the other hand, there is much agreement between the two groups in that only a small number of professional and auxiliary staff indicated fairly high or high influence on school district and local government policy.

It appears that for both Alfred and Cortland the size of the college professional staff relative to the size of the college town's total labor force has considerable bearing on the influence of the college. As indicated previously, in 1960 in Alfred Town, the percentage of employed persons engaged in educational services was 41.2 percent of those employed in industry; on an occupational basis 31.6 percent of those employed in Alfred Town were professional and technical workers. Since the Alfred school system includes the Village of Almond where several of the college professional staff reside, Almond's labor force proportions

TABLE 4.11

INFLUENCE OF THE COLLEGE AND STAFF ON SCHOOL DISTRICT POLICY
(Percent)

Influence Indicated by Staff	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
High	19.6	7.4	4.6	8.0	34.8	32.2	0	13.6	1.2	18.1	13.0
Fairly high	30.8	44.4	13.8	8.0	25.5	29.0	0	31.8	29.6	45.4	24.6
Moderate	31.7	40.7	32.3	60.0	30.2	29.0	37.2	36.3	38.2	26.3	35.6
Fairly low	14.0	7.4	36.9	16.0	9.3	9.6	48.8	13.6	27.1	0	21.5
None	3.7	0	12.3	8.0	0	0	13.9	4.5	3.7	0	5.2
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	107	27	65	25	43	31	43	22	81	11	455

Errors due to rounding

TABLE 4.12

INFLUENCE OF THE COLLEGE AND STAFF ON LOCAL GOVERNMENT POLICY
(Percent)

Influence Indicated by Staff	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
High	15.3	12.1	1.5	11.5	23.2	29.4	0	12.5	0	7.6	10.3
Fairly high	37.8	42.4	19.7	11.5	34.8	20.5	7.1	33.3	18.2	53.8	26.7
Moderate	34.2	36.3	30.3	53.8	27.9	47.0	38.1	33.3	32.9	23.0	35.0
Fairly low	10.8	9.0	42.4	15.3	13.9	2.9	52.3	12.5	36.5	15.3	23.4
None	1.8	0	6.0	7.6	0	0	2.3	8.3	12.2	0	4.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	111	33	66	26	43	34	42	24	82	13	474

Errors due to rounding.

also bear influence. In 1960, in Almond 21.7 percent of those employed in industry were engaged in educational services, and professional and technical workers made up 16 percent of the occupation groups.

The data for Alfred and Almond can be compared to that at Cortland where individuals engaged in educational services amounted to 9.3 percent of those in industry. On an occupational basis 11.6 percent of those employed were professional and technical workers. Since there are many firms in Cortland employing professional and technical help the latter percentage should be reduced in assessing the number connected with the college. When this is approximated the difference in the situation at Alfred and Cortland is considerable. At Alfred the colleges (both Alfred Tech and Alfred University) are the major employers; the professional group comprises a large proportion of the college staff, as indicated in Table B.2 and B.3 of Appendix B. In Cortland the college staff is a small segment of the labor force. The influence of these colleges on local government and school policy appears to relate somewhat to their impact on the total labor force. However other factors such as the extent of faculty involvement in community affairs are important.[11]

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[11]Delbert C. Miller in "Town and Gown," op. cit., indicated that although the university was the largest employer in town (population 32,000 including 13,000 students), with 3,600 faculty and staff personnel, its influence was subordinated to business and governmental associations in resolving community issues. Miller indicated that the university housed over 1,000 faculty in the town; two large industrial plants employed about 2,500 workers each, and an extractive industry employed 2,000 more. In the county with a population of about 60,000, there were about 15,000 non-agricultural jobs. The university town was "in the center." Miller pointed out that the university was "well represented in community affairs by university officials" but that faculty were under represented owing to the fact that the latter were more involved with state, national, and international roles rather than in local participation. At Alfred Tech, a two year college without a research emphasis, the

(continued next page)

The situations at Cazenovia and Auburn strengthen these conclusions in that persons in educational services comprise only 15 and 4 percent of the employed labor force in each of these college towns respectively. In these localities close to 50 percent of the professional staff indicated low influence of the college and staff on local school district and government policy. However interviews at Auburn indicated that college staff participation in community affairs helped in problem areas, and somewhat increased college and staff influence in the formation of local policy.

Social Ties Between College Staff and Townspeople

The non-political contact or interaction of the college family with townspeople such as businessmen, and farmers is also important in social impact, development, and change. This can involve social relationships, or frequent conversations with townspeople in which work, problems, recreation, family, social activities, or current events are discussed. A predisposition for accepting innovation and change may be established through repeated and routine social contact especially when this interchange is constructive. Important is the amount of interaction between the professional staff and local townspeople since these two groups probably feature the greatest differences in ideas, customs, and actions.

Staff members at Alfred Tech and Cortland College were asked to give their opinions on the strength of their social ties with townspeople

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11(continued) faculty were considerably more local in outlook, a former faculty member served as Mayor of the Village and others were on the school board. However, it did take a considerable number of years and growth of the college before the political transformation occurred. With recent occurrences on campuses as a gauge, it appears that greater involvement by faculty in community affairs is the trend.

(businessmen, farmers, etc.) in the general area. A qualitative measure was provided the respondent in that ties were classified as very strong, fairly strong, moderate, fairly weak, and non-existent (Table 4.13). A second question utilized a quantitative device to indicate contact between the college staff and townspeople. Staff were asked to indicate with how many townspeople they fairly frequently discussed town problems, work, recreation, family, or social activities. The answers varied between none, and six or more.[12]

At both Alfred Tech and Cortland College there is no significant difference between the professional and the auxiliary staff relative to social ties with townspeople (Table 4.13). Both indicate primarily moderate or close to moderate ties. At Alfred Tech one-third (33 percent) of the professional staff show fairly strong or very strong social ties with townspeople, compared to about one-fifth (19 percent) of the auxiliary staff. On the other hand, 36 percent of the former show fairly weak or non-existent social ties compared to 30 percent of the latter. At Cortland a similar situation prevails with only 26 percent of the professional and 22 percent of the auxiliary staff indicating strong ties with townspeople.

At Alfred University and Auburn the auxiliary staffs show somewhat stronger social ties with townspeople than do professionals but great differences do not exist between these groups. However at Cazenovia a

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[12]See Delbert C. Miller, Handbook of Research, op. cit., pp. 220-221, "A Guttman Scale for Measuring Women's Neighborliness," by Paul Wallin, especially questions 6 and 9. Greater neighborliness (GN) and lesser neighborliness is scored based on qualitative and quantitative query. The reliability is high. Or see Paul Wallin, "A Guttman Scale for Measuring Women's Neighborliness," The American Journal of Sociology, Vol. 59, 1953, pp. 243-46.

TABLE 4.13

STRENGTH OF SOCIAL TIES BETWEEN COLLEGE STAFF AND TOWNSPEOPLE IN THE AREA
(Percent)

Social Ties	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Very strong	5.9	2.7	9.8	7.1	8.5	16.6	4.3	16.0	17.0	14.2	9.7
Fairly strong	27.1	16.2	16.9	14.2	25.5	27.7	19.5	32.0	18.2	28.5	22.2
Moderate	31.3	51.3	30.9	42.8	27.6	36.1	34.7	44.0	31.7	35.7	34.5
Fairly weak	27.1	16.2	28.1	14.2	27.6	13.8	30.4	8.0	28.0	14.2	24.0
None	8.4	13.5	14.0	21.4	10.6	5.5	10.8	0	4.8	7.1	9.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	118	37	71	28	47	36	46	25	82	14	504

Errors due to rounding.

substantial difference in social ties is shown between auxiliary and professional staff members; close to half (48 percent) of the former and only about a fourth (24 percent) of the latter show strong social ties with townspeople.

In quantitative assessment of social contact with townspeople, there is no significant difference between professional and auxiliary staff at Alfred Tech, Cortland, and Auburn (Table 4.14). However at Cortland professional and auxiliary staff indicate a far greater contact with townspeople than at Alfred Tech; in the former location slightly over 60 percent of the staff have fairly frequent discussions with 4 or more townspeople, while in the latter case only about 35 percent do so. A rather high percent among the professional (34 percent) and auxiliary staff (48 percent) at Alfred Tech indicate contact with one or none of the townspeople. This may relate to college town size and town residence ratings, but further study would be necessary to validate that conclusion.

When the quantitative measure is applied to Alfred University considerably closer contact between staff and townspeople is evident than for Alfred Tech College. About half of the professional and auxiliary staff contact four or more townspeople frequently. Cazenovia professionals are also near this level of contact, but Auburn indicates the highest contact with townspeople by 67 percent of their professional staff.

College Town Problems

The college town may experience problems which may or may not be attributed to impact of the college. Some insight into these problems was obtained through analysis of data in Appendix Table E.1. There

TABLE 4.14

NUMBER OF TOWNSPEOPLE CONTACTED FAIRLY FREQUENTLY BY COLLEGE STAFF
(Percent)

Number Contacted	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
None	26.3	34.4	13.6	26.9	15.9	22.5	19.5	0	7.5	16.6	
One	8.1	13.7	3.0	0	4.5	6.4	4.8	0	0	0	4.5
2 - 3	30.0	17.2	22.7	11.5	25.0	19.3	24.3	15.7	25.0	33.3	24.0
4 - 5	12.7	6.9	6.0	19.2	11.3	12.9	7.3	26.3	15.0	0	11.7
6 or more	22.7	27.5	54.5	42.3	43.1	38.7	43.9	57.8	52.5	50.0	41.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	110	29	66	26	44	31	41	19	80	12	458

Errors due to rounding.

was high consensus by college staff at both Alfred University and Alfred Tech on the need for housing. Well over half of the professional and auxiliary staff members at these colleges ranked housing as the primary problem of the college town. Housing needs at Auburn, Cortland, and Cazenovia were also considered a problem; however, less than one-fourth of the staff at these colleges saw this as primary. The second major problem for the college towns was high taxes. Auxiliary staff members at the colleges were especially concerned with this situation. Lesser numbers of the staff indicated the need for shopping facilities and industrial development and others were concerned with poor entertainment and recreation facilities. Difficulties between students and townspeople were seen as minimal. Other problems listed were indicated as minor in the college towns examined. Generally, attitudes of the townspeople toward the colleges were favorable (see Table E.3 in the Appendix).

C. Summary

In conclusion, the regression and questionnaire analyses indicate broad likes and differences in impact for the college towns studied and suggest additional research. A more detailed analysis of staff impact and spill-out could be made using current and previous residence location as control variables. However this was not within the scope of this study.

This chapter reinforced the findings of Chapters Two and Three. It further demonstrated how the college town is affected in the interaction phase by the college staff. Alfred Village obtains a relatively low staff residential input (Phase I) and a low rating on staff purchases in its commercial district (Phase II). On the other hand,

Cortland indicates substantial benefits owing to the college presence in both phases of institutional input. Auburn and Cazenovia also show relatively favorable input in both stages.

As demonstrated, the small college town need not inevitably experience a low economic and social input. The situations at Cazenovia and other viable college towns indicate favorable college impact in both stages. To realize benefit from college input the small college town must be capable of ready expansion to balance growth of the college, and it should have a centrality and attractiveness which provides for growth and development.

The town planner and decision-maker should be apprised of the social and political input that enters with the college population as well as the resultant economic consequences. The former may be of greater importance in the long run in determining social and political outcomes for the college town. The institutional population brings a potential for social change. The professional staff are generally above average in community service potential, and are less conservative than the townspeople. College influence on school district policy and local government can be substantial especially in the small college town, with a relatively large and locally active college staff.

PART III: STUDENT IMPACT ON THE COLLEGE TOWN

CHAPTER FIVE

LOCAL STUDENT ENROLLMENT AND COMMUTATION

Another major factor affecting impact of the college on the community is the characteristic of its local and non-local student enrollment. The locality with a college benefits by offering a readily accessible program in higher education to local students, and by supplying educational services to non-local students. In the latter case a substantial increase in the community's economic base can occur due to this "export." In addition, educational and social benefits accrue to the college town because broader and more diversified educational programs can be planned, and a greater interchange of ideas and experiences takes place.

Consequently, of primary interest to the educational and town planner is the size of the local and non-local enrollment, and the size of commuter, dorm, and off-campus student components.

At colleges located outside of metropolitan areas in New York State the great majority of the students come from homes beyond a 50 mile radius. In the Elmira economic area, for example in 1963, with enrollments at local colleges totaling 13,338 students, only 2,429 (18.2 percent) were local residents. In the Binghamton area only 1,742 (27 percent) were <u>local</u> students out of a total of 6,476 full-time undergraduates. On the other hand, only 48 percent of the Elmira area college students, out of a total of 5,026 undergraduates, chose to enroll at local colleges; in the Binghamton area this figure was 37.3 percent.

Extensive intra-state student migration between economic areas is evident in Table 5.1.

When one examines the situation at individual rural colleges the above data are reflected in enrollment patterns of four year institutions and also at two year agricultural and technical colleges. However, two year community colleges located in cities throughout New York State draw much of their student enrollment from the city itself, and from the local economic area. For example, Auburn Community College records indicate that 35 percent of the full-time student enrollment came from the Auburn School District in 1965;[1] in total, the Syracuse economic area, of which Auburn is a part, provided 76.5 percent of Auburn Community College's student body as indicated in Table 5.2. Additional data indicate that in 1963 community colleges outside of New York City drew 69.7 percent of their students from the county in which the college was located.[2]

A primary factor in state college location has been the intent to serve students in the local area who can commute from their homes and thus incur minimal expenditures for their college education.[3] The community which provides higher education delays the departure of both youth and dollars spent for education. However, at the same time, the rural college provides educational skills with which the local graduate

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[1]Albert T. Skinner, "Auburn Community College, Report of the President for the Year July 1, 1965 to June 30, 1966 (Auburn, New York: Board of Education of the Auburn City School District, 1966), pp. 7-8.

[2]The University of the State of New York, The Regents Tentative Statewide Plan, op. cit., p. 127.

[3]State of New York, Report of the Temporary Commission, op. cit., pp. 21-22.

TABLE 5.1

INTRA-STATE MIGRATION MATRIX BY ECONOMIC AREA
FULL-TIME UNDERGRADUATE STUDENTS
FALL 1963

Location of College Attended (Economic Area)	Bing-hamton	Buffalo	Capital District	Elmira	Mid-Hudson	Mohawk Valley	New York Metropolitan			Northern	Rochester	Syracuse	Total
							New York City	Nassau-Suffolk	Rockland-Westchester				
Binghamton	1,742	219	519	273	450	325	836	1,179	350	94	227	262	6,476
Buffalo	282	14,520	444	448	276	401	999	1,066	381	246	1,478	593	21,134
Capital District	426	410	5,663	225	1,002	823	822	1,092	643	327	457	382	12,272
Elmira	536	1,379	711	2,429	571	390	2,065	1,688	927	275	1,593	774	13,338
Mid-Hudson	65	74	205	25	3,415	73	1,239	906	612	25	68	58	6,765
Mohawk Valley	105	99	95	37	47	563	40	89	51	109	138	259	1,632
New York Metropolitan													
New York City	147	183	294	60	579	120	73,491	8,569	4,067	83	136	94	87,823
Nassau-Suffolk	15	27	50	13	92	29	2,318	9,088	199	19	25	15	11,890
Rockland-Westchester	40	71	129	30	115	49	2,409	459	3,161	31	60	73	6,627
Northern	249	424	788	178	334	530	322	950	392	2,181	586	565	7,499
Rochester	297	1,272	407	633	288	380	670	833	396	256	6,514	614	12,560
Syracuse	769	910	745	675	601	1,804	1,613	1,971	1,148	631	1,319	5,745	17,931
Total	4,673	19,588	10,050	5,026	7,770	5,487	86,824	27,890	12,327	4,277	12,601	9,434	205,947

Source: The University of the State of New York, The State Education Department, The Regents Tentative Statewide Plan for the Expansion and Development of Higher Education (Albany: The University of The State of New York, 1965), p. 130.

TABLE 5.2

GEOGRAPHIC ORIGIN OF FULL-TIME STUDENTS AT SELECTED COLLEGES IN NEW YORK STATE

	Alfred Ag. & Tech. 1966	Cortland 1965	Auburn C.C. 1965	Cazenovia[a] 1967
	Percentage Distribution			
NEW YORK STATE ECONOMIC AREA				
Binghamton	4.3	10.1	1.5	7.1
Capital District	3.2	4.4	0.4	8.0
Elmira	14.9	7.2	2.2	6.8
Mid-Hudson	1.6	5.2	0.0	3.2
Mohawk Valley	5.2	4.0	1.9	6.2
New York Metro.	4.2	41.4	0.3	26.8
Niagara Frontier	16.0	3.3	0.5	6.8
Northern	1.6	2.5	0.5	3.2
Rochester	28.2	5.9	16.2	10.3
Southwest Gateway	17.4[b]	1.8	0.2	2.7
Syracuse	7.0	14.2[b]	76.5[b]	18.6[b]
New York State Total	1783	3296	1137	
United States Total (excluding New York and Territories)	79	31	8	-
Foreign Countries and U.S. Territories, Total	6	8	4	3
Total	1868	3335	1149	-

[a]The Cazenovia distribution is based only on 339 new students who enrolled in September 1967.

[b]The college is located within this economic area.

Source: Data supplied by the Admissions Offices at the above colleges.

can obtain employment outside the college town or region. Considering this college impact, these rural institutions serve to pump local youth into the larger cities where more opportunities are available.

Our purpose in this phase of the study is to find probable maximums for local student enrollment and commutation at rural colleges. When a two or a four year college is placed in a rural area, what is the probable full-time enrollment and commutation by the local students, and how does this vary with the size of the college town? The answer to this question is important because a substantial part of the educational, social, and economic impact of the college on the local community depends upon the size of its local and non-local student enrollment.

A. Local Student Enrollment and Commutation at SUNY Cortland

In this study the term local is defined to include an area within about 50 radial miles of the college. However, the analysis utilizes separate data for the college town, and for its outlying student commuter area.

In 1967, out of 950 local students enrolled at SUNY Cortland, 463 (48.8 percent) lived in dorms, 239 (25.2 percent) commuted from their homes, and 248 (26.1 percent) lived in off-campus housing; all had permanent residences within a 54 mile radius around the college.

Among 157 students with permanent residences in the City of Cortland twelve (7.6 percent) chose dorm residency, as shown in Table 5.3, but by far the greatest number (87.9 percent) commuted from their homes. A small number of the students living in Cortland (4.5 percent) chose to live away from their permanent residence at another location in the city.

TABLE 5.3

COLLEGE RESIDENCE DISTRIBUTION OF LOCAL STUDENTS ATTENDING CORTLAND COLLEGE
OF THE STATE UNIVERSITY OF NEW YORK
RURAL, SUBURBAN, AND URBAN STUDENTS COMBINED

Permanent Residence Ring	Average Distance Miles	No. in Dorms				No. Commuting				No. Off-Campus				Sum		Ring Totals	Ring Percent of Overall Total	Grades 7-12 ADA 1964-5	Ratio of College Enrollment to ADA
		M	F	Total	%	M	F	Total	%	M	F	Total	%	M	F				
C-T	1.1	3	9	12	7.6	47	91	138	87.9	4	3	7	4.5	54	103	157	16.5	1,464	10.724
1	3.8	0	2	2	7.7	10	13	23	88.5	1	0	1	3.8	11	15	26	2.7	1,330	1.954
2	8.1	2	7	9	39.1	4	8	12	52.2	2	0	2	8.7	8	15	23	2.4	1,397	1.646
3	13.5	1	7	8	30.8	7	7	14	53.8	2	2	4	15.4	10	16	26	2.7	2,523	1.030
4	18.9	5	21	26	40.6	1	19	20	31.3	7	11	18	28.1	13	51	64	6.7	5,945	1.076
5	24.4	3	14	17	68.0	1	5	6	24.0	1	1	2	8.0	5	20	25	2.6	3,976	0.628
6	29.6	40	57	97	56.7	3	12	15	8.8	27	32	59	34.5	70	101	171	18.0	29,732	0.575
7	35.1	43	112	155	60.5	4	6	10	3.9	54	37	91	35.5	101	155	256	26.9	20,905	1.224
8	40.5	16	43	59	73.7	0	0	0	0.0	13	8	21	26.3	29	51	80	3.4	15,252	0.524
9	45.9	13	33	46	61.3	0	0	0	0.0	18	11	29	38.7	31	44	75	7.9	9,467	0.792
10	51.2	10	22	32	68.1	0	1	1	2.1	7	7	14	29.8	17	30	47	4.9	12,087	0.388
Total		136	327	463		77	162	239		136	112	248		349	601	950	100.0	104,078	..912

Errors due to rounding.

Note: Distances indicate radial miles from the college to the permanent residence ring. Data for Fall Term 1967.

Up to about five miles outside the town commutation is high (88.5 percent), but as the eight mile mark is approached the number of commuters decreases considerably to 52.2 percent with corresponding increases in the number of students moving into dormitories or off-campus housing. When the twenty and thirty mile marks are reached commutation probabilities again take severe drops, and around the thirty-five to forty mile point the proportion of students commuting drops close to zero. As shown in Figure 5.1 and Table 5.3, dorm and off-campus housing act as complements and increase correspondingly as the number of students commuting from home drops.

The location of the college in the City of Cortland and the presence or absence of nearby towns within commuting limits bears upon the resulting pattern of student commutation but is of lesser consequence once the 15 mile range is past. The absolute number of commuters from outside the City of Cortland is indeed small, and less than those coming from within the city. At the 13.5 mile mark the downward trend in the proportion of commuters turns upward with a fairly high percentage of the students commuting from Marathon and Moravia, but beyond this point the majority of the students seek dorm or off-campus accommodations. Ithaca commuters at about 19 radial miles from the college are only 26.8 percent of the total Ithaca contingent. Between the 25 to 35 mile rings although cities such as Auburn, Syracuse and Binghamton come into the commuter range, over 90 percent of the students from these cities prefer living at the dorm or in off-campus rentals.[4]

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[4]Of 1,481 students living off-campus and away from home, only 181 (12.2 percent) set up accommodations outside the city. The great number of non-local off-campus students (1,148 or 86.4 percent) found lodging at boarding houses, residence hotels, and other rentals within the city limits; of those living outside the city and away from home, 37 (20.4 percent) commuted from Homer, the Syracuse area, Ithaca and other locations.

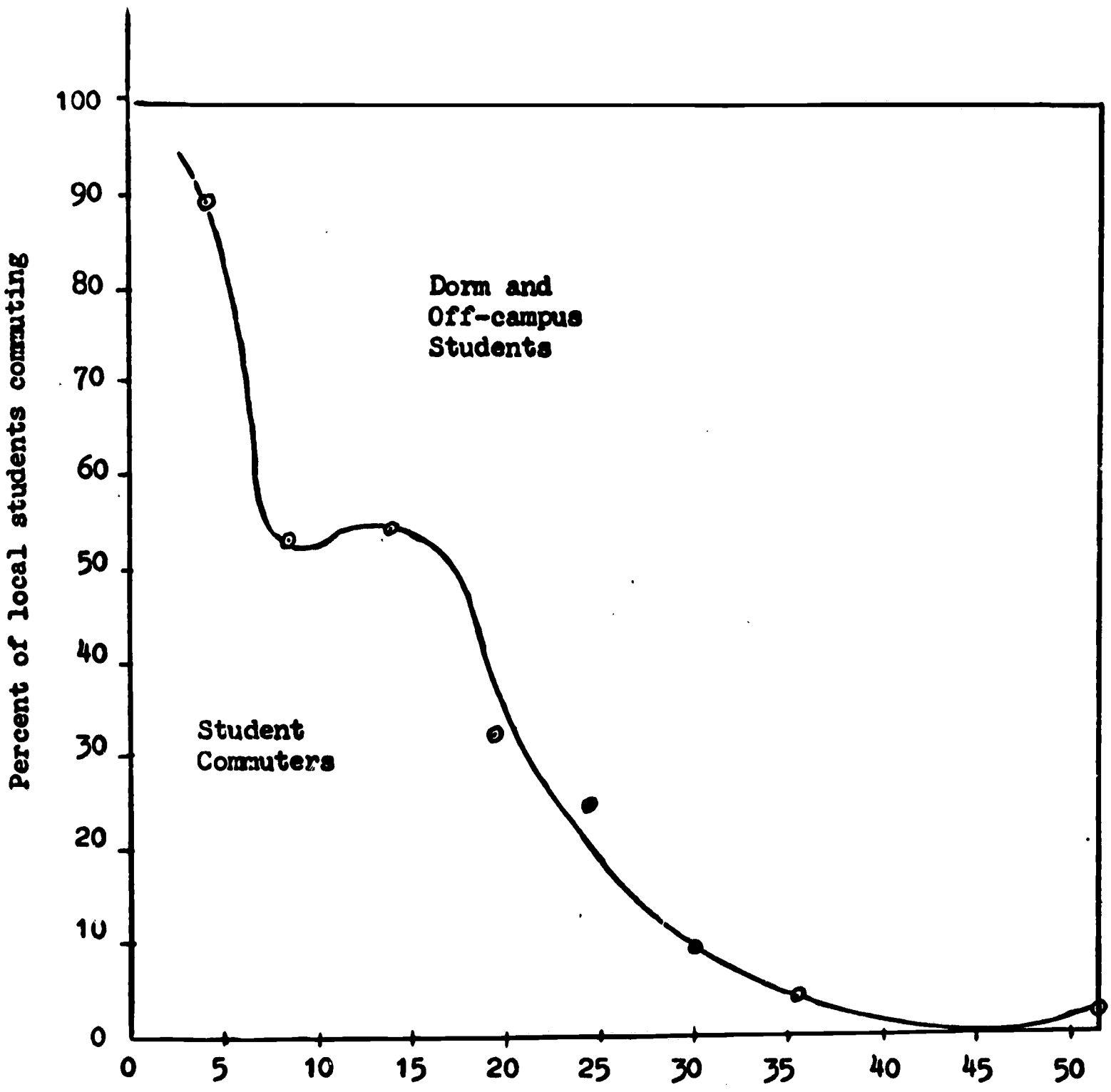


FIGURE 5.1

DECREASE IN PERCENT OF LOCAL STUDENTS COMMUTING TO COLLEGE WITH DISTANCE TO THE PERMANENT RESIDENCE (STATE UNIVERSITY OF NEW YORK AT CORTLAND, FALL TERM 1967)

Figure 5.2 shows the commuter zone for the College at Cortland and indicates the effect of Ithaca, Syracuse, and Binghamton and other areas on commutation. As expected, in areas with sparse population, enrollment and commutation drop precipitously. This is especially the case in the southeastern sectors where small villages and minor roads predominate. Student commutation and enrollment are indicated for each sector in Appendix Table C.1. For example, out of 41 Ithacans enrolled at the College (from ring 4, channel I) 11 commute. In the Binghamton vicinity 9 commute out of the 157 enrolled (ring 7, channel F). Channel totals and subtotals are also given. These values do not include amounts for the City of Cortland at the center of the circle because this cannot be assigned to any particular channel.

