NEW JERSEY
PINELANDS COMMISSION

LONG-TERM ECONOMIC MONITORING PROGRAM

FIRST ANNUAL REPORT

1997

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refined, resulting in the release of a detailed design document in July 1996. The detailed design serves as a blueprint for program implementation and has guided activities over the past year.

The purpose of this report is to describe the results of the first year of the monitoring program and to identify potential areas for future study. The document begins by describing the objectives and structure of the program, followed by identification of the characteristics - i.e., variables - to be monitored. Presentation of the results, in both narrative and graphic formats, follows identification of the variables and comprises the bulk of the report. The body of the report concludes with a discussion on areas for future study. Four appendices are included for reference purposes: a list of selected references, a list of acronyms, a detailed explanation of the methodology that is used in the analysis of several variables, and supplemental data that were compiled for many variables. In addition to this report, a copy of the raw data used for all analyses and a separate Executive Summary will be available on disk at cost by writing to the Pinelands Commission at P.O. Box 7, New Lisbon, NJ, 08064.

2. PROGRAM GOAL AND OBJECTIVES

The fundamental goal of the long-term economic monitoring program for the Pinelands is **to continually evaluate the health of the economy of the Pinelands region in an objective and reliable way.** The economic monitoring program, in conjunction with an ongoing environmental monitoring program, will provide essential information for consideration by the Pinelands Commission as it seeks to meet the mandates set forth in the federal and state Pinelands legislation.

The program was designed to accomplish several principal objectives:

1. Address key segments of the region's economy while being flexible enough to allow the analysis of special topics which arise periodically;

2. Establish a means for comparing Pinelands economic segments with similar areas not affected by the Comprehensive Management Plan;

3. Establish a means for evaluating economic segments over time so that Pinelands-related trends can be distinguished from general trends;

4. Provide for analyses to be conducted in an impartial and objective manner; and

5. Be designed and implemented in a cost-effective manner so that the program's financial requirements can be sustained over time.

3. PROGRAM ADMINISTRATION

The development and implementation of the long-term economic monitoring program is a collaborative effort. The roles and responsibilities of key participants are described below.

3.1. National Park Service

As noted above, in 1994 the Pinelands Commission entered into a Cooperative Agreement with the NPS to establish a long-term economic monitoring program. Under the terms of the agreement, the Commission received funding for personnel and other resources, including a full-time economist, managerial and technical support staff (on an as-needed basis), expert consultants, data acquisition, equipment and informational materials. The NPS also can provide oversight and substantive input on an ongoing basis through the NPS Technical Advisory Committee. This Committee offered guidance on the initial program design and subsequent public comment.

3.2. Pinelands Commission

The 15-member Pinelands Commission comprises appointed federal, state, and county representatives who direct the efforts of a full-time staff in implementing the CMP. The Commission itself establishes the goals and objectives for the program and approves the program's design while Commission staff members have primary responsibility for the day-to-day implementation of the program, including acquisition and presentation of data; coordination with the NPS, expert advisory committee, and public; and development of all reports and other products. Perhaps most importantly, the Commission will consider the results of these monitoring efforts as it identifies the need for in-depth economic studies and continues to refine and improve Pinelands protection policies. The data will also be distributed widely and are expected to be used for later Pinelands analyses, Pinelands-sponsored consulting studies, and independent efforts. The program is managed by the Planning Office, with additional input from the Commission's planning, cartography, information systems, and administrative staffs.

3.3. Expert Advisory Committee

In recognition of the specialized nature of the subject area and the challenges inherent in initiating a long-term monitoring program, an expert advisory committee was formed to provide informed and objective input on an ongoing basis. Committee members have helped to ensure that the program meets appropriate technical standards by assisting in the identification and specification of variables to be monitored, development of the detailed design, implementation of appropriate methodologies, interpretation of results, and review of this report. Input from committee members was solicited via written staff requests, as-needed telephone conversations, and a series of meetings and conference calls to review larger issues. In addition to the two independent experts under contract to advise the Pinelands Commission on the development of the monitoring program, the Commission requested additional expertise from Rutgers University.

Members of the expert advisory committee are:

John E. Petersen, Ph.D., President, Government Finance Group, Inc.

Henry O. Pollakowski, Ph.D., Professor, Center for Real Estate, Massachusetts Institute of Technology

Bob Tucker, Ph.D., Director, EcoPolicy Center, Cook College, Rutgers University

Brian Schilling, Research Economist, Department of Agricultural Economics and Policy Economist, Agricultural and Food Policy Research Group, EcoPolicy Center, Cook College, Rutgers University

Roger Klein, Ph.D., Professor, Department of Economics, Rutgers University

The Expert Advisory Committee will continue to be consulted to provide advice and guidance as needed as the program enters its second year. Membership of the committee may change or grow over time, depending on program needs. Special studies that result from the monitoring program, will, as appropriate, be conducted under contract with other experts in specific fields.

4. PROGRAM STRUCTURE

The long-term monitoring program contains two basic parts: an ongoing data collection and analysis component and a special studies component. Ongoing data collection and analysis is further divided into two phases, depending on whether the data is considered to be core or supplementary.

4.1. Ongoing Data Collection and Analysis

The ongoing data collection and analysis component focuses on continual long-term monitoring of key economic indicators. This will not only establish a historical database against which current and future trends can be compared, it will also allow patterns of growth or decline in the Pinelands to be analyzed in relation to regional (and in some cases, statewide) trends over the same time

periods. This should help to control for macroeconomic influences and provide a context in which Pinelands economic trends can be evaluated. Although the ongoing component will not explain why changes are occurring or if unusual trends (whether they indicate opportunities or problems), are caused by Pinelands land use regulations and environmental protection policies it will allow policy-makers to target in-depth research on key questions to determine cause-and-effect relationships. (The use of special studies as described below would be an example of such in-depth research.)

Core Data

Core data are those variables that are anticipated to provide information essential to an understanding of the character of the Pinelands economy and are practical to collect at this time. Data in the core group will be collected for the year currently available and for preceding years, as is practical to discern trends. In general, data will be collected from secondary sources and then compiled for analysis. Analytical techniques were selected based on their ability to summarize the data in a format easily accessible to non-technical audiences, while still providing a context within which results and trends may be examined. These techniques include graphic presentation of variables over time to establish trend behavior, derivation of univariate summary statistics (i.e., mean, median, standard deviation), shift-share analyses where appropriate, and other basic techniques.

Supplementary Data

Supplementary data consist of information that may be added to the core data as a greater appreciation of the nature of the Pinelands economy is gained. Several examples of supplementary data sets have already been identified, but these may change as understanding of data needs or availability increases. In addition, certain core data sets may be augmented with more historical information to provide a better sense of economic change over time, before and after implementation of the CMP.

4.2. Special Studies

Special studies represent the second major component of the monitoring program. The ongoing data program will be highly instructive in selecting targeted research questions aimed at providing policy-makers with in-depth information on apparent differences between Pinelands and non-Pinelands economic trends. It will also provide an opportunity to augment the data program should a need be identified for primary (rather than secondary) data or for more geographically specific data. Topics for special studies will be approved by the Pinelands Commission before any study is undertaken.

4.3. Schedule

Actual data collection and analysis will be an ongoing function; however, collection and analysis of certain data sets are staggered in cycles due to limited data availability and the need to maintain a relatively stable activity level. As analyses are completed, assessments will be made to determine if refinements or improvements of analytical methods are warranted.

Compilation of supplementary data and the undertaking of special studies are scheduled to occur on an annual basis, beginning in the second year of program implementation (FY 1998, which runs from July 1, 1997 to June 30, 1998). Because special studies are expected to be designed and performed over a three-year period, the completion of the first special study is expected in the fourth year of implementation (FY 2000). However, design and initial work will also begin on additional studies during this time, so it is anticipated that one study per year will be completed in each subsequent year.

Findings of the program will be released in a series of reports. The release of this initial report coincides with the conclusion of the first year of program implementation (FY 1997). Future reports will be issued on an annual basis, also at the end of the fiscal year. These reports will summarize the core and supplementary data that have been collected and analyzed during the preceding year, and will follow the same general format as this report (although introductory and other background information will be condensed). Special studies will be released as separate reports upon their completion. Five years after the monitoring program is implemented (i.e., in 2001), a summary report will be issued that reviews the data collected over the past five years. This report will provide a more expansive perspective than what is feasible on an annual basis. Summary reports will continue to be issued in five-year cycles.

A detailed schedule for the first ten years of the program and projected costs for the first five-year cycle are provided in the program design document released in July 1996.

5. VARIABLES SELECTED FOR LONG-TERM MONITORING

The program design identified three primary areas of inquiry for monitoring: land and housing values and residential development, the business climate and commerce of the region, and the fiscal health of municipalities. Within each of these areas, several variables will be monitored for the duration of the program. Collectively, these variables will provide insight into the overall health of the Pinelands' economy; individually, they offer detailed information on specific features of interest. The following section begins with a discussion of general data characteristics followed by descriptions of the specific variables to be monitored.

5.1. Data Analysis Methodologies

5.1.*i* *Aggregation of Data*

An important consideration in specifying the variables to be monitored is the level of detail that is optimal and feasible. Whether a variable is analyzed at the state, regional, or sub-regional level depends on the nature of the variable as well as the availability of data. Specifying the level of analysis, in turn, prescribes how the data is presented. Analyses performed for this program follow one of the four formats described below.

County

The Pinelands Area encompasses portions of seven counties in southern New Jersey: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, and Ocean. Another southern county, Salem, is located entirely outside of the Pinelands Area, but is predominantly rural in nature and therefore serves as a good comparison point for assessing some of the effects of the CMP. Data for variables that are designated as county-level are compiled and tracked for each of these eight counties. Because county-level data are necessarily limited in the amount of geographic information they can convey, a chart showing the contribution of each county to Pinelands acreage is included in the Appendix to aid in interpretation whenever county data are presented.

Inside/Outside Pinelands

Because none of the seven counties that comprise the Pinelands Area are located entirely within the Area's boundaries, monitoring variables at the county level cannot differentiate between "inside" and "outside" trends, with the exception of Salem County. If the data are available, a more appropriate means of comparison for certain variables is activity inside of the Pinelands vs. activity outside of the Pinelands. Analysis of data for these variables begins with the compilation of municipal-level data, which is then categorized into 1 of 15 separate regions: the inside or outside portions of the seven Pinelands counties plus Salem County. A "10% rule" was used to categorize those municipalities with acreage both inside and outside of the Pinelands; i.e., municipalities with less than 10% of their acreage inside of the Pinelands are classified as "outside", while municipalities with more than 10% of their acreage inside of the Pinelands are classified as "inside". Of the 53 municipalities completely or partially located in the Pinelands Area, 47 were classified as inside, while 6 were classified as outside[1], joining the remaining 149 municipalities located entirely outside of the Pinelands (resulting in a total of 155 municipalities classified as outside). Data from the 15 regions were then aggregated to show total inside and outside activity (see Figure 2). Two other municipalities (Wrightstown Borough and New Hanover Township) contain only Military and Federal Installation Areas within the Pinelands Area and will be evaluated in the future for potential as "outside" towns.

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[1] The six municipalities are: Corbin City, North Hanover Township, Springfield Township, Berlin Borough, Vineland City, and Dover Township.

Municipal Comparables

The eight-county area encompassed by the program has a total of 202 municipalities. While the amount of data and level of detail increases with smaller units of analysis, the number of potential comparisons is unwieldy. To allow for the examination of data at the municipal level, similar municipalities were grouped together. Specifically, groups were developed on the basis of population density, access to major employment centers, and per capita income as of 1980. After discarding towns that were qualitatively determined to be significantly different from other municipalities in southern New Jersey (e.g., military or vacation communities and the urban centers of Camden and Atlantic City), six groups were formed from among the towns that remained (see Tables 5.1a and 5.1b). The composition of these groups was further refined by retaining only those municipalities that were sufficiently similar to other group members. The final 6 groups comprised 28 Pinelands communities and 27 non-Pinelands communities. The groups are defined by how each municipality ranks (lower, middle, higher than the average) *vis a vis* each other in access, population density, and per capita income (see Appendix C for a more detailed explanation of the Municipal Comparables Methodology). Additional groupings will also be constructed in the future as municipalities diverge from the criteria which set the original groupings or the methodology is improved to accommodate additional information (e.g., types of municipal services provided). Appendix C details the methodology followed in developing municipal comparables groups.

Because the municipal comparables format presents a substantial amount of data per variable, data for variables analyzed in this manner are presented in two places. Summary statistics (e.g., state, county, and inside/outside trends) are presented and described in conjunction with similar information on all of the other variables included in the monitoring project. A subsequent section contains only the municipal comparables groupings.

Other

Data for certain other variables do not readily lend themselves to the above types of analyses. Much of this data is either available only on the state level or in limited quantity. For these variables, appropriate analytical methods and presentation formats are developed on a case-by-case basis.

5.1.*ii* *Adjustment for Inflation*

All variables which describe monetary amounts are adjusted for inflation using the Consumer Price Index (CPI-U) from the U.S. Bureau of Labor Statistics. All amounts are presented in 1995 Dollars.

Table 5.1a. Municipal Comparables Groupings

Group Name	Municipality Name	County	Location
Lower Access Lower Density Lower Income	Commercial Township	Cumberland	non-Pinelands
	Downe Township	Cumberland	non-Pinelands
	Fairfield Township	Cumberland	non-Pinelands
	Lawrence Township	Cumberland	non-Pinelands
	Buena Vista Township	Atlantic	Pinelands
	Washington Township	Burlington	Pinelands
	Woodland Township	Burlington	Pinelands
	Maurice River Township	Cumberland	Pinelands
	Eagleswood Township	Ocean	Pinelands
Middle Access Middle Density Higher Income	Greenwich Township	Cumberland	non-Pinelands
	Hopewell Township	Cumberland	non-Pinelands
	Upper Deerfield Township	Cumberland	non-Pinelands
	Mannington Twp.	Salem	non-Pinelands
	Hamilton Township	Atlantic	Pinelands
	Shamong Township	Burlington	Pinelands
	Upper Township	Cape May	Pinelands
	Manchester Township	Ocean	Pinelands
	Ocean Township	Ocean	Pinelands
Higher Access Middle Density Higher Income	Lumberton Township	Burlington	non-Pinelands
	East Greenwich Township	Gloucester	non-Pinelands
	Harrison Township	Gloucester	non-Pinelands
	South Harrison Township	Gloucester	non-Pinelands
	Carneys Point Township	Salem	non-Pinelands
	Egg Harbor City	Atlantic	Pinelands
	Egg Harbor Township	Atlantic	Pinelands
	Hammonton Town	Atlantic	Pinelands
	Tabernacle Township	Burlington	Pinelands

Table 5.1a. Municipal Comparables Groupings

Group Name	Municipality Name	County	Location
Middle Access **H**igher Density **M**iddle Income	Lower Township	Cape May	non-Pinelands
	Millville City	Cumberland	non-Pinelands
	Shiloh Borough	Cumberland	non-Pinelands
	Tuckerton Borough*	Ocean	non-Pinelands
	Pemberton Township	Burlington	Pinelands
	Monroe Township	Gloucester	Pinelands
	Barnegat Township	Ocean	Pinelands
Lower Access **L**ower Density **M**iddle Income	Middle Twp.*	Cape May	non-Pinelands
	Stow Creek Township	Cumberland	non-Pinelands
	Alloway Township	Salem	non-Pinelands
	Lower Alloways Creek Township	Salem	non-Pinelands
	Quinton Township	Salem	non-Pinelands
	Estell Manor City	Atlantic	Pinelands
	Weymouth Township	Atlantic	Pinelands
	Bass River Township	Burlington	Pinelands
	Dennis Township	Cape May	Pinelands
	Plumsted Township	Ocean	Pinelands
Higher Access **M**iddle Density **M**iddle Income	Chesterfield Township	Burlington	non-Pinelands
	Elk Twp.	Gloucester	non-Pinelands
	Oldmans Twp.	Salem	non-Pinelands
	Pittsgrove Twp.	Salem	non-Pinelands
	Upper Pittsgrove Township	Salem	non-Pinelands
	Folsom Borough	Atlantic	Pinelands
	Galloway Township	Atlantic	Pinelands
	Mullica Township	Atlantic	Pinelands
	Waterford Twp.	Camden	Pinelands
	Winslow Township	Camden	Pinelands
	Franklin Township	Gloucester	Pinelands

* Pinelands National Reserve only; not part of the smaller, State-designated Pinelands Area

Table 5.1b. Municipal Comparables Groupings--Group Designation

GROUP ID	GROUP			# OF MUNICIPALITIES	
	ACCESS	POPULATION DENSITY	INCOME	INSIDE PINELANDS	OUTSIDE PINELANDS
LLL	LOWER	LOWER	LOWER	5	4
MMH	MIDDLE	MIDDLE	HIGHER	5	4
HMH	HIGHER	MIDDLE	HIGHER	4	5
MHM	MIDDLE	HIGHER	MIDDLE	3	4
LLM	LOWER	LOWER	MIDDLE	5	5
HMM	HIGHER	MIDDLE	MIDDLE	6	5
				28	27

5.2. Property Values and Residential Development

Overview

At the heart of many of the controversies generated by the enactment of the Pinelands land use regulations is the issue of land values. To the extent that development controls affect the value of land, current and prospective landowners will be affected, as will tax ratables associated with vacant land. The value of property depends in part on the permitted use that yields the highest rate of return to the owner, often called "the highest and best use." Permitted uses on vacant and farm lands in many parts of the Pinelands have been limited significantly and therefore land prices may be adversely affected.

In addition, land use regulation may also affect the value, type and supply of housing and other development activities. For example, the implementation of the CMP has the potential to increase housing prices, both through a reduction in supply in certain areas and by providing a permanent amenity to residents of the region. Conversely, other factors, such as declining job markets, if they exist, may cause housing price decreases..

Variables to be Monitored

Overall data relating to property values and residential development variables were collected, when possible, from 1980 to the most recent available. In addition, data more specific to different land and building characteristics will begin to be collected next year as part of the "Delphi" methodology. This entire group of variables identifies trends in development pressures and measures the differences in values of housing and land in different areas of the region. The descriptions listed below provide information concerning the definition, acquisition, and analysis

of data for each of the five core variables related to property value and residential development.

1. **Building Permits** - Building permit activity measures the number of dwelling units authorized for construction as reported by New Jersey municipal building inspectors. These data are collected through a cooperative program of the U.S. Bureau of the Census and the New Jersey Department of Community Affairs (DCA) and provided through the NJ Department of Labor (NJDoL). The NJDoL makes these data available by municipality for 1980-1995 through the New Jersey State Data Center (SDC). Permit data are analyzed using the municipal comparables approach. Comparisons to regional and state trends are also made.

2. **Mean Selling Prices of Homes** - The mean selling price for homes sold in each municipality in a given year is derived from sales data compiled by the New Jersey Department of Treasury (calculation of the median selling price, as called for in the detailed design, was not possible). Although these data do not provide enough information to isolate price effects that result from differences in property type, they do help in revealing actual market behavior. Data are collected annually for all municipalities and analyzed with respect to trends inside and outside of the Pinelands. In addition, as specified by the detailed design, these data were also targeted to be analyzed in the municipal comparables groupings. Due to limitations in the data, however, a less detailed presentation is provided for this variable.

3. **Volume of Real Estate Transactions** - The number of homes sold per municipality is derived from the same data used to calculate the mean selling price of homes. The methods of collection and analysis described above will also be applied.

4. **Housing Price Indices** - Indices will be generated using the "Delphi" Methodology, which uses expert opinion to estimate prices that the market would exhibit, but that are difficult to observe. A group of property value experts familiar with southern New Jersey (e.g., real estate appraisers) will estimate prices for housing types with different attributes (e.g., a 3-bedroom house on a 1-acre lot in a low density area) both within and outside of the Pinelands. Due to the difficulty in estimating prices too far back, data will be compiled from the early 1990s onward. In contrast to most other data, the Delphi Method will be employed on a four-year cycle. In FY1998, estimates will be collected on both housing and land values. Housing value estimates will be collected again two years later (FY2000) and land values in FY2002. Following this pattern, the method will be employed every other year, alternating between housing and land values with each occurrence. Data for this variable will be available next year. For background, please see the four previously completed studies which sought to quantify the effects of the Pinelands Comprehensive Management Plan (CMP) on housing and land values (NJPC 1983. Economic and Fiscal Impacts of the Pinelands CMP; NJPC 1985. Economic and Fiscal Impacts of the Pinelands CMP; Neumann 1987; and Beaton, 1988 and 1991).

5. **Land Price Indices** - The Delphi method described above will be applied in a similar manner to establish price indices for different types of land (e.g., farmland and vacant land). The committee will be convened to derive a land price index in every fourth year, beginning in FY 1998. The frequency of data collection will be increased if possible, based on time and resource requirements. For background, please see the four studies noted above in Housing Price Indices.

5.3. Economic Growth

Overview

The observation of trends in indicators that are directly tied to the prosperity of a region's residents is central to the measurement of the economic well-being of the region. As such, monitoring of employment, income, and the business climate is essential to this program. This group of variables measures the prosperity and viability of business in the region. In order to judge whether the CMP may be having an effect, growth in employment can be measured over time in relation to regional and statewide growth patterns. Information on wages and income can also shed light on this issue. To the extent that the CMP has had an effect on the regional economy, there will be both direct and indirect (multiplier) impacts on employment and wages. Further, impacts (positive or negative) may be substantially different for different business sectors.

Variables to be Monitored

Economic growth variables were collected for the most recent years available. The method of analysis for these variables, in large part, is determined by data availability. Municipal level data are generally not available for individual industries. Also, because most workers are able to commute some distance, the economic health of the larger region is of perhaps greater interest. As a result, analysis of many of the economic growth variables where municipal level data is available is on an inside/outside Pinelands basis. The descriptions listed below provide information concerning the definition, acquisition, and analysis of data for each of the ten core variables. For certain variables, deviations from the detailed design were necessary when either more or less data were available than originally anticipated. These modifications are noted where appropriate.

The detailed design anticipated that data on Retail Sales, Employment, Establishments, and Payrolls would be acquired from the U.S. Bureau of the Census's Standard Statistical Establishment List. Subsequently it became clear that the Census Bureau would not be able to provide data in the form which had been originally discussed with the Census personnel. Consequently, data on Retail Sales was acquired for 1990-1995 from Market Statistics, publishers of *Demographics USA* and *The Survey of Buying Power*.

Data on Employment, Establishments, and Payrolls were acquired from NJ Department of Labor's "Covered Employment" data. Covered Employment data was collected for private sector workers covered by unemployment insurance (data on domestic employees, railroad employees, and some agricultural workers is not included in these data).

Covered employment data were collected for this analysis for the years 1989-1995. Municipality level data for 1989-1992 are available only without any breakdowns for specific industry divisions. Major Industry Sector data for this time period is available at the County level. For 1993-1995, major industrial sector data are available at the municipality level. Thus, examination at industry sector level is possible for inside and outside the Pinelands separately. The analysis which follows reflects these data constraints.

1. **Retail Sales** - Retail sales data were acquired for 1990-1995 from Market Statistics, as explained above.

2. **Income** - Per capita income is an important indicator of regional economic health as it provides information regarding the ability of the region's residents to make purchases and pay taxes, and provides a measure of the economic well-being of individuals. Data from 1969-1993 were acquired from the New Jersey Department of Labor and are analyzed at the county level.

3. **Unemployment** - The unemployment rate is the proportion of the labor force (the number or people available to be and desiring to be working for pay) residing in an area which is unemployed (not working for pay) at a given point in time. Unemployment data were acquired from the NJ Department of Labor (NJDoL) for 1980-1995. NJDoL's estimates are based on Current Population Survey (U.S. Bureau of the Census) estimates. Analysis is based on an inside/outside Pinelands comparison.

4. **New Car Registrations** - New Car Registrations provide a measure of consumer confidence and behave as a leading indicator (a leading indictor is a variable whose behavior provides a good prediction of future behavior of other variables, such as more general economic indicators). Data were acquired from R.L. Polk, Inc. at the zip code level from 1991-1995. Due to the difficulty in translating this data into municipal comparables groupings as called for in the detailed design (zip codes frequently cross jurisdictional boundaries), the data were categorized as to whether the applicable zip code is located inside or outside of the Pinelands, or split along the border. The results for these three areas are then compared with statewide trends.

5. **Employment** - Employment is a basic measure of economic health. Covered Employment data were collected for 1989-1995 and count the number of jobs by location of jobs (which is in contrast to Unemployment data which are by residence of the worker). Employment data are analyzed on an inside/outside Pinelands basis for total employment 1989-1992. The data are also broken down to the first ("Major Industry Division") Standard Industrial Classification (SIC) Code level, to track the shifting of activity between major economic components. Data at this level are analyzed for all of South Jersey for 1989-1992 and on an inside/outside Pinelands basis for 1993-1995.

6. **Number of Establishments** - This variable refers to the number of places that have employees. As for Employment, Covered Employment for establishments data were analyzed on an inside/outside Pinelands basis for 1989-1993, and analyzed at the single digit major industry division level for 1993-1995.

7. **Payroll By Major Industry Sector** - Payroll measures the total amount of wages paid. This variable serves as a measure of economic activity that compliments Employment and Number of Establishments. Covered Employment data on payrolls are also available by major industry division level and subject to industry-specific analysis similar to that used for employment and number of establishments.

8. **Farmland Assessed Acreage By Municipality** - Agriculture is recognized in federal and state Pinelands legislation as an industry of special significance to the Pinelands and therefore deserves special attention. This variable provides a measure of the amount of each municipality's area that is devoted to agricultural and horticultural use. Data were obtained from the New Jersey Agricultural Statistics Service for the years 1986-1995. Analysis was performed by aggregating municipal data to provide inside/outside trends. To assist in interpreting the data, information on the amount of farmland, by county, located inside and outside of the Pinelands is also presented.

9. **Net Cash Return Per Farm/Acre** - This variable measures the net farm income of farmers from the sale of crops. It is available by county from the Census of Agriculture, every five years. Data were collected for the seven Pinelands counties for 1987 and 1992 (although the detailed design anticipated that data would be compiled for 1982, data were not available for that year). Data will be collected again when the 1997 Census of Agriculture becomes available, and subsequently, every five years.

10. **Blueberry and Cranberry Production** - The production of cranberries and blueberries is a critical component of Pinelands agriculture, and statewide production of these crops occurs almost exclusively within the Pinelands. As a result, statewide data on each crop provides sufficient information for the purposes of this analysis. Thus annual production figures for cranberries and blueberries in New Jersey were collected, and are provided with comparisons to overall statewide agricultural trends. Annual data on New Jersey cranberry and blueberry production 1972-1995 were obtained from the NJ Agricultural Statistics Service.

Finally, population growth drives both consumer demand and labor supply, and therefore is an extremely important indicator of economic growth. Population factors are considered with the municipal finance variables (below).

5.4. Municipal Finances

The long-term monitoring of municipal fiscal trends is of interest for several reasons. As discussed in previous studies, Pinelands regulations have affected vacant land assessments in some municipalities. In all but one case, however, the short-term impact on tax rates was relatively minor. Public acquisitions of land in a few municipalities have also resulted in a loss of ratables. While these problems were mitigated in the short term by state reimbursement programs, their longer range impacts should be evaluated.

The level of development in a municipality also affects both municipal ratable bases and expenditures for public services and facilities. Development is associated with growth in ratables, although capital and operating costs for schools, roads, and other public facilities will also increase. Whether development results in a net fiscal benefit or cost to the community depends in large part on the type of development (e.g., commercial, industrial, apartments, single family houses, or retirement communities). Density may also have an effect; there is some evidence to support the hypothesis that more compact growth reduces the costs of infrastructure (see "The Impact Assessment of the New Jersey Interim State Development and Redevelopment Plan, Report I," Center for Urban Policy Research, Rutgers University, 1992).

Variables to be Monitored

Municipal finance is one area of concern for which there is no dearth of information. The New Jersey Department of Treasury issues an annual report as well as several other publications that describe assessments, equalization ratios, and rates of taxation for each municipal jurisdiction. In addition, the New Jersey Department of Community Affairs (DCA), Division of Local Government Services publishes municipal budgets, including expenditures by line item, and breakdowns of assessed valuation for various property classes.

As the economic well-being of local governments is of considerable public policy interest, this database will include data oriented toward deriving trends in the fiscal health of municipalities. Municipal finance data were collected, where possible and practical, from 1980 through the most recent year available. With the exception of demographics and population data, all of the variables are analyzed using the municipal comparables format and the in/out format. The descriptions listed below provide information concerning the specification and acquisition of data for each of the nine core variables.

1. **Tax Collection Rate** - The tax collection rate is the ratio of the taxes actually collected to the taxes billed. It provides a measure of the municipality's ability to collect the revenues it anticipates and the financial well-being of its citizens. Tax Collection Rates for municipalities were obtained from DCA for 1980-1992.

2. **Assessment Class Proportions in Municipal Tax Revenues** - The relative percentage of the different assessment classes (e.g., commercial, residential, and vacant land) in the tax revenue of each municipality measures the reliance of the

municipality on different types of land uses for tax revenues. Data were obtained from DCA for 1980-1992.

3. **Municipal Expenditures by Type Per Capita** - Total municipal expenditures and breakdowns of the total by major expenditure Class measure the levels of services provided by the municipality (e.g., public safety, public works, and recreation). Measurement on a per capita basis allows comparisons between municipalities of different population size. Data on expenditures were obtained from DCA for 1980-1992. Population data necessary to conduct the analysis on a per capita basis were collected for 1980 and 1990 from the Census of Housing and Population. Data for 1984, 1985, 1987, and 1988 are the official State estimates from the New Jersey Department of Labor. Nineteen hundred eighty-one through 1983, 1984 and 1986 are interpolated from the above data using the geometric rate of growth.

   Municipal Expenditure data by the is synthesized from the expenditure detail for each municipality in the New Jersey Department of Community Affairs (DCA), Division of Local Government Services' Annual Report. The Expenditure detail is this report provides, for each municipality, expenditures is each of 41 categories. In addition, the detail provided is the report regarding school taxes collected by the municipality is used to measure school spending within the municipality. The analysis of municipal expenditures by type provided here into five Classes. The "Capital 8 Debt Expenditures" Class contains expenditure detail from the "Capital Improvements" and "Principal" and "Interest" Payments ("Debt Service") Categories in the DCA Annual Report. The "Public Safety" Class includes the DCA Categories of "Fire Protection", "Police Protection", "Civil Defense and Disaster Control", "Environmental Inspection and Control", and "Other Public Safety". The DCA's Categories of "Beaches and Boardwalks", "Parks, Playgrounds, and Shade Trees", "Land Reclamation and Conservation", and "Other Recreational Services". The "Schools" Class includes the Tax Categories "Local District School Taxes", "Regional and Consolidated School Tax", and "School Taxes in Municipal Budget". Finally, the "General Government Class includes all other municipal expenditures in the DCA's Annual Report.

4. **Municipal Expenditures Per Household and Relative to Household Income** - Measurement of the municipality's expenditures relative to the number of households and the income of each household provides an alternative view of municipal expenditures. Expenditure data described above was used to derive this variable, in addition to numbers of household data and median household income data from the Census of Housing and Population, 1980, 1990. 1980 data on median family income were not available for municipalities with less than 2,500 population; for these municipalities, the median family income for the County was substituted. Fifty-three of the 202 municipalities in South Jersey had populations of less than 2,500 in 1980, including 17 of the 55 comparable municipalities.

5. **Average Residential Property Tax Bill** - The average residential property tax bill measures the impact of property taxes or burden on residents of the municipality. Data were obtained from the New Jersey Department of Treasury, Division of Taxation for 1983-1994.

6. **Equalized Property Value** - Equalized property value is the total assessed value of all property in the municipality equalized to adjust for the different assessment bias of each municipality, so that all of the municipalities in New Jersey are comparable to one another. It is valuable as a measurement of the wealth of one municipality relative to other municipalities. Data were obtained from DCA for 1980-1992.

7. **Effective Tax Rate** - The effective tax rate is the rate at which the municipality taxes the (equalized) assessed value of property, and is equal to the general property tax rate adjusted by the municipality's equalization ratio as calculated by the NJ Division of Taxation. Data were obtained from DCA for 1980-1992.

8. **Demographics: Age Distribution** - The age distribution of the population within each municipality provides some determination of the demand for services and the ability of the population to withstand changes in tax rates. (The elderly and the young tend to demand more services than the working-age population cohort. The elderly are particularly sensitive to property tax increases because they tend to rely on fixed income sources, such as pensions, and their income is often much smaller relative to their property wealth than for working age people.) These data are available from the U.S. Census of Housing and Population on a decennial basis. 1980 and 1990 data were collected for all 202 municipalities (the stability of this variable over time makes more frequent data collection unnecessary). The analysis examines inside/outside trends in age cohorts.

9. **Population** - The most important measure of demand for municipal services is population size. Data regarding population size are useful both as an indicator of demand for housing and for private and public goods and services, as well as for various per capita and per household calculations. 1980 and 1990 data for all municipalities were obtained from the U.S. Census of Housing and Population. SDC estimates for each municipality for 1991-1994 based on the 1990 Census were also acquired. Analysis is on an inside/outside Pinelands basis.

In addition to these variables in the future, Pinelands municipalities will also be monitored individually. If a municipality is showing signs of fiscal stress such as a significantly large increase in taxes as compared to other municipalities, a special study may be undertaken to evaluate its cause and opportunities to lessen its effect.

Table 5.4a lists all 24 core variables and defining characteristics.

Table 5.4a. Summary of Core Variables

Variable Name	Years Collected	Frequency of Collection	Type of Analysis
Building Permit Data	1980-1995	Annual	Municipal Comparables (MC)
Mean Selling Prices of Homes	1988-1995	Annual	Inside/Outside Pinelands (I/OP)
Volume of Real Estate Transactions	1988-1995	Annual	I/OP
Housing Prices Indices[3]	1991-1996	Quadrennial	I/OP
Land Price Indices[2]	1991-1996	Quadrennial	I/OP
Retail Sales	1990-1995	Annual	County
Income	1969-1993	Annual; Decennial	County ('69-'93); I/OP ('80 & '90)
Unemployment	1980-1995	Annual	I/OP
New Car Registrations	1991-1995	Annual	Inside/Outside/Split Zip Codes
Employment	1989-1993	Annual	County ('89-'93); I/OP ('93-'95)
Number of Establishments	1989-1993	Annual	County ('89-'93); I/OP ('93-'95)
Payroll by Major Industry Sector	1989-1993	Annual	County ('89-'93); I/OP ('93-'95)
Farmland Assessed Acreage by Municipality	1986-1995	Annual	I/OP
Net Cash Return Per Farm/Acre	1987, 1992	Quintennial	County
Blueberry and Cranberry Production	1972-1995	Annual	State
Tax Collection Rate	1980-1992	Annual	MC
Assessment Class Proportions in Municipal Tax Revenues	1980-1992	Annual	MC

[3]Data collection has not yet been initiated for this variable

Variable Name	Years Collected	Frequency of Collection	Type of Analysis
Municipal Expenditures by Class Per Capita	1980-1992	Annual	MC
Municipal Expenditures Per Household and Relative to Household Income	1980, 1990	Annual	MC
Average Residential Property Tax Bill	1983-1994	Annual	MC
Equalized Property Value	1980-1992	Annual	MC
Effective Tax Rate	1980-1992	Annual	MC
Population	1980, 1990	Decennial	I/OP
Demographics	1980, 1990	Decennial	I/OP

6.1 Building Permits[4] for Dwelling Units

The overall trend in permits for dwelling units over the period 1980-1995 shows the broad cycle of economic activity, from a building boom in the mid-1980s to the recession at the turn of the decade and subsequent recovery period. Activity at the beginning and end of the 16-year monitoring period was nearly identical across all areas, with no significant gains or losses experienced at the state, regional, and sub-regional levels. The average number of permits issued by municipalities was consistently higher inside of the Pinelands than in any of the other areas over the entire monitoring period, including the State and southern 8 counties. This difference was most pronounced during the mid-1980s, when the average number of permits issued by municipalities inside of the Pinelands was almost twice that of any other area. This increased level of activity inside of the Pinelands could be related to the residential build-up that followed the beginning of casino gambling in Atlantic City in the early 1980s.

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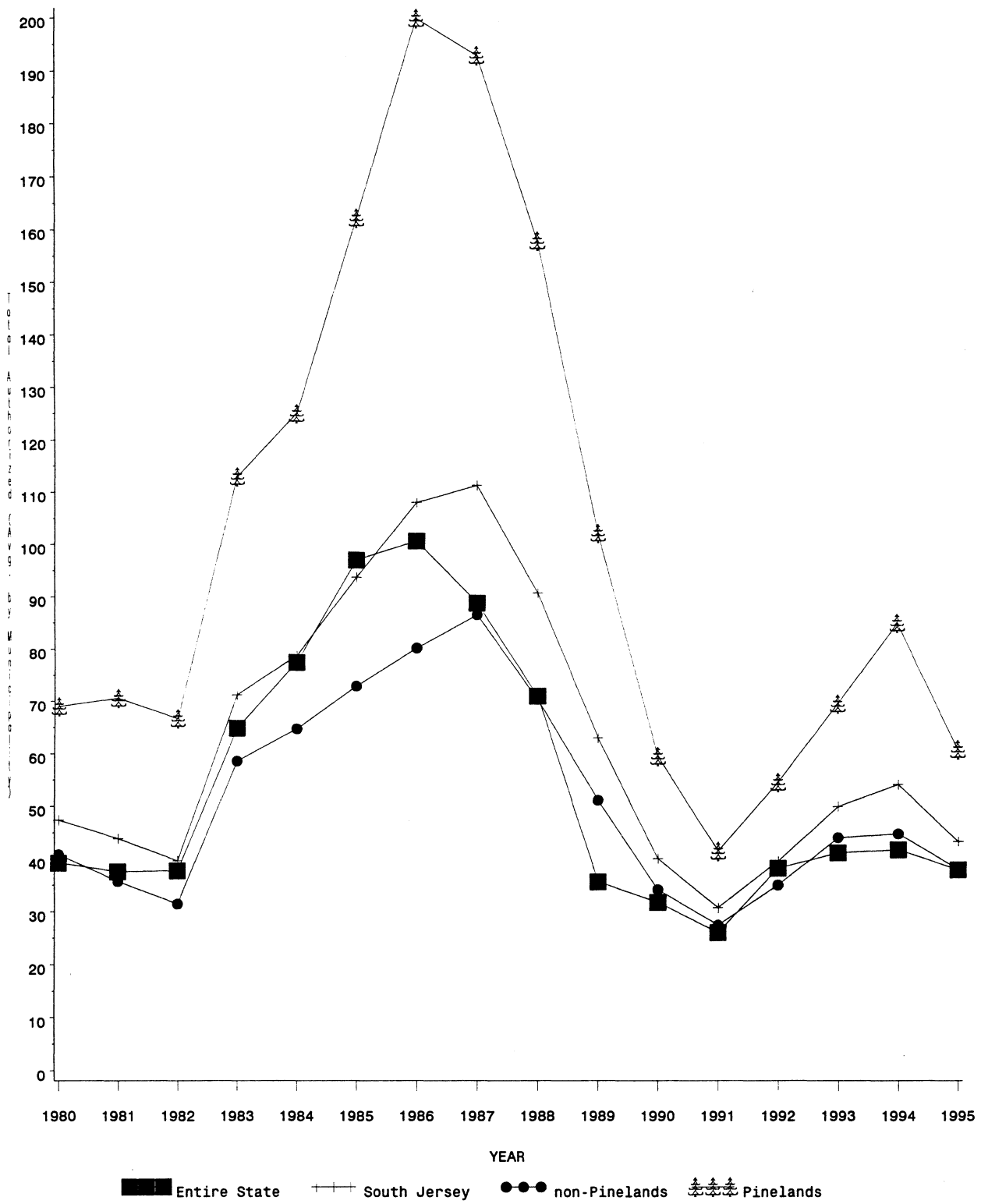
[4] Source: U.S. Department of the Census (data preparation by the New Jersey Department of Labor).

Figure 6.1a

Dwelling Units Authorized by Building Permits

Average per Municpality



Source: N.J. Department of Community Affairs

6.2 & 6.3 Mean Selling Prices of Homes and Volume of Transactions[5]

Mean selling prices of homes inside and outside of the Pinelands remained relatively flat from the peak of the real estate boom in 1986 through the recession and beginning of a recovery through 1995, with no significant decline in real prices. This pattern of overall steadiness is in contrast to some other areas of the country with many jurisdictions reporting more substantial declines related to the recession. Mean selling prices were slightly higher outside of the Pinelands than inside of the Pinelands throughout the-eight year period (all values are presented in real 1995 dollars). Historically, this was also true both before and in the early years of the Pinelands CMP. Mean selling prices at the state level were substantially higher than those in the southern portion of the state, but also showed a more pronounced decline at the time of the recession.

Transactions of residential real estate also remained relatively steady inside of the Pinelands and in the surrounding region. As shown in Figure 6.3a, the Pinelands represented a relatively constant share of transactions in the State ranging from a low of 7.5% in 1990 to a high of 8.7% in 1995. Relative to South Jersey, Pinelands activity increased primarily because non-Pinelands activity decreased.

Although the detailed design for the long-term economic monitoring project called for presentation of this variable in a municipal comparables format, the limited number of transactions per grouping severely compromises interpretation of any findings. For this reason, real estate transactions data are not included in the following chapter devoted to municipal comparables analysis. One potential area for future study is to lengthen the monitoring period by obtaining data from previous years. To reduce data acquisition and analysis costs, data could be obtained over periodic intervals (e.g., every five years). An even greater priority for future study, however, is to compile data on median selling prices. The median is a more appropriate summary statistic (compared to the mean) for data such as this because it is less sensitive to the influence of uncharacteristically high or low observations which do not represent the entire group.

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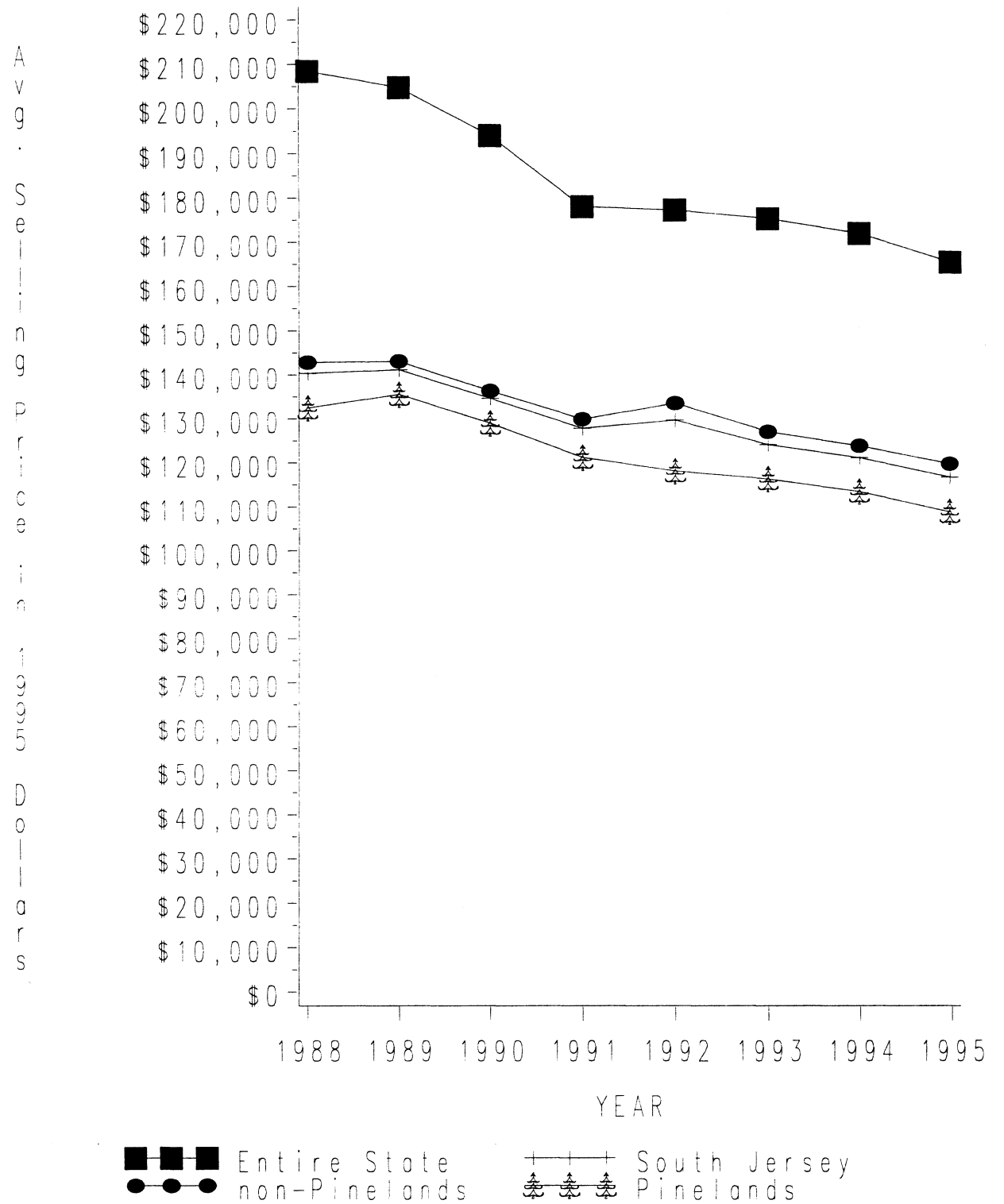
[5] Source: New Jersey Department of Treasury, Division of Taxation.

Figure 6.2a

Mean Selling Prices of Residential Properties

in Real 1995 Dollars

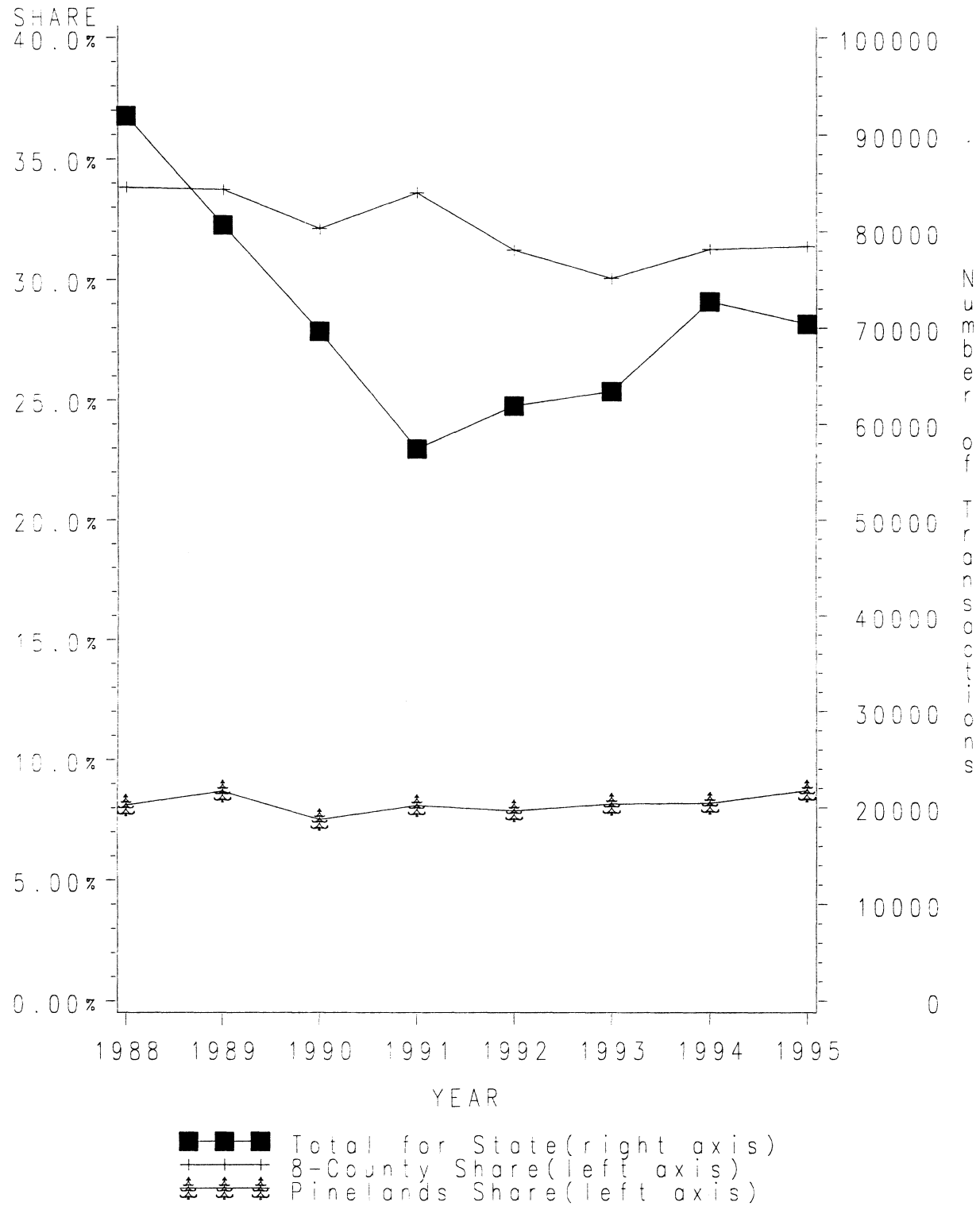


Source: NJ Department of Treasury, Division of Taxation

Figure 6.3a

Transactions of Residential Properties

Compared with South Jersey and the entire state



Source: NJ Department of Treasury, Division of Taxation

7.1 Retail Sales[6]

Retail sales remained relatively constant from 1990-1995 throughout the southern New Jersey region. Figure 7.1a shows retail sales[7] for the entire state and the southern 8 counties from 1990-1995 (values are in real 1995 dollars). The nature of county activity is consistent with statewide retail sales, which also remained fairly constant with the exception of moderate declines of 4% during the recession. In absolute terms, higher retail sales were recorded in more densely populated counties, as expected.

Because the population throughout southern New Jersey increased from 1990 to 1994, identification and explanation of the factors contributing to relatively flat retail sales during the same time period are potential areas for future study. Obtaining retail sales data on an inside/outside Pinelands basis would also be useful for these and other analyses.

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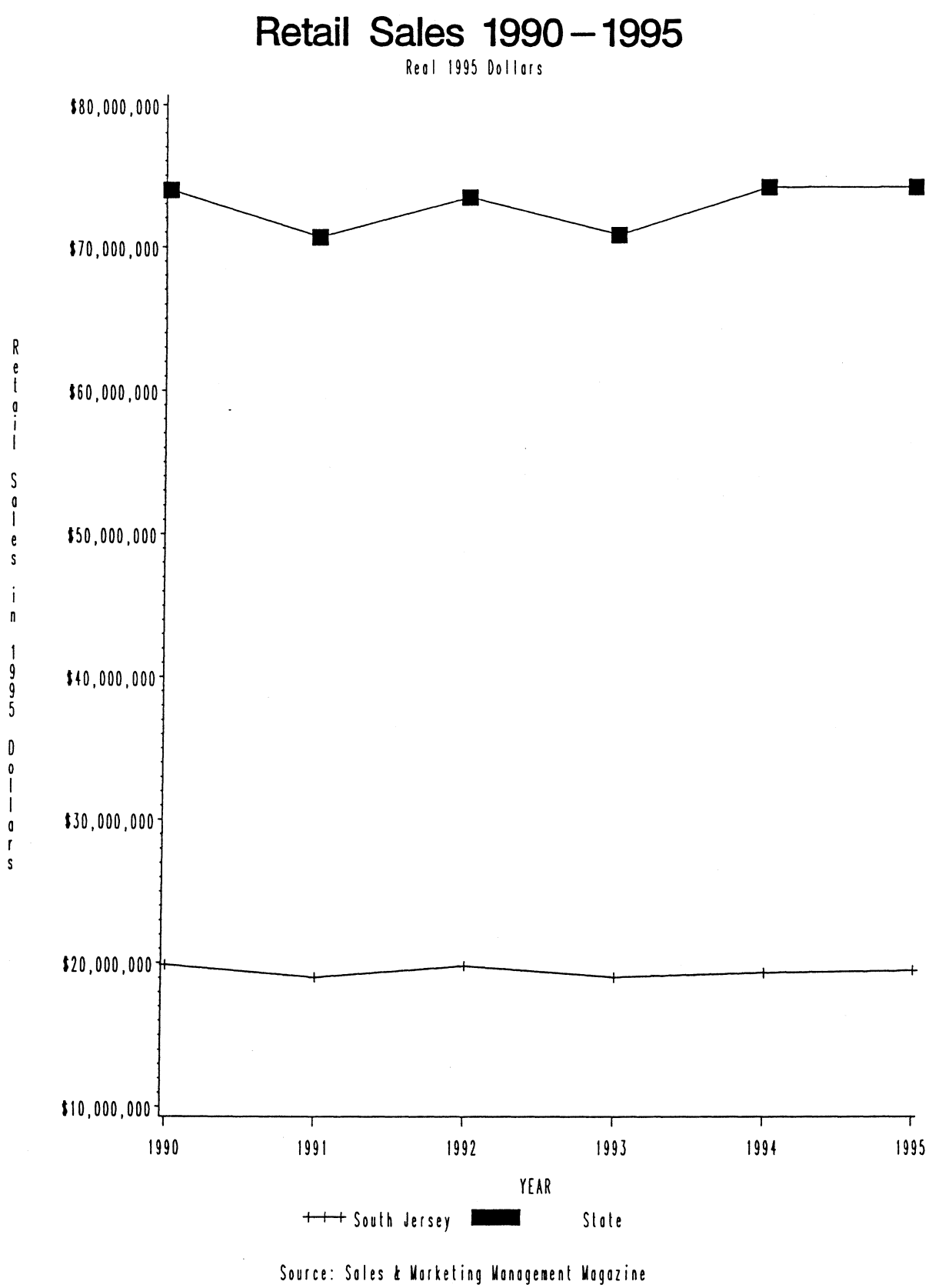
[6] Source: 1990, 1992, 1994, and 1995 data from *Demographics USA*; 1991 and 1993 data from the *Survey of Buying Power, Sales and Marketing Management* magazine. Both are published by Market Statistics. Comparison of these data with sales data compiled by the U.S. Bureau of the Census found some discrepancies. Thus these data should be interpreted with some caution.

[7] Per Market Statistics, the data is in terms of total retail sales, which reflect "net sales (minus refunds and allowances for returns) for all establishments primarily engaged in retail trade." Retail sales by wholesalers and service establishments are excluded

Figure 7.1a



Source: Sales & Marketing Management Magazine

7.2 Per Capita Income[8]

Real per capita income increased significantly inside and outside of the Pinelands over the decade 1980-1990, unlike many other areas of the country. Comparison of aggregated municipal-level data (see Table 7.2a)[9] reveals that per capita income growth inside of the Pinelands kept pace with the surrounding region and finished slightly ahead (44% vs. 38% growth). While per capita income was higher in absolute terms outside of the Pinelands than inside of the Pinelands when the CMP went into effect and remained higher over the course of the decade, the gap narrowed from 9.7% in 1980 to 5.2% in 1990 (all values are expressed in real 1995 dollars).

Table 7.2a. Per Capita Income, 1980 and 1990

Location	1980 PCI (1995 $)	1990 PCI (1995 $)	Percent Change
Inside Pinelands	$12,277.36	$17,733.70	44%
Outside Pinelands	$13,473.08	$18,648.90	38%
Statewide	$15,031.00	$21,821.07	45%

The state's 45% rate of growth in income, is more than both inside and outside the Pinelands. Absolute income is also higher. Northern New Jersey contains some of the highest income communities in the United States, which explains, in part, the lower values for southern New Jersey relative to statewide averages. The influence of metropolitan New York City labor markets on income in northern New Jersey (which generally have higher salaries than those of the metropolitan Philadelphia labor markets), the lower access of southern New Jersey communities to major centers, and the lack of significant sources of high wage employment in southern New Jersey (e.g., manufacturing operations, research and development facilities, and corporate headquarters), should all be considered as contributing to the income differential.

County-level data are available on an annual basis for the period 1969-1993, and are summarized in Appendix D for the years 1969-1980 and 1980-1993. These time frames correspond to pre- and post-implementation of the Pinelands Comprehensive Management Plan.

Given that per capita income increased steadily over the monitoring period and exhibited values and trends consistent with regional characteristics, no evidence is apparent of the need for a special study of this variable at this time.

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[8] Source: U.S. Department of Commerce, Bureau of Economic Analysis (data provided by the New Jersey Department of Labor).

[9] Municipal-level data are compiled as part of the census every 10 years and can be aggregated to provide a picture of inside and outside characteristics at the start of each decade.

7.3 Unemployment[10]

In general, trends in unemployment inside and outside of the Pinelands tracked closely together from 1980-1995 as shown in Figure 7.3a. Although the beginning of a divergence may be occurring during the last five years of record with unemployment in the Pinelands consistently below outside levels, values for both areas are never separated by more than a full percentage point.

Overall, unemployment in southern New Jersey appears to follow general economic conditions. The level of unemployment dropped nearly five percentage points from its 1982 peak of over 9% to its 1988 low during this period of nationwide economic growth. During the late 1980s, however, unemployment increased as the nation underwent a recession. While a brief drop occurred in 1990, unemployment continued to rise until the trend established in the early to mid-1980s had fully reversed; the peak unemployment of 1992 was at a level equivalent to that of a decade before. Unemployment levels subsequently declined roughly 2 percentage points from 1993-1995, coinciding with a new period of economic growth.

Given that unemployment trends in southern New Jersey are consistent with overall economic trends, special studies are not indicated for this variable at this time.

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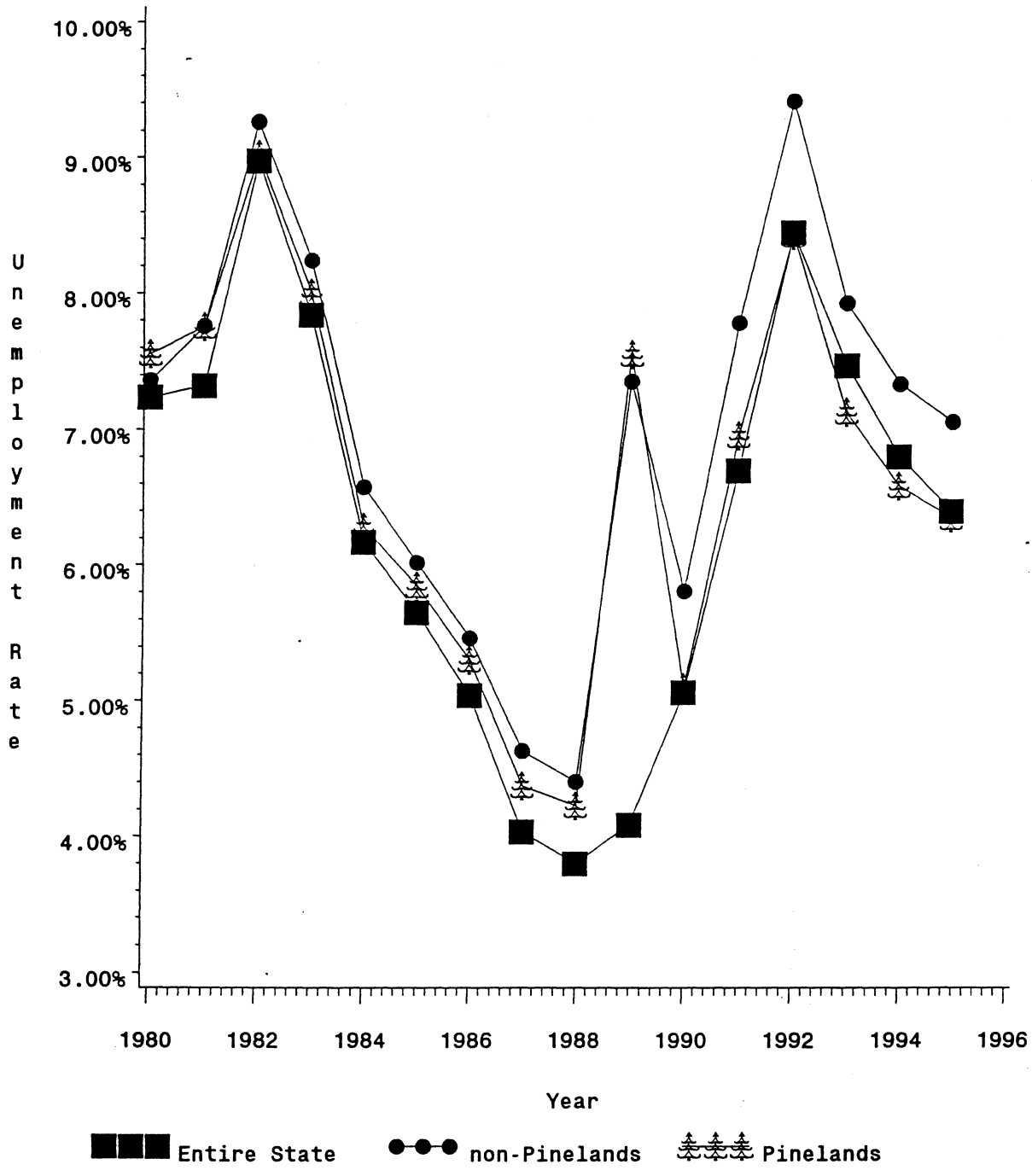
[10] Source: New Jersey Department of Labor, Division of Labor Market and Demographic Research.

Figure 7.3a

Unemployment in South Jersey

Inside and Outside of the Pinelands, 1980-1995



Source: New Jersey Department of Labor
Division of Labor Market and Demographic Research

7.4 New Car Registrations[11]

In absolute terms, new car registrations were much lower inside of the Pinelands than they were outside the Pinelands municipalities or those communities split along the Pinelands border for the period 1991-1995[12]. This finding is expected given the lower population of the inside towns with respect to border communities and outside municipalities. Lowest values occurred for all inside, outside, and split communities during the first year of monitoring, 1991, while highest values for these three areas occurred in 1994. Statewide, new car registrations also peaked in 1994 with the lowest value occurring in 1991.

Although changes over time are difficult to assess given the relatively short monitoring period, the largest one-year increase for all areas occurred in 1993, with the increase in statewide registrations (18.8%) substantially higher than increases inside the Pinelands (8.3%), outside the Pinelands (8.6%), and in split municipalities (11.6%). Annual percent change began to decrease after 1993, with all areas experiencing a decline in new car registrations in 1995. Again, the statewide decline was less severe (4.4%) than that experienced inside the Pinelands (9.2%), outside the Pinelands (7.5%), and in split municipalities (7.2%). The rapid increase in registrations culminating in 1993 is likely attributable to consumers who delayed large purchases during the recession at the turn of the decade. During a recession, the purchase of more expensive durable goods such as new vehicles is often postponed due to uncertainty in personal finances and the overall economy. As the recession subsided in the early 1990's, consumers would again feel sufficiently confident to make this type of purchase. Release of this pent-up demand would explain the surge in registrations in 1993 and the subsequent drop as demand was satiated in the following years.

Although the data record is limited, findings are basically consistent with overall economic trends and no special studies are recommended at this time. If, however, sales continue to decline in a period of relative economic strength, a more detailed look may be warranted.

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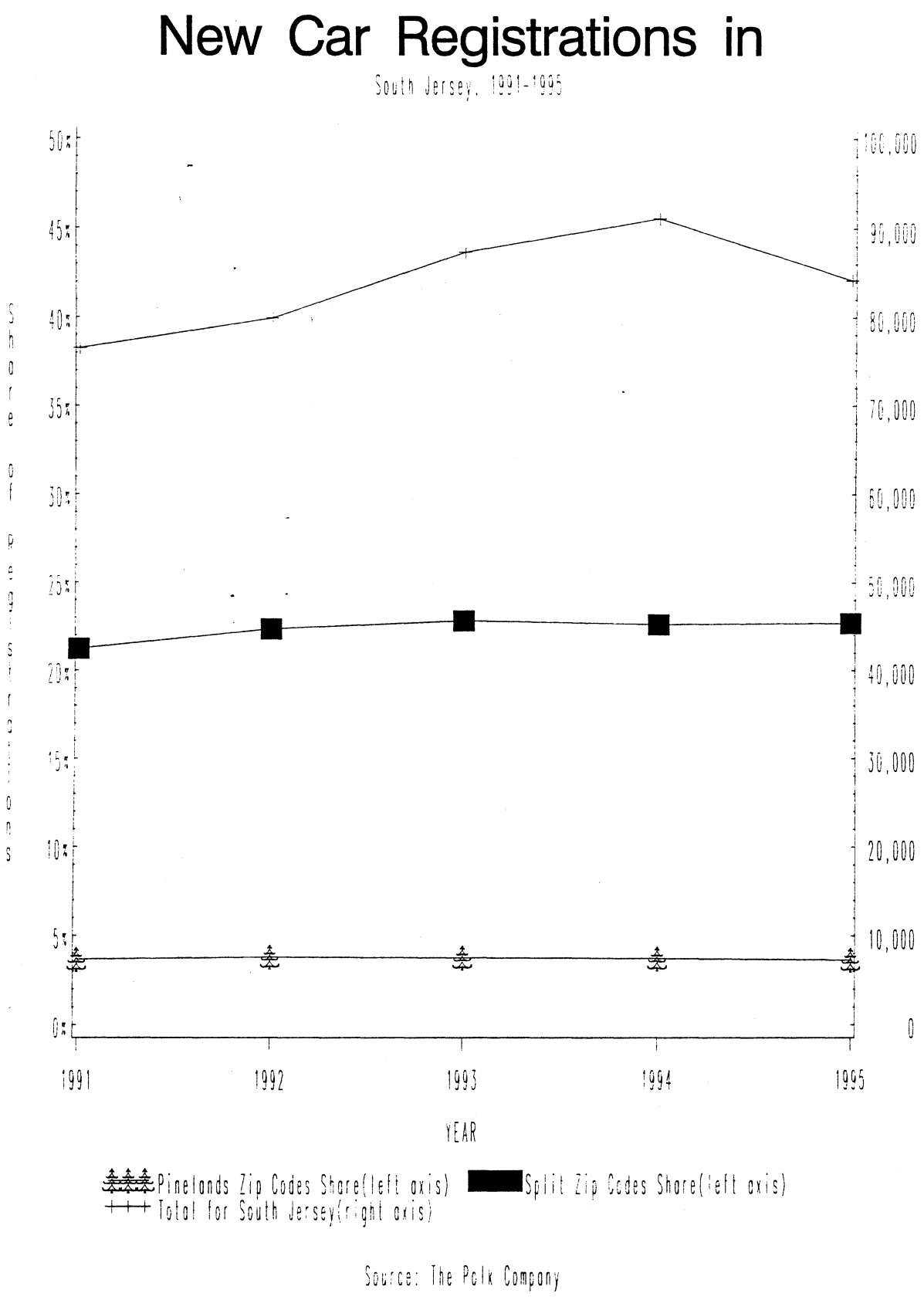
[11] Source: The Polk Company (in, out, and split values) and the New Jersey Department of Labor (statewide values). Data shown are for registrations of new cars and light trucks.

