



# ECONOMIC DEVELOPMENT

## ACKNOWLEDGEMENTS

*The cooperation of local experts in various fields is essential to the development of a Comprehensive Plan.*

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## ECONOMIC DEVELOPMENT

### Introduction

Centre County's overall economy continues to be one of the strongest in the state. Employment grew by 20 percent from 1990 to 2001, which was surpassed by only eight other Pennsylvania counties. This was almost equal to the U.S. increase (20.6 percent) and almost double that of the state (10.3 percent). The net employment increase in Centre County was over 11,000 jobs, primarily from education, health services and retail. The county's unemployment rate consistently has been among the lowest in the state; approximately 3.3% in 2002 compared to the state at 5.3% and the U.S. at 5.7% (Department of Labor and Industry, 2002).

The Centre County economy has benefited from a large and diverse employment base and a growing population. Historically, industrial opportunities (including manufacturing, textiles, metal fabrication, mining and quarrying, wood products, and mill work) have supplemented a significant agricultural industry. Educational services, primarily through the activities of Penn State University, have brought economic stability and diversity to County residents. Steady population and employment growth has fostered a vibrant retail and service industry that has been, and remains, one of the fastest growing segments of the County economy. Each of these elements has combined to form a local economy that provides diverse job opportunities, low levels of unemployment, and high income potential. However, as is the case nationally, the dynamics of the County economy are changing and with those changes come many current and long range planning challenges. This chapter will examine the dynamic nature of the County's economy over time, and identify relationships between economic development and planning in order to

provide recommendations for the future. The focus of this chapter will be industry specific and will identify growth opportunities for each of the County's planning regions. The Appendix to this Chapter details the statistical analysis used in forming the Plan's recommendations.

### Agriculture

Some of Centre County's most important social, cultural, and economic heritage lies with its agricultural base. Rich soils, strong family farms, and an ideal climate combined to make agriculture one of the County's most important industries. As detailed in the Natural Resources section of the Plan, most of the prime agricultural soils necessary to accommodate agricultural activities are located in the southern and eastern portions of the County, including most of the Penns and Nittany Valley regions and a considerable portion of the Centre Region.



To understand the agricultural industry and its importance to the Centre County economy, it is necessary to identify two broad categories of agriculture activities; production agriculture and agricultural services.

Production agriculture is the "traditional" component of the agricultural industry (i.e. crop production, livestock operations, etc.).

Largely soils driven, these activities are predominately located in the valleys of the southern and eastern sections of the County. Production agriculture is responsible for 1.9% of County employment, compared to 3.3% of total employment in neighboring counties. Although representing a smaller percentage of overall employment, Centre County's production agriculture industry remains viable. Since 1990, agricultural employment has been more stable in Centre County than in the surrounding region, declining almost 3% (40 jobs) compared to nearly 16% in neighboring counties. This may be due in part to Centre County's active agricultural preservation programs. The County's Agricultural Security and Agricultural Easement programs are intended to preserve the area's prime natural resources and help maintain a diverse County economy.

At present, there are over 84,000 acres within the County designated in Agricultural Security Areas. In addition, there are over 4,400 acres preserved through easement purchase. In order to maintain compatibility, the County's agricultural preservation activities are coordinated with land use and capital improvement plans.

Unlike production agriculture activities, agricultural service businesses are located Countywide. Such services are ag-related industries outside of traditional production activities (e.g. landscape contracting). These services are an increasingly important component of the County economy due to residential and commercial growth as well as growth in personal incomes. Agricultural services are projected to experience additional growth in the future.

While agriculture has been and remains a viable component of the County's economy, there are several strategies that should be further explored to maximize the value of the County's agricultural resources. Such strategies are briefly discussed below.

Niche marketing – There are a growing number of local farm operators that are beginning to realize the economic potential of producing a product marketed to a specific segment of the population. For example, organic farms have begun to satisfy an increasing demand for such products. Such efforts are an important component in retaining the viability of smaller farm operations.

Local market production – The local demand for locally produced products is an area of growth potential for the County's agricultural production industries. These activities include a focus on both local processors (e.g. Hanover Foods) and the local restaurant market.



Ag-Entertainment – As will be discussed later in this chapter, the tourism industry is an important component of the County economy. One growth potential in this industry is in the field of ag-entertainment. This includes events such as hayrides, corn mazes, pumpkin catapults, pick-your-own-produce opportunities, etc. Such activities take place at a variety of locations including Way's Fruit Farm and Wasson Farms.

Taken as a whole, the agriculture and ag-related industry in Centre County is a strong and diverse element of the County's economy. Combined with other segments of the economy (e.g. retail, tourism, etc.) agriculture is likely to remain an important component in social, cultural, and economic fabric of Centre County.

## Traditional Manufacturing

Manufacturing operations (including those that involve mineral resource extraction) have historically been located throughout the County including a brass products manufacturer in the Nittany Valley Region, coal mines in the Mountaintop Region, a cigar factory in the Moshannon Valley Region, a food processor and cannery in the Penns Valley Region, a picture tube manufacturer in the Centre Region, and many others. However, shifts in the national and global economy have contributed to declines in the local manufacturing industry. Mining employment, once a standard of the County economy, has declined by over 75 percent (300 jobs) since 1990 and now makes up only one-tenth of one percent total county employment. Such job losses have hit particularly hard in the Mountaintop and Moshannon Valley planning regions. It is important to note, however that while the net decrease in jobs is due entirely to declines in the coal mining industry other segments such as limestone production produced a slight increase in employment.

Limestone and dolomite resources, as described in the Natural Resources chapter, are abundant within the south-central and southeastern portions of Centre County. These resources are used in the construction industry and, as such, residential and commercial growth will continue to drive the need for construction aggregate. In addition, the Valentine member, an extremely pure form of limestone, is also found in veins within Centre County. This resource has significant commercial value as an export commodity.



Limestone, Coleville and Pleasant Gap

County planning efforts should identify and inventory mineral resources and assist in the coordination of land use and infrastructure planning activities in such a manner as to allow for the utilization of natural resources while protecting the viability of residential neighborhoods, commercial areas and the natural environment.

While certain segments of the County's industrial economy remain viable, others such as traditional "factory" manufacturing have followed national trends and have declined both in terms of real employment and as a percentage of the overall County economic base. This trend has had and will continue to have important ramifications for land use planning.

As evidenced by the 2003 closing of the Corning-Asahi plant in College Township, traditional manufacturing within Centre County is vulnerable to global economic trends. High labor and business costs make many goods producing activities cost prohibitive within the United States. As a result, communities must adopt strategies to identify industries in which they have a comparative advantage and provide a strategic plan to foster growth in those industries.



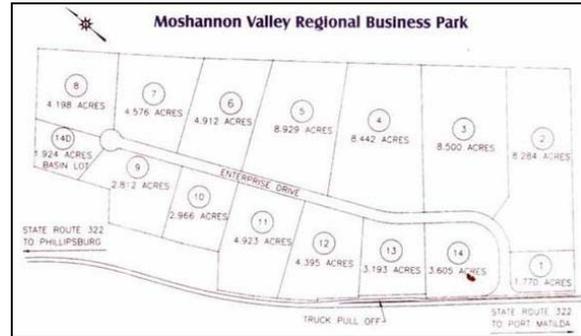
Corning-Asahi Plan – College Township

Employment data for Centre County shows some important trends for future economic development planning. First, the opportunities for traditional manufacturers to remain viable components of the local economy are limited. Traditional manufacturing activities that are likely to be successful here are those that can harness the unique resources of Centre County. Among the most valuable resources available here is a comprehensive transportation system, highly educated and creative workforce and, as was true of the agriculture industry, the opportunity for niche manufacturing. Several strategies to facilitate growth in the traditional manufacturing sector are outlined below.

Capital Facilities Planning – Although traditional manufacturing opportunities are in decline nationwide and locally, several key strengths remain valuable in recruiting and retaining industrial facilities. Access to high-quality comprehensive transportation networks is one component to business location decisions. The identification of available sites located near such networks, served by supporting infrastructure (e.g. water and sewer service), and situated away from conflicting land uses is an important function of local economic development activities.

Business Incubation - Business incubation opportunities are an important way that communities can support entrepreneurial activities by providing facilities and access to capital for start-up ventures and/or existing facilities seeking expansion

opportunities. Successful business incubators within the County include the Moshannon Valley Economic Development Partnership's facility and the Chamber of Business and Industry of Centre County's business incubator venture at Penn State University's Innovation Park.



Moshannon Valley Regional Business Park

Clustering - Employment clustering allows for communities to take advantage of land and/or infrastructure resources by marketing to a specific industry type that has strong regional ties. Such opportunities exist in and around Centre County and include the powdered metal industry cluster located in northwestern Pennsylvania, opportunities in chromatography, and the high-tech knowledge based cluster in the Centre Region. This clustering activity allowed the Moshannon Valley Economic Development Partnership to attract the Sinterstahl powdered metals manufacturing facility in Rush Township near Philipsburg.

Niche Manufacturing

As mentioned above, successful economic development strategies maximize the unique resources of the area. One of those unique resources is the Amish community. Important to both the cultural make-up of Centre County and to the continued viability of the County's agricultural economy, the Amish community has also successfully cultivated a niche manufacturing opportunity in furniture production and wood-working. By providing local products for local, regional, and possibly national markets through tourism opportunities, the full

potential for this type of niche manufacturing has not yet been realized.

### Workforce Development

The key to the long-term viability of the County's industrial base is the transition to high-tech manufacturing opportunities. While planning programs can seek to maximize land and capital facilities resources, one critical element that must be addressed is workforce development. A commitment to workforce development will benefit the economy by providing essential job skills for the new economy and by providing and expanding training opportunities that are complementary with the County's existing strength in educational services.

### **High Tech Manufacturing**

While the traditional manufacturing segment of the County's economy must focus on business retention and expansion, there is growth potential in the high tech manufacturing field. High tech manufacturing is defined as industries using high levels of skilled, management, professional, and technical workers. Such growth is projected to be an important part of the continued diversity of the County's economy and will support the local tax base. Centre County has a comparative advantage in ideas production due in large part to the research and development activities of Penn State University. However translating those ideas into local jobs will be difficult given the increased reliance on technology and automated production associated with such industries.

Penn State research creates tremendous opportunities for technology-based economic development in Centre County through formation of new, technology spin-off companies, and through attraction of high-tech industries with interest in Penn State research. Numerous well-known, major employers with technology that is

based in Penn State research provide hundreds of jobs for Centre County residents today, including AccuWeather, Cannon Instruments, Minitab, Sound Technologies, State of the Art, Supelco, and others. Penn State invests significantly in technology transfer facilities and programs aimed at increasing this type of technology-based economic development in Centre County. These investments include the Innovation Park at Penn State, the Zetachron Center, the Penn State Industrial Research Office, the Penn State Intellectual Property Office, PENNTAP, the Ben Franklin Technology Partners of Central and Northern Pennsylvania, and others. The local employment growth potential that is available will continue to rely heavily upon the impacts of future research and development activities at Penn State. As with other segments of the economy, Centre County must identify an area within which it can specialize.

Penn State technology strengths of particular interest to industry include defense technology, homeland security technology, nanotechnology, and life sciences. Much of the defense-related research conducted at Penn State occurs at the Applied Research Laboratory (ARL). This University center of excellence in naval science and technologies, with focus in undersea missions and related areas, was brought to Penn State from Harvard University in 1946. Since that time this unit has flourished and today employs close to 800 people, most of which are scientists, engineers, and technicians. Last year ARL was awarded \$130 million in research contracts. The ARL works with hundreds of companies annually, including many Centre County companies.

The Innovation Park at Penn State serves as a magnet for attracting companies with interest in Penn State technologies to Centre County, and houses the offices of the Chamber of Business and Industry of Centre County (CBICC), and the CBICC Small Business Incubator. Some of the

CBICC Small Business Incubator tenant companies that are successfully commercializing Penn State technology include DIAPedia, Quantum Bio, NanoHorizons, SaRonix, SenTech, SinoCeramics, and many others. In addition, Penn State established the Zetachron Center for Technology in 1998 to support formation of new enterprises commercializing Penn State technology, with emphasis on the life sciences. This effort has resulted in creation of 45 jobs and ten new companies to date, including Advanced Interfaces, ChiralQuest, EIEICO, Mitotyping Technologies, and Salimetrics, among others.

Similar to the business retention activities identified above, the high tech manufacturing industry can benefit from the availability of start-up financial capital and business incubator services. Much of the research done at Penn State is state of the art and the transition from idea to production is labor and capital intensive. Centre County must be proactive in its approach to economic development in order to facilitate the fast paced nature of high tech manufacturing.

## Education

Due in large part to Penn State University, education is by far the single largest segment of the County economy representing 23.9% of the County's total employment up from 20.8% in 1990. This compares to the state average of 2.4%. A smaller but still significant 4.9% of the County's total employment is in other educational services including elementary secondary and vocational education.



Old Main, Penn State University

The impacts of education, particularly Penn State, on the County's economy extend much further than just the total employment. Several secondary impacts can be readily identified. Among those impacts are:

- Increased retail and development activity
- Some insulation from national economic trends
- Highly educated and skilled workforce
- High income levels

Research and development activities are projected to be an important component of the County's long-range growth in high tech manufacturing and professional services.

Penn State is the nation's eleventh largest research university, with total fiscal year 2002 research expenditures of \$507 million. Nearly ninety percent of this research is conducted at the University Park Campus. Most of these funds (55%) come to Penn State from the federal government in Washington, and 30% come in equal amount from the state government in Harrisburg and industry from across Pennsylvania and the United States. The remaining 15% comes from the University itself. Thus, the Penn State research enterprise was responsible for bringing roughly \$385 million of federal, state, and industry funds to Centre County in fiscal year 2002. These funds provide direct, high-wage jobs for thousands of highly skilled Centre County residents, many of

whom hold advanced degrees, plus many more indirect jobs through multiplier effects.

The graduate student population at Penn State makes a very significant contribution to Centre County economic development. Graduate students are a key part of the Penn State research enterprise. Graduate students working with their faculty supervisors perform much of the research that is conducted at Penn State. There are currently more than 10,600 graduate students enrolled at Penn State and approximately 60% of these are enrolled at the University Park Campus. These graduate students collectively inject approximately \$120 million into the Centre County economy, through direct spending for goods and services such as food, housing, transportation, and entertainment. Graduate students also work directly with Centre County companies interested in utilizing Penn State technology, and often remain in Centre County after they receive their advanced degrees, finding positions with existing companies or helping to launch new, spin-off companies.

The continued ability to transition the workforce from the “old economy” to an information based economy is a critical component of long-term economic viability. The County’s educational resources including Penn State, South Hills Business School, the Central Pennsylvania Institute of Science and Technology, as well as the local school districts must play an important role in this transition.

