

**Impact of Higher Education
in Greater Philadelphia**

Select Greater Philadelphia

October 2007

Table of Contents

Executive Summary	i
Introduction	1
<i>Definition</i>	3
<i>Purpose</i>	3
<i>Methodology</i>	4
<i>Base Year</i>	4
<i>Existing Data Sources</i>	4
<i>Survey</i>	6
<i>The IMPLAN Model and Economic Impacts</i>	7
<i>Data Gaps</i>	8
Characteristics	10
<i>Enrollment & Degrees Awarded</i>	10
<i>Carnegie Classification</i>	13
Comparison to Other Metropolitan Statistical Areas.....	18
<i>Enrollment & Degrees Awarded in Top MSAs</i>	18
<i>Operations Expenditures</i>	23
<i>Research & Development Spending in Large MSAs</i>	24
Direct Impacts	26
<i>Annual Operating Expenditures</i>	26
<i>Employment and Wages</i>	27
<i>Student Spending</i>	28
Total Economic Impacts	31
<i>Tax Impacts</i>	32
Other Spending Impacts.....	34
<i>Capital Spending</i>	34
<i>Visitor Spending</i>	36
Effects on Economic Prosperity	38
<i>Human Capital and Educational Attainment</i>	38
<i>Workforce Development and Continuing Education</i>	39
<i>Innovation and Technology Transfer</i>	40
<i>Spending and Investment Attraction</i>	41
<i>Economic Development Partnerships</i>	41
<i>Quality of Life</i>	47
Recommendations for Further Study.....	48
Conclusion	49
References.....	51
Appendix A. <i>Survey Form</i>	52
Appendix B. <i>Greater Philadelphia Colleges & Universities Websites</i>	67
Acknowledgements	70

List of Tables

Table 1. List of Greater Philadelphia Institutions & Enrollment (Fall 2005).....	5
Table 2. Degrees Granted (2004/05 Academic Year)	6
Table 3. Certificates and Degrees Awarded by Area of Study and Type (2004/05 Academic Year).....	11
Table 4. Shares of Associate and Higher Certificates and Degrees by First Major (2005/06 Academic Year).....	13
Table 5. GPR & US Schools by Carnegie Classification (2005/06 Academic Year).....	14
Table 6. FTE Enrollment by Carnegie Classification (2005/06 Academic Year).....	15
Table 7. Operating Expenditures by Carnegie Classification (2005/06 Academic Year)	16
Table 8. Enrollment in the Large MSAs (2005/06 Academic Year)	19
Table 9. Associate and Higher Certificates and Degrees Awarded in Large MSAs (2004/05 Academic Year).....	21
Table 10. Associate and Higher Certificates and Degrees Awarded per 10,000 residents in Large MSAs (2004/05 Academic Year).....	22
Table 11. Core Expenditures in Large MSAs (2005/06 Academic Year).....	23
Table 12. Research & Development Funding in Large MSAs (2005/06 Academic Year)	25
Table 13. Estimated Student Spending (2007\$).....	29
Table 14. Total Economic Impacts (2007\$).....	31
Table 15. Economic Impacts of Proposed Capital Project Spending (2007\$)	35

List of Figures

Figure 1. Map of Colleges & Universities Regional Campuses	2
Figure 2. Total FTE Enrollment in Large MSAs (2005/06 Academic Year)	20
Figure 3. FTE Enrollment per 10,000 Residents (2005/06 Academic Year).....	20
Figure 4. Associates and Higher Certificates and Degrees Awarded by MSAs (2004/05 Academic Year).....	22
Figure 5. Core Expenditures per FTE (2005/06 Academic Year)	24

Executive Summary

Impact of Higher Education in Greater Philadelphia

Introduction

Select Greater Philadelphia (Select) examined the characteristics and estimated the economic impacts of the colleges and universities located in the Greater Philadelphia Region (GPR).

The GPR consists of the following 11 counties: New Castle County in **Delaware**, Burlington, Camden, Gloucester, Mercer and Salem Counties in **New Jersey**, and Bucks, Chester, Delaware, Montgomery and Philadelphia Counties in **Pennsylvania**.

Select defined an institution of higher education as an accredited college or university that offered an associate degree or higher, or its equivalent, and that had a facility or campus in the GPR. In the Fall of 2006 a total of 88 institutions were present that met this definition. The objectives of the study were to:

- Present the characteristics of the GPR's higher education sector;
- Compare the characteristics of the region's higher education sector to those of other MSAs;
- Describe the direct economic effects;
- Estimate the total economic impact of the higher education sector; and
- Describe programs and partnerships that enhance economic prosperity in the region.

Select designed a survey that was sent to designated contacts at the 88 institutions in the Winter of 2007, requesting information for the 2005/06 academic year, the base year of the study. The survey's purpose was to obtain the most current school-specific data that could be used to accomplish the study's objectives. Accompanying each institution's survey was a profile with information obtained from the National Center for Education Statistics Integrated Postsecondary Education Data System (IPEDS). About half of the institutions indicated that the IPEDS information was suitable for use in the study. The response rate was 58%.

Total economic impacts were estimated using an IMPLAN input/output (I/O) model of the region. The following three direct economic effects were considered: 1) purchases of non-labor goods and services required for operations; 2) expenditures of disposable income by employees; and 3) student spending, excluding payments (e.g., tuition, room and board, fees, etc.) to the schools. A separate estimate of the economic impacts of proposed spending for capital projects over the next five years was also performed using the IMPLAN model.

Characteristics

Major characteristics of the higher education sector based on the list of 88 institutions include:

- Fall 2005 enrollment was 233,961 full-time and 125,550 part-time students, for a total, non duplicated enrollment of 359,511 students;
- Total full-time equivalent (FTE) enrollment was 275,811 students;
- During the 2004/05 academic year a total of 67,169 degrees were awarded, consisting of 10,328 associate degrees – 15.4%, 34,764 bachelor's degrees – 51.7%, and 22,077 advanced (e.g., master's, first professional, and doctoral) degrees – 32.9%;

- The most popular majors in 2005/06 by share of awards were: Business and Management – 20.7%, Health Professions – 12.7%, Education – 12.7%, Liberal Arts and Sciences – 5.4%, and Social Sciences – 5.1%;
- In the Science, Technology, Engineering and Math (STEM) study areas the award shares were: Engineering – 3.9%, Biological and Biomedical Sciences – 2.8%, Physical Sciences – 1.1%, and Mathematics and Statistics – 0.7%; and
- Compared to the US, the region's share of awards was significantly above-average in: Philosophy and Religious studies, Theology, Architecture, Law, History, Visual Arts, and Health. Shares of awards in both Business and Engineering were moderately above the US shares, while the share in Computer and Information Sciences was moderately below it.

About one-third of the region's awards were advanced certificates and degrees, well above the US share of 25%. Non-resident aliens accounted for just over 4% of the total enrollment in the Fall 2005 or about 11,800 students, with highest shares at the Curtis Institute of Music, Academy of Vocal Arts, Princeton University and the University of Pennsylvania.

Select analyzed the structure of the region's higher education sector based on the Carnegie Commission on Higher Education's 2005 classification system; the study used the Commission's "basic" designation. Compared to the US, in the Fall of 2005 the region had well above-average shares of enrollment in the following classes:

- Special Focus Institutions such as Medical Schools, Other Health Professions Schools, Schools of Art, Music and Design, and Other; and
- Associate's – Public Urban-serving Single Campus and Associate's – Public Suburban-serving Multicampus (i.e., these are the region's 10 community colleges).

Annual operating spending in the region is concentrated, with several classes of schools – Research Universities (high and very high levels of research activity), Master's College and Universities (medium and large programs), and Special Focus Institutions – Medical Schools and Medical Centers – accounting for 81.3% of annual spending, but only 55.2% of FTE enrollment. The benefit to residents of higher education is evident by the 2007 Current Population Survey which shows that in 2006 the median money income in the US for an individual with a master's degree was \$55,445, 19.4% higher than the \$46,435 level for a person with a bachelor's degree.

Comparisons to Other Large Metropolitan Statistical Areas

The study compared the characteristics of the region's higher education sector to those in the 24 largest other metropolitan statistical areas (MSAs) based on 2005 population. This comparison used all schools present in each MSA according to IPEDS. Since their definition is broader than the one used in this study to identify the list of 88 schools (i.e., IPEDS includes institutions that offer certificates less than an associate degree), the enrollment and degree totals for the GPR were slightly higher. In the Fall 2005 the region had the:

- 4th highest total FTE enrollment, behind only New York, Los Angeles and Chicago;
- 5th highest enrollment rate, expressed as FTE per 10,000 residents;
- 4th highest total number of associate and higher certificates and degrees, and awarded the 3rd highest total number of bachelor's degrees;

- 3rd highest award rate (i.e., number of awards per 10,000 residents) for total associate and higher certificates and degrees;
- 2nd highest award rate for bachelor's and first professional degrees, behind only Boston;
- 3rd highest award rate for advanced certificates and degrees; and
- 3rd highest level of annual operating spending per 10,000 residents, behind only Boston and Baltimore.

The absolute size of the region's higher education sector, in terms of enrollment, number of certificates and degrees awarded, and operations spending, is consistently among the top 5 when compared to the other large MSAs, and in proportional terms it ranks even higher due to the concentration of enrollment and spending in the Research and Masters Universities. Finally, the region ranked 7th among all MSAs in total research and development (R&D) funding during the 2005/06 academic year with a total of \$1.277 billion; 6 institutions – Drexel University, Princeton University, Temple University, Thomas Jefferson University, University of Delaware, and the University of Pennsylvania – accounted for 97% of this total.

Economic Impacts

The region's higher education sector generated the following direct economic effects during the 2005/06 academic year:

- Total operating expenditures of approximately \$12.3 billion, including \$7.1 billion in purchases of non-labor goods and services;
- Total direct employment of 85,267 jobs, with employees paid a total of \$5.2 billion in wages and salaries; and
- Total student spending, excluding payments to the schools, of about \$2.2 billion, equivalent to just over \$8,000 per FTE student per academic year.

The total economic impacts were derived using the IMPLAN I/O model for the 11-county region. The total current economic impact of college and university spending for goods and services, expenditures of wages and salaries by employees, and student spending, are (in current 2007\$):

- Total employment of 210,598 jobs, resulting and multiplier of 2.1 and comprising 6.9% of the region's total;
- Output of \$23.9 billion – 4.6% of the region's total;
- Value added (i.e. Gross Regional Product or GRP) of \$15.2 billion, – 4.8% of the region; and
- Labor income of \$11.0 billion – 3.9% of the region's total.

Colleges and universities make a significant contribution to the region, accounting for between 3.9% and 6.9% of its total economic activity depending on the variable.

Additional direct economic effects are produced by two other effects: 1) construction of capital projects and 2) spending by visitors. Responses to the survey indicated schools are planning to spend about \$3.7 billion on capital projects to be completed or started over the next five years, excluding the University of Pennsylvania's "Penn Connects" plan whose estimated cost is approximately \$6 billion. The economic impacts of the annual level of spending produced by these plans will include: direct construction employment of 5,555 jobs; total increase in regional employment of 9,753 jobs; and an increase in GRP of about \$667.1 million (2007\$).

Accurate information about the number of visitors and their spending was not available for all 88 schools, primarily because most of them find it difficult to collect this data. Based on results from other studies in region, we estimate that annual spending by visitors is between \$300 million and \$400 million, likely near the upper end of this range. This spending also increases in economic activity in the region through indirect and induced multiplier effects.

Effects on Economic Development

Colleges and universities know that the quality of life on their campuses, and their ability to accomplish their primary educational goals, are closely linked to and affected by the quality of life in their host communities, and by the performance of the regional economy. The economic development benefits of colleges and universities occur in the following areas:

- Human Capital and Educational Attainment;
- Workforce Development and Continuing Education;
- Innovation and Technology Transfer;
- Spending and Investment Attraction; and
- Economic Development Partnerships.

The schools said they participate in a wide range of programs and partnerships whose effects, either directly or indirectly, promote economic development in their host communities and throughout the region. While the spending for these programs is included in current operating expenditures, their positive effects on economic development usually occur over a longer period of time. Based on the survey responses, Select identified the following types of economic development partnerships: 1) business assistance centers; 2) economic incentive zones; 3) local purchase programs; 4) business incubators; 5) development parks; 6) local community development organizations; and 7) partnerships with other educational institutions.

Introduction

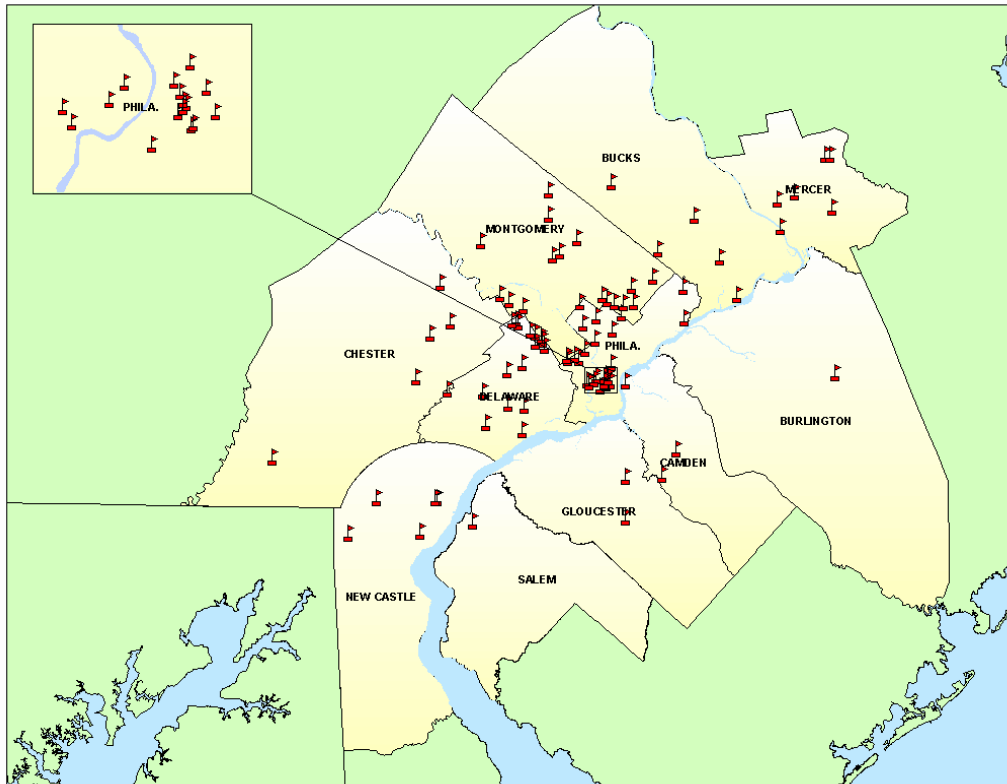
Select Greater Philadelphia (Select) is a regional economic development marketing organization dedicated to building the economy of the Greater Philadelphia Region (GPR) by attracting new businesses. Select is a private, non-profit organization that focuses its resources on enhancing the profile and image of the GPR as a profitable business location. Select markets the region nationally and globally in order to establish it as a top-tier place to do business. The agency proactively recruits companies to expand or locate here and offers a range of complimentary and confidential services to interested companies, including: providing accurate information about the region, connecting companies to service providers, facilitating site visits and incentive analyses; and acting as a liaison between company representatives and economic developers in the tri-state area. Select is governed by a board of 60 chief executive officers called the CEO Council for Growth (CEO Council), and is affiliated with the Greater Philadelphia Chamber of Commerce (GPCC). Through the CEO Council, Select also pursues a policy agenda that aims to increase the region's quality of life and economic growth.

The Greater Philadelphia Region consists of the following 11 counties: New Castle County in **Delaware**, Burlington, Camden, Gloucester, Mercer and Salem Counties in **New Jersey**, and Bucks, Chester, Delaware, Montgomery and Philadelphia Counties in **Pennsylvania**.

Figure 1 shows the 11 counties in the region, and the location of the colleges and universities. The Greater Philadelphia Region's 11 counties are located in the Philadelphia–Camden–Wilmington and the Trenton–Ewing Metropolitan Statistical Areas (MSAs). The former consists of 11 counties, including Cecil County, Maryland which is not part of the GPR. The Trenton–Ewing MSA includes only Mercer County, which is included in the GPR because of its high level of connectedness. The resulting 11-county definition of the GPR is a more accurate representation of the natural flows and interaction patterns (e.g., commuting flows, purchasing networks, social interactions, etc.) of the region's economy.

Since Select's approach to economic development is market-based, the organization focuses its activities on sectors for which the GPR has the strongest competitive advantages. This approach enables business development and marketing to focus on those industry sectors with the highest probability of attracting new economic activity into the region. Select has identified the following group of target industry sectors: Life Sciences, Financial Services, especially investment management, Information Technology (IT), Higher Education, Chemical Manufacturing, Transportation and Logistics, Advanced Manufacturing (e.g., aerospace, nanotechnology), Business Services, and Alternative Energy. The region is also highly suitable as a location for the US headquarters of foreign companies. Select is performing studies of specific target industry sectors over the next few years. The purposes of these special studies are to: describe the characteristics of each sector; identify the GPR's competitive strengths and weaknesses for each one; and estimate the sector's total contribution to the region's economy. The results of each sector study will be used to develop targeted business development and marketing activities.

Figure 1. Map of Colleges & Universities Regional Campuses



Source: Delaware Valley Regional Planning Commission & ESRI, 2006

The initial sector study for the region was The Greater Philadelphia Life Sciences Cluster – An Economic and Comparative Assessment, prepared by the Milken Institute in 2005. The study was a collaborative effort sponsored by PricewaterhouseCoopers, BioAdvance, Pennsylvania Bio, and the CEO Council for Growth. The results of this study are currently being used by Select to market the life sciences sector.

The next sector Select is examining is higher education. There are several reasons for this, including: the role that knowledge creation, innovation and human capital quality play in improving the economic performance of regional economies that compete globally; and the historic importance of colleges and universities in the region. Education has been an important part of the region in many ways – socially, economically, and culturally – since colonial times. Some of the higher education milestones in the region include:

- Philadelphia is home to the nation's oldest Quaker School, known as the William Penn Charter School, founded in 1689;
- The first public library, the Free Library of Philadelphia, was founded by Benjamin Franklin in 1731;
- University of Delaware was founded as a small private academy in 1743, it is one of the oldest land grant universities in the country;
- Princeton University was the fourth college established in the 13 colonies in 1746;
- Pennsylvania Hospital, founded by Benjamin Franklin and Thomas Bond, was the first hospital in America, it opened in 1751;

- University of Pennsylvania was the country's first true university, receiving this designation in 1779;
- Philadelphia is home to the nation's first medical school, first children's hospital, first cancer hospital, first college of pharmacy, first eye hospital, first nursing school and first dental school;
- The first art school and art museum in America, the Pennsylvania Academy of Fine Arts, was founded in Philadelphia in 1805; and
- Cheyney University of Pennsylvania is the country's oldest historically black college and university, founded in 1837. Lincoln University, another historically black institution of higher learning, was established in 1866.

These educational milestones demonstrate the historic importance and contribution of higher education to the region. Going forward colleges and universities will become an even more essential contributor to the GPR's economic performance.

