

THE ECONOMIC IMPACT OF A PUBLIC GARDEN
ON ITS COMMUNITY:
A CASE STUDY OF PHIPPS CONSERVATORY
PITTSBURGH, PENNSYLVANIA

By

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INTRODUCTION

The Arts, rather than representing an expenditure by the city, are, in fact, seed money which generates many times its original costs in revenues for the city...what might be considered a frill by some, is, in fact, the livelihood for many; and what might be seen as an effort to save city revenues could, in fact, result in lost revenues for the city¹.

Public horticulture today finds expression in gardens of all types, sizes and locations. While each institution is unique, it is possible to generalize that public gardens are most often valued for the aesthetic and educational roles they play in their communities.

There are two problems with taking this narrow view of gardens. First, social values such as educational and aesthetic appeal are often intrinsic and subjective in nature. The benefits are difficult to measure; they are not realized by everyone or may be concentrated among only some people. This may lead to an undervaluing of public gardens by the public and by public officials. Second, this view overlooks another type of contribution public gardens make to their communities --- an economic one. Not only is the economic measure more objective and more easily under-

stood by many people, it also demonstrates that public gardens may be significant contributors to the local economy and a significant factor in a community's overall quality of life.

In recent years, arts organizations and museums have used economic issues in addition to social issues to demonstrate their value to their communities². Economic impact studies have been used by arts advocates not only to increase financial support from local governments, but also to demonstrate the economic consequences of funding cuts³. The studies have also been used to establish a role for cultural organizations in a community's economic development⁴.

Public gardens have not been as aggressive in demonstrating the economic impact of their organizations. This thesis supports the premise that economic impact studies can be used by public gardens to demonstrate their economic worth to their communities. Economic impact studies can show how public gardens support local businesses, influence property values, and contribute to economic development.

This thesis includes both a general discussion of economic effects and a case study of the economic impact of Phipps Conservatory, Pittsburgh, on Allegheny

County, Pennsylvania. Chapter 1 outlines the measurable and intangible economic impacts of a public garden. Chapter 2 discusses the methods commonly used in economic impact studies. Chapter 3 introduces the case study with a historical and operational sketch of Phipps Conservatory. Chapter 4 describes the specific economic model used in the case study, and describes data collection. Finally, Chapter 5 presents the results, both quantitative and qualitative, of the economic impact study of Phipps.

The utility of this study lies less in its precision or universality than in the concepts it presents. Each public garden is unique, with each making expenditures in the local area to different degrees, and each attracting different numbers of visitors. The multipliers and other results generated in the case study of Phipps Conservatory cannot be transferred directly to other public horticulture institutions. However, the general observations made in this thesis will be useful for those wishing to develop advocacy material for their institutions. At the same time, those wishing to do an extensive economic impact study for a public garden should find both the concepts and the model useful.

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Chapter 1

GENERAL ECONOMIC IMPACTS OF PUBLIC GARDENS

Interest in the economic impact of arts and cultural institutions first became widespread in the late 1970's. Funding for cultural groups from corporate sources had been increasing just prior to that period, and businesses began to question the benefit of this funding to them.

Although researchers originally focused on the monetary benefits of arts activities to local business, broader concepts have been introduced as well. Today, economic impacts on local business volume, on property values, and on an area's quality of life are widely recognized as the result of cultural activities.

Public Gardens as Local Business

Although most public gardens are organized as not-for-profit entities, they behave, in many ways, like for-profit businesses. Public gardens employ people from the local community, purchase goods and services from local businesses, and provide goods and services to

visitors. In these ways, public gardens have a direct effect on the local economy.

But the real impact of garden spending goes beyond the initial expenditure. Indirect effects occur as the money received by local businesses is spent and respent in the local economy for the firms' own supplies and inventories. Induced effects occur as those employed at the public garden and in all the other affected businesses receive their wages and salaries and spend them in the local economy for additional goods and services. Together, the indirect and induced effects constitute a "multiplier" effect that reveals the true significance of a public garden's spending. It is generally thought that cultural organizations typically have multipliers ranging from 1.15 to 2.5, indicating that each dollar spent directly in support of the organization will generate from \$0.15 to \$1.50 in additional local spending¹.

Many studies have estimated the impact of a cultural organization's spending on the local economy. In Indianapolis, a 1976 arts-related payroll of \$5.8 million resulted in an impact of \$24 million. In Chicago, city arts and cultural institutions spent an estimated \$76 million for operations in 1976; the total

economic impact of this spending was \$228 million². In a more recent study, the Portland Museum of Art's annual \$1 million operating budget was found to bring benefits worth \$2.3 million to Maine businesses³. Clearly, cultural organizations, including public gardens, support local businesses.

Public gardens generate additional income for the local economy by attracting visitors, who spend money for goods and services during their stay. The industries most often benefitting from visitor spending include eating and drinking establishments, hotels and other lodgings, retail stores and transportation. Like the expenditures made by public gardens for their operations, visitor spending has a multiplier effect, so that the actual impact on the community is greater than the initial expenditure.

The economic impact of visitor spending can be significant. Museums in Philadelphia have demonstrated that they attract one hundred additional tourists to the city each day --- tourists that, in 1985, spent \$1.2 million for retail purchases⁴. In New England, 1979 visitor expenditures of \$142.3 million over and above admission prices brought a total economic impact of \$352.7 million to the region⁵.

Many economic impact studies do not distinguish between local and out-of-town visitors, counting spending by both groups in determining economic impacts. While spending by local visitors does not represent "new" money coming into the community, the presence of public gardens and other cultural institutions in the community encourages local visitors to remain and make their expenditures there. Without locally available cultural organizations, community members would be forced to travel out of the area to purchase arts and culture-related goods and services. Still, the inclusion of local visitor spending in economic impact studies remains a source of contention among arts advocates.

The business activity and employment generated by public gardens generates tax revenues for federal, state, and local governments. Although public gardens typically do not pay income or property taxes, organizations and people doing business with the gardens do. The previously mentioned economic impact study by the New England Foundation for the Arts found that employees of arts and cultural organizations there paid over \$10 million in federal income tax in 1979. State sales and income taxes totaling \$2.7 million were paid as well.

In Philadelphia, not-for-profit organizations return \$4.8 million in wage taxes to government, and tourism generates another \$4.3 million in taxes. Table 1 summarizes the economic impacts discussed here.

Public Gardens and Property Values

Public gardens may also positively influence property values, for "it is the land that is off the tax roll for community purposes that is responsible for most of the values that are on the tax roll⁶." A rise in the value of land is of private interest to owners and of public interest to taxpayers, as higher assessed values yield increased municipal income.

Although public gardens themselves do not pay property taxes, land adjacent to their property may be more attractive for residential living and development, increasing the assessed value of the land. A study of greenbelts in Boulder, Colorado, showed that "preserving land in a natural, garden-like state" increased aggregate property values by \$5.4 million for nearby properties, and increased tax revenues by \$500,000⁷. A similar study done in Philadelphia concerning the impact of a large urban park on property values found that 33% of a property's value could be attributed to proximity to the park. The effect decreased at longer distances,

Table 1. Summary of Results for Cited Economic Impact Studies

<u>Study</u>	<u>Year</u>	<u>Dollar Impact</u>	<u>Tax Revenues</u>
Indianapolis Cultural Organizations	1976	\$ 24 million	N/A
Chicago Cultural Organizations	1976	\$ 228 million	N/A
New England Cultural Organizations (operations)	1981	\$ 560 million	\$ 12.7 million
New England Cultural Organizations (tourists)	1981	\$ 352 million	\$ 700,000
Portland Museum of Art	1983	\$ 2.3 million	N/A
Philadelphia Cultural Organizations (operations)	1985	\$ 317 million	\$ 4.8 million
Philadelphia Cultural Organizations (tourists)	1985	\$ 545 million	\$ 4.3 million

but even at 2,500 feet away, the park still added 4.2% to the value of the land⁸. Although no studies have specifically examined the impact of a public garden on property values, similar results could be expected.

Public Gardens and the Quality of Life

"Quality" is the byword in American public policy today, having succeeded "poverty" in the 60's and "growth" in the 50's. We have become more interested in "better" than "more," which a society can afford to do once it has "enough"⁹.

While the monetary effects just attributed to public gardens are significant, there is another aspect to the benefits a public garden brings to its community. This aspect includes a community's economic development and its quality of life.

As the United States shifts from a manufacturing-based economy to a service-oriented one, other changes are taking place as well. Jobs now follow people, instead of vice versa¹⁰. More and more often, people are seeking out desirable places to live, evaluating communities on a range of factors including cultural life, safety, climate, health and education facilities, and the affordability of housing.

The importance of these "quality of life" issues

has been demonstrated many times over. A 1979 Congressional survey of business showed that decisions on where to locate firms depended more upon quality of life issues than on traditional business factors, such as tax rates and labor costs¹¹. The results of a study done in Baltimore show that corporate officials interviewed there unanimously agreed that the availability of artistic and cultural activities can be a contributing factor in plant and executive location decisions. This is particularly true for regional and national corporate headquarters, research and development firms, and sole proprietorships¹².

Consequently, public gardens can play a strategic role in the economic development of a community. As an integral part of a community's cultural life, high-quality public gardens can help create a positive community image. Furthermore, by attracting thousands of visitors to the area, a public garden maintains the image of the community as a social, commercial and cultural center. Businesses are attracted to the community, and use the area's high quality of life to recruit top employees. While this role for public gardens is more abstract than the quantitative role, in the long run a public garden's contribution to economic development may be more significant.

Negative Economic Impacts

A discussion of the economic impacts of a public garden on its community would be incomplete without consideration of possible negative impacts. While these impacts may not occur at all gardens, these are issues that deserve attention.

One charge frequently leveled at public gardens is that their receipts are a substitute for private business earnings in the community. A familiar example is the sale of plants at a garden, which may take business away from local nurseries and garden centers. But it is reasonable to consider that these sales are an addition to local business activity, especially if the items are not obtainable elsewhere. Furthermore, public gardens may heighten visitor interest in the purchase of plant-related goods not available at the garden.

Secondly, because public gardens do not pay property taxes, some municipal revenues are foregone. But because public gardens may positively influence the value of lands adjacent to them, thereby increasing tax assessments and revenues, this effect may be quite small.

Lastly, public gardens may impose problems upon

their immediate areas, as an influx of visitors may create congestion, litter problems, and the like. This problem can be avoided with adequate parking and visitor services at the garden.