### **Consumer Services**

The Consumer Services component of Centre County’s economy covers a broad range of industries from retail and personal services to health and social services.

Health Services - Employment in the Health Services sector increased by over 50 percent from 1990, adding over 1500 jobs. It is projected to be among the national

economy’s fastest and largest sources of employment growth. Despite this strong growth, the county is still much less specialized than the state in almost all health services. This lower specialization, plus other forces, indicate that strong future growth can be expected in the county.

Recognizing that the breadth of services provided and the population served by local practitioners and facilities have created a regional center for medical services, the Centre Community Hospital has recently changed its name to the Mount Nittany Medical Center. Planned expansions to the facility will continue to make the facility a provider of choice for residents of central Pennsylvania.

A major force driving health services employment is overall population increase and the aging of the population. Centre County also is becoming more of a destination retirement location, which will reinforce demand for a range of health services. These forces will lead to increased demand for nursing and personal care services and employment, as well as a range of specialized health services.

Retail - Combined with increases in the retirement age community, growth in young families and college students will help to drive continued retail growth. In the retail sector, growth projections show continued growth of 1.3 percent per year and add more jobs nationally than any other industry. The Centre County economy has shown considerable retail strength relative to the state since 1990. Particular concentration is seen in hardware stores, gas stations and clothing stores.

A major reason for the county growth in retail employment is that the Centre Region around State College has become, and increasingly is becoming, a retail trade center for other county residents and surrounding counties. The completion of the I-99 highway, and other road improvements, will only reinforce this process, likely

bringing still more retail shopping opportunities. Because of this phenomenon, it may be that the county is bucking a national and state trend in clothing and department stores. In the larger economies, these industries are consolidating, leading to less employment, while locally expansion is still the trend.

The projected growth in and accessibility of the Centre Region retail sector may however present additional challenges for local retailers outside of the State College area. The population density of the Centre Region allows for the viability of large retail centers that attract consumers both countywide and from adjacent counties. This makes it difficult for local retailers to compete. Fortunately, several strategies have been identified that can assist in the viability of local retail markets. One opportunity for growth in the smaller municipalities is through internet sales. As the internet continues to grow as a vehicle for retail sales, the physical location of retailers becomes less important. Elements such as marketing, uniqueness, and high-quality service become an important way to level the playing field in an internet economy. As noted in the Community Facilities Chapter, continued expansion of the County's high-tech infrastructure, including the delivery of broadband and wireless networks to rural municipalities is vital to the ability of those areas to compete in the new economy.

Also important is the identification of niche retailing opportunities. As was the case with agri-business and manufacturing, there is an opportunity in specialty sales for the County's smaller municipalities. Many of these opportunities revolve around the particular heritage of the community. For example, as mentioned in the Agriculture section, farmers markets and other specialty services can supplement a local and regional retail economy.

Another example of niche retailing is the identification and promotion of important

and unique historic and/or cultural resources as a central component of an economic development strategy. For example, the Rowland Theatre in Philipsburg provides movie-goers with a unique experience in an historical venue. These retail and entertainment opportunities should be closely linked with the tourism industry so as to cooperatively market the history, recreational opportunities, etc. of the area while generating related retail activity.



Rowland Theatre – Circa 1917

Personal/Professional services - Another facet of the consumer services sector is the continued viability of personal services (e.g. banks, insurance agents, etc.). By establishing a relationship with customers in a “small-town” manner, such services can provide a level of customer service that many larger establishments in higher population areas are unable to provide.

### **Tourism**

The set of industries classified as Recreation Services or, more commonly known as Tourism, has become one of the most vital components of the County's economy and contributes greatly to the economic base. Tourism-related activities, comprising eating and drinking, lodging, and various amusement businesses, are a strong and growing component of the County economy. This sector is expected to show solid employment growth nationally.



Penns Cave, Gregg Township

Like other segments of the County economy, the tourism-related industries must continue to capitalize on the unique resources of Centre County. The tourism generating capacity of Penn State University, of course, has significant impacts on the County's economy. However, most of those benefits are concentrated within the Centre Region. A comprehensive countywide approach must identify strategies of benefit to each of the County's municipalities.

Heritage tourism is a field that is gaining considerable interest in the economic development community. By identifying, cataloging, and marketing the unique historic, cultural, and recreational opportunities of the County and each of its municipalities, many areas will be able to fully realize the retail opportunities associated with tourism activities.

Municipalities and regions should also recognize the growing trend in nature tourism. While hunting and fishing opportunities have brought many visitors to the area, other activities such as camping, hiking and biking, canoeing and kayaking, and bird watching are gaining popularity as noted in the Wildlife Chapter. Centre County is well positioned to benefit from growth in this area. Natural resources such as Bald Eagle State Park, Black Moshannon State Park, and Rothrock State Forest provide many opportunities for outdoor enthusiasts. In order to capitalize on the economic development potential of such activities, the County and its municipalities

should adopt a "package" approach to promoting outdoor activities by identifying significant trails, greenways, waterways, camping areas, etc. and relating those resources to retail, service, and lodging opportunities.

Another unique resource as mentioned above is the impact of the Amish community. The furniture, crafts, food products, and other goods produced by the Amish should continue to play a role in the marketing of the County as a tourism and shopping destination.

### **Resource Agencies**

The purpose of this section is to briefly list some of the resource agencies available to municipalities for assistance with economic development issues.

- DCED

The mission of the Pennsylvania Department of Community and Economic Development (DCED) is to foster opportunities for businesses and communities to succeed and thrive in a global economy, thereby enabling Pennsylvanians to achieve a superior quality of life. DCED works with both planning agencies and economic development organizations to provide financial resources and technical assistance.

- SEDA-COG

The Susquehanna Economic Development Association – Council of Governments (SEDA-COG) is a multi-county development agency that provides a range of services including economic development. SEDA-COG is a designated Economic Development District through the U.S. Department of Commerce's Economic Development Administration. Programs include business financing, export development assistance, and a

manufacturing marketing network. Additional programs, such as community infrastructure project assistance can be important components of municipal economic development activities.

- CBICC

The Chamber of Business and Industry of Centre County (CBICC) provides business assistance including access to facilities, benefit services, workforce development programs, and financing assistance. CBICC manages the Penn-Eagle Industrial Park and provides high-tech business incubator opportunities at the Innovation Park facility, which is currently undergoing expansion.

- Bellefonte - Intervalley Chamber of Commerce

The Bellefonte - Intervalley Chamber of Commerce, located in Bellefonte, represents the economic development interests of several municipalities including Bellefonte, Howard, and Milesburg Borough and the townships of Boggs, Curtin, Howard, Liberty, Benner, Marion, Spring, and Walker. The Chamber assists members and the business community with economic development assistance, marketing, promotions, referrals, and health insurance programs. In addition, the Chamber provides advocacy for its members and works closely with local community groups to plan and promote economic revitalization and development activities.

- MVEDP

The Moshannon Valley Economic Development Partnership (MVEDP) promotes economic development initiatives in the Moshannon Valley region which includes Philipsburg Borough, Rush Township, and South Philipsburg Borough as well as neighboring municipalities in Clearfield County. Services provided by the MVEDP include loan and grant

application assistance, business retention services, and participation in local capital facilities planning. The MVEDP developed and manages the Moshannon Valley Regional Business Park and a multi-tenant business incubator facility, both in Rush Township.

- County and municipal IDA's

Industrial Development Authorities are another mechanism by which governing bodies may act to promote economic development. Several Industrial Development Authorities exist within Centre County to provide financial resources and support to business ventures looking to locate or expand within their jurisdiction.

## Conclusion

The changing contexts presented above raise several issues that local economic planning and development must confront.

- Historic development policies, which focused primarily on traditional manufacturing, must focus more on the service and knowledge-based/high tech industries as the base of the economy. However, Counties with diversified economies tend to perform best and therefore, manufacturing cannot be ignored. To the extent that manufacturing is a focus, it must be one of maintaining and generating manufacturing within the new information based economy; manufacturing that is efficient and that can compete in the national and global economies, regardless of the product. Trying to retain or attract manufacturing with low wages and tax incentives will have limited success in the new economy.
- The County Planning Office should continue to monitor demographic and economic trends to determine what industries will grow and decline, and where in the County this is likely to

occur. This includes identifying the local conditions that will retain, generate and attract businesses in which employment increases will occur. Much of this effort should revolve around gaining knowledge of existing businesses and industries and the locally-controllable factors (e.g. land use, infrastructure, access to capital) that affect efficient operation and profitability.

- Economic development efforts must also include identifying, generating and supporting local entrepreneurs
- Preparing the local labor force to work in the new economy, both manufacturing and service, must be an on-going priority. Fewer and fewer low-to-medium skill, routine jobs will be available in manufacturing. The question, “How can the people entering the labor force and losing jobs in the declining industries be prepared to find employment in the growing industries, which are primarily services and certain high tech manufacturing?” must be answered.
- Other issues of specific relevance to the future of the Centre County economy, and to planning efforts, are:
  - The impact of I-99 and other possible future major highway construction.
  - Possible improved air transportation.
  - Population and residential growth, and particularly where this will take place.
  - Potential for growth in university student population

In describing each of the elements of the County’s economy, several general themes

emerged that are of importance to future land use planning initiatives.

- Coordinate long range land use, transportation, and capital facilities planning
- Identify inventories of undeveloped / vacant commercial and industrial land and identify access to infrastructure
- Research, analyze, and publish demographic and socioeconomic trends, subdivision and land development activity, housing starts, retail sales, income and employment trends, and other economic indicators, in an annual report for use by elected and appointed officials, citizens, and business interests
- Identify and promote subdivision and land development standards that meet present and future site needs.
- Identify strategies for adaptive reuse of vacant commercial and industrial facilities

While there is no “one size fits all” approach to economic development for an area as large and diverse as Centre County, there are certain key elements that appear to be the building blocks for the economic future. First, each municipality must understand the resources that it brings to the table and must acknowledge that the most important resource is an educated labor force. In addition, municipalities and regions must identify areas in which it can specialize in order to actively promote those industries. Finally, municipalities must find a way to distribute this information to business ventures, tourists, shoppers, etc.

## **ECONOMIC DEVELOPMENT GOAL**

Identify and promote industry specific economic development initiatives to maintain and grow a diverse economic base for the County and each of its planning regions.

### **RECOMMENDATIONS**

#### Agriculture

Future conservation efforts should continue coordination with land use and capital improvement plans to ensure compatibility, maximize the benefits of prime agricultural soils, and minimize infrastructure costs.

To remain viable, small family farms must focus on local markets and identify special products to meet local demand.

Ag-related economic development efforts should be made to link agriculture producers with local markets and should include marketing assistance.

Local communities should support ag-entertainment activities and promote such efforts within the programs of the tourism industry.

#### Manufacturing

The County and its economic development associations should continue to invest in business incubators.

Strategies should be identified to continue providing access to financial capital for business retention and expansion.

Understanding that growth in one sector of the economy impacts other sectors (positively and negatively), potential secondary economic impacts should be identified when making economic development policy decisions.

The preparation of site assessments linked to demographic/socioeconomic data will help to maximize existing infrastructure and promote sound land use planning principles while creating a business friendly environment.

Ensure that workforce development programs meet both existing and future needs.

#### High Tech

Ensure that land use plans and zoning districts identify areas suitable for high tech manufacturing opportunities located adjacent to adequate infrastructure (e.g. fiber optics, water resources, etc.).

Strategies should be identified to continue providing access to financial capital for business retention and expansion.

Ensure that workforce development programs meet future needs.

Identify land use strategies to support the Penn State research enterprise.

Promote education and training as a fundamental component of the County's economic development strategy.

Identify and support programs to transition employees from a manufacturing to an information and service based economy.

### Consumer Services

Local land use plans and zoning districts should identify areas suitable for medical facilities.

Such facilities should be planned in a manner that they can be efficiently provided with public infrastructure and services including public transportation.

Prepare inventory of undeveloped/vacant commercially zoned properties.

The County's historic and cultural resources should be inventoried and promoted as part of a coordinated economic development/tourism strategy.

### Tourism

Unique cultural and historic resources should be cataloged and promoted as part of a comprehensive County economic development strategy.

Municipalities should identify locally important resources for inclusion in such a plan and should identify related retail opportunities.

Land use regulations should recognize the relationships between tourism activities and retail opportunities and promote such opportunities (e.g. bed and breakfasts, historic preservation districts, etc.) consistent with sound planning practices.

The County's recreational amenities should be inventoried with related retail opportunities identified.

Linkages between recreational opportunities (e.g. trail interconnections, greenways) should be identified and promoted.

### Resource Agencies

Recognizing that each of these agencies plays an important role in the County's economic development through the management of a variety of programs, the Planning Office should be designated to serve as a liaison between these organizations and the County.

## ECONOMIC DEVELOPMENT CHAPTER SUPPLEMENTAL REPORT

The following statistical information and findings were used to prepare the Economic Development Chapter. This information was provided through an analysis and report prepared by Dr. Martin Shields and Dr. Steve Smith of Penn State University. Additional information used in the preparation of the Economic Development Chapter was provided through consulting services by Mr. Art Heim. This supplemental document includes a brief outline of the report's summary findings and a detailed analysis of the data from which the assumptions and recommendations of the Economic Development Chapter have been made.

### Summary Findings

- Overall, employment in the county increased by a net 11,142 jobs from 1990 to 2001, almost a 20 percent increase (See Figures 4 and 5 and Appendix Table III for details.). Over 70 percent of the increase was contributed by only three industries. Almost half (47.4 percent, or 5,279 jobs) was in education, with higher education (Penn State) accounting for 39.6 percent (4,407 jobs) of the county's increase. Health services (doctors and dentists, nursing and personal care, hospitals) contributed 1,516 new jobs (13.6 percent of the total increase) and retail 1,297 (11.6 percent).
- Only 8 of the 77 2-digit industry categories<sup>1</sup> in which Centre County had employment had declines in employment from 1990 to 2001, losing a total of 2,949 jobs. Of these losses, 1,735 (53 percent) were in manufacturing. The specific industries that lost employment were production agriculture (- 40 jobs), coal mining (-354), heavy construction (-820), textiles and apparel manufacturing (-893), metals manufacturing (-484), chemicals (-48), industrial machinery and equipment (-146), and electronic and other electrical equipment (-164).
- The main basis of the county's economy is Penn State. It leads in total employment and employment growth, and many businesses and industries are tied to its activities. This strength is reinforced by national projections showing continued employment growth in higher education and in many of the business and industry sectors that relate to and draw upon Penn State.
- Despite the relative specialization in these manufacturing industries, they are not likely to provide much future employment. Three-fourths (9 of the 12) are projected to have either negative or very slow national employment growth to the year 2010. Also, all but two of these had employment declines or were stagnant since 1990.
- For valued added and routine manufacturing (see Appendix 1 "Definitions," and Tables), Centre County will be fortunate to hold on to the employment it has.
- For high tech manufacturing (see Appendix 1, "Definitions," and Appendix Tables), Centre County shows strength in several industries, relative to the state and surrounding region, but the recent performance and projections are mixed. High tech manufacturing is projected to have continued strong demand growth nationally, but new technology and automated production processes will lead to only slow or declining employment growth. However, a recent study found that State College has apparent location advantages for high tech manufacturing and service industries.