Definition

For this study, an institution of higher education was defined as an accredited college or university that offered an associate degree or higher, or its equivalent, and that had a facility or campus in the region where classes are held. Online institutions, such as University of Phoenix, Strayer University and Thomas Edison State College, leaders in distance learning by public universities, are becoming increasingly popular. Their students can be located anywhere, reducing the amount of local spending and their economic impacts. To estimate the economic impacts of colleges and universities located in the region, including the spending by their students, Select attempted to determine each cyber university's enrollment in the region. As a result, Thomas Edison State College and the University of Phoenix were included in the study. Enrollment information from Strayer University was not available for the region.

Purpose

The purpose of Select's Higher Education Study is to describe the characteristics of colleges and universities in the GPR and estimate the total impacts of these institutions on the region's economy. More specifically, the study was intended to:

- Present the characteristics of the higher education sector, such as the number and types of schools, enrollment, number and types of degrees awarded, spending, employment, etc.;
- Compare the characteristics of the region's higher education sector to those of other MSAs;
- Estimate the direct economic effects of the colleges and universities from: general operating expenditures, spending by employees and students, visitors spending and capital projects;
- Determine the total impact of all the colleges and universities on the region's economy; and
- Describe the other ways in which institutions of higher learning contribute to long-term economic prosperity in the region.

Total economic impacts are estimated using the IMPLAN input/output (I/O) model of the 11-county GPR. The study also presents examples of the programs and partnerships that local colleges and universities sponsor or participate in that promote economic prosperity within their

host communities and throughout the region. These programs also enhance the quality of life in the region in many ways.

Methodology

This section describes the methodology and data sources used by Select to analyze the region's higher education sector. The approach was to first obtain information from existing sources, such as the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System, widely known as IPEDS. Information was compiled for the individual schools, and then Select conducted a survey to obtain information that was not available from primary data sources.

In the Fall 2006, Select identified 88 colleges and universities in the GPR that met the study's definition of higher education presented above. These schools are presented in Table 1, along with their total, full-time, part-time and full-time equivalent (FTE) enrollments. The list of schools was compiled from various sources, including: an earlier study completed by the Pennsylvania Economy League, (Eastern Division, 2001) IPEDS database, the GPCC's Regional Colleges and Universities Presidents' Council and its list of schools; and internet research.* Table 2 presents the associate, bachelor, and advanced degrees awarded by the 88 institutions during the 2004/05 academic year.

Base Year

The base year for the study was the 2005/06 academic year as this was the most recent year for which data was available from IPEDS. However, some data from it, such as the number and type of degrees awarded, were available only for the 2004/05 academic year. Information for the 2005/06 academic year became increasingly available in IPEDS during 2007 and was used as appropriate.

Existing Data Sources

The study included 88 colleges and universities, shown in Table 1. Select made maximum use of existing data sources, primarily information contained in the IPEDS database. The advantages of using the IPEDS database is that information submitted is based on a common definition, it is in the same format and it is for the same year. These attributes enable valid, direct comparisons for the same variables (e.g., enrollment, operating expenses, degrees, employment, etc.) to be made across schools.

* Several new schools began operating in the region in 2007. This study considers only the 88 for which data was available.

Table 1. List of Greater Philadelphia Institutions & Enrollment (Fall 2005)

Institution Name	Total	Full-time	Part-time	FTE	Institution Name	Total	Full-time	Part-time	FTE
Academy of Vocal Arts	27	27	-	27	Moore College of Art and Design	493	423	70	446
American College	790	-	790	263	Neumann College	2,810	1,944	866	2,233
Arcadia University	3,407	2,183	1,224	2,591	Peirce College	1,971	825	1,146	1,207
Art Institute of Philadelphia	3,373	2,427	946	2,742	Pennco Tech	1,014	693	321	800
Biblical Theological Seminary	299	166	133	210	Pennsylvania Academy of the Fine Arts	281	256	25	264
Bryn Athyn College of the New Church	160	145	15	150	Pennsylvania College of Optometry	1,299	632	667	854
Bryn Mawr College	1,799	1,571	228	1,647	Pennsylvania Institute of Technology	384	270	114	308
Bucks County Community College	9,596	3,990	5,606	5,859	Pennsylvania State University	6,017	3,842	2,175	4,567
Burlington County College	7,888	3,888	4,000	5,221	Philadelphia Biblical University-Langhorne	1,409	991	418	1,130
Cabrini College	2,318	1,632	686	1,861	Philadelphia College of Osteopathic Medicine	1,772	1,498	274	1,589
Calvary Baptist Theological Seminary	160	53	107	89	Philadelphia University	3,193	2,656	537	2,835
Camden County College	14,737	7,249	7,488	9,745	Princeton Theological Seminary	734	611	123	652
Chestnut Hill College	1,719	920	799	1,186	Princeton University	6,773	6,773	-	6,773
Cheyney University of Pennsylvania	1,560	1,355	205	1,423	Reconstructionist Rabbinical College	79	75	4	76
CHI Institute	1,355	948	407	1,084	Rider University	5,552	3,903	1,649	4,453
Community College of Philadelphia	17,102	5,188	11,914	9,159	Rosemont College	1,048	491	557	677
Curtis Institute of Music	163	163	-	163	Rowan University	9,762	7,489	2,273	8,247
Delaware College of Art and Design	179	156	23	164	Rutgers University-Camden	5,321	3,683	1,638	4,229
Delaware County Community College	10,627	4,430	6,197	6,496	Saint Charles Borromeo Seminary-Overbrook	334	155	179	215
Delaware Technical and Community College-Stanton-Wilmington	7,473	2,767	4,706	4,336	Saint Joseph's University	7,714	4,648	3,066	5,670
Delaware Valley College	2,064	1,612	452	1,763	Salem Community College	1,251	598	653	816
DeSales University	N/A	N/A	N/A	N/A	Strayer University	N/A	N/A	N/A	N/A
DeVry University-Pennsylvania	1,162	505	657	724	Swarthmore College	1,479	1,472	7	1,474
Drexel University	18,466	13,627	4,839	15,240	Talmudical Yeshiva of Philadelphia	111	111	-	111
Eastern University	3,702	2,736	966	3,058	Temple University	33,695	25,634	8,061	28,321
Gloucester County College	6,022	3,205	2,817	4,144	The College of New Jersey	6,768	5,856	912	6,160
Goldey-Beacom College	1,263	707	556	892	The Restaurant School at Walnut Hill College	631	631	-	631
Gratz College	338	26	312	130	The University of the Arts	2,277	2,172	105	2,207
Gwynedd Mercy College	2,723	1,437	1,286	1,866	Theological Seminary of the Reformed Episcopal Church	18	17	1	17
Harcum College	787	512	275	604	Thomas Edison State College	1,469	-	1,469	490
Haverford College	1,168	1,168	-	1,168	Thomas Jefferson University	2,681	1,973	708	2,209
Holy Family University	3,455	1,504	1,951	2,154	University of Delaware	20,982	17,956	3,026	18,965
Hussian School of Art	155	155	-	155	University of Medicine and Dentistry of New Jersey	665	665	-	665
Immaculata University	4,019	785	3,234	1,863	University of Pennsylvania	23,704	19,771	3,933	21,082
ITT Technical Institute	330	260	70	283	University of Phoenix-Philadelphia Campus	1,694	1,694	-	1,694
JNA Institute of Culinary Arts	65	59	6	61	University of the Sciences in Philadelphia	2,808	2,493	315	2,598
Katharine Gibbs School	386	337	49	353	Ursinus College	1,571	1,552	19	1,558
La Salle University	6,138	3,665	2,473	4,489	Valley Forge Christian College	934	847	87	876
Lincoln Technical Institute	654	565	89	595	Valley Forge Military College	165	165	-	165
Lincoln University of Pennsylvania	2,278	2,055	223	2,129	Villanova University	10,367	7,856	2,511	8,693
Lutheran Theological Seminary at Philadelphia	312	132	180	192	West Chester University	12,988	10,360	2,628	11,236
Manor College	802	453	349	569	Westminster Theological Seminary	799	330	469	486
Mercer County Community College	8,928	3,404	5,524	5,245	Widener University (includes Law School)	5,760	3,609	2,151	4,326
Montgomery County Community College	10,874	4,761	6,113	6,799	Wilmington College	7,911	3,413	4,498	4,912
					Totals	359,511	233,961	125,550	275,811

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).
<http://nces.ed.gov/ipeds/>

Information was obtained from other direct sources including: documents on school Web sites such as budgets, common data sets, capital facilities plans, profiles, and other descriptive materials; economic impact studies prepared by schools and organizations in and out of the region; surveys of student spending; and miscellaneous sources such as newspaper and magazine articles. To minimize the effort required to respond to the survey, detailed profiles from IPEDS for every institution were assembled using the most recent information available and were sent to each institution with the survey. When the survey was distributed in the Winter of 2007, this was the most recent academic year for which the full range of IPEDS data was available.

Post-secondary institutions participating in any federal student financial assistance programs are required to annually complete a detailed survey and submit it to the U.S. Department of Education under Title IV of the Higher Education Act of 1965. The post-secondary institutions required to do so include not only those offering an associate degree or higher, but also private, less than 2-year institutions that offer certificates. Institutions that do not have a Program Participation Agreement (PPA) with the U.S. Department of Education, which governs their participation in federal student financial aid programs, are not required to submit data to IPEDS,

but many of them do. There were a total of 7,018 post secondary institutions listed in the IPEDS database for the 2005/06 academic year.

Table 2. Degrees Granted (2004/05 Academic Year)

Institution Name	Degrees by Level			Institution Name	Degrees by Level		
	Assoc	Bach	Advan		Assoc	Bach	Advan
Academy of Vocal Arts	N/A	N/A	-	Peirce College	143	230	-
American College	-	-	28	Pennco Tech	71	-	-
Arcadia University	-	381	452	Pennsylvania Academy of the Fine Arts	-	-	17
Art Institute of Philadelphia	347	206	-	Pennsylvania College of Optometry	-	141	347
Biblical Theological Seminary	-	-	82	Pennsylvania Institute of Technology	61	N/A	-
Bryn Athyn College of the New Church	17	20	3	Pennsylvania State University	66	526	404
Bryn Mawr College	-	320	142	Philadelphia Biblical University-Langhorne	-	298	85
Bucks County Community College	786	N/A	-	Philadelphia College of Osteopathic Medicine	-	-	388
Burlington County College	694	N/A	-	Philadelphia University	4	508	187
Cabrini College	-	339	140	Princeton Theological Seminary	-	-	252
Calvary Baptist Theological Seminary	-	-	18	Princeton University	-	1,145	680
Camden County College	1,189	N/A	-	Reconstructionist Rabbinical College	-	-	10
Chestnut Hill College	1	182	180	Rider University	17	834	278
Cheyney University of Pennsylvania	-	139	50	Rosemont College	-	135	137
CHI Institute	136	-	-	Rowan University	-	1,679	319
Community College of Philadelphia	1,452	N/A	-	Rutgers University-Camden	-	831	492
Curtis Institute of Music	-	27	4	Saint Charles Borromeo Seminary-Overbrook	-	12	43
Delaware College of Art and Design	46	N/A	-	Saint Joseph's University	12	918	836
Delaware County Community College	867	N/A	-	Salem Community College	80	N/A	-
Delaware Technical and Community College-Stanton-Wilmington	508	N/A	-	Strayer University	-	-	-
Delaware Valley College	12	281	20	Swarthmore College	-	395	-
Desales University	-	-	-	Talmudical Yeshiva of Philadelphia	-	17	-
DeVry University-Pennsylvania	18	61	18	Temple University	8	4,263	2,720
Drexel University	7	2,231	1,622	The College of New Jersey	-	1,415	357
Eastern University	22	543	413	The Restaurant School at Walnut Hill College	176	17	-
Gloucester County College	482	N/A	-	The University of the Arts	-	406	102
Goldie-Beacom College	45	193	136	Theological Seminary of the Reformed Episcopal Church	-	-	5
Gratz College	-	5	204	Thomas Edison State College	34	236	10
Gwynedd Mercy College	191	360	154	Thomas Jefferson University	4	311	405
Harcum College	153	N/A	-	University of Delaware	14	3,602	886
Haverford College	-	278	-	University of Medicine and Dentistry of New Jersey	-	-	242
Holy Family University	23	346	286	University of Pennsylvania	2	2,854	3,844
Hussian School of Art	33	N/A	-	University of Phoenix-Philadelphia Campus	-	120	159
Immaculata University	35	482	151	University of the Sciences in Philadelphia	-	154	362
ITT Technical Institute	93	N/A	-	Ursinus College	3	324	-
JNA Institute of Culinary Arts	17	N/A	-	Valley Forge Christian College	11	116	-
Katharine Gibbs School	179	N/A	-	Valley Forge Military College	60	N/A	-
La Salle University	30	883	450	Villanova University	4	1,850	1,048
Lincoln Technical Institute	238	N/A	-	West Chester University	-	2,020	505
Lincoln University of Pennsylvania	-	240	128	Westminster Theological Seminary	-	-	91
Lutheran Theological Seminary	-	-	68	Widener University (includes Widener Law School)	24	573	845
Manor College	124	N/A	-	Wilmington College	34	810	1,077
Mercer County Community College	773	N/A	-	Totals	10,328	34,764	22,077
Montgomery County Community College	965	-	-	1. Degree information is for the 2004/05 Academic year			
Moore College of Art and Design	-	112	-	2. Institutions listed above are those offering an Associate's Degree or Higher			
Neumann College	17	395	195	3. Advanced degrees include first professional, master, and doctoral degrees			

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).
<http://nces.ed.gov/ipeds/>

Survey

The survey was designed to obtain information from individual schools that was not available on IPEDS or from other sources, including: enrollment characteristics, share of local purchases of goods and services, number and type of employees, wages paid, student spending, degrees by program area, recent and proposed capital projects, number of campus visitors, and examples of economic development programs and partnerships. A copy of the survey form is presented in Appendix A. Letters were sent to the college presidents asking them to identify a contact person at their schools who should receive the survey. The contact person identified, in most

cases, was the director of institutional research, especially at the larger schools, or a similar position at the smaller schools. The surveys were emailed in the Winter 2007, and included the detailed IPEDS profile for each school year for the 2004/05 academic year. Respondents were instructed to indicate if the 2004/05 IPEDS data was accurate and to provide only updated information for the 2005/06 academic year if available, and also to attempt to answer the remaining questions not covered by IPEDS. Finally, respondents were asked to provide any existing materials that would enable Select to answer some of the survey questions such as 2005/06 budgets, common data sets, impact assessments, profiles, etc., and many schools provided these materials.

The responses to the surveys were used as primary data inputs in estimating the economic impacts, with the IPEDS information used as the default values when no response was received. Fifty-one schools replied for a response rate of 58%; primarily from the larger colleges and universities with institutional research departments. Many smaller schools said that the IPEDS information could be used.

The IMPLAN Model and Economic Impacts

The primary purpose of the study was to estimate the aggregate economic impact of annual spending by the 88 institutions on the region's economy. The IMPLAN Professional Version 2.0 input/output (I/O) model was used to estimate the total economic impacts of the following direct economic effects:

- Annual purchases of goods and services made from the operating budget;
- Annual spending of disposable income by employees of the schools; and
- Annual spending by students, excluding payments made directly to the schools for tuition, room and board, fees, etc.

A separate analysis was prepared of the economic impacts of proposed level of annual spending for capital projects.

Select obtained economic data for the 11-county region and the IMPLAN software then created the I/O model that would translate the direct economic effects into total economic impacts. Four versions of the IMPLAN model were created to reflect the different expenditure levels per employee of the region's colleges and universities.

Lack of survey responses to certain questions indicated that accurate, recent information across all 88 schools suitable for use in an economic impact study might not be available for some of the questions posed. Specifically, Select was uncertain if good information could be obtained for:

- Number and types of campus visitors, and their related spending;
- Student spending, both the level per semester by housing type (i.e., live on or off campus, or commutes), and the spending shares by type of goods and services purchased;
- Proportion of graduates living in the region three years after graduation;
- Share of purchases of goods and services made from companies located in the region; and
- Historic and proposed spending on capital projects.

Data Gaps

Another purpose of the study was to determine what other types of data, in addition to information in published data sources, is compiled by the region's colleges and universities that could be used to estimate the economic impacts. The survey responses indicated the following data gaps, defined as information that could be used to more accurately assess economic impacts, but which is not consistently available across all the schools.

- **Number of and Spending by Campus Visitors.** Information on the number and types of campus visitors is very difficult for schools to track. Most of them have only an approximate idea of the number of visitors they attract. Schools generally have good data on the number of attendees at events for which they charge admission, but it is difficult for them to estimate visitors to free events such as festivals. The Admissions Office usually has accurate information on the number of students and parents making official visits to campus during the college application process and for orientation programs. Data on the number of participants in executive seminars, academic conferences, on-campus sports programs during the summer, class reunions, etc., if tracked, is available only from the individual departments that sponsor each program, making it time consuming to compile. Finally, most campuses are quite open, making it difficult to distinguish visitors from all the other students and employees who travel to and from campus every day. While Select could not prepare a reliable enough estimate of the direct visitor spending to be used in the IMPLAN model, Select does provide a range of possible direct spending by visitors below based on results of other recent studies.
- **Student Spending.** Most schools have a good idea of the annual spending by students living on and off campus, principally because this information must be reported to IPEDS and is needed to estimate financial aid packages. The responses tended to cluster by total spending per semester, and the consensus values generally agreed with estimates from the literature. However, little survey-based information was available on differences in spending characteristics between off-campus students living away from home and those living at home. While enough responses were received to determine annual student spending impacts across all 88 schools, additional research would enable these impacts to be more accurately estimated.
- **Share of Graduates Remaining in the Region.** An important concern in recent years has been the college graduate "brain drain" – the perception that large numbers of the region's college students leave upon graduation and move to cities such as New York, Boston, and Washington D.C., to find jobs. For this reason, schools were asked about the share of their graduates who live in the region three years later. This information is difficult to compile, especially if graduates do not join alumni associations or otherwise stay in contact with their alma maters by donating money, etc. The responses showed that high shares of the graduates from Research and Development Universities, the two Ivy League schools, and the highly ranked Liberal Arts schools, leave after graduation. However, high shares of the graduates from public universities, including the Community Colleges, remain after three years. A survey-based study would yield useful information for better understanding the extent of this issue.

There are two effects that can offset the "brain drain". First, many students raised in the region who went to college elsewhere, return after graduation, raising the level of educational attainment and the quality of the labor force. This study did not measure the

extent to which students raised here return after graduation. Second, students from other areas who come here for college and return home after graduation, become part of the alumni network of each school. As their careers progress, they are often in a position to direct investment and business activities into the GPR based on their connections with faculty and classmates, along with referring prospective, high achieving students here. They also contribute to their alma maters' endowment funds, which benefits schools in many ways, such as paying for new facilities, supporting R&D activities, endowing professorships and increasing the amount of annual income available to support operations.

- **Local Purchases of Goods and Services.** Most of the respondents had reasonably accurate estimates of the share of goods and services their institutions purchase from companies located in the region. Many of them have programs, and made special efforts, to include qualified local firms on their bid lists. Most of the goods and services that colleges and universities use for daily operations can usually be obtained from within the region. However, some specialized services (e.g., legal, accounting, financial, etc.) and equipment may need to be purchased from outside the region. The multipliers contained in the IMPLAN model used to estimate the total economic impacts are based on the shares of goods and services that can be obtained from within the region.

Finally, a good response was received for information on capital projects, especially for those proposed to be finished or started over the next five years. However, plans are still being finalized for many of the proposed projects as most schools are in the process of raising money for them, developing designs to estimate costs more accurately, acquiring real estate, and retaining architects and engineers. Due to the confidential nature of the planning process, some schools requested that Select not present specific cost estimates of proposed capital projects by individual school. The results are presented in the Total Economic Impacts Section in a separate analysis of the economic impacts of the likely annual level of construction spending for proposed projects across all schools using the IMPLAN model.