The patterns of local college enrollment and commutation are also indicated in Figure 5.2. The rings drawn around the college town are used to establish the scale from zero to 300 as indicated in channel A. It is thus possible to graph local student enrollment and commutation for each channel radiating outward from the college. For example, villages in channel A are the locations of permanent residences for 34 commuters out of 177 local students enrolled at the college. Commutation is closely related to increases and decreases in college enrollment in many of the channels.

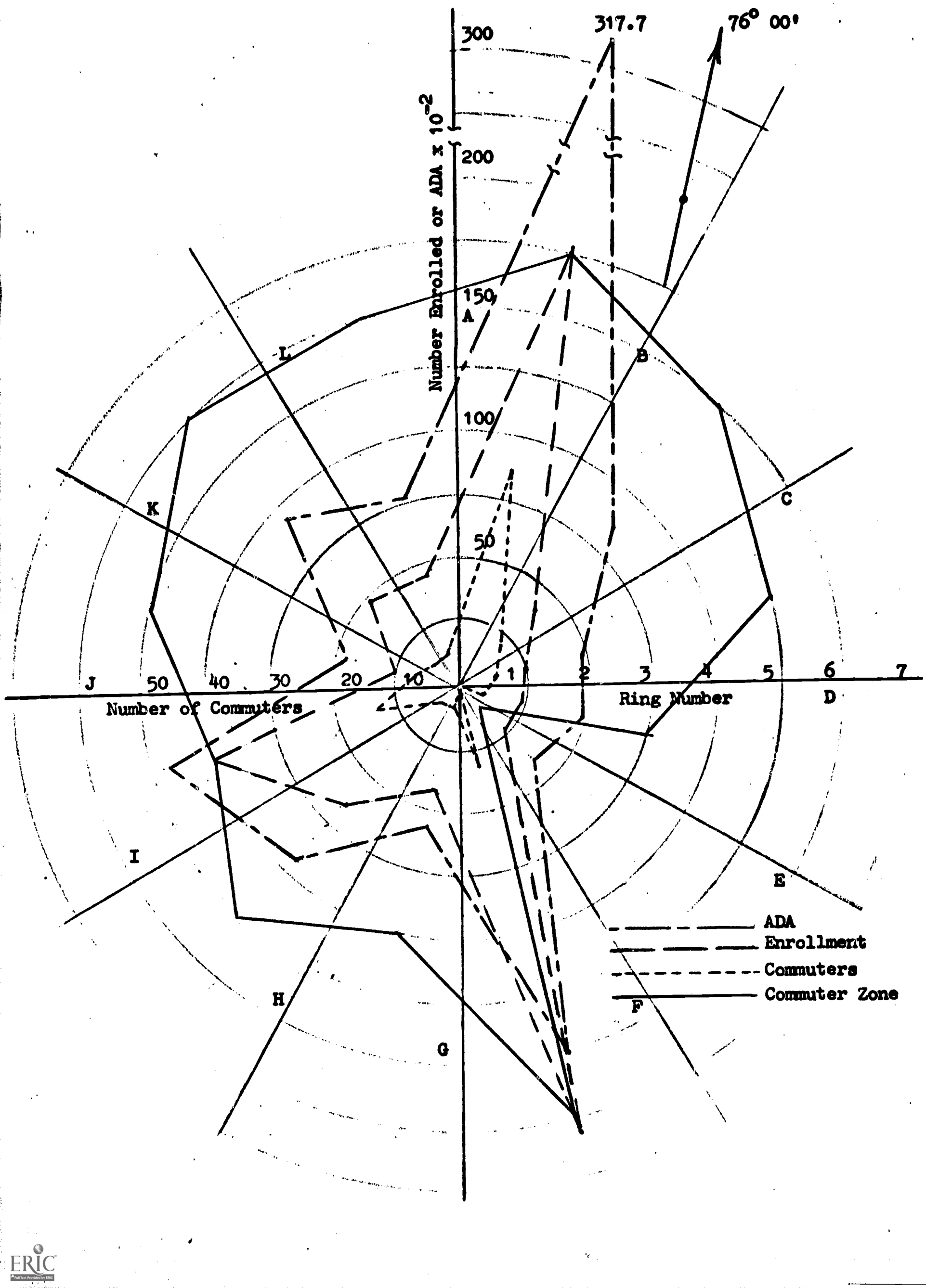
Beyond five miles from the college we are working with small numbers relative to local student commutation. The City of Cortland itself supplies more than fifty percent of the 239 students commuting from home. But when one considers that the enrollment at Cortland is well over 3,000 and growing, the locating of baccalaureate institutions even in sizable rural cities, is not primarily a matter of local commutation.

FIGURE 5.2

AVERAGE DAILY ATTENDANCE (ADA) FOR GRADES 7 - 12 In The Cortland Area, and Local Student Enrollment And Commutation, For The State University Of New York At Cortland, By Channels Fall Term 1967

The graph is imposed on a map of the Cortland area, with the State University of New York at Cortland at the center. The 76°00' longitude is indicated in channel A to orient the graph to the map of New York State (Source: MCMLXVI, General Drafting Company, Inc., Convent Station, New Jersey, 1967). Scale for the map is 1 inch equals 10.8 miles. Channels A through L, and rings 1 through 7 are indicated. Major cities are located in sectors as follows:

City	Sector
Binghamton	F-7
Ithaca	I-4
Auburn	L-6
Syracuse	A-6
Cortland	C-T (at center)


317.7
76° 00'
300
200
150
100
50
Number Enrolled or ADA x 10^{-2}
A
B
C
D
E
F
G
H
I
J
K
L
50
40
30
20
10
1
2
3
4
5
6
7
Number of Commuters
Ring Number
ADA
Enrollment
Commuters
Commuter Zone

It is evident that city and regional development are important factors in college location. Also important, is the enrollment of a large number of local students from outside the college town, and others from non-local areas who may wish to attend the college for various reasons.

Since colleges <u>are</u> placed in rural cities and villages, it is profitable in planning to seek determinative factors in <u>local</u> student enrollment and commutation. The question raised by Hypotheses III and IV is: does local student enrollment and commutation at a college placed in a rural area vary with the size of the college town? To investigate these hypotheses population related factors were utilized and a study of the situations at Cortland and Alfred Agricultural and Technical College was made.

The average daily attendance (ADA, grades 7-12) of students in sectors of a fifty-four mile circle around Cortland College in 1964 was obtained. Regression analysis was used to determine a predictive relationship between college enrollment and high school attendance four years previous. The ADA totals[5] for each channel around Cortland are graphed in Figure 5.2 based upon sectoral ADAs in Appendix Table D.1. ADAs were matched against the local student enrollment and commutation data for the fall of 1967 at Cortland. Note the similarity of the ADA,[6] and the channel enrollment and commutation patterns.

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[5]The source for this information was the Bureau of Statistical Services, The State Education Department, <u>Annual Educational Summary, New York State, 1964-65</u> (Albany, New York: The State Education Department, 1966), pp. 84-95. School district data supplied in this report were fitted to sectors in the fifty-four mile circle about Cortland College.

[6]The ADA pattern in Figure 5.2 is obtained by graphing channel totals and by using the rings as a scale. The rings graduate from the center at intervals of 5,000 up to 30,000 ADA for ring 10. For example, channel B has a total ADA value of 8,371 and its coordinate lies a bit beyond ring 3.

Input data for the regression analysis included local student enrollment and commutation data for the State University College at Cortland and ADA information. Both multi-sector and channel analyses were made.[7] For the former analysis, sectors within the 54 mile circle were used to obtain the variables. In the latter case channel totals for enrollment and average daily attendance in grades 7 to 12 provided the necessary data. However data for the City of Cortland at the center of the circle are excluded and the college town information is retained for separate analysis.

When channel analysis is used with local student enrollment as the dependent variable and high school attendance as the independent variable, the value of the R is .92, and R Squared is .84, as shown in Table 5.4. The average daily attendance in grades 7 to 12 therefore accounts for 84 percent of the possible variance in local student enrollment for the local areas outside the City of Cortland.

The regression equation for the channel analysis takes the form

$$Y_{21} = -16.80 + .009X_{27}$$

where Y_{21} is the local college student enrollment in channels outside the City of Cortland, and X_{27} is the independent variable (ADA) as defined in Table 5.5. Values for the independent variable, as depicted in Figure 5.2, are sufficiently high to contravene the negative constant term. The equation gives the expected local student enrollment within the 54 mile circle outside of the City of Cortland.

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[7] A number of attempts were made to set up regression equations for college enrollment. The smaller the unit areas (sectors) used in the evaluation, the lower were the R Squared values; thus high multiple correlation can be obtained for county based regression equations, but prediction becomes more difficult as minor civil divisions, and smaller areas are examined.

TABLE 5.4

DATA FOR REGRESSION EQUATIONS FOR LOCAL STUDENT

ENROLLMENT AND COMMUTATION

SUNY CORTLAND

	Analysis By		
	Multi - Sector		Channel
1. College Enrollment			
Dependent Variable	CORT-NROLL-S	CORT-NROLL-S	CORT-NROLL-C
R Squared	0.69	0.65	0.84
Constant	-0.21	0.24	-16.80
Significance Level	.001	0.001	0.005
Standard error of estimate	4.68	13.49	24.6
Independent variable	ADA-S/D	ADA-S	ADA-C-10
Beta	0.183	0.007	0.009
2. College Commutation:			
Dependent Variable	CORT-CMUTE-S		CORT-CMUTE-C
R Squared	0.68		0.71
Constant	-0.31		5.64
Significance level	0.001		0.001
Standard error of estimate	2.02		5.64
Independent variable	ADA-S/D		ADA-C-7
Beta	.046		0.156-02

See Table 5.5 for description of code names.

TABLE 5.5

VARIABLES USED IN STUDENT REGRESSION ANALYSIS

OF ENROLLMENT AND COMMUTATION

Subscript No.	Variables	Code Names
	Dependent Variables:	
20	Local student enrollment at Cortland College, by sector	CORT-NROLL-S
21	Local student enrollment at Cortland College, by channel	CORT-NROLL-C
22	Local student commutation at Cortland College, by sector	CORT-CMUTE-S
23	Local student commutation at Cortland College, by channel	CORT-CMUTE-C
24	Local student enrollment at Alfred Tech, by sector	Alf-nroll-S
25	Percent of local students commuting to both colleges from a given distance	%-MUTA
	Independent Variables:	
26	Average daily attendance, grades 7-12, by sector	ADA-S
27	Average daily attendance, grades 7-12, by channel to ring 10 (if 7 is used in code name, to ring 7)	ADA-C-10
28	Average daily attendance, grades 7-12, by sector, divided by distance	ADA-S/D
29	Average distance to a sector	Dist-S
30	Average distance to a ring about a college	Dist-R

The total number of local students enrolled at the college is, of course, the sum of those coming from the college town itself and those from its hinterland. In the City of Cortland, 10.7 percent of its ADA enroll at the local college (Table 5.3). This compares with about 15 percent of the ADA for the City of Auburn attending the Community College, and a somewhat higher percentage of the ADA enrolled at the Technical College in the Village of Alfred.[8] With 1964 ADAs of 2,643, 1,464, and an estimated 218, for Auburn, Cortland, and Alfred respectively, by far the greatest number of local residents enrolled at the local college occurs in the case of Auburn.

There is strong evidence that population related factors operating both in the city and in its local area have a decided effect on local student enrollment. Undoubtedly, in addition to population factors, the characteristics of the college and its curriculum, and the college town[9] affect the number of local students attending. The two year community college will absorb a greater total of local students from its college town than the four year college.

A multi-sector regression analysis was made to achieve sharper definition for the dependent variable. This analysis, for local student

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[8]Exact data on Alfred's ADA and two college enrollment by local students was not secured. Alfred's ADA is combined with Almond in one school district and can only be approximated, and the University's local enrollment was not obtained in the limited time.

[9]Christaller's work in central place theory indicates that on a theoretical basis, the size of the central city will relate to the size of the cities and towns in its surrounding area. The large city would tend to be surrounded by localities decreasing in size with distance up to a point of minimum central city influence. See Walter Christaller, Central Places in Southern Germany, Trans. Carlisle W. Baskin (Englewood Cliffs, New Jersey: Prentice Hall, 1966), pp. 43-58, and August Losch, The Economics of Location (New Haven: Yale University Press, 1954), pp. 109-134, and 389-451.

enrollment, operated on smaller land areas and, as expected, the R Squared value (.65) is lower; as shown in Table 5.4. Sixty-five percent of the variation in the dependent variable is explained by ADA values. Thus size of the population generally plays a considerable part in local student enrollment. However, other factors are important as indicated above.

An increase in the R Squared value to .69 was obtained when the inverse distance (D) to each sector was entered into the analysis as the independent variable. Thus a small part of the variation in local student enrollment is explained by distance (D) from the college of the sector under consideration. Using the data in Table 5.4, the regression equation takes the form

$$Y_{20} = -0.21 + 0.183X_{28}$$

where Y_{20} is the local student enrollment for a sector in the 54 mile ring, and X_{28} is equal to the average daily attendance (grades 7 to 12) for that sector, divided by its distance from the college.

The data obtained from regression analysis of commutation by local students is indicated in Table 5.4. Using channel analysis the R Squared value came to .71 with ADA as the independent variable. For multi-sector analysis, and the inverse distance considered as previously, the R Squared value (relatively high) was at .68. In both these cases the ADA values only to ring seven were considered since this was the outer limit for student commutation.

B. Local Student Enrollment and Commutation at the Alfred Agricultural and Technical College (SUNY)

Alfred Technical College, a two year institution, is located in a small village with a 1940 population numbering 694 individuals; in 1960

the Census of Population inflated this number by including resident students from both the Alfred Technical College and Alfred University, in the population count along with other new residents. This made the total population 2,807.

In 1967 out of 856 local residents enrolled at the college, 516 (60.4 percent) lived in dorms, 276 (32.3 percent) commuted from home, and 64 (7.5 percent) lived in off-campus housing; all had permanent residences within a 52.5 mile radius of the college.[10]

The two year technical programs, including agriculture, business, and technology at the college attracted a substantial commuter group up to about 15 radial miles from the campus. Forty-one of the forty-four students with permanent residences in Alfred and Alfred Station commuted from home. Approximately 65 percent of the students coming from a distance of about thirteen radial miles from campus commuted, as indicated in Table 5.6. This proportion was down to twenty percent at around the 24 mile radial distance, and dropped to near zero a bit beyond this point.

A graph of the proportion of local students commuting to Alfred Tech from successive distances showed a slope similar to that for Cortland College, depicted in Figure 5.1. Because of this similarity a regression analysis was made combining data for SUNY Cortland and Alfred Tech in an effort to find a statement on commutation that could be

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[10]Only New York State residents are included within the local student grouping in this reference. Students from nearby Pennsylvania locations enrolled as follows: four in dorms, one commuting from home, and 2 in off-campus housing, totaling seven. Twenty-four additional students came from more distant locations outside commuting range in the State of Pennsylvania. Twenty-two of these lived in dormitories. The inhibition of the state boundary and college tuition rates is quite evident here as Alfred is well within 20 miles of the Pennsylvania border.

TABLE 5.6

COLLEGE RESIDENCE DISTRIBUTION OF LOCAL STUDENTS ATTENDING
ALFRED AGRICULTURAL AND TECHNICAL COLLEGE, 1967-68
RURAL, SUBURBAN, AND URBAN STUDENTS COMBINED

Permanent Residence Ring	Average Distance Miles	No. in Dorms				No. Commuting				No. Off-Campus				Sum		Ring Totals	Ring Percent of Overall Total	Grades 7-12 ADA 1964-5	Ratio of College Attendance to ADA
		M	F	Total	%	M	F	Total	%	M	F	Total	%	M	F				(Percent)
CT	1.1	0	1	1	3.9	13	10	23	88.4	1	1	2	7.7	14	12	26	3.0	) 218	)20.20
1	2.6	0	0	0	0.0	12	6	18	100.0	0	0	0	0.0	12	6	18	2.1	)	)
2	7.9	14	19	33	21.9	89	23	112	74.1	5	1	6	4.0	108	43	151	17.6	2598	5.82
3	13.1	11	24	35	30.4	52	23	75	65.2	4	1	5	4.3	67	48	115	13.4	2383	4.82
4	18.4	5	9	14	48.4	10	2	12	41.4	3	0	3	10.3	18	11	29	3.4	731	3.92
5	23.6	56	21	77	64.6	24	7	31	20.1	11	0	11	9.2	91	28	119	13.9	5129	2.32
6	28.9	19	12	31	94.0	0	0	0	0.0	2	0	2	6.0	21	12	33	3.9	2447	1.35
7	34.1	54	28	82	84.5	3	0	3	3.1	12	0	12	12.4	69	28	97	11.3	4061	2.39
8	39.4	44	18	62	86.1	1	0	1	1.4	9	0	9	12.5	54	18	72	8.4	7452	0.97
9	44.6	39	22	61	93.9	0	1	1	1.5	3	0	3	4.6	42	23	65	7.6	5163	1.26
10	49.9	71	49	120	91.6	0	0	0	0.0	10	1	11	8.4	81	50	131	15.3	17053	0.77
Total				516	60.4			276	32.3			64	7.5			856	100.0		

Errors due to rounding.
The ADA in grades 7-12 is estimated for the college town (CT) and Alfred Station in ring 1, because this is not directly obtainable from the Annual Educational Summary Nineteen Sixty-Four-Sixty-Five. Alfred and Almond Town's ADA is combined (at 403 ADA) in the listing. The estimate is based on the 5 to 14 age groups listed in Table 26 of The Census of Population for 1960 for Alfred and Almond Town. Almond Town indicated 46.0% of the totalled age group, and its ADA was estimated at 185 with Alfred Town at 218 ADA.

Source: The State Education Department, Bureau of Statistical Services, The University of the State of New York, Annual Educational Summary Nineteen Sixty-four-Sixty-five (Albany, New York: The University of The State of New York, 1965), pp. 84-95. U.S. Bureau of Census, U.S. Census of Population, 1960, Vol. I Characteristics of the Population, Part 34, New York (Washington, D.C.: U.S. Government Printing Office, 1963).
The data on dorm, commuting, and off-campus student was obtained by computer analysis of college records.

applied to both of these colleges, and perhaps to others, in rural college towns of varying size. A rather high multiple correlation was obtained, which encourages broader application of the results to other rural public colleges in the region and makes a strong statement relative to Hypothesis IV.[11]

Input data for the regression analysis included, as the dependent variable, the percent of local students commuting from a permanent residence ring. The independent variable was the average distance, in miles, of these rings from SUNY Cortland and the Alfred Technical College, as in Tables 5.3 and 5.6.

The results of the regression analysis are listed in Table 5.7, and 93 percent of the variance in the dependent variable (percent commuting) is accounted for by the independent variable (distance). The regression equation is formed as follows:

$$Y_{25} = 90.5 - 0.965X_{30}$$

where Y_{25} is the proportion of local students commuting to both colleges from a given distance and X_{30} is as defined in Table 5.5.

The negative coefficient for the independent variable is in accord with the fact that as distance from the college increases, the proportion of the students commuting will decrease.

One can expect that the proportion of students commuting from a sector would relate to the distance of that sector from the college.

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[11]Unfortunately time, resources, and limited access to private college computer facilities restricted the work in this area to SUNY Cortland and Alfred Agricultural and Technical College. Local student enrollment and commutation at private colleges probably differ from the above patterns. Private colleges tend to draw many more students from out of state and lesser components from the local area depending on tuition, admission requirements, curriculum, and other factors.

TABLE 5.7

DATA FOR REGRESSION EQUATION FOR STUDENT COMMUTATION

AT SUNY CORTLAND AND SUNY ALFRED

AGRICULTURAL AND TECHNICAL COLLEGE

PERCENT OF LOCAL STUDENTS COMMUTING VS. DISTANCE TO COLLEGE

Dependent variable:	%-CMUTE		
Independent variable:	Dist-R	Significance level	.005
R Squared	0.93	Standard error of estimate	9.68
Constant	90.5	Beta	-0.965

Note: See Table 5.5 for description of code names for variables.

Regression analysis in this case allows us to predict the proportion of students commuting from a sector. It is therefore a good tool for planning related to commutation. Of course, it depends on the accuracy with which local enrollment from a sector can be predicted.

Alfred Tech draws most of its local enrollment from outside Alfred Village. The presence of the City of Hornell and the Village of Wellsville (population 5,967 in 1960) in the second and third residence rings increases both the student enrollment and commuter potential for the college as shown in Table 5.6. In the fifth and seventh rings Dansville and Olean respectively supply a good proportion of the local student enrollment. But large gaps in both enrollment and commutation are noticeable in northeast and the southwest channels radiating from the college.

These areas of high and low local enrollment can again be related to high school attendance (ADA, grades 7 to 12) in various sectors and

a regression analysis was used to determine this relationship. To obtain direction for this analysis a scatter diagram was first made. The diagram indicated a relationship closer to a second degree curve rather than to lineal form. Therefore the independent variable (ADA) was squared and a multiple regression equation sought.

The results of this analysis are listed in Table 5.8, and 63 percent of the variance in the dependent variable (local enrollment) is accounted for. The multiple regression equation takes the following form:

$$Y_{24} = 3.34 + 2 \times 10^{-5} X_{26}^2$$

where Y_{24} is the local student enrollment at Alfred Technical College by sector and X_{26} is as defined in Table 5.5. The above regression analysis is valid only to ring seven which coincides approximately with the commutation limit line. A satisfactory analysis could not be obtained when the rings beyond the seventh were included.

TABLE 5.8

DATA FOR REGRESSION EQUATION FOR LOCAL STUDENT ENROLLMENT

SUNY ALFRED AGRICULTURAL AND TECHNICAL COLLEGE

COLLEGE ENROLLMENT (multi-sector analysis, curvilinear regression)

Dependent variable:	ALF-NROLL-S		
Independent variable:	$(ADA-S)^2$	Significance level	0.001
R Squared	0.68	Standard error of estimate	10.52
Constant	3.34	Beta	2×10^{-5}

Note: See Table 5.5 for description of code names for variables.

The fact that the regression equation is non-linear, and the ratios of local student enrollment to ADA are high for rings two and three in Table 5.6 suggests the high influence of the Alfred Technical College on nearby localities in its area. Hornell and Wellsville appear to bend what might have been a straight line of regression so that local college attendance from these locations is above the usual situation encountered.

With a total local enrollment at 856 students and an enrollment close to 2,300 students the Alfred Technical College compares well with SUNY Cortland in its service to local students.

Some clues as to the effect of college town size on local student enrollment and commutation are obtained by juxtapositioning of information on SUNY Cortland and the Alfred Technical College and by analysis of cumulative data by ring as shown in Table 5.9. SUNY Cortland starts with high college town enrollment and commutation. Alfred Technical College is low in this regard. However, with small villages in ring two about SUNY Cortland, and a large draw from Hornell in ring two for Alfred Tech the cumulative scores for both colleges approach each other. By ring 3 the cumulative totals for Alfred Tech have spurted ahead, and those for SUNY Cortland lag. The two year college maintains its high in commutation to the end of the local student range. However, in the enrollment category SUNY Cortland, with heavy Syracuse, and Binghamton contingents in rings six and seven draws ahead of Alfred Tech College. Although Elmira and Olean are within Alfred's local range, as defined, the former is over 45 miles away and the latter is not a large city.

Comparison of the above colleges may not be justified. They are substantially different in many ways. Both well serve their local area;

TABLE 5.9

LOCAL STUDENT ENROLLMENT AND COMMUTATION AT SUNY CORTLAND AND THE ALFRED AGRICULTURAL AND TECHNICAL COLLEGE, 1967

	Enrollment				Commutation			
	Cortland		Alfred Ag. & Tech.		Cortland		Alfred Ag. & Tech.	
Ring	Total	Cumulative	Total	Cumulative	Total	Cumulative	Total	Cumulative
C-T	157	157	26	26	138	138	23	23
1	26	183	18	44	23	161	18	41
2	23	206	151	195	12	173	112	153
3	26	232	115	310	14	187	75	228
4	64	296	29	339	20	207	12	240
5	25	321	119	458	6	213	31	271
6	171	492	33	491	15	228	0	271
7	256	748	97	588	10	238	3	274
8	80	828	72	660	0	238	1	275
9	75	903	65	725	0	238	1	276
10	47	950	131	856	1	239	0	276

Note: Refer to average distances for rings in Tables 5.3 and 5.6. They differ slightly for SUNY Cortland and the Alfred Agricultural and Technical College.

the two year college perhaps provides for a more local situation. But small or large size of the college town is only a part of the factor determining local student enrollment and commutation.

When similar data for Auburn Community College is examined, it is noted that in 1967 close to 80 percent of the students enrolled at this college came from permanent residences within a 25 mile radius of the college.[12] A college located in a small town near large cities could

[12] From data obtained from the president's office at this institution.

have a large local enrollment; one located in a fairly large rural city, surrounded only by small towns for a 25 radial mile range may have a small local enrollment. The point is that colleges cannot be located on the basis of college town size alone. Although college town size is a factor in local student enrollment and commutation, this factor is primary if we define only college town inhabitants as local students. If the local student is defined as coming from over a broader area, such as the 54 mile circle, it is necessary to analyze the condition in the broader area, and to seek additional parameters. In the light of the above data, the broader definition appears more justifiable.

C. Summary

To sum up, at the colleges studied, enrollment from a sector within a 50 mile circle about the college town varies with the grade 7-12 ADA in that sector. The proportion of students commuting from these sectors varies with their distances from the college town, and drops to zero near 35 miles from the college town. Local area enrollment and commutation may be estimated by regression analysis.

Of further interest is the fact that although the larger college town (Cortland) itself indicates far greater enrollment than the smaller (Alfred Village), the enrollment of students from Hornell, Wellsville, and other towns in the Alfred area brings the cumulative "local" enrollment at Alfred Tech close to that at Cortland College at the 30 mile circle.

Similar regression equations can be developed for other public colleges in the same manner. The findings can be used in long range planning for college dormitories and other housing, parking areas, locally-oriented

curriculum, shopping facilities, transportation facilities, and related needs.

CHAPTER SIX

COLLEGE STUDENT INTERACTION IN THE COMMUNITY: ECONOMIC AND SOCIAL FACTORS

The economic impact of a student on the college town appears small when compared to that of a staff member. However, when the large number of students is multiplied by the relatively low per capita expenditure level, the student total approaches local staff expenditures. Again spill-out is an important factor, and although total dollar volume may be large, the place of its incidence is important to the college town. Students may be limited in their travel, and consequently limited in their ability to buy outside the college town. On the other hand, travel by bus and car pool especially in obtaining recreational and amusement services can effect considerable spill-out from the town lacking in these amenities. This is also true relative to social factors. Localization of student contact to on-campus activities limits contact with townspeople. However although the college student patronizes or deals with few local townspeople, in aggregate, the contact becomes substantial.

This chapter is concerned with the student side of spill-out, and student interaction with townspeople. Data obtained at four and two year colleges are contrasted, as in the staff analysis, and some consideration is given to the influence of city size.