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<sup>1</sup> The Standard Industrial Classification manual puts all industries into four levels of detail, with 1 the broadest and 4 the most detailed.

- National projections show that virtually all net employment growth to the year 2010 will be generated by service-producing industries. Seventy-seven percent of Centre County's employment in 2001 was in industries projected to have strong future growth nationally, particularly education, producer, health, retail, air transportation and recreation services.
- The Centre County economy showed considerable retail strength relative to the state since 1990, and the Centre Region around State College is increasingly becoming a retail trade center for county residents and surrounding counties.
- Health services employment increased by over 50 percent from 1990, and several social and demographic forces indicated that this growth will continue.
- The analysis of relative specialization indicates potential for further employment growth in many service sector industries in the county. Centre County is less specialized than the state in several industries with strong national employment growth projections – producer services and health services (see Appendix Table IV). That is, the county has a lower percentage of employment in these industries than the state (and region, in some cases). The implication is that county businesses and residents are going outside the county to purchase these services. Unless there are particular location disadvantages in the county, there would appear to be a local market, and thus the potential for local growth. The industries in this category are a range of producer services, air transportation, wholesale trade, and most health and related services.
- Interestingly, and of importance to the county's economic future, 13 of the 21 industries in which the county is more specialized than the state and surrounding region (approximately double or more the state's percentage of employment in the industry), are in manufacturing, with seven in the high tech classification and six in routine manufacturing (Appendix Table IV). Only seven are in services, and the other is heavy construction. Thus, while the county economy is based on education and services, when measured by percentage of county employment, a somewhat different picture emerges when looking at the relative specialization measure. According to the interpretation of the specialization measure, several manufacturing industries form part of the county's economic base, both in the routine and high tech classifications. Specialization in these industries gives some cause for concern, however. Of the 13 manufacturing industries, ten are projected to have slow or negative employment growth (Appendix Table IV).
- Overall, Centre County is more specialized than the state and surrounding counties in industries that make up the bulk of the county's employment, and those industries are projected to grow in the current decade.

### **Employment Trends and Particular Strengths**

This section provides a detailed picture of Centre County's economy in 2001, and changes since 1990, and compares these with the state and surrounding counties.

The Centre County employment picture, and comparisons with the state and surrounding counties, for 1990 and 2001 are shown in the following graphs, and in more detail in Appendix Tables I - VI for 2- and 3-digit SIC industries and broad industry classifications. The broad industry classification scheme that is used was developed by the Economic Research Service of the USDA (Gale and McGranahan, 2001) to describe where industries fit in the "New Economy"; that is, in the information and high tech economy. Industries in the agriculture, mining, construction, value added and routine manufacturing classifications would not be considered part of the New Economy, nor expected to provide much employment growth, at least nationally. On the other hand, industries classified as high technology, producer services, recreation, consumer services

and education are considered to be driving the New Economy, and are likely to grow and provide the bulk of new jobs.

All non-farm data are from ES-202 data files, with production agriculture employment from the 1987 and 1997 Census of Agriculture and the Regional

Economic Information System.<sup>2</sup> The years 1990 and 2001 were chosen because 1990 is a census year and 2001 is the latest year for which detailed employment information was available. In addition, both years were at similar points in the business cycle.

### *Centre County's Employment Picture and Changes, 1990 - 2001*

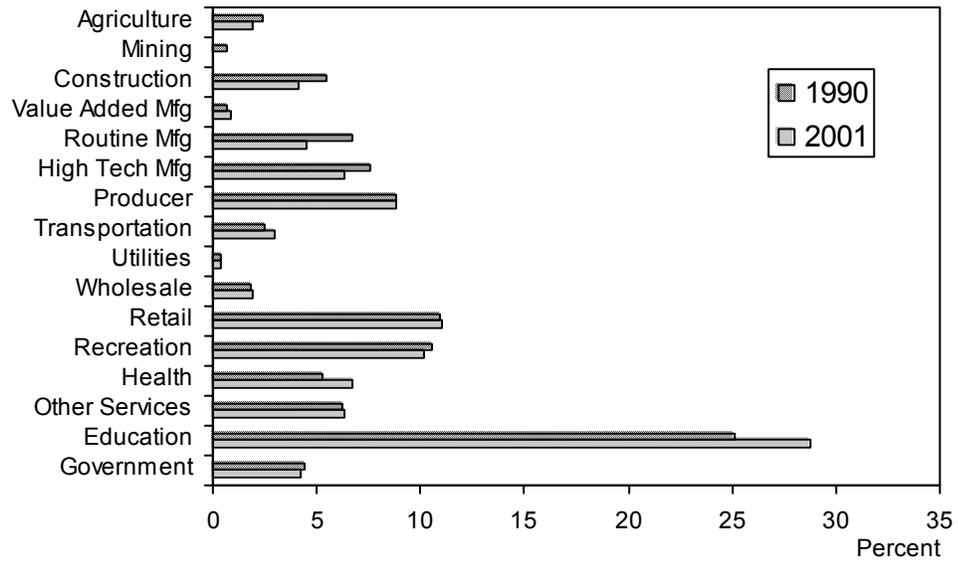
The overall picture of the industries in which Centre County's workers were employed in 1990 and 2001 is shown in Figures 1 and 2 and Chart 1, and in detail in Appendix Tables I and II. The county is dominated by education employment, primarily Penn State, and this dominance grew from 1990 to 2001. Retail is the second largest employer, followed by recreation and producer services. Manufacturing as a whole provided less than 12 percent of county employment in 2001, down from 15 percent in 1990. Health and education had the largest increases in percent of total employment, while construction and manufacturing had the largest decreases. Four of these top employing industries are closely tied to Penn State and its activities and students – retail, eating and drinking, a variety of other services, and hotels and lodging.

Figure 3 compares the percentage of employment in major industry sectors in Centre County with the surrounding counties and with the state. The main characteristic is the domination of education employment in Centre County compared to the state and surrounding region. Another characteristic is that the county has lower percentages of employment than the state and region in the traditional goods-producing industries of agriculture, mining, construction, and value added and routine manufacturing. In high tech manufacturing, the county equals the state percentage and exceeds the surrounding county average. Interestingly, although the county is heavily service based, it trails the state and surrounding region in percentage of employment in

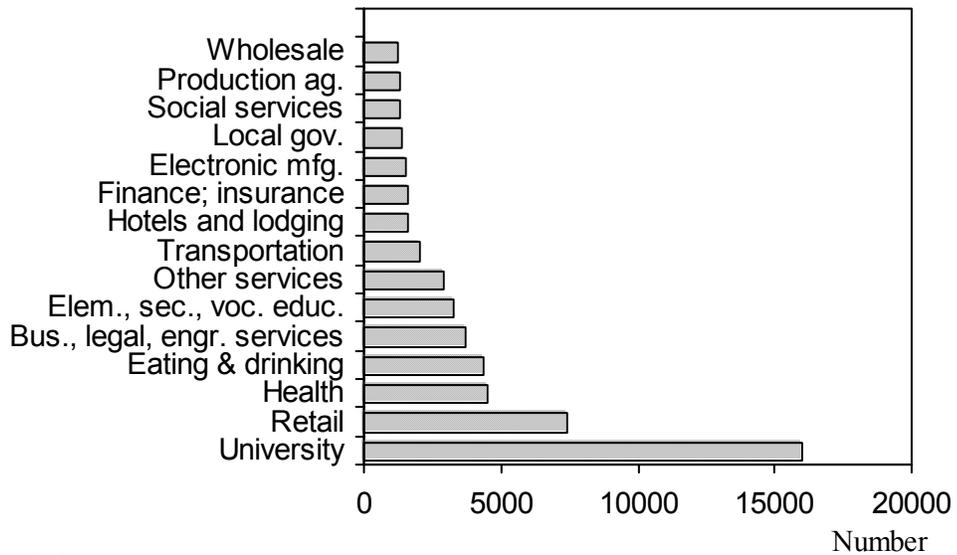
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<sup>2</sup> ES-202 is employment data for workers covered by state unemployment insurance laws, from the PA Department of Employment. The Regional Economic Information System, from the Bureau of Economic Analysis, is a complete measure of full- and part-time jobs at the one-digit SIC level.

**Figure 1. Percent of Total Employment, Centre County: 1990-2001.**

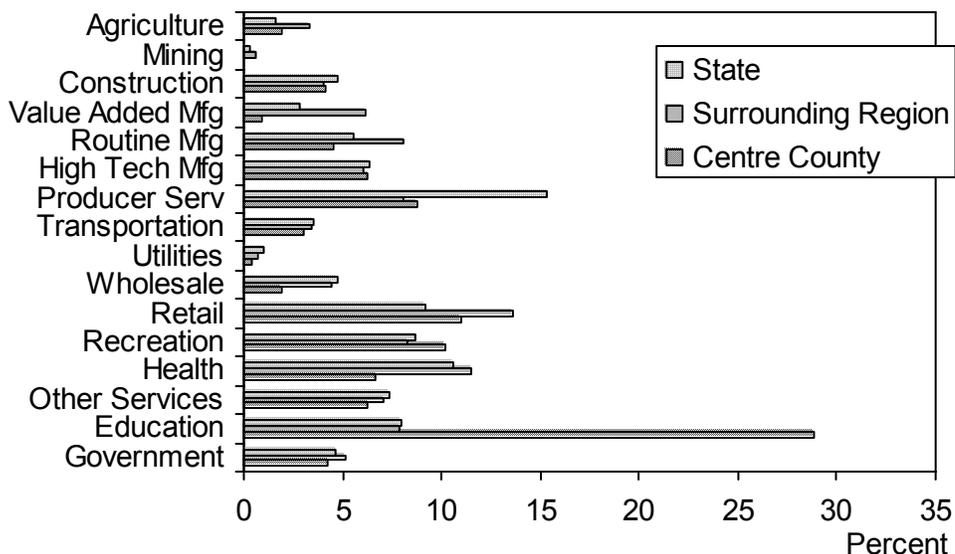


**Figure 2. Top Employing Industry Sectors\* in Centre County, 2001.**



\*1000 or more employees.

**Figure 3. Percentage of Total Employment, 2001: Centre County, Surrounding Region,\* State.**



\*Blair, Cambria, Clearfield, Clinton, Lycoming, Union, Mifflin, Huntingdon Counties.

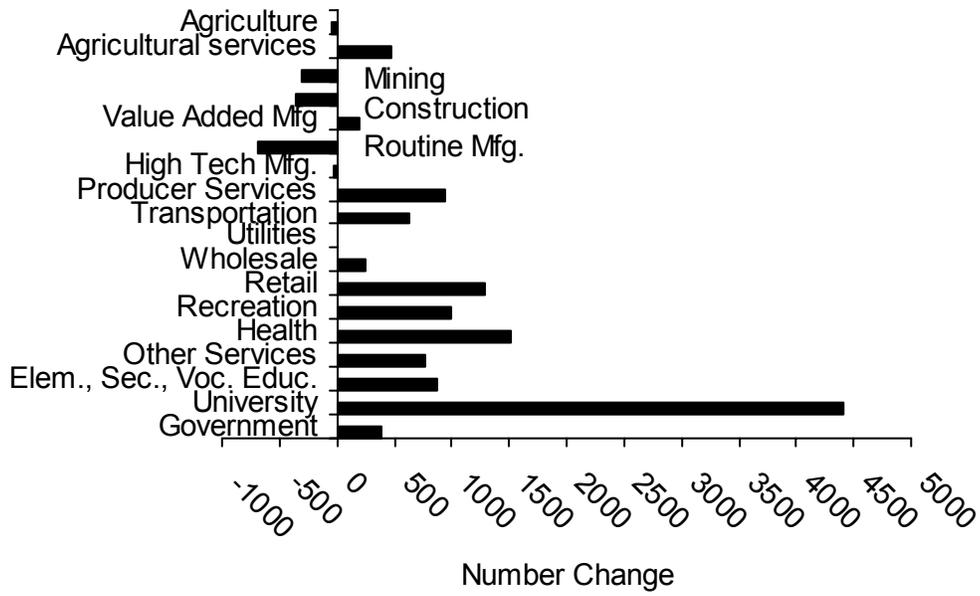
most of the service industries. This is due to the dominance of education in the county. Nevertheless, the county is experiencing strong growth in these industries, which is projected to continue.

Overall, employment in the county increased by a net 11,142 jobs from 1990 to 2001, almost a 20 percent increase. Figure 4 shows the absolute employment change in broad industry categories from 1990 to 2001. Following state and national trends, the service-producing industries grew, while manufacturing, mining and production agriculture declined, with some exceptions to be discussed later. Clearly, employment growth in education dominated, followed by health and retail employment. Figure 5 and Appendix Table III show that of this increase, almost half (47.4 percent, or 5,279 jobs) was in education, with higher education (Penn State) accounting for 39.6 percent (4,407 jobs) of the county's increase. Following education, the consumer services industries provided almost a third of the increase, 3,586 jobs, with health services contributing 1,516 jobs (13.6 percent of the total increase) and retail 1,297 (11.6 percent). Recreation services provided 996 new jobs (8.9 percent of the total), producer services 946 (8.5 percent), and transportation, utilities, wholesale 886 (8.0 percent).