Characteristics

Figure 1 shows the location of the region's 88 institutions. Large universities are concentrated in urban areas such as Camden, Philadelphia, and Wilmington, yet community and liberal arts institutions are prominent in suburban areas. Within in the past six months, Gywnedd Mercy College, DeSales University, and Temple University have added or expanded their satellite campuses, which is a growing trend. Satellite campuses are important because they provide more opportunities for workforce development and continuing education to residents of the region.

Enrollment & Degrees Awarded

Information about enrollment and degrees granted was obtained from the survey for the 2004/05 academic year and from the IPEDS database for Fall 2005. Survey results were compared to IPEDS data for consistency. IPEDS figures were used as the primary source of enrollment data for most schools, supplemented by survey results when available. The total Full-Time Equivalent (FTE) enrollment was calculated by adding the number of full-time students and one-third times the number of part time students; the formula is commonly used to derive FTE enrollment. The FTE figure represents what the enrollment would be if the total number of unduplicated students, both full and part-time, were all attending full time. Both total enrollment and FTE enrollment were for the Fall 2005 semester, which is consistent with the study's base year.

Table 1 presents the following enrollments for the Fall 2005: 233,961 full-time students; 125,550 part-time, for a total of 275,811 FTE students. Total unduplicated enrollment was 359,511 students. The five largest institutions accounted for 32% of the region's total FTE enrollment. Temple University, with a FTE enrollment of 33,000 students, was the largest school in the GPR. The ten Community Colleges registered 94,498 students representing 26.3% of the region's total unduplicated enrollment. Survey responses indicate that many students attend Community College to obtain certificates, initial degrees, or for continuing education to upgrade their skills.

As part of the Select survey, college and university researchers were asked to provide the percentage of degrees conferred in the following categories: Business & Finance, Computer Science & Information Technology, Education, Engineering, Liberal Arts, Physical & Natural Sciences, Other, and Total Degrees. These categories were chosen for consistency with the IPEDS degree classifications. Select analyzed degree data for the 2004/05 academic year from IPEDS because it was the most current data set available, and because it is comparable across schools. Information on certificates and degrees awarded by area of study and type is presented in Table 3. The total number of degrees by type shown in Table 3 varies slightly from the figures in Table 2 because of minor variations in IPEDS reporting by individual school.

Table 3. Certificates and Degrees Awarded by Area of Study and Type (2004/05 Academic Year)

Description	Associate degrees	2 but less than 4 academic years	Bachelor's degrees	Postbaccalaureate certificates	Master's degrees	Post-master's certificates	Doctorate degrees	First-prof degrees	First-prof certificates	Total by First Major
Agriculture related sciences	26	-	263	-	15	-	4	-	-	313
Natural resources conservation	4	-	89	-	33	-	1	-	-	127
Architecture related services	14	-	245	-	211	16	13	-	-	499
Area, ethnic, cultural, gender studies	6	-	178	2	55	-	19	-	-	260
Communication, journalism, related programs	89	-	1,428	14	128	-	16	-	-	1,677
Communications technologies/technicians support services	37	-	8	-	-	-	-	-	-	55
Computer and information sciences support services	423	-	1,185	2	413	-	18	-	-	2,249
Personal culinary services	276	-	23	-	-	-	-	-	-	374
Education	662	-	3,090	90	4,373	57	265	-	-	8,575
Engineering	63	-	1,584	12	797	-	198	-	-	2,656
Engineering technologies/technicians	356	8	68	-	40	-	-	-	-	632
Foreign languages, literatures, linguistics	4	-	389	-	97	-	45	-	-	552
Family consumer sciences/human sciences	93	-	240	-	9	-	3	-	-	346
Legal professions studies	174	-	98	-	224	-	4	1,472	-	2,033
English language literature/letters	7	-	1,559	-	169	-	36	-	-	1,794
Liberal arts and sciences, general studies humanities	2,778	-	743	2	134	-	-	-	-	3,658
Library science	-	-	-	-	114	-	-	-	-	114
Biological biomedical sciences	21	-	1,358	4	339	-	140	-	-	1,862
Mathematics statistics	11	-	321	-	115	-	34	-	-	482
Military technologies	-	-	-	-	-	-	-	-	-	-
Multi/interdisciplinary studies	61	-	627	2	158	6	29	-	-	887
Parks, recreation, leisure, fitness studies	8	-	320	-	55	-	1	-	-	394
Philosophy religious studies	-	-	555	-	53	-	50	-	-	678
Theology religious vocations	8	-	148	51	248	-	68	380	1	933
Physical sciences	9	-	444	-	171	-	131	-	-	755
Science technologies/technicians	10	-	-	-	-	-	-	-	-	12
Psychology	80	-	1,892	1	472	40	183	-	-	2,668
Security protective services	553	-	806	-	154	-	5	-	-	1,768
Public administration social service professions	71	-	369	1	876	-	17	-	-	1,335
Social sciences	42	-	2,954	3	302	1	128	-	-	3,431
Construction trades	10	-	-	-	-	-	-	-	-	274
Mechanic repair technologies/technicians	319	47	-	-	-	-	-	-	-	1,330
Precision production	8	-	-	-	-	-	-	-	-	21
Transportation materials moving	5	-	11	-	-	-	-	-	-	16
Visual performing arts	547	40	2,379	7	307	-	42	-	-	3,347
Health professions related clinical sciences	1,931	-	2,374	184	1,581	20	483	1,960	12	9,749
Business, management, marketing, related support services	1,582	-	7,905	106	4,281	23	32	-	-	14,149
History	-	-	917	-	85	-	34	-	-	1,036
Undesignated field of study	-	-	-	-	-	-	-	-	-	-
Total by Level	10,288	95	34,570	481	16,009	163	1,999	3,812	13	71,041

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).
<http://nces.ed.gov/ipeds/>

Note: The totals by first major include certificates below an Associate degree and they are not shown in the Table.

Regional schools granted 67,430 associate and higher certificates and degrees. Top majors were in the education, business and health fields, which granted over 43% of all degrees, consistent with the largest regional employment sectors. The list below describes some of the region's highly ranked schools and the distribution of degrees awarded in those subject areas:

- The five most popular majors by share of associate and higher certificates and degrees awarded were: Business and Management – 20.7%; Health Professions – 12.7%; Education – 12.7%; Liberal Arts and Sciences – 5.4%; and Social Sciences – 5.1%. The region is home to two of the top five national universities according to *U.S. News and World Report* magazine's 2008 college rankings: Princeton University – 1st and University of Pennsylvania – 5th.

- In Science, Technology, Engineering and Math (STEM) majors, the shares of associate and higher degrees awarded were: Engineering – 3.9%; Biological and Biomedical Sciences – 2.8%; Physical Sciences – 1.1%; and Mathematics and Statistics – 0.7%;
- Liberal Arts accounted for 5.4% of associate and higher degrees awarded. This relatively high percent is due to the presence of top ranked Liberal Arts Colleges. Swarthmore College, Haverford College, and Bryn Mawr College ranked in the top 25 Liberal Arts Colleges in the country in *U.S. News & World Report's* most recent ranking released in mid August 2007. Villanova University was ranked number one in the category of Best Universities – Master's in the North Region;
- Health & health related professions accounted for 12.7% of associate and higher degrees. A total of 1,960 first professional degrees were awarded in the Health Professions and Clinical Sciences, which includes degrees in Medicine, Pharmacy, Chiropractic, Dentistry, Podiatry, Optometry, Osteopathic Medicine and Veterinary Medicine. The University of Pennsylvania's medical research program ranked third in the country and the school was rated first for pediatric medicine. The University of the Sciences' Philadelphia College of Pharmacy was also rated among the top 25 in the country by *U.S. News & World Report*; and
- The region awarded 9,494 associate and higher degrees in engineering, IT, and technical fields. Top engineering programs in the region include the University of Delaware's rating as the sixth best graduate chemical engineering school in the world by The Gourman Report. Rowan University is ranked as the second best undergraduate chemical engineering school in the country by U.S. News and World Report. Drexel University's College of Engineering has the third largest engineering program at a private institution in the country, and its Materials Engineering Program is ranked nationally.

Table 4 shows the percent shares of associate and higher certificates and degrees awarded in the region by first major, or area of study, compared to US shares. The purpose of the table is to determine whether the GPR awards an above-average or below-average share of certificates and degrees, in an individual area of study, such as the field of computer and information sciences. The term Location Quotient (LQ) presented in column 5 of Table 4 is the ratio of the region's share of total certificates and degrees awarded in a single first major over the US share of total awards in the same first major. For example, 12.7% of the GPR's awards were for health professions compared to 10.6% for the US. The location quotient is the ratio of 12.7/10.6 or 1.2. A LQ value greater than 1.0 indicates that the GPR awards an above-average share of certificates and degrees in the specific first major, and vice versa. GPR colleges and universities granted an above-average number of degrees in the following areas of study:

- Philosophy and religious studies;
- Theology and religious vocations;
- Architecture;
- Legal Professions and studies;
- History;
- Visual and performing arts; and
- Health professions.

In each of these areas of study, the LQ value was 1.2 or higher, meaning that the share of degrees awarded in this major by colleges and universities in the GPR was at least 20% greater than the US share for the same major. These high shares are consistent with both the region's concentration of economic activity in the legal and health care fields, and with the large numbers of Liberal Arts and Special Focus Institutions in the region. The GPR also had above average

shares of certificates and degrees in several other majors that are important sources of educated workers for the region's economy: business, management and marketing; engineering and education. Shares for mathematics and statistics, and biological and biomedical sciences were right at the US average. By contrast, the region awarded below average shares in such fields as: computer and information sciences, construction, precision production, transportation and materials moving, and mechanic and repair technologies.

Table 4. Shares of Associate and Higher Certificates and Degrees by First Major (2005/06 Academic Year)

CIP Code	Area of First Major	GPR%	US%	Location Quotient	Rank
1	Agriculture, agriculture operations, and related sciences	0.5%	0.8%	0.59	28
3	Natural resources and conservation	0.2%	0.4%	0.43	31
4	Architecture and related services	0.7%	0.5%	1.39	3
5	Area, ethnic, cultural, and gender studies	0.4%	0.3%	1.15	10
9	Communication, journalism, and related programs	2.5%	2.8%	0.88	21
10	Communications technologies/technicians and support services	0.1%	0.2%	0.27	34
11	Computer and information sciences and support services	3.0%	3.8%	0.79	22
12	Personal and culinary services	0.4%	0.7%	0.59	27
13	Education	12.7%	10.8%	1.17	9
14	Engineering	3.9%	3.7%	1.07	14
15	Engineering technologies/technicians	0.7%	1.8%	0.38	32
16	Foreign languages, literatures, and linguistics	0.8%	0.8%	0.95	20
19	Family and consumer sciences/human sciences	0.5%	1.1%	0.47	30
22	Legal professions and studies	2.9%	2.1%	1.39	4
23	English language and literature/letters	2.6%	2.2%	1.19	8
24	Liberal arts and sciences, general studies and humanities	5.4%	9.8%	0.55	29
25	Library science	0.2%	0.2%	0.76	24
26	Biological and biomedical sciences	2.8%	2.7%	1.00	19
27	Mathematics and statistics	0.7%	0.7%	1.01	17
29	Military technologies	0.0%	0.1%	0.00	38
30	Multi/interdisciplinary studies	1.3%	1.7%	0.77	23
31	Parks, recreation, leisure, and fitness studies	0.6%	0.9%	0.60	26
38	Philosophy and religious studies	1.0%	0.5%	2.00	1
39	Theology and religious vocations	1.3%	0.9%	1.54	2
40	Physical sciences	1.1%	1.0%	1.08	13
41	Science technologies/technicians	0.0%	0.1%	0.29	33
42	Psychology	4.0%	3.8%	1.03	15
43	Security and protective services	2.3%	2.1%	1.10	11
44	Public administration and social service professions	2.0%	1.9%	1.02	16
45	Social sciences	5.1%	5.1%	1.01	18
46	Construction trades	0.0%	0.2%	0.09	37
47	Mechanic and repair technologies/technicians	0.5%	0.8%	0.66	25
48	Precision production	0.0%	0.1%	0.14	35
49	Transportation and materials moving	0.0%	0.3%	0.09	36
50	Visual and performing arts	4.9%	4.1%	1.21	6
51	Health professions and related clinical sciences	12.7%	10.6%	1.20	7
52	Business, management, marketing, and related support services	20.7%	19.1%	1.08	12
54	History	1.5%	1.2%	1.28	5

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).

<http://nces.ed.gov/ipeds/>

CIP = Classification of Instructional Programs

Carnegie Classification

The Carnegie Foundation's Commission on Higher Education created the initial Classification System for institutions of higher education in 1970. It has been the traditional Classification System used since then for research in higher education. The Carnegie Classification System was most recently updated in 2005. The "basic" classification from the 2005 update was used

as given for each of the 88 schools in the IPEDS database to describe the characteristics of the GPR's higher education sector. IPEDS data for the 2004/05 and 2005/06 academic years was extracted and analyzed according the Carnegie Classification, including a comparison to the US for such attributes as distribution of schools by Carnegie Classification System, FTE enrollment, and core operating expenditures. Table 5 shows the distribution of 90 campuses, noting that the three branch campuses of the Pennsylvania State University are classified individually, by Carnegie Classification compared to the US.

Table 5 shows that the region has 25 Master's Colleges and Universities making it the most common type of school. The prevalence of Master's Colleges is due to the large number of schools that offer master's degrees in education, business, engineering, health, etc. With the presence of Research Universities such as Drexel University, Princeton University, Temple University, University of Delaware, and the University of Pennsylvania, the region also has an above average share of high and very high research universities when compared to the US. Special focus institutions comprise just over 25% of total GPR schools, again well above US shares. Special Focus Institutions offer a concentration of degrees in a single field or a set of related fields such as arts, music, and drama.

Table 5. GPR & US Schools by Carnegie Classification (2005/06 Academic Year)

2005 Basic Carnegie Classification Type	Number of schools in the GPR	GPR %	US %*
Associate's--Private For-profit	8	8.9%	11.9%
Associate's--Private Not-for-profit	4	4.4%	2.6%
Associate's--Public Rural-serving Large	1	1.1%	3.3%
Associate's--Public Suburban-serving Multicampus	4	4.4%	2.2%
Associate's--Public Suburban-serving Single Campus	3	3.3%	0.8%
Associate's--Public Urban-serving Multicampus	1	1.1%	3.5%
Associate's--Public Urban-serving Single Campus	1	1.1%	0.8%
Baccalaureate Colleges--Arts & Sciences	8	8.9%	6.3%
Baccalaureate Colleges--Diverse Fields	3	3.3%	7.9%
Baccalaureate/Associate's Colleges	1	1.1%	2.8%
Doctoral/Research Universities	3	3.3%	1.9%
Master's Colleges and Universities (larger programs)	13	14.4%	8.1%
Master's Colleges and Universities (medium programs)	11	12.2%	4.6%
Master's Colleges and Universities (smaller programs)	1	1.1%	3.3%
Research Universities (high research activity)	2	2.2%	2.4%
Research Universities (very high research activity)	3	3.3%	2.2%
Special Focus Institutions--Medical schools and medical centers	3	3.3%	1.3%
Special Focus Institutions--Other health professions schools	2	2.2%	3.0%
Special Focus Institutions--Other special-focus institutions	1	1.1%	0.9%
Special Focus Institutions--Schools of art, music, and design	6	6.7%	2.4%
Special Focus Institutions--Schools of business and management	2	2.2%	1.5%
Special Focus Institutions--Theological seminaries, Bible colleges	9	10.0%	7.2%

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS). <http://nces.ed.gov/ipeds/>; The Carnegie Foundation for the Advancement of Teaching, 2005. The Carnegie Classification of Institutions of Higher Education.

*Note: Not all of the different types of institutions in the Carnegie Classification are present in the Greater Philadelphia Region; as a result the % shares for the US presented above will not sum to 100

Another way to evaluate the structure of the GPR's higher education sector is by examining the distribution of FTE enrollment; this analysis is presented in Table 6. Total enrollment in the GPR is concentrated in following Carnegie types:

- Research Universities, both High and Very High
- Master's Colleges and Universities – Large and Medium Programs, and
- Associate's – Public Suburban Serving Multicampus

These types of schools accounted for 70.5% of total FTE enrollment in the GPR in the Fall 2005. Based on the Location Quotient value shown in column 4 of Table 6, the region had the highest concentrations of FTE enrollment in the following five classes:

- Special Focus Institutions – Other Health Professions;
- Special Focus Institutions – Medical Schools and Medical Centers;
- Associate’s – Public Urban Serving a Single Campus;
- Special Focus Institutions – Schools of Art, Music, and Design; and
- Associates – Public Suburban Serving Multicampus.

Table 6. FTE Enrollment by Carnegie Classification (2005/06 Academic Year)

2005 Basic Carnegie Classification Type	GPR %	US %	Location Quotient
Associate's--Public Rural-serving Small	0.0%	0.7%	-
Associate's--Public Rural-serving Medium	0.0%	4.5%	-
Associate's--Public Rural-serving Large	1.9%	4.9%	0.39
Associate's--Public Suburban-serving Single Campus	4.2%	3.9%	1.08
Associate's--Public Suburban-serving Multicampus	10.0%	4.4%	2.27
Associate's--Public Urban-serving Single Campus	3.3%	1.3%	2.54
Associate's--Public Urban-serving Multicampus	1.6%	7.2%	0.22
Associate's--Public Special Use	0.0%	0.1%	-
Associate's--Private Not-for-profit	0.6%	0.3%	2.16
Associate's--Private For-profit	1.2%	1.9%	0.63
Associate's--Public 2-year colleges under 4-year universities	0.0%	0.7%	-
Associate's--Public 4-year Primarily Associate's	0.0%	0.7%	-
Associate's--Private Not-for-profit 4-year Primarily Associate's	0.0%	0.1%	-
Associate's--Private For-profit 4-year Primarily Associate's	0.0%	0.3%	-
Research Universities (very high research activity)	17.0%	16.0%	1.06
Research Universities (high research activity)	15.8%	10.7%	1.48
Doctoral/Research Universities	4.0%	5.4%	0.75
Master's Colleges and Universities (larger programs)	20.8%	17.1%	1.21
Master's Colleges and Universities (medium programs)	6.9%	5.1%	1.36
Master's Colleges and Universities (smaller programs)	0.8%	2.3%	0.35
Baccalaureate Colleges--Arts & Sciences	3.8%	3.3%	1.16
Baccalaureate Colleges--Diverse Fields	1.4%	3.7%	0.38
Baccalaureate/Associate's Colleges	0.3%	1.6%	0.16
Special Focus Institutions--Theological seminaries, Bible colleges, and other faith-related institutions	0.7%	0.6%	1.33
Special Focus Institutions--Medical schools and medical centers	1.6%	0.6%	2.55
Special Focus Institutions--Other health professions schools	1.3%	0.4%	3.11
Special Focus Institutions--Schools of engineering	0.0%	0.1%	-
Special Focus Institutions--Other technology-related schools	0.0%	0.3%	-
Special Focus Institutions--Schools of business and management	0.4%	0.6%	0.65
Special Focus Institutions--Schools of art, music, and design	2.2%	0.9%	2.49
Special Focus Institutions--Schools of law	0.0%	0.2%	-
Special Focus Institutions--Other special-focus institutions	0.2%	0.1%	2.03
Tribal Colleges	0.0%	0.1%	-

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).