A. Selected Economic Characteristics and Interaction of the College Student

For the college towns studied, the major economic impact of the

student occurs through his retail purchases. Student impact and spill-out relative to retail expenditures are examined in this section.

Impact on Retail Trade

In studying economic impact of the student it was felt that the volume of his college town purchases might possibly relate to proximity of the shopping district or his frequency of visitation to this area. However at the colleges studied, neither of these are important factors.

The great majority of students at both Alfred Technical College (70 percent) and Cortland College (77 percent) are in the shopping district of the respective college towns two days or less during the week (Table 6.1). At Alfred University the situation is quite different; most Alfred University students (64 percent) are in the shopping area five or more days during the week, with close to 80 percent of the students passing through this district on at least four out of seven days. A major reason for the difference between Alfred Tech and Alfred

TABLE 6.1

NUMBER OF DAYS DURING THE WEEK STUDENT IS IN SHOPPING DISTRICT IN THE COLLEGE TOWN

Number of Days	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
0	4.0	5.0	1.1	2.1	7.7	4.1
1	33.6	42.9	3.2	2.1	10.3	23.3
2	32.2	28.6	7.5	25.5	14.1	23.1
3	9.9	7.6	9.7	23.4	14.1	11.3
4	5.9	3.4	15.1	14.9	3.9	7.6
5	6.6	5.0	8.6	14.9	26.9	10.6
6	4.0	2.5	14.0	8.5	7.7	6.5
7	4.0	5.0	40.9	8.5	15.4	13.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	152	119	93	47	78	489

University in this regard is that several classrooms and administrative offices of the latter college are actually in the commercial district (see Figure 2.1). Some Alfred Tech students live in this area, and although the college campus adjoins the shopping district, it is clearly separate from this area. Short distances are involved in all cases.

As for Auburn Community College, although its campus is about one mile from the main shopping area, fifty percent of its students are in the shopping district five or more days of the week. In Cazenovia 32 percent of the college students are in nearby shopping areas for the same number of days.

The question is, how much does frequency of visitation (spill-in) to the shopping district affect purchasing volume by students at the various colleges. This can be examined by using Tables 6.2 to 6.4.

Food Purchases

As depicted in Table 6.2 about half (48 percent) of the Alfred University students buy 10 percent or less of their groceries in town compared to 38 percent of the Technical College students buying at this low level.[1] From another view, 48 percent of the Alfred Technical College students indicated they made over half their food purchases in the college town compared to 42 percent in this category at Alfred University. Thus, other things being equal, it would appear that at Alfred, the frequent presence of students in the shopping district does not necessarily

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[1] In all cases cited the purchases made do not include items paid for by college contract or fees for room and board. In interpreting Table 6.2 it should be understood that the colleges at Alfred and Cortland have a high proportion of dormitory students, Cazenovia College has only dormitory students, and Auburn Community College has no dormitories. Additional data on Alfred and Cortland indicate that non-dorm students tend to buy considerably more of their food in the college town than do dorm students.

TABLE 6.2

PERCENT OF STUDENTS MAKING VARIOUS PERCENTAGES OF FOOD (GROCERIES) PURCHASES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
0 - 10	37.5	28.1	47.8	33.4	26.6	35.3
20 - 40	14.8	10.4	9.8	4.2	8.0	10.5
50 - 80	16.3	17.7	10.9	20.8	20.0	16.6
90 -100	31.2	43.8	31.5	41.7	45.3	37.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	128	96	92	48	75	439

Errors due to rounding.

cause greater food purchasing in the college town. More important, the food dollar, especially of the Alfred University student, is attracted to other localities during the school year; the Alfred Tech student shows a slightly greater tendency than the University student to make his food purchases in the Village.

At Cortland well over half (61.5 percent) of the students purchase more than 50 percent of their groceries in the college town; however, on the low side 28 percent indicated that they made only 10 percent or less of their purchases in the college town. From additional data on other colleges presented in Table 6.2 one can conclude that the proportion of food purchased locally by students is at about the same level as in Cortland, Auburn, and Cazenovia; leakage in these college towns is not

unusual, but it is not as severe as in Alfred. The data indicate that the larger cities (Auburn and Cortland) do well in retaining food purchasing dollars, and that the small town (Cazenovia) with adequate and attractive retail facilities can do comparatively well in this regard especially when it is somewhat remote from competing centers.[2]

Clothing Purchases

Data on clothing purchases indicate that college students buy only a small proportion of these items in the college town (Table 6.3). Alfred University is particularly low in this category. Close to 90 percent of its students indicated that only 10 percent or less of their

TABLE 6.3

PERCENT OF STUDENTS MAKING VARIOUS PERCENTAGES OF CLOTHING PURCHASES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
0 - 10	80.4	62.0	87.4	68.8	43.6	70.2
20 - 40	10.2	21.5	8.5	20.9	16.7	14.7
50 - 80	4.8	10.8	3.2	8.4	19.3	8.5
90 -100	4.7	5.8	1.1	2.1	20.5	6.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	148	121	95	48	78	490

Errors due to rounding.

[2]Village boundaries and market locations affect the situation.

clothing purchases were made in the college town. Alfred Tech students show a slightly better local purchasing record. College town clothing purchases increase somewhat from a low to a medium level in Cazenovia, Cortland, and Auburn, where 10 percent, 17 percent and 40 percent of the college students make half (or more) of their clothing purchases in the respective college towns. Of course the latter two colleges have the greatest number of students coming from permanent residences in the college town itself. The record for clothing purchases in Auburn is not particularly high since as indicated in Chapter Five well over 30 percent of the full-time student enrollment comes from the Auburn School District. However, as mentioned previously, although clothing purchases in the college town are low, when multiplied by the large number of students a fairly substantial sales volume can result.

Expenditures for Amusement

Gerard indicated that at LeMoyne College in Syracuse the largest single continuous expense by students was for amusement and recreation.[3] A significant difference exists between the five colleges examined in regard to incidence of this expenditure in their college towns. This difference relates in some degree to town size, and to the number of retail trade and service facilities. However, more college towns would have to be examined to confirm this.

Cortland and Auburn absorb a far greater proportion of student expenditures for amusement services than Alfred and Cazenovia. At Auburn and Cortland 50 and 58 percent of the students respectively obtain 50

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[3]Gerard, op. cit., p. 35. This paper will not detail or list typical expenditures for various goods and services by students. This was done by Gerard and Doody, op. cit.

percent or more of these services in the college town; this is the case for only 23 percent of the students at Cazenovia, and at Alfred only 7.6 percent of the University and 11.2 percent of the Tech College students obtain 50 percent or more of their amusement services in town (Table 6.4).

TABLE 6.4

PERCENT OF STUDENTS BUYING VARIOUS PERCENTAGES OF AMUSEMENT SERVICES IN THE COLLEGE TOWN

Percent Purchased in College Town	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
0 - 10	65.9	20.4	73.7	43.8	35.5	49.3
20 - 40	22.9	22.0	19.0	33.4	14.6	21.6
50 - 80	8.4	45.8	5.4	23.0	32.9	22.3
90 -100	2.8	11.8	2.2	0.0	17.1	6.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	144	118	95	48	76	481

Looking at the lower end of the scale and the situation in the small towns, the great majority of students at Alfred University (74 percent) and Alfred Tech (66 percent) obtain 10 percent or less of their amusement services in the college town, compared to 44 percent of the students at Cazenovia. In this expenditure category an opportunity loss by the

Village of Alfred is quite evident.[4]

The large rural cities appear better able to provide amusement services for students. This is not only due to their greater choice of these services, but also to a less limiting environment.

Other retail trade categories exhibit similar patterns to those previously presented. Undergraduate students do not make substantial purchases of clothing and durable items in the college town. The small town with an attractive and ample village shopping area can retain a considerable proportion of student purchases in food, toiletries, and impulse items. However, an inadequate village shopping area can lose substantial trade to more distant but attractive competing centers. The large rural cities exhibit the least spill-out of purchases. As previously mentioned, student purchases are not large on an individual basis but become substantial when multiplied by their volume.

B. Selected Social Characteristics and Interaction of the College Student

Alfred and Cortland each absorb well over 3,000 students every year. These, and other college towns, draw young men and women from diverse and distant areas of the state. Along with the economic impact owing to the student presence, the college town receives an array of student attitudes and characteristics. Although most students leave after graduation, their impact is retained, and repeated through constant

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[4]The population of Cazenovia in 1960 was 2,584 compared to an Alfred population of 2,807; however, the latter village housed many more students than did Cazenovia in that year, as indicated in Table 3.1A. Although the villages are not far apart in the number of permanent residents this difference has a considerable effect. Cazenovia had a greater retail trade operation in 1963 than did Alfred, and also indicated more people engaged in entertainment and recreational services in 1960.

replacements. Thus a continuity in impact is established and this depends upon the range of student socio-political characteristics, the extent of their exposure to townspeople, and social institutions, and on the proportion of students who remain in the county or college town after graduation.

A substantial body of research exists on characteristics and attitudes of the college student.[5] However only a small fraction of this touches on his relationship to college town elements. This section of the study is primarily concerned with the student's social interaction with townspeople and local institutions. Townspeople are defined as businessmen, farmers, and workers living in the college town and surrounding area.

Social Contact with Townspeople

Student social interaction with townspeople was measured on a qualitative and quantitative basis as done previously for college staff members. The results offer insight into the extent of this relationship.

At Alfred, Cortland, and Cazenovia, 70 to 80 percent of the students indicated frequent contact with only a few (one or none) of the towns-

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[5]Rose K. Goldsen, Morris Rosenberg, Robin Williams, Jr., Edward A. Suchman, What College Students Think (Princeton: D. Van Nostrand Company, Inc., 1960); Philip E. Jacob, Changing Values In College: An Exploratory Study of the Impact of College Teaching (New York: Harper, 1957); Kaoru Yamamoto (Comp.), The College Student and His Culture: An Analysis (Boston: Houghton Mifflin, 1968); Richard E. Peterson, The Scope of Organized Student Protest in 1964-1965 (Princeton, New Jersey: Educational Testing Service, 1966); Peter H. Armacost, The Student And His Public Image, The Dean Speaks Out, Bulletin No. 2, April, 1967 (Champaign, Illinois: National Association of Student Personnel Administrators, 1967); Burton R. Clark, Educating The Expert Society (San Francisco: Chandler Publishing Company, 1962), pp. 202-243. In a Newsweek poll of middle income groups in the United States, 84 percent said campus demonstrators were treated too leniently, and sixty percent said demonstrations had little or no justification. This was reported in "The Troubled American, A Special Report On The White Majority," Newsweek, October 6, 1969, pp. 35 and 46.

people as shown in Table 6.5. Close to 20 percent of the students at Alfred University, Cortland, and Cazenovia, and only 12 percent at the Alfred Technical College, were in frequent contact and discussion with a moderate number (two to three) of the townspeople, and about 10 percent of the students at these colleges, denoted frequent contact and discussion with a substantial number (four or more) of townspeople.[6]

As depicted in Table 6.5, there is a significant difference in this situation between the above colleges and the Auburn Community College. At the latter college only 26 percent of the students indicated

TABLE 6.5

NUMBER OF TOWNSPEOPLE CONTACTED FAIRLY FREQUENTLY BY COLLEGE STUDENTS

Number Contacted	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
None	63.8	60.0	60.6	56.5	21.8	54.8
One	14.1	10.0	9.6	13.0	3.9	10.5
2 - 3	12.1	20.0	17.0	19.6	30.8	18.7
4 - 5	6.0	6.7	9.6	4.4	20.5	9.0
6 or more	4.0	3.3	3.2	6.5	23.1	7.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	149	120	94	46	78	487

Errors due to rounding.

Note: The question was as follows -- With how many townspeople (businessmen, farmers, workers) do you fairly frequently discuss either recreational or social activities, school or personal affairs, or current events?

[6] See Delbert C. Miller, Handbook of Research Design and Social Measurement (New York: David McKay Company, Inc., 1964), pp. 220-221, for a related measurement.

low contacts with townspeople; 31 percent of the Auburn students showed frequent contact and discussion with a moderate number (two to three) of the townspeople, and 44 percent denoted frequent contact with four or more townspeople.

One can readily anticipate this difference since about one-third of the students at the Community College in Auburn have permanent residence within the city[7] compared to less than 10 percent of the students with such residence at the other colleges. As of this survey Auburn Community College had no dormitories. Many students at Auburn live in off-campus rental housing, and under this condition more extended contact with townspeople seems likely.[8] College town size has little influence on this interaction for the colleges studied (note data on Cortland, Alfred and Cazenovia). However dormitory living is probably associated with "spill-out" in this category.

A qualitative indication of the association between students and permanent residents in the college town was obtained through student assessment of their social ties with townspeople. The resulting data, shown in Table 6.6, parallel that on student contact with townspeople except for Cazenovia where a higher proportion of students at the all-girl college show close social relationships.

At Alfred Tech, Cortland, and Alfred University only 5 to 10 percent of the students indicated strong social relationships with townspeople in the area; 20 to 25 percent showed moderate ties, and 65 to 75

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[7]This is based on data previously cited. The proportion changes somewhat over a period of time.

[8]Higher contact with townspeople by non-dorm college students is indicated in limited data obtained in this survey.

TABLE 6.6

STRENGTH OF SOCIAL RELATIONSHIPS BETWEEN

COLLEGE STUDENTS AND TOWNSPEOPLE IN THE AREA

Social Relationships	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Very strong	1.3	2.5	2.1	2.1	6.4	2.6
Fairly strong	6.0	2.5	7.4	14.6	23.1	8.9
Moderate	25.2	19.8	25.3	29.2	37.2	26.2
Fairly weak	27.2	26.5	27.4	20.8	19.2	25.2
None	40.4	48.8	37.9	33.3	14.1	37.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	151	121	95	48	78	493

Errors due to rounding.

percent depicted relationships as weak or non-existent. At Cazenovia, students at the all-girls college indicated somewhat closer social relationships with townspeople, with 17 percent, 29 percent, and 54 percent showing strong, moderate, and weak or non-existent social ties respectively. It is possible that female students tend toward closer social relationships with townspeople, however more data are necessary to corroborate this.

Again students at Auburn Community College indicate closer association with townspeople than at other colleges. Here about one-third each had strong, moderate, and weak or non-existent relationships with

townspeople. College town size shows little bearing on the situation.[9] Off-campus housing may relate to stronger social relationships with townspeople but more evidence is needed to corroborate this.

Student Attitudes Toward Townspeople

The degree of social contact between students and townspeople relates to student attitudes toward the latter. An assessment of these attitudes is given in Table 6.7. The great majority (63 percent) of students are neutral in attitude (or show little reaction) toward townspeople. This neutrality is highest in Alfred as indicated by about 68 percent of the students. However close to half (about 43 percent) of the students at Auburn and Cazenovia indicated that attitudes in these

TABLE 6.7

ATTITUDE OF STUDENTS TOWARDS TOWNSPEOPLE

Attitude	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Very friendly	0.7	1.6	2.1	6.3	3.8	2.2
Fairly friendly	24.5	16.4	25.3	37.5	39.2	26.3
Neutral	68.2	65.6	67.4	52.1	50.6	63.0
Fairly unfriendly	6.6	14.8	3.2	4.2	5.1	7.5
Very unfriendly	0.0	1.6	2.1	0.0	1.3	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	151	122	95	48	79	495

Errors due to rounding.

[9]This statement applies to non-local students and their social relationships with townspeople. The larger city (Auburn) with a non-dorm community college shows higher interaction, and can provide for more off-campus accommodations for students. However in late 1969 the Auburn Community College indicated that dormitory accommodations would be available for a small number of students.

localities were more accurately described as "friendly."[10] Cortland students show a more distant attitude toward townspecple with only 18 percent designating friendliness and 16 percent indicating unfriendliness between students and townspeople. However, the relationship between town size and student attitude is not apparent from the information at hand. The data for Auburn are influenced by the large contingent of local students.

Attitudes of Shopkeepers Toward Students

Students at the five colleges assessed the attitudes of shopkeepers toward college students as shown in Table 6.8. Shopkeepers in the college towns were found "friendly" by the highest proportion of students

TABLE 6.8

ATTITUDE OF SHOPKEEPERS TOWARDS COLLEGE STUDENTS

Attitude	Alfred Tech	Alfred Cortland	University	Cazenovia	Auburn	Total
			Percent			
Very friendly	19.7	27.3	24.2	27.1	28.2	24.5
Fairly friendly	44.1	41.3	55.8	56.3	43.6	46.8
Neutral	25.7	24.0	12.6	10.4	23.1	20.9
Fairly unfriendly	9.9	5.8	6.3	6.3	3.9	6.9
Very unfriendly	0.7	1.7	1.1	0.0	1.3	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	152	121	95	48	78	494

[10] Delbert C. Miller, op. cit., pp. 220-221.

at Cazenovia (at 83 percent), and the lowest in Alfred (Tech College at 64 percent). Other student responses indicating "friendliness" by shopkeepers were 80 percent for Alfred University, 72 percent at Auburn, and 69 percent at Cortland. The difference between Alfred Tech and Alfred University opinion appears primarily to center on the larger group of students at the former institution indicating a "neutral" attitude on the part of shopkeepers. It is interesting to note that more students at the two private colleges (Alfred University and Cazenovia) found the shopkeepers "friendly" than at the other colleges.

One can conclude that in most cases non-local students have few social relationships with people in the college town. A neutral or friendly attitude is the rule, but not many strong relationships are established. Town size does not appear to affect the situation. Most students seek solely to develop college ties and are rather isolated in their campus environment. It would seem that more interaction between townspeople and students would be mutually advantageous, however this may be difficult to achieve under the circumstances.

C. Background Information Related to Student Characteristics and Interaction

Although many students do not frequently contact and establish social ties with townspeople there can be a substantial amount of induced or indirect contact owing to the presence of the college and the student body. Student interaction with townspeople may occur through business and social routine and visitations to the shopping district. Student political activity and social behavior generally evokes community comment. A group of college professional staff and students may seek community involvement, or the college itself may function as a

unit in community relationships. This paper has previously discussed college influence on local government, school district policy, and other factors; it can only consider a few related elements in its limited scope.

Political Views of College Students Contrasted With Those of Townspeople

Table 6.9 indicates that generally the political views of students at the five colleges are less conservative than those of the townspeople in the respective areas. However their effect on change in the college town would depend upon the extent of their exposure, interaction, and involvement with the local population.

TABLE 6.9

POLITICAL VIEWS OF COLLEGE STUDENTS COMPARED TO TOWNSPEOPLE IN GENERAL AREA

Political Views	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Far more conservative	3.6	0.0	1.1	2.1	3.9	2.1
Fairly more conservative	7.9	5.9	2.1	10.6	6.4	6.3
At same level of opinion	44.6	22.0	23.4	36.2	41.0	33.4
Fairly less conservative	25.2	41.5	36.2	29.8	26.9	32.1
Far less conservative	18.7	30.5	37.2	21.3	21.8	26.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	139	118	94	47	78	476

Students at the baccalaureate institutions show less conservatism than those at the junior colleges. Town size bears little upon the situation especially as noted in the data on the two colleges in Alfred. Almost three-fourths of the students at Alfred University (73 percent) and Cortland (72 percent) indicated less conservative political attitudes than the townspeople in the area. The large influx of undergraduates to these colleges from New York City and other metropolitan areas in New York State (see Table 5.2) probably has considerable effect in this regard. Close to half of the students at Cazenovia (51 percent), Auburn (49 percent), and Alfred Tech (44 percent) declared less conservative political attitudes than townspeople in the area. Further study is needed in this category with control variables using curriculum or major study area, age, and other factors. A comparison of political views of local and non-local students would also be of value but is beyond the scope of this study. As indicated previously, the two year college generally draws more of the local area students than the four year college.

It is possible to state that the four year colleges surveyed are input devices for focusing or assembling students with less conservative political views and the two year colleges tend toward a more mixed situation. Students at the four year college in the small town (Alfred) are quite a bit less conservative than those at the junior college.

Student Attitudes Toward Political Demonstrations

Student demonstrations for political and social causes have made front-page news in the last several years. This action has taken place at public and private colleges of all sizes and in both urban and rural locations. Demonstrations have been most often confined to the college

campus. However local police and other town officials frequently become involved in related administrative and operational problems and townspeople are at least peripherally affected by this type of student action.

Our survey found that students at the four year colleges and at the two year college at Auburn were more favorable toward demonstrations on political affairs than those at two year colleges; however, substantial numbers at all the colleges studied favored demonstrations in this category. The actual percentages of students favoring this political action were at Cortland, 59 percent; Alfred University, 58 percent; Auburn, 55 percent; Cazenovia, 42 percent; and Alfred Tech, 39 percent. About one student in five at these colleges were neutral or undecided as indicated in Table 6.10, and opposition to this action was highest for Alfred Tech students (37 percent) and lowest for those at Cortland College (17 percent).

TABLE 6.10

STUDENT ATTITUDES TOWARD POLITICAL DEMONSTRATIONS

Attitude	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Very much in favor	10.0	19.8	19.2	18.8	19.2	16.5
Somewhat in favor	29.3	38.8	38.3	22.9	35.9	33.8
Neutral or not decided	23.3	24.0	17.0	25.0	19.2	21.8
Somewhat opposed	21.3	13.2	16.0	12.5	18.0	16.9
Very much opposed	16.0	4.1	9.6	20.8	7.7	11.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	150	121	94	48	78	491

Comparison of the two colleges in Alfred indicates considerably more opposition to political demonstrations at the Technical College than at the University.

Student Attitudes Toward College Policy Demonstrations

Student opinion is most emphatic in attitude toward demonstrations on college policy as indicated in Table 6.11. Eighty percent of the students at Cortland College favored student demonstrations on college policy. Even at Alfred Technical College, where students were demonstrably more conservative in attitude, 63 percent of the students favored this type of action, setting a higher percentage in this category than students at Alfred University (59 percent), Auburn (56 percent), and

TABLE 6.11

STUDENT ATTITUDES TOWARD DEMONSTRATIONS ON COLLEGE POLICY

Attitude	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Very much in favor	33.3	39.7	22.6	25.0	21.8	30.2
Somewhat in favor	30.0	40.5	36.6	31.2	34.6	34.7
Neutral or not decided	15.3	5.8	15.1	20.8	26.9	15.3
Somewhat opposed	14.0	8.3	18.3	6.3	9.0	11.8
Very much opposed	7.3	5.8	7.5	16.7	7.7	8.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	150	121	93	48	78	490

Cazenovia (56 percent). The desire to influence college policy thus appeared rather strong at all colleges studied.[11]

Student Attitude Toward the Use of Drugs

College students at the public two year colleges studied were more opposed to use of drugs such as marijuana and LSD than students at the four year colleges, and the private two year girls' college at Cazenovia (Table 6.12). This opposition was indicated by 70 percent of the students at Alfred Tech, 66 percent at Auburn, 55 percent at Cortland, 54 percent at Cazenovia, and 52 percent at Alfred University. Students

TABLE 6.12

STUDENT ATTITUDES TOWARD USE OF DRUGS

Attitudes	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Very much in favor	2.0	8.3	7.4	10.4	6.3	6.1
Somewhat in favor	12.0	9.1	11.6	12.5	13.9	11.6
Neutral or not decided	16.0	28.1	24.5	22.9	13.9	21.9
Somewhat opposed	15.3	21.5	16.8	8.3	8.9	15.4
Very much opposed	54.7	33.1	34.7	45.8	57.0	45.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	150	121	95	48	79	493

[11] A major incident of campus unrest occurred at Alfred University on December 10, 1969. This was about one year after the questionnaire survey for this study was made. Students staged a sit-in in one of the University's buildings and presented demands relating to college regulations. See The Alfred Reporter, Vol. XLV, No. 13 (Alfred, New York: Alfred University, December 1969).

"very much in favor" of the use of these drugs ranged from 2 percent at Alfred Tech to 10 percent at Cazenovia College.

The exact effect on the townspeople of the above student attitudes is difficult to assess. Differences in political views, opinions on student demonstrations, and the use of drugs may have high or low impact upon the lives of local businessmen, farmers, or workers. Much depends on the rate of student contact with townspeople, and indirect effects. Data obtained at the five colleges studied indicate that student-townspeople relationships present very minor problems.

D. Additional Factors

The public colleges studied have substantial impact in that they offer education to students from lower income groups. Some of these students cannot afford the high tuition of the private institution, but can earn their room and board by part-time or summer work while attending the low tuition public college. Students may attend a college out of commutation range by choice or by necessity. Others can only afford to commute to the nearest public college (see Table F.1 in the Appendix).

Student Employment

At the five colleges studied about one-fourth to one-half of the college students were employed while attending college (see Appendix Table F.3). Except for Auburn and Cortland, students who were employed most frequently worked for the college. Maximum student unemployment (at 74 percent) was evident in Cortland and minimum (at 45 percent) in Auburn. In the latter city over one-fourth (26 percent) of the students found jobs at companies in the college town; at Cortland only a small percentage (6.6 percent) were so engaged. Thus student employment shows high deviation for two and four year colleges examined in the larger

cities. Of interest is the fact that at Alfred Tech few, if any, of the working students found jobs with village firms and a relatively high proportion (8.5 percent) worked for out-of-town organizations. Notable also is the relatively high employment of students by the private colleges. These data suggest that more work opportunity is available in the larger towns and that the student at the two year college in the large town (Auburn) is more likely to be employed than students at the other colleges. Additional data indicate that a considerable number (49 percent) of employed Auburn students work longer hours (15 or more) per week than students at the other colleges, and that students at each of the two year public colleges (Alfred Tech and Auburn) work longer hours than those at the four year institution (Cortland).

Parental Income

Data obtained (Table 6.13) indicate that a significant difference exists in parental annual income for college students at the five institutions studied. A rather high proportion of the parents of students at the private colleges are in the highest income brackets; about 68 percent of the students at Cazenovia and 42 percent at Alfred University indicated parental income at the $15,000 level or higher. This proportion drops at the public colleges to 35, 13, and 12 percent for Cortland, Auburn, and Alfred Tech respectively. Students at the two year public colleges denoted the lowest levels for parental income; however, about 12 percent declared a $15,000 or higher parental income level.

Insight into the services which public colleges perform for students with parents at lower income levels can be obtained from the Table. Data for Alfred Tech, Auburn, and Cortland indicate that respectively 39, 33, and 26 percent of the students indicated parental annual income

TABLE 6.13

PARENTS' TOTAL INCOME LAST YEAR

(INDICATED BY COLLEGE STUDENTS)

Annual Income	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Less than $6,000	17.8	10.5	14.1	2.3	22.4	14.6
$6 - 7,999	21.2	15.7	5.4	2.3	10.5	13.3
8 - 9,999	17.1	14.8	13.0	6.8	29.0	16.7
10 -14,999	31.5	24.4	25.0	20.5	25.0	26.4
15 -19,999	5.5	20.0	19.6	25.0	7.9	14.0
$20,000 or more	6.8	14.8	22.8	43.2	5.2	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	146	115	92	44	76	473

below $8,000. Twenty percent of the students at Alfred University are also in this category. Thus this private institution serves a substantial number of students with families in the low income group.