[12] Because data on new car registrations were reported by zip code, translation into municipal- or even county-specific totals was not feasible since many zip codes cross jurisdictions. Instead, individual zip codes were designated as inside, outside, or split, depending on their coverage with respect to the Pinelands boundary. Of the 185 post offices located throughout the 8-county area, 22 were considered to be inside, 135 were outside, and 28 were split. Summing the new car registrations for all post offices in each of these categories enabled calculation of the shares shown in Figure 7.4a (For those municipalities comprised of more than one zip code, e.g., Atlantic City, all applicable zip codes were summed and collectively designated as inside, outside, or split.)

Figure 7.4a



Source: The Polk Company

Table 7.4b

New Car Registrations, 1991-1995

Location	1991	1992	1993	1994	1995
Pinelands Zipcodes	2,803	3,026	3,276	3,382	3,071
non-Pinelands Zipcodes	57,450	58,983	64,083	67,073	62,027
Split Zipcodes	16,246	17,853	19,923	20,592	19,118
Entire State	418,322	423,412	503,029	531,990	508,785

7.5, 7.6 and 7.7 Employment, Establishments, and Wages[13]

Overall Trends Inside and Outside of the Pinelands, 1989-1995

The area inside of the Pinelands outperformed that outside of the Pinelands with respect to relative gains in employment, establishments and wages during the period 1989-1995.

In general, private[14] employment trends inside and outside of the Pinelands followed the same basic pattern, although fluctuations inside of the Pinelands were more subtle given a lower level of activity. Employment inside and outside of the Pinelands declined through the early 1990's, a finding most likely related to the nationwide recession. Employment in both areas began to rebound in 1992 with levels steadily increasing to 111,621 jobs inside of the Pinelands and 574,324 outside of the Pinelands in 1995. While the level of employment inside of the Pinelands surpassed its 1989 level by 1993, outside employment remained below 1989 levels through 1995 (the last year for which data was available).

Trends in the number of establishments inside and outside of the Pinelands also appeared to be similar to each other, with lower variation inside of the Pinelands than outside of the Pinelands. Throughout the period for which data were collected, the number of establishments inside and outside of the Pinelands steadily increased. The number of establishments inside of the Pinelands increased 32.9% over the period to a peak of 9,864 establishments in 1995. The number outside of the Pinelands increased by considerably less over the 7-year period (17.5%) to a total of 39,684 in 1995. While the total number of establishments has increased, the number of jobs per establishment has slightly declined both inside and outside of the Pinelands. Firms inside of the Pinelands were smaller in size than those outside of the Pinelands in 1989 and remained so over the next six years. While the declines in the ratio of jobs per establishment inside and outside of the Pinelands are not remarkable in absolute terms, examination of the differences between inside and outside ratios from 1980 to 1990 may be worthwhile if data becomes available.

Trends in real wages outside of the Pinelands followed the same overall pattern as trends in employment - an initial decline coinciding with the recession followed by a recovery. Total Quarterly Payrolls (in 1995 dollars) dropped from a high of $3.92 billion in 1989 to a low of 3.67 billion in 1991, a 6% decline. While outside payrolls subsequently began to increase, the high set in 1989 was not surpassed by 1995. In contrast, following a 4% drop in total quarterly payrolls from 1989 to 1990, total quarterly payrolls inside of the Pinelands recovered, surpassing 1989 levels in 1993 and peaking at $688 million in 1994, a 13.7% increase over the 1990 low of $605 million. With respect to wages per job, however, workers outside of the Pinelands received higher wages than their counterparts inside the Pinelands, a result most likely consistent with historical patterns, and

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[13] Source: New Jersey Department of Labor.

[14] Because government employment is not included in all data sets, any such data have been omitted to facilitate comparisons over the entire monitoring period. Federal, state, local, and postal service jobs are therefore not represented in the data shown. This exclusion is in addition to the types of employment not tracked by the New Jersey Department of Labor, which include the "self-employed and unpaid family workers or certain agricultural and in-home domestic workers." As used in this report, the term "employment" refers to the modified private employment figures.

certainly related to the types of jobs in each area. Quarterly wages per job (in Real 1995 Dollars) ranged from a high of $6,822 in 1992 to a low of $6,612 in 1995 outside of the Pinelands, while inside of the Pinelands they ranged from a high of $6,631 in 1991 to a low of $6,038, also in 1995.

1989-1992

The number of private sector jobs in New Jersey (as measured by coverage by unemployment insurance) fell 8.1% between 1989 and 1992 as the entire nation underwent a recession. In the eight southern counties of New Jersey, the number of jobs fell by 5.9%, with a greater impact falling on the areas outside of the Pinelands, where private employment dropped by 6.5%; inside of the Pinelands, private employment only fell by 2.1%. The number of private establishments (individual locations at which covered employees work) increased during this period by 7.8% statewide and 8.3% in South Jersey. The Pinelands added 17.5% to its establishments and the portion of South Jersey outside of the Pinelands added 7.9%. South Jersey establishments are significantly concentrated outside of the Pinelands, and the substantial increase enjoyed by the Pinelands from 1989 to 1992 only brought its total share of South Jersey's establishments from 18% in 1989 to 19.3% in 1992.

The reduced intensity of the impact of the recession on South Jersey appears to be generally consistent across major industry sectors.[15] Roughly three-quarters of South Jersey's private employment is in the retail trade, manufacturing, and service sectors. Of these three major employment sectors, only services had positive growth between 1989 and 1992. Over this period South Jersey employment in the service sector increased by 4.7%, a not insubstantial improvement over the 3.0% growth demonstrated by the services sector statewide. The number of service sector establishments grew by 12.6% statewide and by 13.6% in South Jersey, but South Jersey service sector employees' real wage gains of 3.5 % trailed those of their colleagues elsewhere in the state (6.4%).

The major employment sector suffering the most over this period, both in South Jersey and in the state as a whole, was the manufacturing sector. While South Jersey employees in the manufacturing sector were making, on average, 5.4% more in real wages than they had in 1989, 15.8% less workers were employed in this sector, at .8% less establishments (manufacturing was only one of the two sectors in South Jersey to lose establishments over this time period). Similarly, at the state level, while real wages had increased by 7.5%, the manufacturing workforce had been reduced by 17.7%, and there were 5.1% fewer establishments in 1992 than there had been in 1989.

The third sector which is a major South Jersey employer, retail trade, dropped 7.3% of its workforce, relative to a 8.6% decrease statewide, and increased its establishments in South Jersey by 10.9%, while retail trade establishments statewide only increased by 9.4%. Real wages in the retail sector were generally stagnant, increasing by .3% statewide and .6% in South Jersey.

[15] Sector data from 1989-1992 is only available at the county level, which prevents any Pinelands vs. non-Pinelands analysis by sector for these years.

1993-1995

By 1993, the nation began to recover from the recession that had come with the turn of the decade. Between 1993 and 1995, covered employment (jobs covered by unemployment insurance) grew by 3.5% in New Jersey. South Jersey added 5.2% to its own job base. The number of establishments increased by 2.3% at the state level and by 3.5% in South Jersey. Interestingly, in the first three years of the expansion, real annual wages fell by .2% statewide and by 1.4% in South Jersey. Real wages, however, fell in five of 10 sectors of South Jersey's economy.

Only manufacturing demonstrated a decline among the three highest employment sectors. At the state level, this sector dropped 3.0% of its jobs and 1.4% of those in South Jersey. The number of manufacturing sector establishments declined by 1.9% in South Jersey and 3.7% statewide. With respect to real wages per job, however, manufacturing is one of the few areas where there was an increase, in the order of 1.1% at the state level and 0.9% in South Jersey. Municipality level analysis[16] shows employment in this sector increased by 0.3% in the Pinelands municipalities, while falling by 2.4% in non-Pinelands, South Jersey municipalities. The number of establishments fell by 3.3% in the Pinelands and by 2.5% outside of the Pinelands, and while real wages per job fell by 1.3% outside of the Pinelands, they increased by 3% inside of the Pinelands. The roughly $30,600 average annualized wages for a manufacturing job in 1993[17] inside of the Pinelands is a mere 82% of the approximately $37,000 paid in the non-Pinelands portion of South Jersey. By 1995, the inside annual wage had increased to 86% of the wage paid outside of the Pinelands.

Manufacturing employed 9.6% of private jobs in Pinelands communities in 1993, and represented 11.5% of private payrolls. By 1995, its share of employment had fallen to 8.7% and 11.4% of payrolls. In the non-Pinelands portion of South Jersey, the manufacturing sector employed 14% of private jobs in 1993 and comprised 19.3% of the payrolls. By 1995, it had dropped to 13.1% of employment and 18.2% of payrolls.

The sector representing the largest portion of private employment in the region was the services sector, which provided 39.3% of the jobs in non-Pinelands municipalities and 31.2% of jobs within the Pinelands. By 1995, it had increased its share by 0.2 percentage points in both the Pinelands and non-Pinelands portions of South Jersey. Similarly, the services sector represented 39.1% of private payrolls outside of the Pinelands and 30.1% inside in 1993. By 1995, this share had increased by 0.7 percentage points outside and a full point inside. These increases represent an increase in the number of South Jersey jobs provided by the service sector of 6.2% in 1995 over its 1993 level. The number of establishments in this sector increased by 6.0% (of which a 6.1% increase occurred

[16] Municipality level data is only available for the third quarter of each year, therefore, this data should be used to supplement results from more robust data sets; caution should be used in interpreting results derived solely from the municipality level data. The municipality level data may not be directly comparable to the county level data used for deriving totals for South Jersey

[17] Annualized based on third quarter wages per job, all dollar amounts in 1995 dollars.

outside of the Pinelands and 8.2% inside of the Pinelands[18]) while real wages dropped by .8% over the same period. In the state as a whole, the sector grew by 6.7% in employment, 6.4% in number of establishments, and it increased its real wages by .5% over the same period.

The third major employment sector in the region, retail trade, also showed improving health over the 1993-1995 period. South Jersey employment in retail trade increased by 6.3%, relative to 5.3% at the state level, and number of establishments increased by 1.4% relative to 1.3% at the state level. Real wages fell, both for the state as a whole, and for South Jersey, by 2.5% for the latter, and 1.9% for the former. The retail trade sector's position relative to other sectors in South Jersey was also positive over the period. 24.3% of private jobs outside of the Pinelands came from this sector in 1993, and it provided 27.7% of private jobs in the Pinelands. By 1995, its share had increased by 0.3 percentage points each in both portions of South Jersey. The retail trade sector's contribution to South Jersey payrolls also increased over the period, during which time it went from 14.4% to 14.5% of payrolls outside of the Pinelands and from 17.3% to 17.8% of payrolls within the Pinelands.

The remaining sectors provided less than 24% of South Jersey's private jobs in 1993. Activity in these sectors was generally positive in terms of jobs provided, mixed in number of establishments, and negative in terms of real wages. The agricultural sector led the non-Pinelands area in employment growth, increasing jobs 19.4% between 1993 and 1995. Inside of the Pinelands, the strongest growth was in the Transportation, Communications and Utilities Sector, which grew by 10.7%, and which was closely followed by the wholesale trade sector at 10.5%. Wholesale trade showed the strongest growth in number of establishments both inside and outside of the Pinelands, at 6.3% and 13.3% respectively. The largest increase in payroll was provided by the wholesale trade sector outside of the Pinelands, and by the Services and Retail Trade sectors inside of the Pinelands.

Status of Industry Sectors Inside of the Pinelands Compared to Outside (1993-1995)

Data which allow comparisons of each sector in the portions of South Jersey which are inside of the Pinelands to those which are outside is available only for 1993-95, thus, limited inferences may be made with respect to trends; however, it may be possible to discern some indications of where more attention might be appropriate. It is unclear how much, if any, of these indicators may be impacted by suppression of data.[19] Suppression may be more likely for businesses that tend to employ more employees at each site, for which locations are sparsely distributed, or are few in number. The Wholesale, Transportation, Communication and Utilities, and Finance, Insurance and

[18] Discrepancies between the Pinelands/non-Pinelands figures and the county level analysis are the result of differences between the municipality-level and county-level data sets.

[19] The information derived in this analysis was obtained from the records of the Covered Employment system, which does not release data in cases where it has the possibility of providing information about a single employer or employing location. Data are "suppressed" when it provides information on three or fewer employers or when they provide information for which one employer represents 80% or more of the market. While it is unlikely that data suppression has had a large effect at the County level, it is likely to effect data at the municipality level, especially when these data are disaggregated by sector.

Real Estate industries are relatively few in number in the Pinelands and their data should be viewed cautiously.

Solid gains in both jobs and establishments are seen in the Agriculture, Services, and Construction sectors inside of the Pinelands. Retail trade also shows strong growth in jobs. While the number of wholesale establishments in the Pinelands grew at twice the rate of the outside, the number of jobs in this sector grew at a much lower rate in the Pinelands. The Transportation, Communications and Utilities sector inside the Pinelands had positive gains in both jobs and establishments, even with the possibility of suppressed data. Comparison with the non-Pinelands municipalities is inappropriate until the magnitude of suppressed data can be determined. The Finance, Insurance, and Real Estate Sector lost establishments inside of the Pinelands, while the number of establishments outside increased. The data is insufficient to determine whether this is an indication of a shrinking presence of this sector inside of the Pinelands. Further monitoring of activity in this sector would be appropriate.

Table 7.5-7.7a. Employment, Establishment, and Wage Data for the 8-County Area[20]

Sector	Employment		Establishments		Annual Wages per Job (1995 Dollars)	
	1989	1992	1989	1992	1989	1992
Agriculture	8,872	9,114	1,441	1,561	$18,787	$18,547
Commun. & Util.	14,376	14,678	273	335	$47,395	$49,729
Construction	44,806	29,075	6,509	6,161	$35,926	$36,521
Finance, Insurance, & Real Estate	42,236	38,294	3,334	3,437	$29,288	$31,602
Manufacturing	106,467	89,698	2,234	2,216	$35,099	$36,996
Mining	737	539	34	36	$37,562	$36,750
Retail	163,904	151,991	11,002	12,199	$16,096	$16,190
Services	218,646	228,895	14,267	16,212	$26,865	$27,809
Transportation	20,916	20,325	1,535	1,651	$28,431	$28,122
Wholesale Trade, Durable Goods	21,746	24,618	1,877	2,473	$36,367	$38,903
Wholesale Trade, Non-Dur. Goods	14,260	13,401	1,031	1,191	$32,475	$37,264

[20] Employment, establishments and wage data acquired through Covered Employment statistics is suppressed for regions in which there are less than three employers in the industry or in which one employer represents 80% or more of the market in the industry for the region.

Table 7.5-7.7b. Industrial Sector Breakdowns, Inside/Outside Pinelands, 1993-1995[21]

Inside Pinelands

Sector	Employment			Establishments			Wages Per Job*		
	1993	1994	1995	1993	1994	1995	1993	1994	1995
Agriculture	4,749	4,824	5,669	496	496	513	$4,157	$4,063	$3,636
Mining	91	113	111	10	11	7	$10,045	$9,853	$9,078
Construction	8,807	9,858	9,880	1,692	1,798	1,865	$8,577	$8,452	$7,894
Manufacturing	9,746	10,237	9,771	362	363	350	$7,653	$8,100	$7,879
Transport., Commun., & Util.	7,035	7,955	7,289	467	469	471	$10,304	$9,836	$9,678
Wholesale	5,321	5,370	5,551	669	697	758	$9,210	$9,505	$9,146
Retail	28,304	30,050	31,223	2,259	2,257	2,288	$3,962	$4,024	$3,834
Finance., Insurance, & Real Estate	6,124	5,967	6,047	607	621	599	$8,066	$7,385	$7,686
Services	31,850	34,040	36,081	2,784	2,840	3,013	$6,127	$6,070	$5,815

Outside Pinelands

Sector	Employment			Establishments			Wages Per Job*		
	1993	1994	1995	1993	1994	1995	1993	1994	1995
Agriculture	8,479	8,506	9,053	1,010	994	1,036	$4,391	$4,446	$4,353
Mining	---	---	---	---	---	---	---	---	---
Construction	23,190	26,059	25,216	4,370	4,463	4,503	$8,674	$8,595	$8,440
Manufacturing	76,980	76,188	75,142	1,778	1,755	1,734	$9,297	$9,260	$9,172
Transport., Commun., & Util.	26,215	27,711	29,029	1,444	1,497	1,515	$8,558	$8,541	$8,085
Wholesale	33,451	34,934	36,952	2,948	2,996	3,135	$9,001	$9,002	$8,842
Retail	133,711	137,647	141,157	9,951	9,986	10,205	$3,987	$4,052	$3,887
Finance, Insurance & Real Estate	31,733	31,708	30,689	2,795	2,851	2,837	$7,752	$7,810	$7,582
Services	216,293	222,180	227,021	13,853	14,189	14,704	$6,709	$6,792	$6,663

* Wages per Job are Average Third Quarter Wages per Job, in 1995 Dollars

[21] Employment, establishments and wage data acquired through Covered Employment statistics is suppressed for regions in which there are less than three employers in the industry or in which one employer represents 80% or more of the market in the industry for the region. Industry breakdowns presented for 1989-1992 are compiled from county-level data, for which suppression is probably not significant. Industry breakdown data for 1993-1995, and totals for 1989-1992, both of which are provided comparing Pinelands to non-Pinelands, are derived from municipal level data where suppression may be more significant. For this reason, caution should be shown when making conclusions regarding trends indicated by this data.

Table 7.5-7.7c. Industrial Sector Breakdowns, State of New Jersey, 1989-1995

Sector	Employment		Establishments		Annual Wages per Job(1995 Dollars)	
	1992	1989	1992	1989	1992	1989
AGRICULTURE	22,919	24,400	4,979	4,560	$20,961.33	$21,543.76
MINING	1,849	2,494	104	130	$42,408.21	$45,092.18
CONSTRUCTION	109,749	165,732	23,699	24,553	$39,880.51	$39,746.80
MANUFACTURING	524,877	638,030	12,564	13,234	$42,387.16	$39,432.15
TRANSPORTATION	133,709	141,339	8,064	7,589	$33,431.46	$32,803.59
COMMUNICATIONS AND UTILITIES	89,001	88,659	1,399	1,103	$53,280.47	$49,843.90
WHOLESALE TRADE	260,395	281,084	22,874	20,520	$43,989.79	$41,384.99
RETAIL TRADE	547,538	598,964	46,093	42,127	$18,567.24	$18,517.70
FINANCE, INSURANCE, AND REAL ESTATE	218,916	238,474	15,308	15,066	$43,868.13	$38,178.47
SERVICES	909,112	882,715	74,384	66,044	$32,376.71	$30,432.65
UNCLASSIFIED	18,716	24,176	5,283	4,266	$30,827.72	$29,346.12
TOTAL PRIVATE SECTOR EMPLOYMENT	2,836,779	3,086,067	214,749	199,189	$34,415.60	$32,675.76

Sector	Employment		Establishments		Annual Wages per Job(1995 Dollars)	
	1995	1993	1995	1993	1995	1993
AGRICULTURE	26,998	24,004	5,224	5,056	$20,120.00	$20,588.48
MINING	1,963	1,855	89	99	$43,644.00	$42,881.25
CONSTRUCTION	122,616	114,517	23,617	23,551	$37,353.00	$38,495.04
MANUFACTURING	497,999	513,630	12,043	12,511	$42,171.00	$41,733.81
TRANSPORTATION	149,920	139,129	8,570	8,269	$31,327.00	$32,678.76
COMMUNICATIONS AND UTILITIES	92,961	89,928	1,561	1,418	$58,609.00	$54,827.04
WHOLESALE TRADE	263,754	256,946	24,378	23,139	$43,699.51	$43,647.67
RETAIL TRADE	582,022	552,676	47,147	46,554	$17,820.00	$18,161.78
FINANCE, INSURANCE, AND REAL ESTATE	220,614	221,517	15,953	15,472	$45,469.00	$44,769.04
SERVICES	1,006,282	942,782	81,763	76,869	$31,979.00	$31,821.35
UNCLASSIFIED	6,999	15,512	2,746	5,221	$37,592.00	$31,463.83
TOTAL PRIVATE SECTOR EMPLOYMENT	2,972,129	2,872,495	223,090	218,159	$33,890.00	$33,961.19

7.8, 7.9 & 7.10 Agriculture in the Pinelands

Ideally, monitoring of the economic performance of agriculture in the Pinelands region over time necessitates the examination of data dis-aggregated to at least the municipal level. However, the paucity of reported data at the sub-county level precludes such an analysis at this time. The most widely referred to source of agricultural data is the Census of Agriculture issued every five years by the U.S. Department of Commerce, Bureau of Census. However, such data are reported in aggregated form at the county and state levels. Similarly, annual data compiled by the National Agricultural Statistics Service (NASS) are also typically reported at the state and county levels. An alternative source that does provide useful data on agricultural acreage at the municipal level derives from annual data compiled from FA-1 forms submitted for farmland assessment in New Jersey.[22] Data from all three of these sources will be used, as appropriate, to provide insight into the economic status of the farm sector in the region. It should be noted that the definition of a farm or land constituting farmland varies by source and prevents direct comparison of data across sources.[23]

Land Devoted to Farming

The Census of Agriculture provides a county level breakdown of the roughly 847,600 acres of farmland that are reported for New Jersey in 1992. The seven Pinelands counties comprised nearly 34% (287,000 acres) of this total. In 1982, New Jersey had more than 916,000 acres of farmland, 317,000 acres (34.6%) of which were located in the Pinelands counties. During this 10-year period, New Jersey lost 7.5% of its farmland base. Non-Pinelands counties lost 6.4% of farmland existing in 1982 while the counties comprising the Pinelands lost 9.5%. This marks a slightly accelerated rate of loss of farmland in the Pinelands counties vis-a-vis the state. Counties with particularly high rates of farmland loss in the Pinelands region include Camden (33.3%), Cape May (16.8%) and Burlington (13.7%), all of which have relatively high rates of suburbanization outside the Pinelands. In contrast, Atlantic and Ocean counties actually experienced modest gains in farmland over the 1982-'92 period.

Farm Sales

Table 7.8-7.10 b provides a county breakdown of the $579 million (in 1995 dollars) of agricultural sales Census reported for New Jersey in 1992. Pinelands counties contributed nearly 48% ($254.4 million) of the total agricultural sales generated in New Jersey during 1992. The

[22] Information reported on FA-1 forms on acreage devoted to various crops and pasture as well as livestock numbers is summarized by the New Jersey Agricultural Statistics Service, while more aggregated information is published by the New Jersey Department of Treasury, Division of Taxation.

[23] For instance, to qualify for farmland assessment, a landowner must have a minimum of 5 contiguous acres devoted to agricultural or horticultural use, and generate a minimum of $500 in sales (plus an additional $5 per acre for every acre of agricultural land beyond the first 5 acres or $0.50 per acre for every acre of woodland land beyond the first 5 acres. In contrast, the Census and NASS definition of a farm require only the generation of $1,000 in sales).

relatively high value of production in these counties is clear when considering that these counties constituted only 34% of the agricultural land base in the state in 1992. Similarly, in 1982, Pinelands counties generated a disproportionately high percentage of New Jersey's agricultural sales (45 percent) relative to the percentage of state farm acreage in these counties (34.6 percent).

Net Returns from Farming

In 1992, New Jersey farms generated an aggregate net cash return of $104.0 Million (all amounts are in 1995 dollars) (Table 7.8-7.10c).[24] Farms in the seven Pinelands counties constituted 54% of this total. Farmers in Cumberland County alone generated nearly 18% of statewide net cash returns, ($18.5 million), while Burlington, Gloucester and Atlantic counties each contributed roughly 11%. These counties respectively ranked first, third, fourth and fifth in aggregate net cash returns in New Jersey in 1992.

Comparison of the net cash return of New Jersey farmers in 1992 and 1987 clearly demonstrates the impact of the 1989-'91 recession on the state's farm sector. Statewide, the aggregate net cash return of farmers declined from $135.3 million in 1987 to $104.0 million in 1992 (a decline in real dollars of 24.2%). While non-Pinelands counties suffered a drop of 32.4%, Pinelands counties collectively experienced a more moderate decline of 15.6% in net cash return between 1987 and 1992. This aggregate view, however, is misleading. With the exception of Cumberland County, farmer net cash returns dropped in all Pinelands counties between 1987 and 1992. Declines ranged from 23.4% (Burlington County) to 63.1% (Ocean County). Farmers in Cumberland County (a county in which relatively little of its agricultural land base is in the Pinelands), however, raised their collective net cash return by an anomalous 37.9%. Omitting Cumberland County, the net cash return of farmers in the remaining six Pinelands counties dropped by 29% from 1987 to 1992. It should be noted that this decline in net cash return is still less severe than that experienced in non-Pinelands counties.

As shown in Table 7.8-7.10d, more than half of New Jersey farms lost money in 1992 and 1987. However, farmers in the Pinelands counties appear to be faring slightly better than their counterparts outside of the Pinelands. In 1992, 47.5 % of farms in the Pinelands counties had net losses while 56.5% of farms in the non-Pinelands counties experienced net losses. The same relationship was also observed in 1987. In 1987, 46.8% of farms in the Pinelands counties had net losses while 55.8% of farms in non-Pinelands counties had net losses.

Cranberry and Blueberry Production

Cranberry and blueberry production in New Jersey are found predominantly in the Pinelands. Given the importance of these commodities to the agricultural economy of the Pinelands, an examination of the performance of these industries is warranted. Although production data are only available at the state level, the concentration of blueberry and cranberry farmers in the Pinelands enables state figures to be used as proxies for Pinelands activity.

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[24] Net cash return refers to gross income from farming operations minus operating costs.

As shown in Figure 7.8-7.10g, the value of utilized production of cranberries rose from $9 million in 1972 to $25 million in 1992 (values are adjusted for inflation and reported in 1995 dollars).[25] This represents an increase of 178% in the value of utilized production of cranberries in New Jersey. Cranberry production increased from 19.6 million pounds in 1972 to 47.8 million pounds in 1992, a 144% increase. As shown in Figure 7.8-7.10h, the price of cranberries per 100 pounds increased from $45.94 in 1972 to $80.18 in 1983 (a 75% increase), before declining to $52.57 in 1992 (all values are in 1995 dollars). The sustained growth in the cranberry industry has, in part, been due to aggressive marketing efforts and product diversification (e.g., juices and dried berries) over the last several years.

As shown in Figure 7.8-7.10i, values for blueberry production have fluctuated more than those for cranberry production. In general, the value of production has hovered around $25-30 million between 1972 and 1992 (again expressed in 1995 dollars). Utilized production experienced similar trends, peaking in 1985 at 34 million pounds and declining most recently to 23 million pounds in 1992 (a 32% decrease). As shown in Figure 7.8-7.10h, the price per pound of blueberries decreased from $1.13 in 1972 to $1.03 in 1992, after peaking in 1978 at $1.61. This represents an 8.8% decrease in the price of blueberries over the entire period, with a 46% decrease occurring from the 1978 peak to the overall low of $0.87/lb in 1991.

To provide a degree of perspective on the performance of the cranberry and blueberry production figures, it is useful to view them relative to the overall New Jersey farm sector. Table 7.8-7.10e provides sales data for Cranberries and Blueberries as well as total sales of agricultural products for New Jersey, 1972-1992. The table indicates a very large increase is the (inflation-adjusted) value of sales over the time period, indicating the success of marketing. The real value of sales of all agricultural products statewide has declined is the face of conversion of land to other uses over the period, while the value of Blueberry sales has also declined as production for a saturated fresh fruit market has stagnated.

Farmland Assessed Land

Farmland assessment data provides an opportunity to examine sub-county agricultural land use patterns.[26] In general, caution should be used in interpreting trends in farmland assessment data as indicative of the health of the farming industry. Farmland assessment data do not cover farming operations less than five acres in size and therefore might underestimate actual agricultural acreage.

[25]The New Jersey Agricultural Statistics Service defines utilized production as that portion of the total quantity fruit produced that has value to the producer. The quantity of production considered to have value for the producer is defined as the total amount of "harvested production minus harvested production which is not sold." A portion of harvested production may not be sold for economic or other reasons such as: "...lack of transportation, cannery or packer strikes, excess cullage not paid for, abnormal storage losses, shrinkage before marketing, etc." Also included in the abandoned quantity are cranberries set aside under the Cranberry Marketing Order.

[26] Data on farmland acreage was compiled from two sources: the New Jersey Agricultural Statistics Service (1990-1995) and the New Jersey Department of the Treasury, Division of Taxation (1982-1989). Data from both sources are generated from information reported on individual FA-1 forms.

Furthermore, farmland assessment may not be applied for in instances where the tax benefits are likely to be minimal or non-existent.

Table 7.8-7.10f provides, through aggregation of municipal-level farmland assessment data, the percentage of farmland assessed land inside and outside of the Pinelands. In Atlantic and Ocean counties, virtually all farmland assessed acreage (99.4% and 94.7%, respectively) is located in the Pinelands. With the exception of Burlington and Cumberland counties, the proportion of farmland assessed land falling within the Pinelands designation exceeds the proportion of total county area within the Pinelands delineation.

The dominant trend over the past decade in farmland assessed acreage has been stability. Table 7.8-7.10f provides additional information on the location of farmland assessed acreage in southern New Jersey. Burlington County has more than twice as much farmland assessed acreage inside of the Pinelands as any other county. Cumberland and Gloucester Counties have substantial amounts of farmland assessed acreage located outside of the Pinelands.

No substantial increases or decreases in land under Farmland Assessment is indicated by this data. This is as expected, as changing land uses are gradual. Farmland assessment data can be useful for examining where farming is concentrated. Potential areas for further study include a more detailed analysis of crop type with respect to location, acreage, and revenue, and evaluation of returns on an inside/outside Pinelands basis. Farmland assessment data can aid in the conduct of such studies.

County-specific data are presented in Appendix C. These data are presented by year and show annual fluctuations.

Table 7.8-7.10a. Land in Farming, 1982 and 1992.

County	1992		1982		1982-1992
	Land in Farming (acres)	**Pct. of NJ Land in Farming**	**Land in Farming (acres)**	**Pct. of NJ Land in Farming**	**Pct. Change in Land in Farming**
Atlantic	29,606	3.49	27,504	3.00	7.64
Burlington	97,186	11.47	112,689	12.30	(13.76)
Camden	7,799	0.92	11,690	1.28	(33.28)
Cape May	11,644	1.37	13,992	1.53	(16.78)
Cumberland	68,627	8.10	75,184	8.20	(8.72)
Gloucester	61,748	7.29	66,133	7.22	(6.63)
Ocean	10,365	1.22	9,960	1.09	4.07
Pinelands Counties	**286,975**	**33.86**	**317,152**	**34.61**	**(9.52)**
Non-Pinelands Counties	560,620	66.14	599,179	65.39	(6.44)
New Jersey	847,595	100.00	916,331	100.00	(7.50)

Source: 1992 Census of Agriculture, New Jersey.

Table 7.8-7.10b. Agricultural Sales (in Real 1995 Dollars), 1982 and 1992.

County	1992		1982	
	Sales ($1,000s)	**Pct. of NJ Sales**	**Sales ($1,000s)**	**Pct. of NJ Sales**
Atlantic	$47,191	8.15	$54,960	7.98
Burlington	$70,131	12.11	$79,847	11.60
Camden	$8,885	1.53	$16,053	2.33
Cape May	$6,098	1.05	$7,140	1.04
Cumberland	$79,288	13.70	$79,040	11.48
Gloucester	$59,282	10.24	$67,081	9.74
Ocean	$5,481	0.95	$6,563	0.95
Pinelands Counties	**$276,357**	**47.73**	**$310,684**	**45.12**
New Jersey	$578,955	100.00	$688,510	100.00

Source: 1992 Census of Agriculture, New Jersey.

Table 7.8-7.10c. Net Cash Return for New Jersey Farms, 1987 and 1992 (Dollar amounts are Real 1995 Dollars)

County	1992				1987				Pct. Change in Total Net Cash Return (1987-'92)
	Net Cash Return (Avg. per Farm)	Total Net Cash Return of Farms ($1,000s)	Pct. of Total NJ Net Cash Returns	Average Size of Farm (acres)	Net Cash Return (Avg. per Farm)	Total Net Cash Return of Farms ($1,000s)	Pct. of Total NJ Net Cash Returns	Avg Size of Farm (acres)	
Atlantic	$28,637	$11,197	10.8%	76	$40,075	$15,389	11.2%	77	-27.2%
Burlington	$14,019	$11,439	11.0%	119	$17,902	$14,930	10.9%	124	-23.4%
Camden	$11,036	$2,075	2.0%	41	$17,099	$3,027	2.2%	57	-31.4%
Cape May	$6,504	$1,060	1.0%	71	$11,630	$1,442	1.1%	109	-26.5%
Cumberland	$30,393	$18,510	17.8%	113	$21,927	$13,420	9.8%	118	37.9%
Gloucester	$16,192	$11,399	11.0%	88	$24,240	$16,508	12.0%	91	-30.9%
Ocean	$3,524	$821	0.8%	44	$10,798	$2,224	1.6%	43	-63.1%
Pinelands Counties	**$18,203**	**$56,501**	**54.3%**	**92**	**$22,180**	**$66,939**	**48.8%**	**99**	**-15.6%**
Non-Pinelands Counties	$7,955	$47,530	45.7%	94	$11,694	$70,325	51.2%	99	-32.4%
New Jersey	$11,458	$104,031	100.0%	93	$15,198	$137,265	100.0%	99	-24.2%

Source: 1992 Census of Agriculture, New Jersey.

Table 7.8-7.10d. Farms With Net Losses, 1987 and 1992.

County	1992		1987	
	Farms With Net Losses	**Percent of All Farms**	**Farms With Net Losses**	**Percent of All Farms**
Atlantic	162	41.4	139	36.2
Burlington	431	52.8	427	51.2
Camden	91	48.1	86	48.6
Cape May	75	46.3	71	56.8
Cumberland	219	35.9	286	46.8
Gloucester	337	47.8	305	44.7
Ocean	159	68.5	98	47.6
Pinelands Counties	**1,474**	**47.5**	**1,412**	**46.8**
Non-Pinelands Counties	3,375	56.5	3,356	55.8
New Jersey	4,849	53.4	4,768	52.8

Source: 1992 Census of Agriculture, New Jersey.

Table 7.8-7.10e Sales of New Jersey Farm Products. (Real 1995 Dollars)

Sales	1972	1992	Pct. Change (1972-'92)
Cranberry	$9,005,455	$25,337,722	181.4%
Blueberry	$32,620,163	$23,701,839	-27.3%
Total, New Jersey	$876,117,703	$700,953,100	-20.0%

Source: NJASS, Annual Report and Agricultural Statistics (various years).

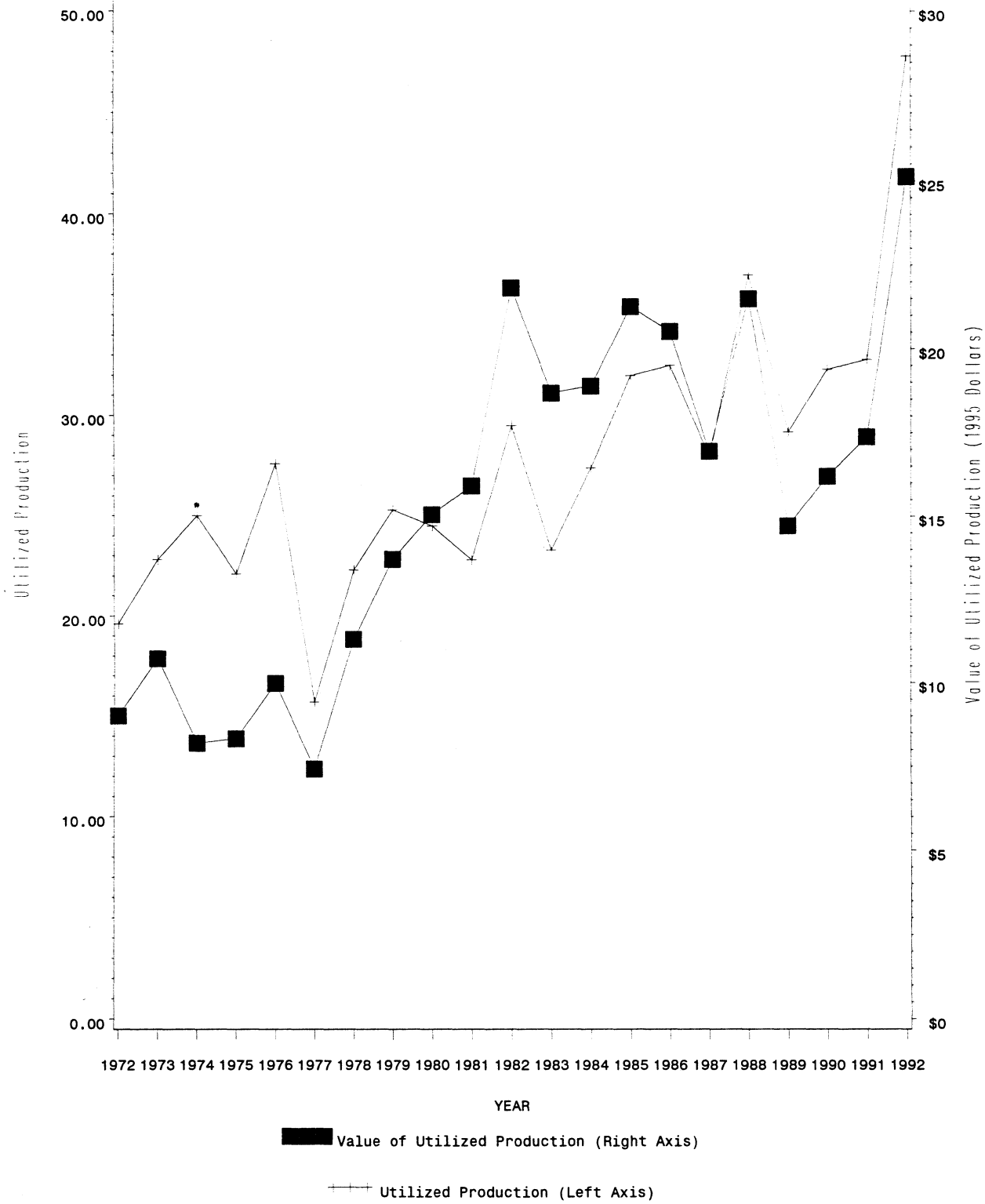
Table 7.8-7.10f. Farmland Assessed Acreage in Southern Jersey With Respect to Pinelands Boundaries. (Mean Acreage from the years 1986-1995)

County	Farmland Assessed Acreage Located in Pinelands Municipalities	Total Farmland Assessed Acreage	Percent of Farmland Assessed Acres in Pinelands Municipalities	Percent of Total County Area in Pinelands
Atlantic	40,107	40,354	99.4	63.4
Burlington	88,240	155,458	56.8	63.8
Camden	10,161	13,394	75.9	37.7
Cape May	7,408	13,595	54.5	19.1
Cumberland	6,851	79,559	7.9	14.1
Gloucester	20,417	82,658	24.7	15.6
Ocean	14,061	14,843	94.7	38.6

Figure 7.8-7.10g

Cranberry Production in New Jersey

Production Volume and Value



Value of Production refers to Gross Value of Crop Utilized, in 1995 Real Dollars

Figure 7.8-7.10h

Cranberry and Blueberry Prices 1972 – 1992

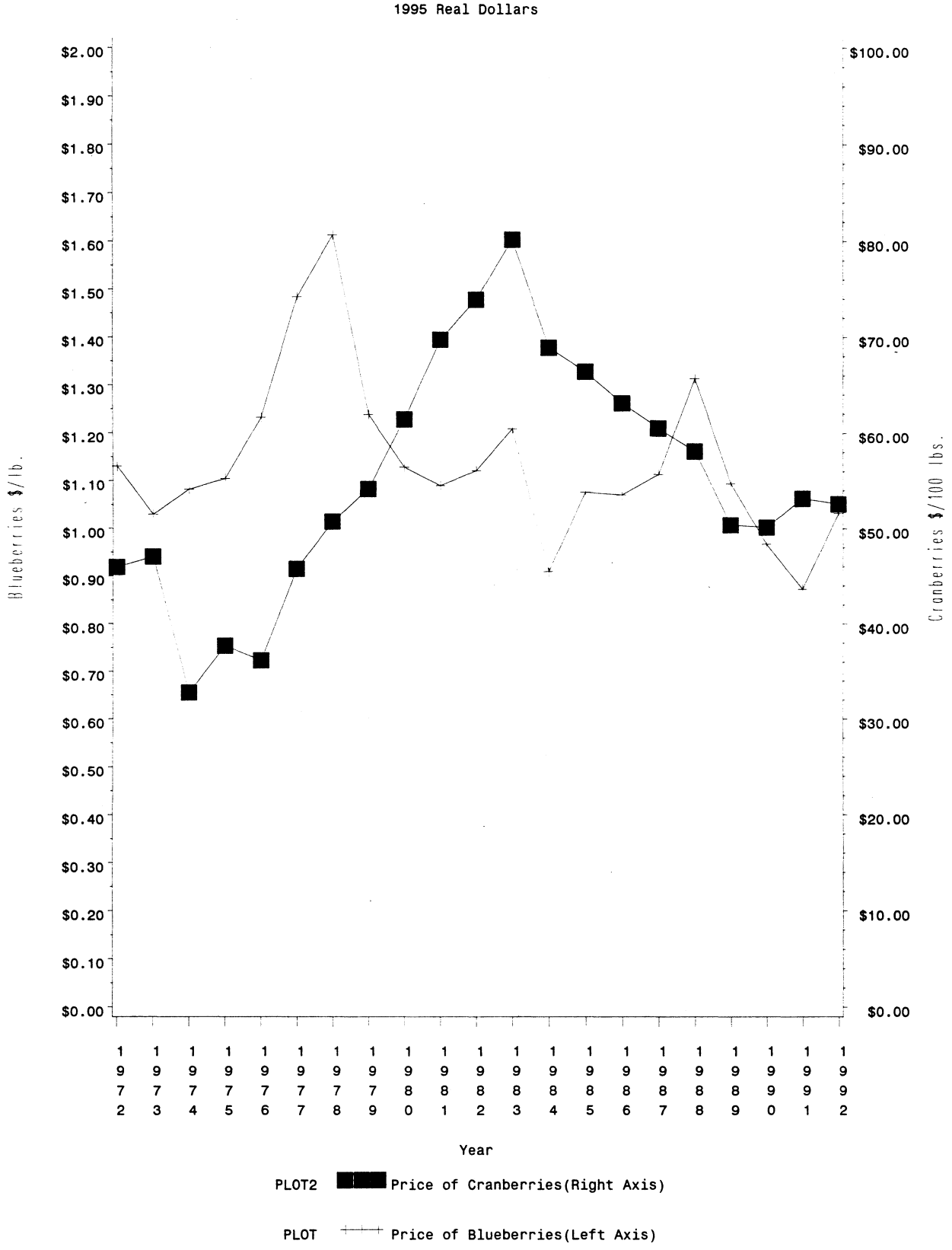
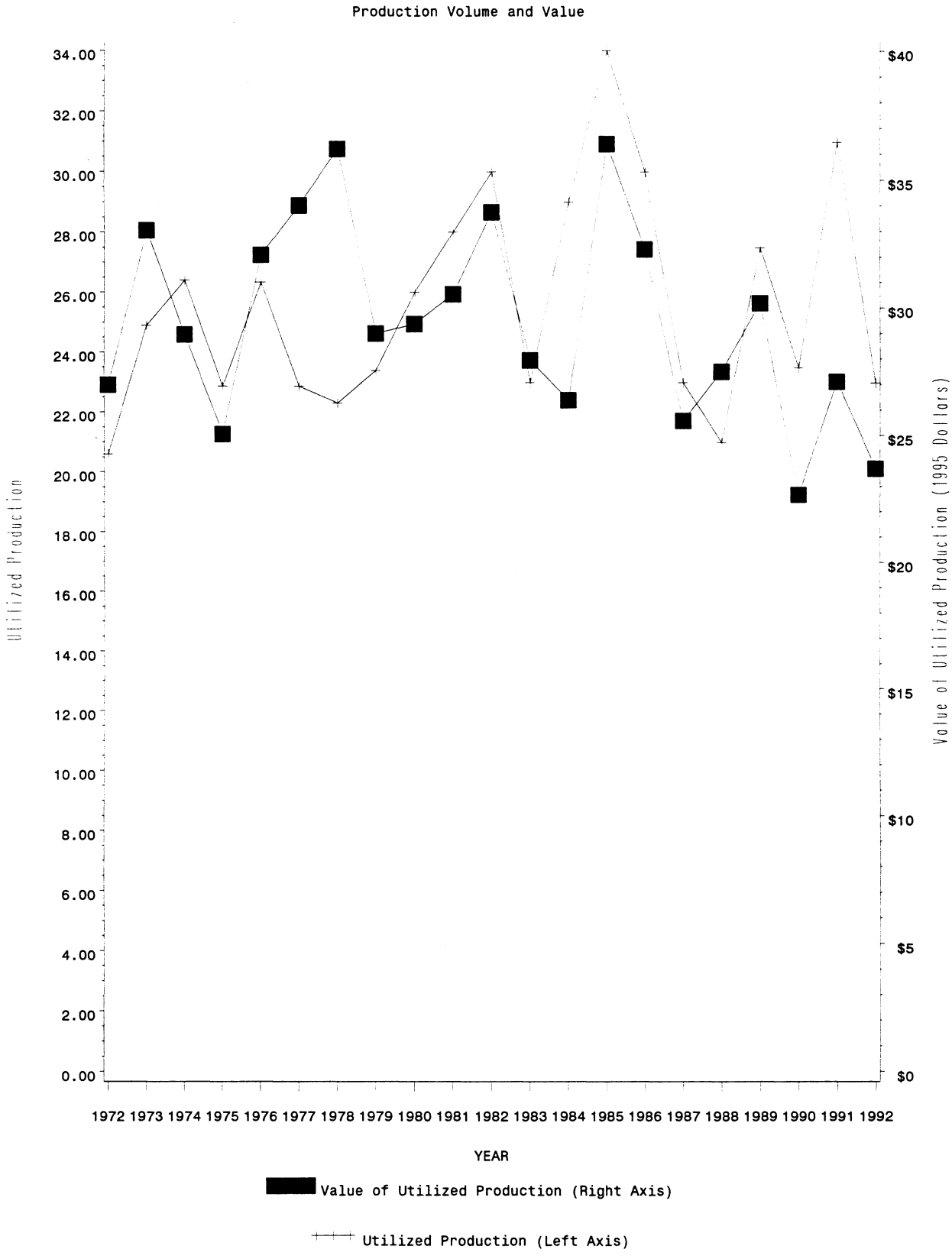


Figure 7.8-7.10i

Blueberry Production in New Jersey



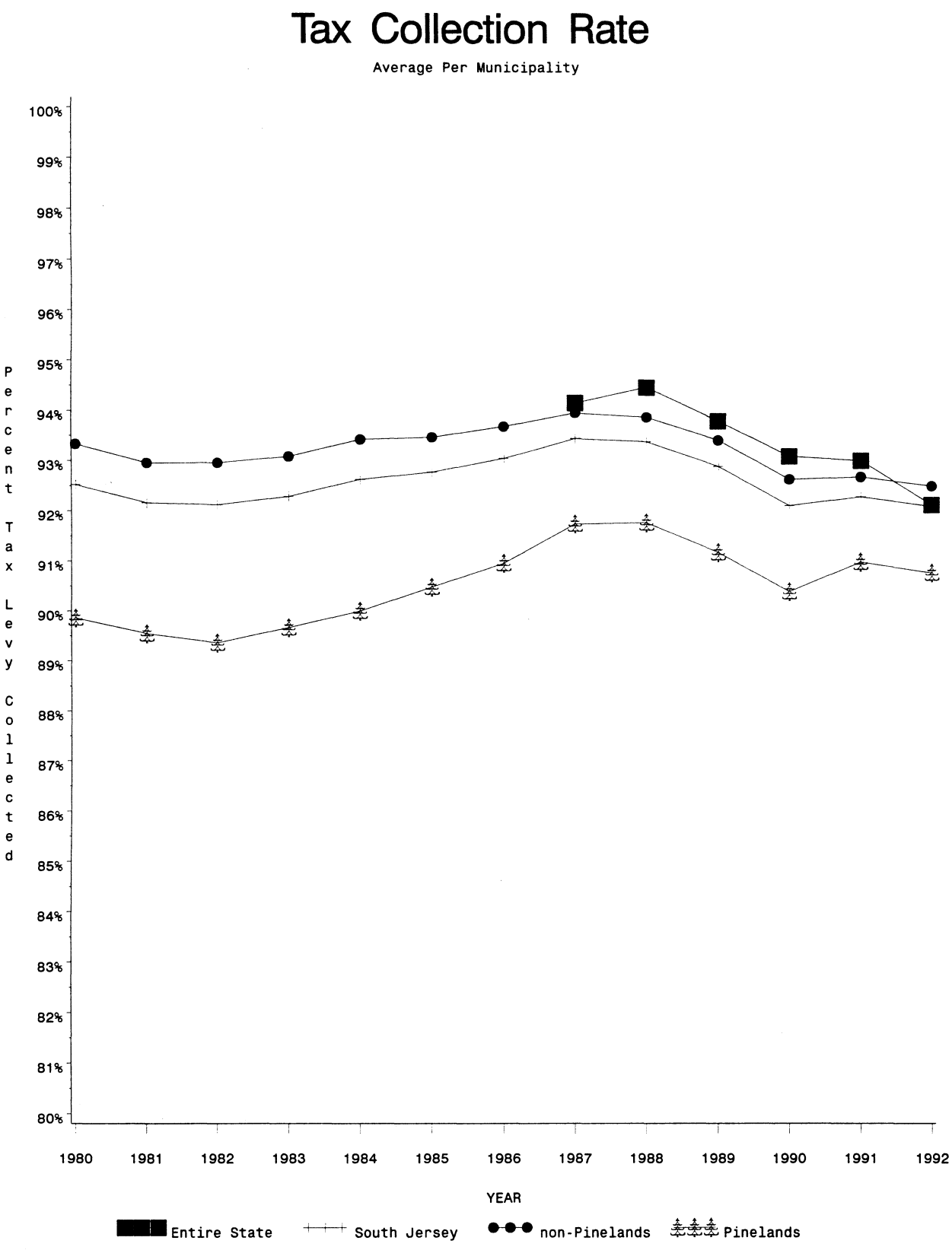
8.1 Tax Collection Rate[27]

In general tax collection rates in the Pinelands, the surrounding region, and the southern 8 counties from 1980-1992 tracked closely together, following the peaks and valleys of the business cycle. Although tax collection rates in the Pinelands have been historically lower than in surrounding areas, the difference has been steadily closing during this period - from 3.4 to 3.6 percentage point gap in the early to mid 1980s to a 1.7 to 1.8 percentage point difference in the 1990s. Data at the statewide level were only available on computer format from 1987-1992 and shows similar trends, but with a greater drop than has occurred in southern New Jersey.

Given the overall steadiness of tax collection rates throughout southern New Jersey and the narrowing of the small gap between the areas, no special studies appear needed at this time. Compilation of statewide data for earlier years, however, would assist in assessing whether the stability was unique to this region.

[27] Source: New Jersey Department of Community Affairs, Division of Local Government Services.

Figure 8.1a



Source: NJ Department of Community Affairs, Division of Local Government Services
Note: State Level data prior to 1987 not available in electronic form

8.2 Assessment Class Proportions in Municipal Tax Revenues[28]

The dominant trend inside of the Pinelands from 1980-1992 has been a decline in the share of vacant land assessments (and, therefore, a decline in the proportion of tax revenues), which coincided with a nearly equal increase in the share of residential assessments (see Figure 8.2a. Note: municipal valuations were used rather than tax revenues to avoid any skewing due to uneven tax collection of any individual class). The change in the proportion of vacant land assessment inside of the Pinelands, approximately 4.5 percentage points, substantially exceeded any changes in assessment class proportions found in the surrounding non-Pinelands area, the southern 8 counties of New Jersey, and the entire state (see Figures 8.2b, 8.2c, and 8.2d). The reasons for this are unknown and it could come from a range of possible reasons; possible explanations could include development of vacant land thus changing its assessment class), increase in the value of developed land at a higher rate than that of vacant land, and/or decreases in the value of vacant land. The proportions of most other assessment classes inside of the Pinelands remained fairly steady over the 12-year monitoring period, with slight declines in the proportion of farmland and apartment assessments, and a slight increase in the proportion of the commercial class. While assessment class proportions in the non-Pinelands area fluctuated slightly on an annual basis, overall proportions remained fairly steady, with slight declines experienced in the share of farmland and apartment classes. The slight declines in these two assessment classes inside and outside of the Pinelands were reflected in trends at the 8-county level, which showed even greater changes in the proportion of vacant land and residential assessments, most likely due to activity inside of the Pinelands. Assessment class proportions remained relatively constant at the statewide level, although data are only available from 1987-1992.

In terms of the contributions of individual assessment classes, the Pinelands area is characterized by the highest proportion of vacant land assessment and the lowest proportions of industrial and apartment assessments. These findings are consistent with the predominantly rural character of much of the region. Assessment class proportions at the 8-county level reflect the influences of both the Pinelands and non-Pinelands areas, while statewide proportions are representative of a densely populated state (i.e., low shares of vacant and farm classes, and high shares of residential, industrial, and commercial classes).

Because these findings are consistent with land use patterns, no additional studies appear necessary at this time. Obtaining pre-1987 data at the statewide level, however, could help in establishing the importance of trends at more regional levels.

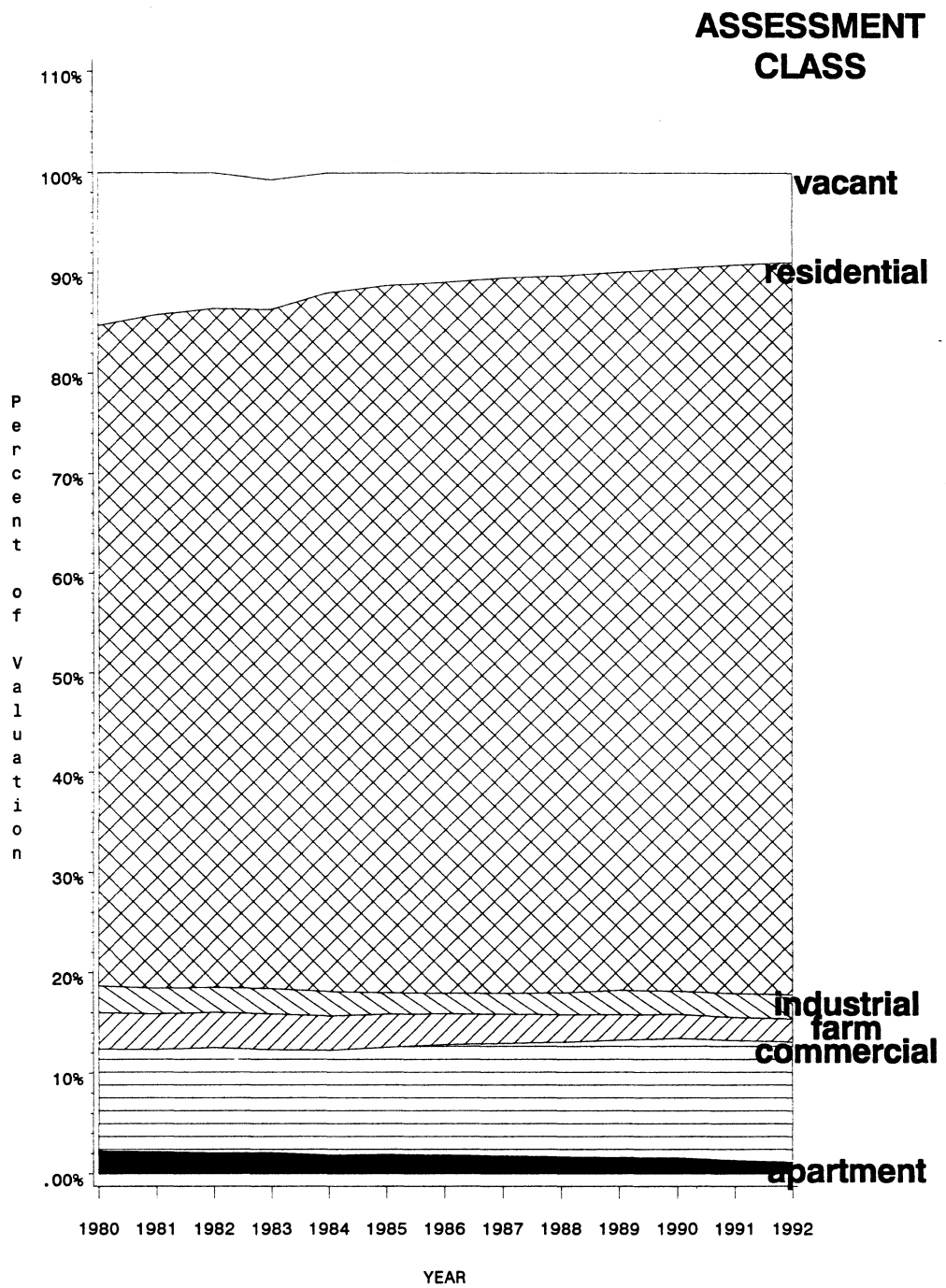
[28] Source: New Jersey Department of Community Affairs, Division of Local Government Services.

Figure 8.2a

Assessment Class Weights in Municipal Valuations

Area = Pinelands

Average Weight per Municipality



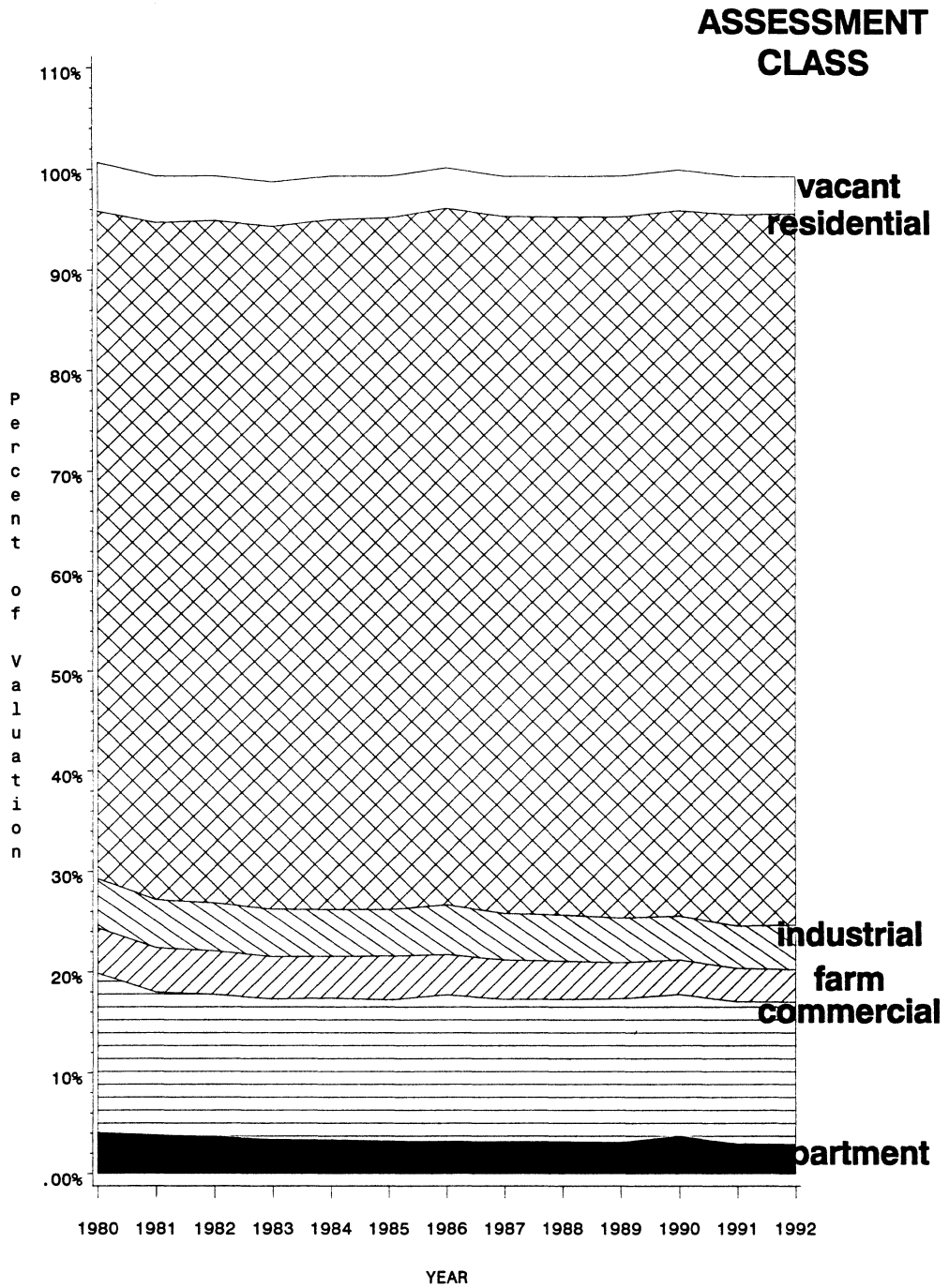
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 8.2b

Assessment Class Weights in Municipal Valuations

Area = non – Pinelands

Average Weight per Municipality



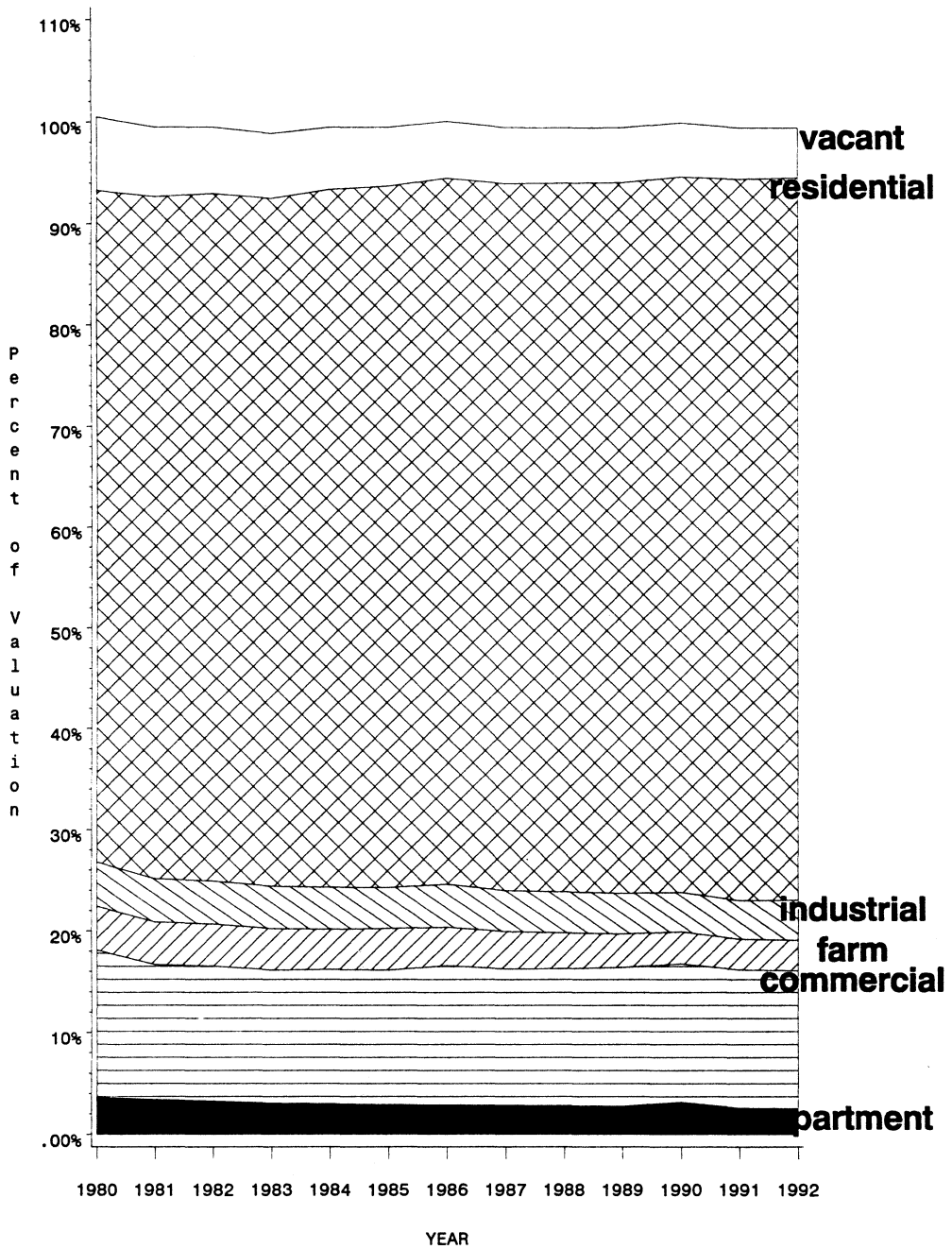
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 8.2c

Assessment Class Weights in Municipal Valuations

Area = South Jersey

Average Weight per Municipality



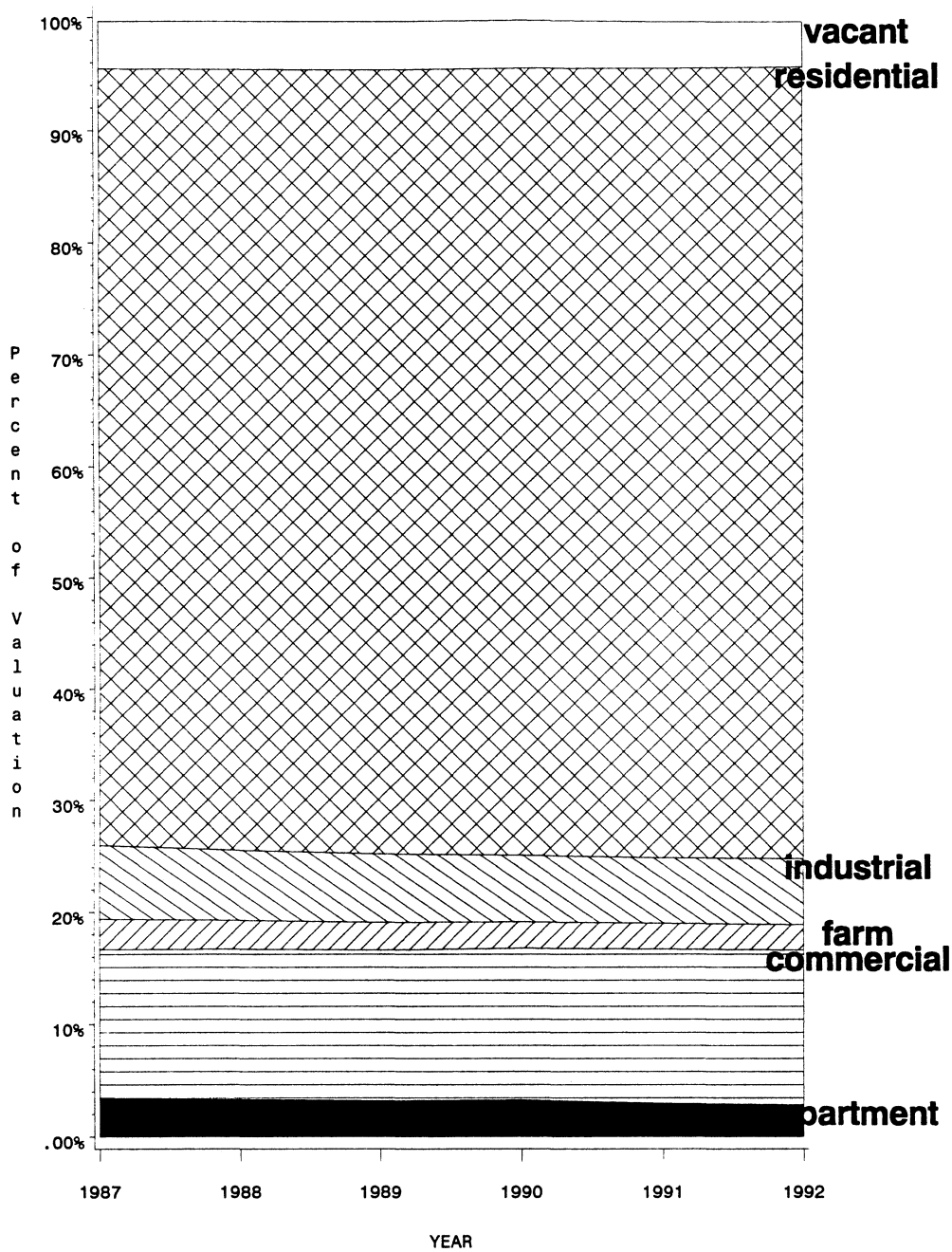
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 8.2d

Assessment Class Weights in Municipal Valuations

Area = Entire State

Average Weight per Municipality



Source: NJ Department of Community Affairs,
Division of Local Government Services
Note: State Level data prior to 1987 not available in electronic form

8.3 Municipal Expenditures by Type per capita[29]

Total per capita expenditures for Pinelands communities were about 20% less than the balance of southern New Jersey in 1980 when the Pinelands CMP took effect and maintained that same position 12 years later. Indeed, the rates of increase[30] for Pinelands and non-Pinelands municipalities were almost identical. Rates of change in per capita expenditures for specific types of services were more varied. In southern New Jersey, the highest rate of increase over the 12 year period was in the capital and debt expenditures category, with non-Pinelands municipalities increasing by 79% and Pinelands municipalities by 76%. While school expenditures rose at a lower rate in Pinelands (47%) and non-Pinelands (41%) municipalities than did Capital expenditures, school expenditures continue to represent the single largest type of tax expenditure at the local level.