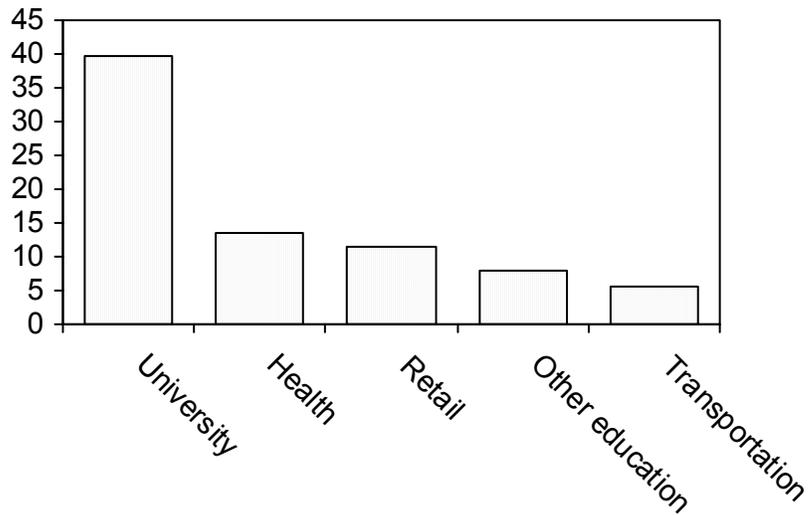
The top 15 detailed industries gaining employment from 1990 to 2001 (200 or more new jobs) in Centre County are shown in Figure 6. All but one of these (specialty construction trades) are in service producing industries. Education and health care services led the gainers, along with the specialty construction trades.

Figure 7 compares the county's percentage employment change in the broad industry categories with the state and surrounding region changes. Centre County's total percentage employment growth greatly exceeded that of the state and surrounding region. In the employment declining goods producing industries, Centre County generally performed better than the surrounding region and the state, except for mining and construction. While the state lost value added manufacturing employment, both the surrounding region and the county gained, with Centre County gaining almost 50 percent. These gains were in furniture. In high tech manufacturing, Centre County had a less than one percent loss of employment, while the surrounding region lost over 13 percent and the state over 6 percent. Centre County generally outgained both the region and the state in percentage employment increases in most service sectors, except for producer services and recreation.

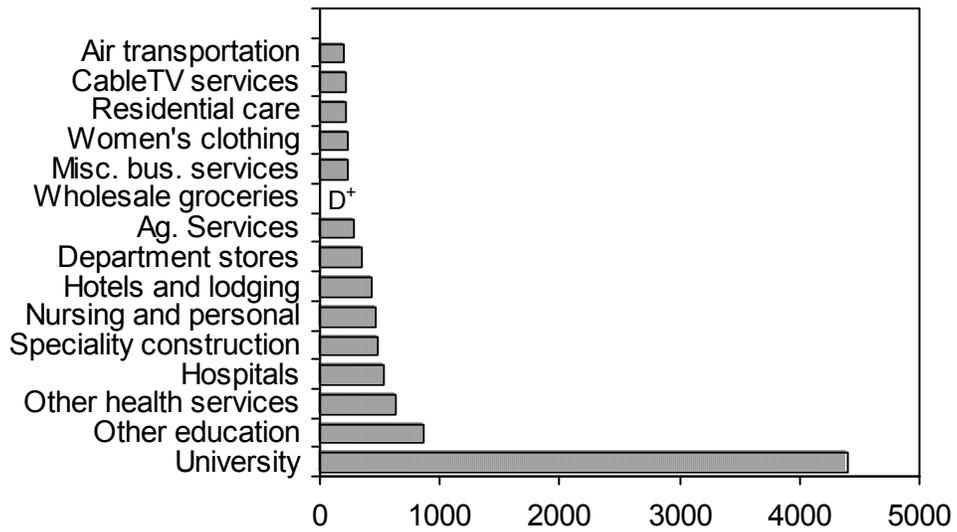
**Figure 4. Employment Change in Centre County, 1990-2001.**



**Figure 5. Percent of Centre County Net Employment Increase, 1990-2001.**



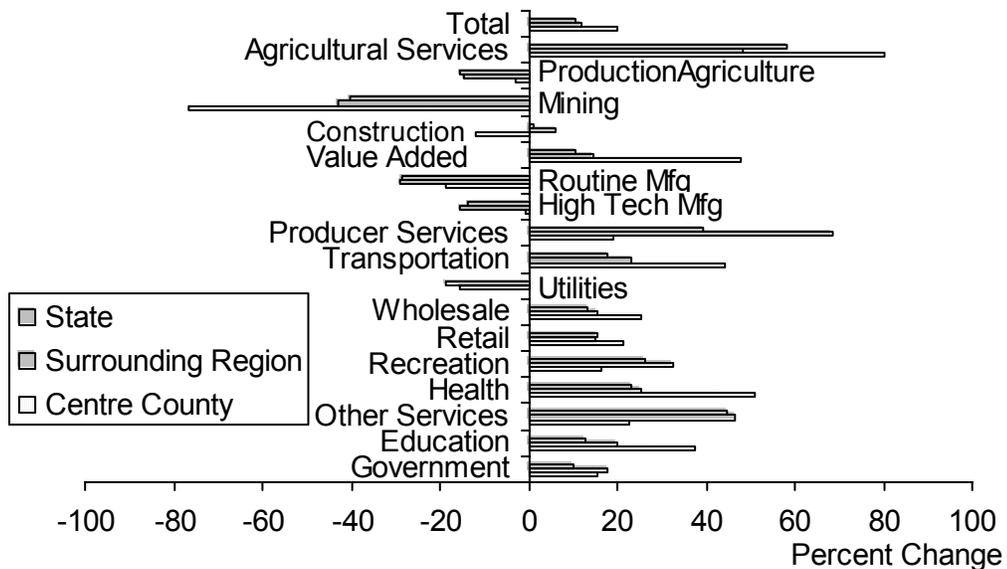
**Figure 6. Top Employment Gainers\* in Centre County, 1990-2001.**



\*Employment gains of 200 or more.

\*Suppressed for disclosure regulations.

**Figure 7. Percentage Employment Change, 1990-2001: Centre County, Surrounding Region,\* State.**



Only eight broad 2-digit industry categories had employment declines from 1990 to 2001, losing a total of 2,949 jobs. Of these losses, 1,735 (59 percent) were in manufacturing industries. The industries that lost employment were production agriculture (-40 jobs), coal mining (-354), heavy construction (-820), textiles and apparel (-893), metals manufacturing (-484), chemicals (-48), industrial machinery and equipment (-146), and electronic and other electrical equipment (-164).

Figure 8 shows the seven detailed industries with the largest employment losses from 1990 to 2001. Four of the seven were manufacturing – men’s clothing, copper manufacturing, electronic components and specialized machinery. Computer and data processing services and coal mining were the other industries with major employment losses.

The Centre County industries with the largest percentage employment declines from 1990 to 2001 are compared, in Figure 9, with the performance of those same industries in the surrounding region and the state. These are the same industries with the largest absolute declines, shown in Figure 8, plus mining. Centre County either had larger percentage declines than the region and state, or had declines while the region and state had increases.

The Centre County industries with the largest percentage employment declines from 1990 to 2001 are compared, in Figure 9, with the performance of those same industries in the surrounding region and the state. These are the same industries with the largest absolute declines, shown in Figure 8. Centre County either had larger percentage declines than the region and state, or had declines while the region and state had increases.

### *Detailed Industry Performance<sup>3</sup>*

How have specific industry sectors performed in generating county employment since 1990? Employment in production agriculture (farmers and hired employees) declined slightly, 3 percent or 40 jobs, from 2.4 to 1.9 percent of the county’s economy. Mining employment dropped by over 75 percent (300 jobs), and now makes up only one-tenth of one percent of county employment. This was entirely due to a drop in coal mining of over 350 employees, while the county’s other mining industry, limestone, increased employment. Construction employment overall declined by almost 12 percent (-367 jobs), but this was primarily confined to heavy construction – highways, streets, water, sewer, bridges (- 820 jobs), while the specialized building trades showed increases of almost 500 jobs.

There are interesting exceptions to the broad trends in Agriculture. Agricultural services employment increased by 80 percent, or 277 jobs. Most of this was not connected with agriculture, however. Landscape services accounted for almost 40 percent of the increase, with nonlivestock veterinary services accounting for much of the rest. These services are population- and income-related, and are

among the faster growing in the state and nation. Employment in these industries is projected to grow by over 3 percent annually through 2010 (see Table III).

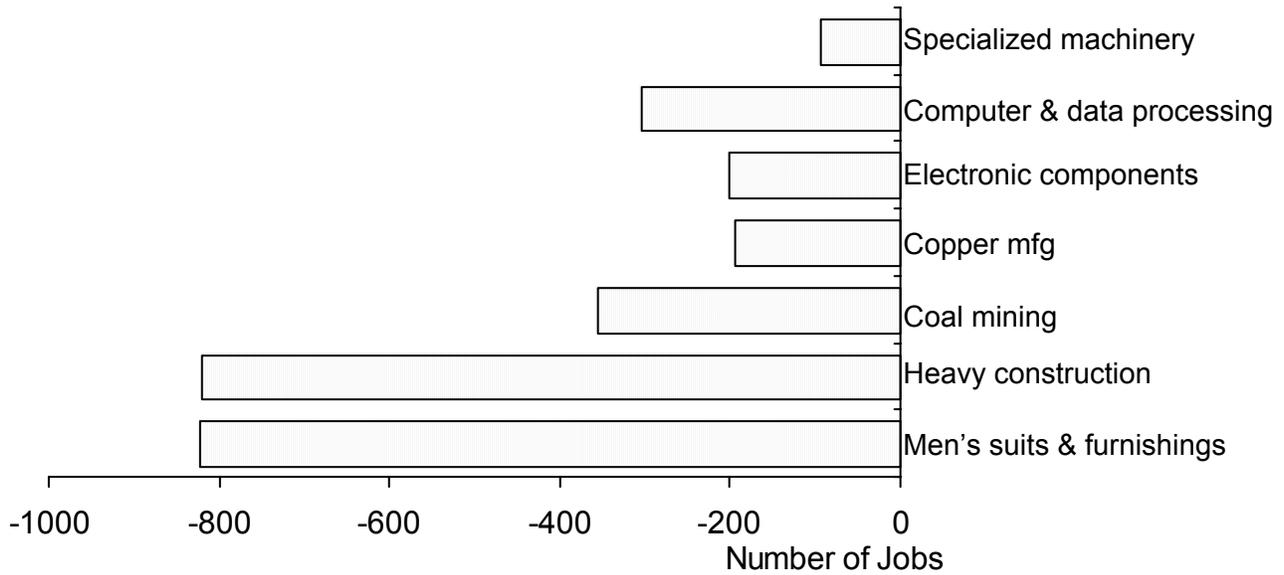
Although the broad Manufacturing sector had employment declines from 1990 to 2001, this was not true of many individual industries. Value Added Manufacturing (processing of food and forestry products), though generally a weak to declining sector nationally, had increases in Centre County in lumber and wood products and paper and allied products. Routine Manufacturing also showed overall employment decreases, but all of this was in two industries – men’s suits and furnishings, and copper metals. Strong increases were recorded in household furniture and miscellaneous plastic products. The High Technology Manufacturing industries generally performed poorly from 1990 to 2001. Although still generating considerable employment in Centre County, most of the 3-digit high-tech industries in Table III had either small increases or small decreases, with

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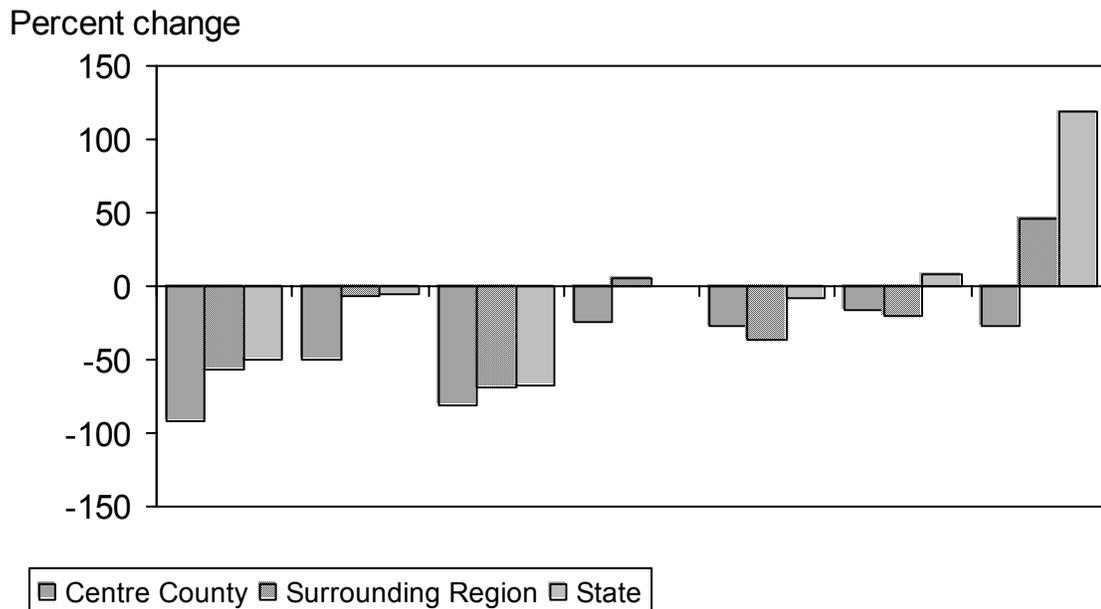
<sup>3</sup> See Appendix 1 “Definitions,” p. 21 for definitions of industry categories.

electronic components having a large decrease and commercial printing and measuring and controlling devices having solid increases.

**Figure 8. Largest Employment Losers in Centre County, 1990-2001.**



**Figure 9. Largest Percentage Employment Declining Industries in Centre County vs. Surrounding Region and State: 1990-2001.**



Producer Services sector as a whole showed strong increases, as well as throughout the sector's 3-digit component industries. Exceptions were in telephone communications, with a slight decrease, and computer and data processing services, with a sizeable decrease. Both of these bear further analysis, as they are growing industries statewide and nationwide, and are predicted to be so in the future.

The remaining service-producing industries had strong percentage and absolute employment increases, almost across the board, in both 2- and 3-digit industries. Increases were uniform in the Transportation services, Utilities employment was stable, and Wholesale Trade increased in the grocery and related areas. All the Recreation Services showed strong increases, led by hotels and lodging, which have had further increases since 2001. The large and broad Consumer Services industries showed considerable employment increase, led by the health sectors and retail trade.

### *Particular Strengths of the County Economy*

Three ways to measure the strengths of the local economy are the number of employees in each industry, the percent of total employment in each industry, and the relative specialization of the local economy compared to the larger economy, such as the region, the state or the nation.

Appendix Table I shows that 77 percent of the county's employment in 2001 (67,089) was in industries with projected national future employment growth:

- 29 percent in education (19,307 employees)
- 24 percent in consumer services (16,073 employees)
- 10 percent in recreation services (6,849 employees)
- 9 percent in producer services (5,898 employees)
- 5 percent in transportation and wholesale trade (1,503 employees).

Of the other 23 percent of employment,

- 1.9 percent was in production agriculture (1,281 farmers and employees)
- 0.9 percent in agricultural services (623 employees)
- 4.1 percent in construction (2,736 employees)
- 0.9 percent in value added manufacturing (582 employees)
- 4.5 percent in routine manufacturing (3,038 employees)
- 6.3 percent in high tech manufacturing (4,228 employees).