<http://nces.ed.gov/ipeds/>; The Carnegie Foundation for the Advancement of Teaching, 2005. The Carnegie Classification of Institutions of Higher Education.

The FTE enrollment in Special Focus Institutions is consistent with the information in Table 4 showing the concentrations of awards in the health, fine arts, and humanities areas. Special focus institutions offer a concentration of degrees, usually both bachelor’s and advanced, in a single field or set of related fields, such as: art, music, design, law, medicine, theology, etc. Associate’s colleges, which are comprised primarily of the region’s ten Community Colleges,

accounted for 22.8% of total FTE enrollment, with a mix of campuses in urban and suburban areas. Associate's colleges play an increasingly important role in raising a region's level of educational attainment as they provide convenient access to an affordable higher education by residents with varying educational needs, such as: new high school graduates uncertain if they want to commit to a 2-year or 4-year degree program; persons who have difficulty paying high tuition costs; residents re-entering the labor force; and workers seeking continuing education to advance their careers. Community colleges also provide flexibility through 2+2 programs that enable their graduates to transfer their credits to 4-year institutions to pursue bachelors and higher degrees. Schools of all types partner with corporations to provide training for employers by offering industry-specific instruction, often at a company's location.

Total operating spending for all institutions was just under \$12.3 billion in the 2005/06 academic year, which includes expenditures by the associated medical schools and hospitals at Drexel University, Temple University and the University of Pennsylvania. Table 7 presents annual operating expenditures by Carnegie Classification. The table shows that spending is even more concentrated than enrollment. About 81.4% of total annual operating expenditures was by four classes of schools: Research Universities (very high research activity); Research Universities (high research activity); Master's College and Universities (larger programs); and Special Focus Institutions – Medical Schools and Medical Centers. By contrast, these four types of institutions accounted for only 55.2% of total FTE enrollment in the Fall 2005. The LQ values present relative shares of operations spending by class in the region compared to the US.

Table 7. Operating Expenditures by Carnegie Classification (2005/06 Academic Year)

2005 Basic Carnegie Classification	Annual Operating Expenditure	GPR %	US %	Location Quotient
Associate's--Public Rural-serving Large	\$ 51,434,472	0.4%	2.2%	0.19
Associate's--Public Suburban-serving Single Campus	\$ 101,443,758	0.8%	1.7%	0.49
Associate's--Public Suburban-serving Multicampus	\$ 266,962,693	2.2%	1.8%	1.18
Associate's--Public Urban-serving Single Campus	\$ 120,212,077	1.0%	0.6%	1.61
Associate's--Public Urban-serving Multicampus	\$ 57,852,564	0.5%	3.1%	0.15
Associate's--Private Not-for-profit	\$ 40,604,704	0.3%	0.2%	1.83
Associate's--Private For-profit	\$ 77,107,994	0.6%	1.7%	0.36
Research Universities (very high research activity)	\$ 5,746,098,000	46.7%	38.2%	1.22
Research Universities (high research activity)	\$ 2,409,615,000	19.6%	10.9%	1.79
Doctoral/Research Universities	\$ 250,382,576	2.0%	4.0%	0.50
Master's Colleges and Universities (larger programs)	\$ 1,159,486,861	9.4%	10.9%	0.87
Master's Colleges and Universities (medium programs)	\$ 361,202,163	2.9%	3.3%	0.90
Master's Colleges and Universities (smaller programs)	\$ 33,757,302	0.3%	1.7%	0.17
Baccalaureate Colleges--Arts & Sciences	\$ 398,978,835	3.2%	4.4%	0.74
Baccalaureate Colleges--Diverse Fields	\$ 69,918,838	0.6%	2.4%	0.24
Baccalaureate/Associate's Colleges	\$ 12,871,772	0.1%	0.9%	0.12
Special Focus Institutions--Theological seminaries, Bible colleges, and other faith-related institutions	\$ 151,865,107	1.2%	0.6%	2.17
Special Focus Institutions--Medical schools and medical centers	\$ 694,135,622	5.6%	5.5%	1.02
Special Focus Institutions--Other health professions schools	\$ 99,519,266	0.8%	0.7%	1.23
Special Focus Institutions--Schools of business and management	\$ 50,483,617	0.4%	0.3%	1.26
Special Focus Institutions--Schools of art, music, and design	\$ 130,769,512	1.1%	0.9%	1.23
Special Focus Institutions--Other special-focus institutions	\$ 7,807,089	0.1%	0.1%	0.48

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS). <http://nces.ed.gov/ipeds/>; The Carnegie Foundation for the Advancement of Teaching, 2005. The Carnegie Classification of Institutions of Higher Education.

Respondents were asked about the number of entering freshmen who are international students and the percentage of students who are still in the region three years after graduating. Low response rates suggest that this data is not often compiled by schools, in part because it is

difficult to gather, especially the share of students remaining in the region after graduation. Survey results show that the percentage of international students, entering as freshmen, ranged from 0% to 7%. Select analyzed the Fall 2005 IPEDS data on non-resident alien students as a share of total enrollment. They accounted for just over 4% or a total of 11,800 students. Some schools have very high shares of foreign students, including: Curtis Institute of Music – 44%; Academy of Vocal Arts – 26%; Princeton University – 18%; and the University of Pennsylvania – 16%. Foreign students usually have high levels of spending.

Responses for the number of students remaining in the region three years after graduation ranged from 35% to 100%. A survey conducted by the Center City District in October 2006, showed that the number of recent college graduates who lived outside the region and came back increased from 26% to 39% from 2003 to 2006 in Center City Philadelphia. In addition, 68% of those surveyed has a bachelor's degree or higher.

Comparison to Other Metropolitan Statistical Areas

This section compares the major characteristics of the GPR's higher education sector to those in the 24 other largest MSAs based on their 2005 populations. The comparison is presented for enrollment, revenue, and degrees for the 2004/05 or 2005/06 academic years as appropriate. Select obtained data from the following sources:

- Surveys;
- IPEDS database;
- The National Science Foundation (NSF);
- U.S. Census Bureau's Population Estimates; and
- U.S. Postal Service's Zip Code database.

Select analyzed information for all schools in the IPEDS database. An U.S. Census database of zip codes by MSA was used to assign each school to its correct MSA. The IPEDS definition of higher education is broader than the one Select used as it includes schools that offer certificates that can be completed in less than the two years required for an associate degree. Select subtracted data for Cecil County Community College to derive estimates for the GPR. As a result, the enrollment and degree totals presented in this section for the GPR are higher than those presented above in the characteristics section. By contrast, the operation spending figures for the GPR in this section are lower as IPEDS does not include spending by affiliated hospitals. Large online universities were excluded in several MSAs. For example, two online schools in the Phoenix MSA, who had a total FTE enrollment of more than 150,000 students, were excluded from this study. To enable comparisons to be made on a rate basis, the study used the 2005 Census population estimates to express variables on a per 10,000 residents basis. Maps were also created displaying the above information geographically.

R&D funding data was compiled from the National Science Foundation for the 2005/06 academic year. The NSF data was compared to figures provided in the surveys to check for consistency.

Comparisons of the GPR's higher education sector to other MSAs showed:

- In the Fall 2005, the region had the 4th highest total FTE enrollment, trailing only the New York, Los Angeles, and Chicago MSAs;
- The GPR conferred the 4th largest total number of associate and higher certificates and degrees in the 2005/2006 academic year;
- The GPR had the 5th highest enrollment rate, expressed as FTE's per 10,000 residents;
- The region had the 3rd highest level of annual operating spending per 10,000 residents trailing only Boston and Baltimore; and
- The GPR ranked 7th in overall R&D spending.

Enrollment & Degrees Awarded in Top MSAs

The GPR ranked 4th in total enrollment and 5th in FTE enrollment at a rate of 483.7 students per 10,000 residents as shown in Table 8. Total unduplicated enrollment (full-time and part-time enrollment combined) accounted for 5.3% of the US total, meaning about 1 in 20 students enrolled in the US attended a school in the region. The 294,651 FTE students attending the GPR's colleges and universities were equivalent to 5% of the region's total population in 2005.

Figure 2 displays total FTE enrollment for the large MSAs, while Figure 3 presents FTE enrollment per 10,000 residents. As expected, the most populous MSAs rank highest in terms of total FTE enrollment, but when expressed on rate basis, or FTE enrollment per 10,000 residents, the region had the 5th highest enrollment rate, above those for New York and Chicago.

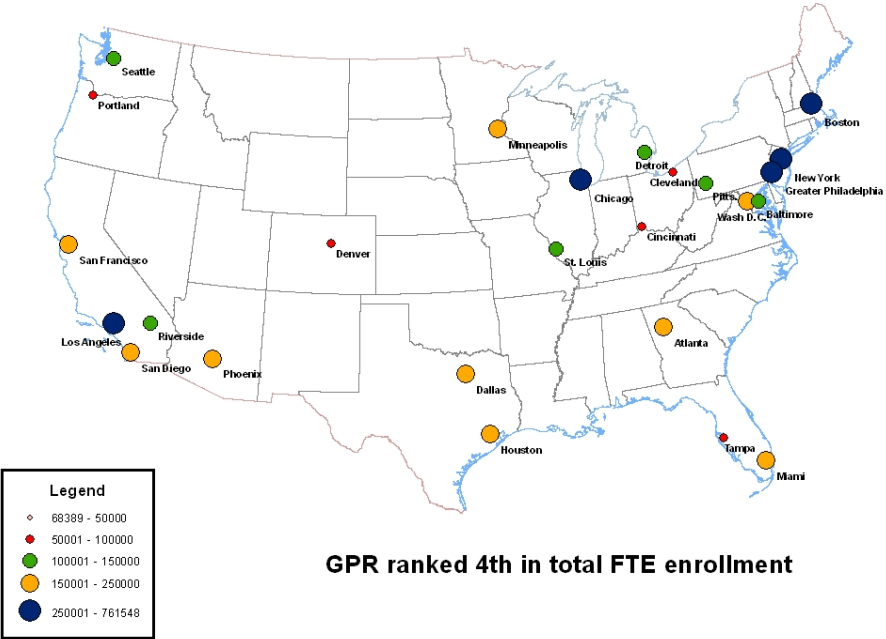
Table 8. Enrollment in the Large MSAs (2005/06 Academic Year)
(Metro areas listed in descending order of 2005 population)

MSAs	Enrollment				FTE Enrollment Rate		
	Full-Time	Part-Time	FTE	Rank	July 1, 2005 Population	FTE per 10,000 Residents	Rank
New York	648,494	339,162	761,548	1	18,747,320	406.2	16
Los Angeles	487,642	449,346	637,424	2	12,923,547	493.2	3
Chicago	301,287	260,815	388,225	3	9,443,356	411.1	15
Greater Philadelphia	248,573	138,235	294,651	4	6,092,015	483.7	5
Dallas	150,764	132,970	195,087	9	5,819,475	335.2	20
Miami	162,423	150,497	212,589	7	5,422,200	392.1	17
Houston	124,290	119,465	164,112	11	5,280,077	310.8	23
Washington D.C.	167,399	154,016	218,738	6	5,214,666	419.5	13
Atlanta	132,432	62,568	153,288	13	4,917,717	311.7	22
Detroit	94,212	101,912	128,183	16	4,488,335	285.6	24
Boston	228,835	106,999	264,501	5	4,411,835	599.5	1
San Francisco	153,146	153,883	204,440	8	4,152,688	492.3	4
Riverside	84,610	78,997	110,942	20	3,909,954	283.7	25
Phoenix	121,346	128,270	164,103	12	3,865,077	424.6	11
Seattle	112,511	78,938	138,824	14	3,203,314	433.4	10
Minneapolis	109,002	82,405	136,470	15	3,142,779	434.2	9
San Diego	125,508	123,571	166,698	10	2,933,462	568.3	2
St. Louis	99,634	82,349	127,084	17	2,778,518	457.4	7
Baltimore	95,503	67,855	118,121	18	2,655,675	444.8	8
Tampa	73,427	59,125	93,135	22	2,647,658	351.8	19
Pittsburgh	100,632	39,014	113,637	19	2,386,074	476.2	6
Denver	76,119	68,974	99,110	21	2,359,994	420.0	12
Cleveland	54,635	41,262	68,389	25	2,126,318	321.6	21
Portland	60,974	49,511	77,478	24	2,095,861	369.7	18
Cincinnati	76,194	30,660	86,414	23	2,070,441	417.4	14
Total	4,089,592	3,100,799	5,123,192		123,088,356	416.2	

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).

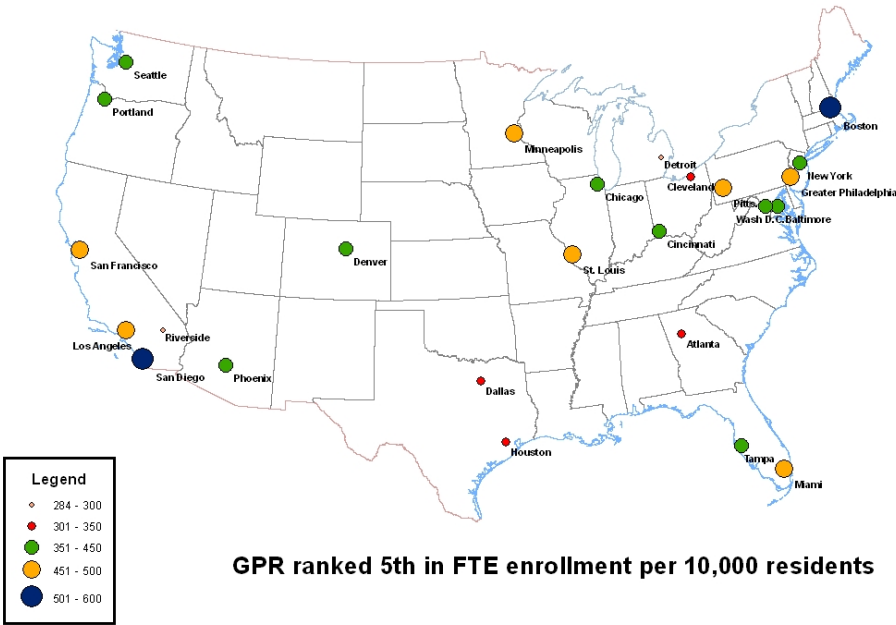
<http://nces.ed.gov/ipeds/>

Figure 2. Total FTE Enrollment in Large MSAs (2005/06 Academic Year)



Source: ESRI & National Center for Education Statistics

Figure 3. FTE Enrollment per 10,000 Residents (2005/06 Academic Year)



Source: ESRI & National Center for Education Statistics

Table 9 shows that GPR institutions conferred the 4th largest number of associate and higher certificates and degrees, behind New York, Los Angeles, and Chicago. The GPR also ranked 5th in the total number of advanced degrees. Table 10 presents the information from Table 9 on the basis of awards per 10,000 population. This rate analysis in Table 10 shows that the region ranked:

- 3rd in the rate of all associate and higher certificates and degrees awarded behind only Boston and San Diego;
- 2nd in the rate of bachelor's degrees awarded behind only Boston;
- 2nd in the rate of first professional degrees awarded; and
- 3rd in the rate of doctoral and total advanced degrees awarded, consistent with the region's concentration of Research Universities.

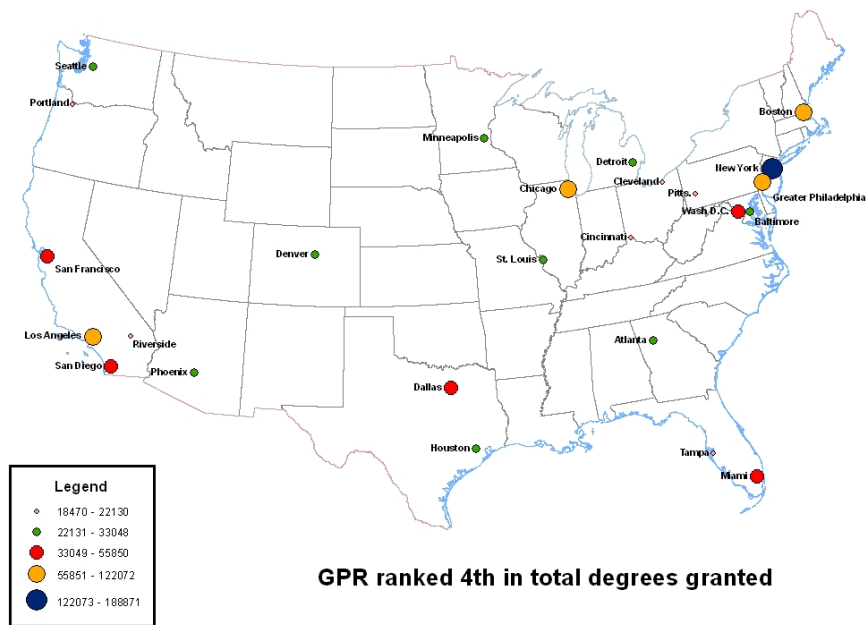
Figure 4 displays the award rate for total associate and higher certificates and degrees by large MSA. The GPR granted a higher number of degrees on a per unit basis than New York, Chicago or Los Angeles in every category except associate degrees. The region's five medical schools, two schools of osteopathic medicine, two schools of pharmacy, six law schools, and the above average number of Master's Colleges and Universities account for the approximately 25,300 advanced certificates and degrees awarded each year.