General government expenditures per capita rose at a significantly lower rate in Pinelands municipalities (24% increase) than in the balance of southern New Jersey (36% increase) or the State as a whole (35% increase). It is unknown whether this is a positive phenomenon (good government providing basic services at lower cost) or a negative trend (Pinelands municipalities withholding services which are increasingly being provided by other similar municipalities). However, Section 9.4, the comparables analysis, shows that this deviation is not evident when Pinelands municipalities are compared to "comparable" non-Pinelands municipalities. This result then is likely the result of the more rural character of Pinelands municipalities

Overall per capita expenditures from 1980-1992 followed roughly the same trend inside and outside of the Pinelands, and throughout New Jersey: a steady increase until 1990 followed by leveling off or slight declines (see Figures 8.3b-8.3e). School spending was the largest component of municipal expenditures, averaging 50% of expenditures in the Pinelands and 43% in the non-Pinelands.

Municipal expenditure patterns examined here appear to be generally consistent across the region, with the exception of spending in the general government category. The divergence of spending patterns inside and outside the Pinelands in this category may be a topic for which further study is the justified in the future.

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[29] Sources: New Jersey Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census; and New Jersey Department of Labor, Labor Market and Demographic Research.

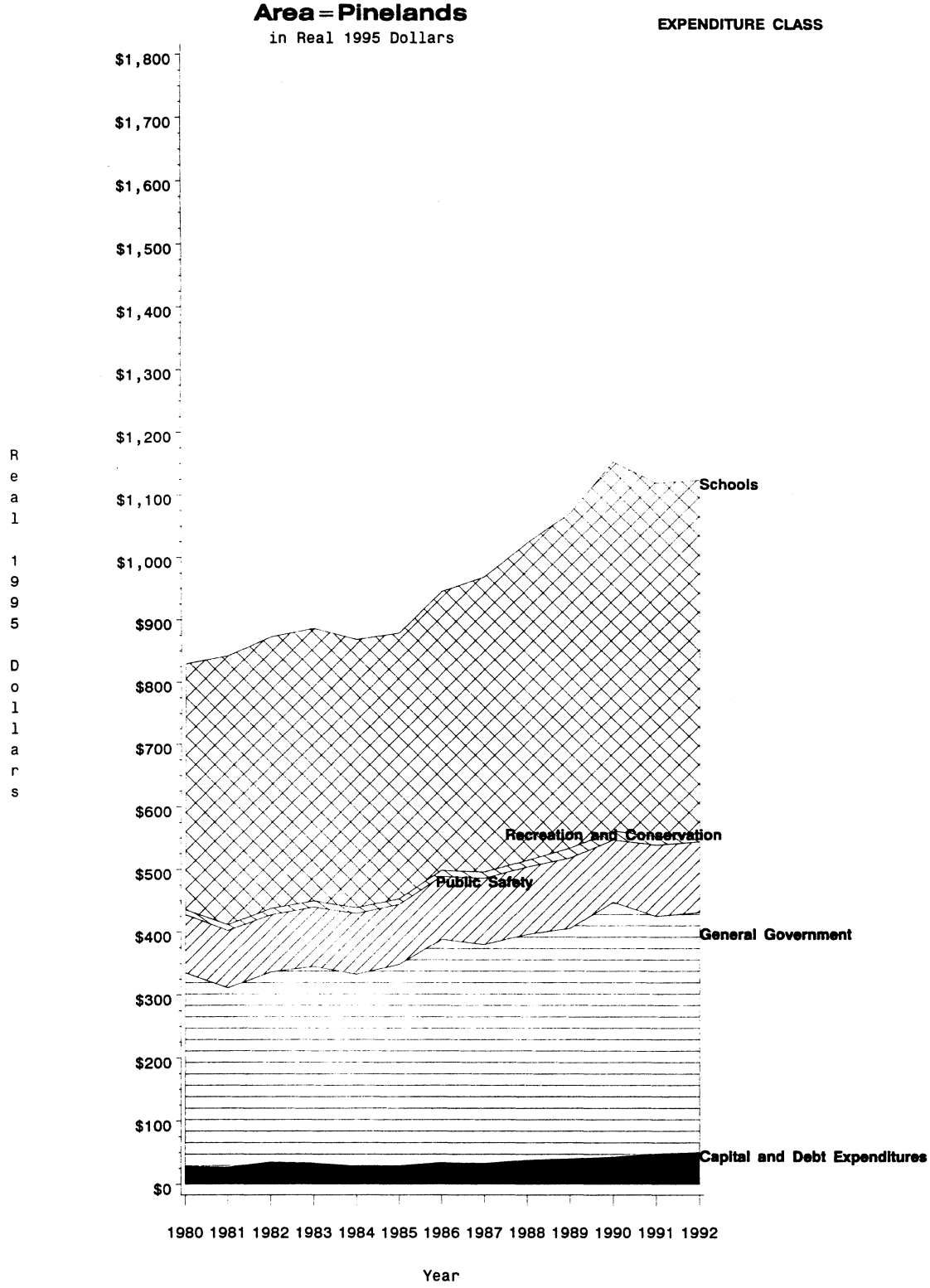
[30] All rates of change are adjusted for inflation.

Table 8.3a

EXPENDITURES PER CAPITA IN REAL 1995 $								
	PINELANDS		NON-PINELANDS		SOUTH JERSEY		STATE	
	1980	1992	1980	1992	1980	1992	1980	1992
SCHOOLS	$ 575	$ 845	$ 707	$ 999	$ 677	$ 959	$ 751	$ 1,079
RECREATION & CONSER-VATION	$ 8	$ 13	$ 20	$ 20	$ 17	$ 18	$ 17	$ 21
PUBLIC SAFETY	$ 92	$ 113	$ 156	$ 199	$ 141	$ 176	$ 171	$ 215
GENERAL GOVERN-MENT	$ 307	$ 381	$ 367	$ 498	$ 353	$ 467	$ 407	$ 551
DEBT	$ 29	$ 51	$ 44	$ 79	$ 41	$ 71	$ 54	$ 83
TOTAL	**$ 1011**	**$ 1403**	**$ 1294**	**$ 1795**	**$ 1229**	**$ 1691**	**$ 1400**	**$ 1949**

Figure 8.3b

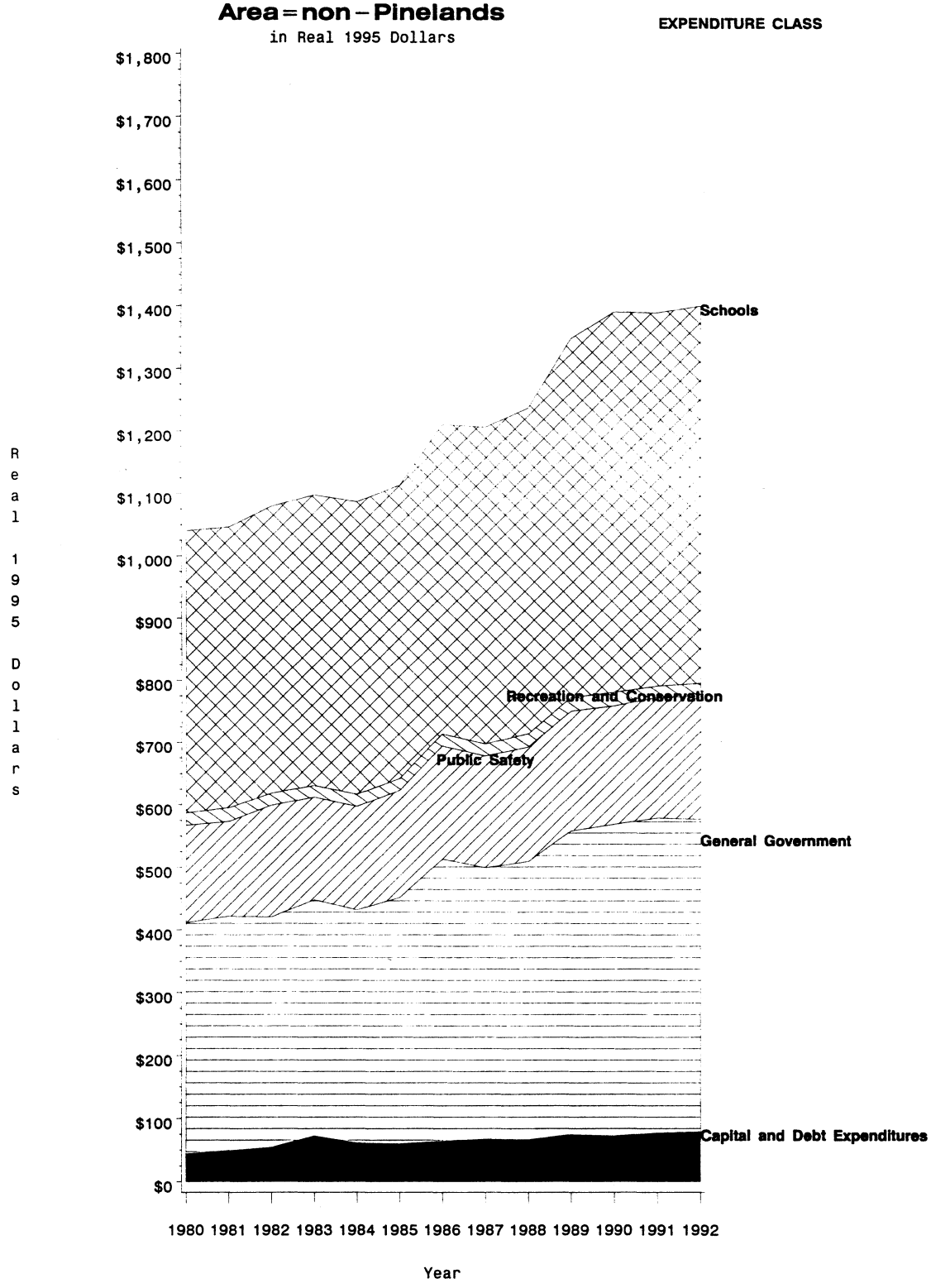
Per Capita Expenditures by Class



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 8.3c

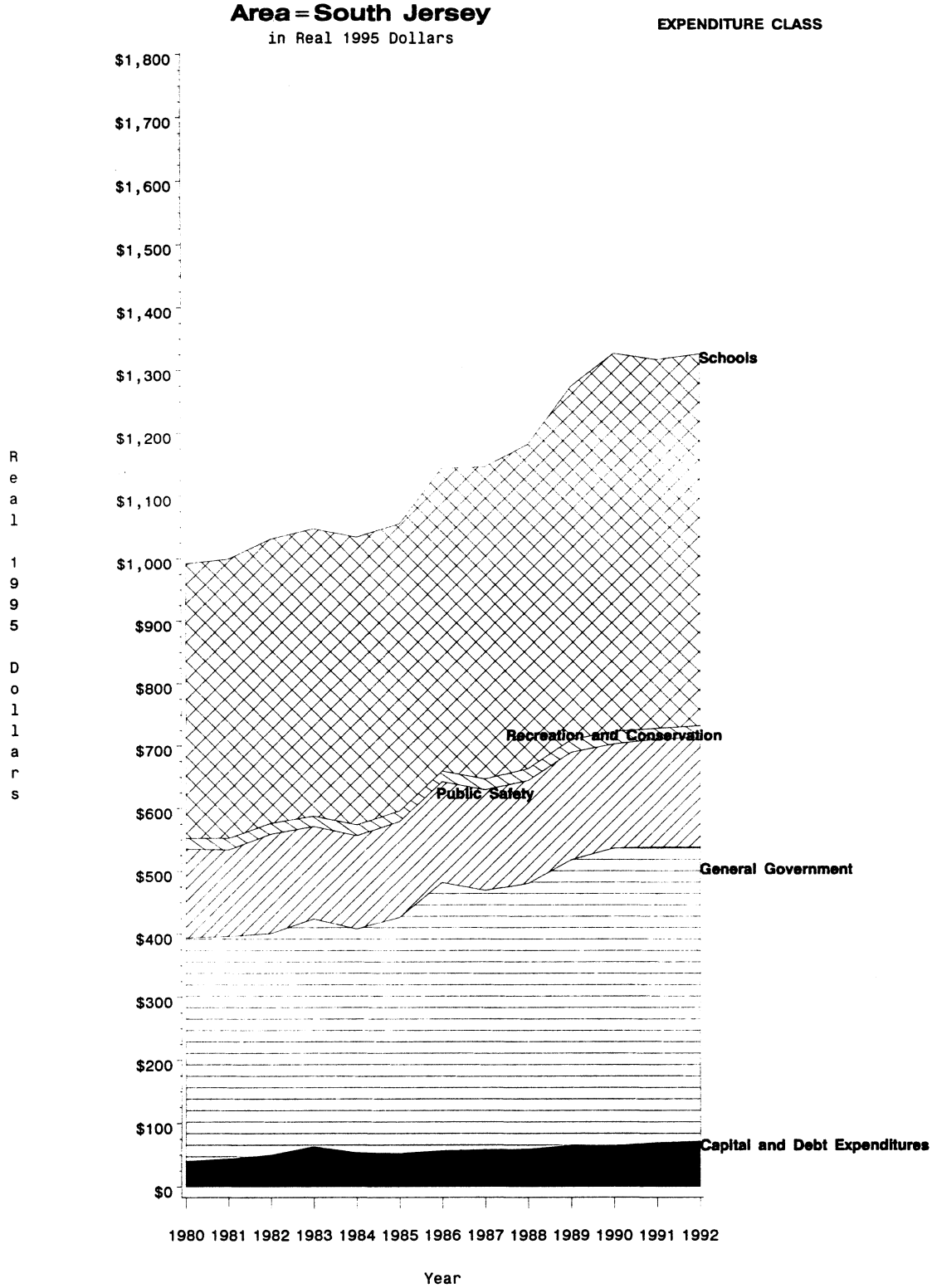
Per Capita Expenditures by Class



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 8.3d

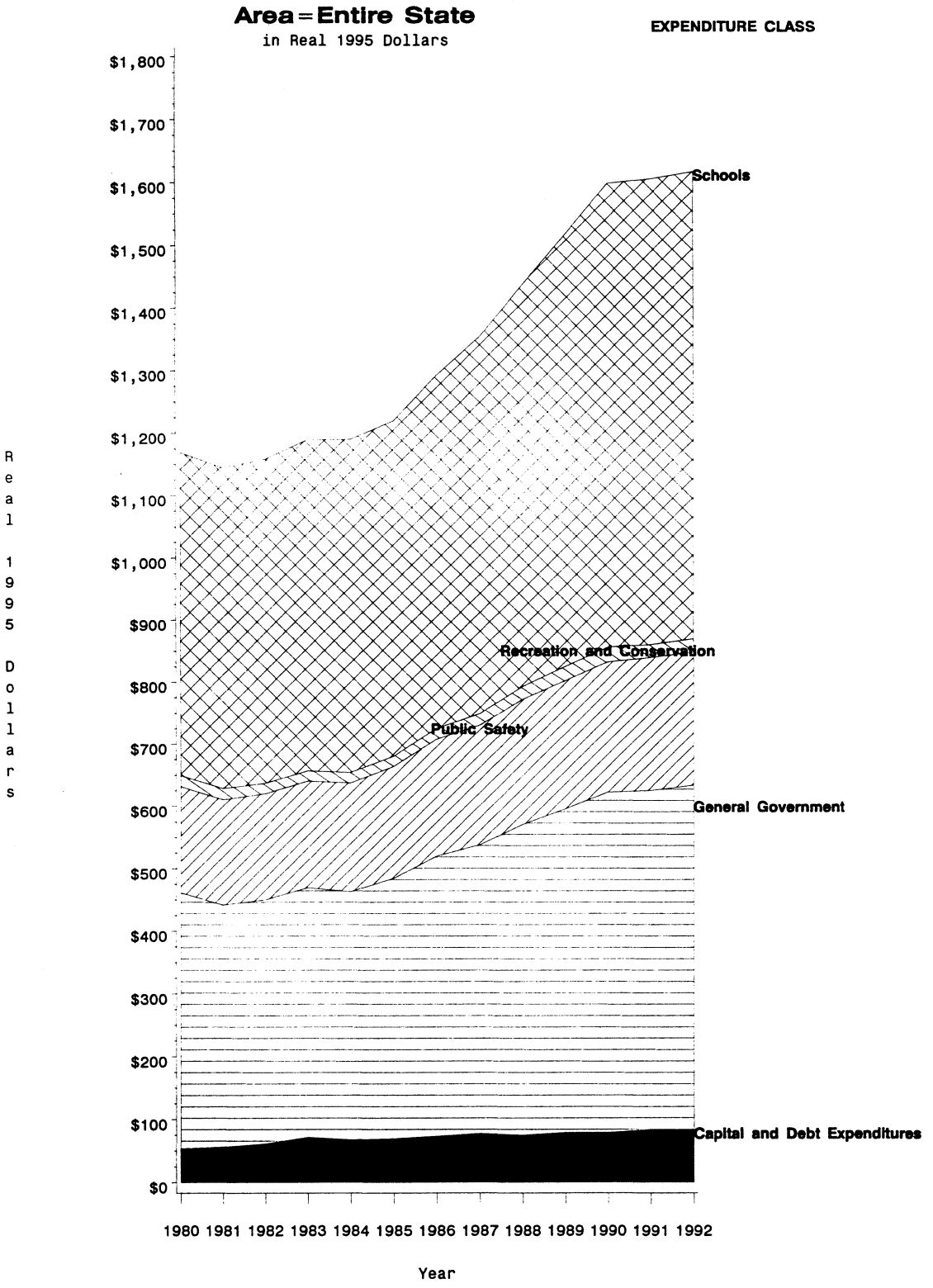
Per Capita Expenditures by Class



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 8.3e

Per Capita Expenditures by Class



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

8.4-8.5 Municipal Expenditures per Household and Relative to Median Household Income

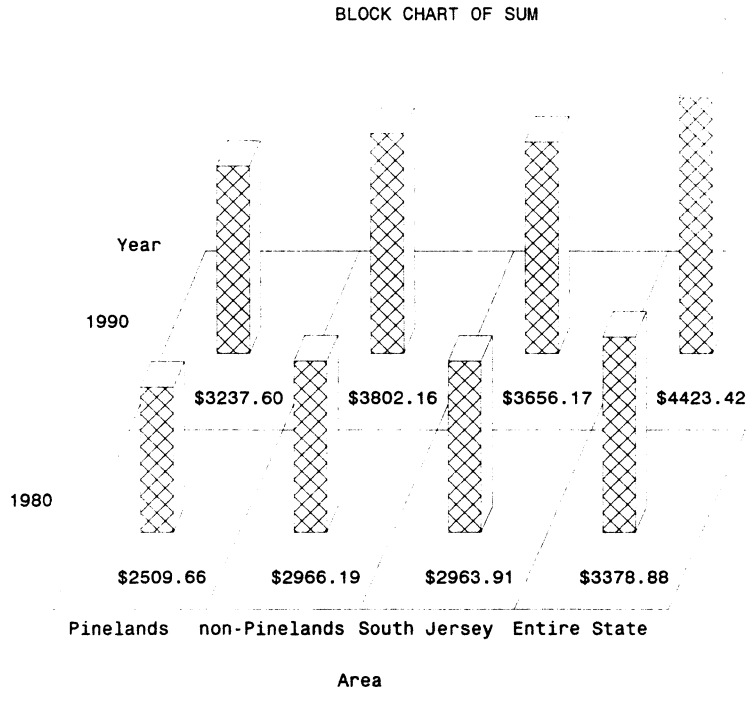
Municipal expenditures per household were higher in the state in both 1980 and 1990 than in South Jersey. South Jersey lagged the state in growth of expenditures per household and in expenditures per household relative to median household income. Growing by 30.9% (adjusted for inflation) from 1980 to $4,423 in 1990 (all dollar amounts are 1995 dollars), municipal expenditures per household for the entire state represented 9.3% of the state's median household income, little changed from the 9.2% of income in 1980. Expenditures per household in South Jersey grew by 23.3% from 1980 to 1990; expenditures fell somewhat, however, relative to median household income in the southern eight counties of the state, from 9.0% of median income in 1980 to 8.7% in 1990. The non-Pinelands portion of South Jersey had experienced slightly slower growth of municipal expenditures per household 28.2%, compared to the Pinelands portion's 29.0%. Expenditures were 8.9% of median income in the non-Pinelands portion in both 1980 and 1990, while expenditures fell slightly from 7.6% to 7.5% relative to income in the Pinelands. At $2,510 in 1980 and $3,238 in 1990, expenditures per household were significantly lower in the Pinelands than the $2,966 in 1980 and $3,802 in 1990 spent in the non-Pinelands portion of South Jersey.

No need for special studies is indicated by these data.

Figure 8.4a

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Total

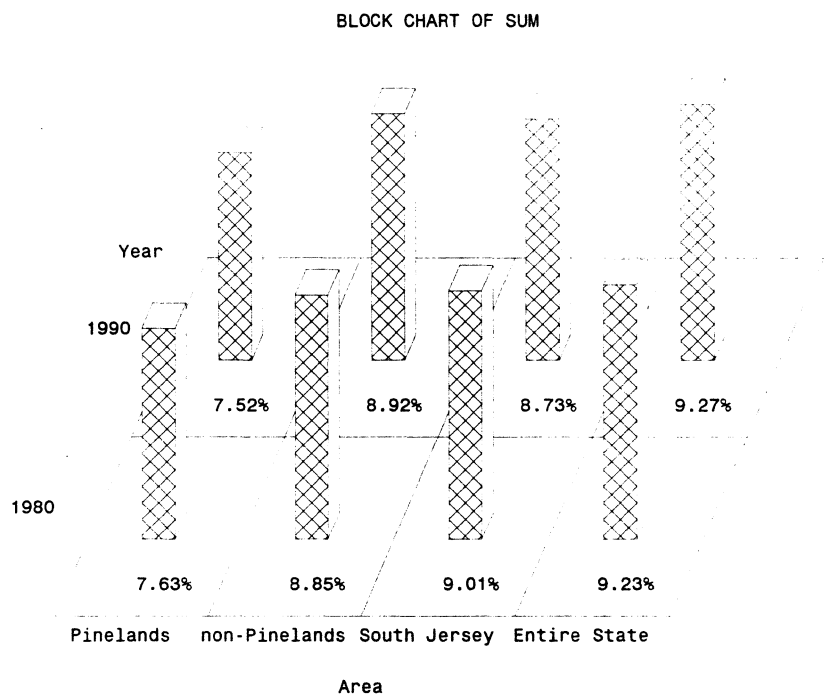


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 8.5a

Municipal Expenditures Relative to Median Household Income

GROUP=Total



Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

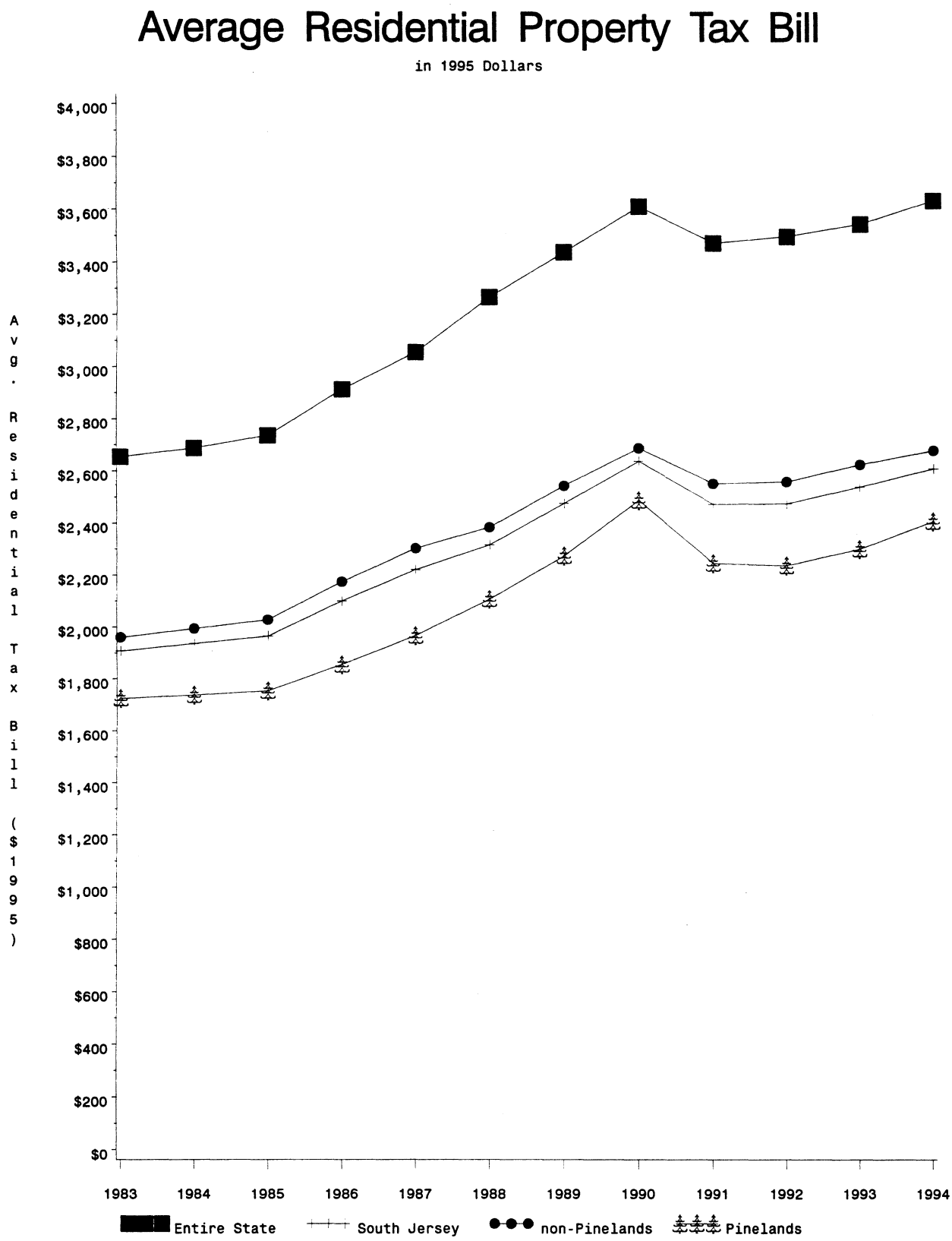
Median Household Income by Group and for South Jersey is Estimated

8.6 Average Residential Property Tax Bill[31]

Average Residential Property Tax Bills in New Jersey demonstrated a gradual but steady pattern of increase through the 1980s to a peak in 1990, a sharp decline in 1991 followed by a slow continuation of increase. By 1994, tax bills had not recovered to their 1990 highs. This trend holds true in Pinelands and non-Pinelands portions of South Jersey and the annual rate of change over the 11-year period is virtually the same for all of the geographic areas analyzed. Consequently, no special studies appear necessary at this time.

[31] Source: New Jersey Department of Treasury, Office of Tax Analysis, Local Property Branch.

Figure 8.6a



Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

8.7 State Equalized Valuation (Total Value of Taxable Property)[32]

Equalized valuation in New Jersey rose from 1980-1992, with most of the growth concentrated in the mid- to late-1980's. As shown in Figure 8.7a, average (state equalized) municipal valuation inside of the Pinelands tracked closely with the valuation in municipalities outside of the Pinelands. While valuations inside of the Pinelands have historically been lower than those outside, this differential is shrinking; in 1985, the average valuation in a Pinelands municipality was 85% of the non-Pinelands average; by 1990, it was 95%. Similarly, valuations in southern New Jersey are historically lower than the northern part of the State and this trend continues, yet, unlike the Pinelands, the differential has not shrunk over the 12 year period. The peak years of 1989 and 1990 were followed by declines in all areas of the State, however, it is interesting to note that this decline was more moderate in South Jersey than in the rest of the State.

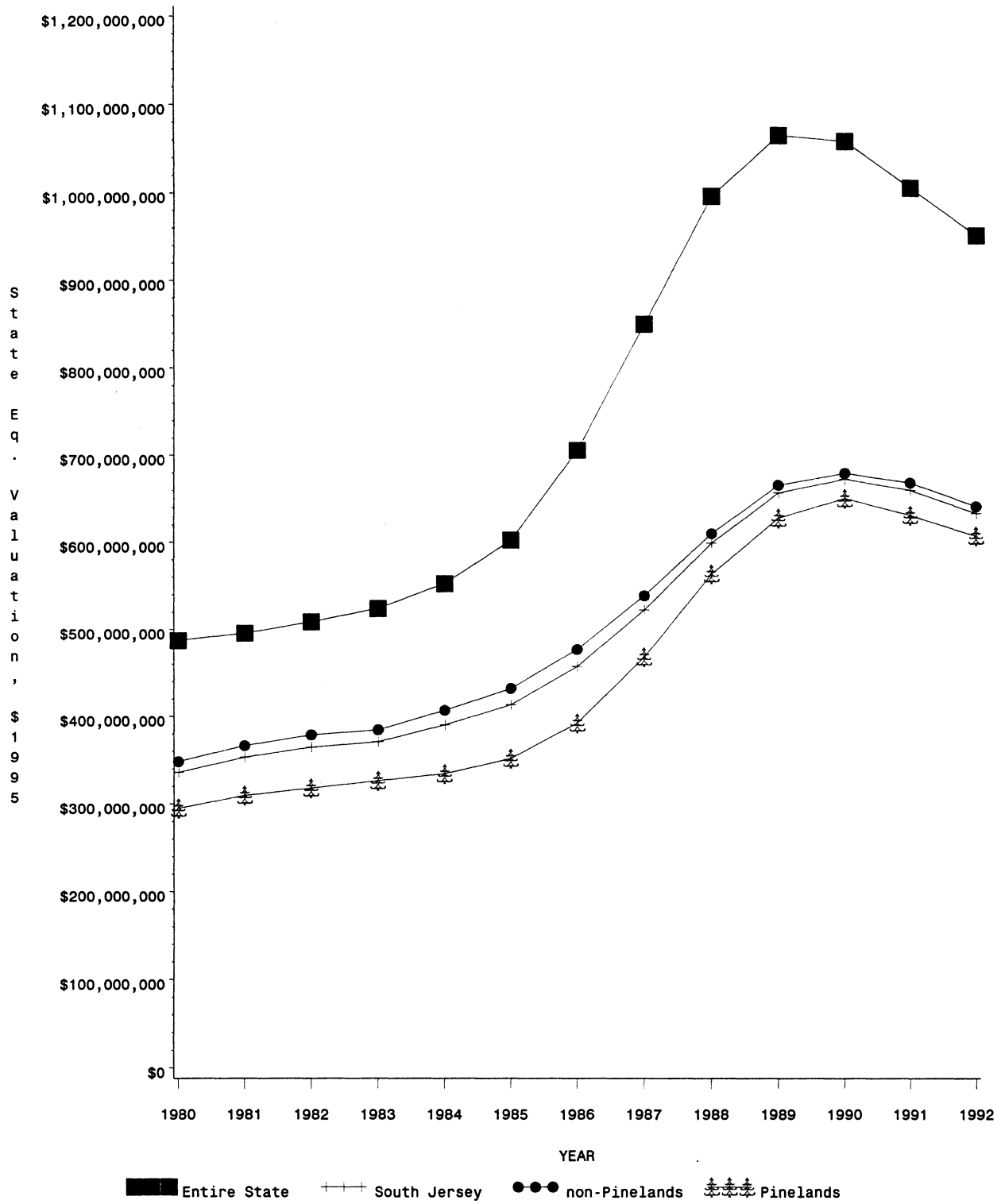
Because the data do not reveal any unexpected or unusual trends inside of the Pinelands and in the surrounding region, no special studies appear necessary at this time.

[32] Source: New Jersey Department of Community Affairs, Division of Local Government Services.

Figure 8.7a

State Equalized Valuation

in Real 1995 Dollars
Average Per Municipality



Source: NJ Department of Community Affairs, Division of Local Government Services

8.8 Effective Tax Rates[33]

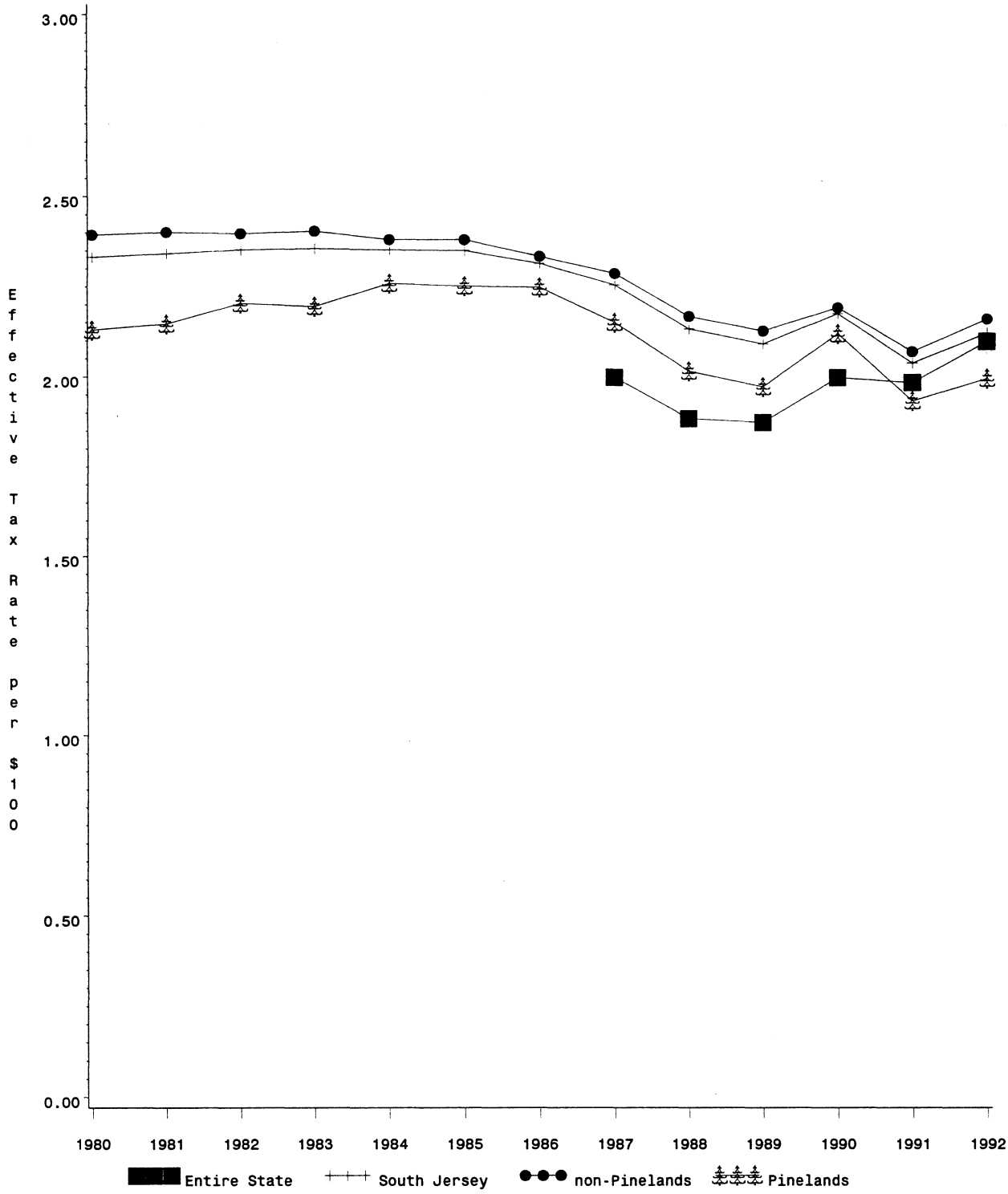
Beginning in 1980, effective tax rates in Pinelands and non-Pinelands communities were initially steady or slightly increasing before beginning a period of decline in the mid-1980's. The effective tax rate inside of the Pinelands remained below the rate outside of the Pinelands from 1980-1992, although the differential decreased somewhat from 1984 onward. Although data are only available from 1987, the statewide effective tax rate also remained below the rate outside of the Pinelands but surpassed the rate inside of the Pinelands in 1991. One potential area for future study would be to obtain statewide data from 1980-1987 to help determine whether this new pattern represents a departure from earlier trends.

[33] Source: New Jersey Department of Community Affairs, Division of Local Government Services.

Figure 8.8a

Effective Tax Rate

Per $100 State Equalized Valuation, Average per Municipality



Source: NJ Department of Community Affairs,
Division of Local Government Services
Note: State Level data prior to 1987 not available in electronic form

8.9 Population[34]

As shown in Table 8.9a., total population within the Pinelands increased from over 423,000 in 1980 to nearly 550,000 in 1990, while total population outside of the Pinelands (including Salem County) increased from roughly 1,431,000 to more than 1,534,000. In absolute terms, population increased outside the Pinelands much more than inside; however, the rate of change was much higher in the Pinelands (30%) than outside (7%). Both areas surpassed the statewide increase in population of approximately 5% from 1980 to 1990.

More recent data indicate that the overall disparity in growth continues, although not to the same extent as during the previous decade. Statewide population increased 2.2% from 1990-1994. Population inside of the Pinelands increased by 3.9% over the same 4-year period, almost twice the 2.1 % growth experienced in the surrounding portion of the 8-county area. Population totals and percent changes by county are presented in Appendix C. Atlantic County had the greatest differential between inside and outside growth rates from 1980-1990, with the rate inside the Pinelands approximately ten times higher than the rate outside. This finding is most likely related to the start of casino gambling in Atlantic City and associated population growth in nearby communities such as Egg Harbor, Galloway, and Hamilton Townships inside of the Pinelands (Atlantic City and some of the more densely developed nearby communities such as Ventnor, Northfield, and Margate Cities, experienced a decline in population during the same time period). Another factor contributing to high rates of growth in all of the coastal counties may be second home development, and, in Ocean County, retirement communities.

One potential area for future study is a more detailed analysis of the relationship between population and spatial characteristics (e.g., the extent of approvals and building permits as related to land designated for growth in the Pinelands). Another area for examination is population trends (and land and building values in the Delphi method) in municipalities split along the Pinelands border.

Table 8.9a Population

AREA	1980	1990	1994	CHANGE 1980-1990	CHANGE 1990-1994
New Jersey	7365011	7730188	7902523	5.0%	2.2%
South Jersey	1854074	2083938	2137032	12.4%	2.5%
non-Pinelands	1430609	1534417	1566002	7.3%	2.1%
Pinelands	423465	549521	571030	29.8%	3.9%

[34] Source: U.S. Bureau of the Census, Population Division.

8.10 Demographics[35]

Examination of demographic data indicate that the population throughout southern New Jersey is aging. As shown in Figure 8.10a., the proportion of the population under 18 dropped 3.3 percentage points outside of the Pinelands between 1980 and 1990, and dropped 4.4 percentage points inside of the Pinelands over the same time frame. During the same decade, the proportion of the population over 65 increased 1.7 percentage points outside of the Pinelands, and rose 2.9 percentage points inside of the Pinelands. Statewide trends were similar to those experienced in southern New Jersey, with the proportion of the population less than 18 declining by 3.7 percentage points and the proportion of the population over 65 increasing by 1.7 percentage points.

Table 8.10a. Proportion of Age Classes, 1980 and 1990

Location	<18 Yrs., 1980	<18 Yrs., 1990	>65 Yrs., 1980	>65 Yrs., 1990
Inside Pinelands	29.1%	24.7%	13.5%	16.4%
Outside Pinelands	28.1%	24.8%	12.5%	14.2%
Statewide	27.0%	23.3%	11.7%	13.4%

While the aging of the population is not unexpected, it is slightly possible that the higher percentage of people over 65 represents the beginning of a Pinelands trend. This may be attributable to the growth of retirement communities.

As Table 8.10b indicates, the Pinelands region contained more towns with relatively high and low median ages. than non-Pinelands towns in 1980. In 1990, the Pinelands region still contained more younger and older towns than the non-Pinelands

Figures 8.10c and 8.10d, which map the 20 municipalities in the 8-county area with the lowest and highest median ages in 1980 and 1990, reveal a geographic pattern to the distribution of different-aged populations in southern New Jersey. In general, both extremes (youngest and oldest) are found at the edges of the region, predominantly outside of the Pinelands. The concentration of older populations along the eastern and southern borders reflects the popularity of resort and beach communities among retirees. The concentration of younger populations in the north is most likely due to military personnel at Fort Dix/Maguire Air Force Base/Lakehurst Naval Air Station, a large military complex that occupies or is adjacent to Pemberton, New Hanover, and North Hanover Townships, and Wrightstown Borough. In the western part of the region, younger populations are most likely related to the presence of a large state college in Glassboro and a high degree of urbanization in Camden.

Given that the overall demographic trend is consistent with statewide and national trends, and that local findings are consistent with community characteristics, no special studies are recommended

[35] Source: U.S. Bureau of the Census, Census of Housing and Population

at this time. If, following the release of the next census results, the Pinelands population is found to be aging at a higher rate than the surrounding region, a special study may be warranted to identify causes for the disparity.

Table 8.10b Median Age, 1980 and 1990

Median Age in 1980

	18 to 22	23 to 29	30 to 34	35 to 39	40 to 49	50 to 59	60 to 64	65 to 69	Total
				non-Pinelands					
Number of Municipalities	0	32	78	20	17	7	0	0	154
Percent of Non-Pinelands Municipalities	0	20.78	50.65	12.99	11.04	4.55	0	0	100.00
				Pinelands					
Number of Municipalities	1	26	13	3	2	1	0	1	47
Percent of Pinelands Municipalities	2.13	55.32	27.66	6.38	4.26	2.13	0	2.13	100.00
Total	1	58	91	23	19	8	0	1	201[36]

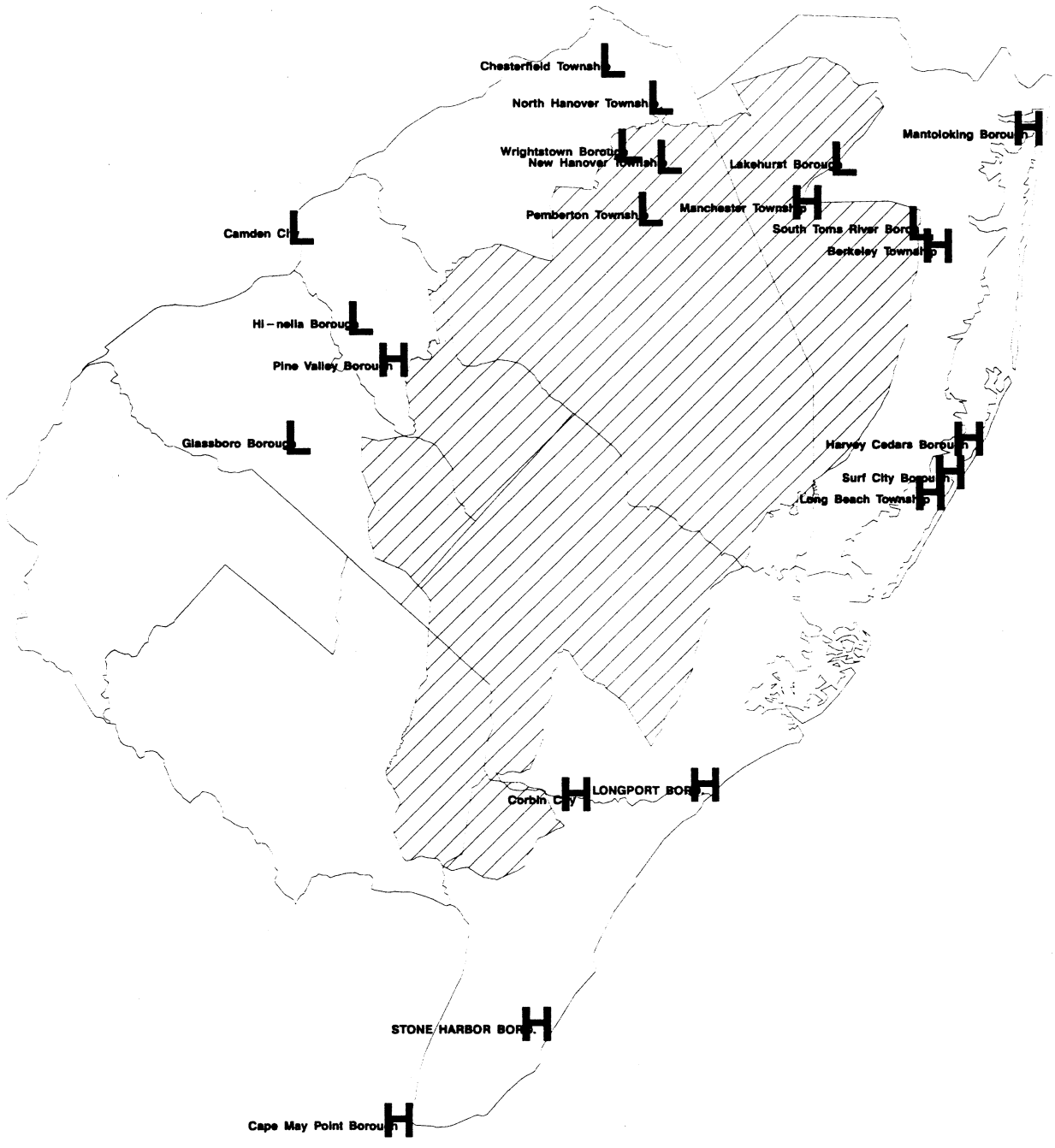
Median Age in 1990

	18 to 22	23 to 29	30 to 34	35 to 39	40 to 49	50 to 59	60 to 64	65 to 69	Total
				non-Pinelands					
Number of Municipalities	0	10	69	51	15	7	3	0	155
Percent of Non-Pinelands Municipalities	0	6.45	44.52	32.9	9.68	4.52	1.94	0	100.00
				Pinelands					
Number of Municipalities	0	6	27	11	1	0	0	2	47
Percent of Pinelands Municipalities	0	12.77	57.45	23.4	2.13	0	0	4.26	100.00
Total	0	16	96	62	16	7	3	2	202

[36] 201 Municipalities in 1980 due to the lack of data for Tavistock Boro. (pop=9)

Figure 8.10c

Highest and Lowest Median Ages in 1980



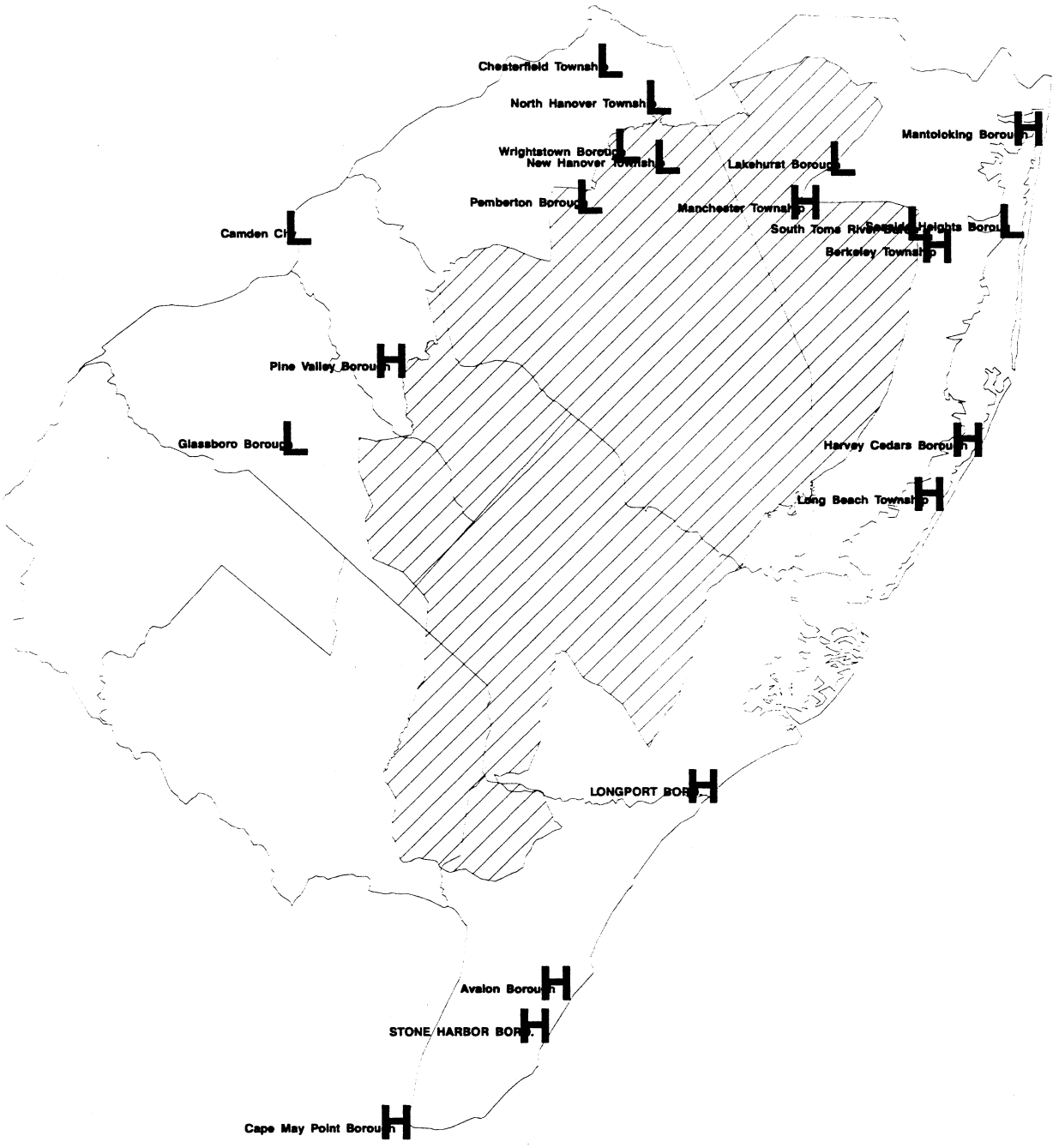
L Towns with the 10 Lowest Median Ages in 1980

H Towns with the 10 Highest Median Ages in 1980

11 Hs are shown for 1980 as the result of a tie for 10th highest median age
Source: U.S. Bureau of the Census

Figure 8.10d

Highest and Lowest Median Ages in 1990



L Towns with the 10 Lowest Median Ages in 1990

H Towns with the 10 Highest Median Ages in 1990

Source: U.S. Bureau of the Census

9. Select Data for Comparable Municipalities

The data presented in previous chapters highlighted gross differences between variables for areas inside and outside the Pinelands. However, they may mask smaller or more localized area trends. Therefore, a more refined evaluation, based upon an analysis of variables in somewhat similar municipalities inside and outside the Pinelands, is presented here as another means to judge whether significantly different economic trends may be occurring inside and outside of the Pinelands.

As has been discussed previously (see Section 5.1.*i* and Appendix C), this section will evaluate six groups of "comparable" inside and outside municipalities on the basis of six economic variables. As was also mentioned previously, two additional variables (mean selling prices of homes and volume of real estate transactions) planned for inclusion in this section are not included at this time because the small number of data points make it impossible to discern meaningful trends.

This presentation of data on comparable municipalities is the beginning of a multi-year effort to thoroughly examine the fiscal health of the Pinelands municipalities. The method of selection described in Appendix C will be further examined (e.g., by broadening or changing the criteria used to define comparability) as will the effect of changes in a municipality over time *vis a vis* the selection criteria. Finally, this presentation merely begins the analysis. In the future, we hope to analyze how the variables may inter-relate and whether inter-relationships shed light on any unusual trends seen in a single variable.

Readers may wish to refer to Table. 5.1a on pages 9-10 for the list of Pinelands and non-Pinelands municipalities which make up each comparable group.

9.1 Building Permits for Dwelling Units

Although year to year fluctuations do occur, four out of six comparables groups showed roughly similar building permit activity between their Pinelands and non-Pinelands subgroups over the time period. In the Lower Access, Lower Density, Lower Income (LLL) group, the Lower Access, Lower Density, Middle Income (LLM) group, the Middle Access, Higher Density, Middle Income (MHM) group, and the Higher Access, Middle Density, Higher Income (HMH) group, the average number of dwelling units authorized by building permits in the Pinelands towns per year tracked closely with the average number authorized in their non-Pinelands counterparts. However, in one (HMH), the Pinelands subgroup started higher but beginning in 1988 dropped to a level similar to its non-Pinelands counterparts. Another group, MHM followed roughly parallel tracks but annual fluctuations were more pronounced in the Pinelands subgroup, ranging from 0 to 114 dwelling units per year more than its non-Pinelands counterpart.

A more significant divergence in the number of permits authorized in the Pinelands towns from the number authorized in the non-Pinelands towns was observed in the Middle Access, Middle Density, Higher Income (MMH) group and the Higher Access, Middle Density, Middle Income (HMM) group.

While Pinelands municipalities in the MMH group generally experienced significantly higher levels of activity than their non-Pinelands counterparts, the most substantial levels of activity occurred in two Pinelands communities, Manchester and Hamilton; Manchester peaked in 1986 with 853 units authorized, and Hamilton in 1988 with 487. The high activity levels in these two communities was already in evidence in 1980, when the Pinelands Plan first came into effect, and continued throughout the decade. At the end of the decade, activity in these two communities fell to levels which were comparable to those of the other Pinelands communities in this group. This drop coincided with the nationwide recession which brought with it a decline of building permits for all of South Jersey and for the state as a whole. However, the drop for these two communities was more pronounced than that of the region or state.

The HMM group showed a similar pattern of activity to that of the MMH group. Activity was generally higher among the Pinelands communities, with two communities showing especially significant activity throughout the 1980s. Galloway Township and Winslow Township had a substantially higher level of activity than the other communities in this group. In 1991, activity in both communities fell to their 1980 levels, but even these were substantially higher than those of the other towns in the group. Galloway peaked at 955 units in 1987, and its lowest level was in 1991, when 164 units were authorized. Winslow peaked in 1988, with 681 units authorized; Winslow's lowest annual total came in 1980, when only 127 units were authorized.

An interesting highlight of this data is the peak that occurs in 1994 in the Pinelands MMH, MHM, and to a lesser extent, the HMM groups. This is consistent with the trends reported in Section 6.1 as is the overall result that the Pinelands exceeded non-Pinelands municipalities in building permit activity. The fact that not all Pinelands subgroups showed this enhanced activity in relation to their non-Pinelands counterparts may be worthy of further exploration.

No need for special studies is apparent at this time.

9.2 Tax Collection Rates

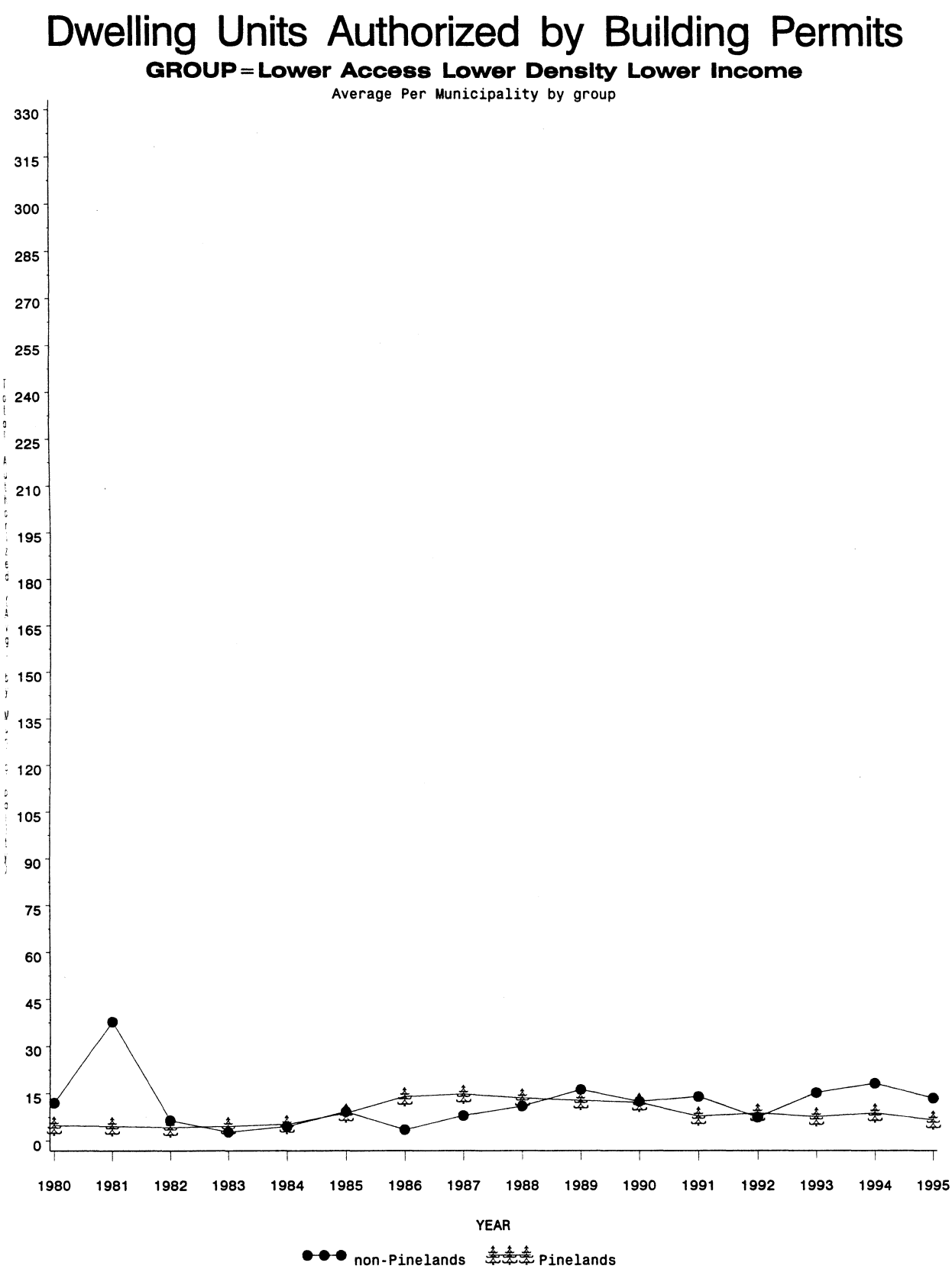
Unlike the general trend in tax collection rates reported in Section 8.1, average tax collection rates for Pinelands subgroups in 1980 were the same or higher than their non-Pinelands counterparts in all but the Higher Access, Middle Density, Middle Income (HMM) and Middle Access, Higher Density, Middle Income (MHM) groups. At the end of the 12 year period, tax collection rates had stayed at the same or improved in all but three subgroups (the Pinelands HMH subgroup, non-Pinelands MHM subgroup and non-Pinelands HMM subgroup) but the decreases were 0.7 percentage points or less..

Average tax collection rates significantly diverged in only two groups, the Lower Access, Lower Density, Lower Income (LLL) group, and the Middle Access, Middle Density, Higher Income (MMH) group. In both of these cases, the individual municipal distributions are fairly consistent, indicating that one or two anomalies are not causing the divergence. Tax collection rates in the LLL Pinelands subgroup were the same as their non-Pinelands counterparts in 1980 but began to consistently out pace them beginning in 1985. A more detailed examination of the data reveals that Eagleswood township was lagging the other Pinelands towns through the early 1980s, but that it caught up with the rest of the group in 1985. In 1989, 5.4 percentage points separated the two subgroups but this gap has been narrowing since then and stood at 2.1 points in 1992.

In the MMH group, the individual municipal distributions of tax collections inside and outside the Pinelands are fairly consistent, again, indicating that the Pinelands towns were more successful in their tax collections than were their non-Pinelands counterparts. The gap is less in 1992 than in most prior years; however, the rather significant year by year fluctuations in the Pinelands subgroup make it difficult to judge whether a trend is developing.