Student Choice of College

Although low cost of attendance is an important factor for many students at the colleges studied, most students give high priority to the reputation of the college. As depicted in Table 6.14 about half the students at Alfred Tech (52 percent) and Alfred University (50.0 percent), and about one-third of those at Cortland (36 percent) and Cazenovia (35 percent) consider reputation of the college a primary requirement. However low cost of education is first in importance for the largest group of respondents (29 percent) at Auburn Community College.

TABLE 6.14

STUDENT'S PRIMARY REASON FOR ATTENDING THIS COLLEGE

Reason	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			(Percent)			
Reputation	52.0	36.4	50.0	35.4	25.3	41.9
Commutation	3.3	3.3	1.1	4.2	16.5	5.1
Near Home	8.0	6.6	5.3	8.3	8.9	7.3
Low Cost	6.7	17.4	4.3	0.0	29.1	11.8
Away from Home	9.3	12.4	5.3	4.2	1.3	7.5
Parent	2.7	5.8	9.6	12.5	3.8	5.9
Counselor	8.7	3.3	11.7	10.4	0.0	6.7
Other	9.4	15.0	12.9	25.0	15.3	13.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	150	121	94	48	79	492

Question: Underline your two major reasons for attending this college, then enter 1 and 2 (in order of importance) below: (1) Reputation of the college and curriculum, (2) within commuting distance, (3) can't commute, but fairly near home, (4) low cost, (5) location away from home, (6) athletic program, (7) advice of high school counselor, (8) parents or relatives, (9) counselor at college, (10) social reasons, (11) I like this area and climate, (12) Other: list____.
Parts 6, 9, 10, 11, and 12 were combined in the above Table.
See also Tables F. 1 and F.2 in the Appendix.

In addition, if the proportion of students (16.5 percent) choosing this college because it is "within commuting distance" is added to low cost, these combined categories apply to almost half (46 percent) of the students surveyed at Auburn. Residence in or near the college town helps many of these individuals seeking low college costs in the City of Auburn.

Appendix Table F.2 depicts second major reasons for attending the colleges studied and their percentage distribution. Here low cost is

the predominant reason for 18 percent of the total group of students examined; however, none of the students at Cazenovia attend that college for reasons of economy. At Alfred Tech, Cortland, and Auburn, 13, 27, and 34 percent of the students respectively cite the importance of low cost for their education, and if commutation possibility is added to this proportion the percentages increase to 20, 30, and 52 percent respectively. However any conclusion in this regard should be qualified by data in Appendix Table F.1 which indicates that a high percentage of students favor attending a college outside the commuter range.

Student Location After Graduation

Although the local college benefits the college town by serving a considerable number of local students comparatively few of the students surveyed plan to remain in the general area of their college after graduation except for a sizable segment of those in attendance at the Auburn Community College (Table 6.15); plans for settling outside the county and adjacent counties were indicated by a very high percentage of students at Alfred University (97 percent), Cortland (92 percent), Cazenovia (92 percent), Alfred Tech (88 percent), and Auburn (64 percent). This high spill-out reflects the fact that most undergraduates come from outside the area, and also that a substantial number of local students leave the area of the college after receiving their education. Although 15 percent of the Auburn students intend to settle in the college town, this is considerably less than those attending the college from the Auburn School District.

Close to three-fourths of the graduates from the public colleges studied, plan to remain in New York State. Data indicated that 25 percent of the students at Alfred Tech and Cortland, 33 percent at Auburn,

TABLE 6.15

AREA COLLEGE STUDENT WILL LIVE IN

AFTER GRADUATION

Area	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
College town	0.0	1.7	0.0	0.0	15.4	2.8
County[a]	3.3	1.7	2.1	2.1	5.1	2.8
Adjacent county	8.5	5.0	1.1	6.3	15.4	7.1
New York State[b]	63.4	66.9	55.8	41.7	30.8	55.6
Outside New York State[c]	20.3	23.1	34.7	47.9	33.3	28.5
Outside U.S.	4.6	1.7	6.3	2.1	0.0	3.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	153	121	95	48	78	495

Errors due to rounding.

[a]In county (but not in college town)

[b]In New York State (but not in college town, county, or adjacent county)

[c]Outside New York State (but in the United States)

41 percent at Alfred University, and 50 percent at Cazenovia intend to leave New York State after graduation. This again reflects place of permanent residence of the undergraduate student at the private colleges. However although enrollment of New York State residents at State University Colleges in the area studied has been well above 90 percent of the total student body in past years (see Table 5.2), outmigration of a considerable proportion of New Yorkers is probable, especially at Auburn, if eventual student action in this regard matches current plans.

E. Summary

This chapter further substantiates earlier findings of economic and social spill-out. The small college towns examined attracted student expenditures for food, accessories, and amusements to a lesser degree than the larger rural cities. Student purchases become substantial when multiplied by their volume, and can aid in expansion of the college town's retail trade and economic base.

To the decision-maker in college planning, social factors related to student input are also of high importance. Although non-local students do not frequently contact and establish social ties with townspeople, student behavior and activity generally evokes community concern. College students are less conservative politically, and socially, than townspeople. A high percentage of students at all the colleges contacted indicated strong motivation in political and college affairs. Those at the two-year public colleges are generally more conservative than other college students. However at all of the colleges studied substantial numbers favored political action. Considering these views and similar expressions by the professional staff, to successfully accommodate the college, the small college town especially would have to show adaptability toward change. Substantial benefits come to the college town through local education of its young. The public colleges studied indicated a considerable number of students coming from low income families. However, the college town must be prepared to lose a large proportion of its college graduates. As data indicate, many local students leave the area after receiving their education.

PART IV: THE IMPACT OF COLLEGE PURCHASES ON THE COLLEGE TOWN

CHAPTER SEVEN

LOCAL AND REGIONAL COLLEGE EXPENDITURES

In addition to impact of staff and students on the college town important considerations in analysis of the college's economic effect[1] on its area are its local and regional expenditures for supplies, utilities, maintenance, and related items. For example, as shown in Table 7.1, in the 1967-68 fiscal year SUNY Cortland made $343,903 in selected operational and maintenance expenditures in the City of Cortland. In addition, out of a total of $2.6 million in purchases by its Faculty-Student Association, $1.3 million were made in the college town as indicated in Table 7.4. This had a substantial effect on retail trade, selected services, and payrolls in the area.[2]

Our purpose in this phase of the discussion is not to generalize a proportionate relationship between local purchases and college-town size. This would be a formidable undertaking requiring detailed analysis of the accounting records of many colleges.[3] However a study of the purchasing characteristics of SUNY Alfred Tech and Cortland College can

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[1]The economic impact of a college on its local area relates to its social, and political impacts. The college purchasing from local firms concomitantly establishes a social and political bond which can effect its acceptance and influence in the locality.

[2]In 1963 retail sales for the City of Cortland were $38.9 million, and selected services amounted to $3.5 million, as indicated in State of New York, Department of Commerce, Business Fact Book, Part 1 Business and Manufacturing, Syracuse Area (Albany, New York: Department of Commerce, 1968), p. 16.

[3]If purchasing records at colleges are accessible and computerized a rigorous statistical study may be feasible.

TABLE 7.1

STATE UNIVERSITY OF NEW YORK AT CORTLAND

LOCATION OF SELECTED OPERATIONAL AND MAINTENANCE EXPENDITURES (1967-68)

Expenditure Category	City of Cortland		Town of Cortland		Cortland County		Outside Cortland County		Total Expenditure in Category		Category Percent of Overall Expenditure
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
Educational Supplies	$ 9,441	12.06	$ 931	1.19	$10,372	13.25	$67,927	86.75	$78,299	100.0	11.00
Utilities	229,143	100.00	-	-	229,143	100.00	-	0.0	229,143	100.0	32.19
Rentals	79	.25	-		79	.25	31,755	99.75	31,834	100.0	4.47
Repairs & Maintenance	30,999	19.79	3,487	2.23	34,486	22.02	122,151	77.98	156,637	100.0	22.00
Equipment	12,529	13.93	375	0.42	12,904	14.35	77,026	85.65	89,930	100.0	12.63
Telephone & Telegraph	61,712	100.00	-		61,712	100.00	-	0.0	61,712	100.0	8.67
Travel	-	-	-						64,243	100.0	9.03
Totals	343,903	48.31	4,793	.67	348,696	48.99	363,102	51.01	711,798	100.0	100.00

yield additional insight into economic impact of the institution on the small and large rural college town. This analysis also considers spill-out. It distinguishes between categories of college expenditures that are typically local and non-local in character, and examines the effect of college location on in and out of county purchasing. Hypothesis V is tested to determine if major cities within the region attract the college's purchasing dollar in accordance with a gravity model.

A. College Expenditures at SUNY Cortland

Expenditures at SUNY Cortland fall into two broad categories: (1) Operational expenditures made by the college, and (2) expenditures made by its Faculty-Student Association. The former may be divided into payroll (personnel), and costs for goods and services used in maintenance and operations.[4] The latter involves expenditures by auxiliary enterprises including the college store, the cafeteria, and student activities.

In its 1967-68 budget the State of New York allocated about $7.0 million to support the operation at Cortland, and during the same period computerized records indicated an expenditure of well over $2.5 million by the Faculty-Student Association. These amounts represented a relatively high money inflow to the City of Cortland. However, due to the large proportion of college purchases made in other localities, many dollars received by the college left Cortland in a first round of expenditure.

The major operational and maintenance expenditures by SUNY Cortland

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[4]The 1959-60 budget, as indicated in the Executive Budget for the State of New York, op. cit., pp. 241-306, shows this type of breakdown. The 1968-69 edition shows a program-planning-budgeting arrangement, pp. 429-590.

for the fiscal year 1967-68 are listed[5] in Table 7.1 by amount, percentage distribution, and location of purchase.

As with other colleges[6] utilities generally take a high proportion (32.2 percent) of SUNY Cortland's expenditures for operation and maintenance and as shown these are purchased only from firms and agencies within the City of Cortland. This factor is most responsible for the boosting of local purchases to 48 percent of the total. Repairs and maintenance form another relatively large block (22 percent) of the total expenditure. Close to 80 percent of these goods and services are obtained outside the City. This would appear to represent an opportunity loss for local companies. However much of this expenditure relates to equipment and products maintained by contractors who did the original installation.

Although Cortland is one of the larger cities studied, it supplies relatively little (12 percent of the total) in educational supplies to the college. The bulk of these (86.8 percent) also come from outside the county. Rentals of equipment indicate a similar situation and are

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[5]Expense items in the categories listed are as follows: (1) Educational Supplies--books, charts, chemicals, slides, art supplies, scientific supplies, paper supplies, and duplication expenses. (2) Utilities--gas, water, electricity, heating oil and propane gas. (3) Rentals--duplicating equipment (Xerox), data processing equipment, sewer, etc. (4) Repairs and Maintenance--lumber, gravel, sand, plaster, plumbing materials, electrical supplies, heating and ventilating supplies, maintenance contracts on elevators, and air conditioning equipment, repairs to State vehicles, gasoline, oil, etc. (5) Equipment--classroom, office, and maintenance.

[6]See also State of New York, The Executive Budget, 1959-1960, op. cit., pp. 241-306.

almost totally (99.8 percent) purchased beyond the county line. Thus, in fact, only utilities and communication services show a high local expenditure with supplies, rentals, and equipment purchases primarily made outside the college town and county.

B. College Expenditures at SUNY Alfred Agricultural and Technical College

An interesting comparison with the situation at Cortland can be made, by examination of data on selected operational and maintenance expenditures at SUNY Alfred Agricultural and Technical College. As exhibited in Tables 7.2 and 7.3, expenditures for utilities again represent a high proportion (30.2 percent) of total expenditures ($718,504). However, in the case of SUNY Alfred, only 19.5 percent of these purchases were made locally, 41.2 percent in Wellsville in the County and 37.9 percent in Hornell outside the county. The fact that Alfred is a small village with little industrial and commercial development causes this basic expenditure to be made largely outside the village. However in the category of rentals the reverse occurs. Although Cortland indicated rentals as its lowest expenditure in the college town this item constitutes the highest college town purchase in the case of SUNY Alfred. Both Alfred University and the Village of Alfred supply the technical college in this regard and are instrumental in bringing this figure to its relatively high point.

In all, 28.4 percent of the college's expenditures for goods and services are made in Allegany County compared with 48.3 percent in the case of Cortland. A basic reason for this difference is college town size and location. Alfred, among the smallest of the towns studied, possesses few commercial, repair, and utility services, in contrast with

TABLE 7.2

SELECTED EXPENDITURES AT VARIOUS LOCATIONS BY THE STATE UNIVERSITY OF NEW YORK, AGRICULTURAL AND TECHNICAL INSTITUTE AT ALFRED, 1967-68

Expense Category	Village of Alfred	Wellsville	Allegany County	Hornell	Steuben County	Buffalo	Elmira	Rochester	Syracuse	Remainder	New York State Total
Educational Supplies	$ 3,223	$ 6,441	$ 10,595	$ 6,066	$ 6,066	$ 6,142	$ 2,685	$ 8,214	$ 951	$18,477	$53,130
Utilities	42,065	89,423	131,488	82,103	82,103	-	-	-	-	3,029	216,620
Rentals	28,860	-	28,860	-	-	-	42,581	2,340	-	8,032	81,813
Repair and Maintenance	5,139	12,632	21,519	49,631	52,952	9,934	4,996	2,553	2,197	34,869	129,020
Equipment	1,036	2,996	5,854	5,247	8,857	12,147	16,709	8,859	3,228	124,359	180,013
Telephone and Telegraph	5,666	-	5,666	-	-	4,965	-	-	47,277	-	57,908
Total	85,989	111,492	203,982	143,047	149,978	33,188	66,971	21,966	53,653	188,766	718,504

Source: State University of New York, Agricultural and Technical College at Alfred, Finance Office, 1968.

TABLE 7.3

DISTRIBUTION OF SELECTED EXPENDITURES BY THE STATE UNIVERSITY OF NEW YORK,

AGRICULTURAL AND TECHNICAL INSTITUTE AT ALFRED, 1967-68

Expense Category	Village of Alfred %	Wells-ville %	Allegany County %	Hornell %	Steuben County %	Buffalo %	Elmira %	Roch-ester %	Syracuse %	Remainder %	Total %	Category Percent of Overall Total
Educational Supplies	6.1	12.1	19.9	11.4	11.4	11.6	5.1	15.5	1.8	34.7	100.0	7.4
Utilities	19.5	41.2	60.7	37.9	37.9	0.0	0.0	0.0	0.0	1.4	100.0	30.2
Rentals	35.3	0.0	35.3	0.0	0.0	0.0	52.1	2.9	0.0	9.8	100.0	11.4
Repair and Maintenance	4.0	9.8	16.7	38.4	41.0	7.7	3.9	2.0	1.7	27.1	100.0	18.0
Equipment	0.6	1.7	3.3	2.9	4.9	6.8	9.3	4.9	1.8	69.1	100.0	25.0
Telephone and Telegraph	9.8	0.0	9.8	0.0	0.0	8.6	0.0	0.0	81.6	0.0	100.0	8.1
Total	12.0	15.5	28.4	20.0	20.9	4.6	9.3	3.1	7.5	26.2	100.0	100.0

Errors due to rounding.

Source: State University of New York, Agricultural and Technical College at Alfred, Finance Office, 1968.

Cortland, a rural city of considerable size. As for location, Alfred Village is about three miles from the Allegany-Steuben County line, and within ten miles from the City of Hornell (population 13,907 in 1960). This city, in Steuben County, formerly a rail center for the area, but on the downgrade since 1940, has begun to reassert its centrality in the region and takes 20 percent of the Technical College's expenditures, and a good slice of professional and auxiliary staff purchases as previously shown.

The Village of Wellsville in Allegany County benefits by receiving 15.5 percent of Alfred Tech's expenditures largely through its supply of utilities, educational supplies, and repair and maintenance services. This village, supports two good sized manufacturing plants and adequate commercial facilities. But it is more distant than Hornell, and less successful in attracting college expenditures as noted in Table 7.3.

If purchases in Allegany and Steuben Counties are summed they add to 49.3 percent of the total expenditures and are similar to the total amount for Cortland County in Table 7.1. Perhaps this represents an area purchasing probability for colleges located remotely from metropolitan areas, and with at least one small city close at hand. More cases would have to be examined to verify this supposition.

Gravity Model of College Expenditures For Maintenance and Operation

Alfred Technical College appears to be a regional purchaser, especially when items with a broad choice of vendors are considered. Purchases depend on distance to the vendor's city and its size. A regression analysis utilizing a gravity model was applied to Alfred Technical College expenditures after utilities (including telephone), and rentals were excluded. The results were very good in spite of the low number

of observations.

Table 7.4 indicates the input data for the regression analysis. Adjusted college expenditures (for educational supplies, repair and maintenance, and equipment) in six cities are listed, along with the 1960 population and radial distances of the localities from Alfred Village. The dependent and independent variables are respectively the percent of total adjusted expenditures, and the locality's population (P_c) in 1960 divided by the radial distance squared.

TABLE 7.4

INPUT DATA FOR REGRESSION ANALYSIS OF

ALFRED TECHNICAL COLLEGE ADJUSTED[a] EXPENDITURES

Location	Population 1960 P_2	Radial Distance from Alfred miles d_{1-2}	P_2/d_{1-2}^2	Percent of Total Adjusted Expenditures	Adjusted Expenditures
Wellsville	5,967	12.0	41.0	14.2	$ 22,069
Hornell	13,907	7.5	295.0	39.0	60,944
Buffalo	532,759	62.0	138.0	18.1	28,223
Elmira	46,517	49.0	19.4	6.0	9,390
Rochester	318,611	58.0	93.0	12.6	19,626
Syracuse	216,038	95.0	24.0	4.1	6,376

[a]Expenditures for utilities (including telephone), and rentals are not included; only those for educational supplies, repairs and maintenance, and equipment are considered in the gravity model.

The results of the regression analysis are depicted in Table 7.5. The value of R is .97, and utilizing a gravity model 95 percent of the possible variance in the dependent variable is explainable.

TABLE 7.5

DATA FOR REGRESSION EQUATION FOR ALFRED TECHNICAL COLLEGE

OPERATIONAL AND MAINTENANCE EXPENDITURES (ADJUSTED)

Dependent variable	%-EXPEND
Independent variable	P/D^2
R Squared	0.95
Constant	386.7
Significance level	0.005
Standard error of estimate	338.5
Beta coefficient	1.160

Variable code names and descriptions:

Variable No.		Code Names
31	Dependent variable: Percent of total adjusted expenditures made in a major locality in the region	%-EXPEND
32	Independent variable: 1960 population of the city observed divided by the square of its radial distance from Alfred Village	P/D^2

The beta value and the constant term can be used to form the multiple regression equation:

$$Y_{31} = 386.7 + 1.16X_{32}$$

where Y_{31} and X_{32} are the dependent and independent variables described above, and in Table 7.5.

As noted in the equation, for Alfred Technical College, when there is a wide choice of vendors, the proportion of college purchases made at a major locality in the region, increases directly with the population

of the locality, and inversely with the square of its distance from the college town.

C. Faculty-Student Association Purchases at SUNY Cortland

The State University of New York College at Cortland maintains records of its Faculty-Student Association purchasing in an IBM card file. This presents a great advantage for a locational analysis of expenditures since zip codes of vendors may readily be used and data processed by zones as previously described. In this analysis purchasing data for the Association were compartmentalized by civil divisions (village, city, and county) and by zip code area,[7] rather than by sector, ring, or channel techniques previously used; this was considered more applicable for the desired exposition.

As indicated in Table 7.6 purchases from 2,631 vendors in Cortland County amounted to $1.35 million or 60.2 percent of total purchases made by the Faculty-Student Association. Almost all of these expenditures were made in the City of Cortland; the Village of Homer probably by virtue of its proximity to the college supplied $39,692 in purchases (1.8 percent).

As in the case with operational and maintenance expenditures for SUNY Cortland and Alfred Tech, although a substantial amount of first round expenditures is made within Cortland County, close to forty percent of the purchasing dollar leaves the immediate area of the college in the initial stage, benefiting other areas in the state.

Expenditures made in all of New York State amount to $2.03 million, and the state accounts for 90.3 percent of all purchases made by the association. Principal points of expenditure outside the Cortland area

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[7]See Appendix Tables D.1 and D.3.

TABLE 7.6

STATE UNIVERSITY AT CORTLAND

PURCHASES AT VARIOUS LOCATIONS BY THE FACULTY-STUDENT ASSOCIATION (1967-68)

Location	No. of Vendors	Net Purchases	% of Total Net Purchases	% of Total New York State Purchases
1. New York State				
Cortland	2,501	$1,311,851.04	58.37	64.61
McGraw	8	292.87	.01	.01
Homer	118	39,692.76	1.76	1.95
Cortland County Other Selected Locations	4	25.38	*	*
Sub-Total Cortland County	2,631	1,351,862.05	60.15	66.58
Tompkins County Selected Locations	72	4,274.31	0.19	.21
Adjacent Counties and Other Selected Locations	36	5,889.08	0.26	.29
Rome	11	118.80	*	.*
New York City				
Manhattan	1,532	232,980.97	10.37	11.47
Other	140	12,469.65	.55	.61
Total	1,672	245,450.62	10.92	12.09
Westchester Area	94	6,764.13	0.30	.33
Hicksville Area	209	15,446.37	0.69	.76
Albany (City)	59	28,542.50	1.27	1.41
Albany Area	19	1,505.79	0.06	.07
Schenectady	5	527.40	0.02	.03
Kingston Area	10	1,108.81	0.05	.05
Glens Falls-Plattsburgh	19	3,504.38	.16	.17
Syracuse (City)	940	106,403.33	4.73	5.24
Syracuse Area	348	44,736.43	1.99	2.20
Utica (City)	111	6,942.49	.31	.34
Utica Area	145	5,820.83	.26	.29

TABLE 7.6 (Continued)

Location	No. of Vendors	Net Purchases	% of Total Net Purchases	% of Total New York State Purchases
Watertown	17	$ 2,793.92	.12	.14
Binghamton (City)	242	66,741.09	2.97	3.29
Binghamton Area	59	5,046.49	.22	.25
Buffalo (City)	63	10,057.57	.45	.49
Buffalo Area	14	942.18	.04	.05
Niagara Falls	1	345.00	.02	.02
Rochester (City)	301	57,707.71	2.57	2.84
Rochester Area	35	2,745.58	.12	.14
Jamestown	7	708.25	.03	.03
Elmira (City)	81	20,066.08	.89	.99
Elmira Area	102	34,321.09	1.53	1.69
Total New York State		2,030,372.28	90.34	100.0
2. Outside New York State In the United States				
New England Area	796	88,107.34	3.92	-
Pennsylvania	311	25,935.79	1.15	-
Virginia-Carolina Area	147	5,373.26	0.24	-
Florida-Tennessee Area	47	2,641.42	.12	-
Michigan-Kentucky Area	351	24,601.66	1.09	-
Montana-Iowa Area	218	25,906.76	1.15	-
Kansas-Illinois Area	416	29,161.80	1.30	-
Texas-Arkansas Area	29	5,276.94	.23	-
Idaho-Arizona Area	9	351.80	.02	-
California-Washington Area	189	9,266.54	.41	-
Total Outside New York State in United States		216,623.91	9.64	-
3. Foreign Countries	13	401.42		-
Overall Total		2,247,397.01	100.0	-

* Less than .01 percent.
Errors due to rounding.

Notes: Syracuse Area data do not include previously listed areas such as Cortland. Elmira Area data do not include previously listed areas such as Tompkins County selected locations.
Net purchases include gross purchase price, discount and transportation costs.
See zip code map for area definitions.

are New York City (10.4 percent), Syracuse (4.7 percent), Binghamton (3.0 percent) and Rochester (2.6 percent), and a host of small expenditures are made from numerous vendors at diverse locations throughout the State.

Gravity Model for FSA Purchases

A gravity model was applied to purchases made at various locations by the Faculty-Student Association of SUNY Cortland. Major cities in New York State outside of Cortland are major points for expenditure (Table 7.7) and were included in this analysis.

TABLE 7.7

INPUT DATA FOR REGRESSION ANALYSIS

OF CORTLAND COLLEGE FSA PURCHASES

City	Population 1960 P_2	Radial Distance from Cortland miles d_{1-2}	P_2/d_{1-2}^2	Percent of Total New York State Purchases by SUNY Cortland
Albany	129,726	112.0	10.3	1.27
Binghamton	75,941	32.4	72.3	2.97
Buffalo	532,759	130.0	31.5	.45
Elmira	46,517	43.2	25.0	.89
Jamestown	41,818	154.0	1.8	.03
New York	7,781,984	162.0	296.3	10.92
Niagara Falls	102,394	140.0	5.2	.02
Rochester	318,611	75.5	42.3	2.57
Rome	51,646	52.6	18.7	.00
Schenectady	81,682	109.0	6.8	.02
Syracuse	216,038	26.0	319.8	4.73
Utica	100,410	53.4	35.1	.31
Watertown	33,306	91.8	3.9	.12

A regression analysis was used with percent of total purchases at a locality as the dependent variable, and the locality's population in 1960 divided by the square of its radial distance from the college town as the independent variable. The results of this analysis are indicated in Table 7.8. The value of R is .86 and the independent variable in the form of a gravity model accounts for 75 percent of the possible variance in the dependent variable.

TABLE 7.8

DATA FOR REGRESSION EQUATION FOR CORTLAND COLLEGE

FSA PURCHASES

Dependent Variable:	%-NY-EXPEND
R Squared	0.75
Constant	22.2
Significance level	.001
Standard error of estimate	159.2

Independent Variable	Beta Coefficient
P/D	0.246

Variable code names and descriptions:

Variable No.		Code names
33	Dependent Variable: Percent of total New York State purchases made by college in city observed	%-NY-EXPEND
	Independent Variable:	
34	1960 population of city observed divided by the square of its radial distance from Cortland	P/D

The beta value and the constant term can be used to form the multiple regression equation:

$$Y_{33} = 22.2 + 0.25X_{34}$$

where Y_{33} and X_{34} are the dependent and independent variables respectively as described above.

Since a positive relationship exists for the variables, the proportion of college purchases made in a major locality in the region will tend to increase directly with its population, and inversely with the square of its distance from the college, other things being equal.

D. Summary

The evidence as displayed in this chapter was limited to SUNY Cortland and Alfred Tech but some generalizations are possible because of the large number of vendors considered. A substantial part of rural college expenditures tend to diffuse into the surrounding region. This applies to the relatively large as well as the small college town.[8] The larger rural college town will supply some of the needed repair and maintenance services, equipment and educational supplies, but much of this will come from outside the county; utilities and communications expenditures, constituting a large part of the total operational and maintenance budget, will be made locally. However in the case of the small college town, especially when utility installations are limited or non-existent, there is the possibility that college purchases for operational and maintenance needs will be made almost totally from out-

[8] Auburn Community College indicated that in the fiscal year 1967-68 only about 5 percent of its purchases in educational supplies were made in Auburn; its proximity to Syracuse appears to be an important factor in this regard.

side sources. When an item is available from a large number of vendors, major cities within the region attract the purchasing dollar of the college substantially in accordance with a gravity model. If a small college town is located near the county boundary there is the probability that much of the purchasing dollar will leave the county. This is especially the case when a relatively large out of county central place is near enough to attract expenditures by the college, its staff, and students.