Table 9. Associate and Higher Certificates and Degrees Awarded in Large MSAs (2004/05 Academic Year)
(Metro areas listed in descending order of 2005 population)

MSAs	Associate degrees	2 but less than 4 academic years	Bachelor's degrees	Post-baccalaureate Certificates	Master's degrees	Post-master's certificates	First Prof. degrees	First Prof. Certificates	Doctorate degrees	Total	Rank
New York	40,569	1,645	79,705	925	51,744	2,577	8,064	115	3,527	188,871	1
Los Angeles	31,321	1,574	58,139	725	23,397	365	4,120	60	2,371	122,072	2
Chicago	19,164	824	34,903	244	25,667	368	4,207	28	1,897	87,302	3
Greater Philadelphia	11,530	681	38,322	484	19,171	304	3,812	13	1,999	76,316	4
Dallas	8,188	82	18,017	415	9,979	94	1,360	-	881	39,016	9
Miami	17,682	354	17,247	61	9,621	535	1,784	5	1,162	48,451	7
Houston	8,762	669	11,395	85	5,480	9	2,011	44	570	29,025	17
Washington D.C.	7,736	539	25,216	1,114	16,553	90	3,224	16	1,362	55,850	6
Atlanta	6,008	852	15,377	108	7,233	250	1,036	-	752	31,616	13
Detroit	8,848	275	9,003	399	8,003	200	729	-	225	27,682	18
Boston	8,073	550	31,469	725	23,684	436	3,993	243	2,364	71,537	5
San Francisco	9,921	390	18,634	457	9,057	93	2,018	-	1,309	41,879	8
Riverside	8,651	294	7,704	165	2,117	28	248	11	280	19,498	22
Phoenix	10,736	1,047	12,761	159	5,796	92	478	-	347	31,416	14
Seattle	11,744	656	13,364	131	5,593	38	986	3	569	33,084	11
Minneapolis	8,955	407	12,535	564	6,054	55	1,512	94	1,063	31,239	15
San Diego	7,730	67	17,507	3,791	7,657	199	1,027	-	490	38,468	10
St. Louis	6,907	74	11,856	193	11,021	41	1,398	3	553	32,046	12
Baltimore	4,457	112	12,231	610	8,152	30	1,044	28	682	27,346	19
Tampa	6,920	163	10,539	-	3,167	13	98	14	194	21,108	21
Pittsburgh	7,479	815	12,823	500	6,153	40	959	2	715	29,486	16
Denver	5,878	274	8,328	343	6,158	45	743	-	361	22,130	20
Cleveland	3,972	213	5,498	86	3,371	29	678	-	243	14,090	25
Portland	5,647	253	6,863	868	3,556	345	739	7	192	18,470	24
Cincinnati	3,644	314	10,351	21	3,667	30	495	-	462	18,984	23

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS).
<http://nces.ed.gov/ipeds/>

Figure 4. Associates and Higher Certificates and Degrees Awarded by MSAs (2004/05 Academic Year)



Source: ESRI & National Center for Education Statistics

Table 10. Associate and Higher Certificates and Degrees Awarded per 10,000 residents in Large MSAs (2004/05 Academic Year)
(Metro areas listed in descending order of 2005 population)

MSAs	Associate Degrees	2 but less than 4 academic years	Bachelor's degrees	Post-baccalaureate certificates	Master's degrees	Post-master's certificates	First-prof degrees	First-prof certificates	Doctorate degrees	Total	Rank
New York	21.6	0.9	42.5	0.5	27.6	1.4	4.3	0.1	1.9	100.7	10
Los Angeles	24.2	1.2	45.0	0.6	18.1	0.3	3.2	0.0	1.8	94.5	13
Chicago	20.3	0.9	37.0	0.3	27.2	0.4	4.5	0.0	2.0	92.4	15
Greater Philadelphia	18.9	1.1	62.9	0.8	31.5	0.5	6.3	0.0	3.3	125.3	3
Dallas	14.1	0.1	31.0	0.7	17.1	0.2	2.3	-	1.5	67.0	21
Miami	32.6	0.7	31.8	0.1	17.7	1.0	3.3	0.0	2.1	89.4	17
Houston	16.6	1.3	21.6	0.2	10.4	0.0	3.8	0.1	1.1	55.0	25
Washington	14.8	1.0	48.4	2.1	31.7	0.2	6.2	0.0	2.6	107.1	6
Atlanta	12.2	1.7	31.3	0.2	14.7	0.5	2.1	-	1.5	64.3	23
Detroit	19.7	0.6	20.1	0.9	17.8	0.4	1.6	-	0.5	61.7	24
Boston	18.3	1.2	71.3	1.6	53.7	1.0	9.1	0.6	5.4	162.1	1
San Francisco	23.9	0.9	44.9	1.1	21.8	0.2	4.9	-	3.2	100.8	9
Riverside	22.1	0.8	19.7	0.4	5.4	0.1	0.6	0.0	0.7	49.9	26
Phoenix	27.8	2.7	33.0	0.4	15.0	0.2	1.2	-	0.9	81.3	19
Seattle	36.7	2.0	41.7	0.4	17.5	0.1	3.1	0.0	1.8	103.3	7
Minneapolis	28.5	1.3	39.9	1.8	19.3	0.2	4.8	0.3	3.4	99.4	11
San Diego	26.4	0.2	59.7	12.9	26.1	0.7	3.5	-	1.7	131.1	2
St. Louis, MO	24.9	0.3	42.7	0.7	39.7	0.1	5.0	0.0	2.0	115.3	5
Baltimore	16.8	0.4	46.1	2.3	30.7	0.1	3.9	0.1	2.6	103.0	8
Tampa	26.1	0.6	39.8	-	12.0	0.0	0.4	0.1	0.7	79.7	20
Pittsburgh	31.3	3.4	53.7	2.1	25.8	0.2	4.0	0.0	3.0	123.6	4
Denver	24.9	1.2	35.3	1.5	26.1	0.2	3.1	-	1.5	93.8	14
Cleveland	18.7	1.0	25.9	0.4	15.9	0.1	3.2	-	1.1	66.3	22
Portland	26.9	1.2	32.7	4.1	17.0	1.6	3.5	0.0	0.9	88.1	18
Cincinnati	17.6	1.5	50.0	0.1	17.7	0.1	2.4	-	2.2	91.7	16

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System (IPEDS). <http://nces.ed.gov/ipeds/>; U.S. Census Population Estimates, 2005

Operations Expenditures

The IPEDS core expense figure was used to compare higher education spending across the MSAs. The core expense figure includes spending by all major program areas (e.g., instruction, research, public service, academic support, student services, etc.), plus operation and maintenance of plant and equipment and non-operating expenses and deductions. Expenditures for four universities, located in the Miami, Atlanta, Phoenix and Chicago MSAs were eliminated because their student base consisted of a majority online enrollment. Therefore, the spending by each university could not be allocated to a specific MSA. Also excluded from the analysis were expenditures for Higher Education System Administration Offices in several states because these organizations act as a “pass through” for state funding that is distributed to individual state schools. Including their expenditures would have been double counting.

Table 11. Core Expenditures in Large MSAs (2005/06 Academic Year)
(Metro areas listed in descending order of 2005 population)

MSAs	Total 2005/06 Spending	FTE Enrollment	Spending per FTE	Rank	July 1, 2005 Population	Expenditure per 10,000 Residents	Rank
New York	\$ 17,918,061,890	761,548	\$ 23,528	9	18,747,320	\$ 9,557,666	12
Los Angeles	\$ 11,893,989,176	637,424	\$ 18,659	18	12,923,547	\$ 9,203,347	13
Chicago	\$ 8,545,661,998	388,225	\$ 22,012	14	9,443,356	\$ 9,049,391	14
Greater Philadelphia	\$ 8,071,871,822	294,651	\$ 27,395	4	6,092,015	\$ 13,249,921	3
Dallas	\$ 3,441,589,660	195,087	\$ 17,641	19	5,819,475	\$ 5,913,918	21
Miami	\$ 3,327,325,371	212,589	\$ 15,651	21	5,422,200	\$ 6,136,486	20
Houston	\$ 5,496,881,776	164,112	\$ 33,495	3	5,280,077	\$ 10,410,609	8
Washington D.C.	\$ 5,074,496,003	218,738	\$ 23,199	12	5,214,666	\$ 9,731,200	11
Atlanta	\$ 3,446,957,261	153,288	\$ 22,487	13	4,917,717	\$ 7,009,263	18
Detroit	\$ 1,873,252,483	128,183	\$ 14,614	23	4,488,335	\$ 4,173,602	24
Boston	\$ 9,870,105,410	264,501	\$ 37,316	2	4,411,835	\$ 22,371,882	1
San Francisco	\$ 5,058,097,228	204,440	\$ 24,741	7	4,152,688	\$ 12,180,297	5
Riverside	\$ 1,513,091,656	110,942	\$ 13,639	24	3,909,954	\$ 3,869,845	25
Phoenix	\$ 2,140,361,573	164,103	\$ 13,043	25	3,865,077	\$ 5,537,695	22
Seattle	\$ 3,274,660,530	138,824	\$ 23,589	8	3,203,314	\$ 10,222,727	9
Minneapolis	\$ 3,182,148,314	136,470	\$ 23,318	11	3,142,779	\$ 10,125,269	10
San Diego	\$ 3,149,035,785	166,698	\$ 18,891	17	2,933,462	\$ 10,734,878	7
St. Louis	\$ 2,986,933,776	127,084	\$ 23,504	10	2,778,518	\$ 10,750,097	6
Baltimore	\$ 4,552,900,909	118,121	\$ 38,544	1	2,655,675	\$ 17,144,044	2
Tampa	\$ 1,404,350,067	93,135	\$ 15,079	22	2,647,658	\$ 5,304,122	23
Pittsburgh	\$ 2,926,835,397	113,637	\$ 25,756	5	2,386,074	\$ 12,266,323	4
Denver	\$ 1,592,611,832	99,110	\$ 16,069	20	2,359,994	\$ 6,748,372	19
Cleveland	\$ 1,747,786,929	68,389	\$ 25,557	6	2,126,318	\$ 8,219,781	15
Portland	\$ 1,598,321,152	77,478	\$ 20,629	15	2,095,861	\$ 7,626,084	17
Cincinnati	\$ 1,657,868,109	86,414	\$ 19,185	16	2,070,441	\$ 8,007,319	16
Total	\$ 115,745,196,107	5,123,192	\$ 22,592		123,088,356	\$ 9,403,424	

Source: National Center for Education Statistics, 2007. Integrated Postsecondary Education Data System. (IPEDS).

<http://nces.ed.gov/ipeds/>

Note: Operating expenditures by online schools in Phoenix, Chicago, Miami, and Minneapolis were not considered so as to exclude expenditures not made in the respective metro areas.

Note: Expenditures made by the University of California System Administration Center located in Oakland were excluded to avoid double counting as their expenditures are revenue pass throughs to the individual schools. In 2005/06 their revenues were \$5.638 billion.

Note: Expenditures made by the City College of New York (CUNY) System Administrative Center were excluded to avoid double counting as their expenditures are revenue pass throughs to the individual schools. In 2005/06 their revenues were \$570 million.

research & development funds for the top 25 MSAs in the 2005/06 academic year. About 97% of the \$1.27 billion dollars in total funding came from the following universities: University of Pennsylvania, Princeton University, University of Delaware, Thomas Jefferson University, Drexel University and Temple University. Federal funding (including the National Institute for Health) accounted for 68.9% (\$881 million dollars) and another 13% (\$63 million dollars) came from industry sponsorship. The estimate of total regional R&D funding is likely a bit lower than actual numbers because funding for Rutgers University, the College of Medicine & Dentistry of New Jersey, and the Pennsylvania State University were excluded. While each of these schools has branch campuses in the region, and some R&D activities may occur at them, the study assumes that the vast majority of R&D activities and related spending is performed on their main campuses which are not in the region.

Table 12. Research & Development Funding in Large MSAs (2005/06 Academic Year)
(Metro Areas listed in descending order of total R & D Spending)

MSAs	Total Spending	Federal Funding	State & Local	Industry	Institutional	Other
New York	\$ 2,500.8	\$ 1,686.7	\$ 80.8	\$ 78.5	\$ 437.2	\$ 217.6
Los Angeles	\$ 1,867.7	\$ 1,291.4	\$ 36.7	\$ 71.4	\$ 305.6	\$ 162.6
Baltimore	\$ 1,834.5	\$ 1,468.4	\$ 45.8	\$ 83.8	\$ 118.2	\$ 118.2
Boston	\$ 1,712.4	\$ 1,381.3	\$ 10.3	\$ 118.8	\$ 73.0	\$ 129.1
Houston	\$ 1,473.4	\$ 892.2	\$ 137.8	\$ 70.4	\$ 198.9	\$ 174.2
San Francisco	\$ 1,434.2	\$ 745.6	\$ 109.9	\$ 59.0	\$ 312.8	\$ 207.0
Greater Philadelphia	\$ 1,277.4	\$ 881.2	\$ 32.4	\$ 63.0	\$ 180.9	\$ 119.9
Chicago	\$ 1,183.8	\$ 810.1	\$ 22.2	\$ 34.6	\$ 226.4	\$ 90.5
Washington D.C.	\$ 862.1	\$ 571.5	\$ 26.8	\$ 25.3	\$ 188.2	\$ 50.4
Atlanta	\$ 861.2	\$ 580.0	\$ 24.7	\$ 44.2	\$ 177.4	\$ 34.8
San Diego	\$ 796.9	\$ 500.7	\$ 25.8	\$ 35.0	\$ 144.9	\$ 90.4
Pittsburgh	\$ 719.3	\$ 597.9	\$ 22.5	\$ 17.4	\$ 51.6	\$ 29.9
Seattle	\$ 708.6	\$ 607.0	\$ 9.9	\$ 45.3	\$ 29.8	\$ 16.6
St. Louis	\$ 612.1	\$ 451.0	\$ 14.4	\$ 15.1	\$ 95.1	\$ 36.5
Minneapolis	\$ 551.9	\$ 321.3	\$ 50.4	\$ 26.4	\$ 76.0	\$ 77.7
Dallas	\$ 446.4	\$ 276.2	\$ 46.5	\$ 21.2	\$ 25.9	\$ 76.5
Cleveland	\$ 341.1	\$ 220.9	\$ 26.7	\$ 19.2	\$ 5.0	\$ 69.2
Miami	\$ 319.4	\$ 225.1	\$ 17.3	\$ 23.1	\$ 21.8	\$ 32.1
Cincinnati	\$ 305.4	\$ 211.4	\$ 14.4	\$ 8.2	\$ 59.2	\$ 11.5
Portland	\$ 298.2	\$ 236.8	\$ 5.8	\$ 12.2	\$ 27.5	\$ 16.0
Denver	\$ 289.7	\$ 237.2	\$ 3.9	\$ 17.5	\$ 15.6	\$ 15.5
Tampa	\$ 259.6	\$ 142.9	\$ 22.8	\$ 28.9	\$ 65.0	\$ 0.0
Detroit	\$ 234.3	\$ 126.7	\$ 16.4	\$ 13.9	\$ 64.2	\$ 13.1
Phoenix	\$ 166.9	\$ 94.5	\$ 17.0	\$ 8.5	\$ 44.4	\$ 2.5
Riverside	\$ 162.4	\$ 86.8	\$ 7.3	\$ 5.9	\$ 49.7	\$ 12.8

Source: National Science Foundation, 2007.

*All amounts in millions

The GPR's rankings in the following categories shown in Table 12 are: total spending – 7th; federal funding – 6th; state and local – 8th; industry – 6th; institutional – 7th; and other – 6th.

Direct Impacts

Colleges and universities are major generators of economic activity within the region through their annual direct spending. The total impact on the region's economy from direct spending was estimated using an IMPLAN input/output (I/O) economic model for the GPR. The direct economic impacts were entered into the IMPLAN model in the appropriate economic sectors. The model then calculated the indirect and induced economic effects, also known as the economic multiplier effects. The direct, indirect and induced spending effects are defined below:

- **Direct effects:** purchases of goods and services required for annual operations; payments of wages and salaries to employees; and student spending, excluding payments of tuition, room and board and fees to the schools. Additional direct spending effects include annual spending from capital projects and spending by students. Each of the direct effects is described in more detail below.
- **Indirect effect:** increased demand for non-labor goods and services arising from spending by colleges and universities. As spending by institutions grows (i.e., an increase in final demand occurs), they buy goods and services from their suppliers located in the region. Directly affected companies in turn demand more goods and services from their suppliers, and so forth. The round-by-round spending ripples through the economy, creating the indirect effects.
- **Induced effect:** higher demand for goods and services produced by the expenditure of disposable income by workers employed at colleges and universities. As institutions raise their employment levels and give pay increases to their workers, the affected households spend more for consumer goods and services. The directly affected stores and service establishments, in turn, increase demands from their suppliers and the round-by-round spending effects spread through the economy, producing the induced effects.

The total economic impact of annual college and university spending in the GPR is the sum of the direct, indirect, and induced effects. Aggregate economic impacts are presented across all 88 colleges and universities.

Annual Operating Expenditures

Annual operating expenditures for the 2005/06 academic year were obtained from the following sources:

- Surveys sent to each school;
- IPEDS database for 2005/06, specifically the core expenditure figures; and
- Annual budgets obtained from the schools.

Select compared the expenditure information contained in the surveys to the IPEDS data and the annual budgets to check for consistency. Annual operations spending estimates from the survey were used when available. IPEDS core expenditure data was used when survey information was unavailable. When neither of these figures was available, the IPEDS core operations expenditure figure was used. Some schools reported that the IPEDS figure for

2005/06 was inaccurate and provided us with updated figures. The operating expenditures for Drexel University, Temple University, and University of Pennsylvania include both the spending for core educational services (including the medical schools) and expenditures by the affiliated hospitals. The core operating expenditure figures in IPEDS do not include the affiliated hospitals, however spending levels for affiliated hospitals were obtained from publicly available budget documents.

Annual operating expenditures were subdivided into two direct effects:

- Purchases of goods and services, excluding labor compensation (i.e., payments of wages and salaries plus fringe benefits); and
- Payments of wages and salaries to employees.

The survey results for goods and services purchases and the value of wages paid were used, whenever possible, with the IPEDS data as the default values. The major source of the economic benefits generated by colleges and universities are the large amounts of non-labor goods and services they purchase annually from companies located in the region, referred to as the backward linkages. Colleges and universities require a wide range of goods and services to operate, including: food and food services; utilities; building maintenance and repair services; professional services such as law, advertising, finance and investment services; autos and trucks, including fuel and maintenance services; janitorial services; office supplies; scientific equipment; etc. The higher the shares of a school's annual operating purchases and spending by employees that are made in a region, the larger the indirect and induced effects as there is less "leakage" of direct spending out of the region.

Survey respondents were asked to provide estimates of the share of non-labor goods and services purchased annually within the GPR. The median was 78% indicating that most colleges and universities purchase the majority of their goods and services from regional businesses. The share was lower for the larger Research and Development Universities, suggesting that some types of specialized goods and services have to be obtained from outside the GPR.

Analysis shows that the region's 88 colleges and universities had total estimated operating expenditures during the 2005/06 academic year of approximately \$12.3 billion, divided as follows:

- \$7.1 billion (57.7%) for the purchase of non-labor goods and services; and
- \$5.2 billion (42.3%) for wages and salaries (excluding fringe benefits).

The \$7.1 billion figure was used to derive the indirect effects, and the \$5.2 billion figure, adjusted downward to yield disposable income, was used to estimate the induced effects.

Employment and Wages

Figures for total employment and total wages paid to these employees were used to:

- Calculate direct employment as a share of total regional employment;
- Determine the average wage and salary payments per job, which was used to calibrate the IMPLAN input/output model; and
- Determine the total employment multiplier produced by two primary direct spending effects.

Colleges and universities are labor-intensive organizations as labor compensation (e.g., salaries plus benefits) made up about 47% of the annual operating expenditures in 2005/06, although this proportion varied by the type of college and university. Total employment figures were obtained from the same sources used throughout the study – the survey, the IPEDS database, school web pages, and lists of large employers published by the *Philadelphia Business Journal* and the Greater Philadelphia Chamber of Commerce. The total FTE employment at colleges and universities, including employees at the affiliated hospitals, during 2005/06 was estimated to be about 85,300 jobs or 2.8% of total GPR employment. The total wage and salary payments were \$5.2 billion, as noted above. Since the vast majority of these employees live within the GPR, the induced spending effects are substantial.

Student Spending

The region's 275,811 FTE students in the Fall 2005 were a major source of direct economic impacts through their spending on goods and services, including rent, books, food, entertainment, clothing, transportation, etc. The objective in this part of the study was to estimate annual direct student spending made to local businesses – excluding payments of tuition, room and board, and fees to the schools they attend. Including them would have been double-counting as they are a revenue source for institutions used to support their operating budget. Total student spending, in the local economy, excluding payments made to the colleges and universities, varies by the type of housing. Underclassmen living in dormitories typically spend less per semester than upperclassmen living in off-campus housing and paying rent and utilities, and purchasing food for subsistence. By contrast, students who live at home and commute often pay little or nothing for rent or food, but have higher transportation costs. Finally, spending for discretionary items, such as entertainment, clothing, and food eaten away from home, varies according to income level of a student's family. Students attending private institutions often have higher spending levels than students attending public institutions.

Survey respondents were asked to estimate the spending per semester (or quarter) for three types of students:

- A full-time student living on campus in university housing, excluding room and board and fees paid to the school;
- A full-time student living off campus in private housing, but not at home; and
- A full-time student living at home who commuted to and from school.