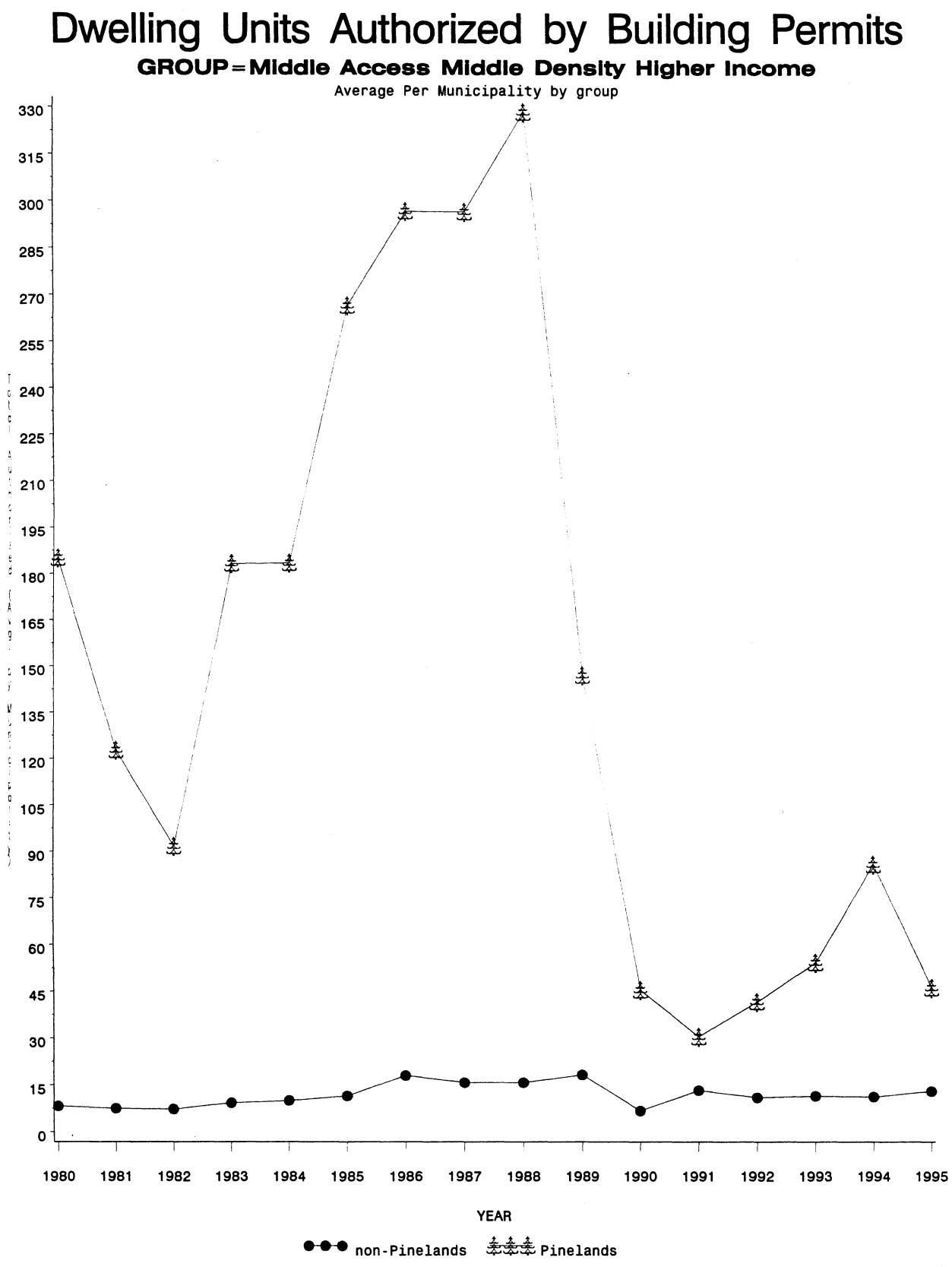
At this point in time, no special studies appear to be warranted.

Figure 9.1a



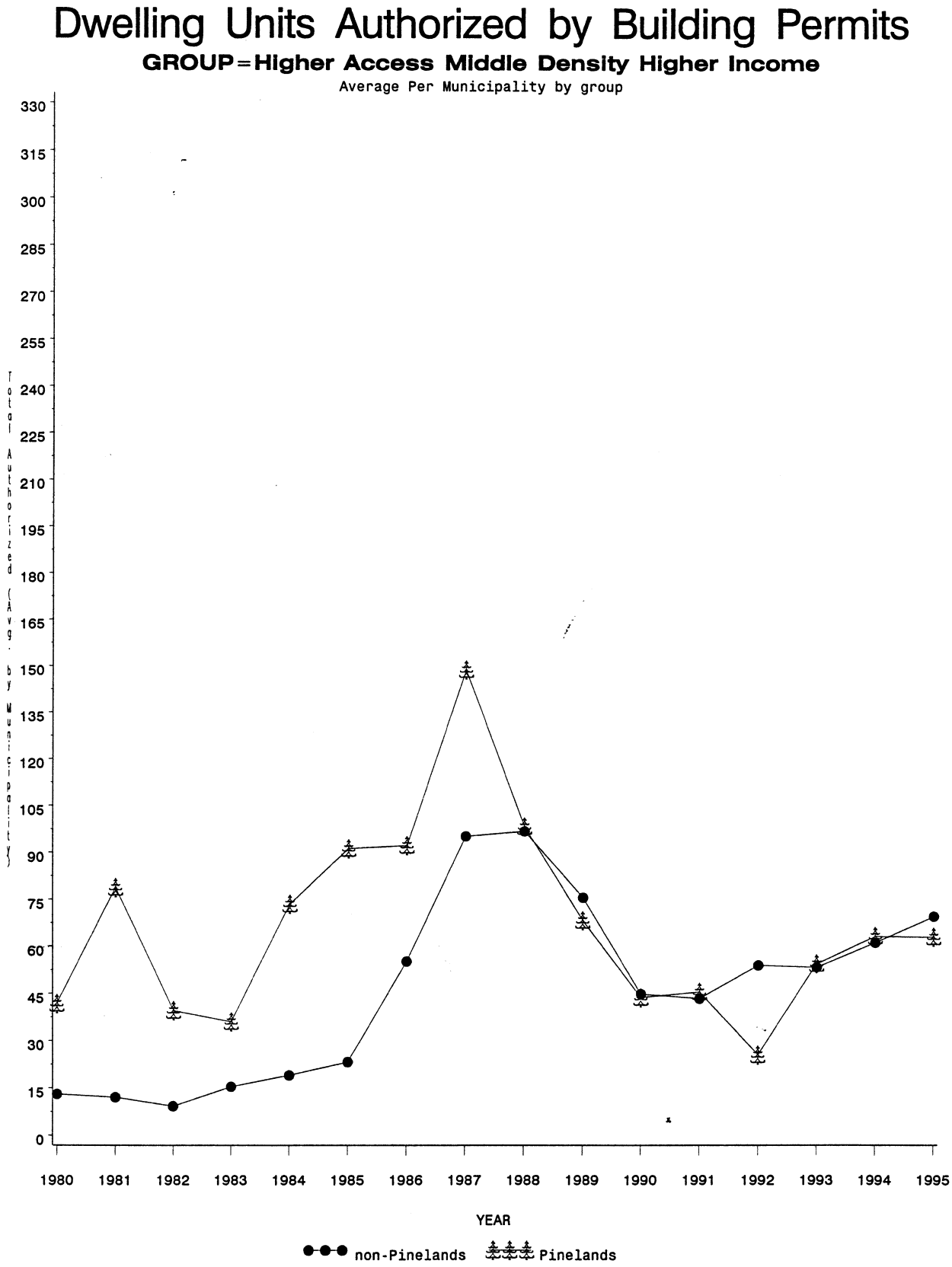
Source: N.J. Department of Community Affairs

Figure 9.1b



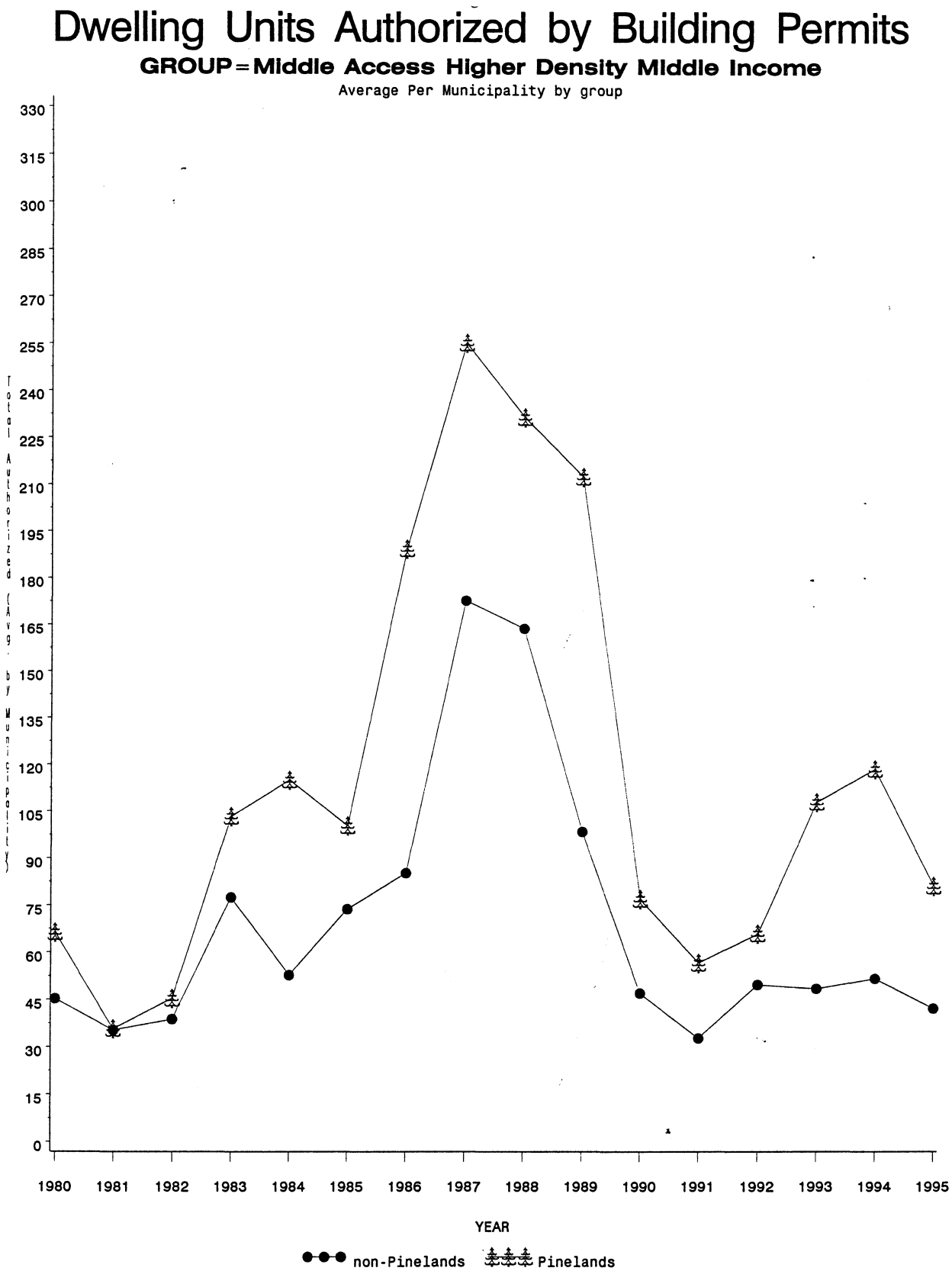
Source: N.J. Department of Community Affairs

Figure 9.1c



Source: N.J. Department of Community Affairs

Figure 9.1d



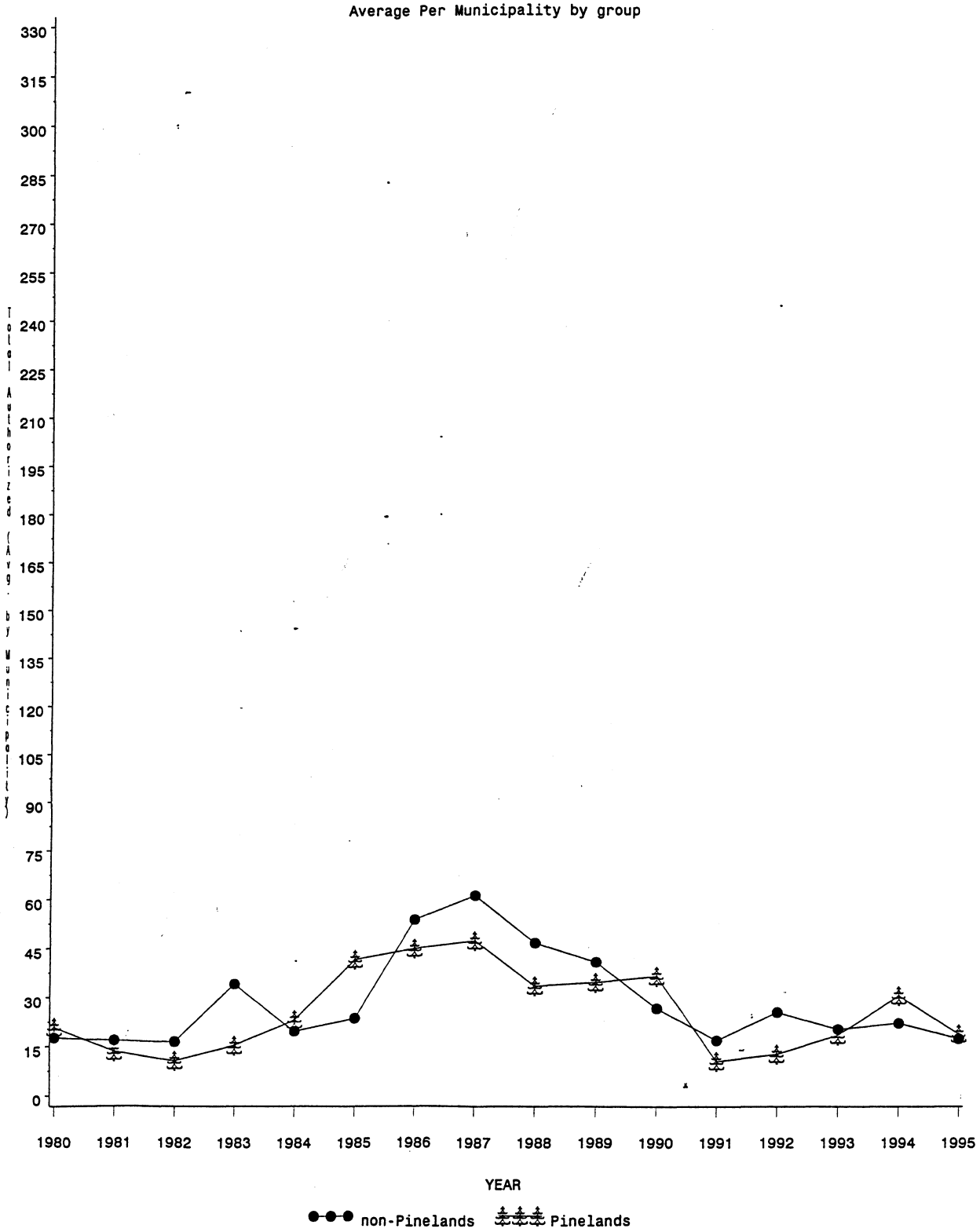
Source: N.J. Department of Community Affairs

Figure 9.1e

Dwelling Units Authorized by Building Permits

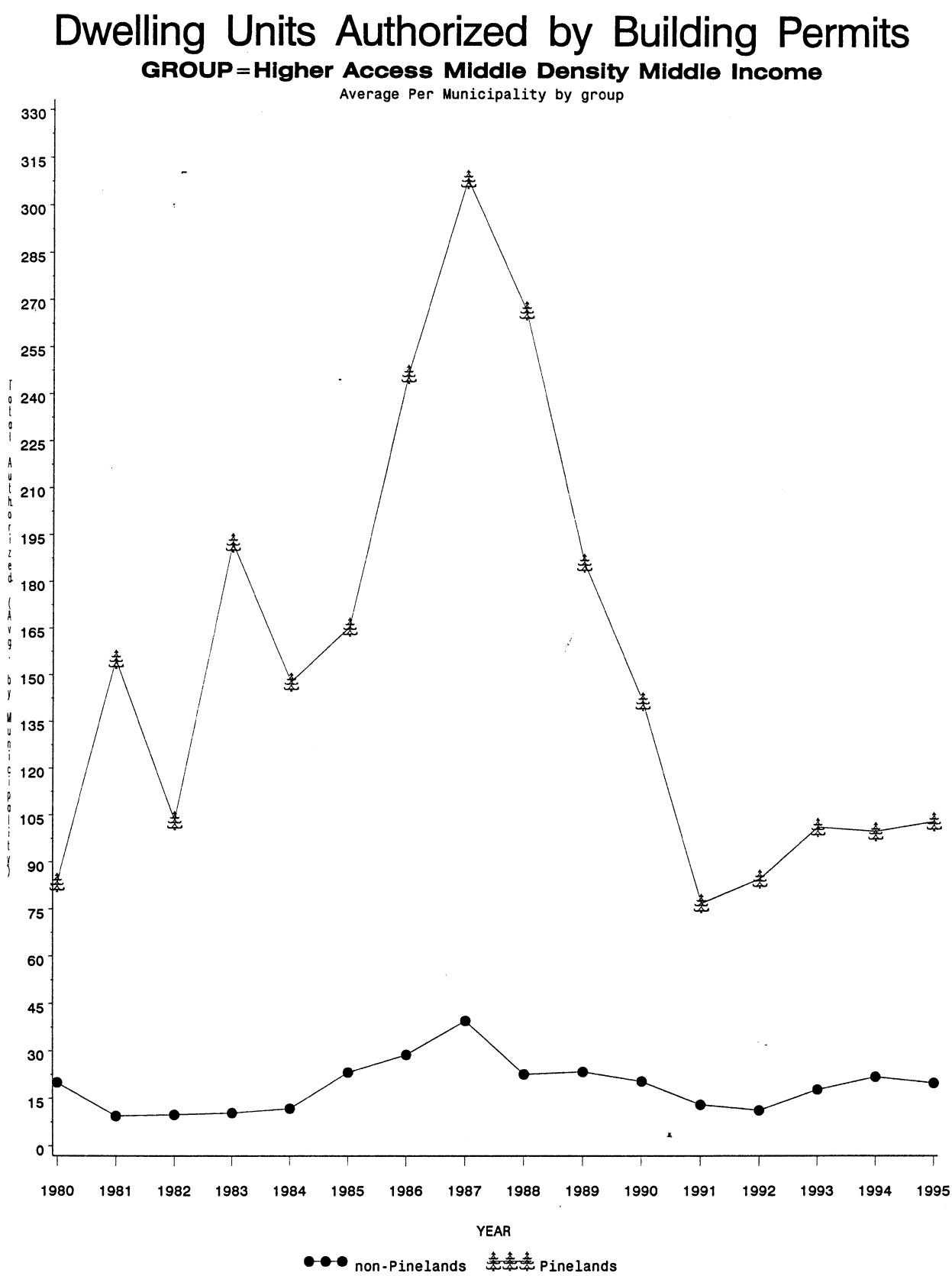
GROUP=Lower Access Lower Density Middle Income

Average Per Municipality by group



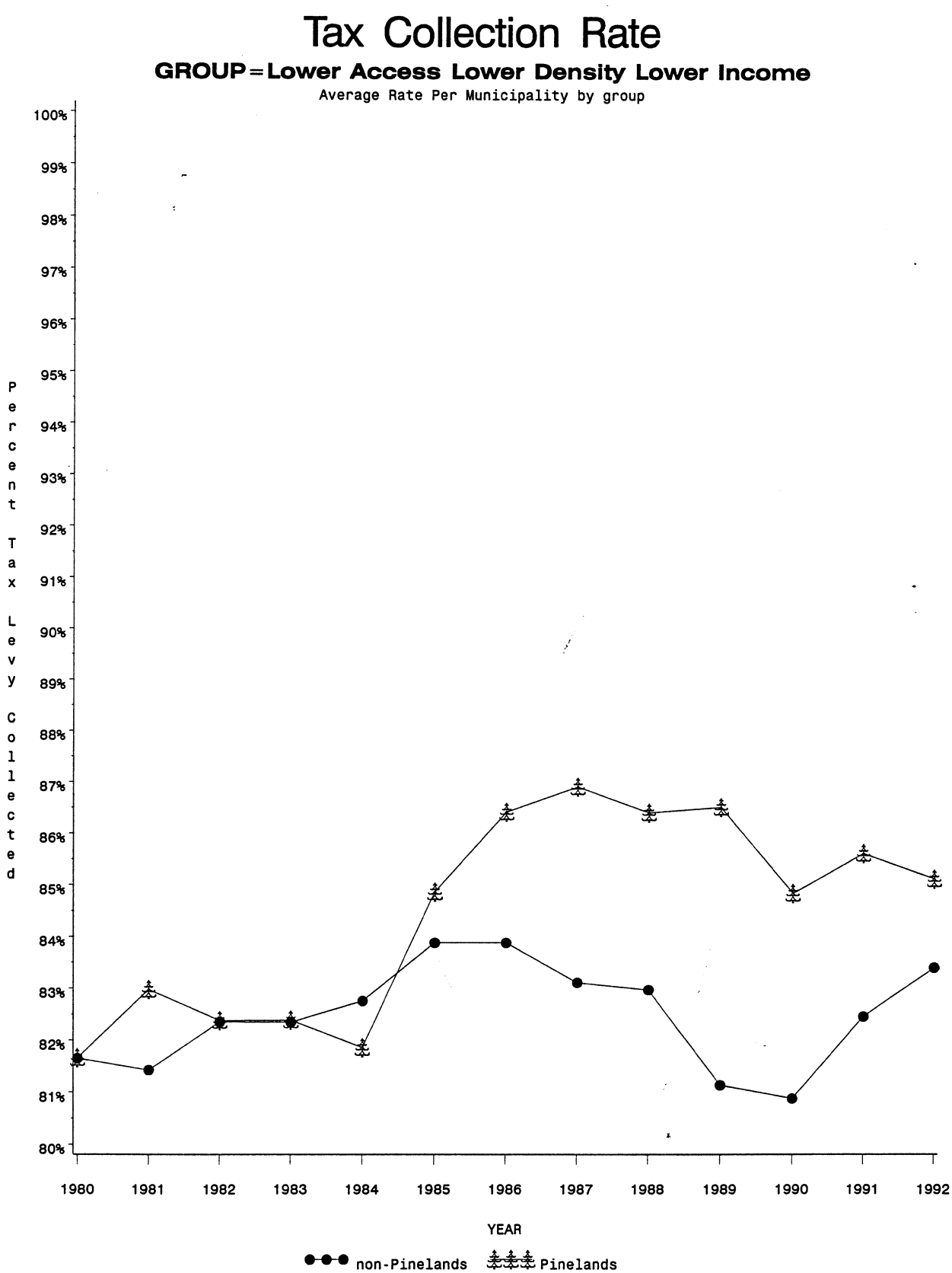
Source: N.J. Department of Community Affairs

Figure 9.1f



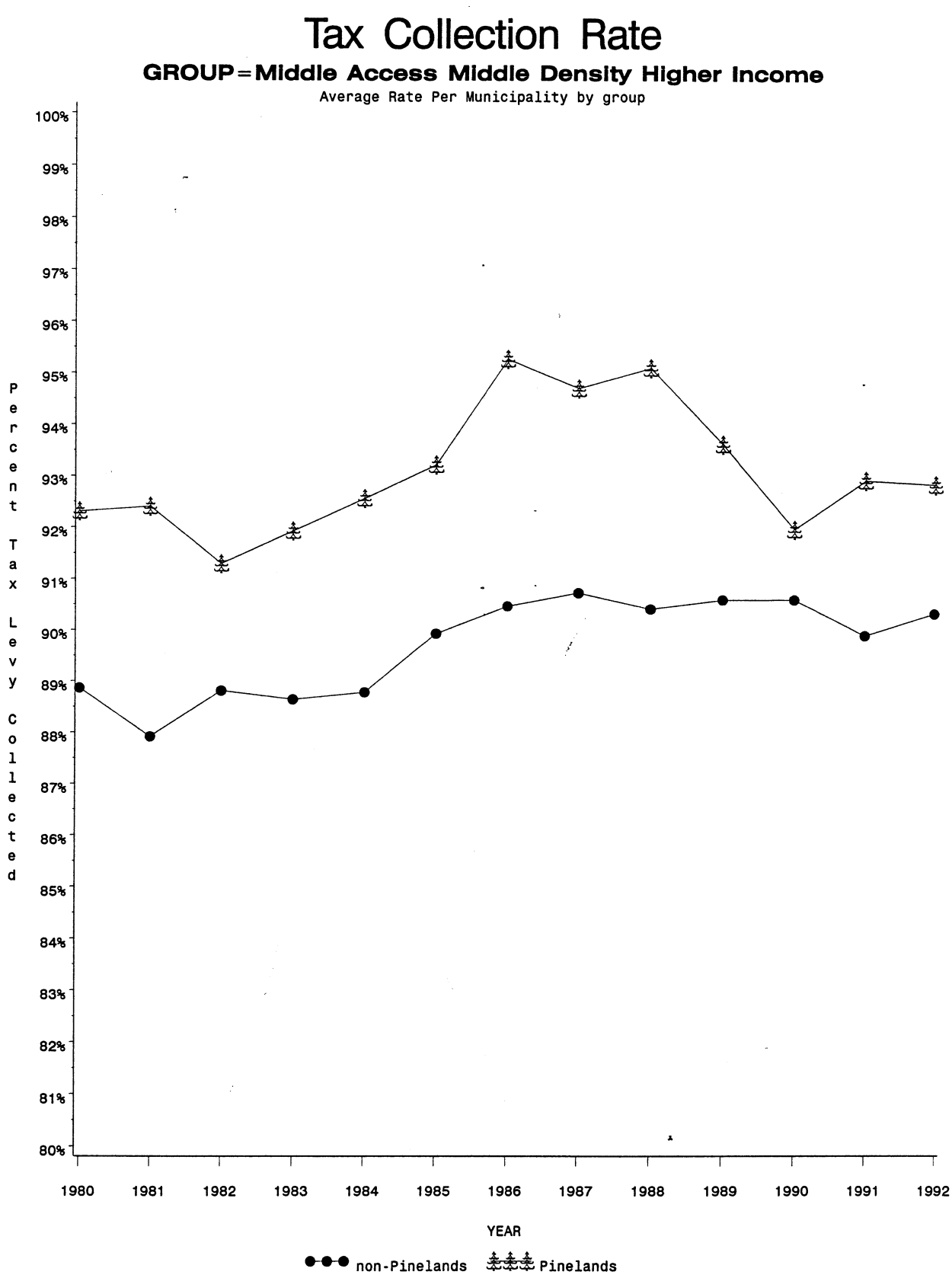
Source: N.J. Department of Community Affairs

Figure 9.2a



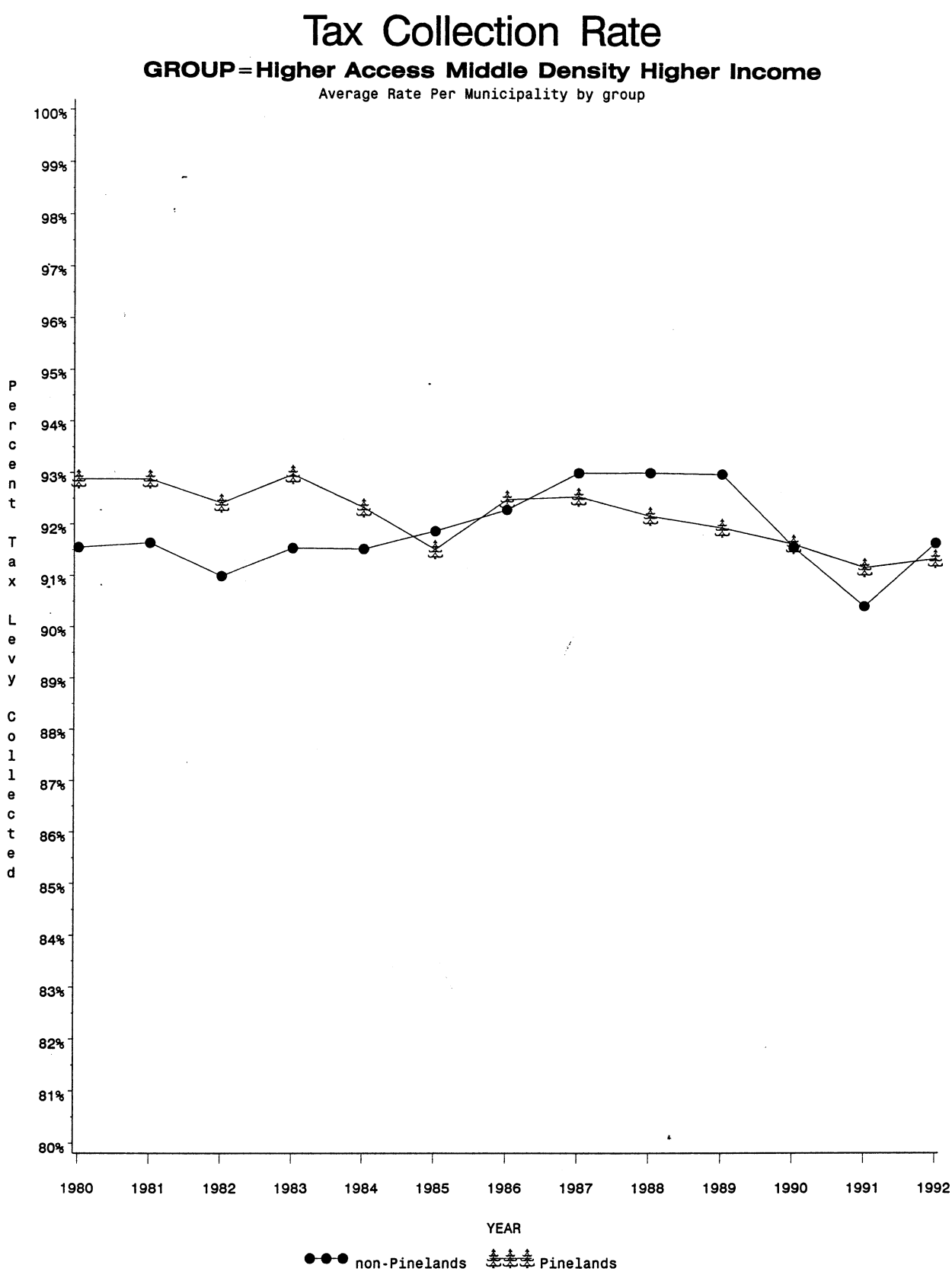
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.2b



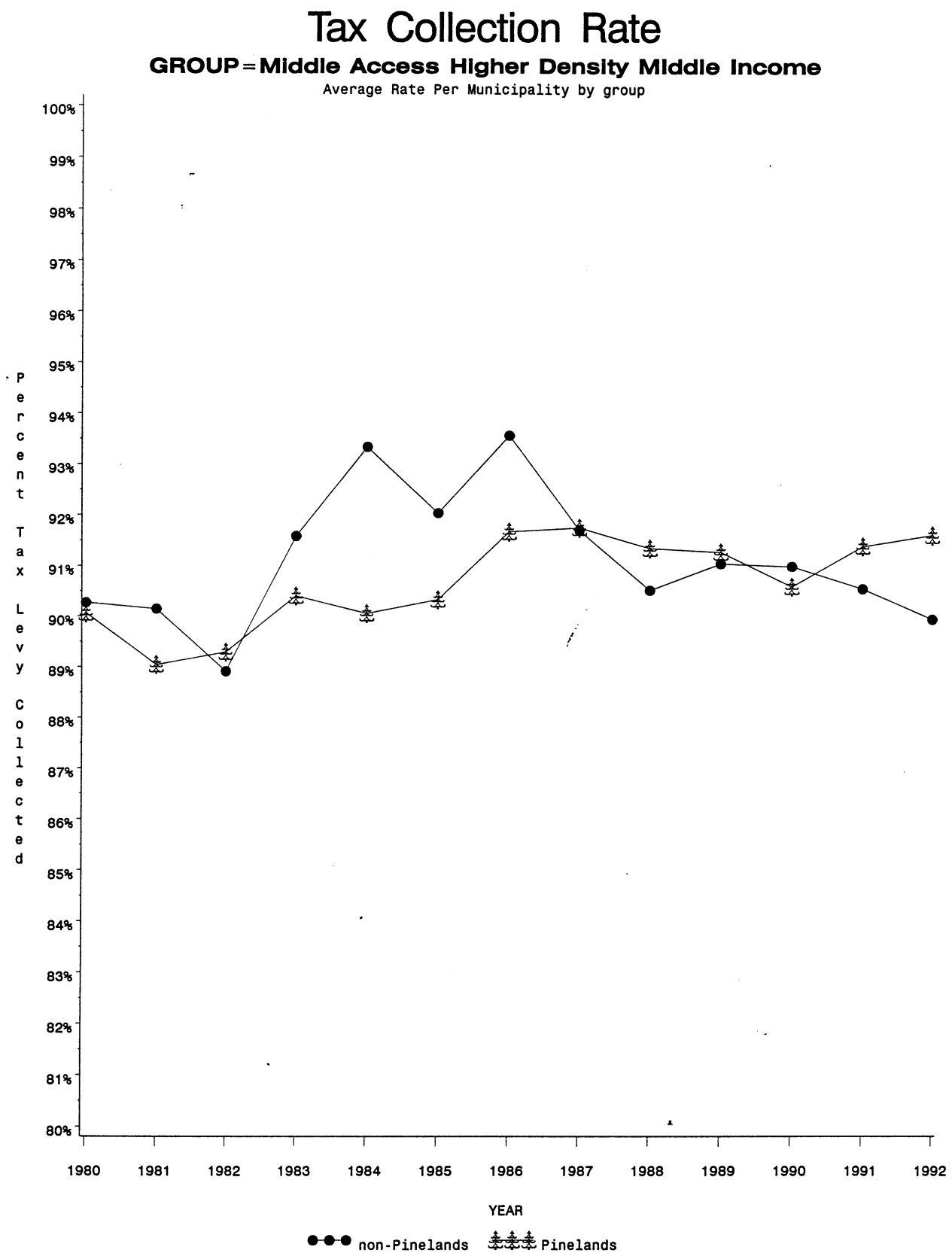
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.2c



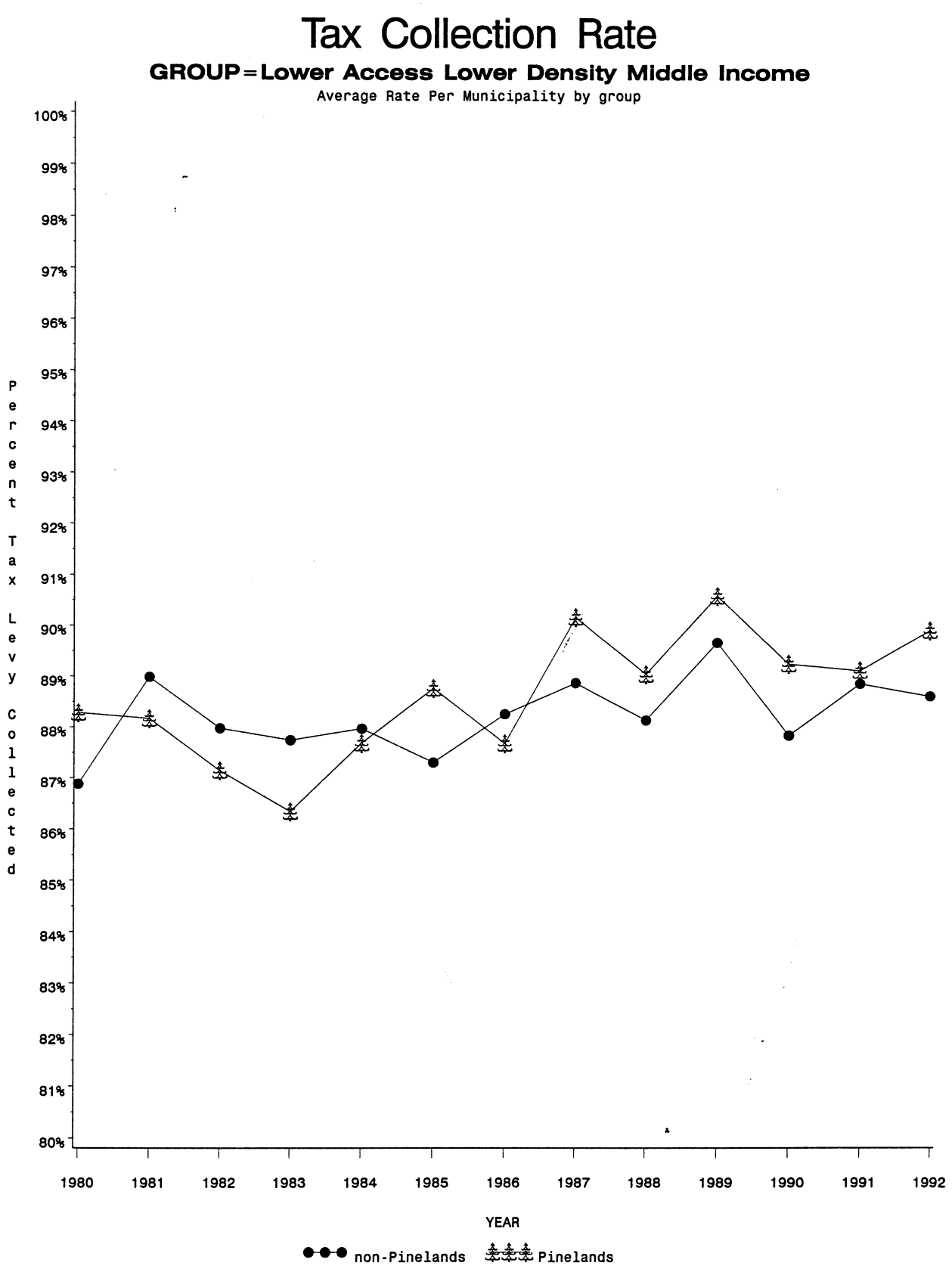
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.2d



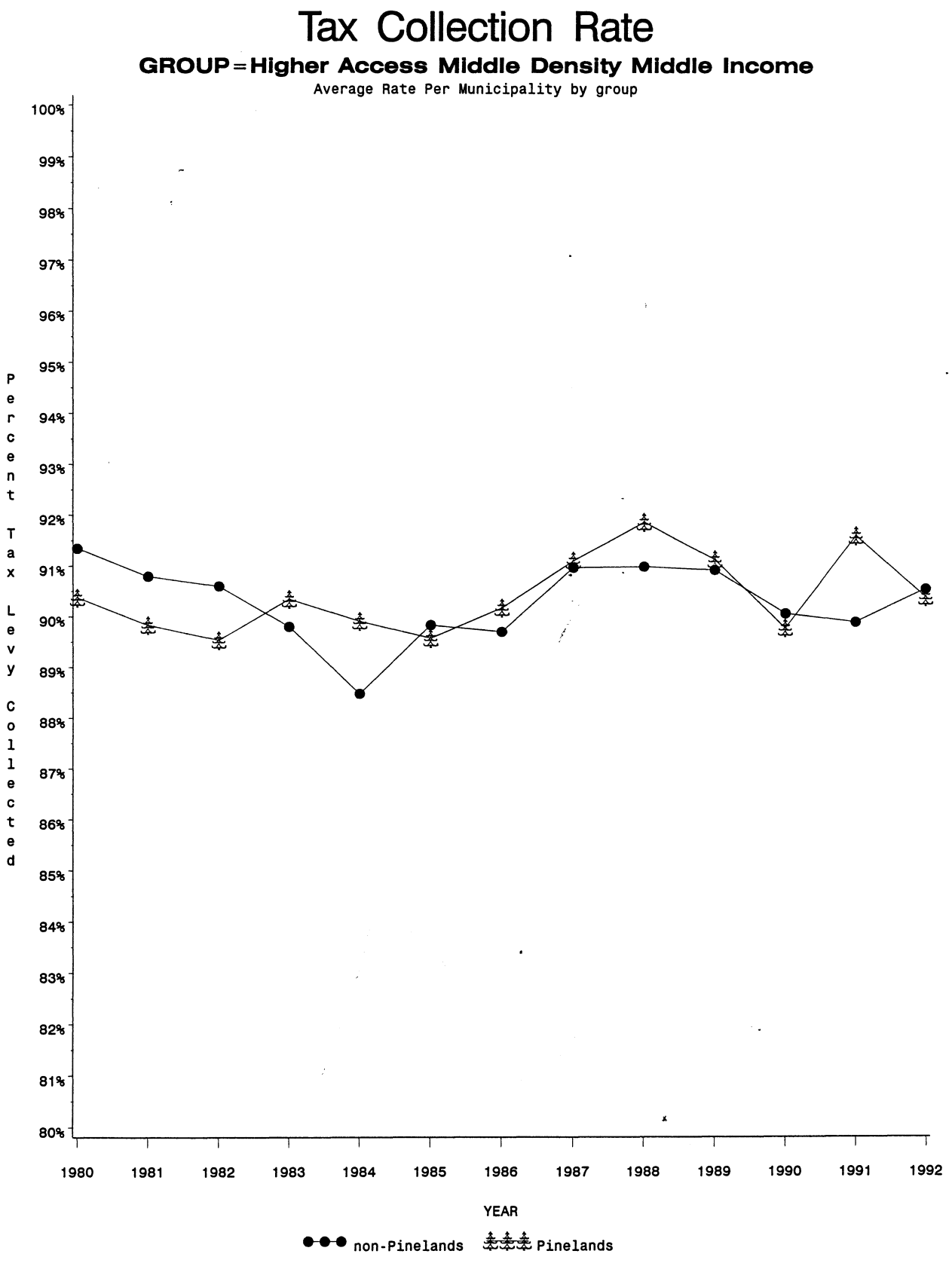
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.2e



Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.2f



Source: NJ Department of Community Affairs, Division of Local Government Services

9.3 Assessment Class Proportions in Municipal Tax Revenues

The average share of municipalities' total valuations represented by vacant land diminished substantially in the Pinelands portion of each group while remaining stable or declining moderately for the non-Pinelands portions of the same groups (see Figures 9.3a to 9.3l.)[37] . In each group, the Pinelands subgroup had a higher share of vacant land in 1980, this share declined more (relative to total municipal valuations) than in the non-Pinelands counterparts, but was still higher in the Pinelands subgroup than in the non-Pinelands in 1992. This phenomenon is most pronounced in the lower access groups, and less so in the more accessible and more densely populated groups. In the Lower Access, Lower Density, Lower Income (LLL) group, the Pinelands subgroup had 32% of its valuation in vacant land in 1980 and 16% in 1992, while the non-Pinelands subgroup fell from 18% to 12% over the same period. In other groups, the non-Pinelands portion was stable, showing little or no decline, while the smallest decline among the Pinelands subgroups was in the Higher Access, Middle Density, Higher Income group, where the vacant share fell from 8% to 5% between 1980 and 1992.

Residential properties' share of municipal assessments increased over the period, and this fact is evident in all groups. In all but one case, the increase is larger in the Pinelands subgroups than in their non-Pinelands counterparts. The largest increases are seen in the Lower Access, Lower Density, Lower Income (LLL) group, which went from 48% residential to 64% from 1980 to 1992, the Middle Access, Middle Density, Higher Income (MMH) Pinelands subgroup, which went from 63% residential to 78%, and the Lower Access, Lower Density, Middle Income (LLM) Pinelands subgroup, which went from 56% to 69%. Two subgroups were relatively stable in that their share of residential assessments only increased by two percentage points over the period, the Pinelands subgroup of the Higher Access, Middle Density, Higher Income (HMH) group, which ended the period at 69%, and the non-Pinelands subgroup of the Middle Access, Middle Density, Higher Income (MMH) group, ending the period at 59%. Interestingly, this last group showed the greatest divergence in residential valuation growth (up 15 percentage points for the Pinelands versus 2 percentage points for the non-Pinelands) and in the residential proportion of total assessments (78% for the Pinelands in 1992 to 59% for the non-Pinelands). Only the Pinelands portion of the Middle Access, Higher Density, Middle Income group showed a greater reliance on residential properties, with 82% of its valuation in residential in 1992.

The sum of commercial and industrial valuation percentages remained relatively stable or increased slightly during the period for all but two of the 12 subgroups. Interestingly, slight declines occurred in both the Pinelands and non-Pinelands subgroups of Higher Access, Middle Density, Middle Income (HMM) group. The highest share of commercial valuation (18%) at the end of the period occurs in the Pinelands Higher Access, Middle Density, Higher Income (HMH) subgroup while the lowest share (6%) occurs in the Lower Access, Lower Density, Lower Income non-Pinelands subgroup. During the period, eight of the 12 subgroups experienced increasing shares for commercial valuations; of the four where the share declined 3 were non-Pinelands subgroups. On

[37]Note: municipal valuations were used rather than tax revenues to avoid any skewing due to uneven tax collection of any individual class

the other hand, the highest industrial share (12%) of total assessments in 1992 occurs in the non-Pinelands Lower Access, Lower Density, Middle Income (LLM) subgroup. The two lowest subgroups, both of which had shares less than 1%, were in the Pinelands - the Lower Access, Lower Density, Middle Income (LLM) and Middle Access, Higher Density, Middle Income (MHM) Pinelands subgroups. Five subgroups experienced a declining share of industrial valuation during the period, four of which were Pinelands subgroups.

The role of farms in municipal assessments tended to be fairly small, to decrease slightly, and was higher in each non-Pinelands subgroup than in the matching Pinelands subgroup. All Pinelands subgroups relied on farm properties for less than 10% of their assessed valuation, while the non-Pinelands portion of the Middle Access, Middle Density, Higher Income group showed the most reliance on farms, with 25% of its valuation in farm parcels in 1980, falling to 21% in 1992.

Apartment parcels represented either a negligible or non-existent share in all of the groups with the exception of the Middle Access, Higher Density, Middle Income (MHM) and Higher Access, Middle Density, Higher Income (HMH) groups. In the MHM group, the share of apartments in total valuation decreased slightly over the period from 3% to 2% in the non-Pinelands portion while fluctuating between 1 and 2% in the Pinelands. In the HMH group, a slight decrease was evident, from 5-3% in the non-Pinelands subgroup and from 3% to 2% in the Pinelands portion.

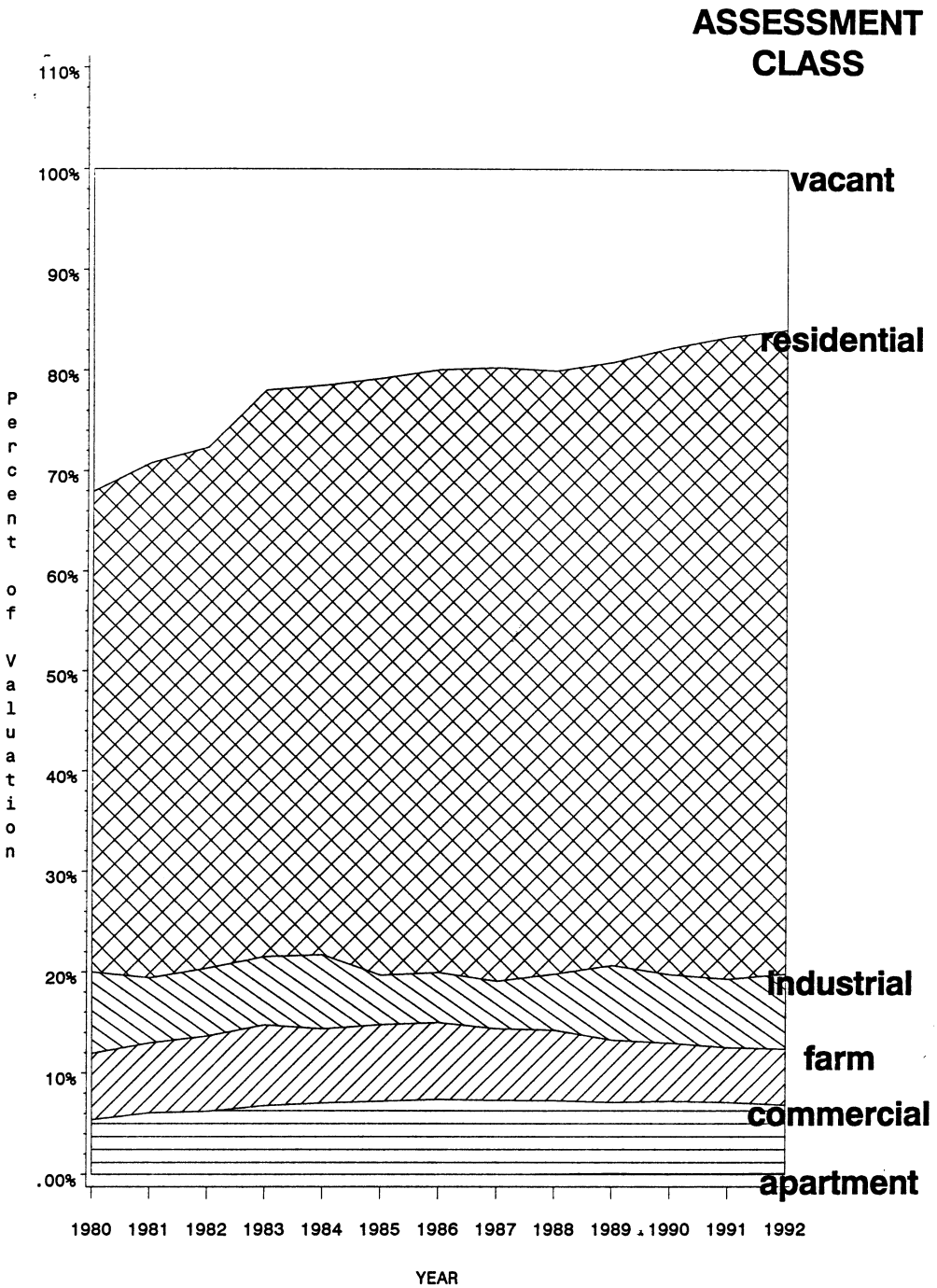
Two primary questions might arise from this analysis. First, it would be helpful to determine whether the declining role of vacant land valuations in Pinelands subgroups, and the simultaneous increase in residential valuations, is due to a conversion of vacant land to residential or to a relative decline in prices of vacant land in Pinelands areas compared to the prices of developed land, such as residential parcels. Second, further analysis of assessment types could be conducted to determine if a relationship exists between the composition of ratable bases and the fiscal stability of a community. Although it is commonly accepted that a higher proportion of residential valuation results in higher tax rates, closer examination within and outside the Pinelands might disclose more precise relationships which could be used to establish policy goals for developing areas.

Figure 9.3a

Assessment Class Weights in Municipal Valuations

GROUP = Lower Access Lower Density Lower Income

Average Weight per Municipality
Pinelands Communities



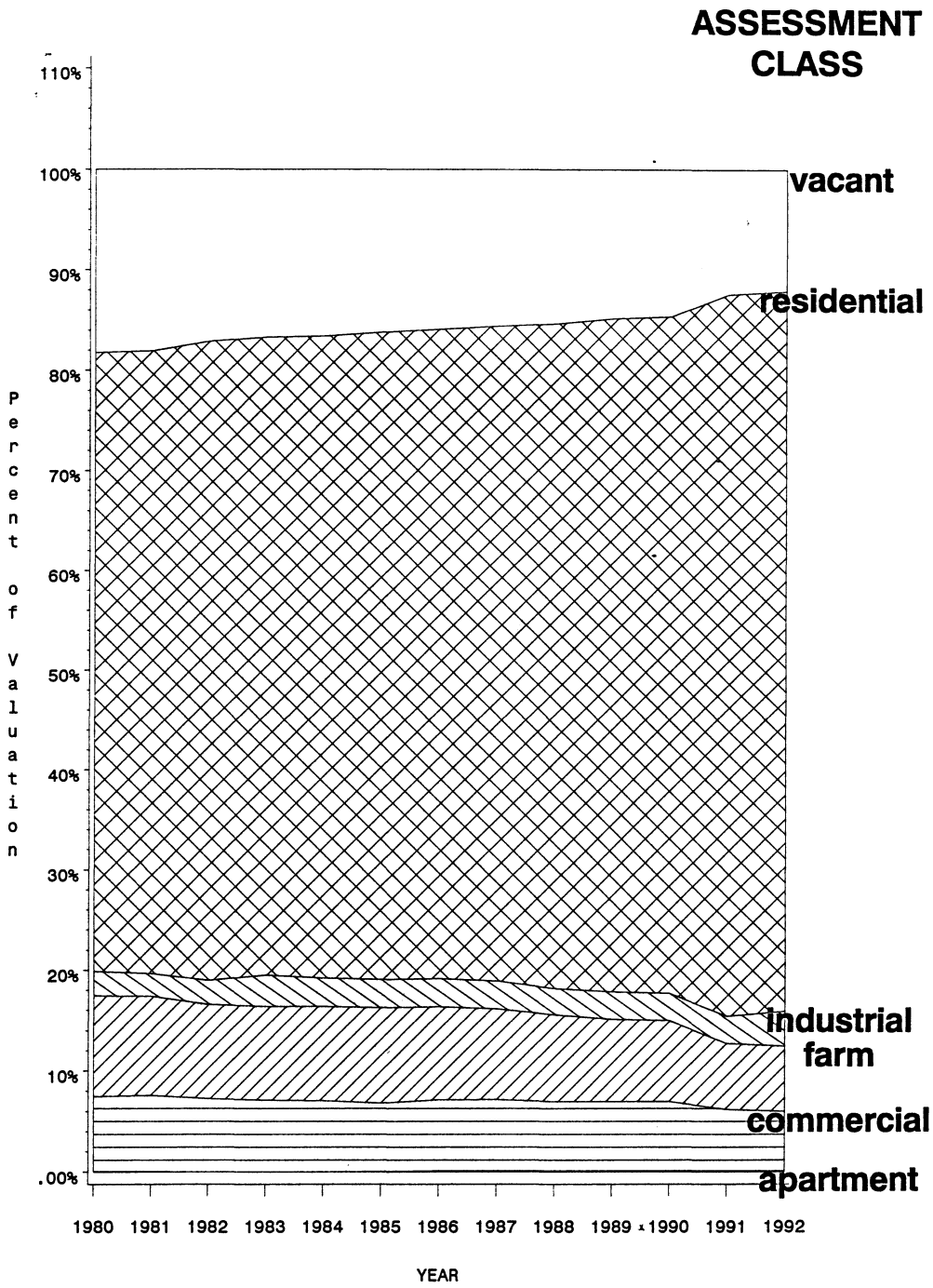
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3b

Assessment Class Weights in Municipal Valuations

GROUP = Lower Access Lower Density Lower Income

Average Weight per Municipality
non-Pinelands Communities



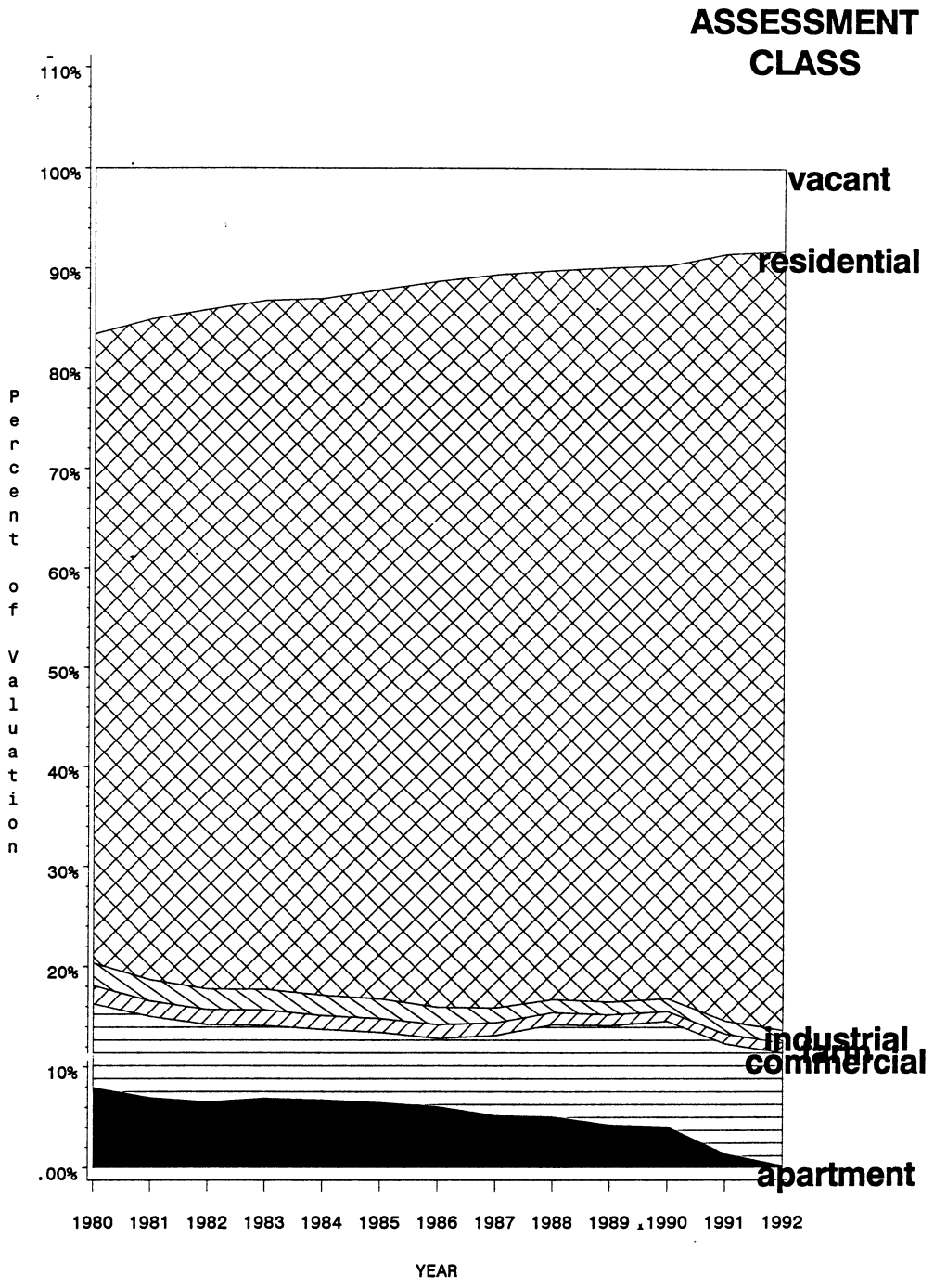
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3c

Assessment Class Weights in Municipal Valuations

GROUP = Middle Access Middle Density Higher Income

Average Weight per Municipality
Pinelands Communities



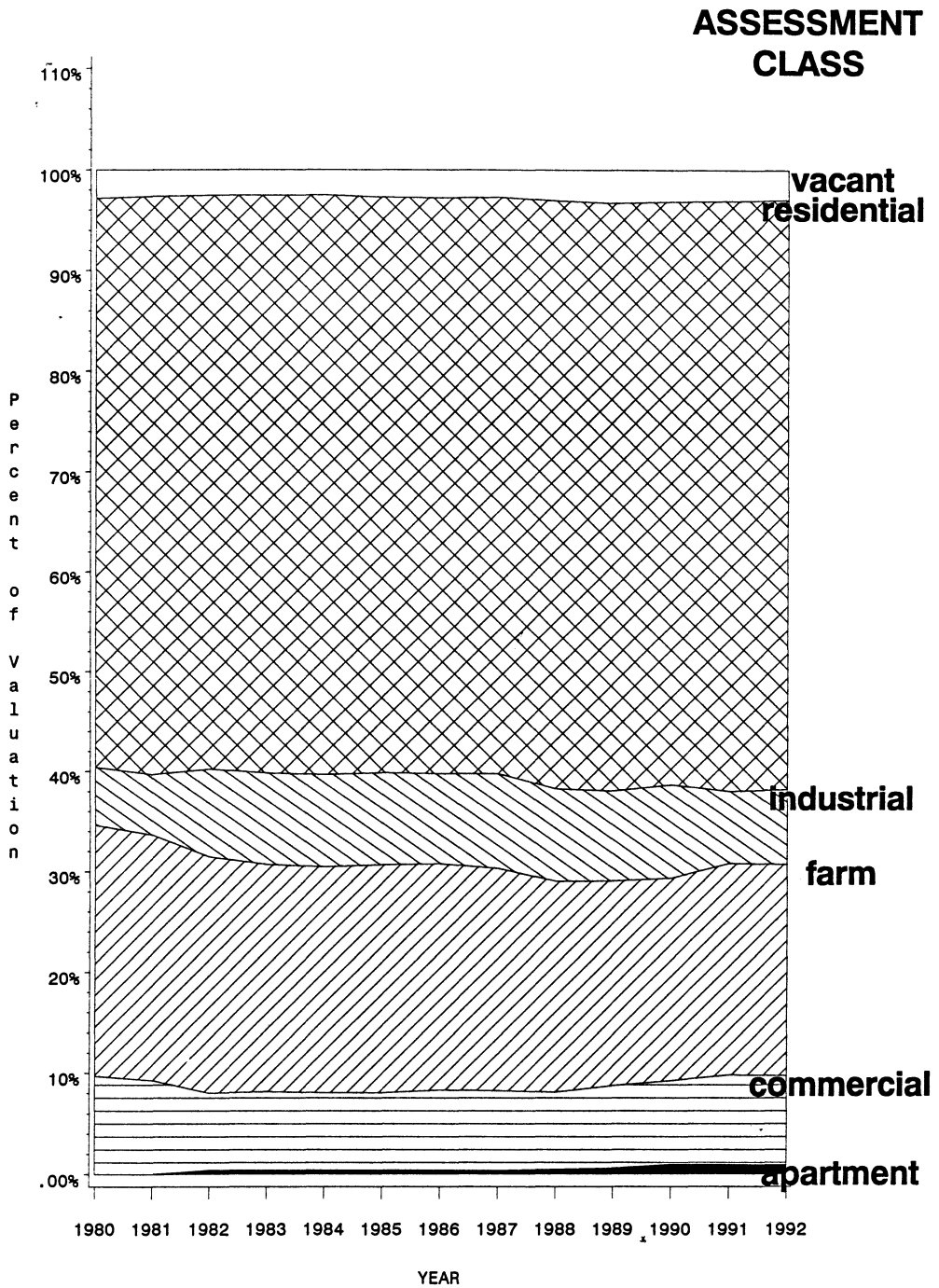
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3d

Assessment Class Weights in Municipal Valuations

GROUP = Middle Access Middle Density Higher Income

Average Weight per Municipality
non-Pinelands Communities



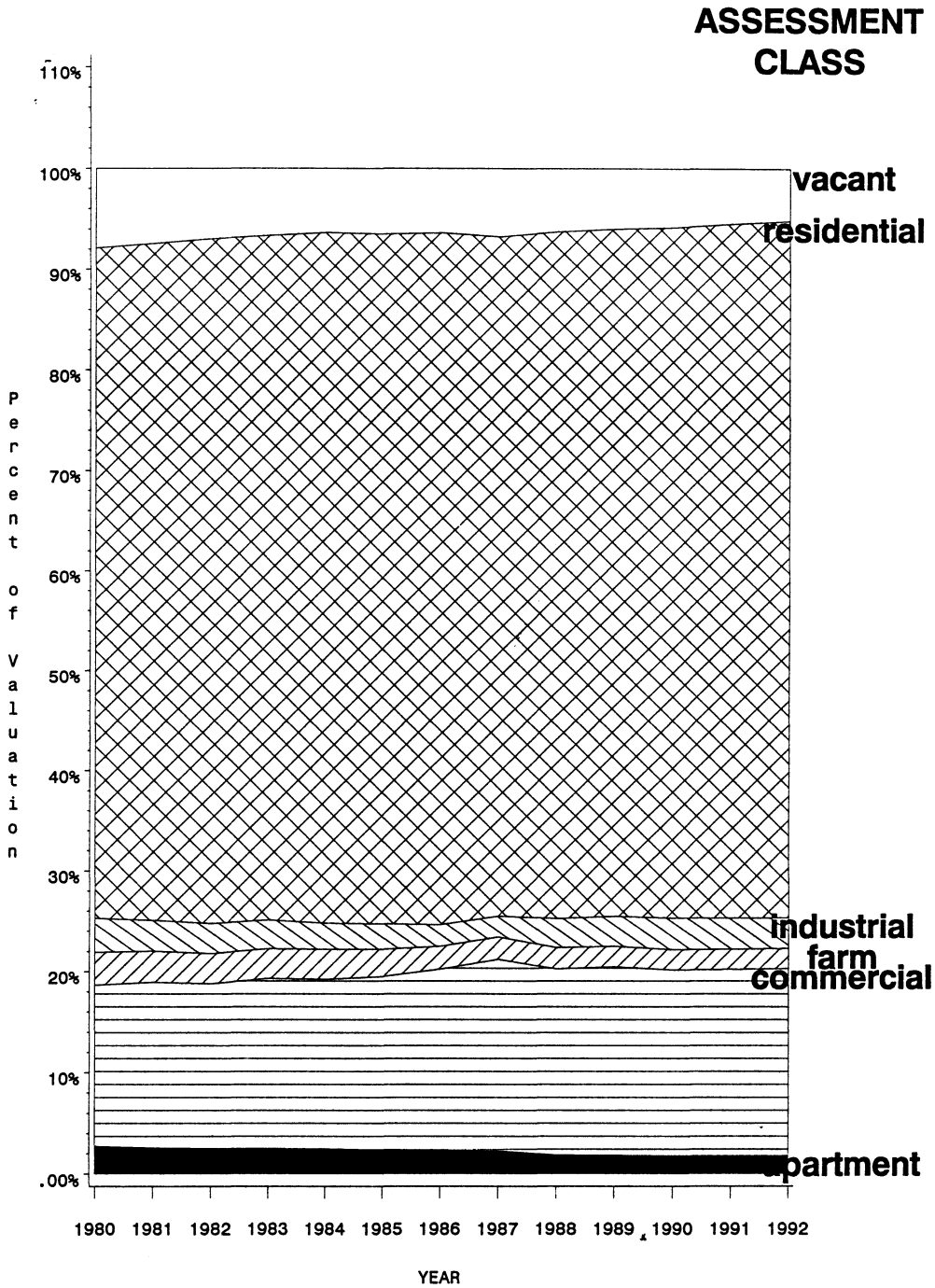
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3e