Clearly, Centre County is an education- and service-based economy.

Another way to measure the strength of the local economy is to determine how specialized it is in each industry relative to a larger economy. This is determined by calculating the coefficient of specialization, or location quotient (LQ). This measure is the ratio of the county's percentage of employment in a given industry to the region's or state's percentage of employment in that industry. If the ratio is greater than one, then the local economy is more specialized in a given industry than the comparison economy, and vice versa for a ratio less than one. If the ratio is one, or close to one, then the local economy is presumed to be no more or less specialized in the industry than the state or surrounding region. For LQ's "significantly" less than one, besides indicating that the county is relatively less specialized than the state, another interpretation is that the needs of the county's economy (consumers and businesses) are not being met by local production; that such goods and

services must be imported from outside the economy. It is assumed in this technique that the state percentage is the level of employment required to produce for the state's needs.

This measure is shown for Centre County vs. the State in Appendix Table II for 2-digit SIC industries for 1990 and 2001. Appendix Table IV shows this measure for selected 3-digit industries (industries with 100 or more employees) in 2001.

At the 2-digit level, as shown in Appendix Table II, Centre County is specialized (LQ greater than 1), relative to the state and region, in the following industries (we have chosen a LQ of 1.2 as representing a ratio "significantly" greater than 1):

	Specialization Relative to	
	<u>State</u>	<u>Region</u>
Universities	10.0	12.5
Stone, clay and concrete manufacturing*	3.4	2.7
Instrument and related manufacturing	2.8	2.8
Hotels and lodging	2.4	2.7
State government employment	1.9	1.0
Electronic and electrical equipment manufacturing	1.6	1.9
Agricultural services	1.3	1.8
Furniture and fixtures	1.3	0.4
Retail trade	1.2	0.8
Production agriculture	1.2	0.6
*Distinct from mineral mining		

Over the period 1990-2001, this relative specialization increased in all but three of those industries – agriculture and state government remained the same, and electronic and electrical equipment declined.

LQ's above one have two interpretations. The first is the specialization relative to the state. For example, the 10.0 for Universities means that Centre County has 10 times the percentage of workers employed in higher education than the state as a whole. For instruments and related manufacturing, the county is 2.8 times as concentrated as the state. The second interpretation is that these industries form the economic base of the county; that they drive the county's economy (generate local employment and income). A strict interpretation is that these industries drive the economy because they export (sell) their goods and services beyond the county's border. This does not mean that other industries (with LQ's less than 1) do not export from the county and help drive the economy, but that relative to the state average, they have less employment. In fact, it is likely that much of the production from the county's manufacturing industries is sold beyond the county's borders.

The LQ's increased in five industries from 1990-2001, indicating a growing relative specialization vs. the state. These were paper and allied products, rubber and miscellaneous products, transportation, recreation services and federal government employment. At the same time, sizeable LQ decreases, indicating decreasing specialization relative to the state's economy, were seen in mining, textiles and apparel, business services, eating and drinking establishments, and social services. Both the mining and textile and apparel industries had

large employment declines over the 1990-2001 period, which have continued. Eating and drinking and social services had employment increases over the period, but not as fast as the state. The decline in business services concentration was due to a sizeable employment decline in computer and data processing services, which is a matter of concern, as this is a growing industry nationwide.

LQ's "significantly" less than 1 indicate much less concentration than the state average, and also can be interpreted as indicating that such goods or services must be imported into the economy to satisfy the needs of local business and consumers. LQ's less than one also indicate areas for potential growth, particularly in service sectors. Realizing this potential, however, depends on the reasons why such industries are relatively less present in the county's economy than in the state. Industries with the potential for growth are producer services, utilities, wholesale, health and social services. An encouraging sign, however, is that there has been strong employment growth in all these sectors since 1990, except utilities.

More detail on the county's relative specialization is in Appendix Table IV, at the 3-digit SIC level for industries having 100 or more employees. This table shows 2001 industry employment and change from 1990-2001, the 2001 LQ, and national projections to 2010. At this point in the discussion, the focus will be the current level of employment and level of specialization. A key result from analysis of this table is that while industries at the 2-digit level may not show a specialization in the county economy, certain 3-digit industries do show local specialization. That is, they can be considered as driving the local economy.

Industries in which the county shows particular specialization, with a LQ of 2.0 or greater (double the state concentration) are:

	Specialization Relative to			Specialization Relative to	
	<u>State</u>	<u>Region</u>		<u>State</u>	<u>Region</u>
Miscellaneous services	12.4	∞	Animal services, except veterinary	4.6	4.0
Glass and glassware	10.2	7.0	Electronic components	3.3	2.3
Universities	10.0	12.5	Concrete products	3.0	2.2
Copper foundries	9.2	92.0	Special industrial machinery	2.8	0.8
Camps and RV parks	6.2	3.4	Women's clothing & accessories	2.6	5.3
Books	5.1	5.1	Hotels and motels	2.3	2.6
Communications equipment	4.7	13.2	Heavy construction	2.3	2.2
Measuring & controlling devices	4.7	2.6	Men's suits and furnishings	2.3	0.7
			Cable TV services	2.1	5.5

Other industries close to this specialization level are office furniture (1.9), household furniture (1.8), medical instruments and supplies (1.8), and health and allied services (1.8). Note that four of these industries (copper foundries, electronic components, heavy construction, men's suits and furnishings) had substantial employment losses since 1990. Nevertheless, the level of employment is still such that the county is more specialized than the state in these industries.

Interestingly, and of importance to the county's economic future, of these 21 industries 12 are in the manufacturing sector, with six in the high tech classification and six in routine manufacturing. Only eight are in services, and the other is heavy construction. Thus, while the county economy is based on education and services, when measured by percentage of county employment, a somewhat different picture emerges when looking at the relative specialization measure. According to the interpretation of the specialization measure, several manufacturing industries form part of the county's economic base, both in the routine and high tech classifications.

Specialization in these industries gives some cause for concern, however. Of the 12 manufacturing industries, nine are projected to have slow or negative employment growth (Appendix Table IV). Among the eight industries, five are projected to have strong employment growth in this decade.

### **Centre County vs. Surrounding Counties**

This section specifically compares Centre County with the surrounding region (Appendix Tables V and VI). This region is defined as the counties adjacent to Centre County – Blair, Clearfield, Clinton, Huntingdon, Lycoming, Mifflin and Union (refer to maps of region). Employment for the 2- and 3-digit SIC industries was summed for these counties. The comparisons made are the percentage change in employment from 1990 to 2001, relative dependence on industries, measured by the percentage of employment in each industry, and the coefficient of specialization, or location quotient (LQ).

Appendix Table V compares the county and regional employment by industry category and 2-digit SIC within those categories, showing the percent of employment that each industry is of the total, and two location quotient comparisons, the first comparing Centre County to the region and the second the county with the state. The LQ comparisons show the county's relative specialization in an industry vs. both the region and the state.

Appendix Table VI compares the 3-digit SIC industries in which Centre County has 100 or more employees with those industries for the surrounding region, showing employment in 2001, percent change from 1990 to 2001, and the LQ's of the county vs. the region and the state.

In general, relative to the surrounding counties, Centre County has a higher percentage of employment, and is relatively more specialized, in those industries projected to grow in the current decade; the industries that are part of the "New Economy". The surrounding counties are more specialized in the resource-based, and the value added and routine manufacturing industries; industries that are projected to have slow growing-to-declining employment.

In Production Agriculture, while Centre County is more specialized than the state, the county is only half as specialized as the surrounding region (LQ of 0.6), with 1.9 percent of county employment vs. 3.3 percent in the region. Since 1990, agricultural employment has been more stable in Centre County, declining only 3 percent vs. almost 16 percent for the region (Appendix Table VI). For Agricultural Services, the relationship is the reverse, and the LQ shows that the county is even more specialized relative to the region than the state. Within Agricultural Services, the 3-digit industries showed strong growth in both the county and region, but Centre County is much more specialized in these industries, which are projected to have continued strong growth.

In Construction as a whole, the county and region are similarly dependent, with some differences among 3-digit industries in growth.

The region is much more dependent on Value Added Industries than is Centre County, with 6.2 percent of employment vs. 0.9 percent. This is true of all the 2-digit industries in that category, with the LQ's showing that the county is only one-tenth as specialized as the region in wood and paper products, and three-tenths as specialized in food processing. Centre County is less specialized in these industries vs. the region than it is vs. the state, except for food processing. The county, however, had much greater growth in miscellaneous paper products than the region.

While the region has a higher percentage of employment in Routine Manufacturing industries than the county, Centre County shows some strength in both relative specialization and recent growth. The county is much more specialized in glassware and concrete products, and has shown employment growth, while the region experienced employment declines. The county showed strong relative growth in furniture and plastics, and they are projected to have continued growth. Centre County is clearly highly specialized in copper metal products, relative to both the state and region. The industry has shown recent weakness in the county, however, and is projected to grow only very slowly or to be stagnant at the national level.

In the High Technology Manufacturing category, Centre County is much more specialized across the board than the surrounding counties. Among the 3-digit industries, the county generally has shown more strength or less weakness in the last decade than the region. One exception is specialized metalwork machinery, where the surrounding counties had much greater growth.

In the Producer Services industries, Centre County again shows particular strength relative to the region in most of the 3-digit industries. Compared to the surrounding region, the county is much more specialized, and had stronger growth in many of the industries. These industries are key players in the "New Economy", and are projected to have strong employment growth in the current decade. Key county strengths relative to the region are cable TV services, security brokers, computer and data processing, miscellaneous business services, and research and testing services, all of which are projected to have strong employment growth in the current decade. At the same time, while the region may be less specialized than Centre County, it also has shown strong employment growth in most of the industries, outgaining the county in several.

In the Transportation, Utilities and Wholesale sectors, Centre County is generally more specialized than the region, except for Trucking and Wholesale. The county and the region have shown strong growth in several of these industries. These industries are projected to have moderate to strong employment growth in the current decade, and the new highways through Centre County may provide more opportunity for local growth.

In the Recreation sector, Centre County is heavily specialized relative to the region in lodging, and has shown much faster growth, which continues. This is clearly related to Penn State and its activities. In the other recreation-related areas, the county is similar to the region in percentage of employment and specialization.

In Retail, while Centre County has shown strong growth and seems to be becoming more of a retail trade center, the county is still less specialized in several categories, and has lagged the region in employment growth rates. The county is much more specialized, and has shown stronger employment growth, in real estate and general services.

In Health Services, Centre County has grown much more rapidly than the surrounding counties, but is still only about half as specialized, and has about half the percentage of employment as the region, in these industries. National projections are for continued strong growth in the current decade.

Similarly in Social Services, while having shown strong employment growth, the county is much less specialized and grew much less rapidly than the region.

Finally, Centre County's strength in Education employment, particularly in higher education, is more evident relative to the region, including more rapid growth in the past decade.

### **Identifying Underlying Components of Centre County's Industry Employment Change**

Local economic growth has a number of causes. In many cases, local businesses enjoy a competitive advantage, and growth within that industry spurs growth in the entire economy. In other cases, local industry growth simply mirrors national trends. Generally, local employment changes are more or less concentrated in certain industries than they are in the nation as a whole. Most often, this difference is rooted in the region's industrial structure. For example, an area with concentration in industries that are rapidly growing nationally might display a high rate of overall employment gain. Likewise, a region concentrated in industries that are declining nationally might experience significant job losses. In examining the regional labor market, it is not sufficient to know merely that employment changes have occurred.

The ability to separate local growth factors from national growth factors is an important aspect of understanding the Centre County economy. By identifying industries in which the county is particularly competitive, it may be possible to focus economic development efforts on industries most likely to be successful.

Shift-share analysis is a technique used to account for the competitiveness of a region's industries and to analyze the local economic base. The analysis is primarily used to decompose employment changes within an economy over a specific period of time into three contributing factors:

1. Growth that is attributable to growth of the national economy (National Effects).
2. Growth that is attributable to the mix of industries that are growing faster or slower than the national average (Industry Effects).
3. Growth that is attributable to the competitive nature of the local industries (Local Competitive Effects).

The technique facilitates comparisons between the local economy and the larger economy. Specifically, shift-share helps to analyze whether the county economy has witnessed a faster or slower growth rate in employment than is observed in the national economy. Shift-share also helps to explain, at least to some extent, the root of these differences. For example:

- Are observed differences in growth rates due to differences in the industry mix found at the local level relative to that observed in the national economy?
- Or are differences due to the competitive advantage or disadvantage that the specific local economy has relative to the larger economy?

#### *National Effects*

The **national growth effect** refers to local job growth that is attributed to national economic growth. Specifically, if the nation is experiencing employment growth, it is reasonable to expect that this growth will positively influence Centre County. This component describes the change that would be expected due to the fact that the county economy is driven by what happens in the national economy.

The first part of a shift-share analysis examines the number of jobs lost or gained in the county if total local employment had changed at the same rate as overall total national employment. To compare the county to the nation, the local growth from 1990 to 1999 is compared to the national growth rate over this time. During this time frame, total employment in the US increased by almost 21 percent. Thus, if the Centre County economy was identical to the national economy, then the county should have grown by 10,785 jobs between 1990 and 1999. However, ES-202 data shows that the county only added 7,706 jobs during this period. This translates into a 15 percent employment increase, indicating that the county did not perform as well as the national average. Turning to the decade-long performance of specific sectors of the county can help identify why this happened.

### *Industry Effects*

It is well understood that the county economy is not identically structured to the national economy. Also, growth rates are different in each industrial sector; some industries add jobs more rapidly than others and some lose jobs. The **industrial mix effect** component of shift-share analysis reflects differences in industry “mix” between the local and national levels. The mix-factor examines how national growth or decline of a particular industry translates into county growth or decline of that industry. Thus, this component represents the effects that specific industry trends at the national level have had on the change in the number of jobs in the region.

For Centre County, overall national industry growth trends played an important part for a number of sectors. From 1990-1999, the overall county’s industrial growth component was 2,413; meaning that the county had about 2,400 jobs more than it would have if its structure were identical to that of the nation. The positive industrial mix means that the local economy grew faster than the national average, *independent of the national influence*. That is, the county’s industrial structure was more heavily weighted toward faster growing industries.

The following are the county sectors where 1999 employment was most positively affected by national industry growth. Note that all of the industries here are service industries, which closely reflects national trends.