Respondents were asked to disaggregate the spending amounts into types of goods and services purchased by students, including rent and utilities, entertainment, food and drink for living, clothing, transportation and other services.

Information was obtained from IPEDS, which contains an estimate of annual student spending, and a literature search performed to identify recent studies of student spending in the region and in other parts of the country. A primary purpose of the literature search was to identify the composition of the student spending, such as the percent shares of spending for food, clothing, rent, etc. The most applicable and complete study of student spending found was prepared by Allison M. Ohme of the University of Delaware in 2003. This study used a large survey, obtaining responses from 618 students. The study estimated that mean spending in the State of Delaware by full-time students living on campus was \$370 per month (\$2,960 over two semesters) compared to \$1,380 per month (\$11,040 over two semesters) for full-time students living off campus.

Taking an initial “macro” view to derive a preliminary estimate, annual student spending for goods and services as defined above has to be a high figure. For example, if assuming that the 275,811 FTE students in the 2005/06 academic year had spent an average of \$2,500 per academic year, total student spending would have been \$688.5 million. It was clear from the survey results and the literature search that the average annual spending per FTE student for the three types of housing was well above the \$2,500 assumption. Based on the survey, the median spending per academic year (e.g., two semesters) by FTE students living on campus was \$4,600, compared to \$16,000 for students living off-campus, but not commuting from home, and \$4,050 for students commuting from home. The percent distribution of student spending by type of expenditure (e.g., books, entertainment, food, clothing, rent and utilities, etc.) was based on responses to the survey and the University of Delaware study, a research summary published in the July 2001 issue of the *Monthly Labor Review* published by the Bureau of Labor Statistics.

Total student spending during the 2005/06 academic year was estimated to be approximately \$2.2 billion, equivalent to just over \$8,000 per FTE student. The total student expenditures were distributed by type of goods and services purchased and entered into the IMPLAN model to estimate the total economic impact. Table 13 presents estimates of total student spending by type of goods and services in 2007 dollars.

Table 13. Estimated Student Spending (2007\$)

Good or Service	Amount (Millions of \$)	% Share
Rent & Utilities	\$ 475.3	20.8%
Transportation	\$ 235.7	10.3%
Books	\$ 387.9	17.0%
Food	\$ 388.6	17.0%
Clothing	\$ 166.0	7.3%
Entertainment	\$ 269.3	11.8%
Other	\$ 360.9	15.8%
Total	\$ 2,283.7	100.0%

Note: the spending estimates and distributions presented above are for three types of students: 1) living on campus, 2) living off campus, in private accommodations but away from home; and 3) living off-campus, but home and commuting.

The expenditures shares in Table 13 are averages across three types of students according to their type of housing: 1) living on campus in university housing (i.e., they pay no rent, utilities, and food, which is part of their room and board paid to the school); 2) living off campus in private housing, but not at home (i.e., they have higher expenditures for rent, utilities and food); and 3) living off campus at home and commuting (i.e., they pay little or nothing for rent, utilities, and food for subsistence, but have higher transportation costs).

One way to view the economic contribution from student spending is to examine its share of total retail spending. Three of the types of purchases listed above are made at retail establishments: books, food, and clothing – the other purchases are for services. The total retail expenditures presented in Table 13 are \$942.5 million. Global Insight, an international

economic forecasting firm, estimates that total retail sales in the Philadelphia and in the Trenton MSAs in 2007 are approximately \$94.4 billion (Global Insight, 2007). As a result, total direct retail expenditures by college students, converted to 2007 dollars, are just over 1% of the region's total.

Total Economic Impacts

The IMPLAN input/output (I/O) model was used to estimate the total economic impacts produced by the following direct economic effects generated by the 88 colleges and universities:

- Annual purchases of non-labor goods and services;
- Expenditures of disposable income by employees; and
- Student spending, excluding payments to college and universities.

Select obtained economic data for the 11-county study area and the IMPLAN software then created an input/output model based on the economic structure of the region. The process of creating the model produces the multipliers needed to estimate the indirect and induced effects. A major advantage of the IMPLAN model is that its high level of detail enables the direct economic effects to be assigned to the individual economic sectors where the initial spending occurs. Select modified some default values in the IMPLAN model to better reflect the actual levels of spending per employee and wages per employee in the region's higher education sector during the 2005/06 academic year. These adjustments were required because of the concentration of Research Universities, Master's Colleges and Universities and Special Focus Institutions – Medical Schools and Medical Centers. These schools have higher levels of spending per employee than do Baccalaureate Colleges and Community Colleges. As a result of these differences, four different versions of the IMPLAN model were created to estimate the economic impacts. Monetary values are presented in current 2007 dollars.

Table 14 presents the total economic impacts of three direct effects: 1) purchases of non-labor goods and services for operations; 2) spending by employees; and 3) student spending; monetary values are presented in current 2007 dollars.

Table 14. Total Economic Impacts (2007\$)

	Column 2	Column 3	Column 4
	Operations Spending	Student Spending	Totals
Employment			
Direct	85,267	24,452	132,301
Indirect	16,750	4,508	21,258
Induced	73,432	6,189	57,039
Total	175,449	35,149	210,598
% of Region	5.8%	1.2%	6.9%
Output (Millions of \$)			
Direct	\$ 11,535.3	\$ 1,988.2	\$ 13,523.6
Total	\$ 20,440.7	\$ 3,434.0	\$ 23,874.7
% of Region	3.9%	0.7%	4.6%
Value Added (Millions of \$)			
Direct	\$ 5,528.0	\$ 1,248.4	\$ 6,776.4
Total	\$ 13,068.9	\$ 2,132.6	\$ 15,201.5
% of Region	4.2%	0.7%	4.8%
Labor Income (Millions of \$)			
Direct	\$ 6,699.8	\$ 671.5	\$ 7,371.3
Total	\$ 9,772.0	\$ 1,184.8	\$ 10,956.8
% of Region	3.5%	0.4%	3.9%

Note: Operations spending includes direct purchases of goods and services for operations and expenditures of disposable income by their employees.

One way to measure the total economic impact of the higher education sector is through its contribution to total value added. The term “value added” measures the market value of goods and services produced by an economy in a year. It is equivalent to Gross Domestic Product (GDP) which measures the value of the goods and services, at purchase prices, produced by the US economy. At the regional level, value added is called Gross Regional Product (GRP). Total value added produced by colleges and universities only from operations spending, including payments of salaries to employees is shown in column two of Table 14 to be just under \$13.1 billion, or 4.2% of the GRP. In other words, 4.2% of the total market value of goods and services produced in the region during 2007 are directly and indirectly the result of spending by the 88 colleges and universities. Finally, column two of Table 14 shows that total labor income earned by residents from direct operations spending is about 3.5% of the region’s total.

Column two of Table 14 shows that colleges and universities had total direct employment of 85,267 workers, which includes those at the medical schools and affiliated hospitals. The combination of purchases of goods and services by schools and expenditures of disposable income by their employees produced a total increase in employment of 175,449 jobs, or 5.8% of the total current employment in the region. The employment multiplier is just under 2.1 (i.e., $175,449/85,267$), meaning for every direct job at a college or university an additional 1.1 jobs are created by the indirect and induced effects. The large increase in induced employment is due to two factors: 1) the approximately \$5.2 billion in wages and salaries paid to college and university employees; and 2) their high average annual salary of about \$63,200. The latter figure is 18.8% above the annual wage and salary earnings per job across all sectors of just under \$53,200 as estimated by Global Insight.

Column three of Table 14 presents the economic impacts of student spending, while column four lists the combined economic impacts of the two spending effects. Column three indicates that student spending generates a total 35,149 jobs, a multiplier of 1.4, mostly in the retail and services sectors, bringing the total employment increase in the region to 210,598 jobs, or 6.9% of total non-farm employment.

Column four in Table 14 presents the total economic impacts of college and universities when considering both operations spending, including payments of salaries to employees, and student spending. The economic impacts are:

- Total employment (direct, indirect and induced) of 210,598 jobs, comprising 6.9% of total employment in the GPR;
- Total output or sales of \$23.9 billion, a 4.6% share of total regional output; and
- Total increase in value added or GRP of \$15.2 billion, or 4.8% total gross regional product.

Colleges and universities are a significant component of the GPR’s economy, accounting for between 3.9% of labor income and 6.9% of Gross Regional Product of total economic activity depending on the measure considered.

Tax Impacts

The economic impact of the colleges and universities also generates substantial increases in state and local tax revenues. The primary state-level taxes that benefit from the expenditures by the institutions, including spending by their employees and students, are the personal income tax, sales tax (except in Delaware), and corporate income tax. Increases in sales tax revenue

from the college and university spending will be less than the revenues generated from the same level of spending by a private corporation. This is because most colleges and universities are registered as non-profit entities and are, therefore, exempt from paying most sales and use taxes. There will also be increases in other types of state-level taxes, especially the specialty sales taxes on such items as gasoline, alcohol, cigarettes, etc., especially from spending by employees, students and visitors.

At the local level, the tax revenue effects will vary. The non-profit colleges and universities are exempt from paying the local real property tax. However, their employees may pay a local earned income tax depending on where they live or work, especially if they live or work in a Pennsylvania municipality. Employees of colleges and universities who work in the City of Philadelphia pay the Wage Tax, while residents employed by a college or university located outside the City would also pay the Wage Tax.

Because this study considered 88 different institutions located in three states, each with its own unique tax system, a detailed estimate of the increases in tax revenues that would be generated by the total economic impacts of college and universities was beyond the scope of our study. While the IMPLAN model produces estimates of changes in tax revenues, Select chose not to use them as it is difficult for any economic model to fully consider the tax situation faced by colleges and universities. The Econsult Corporation has performed some recent economic impact studies for several colleges and universities located in the Pennsylvania portion of the Greater Philadelphia Region that provides school-specific estimates of tax revenue effects. Interested readers are referred to these studies.

Other Spending Impacts

In addition to the economic impacts presented previously, there are two other spending effects of colleges and universities that generate increases in the regional economy. They are annual capital and visitor spending and their effects are presented below.

Capital Spending

Colleges and universities also generate additional significant economic impacts through spending for capital projects such as new buildings (e.g., classrooms, residence halls, laboratories, recreational facilities, etc.), infrastructure and utilities, and the installation of new computer systems. In addition to the economic impacts, capital spending for new facilities enables the region's colleges and universities to improve their primary educational missions, as well as enhancing their ability to attract students, faculty members, and R&D contracts. Respondents to the survey indicated that annual spending to maintain existing buildings and grounds, and repair and replace operating equipment is included in the general operating budget.

While most of the information, especially annual budgets, is publicly available through the IPEDS database, or can be obtained from the schools, proposed spending for capital projects is often not available. The likelihood of estimating a proposed capital project's cost and timing is often uncertain as it depends on factors such as: the success of fundraising programs, the emergence of other spending priorities, future allocations from state and local governments, acquisition of real estate, obtaining permits, etc. Some universities asked Select not to identify their proposed capital projects for the above reasons, but the annual spending that would be produced by these projects is included in the economic impacts presented below.

The economic impact of an individual capital project is temporary and ends when the facility is finished as the local purchases of supplies and equipment, and the spending by construction workers also ceases. However, colleges and universities prepare and follow long-term capital improvement plans. So annually, there is a roughly constant and significant level of new construction spending by the region's 88 institutions. In other words, at a regional level, the economic impacts of capital spending are similar to annual operating impacts – as one project is completed at a school, another one is likely about to begin at another school. The level of annual capital spending in the region varies somewhat from year to year depending on several factors, including: the size, types, and complexities of the individual projects, the start and end dates of construction, and each school's ability to obtain financing and the required approvals. Like any large organization with a large physical plant to maintain, colleges and universities attempt to schedule capital projects so as to minimize disruptions to their education programs.

Survey respondents provided information about the number, type and cost of the major capital projects they completed during the last five years, and also for those they are planning to finish or start during the next five years. Based on the responses received, annual capital spending by the region's colleges and universities during the last five years has been in the range of approximately \$400 to \$500 million. Major capital projects have been completed by some of the smaller institutions, in addition to the high annual level of construction that occurs at the major Research and Development Institutions, such as University of Pennsylvania, Temple University, Rowan University, and University of Delaware. According to Econsult, a Philadelphia-based consulting firm, the University of Pennsylvania alone has spent approximately \$300 million

annually for capital projects over the last five years. A representative list of major capital projects completed by some of the region’s colleges and universities in recent years includes:

- A new enterprise center and science center at Burlington Community College – \$20.5 million;
- The renovation and expansion of the student center at Temple University – \$30 million;
- A new residence hall at LaSalle University – \$26 million;
- The Kirkbride Hall Sciences/Engineering Building by Widener University – \$16.8 million;
- A new business center at the Community College of Philadelphia – \$23.3 million;
- A new dormitory at Swarthmore College – \$8 million;
- Utility upgrades at Princeton University to improve efficiency and lower energy use – \$25 million;
- Three new residence halls at the University of Delaware – \$72 million; and
- Expansion of the Rutgers–Camden Law School – \$37 million.

The region’s colleges and universities plan to complete or start just under \$3.7 billion (current 2007 dollars) in capital projects during the next 5 years, so the construction spending would be distributed over a longer period.

This figure does not include the University of Pennsylvania’s “Penn Connects” plan, a major redevelopment in West Philadelphia that would link Penn’s Campus with Center City. The “Penn Connects” plan would be completed over a 20-year period, with a total cost currently estimated to be \$6 billion. The University of Pennsylvania announced in late August 2007 that Brandywine Realty Trust would begin construction of Cira Centre South, a mixed use development in the first quarter of 2008. The project will be located on the site of the former U.S. Postal Service truck terminal annex and the cost of the first phase is estimated at about \$110 million.

In order to estimate total economic impacts of the proposed capital projects, Select distributed the capital spending over a 7-year period – resulting in an annual level of construction spending of approximately \$528.5 million (2007\$). This level of annual construction spending is equal to just over 4% of total annual operating expenditures by the region’s college and universities. Select then used the IMPLAN model to estimate the total economic impacts that would be generated by this level of annual construction spending. Table 15 presents the total economic impacts of the annual capital project spending.

Table 15. Economic Impacts of Proposed Capital Project Spending (2007\$)

Employment	Total Direct		5,552
	Indirect		1,424
	Induced		2,777
	Total		9,753
	% of Region		0.3%
Output (Millions of \$)	Direct	\$	565.7
	Total	\$	1,142.1
	% of Region		0.2%
Value Added (Millions of \$)	Direct	\$	334.8
	Total	\$	667.1
	% of Region		0.2%
Labor Income (Millions of \$)	Direct	\$	323.7
	Total	\$	527.5
	% of Region		0.2%

Table 15 shows that the proposed level of capital project spending would require 5,552 FTE construction jobs, and would generate a total increase in regional employment of 9,753 jobs. The total percent increase in economic activity in the region generated by the construction spending would range between 0.2% and 0.3%.

Visitor Spending

Visitors to colleges and universities generate additional economic impacts through their local spending. These types of visitors are in addition to, and do not include, students, staff, faculty and others who travel daily to and from a campus to attend classes or to support operations. Schools attract a number of different types of visitors, including:

- Prospective students and their parents during the college selection process;
- Friends and family visiting students;
- Attendees at sporting events such as intercollegiate athletic contests like NCAA basketball and football games, club sports, etc.;
- Persons attending arts and culture events and facilities such as concerts, plays, lectures, arts festivals, museums, etc.;
- Athletes attending summer sports camps held on college campuses, including junior high and high school athletes, as well college-level and older athletes;
- Residents and workers enrolled in continuing education and training programs such as management seminars and workshops;
- Participants in academic conferences and seminars;
- Alumni returning for visits, homecoming, and class reunions; and
- Patients coming to a university hospital for treatment.

Some individual events can generate large, short-term economic impacts from visitor-generated spending such as the Penn Relays. In 2006, the Relays drew 113,000 spectators over a 3-day period. Many of these visitors were from outside the GPR as the event attracts high school, college, and club track teams from around the world, including world-class professional and Olympic-level athletes who participate in the USA vs. World relay events.

The regional economy benefits when visitors to colleges and universities, along with their spending, are attracted into the region from outside of it. When this occurs, there is a net increase in economic activity in the region as the visitors generate increased demands for a range of goods and services, such as lodging, transportation, food, entertainment, or supplies. By contrast, spending by a resident of the GPR who attends a campus event does not necessarily result in a net increase in economic activity if it is made at the expense of not making the same expenditure elsewhere in the region. The amount of spending by campus visitors per day varies according to the type of activity, amount of the program costs such as admissions and fees, type of lodging, and length of stay for overnight visitors, supplies and materials required, etc.

Respondents were asked to provide estimates of the number of campus visitors by type of activity, as well as data on the amount and composition of the related spending. Responses indicated that most colleges and universities do not have accurate figures for the number and types of visitors they attract. Estimating the number of visitors, not to mention also describing their spending patterns, is difficult for schools to do primarily because they attract a number of different types of visitors. As a result, the information about the number of visitors is located in the individual departments that sponsor each activity. Accurate information can be assembled for events for which tickets are sold, such as athletic events and concerts, but it is virtually

impossible to obtain visitor estimates for free events. Finally, campuses are open facilities with persons freely traveling to and from them each day, so identifying and counting the visitors is nearly impossible. As a result of the information provided, Select was not able to prepare an acceptably accurate, comprehensive estimate of the number of visitors and their direct spending effects spanning all 88 colleges and universities.

Several recent studies have estimated visitor levels and direct spending impacts for some of the college and universities in the GPR. Examining these results gives an approximate idea of what the level of visitation and spending would be across all 88 schools. Results from relevant studies include:

- The Pennsylvania State System of Higher Education study (PAASHE, 2006) estimated visitor spending (2007\$) at West Chester University to be \$8.7 million and \$0.8 million at Cheyney University. As a point of reference, PAASHE estimated total direct visitor spending at all 15 of their schools to be \$50.1 million (2007\$).
- The Pennsylvania State University (Penn State) Economic Impact Statement (Tripp Umbach & Associates, Inc. 2003) estimated spending by out of state visitors to the Penn State branch campuses in the GPR: Abington – \$1.8 million (2007\$); Delaware County – \$11.0 million (2007\$) and Great Valley – \$4.4 million (2007\$). Total spending by out of state visitors to all Penn State campuses statewide was estimated to be \$708.4 million.
- The Association of Independent Colleges and Universities of Pennsylvania (AICUP) estimated that visitor and tourism spending generated by their 40 member schools located in metropolitan Philadelphia was \$241.1 million (2007\$). AICUP's members include almost all of the private schools in the region that offer an associate degree or higher, including some who attract large numbers of visitors such as Drexel University, University of Pennsylvania, and Villanova University.
- Econsult has performed several recent economic impact studies for colleges and universities in the region, finding the following:
 - In 2005, visitors to Temple University spent approximately \$29.2 million (2007\$);
 - In 2005, visitors to Widener University spent about \$6.1 million (2007\$);
 - In 2005, total ancillary spending by the University of Pennsylvania's students and visitors was found to be about \$232.7 million (2007\$). Based on Select's research, the vast majority of this is student spending. Assuming a 10% visitor share would yield a visitor spending estimate of \$23.3 million, a figure that may be low as it is less than Temple's; and
 - In 2006, visitors to Saint Joseph's University spent an estimated \$7.2 million (2007\$); plus an additional \$56.6 million (2007\$) in student spending.
- Rutgers University estimated in 2003 that visitors to all its campuses statewide spent about \$11.2 million (2007\$). Since about 10% of Rutgers' statewide enrollment is in the GPR, the amount of spending in the region was around \$1 million.