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Chapter 2

ECONOMIC IMPACT ANALYSIS METHODOLOGIES

In order to quantify the economic impacts described in the previous chapter, some method of economic impact analysis must be used. Analysis requires two things: a well-defined area over which the economic effects will be measured, and an economic model for that area.

There are three basic categories of models which are used in economic analysis: economic base, input-output, and econometric. Each type has its own attributes and drawbacks, and requires different amounts of information. Each type will be described briefly.

Economic Base Model

Economic base theory divides the economy into two sectors: the basic sector, or those industries with markets outside the region; and the nonbasic sector, or those industries that provide services within the region to the basic sector. In this case, economic growth depends upon expansion of the basic sector. The flow of

money into the economy due to basic sector activity is recycled through the local economy, calling forth growth in the nonbasic sector, until the initial spending leaks out of the economy. Leakages include imports, savings, and taxes. The multiplier in this case is a ratio between the increase in basic sector activities and the increase in total activity.

The economic base theory's major weakness is that it assumes the economy is in perfect equilibrium, and attains a new equilibrium after the new spending has cycled through the local economy. Prices, wages, and technology are assumed to be constant, supply is perfectly elastic, and no changes in the distribution of income or resources are accommodated¹. But since many of these factors do not change quickly, economic base models may be useful for determining short-run impacts. It is not appropriate for explaining long-term regional growth.

Input-Output Model

With the advent and greater availability of large computers over the last thirty years, more sophisticated economic impact models have been developed. One of these is the input-output model, which attempts to show, through a matrix of coefficients, how

each part of the economy relates to the others. Input-output models have a sector-by-sector specification of a dollar's worth of particular inputs required to produce a dollar's worth of different outputs. This way, an expenditure in one part can be traced throughout the economy to its last reverberation².

The input-output model does have its drawbacks. Creating an input-output table is costly and time-consuming. The table's coefficients are static, so changes in the local economy are not immediately incorporated. Furthermore, the model assumes that there are no economies of scale, no substitutions, and assumes that there are constant production processes³. These factors limit input-output models to short-run impacts, even though the results generated are quite detailed.

Econometric Model

The econometric model, the most sophisticated type of model presented here, use time series analysis and multiple regression analysis to describe the structure of an economy and to make forecasts. There is no "typical" econometric model, as economists include as few or as many equations as necessary to adequately describe the local economy. They are useful both for determining short-run impacts and long-run forecasting.

Regional econometric models are sometimes limited, though, by lack of data at that level. Furthermore, the models can be very static, not incorporating changes in the economy quickly. This could create serious biases in long-run forecasts.

The type of model chosen for an economic impact study will depend upon the time, resources, and data available. The need for accuracy and the time frame chosen will be factors as well. No one type of model is appropriate for all situations.

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Chapter 3

THE HISTORY AND OPERATION OF PHIPPS CONSERVATORY

The concepts and the methods of economic impact studies outlined in the previous two chapters can be easily applied to public gardens. The remainder of this thesis will be devoted to a case study of the economic impact of Phipps Conservatory, Pittsburgh, on Allegheny County, Pennsylvania. A brief historical and operational sketch is presented here in order to make readers aware of Phipps' financial position and its position in the area's cultural life.

The Life of Henry Phipps, Jr.

The family of Henry Phipps, Jr. (1839-1930) left Shopshire, England in 1832 and settled in Philadelphia. When Henry was a small boy, the family moved to Allegheny, Pennsylvania, where his father established a cobbler's shop. Coincidentally, the Phipps family moved next door to Mrs. Margaret Carnegie and her two sons, Andrew and Thomas. Henry and Andrew attended the same schools and became friends.

Upon leaving school, Andrew Carnegie operated an iron works with his brother while Phipps became a bookkeeper. Eventually, Phipps established his own firm, Klopman & Phipps. In 1864, Phipps initiated what would prove to be a lifelong business relationship with Andrew Carnegie when he organized a merger between his firm and the Carnegies' Cyclops Iron Works. The merged organization, Union Iron Mills, became the first firm to manufacture steel rails west of the Allegheny Mountains.

Henry Phipps was energetic, methodical, and a master of detail. He "took in the pennies at the gate and kept the payroll down¹." He constantly looked for ways to reduce extravagance and waste. Phipps devised a method of turning seemingly useless steel shavings, obtained from the company's own plants and purchased from competitors for only pennies a ton, into high quality and highly profitable steel beams. Phipps was also the first to employ a metallurgist in the steel industry, in a successful attempt to recycle steelmaking's coke waste into a useful fuel source. Again, Phipps bought the waste from his competitors, paying only for the transportation of the material, and turned the effort into a great gain for the company.

As Carnegie and Phipps' business relationship

evolved, their fortunes rose together. Phipps was successively a partner in Carnegie Brothers & Company, Ltd.; Carnegie, Phipps, and Company, Ltd.; and Carnegie Steel Company, Ltd. By the time Carnegie Steel had become the United States Steel Corporation (now USX Corporation), Phipps had amassed a fortune of one hundred million dollars.

Phipps retired from steelmaking in 1901 to attend to minor interests in Pittsburgh real estate and to devote time to philanthropy. Phipps was a very private man who went about his philanthropy quietly and often times anonymously. Among his known benefactions, however, are the establishment of the Phipps Institute in Philadelphia, the first organization ever formed to fight and cure a specific disease (namely, pulmonary contagion); establishment of a psychiatric clinic at Johns Hopkins University; and the construction of decent, inexpensive public housing in and around Pittsburgh.

The Founding of Phipps Conservatory

If many of Henry Phipps' benefactions are unknown, at least one is very well known: the donation of Phipps Conservatory to the city of Pittsburgh.

Phipps' motivation for building Phipps Conserva-

tory and, before that, a smaller conservatory for the city of Allegheny, is unclear. One story has it that Carnegie told Phipps that he would look after Pittsburgh's libraries if Phipps would build the city's conservatories². It is more likely, however, that Phipps built the conservatory because, as Samuel Church, a close friend of Henry Phipps, put it,

Mr. Phipps had at that time acquired a success in business which enabled him to spend his summers in England as the occupant of Knebworth, the spacious estate of Lord Lytton, which was luxuriant with every plant and flower...Mr. Phipps told me of his desire to establish in Pittsburgh a conservatory for the free use of our people where they might become familiar with the flora of the world, insofar as its cultivation was practical here³.

In the late 1880's Phipps offered the city of Allegheny money to build a conservatory near his home. Opened in 1887, the elaborate conservatory was a feature of the area until its demolition in the 1930's. Just a few years after this conservatory opened, and at about the time of the architectural competition for the largest Pittsburgh library funded by Andrew Carnegie, Phipps made this offer to Pittsburgh Mayor Henry I. Gourley:

If the city grants me permission, I shall be very glad to erect a conservatory in Schenley Park at a cost of, say one hundred thousand dollars. In the event of favorable action... we shall endeavor to erect something that will prove a source of instruction as well as pleasure to the people⁴.

Pittsburgh's city council unanimously accepted the offer November 30, 1891.

The conservatory's construction, contracted to the New York firm of Lord and Burnham, began in August 1892 and was completed one year later at a cost of \$110,000. The building had no definite style, but the Baroque architecture and Ogee arches at the corners gave the conservatory an almost oriental appearance. The conservatory enclosed 2-1/2 acres and featured a large central palm court and eight other display houses. Three more display houses were constructed in 1896 with a \$30,000 donation from Mr. Phipps, and nine growing houses were added in 1900, using \$35,000 in city funds. Once the largest conservatory in the United States, Phipps still ranks among the largest and among the best architecturally (see Figure 1). The conservatory has been placed on the National Register of Historic Landmarks.

Typical of Henry Phipps' style, the conservatory opened to the public without fanfare or ceremony on December 7, 1893. The plant displays, funded by public donation, established the conservatory's reputation early. In 1894, the conservatory acquired most of the rare plants displayed at the Chicago World's Exposition; some of the palms and cycads obtained remain on display

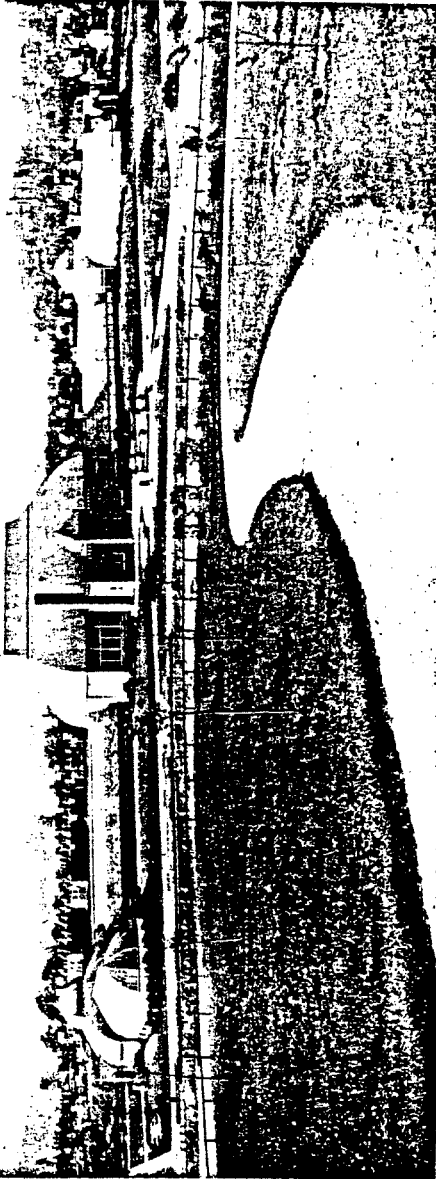


Figure 1. Phipps Conservatory, 1893

at Phipps today. Its horticultural reputation was further enhanced when the conservatory acquired a collection of rare orchids some years later.

Today, palms, orchids, cacti, ferns, a Japanese garden and a French broderie make up the permanent display. Additional exhibit space allows for special displays throughout the year. The conservatory stages three flower shows --- spring, fall and holiday ---and a summer display each year. In addition to the display of seasonal plants, a recently added feature of the shows has been cultural events related to show themes and staged at the conservatory. Phipps' only other major annual event is Fright Night --- a two-day period just before Halloween featuring pumpkin carving, scarecrow-making, and candlelit tours of Phipps, where visitors encounter caskets, ghosts, and an organ-playing Dracula.

Phipps' education program is limited to some labeling of plants and guided tours of the conservatory. In addition to the general tours offered each week, Phipps offers specialized tours on subjects ranging from plants of the Bible to gourmet foods.