Sector	Job Growth Attributed to National Industry Trends
1. Educational Services	3,889
2. Business Services	959
3. Social Services	344
4. Health Services	227
5. Nondepository Credit Institutions	153
6. Amusement and Recreation Services	149
7. Agricultural Services	112
8. Local and Suburban Transit and Interurban Highway Passenger	88
9. Security and Commodity Brokers Dealers Exchanges and	60
10. Personal Services	24

### *Local Competitive Effects*

It is recognized that even during periods of prosperity growth is uneven--some regions and some industries grow faster than do others. This is usually attributed to some local comparative advantage such as natural resources, linked industries, or favorable local labor situations. The **local effect** of shift-share analysis describes the extent to which unique local factors affect regional industrial employment growth or decline. The local component aids in identifying the county's economic strengths and represents how the area's competitive position can contribute to regional job growth.

This component helps determine whether county industries are growing faster or slower than similar industries at the national level. The local share often is interpreted as indicating whether local businesses are more or less competitive than the national average.

According to the local share component the county had 5,492 *fewer* jobs than expected, due to its relative competitive position—in a sense, the county *itself* created a smaller share of employment growth than did the nation on average.

In addition to overall growth, the analysis can also be used to examine how individual industries have fared competitively. This allows identification of areas of relative strength, and, thus, opportunities for enhanced economic development. Indeed, these areas may suggest the county's future competitive advantages. The following table shows those industries in which Centre County had a competitive advantage in the 1990-1999 time period.

Interestingly, education is not among these industries, even though it is a growing industry nationally and had significant growth in Centre County. Our interpretation of this result is that nationally much of this sector is driven by local public education (as opposed to universities), and in Centre County this education sector did not grow as fast. Likely, this is due to our population growing slower than the national average.

Sector	Job Growth Attributed to County's Competitive Structure
1. Electronic and Other Electrical Equipment and Components	927
2. Health Services	40
3. Measuring Analyzing and Controlling Instruments	227
4. Transportation by Air	222
5. Stone Clay Glass and Concrete Products	190
6. Wholesale Trade	184
7. Paper and Allied Products	139
8. Furniture and Fixtures	123
9. Printing Publishing and Allied Industries	106
10. Rubber and Miscellaneous Plastics Products	102

## Projections for the Future

Appendix Table IV shows Centre County industry employment for the 3-digit industries that had 100 or more employees in 2001, how they performed from 1990 to 2001, their relative specialization in the county, and the projected national absolute and annual percentage employment change from 2000 to 2010. The projections are from the Bureau of Labor Statistics (Wilkerson, 2002). This section will compare Centre County's employment strengths with projected national changes in those industries, and provide further perspective on what is driving the changes nationally and relate these to Centre County.

The national economic performance is driven by adoption of technological advances that increase labor productivity, and increases in foreign competition, particularly in manufacturing. The result is that virtually all the employment growth to 2010 will be generated by service-producing industries. Manufacturing employment as a whole is projected to grow slowly and only regain its 1990 level by 2010, but productivity growth will keep output growing strongly.

Employment in Production Agriculture is projected to continue its long term decline, although by only 0.7 percent per year. The slight decline in Centre County since 1990 should continue in the future. The main forces driving this change are larger farms and labor-saving technology, along with older farmers leaving and farmland being converted to other uses. (See Appendix Table VII for detail on changes in production agriculture.) Employment in Agriculture Services, however, is projected to have strong annual national growth to 2010. Centre County should benefit from this growth, particularly in landscape services, because of increasing population and residential and commercial expansion.

Employment in the overall Construction sector is projected to grow nationally. Centre County showed weakness since 1990, especially in heavy construction, but also in residential construction. The strength locally was in the specialty building trades (plumbing, heating, air conditioning, masonry). Growth in population, and in residential, commercial and Penn State building should maintain employment in these sectors to 2010.

The Value Added Manufacturing industries have little presence in the county, and the two that have a presence are projected to have employment declines or remain the same. While miscellaneous paper products employment had considerable increase since 1990, no growth is projected nationally.

Routine Manufacturing industries had 3,000 employees in the county in 2001, although there have been declines in several industries in the past year. The location quotients (LQ's) in Table IV indicate that Centre County has relative strength in six 3-digit routine manufacturing industries. The projections for these industries nationally, however, are for either declines or only very slight growth. These industries are among those that are the most subject to several forces that lead to either outright employment decreases or few jobs being created, even as output may increase. As the name implies, their production processes are highly subject to being "routinized". That is, machines and computers are increasingly doing the jobs of humans. Also, the relative labor-intensive production processes of these industries increases the pressure to adopt labor-saving technology, or to find production locations with cheaper labor, which is most often overseas. Thus, based on these forces and national projections, the county will be fortunate to hold on to the employment it has in these industries.

Nevertheless, the county had strong employment growth in both the household and office furniture, and miscellaneous plastic products industries from 1990 to 2001, which may imply a particular location advantage. The wood furniture industry has shown strength in the state and locally, and should maintain this as the economy improves, although only office furniture is projected to grow nationally. Plastic products also are projected to grow nationally. On the other hand, large employment declines took place in the men's suits and

furnishing industries, and more have taken place recently. Employment in these industries is projected to decrease considerably nationally, and further declines in the county are likely. Employment in the glass and glassware industry was stable from 1990 to 2001, but recent declines have taken place, and a slight decline is projected nationally. The concrete products industry should remain stable locally, based on local construction demand.

The county had over 4,200 employees in High Technology Manufacturing industries in 2001, and seven 3-digit industries showed considerable strength relative to the state. However, only two of these had strong employment growth since 1990 (commercial printing, and measuring and controlling devices), and they are projected to have national employment declines through 2010. The other high tech manufacturing industries in Centre County showed declines or only slight increases in the past decade. Only two are projected to have solid growth in this decade (electronic components and medical instruments and supplies, both at 1.6 percent annual growth). Thus, while Centre County shows relative strength in several High Tech Manufacturing industries, the recent and projected performance is mixed.

National projections and studies of high tech manufacturing also provide a mixed picture for these industries in Centre County. For the nation as a whole, the future demand for the products in many of these industries is expected to be strong, and they are projected to be the economy's largest and fastest source of output growth. At the same time, new technology and automated manufacturing processes will lead to employment growing only slowly, or declining (Berman 2001). This can be seen in the last two columns in Table IV.

Another study, however, provides a different perspective (Wilkerson 2002). This study found that among 108 very small metro areas (under 200,000 population), State College ranks first, with 8.5 percent of the area's workers in the high-tech industries of computer and electronics manufacturing, software publishing, information and data processing services, and computer systems design and related services. The national average is 3 percent.

Such very small metro areas seem to have a particular advantage in one high tech industry – computer and electronics manufacturing. Firms in this industry rely to some degree on highly skilled workers and often must have a certain degree of telecommunications infrastructure. However, these industries generally do not require as highly educated and creative of a workforce as the “content” industries. Such firms tend to base more of their location decisions on traditional cost-of-doing business factors, such as office rents and local wages, rather than on quality of life factors that help attract workers in software and design.

The Centre Region of Centre County, on the other hand, seems to combine the factors that will attract both. Its location in the midst of a rural labor shed (one with a manufacturing history that has and continues to decline) provides a work force with skills but at a reasonable-to-low wage rate. At the same time, the presence of Penn State University and a growing and changing metro area provides many quality of life factors that should attract other high tech firms and potential employees. The university provides a steady supply of potential high tech workers, and should continue to do so. These are also younger people with creative minds that may be potential high tech entrepreneurs. The area already is attractive to them because of their association with the university, and the region continues to increase its offering of many of the amenities of larger urban areas, including the cultural opportunities offered by the university and community and the proximity to outdoor recreational opportunities.

The presence of these types of industries and workers also puts the county on a more solid foundation for the future. That is, the only constant in today's economy is change, and a concentration of workers with high-tech knowledge and skills should make transition to new types of high-tech activity easier.

One of the main growth areas of the national economy has been and is projected to be Producer Services (for example, communications, finance, personnel supply, computer and data processing, legal and engineering

services, accounting and bookkeeping). These services underlie business functions, generally employ higher skilled and higher paid workers, and have become important “drivers” of economies. The 3-digit producer services industries in which Centre County had 100 or more employees all are projected to have strong employment growth through 2010. While Centre County had almost 6,000 employees in these industries in 2001, and saw solid growth from 1990, the county is considerably less specialized than the state in most of those industries. At the 2-digit level, the county lost ground relative to the state. Thus, these industries grew faster in the state than in the county.

The county is more specialized than the state only in radio and TV broadcasting and cable TV services. The former showed no growth in Centre County, and is projected to show slow growth nationally. The latter had strong growth locally, and is projected to show continued strong employment growth nationally. The county equals the state in its specialization in research and testing services, and in the important computer and data processing services. These industries are projected to have strong employment growth nationally, particularly the latter. However, the computer and data processing industry lost over 300 jobs in the county. Thus, it is a matter of concern that in an important industry that is growing strongly nationwide, the county is losing employment.

The Transportation industries show no specialization relative to the state, but experienced solid employment growth in the county from 1990. They are expected to be one of the national economy’s largest sources of employment growth. The county should experience growth in these industries at least equal to the nation (about 2 percent per year). In trucking, and also storage and warehousing, the new highway will provide an opportunity for growth. Air transportation employment also should increase as the airport infrastructure improves and as demand from a growing population and business sector increases.

The set of industries classified as Recreation Services (also often called tourism-related) are strong and growing in Centre County, and are expected to continue to show solid employment growth nationally. They comprise eating and drinking, lodging and various amusement businesses. In the lodging sector, the county is more than twice as specialized as the state, showed very strong growth in the past decade, and has continued to add employment since 2001, with the opening of new hotels. Locally, the recreation services are primarily driven by Penn State and its related activities, including entertainment at the Jordan Center. Thus, they will remain as important sources of employment.

### **Economic Policy and Planning Considerations.**

The changing contexts and findings presented above raise several issues that local economic planning and development must confront.

- Historic development policies, which focused primarily on traditional manufacturing, must focus more on the service and knowledge-based/high tech industries as the base of the economy. At the same time, Counties with diversified economies tend to perform best. Therefore, manufacturing cannot be ignored. To the extent that manufacturing is a focus, it must be one of maintaining and generating manufacturing within the new information based economy; manufacturing that is efficient and that can compete in the national and global economies, regardless of the product. Trying to retain or attract manufacturing with low wages and tax incentives will not work in the new economy.
- The County Planning Office should continue to monitor demographic and economic trends to determine what industries will grow and decline, and where in the County this is likely to occur. This includes identifying the local conditions that will retain, generate and attract businesses in which employment

increases will occur. Much of this effort should revolve around gaining knowledge of existing businesses and industries and the locally-controllable factors (e.g. land use, infrastructure, access to capital) that affect efficient operation and profitability.

- Economic development efforts must also include identifying, generating and supporting local entrepreneurs
- Preparing the local labor force to work in the New Economy, both manufacturing and service, must be an on-going priority. Fewer and fewer low-to-medium skill, routine jobs will be available in manufacturing. How can the people entering the labor force and losing jobs in the declining industries be prepared to find employment in the growing industries, which are primarily services and certain high tech manufacturing?
- Other issues of specific relevance to the future of the Centre County economy, and to planning efforts, are:
  - The impact of I-99 and other possible future major highway construction.
  - Possible improved air transportation.
  - Population and residential growth, and particularly where this will take place.
  - Given that Penn State is the primary engine for the county's economy, how, and how much, will the university grow, and how will this impact the county's economy and population?

## **Appendix 1. Definitions**

Value Added Manufacturing processes agricultural and wood products.

Routine Manufacturing consists of the older mass production industries based on low-to-medium skilled labor.

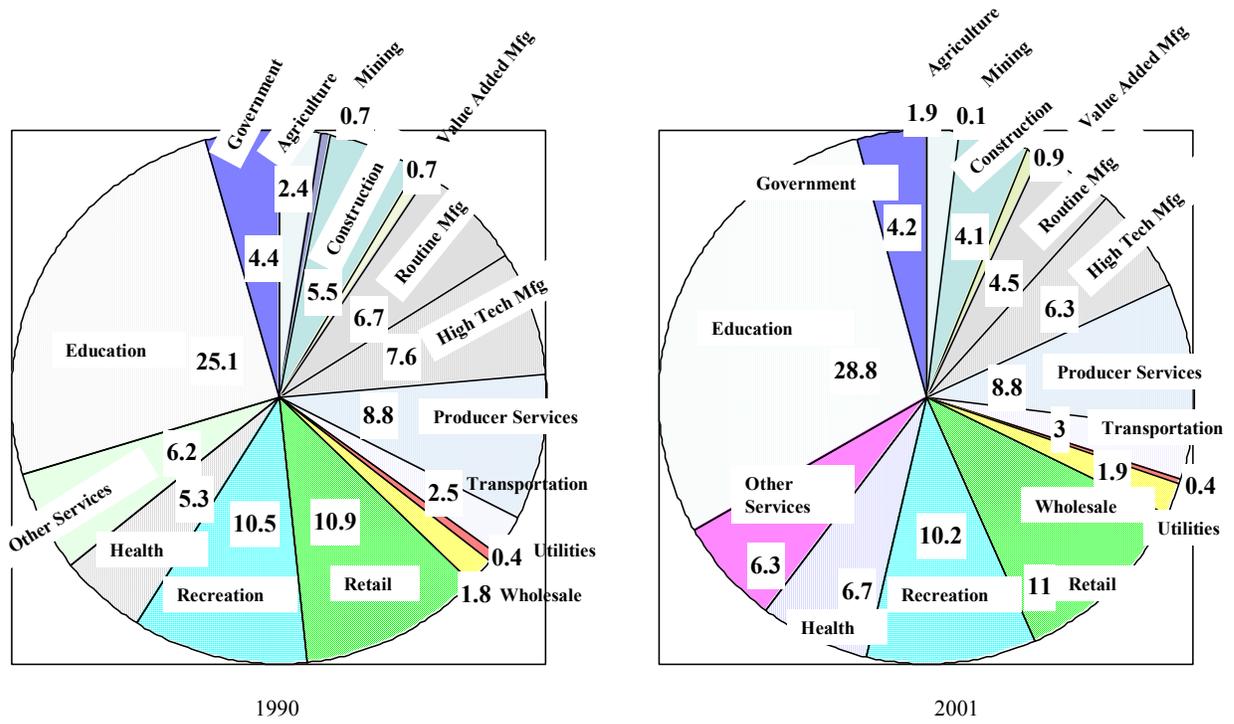
High Tech Manufacturing are industries using high levels of skilled, management, professional and technical workers.

Consumer Services serve people and their needs, and usually require face-to-face contact.

Producer Services provide the specialized inputs used primarily by other businesses and government in producing a final good or service.

Recreation Services encompass eating and drinking, lodging and a range of amusement and recreation activities. These services also are frequently called the tourism sector.