PART V. CONCLUSIONS AND RECOMMENDATIONS

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

This paper has sought to present information of value to decision makers seeking to predict impact of the college on the rural community. In so doing it has made a critical analysis of the spill-out of economic and social benefits from existing college towns. Our broad purpose has been to initiate a procedure for assessing actual benefits accrued to these towns owing to the college presence, to point up opportunity losses due to spill-out, and to indicate some of the burdens incurred. The college town prone to high spill-out will experience difficulty in supporting college related services, and a location and development decision should consider this possibility.[1]

Impact on the college town may be examined in two phases. The first includes an analysis of data to predict input of the college population and dollars into the community. The second considers interaction and incidence of this input relative to community components. In both phases spill-out is an important consideration. High spill-out in one phase may be counterbalanced by low spill-out in the other. When spill-out is high in both phases difficulties arise and their extent depends upon the size of the college burden.

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[1] If a college town is located near the county boundary, spill-out may remove much of the college purchasing dollar from the county. This is a likelihood when a relatively large city in the adjacent county is near enough to attract expenditures by the college, its staff, and students. When college town spill-out goes to other localities, the latter show benefit.

A. College Input, Interaction, and Spill-out

In Phase I of this study the input of staff, local students, and purchasing dollars into the college town was considered. It was found that professional staff residence (input) ratings for private and public colleges taken as a group, varied little with the size of the college town. This was also true for private colleges examined as a group. However, when four year public colleges alone were considered, a definite pattern was noted. Residence ratings for four year public colleges varied closely with college town size. They were higher in the larger towns and lower in villages. It is important to note that the public colleges had considerably larger enrollments (1,998 to 3,573 students) and professional staff sizes (308 to 498 employees) than the private colleges (with enrollments from 909 to 1,837, and staff sizes from 96 to 293). The relatively large State University Colleges in small towns exhibited lower professional staff residence (input) ratings. This may be due to either new staff coming from distant points and settling outside the small college town, or new staff commuting from residences previously established in nearby towns or cities. Both factors were probably operative to varying degrees in the cases studied.

In regard to Hypothesis I we can say that the proportion of professional staff residing in a college town is a function of town size for the four year State University Colleges studied, but this is not so for the private colleges examined, or for all four year colleges taken as a group.

Generally, professional staff residence (input) ratings for established four year colleges of moderate size were higher (at 70 to 95 percent) than those for two year colleges (at 52 to 84 percent). The

attractive small town may receive a high professional staff input and be fully able to carry a small college without difficulty. However, a critical point in town size may exist below which staff input and interaction may be sharply reduced. This is especially possible for small towns low in centrality or entrepreneurial capacity, which experience high competition from attractive locations in the area, or where village boundaries, topography, and other limitations severely restrict town development. The larger town may also experience substantial residential spill-out particularly when the college is located in its outskirts; however in most cases its centrality yields payoff in the interaction stage, and its existing infrastructure is capable of carrying the college without excessive burden. The small town is less able to take high spill-out with a sizable college in its midst. The ideal situation is one of balanced growth for the college and college town especially for the smaller populated places.

The proportion of auxiliary staff residing in the college town showed fair correlation with town size (Hypothesis II) when all the colleges were grouped. The proportion varied between 53 and 89 percent for the larger college town and 25 to 63 percent for the village. The extremely low input in a number of small towns reflects their small labor force and indicates high commutation for auxiliary staff from neighboring rural areas. The statistical argument relative to auxiliary staff input is strengthened by the fact that at Poughkeepsie auxiliary staff residence ratings were almost identical (near 78 percent) for the two and four year colleges in town. At Canton, a smaller town, the two colleges also had similar ratings (both near 55 percent). Also at Oneonta and Potsdam similarity in college staff input for two colleges

in each of these towns was indicated. Private colleges drew slightly more upon college town population for auxiliary staff than did public colleges.

A device was designed for the analysis of local student enrollment at SUNY Alfred Tech and SUNY Cortland. There are indications that the techniques involved and conclusions derived are applicable to the other public colleges in our study. This device permitted the locational analysis of computer based information on enrollment and commutation. Local students were divided into two groups: (1) those with permanent residences within the college town, and (2) those with homes within a 50 mile radius (approximately) of the college town. The number of local college students enrolled with permanent residences in the college town showed definite variation with town size at three colleges studied (Auburn = 399; Cortland = 157; and Alfred = 26 students).[2] Generally two year colleges show greater draw from the local student population than do baccalaureate institutions. To substantiate these conclusions and to obtain a regression equation on the relationships, data from additional colleges should be examined. However, statistical analysis of the variation in enrollment with grades 7-12 ADA in a 50 mile ring for both SUNY Cortland and SUNY Alfred Tech Colleges indicated an

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[2]At Auburn this number of students came from the Auburn Enlarged City School District in 1965. Albert T. Skinner, op. cit., p. 8. Data for Cortland and Alfred are for Fall 1967. For the public colleges studied the proportion of local students enrolled is about between .01 to .03 of the 1960 college town permanent population, and 10 to 20 percent of the 1964 grades 7-12 ADA. The higher fractions occur in Alfred. Only full-time enrollments at the colleges were analyzed. If part-time and night school enrollments are considered, colleges in the larger cities (such as Auburn and Cortland) would indicate considerably more extensive programs and attendance than those in the smaller towns.

association between town size and local enrollment, and also provided a regression equation for predicting local enrollment outside the college town. The detailed analysis of local enrollment at SUNY Alfred Tech and SUNY Cortland showed that although the latter drew by far the greater number of college town students, at about 10 miles out the cumulative total of "local" students at both colleges was about the same (Hypothesis III). This was due to the large Hornell and Wellsville enrollment at Alfred. Cortland eventually regains the lead at the 35 mile radial distance owing to its Syracuse and Binghamton enrollments. The marginal number of commuting students at these colleges is little basis for college location in Alfred and Cortland. Reasons relating to city and regional development are more compelling. Also the large proportion of local students in the 50 mile ring is of importance.

Regression analysis permits high prediction of student commutation among local students enrolled. Most "local" students live in dorms at both SUNY Alfred Tech and SUNY Cortland. Only about one-third and one-fourth respectively commute. Commutation drops to about 50 percent for SUNY Cortland students about 8 miles out of the City, and for SUNY Alfred Tech students 15 miles out of the Village. It is close to zero from sectors 35 to 40 miles distant (Hypothesis IV). The form in which the regression analysis for enrollment and commutation is couched makes it applicable to the other public colleges studied.

As discussed previously the college is a supplier of jobs, education, salaries, purchasing dollars, and other benefits which go to individuals in the college town and in the region. However, except for utilities and other special purchases (rentals, in the case of Alfred Tech), about 80 to 100 percent of the goods and services needed for

operational and maintenance purposes (educational supplies, equipment, repairs and maintenance services) were purchased outside the county by both Cortland College and Alfred Tech. Data on Cortland College Faculty Student Association (FSA) purchases for auxiliary enterprises (the college store, cafeteria, and student activities) indicate a different situation. About two-thirds of these purchases were made in Cortland County.

To analyze location of vendors for FSA purchases, a gravity model was used. Relatively high predictability of expenditure location was found possible for items purchasable from a broad spectrum of vendors in major cities of the region. The purchases made varied directly with city size and inversely with the distance squared (Hypothesis V).

In considering the second phase of this study of college impact on a locality, social and economic input and spill-out relative to the college population was demonstrated.[3] Staff and students at Alfred Tech and Alfred University indicated relatively low retail purchases in the Village. Cazenovia, only slightly larger than the Village of Alfred, exhibited comparatively high retail sales in all categories but furniture and clothing. Cortland and Auburn benefit by good retaining power in retail sales to staff and students. However, low retail sales were noted in a few categories. (Students make comparatively minor clothing expenditures in the college town except if it is their place of permanent residence.) Even the larger rural city experiences a degree of spill-out.

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[3]The auxiliary staff by and large reflect the opinion of the townspeople. Although in Alfred several secretaries were faculty wives, the samples of auxiliary staff members primarily included maintenance crew, food service employees, and others not related to the professional staff.

Social input and interaction is a considerable factor in college impact. The institutional population newly entering the college town brings a potential for social change and development.[4] In addition to the educational program and the usual set of student and staff characteristics, the college input of human and social capital includes measurable units of community service potential, and a battery of political attitudes. Impact on the town may be considerably diluted by virtue of the isolation of the campus, spill-out of residence location, and low levels of interaction with townspeople. However, interaction by even a small fraction of the college professional staff and the sizable student body may add up to a substantial contact with the local townspeople. College influence on school district policy and local government depends on the involvement of the college population in these matters, and their weight in the decision-making process.

The public colleges examined denoted close to one-third of their student population in the lower family income groups (below $8,000 per year) and Alfred University indicated about one-fifth in this category; these colleges thus represent opportunity for the less affluent local student as well as those from distant locations. However upon graduation only a small percentage of even the local students plan to stay in the area of the college town and at least one in five of all students questioned indicated plans to leave New York State.

B. Regional Considerations

In evaluating the affect of the college on the college town it is

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[4]For pertinent discussions of social and cultural change see Harry M. Johnson, Sociology: A Systematic Introduction (New York: Harcourt, Brace, and World, Inc., 1960), pp. 625-649; and Lowell D. Holmes, Anthropology, An Introduction (New York: The Ronald Press Company, 1965), pp. 279-298.

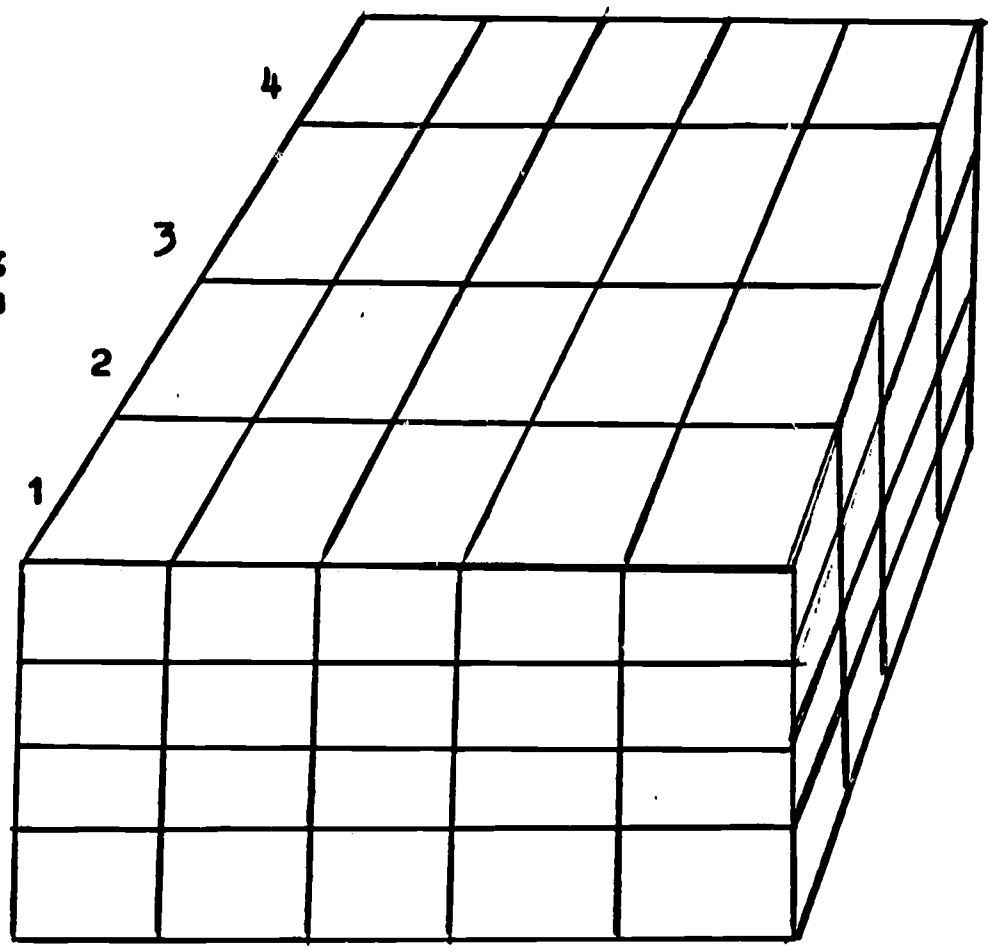
also necessary to consider regional factors. These were discussed in considerable detail at the beginning of this report. A three way interaction occurs between the college, the town, and the region. The college has impact on the town, the town on the region, and conversely regional development affects the town and the college. Consequently the college should be located in a growth center which will highly benefit regional development, and which will be capable of absorbing needed economic and social benefits for its own growth.

C. Recommendations

This research is intended to provide data for college planning, rural community development policy, and state investment decisions. The information obtained relates to the work of the town, county, regional, and educational planner, and is best utilized in a coordinated effort.

A policy matrix based upon college impact on the area is illustrated in Figure 8.1. As indicated in the diagram, Hypothesis I which involves the input and spill-out of professional staff is the concern of the educational planner, the village and county planner, and to a lesser extent the regional planner. These individuals can use information on professional staff input in the planning of parking, space utilization, housing, community services, transportation, and recreation. The other hypotheses feed into policy-making in a similar manner.

Costs and benefits relative to college impact on property values, retail sales, education, family income, social interaction, and other categories related to town development should be investigated at the town, county, and regional levels. Adaptability of an area to change is also an important consideration.



I	II	III	IV	V
Prof. Staff	Auxil. Staff	Students Enroll-ment	Com-mutation	College Purchases

Planning Services

1) Campus Planning
(Dorms, Parking, Circulation, Enrollment, Space Utilization, etc.)

2) Town Planning
Housing, Transportation, Services (Water, Waste, Police, etc.), Industry, Land Use, Commercial Facilities, Education, etc.

3) County Planning
Recreational, Transportation, Industry, Environmental Health, etc.

4) Regional Planning
Recreation, Transportation, Rural Development, etc.

FIGURE 8.1

POLICY MATRIX BASED ON COLLEGE IMPACT ON AN AREA

Recommendations for additional research in this area revolve about the refining of techniques and the variables considered, and the development of additional procedures which in sum will contribute toward effective planning in this area.

The system developed in this study to facilitate locational analysis of student enrollment, commutation, and college purchases can also be used to analyze alumni location, employee and payroll incidence, and other college related factors. Utilization of grid and zip code numbers for locational identification permits close-up analysis and mapping of economic and social interaction in sectors, channels and rings immediately surrounding the college town. It also provides data for regression analyses and long-range planning, and relates the college matrix to local and regional elements. The combination of a detailed locational analysis, and sharper definitions of spill-out leads to improved estimates of the local impact of the college population and its activities, and also delineates the tie-in between educational planning and local and regional development.

Further research in several of the above areas could lead to fruitful results. The grid-ADA locational analysis lends itself to a procedure for maximization of local enrollment in college location planning. A radar-like sweep to obtain local ADA totals for a multiple of college locations could be obtained with computer aid. Standard centrographic techniques would be helpful in this connection.[5] A locational analysis

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[5]See Douglass B. Lee, Analysis and Description of Residential Segregation: An Application of Centrographic Techniques to the Study Of The Spatial Distribution of Ethnic Groups in Cities (Ithaca: Cornell University, Center For Housing and Environmental Studies, Division of Urban Studies, 1968).

of State University purchases utilizing IBM records would also be informative. This would aid in assessing and forecasting money flow from institutional purchases throughout the State.

The application of a format for the accounting of town, county, and regional input and spill-out at colleges in varied locations would yield additional insight to planners. Our concern was with the impact of the college on the rural community. Other impact tools can be evaluated for urban as well as rural areas with varying characteristics.

Longitudinal studies of town change owing to the college presence and its impact would help gain additional insight into the input needed to transform an area. These studies could utilize social and political indexes as previously described to analyze interaction and input of human and social capital.

APPENDIX A

METHOD AND PROCEDURES

This study is divided into two phases. The first considers the input of the college staff and student population into college towns in New York State. The second analyzes interaction of the college populations with regard to selected social and economic factors operating within these towns. Town size is evaluated as an influence in population input, and spill-out.

Investigation of the hypothesis that the proportion of college staff input to a town varies with the size of the town required a multi-college analysis.[1] To determine parameters for the influx of the local student population extensive data from two public colleges were analyzed and this analysis provided the basis for a general statement applicable to other rural public colleges. Lastly, interaction of the college population was determined by use of questionnaires submitted to random samples of both staff and students at the colleges. The above phases were supplemented by interviews with college and town officials.

A. Determination of Staff Input via the Multi-College Study

The multi-college study included data obtained from a survey of

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[1]See Lachlan Blair, "College and Community, A Study of Interaction in Chicago" (Chicago: University of Illinois, Department of Urban Planning, 1967), p. 54 (Mimeographed). Blair briefly suggests a study of staff input in determining job input to a community. Our study sought a predictive factor relative to input to rural towns and therefore required a multi-college analysis. The input may also be considered to be the number of jobs added to the college town labor force by the college work force or table of organization.

39 colleges. These colleges were selected on a basis of college and town size (minimum undergraduate student enrollment and town population) as previously discussed, and therefore constitute an exclusive set. All were outside of designated Metropolitan areas (SMSAs) as of the 1960 census.[2]

Letters were sent to college presidents and college research directors requesting their cooperation in obtaining data on staff place of residence in 1967-68. Special forms were made up for orderly and consistent accounting of these data.

On a multi-column sheet the number of full-time and part-time professional and auxiliary staff members residing in each city or village in the college area were to be indicated. A sample form, partially completed and with instructions was included in the mailing. Professional and auxiliary staff membership characteristics were clearly defined for separate column entry. These broad categories included faculty, administrators, and other professional staff in one group, and secretarial, clerical, maintenance, and food service personnel in the other, respectively. Lab technicians, housemothers, and individuals in part-time employment, were included under separate columns. The primary reason for including a part-time column was to provide for non-contamination of data on full-time staff members. Data received on lab technicians and housemothers were later included with auxiliary staff group data. In this way two major sets were formed, one for the professional, and another for the auxiliary or service staff.

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[2]Data on the Rockland County Community College (within the New York City SMSA) were also obtained to gain some insight into the effect of a large city on a small town relative to college staff input.

Information required in this survey was obtained from all 39 colleges contacted. The colleges are listed (in Tables 3.1A and B) along with a summary of the data received. More complete data on the colleges are in Appendix B. Returns from SUNY Oswego and Potsdam were incomplete; only professional staff data were submitted by the former, and only grouped or total data by the latter college.

Although 39 colleges were included in the multi-college survey and are reported upon (see Tables B.1 to B.3 in the Appendix) not all of these were included in a regression analysis which sought to determine the relationship between staff input to the college town, town size, and other variables. Several colleges were ruled out of this part of the analysis because of their small staff size (below 80 professionals), recency of establishment in the college town (after 1964), low enrollment as of 1964, absence of town data in the U.S. Census of Population 1960, location in a Metropolitan area (SMSA), and incomplete data on staff. The omitted colleges are listed in Table A.1 with the reason for omission indicated; the relationship between these colleges and those included in the regression analysis is discussed in Chapter Three. Their inclusion would not have appreciably changed the results.

For the regression analysis college town population data and related information were obtained from standard sources such as the Census of Population and Housing. In some cases settlement around the college is more accurately represented by a combination of the population of two villages, or a city and a village in close proximity. This occurs when the populations are neighboring, or tend toward agglomeration. On a map the village or city locations are shown as within two miles apart. This situation occurs in the Alfred-Alfred Station area,

TABLE A.1

COLLEGES OMITTED FROM THE REGRESSION ANALYSIS ON STAFF RESIDENCE LOCATION

	Reason for Omission					
	Low Enrollment 1964	Small Staff 1964	Recency in Town	No Town Data[a]	In SMSA	Staff Data Incomplete
Four year colleges:						
SUNY Potsdam						X
SUNY Oswego (in part)						X
Houghton				X		
Two year colleges:						
Adirondack C.C.		X				
Fulton-Montgomery C.C.		X				
Genesee C.C.		X	b			
Jamestown C.C.		X				
Jefferson C.C.		X				
Paul Smiths				X		
Rockland C.C.					X	
Sullivan C.C.	X					
Ulster C.C.			c			

a. There is no population information on these localities in the U.S. Census of Population for 1960.

b. Genesee Community College was established after 1964.

c. The Summary Bulletin of the State University of New York listed the location of the Ulster County Community College as at Kingston, New York in Spring 1966, and as at Stone Ridge in Fall 1967.

d. The reasons for omission are detailed in the text.

Cortland-Homer area and others. These situations are indicated in the tables in Chapter Three, and population and staff input data obtained are indicated for the agglomeration as well as for the single village or city (college town) in the Appendix Tables (Tables B.1 to B.3). The regression analysis treats data on the agglomeration only since this is the more appropriate basis for predictability.

B. Determination of Local Student Population Input

As indicated in previous research, a student's economic impact on the college town depends upon whether he is a local or non-local student, and also upon his type of residence while at the college. Education of the non-local student component is an "export" product. Education of the local student provides the area with useable skills and other benefits as discussed in Chapter One.[3] Home commuters' expense budgets generally differ from those of dorm students,and both differ from those of off-campus commuters living away from home.[4]

Study of student economic input is first a problem of determining the expectation of local student enrollment (the remainder being non-local), and secondly a determination of home-commuter expectation, the remainder includes the set of dorm and off-campus residents. The number of dorm residents is a matter of college policy, construction, and regulation. Other things being equal, the remaining set of off-campus students is fixed by establishing the level of total enrollment. Consequently the only variables which are not arbitrarily determined, and which lend

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[3] From another viewpoint the input may be analyzed in terms of educational units accrued to local students.

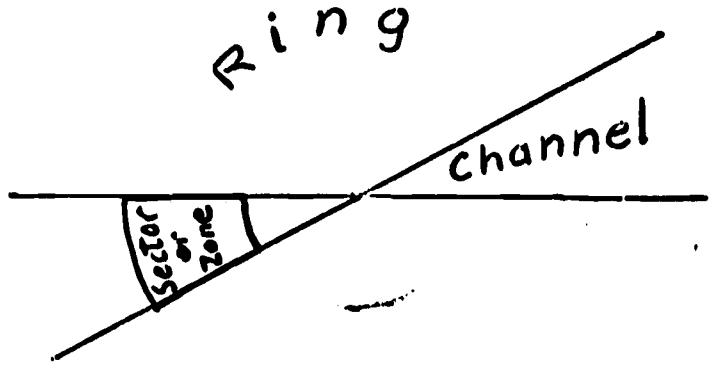
[4] In some categories of social activity the impact of the student also will vary on a basis of his being local or non-local, and with his type of college residency.

themselves to prediction are local student enrollment and home commutation. An attempt was made to explain their occurrence through regression analysis.

Local student enrollment and commutation were defined as occurring within a 50 mile radius (approximately) of the college town. A framework for study of both local enrollment and commutation was set up by fixing sectoral boundaries on a map of the locality as described below and in Figure A.1.

A sheet of Keuffel and Esser Company polar coordinates graph paper was xeroxed to obtain a copy of the circular grid on transparent acetate. For our purposes concentric rings on the acetate, one-half inch apart, were used to set distance boundaries at regular intervals. Beginning at the zero degree line, radii at 30 degree intervals were marked. The area on the sheet within a circle of five inch radius was thus delineated by 10 rings, 12 channels, and 120 sectors. The inmost ring was also marked off to delineate the immediate area at the center of the circles (the college town). This added one additional sector.

This grid was then imposed on a map of the area to be studied. It was anchored by fixing the center of the circle on the college's map location and by passing the zero, 180 degree, or other radius through a village, or other point on the map. In this manner towns on the map could be grouped into a framework of rings, channels,or sectors as desired for analysis. Channels and rings were labelled, A through L, and 1 through 10, respectively, and sectors or zones were then described by number and letter. For example sector 2A is in channel A and between ring 2 and ring 1, and this sector contains within its boundaries the towns on the map on which it is imposed.



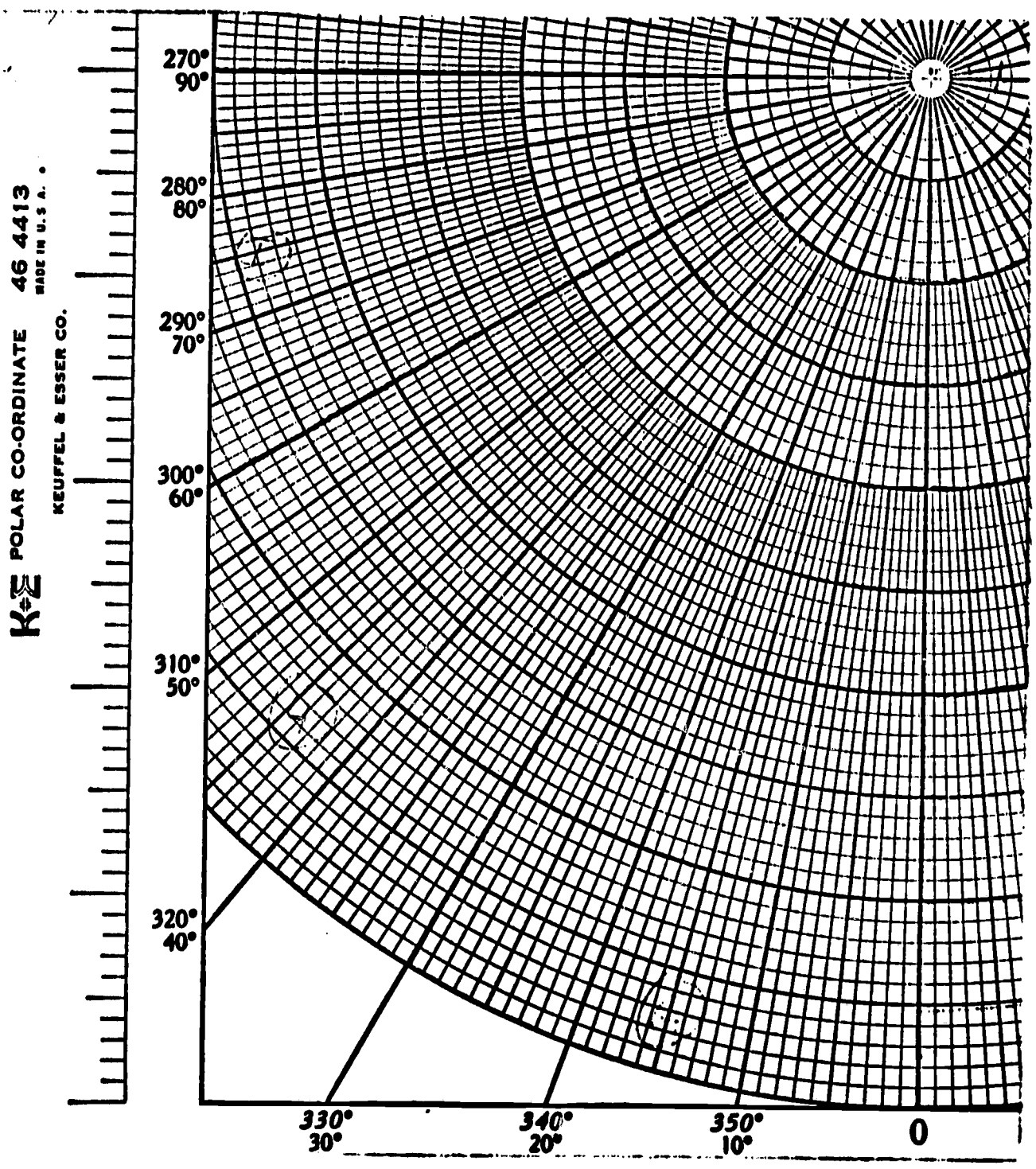


FIGURE A.1

GRID FOR LOCATIONAL IMPACT ANALYSIS

The basic framework can be used in the analysis of many different types of data relative to locational properties and factors. It is applied here for analysis of local events occurring within a few miles of the campus, and can be expanded in application to any distance from campus. Generally higher correlation coefficients are obtained when data are analyzed for a larger area. Thus channel analysis offers higher predictive value than sectoral analysis, but the information obtained less detailed.