Phipps' responsibilities go beyond the conservatory doors. Each year, Phipps' staff grow over 100,000 annuals and plants them in city parks. Phipps staff

members answer telephone and written inquiries from the public about ornamental plants. Staff members also assess the damage done to plants, on both public and private property, by city employees. Finally, Phipps acts as a consultant, on a limited basis, on public plantings.

Phipps' flower shows and tours attract thousands of visitors annually. But attendance has been declining in recent years (see Table 2). Visitation in the past six years averages just over 172,000 annually. Furthermore, attendance is concentrated during the month-long spring flower show, which accounts for almost 50% of annual visitation. The fall flower show attracts another

Table 2. Annual Visitation at Phipps Conservatory,
1980-1985

<u>Year</u>	<u>Visitation</u>
1980	141,607
1981	166,611
1982	195,895
1983	184,030
1984	172,030
1985	172,436

19% of the total (see Figure 2). The result is that the conservatory is underutilized at many times during the year.

The Operation of Phipps Conservatory

When Henry Phipps offered to build a conservatory for Pittsburgh, he turned over all legal and fiduciary responsibilities to the city. He made no contract, left no instructions, charter or mission statement, and provided no endowment. As a result, the conservatory has been put in a very tenuous position, its maintenance dependent upon each administration's interest in the conservatory. Over time, mayoral actions have ranged from enthusiastic support to benign neglect to operational interference; a survey of Phipps' history shows neglect and interference the most common theme. The conservatory had already deteriorated badly by the time of Henry Phipps' death in 1930. Restoration efforts were undertaken in 1934-35 by concerned private citizens and the Buhl Foundation, but the work was all for naught when a severe windstorm ruined many parts of the Conservatory in 1937. Rebuilding was not completed until 1940, but the reward was a conservatory that had been restored to nearly-new conditions.

Except for the replacement of the original

entrance building with a more modern facility in 1967, the conservatory was again allowed to deteriorate badly. By 1975, conditions were grim: the conservatory needed new sashes and glazing, improved ventilation and heating systems, and well-drained, resurfaced walkways. Funding for the restoration, originally estimated at \$250,000 but later revised upward to \$7 million, was provided largely through private donations. A majority of the repair work on the mechanical systems was completed in 1977-78, when the conservatory closed for eighteen months. The remaining work has continued, with completion expected in 1989.

At about the same time Phipps' physical structure became a concern, the conservatory's operational and financial structure also came under scrutiny. Although the conservatory had always been under city authority as part of the Department of Parks and Recreation, then-mayor of Pittsburgh Pete Flaherty began exerting more and more mayoral control over Phipps in the mid-1970's. For several years, Flaherty moved the Fall Flower Show, traditionally held in the conservatory, to various locations around the city. Pittsburgh's city council, angered by the move, began to make funding of the conservatory contingent on Flaherty's non-involvement in Phipps operations.

At the same time, City Council began questioning the city's role as sole governmental funding source of Phipps. Although funding of day-to-day operations of the conservatory is covered by admissions, gift counter sales and rental fees for private uses of the conservatory, the city pays for salaries and wages, employee benefits, and capital projects. City Council, claiming that Phipps Conservatory is not just a city attraction but a regional attraction, has asked Allegheny County to pick up some of the costs of running Phipps. The county has refused to do so. Consequently, City Council has been threatening to gradually cut back funding for Phipps, thinking that the county will step in rather than let the facility close.

The City of Pittsburgh and Allegheny County have been at odds on joint funding of regional services and attractions for years. Since the county has not budged on the questions, the threats obviously are not working. The city needs both to take a more positive approach with Allegheny County and to pursue other avenues. An economic impact study that demonstrates the monetary value of Phipps to the county and that presents economic development arguments could do both.

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Chapter 4

CASE STUDY METHODOLOGY

As noted in Chapter 2, economic impact analysis requires both a well-defined area over which economic impacts are measured, and a model for that area. In this case study, the area chosen is Allegheny County; this is appropriate because the results of the Phipps' economic impact study may be used to persuade Allegheny County officials to support Phipps financially. A model of the county's economy is required as well, but before the specific economic model developed for this study and data collection are described, some general information about Allegheny County and its economy may be illuminating.

Allegheny County is one of the four counties which constitute the Pittsburgh Standard Metropolitan Statistical Area (SMSA) (see Figure 3). While its 727 square miles of land does not make it the largest county in the SMSA, it is the most populous, with over 1,450,000 residents. Approximately 450,000 of these residents live within the city of Pittsburgh. Overall, Allegheny

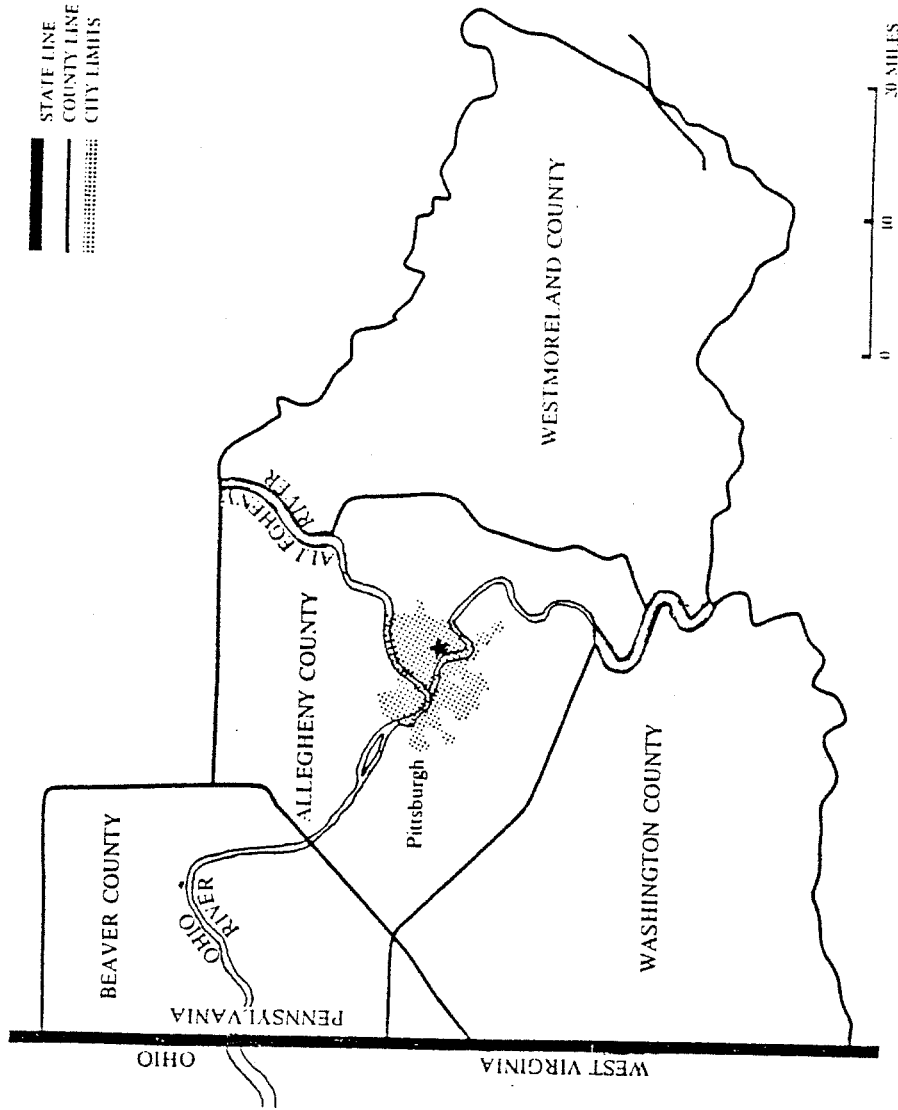


Figure 3. The Pittsburgh Standard Metropolitan Statistical Area

County ranks as the fourteenth most populous county in the United States¹.

But Allegheny County has experienced a 9.7% decline in population in the decade 1970-80². The county's historic economic base has been declining as well. Manufacturing industries, which employed nearly half of the labor force in 1955, showed a net loss of 50,000 jobs between 1960 and 1980. The local steel industry, which once produced 40% of the nation's output, now produces just 15% of total United States steel tonnage; there have been corresponding reductions in employment as well³.

But Allegheny is by no means a dying county. Even as the population declined, total employment grew in the years 1960 through 1980. Economic development efforts have concentrated on creating a more diverse economic base. Manufacturing now accounts for less than 20% of local employment; service and trade industries account for almost 60%. Pittsburgh's economy has truly shifted to a more diverse, complex economy that is less sensitive to economic cycles. The area's economic outlook, along with its cultural attractions, health and education facilities, and other amenities, has earned the Pittsburgh area the designations of "City of Gold"⁴

and "America's Most Livable City⁵."

An Input-Output Model for Allegheny County

Given the changes in Allegheny County's economy over the last 25 years, an economic model for the county should reflect the county's most recent economic history. An input-output model for 1983 was chosen for this study. Input-output analysis was described generally in Chapter 2, but Figure 4 depicts graphically the interactions the input-output model attempts to measure for this specific case. 1983 was chosen not only because all the relevant data were available, but also because 1983 marked the beginning of the region's recovery from the national recession of 1981-82.