Assessment Class Weights in Municipal Valuations

GROUP = Higher Access Middle Density Higher Income

Average Weight per Municipality
Pinelands Communities



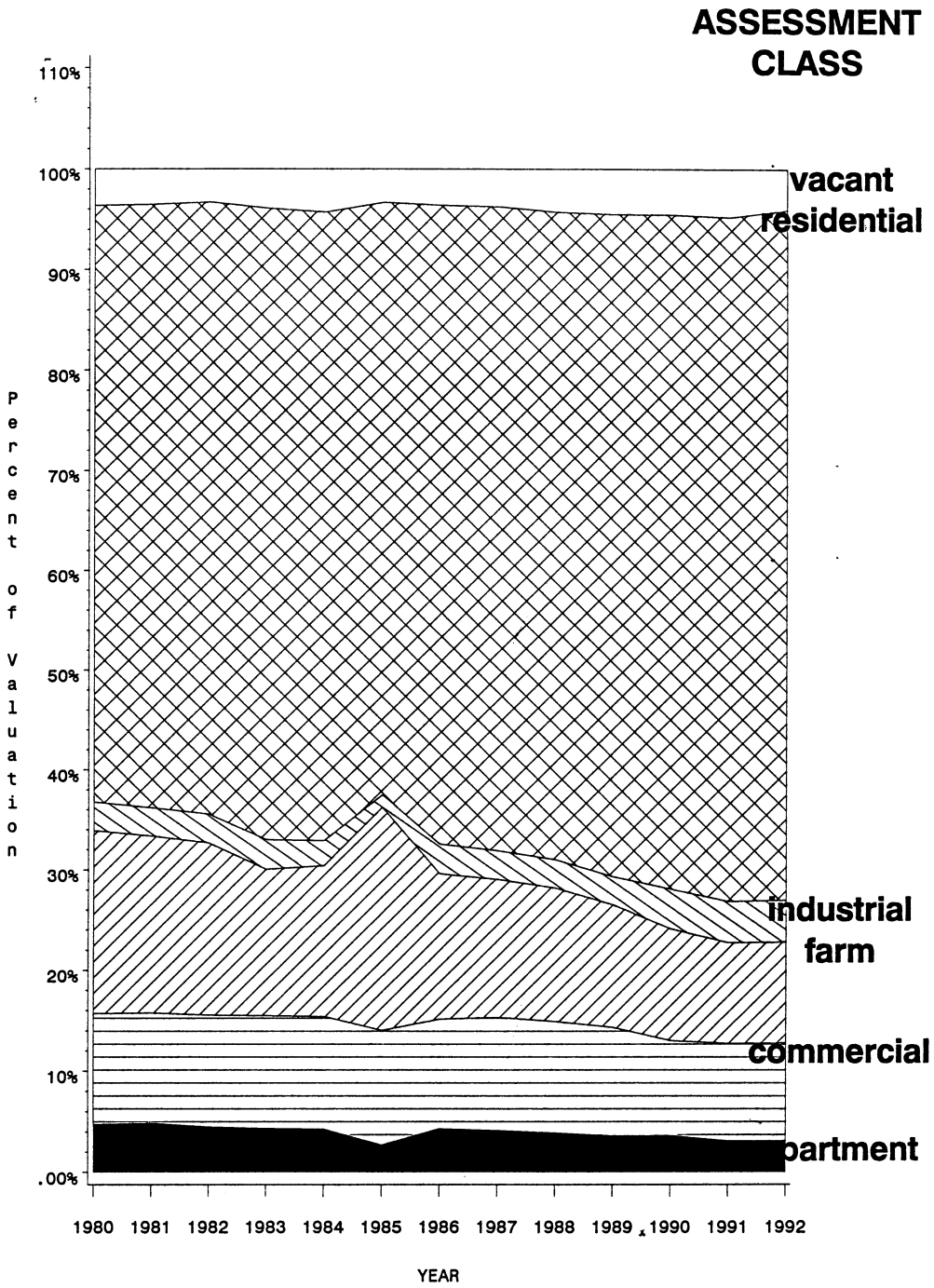
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3f

Assessment Class Weights in Municipal Valuations

GROUP = Higher Access Middle Density Higher Income

Average Weight per Municipality
non-Pinelands Communities



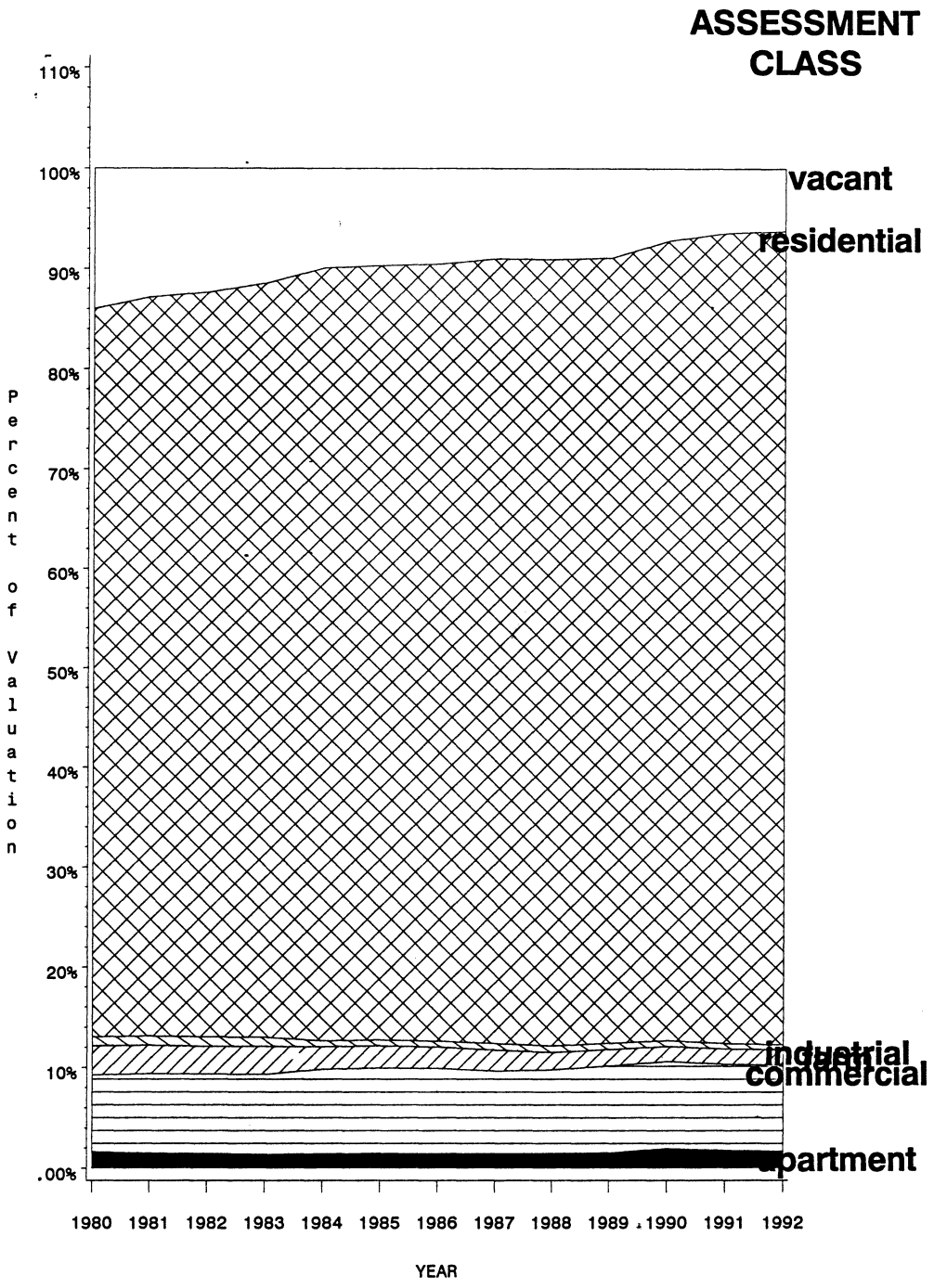
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3g

Assessment Class Weights in Municipal Valuations

GROUP = Middle Access Higher Density Middle Income

Average Weight per Municipality
Pinelands Communities



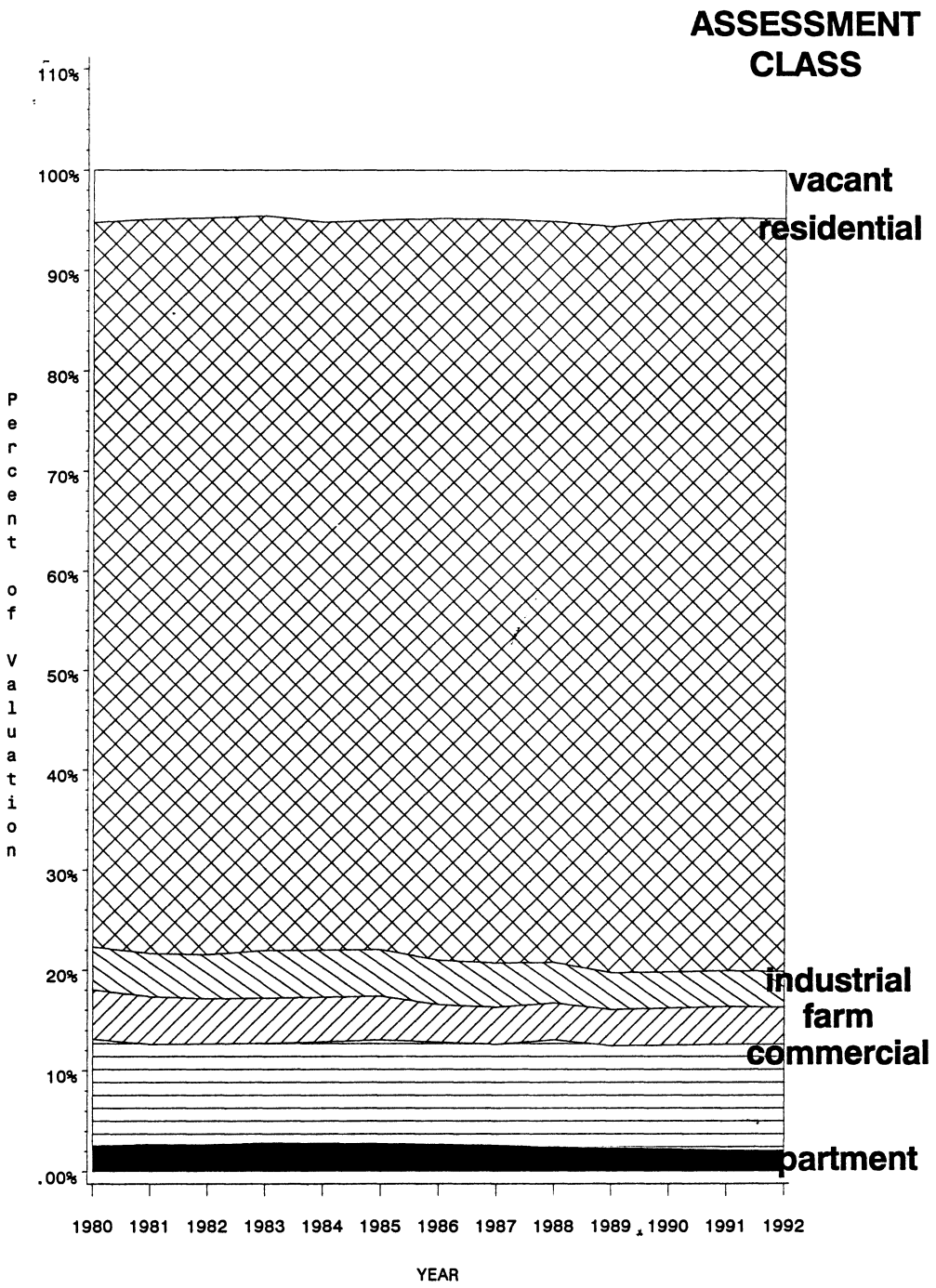
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3h

Assessment Class Weights in Municipal Valuations

GROUP = Middle Access Higher Density Middle Income

Average Weight per Municipality
non-Pinelands Communities



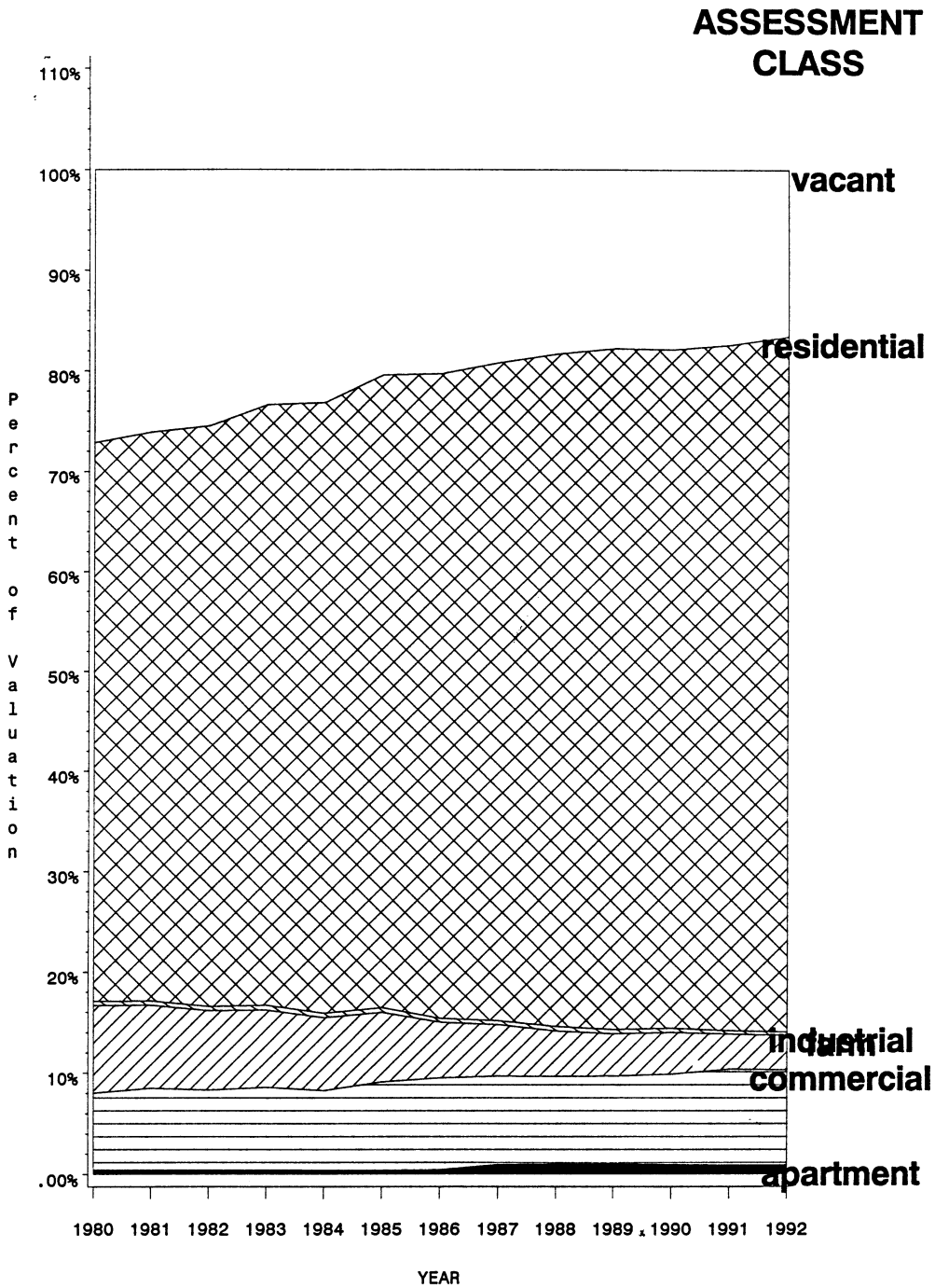
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3i

Assessment Class Weights in Municipal Valuations

GROUP=Lower Access Lower Density Middle Income

Average Weight per Municipality
Pinelands Communities



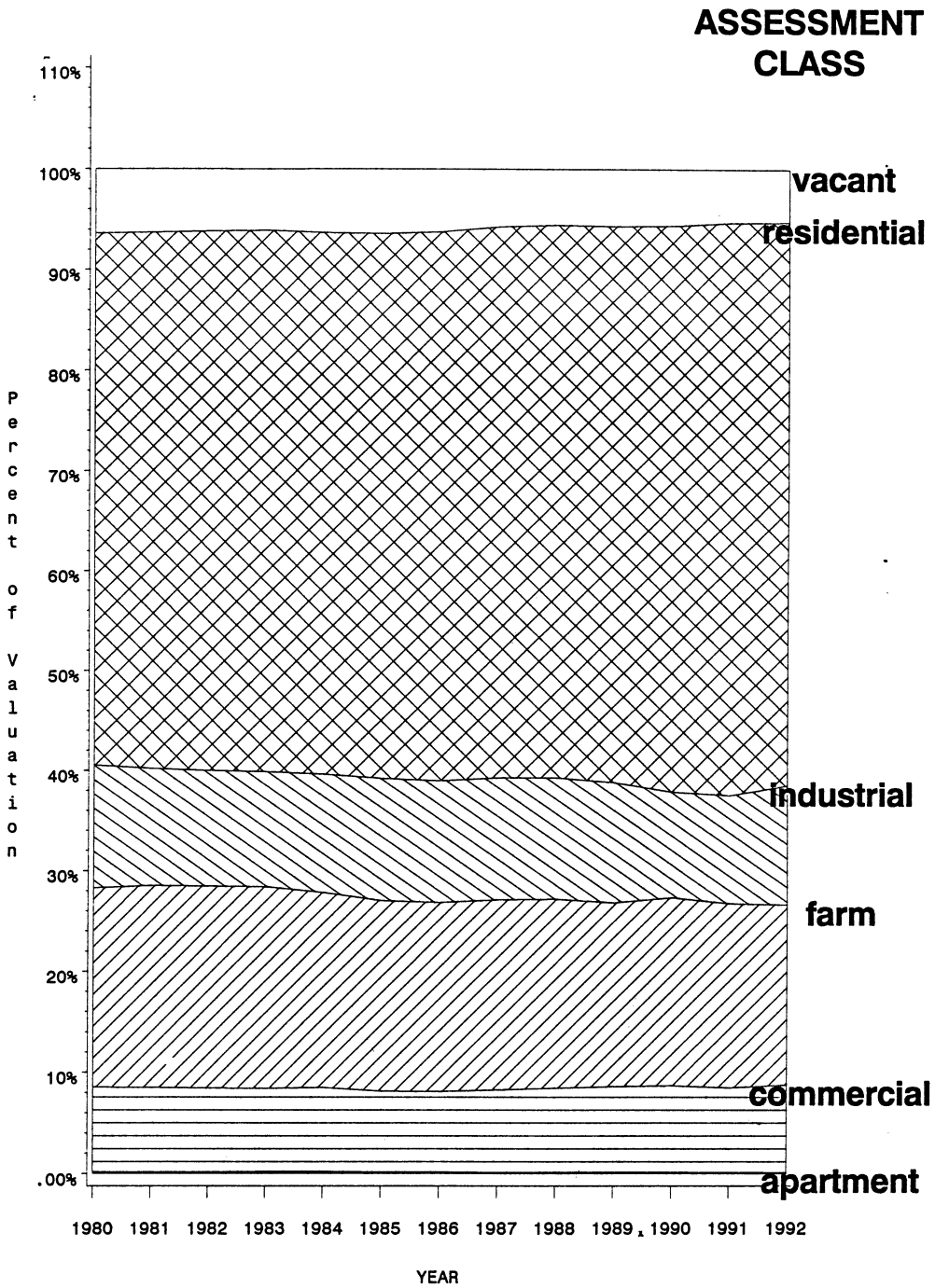
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3j

Assessment Class Weights in Municipal Valuations

GROUP = Lower Access Lower Density Middle Income

Average Weight per Municipality
non-Pinelands Communities



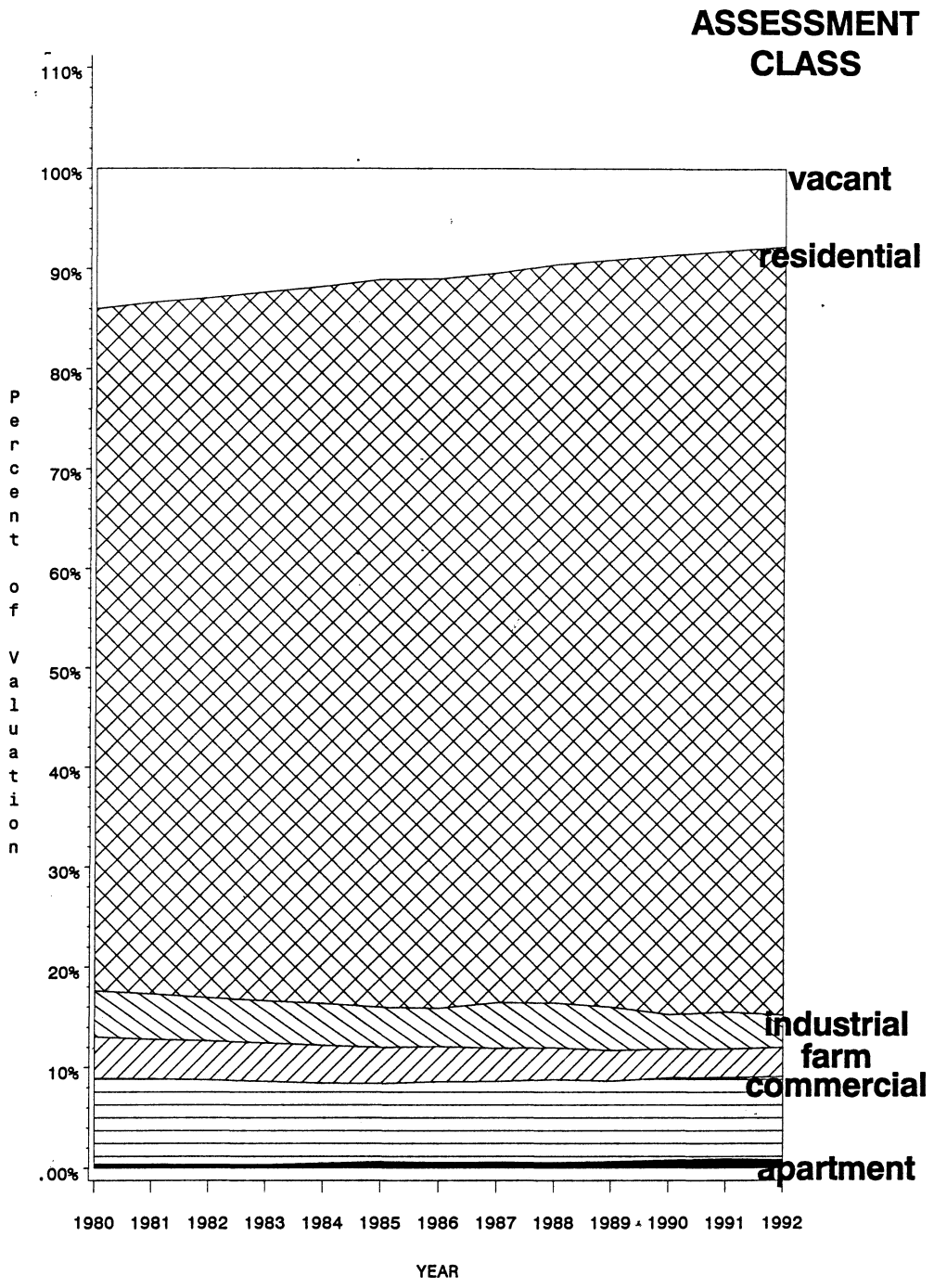
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.3k

Assessment Class Weights in Municipal Valuations

GROUP=Higher Access Middle Density Middle Income

Average Weight per Municipality
Pinelands Communities



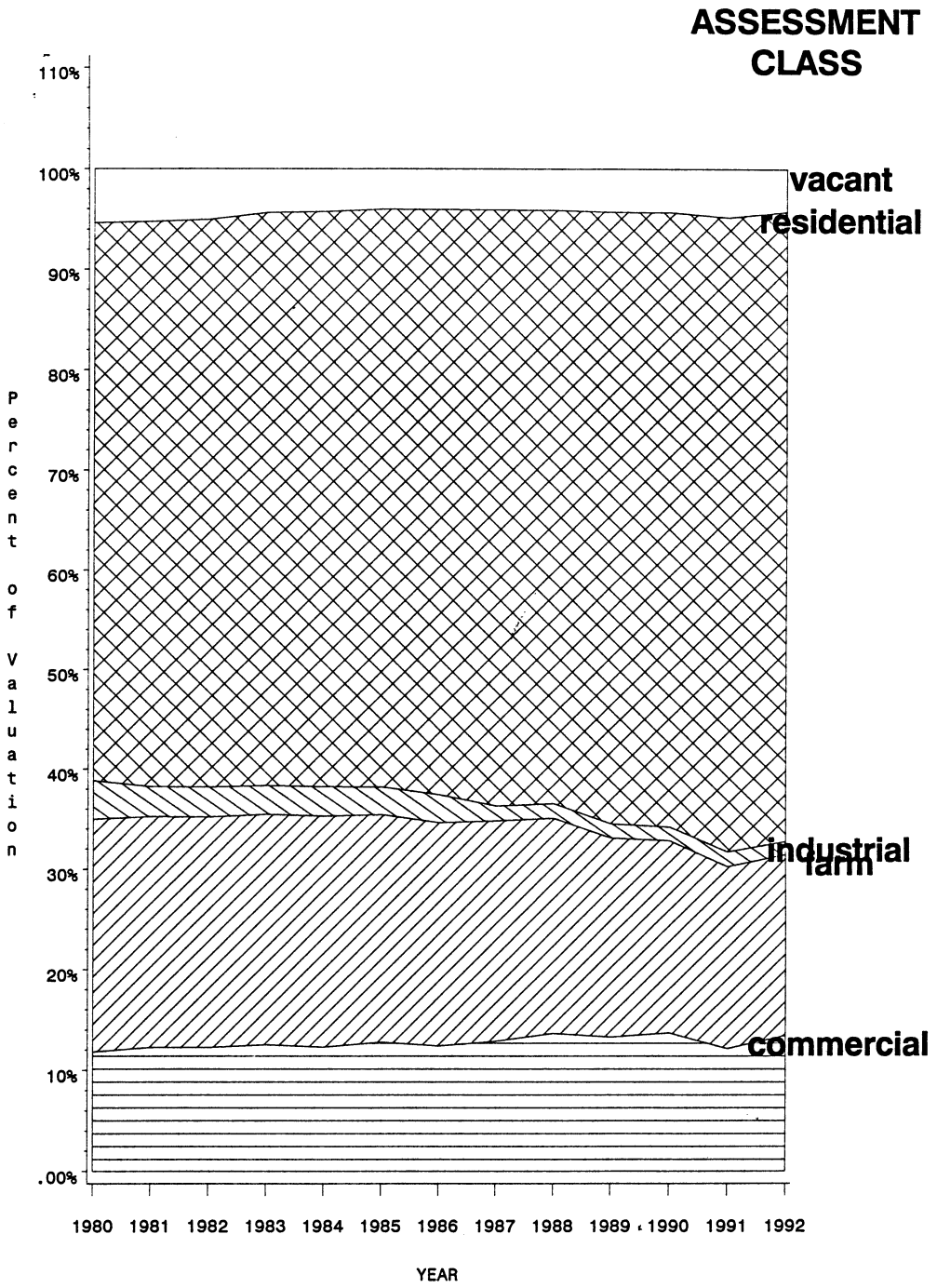
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.31

Assessment Class Weights in Municipal Valuations

GROUP = Higher Access Middle Density Middle Income

Average Weight per Municipality
non-Pinelands Communities



Source: NJ Department of Community Affairs,
Division of Local Government Services

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9.4 Municipal Expenditures by Type per Capita

The municipal expenditure data set is the largest and most complex of the core monitoring variables. It includes 38 data points organized into five expenditure classes for each town which, for purposes of the comparables analysis, is then sorted and averaged for each group of municipalities. The discussion of data presented in this first annual report is thus necessarily broad; more detailed statistical analyses of these data, in association with other variables such as demographic information, is critical for municipal groupings and for the larger universe of Pinelands and non-Pinelands municipalities. Some of the data anomalies found during the analysis also suggest that the method of analyzing comparable municipalities needs to be examined in more detail.

In three municipal groups (Lower Access, Lower Density, Lower Income [LLL], Lower Access, Lower Density, Middle Income [LLM][38] and Higher Access, Middle Density and Middle Income [HMM]), the (inflation adjusted) rate of increase in per capita municipal expenditures was significantly lower than the rate of increase in population in Pinelands and non-Pinelands municipalities. Expenditures per capita (in 1995 dollars) remained relatively low at the end of the period in these three groups, ranging from $727.71 to $1185.59.

Notably, real per capita expenditures in the LLL Pinelands subgroup grew at less than half the rate (4.2%)of its non-Pinelands counterpart (10.7%) but still ended the period at a slightly higher level, $786.07 versus $727.71. School expenditures grew by a very modest 2.7% in the Pinelands subgroup yet they actually decreased by 8.4% in the non-Pinelands subgroup. The Pinelands general government expenditure ($363.35 per capita in 1992) had grown during the period by 8.4% while the non-Pinelands subgroup ($381.47 in 1992) had grown by 29.4%.

Some disparity in expenditures for schools and general government was also evident in the other two groups with small overall expenditure increases. Per capita school expenditure during the period in the non-Pinelands LLM subgroup was essentially unchanged from its 1980 level of $549.45 while its Pinelands counterpart experienced a moderate increase of 13.8%, ending with a per capita expenditure of $536.69 in 1992 (as previously stated, all values are in 1995 dollars). School expenditures in the HMM group increased by 19.1% in the non-Pinelands subgroup and 25.1% in the Pinelands subgroup. Average expenditures ($469.02 and $484.70, respectively) were still well below the regional averages of $999 and $845 as reported in Section 8.3. General government expenditures increased in the LLM group and the HMM non-Pinelands subgroups at rates generally consistent with those of the region. Although government expenditures for the HMM Pinelands subgroup grew at a modest 5.5%, it still ended the period with a slightly higher per capita government expenditure of $345.44, compared to its non-Pinelands counterpart, which had increased by 28.2%, to end the period at $332.63.

[38]For the comparables group level of analysis of municipal expenditure data, Lower Alloways Creek Township was dropped from the LLM non-Pinelands subgroup. Lower Alloways Creek Township is the site of the Salem Nuclear Reactor. The construction and continuing presence of this reactor resulted in large expenditures by the municipality unlike those made by any other South Jersey Municipality.

In two other municipal groups (Higher Access, Middle Density, Higher Income [HMH] and Middle Access, Higher Density, Middle Income [MHM], total per capita expenditures grew at rates relatively consistent with those of the region. In each case, actual expenditures in 1992 were still lower than those of the region. In all four subgroups, general government expenditures increased at a higher rate than the region while school expenditures increased at lower rate.

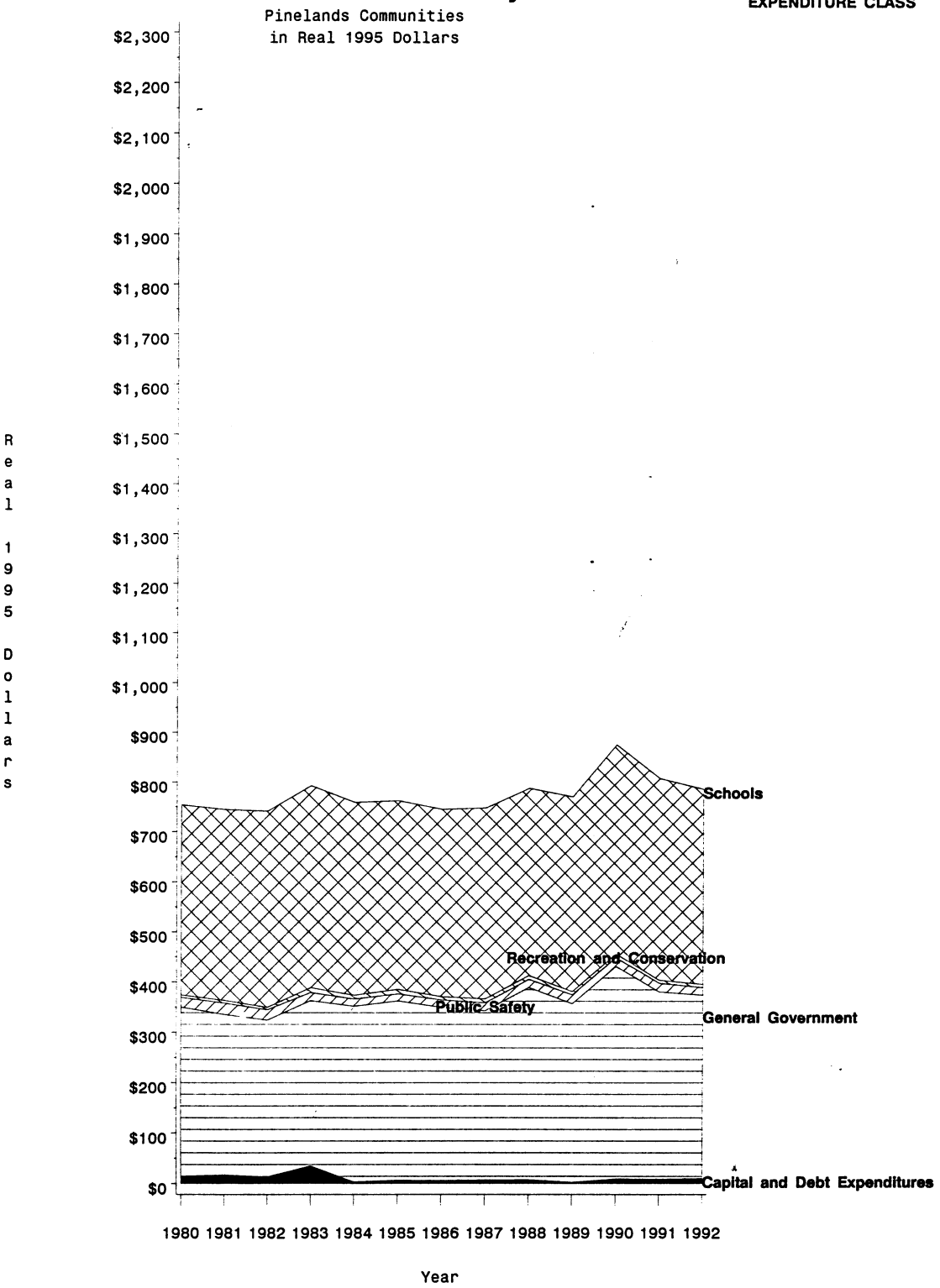
The largest difference occurred in the Middle Access, Middle Density, Higher Income (MMH) group where expenditures per capita increased by 49.3% in the Pinelands subgroup compared to 16.5% in its non-Pinelands counterpart. Much of this Pinelands subgroup increase can be attributed to school expenditures which grew from $350.37 in 1980 to $657.69 in 1992. However, this spending level is still lower than the 1992 level ($845) for all Pinelands municipalities.

Although it is difficult to identify any recurring themes from the rather simple analyses described above, more detailed analyses of these data might yield more direct associations between types and amounts of expenditures and other community characteristics. If such associations exist, they will be instructive for developing future land use policies.

Figure 9.4a

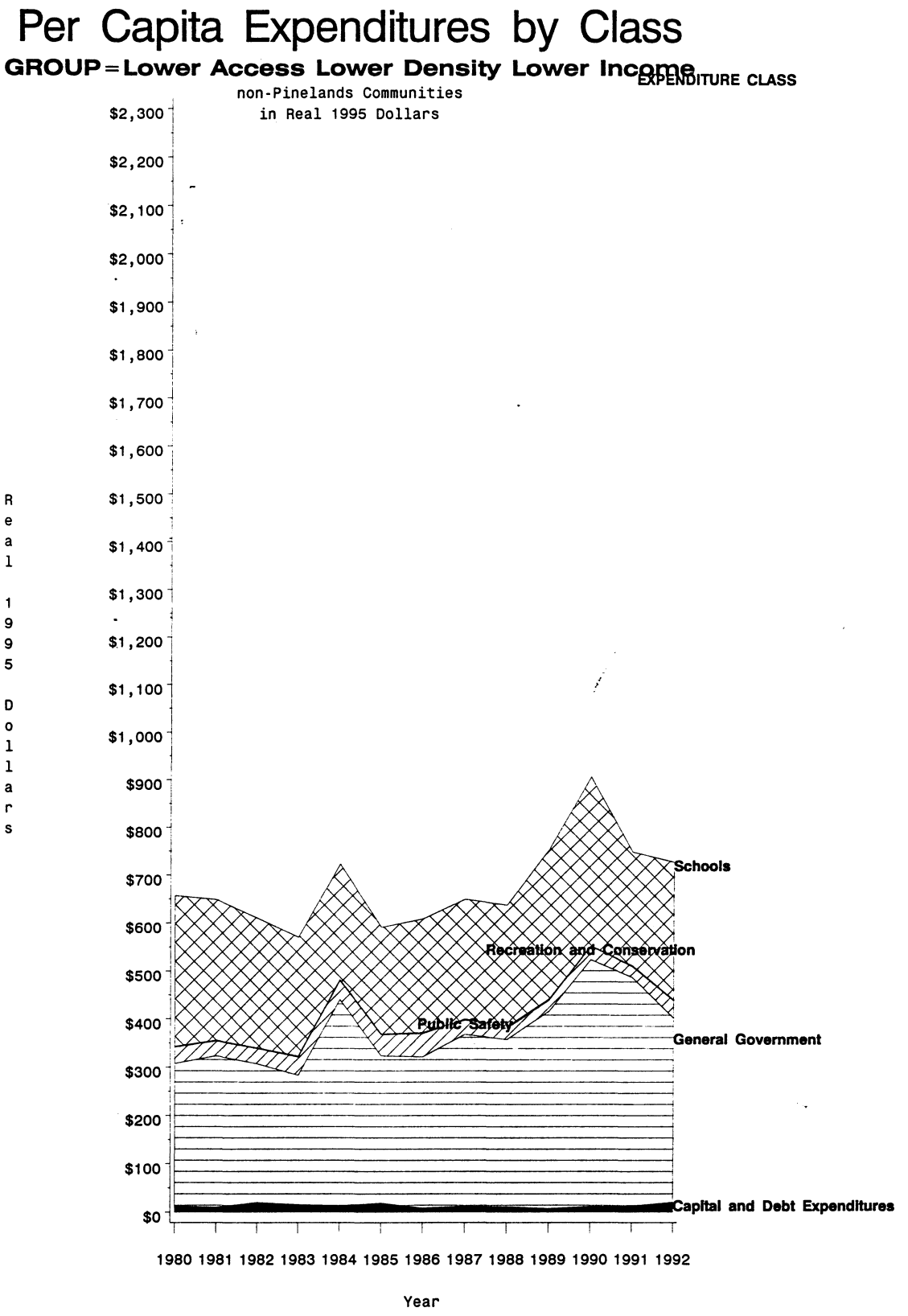
Per Capita Expenditures by Class

GROUP = Lower Access Lower Density Lower Income



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4b.

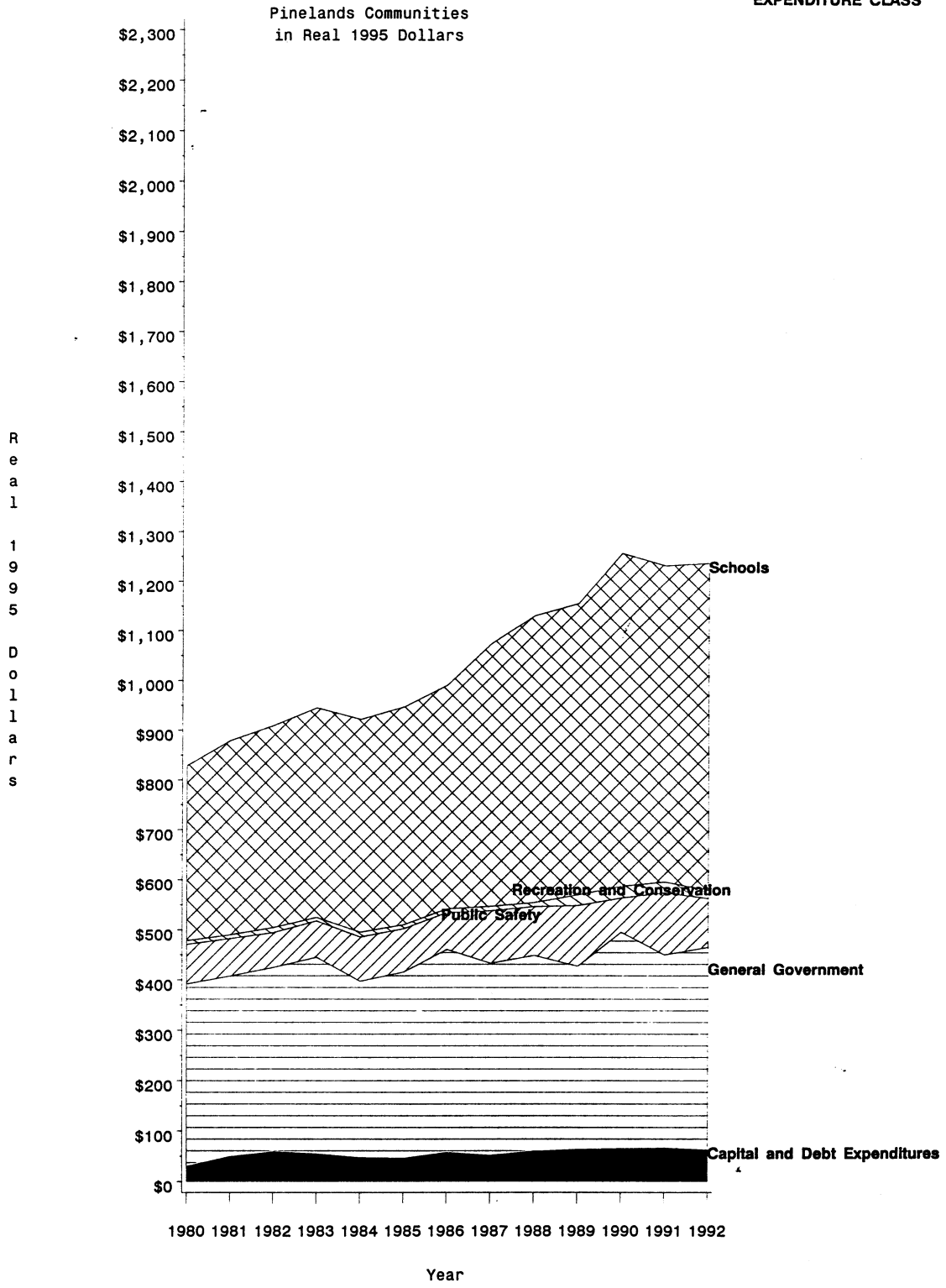


Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4c.

Per Capita Expenditures by Class

GROUP = Middle Access Middle Density Higher Income EXPENDITURE CLASS

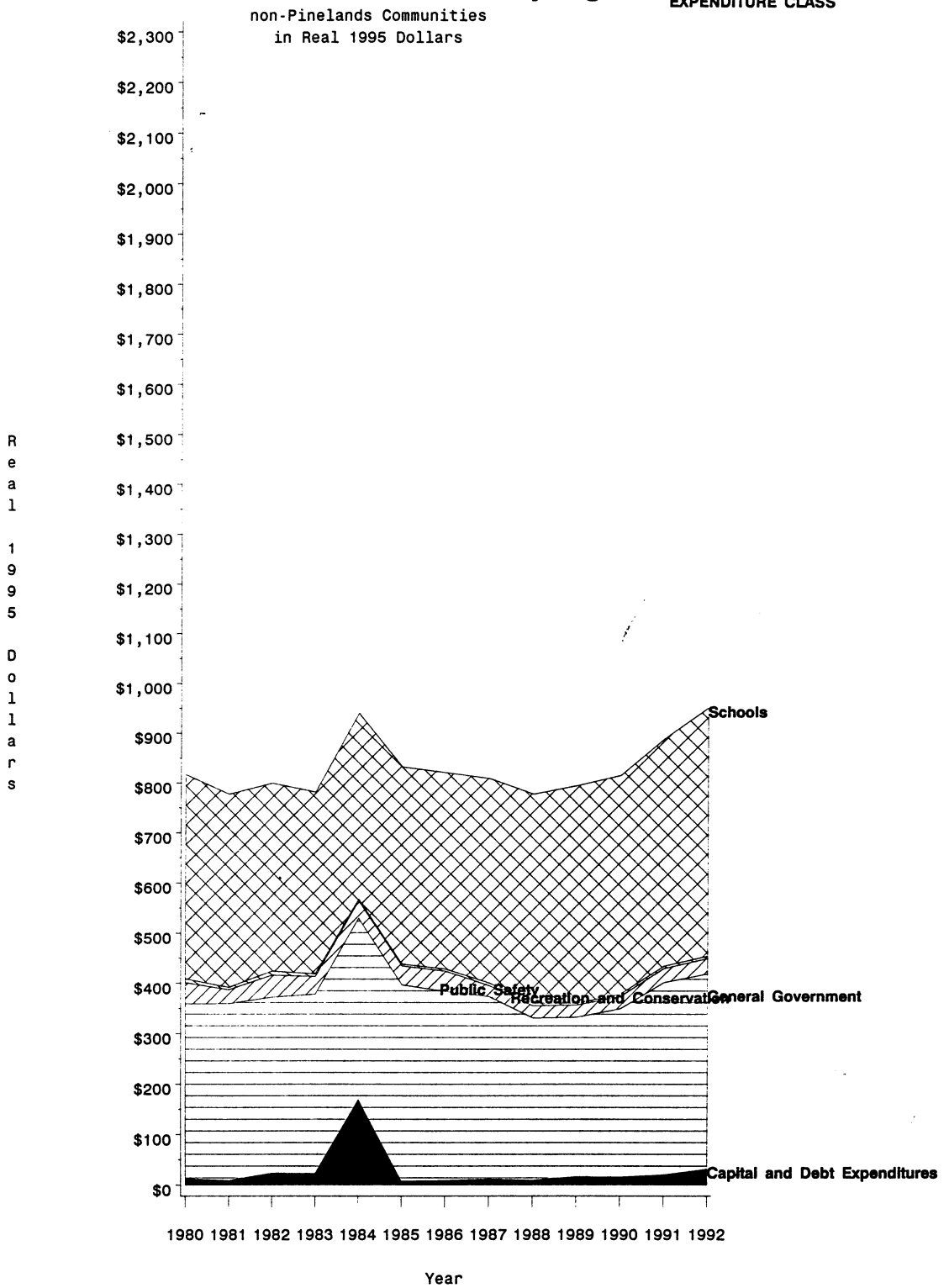


Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4d.

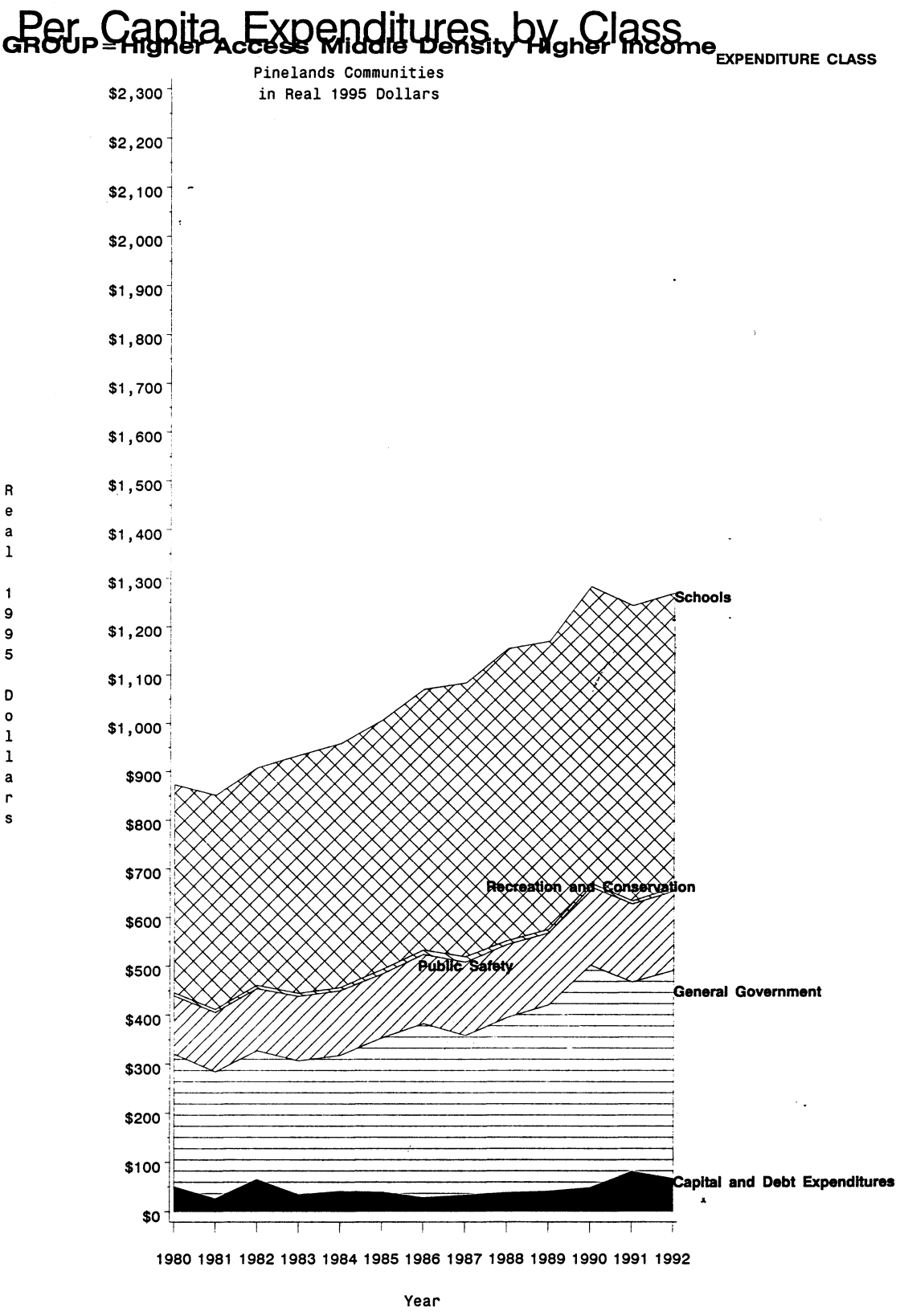
Per Capita Expenditures by Class

GROUP = Middle Access Middle Density Higher Income EXPENDITURE CLASS



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4e.

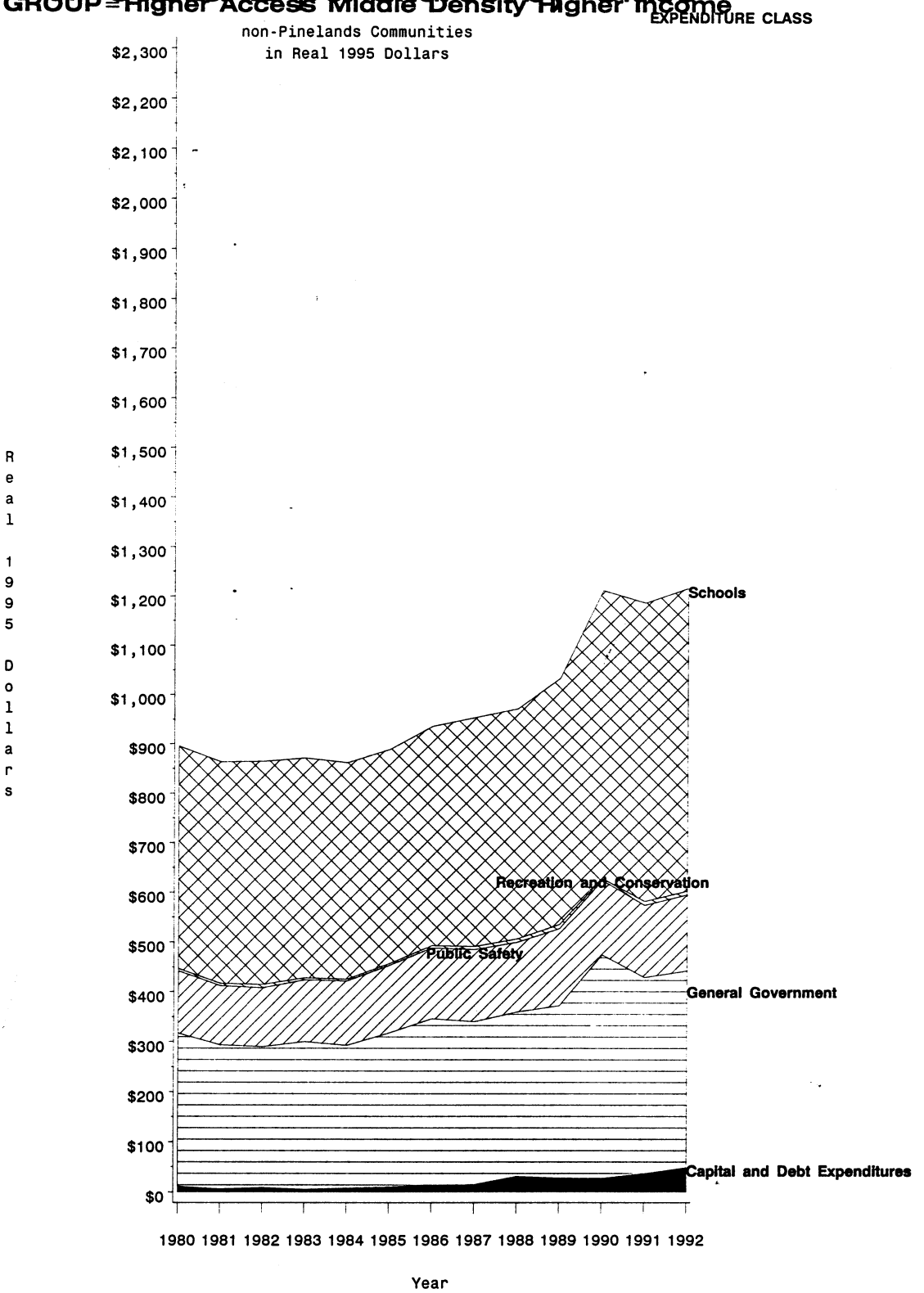


Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4f.

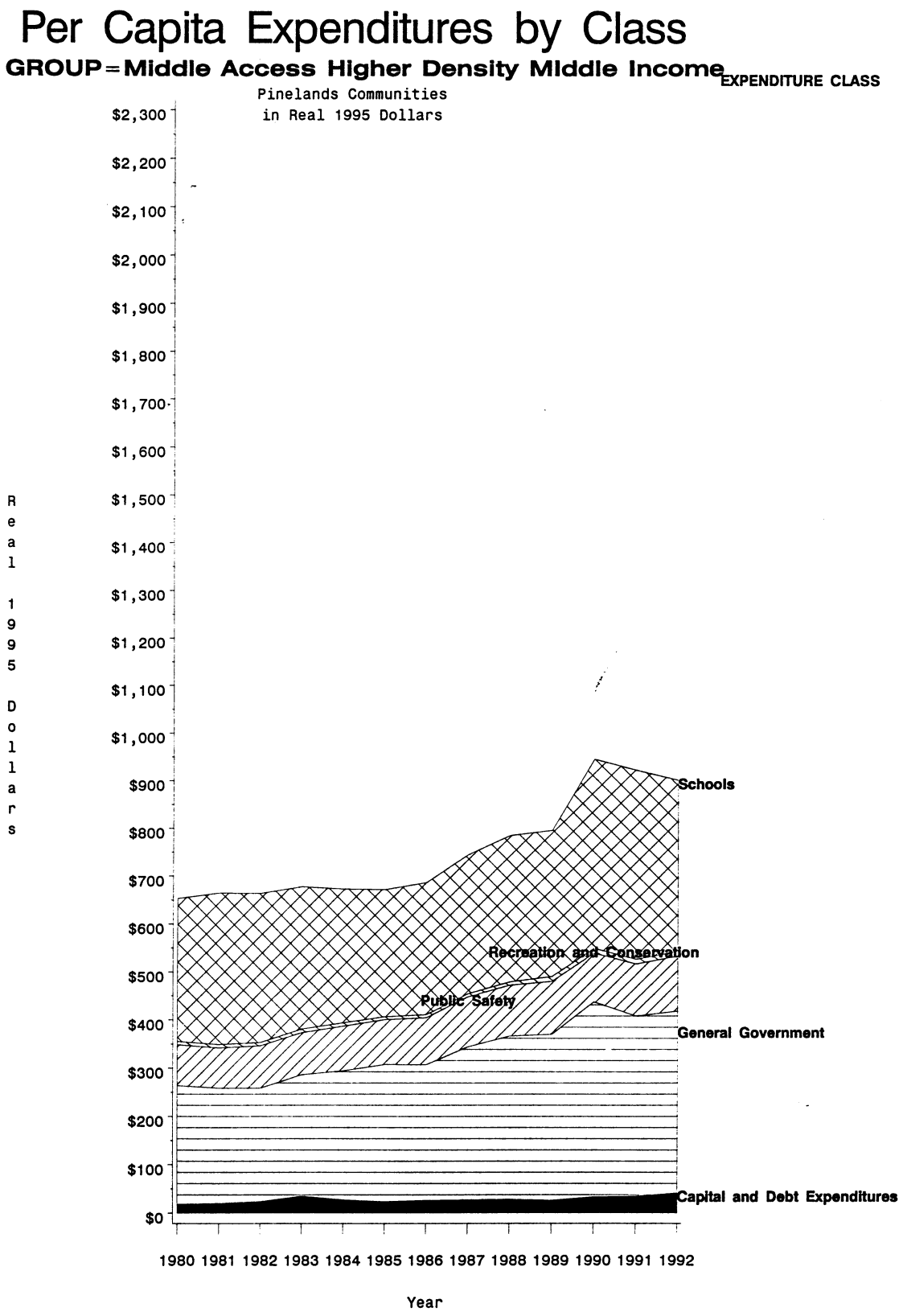
Per Capita Expenditures by Class

GROUP = Higher Access Middle Density Higher Income



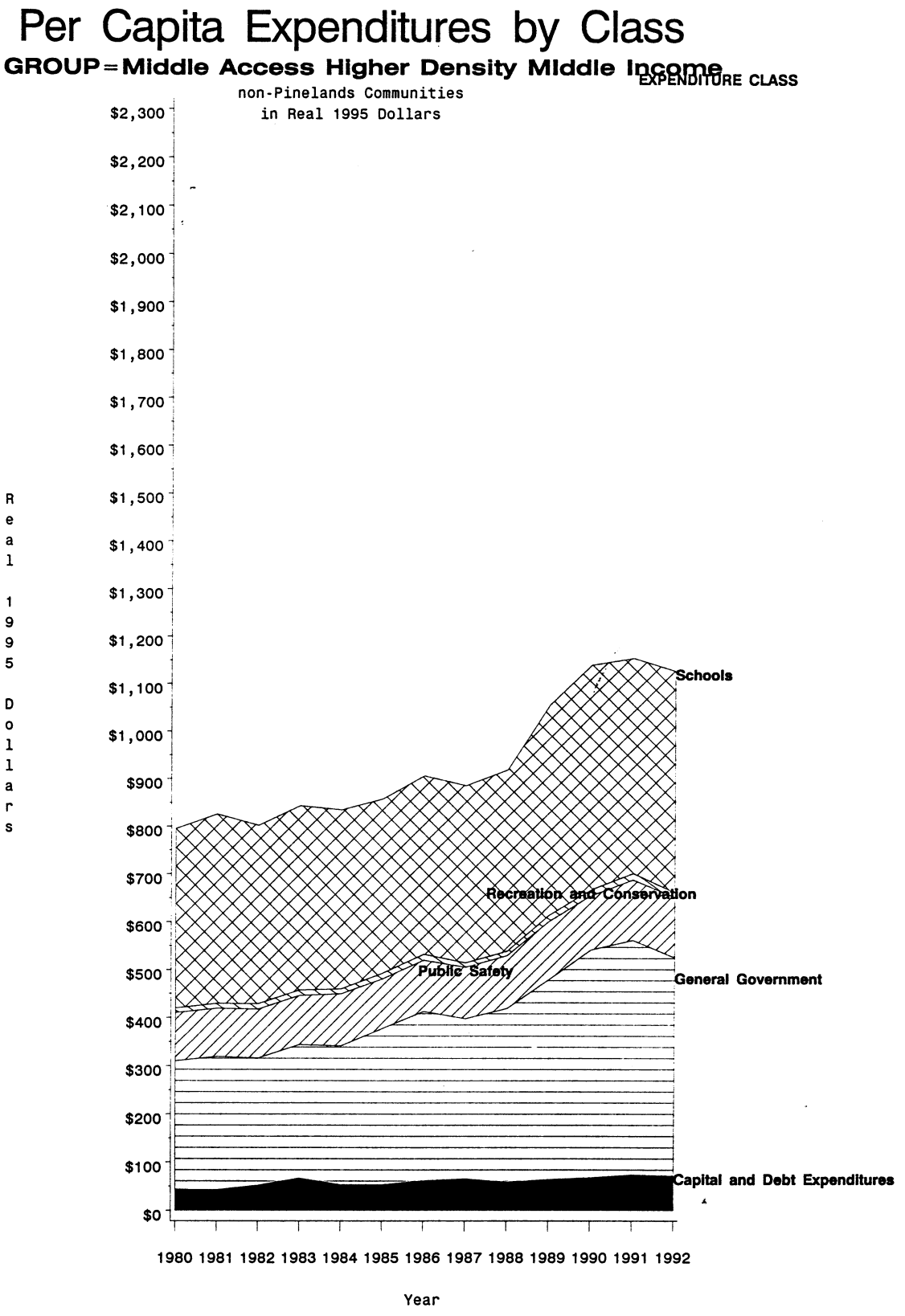
Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4g.



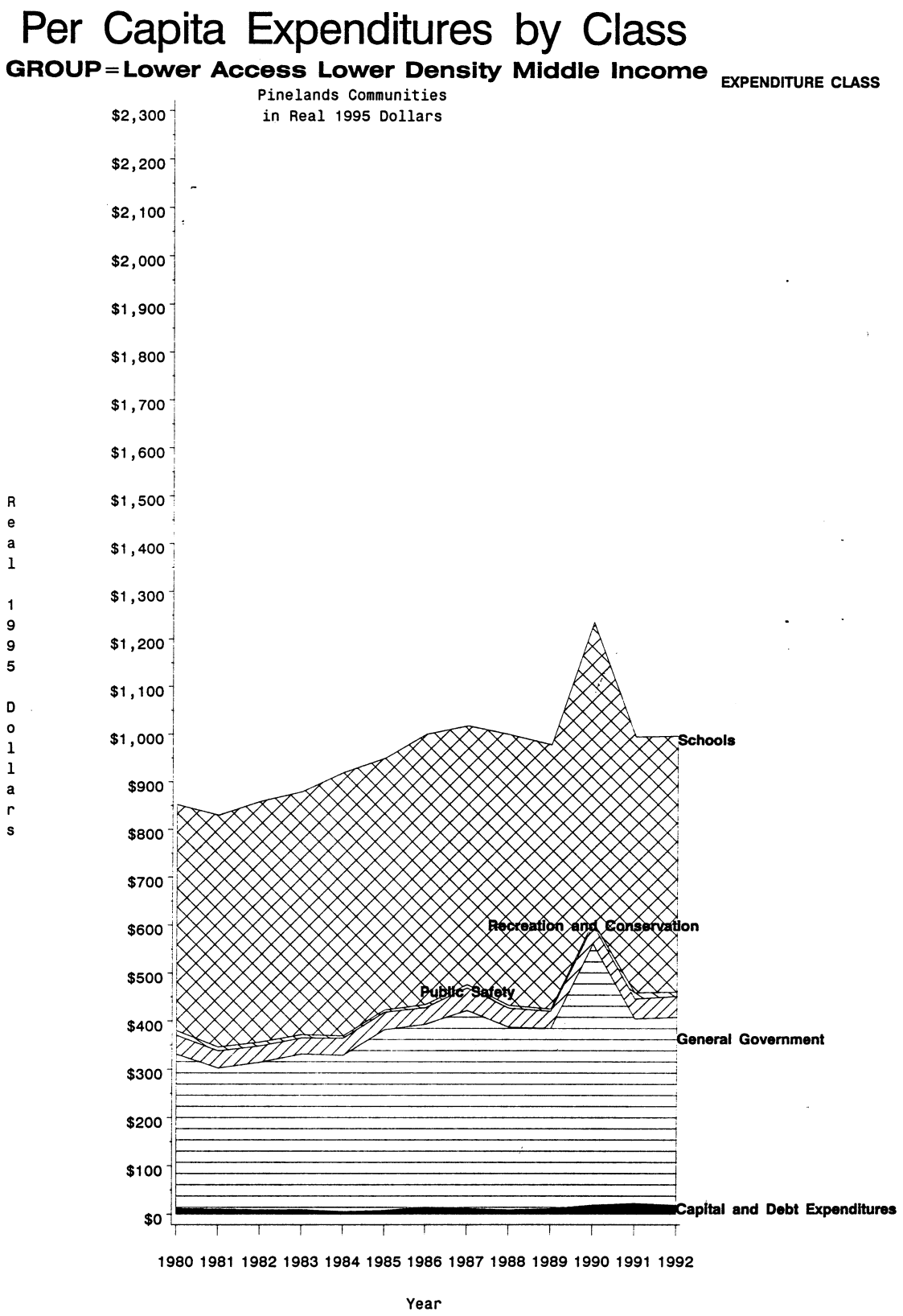
Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4h.