The results from above vary, confirming Select's finding that visitor and spending levels are approximate as they are difficult to compile. The studies used different methodologies, so their results may not be directly comparable. However, based on the ranges per school presented above, it seems reasonable to conclude the annual spending by visitors to the colleges and universities in the GPR is likely in the range of \$300 to \$400 million, possibly even higher.

Effects on Economic Prosperity

In addition to the short-term economic impacts generated by spending presented elsewhere in this study, colleges and universities also affect regional economic prosperity in several significant ways. Some of these effects are local, concentrated in communities that are adjacent to the campuses, while others occur throughout the regional economy. More importantly, from a policy perspective, most of the ultimate effects on regional economic prosperity occur over the long-term, often well after the initial expenditure or investment is made. For example, it can take several years for a university's initial investment in R&D to generate innovations that have commercial potential. It takes more time for the innovation to be commercialized; often leading to the formation of a new company that attracts investment, hires workers, and so on. Similarly, it takes time before increases in the supply and quality of a region's human capital translate into enhanced regional competitive advantage, the attraction of new higher wage jobs, and ultimately into a higher economic growth rate. The purpose of this section is to briefly describe the effects colleges and universities have on long-term regional economic prosperity. The important role that colleges and universities can play in improving a regional economy's comparative advantage is captured well in the following observation by Paul Romer in 1994:

“As the world becomes more and more closely integrated, the feature that will increasingly differentiate one geographic area from another will be the quality of public institutions. The most successful areas will be the ones with the most competent and effective mechanisms for supporting collective interests, especially in the production of new ideas.” (Warsh, 2006)

Human Capital and Educational Attainment

The primary long-term benefit of colleges and universities to a regional economy is the production of a highly educated workforce. Excellent, highly-ranked schools draw the most qualified students, undergraduate and graduate, and highly regarded faculty members. The challenge for a regional economy is then to create the job opportunities that will keep students when they graduate. The presence of the graduates, in turn, attracts employers in high wage sectors that need access to an educated labor force. Similarly, colleges and universities need to retain outstanding faculty members who, through their scholarship and research, enhance the academic reputations of their schools, increase R&D spending, draw the best graduate students, and spur innovation. Studies have shown that increasing the level of educational attainment in a regional economy by investing in higher education increases the long-term economic growth rate (The College Board, 2006; Iranzo and Peri, 2006). Finally, results from the 2007 Current Population Survey (Bureau of the Census, 2007) showed that in 2006 the median money income in the US for an individual with a master's degree was \$55,445 or 19.4% higher than the \$46,435 for a person with a bachelor's degree. However, the median money income for an individual with a professional degree was \$85,857, almost 85% above the bachelor's degree figure.

Over time, as college graduates are attracted to or remain in a region and enter the labor force, its level of educational attainment rises. An analysis by Select showed that the annual growth rates in real per capita income between 1990 and 2005 were highest in large MSAs that had the highest levels of educational attainment in 2005. Educational attainment in the analysis was defined as the percent of the civilian population 25 years and older with a bachelor's degree or higher. It is important to note that educational attainment is both a cause and an effect. The

structure of a regional economy determines the types of occupations and the accompanying levels of education and training required by employers. The availability of jobs in high-wage occupations that require high levels of training and education will induce graduates to remain in a region. Their presence, along with the skilled workers already residing in the region, will attract companies whose jobs require access to a high quality labor force. Concurrently, highly educated workers from other areas are recruited by a region's companies to fill positions. The level of educational attainment in the GPR, expressed as the share of the population 25 years and older with an advanced degree, has been rising relative to that of the US due to the growth in services-providing sectors where many of the jobs require advanced degrees. The region ranked 5th in 2005/06 in the total number of advanced degrees and certificates awarded and 3rd in the number per 10,000 residents.

Efforts like Campus Philly, a nonprofit which receives both public and private support, focus on the pipeline of incoming students from both domestic and international sources. In addition to working to attract students to the area, Campus Philly also creates opportunities to engage students in the region while they are in college and then markets the region's career opportunities once students have completed their education. It is believed that this three-prong approach maximizes connections between talented young people and the workforce. Recent research by the Knowledge Industry Partnership suggests that Campus Philly and their college and university partners are contributing to the increase in educational attainment and continued progress should be made in coming years.

Workforce Development and Continuing Education

Colleges and universities also make significant contributions to economic prosperity by offering opportunities for workforce development and continuing education. As the share of jobs in the GPR economy requiring high levels of training and education continues to rise, companies seeking to maintain their profitability will increase their demand for more skilled workers. At the same time, workers will realize that they must upgrade their levels of training and education in order to either obtain these new jobs, or move to higher-paying ones. Providing workforce development and continuing education services is an especially important mission of public institutions, though private schools also offer these opportunities. Technical schools and Community Colleges provide an opportunity for residents with a high school degree or less, whom after initially entering the labor force seek to improve their skills by taking courses, obtaining certificates in specific skill areas or pursuing degrees. Community colleges also provide workforce development opportunities to residents whose jobs have been eliminated and who need to upgrade their skills to change careers, and to residents re-entering the labor force after a number of years. Recent studies by the Pennsylvania State System of Higher Education (PAASHE, 2005) and Rutgers University (Rutgers, 2004) describe in detail the range of workforce development and continuing education programs provided by public institutions in the two states.

Colleges and universities also provide workforce development and continuing education programs for residents with degrees, to advance their careers. Many of this region's institutions, such as the branch campuses of Temple University, Rutgers University, The Pennsylvania State University, and Widener University, provide part-time, evening, and Saturday programs that enable workers to obtain degrees at all levels on a part-time basis while continuing to work. These can also include programs and summer workshops designed for executives. The availability of these programs, especially those offering advanced degrees, is attractive to both graduates who want to stay in the region or move here, as well as to companies moving here that want their employees to have opportunities for continuing education. Many colleges and

universities have established partnerships with corporations and school districts through which they develop customized courses and degree programs to meet specific requirements; often the courses are given on-site.

In the Summer of 2006, the CEO Council for Growth and Select Greater Philadelphia evaluated the region's human capital needs by conducting a survey of the employers in the region. The results are presented in the document Human Capital Needs Assessment (CEO Council for Growth, 2006). One of the key findings of the study, as it relates to career development, was that employers reported the greatest difficulty in recruiting mid-level professionals, especially those with "highly specialized skills relevant to their industry". While 94% of the respondents said they offered company-run education and career development programs for their employees, only 18% offered a tuition pre-payment plan. These results suggest that colleges and universities potentially have a very important role to play in partnering with companies to provide continuing education programs for mid-level professionals, especially in the fields of business, health related disciplines, and information technology.

Innovation and Technology Transfer

Colleges and universities, especially the major R&D schools, make significant contributions to future economic growth by being sources of innovation that can eventually benefit the larger economy. Encouraging and sustaining innovation is essential for regional economies to compete in a knowledge-based, global economy and increase their economic growth rates. The importance of innovation to regional economic growth was described in a recent study by Richard Lester of the Massachusetts Institute of Technology (Lester, 2005).

“... The ability of firms comprising a local economy to adapt to new market and technological opportunities through innovation is the key to sustainable growth and prosperity at the local level. The processes and outcomes of innovation are essential for productivity growth and for sustaining and improving wage rates, and are themselves associated with attractive, well-paying jobs. “

The key to maximizing the economic benefits of innovation, as Lester's and many other studies have noted, is the process of technology transfer – enabling private companies to adapt and apply in the marketplace the innovations and new technologies that originate from colleges and universities. The extent and speed with which innovations will be transferred depends on the characteristics of the regional economy. Contributing factors include: whether a pre-existing industry can quickly apply the new technology; the culture of entrepreneurship; the encouragement given by institutions to faculty members to pursue research; the availability of supporting resources such as venture capital; and the characteristics of the technology transfer process itself, including provisions of licensing agreements and protection of intellectual property rights.

Recognizing the importance of the technology transfer process, the CEO Council for Growth recently commissioned the Economy League of Greater Philadelphia to conduct a study “to identify ways to cultivate technology transfer and enhance the region's commercialization potential”. The study Accelerating Technology Transfer in Greater Philadelphia is scheduled for release in the Fall of 2007. A major component of the study is a review of technology transfer “best practices” that are being used in other metropolitan areas in the US, and identifying those best suited for use in the GPR. This study contains an in-depth analysis of the importance of technology transfer in maximizing the regional economic benefits of innovations generated by the R&D activities of colleges and universities.

Spending and Investment Attraction

By attracting new investment, colleges and universities also generate economic benefits for a regional economy. The investment is typically financial, but can also include attracting top students, particularly at the graduate level, and highly regarded faculty members who may bring R&D dollars with them. The major sources of financial investment are contracts for R&D activities awarded by government agencies and private corporations. Table 12 presents 2005/06 R&D expenditures in the largest metropolitan areas. The keys to attracting this type of investment include the quality and reputation of the institution, especially in the discipline where the R&D will be performed; the capacity and quality of supporting facilities and equipment; and most importantly, the experience, education and reputation of the faculty and students who will perform the R&D. Leading research programs, including the chance to work with faculty recognized as leading experts in their fields, attract the most qualified PhDs from top-rank universities, who in turn become future sources of innovation through their research activities. The existence of universities known to be sources of innovation attracts entrepreneurs, venture capitalists and companies that benefit from proximity to the schools.

Colleges and universities also contribute to regional economic growth by attracting spending. The “export base” theory explains that a regional economy benefits when spending and income flow into it from outside. These inward flows occur in several ways, including: tourists visit and make local purchases for lodging, food, entertainment, etc.; the federal government buys goods and services from a local firm; and most importantly, a local company sells the bulk of output outside a region, bringing sales revenues and profits back in. The revenues accrue to the region’s companies and workers, who in turn spend it locally, generating the multiplier effects described above. In this sense, colleges and universities also serve as a “basic” sector by attracting spending in several important ways: 1) admitting students from outside the GPR who relocate here, bringing their spending for tuition, room and board, entertainment, etc. with them; 2) drawing visitors to GPR campuses, such as attendees of sporting events and patients from other areas who come to one of the region’s hospitals for treatment, and 3) inducing investment, such as award of R&D contracts by government agencies.

Economic Development Partnerships

Finally, colleges and universities contribute to economic prosperity through partnerships and collaboration with state and local governments, businesses, and non-profit community groups. Colleges and universities have increasingly come to realize that the quality of life on their campuses, and their ability to accomplish their primary educational goals, are closely linked to and affected by the quality of life in their host communities, and by the performance of the regional economy. Participation in local development programs that enhance the quality of life in adjacent neighborhoods, such as improving the housing stock, makes the region more attractive to students and faculty. Since colleges and universities are not mobile and cannot relocate, they necessarily have a strong, vested interest in promoting economic prosperity in their adjacent communities and in the larger region. Colleges and universities located in older urban communities have long been involved in community development activities. However, in recent years they have realized that they need to take a larger, more proactive role in promoting local economic prosperity by direct participation in or sponsorship of major, development projects that over time can transform the character of adjacent neighborhoods. Within the GPR, the larger institutions located in urban neighborhoods, including Drexel University, LaSalle University, University of Pennsylvania, Rutgers University–Camden, Saint Joseph’s University,

Temple University, University of the Sciences, Widener University and others are actively involved in partnerships that have explicit economic and community development objectives.

The effects of these programs can be local, as when an institution supports a local community development organization or improvement district, or they can be broad as occurs when programs that maximize the purchase of goods and services from companies in the region are used. Through these partnerships, college and universities offer a wide range of supporting resources, including direct financial support, the provision of in-kind services like training, and the placement of volunteers. While the expenditures for these programs are included in the analysis of the economic impacts presented above, they can produce significant, longer-term economic and non-economic benefits. College and universities were asked to list the economic development partnerships in which they currently participate. The intent was to identify the range of programs whose primary purpose is to promote local or regional economic prosperity. The following types of partnerships were listed:

- **Business Assistance Centers.** These programs are designed to provide assistance to local business, and are often targeted specifically at small businesses. An institution's faculty and students in the appropriate majors provide consulting services to local businesses, including preparation of business and marketing plans, financial advice, identification of financing, advice on tax issues, etc. The facilities often also provide a range of supporting clerical and administrative services, access to meeting rooms, etc.
- **Economic Incentive Zones.** Colleges and universities sponsor and participate in economic incentive zones that provide different types of financial incentives to new businesses such as tax credits and tax abatements, grants, low interest loans, and subsidized rents. In Pennsylvania, one of the local sponsors of a Keystone Innovation Zone (KIZ) must be a college or university. For example, LaSalle University is a charter member of the Biolaunch611 KIZ, while the University of Pennsylvania, Drexel University, Thomas Jefferson University, University of the Sciences in Philadelphia, and the Wistar Institute are all participants in the University KIZ in West Philadelphia. Institutions in New Jersey such as Burlington County College participate in Urban Enterprise Zones (UEZs).
- **Local Purchase Programs.** These programs help local firms become qualified providers of goods and services, which in turn increase the economic multiplier effects from direct spending. They range from formal, with lists of pre-qualified contractors, to informal where local vendors have acquired the ability to meet school-specific needs over time. Most of the institutions in the GPR have such programs.
- **Business Incubators.** Through these programs, institutions provide facilities, support services, business planning expertise, and financial support for start-up companies. Some of these facilities are designed to attract specific industry sectors. Examples include Rutgers University–Camden's participation in the Rutgers Camden Technology Campus/Small Business Incubator; and the University of Delaware's sponsorship of the Delaware Technology Park. The oldest of the incubators in the region is the Science Center in West Philadelphia, sponsored by Drexel University, Thomas Jefferson University, University of Pennsylvania, and by 21 other colleges and universities, including some from outside the region.
- **Development Parks.** These programs differ from business incubators, as they are designed to attract established companies with their jobs and investment to the vicinity of

campus. At times the institution is the developer, and often targets specific industries that align with their major academic programs, or companies that have partnerships with the school. Examples include Rowan University's role in developing the South Jersey Technology Park and Widener and Villanova Universities' joint sponsorship of University Technology Park in Chester, PA, which is also a KIZ.

- **Local Community Development Organizations.** Many schools sponsor or participate in local community development organizations and business improvement districts whose primary purposes are to enhance the economy and quality of life in adjacent neighborhoods and commercial districts. The organizations can also include non-profit housing corporations whose objective is to improve the quality of the local housing stock. Examples include Saint Joseph's University's participation in the City Avenue Special Services District, Rutgers University–Camden's involvement in the Coopers Ferry Development Corporation and the Rutgers–Fairview Neighborhood Partnership, the Lutheran Theological Seminary at Philadelphia's participation in the Mt. Airy Business Improvement District, and the University of Pennsylvania's Center for Community Partnerships.
- **Partnerships with Other Educational Institutions.** Under these programs, colleges and universities partner with local school districts and private schools to provide direct educational services, such as curriculum materials, professional development services for teachers and administrators, student teachers and volunteer tutors, financial support, including the provision of equipment such as computers, etc. Finally, some institutions assume a much larger role by becoming education management organizations (EMOs) that operate charter schools. Currently both Temple University and University of Pennsylvania are doing so in the City of Philadelphia School District.

Presented below are examples of local economic development partnerships.

Saint Joseph's University – City Avenue Special Services District

The City Avenue Special Services District (CASSD) represents a unique partnership between the City of Philadelphia, the Township of Lower Merion and the public and private sectors. Covering parts of the City of Philadelphia and Lower Merion Township, Pennsylvania, CASSD is the first multi-jurisdictional special services or business improvement district from among over 1,200 districts in North America. Saint Joseph's president sits on the CASSD board and the university also hosts the organization's board meetings quarterly. In addition, Saint Joseph's investments help fund and support the efforts of the organization.

The City Avenue corridor has over 2.6 million square feet of office space and over 1,000 hotel rooms and a wide range of retail stores, apartments and houses. The mission of the CASSD is to engage property owners, businesses, tenants and other stakeholders to retain and improve the economic and real estate vitality of the City Avenue area so that it can successfully compete as an attractive location in which to live, work, shop, visit, receive health care services, and study. Three key goals in the development of CASSD were to reduce crime; help better shape the direction of development; and to improve the image of the City Avenue area.

A few recent key projects include:

- Increased development – In addition to recent openings of the Huntington Learning Center and Target, Saint Joseph's is building an architecturally distinguished retail and garage facility, which will include a relocated, upscale university bookstore, coffee shop, fine dining restaurant, and parking for 450 cars.
- Improved Landscaping – As part of the TreeVitalize program, trees have been planted along City Avenue to provide a calming effect on traffic, aesthetic improvement and a shady spot.
- Enhanced Security – The bike patrol continues to hire representatives to patrol the corridor and surrounding streets.

CASSD has been successful in its operations and was given a special recognition award from the Pennsylvania Planning Association in 1999 for a Special Community Initiative and a 2001 Pennsylvania Governor's Award for Local Government Excellence for building community partnerships. CASSD has also worked to bring additional resources to the area in terms of government and foundation grants and additional services. Today, CASSD is working to expand its programming.

Another project supported by Saint Joseph's is the Wynnefield Overbrook Revitalization Corporation (WORC). This is a new effort conceived by Councilman Michael Nutter and Saint Joseph's University to leverage public and private resources toward improving the quality of life in neighborhoods adjacent to the Saint Joseph's campus and to the boundaries of the City Avenue Special Services District. WORC will focus on preserving single-family housing opportunities, commercial and retail economic development, and recreational opportunities.

University of Pennsylvania – West Philadelphia Initiatives

The University of Pennsylvania organized and implemented an ambitious policy designed to stimulate neighborhood reinvestment in West Philadelphia, where the University's campus is located. The University's policy, known as the West Philadelphia Initiatives, sought to fundamentally improve the administrative support, funding, and academic resources to support the Initiatives, and sustain this support over a period of years. The Initiatives had five comprehensive goals, which were addressed simultaneously:

- Clean, safe and attractive streets and neighborhoods;
- Excellent school options;
- High quality, diverse housing choices;
- Reinvigorated retail options; and
- Increased job opportunities through economic inclusion.

The effort produced impressive results: declining crime rates, reliable maintenance of streets and public spaces, the creation of a new University-assisted public school, a stronger real estate market, the development of new retail facilities patronized by shoppers from both the campus and the community, and a major increase in the participation of neighborhood and minority residents and businesses in University-sponsored construction projects and the procurement of supplies and services.

Unlike neighborhood improvement ventures undertaken by other institutions, the West Philadelphia Initiatives were not part of an academic program. Instead, they were an

administratively driven, academically informed program led and managed by the University of Pennsylvania's President and senior administrators. Placing leadership and operational responsibilities for the West Philadelphia Initiatives within the institution's administration is a key defining characteristic of the University's approach and commitment to neighborhood revitalization.

Rutgers University – EcoComplex and Business Incubator

The Rutgers EcoComplex is the University's Environmental Research and Extension Center (The Center). Environmental innovation enhances economic prosperity. As such, the EcoComplex is dedicated to moving science from the lab to real-world applications in New Jersey's businesses and industries, and to promoting New Jersey as a center for environmental innovation and enterprises. The Center is a partnership with the Burlington County Board of Freeholders, which performs research and develops new technologies to address the pressing environmental, solid waste, and resource-recovery issues faced in New Jersey. The EcoComplex functions as a hub of education and outreach for the entire environmental community.