The input-output model used in this study was obtained from the Regional Science Research Institute, Peacedale, Rhode Island, and was originally used for an economic impact study of the University of Delaware on the state. For this case study, the 494 regional purchase coefficients in the model were modified to reflect the realities of the Allegheny County economy. Regional purchase coefficients show the proportion of inputs from some industry which will be supplied from local sources. For this study, the coefficients were estimated using ratios which compare the concentration

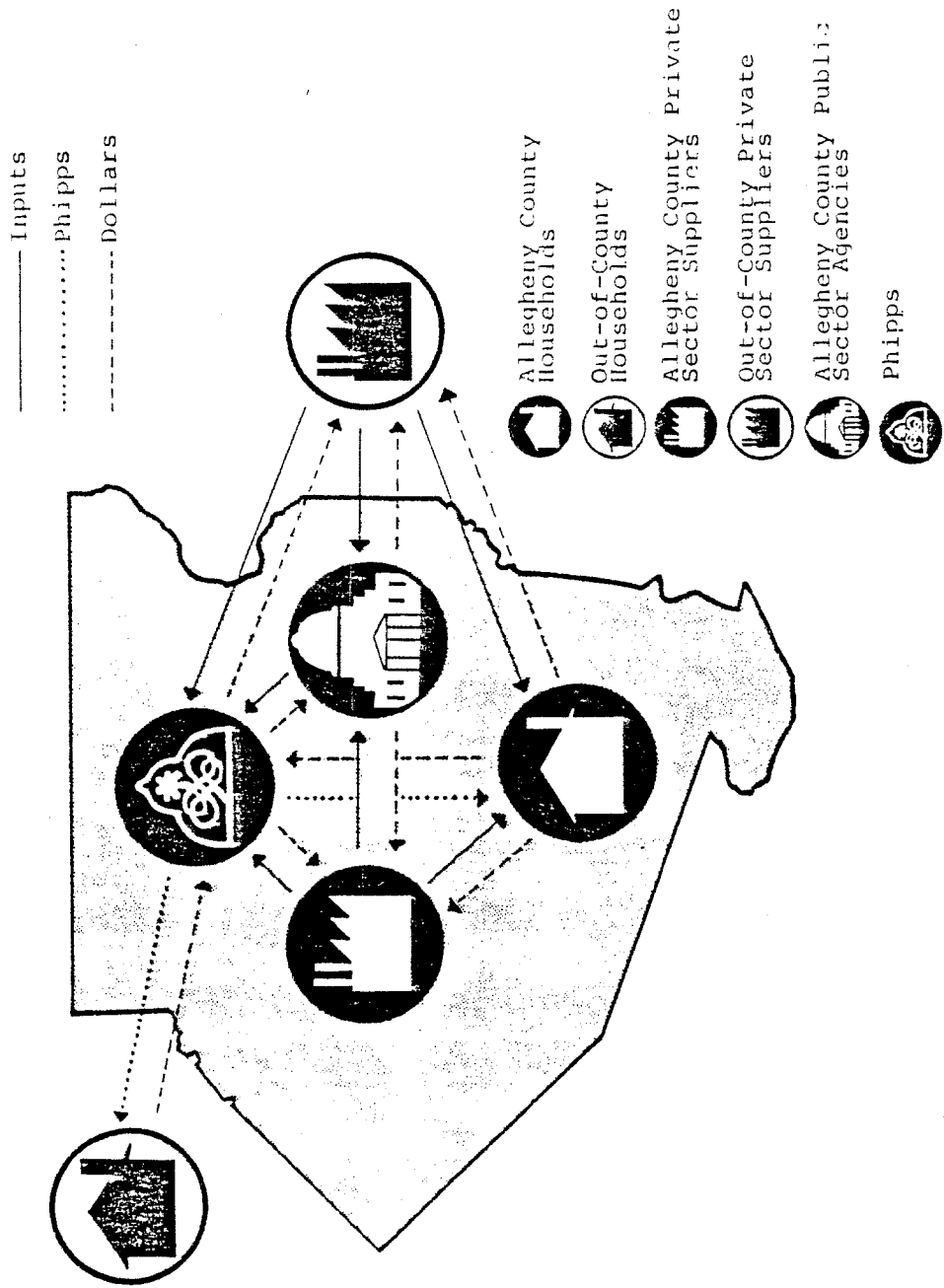


Figure 4. Intracounty and Out-of-County Economic Activities Related to Phipps Conservatory

of an industry in a local area to the concentration of that industry throughout the nation. If the ratio is greater than one, the local industry is assumed to produce enough of its particular good or service to meet all local demands and to export. If the ratio is one, the local industry produces just enough to meet local demand. If the ratio is less than one, the local industry satisfies only a portion of local demand, and the remaining portion must be imported.

Information about the presence and employment levels of industries in the county was obtained from United States Census Bureau statistics⁶. Standard Industrial Classification and Bureau of Economic Analysis codes were then used to aggregate the employment information into the regional purchase coefficients. Other coefficients in the input-output model (employees per dollar of value added, administrative and auxiliary employment, and wages per dollar of value added) were not modified. Although these coefficients were computed using information on the Delaware economy, recalculating them for Allegheny County would create only minor changes, because these data do not vary greatly from area to area. Thus it can be assumed that using the Delaware coefficients will provide satisfactory results.

Identifying Conservatory Expenditures

The input-output model for Allegheny County describes the local economy, but, alone, does not determine the economic impact of Phipps on the county. The expenditures made by the conservatory and its visitors are needed to determine the direct economic effects on the county. The model then computes the indirect and induced effects of this spending on Allegheny County, determining the economic impact. Here, the data needed can be divided into two major categories: expenditures for operations, salaries, wages, and benefits; and visitor expenditures. The sources of data in each category are described below.

Information on Phipps' 1983 expenditures was obtained from the accounting records of the City of Pittsburgh's Department of Parks and Recreation. The records show that the conservatory spent \$271,423 on daily operations, of which \$180,230 went to Allegheny County businesses. Each expenditure was assigned to the appropriate industry in the input-output model.

Salaries and wages totaling \$525,607 were paid to Phipps' employees in 1983; 31 full-time and ten part-time workers were then employed at the conservatory. In this input-output model, either the dollar value of

wages or the number of employees, but not both, may be used as an input; to use both would result in double counting and an overestimate of economic impacts. In this case study, the number of employees was used. Here it was assumed that the ten part-time employees worked half-time, resulting in a total of 36 employees.

All benefits for city employees in Pittsburgh are funded at 26.44% of the wage bill. For Phipps Conservatory, this expenditure amounts to \$138,970. This, too, was used as an input in the economic model.

Determining Visitor Origin

The second category of inputs to be used is visitor spending. Visitors traveling from longer distances can be expected to spend more during their stay than local visitors, so information on the origin of Phipps' visitors is important in estimating the inputs to be used in the input-output model.

There are several possible methods for determining the origin of Phipps' visitors. A license plate survey uses information on visitors' cars to determine characteristics of visitors. Here it is assumed that the visitors arriving at Phipps in a car are from the same place as the car; thus any information on the car's

origin will provide information on the origin of the passengers inside. Other types of surveys probably provide more reliable data, but limitations of time and resources for this study, as well as consideration of needed accuracy, led to the decision to use the license plate methodology. The objective of the survey was to determine the percentage of visitors coming from beyond a 100-mile radius of Pittsburgh (see Figure 5). One hundred miles is a standard distance used to separate daytrip visitors from overnight visitors⁷.

Phipps' 1986 Spring Flower Show, which ran from March 16 through April 13, 1986, was expected to attract over 90,000 visitors. Historically, visitation to the Spring show has accounted for almost 50% of total annual visitation. With such a high percentage of total visitation arriving at Phipps over a relatively short time period, the determination of visitor origin during this period should provide a reasonable estimate of visitor origin patterns for the entire year.

License plate data were collected March 21-23, 1986, the first full weekend of the 1986 Spring Flower Show. Observations were made every hour from 9 a.m. to 5 p.m. The numbers of automobiles and buses recorded were 1,413 and 25, respectively.

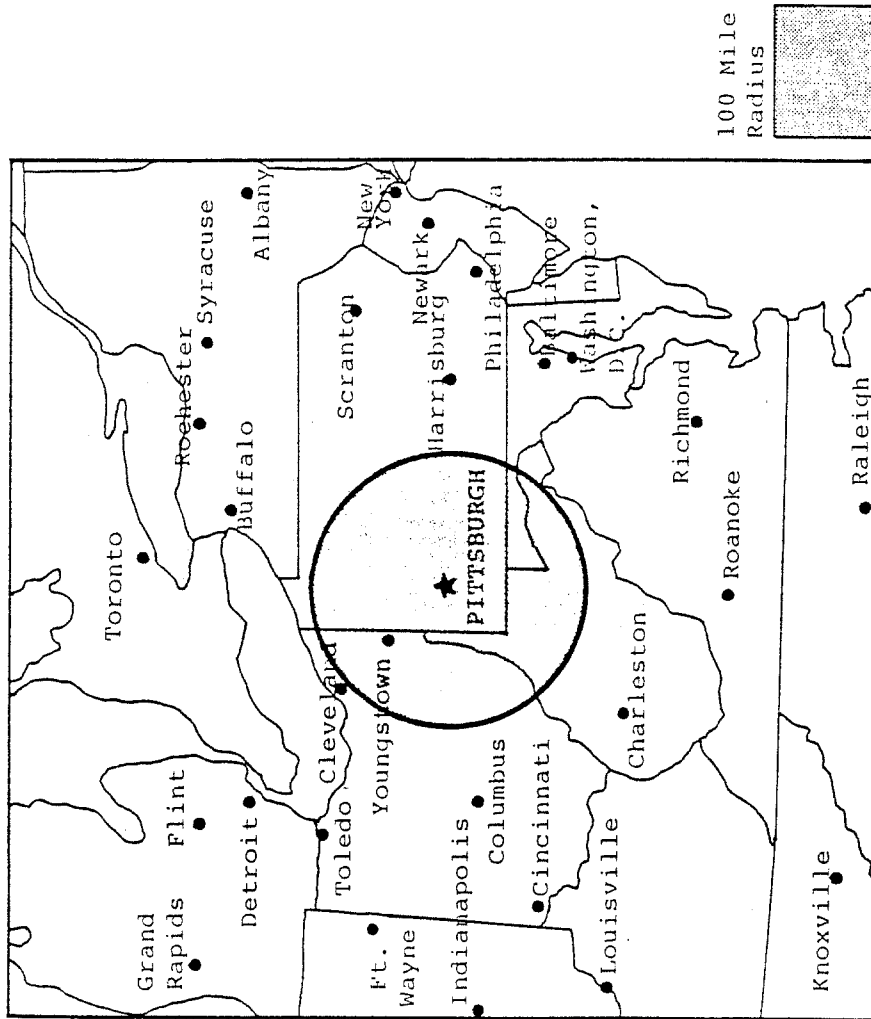


Figure 5. Portions of Pennsylvania, Maryland, Ohio and West Virginia Within 100 Miles of Pittsburgh

A follow-up license survey was conducted during Phipps' 1986 Fall Flower Show, the period of second highest visitation annually. The survey was conducted on November 26 and 29, 1986. Here, the first one hundred cars to arrive at Phipps each day were observed. Although information on one hundred cars was obtained easily on Saturday, November 29, only nineteen cars arrived at Phipps on Wednesday, November 26. This was probably due to the inclement weather that day.