Chart 1. Percentage of Total Employment, Centre County: 1990 and 2001.



<b>Table I. Centre County Industry Employment</b>						
<u>SIC</u>		<u>Employment</u>			<u>% of Co. total</u>	
		<u>1990</u>	<u>2001</u>	<u>% change</u>	<u>1990</u>	<u>2001</u>
<b>Agriculture and Mining</b>						
01, 02	Production agriculture	1321	1281	-3.0	2.4	1.9
07	Agricultural services	346	623	80.0	0.6	0.9
10-14	Mining	393	92	-76.6	0.7	0.1
<b>Construction 15-17</b>		31 03	2736	-11.8	5.5	4.1
<b>Value Added Manufacturing</b>						
20	Food & kindred products	171	180	0	0.3	0.3
21, 31	Tobacco and leather products	0	5	0	0	0
24	Lumber and wood products	164	193	17.7	0.3	0.3
26	Paper and allied products	D	D	245.8	0.1	0.3
<b>Routine Manufacturing</b>						
22, 23	Textile and apparel products	1123	230	-79.5	2.0	0.3
25	Furniture and fixtures	78	249	219.2	0.1	0.4
30	Rubber and miscellaneous	111	292	163.1	0.2	0.4
32	Stone, clay, concrete	1544	1579	2.3	2.8	2.4
33, 34, 39	Primary and fabricated metals; misc.	872	688	-21.1	1.6	1.0
<b>High Technology Manufacturing</b>						
27	Printing, publishing, allied	753	908	20.6	1.4	1.4
28, 29	Chemicals and allied products	227	179	-21.2	0.4	0.3
35	Industrial machinery and equipment	634	488	-23.0	1.1	0.7
36	Electronic and other electrical equipment	1677	1513	-9.8	3.0	2.3
37	Transportation equipment	0	0	0	0.0	0.0
38	Instruments and related	966	1140	18.0	1.7	1.7
<b>Producer Services</b>						
48	Communications	472	605	28.2	0.8	0.9
60-64, 67	Finance, insurance	1387	1586	14.3	2.5	2.4
73, 81, 87	Business, legal, engineering services	3093	3707	19.8	5.5	5.5
<b>Transportation, Utilities, Wholesale</b>						
40-47	Transportation	1419	2049	44.4	2.5	3.0
49	Utilities	243	242	0	0.4	0.4
50, 51	Wholesale trade	1004	1261	25.6	1.8	1.9
<b>Recreation</b>						
58	Eating and drinking places	4216	4398	4.3	7.5	6.6
70	Hotels and lodging	1168	1602	37.2	2.1	2.4
79, 84, 783, 784	Amusement and recreation	469	849	81.0	0.8	1.3
<b>Consumer Services</b>						
52-57, 59	Retail trade	6089	7386	21.3	10.9	11.0
65, 72, 75-76, 781, 782, 89	Services, other than bus. and rec.	1875	2211	17.9	3.4	3.3
80	Health	2963	4479	51.2	5.3	6.7
83	Social services	1056	1284	21.6	1.9	1.9
86, 88	Social organizations, households	504	713	41.5	0.9	1.1
<b>Education</b>						
821, 823, 824, 829	Elementary, secondary, vocational	2411	3283	36.2	4.3	4.9
822	Colleges and universities	11617	16024	37.9	20.8	23.9
<b>Government</b>						
	Federal Government	147	286	94.6	0.3	0.4
	State Government	1083	1149	6.1	1.9	1.7
	Local Government	1219	1395	14.4	2.2	2.1
<b>Total County Employment</b>		55947	67089	19.9		

D: Suppressed for disclosure regulations.

**Table II. Industry Specialization: Centre County vs. Pennsylvania, 1990 and 2001.**

SIC	% of Total Employment				LQ	
	PA		Centre Co		1990	2001
	1990	2001	1990	2001		
<b>Agriculture</b>						
Production agriculture (01, 02)	1.9	1.6	2.3	1.9	1.2	1.2
Agricultural Services (07)	0.5	0.7	0.6	0.9	1.2	1.3
<b>Mining (10-14)</b>	0.5	0.3	0.7	0.1	1.4	0.3
<b>Construction (15-17)</b>	4.8	4.7	5.5	4.1	1.1	0.9
<b>Value Added Industries</b>						
Food and kindred (20)	1.7	1.5	0.3	0.3	0.2	0.2
Lumber and wood (24)	0.6	0.7	0.3	0.3	0.5	0.4
Paper and allied (26)	0.8	0.6	0.1	0.3	0.1	0.5
<b>Routine Manufacturing</b>						
Textile and apparel (22, 23)	1.9	0.8	2.0	0.3	1.0	0.4
Furniture and fixtures (25)	0.4	0.3	0.1	0.4	0.2	1.3
Rubber and misc. (30)	0.8	0.8	0.2	0.4	0.2	0.5
Stone clay, concrete (32)	0.9	0.7	2.8	2.4	3.1	3.4
Primary and fabricated metals; misc. (33, 34, 39)	3.9	2.9	1.6	1.0	0.4	0.3
<b>High Technology Manufacturing</b>						
Printing and publishing (27)	1.6	1.4	1.4	1.4	0.9	1.0
Chemicals and allied (28, 29)	1.4	1.4	0.4	0.3	0.3	0.2
Industrial machinery and equipment (35)	2.1	1.6	1.1	0.7	0.5	0.4
Electronic and electrical equipment (36)	1.6	1.4	3.0	2.3	1.9	1.6
Instruments and related (38)	0.7	0.6	1.7	1.7	2.4	2.8
<b>Producer Services</b>						
Communications (48)	0.9	1.1	0.8	0.9	0.9	0.8
Finance, insurance (60-64, 67)	5.0	4.8	2.5	2.4	0.5	0.5
Business, legal, engineering (73, 81, 87)	7.1	9.4	5.5	5.5	0.8	0.6
<b>Transportation, Utilities, Wholesale</b>						
Transportation (40-47)	3.9	3.5	2.5	3.0	0.6	0.9
Utilities (49)	1.3	1.0	0.4	0.4	0.3	0.4
Wholesale trade (50, 51)	5.4	4.7	1.8	1.9	0.3	0.4
<b>Recreation</b>						
Eating and drinking (58)	5.4	5.9	7.5	6.6	1.4	1.1
Hotels and lodging (70)	1.1	1.0	2.1	2.4	1.9	2.4
Amusement and recreation (79, 84, 783, 784)	1.5	1.8	0.8	1.3	0.5	0.7
<b>Consumer Services</b>						
Retail trade (52-57, 59)	12.1	9.2	10.9	11.0	0.9	1.2
Services, other than business and recreation (65, 72, 75, 76, 781, 782, 89)	3.0	3.1	3.4	3.3	1.1	1.1
Health (80)	9.8	10.6	5.3	5.6	0.5	0.5
Social services (83)	2.2	3.1	1.9	1.9	0.9	0.6
<b>Education</b>						
Elementary, secondary, vocational (821, 823, 824, 829)	5.1	5.6	4.3	4.9	0.8	0.9
Colleges and universities (822)	2.1	2.4	20.8	23.9	9.9	10.0
<b>Government</b>						
Federal	1.3	0.9	0.3	0.4	0.2	0.4
State	1.0	0.9	1.9	1.7	1.9	1.9
Local	2.6	2.8	2.2	2.1	0.8	0.8

**Table III. Centre County Industry Employment Change 1990-2001.**

<u>SIC</u>		<u>Employment change 1990-2001</u>	<u>% of County net increase</u>
<b>Agriculture and Mining</b>			
01, 02	Production agriculture	-40	
07	Agricultural services	277	2.5
10-14	Mining	-301	
<b>Construction 15-17</b>		-367	
<b>Value Added Industries</b>		188	1.7
20	Food & kindred products	9	
21, 31	Tobacco and leather products	5	
24	Lumber and wood products	29	
26	Paper and allied products	D	1.3
<b>Routine Manufacturing</b>		-690	
22, 23	Textile and apparel products	-893	
25	Furniture and fixtures	171	1.5
30	Rubber and miscellaneous	181	1.6
32	Stone, clay, concrete	35	
33, 34, 39	Primary and fabricated metals; misc.	-484	
<b>High Technology Manufacturing</b>		-29	
27	Printing, publishing, allied	155	1.4
28, 29	Chemicals and allied products	-48	
35	Industrial machinery and equipment	-146	
36	Electronic and other electrical equipment	-164	
38	Instruments and related	174	1.6
<b>Producer Services</b>		946	8.5
48	Communications	133	1.2
60-64, 67	Finance, insurance	199	1.8
73, 81, 87	Business, legal, engineering services	614	5.5
<b>Transportation, Utilities, Wholesale</b>		886	8.0
40-47	Transportation	630	5.6
49	Utilities	-1	
50, 51	Wholesale trade	257	2.3
<b>Recreation</b>		996	8.9
58	Eating and drinking places	182	1.6
70	Hotels and lodging	434	3.9
79, 84, 783, 784	Amusement and recreation	380	3.4
<b>Consumer Services</b>		3586	32.2
52-57, 59	Retail trade	1297	11.6
65, 72, 75-76, 781, 782, 89	Services, other than bus. and rec.	336	3.0
80	Health	1516	13.6
83	Social services	228	2.0
86, 88	Social organizations, households	209	1.9
<b>Education</b>		5279	47.4
821, 823, 824, 829	Elementary, secondary, vocational	872	7.8
822	Colleges and universities	4407	39.6
<b>Government</b>		381	3.4
	Federal Government	139	1.2
	State Government	66	
	Local Government	176	1.6
<b>Total County Employment Change</b>		11142	

D: Suppressed for disclosure regulations.

**Table IV. Centre County Employment Strengths vs. National Projections 2000-2010.**

	County Employment 2001	Employment change 1990-2001	LQ 2001	Projected national change: 2000-10	
				Employment <sup>a</sup>	Annual %
<b>Production agriculture (01, 02)</b>	1281	-40	1.2	-155	-0.7
<b>Agricultural services (07)</b>	623	277	1.3	477	2.7
Veterinary (074)	151	72	1.5	96	3.4
Animal, exc. vet. (075)	D	D	4.6	-- <sup>b</sup>	--
Landscape (078)	318	106	1.0	285	3.1
<b>Construction (15-17)</b>	2736	-367	0.9	825	1.2
Residential building (152)	528	-52	1.3	--	--
Nonresidential building (154)	288	28	1.0	--	--
Heavy construction (162)	524	-521	2.3	--	--
Plumbing, heating, air cond. (171)	338	198	0.7	--	--
Electrical work (173)	140	25	0.4	--	--
Masonry, stonework (174)	146	74	0.6	--	--
Misc. special trades (179)	315	156	0.8	--	--
<b>Value-added Industries</b>					
Fruit & vegetable preservation (203)	D	D	1.1	-25	-1.2
Misc. paper products (267)	D	D	1.0	0	0
<b>Routine Manufacturing</b>					
Men's suits and furnishings (231, 232)	189	-822	2.3	-103	-2.8
Household furniture (251)	D	D	1.8	-11	-0.4
Office furniture (252, 253)	D	D	1.9	57	2.9
Misc. plastic product (308)	292	181	0.6	156	1.9
Glass and glassware (322)	D	D	10.2	-8	-0.6
Concrete products (327)	386	9	3.0	14	0.6
Nonferrous, foundries (336)	D	D	9.2	5	0.5
<b>High Technology Manufacturing</b>					
Newspapers (271)	D	D	0.7	-10	-0.2
Books (273)	D	D	5.1	10	0.7
Commercial printing (275)	237	136	0.7	-18	-0.3
Industrial chemicals (286)	D	D	3.0	-28	-1.4
Metalworking machinery (354)	172	34	0.7	0	0
Special industrial machinery (355)	D	D	2.8	-14	-0.8
Communications equipment (366)	444	23	4.7	14	0.5
Electronic components (367)	1043	-202	3.3	118	1.6
Measuring & controlling devices (382)	793	110	4.7	-2	-0.1
Medical instruments & supplies (384)	347	64	1.8	50	1.6
<b>Producer Services</b>					
Telephone communications (481)	164	-36	0.4	143	1.2
Radio & TV broadcasting (483)	148	-8	1.5	25	0.9
Cable TV services (484)	293	217	2.1	109	4.2
Security & Commodity brokers (621, 628)	207	82	0.7	152	1.9
Insurance agents (641)	302	128	0.7	109	1.3
Building maintenance (734)	301	190	0.6	--	--
Personnel supply services (736)	336	146	0.3	1913	4.1
Computer & data processing (737)	823	-303	1.0	1805	6.4
Misc. business services (738)	518	238	0.6	1004	3.7
Legal services (811)	234	140	0.4	340	2.9
Engineering & architectural services (871)	460	164	0.9	313	2.7
Accounting & bookkeeping (872)	137	57	0.4	243	3.0
Research & testing services (873)	321	63	1.0	244	3.3
<b>Transportation, Utilities, Wholesale</b>					
School buses (415)	270	122	1.4	--	--

Trucking services (421)	797	123	1.0	313	1.8
Air transportation (451)	238	200	0.4	319	2.2
Travel agencies (472)	112	34	1.2	17	0.7
<b>Wholesale trade</b>	1261	257	0.4	776	1.1
Motor vehicle parts and supplies (501)	168	-3	0.5	--	--
Machinery, equipment, supplies (508)	124	-21	0.3	--	--
Groceries & related (514)	D	D	0.7	--	--
<b>Recreation</b>					
Eating & drinking places (581)	4398	182	1.1	1486	1.7
Hotels and motels (701)	1352	231	2.3	255	1.3
Camps & RV parks (703)	248	208	6.2	--	--
Misc. amusement & recreation (799)	509	198	0.6	536	3.5
<b>Consumer Services</b>					
<b>Retail</b>				3093	1.3
Lumber & building materials (521)	289	5	1.0	--	--
Hardware stores (525)	117	25	1.4	--	--
Department stores (531)	1162	341	1.0	--	--
Grocery stores (541)	1643	60	0.9	--	--
Car dealers (551)	505	-4	0.8	--	--
Auto & home supply (553)	134	72	0.9	--	--
Gas stations (554)	396	178	1.3	--	--
Women's clothing & accessory stores (562, 563)	500	235	2.6	--	--
Family clothing (565)	254	152	1.5	--	--
Shoe stores (566)	126	17	1.3	--	--
Furniture & home furnishings (571)	215	46	0.8	--	--
Radio, TV, computer stores (573)	196	38	1.0	--	--
Misc. retail (599)	245	95	0.8	--	--
<b>Other services</b>					
Real estate operators (651)	371	-21	1.5	272	1.7
Real estate agents (653)	288	114	1.0	--	--
Laundry & cleaning (721)	244	-36	1.4	19	0.4
Beauty shops (723)	260	91	0.9	57	1.2
Auto repair shops (753)	219	21	0.6	238	2.1
Services, nec (899)	419	168	12.4	--	--
<b>Health</b>					
Doctor's offices (801)	600	148	0.6		
Dentist's offices (802)	399	135	0.6	1245	3.4
Other health practitioners (804)	176	84	0.6		
Nursing & personal care (805)	798	463	0.6	394	2.0
Hospitals (806)	1623	539	0.5	510	1.2
Home health care (808)	191	186	0.7	690	4.6
Health & allied services (809)	579	221	1.8		
<b>Social services</b>					
Individual & family services (832)	278	43	0.5	295	2.6
Job training & related (833)	D	D	1.4	120	2.8
Child day care (835)	304	128	0.8	298	3.6
Residential care (836)	399	222	0.5	512	5.0
Labor organizations (863)	106	20	0.9	259	1.0
Civic & social associations (864)	395	101	1.0		
<b>Education</b>	16024	4407		527	2.1

\*Industries with 100 or more employees in Centre County.