Our objective was to use IBM card data on student permanent residence locations by towns, in conjunction with the above grid to analyze local student enrollment and commutation. However town data on computer cards at SUNY Cortland and Alfred are not readily used in analysis. This is because town names are inconsistently registered. Zip codes on student IBM cards can be applied readily and these were used to identify location of student permanent residences and other locational phenomena.

The National Zip Code Directory[5] was used to obtain zip codes of localities in each designated zone as listed in Tables D.1 to D.3, in the Appendix. Outside the 50 mile circle, and within New York State, zip code data for Sectional Center Facilities of the U.S. Post Office were applied, and national zip code areas as listed on a standard zip code map of the United States were used for locations outside of New York State. Zip codes assigned to each sector or zone were then matched against those on the student IBM card (for location of permanent residence).[6]

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[5] National Zip Code Directory (Zip Code Publishing Company, 1967).

[6] Zone zip codes can be matched in this way against numerous other variables stored on IBM cards to display distribution of college purchases, staff payroll, part-time and evening student sources, alumni data, and other factors of interest. In this study the input of college purchases to the college town and region also is evaluated by utilizing this technique.

The computer print-out supplied zone and ring totals. In effect a student input map was obtained indicating the source (or permanent residence location) of dormitory, home-commuter, and other off-campus students.[7]

Our next step was to use the resulting data in a regression analysis to predict enrollment and commutation of local students. Dependent variables were set up on a basis of the enrollment and commutation data obtained and these were run in regression analysis against zone variables such as distance and high school attendance. Once it is possible to predict the number of local students enrolled and local students commuting from home, we can make a statement about the set of local students living in dorms and off-campus. The total number of non-local students is arbitrarily decided upon, as previously discussed, and these students either live in dorms (again arbitrarily decided upon), or in off-campus housing. This information can be used to determine the potential economic impact of the student body when modified by spill-out considerations. The demonstration of spill-out and local student enrollment are of primary interest in this study. However the data derived are additionally useful in predicting how many local students will benefit by establishment and expansion of a college in a certain locality, and in facilities planning.[8]

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[7]The system of combining zip code designations into sectors was checked for accuracy by obtaining a print-out of addresses of all students in channel I (randomly selected) for SUNY Cortland College. The results were identical when either individual addresses or the zip code technique was used for sectoral assignment.

An original program for the computer processing of all data used in the zip code analysis was developed and written by Eugene R. Krause, Manager of the Computer Center at the State University of New York College at Cortland. Data from both the Alfred Technical College and SUNY Cortland were processed on the Univac 9300 magnetic tape system at the latter institution.

[8]The information obtained can be used as a basis for planning of parking and transportation facilities, campus and village roads, locally oriented educational programs, and other factors, all having impact on the community.

C. Determination of Interaction of the College Population

In Part II of this study an investigation of interaction of the college population with college town elements was made by use of staff and student questionnaires.[9] The questionnaires were pretested with undergraduate students and staff on the Cornell campus, revised, pretested again, and then found satisfactory for field use. The cooperating colleges were The Alfred Agricultural and Technical College, State University of New York College at Cortland, Cazenovia College, The Auburn Community College, and Alfred University. The data were obtained by survey in the Fall of 1968. Random samples of students were taken at the various colleges. Only sophomore students were examined at the four year colleges (SUNY Cortland College and Alfred University). The random sample for each college was based upon limited resources available, and the need to determine the economic and social characteristics of interest for each college. Details of the random sample taken at the various colleges are displayed in Table A.2.

Generally excellent cooperation was obtained in administering the questionnaires. Our initial approach at each college was through the president's office for his recommendations and guidance. The individuals involved in administering the questionnaires to staff and students were deans or directors of institutional research. Lists of names of staff and students to be included in the random samples were submitted to their offices and returns on the questionnaires were between 72 to 86 percent of the staff and 73 and 80 percent of the students at the various colleges.

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[9]The questionnaires are available upon request to the author.

TABLE A.2

RANDOM SAMPLES FOR COLLEGES STUDIED

College	Staff Popul.	Final Staff Sample Size	Percent Coverage	Undergraduate Full-time Student Enrollment (head count)	Final Student Sample Size	Percent Coverage
Alfred Ag. & Tech.	512	156	32.3	2,699	153	5.7
Cortland	720	101	14.0	909(Sophs)	122	13.4
Alfred Univ.	403	84	20.8	317(Sophs)	95	30.0
Auburn	114	97	85.1	1,445	79	5.5
Cazenovia	156	73	46.8	563	48	8.5

NOTE:
Student enrollment and staff size information was provided by the respective college offices. Staff size includes both professional and auxiliary staff. Staff on leave for the year are not included. This study was made in the Fall of 1968.

The questionnaires were introduced by lead information indicating their purpose and the college's interest in the survey. Off-campus students who could not be contacted directly were mailed questionnaires with stamped return envelopes addressed to the project's Cornell University office; returns from these mailings were not at the level of those obtained through direct contact with the student by the administration, and a bias with under representation of off-campus students can be expected because of this. Returns from professional and auxiliary staff members were good and both groups were well represented.

Because of the personal nature of some of the questions the respondents were instructed to not enter their names on the questionnaire. Faculty and administrative groups consulted were of the opinion that this would result in a higher number of returns, and more representative answers.

Information on each of the returned questionnaires was coded and punched on IBM cards. The coding was done by students in the Sociology and Rural Sociology Departments and checked for accuracy. Key punching was done at the Warren Hall computer center and included a verification run.[10]

The print-out for the staff questionnaire used the Professional and Auxiliary Staff breakdown as major categories. A more detailed analysis could have used other control variables such as age, rank, salary, sex, education, and others, but this was beyond the scope of our resources, time, and purposes. Additional research is recommended with the data on hand to obtain further insight into related areas. A like situation applies to the output from the student questionnaire.

Our basic effort in this phase of the study was to demonstrate for different college towns (1) economic and social impact of the college population in respect to selected factors; and (2) spill-out of selected activities or characteristics of the college population.

Analysis was made of pertinent economic and social factors. The questionnaire was not analyzed in its entirety since some of the questions served for orientation and other purposes. Also our intent was to help develop a methodology for a system of spill-over accounting rather than coverage of the full range of social and economic factors involved. Chi square tests were applied when useful for the exposition, and percentage distributions were used to display the total output.

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[10]The CONTAB 8 program (written in Fortran G) was used for analysis of college staff and student interaction. This program was obtained through the Computer Office at Warren Hall, Cornell University and was run on the IBM 360/65 computer.

APPENDIX B

DATA FOR THE MULTI-COLLEGE STUDY

TABLE B.1

PLACES OF RESIDENCE OF STAFF AT VARIOUS PUBLIC FOUR YEAR COLLEGES AND UNIVERSITIES (1967-68)

College	City or Village	Professional Staff No.	Professional Staff %	Auxiliary Staff No.	Auxiliary Staff %	Total Staff No.	Total Staff %
Brockport	Brockport	317	70.3	137	45.2	454	61.2
	Albion	5	1.1	43	14.2		
	Batavia	2	0.4	1	0.3		
	Bergen	3	0.7	12	4.0		
	Hamlin	6	1.3	14	4.6		
	Holley	7	1.5	47	15.5		
	Rochester	66	14.6	6	2.0		
	Spencerport	16	3.6	9	3.0		
	14 Other locations	29	6.4	-	-		
	10 Other locations	-	-	22	7.6		
	Total	451	100.0	291	100.0	742	100.0
Cortland	Cortland	296	75.1	225	69.5	521	72.6
	Groton	2	0.1	8	2.5		
	Homer	27	6.9	36	11.1		
	Ithaca	19	4.8	2	0.7		
	McGraw	5	1.3	11	3.4		
	Syracuse	13	3.3	0	0.0		
	23 Other locations	30	7.6	-	-		
	19 Other locations	-	-	42	13.0		
	Total	394	100.0	324	100.0	718	100.0
	Cortland-Homer	323	82.0	261	80.6	584	81.3
Fredonia	Fredonia	224	72.7	150	46.7	374	59.5
	Brocton	7	2.3	8	2.5		
	Buffalo	2	0.6	0	0.0		
	Dunkirk	52	16.9	132	41.0		
	Jamestown	3	1.0	0	0.0		
	Silver Creek	6	2.0	7	2.2		
	13 Other locations	14	4.5	-	-		
	9 Other locations	-	-	24	7.5		
	Total	308	100.0	321	100.0	629	100.0
	Fredonia-Dunkirk	276	89.6	282	87.8	558	88.6

TABLE B.1 (continued)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
Geneseo	Geneseo	238	71.5	93	25.6	331	47.5
	Avon	5	1.5	9	2.5		
	Batavia	1	.3	1	0.3		
	Conesus Lake	7	2.1	3	0.8		
	Dansville	1	0.3	44	12.1		
	Groveland	2	0.6	11	3.0		
	Leicester	6	1.8	17	4.7		
	Livonia	2	0.6	11	3.0		
	Mount Morris	15	4.5	69	19.0		
	Nunda	2	0.6	16	4.4		
	Perry	4	1.2	20	5.5		
	Piffard	3	0.9	10	2.8		
	Rochester	15	4.5	0	0.0		
	York	7	2.1	3	0.8		
	17 Other locations	21	6.3	-	-		
	26 Other locations	-	-	67	18.5		
	Total	333	100.0	363	100.0	696	100.0
New Paltz	New Paltz	334	75.5	171	43.8	505	60.6
	Beacon	2	0.5	1	0.3		
	Gardiner	7	1.6	22	5.6		
	Highland	18	4.1	42	10.7		
	Kingston	6	1.4	24	6.4		
	Newburgh	5	1.1	6	1.5		
	Poughkeepsie	17	3.8	2	0.5		
	Walden	1	0.2	21	5.4		
	Middletown	2	0.5	0	0.0		
	35 Other locations			-	-		
	26 Other locations	-	-				
	Total	442	100.0	391	100.0	833	
Oneonta	Oneonta	319	82.6	218	66.7	537	75.3
	Cooperstown	11	2.9	1	0.0		
	Franklin	6	1.5	2	0.1		
	Maryland	4	1.0	8	2.4		
	Schenectady	3	0.8	0	0.0		
	Unadilla	6	1.5	2	0.1		
	W. Oneonta	4	1.0	10	3.1		
	Worcester	1	0.3	14	4.3		
	19 Other locations	32	8.3	-	-		
	27 Other locations	-	-	72	22.0		
	Total	386	100.0	327	100.0	713	

TABLE B.1 (continued)

College	City or Village	Professional Staff No.	Professional Staff %	Auxiliary Staff No.	Auxiliary Staff %	Total Staff No.	Total Staff %
Oswego	Oswego	435	87.4	NA	NA	NA	NA
	Camillus	2	0.4				
	Fulton	12	2.4	NA	NA	NA	NA
	Liverpool	5	1.0	NA	NA	NA	NA
	Minetto	8	1.6	NA	NA	NA	NA
	Syracuse	14	2.8	NA	NA	NA	NA
	14 Other locations	22	4.4	NA	NA	NA	NA
	Total	498	100.0	NA	NA	NA	NA
Plattsburgh	Plattsburgh	289	85.3	224	52.6	513	67.0
	Cadyville	1	0.3	17	4.0		
	Dannemora	0	0.0	19	4.5		
	Ellenburg Depot	0	0.0	17	4.0		
	Keeseville	2	0.6	13	3.0		
	Montreal	3	0.9	0	0.0		
	Morrisonville	9	2.7	34	8.0		
	Peru	8	2.4	24	5.6		
	15 Other locations	27	8.0	-	-		
	23 Other locations	-	-	78	18.3		
	Total	339	100.0	426	100.0	765	100.0
Potsdam	Potsdam					447	66.4
	Canton					21	3.1
	Colton					15	2.2
	Massena		NA		NA	35	5.2
	Norwood					35	5.2
	Winthrop					17	2.5
	33 Other locations					103	15.3
	Total					673	100.0

TABLE B.2

PLACES OF RESIDENCE OF STAFF AT VARIOUS

PRIVATE FOUR YEAR COLLEGES IN NEW YORK STATE (1967-68)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
Alfred University[a]	Alfred	133	63.4	45	23.2	178	44.3
	Alfred Station	28	13.4	34	17.6		
	Almond	18	8.6	33	17.1		
	Andover	8	3.8	26	13.5		
	Canisteo	1	0.5	0	0.0		
	Hornell	13	6.2	28	14.5		
	Wellsville	2	1.0	7	3.6		
	4 Other locations	7	3.3	-	-		
	7 Other locations	-	-	20	10.4		
	Total	210	100.0	193	100.0	403	100.0
	Alfred - Alfred Station	161	76.6	79	40.9	240	59.5
Clarkson	Potsdam	167	86.1	82	51.3	249	70.3
	Canton	5	2.6	3	1.9		
	Colton	1	0.5	9	5.6		
	Massena	1	0.5	3	1.9		
	Norwood	4	2.1	10	6.2		
	Parishville	2	1.0	9	5.6		
	W. Potsdam	3	1.5	0	0.0		
	Winthrop	2	1.0	4	2.5		
	5 Other locations	9	4.6	-	-		
	12 Other locations	-	-	40	25.0		
	Total	194	100.0	160	100.0	354	100.0
Colgate	Hamilton	231	94.6	93	63.3	324	82.9
	Bouckville	0	0.0	4	2.7		
	Eaton	2	0.9	6	4.1		
	Earlville	0	0.0	7	4.8		
	Madison	1	0.4	7	4.8		
	Poolville	3	1.3	5	3.4		
	Oneida	0	0.0	2	1.4		
	Utica	2	0.9	0	0.0		
	Syracuse	1	0.4	0	0.0		
	3 Other locations	4	1.6	-	-		
	14 Other locations	-	-	23	15.6		
	Total	244	100.0	147	100.0	391	100.0

[a]Alfred University data are for Fall 1968.

TABLE B.2 (continued)

College	City or Village	Professional Staff No.	Professional Staff %	Auxiliary Staff No.	Auxiliary Staff %	Total Staff No.	Total Staff %
Hartwick	Oneonta	101	88.6	81	72.3	182	80.5
	Binghamton	2	1.8	0	0.0		
	Morris	0	0.0	5	4.5		
	Otego	1	0.9	5	4.5		
	West Oneonta	1	0.9	8	7.1		
	8 Other locations	9	7.9	-	-		
	9 Other locations	-	-	13	11.6		
	Total	114	100.0	112	100.0	226	100.0
Hobart and William Smith	Geneva	136	88.8	132	81.9	268	85.4
	Ithaca	3	2.0	0	0.0		
	Penn Yan	4	2.6	1	0.6		
	Rochester	2	1.3	0	0.0		
	Seneca Falls	1	0.6	4	2.5		
	Stanley	2	1.3	3	1.9		
	Waterloo	2	1.3	7	4.4		
	2 Other locations	3	2.0	-	-		
	6 Other locations	-	-	14	8.7		
	Total	153	100.0	161	100.0	314	100.0
Houghton	Houghton	89	92.7	79	80.6	168	86.6
	Belfast	0	0.0	3	3.1		
	Caneadea	1	1.0	1	1.0		
	Centerville	2	2.1	0	0.0		
	Fillmore	4	4.2	9	9.2		
	Rushford	0	0.0	2	2.0		
	Other locations	0	0.0	-	-		
	4 Other locations	-	-	4	4.1		
	Total	96	100.0	98	100.0	194	100.0
Ithaca	Ithaca	220	87.3	123	69.5	343	79.9
	Brooktondale	6	2.4	3	1.7		
	Candor	1	0.4	6	3.4		
	Dryden	3	1.2	2	1.1		
	Freeville	3	1.2	5	2.8		
	Newfield	2	0.8	8	4.5		
	Trumansburg	6	2.4	8	4.5		
	10 Other locations	11	4.4	-	-		
	10 Other locations	-	-	22	12.4		
	Total	252	100.0	177	100.0	429	100.0

TABLE B.2 (continued)

College	City or Village	Professional Staff No.	Professional Staff %	Auxiliary Staff No.	Auxiliary Staff %	Total Staff No.	Total Staff %
St. Bona-venture	St. Bonaventure	73	31.6	0	0.0	73	15.9
	Allegany	54	23.4	52	22.7	106	23.0
	Bradford, Pa.	5	2.2	0	0.0		
	Derrick, Pa.	1	0.4	0	0.0		
	Olean	79	34.2	151	65.9	230	50.0
	Portville	8	3.5	10	4.4		
	Rixford, Pa.	3	1.3	2	..9		
	8 Other locations	8	3.5	-	-		
	9 Other locations	-	-	14	6.1		
	Total	231	100.0	229	100.0	460	100.0
	St. Bonaventure-Allegany-Olean	206	89.2	203	88.6	409	89.0
	St. Bonaventure-Olean	152	65.8	151	65.9	303	65.9
St. Lawrence	Canton	187	93.9	168	55.3	355	70.6
	Colton	0	0.0				
	DeKalb Junction	0	0.0	18	5.9		
	Herman	1	0.5	12	3.9		
	Madrid	0	0.0	10	3.3		
	Massena	0	0.0	1	0.3		
	Ogdensburg	1	0.5	4	1.3		
	Potsdam	4	2.0	13	4.3		
	Pyrites	0	0.0	15	4.9		
	Russell	0	0.0	15	4.9		
	5 Other locations	6	3.0	-	-		
	20 Other locations	-	-	36	11.8		
	Total	199	100.0	304		503	100.0
Skidmore	Saratoga Springs	156	79.9	97	77.0	253	78.8
	Albany	1	0.5	1	0.8		
	Ballston Spa	5	2.6	9	7.1		
	Delmar	1	0.5	0	0.0		
	Gansevoort	5	2.6	2	1.6		
	Greenfield Center	7	3.6	6	4.8		
	Schenectady	2	1.0	1	0.8		
	Troy	2	1.0	0	0.0		
	16 Other locations	16	8.2	-	-		
	8 Other locations	-	-	10	7.9		
	Total	195	100.0	126	100.0	321	100.0

TABLE B.2 (continued)

College	City or Village	Professional Staff No.	Professional Staff %	Auxiliary Staff No.	Auxiliary Staff %	Total Staff No.	Total Staff %
Vassar	Poughkeepsie	268	91.4	407	76.2	675	81.6
	Beacon	1	0.3	2	.4		
	Hopewell Junction	4	1.4	14	2.6		
	Hyde Park	1	0.3	15	2.8		
	Kingston	0	0.0	2	.4		
	New Paltz	3	1.0	3	1.0		
	Newburgh	0	0.0	1	.2		
	Pleasant Valley	5	1.7	17	3.2		
	Wappingers Falls	1	.3	32	5.9		
	8 Other locations	10	3.4	-	-		
	19 Other locations	-	-				
	Total	293		534		827	100.0
	Poughkeepsie-Hyde Park	269	91.7	422	79.0		

TABLE B.3

PLACES OF RESIDENCE OF STAFF AT VARIOUS TWO YEAR COLLEGES IN NEW YORK STATE (1967-68)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
State University of New York							
Adirondack C.C.	Glens Falls	30	45.5	14	38.9	44	43.1
	Ft. Edward	2	3.0	3	8.3		
	Hudson Falls	14	21.2	9	25.0		
	Lake George	5	7.6	0	0.0		
	Saratoga Springs	0	0.0	0	0.0		
	So. Glens Falls	2	3.0	3	8.3		
	10 Other locations	13	19.7	-	-		
	5 Other locations	-	-	7	19.4		
	Total	66	100.0	36	100.0	102	100.0
	Glens Falls-So. Glens Falls-Hudson Falls-Ft. Edward	48	72.8	29	80.5	77	75.5
Auburn C.C.	Auburn	53	64.6	24	75.0	77	67.6
	Cayuga	2	2.5	0	0.0		
	Camillus	3	3.7	1	3.1		
	Sennett	2	2.5	0	0.0		
	Skaneateles	11	13.6	0	0.0		
	Syracuse	2	2.5	0	0.0		
	7 Other locations	9	11.1	-	-		
	6 Other locations	-	-	7	21.9		
	Total	82	100.0	32	100.0	114	100.0

Auburn C.C. data are for Fall 1968

TABLE B.3 (continued)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
State University of New York							
Corning C.C.	Corning	73	57.5	70	69.3	143	62.7
	Big Flats	7	5.5	2	2.0		
	Elmira	9	7.1	5	4.9		
	Horseheads	17	13.4	1	1.0		
	Nelso.., Pa.	0	0.0	1	1.0		
	Painted Post	11	8.6	8	7.9		
	7 Other locations	10	7.9	-	-		
	7 Other locations	-	-	14	13.9		
	Total	127	100.0	101	100.0	228	100.0
	Corning-Painted Post	84	66.1	78	77.1	162	71.1
Dutchess C.C.	Poughkeepsie	74	49.3	73	67.0	147	56.8
	Beacon	0	0.0	3	2.8		
	Hyde Park	32	21.3	12	11.0		
	Hopewell Junction	4	2.7	3	2.8		
	Middletown	1	.7	0	0.0		
	New Paltz	3	2.0	0	0.0		
	Staatsburg	5	3.3	1	0.9		
	Wappingers Falls	5	3.3	4	3.7		
	20 Other locations	26	17.3	-	-		
	10 Other locations	-	-	13	11.9		
	Total	150	100.0	109	100.0	359	100.0
	Poughkeepsie-Hyde Park	106	70.6	85	78.0	191	73.7
Fulton-Montgomery C.C.	Johnstown	30	47.6	12	46.1	42	47.2
	Amsterdam	14	22.2	3	11.5		
	Fultonville	2	3.2	0	0.0		
	Gloversville	12	19.1	8	30.0		
	5 Other locations	5	7.9	-	-		
	3 Other locations	-	-	3	11.5		
	Total	63	100.0	26	100.0	89	100.0
	Johnstown-Gloversville	42	66.7	20	76.9	62	70.0

TABLE B.3 (continued)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
State University of New York							
Genesee C.C.	Batavia	27	42.9	15	75.0	42	50.6
	Attica	3	4.8	0	0.0		
	Buffalo	1	0.0	0	0.0		
	Corfu	3	4.8	1	5.0		
	LeRoy	5	7.9	0	0.0		
	Rochester	2	3.2	0	0.0		
	16 Other locations	22	34.9	-	-		
	4 Other locations	-	-	4	20.0		
	Total	63	100.0	20	100.0	83	100.0
Herkimer C.C.	Ilion	9	29.0	1	8.3	10	23.3
	Frankfort	1	3.2	2	16.7		
	Herkimer	3	9.7	4	33.3		
	Little Falls	1	3.2	4	33.3		
	Mohawk	3	9.7	1	8.3		
	Utica	7	22.6	0	0.0		
	6 Other locations	7	22.6	-	-		
	Other locations	-	-	0	0.0		
	Total	31	100.0	12	100.0	43	100.0
Jamestown C.C.	Jamestown	42	61.8	17	62.9	59	62.1
	Ashville	4	5.9	0	0.0		
	Bemus Point	2	2.9	1	3.7		
	Chautauqua	2	2.9	0	0.0		
	Falconer	4	5.9	1	3.7		
	Lakewood	5	7.4	1	3.7		
	7 Other locations	9	13.2	-	-		
	4 Other locations	-	-	7	25.9		
	Total	68	100.0	27	100.0	95	
	Jamestown-Falconer	46	67.6	18	66.6	64	67.4

TABLE B.3 (continued)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
State University of New York							
Jefferson C.C.	Watertown	43	76.8	24	77.4	67	77.0
	Adams Center	3	5.4	2	6.7		
	Sackets Harbor	2	3.6	1	3.3		
	8 Other locations	8	14.3	-	-		
	4 Other locations	-	-	4	12.9		
	Total	56		31		87	100.0
Orange C.C.	Middletown	80	60.6	57	70.4	137	64.3
	Chester	5	3.8	1	1.2		
	Goshen	18	13.6	3	3.7		
	Kingston	1	0.8	0	0.0		
	Newburgh	3	2.3	0	0.0		
	New Hampton	1	0.8	5	6.2		
	Pine Bush	3	2.3	3	3.7		
	Slate Hill	3	2.3	1	1.2		
	16 Other locations	18	13.6	-	-		
	10 Other locations	-	-	11	13.6		
	Total	132	100.0	81	100.0	213	100.0
Rockland C.C.	Suffern	27	14.8	4	5.3	31	12.0
	Haverstraw	6	3.3	9	11.8		
	Monsey	16	8.8	14	18.4		
	Nanuet	2	1.1	2	2.6		
	New City	11	6.0	10	13.2		
	New York	47	25.9	6	7.8	53	21.0
	Nyack	10	5.5	5	6.6		
	Pearl River	11	6.0	6	7.8		
	Spring Valley	21	11.6	18	23.7		
	New Jersey	23	12.6	1	1.3		
	1 Other location	8	4.4	-	-		
	1 Other location	-	-	1	1.3		
	Total	182	100.0	76	100.0	258	100.0

TABLE B.3 (cont.)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
State University of New York							
SUNY Alfred	Alfred Village	81	41.5	42	14.2	123	25.1
	Alfred Station	36	18.5	36	12.2		
	Almond	15	7.7	27	9.2		
	Andover	5	2.6	53	18.0		
	Belmont	4	2.1	12	4.1		
	Hornell	21	10.8	59	20.0		
	Scio	3	1.5	9	3.1		
	Wellsville	18	9.2	28	9.5		
	Whitesville	0	0.0	11	3.7		
	9 Other locations	12	6.2	-	-		
	14 Other locations	-	-	18	6.1		
	Total	195	100.0	295	100.0	490	100.0
	Alfred-Alfred Station	117	60.0	78	26.4	195	40.0
SUNY Canton	Canton	118	79.2	111	56.1	729	66.0
	Governeur	3	2.0	7	3.5		
	Massena	1	0.7	4	2.0		
	Norwood	3	2.0	2	1.0		
	Ogdensburg	11	7.4	23	11.6		
	Potsdam	12	8.0	5	2.5		
	1 Other location	1	0.7	-	-		
	7 Other locations	-	-	46	23.2		
	Total	149	100.0	198	100.0	347	100.0
SUNY Cobleskill	Cobleskill	95	72.0	127	54.0	232	60.5
	Albany	4	3.0	0	0.0		
	Amsterdam	1	0.8	1	4.3		
	East Worcester	2	1.5	4	1.7		
	Middleburgh	0	0.0	11	4.7		
	Richmondville	13	9.9	19	8.1		
	Schoharie	4	3.0	4	1.7		
	Sharon Springs	1	0.8	11	4.7		
	Warnerville	4	3.0	12	5.1		
	7 Other locations	8	6.1	-	-		
	20 Other locations	-	-	46	19.6		
	Total	132	100.0	235	100.0	367	100.0

TABLE B.3 (cont.)