The results of the surveys showed that license plates from the states of Pennsylvania, Ohio, West Virginia, and Maryland were the four most frequently occurring. But this information alone does not indicate how many visitors travel more than one hundred miles to arrive at Phipps, since parts of each of these four states are within that radius. Therefore, other information on the automobiles was used to more precisely fix visitor origin. For cars from Pennsylvania, bumper stickers, license plate frames and dealer tags were used to determine origin; those Pennsylvania cars without these clues were considered to have originated within one hundred miles of Pittsburgh. Although only 16% of all Pennsylvania cars had no clues, this still produces an upward bias to estimates of local visitors. Ohio license plates include information on county of

origin, and this fact was used to determine which cars came from beyond one hundred miles. Lastly, all cars from West Virginia and Maryland were assumed to have originated within the previously assumed radius. This, too, produces an upward bias to the estimate of local visitors.

Table 3 summarizes the results of the surveys. The estimate of five percent of all visitors traveling more than one hundred miles can be assumed to be a minimum, conservative figure. This is because all visitors from West Virginia and Maryland were considered to be daytrip visitors, even though major portions of each state are outside the radius. Furthermore, this study does not account for seasonal differences in visitor origin. The average visitor might be assumed to travel longer distances in the summer than at other times of the year. This is the case at Phipps, where staff members report an impression of there being a higher number of visitors from distant states during the summer months⁸.

For the purposes of this study, the estimate of five percent of visitors arriving from beyond one hundred miles will be sufficient.

Table 3. Visitor Origin at Phipps Conservatory during the 1986 Spring and Fall Flower Shows

<u>Origin</u>	<u>Number of Automobiles</u>	<u>Percent of Total</u>
Within 100 miles of Pittsburgh	1,455	95.0
Beyond 100 miles of Pittsburgh	<u>77</u>	<u>5.0</u>
TOTAL	1,532	100.0

Determining Visitor Spending

A certain proportion of all visitors to Phipps can be assumed to make expenditures for goods and services outside the conservatory during their visit. Determining the exact proportion of Phipps' visitors who make these expenditures and what their average spending is would require an extensive survey; but, as with determining visitor origin, limitations of time and resources prohibited conducting an extensive survey. But some information is available from a limited survey conducted at the 1986 Fall Flower Show by Phipps Friends, a nonprofit organization associated with the conservatory⁹.

The results of the Phipps Friends survey showed that the vast majority of visitors to Phipps arrive by private automobile; that average group size is 2.9 people; and that 30.5% of all visitors eat a meal in conjunction with their visit. These data provide the basis for two categories of visitor spending to be estimated here: gasoline purchases and expenditures for meals. In addition, an estimate of expenditures for overnight lodging will be made. Here it is assumed, based on an economic impact study of the 1980 Philadelphia Flower Show¹⁰, that 1.5% of all 1983 visitors, or 2,760 people, spend the night in a hotel or motel. This figure falls well within the assumption that at least 5% of all visitors travel more than one hundred miles to reach the conservatory. It is further assumed that each overnight visitor has his own hotel room.

The estimate of gasoline purchases is based on several factors. Average group size was previously reported as 2.9 people. Since 184,030 people visited Phipps in 1983, a total of 63,458 trips were estimated to have been taken. Each group was assumed to have traveled an average of 23.1 miles to reach the conservatory (this represents travel within Allegheny County only). As a result, an estimated 1,465,879 miles were

traveled by Phipps' visitors. Using government statistics on 1983 average automobile mileage and average price of unleaded gasoline¹¹, the gasoline expenditure of all visitors was estimated at \$108,843.

The estimates of meal and hotel expenditures were based on a 1986 economic impact study conducted for the Boston Museum of Fine Arts¹². Here average spending for overnight visitors was determined to be \$30.31 for hotel accommodations and \$24.96 for three meals. Daytrip visitors spend an average of \$6.24 for one meal during their visit.

While these food and lodging estimates seem reasonable, they are by no means definitive. Other visitor spending surveys have uncovered different average spending levels. As part of this analysis, six estimates of visitor spending, taken from economic impact studies, will be compared as to the employment and wage effects they create.

The figures used for analysis here are taken from studies on a proposed minor league baseball stadium in Newark, Delaware¹³; the Barnum Festival in Bridgeport, Connecticut¹⁴; the Boston Museum of Fine Arts¹⁵; Rosecroft Raceway in Prince George's County, Maryland¹⁶; the Philadelphia Flower Show¹⁷; and a convention income

survey conducted by the International Association of Convention and Visitors Bureaus (IACVB)¹⁸. Five of the six studies estimate visitor spending for leisure activities; the sixth study, from the IACVB, concerns spending by convention delegates. Table 4 lists the relevant expenditures taken from the studies.

Table 5 lists estimates of visitor spending at Phipps in 1983 using the different spending levels. For each estimate, it was assumed that 2,760 visitors made expenditures for overnight lodging and meals, and that 30.5% of the remaining 181,270 people, the daytrip visitors, made an expenditure for a meal. If a study did not estimate an expenditure for meals for overnight visitors, the meals figure represents spending of the daytrip visitors only.

Each set of meals and lodging estimates was run alone in the input-output model to determine the different employment and wage impacts created. Table 6 summarizes the results. The data show that different visitors spending levels can have a significant impact on the overall results of an economic impact study. In this case, employment will vary by as many as eighteen jobs, and wages will vary by as much as \$176,000.

Factors other than average spending level will affect the results as well. If the proportion of

Table 4. Estimates of Average Visitor Expenditures Taken from Six Economic Impact Studies

Study	Daytrip Meals	Overnight Meals	Overnight Lodging
Baseball Stadium	\$ 3.50	\$ 8.00	\$ 25.00
Barnum Festival	6.97	N/A	5.61
Boston Museum of Fine Arts*	6.24	24.96	30.31
Rosecroft Raceway	7.17	N/A	40.00
Philadelphia Flower Show	8.68	N/A	24.11
IACVB	7.25	29.01	58.02
Average	6.64	20.65	30.50

* Estimates used for Phipps Conservatory study

Table 5. Six Estimates of Visitor Spending at Phipps Conservatory in 1983

<u>Study</u>	<u>Expenditure at Phipps</u>	
	<u>All Meals</u>	<u>Lodging</u>
Baseball Stadium	\$ 215,585	\$ 69,000
Barnum Festival	385,352	15,483
Boston Museum of Fine Arts*	413,882	83,655
Rosecroft Raceway	396,410	110,400
Philadelphia Flower Show	479,894	66,543
IACVB	480,900	160,135
Average	395,337	84,202

* Estimates used for Phipps Conservatory study

Table 6. Employment and Wage Impacts on Allegheny County Due to Expenditures Made by Visitors to Phipps Conservatory in 1983

<u>Study</u>	<u>Employment</u>	<u>Wages</u>
Baseball Stadium	14.3	\$ 141,000
Barnum Festival	20.4	194,000
Boston Museum of Fine Arts*	25.1	244,000
Rosecroft Raceway	25.5	250,000
Philadelphia Flower Show	27.7	267,000
IACVB	32.2	317,000
Average	24.2	235,000

* Estimates used in Phipps Conservatory study

overnight visitors were to increase or decrease, all economic impacts would change accordingly. The same holds true for any change in the proportion of daytrip visitors eating meals in conjunction with their visit.

Increasing the types of visitor spending estimated will influence the overall results too. Visitor spending studies, in addition to estimating gasoline, food and lodging expenditures, often include estimates for retail sales, transportation, and entertainment for visitors. Lack of data prevented estimates of these categories to be made in the Phipps study; therefore, the total value of the visitor spending estimate used here may be considered conservative.

Lastly, the methodological decision to include or not to include the spending of local (i.e., daytrip) visitors in spending estimates will affect the results. Some researchers believe that including spending by local visitors is inappropriate. Claiming that ancillary expenditures by local visitors are an impact of an institution appears to suggest that attending an activity causes visitors to spend over and above their admission cost¹⁹. Furthermore, spending by local visitors does not represent an infusion of "new" money into the local economy.

In this case, it was decided to include spending by daytrip visitors. The Phipps Friends' survey showed that 66% of the respondents were at home immediately before they arrived at Phipps, and 37% went home immediately after their visit. While this necessarily means that a few visitors came and went and spent no money above and beyond the conservatory's admission price, it also indicates that Phipps was a primary destination for many visitors on the day of their visit. It may be reasonable to assume that visiting Phipps was the impetus for planning a trip around or into Allegheny County for many people. In that case, claiming ancillary expenditures by visitors as an impact of Phipps Conservatory is arguably valid.

Determining Property Value Impacts

Although the examples in Chapter 1 indicated that urban parks and garden-like areas positively influence the value of nearby properties, no attempt to determine Phipps' impact on local property values was made. A large park, the Carnegie Museums, and parts of the Carnegie-Mellon University and University of Pittsburgh campuses are all within a few hundred feet of the conservatory. Any one of these institutions alone could influence property values. Thus it would be

unreasonable to attribute any premium in property values in that immediate area specifically to the presence of Phipps Conservatory.

Summary of Inputs

The data used as inputs in the Allegheny County input-output model fall into two categories: operational expenses and visitor spending. Operational expenses can be further divided into purchases for goods and services from business firms, \$271,423; the number of employees at Phipps in 1983, 36; and appropriations for employee benefits, \$138,970. Total visitor spending expenditures are estimated at \$413,882 for food and \$83,655 for lodging.

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Chapter 5

THE ECONOMIC IMPACT OF PHIPPS CONSERVATORY

The results of the economic impact study on Phipps Conservatory are of two kinds: quantitative, which are generated by the input-output model; and qualitative, which are derived from economic development issues. Each data set will be considered separately.

Quantitative Impacts

The input-output model generates impacts for four different measures of economic activity. These are employment; output, or the dollar volume of sales; wages; and value added, or the value of output less the purchased material inputs used in producing goods and services.