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

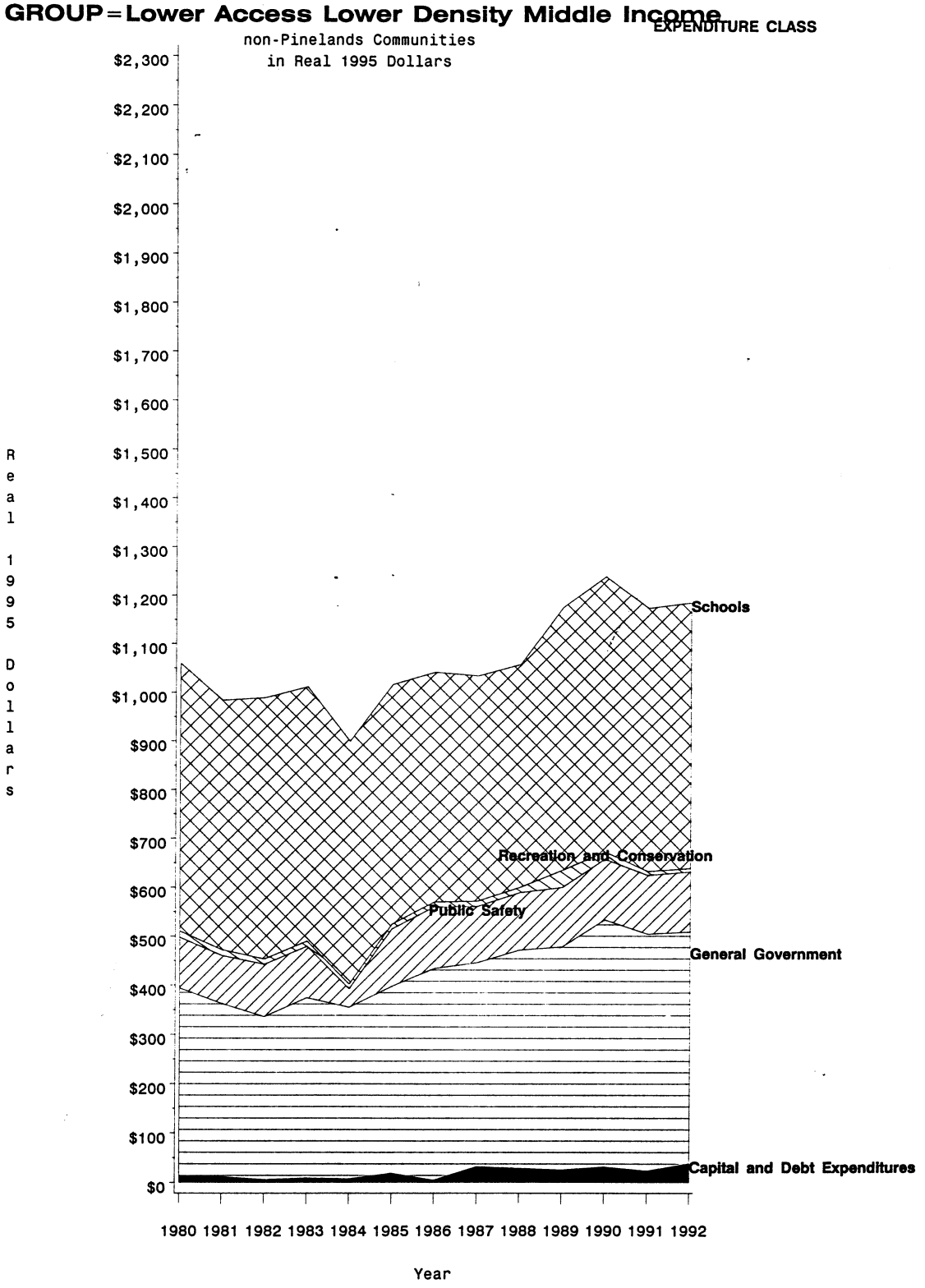
Figure 9.4i.



Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4j.

Per Capita Expenditures by Class

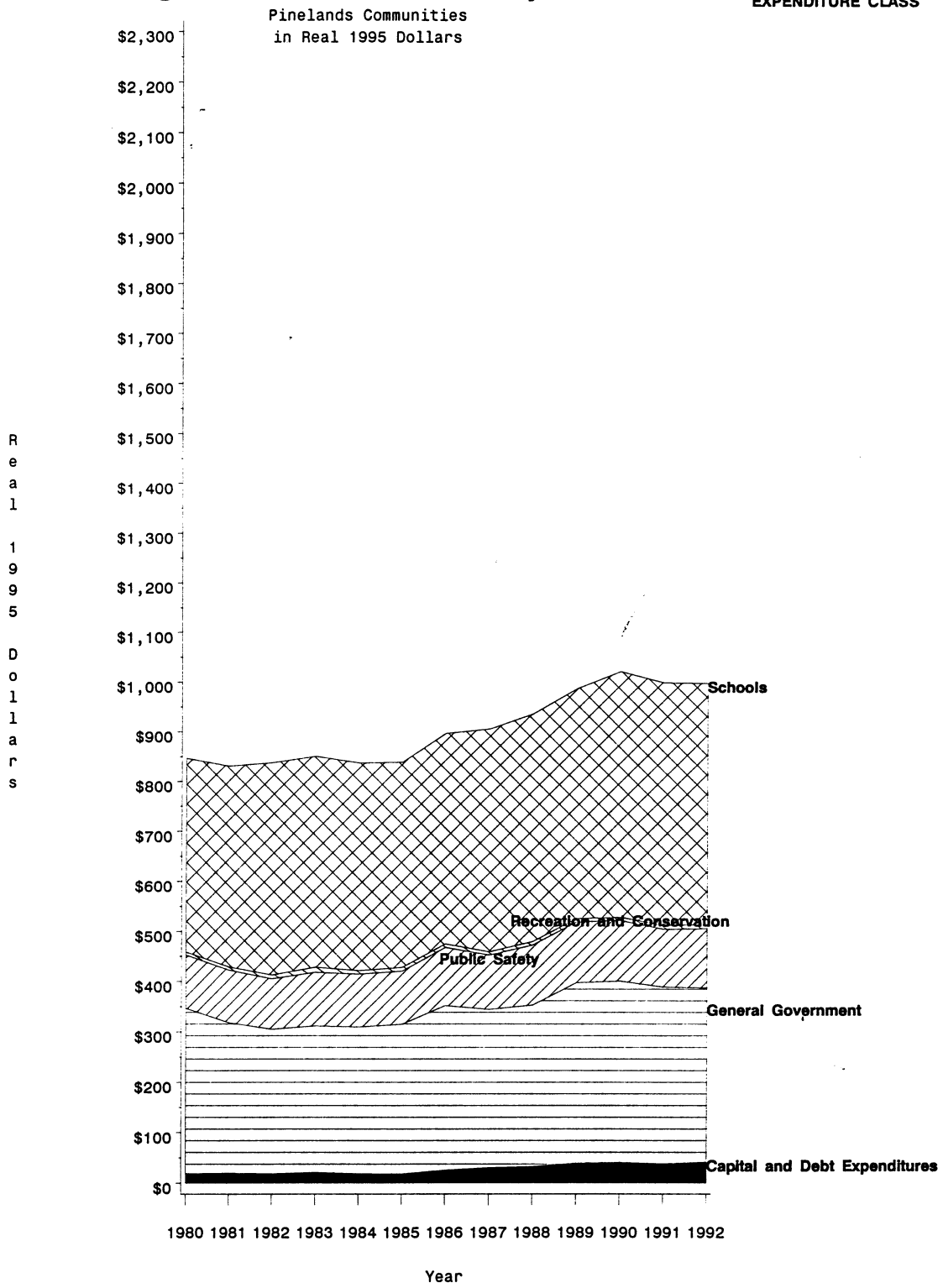


Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.4k.

Per Capita Expenditures by Class

GROUP = Higher Access Middle Density Middle Income EXPENDITURE CLASS



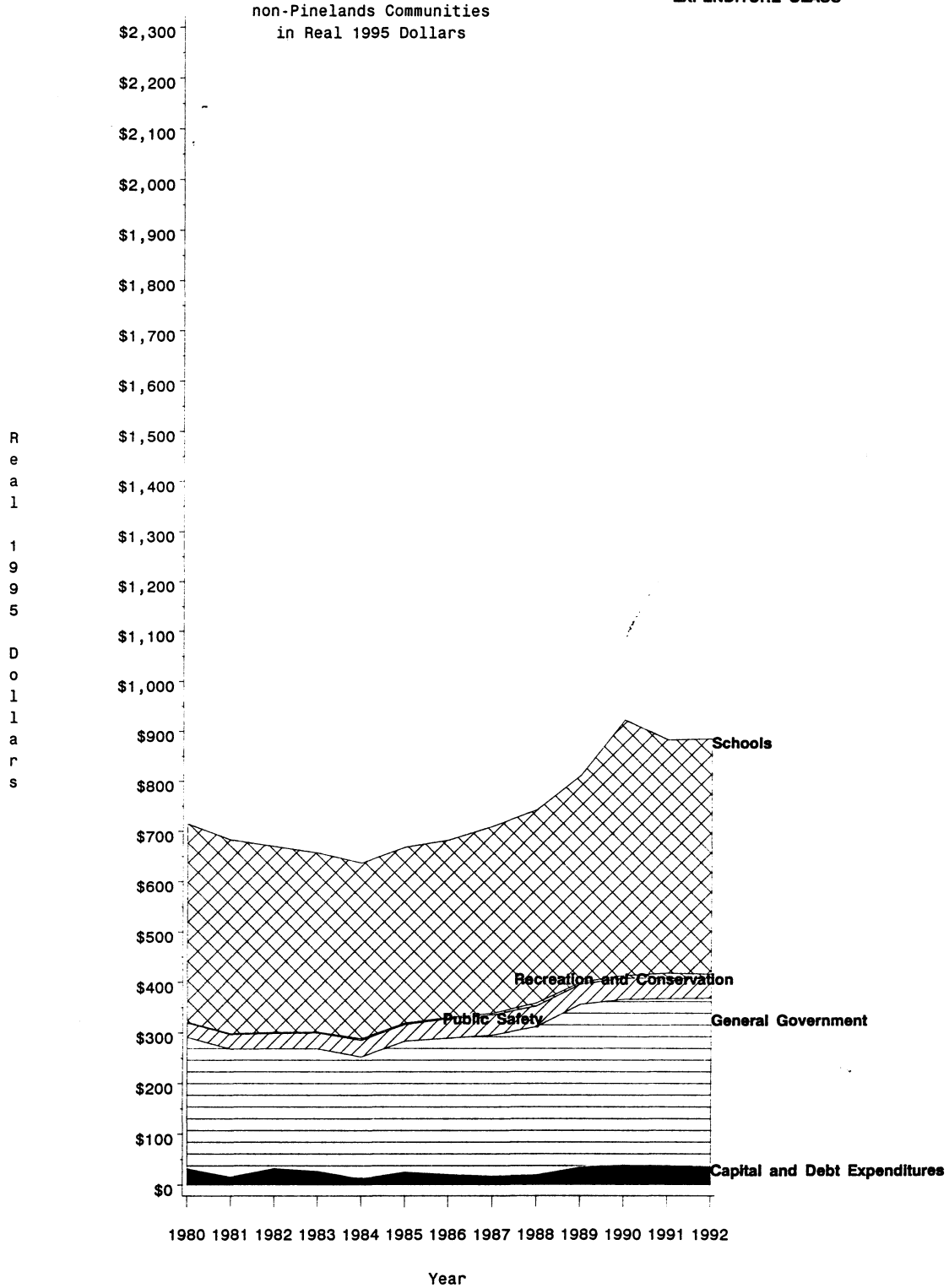
Source: NJ Department of Community Affairs, Division of Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

Figure 9.41.

Per Capita Expenditures by Class

GROUP = Higher Access Middle Density Middle Income EXPENDITURE CLASS

non-Pinelands Communities
in Real 1995 Dollars



Source: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Bureau of the Census
N.J. Dept. of Labor, Labor Market & Demographic Research

9.5-9.6 Municipal Expenditures per Household and Relative to Median Household Income

Municipal expenditures per household, adjusted for inflation, increased between 1980 and 1990 by 29.0% for the Pinelands as a whole and by 28.2% for the balance of South Jersey. Median household incomes rose slightly faster than expenditures per household in the Pinelands and slightly slower in the rest of South Jersey. This resulted in municipal expenditures dropping by one-tenth of a percentage point in the Pinelands and increasing by one-tenth of a percentage point in the balance of South Jersey, when examined relative to household incomes.

Trends in municipal expenditures per household and relative to household income in the comparable groups differ quite a bit from the overall trends reported in Sections 8.4 and 8.5. Although almost all Pinelands and non-Pinelands subgroups started and ended the period with lower per household expenditures than the average for all of South Jersey (the Lower Access, Lower Density, Middle Income [LLM] non-Pinelands subgroup started the period with a per household expenditure which exceeded the South Jersey average), the rate of change varied dramatically (from a decline of 5.5% in the non-Pinelands Middle Access, Middle Density, Higher Income [MMH] subgroup to an increase of 49.7% in the Pinelands Middle Access, Middle Density, Higher Income [MMH] subgroup) and, in all but four subgroups, out paced the rate of increase for South Jersey as a whole. Consistent with the overall trend in South Jersey, municipal expenditures relative to income went down in two Pinelands and four non-Pinelands subgroups; however, that left six other subgroups with an increasing rate of expenditure relative to income.

The Lower Access, Lower Density, Lower Income (LLL) group showed significantly higher expenditure growth in its non-Pinelands subgroup, where expenditures per household, adjusted for inflation, grew by 32.0% from 1980 to 1990, than in its Pinelands subgroup, where real expenditures grew by only 17.3%. The slower rate of an increase in expenditures in the Pinelands portion resulted in it dropping to the middle of the pack from having the third highest expenditures per household in 1980; the non-Pinelands portion held its position as the second lowest spender in both years. Both areas indicated roughly the same change, about three-tenths of a percentage point, in expenditures relative to household income.

The largest increase in expenditures per household over the decade took place in the Pinelands Middle Access, Middle Density, Higher Income (MMH) subgroup, where expenditures increased by $966, or 49.7%, from a 1980 level of $1,942 per household, the lowest expenditure of any subgroup in that year. At the same time, the non-Pinelands subgroup was the only one of the twelve to show a decline, reducing expenditures per household by $140, or 5.5%, from a 1980 level of $2,550. These changes caused the non-Pinelands subgroup, which was at the middle of the pack in 1980 to be the lowest spending subgroup in 1990, replacing the position held by its Pinelands counterpart in 1980. Relative to income, expenditures grew from 7.3% to 8.1% in the Pinelands portion while falling from 7.3% to 5.6% in the non-Pinelands portion of the group.

The Higher Access, Middle Density, Higher Income (HMH) group showed more similarity, with an increase in expenditures per household of 33.2% in its non-Pinelands subgroup, and of 39.2% in

its Pinelands subgroup. Expenditures relative to household income increased in the Pinelands subgroup from 7.9% to 8.1% while falling from 7.2% to 7.1% outside the Pinelands.

In the Middle Access, Higher Density, Middle Income (MHM) subgroup, expenditures also increased at roughly the same rate, with a 39.5% increase in the non-Pinelands subgroup and a 36.9% increase in the Pinelands subgroup. Expenditures per household were fairly similar between the two subgroups in both years, with the non-Pinelands subgroup spending $2,115 per household in 1980 and $2,951 in 1990, while the Pinelands subgroup spent $2,083 in 1980, which increased to $2,852 in 1990. Expenditures were higher, and remained so, in the non-Pinelands subgroup both in absolute terms and relative to incomes. In 1980, expenditures per household were equivalent to 7.8% of median household income in the non-Pinelands subgroup, while expenditures were 6.3% of income in the Pinelands subgroup. In 1990, expenditures were 8.7% and 6.9% of income, respectively.

The Lower Access, Lower Density, Middle Income (LLM) group[39] was among those demonstrating high divergence between its non-Pinelands and Pinelands subgroups in terms of rates of growth. Here, the non-Pinelands subgroup, which, in 1980 had the highest expenditure per household of any subgroup, increased per household spending by only 12.7%, while the Pinelands subgroup increased expenditures by 41.2%. Expenditures, when viewed relative to household incomes, fell in both subgroups, by 1.3 percentage points in the non-Pinelands subgroup and by one-tenth of a percentage point in the Pinelands subgroup, to end the decade at 9.2% and 7.9% respectively.

Expenditures per household increased by 26.5% in the non-Pinelands Higher Access, Middle Density, Middle Income (HMM) subgroup, while growing by 14.1% in its Pinelands counterpart. Viewed relative to household income, expenditures fell slightly in the non-Pinelands subgroup, from 7.2% to 7.1%, while falling more dramatically in the Pinelands portion, from 7.9% to 6.7%.

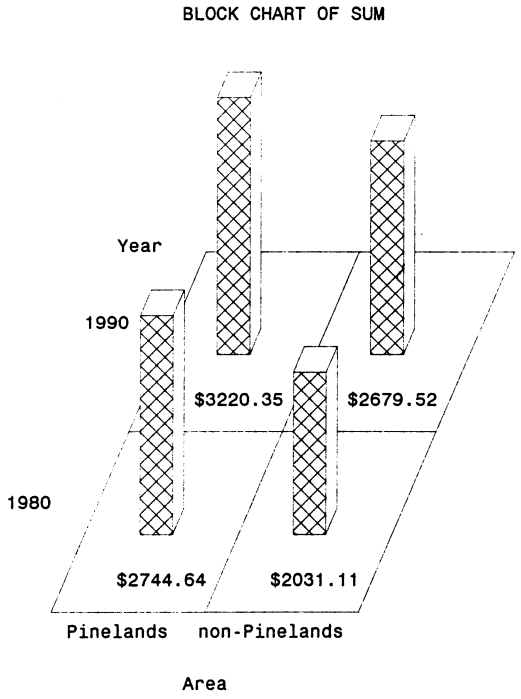
Several groups examined here showed a significant divergence in rate of change in expenditures per household between Pinelands and non-Pinelands subgroups. Further investigation may be appropriate to determine the sources of divergent behavior in these groups. The most striking divergence occurred in the MMH group and this group may be a valid starting point for further investigation.

[39] As was the case with the Municipal Expenditures per Capita analysis, Lower Alloways Creek Township is excluded from this analysis.

Figure 9.5a.

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Lower Access Lower Density Lower Income

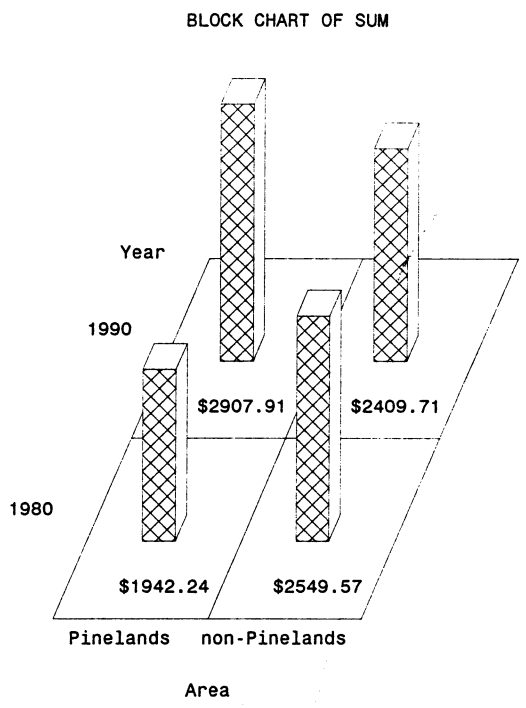


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 9.5b

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Middle Access Middle Density Higher Income

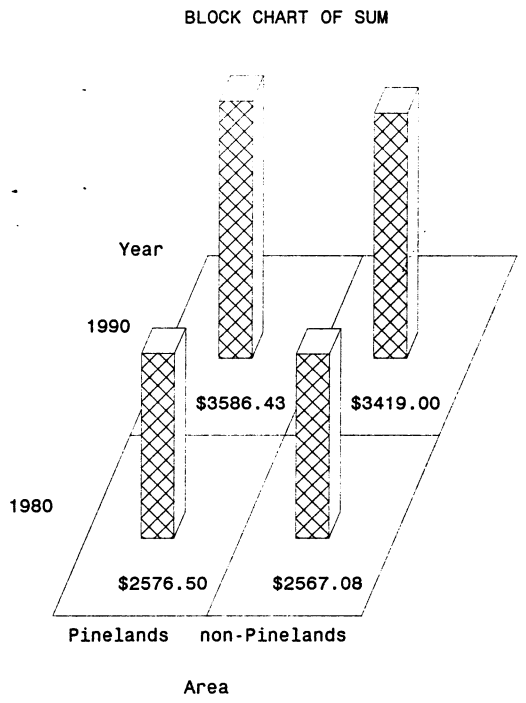


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 9.5c.

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Higher Access Middle Density Higher Income

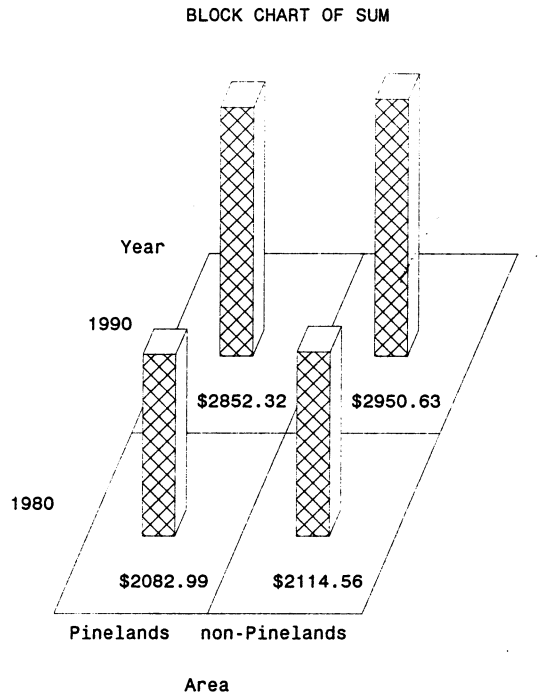


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 9.5d.

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Middle Access Higher Density MIddle Income

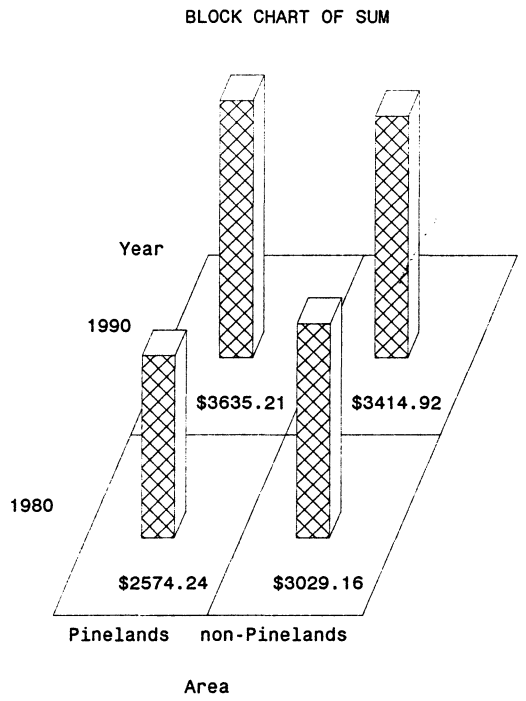


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 9.5e.

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Lower Access Lower Density Middle Income

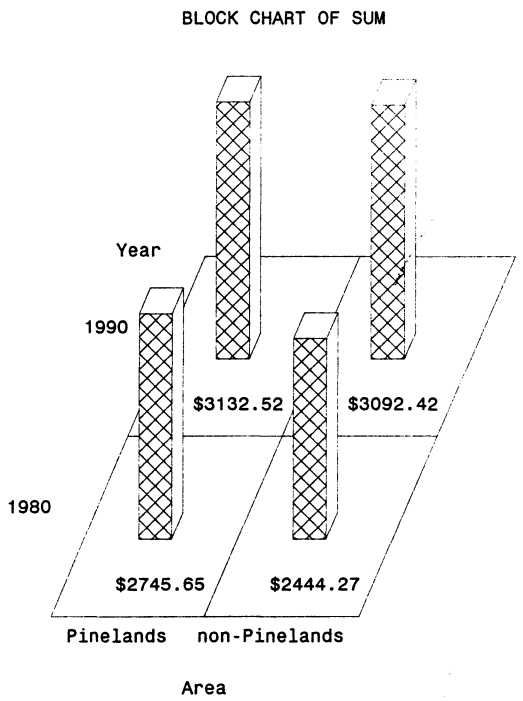


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 9.5f.

Municipal Expenditures per Household

Real 1995 Dollars
GROUP=Higher Access Middle Density Middle Income

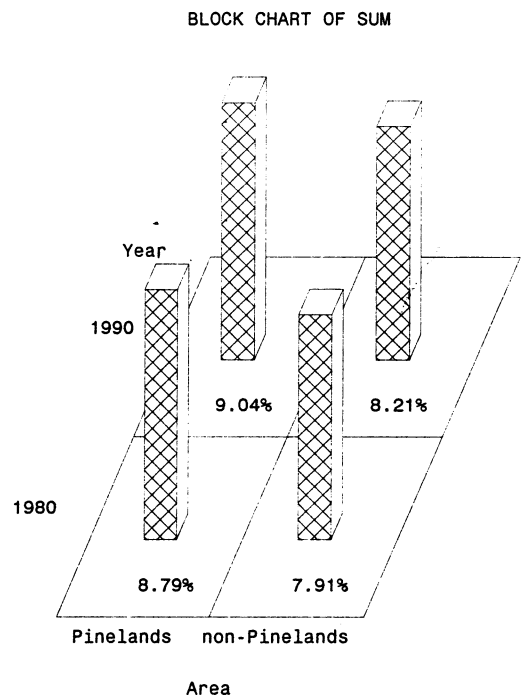


Sources: NJ Department of Community Affairs, Division of Local Government Services; U.S. Census, STF3A Files

Figure 9.6a.

Municipal Expenditures Relative to Median Household Income

GROUP=Lower Access Lower Density Lower Income

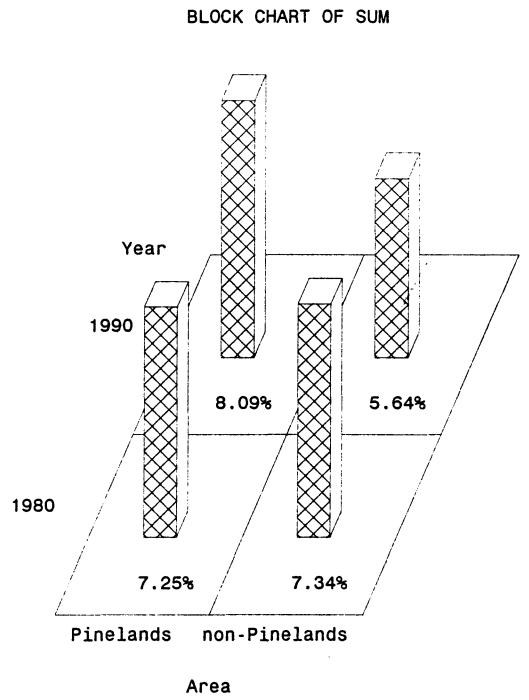


Sources: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Census, STF3A Files
Median Household Income by Group and for South Jersey is Estimated

Figure 9.6b.

Municipal Expenditures Relative to Median Household Income

GROUP=Middle Access Middle Density Higher Income

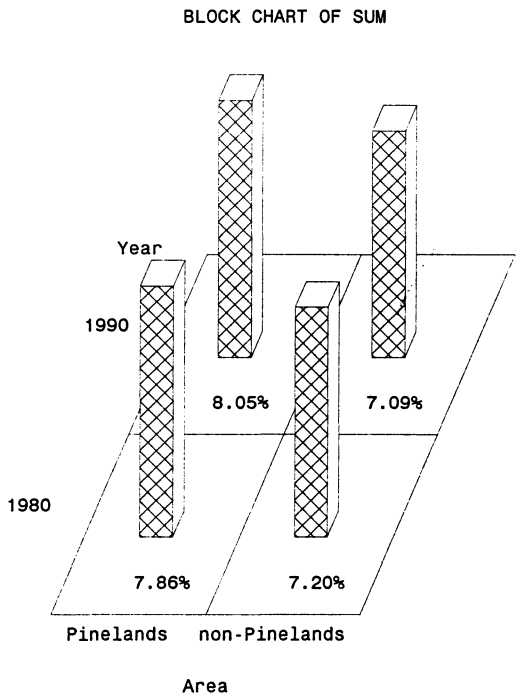


Sources: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Census, STF3A Files
Median Household Income by Group and for South Jersey is Estimated

Figure 9.6c.

Municipal Expenditures Relative to Median Household Income

GROUP=Higher Access Middle Density Higher Income

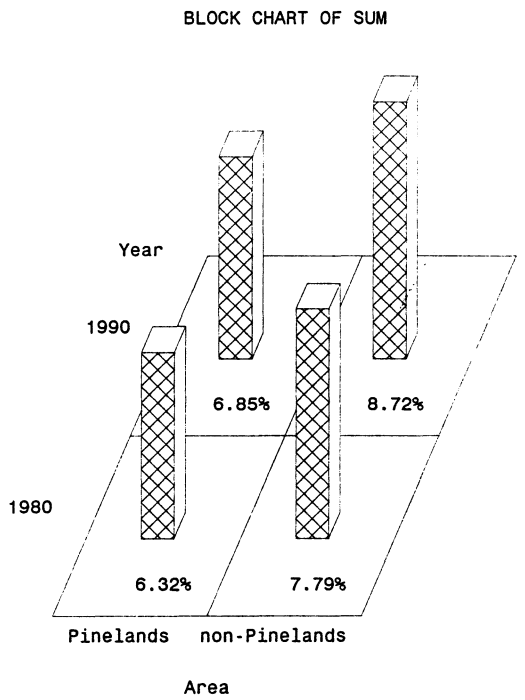


Sources: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Census, STF3A Files
Median Household Income by Group and for South Jersey is Estimated

Figure 9.6d.

Municipal Expenditures Relative to Median Household Income

GROUP=Middle Access Higher Density MIddle Income

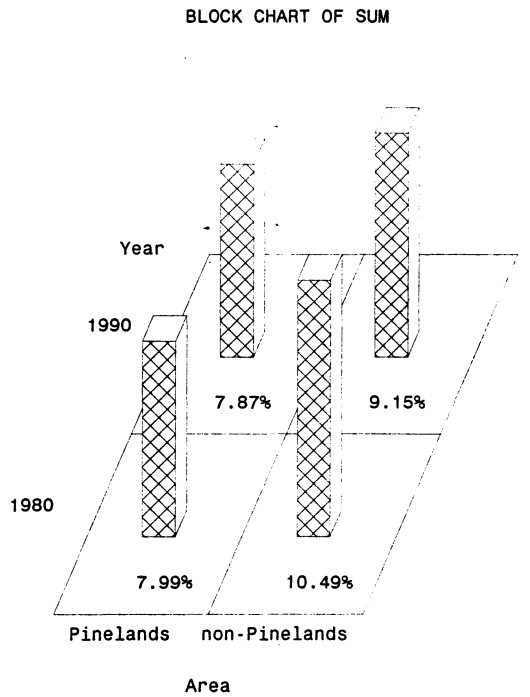


Sources: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Census, STF3A Files
Median Household Income by Group and for South Jersey is Estimated

Figure 9.6e.

Municipal Expenditures Relative to Median Household Income

GROUP=Lower Access Lower Density Middle Income

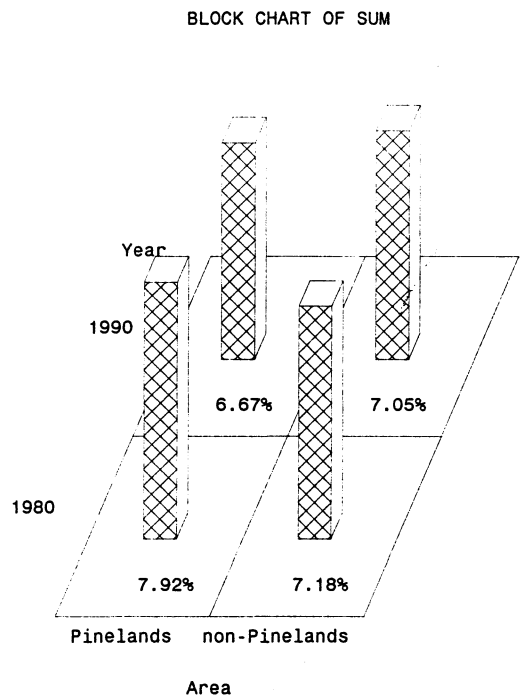


Sources: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Census, STF3A Files
Median Household Income by Group and for South Jersey is Estimated

Figure 9.6f.

Municipal Expenditures Relative to Median Household Income

GROUP=Higher Access Middle Density Middle Income



Sources: NJ Department of Community Affairs, Division of
Local Government Services; U.S. Census, STF3A Files
Median Household Income by Group and for South Jersey is Estimated

9.7 Average Residential Property Tax Bill

Interestingly, the comparables groups differ significantly from the general Pinelands/non-Pinelands trends described in Section 8.6. From a regional perspective, average residential taxes in Pinelands towns have historically been lower than other southern New Jersey communities; yet in 5 of the 6 comparable groups, residential taxes in Pinelands subgroups were about the same or higher than their non-Pinelands counterparts at the start of the period in 1983. During the period, the average tax bills (adjusted for inflation) increased through 1990 for the subgroups, receded in 1990 and 1991, and have grown subsequently, albeit at different rates.

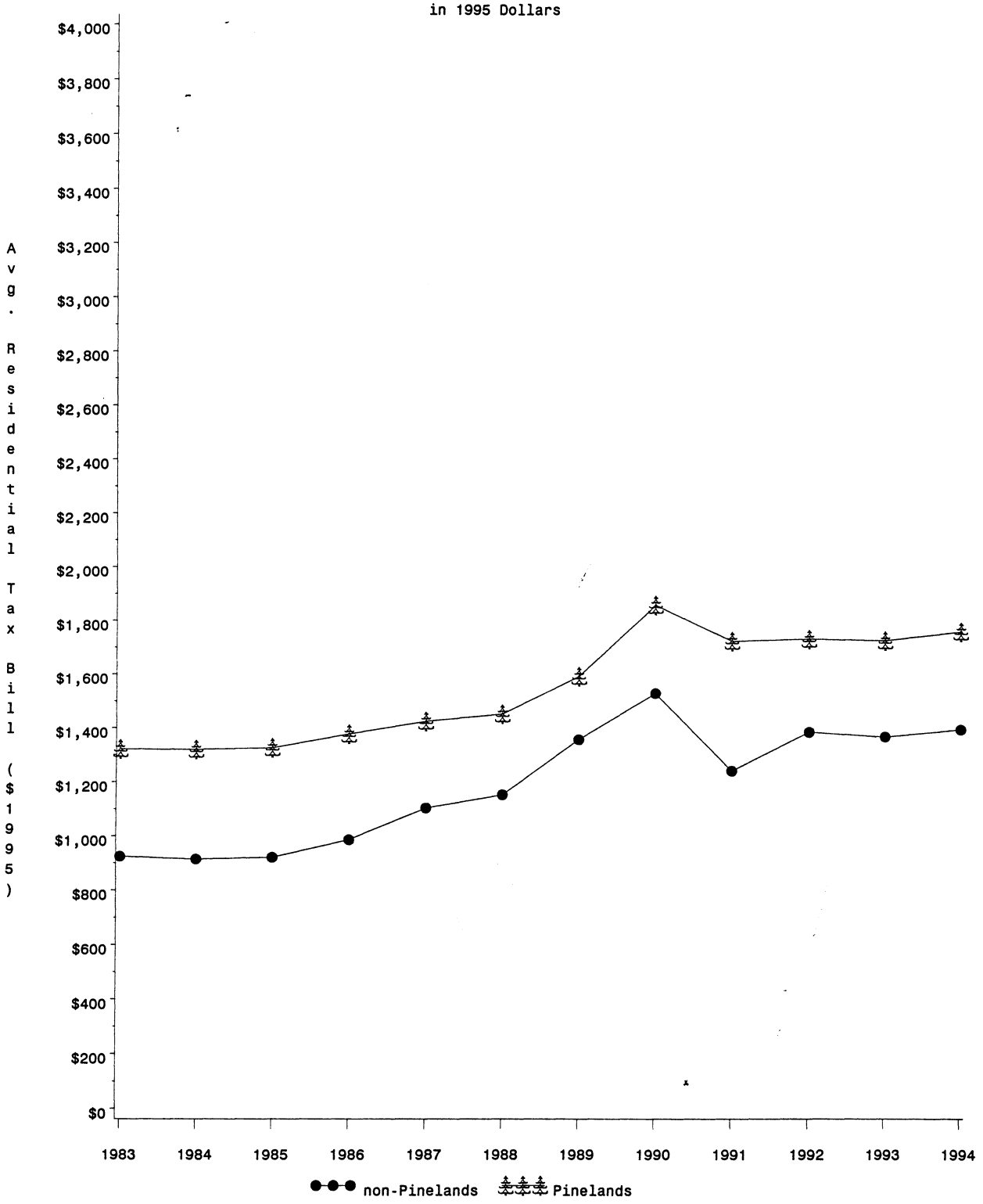
No special studies are suggested based upon these data.

Figure 9.7a

Average Residential Property Tax Bill

GROUP=Lower Access Lower Density Lower Income

in 1995 Dollars



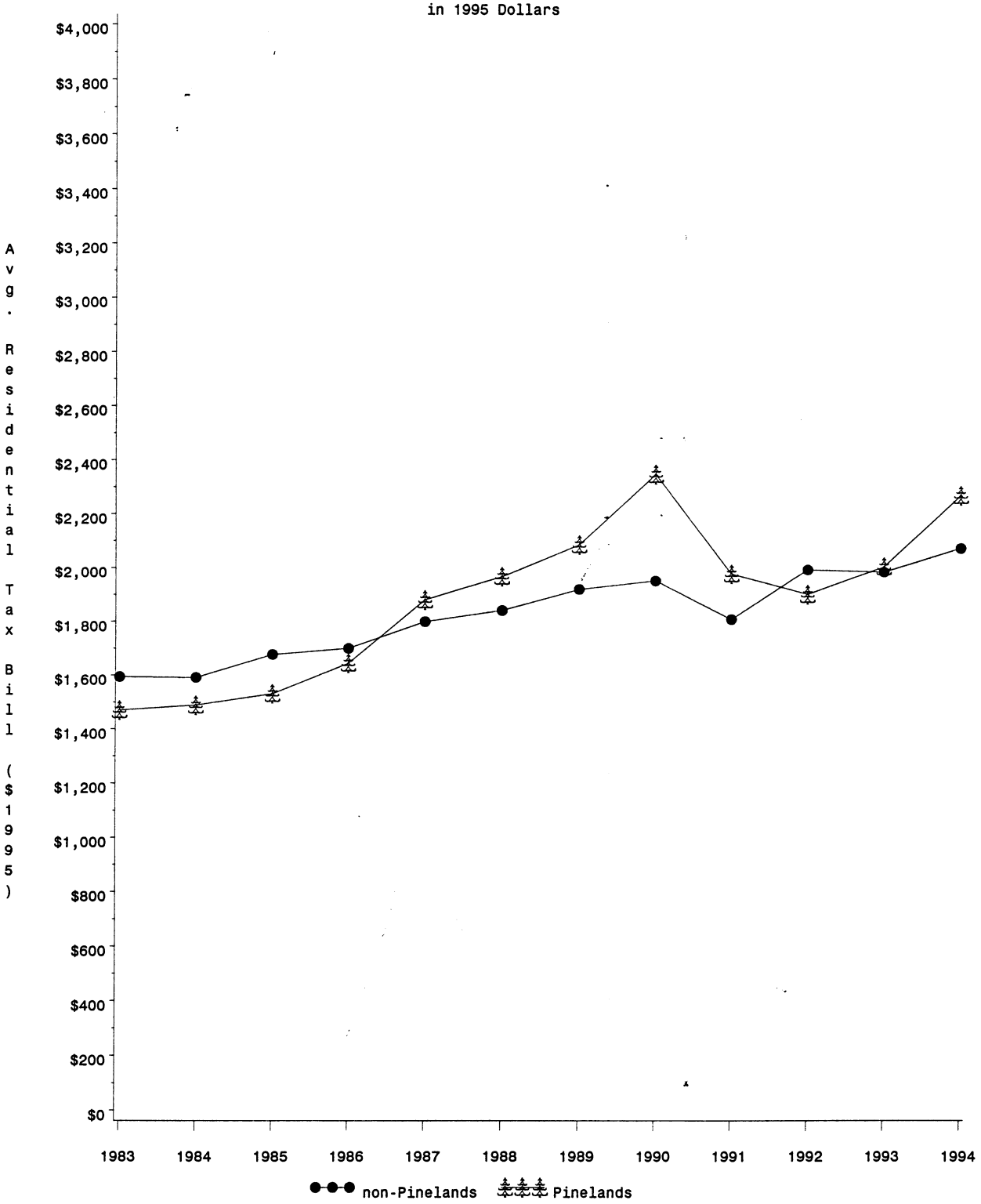
Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

Figure 9.7b

Average Residential Property Tax Bill

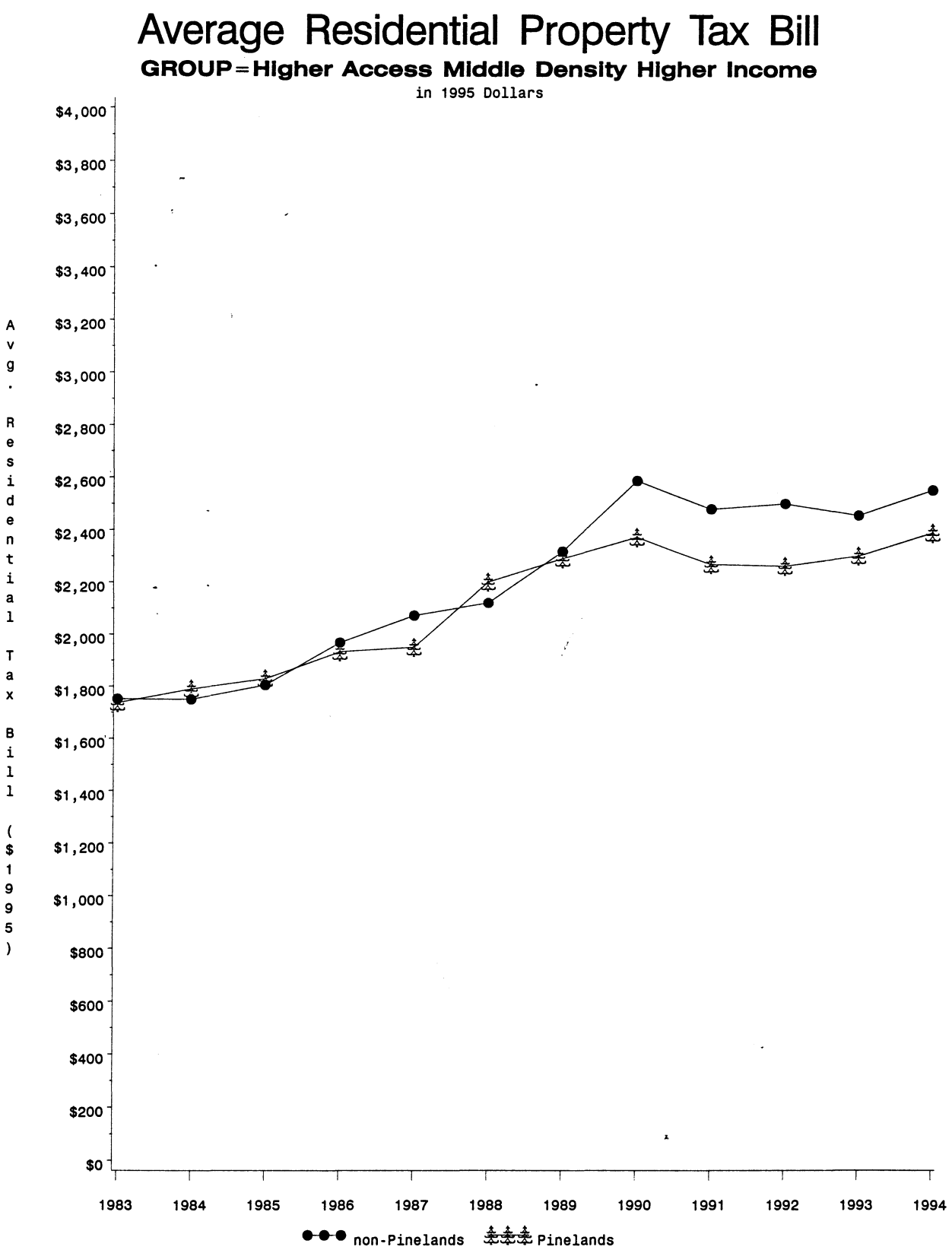
GROUP = Middle Access Middle Density Higher Income

in 1995 Dollars



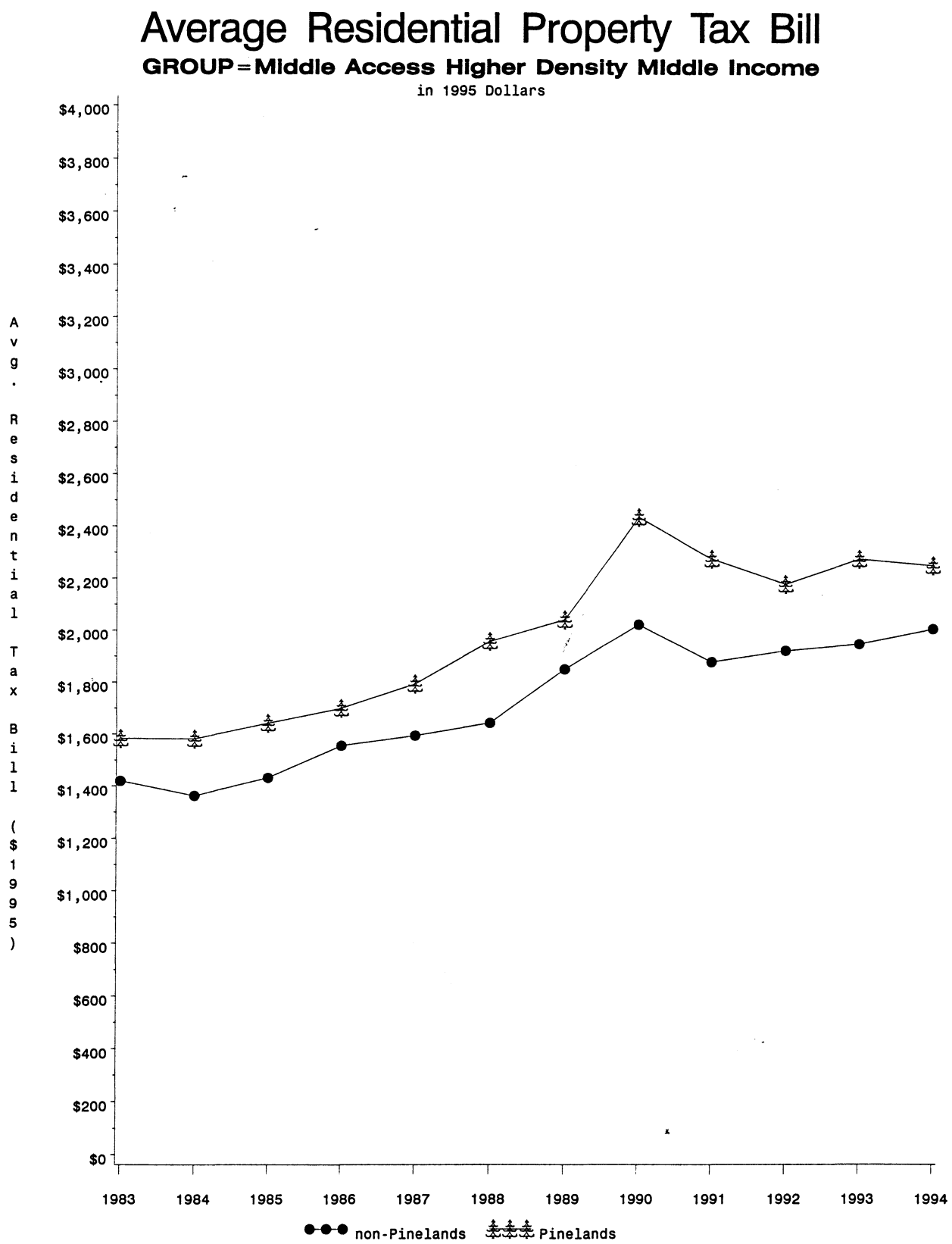
Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

Figure 9.7c



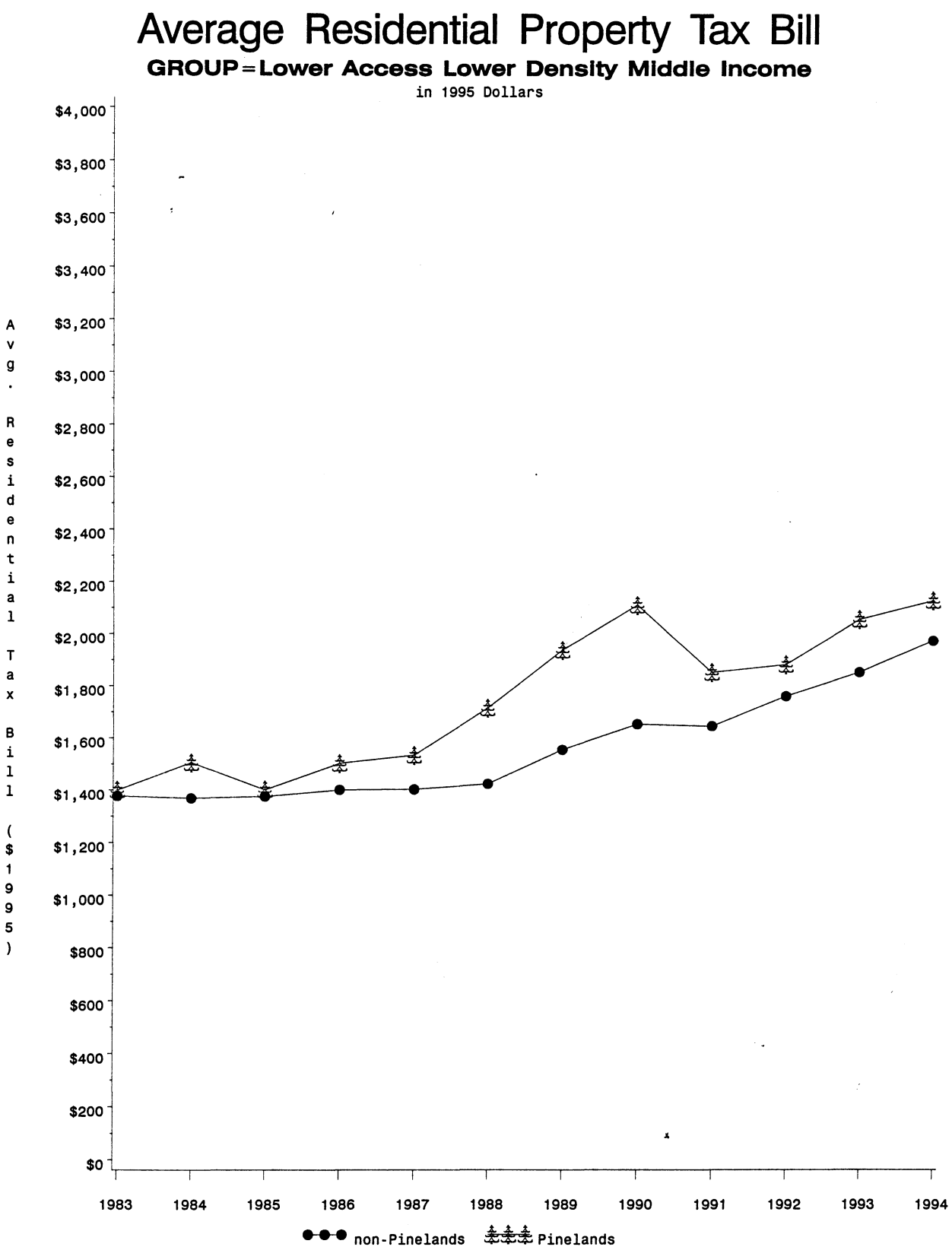
Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

Figure 9.7d



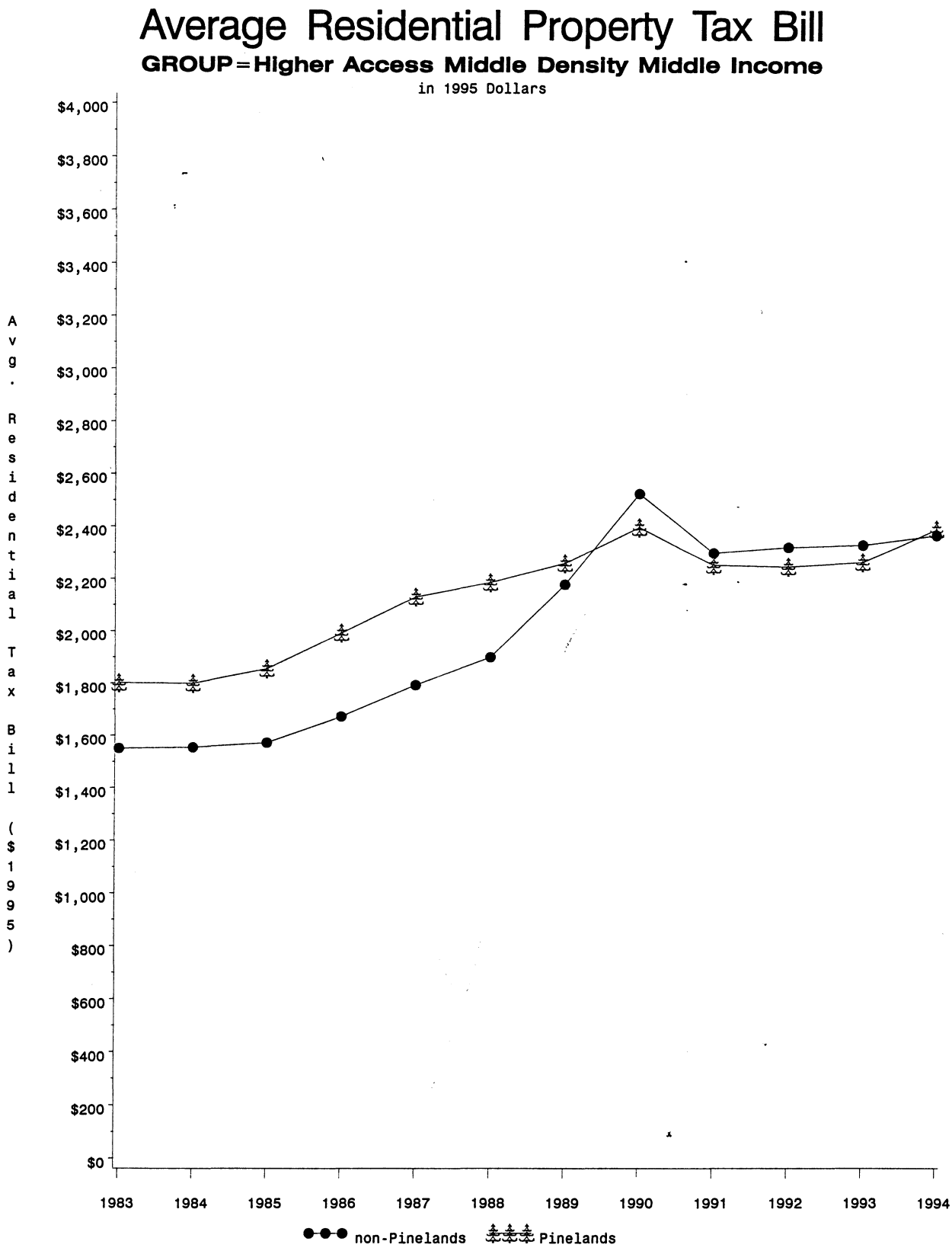
Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

Figure 9.7e



Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

Figure 9.7f



Source: NJ Department of Treasury
Office of Tax Analysis, Local Property Branch

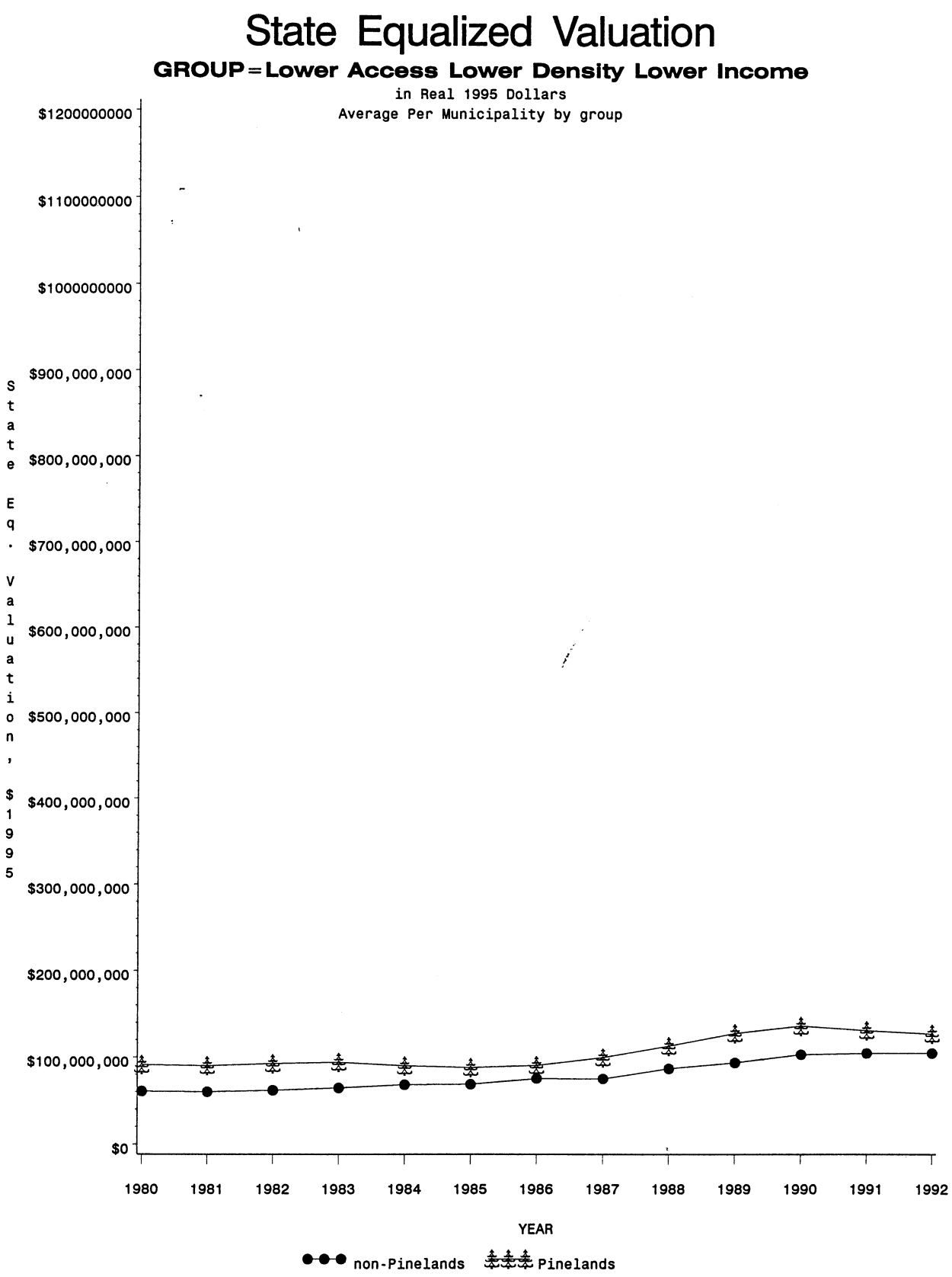
9.8 State Equalized Valuation

Unlike the overall valuation trends reported in Section 8.7, Pinelands subgroups maintained a higher total valuation than their non-Pinelands counterparts throughout the entire 13 year period in all but one comparable group. The 1991-92 drop in the Middle Access, Middle Density and Higher Income (MMH) Pinelands subgroup is more pronounced than other southern New Jersey valuation trends but it is not inconsistent with the statewide trend. Nevertheless, that Pinelands subgroup and three others experienced total valuation increases at a significantly higher rate than their non-Pinelands counterparts over the period.

The Lower Access, Lower Density, Middle Income (LLM) group was the only one in which the Pinelands subgroup had a lower average valuation than its non-Pinelands counterpart. These two valuations were not substantially different, and they increased only slightly over the period, though by about the same rate.

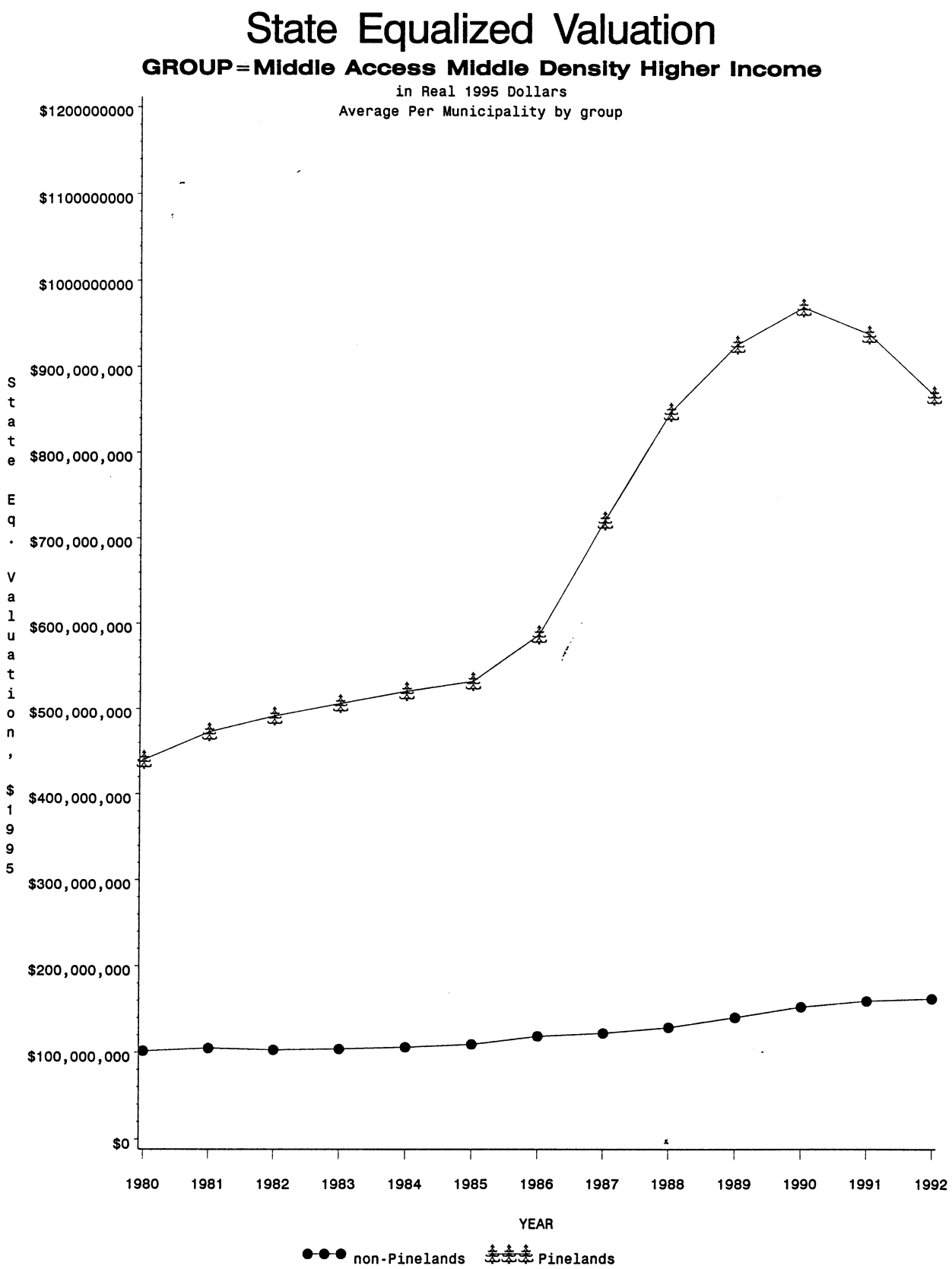
No special studies appear to be warranted.