<sup>a</sup>Thousands

<sup>b</sup>No data

D: Suppressed for disclosure regulations.

**Table V. Centre County Industry Employment vs. Surrounding Counties, 2001.**

SIC		Employment 2001		% of Total		LQ vs. Region	LQ vs. PA
		Region	Centre County	Region	Centre County		
<b>Agriculture and Mining</b>				<b>4.4</b>	<b>2.9</b>		
01, 02	Production agriculture	6937	1281	3.3	1.9	0.6	1.2
07	Agricultural services	994	623	0.5	0.9	1.8	1.3
10-14	Mining	1182	92	0.6	0.1	0.2	0.3
<b>Construction 15-17</b>		8626	2736	<b>4.0</b>	<b>4.1</b>	1.0	0.9
<b>Value Added Industries</b>				<b>6.2</b>	<b>0.9</b>		
20	Food & kindred products	2404	180	1.1	0.3	0.3	0.2
21, 31	Tobacco and leather products	689	5	0.3	0	0	0
24	Lumber and wood products	5244	193	2.5	0.3	0.1	0.4
26	Paper and allied products	4901	204	2.3	0.3	0.1	0.5
<b>Routine Manufacturing</b>				<b>8.1</b>	<b>4.5</b>		
22, 23	Textile and apparel products	4249	230	2.0	0.3	0.2	0.4
25	Furniture and fixtures	2388	249	1.1	0.4	0.4	1.3
30	Rubber and miscellaneous	1452	292	0.7	0.4	0.6	0.5
32	Stone, clay, concrete	1848	1579	0.9	2.4	2.7	3.4
33, 34, 39	Primary and fabricated metals; misc.	7255	688	3.4	1.0	0.3	0.3
<b>High Technology Manufacturing</b>				<b>6.1</b>	<b>6.3</b>		
27	Printing, publishing, allied	2498	908	1.2	1.4	1.2	1.0
28, 29	Chemicals and allied products	796	179	0.4	0.3	0.8	0.2
35	Industrial machinery and equipment	4526	488	2.1	0.7	0.3	0.4
36	Electronic and other electrical equipment	2614	1513	1.2	2.3	1.9	1.6
37	Transportation equipment	1394	0	0.6	0	0	0
38	Instruments and related	1323	1140	0.6	1.7	2.8	2.8
<b>Producer Services</b>				<b>8.1</b>	<b>8.8</b>		
48	Communications	1678	605	0.8	0.9	1.1	0.8
60-64, 67	Finance, insurance	6074	1586	2.8	2.4	0.9	0.5
73, 81, 87	Business, legal, engineering services	9632	3707	4.5	5.5	1.2	0.6
<b>Transportation, Utilities, Wholesale</b>				<b>8.5</b>	<b>5.3</b>		
40-47	Transportation	7327	2049	3.4	3.0	0.9	0.9
49	Utilities	1547	242	0.7	0.4	0.6	0.4
50, 51	Wholesale trade	9448	1261	4.4	1.9	0.4	0.4
<b>Recreation</b>				<b>8.3</b>	<b>10.2</b>		
58	Eating and drinking places	13102	4398	6.2	6.6	1.1	1.1
70	Hotels and lodging	1833	1602	0.9	2.4	2.7	2.4
79, 84, 783, 784	Amusement and recreation	2660	849	1.2	1.3	1.1	0.7
<b>Consumer Services</b>				<b>32.2</b>	<b>24.0</b>		
52-57, 59	Retail trade	28981	7386	13.6	11.0	0.8	1.2
65, 72, 75-76, 781, 782, 89	Services, other than bus. and rec.	4987	2211	2.3	3.3	1.4	1.1
80	Health	24482	4479	11.5	6.7	0.6	0.5
83	Social services	7112	1284	3.3	1.9	0.6	0.6
86, 88	Social organizations, households	3089	713	1.5	1.1	0.7	
<b>Education</b>				<b>7.9</b>	<b>28.8</b>		
821, 823, 824, 829	Elementary, secondary, vocational	12691	3283	6.0	4.9	0.8	0.9
822	Colleges and universities	4061	16024	1.9	23.9	12.6	10.0
<b>Government</b>				<b>5.1</b>	<b>4.2</b>		
	Federal Government	2071	286	1.0	0.4	0.4	0.4
	State Government	3630	1149	1.7	1.7	1.0	1.9
	Local Government	5204	1395	2.4	2.1	0.9	0.8
<b>Total Employment</b>		212679	67089				

**Table VI. Centre County Industrial Strengths vs. Surrounding Counties, 2001.**

	Employment 2001		% Employment change 1990-2001		LQ vs. Region	LQ vs. PA
	Centre County	Region	Centre County	Region		
<b>Production agriculture (01, 02)</b>	1281	6937	-3.0	-15.7	0.5	1.2
<b>Agricultural services (07)</b>						
Veterinary (074)	151	288	91.1	123.2	1.4	1.5
Animal, exc. vet. (075)	151	38	174.6	153.3	4.0	4.6
Landscape (078)	318	630	50.0	39.7	1.7	1.0
<b>Construction (15-17)</b>						
Residential building (152)	528	1401	-9.0	-11.7	1.2	1.3
Nonresidential building (154)	288	1166	10.8	-19.0	0.8	1.0
Heavy construction (162)	524	765	-49.9	26.4	2.2	2.3
Plumbing, heating, air cond. (171)	338	1192	141.4	34.8	0.9	0.7
Electrical work (173)	140	882	21.7	25.8	0.5	0.4
Masonry, stonework (174)	146	520	102.8	15.0	0.9	0.6
Misc. special trades (179)	315	1016	98.1	-1.0	0.9	0.8
<b>Value-added Industries</b>						
Fruit & vegetable preservation (203)	144	63	0	14.5	6.7	1.1
Misc. paper products (267)	204	2823	245.8	17.1	0.2	1.0
<b>Routine Manufacturing</b>						
Men's suits and furnishings (231, 232)	189	854	-81.3	-38.7	0.7	2.3
Household furniture (251)	147	1045	∞	-33.7	0.4	1.8
Office furniture (252, 253)	102	422	30.8	46.0	0.8	1.9
Misc. plastic product (308)	292	1278	163.1	13.5	0.7	0.6
Glass and glassware (322)	1099	481	1.8	-15.3	7.0	10.2
Concrete products (327)	386	558	2.4	-9.6	2.2	3.0
Nonferrous, foundries (336)	615	D	-24.9	5.0	92.0	9.2
<b>High Technology Manufacturing</b>						
Newspapers (271)	189	869	12.5	-12.6	0.7	0.7
Books (273)	440	D	-4.4	∞	5.5	5.1
Commercial printing (275)	237	740	134.6	-0.1	1.0	0.7
Industrial chemicals (286)	124	D	-18.4	-80.6	18.0	3.0
Metalworking machinery (354)	172	397	24.6	62.0	1.4	0.7
Special industrial machinery (355)	262	977	-26.4	-36.9	0.8	2.8
Communications equipment (366)	444	105	5.5	-61.4	13.2	4.7
Electronic components (367)	1043	1446	-16.2	-20.7	2.3	3.3
Measuring & controlling devices (382)	793	950	16.1	-21.6	2.6	4.7
Medical instruments & supplies (384)	347	348	22.6	29.4	3.6	1.8
<b>Producer Services</b>						
Telephone communications (481)	164	1052	-18.0	27.2	1.5	0.4
Radio & TV broadcasting (483)	148	404	-5.1	-28.1	1.2	1.5
Cable TV services (484)	293	180	285.5	106.9	5.5	2.1
Security & Commodity brokers (621, 628)	207	289	65.6	248.2	2.2	0.7
Insurance agents (641)	302	764	73.6	33.8	1.2	0.7
Building maintenance (734)	301	714	171.2	21.6	1.3	0.6
Personnel supply services (736)	336	1595	76.8	102.7	0.7	0.3
Computer & data processing (737)	823	746	-26.9	45.7	1.4	1.0
Misc. business services (738)	518	764	85.0	-1.8	2.1	0.6
Legal services (811)	234	828	72.2	21.9	0.9	0.4
Engineering & architectural services (871)	460	2238	55.4	265.7	0.6	0.9
Accounting & bookkeeping (872)	137	444	71.2	25.1	1.0	0.4
Research & testing services (873)	321	174	24.4	1.2	6.0	1.0

<b>Transportation, Utilities, Wholesale</b>						
School buses (415)	270	670	82.4	82.1	1.2	1.4
Trucking services (421)	797	3873	18.2	21.7	0.6	1.0
Air transportation (451)	238	448	526.3	659.3	1.7	0.4
Travel agencies (472)	112	51	43.6	-40.0	8.5	1.2
<u>Wholesale trade</u>						
Motor vehicle parts and supplies (501)	168	973	-1.8	1.5	0.5	0.5
Machinery, equipment, supplies (508)	124	1131	-14.5	42.1	0.3	0.3
Groceries & related (514)	302	2004	439.3	17.5	0.5	0.7
<b>Recreation</b>						
Eating & drinking places (581)	4398	13102	4.3	29.2	1.1	1.1
Hotels and motels (701)	1352	1647	20.6	-9.3	2.6	2.3
Camps & RV parks (703)	248	181	520.0	41.4	4.6	6.2
Misc. amusement & recreation (799)	509	1843	63.7	57.0	0.9	0.6
<b>Consumer Services</b>						
<u>Retail</u>						
Lumber & building materials (521)	289	1226	1.8	32.7	0.7	1.0
Hardware stores (525)	117	533	27.2	33.9	0.7	1.4
Department stores (531)	1162	6495	41.5	86.5	0.6	1.0
Grocery stores (541)	1643	6604	3.8	-10.1	0.8	0.9
Car dealers (551)	505	2445	-0.8	4.7	0.6	0.8
Auto & home supply (553)	134	583	116.1	99.6	0.7	0.9
Gas stations (554)	396	1059	81.6	-18.3	1.2	1.3
Women's clothing & accessory stores (562, 563)	500	292	88.7	-54.2	5.3	2.6
Family clothing (565)	254	534	149.0	506.8	1.5	1.5
Shoe stores (566)	126	258	15.6	-43.5	1.5	1.3
Furniture & home furnishings (571)	215	715	27.2	15.7	0.9	0.8
Radio, TV, computer stores (573)	196	418	24.0	53.1	1.4	1.0
Misc. retail (599)	245	1071	63.3	83.4	0.7	0.8
<u>Other services</u>						
Real estate operators (651)	371	385	-5.4	-54.2	3.0	1.5
Real estate agents (653)	288	342	65.5	79.0	2.7	1.0
Laundry & cleaning (721)	244	736	-12.9	96.8	1.0	1.4
Beauty shops (723)	260	696	53.8	7.2	1.2	0.9
Auto repair shops (753)	219	1140	10.6	23.1	0.6	0.6
Services, nec (899)	419	4	66.9	-81.8	∞	12.4
<u>Health</u>						
Doctor's offices (801)	600	2731	32.7	32.9	0.7	0.6
Dentist's offices (802)	399	891	51.1	22.0	1.4	0.6
Other health practitioners (804)	176	919	91.3	70.8	0.6	0.6
Nursing & personal care (805)	798	5693	138.2	48.3	0.4	0.6
Hospitals (806)	1623	11052	49.7	9.8	0.5	0.5
Home health care (808)	191	824	3700.0	8.4	0.7	0.7
Health & allied services (809)	579	720	1.7	306.8	2.5	1.8
<u>Social services</u>						
Individual & family services (832)	278	1622	8.3	38.3	0.5	0.5
Job training & related (833)	238	1163	13.3	126.7	0.6	1.4
Child day care (835)	304	1566	2.7	144.9	0.6	0.8
Residential care (836)	399	1700	25.4	171.6	0.7	0.5
Labor organizations (863)	106	404	3.3	-16.7	0.8	0.9
Civic & social associations (864)	395	1673	4.4	45.4	0.7	1.0
<b>Education</b>						
Elementary, secondary, vocational (821, 823, 824, 829)	3283	13786	6.2	17.9	0.8	0.9
Colleges and universities (822)	16024	4061	7.9	31.6	12.5	10.0

<sup>a</sup>Thousands

<sup>b</sup>No data

**Table VII. Performance of Centre County's Production Agriculture Economy: 1990-2000.**

	Centre		State	
	1990	2000	Pct Change	Pct Change
<b>Number of farms</b>				
Cattle	660	510	-23%	-26%
Dairy	300	235	-22%	-26%
Hog	130	50	-62%	-63%
Sheep	60	45	-25%	-34%
Chicken	135	85	-37%	-29%
<b>Total</b>	<b>1,285</b>	<b>1,025</b>		
Acres	153,300	146,000	-4.7%	
<b>Cash Receipts (1,000)</b>				
<b>Crops</b>				
Field Crops	\$5,042	\$8,363	66%	27%
Veg & Potatoes	\$4,042	\$2,481	-39%	-22%
Fruits	\$ 521	\$ 372	-29%	29%
Hort & Mushrooms	\$ 984	\$1,084	10%	25%
<b>Total crops</b>	<b>\$10,589</b>	<b>\$12,300</b>	<b>16%</b>	<b>21%</b>
<b>Livestock &amp; Products</b>				
Meat Animals & Misc Livestock	\$9,577	\$9,737	2%	97%
Dairy & Poultry	\$30,929	\$33,545	8%	-14%
<b>Total livestock &amp; products</b>	<b>\$40,506</b>	<b>\$43,282</b>	<b>7%</b>	<b>11%</b>

Source: Pennsylvania Department of Agriculture – Annual Reports