Table 7 summarizes the overall results of the study. The results show that Phipps creates 102 jobs in Allegheny County, 36 of which occur at the conservatory. The service and retail sectors of the economy benefit most from the presence of Phipps, with 55 and 29 jobs created, respectively. Appendices A and B provide

Table 7. Economic Impact of Phipps Conservatory, 1983

	<u>Employment</u>	<u>Output</u>	<u>Wages</u>	<u>Value Added</u>
Agriculture	1.3	\$ 17,000	\$ 11,000	\$ 11,000
Ag. Services, Forestry and Fisheries	0	0	0	0
Mining	0.1	19,000	4,000	12,000
Construction	1.5	40,000	26,000	31,000
Manufacturing	2.7	319,000	45,000	85,000
Transportation and Public Utilities	2.5	301,000	51,000	135,000
Wholesale	3.0	145,000	58,000	99,000
Retail	29.0	687,000	234,000	377,000
Finance, Insurance, and Real Estate	3.7	308,000	61,000	221,000
Services	55.0	1,171,000	781,000	1,011,000
Government	0	0	0	0
Administrative and Auxiliary	3.5	175,000	86,000	129,000
TOTAL	102.3	\$ 3,128,000	\$ 1,355,000	\$ 2,112,000
MULTIPLIERS	1.627	2.386	1.712	2.015

detailed information on the economic impacts created by Phipps. The 55 service industry jobs include the 36 jobs at Phipps Conservatory, 4.8 jobs in health services (2.3 jobs for doctors and dentists, 2.1 jobs in hospitals, and 0.5 job in other medical services), 4.4 jobs in hotels, and 2.1 jobs in business services. The majority of the 29 retail sector jobs are created in eating and drinking establishments, with 16.3 jobs found there; in addition, 6.6 jobs in gasoline service stations and automobile dealerships and 2.0 jobs in general merchandising are included in the impacts.

All other 2-digit Standard Industrial Classification industries are only modestly affected by Phipps. Finance, insurance, and real estate gains 3.7 jobs, but specific industries within this category gain only one job or a fraction of a job. The same holds true for wholesale trade (3.0 jobs gained), manufacturing (2.7 jobs), transportation and public utilities (2.5 jobs), and construction (1.5 jobs).

It should be noted that only 1.3 jobs are created in the field of agriculture, with all of that impact occurring in the greenhouse and nursery products industry. Phipps requires many agriculturally related goods and services for its operations, but many of the

purchases made occur outside of Allegheny County. Of the \$85,000 expenditure for plant materials made in 1983, Phipps spent less than 20% of that amount in Allegheny County.

The gross wages paid to the 102 employees in jobs generated by Phipps Conservatory amount to \$1,355,000. As was noted in Chapter 4, the 36 employees at Phipps received \$525,607 in wages in 1983. That leaves just over \$829,000 in wages paid to the other 66 jobholders, each having an average wage of \$12,566. A low average wage is an expected result, because many of the jobs created are in the relatively low-paying service and retail sectors.

Sales of goods and services related to spending by the conservatory and its visitors totaled \$3,182,000 in Allegheny County in 1983. Furthermore, firms which purchased materials needed to produce their goods and services added \$2,112,000 to the value of those materials before selling them to other firms or to consumers. Not only are these effects significant in sheer dollar terms, but also these results clearly demonstrate how the \$1,433,500 initially spent by Phipps and its visitors recycles through the economy of Allegheny County and multiplies.

The business volume generated by Phipps and the wages paid to all affected employees creates wage tax and other tax revenues for government. In this case study, the state government receives an additional \$83,775 due to the expenditures made related to Phipps. Local government receives an additional \$69,443.

The input-output model generates a series of multipliers as part of the analysis as well. If only one figure had to be considered as the bottom-line multiplier, it would be the value added multiplier of 2.01. This multiplier means that every dollar spent in direct support of Phipps Conservatory generates another \$1.01 in spending elsewhere in Allegheny County. Once again, this demonstrates how the initial spending recycles through the local economy and multiplies.

Qualitative Impacts

Phipps Conservatory's role in the economic development efforts of Allegheny County is nonexistent. Even though Phipps is the only major conservatory within at least one hundred miles of Pittsburgh, Allegheny County does not promote it as a regional attraction.

There are two probable reasons for this occurrence. First, Allegheny County has its own extensive

parks and recreation program, including a garden-like estate used for cultural programs. Because Allegheny County already has rich recreational and cultural offerings, it does not need to promote Phipps Conservatory in its economic development efforts.

Second, if Allegheny County officials were to promote Phipps as a county attraction, they would be lending support to the city of Pittsburgh's contention that Phipps is a regional attraction deserving county financial support. Given the city and county's long-running battle over shared funding of regional attractions and services, it is unlikely that Phipps will be promoted by Allegheny County anytime in the near future.

Interestingly enough, though, the city of Pittsburgh does not promote Phipps heavily either. Although information about Phipps is included in the city's guide for tour leaders, its inclusion in other promotional literature is spotty.

The probable reason for this is that Phipps Conservatory, as part of the city's cultural life, competes for attention with nationally and internationally known cultural institutions. The city has chosen to highlight organizations like the Pittsburgh Symphony Orchestra and the Carnegie Museums, for

example, in its economic development efforts. With more effort, however, Phipps could become one of the city's major attractions.

Despite the lack of a current role for Phipps in the economic development efforts of Allegheny County, the conservatory could play a role in the future. But that will require greater cooperation between the city and the county. It will require an upgrading of Phipps' displays and educational programs as well, so that the conservatory is recognized as an important, high-quality cultural resource for Allegheny County.

Conclusion

While the identified economic effects of Phipps Conservatory are not large compared to many industries in Allegheny County, they indicate that significant reductions in operational and visitor expenditures related to Phipps would have perceptible effects on employment, income and business volume in the county. This fact is rarely considered when annual appropriations are being made, but it deserves greater attention.

Phipps Conservatory's role in economic development is underutilized at present. Efforts should be made in the future to enhance Phipps as an institution

and to promote it as a vital part of Allegheny County's cultural life.

At the same time, though, these economic effects should not transcend the other roles that Phipps plays in Allegheny County. It is important that Phipps Conservatory and other public gardens be appreciated for all the benefits they bring to their communities--- aesthetic, educational, and economic. Advocates of public gardens would do well to consider all these aspects.

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Appendix A

TOTAL ANNUAL IMPACT OF PHIPPS CONSERVATORY BY 2-DIGIT SIC INDUSTRY CODE

These results present the employment, output, wage, and value added impacts of Phipps Conservatory on Allegheny County for the aggregated, 2-digit Standard Industrial Classification categories. Employment is reported as number of employees; all other impacts are reported in millions of dollars. For example, Phipps Conservatory is responsible for creating in the Allegheny County metal mining industry (SIC 10) 1/10 of a job, \$19,000 in output, \$4,000 in wages, and \$12,000 in value added.

	EMPLOYMENT	OUTPUT	WAGES	VALUE ADD
AGRICULTURE	1.3	0.017	0.011	0.011
DAIRY PROD., POULTRY, & EGGS	0.0	0.000	0.000	0.000
MEAT ANIMALS & MISC. LIVESTOCK	0.0	0.000	0.000	0.000
COTTON	0.0	0.000	0.000	0.000
GRAINS, & MISC. CROPS	0.0	0.000	0.000	0.000
TOBACCO	0.0	0.000	0.000	0.000
FRUITS, NUTS, & VEGETABLES	0.0	0.000	0.000	0.000
FOREST PROD.	0.0	0.000	0.000	0.000
GREENHOUSE & NURSERY PROD.	1.3	0.017	0.011	0.011

	EMPLOYMENT	OUTPUT	WAGES	VALUE ADD
AGRI. SERV., FORESTRY, & FISH	0.0	0.000	0.000	0.000
AGRI. SERVICES (07)	0.0	0.000	0.000	0.000
FORESTRY (08)	0.0	0.000	0.000	0.000
FISHING, HUNTING, & TRAPPING (09)	0.0	0.000	0.000	0.000
MINING	0.1	0.019	0.004	0.012
METAL MINING (10)	0.0	0.000	0.000	0.000
ANTHRACITE MINING (11)	0.0	0.005	0.001	0.003
BITUM. COAL & LIGNITE (12)	0.0	0.000	0.000	0.000
OIL & GAS EXTRACTION (13)	0.1	0.014	0.002	0.009
NONMETAL MIN.-EX. FUELS (14)	0.0	0.000	0.000	0.000
CONSTRUCTION	1.5	0.040	0.026	0.031
GENERAL BLDG. CONTRACTORS (15)	0.0	0.000	0.000	0.000
HEAVY CONST. CONTRACTORS (16)	0.0	0.000	0.000	0.000
SPECIAL TRADE CONTRACTORS (17)	1.5	0.040	0.026	0.031
MANUFACTURING	2.7	0.319	0.045	0.085
FOOD & KINDRED PROD. (20)	0.7	0.087	0.013	0.027
TOBACCO MANUFACTURES (21)	0.0	0.000	0.000	0.000
TEXTILE MILL PROD. (22)	0.0	0.000	0.000	0.000
APPAREL & OTHER PROD. (23)	0.7	0.021	0.006	0.007
LUMBER & WOOD PROD. (24)	0.0	0.000	0.000	0.000
FURNITURE & FIXTURES (25)	0.0	0.001	0.000	0.000
PAPER & ALLIED PROD. (26)	0.0	0.005	0.001	0.001
PRINTING & PUBLISHING (27)	0.8	0.055	0.012	0.018
CHEMICALS & ALLIED PROD. (28)	0.1	0.015	0.003	0.005
PETROLEUM & COAL PROD. (29)	0.1	0.109	0.003	0.015
RUBBER & MISC. PLASTICS (30)	0.0	0.003	0.001	0.001
LEATHER & LEATHER PROD. (31)	0.0	0.000	0.000	0.000
STONE, CLAY, & GLASS (32)	0.1	0.005	0.002	0.003

	EMPLOYMENT	OUTPUT	WAGES	VALUE ADD
PRIMARY METAL PROD. (33)	0.0	0.004	0.001	0.001
FABRICATED METAL PROD. (34)	0.0	0.004	0.001	0.002
MACHINERY, EXCEPT ELEC. (35)	0.0	0.001	0.000	0.001
ELECTRIC & ELEC. EQUIP. (36)	0.0	0.002	0.000	0.001
TRANSPORTATION EQUIPMENT (37)	0.0	0.000	0.000	0.000
INSTRUMENTS & REL. PROD. (38)	0.0	0.003	0.001	0.002
MISC. MANUFACTURING IND'S (39)	0.1	0.005	0.001	0.002
TRANSPORT. & PUBLIC UTILITIES	2.5	0.301	0.051	0.135
RAILROAD TRANSPORTATION (40)	0.0	0.000	0.000	0.000
LOCAL PASS. TRANSIT (41)	0.2	0.006	0.002	0.004
TRUCKING & WAREHOUSING (42)	0.5	0.029	0.011	0.018
WATER TRANSPORTATION (44)	0.0	0.002	0.000	0.001
TRANSPORTATION BY AIR (45)	0.3	0.011	0.004	0.007
PIPE LINES-EX. NAT. GAS (46)	0.0	0.000	0.000	0.000
TRANSPORTATION SERVICES (47)	0.1	0.001	0.001	0.001
COMMUNICATION (48)	0.6	0.046	0.013	0.031
ELEC., GAS, & SANITARY SERV. (49)	0.9	0.206	0.021	0.074
WHOLESALE	3.0	0.145	0.058	0.099
WHLSALE-DURABLE-GOODS (50)	1.4	0.067	0.028	0.049
WHLSALE-NONDURABLE GOODS (51)	1.6	0.077	0.030	0.050
RETAIL TRADE	29.0	0.687	0.234	0.377
BLDG. MAT.-GARDEN SUPPLY (52)	0.5	0.011	0.006	0.009
GENERAL MERCH. STORES (53)	2.0	0.033	0.017	0.027
FOOD STORES (54)	0.9	0.020	0.010	0.016
AUTO. DEALERS-SERV. STAT. (55)	6.6	0.137	0.067	0.102
APPAREL & ACCESS. STORES (56)	0.7	0.012	0.006	0.009
FURNITURE & HOME FURNISH. (57)	0.4	0.010	0.005	0.008
EATING & DRINKING PLACES (58)	16.3	0.425	0.107	0.183
MISCELLANEOUS RETAIL (59)	1.6	0.039	0.016	0.024