College	City or Village	Professional Staff No.	%	Auxiliary Staff No.	%	Total Staff No.	%
State University of New York							
SUNY Delhi	Delhi	102	83.5	144	60.0	246	68.0
	Bovina	1	0.8	10	4.2		
	DeLancey	0	0.0	4	1.7		
	Franklin	3	2.5	11	4.6		
	Hamden	1	0.8	12	5.0		
	Margaretville	2	1.6	19	7.9		
	Oneonta	6	4.9	7	2.9		
	Walton	1	0.8	17	7.1		
	6 Other locations	6	4.9	-	-		
	7 Other locations	-	-	16	6.7		
	Total	122	100.0	240	100.0	362	100.0
SUNY Morrisville	Morrisville	47	51.7	50	32.5	97	40.0
	Bouckville	3	3.3	3	1.9		
	Canastota	3	3.3	12	7.8		
	Cazenovia	4	4.4	10	6.5		
	Eaton	3	3.3	19	12.3		
	Erieville	0	0.0	10	6.5		
	Hamilton	8	8.8	9	5.8		
	Manlius	1	1.1	0	0.0		
	Oneida	2	2.2	0	0.0		
	Syracuse	2	2.2	1	0.7		
	Utica	2	2.2	0	0.0		
	12 Other locations	16	17.6	-	-		
	20 Other locations	-	-	40	26.0		
	Total	91	100.0	154	100.0	244	100.0
Sullivan C.C.	South Fallsburg	5	5.4	7	15.2	12	8.6
	Ellenville	2	2.2	0	0.0		
	Fallsburg	2	2.2	0	0.0		
	Grahamsville	9	9.7	8	17.4		
	Hurleyville	6	6.5	3	6.5		
	Liberty	9	9.7	5	10.9		
	Middletown	2	2.2	1	2.2		
	Monticello	34	36.6	4	8.7	38	27.3
	Woodbourne	0	0.0	6	13.1		
	16 Other locations	24	25.8	-	-		
	11 Other locations	-	-	12	26.1		
	Total	93	100.0	46	100.0	139	100.0

TABLE B.3 (continued)

College	City or Village	Professional Staff No.	Professional Staff %	Auxiliary Staff No.	Auxiliary Staff %	Total Staff No.	Total Staff %
State University of New York							
Ulster C.C.	Stone Ridge	9	11.1	10	21.8	19	15.0
	Albany	1	1.2	0	0.0		
	Kingston	33	40.7	24	52.1	57	45.0
	New Paltz	5	6.2	0	0.0		
	West Hurley	4	4.9	0	0.0		
	Woodstock	9	11.1	0	0.0		
	14 Other locations	20	24.7	-	-		
	6 Other locations	-	-	12	26.1		
	Total	81	100.0	46	100.0	127	100.0
Private Colleges							
Cazenovia	Cazenovia	63	75.0	39	54.2	102	65.4
	Auburn	0	0.0	1	1.4		
	Canastota	0	0.0	4	5.5		
	Delphi Falls	0	0.0	1	1.4		
	Erieville	2	2.8	9	12.5		
	Fayetteville	5	5.9	0	0.0		
	Manlius	4	4.8	3	4.2		
	Syracuse	6	7.1	2	2.8		
	4 Other locations	4	4.8	-	-		
	9 Other locations	-	-	13	18.1		
	Total	84	100.0	72	100.0	156	100.0
Paul Smiths	Paul Smiths	28	50.0	28	41.1	56	45.2
	Gabriels	7	12.5	3	4.4		
	Saranac Lake	15	26.8	37	54.5		
	4 Other locations	6	10.7	-	-		
	Other locations	-	-	0	0.0		
	Total	56	100.0	68	100.0	124	100.0

TABLE B.4

CORRELATION MATRIX OF VARIABLES USED IN DETERMINING THE RELATIONSHIP BETWEEN PERCENT OF STAFF LIVING IN THE COLLEGE TOWN AND SIZE OF THE COLLEGE TOWN (MULTI-COLLEGE ANALYSIS)

A. Large and Small Towns (combined)

		1	2	4	6	8	9
SQM	1	*					
DEN	2	-09	*				
%-PROF-IN	4	13	02	*			
%-AUXIL-IN	6	51	40	42	*		
TOWN-CTY-POP	8	28	85	11	63	*	
POPUL-60	9	43	73	11	74	92	*
POPUL-40	18	40	74	06	73	93	99

B. Small Towns Only

		1	2	4	6	8	9
SQM	1	*					
DEN	2	-49	*				
%-PROF-IN	4	03	36	*			
%-AUXIL-IN	6	02	22	72	*		
TOWN-CTY-POP	8	15	53	34	59	*	
POPUL-60	9	14	75	40	18	60	*
POPUL-40	18	44	47	36	38	72	84

C. Large Towns Only

		1	2	4	6	8
SQM	1	*				
DEN	2	-51	*			
%-PROF-IN	4	04	-25	*		
%-AUXIL-IN	6	22	-11	15	*	
TOWN-CTY-POP	8	-17	84	-07	19	*
POPUL-60	9	-11	70	-17	23	90

Note: The POPUL-40 variable was not run for large towns as low correlation was assumed from the data at hand.

See Table 3.3 for definitions of code names.

TABLE B.5

CORRELATION MATRICES OF INDEPENDENT VARIABLES FOR STAFF REGRESSIONS (MULTI-COLLEGE ANALYSIS)

1. Percent of college professionals living in large and small rural college-towns

Variables		7	11
%-PHD	7	*	
DEGREE-YRS	11	65	*
POPUL-40	18	12	-03

2. Percent of college professionals living in the larger rural college towns

Variables		3	7	8
PROSTAF	3	*		
%-PHD	7	49	*	
TOWN-CTY	8	-04	01	*
DEGREE-YRS	11	21	61	27

3. Percent of college auxiliary staff living in large and small college towns

Variables		1	5	9
SQM	1	*		
AUXSTAF	5	-16	*	
POPUL-60	9	43	-01	*
DEGREE-YRS	11	-01	14	-02

APPENDIX C

STUDENT ENROLLMENT DATA

TABLE C.1

LOCAL STUDENT ENROLLMENT AND COMMUTATION BY SECTORS,

FOR THE STATE UNIVERSITY OF NEW YORK AT CORTLAND (1967-68)

	CHANNEL												
Ring	A	B	C	D	E	F	G	H	I	J	K	L	Totals
1	24-21	--	--	2-2	--	--	--	--	--	--	--	--	26-23
2	2-2	--	--	--	--	--	--	6-1	5-3	10-6	--	--	23-12
3	--	10-6	1-1	2-1	--	4-2	1-1	--	1-0	--	7-3	--	26-14
4	2-0	2-1	4-4	1-0	--	8-2	4-2	--	41-11	2-0	--	--	64-20
5	2-0	--	1-1	--	--	--	2-0	4-1	4-0	5-1	--	7-3	25-6
6	114-10	12-2	1-0	--	8-0	--	1-0	3-0	--	--	3-1	29-2	171-15
7	13-1	8-0	5-0	16-0	1-0	157-9	26-0	--	12-0	1-0	14-0	3-0	256-10
8	16-0	7-0	4-0	2-0	5-0	8-0	5-0	2-0	14-0	7-0	7-0	3-0	80-0
9	4-0	3-0	5-0	--	6-0	3-0	--	46-0	3-0	--	5-0	--	75-0
10	--	--	4-0	--	2-0	--	--	4-1	21-0	1-0	12-0	3-0	47-1
Totals	177-34	42-9	25-6	23-3	22-0	180-13	39-3	65-3	101-14	26-7	48-4	45-5	793-101

NOTE: In the above table, for each sector, the number of local students enrolled is first indicated, and followed by the number commuting. For example, for Sector 2H, six students are enrolled and one commutes. Sectors without numbers have zero enrollment and commutation. The commutation limit line is indicated on the above table and based on at least one commuter present in a sector.

The one commuter in sector 10-H is omitted from consideration because the preceding three sectors are zero for channel H. If two commuters per sector is made the basis for the limit line, a considerably smaller commutation area results. (See Figure 5.2)

TABLE C.2

LOCAL STUDENT ENROLLMENT AND COMMUTATION BY SECTORS AT THE STATE UNIVERSITY OF NEW YORK, AGRICULTURAL AND TECHNICAL COLLEGE AT ALFRED (1967-68)

	CHANNEL											
Ring	A	B	C	D	E	F	G	H	I	J	K	L
1	-	18-18	-	-	-	-	-	-	-	-	-	-
2	14-12	104-83	19-6	-	-	14-11	-	-	-	-	-	-
3	14-12	-	-	-	1-0	3-1	-	75-49	11-9	7-3	-	4-1
4	-	-	-	7-4	1-0	-	-	-	7-1	8-5	-	3-1
5	47-12	17-3	9-4	3-1	-	P	P	13-4	15-5	3-0	4-0	8-2
6	4-0	-	10-0	5-0	-	P	P	-	1-0	2-0	2-0	9-0
7	2-0	9-0	-	2-0	-	P	P	4-0	46-2	12-0	8-1	11-0
8	11-0	3-0	-	4-0	P	P	P	P	19-1	14-0	11-0	7-0
9	3-0	23-1	P	P	P	P	P	P	P	P	12-0	16-0
10	21-0	3-0	P	P	P	P	P	P	P	P	17-0	16-0

Note: 1. Sectors labeled P are predominately in the State of Pennsylvania.
2. See note for Table C.1.

APPENDIX D

ZIP CODE AND ADA DATA

TABLE D.1

ZONES, LOCATION, ADA AND ZIP CODE DATA FOR CORTLAND

Zone or Sector	Location	Grades 7-12 ADA	Zip Code	Zone or Sector	Location	Grades 7-12 ADA	Zip Code
99	Cortland	1464	13045	10A	Amboy Cen.	--	--
01A	Homer	1011	13077		W. Amboy	--	--
01H	S. Cortland	--	--		N. Constantia	--	--
01D	McGraw	319	13101		Mallory	--	13103
02A	Little York	--	13087		Hastings	--	13076
	Preble	--	13141		Hastings Cen.	--	--
03A	Vesper	--	--		Clifford	--	--
	Otisco Valley	--	--		Palermo	--	--
04A	Otisco	--	--		Volney	--	--
	Cardiff	--	--	11A	Fulton	1761	13069
	Lafayette	469	13084	12A	Syracuse	11105	13200
05A	Cedarvale	--	--		Colvin	--	13205
	Navarino	--	--		Eastwood	--	13206
	Nedrow	--	13120		Elmwood	--	13207
06A	Onondaga Hill	954	--		Hancock Field	--	13225
	Split Rock	--	--		Mattydale	--	13211
	Camillus	2541 (W.Genesee)	13031		Onondaga	567	13215
					Salina	--	13208
	Fairmount	--	13219		University	--	13210
	Amboy	--	--		Veterans' Hosp.	--	13210
	Solvay	936	13209	2B	E. Homer	--	13056
	Jamesville	--	13078	3B	Truxton	148	13158
	DeWitt	1400	13214		Tully	430	13159
	E. Syracuse	1902	13057	4B	Keeney	--	--
07A	Minoa	--	13116		Apulia	--	--
	Collamer	--	--		Apulia Sta.	--	13020
	N. Syracuse	4206	13212		Fabius	399	--
	Liverpool	2363	13088	5B	New Woodstock	--	--
	Warners	--	13164		Delphi Falls	--	13051
08A	Bridgeport	--	13030		Pompey	--	13138
	Cicero	--	13039		Pompey Cen.	--	--
	Brewerton	--	13029		Watervale	--	--
	Euclid	--	--	6B	Nelson	--	--
	Belgium	--	--		Cazenovia	858	13035
	Phoenix	1023	13135		Chittenango Falls	--	--
	Three Rivers	--	--		Oran	--	13125
	Baldwinsville	1922	13027		Manlius	1836	13104
	Lamson	--	--		Fayetteville	--	13066
09A	Constantia	--	13044		Manlius Cen.	--	--
	West Monroe	--	--	7B	Peterboro	--	13134
	Central Square	1342	13036		Siloam	--	--
	Pennellville	--	13132		Perryville	--	13133
	Caughdenoy	--	--		Chittenango	980	13037
	Hinmansville	--	--		Chittenango Sta.	--	13038

TABLE D.1 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code
7B	Clockville	--	13042
	Sullivan	--	--
	N. Manlius	--	--
	Mycenal	--	--
	Kirkville	--	13082
8B	Valley Mills	--	--
	Merrillsville	--	--
	Wampsville	--	13163
	Oneida Castle	--	--
	Oneida Lake	--	--
	Lenox	--	--
	Canastota	876	13032
	Lakeport	--	--
9B	Verona	--	13478
	Bernhards Bay	--	13028
	Durhamville	--	13054
	Cleveland	--	13042
	State Bridge	--	--
	Jewell	--	--
	North Bay	--	13123
	Vernon	--	13476
	Sylvan Beach	--	13157
	Sherrill	60	13461
	South Bay	1357	--
	Oneida Valley	--	--
	Verona Beach	--	13162
	Higginsville	--	--
10B	Vienna	--	--
	McConnellsville	--	13401
	Stacy Basin	--	--
	Greenway	--	--
	Lowell	--	--
11B	Rome	4201	13440
12B	Oneida	1467	13421
2C	Cheningo	--	--
3C	Cuyler	--	13050
4C	Lincklaen	--	--
	DeRuyter	298	13052
5C	Sheds	--	13151
	Georgetown	88	13072
	Otselic	--	13129
6C	Erieville	--	13061
	W. Eaton	--	13484
	Lebanon	--	13085
7C	Earlville	234	13332
	Poolville	--	13432
	Randallsville	--	--
	Hamilton	367	13346
	Eaton	--	13334
	Bouckville	--	13310
	Morrisville	398	13408
	Pratts Hollow	--	13434
8C	Stockbridge	231	--
	Knoxboro	--	13362
	Munnsville	--	13409
	Augusta	--	--
	Oriskany Falls	149	13425
	Solsville	--	13465
	Madison	284	13402
	N. Brookfield	--	13418
	Hubbardsville	--	13355
	E. Hamilton	--	--
9C	Vernon Center	--	13477
	Deansboro	--	13328
	Waterville	463	13480
	Sangerfield	--	13455
	Brookfield	156	13314
	W. Edmeston	--	13485
10C	Hella	--	--
	Westmoreland	580	13490
	Clark Mills	--	13321
	Kirkland	--	--
	Clinton	860	13323
	Hamilton Col.	--	--
	Franklin Spgs.	--	13341
	Chadwicks	151	13319
	Sauquoit	--	13456
	Paris	--	13429
	Clayville	--	--
	Cassville	--	13318
	Bridgewater	84	13313
	W. Winfield	446	13491
	Unadilla Forks	--	13474
	Leonardsville	96	13364
	W. Exeter	--	13487
11C	Utica		(13500
			(13502
2D	Solon	--	--

TABLE D.1 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code
3D	Union Valley	--	--
	Taylor	--	--
	Pitcher	--	13136
	Cincinnatus	334	13040
4D	S. Otselic	146	13155
	N. Pitcher	--	13124
	Pharsalia	--	--
5D	Beaver Meadow	--	13735
	N. Pharsalia	--	--
	E. Pharsalia	--	13758
6D	Smyrna	--	--
	Sherburne Four Corners	--	--
	Plymouth	--	13832
	S. Plymouth	--	13844
	Preston	--	--
7D	Sherburne	640	13460
	N. Norwich	--	13814
	Chenango Lake	--	--
	Norwich	1456	13815
8D	Columbus	--	--
	New Berlin	334	13411
	S. New Berlin	168	13843
	Holmesville	--	13789
	Rockwell Mills	--	--
	Mt. Upton	139	13809
9D	Edmeston	290	13335
	S. Edmeston	--	13466
	Pittsfield	--	--
	Morris	225	13808
	Gilbertsville	137	13776
10D	Burlington Flats	--	13315
	Burlington	--	--
	W. Burlington	--	13482
	Garrattsville	--	13342
	W. Laurens	--	--
	Otsdawa	--	--
	Otego	687	13825
11D	Oneonta	1514	13820
2E	E. Freetown	--	13055
3E	Texas Valley	--	--
4E	Willet	--	13863
5E	McDonough	--	13801
	Smithville Flats	--	13841
6E	Oxford	495	13830
	Tyner	--	--
	Brisben	--	13741
	Greene	692	13778
7E	Guilford	--	13780
	Coventryville	--	--
	Coventry	--	--
	N. Colesville	--	--
	Belden	--	--
8E	Rockdale	--	--
	E. Guilford	--	--
	Bainbridge	522	13733
	N. Afton	--	--
	Afton	338	13730
	Vallonia Springs	--	--
	Nineveh	--	13813
	Harpursville	423	13787
	Center Village	--	--
	Doraville	--	--
9E	Unadilla	--	13849
	Sidney	948	13838
	Youngs	--	--
	Bennettsville	--	--
	Masonville	--	13804
	N. Stanford	--	--
	Sanford	--	--
10E	Franklin	205	13775
	Bartlett Hollow	--	--
	Sidney Center	--	13839
	Trout Creek	--	13847
	Rockroyal	--	--
	Deposit	491	13754
	Hambletville	--	--
	Stilesville	--	--
2F	Messengerville	--	--
3F	Marathon	398	13803
	Hunt's Cors.	--	--
	Killaway	--	13794
4F	Upper Lisle	--	--
	Lisle	--	13797
	Center Lisle	--	--
	Whitney Point	696	13862
5F	Triangle	--	--
	Itaska	--	--
	Nanticoke	--	--
	Glen Aubrey	--	13777
6F	N. Fenton	--	--
	Chenango Forks	1662+620	13746
	Castle Creek	--	13744
	W. Chenango	--	--
	Glen Castle	--	--

TABLE D.1 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code
7F	Chenango Br.	—	13745
	Port Crane	—	13833
	Sanitaria Sprs.	8	13836
	W. Colesville	—	—
	Port Dickinson	—	—
	Stella	—	—
	Westover	—	—
	Willot Point	—	—
8F	Ouaquaga	—	13826
	W. Windsor	—	—
	Kirkwood	—	13793
	Conklin	1108	13748
	Hawleyton	—	—
9F	E. Windsor	—	—
	Windsor	937	13865
	Damascus	—	—
	Great Bend	—	13643
	Corbettsville	—	13749
10F	McClure	—	—
	Oquaga Lake	—	—
	Gulf Summit	—	—
11F	Binghamton	5653	13900
12F	Johnson City	1191	13790
2G	Virgil	174	—
3G	Harford	—	13784
	Harford Mills	—	13785
	Richford	—	13835
4G	E. Berkshire	—	—
	Berkshire	—	13736
	Speedsville	—	—
5G	Jenksville	—	—
	Newark Valley	650	13811
	Weltonville	—	—
	Hubbardtown	—	—
6G	Maine	—	13802
	Gaskill	—	—
	Flemingsville	—	—
7G	Tioga Center	481	13845
	Lounsberry	—	—
	Owego	1440	13827
	Apalachin	—	13732
	Campville	—	—
	Vestal	2624	13850
8G	Smithboro	—	13840
	Nichols	—	13812
	Vestal Center	—	—
11G	Endicott	2652	13760
2H	Dryden	661	13053
3H	Ellis	—	—
	Slaterville Springs	—	14881
	Caroline	—	—
4H	Brooktondale	—	14817
	Caroline Center	—	—
5H	Danby	—	—
	Willseyville	—	13864
	Candor	400	13743
	W. Danby	—	14896
6H	Spencer	259	14883
	VanEtten	270	14889
	Straits Cors.	—	—
7H	Halsey Valley	—	—
	Erin	—	14838
	Swartwood	—	—
8H	Barton	—	13734
	Lockwood	—	14859
	Chemung Center	—	—
	Hicks	—	—
	N. Chemung	—	—
	Breesport	—	14816
9H	Waverly	944	14892
	Chemung	—	14825
	Lowman	—	14861
	Wellsburg	—	14894
	East Elmira	—	—
	Elmira Heights	981	14903
	Southport	—	—
11H	Elmira	5666	14900
2I	McLean	—	13102
	Freeville	—	13068
	Peruville	—	13073
3I	Varna	—	14850
	Etna	—	13062
	W. Dryden	—	13068
	S. Lansing	590	14882
4I	Cayuga Heights (Ithaca)	—	—
5I	Jacksonville	—	14854
	Perry City	—	—
	Enfield	—	—
	Newfield	370	14867
6I	Reynoldsville	—	—
	Mecklenburg	—	14863
	Cayutaville	—	—
	Alpine	—	14805
	Pony Hollow	—	—

TABLE D.1 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code
7I	Bennettsburg	--	--
	Burdett	--	14818
	Watkins Glen	745	14891
	Montour Falls	--	14865
	Odessa	619	14869
	Catharine	--	--
	Cayuta	--	14824
8I	Altay	--	--
	Reading Center	--	14876
	Townsend	--	--
	Millport	--	14864
	Pine Valley	--	14872
	Horseheads	2311	14845
	Sullivanville	--	--
9I	Weston	--	--
	Post Creek	--	--
	Tyrone	--	14887
	Bradford	146	14815
	Hornby	--	--
	Monterey	--	--
	Beaver Dams	--	14812
	Chambers	--	--
	Big Flats	--	14814
	Catlin	--	--
10I	N. Urbana	--	--
	Sonora	--	--
	S. Corning	--	14830
	Gibson	--	--
	Painted Post	--	14870
11I	Corning	3809	14830
12I	Ithaca	3346	14850
2J	Groton	562	13073
3J	W. Groton	--	--
	N. Lansing	--	--
4J	King Ferry	--	13081
	Goodyears	--	--
	Five Corners	--	--
	Lake Ridge	--	--
	Lansingville	--	--
	Ludlowville	--	14862
	Myers	--	14866
5J	Sheldrake	--	--
	Interlaken	313	14847
	Covert	--	--
	Trumansburg	637	14886
6J	Hayts Corners	--	14465
	Ovid	338	14521
	Lodi	--	--
	E. Steamburg	--	--
	Logan	--	--
7J	Willard	--	14588
	Caywood	--	--
	Valdis	--	--
	Hector	--	14841
	Kimrod	--	14842
	Glenora	--	--
	Rock Stream	--	14878
	Lakemont	--	14857
	Starkey	--	--
8J	Bellona	--	14415
	Dresden	--	14441
	Penn Yan	1224	14527
	Milo Center	--	--
	Dundee	507	14837
9J	Benton Center	--	--
	Bluff Point	--	14417
	Keuka Park	--	14478
	Branchport	--	14418
	Crosby	--	--
	Keuka	--	--
	Wayne	--	14893
	Catawba	--	--
10J	Rushville	--	14544
	Potter	--	--
	Middlesex	337	14507
	Italy Hill	--	--
	Pulteney	--	14874
	S. Pulteney	--	--
	Urbana	--	--
	Hammondsport	470	14840
2K	Summer Hill	--	--
3K	Montville	--	--
	Moravia	623	13118
	Locke	--	13092
4K	Genoa	591	13071
	Venice Center	--	13161
	Cascade	--	--
5K	Poplar Ridge	--	13139
	Sherwood	--	--
	Ledyard	--	--
	Scipioville	--	--
	Scipio	--	--
	Owasco Lake	--	--
	Mapleton	--	--
	Fleming	--	--

TABLE D.1 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code
6K	Half Acre	--	--
	Oakwood	--	--
	Union Springs	565	13160
	Levanna	--	13086
	Aurora	--	13026
7K	Cayuga	--	13034
	Seneca Falls	986	13148
	Canoga	--	--
	Fayette	--	13065
	MacDougall	--	14501
	Romulus	296	14541
8K	Tyre	--	--
	Magee	--	--
	Waterloo	994	13165
9K	Clyde	422	14433
	Marengo	--	--
	Alloway	--	--
	Oaks Corners	--	14518
	Seneca Castle	--	14547
	Flint	--	--
	Stanley	--	14561
	Gorham	401	14461
	Hall	--	14463
10K	Wayne Center	--	--
	Lock Berlin	--	--
	Lyons	651	14489
	Phelps	574	14532
	Clifton Springs	553	14432
	Orleans	--	--
	Reeds Corners	--	--
11K	Geneva	1369	14456
12K	Newark	1177	14513
13K	Canandaigua	1460	14424
2L	Scott	--	--
	Dresserville	--	--
3L	Sempronius	--	--
	Spafford	--	--
	New Hope	--	--
	Kelloggsville	--	--
4L	Amber	--	--
	Borodino	--	--
	Mandana	--	--
	Niles	--	--
5L	Marcellus	903	13108
	Rose Hill	--	--
	Marietta	--	13110
	Skaneateles	915	13152
	Owasco	--	13130
6L	Sennett	--	13150
	Hartlot	--	13075
	Skaneateles Falls	--	13153
	Mottville	--	13119
	Marcellus Falls	--	--
	Elbridge	--	13060
7L	Ionia	--	14475
	Weedsport	478	13166
	Port Byron	650	13140
	Throopsville	--	--
	Jordan	710	13080
	Memphis	--	13112
8L	Savannah	--	13146
	Spring Lake	--	--
	Montezuma	--	13117
	Lysander	--	13094
	Plainville	--	13137
	Cato	548	13033
	Meridian	--	13113
	Conquest	--	--
9L	Hannibal Center	--	--
	S. Hannibal	--	--
	Bowens Corners	--	--
	Ira	--	--
	Victory	--	--
	S. Butler	--	13154
10L	N. Hannibal	--	--
	Hannibal	627	13074
	Crocketts	--	--
	Sterling	--	13156
	Martville	--	13111
	Westbury	--	--
	Red Creek	--	13143
	Wolcott	--	14590
	Rose	--	14542
	N. Rose	289	14516
11L	Auburn	2643	13021

TABLE D.2

ZONES, LOCATION, AND ZIP CODE DATA FOR CORTLAND (BY VILLAGE AND CITY)

Zone or Sector	Location	Zip Code
C01	Cortland	13045
C02	McGraw	13101
	South Cortland	—
C03	Homer	13077
C04--(Cortland County)		
	Scott	—
	Preble	13141
	Little York	13087
	Keeney	—
	Cuyler	13050
	Truxton	13158
	E. Homer	13056
	Cheningo	—
	Union Valley	—
	Solon	—
	Taylor	—
	Cincinnatus	13040
	Willet	13863
	Texas Valley	—
	E. Freetown	13055
	Marathon	13803
	Hunt's Corners	—
	Messengerville	—
	Virgil	—
	S. Cortland	—
	Harford	13784
	Harford Mills	13785
C05--(Tompkins County)		
	Groton	13073
	W. Groton	—
	N. Lansing	—
	Lake Ridge	—
	Lansingville	—
	Ludlowville	14862
	Peruville	—
	McLean	13102
	Myers	14866
	S. Lansing	14882
	West Dryden	—
	Freeville	13068
	Dryden	13053
	Etna	13062
C05(cont.)-(Tompkins County)		
	Cayuga Heights	—
	Varna	—
	Ellis	—
	Slaterville Sprgs.	14881
	Brooktondale	14817
	Caroline	—
	Caroline Center	—
	Speedsville	—
	Danby	—
	W. Danby	14896
	Pony Hollow	—
	Newfield	14867
	Enfield	—
	Jacksonville	14854
	Trumansburg	14886
C06--(Cortland Area outside the county) (Adjacent Counties) (Just beyond county border)		
	Pitcher	13136
	Locke	13092
	Tully	13159
	Moravia	13118
	DeRuyter	13052
	Genoa	13071
C07	Syracuse	13200
	DeWitt	13214
(Syracuse Vicinity)		
	Marietta	13110
	Skaneateles	13152
	Camillus	13031
	Fayetteville	13066
	Liverpool	13088
	Clay	13041
	N. Syracuse	13212
C08--(Cortland Area) (More distant outside county towns)		
	Raquette Lake (Hamilton County)	13436

TABLE D. 2 (cont.)