Figure 9.8a



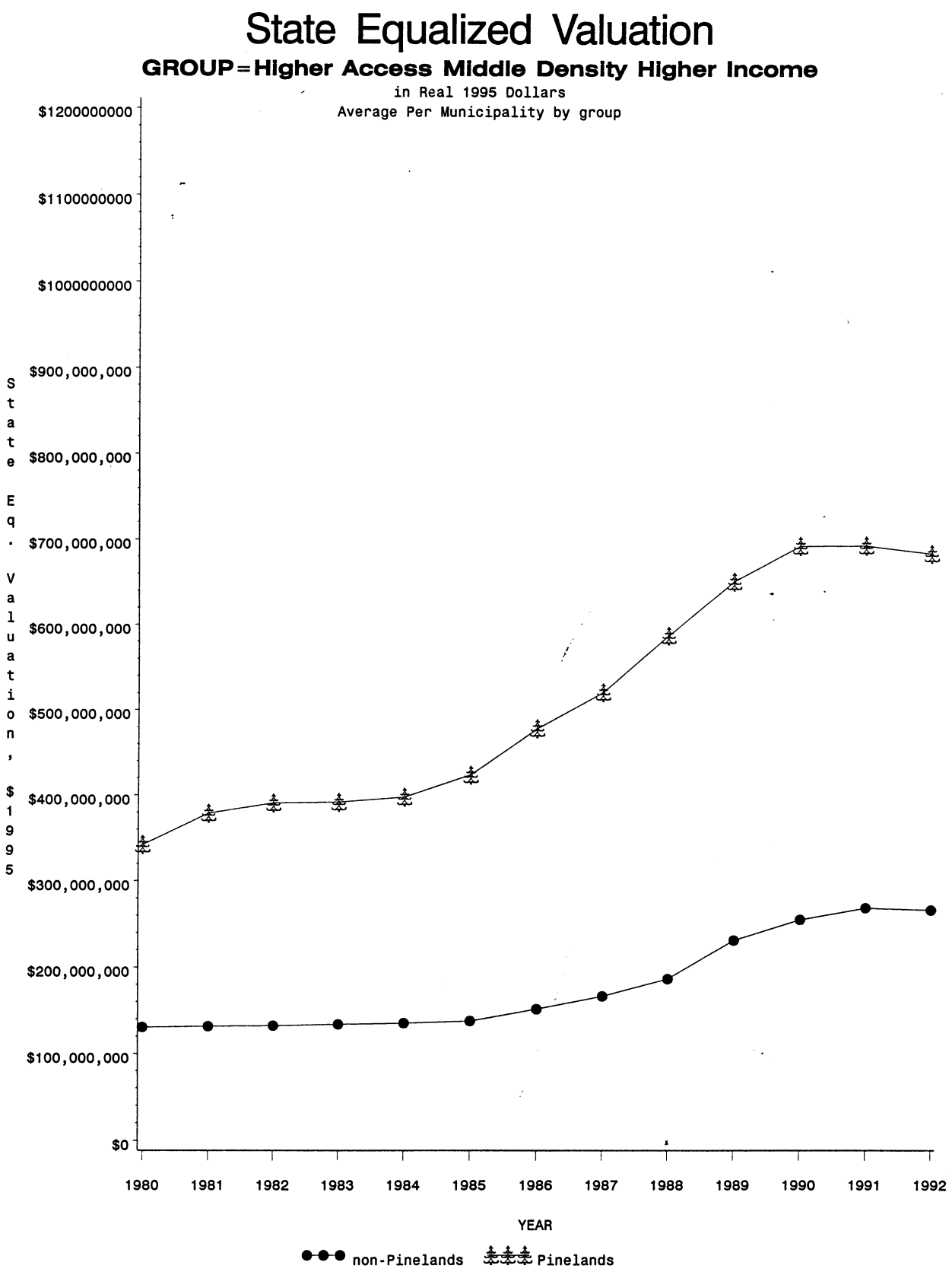
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.8b



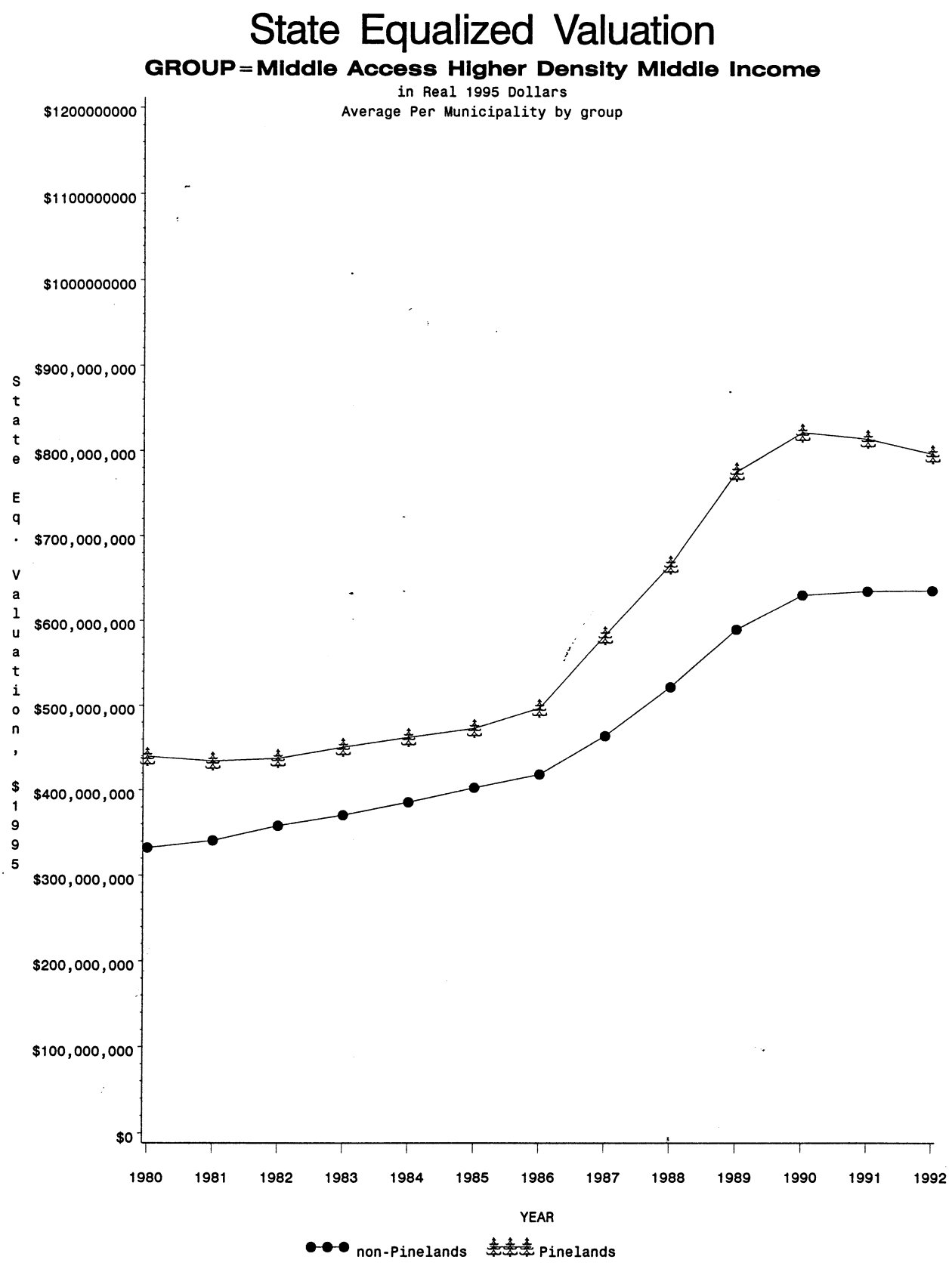
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.8c



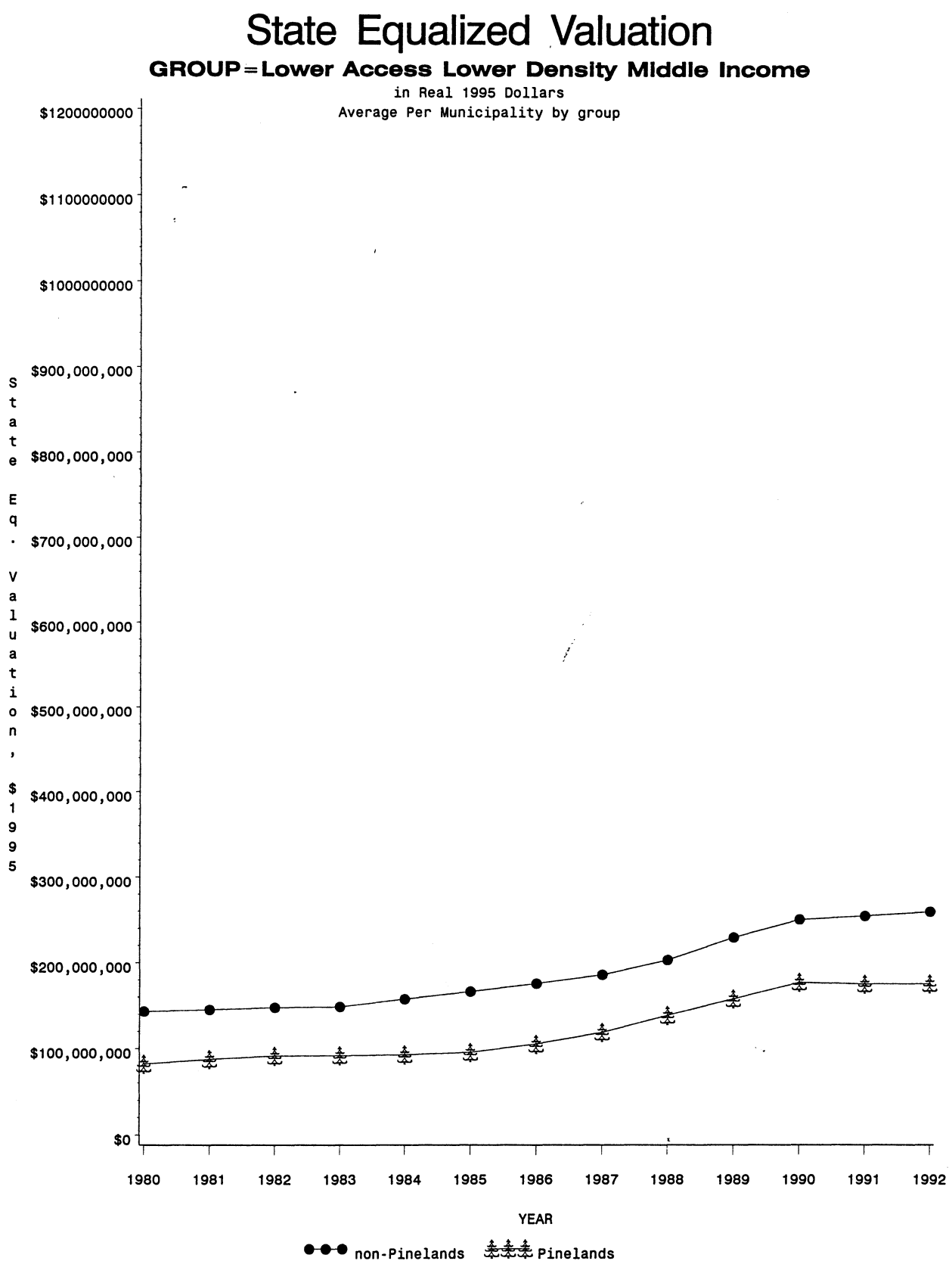
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.8d



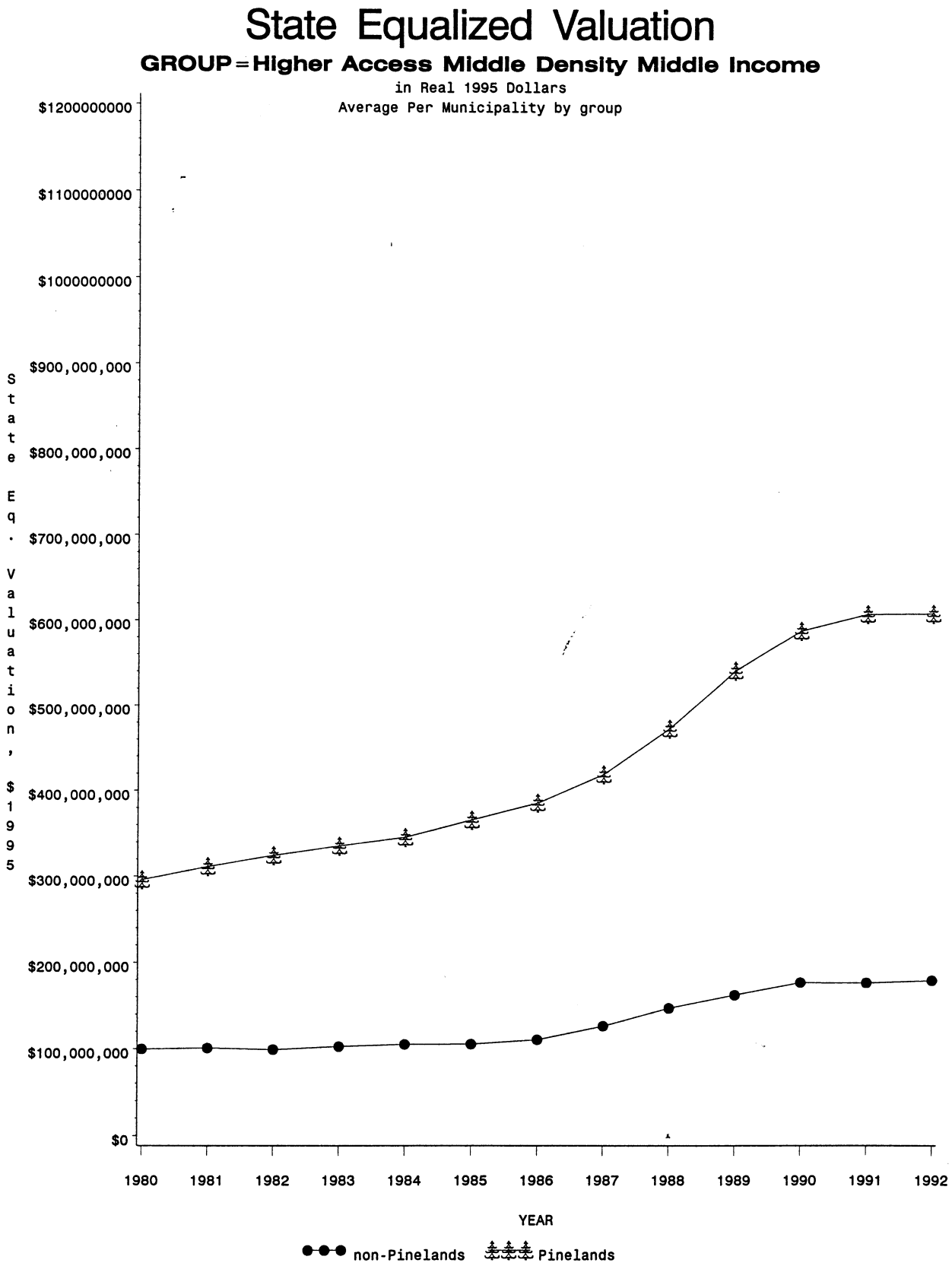
Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.8e



Source: NJ Department of Community Affairs, Division of Local Government Services

Figure 9.8f

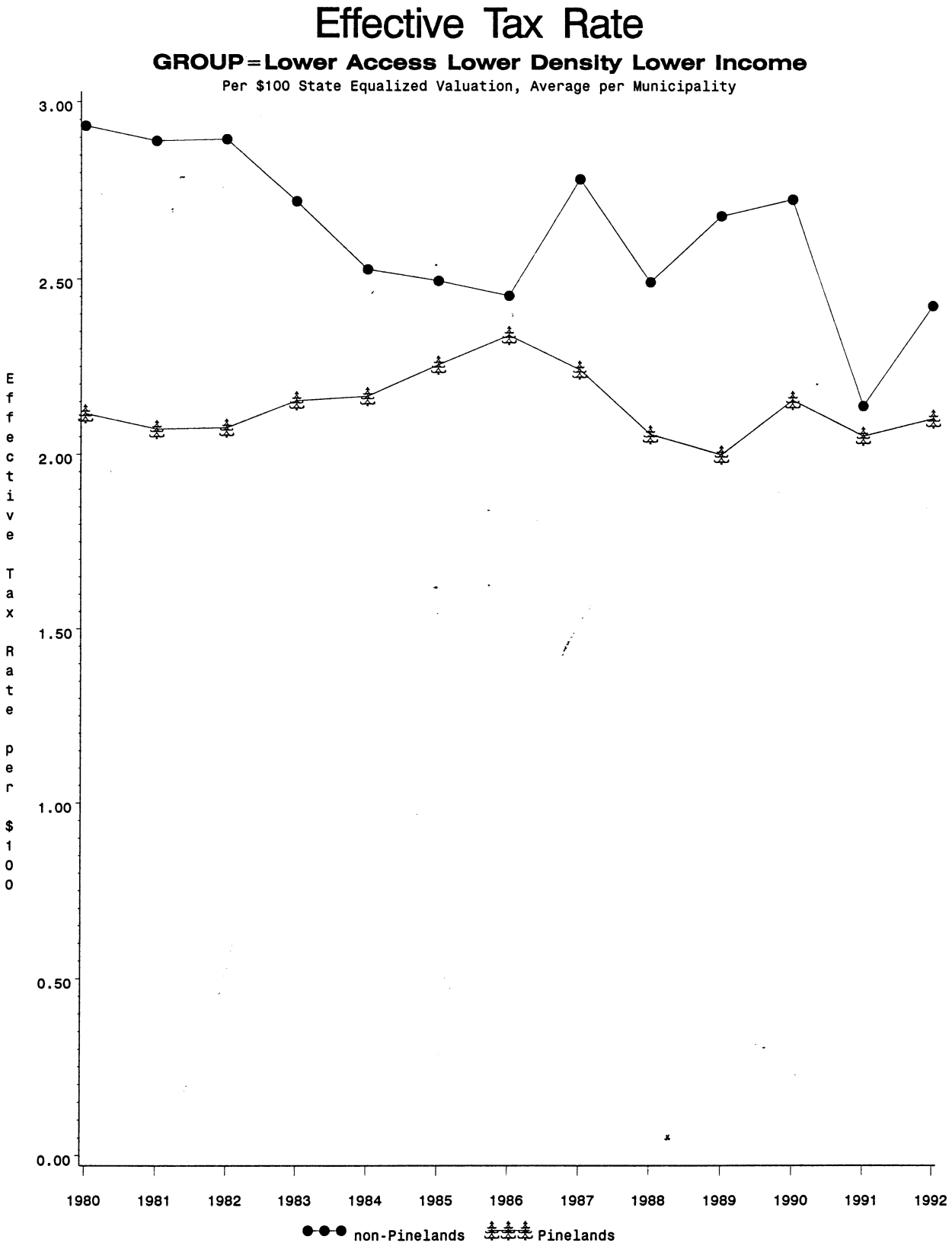


Source: NJ Department of Community Affairs, Division of Local Government Services

9.9 Effective Tax Rates

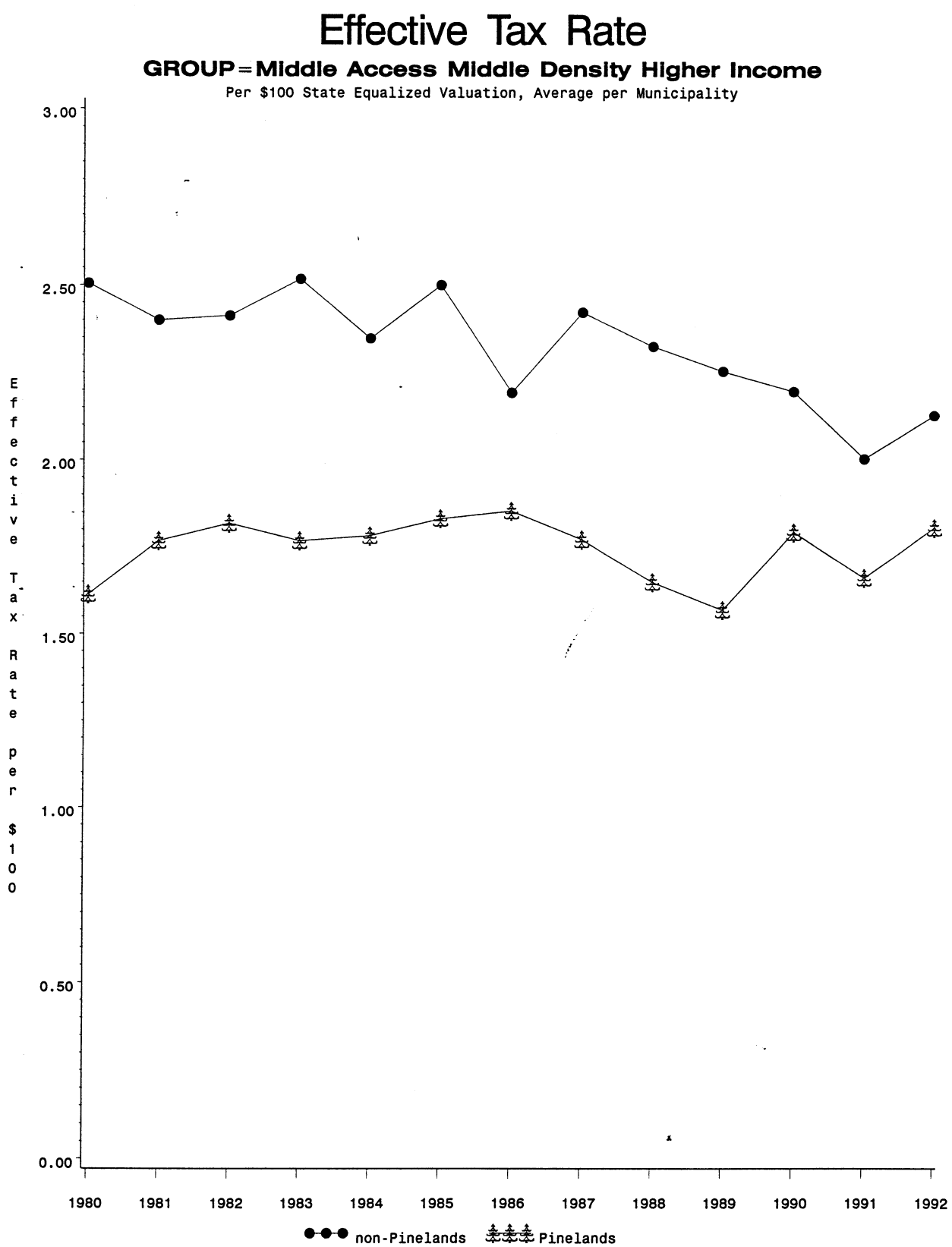
Effective tax rates are more volatile from year to year than many of the other variables being monitored. In general, tax rates in Pinelands subgroups began the period about the same or lower than their non-Pinelands counterparts. However, in two groups (Lower Access, Lower Density, Lower Income [LLL] and Middle Access, Middle Density, Higher Income [MMH]) the gap closed and, in two others (Higher Access, Middle Density, Middle Income [HMM] and Higher Access, Middle Density, Higher Income [HMH]), the Pinelands subgroup ended the period with a higher tax rate than its non-Pinelands counterpart. This is not dissimilar to the general trends noted in Section 8.8 where historically lower Pinelands tax rates are getting closer to those of surrounding communities. The trends do not appear to indicate the need for any special studies at this time.

Figure 9.9a



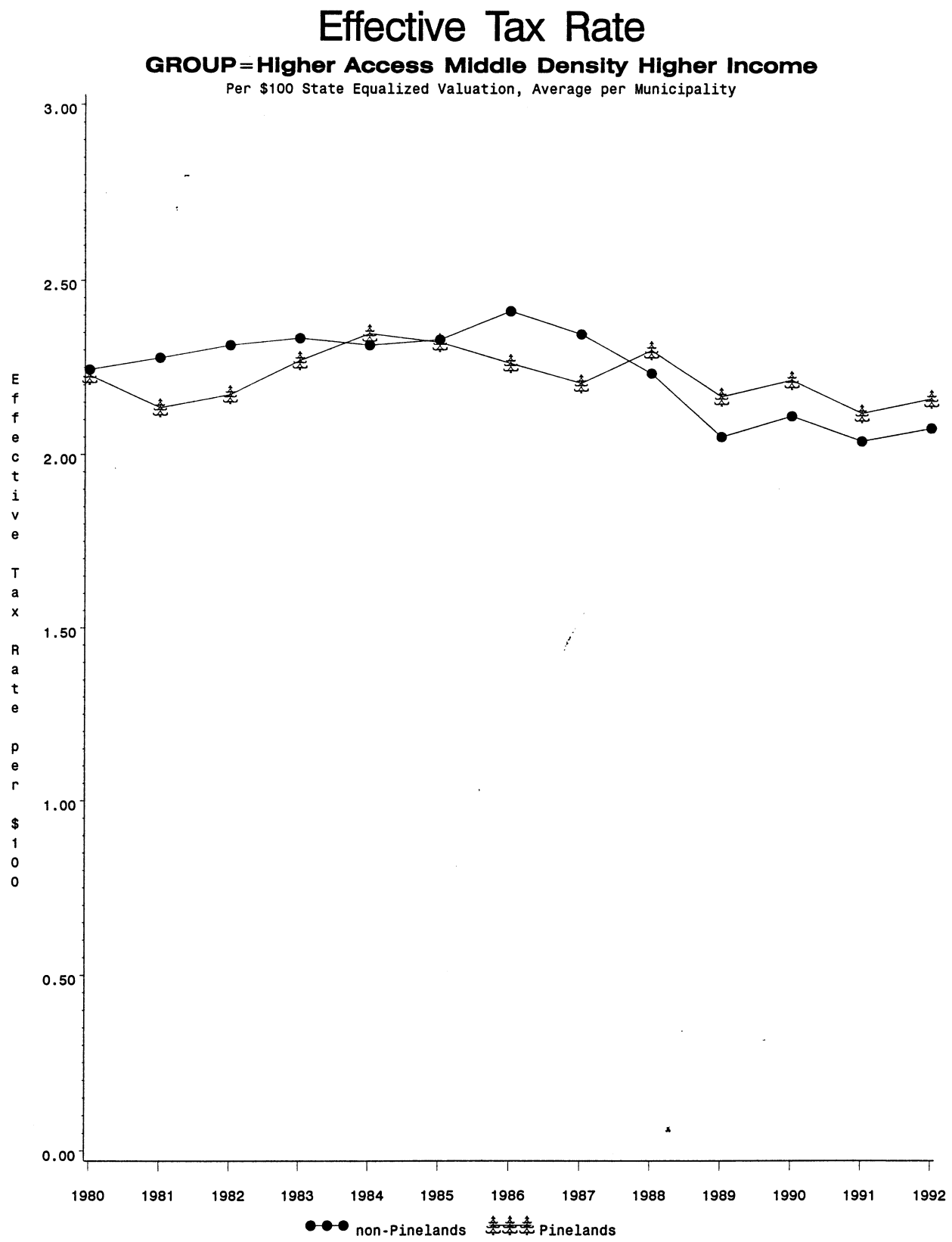
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.9b



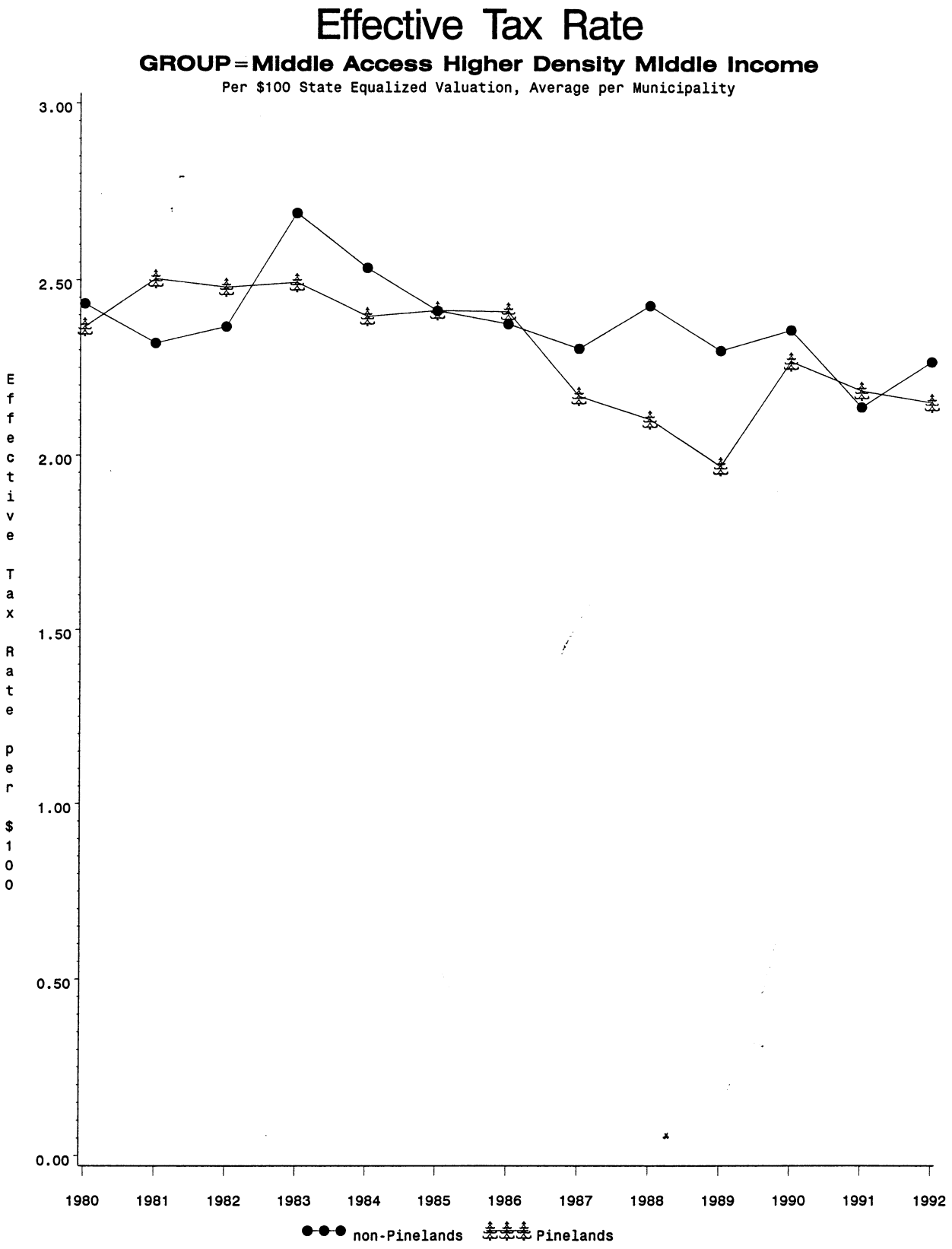
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.9c



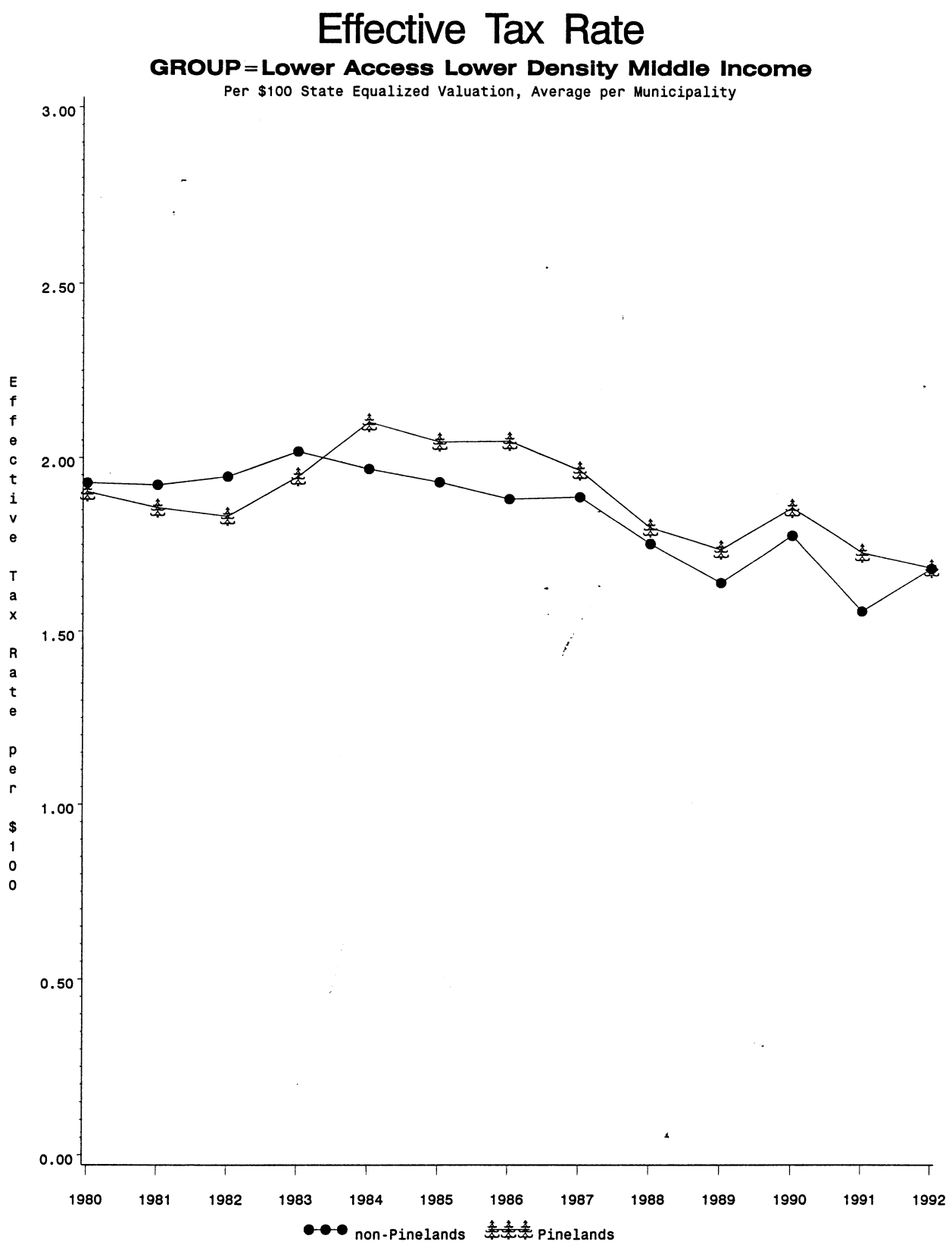
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.9d



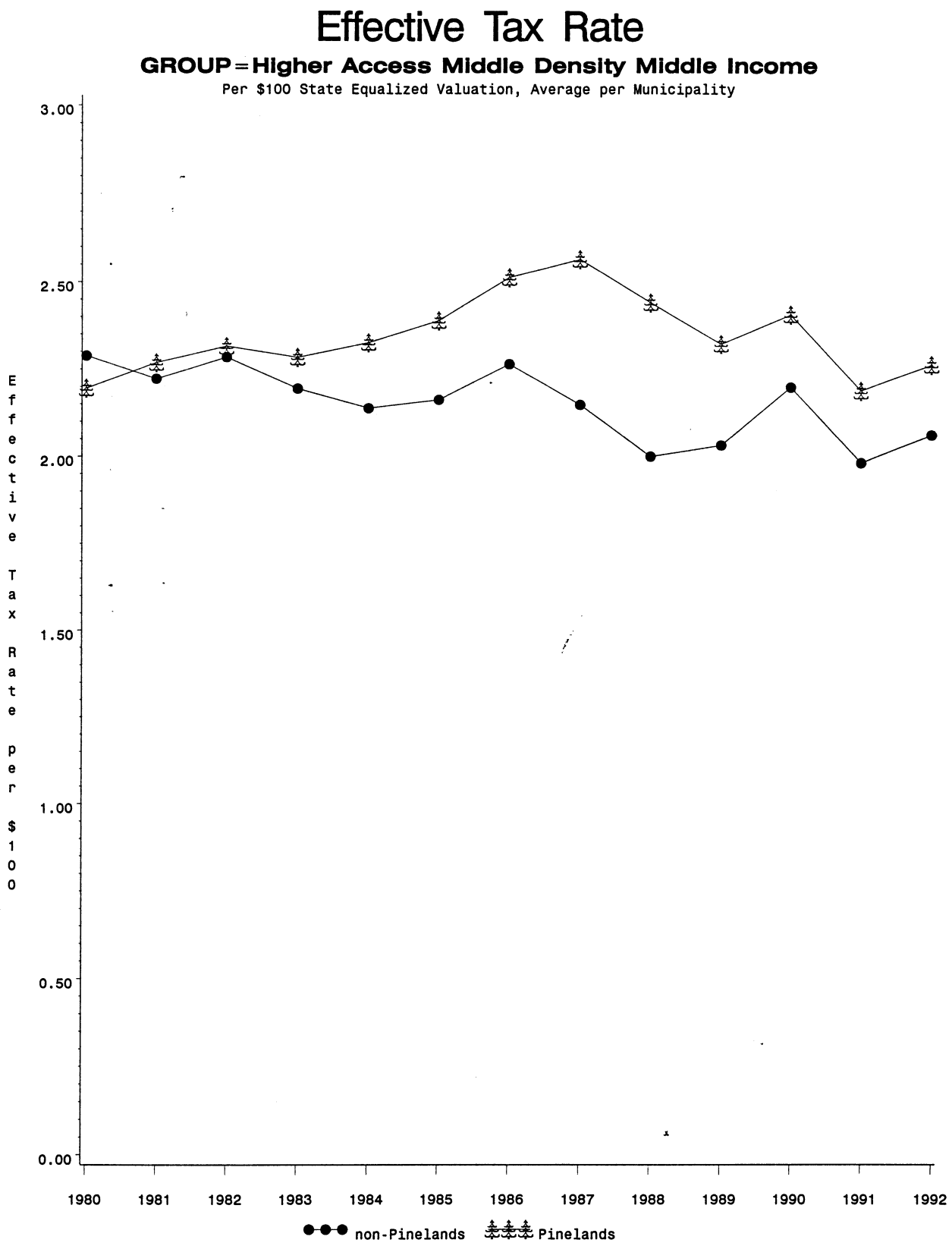
Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.9e



Source: NJ Department of Community Affairs,
Division of Local Government Services

Figure 9.9f



Source: NJ Department of Community Affairs,
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APPENDIX A. SELECTED REFERENCES

SELECTED REFERENCES - PINELANDS ECONOMIC ANALYSES

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APPENDIX B. LIST OF ACRONYMS

BEA - United States Bureau of Economic Analysis

CMP - Pinelands Comprehensive Management Plan (N.J.A.C. 7:50)

DCA - Department of Community Affairs (New Jersey)

MCD - Municipal Civil Division

NPS - National Park Service

SDC - State Data Center (New Jersey)

SIC - Standard Industrial Classification

SSEL - U.S. Bureau of the Census' Statistical Establishment List

APPENDIX C. DERIVATION OF MUNICIPAL COMPARABLES GROUPINGS

1. INTRODUCTION

Grouping municipalities with similar characteristics allows for a more detailed look at how inside and outside communities function over time without the complexity of performing hundreds of individual comparisons between individual municipalities in the southern 8 counties of New Jersey. The methodology used to develop the groupings involved the following steps:

1.1 Development of groupings based on data from 1980 seeks to ensure that similarities and differences within and between groups are due to factors potentially including implementation of the CMP (a potential area for future study would be to examine if and how group members change if a later year, e.g., 1990, is used).

1.2. Compilation of Data on Criteria Variables - Municipal-level data were compiled for three criteria variables: population density, per capita income, and access to major employment centers. These variables were selected because they are quantitative measures of basic community characteristics, which can then be used to identify similar and different municipalities. Another potential area for future study is to evaluate comparability on the basis of other or additional criteria.

1.3. Exclusion of Distinct Municipalities - The universe of 202 MCDs in the southern 8 counties was narrowed down to exclude those municipalities that are fundamentally different from other communities in the surrounding region (e.g., municipalities containing or adjoining military bases, on barrier islands, or comprised of major urban areas). A total of 32 municipalities were excluded from consideration.

1.4. Designation of Inside and Outside Municipalities - The remaining 170 MCDs were classified as either inside or outside of the Pinelands, based on the proportion of land inside of the Pinelands boundary.

1.5. Derivation of Groupings - MCDs were categorized into groupings based on their values for the criteria variables. Groupings were then qualitatively reviewed to eliminate MCDs that were known to differ in key respects from other group members, and to ensure a sufficient number of inside/outside MCDs within each group. A total of 6 groups resulted, comprised of 28 Pinelands MCDs and 27 non-Pinelands MCDs.

Each of these steps is described in more detail below.

2. COMPILATION OF DATA ON CRITERIA VARIABLES

2.1. Population Density and Per Capita Income

Compilation of municipal-level data on population density and per capita income was straightforward and relied on information from readily available sources (U.S. Department of Commerce, Bureau of the Census, for per capita income and for population density). Data for both variables were compiled for 1980, the effective start date of the CMP.

2.2. Accessibility to Major Employment Centers

Obtaining data for the third criteria variable, access to major employment centers, was much more complex. While the original project design called for the measurement of proximity to transportation networks, the refined measurement that was ultimately used recognizes that proximity is typically most valued as it relates to employment. The approach used to calculate access for each of the 202 MCDs involved development of an index based on the ratio of employment in each of five major centers to travel time to that center. The five employment centers, which were selected based on their influence in southern New Jersey, are: Atlantic City, NJ; Philadelphia, PA; Toms River, NJ; Trenton, NJ; and Vineland, NJ. The three major steps in the calculation process - delineation of the employment centers, estimation of travel time, and computation of access - are described below.

Delineation of Employment Centers

Derivation of the employment centers relied on a basic assumption that as the proximity of surrounding communities to a center decreases, the economic influence of the center on each of these communities decreases. Employment in the surrounding areas is consequently expected to be concentrated in communities which are closer to a center. Employment enters the Access measure as a determination of the economic weight of each center on South Jersey. Thus, the first step is to derive the employment which may be attributed to each center.

The delineation of the employment centers required a determination of how to measure the employment in and around each major center. Data on the number of jobs in 1980, by location of the job, was collected for each of the 202 MCDs of South Jersey using the covered employment data produced by the New Jersey Department of Labor. The covered employment data are limited to information on employees in private firms that are required to report for the purposes of state unemployment insurance coverage. These data (for 1980) exclude information on government employees, domestic workers, and certain other types of workers. For this reason, the covered employment numbers were adjusted upward by a factor based on annual employment estimates by county from the U.S. Bureau of Economic Analysis (BEA). BEA data include government workers and other groups that are excluded from the covered employment data. Specifically, the number of workers in each municipality according to the covered employment data was adjusted upward by a factor equal to the ratio of the BEA's total for the county in which that municipality is found, to the

total covered employment for that county. In this way, the difference between the covered employment and BEA estimates is accounted for in the calculated employment for each MCD. The implicit assumption of this calculation is that the employment excluded by covered employment (e.g., government workers) is distributed evenly across municipalities. While this assumption is not completely accurate, its implications are innocuous as these MCD-level estimates will be aggregated to the labor market level.

Table C2a. Employment Statistics Used for Estimating Employment by Municipality

County	Covered Employment, 1980	BEA Estimated Employment, 1980
Atlantic	76,298	109,666
Burlington	79,892	144,941
Camden	139,365	205,189
Cape May	25,968	38,198
Cumberland	45,087	64,883
Gloucester	45,983	70,281
Ocean	17,418	29,672
Salem	59,564	102,963

Graphs of employment by municipality relative to travel time were examined to determine the extent of employment concentration for each center. A travel time radius for each center which established the extent of employment concentration was estimated based on this examination. For the four centers within New Jersey, this radius was 30 minutes; for Philadelphia, it was a 45-minute travel time. Then, for each center, the employment attributed to that center was the sum of employment within all municipalities located within the travel time radius of that center. In addition, because use of employment data from the southern 8 counties in New Jersey ignores significant portions of the labor markets that comprise Trenton and Philadelphia, the BEA estimate of employment in Philadelphia County was added to the calculated employment for Philadelphia and the BEA estimate of employment in Mercer County was added to Trenton. The resulting employment attributed to each center, which was subsequently used as a weight in deriving Access, is shown in Table C2b below.

Table C2b. Employment Attributed to Centers for Use in Deriving Access

Center	Employment
Philadelphia	1,303,059
Atlantic City	101,084
Vineland	78,035
Toms River	89,651
Trenton	266,363

Estimation of Travel Time

The travel time to major centers was estimated for each municipality using Rand McNally's TripMaker™ Software. This program calculates travel time in minutes for the quickest route between origin and destination points, with differential speeds assigned to three types of roads: federal interstate highways, state routes, and county roads. The program also allows for certain routes to be preferentially avoided. Using this feature, the software was programmed to avoid Route 55 above Vineland, which did not exist in 1980, in order to maintain chronological consistency in calculation of the criteria variable.

The software did not, however, contain locations for all of the 202 MCDs. For those MCDs that were not included (primarily townships), a surrogate location was identified based on a review of county maps. Locations were selected as surrogates if they were recognized by the software and judged to be the location closest to, or most central to, the excluded MCD. The distance between the surrogate location and each center was then calculated using TripMaker™. A list of locations that were not included in the software and their surrogates is provided in Table C2c. Two other limitations that were not addressed in the calculation of travel were congestion effects and proximity to public transportation. A more detailed analysis of commuting patterns would help in addressing these limitations and may be appropriate for future study.

Table C2c. Surrogate Locations

MCD Name	County	Surrogate
Buena Vista Township	Atlantic	Pancoast
Hamilton Township	Atlantic	Clover Leaf Lakes
Mullica Township	Atlantic	Elwood
Weymouth Township	Atlantic	Dorothy
Burlington Township	Burlington	Springside
Florence Township	Burlington	Florence Station
North Hanover Township	Burlington	Jacobstown
Pemberton Township	Burlington	New Lisbon
Springfield Township	Burlington	Jobstown
Washington Township	Burlington	Bulltown
Woodland Township	Burlington	Chatsworth
Berlin Township	Camden	Berlin Boro.*
Gloucester Township	Camden	Grenloch
Hi-nella Borough	Camden	Stratford Boro.*
Dennis Township	Cape May	Dennisville
Lower Township	Cape May	Bennett
Middle Township	Cape May	Cape May Ct. House
Upper Township	Cape May	Petersburg
Commercial Township	Cumberland	North Port Norris
Downe Township	Cumberland	Dividing Creek
Fairfield Township	Cumberland	Fairton
Hopewell Township	Cumberland	Bowentown
Lawrence Township	Cumberland	Cedarville
Upper Deerfield Township	Cumberland	Seabrook
East Greenwich Township	Gloucester	Wolfert
Elk Township	Gloucester	Hardingville
Franklin Township	Gloucester	Plainville
Greenwich Township	Gloucester	Gibbstown
Monroe Township	Gloucester	Cecil
South Harrison Township	Gloucester	Harrisonville
Woolwich Township	Gloucester	Swedesboro*
Dover Township	Ocean	Pleasant Plains
Eagleswood Township	Ocean	Staffordville
Lacey Township	Ocean	Bamber Lake
Little Egg Harbor Township	Ocean	Parkertown
Ocean Township	Ocean	Waretown
Plumsted Township	Ocean	Archertown
Stafford Township	Ocean	Manahawkin
Lower Alloways Creek Township	Salem	Harmersville
Mannington Township	Salem	Welchville
Pilesgrove Township	Salem	Woodstown Boro*
Upper Pittsgrove Township	Salem	Whiglane

* Existing MCD

Computation of Access

The formula to calculate accessibility is based on a ratio of employment in each of the centers to the travel time (squared) from each of the MCDs. For each MCD I, five ratios were calculated, one for each center j. The variable ACCESS, represents the accessibility score for each municipality, and is the sum of the ratios:

$$ACCESS_i = \sum_j \frac{EMP_j}{t_{ij}^2}$$

where EMPj is the total employment attributed to center j, and t_{ij} is the travel time from each municipality I to each center j. Derivation of EMPj is detailed above; t_{ij} was calculated using TripMaker™.

3. EXCLUSION OF DISTINCT MUNICIPALITIES

The universe of 202 MCDs was reviewed to identify those that are sufficiently different from the majority of southern New Jersey communities so as to make them inappropriate for the purpose of this analysis. MCDs that were identified as a result of this review are predominately military, situated on barrier islands, or major urban centers. A total of 32 MCDs, including 5 Pinelands communities, were excluded from further consideration as municipal comparables in order to ensure that the data on the remaining communities is placed in the most appropriate context.

Table C3a. MCDs Excluded from Comparables Data Set

MCD	County	Reason
Absecon City	ATLANTIC	Barrier Island
Atlantic City	ATLANTIC	Major City
Avalon Borough	CAPE MAY	Barrier Island
Barnegat Light Borough	OCEAN	Barrier Island
Bay Head Borough	OCEAN	Barrier Island
Beach Haven Borough	OCEAN	Barrier Island
Brigantine City	ATLANTIC	Barrier Island
Camden City	CAMDEN	Major City
Harvey Cedars Borough	OCEAN	Barrier Island
Lakehurst Borough	OCEAN	Military
Lavallette Borough	OCEAN	Barrier Island
Long Beach Township	OCEAN	Barrier Island
Longport Borough	ATLANTIC	Barrier Island
Mantoloking Borough	OCEAN	Barrier Island
Margate City	ATLANTIC	Barrier Island
New Hanover Township	BURLINGT	Military
North Hanover Township	BURLINGT	Military
North Wildwood City	CAPE MAY	Barrier Island
Ocean City	CAPE MAY	Barrier Island
Point Pleasant Beach Borough	OCEAN	Barrier Island
Stone Harbor Borough	CAPE MAY	Barrier Island
Sea Isle City	CAPE MAY	Barrier Island
Seaside Heights Borough	OCEAN	Barrier Island
Seaside Park Borough	OCEAN	Barrier Island
Ship Bottom Borough	OCEAN	Barrier Island
Springfield Township	BURLINGT	Military
Surf City Borough	OCEAN	Barrier Island
Ventnor City	ATLANTIC	Barrier Island
West Wildwood Borough	CAPE MAY	Barrier Island
Wildwood City	CAPE MAY	Barrier Island
Wildwood Crest Borough	CAPE MAY	Barrier Island
Wrightstown Borough	BURLINGT	Military

4. DESIGNATION OF INSIDE AND OUTSIDE MUNICIPALITIES

Because the border of the Pinelands area does not correspond to MCD boundaries, several MCDs have area both inside and outside of the Pinelands. In order to promote consistent data analysis and interpretation, municipalities with more than 10% of their total land area within the

Pinelands Area were considered to be Pinelands communities. Communities with 10% or less (including none) of their land area within the jurisdiction are referred to as "outside" communities. Review of the data for all municipalities indicated that 10% is a natural break point in differentiating among predominantly inside or outside communities. Of the 53 municipalities that are partially or entirely located within the Pinelands area, 6 were considered to be outside based on the application of this distinction. These municipalities are: Corbin City in Atlantic County, North Hanover Township in Burlington County, Berlin Borough in Camden County, Vineland City in Cumberland County, and Dover Township in Ocean County.

5. DERIVATION OF GROUPINGS

The distribution of the criteria variables dictates the classification outcomes. Review of the distributions of the criteria variables for the Pinelands municipalities did not reveal any natural breaks from which groups could be derived. As an alternative, a clustering method was chosen as a methodology for assigning towns to groups based on similarities in criteria variables. Specifically, this method minimizes the Euclidean distance between the criteria variables as coordinates and arbitrarily chosen points in $\mathbb{R}^3$, one such point for each group. The coordinates associated with these points represent, in effect, a description of a fictional municipality which is representative of a cluster of municipalities (in some cases, the coordinates of actual municipalities were used). To select the coordinates for this municipality, referred to as the centroid, multiple scatter plots of coordinates of the municipalities were reviewed and a centroid selected which seemed to best represent each cluster of municipalities. As a result, this method seeks to identify natural clustering patterns among municipalities.

The groupings were derived in the following manner. Let the coordinates of centroid j be represented by the row vector $(\overline{Access_j}, \overline{Density_j}, \overline{Income_j})$, and let $(\sigma_{access}, \sigma_{density}, \sigma_{income})$ be the standard deviations of the criteria variables for the Pinelands municipalities, adjusted to take the skewness of the distribution into account. Calculate, for each municipality I, the value

$$Score_{ij} = \sqrt{(((access_i - \overline{Access_j})/\sigma_{access})^2 + (((density_i - \overline{Density_j})/\sigma_{density})^2 + ((income_i - \overline{Income_j})/\sigma_{income})^2)}$$

for each center I. Rank the scores for each j, and then select the 12 lowest scores for each group. This creates J groups of the 12 closest municipalities. In some cases, municipalities were among the 12 closest for more than one group. In cases of such overlap, the municipalities were attributed to the group for which they had a lower ranking of score. Due to the above described heteroskedasticity of access and density measures, the absolute value of distance scores were not used to determine a municipality's suitability to one group over another. This consideration represents a tradeoff between compactness and evenness of grouping.

A total of six groups were formed, which seemed the appropriate number based on evaluation of the scatter plots. Similarly, these groupings accounted for 27 non-Pinelands municipalities,

leaving 100 communities which were eligible under the qualitative criteria ungrouped. The groupings were then reviewed by members of the Commission staff familiar with the communities and both statistical outliers and qualitative anomalies were subsequently removed from the groupings.

The excluded towns were:

- Woodbine Borough (placed into the Lower Access, Lower Density, Lower Income [LLL] group by the statistical methodology and subsequently dropped from this group because its population density was higher and its income lower than the rest of the group),
- Corbin City (placed into the Middle Access, Middle Density, Higher Income [MMH] group by the statistical methodology and subsequently dropped because it was viewed as geographically dissimilar from the other communities in the group),
- Clayton Borough (placed into the Middle Access, Higher Density, Middle Income [MHM] group by the statistical methodology and subsequently dropped because its access score and population densities were sufficiently higher than those of the rest of the group), and
- Little Egg Harbor Township (placed into the Lower Access, Lower Density, Middle Income [LLM] group by the statistical methodology and subsequently dropped as its population density was thought to be sufficiently high to exclude it from this group).

Group members are listed in Table C5a along with summary statistics. These groupings accounted for 28 Pinelands municipalities, leaving 16 communities which were eligible under the qualitative criteria ungrouped. Similarly, these groupings accounted for 27 non-Pinelands municipalities, leaving 100 communities which were eligible under the qualitative criteria ungrouped.

Table C5a. Municipalities and Criteria Variable Values

Group	Location	Municipality	County	Income Per Capita in 1979	Population Density in 1980	Accessibility Score
Lower Access Lower Density Lower Income	Non-Pinelands	COMMERCIAL TWP.	CUMBERLAND	$5,232	144.00	341.24
		DOWNE TWP.	CUMBERLAND	$5,376	35.52	261.88
		FAIRFIELD TWP.	CUMBERLAND	$4,921	134.58	353.20
		LAWRENCE TWP.	CUMBERLAND	$5,096	56.47	259.32
	Pinelands	BUENA VISTA TWP.	ATLANTIC	$5,651	167.95	727.57
		WASHINGTON TWP.	BURLINGTON	$5,561	8.07	468.83
		WOODLAND TWP.	BURLINGTON	$4,083	23.82	404.37
		MAURICE RIVER TWP.	CUMBERLAND	$4,849	49.00	261.26
		EAGLESWOOD TWP.	OCEAN	$5,360	61.64	461.05

Group	Location	Municipality	County	Income Per Capita in 1979	Population Density in 1980	Accessibility Score
Middle Access Middle Density Higher Income	Non-Pinelands	GREENWICH TWP.	CUMBERLAND	$7,183	53.58	259.32
		HOPEWELL TWP.	CUMBERLAND	$7,113	146.00	366.08
		UPPER DEERFIELD TWP.	CUMBERLAND	$6,766	218.95	598.69
		MANNINGTON TWP.	SALEM	$6,994	50.03	462.87
	Pinelands	HAMILTON TWP.	ATLANTIC	$6,770	85.36	895.61
		SHAMONG TWP.	BURLINGTON	$7,321	101.23	734.25
		UPPER TWP.	CAPE MAY	$7,203	106.26	393.01
		MANCHESTER TWP.	OCEAN	$7,257	338.78	553.57
		OCEAN TWP.	OCEAN	$7,023	179.33	638.87
Higher Access Middle Density Higher Income	Non-Pinelands	LUMBERTON TWP.	BURLINGTON	$7,570	406.87	1360.75
		EAST GREENWICH TWP.	GLOUCESTER	$7,671	280.94	1488.15
		HARRISON TWP.	GLOUCESTER	$7,510	187.12	1616.97
		SOUTH HARRISON TWP.	GLOUCESTER	$7,336	94.04	950.16
		CARNEYS POINT TWP.	SALEM	$7,193	479.79	1017.12
	Pinelands	EGG HARBOR CITY	ATLANTIC	$6,933	415.83	965.02
		EGG HARBOR TWP.	ATLANTIC	$6,863	288.04	868.55
		HAMMONTON TOWN	ATLANTIC	$7,109	298.07	1239.62
		TABERNACLE TWP.	BURLINGTON	$6,965	126.08	894.33
Middle Access Higher Density Middle Income	Non-Pinelands	LOWER TWP.	CAPE MAY	$6,188	606.06	226.29
		MILLVILLE CITY	CUMBERLAND	$6,582	585.94	879.62
		SHILOH BORO.	CUMBERLAND	$5,982	505.12	364.13
		TUCKERTON BORO.	OCEAN	$6,056	676.22	463.54
	Pinelands	PEMBERTON TWP.	BURLINGTON	$5,656	481.23	596.50
		MONROE TWP.	GLOUCESTER	$6,333	464.82	1116.44
		BARNEGAT TWP.	OCEAN	$5,745	258.76	546.73

Group	Location	Municipality	County	Income Per Capita in 1979	Population Density in 1980	Accessibility Score
Lower Access Lower Density Middle Income	Non-Pinelands	MIDDLE TWP.	CAPE MAY	$6,345	159.55	327.51
		STOW CREEK TWP.	CUMBERLAND	$6,284	73.99	289.43
		ALLOWAY TWP.	SALEM	$6,295	81.59	362.12
		LOWER ALLOWAYS CR TW[40]	SALEM	$6,245	33.07	334.70
		QUINTON TWP.	SALEM	$6,327	119.42	452.04
	Pinelands	ESTELL MANOR CITY	ATLANTIC	$6,461	15.83	341.02
		WEYMOUTH TWP.	ATLANTIC	$6,035	103.28	426.19
		BASS RIVER TWP.	BURLINGTON	$6,452	17.71	369.37
		DENNIS TWP.	CAPE MAY	$6,239	65.02	316.22
		PLUMSTED TWP.	OCEAN	$6,368	116.75	545.04
Higher Access Middle Density Middle Income	Non-Pinelands	CHESTERFIELD TWP.	BURLINGTON	$6,620	178.92	1389.06
		ELK TWP.	GLOUCESTER	$6,084	162.33	909.08
		OLDMANS TWP.	SALEM	$6,434	92.78	1325.57
		PITTSGROVE TWP.	SALEM	$6,120	153.06	849.99
		UPPER PITTSGROVE TWP	SALEM	$6,349	78.17	783.92
	Pinelands	FOLSOM BORO.	ATLANTIC	$6,393	228.75	1178.09
		GALLOWAY TWP.	ATLANTIC	$6,611	134.71	891.45
		MULLICA TWP.	ATLANTIC	$6,435	92.66	886.19
		WATERFORD TWP.	CAMDEN	$6,254	224.52	1385.22
		WINSLOW TWP.	CAMDEN	$6,348	347.22	1407.46
		FRANKLIN TWP.	GLOUCESTER	$6,146	221.34	1112.54

[40] Lower Alloways Creek Township is dropped from this subgroup for the municipal expenditures analysis, due to its anomalous expenditures due to the nuclear power plant there.

Summary Statistics of Grouped Municipalities

GROUP	N Obs	Variable	Label	Mean	Std Dev	Range	Minimum	Maximum
A	9	ACCESS	Access Score is employment weighted sum	393.19	149.64	468.25	259.32	727.57
		POPDEN80	Population Density 1980	75.67	57.88	159.88	8.07	167.95
		PERCA80	Per capita income in 1979	5125.44	474.45	1568.00	4083.00	5651.00
B	9	ACCESS	Access Score is employment weighted sum	544.70	198.11	636.28	259.32	895.60
		POPDEN80	Population Density 1980	142.17	92.52	288.76	50.03	338.78
		PERCA80	Per capita income in 1979	7070.00	200.21	555.00	6766.00	7321.00
C	9	ACCESS	Access Score is employment weighted sum	1155.63	278.60	748.42	868.55	1616.97
		POPDEN80	Population Density 1980	286.31	132.94	385.75	94.04	479.79
		PERCA80	Per capita income in 1979	7238.89	297.52	808.00	6863.00	7671.00
D	7	ACCESS	Access Score is employment weighted sum	599.04	305.96	890.15	226.29	1116.44
		POPDEN80	Population Density 1980	511.16	134.56	417.47	258.76	676.22
		PERCA80	Per capita income in 1979	6077.43	323.99	926.00	5656.00	6582.00
E	10	ACCESS	Access Score is employment weighted sum	376.36	77.07	255.62	289.43	545.04
		POPDEN80	Population Density 1980	78.62	47.40	143.73	15.83	159.55
		PERCA80	Per capita income in 1979	6305.10	121.74	426.00	6035.00	6461.00
F	11	ACCESS	Access Score is employment weighted sum	1101.69	245.89	623.54	783.91	1407.46
		POPDEN80	Population Density 1980	174.04	78.95	269.05	78.17	347.22
		PERCA80	Per capita income in 1979	6344.91	182.03	536.00	6084.00	6620.00

Group = Group Name

'A' 'Lower Access Lower Density Lower Income'
'B' 'Middle Access Middle Density Higher Income'
'C' 'Higher Access Middle Density Higher Income'
'D' 'Middle Access Higher Density Middle Income'
'E' 'Lower Access Lower Density Middle Income'
'F' 'Higher Access Middle Density Middle Income'

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Supplemental Data Graphs

1. **Proportion of County Acreage in Pinelands**

   1 table

   useful to consider when viewing county wide data

2. **Building Permits by County**

   1 chart

3. **Selling Prices of Homes and Volume of Transactions**

   6 charts

   These data were planned for inclusion in the chapter on comparable municipalities but was not included because the limited number of transactions per group precluded any meaningful conclusions from being drawn at that level..