	EMPLOYMENT	OUTPUT	WAGES	VALUE ADD
FINANCE, INS., & REAL ESTATE	3.7	0.308	0.061	0.221
BANKING (60)	1.0	0.038	0.016	0.029
CREDIT AGENCIES EX. BANKS (61)	0.2	0.011	0.005	0.006
SECURITY, COMM. BROKERS (62)	0.1	0.009	0.004	0.006
INSURANCE CARRIERS (63)	0.9	0.046	0.017	0.022
INS. AGENTS, BROKERS (64)	0.3	0.016	0.005	0.010
REAL ESTATE (65)	0.9	0.174	0.011	0.139
COMB. REAL ESTATE, INS. (66)	0.0	0.007	0.000	0.005
HOLDING-OTH. INV.. OFF'S (67)	0.2	0.008	0.003	0.004
SERVICES	55.0	1.171	0.781	1.011
HOTELS & OTHER LODGING (70)	4.4	0.094	0.036	0.046
PERSONAL SERVICES (72)	0.9	0.031	0.011	0.018
BUSINESS SERVICES (73)	2.1	0.077	0.025	0.046
AUTO REPAIR, SERV., GARAGES (75)	0.3	0.035	0.005	0.016
MISC. REPAIR SERVICES (76)	0.4	0.015	0.005	0.009
MOTION PICTURES (78)	0.2	0.003	0.001	0.001
AMUSEMENT & RECREATION (79)	0.9	0.019	0.009	0.012
HEALTH SERVICES (80)	4.8	0.229	0.098	0.152
LEGAL SERVICES (81)	0.5	0.032	0.013	0.024
EDUCATIONAL SERVICES (82)	1.6	0.021	0.008	0.011
SOCIAL SERVICES (83)	1.3	0.018	0.018	0.016
MUSEUMS, BOTAN-ZOO, GARDENS (84)	36.0	0.556	0.525	0.622
MEMBERSHIP ORGANIZATIONS (86)	1.0	0.011	0.017	0.014
MISCELLANEOUS SERVICES (89)	0.5	0.029	0.012	0.022
GOVERNMENT	0.0	0.000	0.000	0.000
ADMIN. AUXILIARY	3.5	0.175	0.086	0.129
TOTAL	102.3	3.182	1.355	2.112
MULTIPLIERS	1.627	2.386	1.712	2.015

Appendix B

TOTAL ANNUAL IMPACT OF PHIPPS CONSERVATORY BY DETAILED INDUSTRY

These results present the employment, wage and output impacts of Phipps Conservatory on Allegheny County for detailed Standard Industrial Classification industries. Employment is reported as number of employees; wage and output impacts are reported in thousands of dollars. For example, Phipps Conservatory is responsible for creating in the Allegheny County greenhouse and nursery products industry (SIC 8) 1.3 jobs, \$11,000 in wages, and \$16,800 in output.

	EMPLOY	WAGES	OUTPUT
1 DAIRY FARM PRODUCTS, POULTRY, & EGGS	0.0	0.0	0.1
2 MEAT ANIMALS AND MISC. LIVESTOCK	0.0	0.0	0.0
4 CROPS	0.0	0.0	0.0
6 FRUITS, NUTS, AND VEGETABLES	0.0	0.0	0.1
7 FOREST PRODUCTS	0.0	0.0	0.0
8 GREENHSE & NURSERY PRODS	1.3	11.0	16.8
9 FORESTRY AND FISHERY PRODUCTS	0.0	0.0	0.0
10 AGRIC FOREST & FISHERY SERVS	0.0	0.1	0.1
12 COAL MINING	0.0	2.8	9.0
13 CRUDE PETROLEUM AND NATURAL GAS	0.1	2.1	14.5

	EMPLOY	WAGES	OUTPUT
14	0.0	0.0	0.1
19	0.8	13.1	21.3
20	0.3	6.2	8.3
21	0.4	6.2	10.5
29	0.1	1.0	7.5
35	0.0	0.6	3.3
36	0.1	0.9	8.0
38	0.0	0.6	4.6
39	0.0	0.4	3.0
43	0.1	0.9	6.0
51	0.2	2.2	8.4
52	0.0	0.9	3.8
54	0.1	1.0	6.3
57	0.0	1.8	15.6
61	0.2	2.4	12.1
62	0.0	0.1	1.5
68	0.0	0.3	5.3
70	0.0	0.2	1.1
71	0.0	0.1	0.4
96	0.7	5.3	18.5
97	0.0	0.2	0.7
98	0.0	0.3	1.5
100	0.0	0.1	0.2
105	0.0	0.0	0.0
109	0.0	0.0	0.0
110	0.0	0.0	0.0
120	0.0	0.0	0.1
124	0.0	0.0	0.2
126	0.0	0.2	0.8
128	0.0	0.0	0.0
129	0.0	0.0	0.0
131	0.0	0.0	0.0
139	0.0	0.0	0.0
	0.0	0.1	0.6

	EMPLOY	WAGES	OUTPUT
143	0.0	0.3	1.3
144	0.0	0.6	2.8
145	0.3	4.5	23.8
146	0.0	0.2	1.5
147	0.0	0.0	0.3
148	0.0	0.1	0.2
150	0.4	5.5	24.0
151	0.0	0.1	0.5
152	0.0	0.5	2.4
153	0.0	0.4	1.1
155	0.0	0.2	0.3
156	0.0	0.0	0.1
157	0.0	0.3	0.8
160	0.0	0.4	2.8
169	0.0	0.2	1.0
170	0.0	0.1	1.3
174	0.0	1.0	3.9
176	0.0	0.4	2.6
178	0.0	0.0	0.3
179	0.0	0.5	2.9
180	0.1	2.7	108.7
187	0.0	0.6	2.9
198	0.0	0.6	2.1
199	0.0	0.6	2.2
200	0.0	0.0	0.1
203	0.0	0.0	0.1
210	0.0	0.0	0.1
211	0.0	0.0	0.0
212	0.0	0.0	0.0
216	0.0	0.0	0.1
219	0.0	0.0	0.1
221	0.0	0.0	0.1
	0.0	0.1	0.5

	EMPLOY	WAGES	OUTPUT
222	NONMETAL MINERAL PROD, NEC	0.0	0.0
223	BLAST FURNACES & STEEL MILLS	0.0	2.2
225	STEEL WIRE & RELATED PRODUCTS	0.1	0.8
226	COLD FINISHING OF STEEL SHAPES	0.0	0.2
228	IRON & STEEL FOUNDRIES	0.1	0.2
229	IRON & STEEL FORGINGS	0.0	0.0
230	METAL HEAT TREATING	0.0	0.0
235	PRIMARY ALUMINUM	0.0	0.0
238	COPPER ROLLING & DRAWING	0.0	0.0
243	BRASS, BRONZE, COPPER CASTINGS	0.0	0.1
247	METAL BARRELS, DRUMS, PAILS	0.1	0.0
250	HEATING EQUIP, EXC ELEC	0.1	0.3
251	FABRICATED STRUCTURAL METAL	0.1	0.4
252	METAL DOORS, SASH, TRIM	0.0	0.1
253	BOILER SHOPS	0.0	0.0
254	SHEET METAL WORK	0.1	0.2
255	ARCHITECTURAL METAL WORK	0.1	0.6
257	MISCELLANEOUS METAL WORK	0.0	0.0
258	SCREW MACH PROD, BOLTS, NUTS	0.0	0.0
259	AUTO STAMPINGS	0.1	0.3
261	METAL STAMPINGS, N.E.C.	0.1	0.5
263	HAND & EDGE TOOLS, NEC	0.1	0.4
266	PLATING & POLISHING	0.0	0.1
268	MISC FAB WIRE PROD	0.0	0.0
269	STEEL SPRINGS, EXC WIRE	0.1	0.3
270	PIPE, VALVES, PIPE FITTINGS	0.0	0.1
272	FABRICATED METAL PROD, NEC	0.1	0.4
273	STEAM ENGINES & TURBINES	0.1	0.2
277	CONSTRUCTION MACH & EQUIP.	0.1	0.2
279	OIL FIELD MACHINERY	0.0	0.0
280	ELEVATORS & MOVING STAIRWAYS	0.0	0.0
284	MACH TOOLS, METAL CUTTING	0.0	0.0
286	SPEC DIES, TOOLS, MACH TOOL ACC	0.0	0.0
288	ROLLING MILL MACHINERY	0.1	0.1
		0.0	0.0