Zone or Sector	Location	Zip Code
C08(cont.)	Afton (Chenango)	13730
	Interlaken (Seneca)	14847
	Watkins Glen (Schuyler)	14891
C09	Corning	14830
C10	Ilion	13357
C11	Rome	13440
C12	Ithaca	14850
C13	Auburn	

TABLE D.3

ZONES, LOCATION, ADA, AND ZIP CODE DATA FOR ALFRED TECH

Zone or Sector	Location	Grades 7-12 ADA	Zip Code	Zone or Sector	Location	Grades 7-12 ADA	Zip Code
99A	Alfred	218	14802	13A	Newark	--	14513
02A	Almond	182	14804	14A	Pittsford	--	14534
	Bishopville	--	--		Henrietta	--	14467
03A	Arkport	261	14807		E. Rochester	--	14445
	Burns	--	--		Fairport	--	14450
04A	Beachville	--	--	01B	Alfred Station	--	14803
	South Dansville	--	--	02B	Hornell	1611	14843
05A	Cumminsville	--	--		N. Hornell	--	--
	Dansville	955	14437	03B	Big Creek	--	--
	Perkinsville	--	14529		Stephen Mills	--	--
	Wayland	617	14572	04B	Haskinville	--	--
06A	Scottsburg	--	14545		Howard	--	--
	Websters Crossing	--	14584	05B	Atlanta	--	14808
	Springwater	--	14560		Cohocton	149	14826
	Tabor Corners	--	--		Wallace	--	14890
07A	South Livonia	--	--		Avoca	337	14809
	Conesus	--	14435	06B	N. Cohocton	--	14868
	Canadice	--	--		Ingleside	--	--
08A	Lakeville	--	14480		Beens	--	--
	S. Lima	--	14558		Wheeler	--	--
	Livonia	596	14487	07B	Woodville	--	--
	Hemlock	--	14466		Naples	358	14512
	Bristol Springs	--	--		Italy	--	--
09A	E. Avon	--	--		Italy Hill	--	--
	Lima	216	14485		Prattsburg	240	14873
	W. Bloomfield	481	14585		S. Pulteney	--	--
	Allens Hill	--	--		Urbana	--	--
	Vincent	--	--	08B	Vine Valley	--	--
	Bristol Center	--	--		Middlesex	337	14507
	Cheshire	--	--		Guyanoga	--	--
10A	Rush	469	14543		Branchport	--	14418
	Honeyoye Falls	570	14472		Crosby	--	--
	Mendon	--	14506		Pulteney	--	14874
	N. Bloomfield	--	--		Keuka	--	--
	Ionia	--	14475	09B	Cottage City	--	--
	Bloomfield	--	14443		Rushville	--	14544
	Holcomb	--	14469		Potter	--	--
	W. Rush	--	14587		Yatesville	--	--
11A	Canandaigua	1460	19424		Penn Yan	1224	14527
12A	Rochester	--	14600		Keuka Park	--	14478
	"	--	14609-19		Second Milo	--	--
	"	--	14622-27				

TABLE D.3 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code	Zone or Sector	Location	Grades 7-12 ADA	Zip Code
10B	Reeds Corners	--	--	10C	Catharine	--	--
	Gorham	401	14461	(cont.)	Odessa	619	14869
	Fergusons Cors.	--	--		Montour Falls	--	14865
	Benton	--	--		Watkins Glen	745	14891
	Milo Center	--	--		Burdett	--	14818
	Dresden	--	14441		Bennettsburg	--	--
	Himrod	--	14842	11C	Ithaca	--	14850
	Caywood	--	--	01D	Purdy Creek	--	--
11B	Geneva	--	14456	03D	S. Canisteo	--	--
12B	Auburn	--	13021	04D	Cameron	--	14819
13B	Syracuse	--	13201-13225		Hegesville	--	--
					Jasper	182	14855
02C	Canisteo	567	14823	05D	Cameron Mills	--	14820
03C	Adrian	--	--		Rathbone	--	14875
	Buena Vista	--	--		Woodhull	61	14898
05C	Unionville	--	--	06D	Addison	624	14801
	Bath	996	14810		Freeman	--	--
	Kanona	--	14856		Van Fleet	--	--
	Risingville	--	--		Borden	--	--
06C	Hammondsport	470	14840	07D	Coopers Plains	--	14827
	Pleasant Valley	--	--		Painted Post	--	14870
	Savona	181	14879		Gang Mills	--	--
	Thurston	--	--		Erwins	--	--
	Campbell	266	14821		Presho	--	--
07C	Weston	--	--	08D	Lindley	--	14858
	Bradford	146	14815		S. Corning	--	--
	Sonora	--	--		E. Corning	--	--
	E. Campbell	--	--		Riverside	--	--
08C	Wayne	--	14893		Caton	--	--
	Altay	--	--	09D	Big Flats	--	14814
	Tyrone	--	14887		Sagetown	--	--
	Monterey	--	--	10D	Horseheads	2311	14845
	Hornby	--	--		Elmira Heights	981	14903
09C	Dundee	507	14837		W. Elmira	--	--
	Lakemont	--	--		Southport	--	--
	Rock Stream	--	14878		Webb Mills	--	--
	Reading Center	--	14876		Pine City	--	14871
	Post Creek	--	--		Seeley Creek	--	--
	Townsend	--	--	11D	Corning	3809	14830
	Moreland	--	--	12D	Elmira	5666	14900
	Beaver Dams	--	14812	03E	Greenwood	128	--
	Chambers	--	--		Rexville	--	14877
10C	Logan	--	--	04E	Troupsburg	113	14885
	Sullivanville	--	--	02F	Andover	235	14806
	Hector	--	14841	03F	Independence	--	--
	Pine Valley	--	14872		W. Union	--	--
	Valois	--	14888		Whitesville	123	14897
	Millport	--	14864				

TABLE D.3 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code	Zone or Sector	Location	Grades 7-12 ADA	Zip Code
02G	Elm Valley	--	--	11I	Olean	1816	14760
03G	Hallsport	--	--	12I	Jamestown	--	14701
04G	York Corners	--	--	02J	W. Almond	--	--
	Shongo	--	--	03J	Angelica	162	14709
03H	Scio	255	14880	04J	Caneadea	--	14717
04H	Pikeville	--	--		Oramel	--	14765
	Allentown	--	14707		Belfast	197	14711
05H	Richburg	190	14774		Rockville	--	--
	Bolivar	342	14715	05J	Rushford	183	14777
	Little Genesee	--	14754		Houghton	--	14744
	Alma	--	14708	06J	Freedom	--	14065
06H	Ceres	--	14721		Centerville	--	14029
	Obi	--	--		Fairview	--	--
	Myrtle	--	--		Farmersville	--	--
07H	Portville	--	14770		Farmersville Sta.	--	14060
	Milldrove	--	--		Rawson	--	--
	Carroll	--	--	07J	Sandusky	--	14133
12H	Wellsville	1042	14895		Elton	--	--
01I	Five Corners	--	--		Lime Lake	--	--
	Phillips Creek	--	--		Machias	404	14101
03I	Belmont	217	14813		Franklinville	--	14737
	Belvidere	--	--		Capiz	--	--
04I	Friendship	239	14739	08J	Chaffee	--	14030
	Nile	--	--		Yorkshire	--	14173
05I	Abbotts	--	--		Arcade	666	14009
	Black Creek	--	14714		Sardinia	--	14134
	N. Cuba	--	--		Delevan	346	14042
	Cuba	452	14727		Devereaux	--	--
	W. Clarksville	--	14786		Ashford	--	--
06I	Ischua	--	14746	09J	Riceville	--	--
	Hinsdale	275	14743		West Valley	194	14171
07I	Westons Mills	--	14788		Ashford Hollow	--	--
08I	Four Mile	--	--		Plato	--	--
	Allegany	644	14706	10J	Eddyville	--	--
	Humphrey Center	--	--		Maples	--	--
	Humphrey	--	--		E. Otto	--	14729
	Sugartown	--	--		Springville	1150	--
09I	Ellicottville	374	14731		E. Concord	--	14055
	Great Valley	--	14741		Glenwood	--	14069
	Peth	--	--	11J	Dunkirk	--	14048
	Orlando	--	--		Fredonia	--	14063
	Carrollton	--	--	03K	Allen Center	--	--
	Limestone	148	14753		Birdsall	--	14713
	Chipmunk	--	--	04K	Short Tract	--	--
10I	Little Valley	250	14755	05K	Higgins	--	--
	Elkdale	--	--		Hume	--	14745
	Salamanca	970	14779		Fillmore	385	14735

TABLE D.3 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code	Zone or Sector	Location	Grades 7-12 ADA	Zip Code
05K	Wisby	--	14789	03L	Garwoods	--	--
(cont.)	Rossburg	--	14776		Canaseraga	194	14822
	E. Koy	--	--	04L	Swain	--	14884
	Portageville	--	14536		Ossian	--	--
	Hunt	--	14846	05L	Dalton	70	14836
06K	Pike	--	14130		Oakland	--	--
	Lamon	--	--		Nunda	392	14517
	Silver Springs	--	14550		Byersville	--	--
07K	Eagle	--	--		W. Sparta	--	--
	Bliss	--	14024	06L	Brooks Grove	--	--
	Wethersfield Center	--	--		Letchworth	605	--
					Castile	--	14427
	Wethersfield Springs	--	--		Ridge	--	--
					Groveland Sta.	--	--
	Gainesville	--	14066		Tuscarora	--	14562
	Hermitage	--	--		Groveland	--	14462
	Rock Glen	--	14540		Sonyea	--	14556
	S. Warsaw	--	--	07L	E. Groveland	--	--
08K	Orangeville Ctr.	--	--		Cuylerville	--	14436
	Warsaw	561	14569		Leicester	--	14481
	N. Java	--	14113		Mount Morris	366	14510
	Java Center	--	14082		Perry	731	14530
	Curriers	--	--		Perry Center	--	--
09K	Attica Center	--	--		Silver Lake	--	14549
	Dale	--	14039	08L	Geneseo	493	14454
	Varysburg	--	14167		Retsof	--	14539
	Johnsonburg	--	14084		Piffard	--	14533
	Strykersville	--	14145		Greigsville	--	--
	Java Village	--	14083		Peoria	--	--
	Holland	--	14080		Lagrange	--	--
	Protection	525	--	09L	Avon	428	14414
10K	Alexander	478	14005		Fowlersville	--	--
	Attica	787	14011		Ashantee	--	--
	Bennington	--	--		York	416	14592
	Folsomdale	--	--		Linwood	--	14486
	Wales Center	--	14169		Covington	--	--
	Blakeley	--	--		Pavilion Center	--	--
	S. Wales	--	14139		Pavilion	462	14525
11K	Buffalo	--	14200		Pearl Creek	--	--
			14201-14226		W. Middleburg	--	--
					Verna	--	--
12K	Lancaster	--	14086		Linden	--	--
13K	Depew	--	14043		Wyoming	188	--
14K	N. Tonawanda	--	14120				
15K	Tonawanda	--	14150				
16K	Lockport	--	14094				
17K	Hamburg	--	14075				
18K	Niagara Falls	--	14301-14303				

TABLE D.3 (cont.)

Zone or Sector	Location	Grades 7-12 ADA	Zip Code
10L	North Rush	--	--
	Garbutt	--	--
	Mumford	--	14511
	Caledonia	468	14423
	Lime Rock	--	--
	LeRoy	728	14482
	Stafford	--	14143
	E. Bethany	--	14054
	Bethany	--	--
11L	Batavia	--	14020
12L	Brockport	--	14420
	Albion	--	14411

TABLE D.4

ZONES, LOCATION, AND ZIP CODE DATA FOR ALFRED AG. & TECH. (BY VILLAGE AND CITY)

Zone or Sector	Location	Zip Code
A01	Alfred	14802
A02	Wellsville	14895
A03	Hornell	14843
A04	Olean	14760
A05	Corning	14830
A06	Batavia	14020
A07	Auburn	13021
	Geneva	14456
	Newark	14513
	Canandaigua	14424
A08	Ithaca	14850
	Cortland	13045
A09--(Allegany County)		
	Wiscoy	14789
	Rossburg	14776
	Centerville	14029
	Hume	14745
	Swain	14884
	Fillmore	14735
	Garwoods	--
	Canaseraga	14822
	Short Tract	--
	Fairview	--
	Houghton	14744
	Birdsall	14713
	Rushford	14777
	Caneadea	14717
	Bishopville	--
	Oramel	14765
	Aristotle	--
	Belfast	14711
	Rawson	--
	Angelica	14709
	Almond	14804
	W. Almond	--
	Alfred Station	14803
	Black Creek	14714
	Belvidere	--
	N. Cuba	--
	Phillips Creek	--
	Belmont	14813
	Friendship	14739
A09(cont.)		
	Cuba	14727
	Nile	--
	Scio	14880
	Andover	14806
	Elm Valley	--
	W. Clarksville	14786
	Obi	--
	Richburg	14774
	Stannards	--
	Allentown	14707
	Bolivar	14715
	Hallsport	--
	Whitesville	14897
	Shongo	--
	Alma	14708
	Little Genesee	14754
	Ceres	14721
A10--(Steuben County)		
	Wayland	14572
	N. Cohocton	14868
	Ingleside	--
	Atlanta	14808
	Perkinsville	14529
	Patchinville	--
	Prattsburg	14873
	Pulteney	14874
	Cohocton	14826
	S. Pulteney	--
	Catawba	--
	Keuka	--
	S. Dansville	--
	Urbana	--
	Wallace	14890
	Wheeler	--
	Hammondsport	14840
	Burns	--
	Haskinville	--
	Avoca	14809
	Arkport	14807
	Stephens Mills	--
	Mitchellsville	--

TABLE D.4 (cont.)

Zone or Sector	Location	Zip Code	Zone or Sector	Location	Zip Code
A10(cont.)	Rheime	--			
	Kanona	14856			
	Howard	--			
	N. Urbana	--			
	Towlesville	--			
	Bath	14810			
	Sonora	--			
	Bradford	14815			
	Savona	14879			
	Canisteo	14823			
	Adrian	--			
	Hornby	--			
	Campbell	14821			
	Hartsville	--			
	W. Cameron	--			
	Risingville	--			
	Thurston	--			
	Cameron	14819			
	S. Canisteo	--			
	Coopers Plains	14827			
	Cameron Mills	14820			
	Painted Post	14870			
	Gibson	--			
	Greewood	14839			
	Jasper	14855			
	Rathbone	14875			
	S. Corning	14830			
	Erwins	--			
	Addison	14801			
	Rexville	14877			
	Presho	--			
	Woodhull	14898			
	Caton	--			
	Freeman	--			
	Troupsburg	14885			
	Lindley	14858			
A11--(Livingston County-Major Towns)					
	Dansville	14437			
	Nunda	14517			
	Mt. Morris	14510			
	Geneseo	14454			
	Avon	14414			
A12	Warsaw	14569			
	Perry	14530			
	Arcade	14009			

TABLE D.5

OTHER ZIP CODES FOR NEW YORK STATE AND THE UNITED STATES

Zone or Sector	Location	Zip Code
(New York State)		
20	Military	090-098
21	New York	100
2	Staten Island	103
3	Bronx	104
4	Westchester County	105
25	White Plains	106
6	Yonkers	107
7	New Rochelle	108
8	Suffern	109
9	Long Island Terminal	110
30	Long Island City	111
1	Brooklyn	112
2	Flushing	113
3	Jamaica	114
4	Mineola	115
35	Far Rockaway	116
6	Hicksville	(117
7		(118
8	Riverhead	119
9	Albany (A-L)	120
40	Albany (M-Z)	121
1	Albany	122
2	Schenectady	123
3	Kingston	124
4	Poughkeepsie	(125
5		(126
6	Monticello	127
7	Glens Falls	128
8	Plattsburgh	129
9	Syracuse(A-L)	130
50	Syracuse(M-Z)	131
1	Syracuse	132
2	Utica(A-L)	133
3	Utica(M-Z)	134
4	Utica	135
55	Watertown	136
6	Binghamton(A-L)	137
7	Binghamton(M-Z)	138
8	Binghamton	139
(New York State--cont.)		
59	Buffalo(A-L)	140
60	Buffalo(M-Z)	141
1	Buffalo	142
2	Niagara Falls	143
3	Rochester(A-L)	144
4	Rochester(M-Z)	145
65	Rochester	146
6	Jamestown	147
7	Elmira	148
8	Elmira	149
(Out of State)		
70	Maine, etc.	0
1	Pennsylvania, etc.	15-19
2	Maryland, etc.	2
3	Georgia, etc.	3
4	Ohio, etc.	4
5	Minnesota, etc.	5
6	Kansas, etc.	6
7	Texas, etc.	7
8	Colorado, etc.	8
9	California - Alaska	9

APPENDIX E

ADDITIONAL RESPONSES TO STAFF QUESTIONNAIRES

TABLE E.1

PERCENT OF COLLEGE STAFF INDICATING PROBLEM AS PRIMARY FOR THE COLLEGE TOWN

College Town	Alfred Tech		Auburn		Cortland		Cazenovia		Alfred University		
Problem	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Housing	64.1	64.7	25.9	21.4	13.4	24.1	21.9	4.1	62.2	71.4	41.0
Sewage	0.8	5.8	2.4	0.0	5.9	0.0	4.8	12.5	6.6	2.8	3.7
Students	0.8	2.9	0.0	7.1	4.4	17.2	2.4	0.0	0.0	0.0	2.4
Faculty	0.8	0.0	0.0	0.0	4.4	0.0	9.7	0.0	0.0	0.0	1.6
Racial	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Zoning	8.5	0.0	3.7	0.0	7.4	6.9	12.2	16.6	6.6	0.0	6.5
Government	2.5	0.0	9.8	7.1	2.9	0.0	9.7	0.0	0.0	0.0	3.7
Entertainment	1.7	2.9	6.1	7.1	8.9	0.0	7.3	8.3	2.2	2.8	4.5
Poverty	0.0	0.0	2.4	0.0	8.9	3.4	0.0	0.0	0.0	0.0	1.8
Water	0.0	0.0	2.4	0.0	4.4	0.0	0.0	0.0	0.0	0.0	1.0
Comm. Spirit	0.8	0.0	3.7	7.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0
High Taxes	7.6	8.8	13.5	35.7	8.9	31.0	7.3	37.5	8.8	8.5	12.7
Tax Source	5.1	0.0	1.2	0.0	1.4	0.0	0.0	0.0	2.2	2.8	2.0
Garbage	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.2
School	1.7	0.0	4.9	0.0	5.9	0.0	12.2	8.3	2.2	0.0	3.7
Police	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cultural	0.0	2.9	6.1	7.1	7.4	3.4	4.8	0.0	0.0	0.0	3.0
Indus.-Shops	2.5	0.0	14.8	7.1	10.4	0.0	0.0	0.0	6.6	2.8	5.5
Transport.	1.7	0.0	0.0	0.0	1.4	6.9	4.8	12.5	0.0	2.8	2.2
Park.-Other	0.8	11.7	1.2	0.0	2.9	3.4	2.4	0.0	2.2	5.7	2.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	117	34	81	14	67	29	41	24	45	35	487

Note: College town problems as listed in the above table are: Housing, Sewage disposal; Student-townspeople relations; Faculty-townspeople relations; Racial relations; Zoning and land use planning; Quality of local government; Entertainment, recreation; Poverty, unemployment, welfare; Water supply and pollution; Community spirit, social relations; High taxes; Tax sources; Garbage disposal; School system; Police, fire protection; Cultural activities; Industrial development; Shopping facilities; Transportation; Parking; Other.

TABLE E.2

SPOUSE EMPLOYMENT
(Indicated by College Staff)
(Percent)

	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Employed	48.6	72.4	43.6	61.9	38.1	62.9	69.7	100.0	48.4	100.0	55.2
Not Employed	51.4	27.5	56.3	38.1	61.9	37.0	30.3	0	51.5	0	44.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	107	29	55	21	42	27	33	18	64	8	404

Errors due to rounding

TABLE E.3

TOWN ATTITUDE TOWARD THE COLLEGE
(as indicated by college staff)

Town Attitude	Alfred Tech		Cortland		Alfred University		Cazenovia		Auburn		
	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Prof.	Auxil.	Total
Very favorable	13.9	35.2	13.2	30.0	28.2	42.8	4.4	16.0	42.6	46.6	24.6
Fairly favorable	70.4	47.0	48.5	43.3	52.1	51.4	40.0	52.0	51.2	40.0	53.3
Neutral	9.5	14.7	22.0	13.3	13.0	2.8	8.8	24.0	4.8	0	11.3
Fairly Unfavorable	6.0	0	14.7	13.3	6.5	2.8	44.4	8.0	1.2	13.3	10.1
Very Unfavorable	0	2.9	1.4	0	0	0	2.2	0	0	0	0.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N =	115	34	68	30	46	35	45	25	82	15	495

Errors due to rounding

APPENDIX F

ADDITIONAL RESPONSES TO STUDENT QUESTIONNAIRES

TABLE F.1

STUDENT PREFERENCES ON COLLEGE LOCATION RELATIVE TO COMMUTATION POSSIBILITY

Commutation Possibility	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Favored	23.8	15.7	19.0	21.3	61.5	26.6
Not Favored	76.2	84.3	81.1	78.7	38.5	73.4
	100.0	100.0	100.0	100.0	100.0	100.0
N =	151	121	95	47	78	492

Errors due to rounding.

Note: The question was as follows:
All things considered what is best for your goals?
(1) a college like this <u>within</u> commuting distance of your home
(2) a " " " <u>outside</u> " " " " " "

TABLE F.2

STUDENT'S SECOND REASON FOR ATTENDING THIS COLLEGE

Reason	Alfred Tech	Cortland	Alfred University	Cazenovia	Auburn	Total
			Percent			
Reputation	13.5	14.7	10.8	14.9	10.1	12.8
Commutation	6.8	3.5	3.2	2.1	16.5	6.4
Near Home	12.2	6.0	9.7	6.4	7.6	8.9
Low Cost	12.8	26.7	8.6	0.0	34.2	17.6
Away from Home	14.9	18.1	15.1	12.8	5.1	13.9
Parent	7.4	2.6	11.8	14.9	5.1	7.5
Counselor	15.5	7.8	15.1	6.4	0.0	10.1
Other	16.8	20.6	25.8	42.6	21.5	22.8
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	148	116	93	47	79	483

See note for Table 6.14.

TABLE F.3

EMPLOYERS OF COLLEGE STUDENTS

Employer	Alfred Tech	Alfred Cortland	University	Cazenovia	Auburn	Total
			Percent			
College	15.7	10.7	21.1	22.9	7.7	14.9
Firm in town	0.0	6.6	2.1	2.1	25.6	6.3
Firm out of town	8.5	2.5	4.2	0.0	11.5	5.9
Self-employed and odd-jobs	5.2	6.6	11.6	6.3	10.3	7.6
Unemployed	70.6	73.8	61.1	68.8	44.9	65.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	153	122	95	48	78	

Question: While attending college are you: (check one)
(1) employed by the college (2) employed by a non-college firm in the college town (3) employed by a non-college firm outside the college town (4) self-employed in specific work (typing, etc.) for various people (5) work at odd-jobs for various people (handyman, etc.)
(6) unemployed. Parts (4) and (5) were combined in the above Table.

APPENDIX G

MISCELLANEOUS DATA

TABLE G.1

AVERAGE ANNUAL SALARY OF STAFF AT THE STATE UNIVERSITY OF NEW YORK, ALFRED AGRICULTURAL AND TECHNICAL COLLEGE, 1968

Faculty	$ 10,668
Administration	11,030
Technical Staff	6,665
Stenographers	4,948
Typists and Clerical	4,452
Maintenance Staff	5,598

Source: State University of New York, Alfred Agricultural and Technical College, Office of the Assistant to the President, 1968.

TABLE G.2

NEW RESIDENTIAL AND COMMERCIAL CONSTRUCTION,

VILLAGE OF ALFRED (1961-1967)

Year	Actual Valuation	Year	Actual Valuation
1961	$ 92,600	1965	$ 306,100
1962	90,800	1966	43,600
1963	144,700	1967	107,700
1964	109,700		

Equalization rates: for 1961-65 were at 34 percent; for 1965-67 were at 80 percent.

Source: Herman Sicker, Mayor of Alfred Village, letter to Cornell University dated September 17, 1968 (in files of the Village).

TABLE G.3

NEW RESIDENTIAL AND COMMERCIAL CONSTRUCTION,

CITY OF CORTLAND (1960-1965)

Year	Residential	Commercial	Total
1960	$ 427,000	358,000	785,000
1961	491,000	143,000	634,000
1962	329,000	219,000	548,000
1963	668,000	330,000	998,000
1964	372,000	642,000	1,014,000
1965	267,000	803,000	1,070,000

The above data are based upon building permits on record in the City Clerk's Office.

TABLE G.4

AVERAGE ANNUAL SALARY OF STAFF AT THE

STATE UNIVERSITY OF NEW YORK,

COLLEGE AT CORTLAND

(1967-68)

Faculty - Administrative	$ 11,700
Secretarial - Clerical	5,270
Maintenance and Operation	5,580

Source: State University of New York College at Cortland, Finance Office, 1968.

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Note: The above listed community colleges are part of the State University of New York.