4. **Per Capita Income by County and % Change, 1969-1980 and 1980-1993**

   2 tables; 1 chart

5. **Farmland Assessed Acreage by County In/Out**

   8 charts

6. **Retail Sales by County**

   1 chart

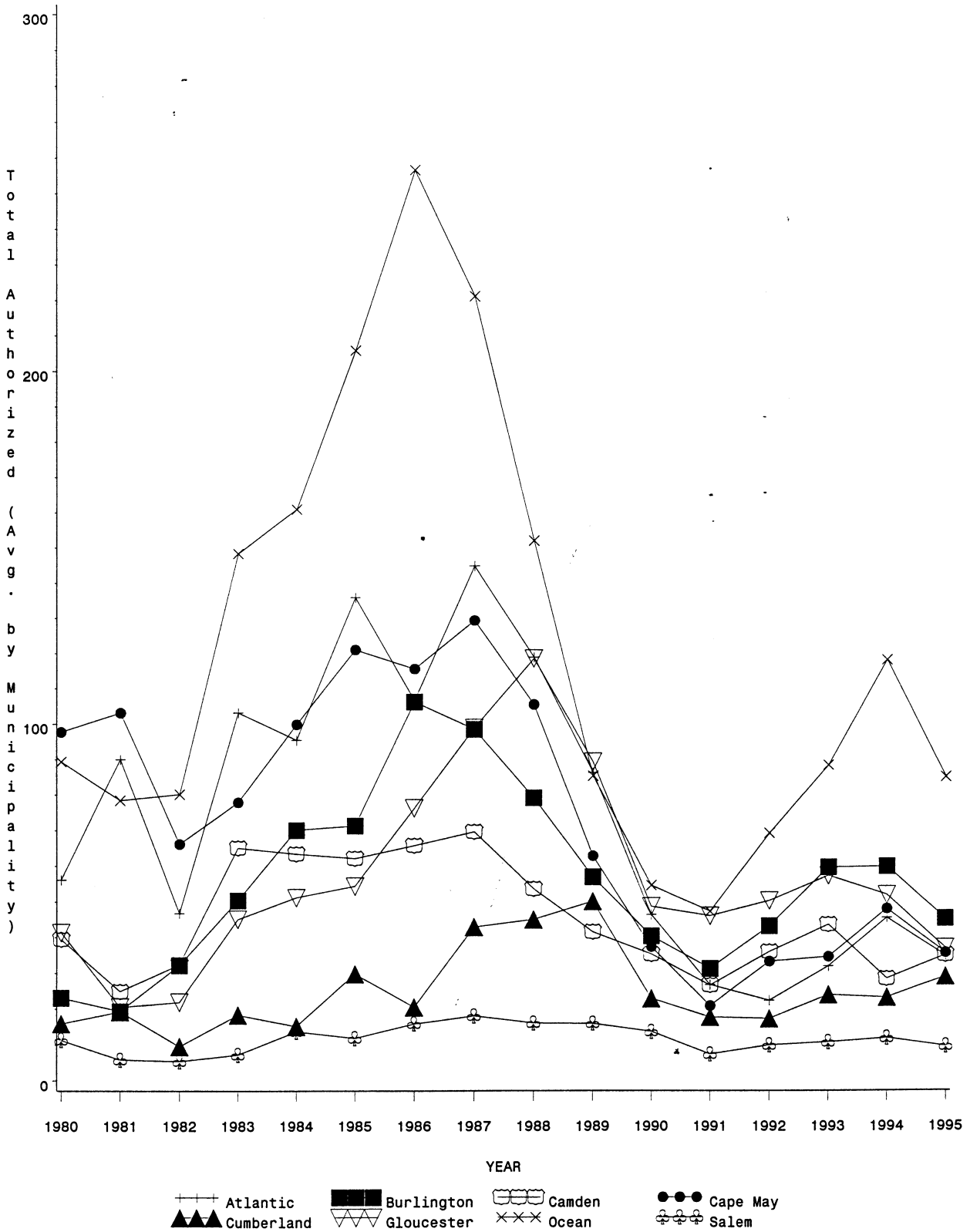
Table Supp A. Pinelands and South Jersey Acreage by County[41]

County	Total Acreage	Acreage inside the Pinelands	Acreage Outside the Pinelands	Proportion in the Pinelands	County Pinelands Acreage as a Proportion of Total Pinelands Acreage	County Acreage as a share of Total South Jersey Acreage
Atlantic	391,134	247,877	143,257	63.4%	26.4%	17.3%
Burlington	524,166	334,187	189,979	63.8%	35.6%	23.1%
Camden	145,593	54,915	90,678	37.7%	5.9%	6.4%
Cape May	182,633	34,807	147,826	19.1%	3.7%	8.1%
Cumberland	321,645	45,356	276,289	14.1%	4.8%	14.2%
Gloucester	215,616	33,580	182,036	15.6%	3.6%	9.5%
Ocean	485,569	187,490	298,079	38.6%	20.0%	21.4%
Total	2,266,357	938,212	1,328,145	41.4%	100.0%	100.0%

[41] Source: NJ Pinelands Commission, Cartography Office, Geographic Information System

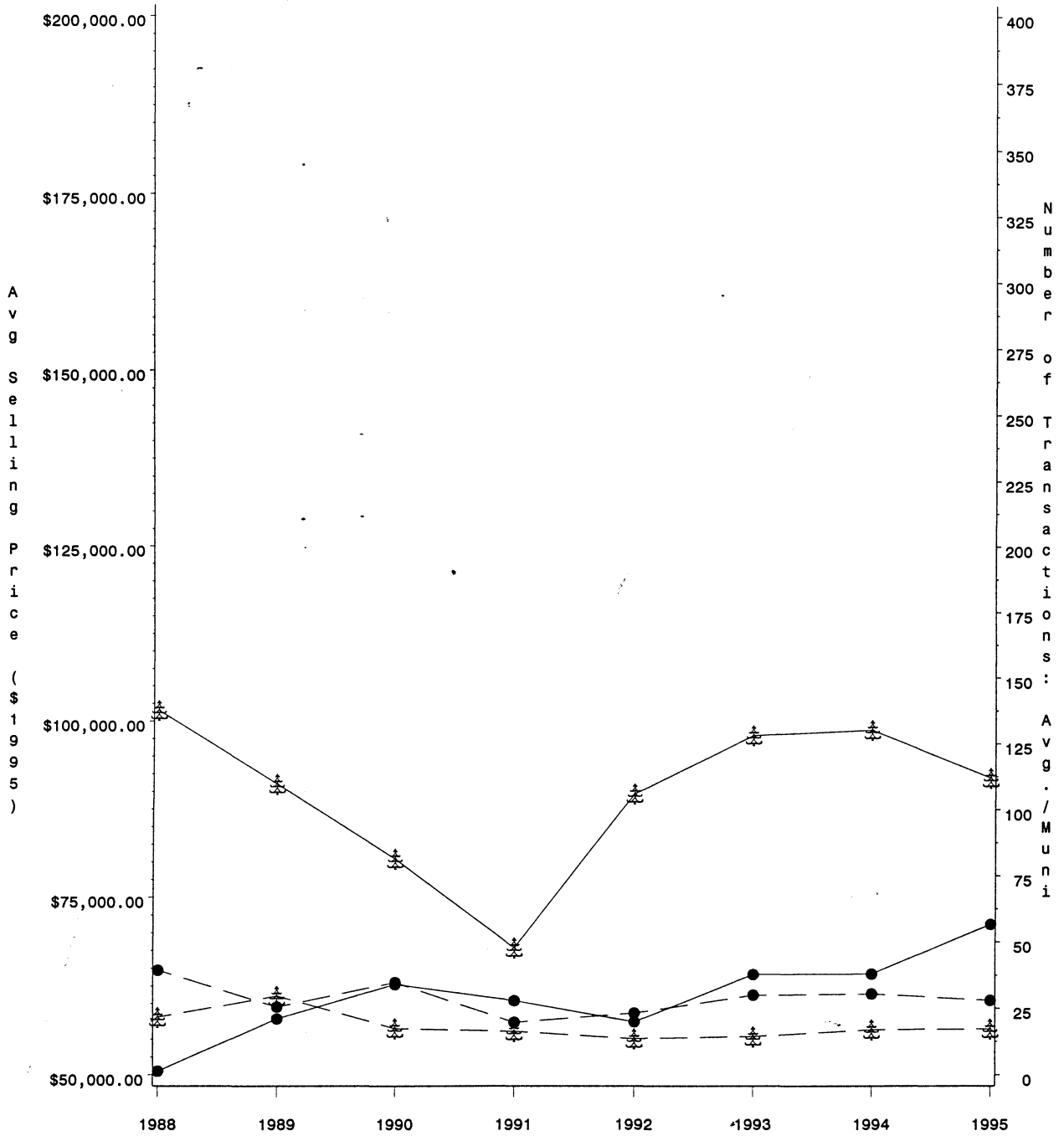
Dwelling Units Authorized by Building Permits

Average per Municipality by County



Mean Selling Prices and Volume of

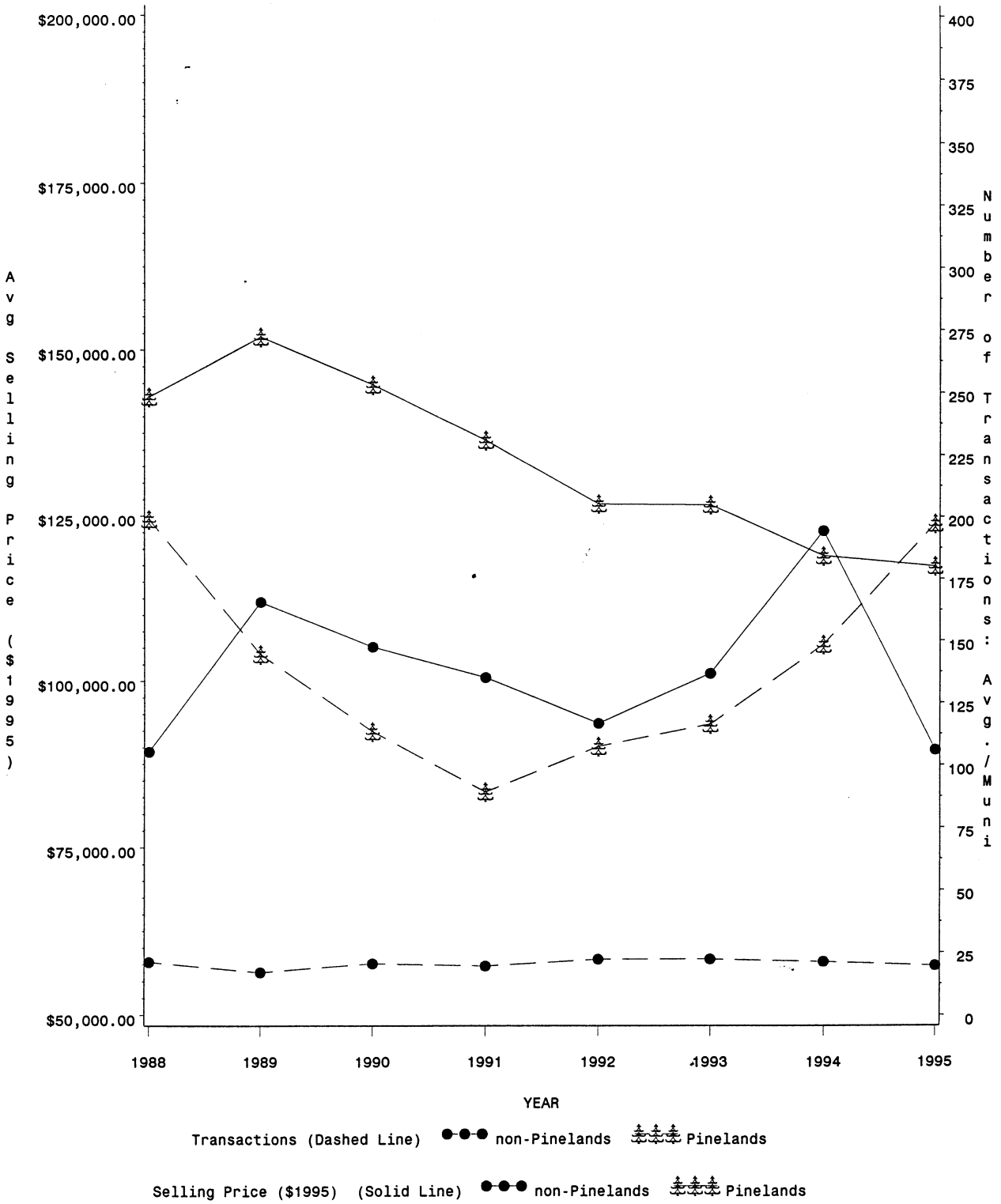
Residential Properties in Grouped Towns
GROUP=Lower Access Lower Density Lower Income



Source: NJ Department of Treasury, Division of Taxation

Mean Selling Prices and Volume of

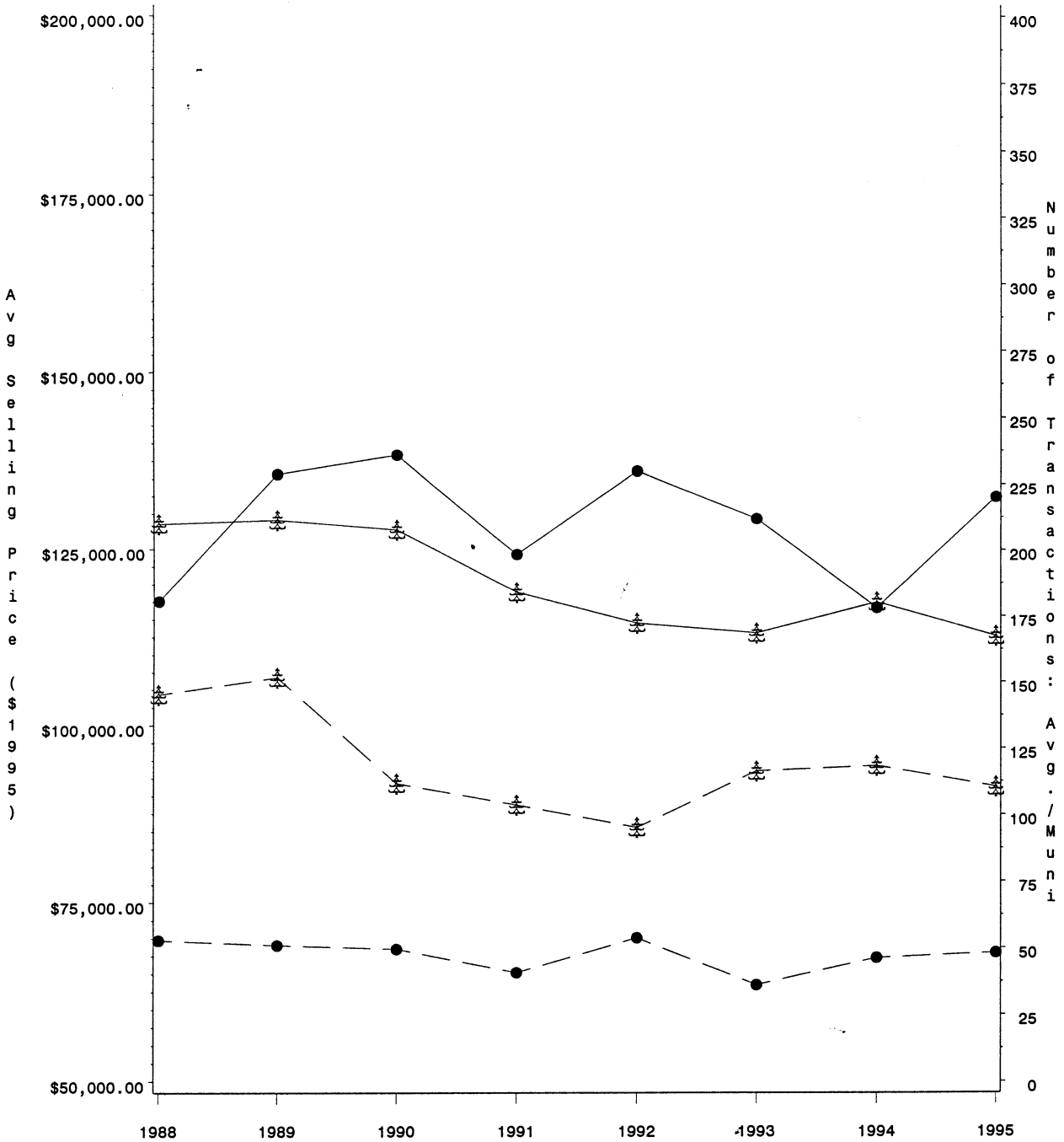
Residential Properties in Grouped Towns
GROUP=Middle Access Middle Density Higher Income



Source: NJ Department of Treasury, Division of Taxation

Mean Selling Prices and Volume of

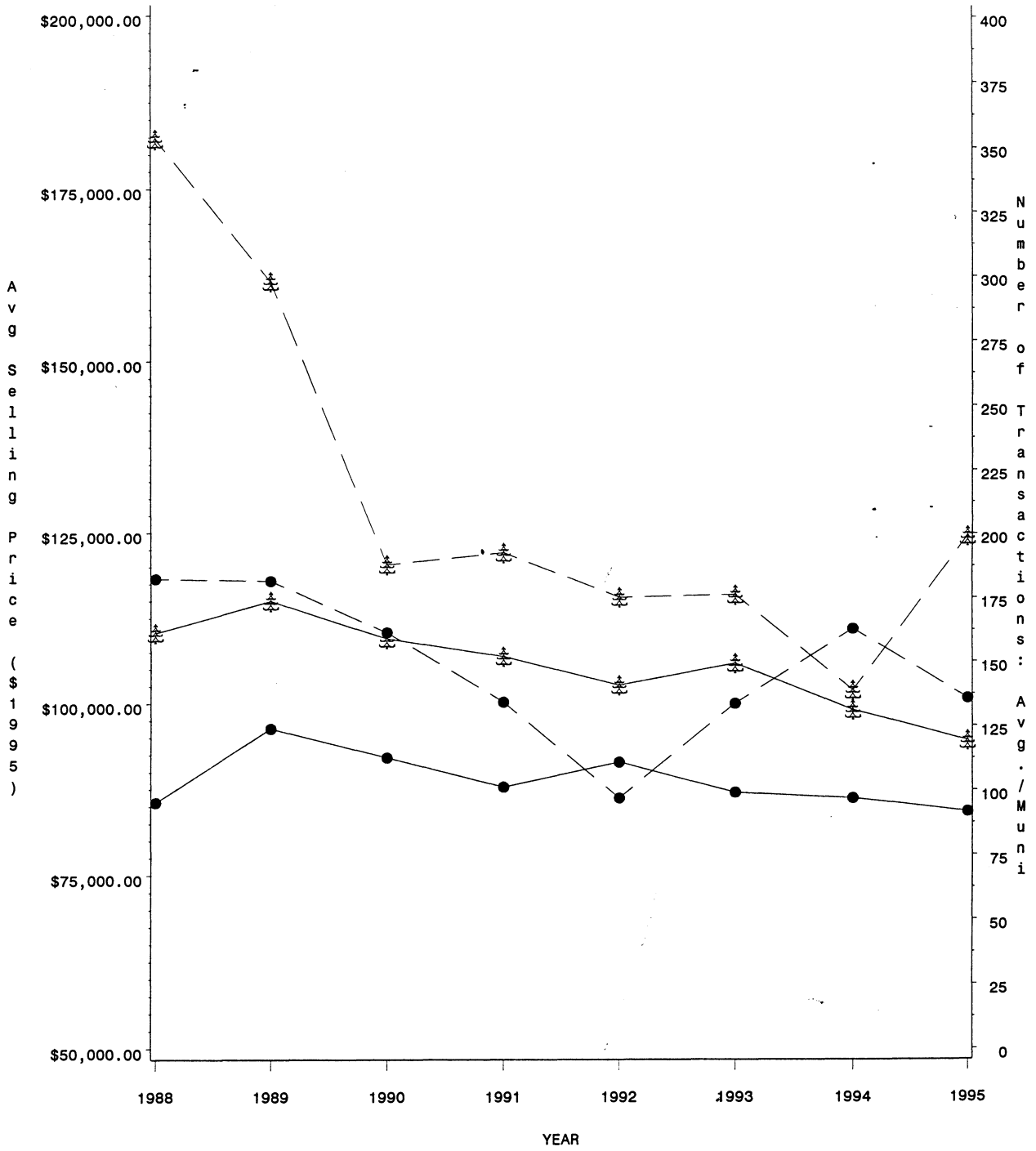
Residential Properties in Grouped Towns
GROUP=Higher Access Middle Density Higher Income



Source: NJ Department of Treasury, Division of Taxation

Mean Selling Prices and Volume of

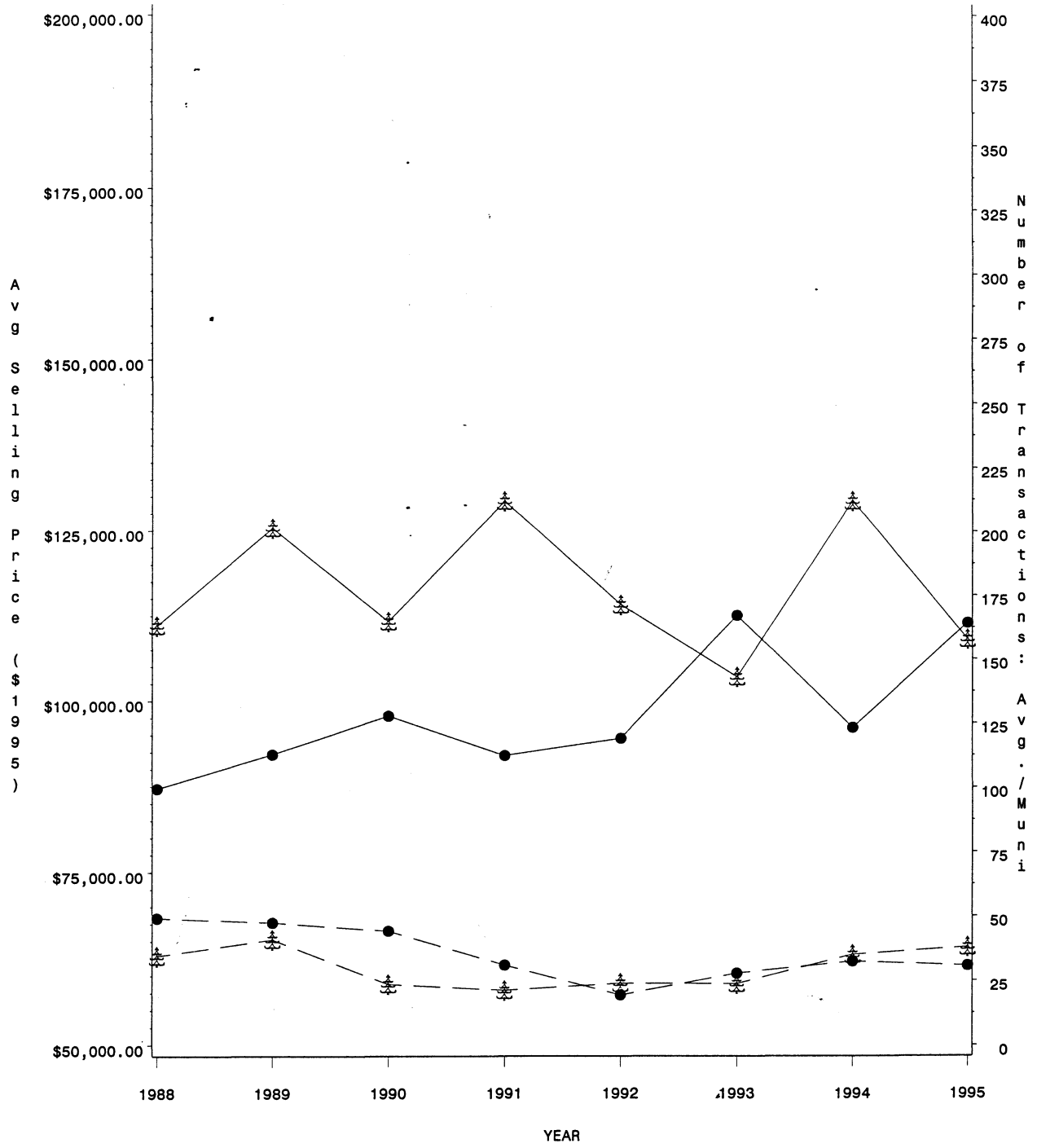
Residential Properties in Grouped Towns
GROUP=Middle Access Higher Density MIddle Income



Source: NJ Department of Treasury, Division of Taxation

Mean Selling Prices and Volume of

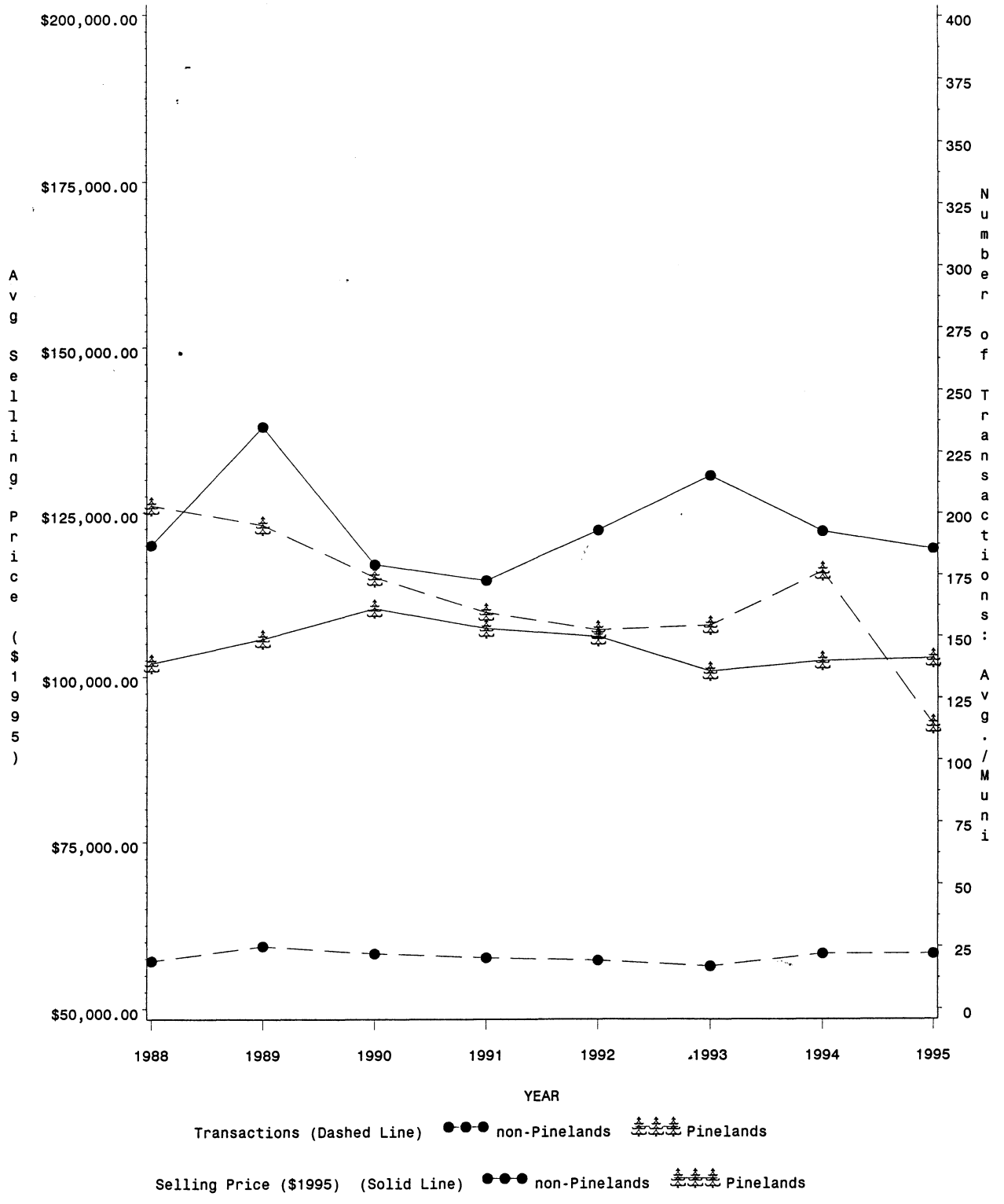
Residential Properties in Grouped Towns
GROUP=Lower Access Lower Density Middle Income



Source: NJ Department of Treasury, Division of Taxation

Mean Selling Prices and Volume of

Residential Properties in Grouped Towns
GROUP=Higher Access Middle Density Middle Income



Source: NJ Department of Treasury, Division of Taxation

Income per Capita, by County

in 1995 Real Dollars

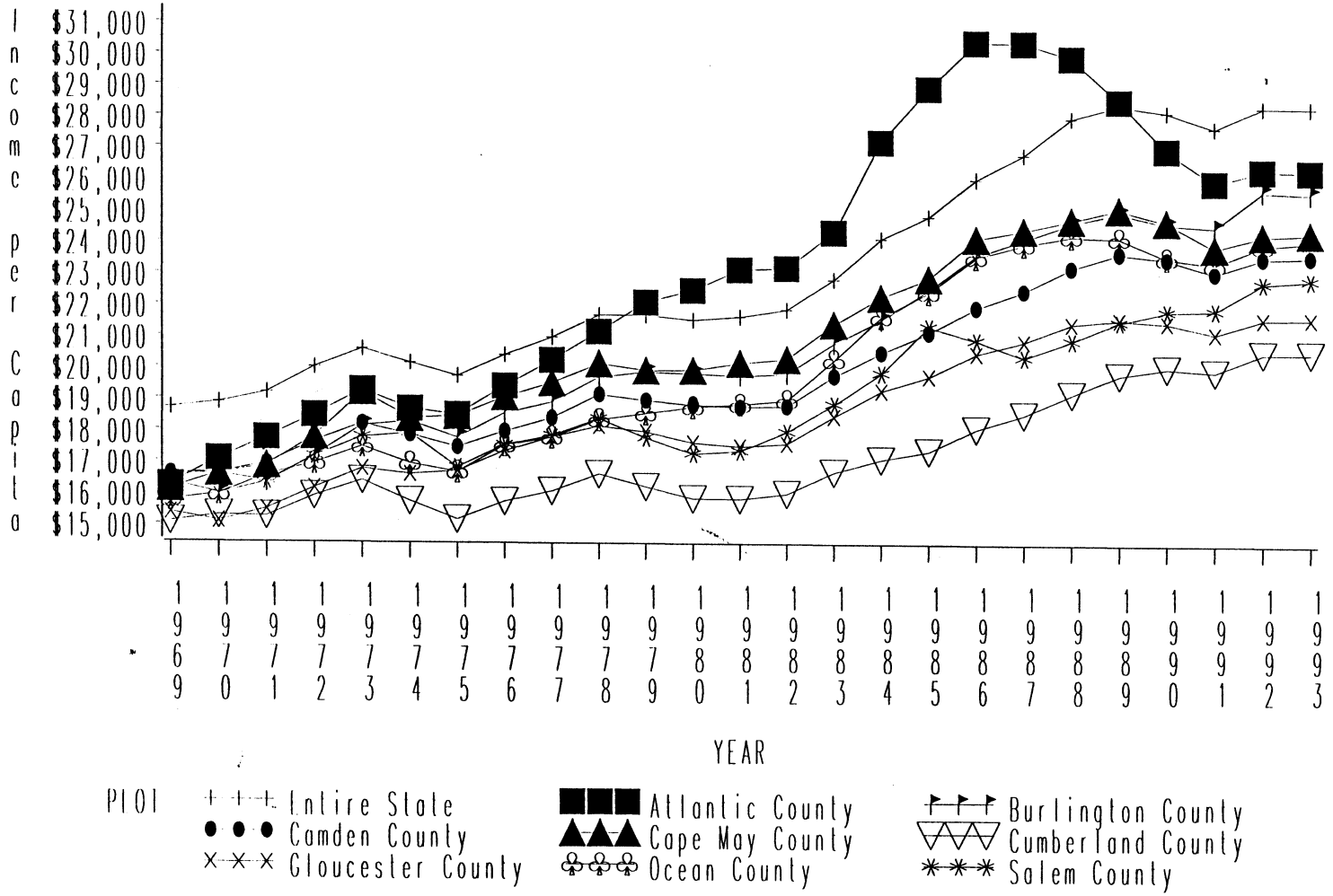


Table 1 Increase in Real Per Capita Income

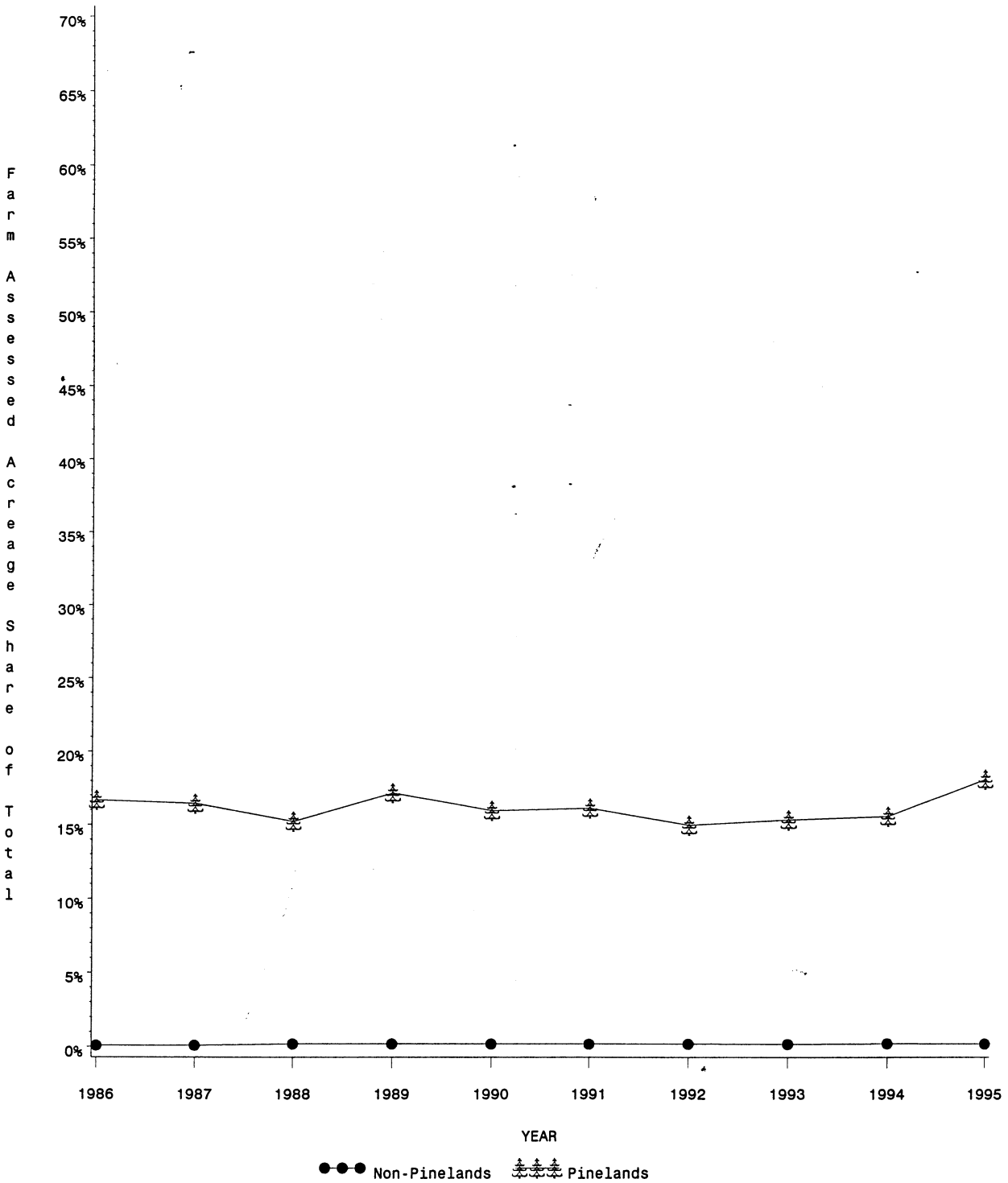
	1969-1980	1980-1993
Entire State	15.21%	31.57%
Atlantic County	38.59%	16.97%
Burlington County	21.48%	29.14%
Camden County	13.52%	25.37%
Cape May County	23.87%	22.06%
Cumberland County	5.20%	29.56%
Gloucester County	14.86%	22.69%
Ocean County	19.20%	28.39%
Salem County	4.41%	32.35%

Table 2 Per Capita Income, in real 1995 Dollars

	1969	1980	1993
Entire State	$18,699.11	$21,543.15	$28,345.35
Atlantic County	$16,232.47	$22,495.65	$26,312.99
Burlington County	$16,327.98	$19,834.19	$25,613.75
Camden County	$16,589.59	$18,833.61	$23,611.98
Cape May County	$16,103.74	$19,947.01	$24,347.09
Cumberland County	$15,069.74	$15,852.19	$20,538.67
Gloucester County	$15,356.27	$17,636.97	$21,639.75
Ocean County	$15,746.62	$18,768.87	$24,098.18
Salem County	$16,548.07	$17,278.17	$22,866.33

Acreage Devoted to Agricultural or Horticultural Use

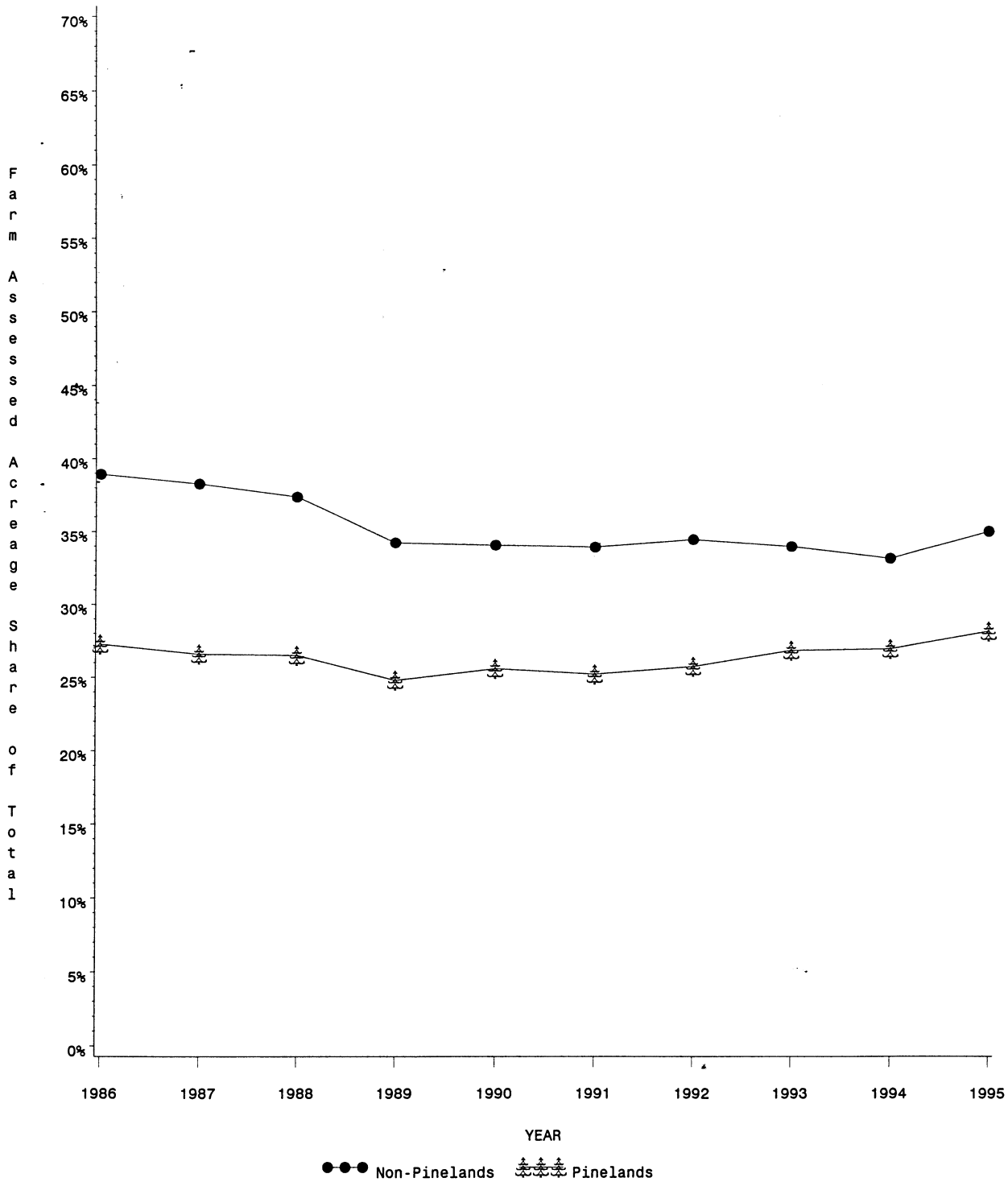
as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=ATLANTIC



1990-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregated by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Acreage Devoted to Agricultural or Horticultural Use

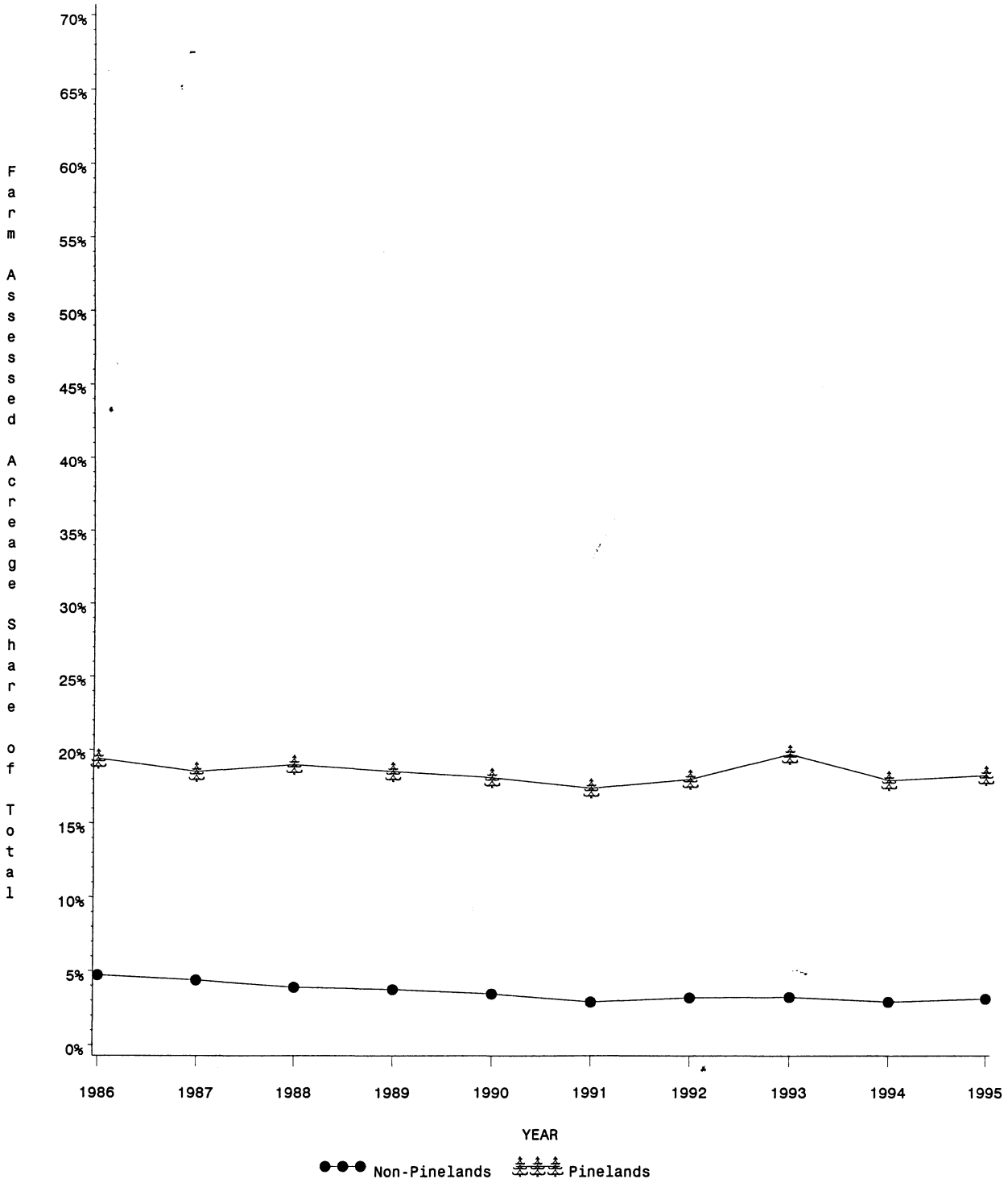
as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=BURLINGTON



1990-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregated by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Acreage Devoted to Agricultural or Horticultural Use

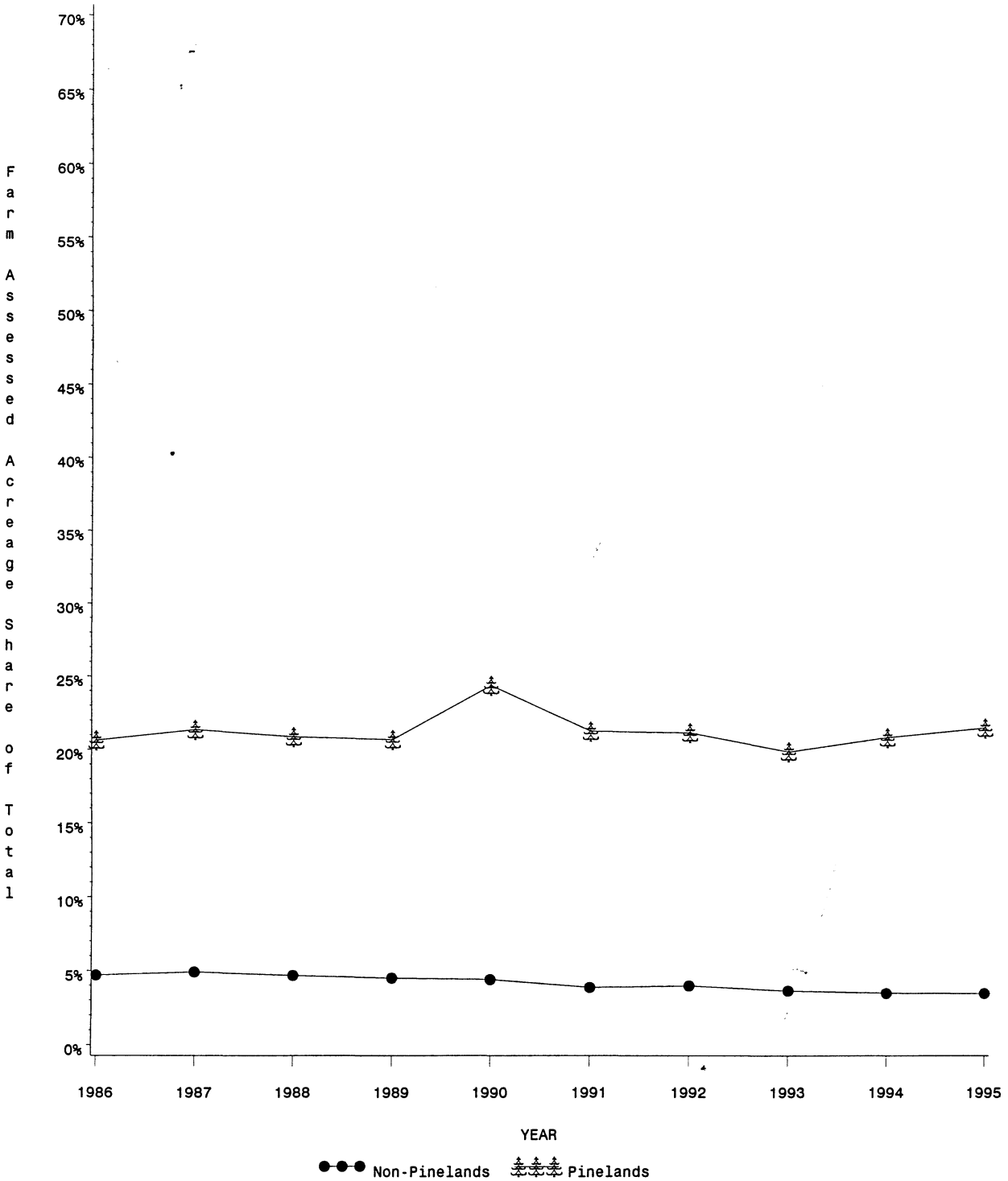
as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=CAMDEN



1990-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregates by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Acreage Devoted to Agricultural or Horticultural Use

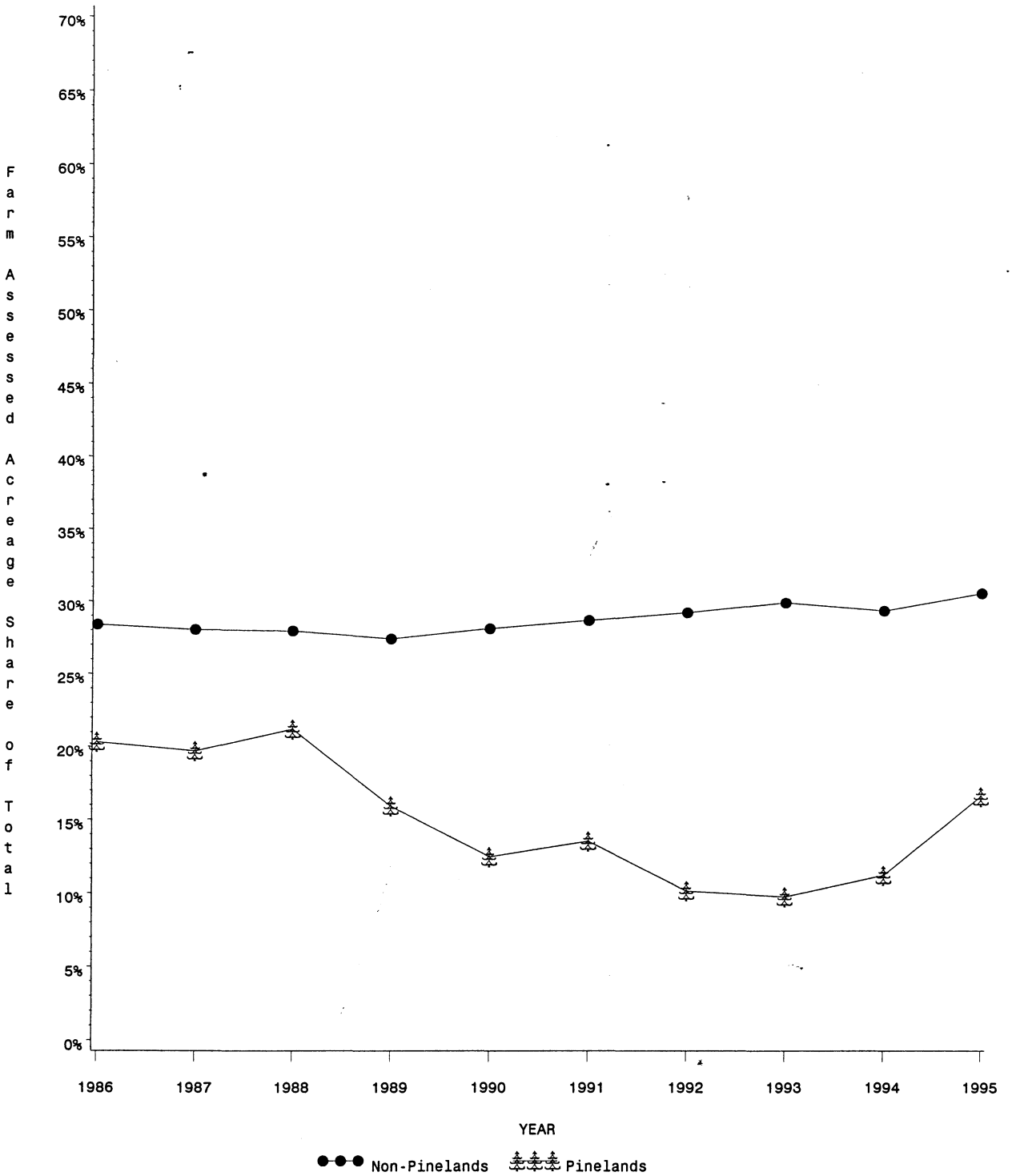
as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=CAPE MAY



1990-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregated by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Acreage Devoted to Agricultural or Horticultural Use

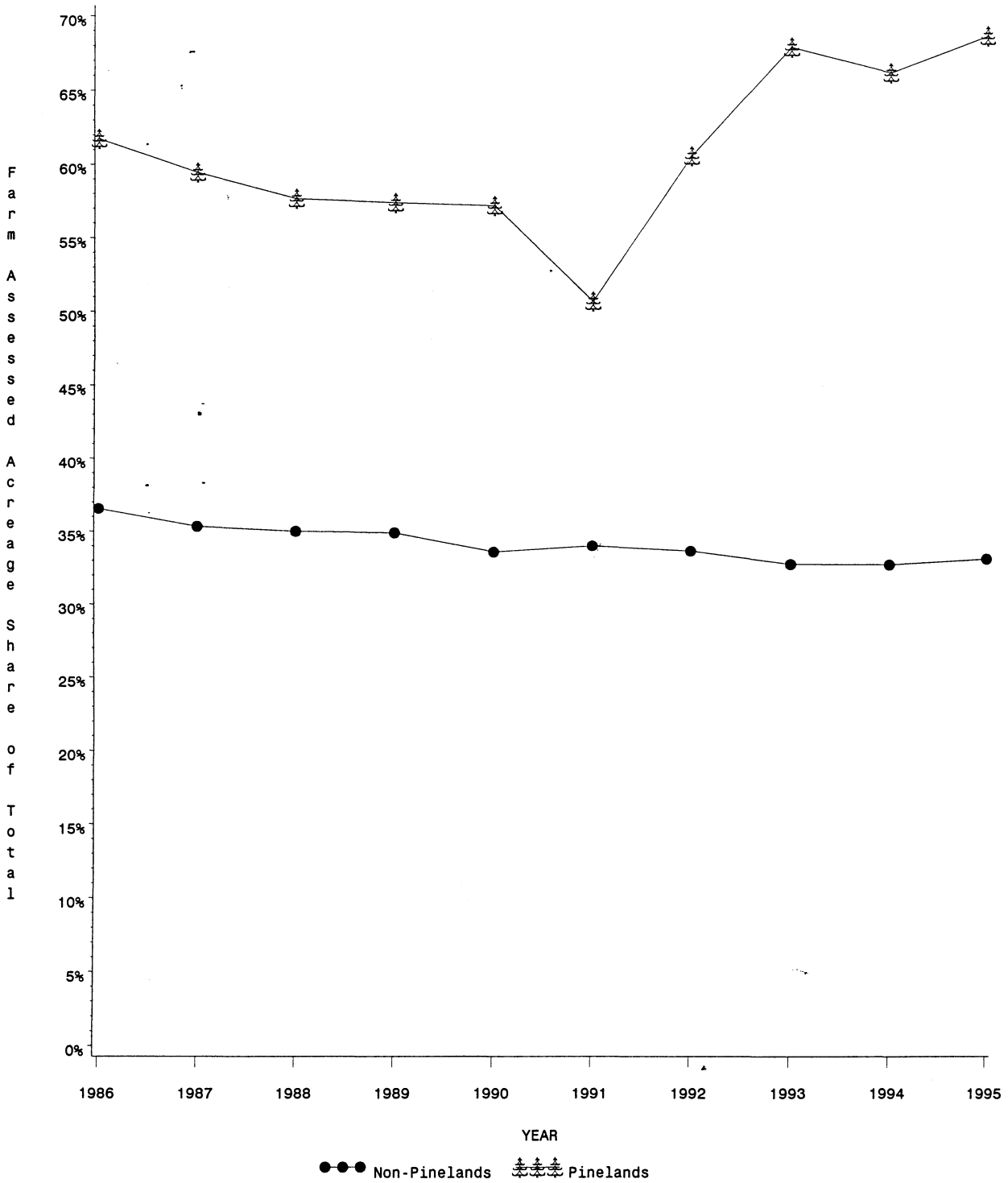
as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=CUMBERLAND



1996-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregated by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Acreage Devoted to Agricultural or Horticultural Use

as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=GLOUCESTER



1990-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregates by Municipality. Municipalities with 10% or more of total land area
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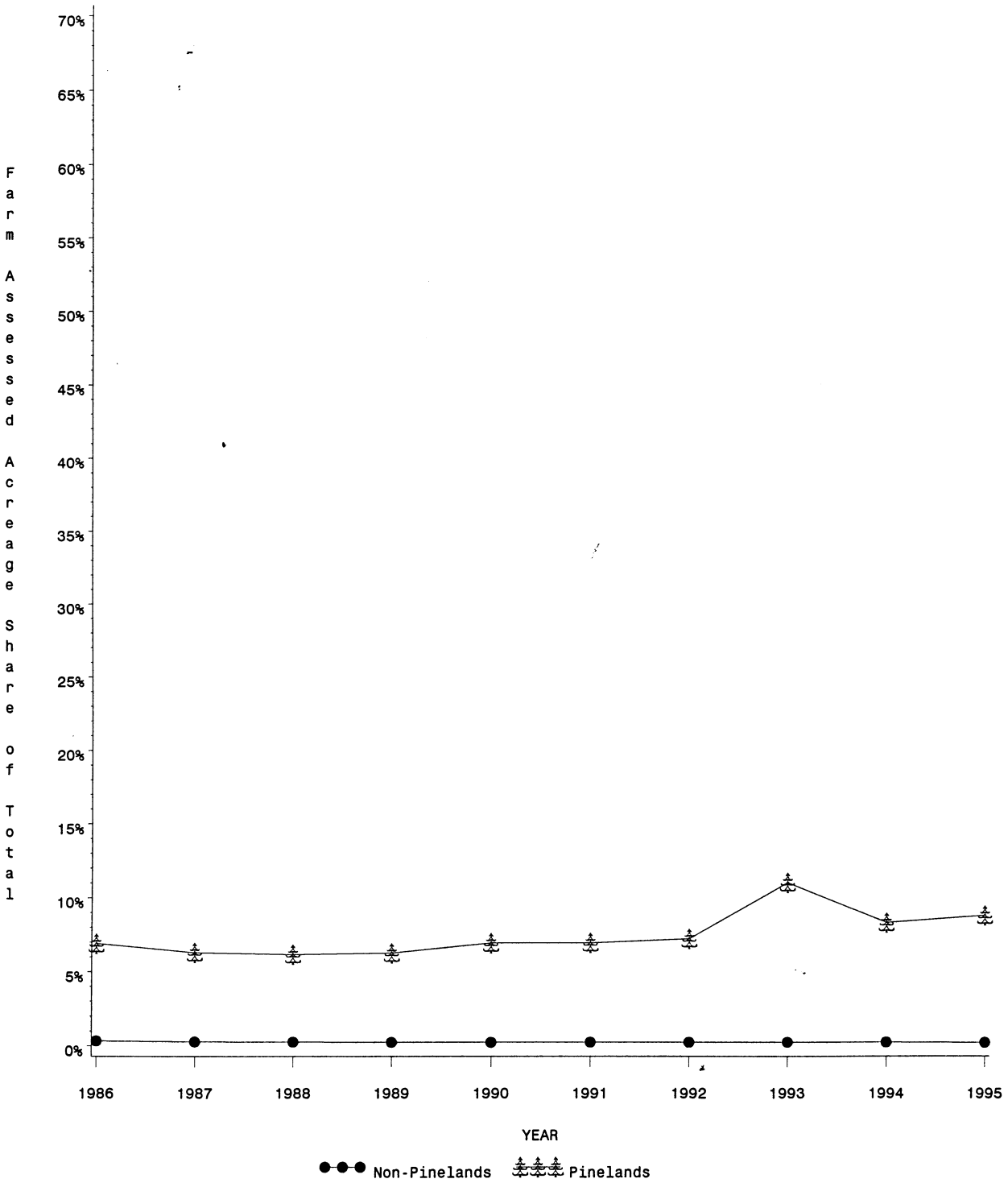
Acreage Devoted to Agricultural or Horticultural Use

as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=OCEAN



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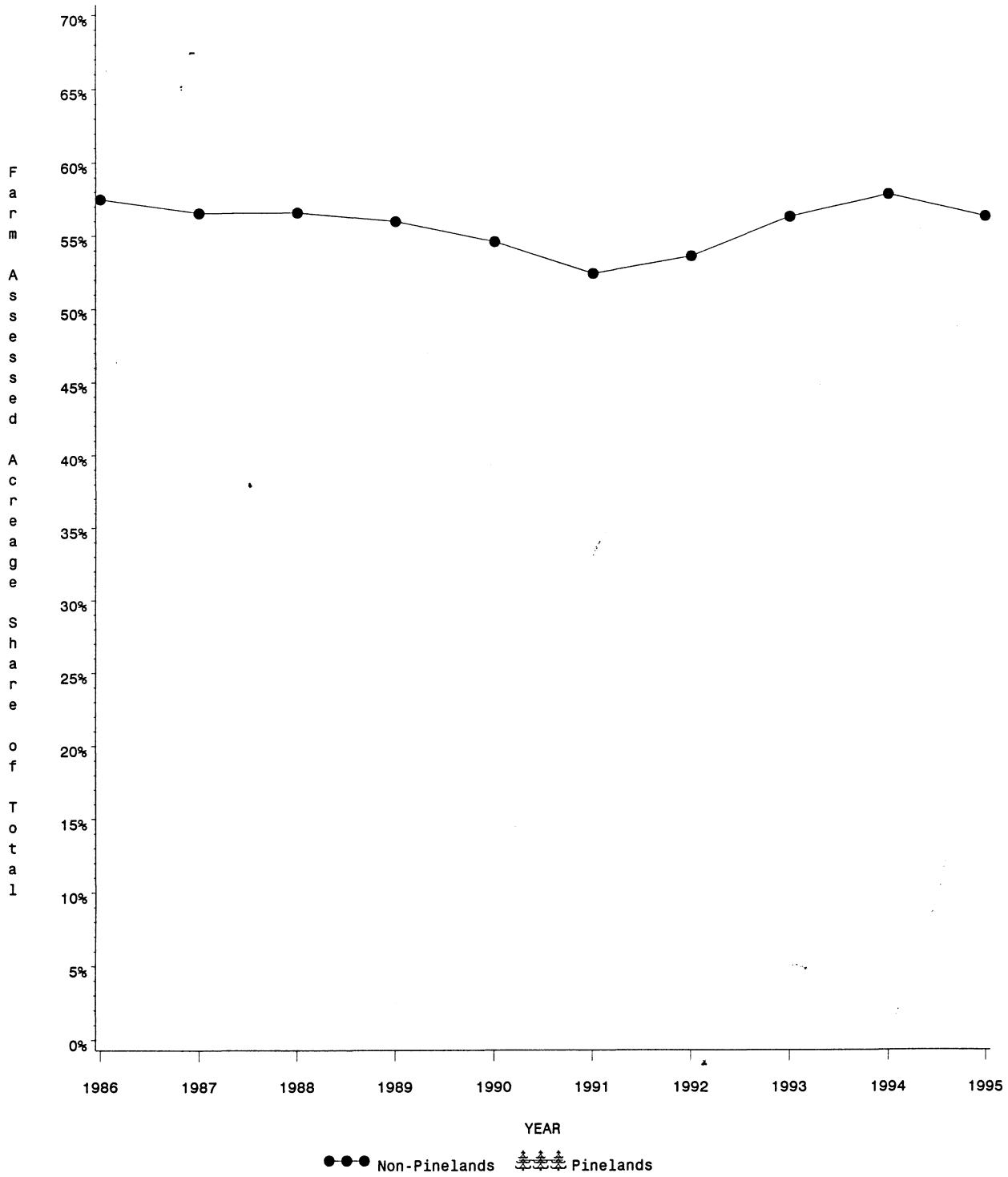
Aggregated by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Acreage Devoted to Agricultural or Horticultural Use

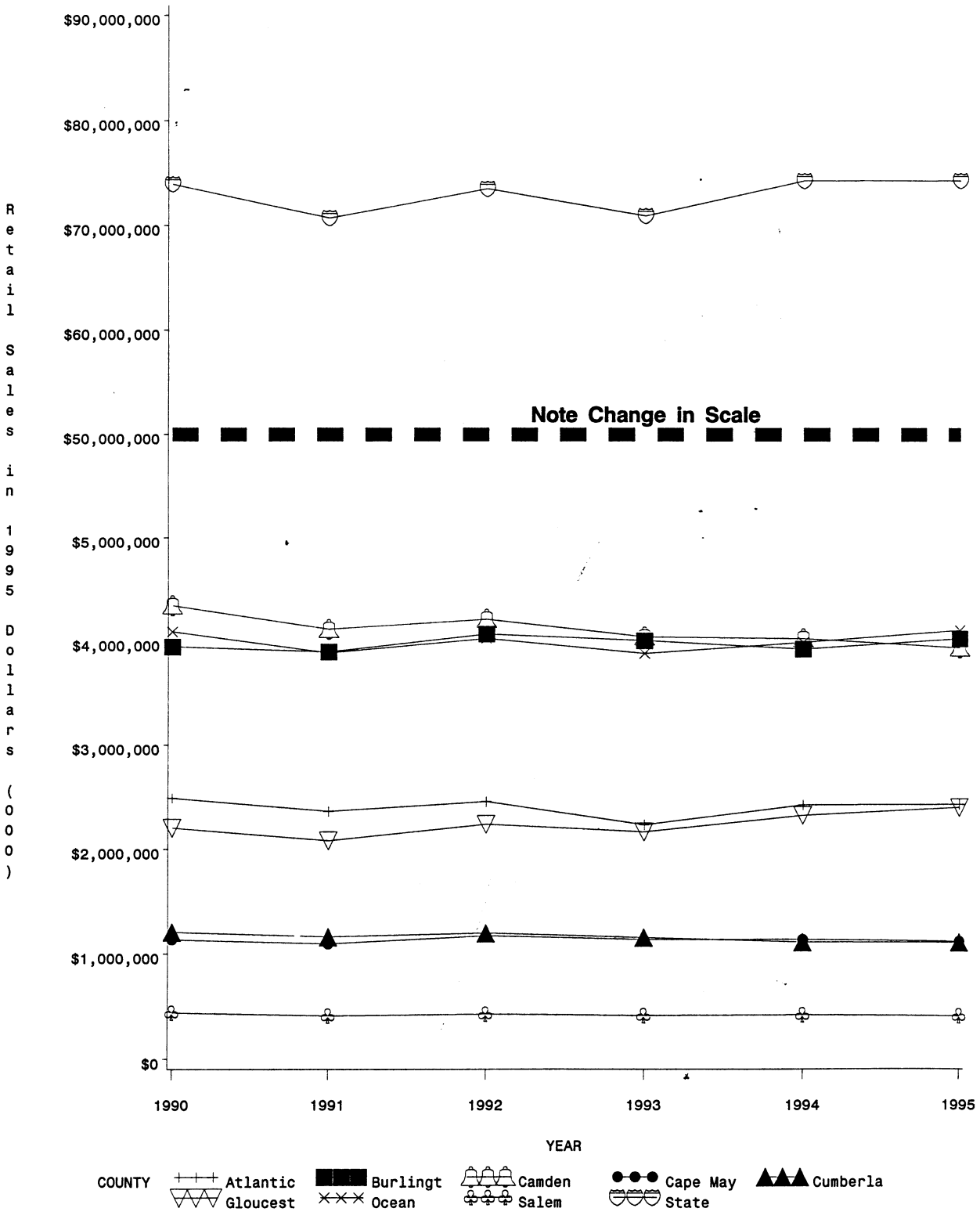
as a Share of Total Land
Acreage as Derived from approved FA-1 Forms, by Tax Year
COUNTY=SALEM



1990-1995 Data: New Jersey Agricultural Statistics Service
1982-1989 Data: New Jersey Department of the Treasury, Division of Taxation
Aggregated by Municipality. Municipalities with 10% or more of total land area within the jurisdiction of the CMP are treated as inside, otherwise treated as outside.

Retail Sales 1990 – 1995

Real 1995 Dollars



Source: Sales & Marketing Management Magazine

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