	EMPLOY	WAGES	OUTPUT
289 METALWORKING MACHINERY	0.0	0.0	0.0
290 FOOD PRODUCTS MACHINERY	0.0	0.0	0.1
294 PRINTING TRADES MACHINERY	0.0	0.0	0.1
295 SPECIAL INDL MACH,NEC	0.0	0.0	0.0
296 PUMPS & COMPRESSORS	0.0	0.0	0.2
297 BALL & ROLLER BEARINGS	0.0	0.0	0.0
299 INDUSTRIAL PATTERNS	0.0	0.0	0.0
300 POWER TRANSMISSION EQUIPMENT	0.0	0.0	0.0
301 INDL FURNACES & OVENS	0.0	0.0	0.0
302 GENL INDL MACH, NEC	0.0	0.0	0.1
304 NON-ELEC MACHINERY,NEC	0.0	0.1	0.3
305 ELECTRONIC COMPUTING EQUIPMENT	0.0	0.0	0.1
314 SERVICE INDL MACH, NEC	0.0	0.0	0.0
317 SWITCHGEAR&SWITCHBOARD APPARATUS	0.0	0.1	0.2
318 MOTORS & GENERATORS	0.0	0.1	0.3
319 INDUSTRIAL CONTROLS	0.0	0.0	0.1
320 WELDING APPARATUS, ELECTRIC	0.0	0.0	0.0
322 ELEC INDL APPARATUS, NEC	0.0	0.0	0.0
331 LIGHTING FIXTURES & EQUIPMENT	0.0	0.2	0.9
332 WIRING DEVICES	0.0	0.1	0.3
336 RADIO & TV COMMUNIC EQUIPMENT	0.0	0.0	0.0
339 ELECTRONIC COMPONENTS,NEC	0.0	0.0	0.0
344 ELECTRICAL EQUIPMENT	0.0	0.0	0.0
348 MOTOR VEHICLE PTS&ACCESSORIES	0.0	0.1	0.4
354 RAILROAD EQUIPMENT	0.0	0.0	0.0
360 MECHANICAL MEASURING DEVICES	0.0	0.0	0.0
362 SURG & MED INSTRUMENTS	0.0	0.1	0.2
363 SURG APPLIANCES & SUPPLIES	0.0	0.7	2.5
366 LENSES, OPTICAL INSTRUMENTS	0.0	0.0	0.0
368 PHOTOGRAPHIC EQUIP&SUPPLIES	0.0	0.1	0.2
379 MARKING DEVICES	0.0	0.1	0.2
380 CARBON PAPER & INK RIBBONS	0.0	0.0	0.3
384 BROOMS & BRUSHES	0.0	0.1	0.5
387 SIGNS & ADVERTIS DISPLAYS	0.0	0.4	1.8

	EMPLOY	WAGES	OUTPUT
388	MANUFACTURING, N.E.C.	0.0	2.1
390	HWY PASSENGER TRANSIT - LOC & INT	0.2	6.0
391	TRUCKING & WAREHOUSING	10.7	29.4
392	WATER TRANSPORTATION	0.4	1.6
393	AIR TRANSPORTATION	3.9	11.3
395	TRANSPORTATION SERVICES	0.5	0.9
396	COMMUNIC, EXC RADIO & TV	11.4	37.0
397	RADIO & TV BROADCASTING	1.3	8.6
398	ELECTRIC UTILITIES	13.6	113.5
399	GAS UTILITIES	5.8	85.5
400	WATER SUPPLY, SANITARY SERVICES	1.5	7.1
401	WHLSALE: AUTO AND OTHER MOTOR VEHICLES	1.7	3.6
402	WHLSALE: AUTO EQUIPMENT	1.7	3.7
403	WHLSALE: TIRES AND TUBES	0.2	0.4
404	WHLSALE: DRUGS & DRUGGISTS' SUNDRIES	1.2	2.6
405	WHLSALE: PAINTS AND VARNISHES	1.8	4.0
406	WHLSALE: CHEMICALS AND ALLIED PRODUCTS	0.8	1.7
408	WHLSALE: APPAREL & ACCESSORIES	0.4	0.8
409	WHLSALE: FOOTWEAR	0.2	0.5
410	WHLSALE: GROCERIES, GENERAL LINE	1.2	2.6
411	WHLSALE: DAIRY PRODUCTS	0.7	1.5
412	WHLSALE: POULTRY	0.1	0.1
413	WHLSALE: CONFECTIONARY	0.4	0.9
415	WHLSALE: MEATS	2.9	6.1
416	WHLSALE: FRESH FRUITS & VEGETABLES	0.9	2.0
417	WHLSALE: GROCERIES, N.E.C.	4.1	8.7
419	WHLSALE: ELECTRICAL EQUIPMENT	1.9	3.9
420	WHLSALE: ELECTRICAL APPLIANCES	1.0	2.1
421	WHLSALE: ELECTRONIC PARTS AND EQUIP.	0.9	1.8
422	WHLSALE: HARDWARE	0.3	0.7
423	WHLSALE: PLUMB-HEATING; AIR COND, REFRI	0.8	1.7
424	WHLSALE: COMM.-IND. MACH. EQUIP.-SUPP'S	10.2	20.8
425	WHLSALE: FARM MACHINERY AND EQUIPMENT	0.2	0.5
426	WHLSALE: PROF. EQUIP. & SUPPLIES	1.6	3.5

		EMPLOY	WAGES	OUTPUT
427	WHLSALE: EQUIP. & SUPP'S-SERVICE EST.'S	0.0	0.2	0.5
428	WHLSALE: MACHINERY,EQUIP.SUPPLIES,N.E.C	0.0	0.2	0.4
429	WHLSALE: METALS & MINERALS	0.0	0.3	0.6
430	WHLSALE: PETROLEUM & PETRO PRODUCTS	0.1	1.8	3.6
431	WHLSALE: SCRAP & WASTE MATERIALS	0.0	0.1	0.2
432	WHLSALE: MISC., N.E.C.	1.0	20.1	65.0
433	RETAIL: LUMBER AND BUILDING MATERIALS	0.3	3.6	7.0
434	RETAIL: PAINT, GLASS, WALLPAPER	0.0	0.5	1.0
435	RETAIL: HARDWARE & FARM EQUIPMENT	0.1	1.1	2.2
436	RETAIL: DEPARTMENT STORES	1.7	14.1	28.0
437	RETAIL: MAIL ORDER; VENDING MACHINES	0.2	1.8	3.6
438	RETAIL: VARIETY STORES	0.2	1.6	3.1
439	RETAIL: DIRECT SELLING ORG.'S	0.1	0.9	1.8
440	RETAIL: MISC. GENERAL MERCH. STORES	0.1	0.9	1.8
441	RETAIL: GROCERY STORES	0.6	8.3	16.4
442	RETAIL: MEAT AND FISH MARKETS	0.0	0.0	0.0
443	RETAIL: FRUIT & VEGETABLE STORES	0.0	0.1	0.3
444	RETAIL: CANDY,NUT, CONFECTIONARY STORES	0.0	0.2	0.4
445	RETAIL: BAKERIES	0.1	1.0	2.0
446	RETAIL: MISC. FOOD STORES, N.E.C.	0.1	0.5	0.9
447	RETAIL: NEW MOTOR VEHICLE DEALERS	0.9	15.4	30.1
448	RETAIL: USED MOTOR VEHICLE DEALERS	0.0	0.2	0.4
449	RETAIL: TIRE, BATTERY, ACCESS, DEALERS	0.1	1.0	1.9
450	RETAIL: GASOLINE SERVICE STATIONS	5.7	49.5	103.0
451	RETAIL: MISC. AIRCRAFT,MARINE & AUTO	0.1	0.9	1.8
452	RETAIL: MEN'S AND BOYS CLOTHING STORES	0.1	1.6	3.2
453	RETAIL: WOMEN READY TO WEAR STORES	0.3	2.0	4.1
454	RETAIL: WOMEN'S ACCESS.-SPECIALTY STORE	0.0	0.2	0.4
455	RETAIL: CHILDREN'S-INFANTS WEAR STORES	0.0	0.1	0.2
456	RETAIL: FAMILY CLOTHING STORES	0.1	0.5	0.9
457	RETAIL: SHOE STORES	0.2	1.5	3.0
458	RETAIL: MISC. APPAREL STORES, N.E.C.	0.0	0.2	0.4
459	RETAIL: FURNITURE,HOME FURNISH.,EQUIP.	0.3	3.5	6.5

		EMPLOY	WAGES	OUTPUT
460	RETAIL: HOUSEHOLD APPLIANCE STORES	0.0	0.6	1.1
461	RETAIL: RADIO, TV AND MUSIC STORES	0.1	1.1	2.1
462	RETAIL: DRUGS AND PROPRIETARY STORES	0.5	4.7	9.1
463	RETAIL: LIQUOR STORES	0.0	0.2	0.4
464	RETAIL: BOOK AND STATIONERY STORES	0.1	0.7	1.4
465	RETAIL: SPORTING GOODS AND BICYCLE SHOP	0.1	0.6	1.2
466	RETAIL: JEWELRY STORES	0.1	1.3	2.5
467	RETAIL: FUEL AND ICE DEALERS	0.0	0.1	0.2
468	RETAIL: N.E.C.	0.6	5.7	20.5
469	BANKING	1.0	15.6	37.5
470	CREDIT AGENCIES	0.4	7.8	19.2
471	SECURITY & COMMODITY BROKERS	0.1	4.3	8.7
472	INSURANCE CARRIERS	0.9	16.6	46.2
473	INSURANCE AGENTS & BROKERS	0.3	4.9	16.5
475	REAL ESTATE	0.9	11.5	180.4
476	HOTELS & LODGING PLACES	3.0	26.8	56.0
477	PERSONAL & REPAIR SERVICES	0.8	9.4	30.1
478	BEAUTY & BARBER SHOPS	0.3	3.5	7.2
479	MISC BUSINESS SERVICES	2.3	27.1	80.7
480	ADVERTISING	0.1	0.4	4.9
481	MISC PROFESSIONAL SERVICES	1.0	25.2	61.5
482	EATING & DRINKING PLACES	17.7	116.9	462.9
483	AUTO REPAIR & SERVICES	0.3	4.6	35.1
484	MOTION PICTURES	0.2	1.0	3.0
485	AMUSEMENT & RECREATION SERVICES	0.9	8.8	19.2
486	DOCTORS & DENTISTS	2.3	73.9	161.0
487	HOSPITALS	2.1	17.9	56.4
488	OTH MEDICAL & HEALTH SERVICES	0.5	6.1	10.9
489	EDUCATIONAL SERVICES	1.6	7.6	21.1
490	NONPROFIT ORGANIZATIONS	38.3	559.3	585.0
493	ADMINISTRATIVE AUXILIARY	3.5	86.3	175.2
	TOTAL	102.3	1357.0	3187.2

WAGES-NET OF TAXES= 1221.973
TOTAL STATE TAXES= 83.770
TOTAL LOCAL TAXES= 69.439
OTHER VALUE ADDED= 739.828
TOTAL VALUE ADDED= 2115.010

OUTPUT MULTIPLIER= 2.386
EMP MULTIPLIER= 1.627
INCOME MULTIPLIER= 1.712
VALUE ADDED MULTIPLIER= 2.015

Appendix C

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