Dedicated on April 23, 2001, the Rutgers EcoComplex is the nation's first research, technology development, teaching and outreach center that is dedicated to enhancing the environment and agriculture through education, outreach and "green" business development. The EcoComplex is a multi-institutional, multidisciplinary environmental center that harnesses research and education resources towards the development and industrial application of innovative environmental technologies. Its mission is to promote economic prosperity in the environmental arena, including the remediation and protection of environmental quality, and the compatible sectors of food and innovative agriculture. By targeting these areas with integrated programmatic thrusts in research, education and economic development, the EcoComplex provides a distinctive focus.

The EcoComplex is home to an environmental incubator, a high-tech research center for start-up businesses, focusing on industries that market and develop environmental cleanup technologies. It also serves as a catalyst for new high-tech environmental businesses by providing research assistance to test viability of new technologies. The incubator is actively engaged in "Green Business" development, providing advice and assistance to entrepreneurs in the areas of business plan development, progress evaluation and assessment, and timing of private placement. It provides access to laboratories, research personnel, and office space, and offers other means of assistance. The center also attracts new businesses to New Jersey by offering services and resources not available anywhere else, and assists existing New Jersey business in implementing and sustaining environmentally sound technologies and business practices.

Burlington County College – High Technology Small Business Incubator

The 20,000 square-foot Burlington County College High Technology Small Business Incubator has a prime location on the College's growing campus in Mount Laurel. From the moment the Incubator opened in 1998, it was fully occupied. While waiting for space, a number of startup companies have been granted virtual status, which includes on-site offices with specified Incubator privileges. These companies are expected to "hatch" within three to four years. As businesses become self-sufficient enough to move out of the Incubator, other early-stage

enterprises take their place. On average, the High Technology Small Business Incubator hosts approximately 23 companies and 12 virtual tenants.

The High Technology Small Business Incubator is expected to enhance economic growth in New Jersey – creating new jobs, products and services. To this end, it offers promising start-up companies a facility and supporting services designed to enable them to grow. Each company has access to extensive resources, support in developing business and technology plans, and opportunities to exhibit at conferences and venture capital showcases. Each firm can also tap into an established network of business resources, essential to a company's development: legal, venture capital, governmental, scientific, licensing, patent, grant-funding, and marketing and e-commerce resources.

To further its commitment to supporting the birth and development of science and technology companies, Burlington Community College opened its Science Incubator in 2007. The new center is devoted to the sciences and promoting growth of biology, pharmaceuticals, chemistry, medical technology, photonics and nanotechnologies. The 12,800 square foot incubator has 11 interconnected laboratory modules with fumehoods, lab sinks, casework, as well as access to high speed Internet and Internet 2, conferences rooms, office machines and a resource library.

University of Delaware – Center for Community Research and Service

The Center for Community Research and Service (CCRS) has been in existence in some form since 1973 and today consists of 25 faculty, associated faculty, professionals and support staff who focus on issues of local community and economic development, with a particular emphasis on Delaware. In carrying out applied research, technical assistance and training activities in the areas of community and economic development, housing, neighborhood planning and revitalization, health and social services, and social policy, CCRS is focused on how social and economic opportunity can be enhanced for those populations and groups that are marginalized. Through the CCRS, many University of Delaware graduate students are engaged in a variety of community and economic development activities.

One of many initiatives supported by CCRS and University of Delaware graduate students is the West End Neighborhood House. Its mission is to assist individuals to achieve self-sufficiency, to reach and maintain their maximum potential, and to live responsibly and harmoniously in a healthy community. As part of this mission, West End provides a variety of services including tutoring and other youth services, before and after school care, education and employment, and housing and financial management services. As part of their graduate program of study, University of Delaware students volunteer their services to support the mission of the West End Neighborhood House through the development of affordable housing, low interest loan programs and neighborhood initiatives.

Quality of Life

Colleges and universities not only produce a significant economic impact by their direct spending, but they also contribute to the region's quality of life through on campus events and activities, community programs, partnerships with local business, and much more. These contributions can include providing space and resources for arts, culture, or sporting events, offering volunteers for community based social service programs, promoting civic education and engagement through community forums, and sharing faculty member's knowledge through lecture series, etc. While the benefits to a region's quality of life are intangible and difficult to measure in economic terms, they are highly significant. They make the local community and region a more desirable place to live and work. Higher education's positive impact and support of quality of life is increasingly becoming of regional competitive advantage.

Recommendations for Further Study

Select identified the following areas of further research that would enable more accurate estimates to be made of the specific types of economic impacts generated by colleges and universities.

Student Spending. Obtain additional information on the level and composition of student spending, focusing on those living off-campus but away from home; and on those living at home and commuting. The objective of the study would be to determine the incremental spending by college students residing in all types of housing that accrue to businesses in region, excluding payments to the schools and living expenses that are not related to enrollment in college (i.e., a student who enrolls in school and continues to live at home does not increase spending for rent and utilities, but would incur higher costs for transportation and food consumed away from home). The study should also include spending by foreign students. The study should be survey based, and involve different types of schools (e.g., public and private). A good model to follow is the 2003 study performed at the University of Delaware by Allison Ohme.

Retention of Graduates. Perform a study to estimate more accurately the proportion of students remaining in the region after graduation. The analysis should consider both undergraduate and graduate students. This effort would include collaborating with organizations that currently sponsor programs for college students such as Campus Philly as they may already have some of this information. Their knowledge would be very valuable in developing a scope of work, including the survey instrument. The focus for graduate students should be on those receiving master and first professional degrees in key areas such as business and finance, law, information technology, communications, and engineering. Alumni associations would be a potentially valuable source of information.

Campus Visitors. Colleges and universities should develop more accurate estimates of the number and types of campus visitors based on the reason for their visits and on the types of activities they engage in. Select's sense is that the total number of visitors and the levels of spending they generate are possibly higher than current estimates would indicate.

Conclusion

Select Greater Philadelphia evaluated the GPR's higher education sector for several reasons. First, the sector is a major part of the region's economy based on its direct effects of employment, purchases of goods and services, construction of capital projects, and spending by students and visitors. Colleges and universities have historically been significant contributors to the region's quality of life in many ways – social, cultural, civic, and economic, but an assessment of their combined economic and community impacts had not been done. Second, higher education is becoming a more important factor in determining the long-term performance of a region's economy. It is increasingly a regional competitive advantage, especially in improving the quality of human capital. As the US and its regions evolve toward economies where the generation, dissemination and rapid application of knowledge and innovation is essential, the accompanying demand for highly educated workers with superior critical thinking skills and the flexibility to be life-long learners of new ideas and technologies, also rises.

Because Select Greater Philadelphia's approach to economic development is market-driven, it was essential to study one of the region's major economic advantages – its colleges and universities. Select confirmed the importance of higher education by determining that in May 2006 almost 22% of the jobs in the region required a bachelor's degree or higher, while 4.5% needed an advanced degree; ranking 8th and 5th highest among the 25 largest MSAs.

Significant findings are summarized below:

- The region's higher education sector is large in absolute terms. During the base year, total unduplicated, full-time and part-time enrollment at the 88 schools was 359,511 students, total operation spending was \$12.3 billion, and 67,169 associate, bachelor's, and master's degrees were awarded. Student spending was approximately \$2.2 billion, excluding tuition, fees, and room and board paid to the colleges and universities. Finally, total direct employment at the schools was 85,267 (2.8% of the region's total);
- GPR's higher education sector is very diverse. The 88 institutions encompass technical schools, ten Community Colleges, Liberal Arts Colleges, including Special Focus Institutions, and Master's and Research Universities that offer degrees in many areas of study. The diversity is an advantage to the region's economy as the schools meet a wide range of educational needs, and deliver them in alternative ways that maximizes accessibility, especially in providing continuing education to residents;
- The region's higher education sector is also large in absolute terms when compared to the largest MSAs. Based on IPEDS data, total FTE enrollment in the Fall 2005 was 4th highest, while total spending was 5th;
- Colleges and universities have a higher proportional presence in the GPR than in most of the largest MSAs, indicating that their proportional impact on the region's economy will also be higher than in most other metro areas. Fall 2005 FTE enrollment per 10,000 residents was 5th highest among large MSAs, while spending per 10,000 residents ranked third (behind only Boston and Baltimore);
- The distribution of certificates and degrees awarded by first major, or area of study, is reflective of, and consistent with the structure of the region's economy. High numbers and shares of awards occur in majors (i.e., health care, law, business, education, visual

and performing arts) that align with the economic sectors where the GPR has experienced the highest growth and where it has competitive advantages such as education and health services, information, financial activities, and professional and business services. The concentration of awards by the Special Focus Institutions in art, music, design, theology, etc. increase the creative class workforce, enhance its arts and culture sectors, and improve the region's overall quality of life;

- The region's higher education sector is concentrated in the following types of schools: Research Universities; Master's Colleges and Universities; Special Focus Institutions in the areas of Medicine, Health, Theology, Art and Music; and Public Institutions offering associate degrees located in urban and suburban areas (i.e., the ten Community Colleges);
- The GPR's concentration of spending at Research and Master's Universities, which have higher spending levels per student than other types of schools, increases the higher education sector's proportional impact on the region's economy;
- The region specializes in bachelor's and higher education when compared to other large MSAs; it ranked 2nd in the number of bachelor's degrees awarded per 10,000 residents, and 3rd in the number of advanced certificates and degrees awarded. Reflecting this, the region ranked only 23rd based on the share of all its awards that were associate degrees, but 2nd based on its share of all awards that were bachelor's degrees and 4th in the shares of first professional and doctoral degrees;
- Consistent with the concentration of bachelor's and higher awards, the region's full-time enrollment as a share of total unduplicated enrollment was 6th highest among the large MSAs in Fall 2005, while its share for part-time enrollment was 20th.
- Because of its large size, the higher education sector has a significant impact on the region's economy. The direct effects from operations expenditures and spending by students (in 2007\$) generated an increase in regional employment of almost 210,600 jobs (6.9% of the region); raised gross regional product by \$15.2 billion (4.8% of the region), and produced an additional \$11 billion in labor income (3.9% of the region). Annual expenditures for capital projects, and spending by visitors, generate further increases in regional economic activity.

The region's colleges and universities positively affect economic prosperity over the longer-term, at the local and regional levels, by sponsoring and/or participating in many different types programs and partnerships. Overall, the Greater Philadelphia Region is well positioned for leveraging its considerable advantages in the higher education sector to sustain and enhance the rate of economic growth. As an increasing premium is placed on the educational level of a region's workers, and on the capacity of its institutions and companies to continuously innovate and apply new technologies in order to drive growth in productivity, higher education will become a more important factor in the long-term growth outlook for Greater Philadelphia.

References

- "America's Best College, 2008." August 2007. US News & World Report. 14 Sep 2007
<http://colleges.usnews.rankingsandreviews.com/usnews/edu/college/rankings/rankindex_brief.php>.
- "Book of Lists 2007." Philadelphia Business Journal 25(2007): 137-145
- Center City District, "Retaining College Graduates, Survey of College Graduates in Center City." October 2006. August 2007
<http://www.centercityphila.org/docs/CCR06_CollegeGrads_LR.pdf>.
- CEO Council for Growth, "Human Capital Needs Assessment." (2006):
- College Board, "Education Pays Second Update." (2006). May 2007.
<http://www.collegeboard.com/prod_downloads/press/cost06/education_pays_06.pdf>.
- Econsult, "The Economic and Fiscal Impact of Saint Joseph's University." Saint Josephs University. August 2007.
- Econsult, "The Economic and Fiscal Impacts of Widener University." Widener University. October 2005.
- Econsult, "University of Pennsylvania 2006 Economic Impact Report." University of Pennsylvania. 2006.
- Fiorentino, Dr. Chris, Dr. R. Lorraine Bernotsky, Dr. Wes Thomas, Dr. Peter Loedel. "Economic Impact of Independent Higher Education on Pennsylvania." (2006). May 2007.
<http://www.collegeboard.com/prod_downloads/press/cost06/education_pays_06.pdf>.
- Global Insight, "State and Regional Economic Forecast." Global Insight. Winter 2007. July 2007 <<http://www.globalinsight.com>>.
- Greater Philadelphia Chamber of Commerce, "Greater Philadelphia Colleges & Universities/Hospital Directory." (2006).
- Iranzo, Susana, and Giovanni Peri. "Schooling Externalities, Technology, and Productivity: Theory and Evidence from U.S. States." National Bureau of Economic Research. August 2006. May 2007. <<http://www.nber.org/papers/w12440>>
- Knapp, Laura, Janice E. Kelly-Reid, and Roy W. Whitmore. "Postsecondary Institutions in the United States: Fall 2005 and Degrees and Other Awards Conferred." National Center for Education Statistics, Institute of Education Sciences December 2006 1–34. 08 2007.
- Lester, Richard K. "Universities, Innovation, and the Competitiveness of Local Economies: A summary Report from the Local Innovation Systems Project: Phase I." MIT IPC Working Paper. December 2005.
- National Center for Education Statistics, 2007 Integrated Postsecondary Education Data System (IPEDS). 2007.
- Ohme, Allison. "Economic Impact of University of Delaware on Newark and the State of Delaware." Fall 2003. May 2007
<<http://www.udel.edu/IR/reports/eci/irs04-03.pdf>>.
- Paulin, Geoffrey D. "Expenditures of college-age students and nonstudents." Monthly Labor Review (2001): 46–50.
- Pennsylvania Economy League – Eastern Division, "Greater Philadelphia's Knowledge Industry: Leveraging the Region's Colleges and Universities in the New Economy." Fall 2000.
- Rutgers, The State University of New Jersey, "Rutgers Return on Investment." (2004). May 2007.
<http://oirap.rutgers.edu/reports/ecom_imp/EconImpact_050704.pdf>.
- Temple University, "The Economic Impact of Temple University." (2006).
- Tripp, Umbach, & Associates, Inc., "The Pennsylvania State University Economic Impact Statement 2003." October 18, 2004. May 2007.
<http://www.psu.edu/ur/topics/economic_impact/images/psu_final_report.pdf>.
- Warsh, David. Knowledge and the Wealth of Nations: A Story of Economic Discovery. WW Norton, 2006.

Appendix A. *Survey Form*

Select Greater Philadelphia Higher Education Survey

Please fill in your contact information:

NAME:	
TITLE:	
INSTITUTION:	
ADDRESS:	
CITY, STATE ZIP CODE:	
PHONE:	
FAX:	
EMAIL:	
WEBSITE:	

If you have any questions regarding the survey please contact Meghan Kang, Research Analyst, Select Greater Philadelphia at 215.790.3709 or mkang@selectgreaterphila.com.

RESPONSES DUE BY FRIDAY, FEBRUARY 23, 2007

OVERVIEW

Select Greater Philadelphia (Select) is the regional economic development marketing organization whose mission is to attract new businesses and investment to the Greater Philadelphia Region (GPR). We have identified several important economic sectors that we will be evaluating over the next few years; one of the first of these is a study of the GPR's Higher Education sector, defined as technical schools, colleges, and universities that offer at least an Associate degree and that have been accredited by a recognized licensing organization. We have identified a total of 88 institutions in the GPR that meet this definition. The objectives of the Higher Education Study are:

- Provide a current description of the 88 institutions;
- Estimate the sector's direct and total impacts on the GPR's economy;
- Identify partnerships and programs that enhance local and regional economic development, and;
- Describe recently completed and proposed major capital projects.

We have prepared the following survey to obtain the information Select needs to complete our study. It is being sent to the contact person identified at each institution.

Please review these instructions:

- The base year for the study is the **2005–2006 Academic Year**, so whenever possible please provide information only for this year.
- The same survey is being sent to all 88 institutions. Please answer all the questions that apply, some will not apply to every school.
- The GPR is comprised of the following 11-counties: New Castle in Delaware; Burlington, Camden, Gloucester, Mercer and Salem in New Jersey; and Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania. In answering the questions, please include information for all affiliated organizations, campuses and programs operated by your institution in the 11-counties.
- **Please send us a copy of your budget and fact sheet for the 2005–2006 Academic Year.** The budget should cover all schools, related facilities and organizations (e.g., medical schools, research centers, museums, etc.), and campuses operated by your institution that are in the GPR. The budget should also cover all types of funds, including the General fund, Capital funds, and other proprietary funds.

The budget and fact sheet should be sent to:

Email: MKang@selectgreaterphila.com
Fax: 215.790.3720
Mail: Ms. Meghan Kang
Research Analyst
Select Greater Philadelphia
200 South Broad Street, Suite 700
Philadelphia, PA 19102-3896

Finally, Select has already assembled information about your institution from several existing data sources, including the IPEDS data base maintained by the U.S. Department of Education. The reasons for doing so were to first learn about the characteristics of your institution, and second to minimize the amount of information we needed to obtain from the survey. We have included a profile of your institution for your review.

TABLE OF CONTENTS

I. Student Enrollment & Degrees Awarded	Page 1
II. Employment & Salaries	Page 2
III. Annual Expenditures	Page 3
IV. Research & Development	Page 4
V. Student Spending	Page 5
VI. Campus Visitors & Visitor Spending	Page 7
VII. Capital Projects	Page 8
VIII. Economic Development Programs & Partnerships	Page 10

I. Student Enrollment & Degrees Awarded

1) Provide the following enrollment information:

Enrollment Category	Number of Students
Total Enrollment (Unduplicated, Full time plus Part time)	
Full Time Enrollment (Unduplicated)	
Part Time Enrollment (Unduplicated)	
Undergraduate Enrollment (Unduplicated, Full time & Part time)	
Students Living On-Campus*	
Students Living Off-Campus*	
Student Living off Campus who Commute*	
Total Entering Freshman	
Number of entering Freshman from the Greater Philadelphia Region*	
Number of entering Freshman from your State*	
Number of entering Freshman who are Non-Resident Aliens*	
Number of entering Freshman from Private High Schools*	
Number of entering Freshman from Public High Schools*	

** If numbers are not available, please provide a percent (%) share. Indicate so by adding a "%" after the box.*

2) Provide the number of degrees awarded at all levels (e.g., Associate's, Bachelors, and Masters and higher) in the following program areas:

Program Area	Number of Degrees
Business & Finance	
Computer Science & Information Technology	
Education	
Engineering	
Liberal arts	
Physical & Natural Sciences	
Other	
Total Degrees Awarded – All Levels and Programs	

3) Provide the total number of degrees awarded by level across all program areas:

Level of Degree Awarded	Number of Degrees
Associates	
Bachelors	
Masters	
First Professional (Law, MBA)	
PhD (including EdD)	

4) Based on experience in recent years, what percent of students from an individual year's graduating class are still living in the GPR three (3) years later?

Degree Level	Percentage of Graduates
Students Receiving an Associates or Bachelors Degree	%
Students Receiving a Masters Degree or Higher	%

5) In recent years, has the share of graduates living in the Greater Philadelphia region three years after graduation been:

Decreasing Remaining the Same Increasing

If increasing, please briefly describe why.

II. Employment & Salaries

1) Provide the number of employees:

Employee Type	Number of Full Time Employees	Number of Part Time Employees
Instruction & Research		
Executive & Administrative		
Other Professional		
Non-Professional		
Total		

2) Provide the total wages and salaries paid to the following types of employees:

Employee Type	Wages & Salaries
Instruction & Research	\$
Executive & Administrative	\$
Other Professional	\$
Non-Professional	\$
Total	\$

3) Estimate the percentage of your employees who lived in the GPR:

Employee Type	Percentage of Employees
Instruction & Research	%
Executive & Administrative	%
Other Professional	%
Non-Professional	%

III. Annual Expenditures

1) Provide the total spending by your institution in the GPR during the 2005–2006 Academic year. This figure should include spending by all affiliated schools and organizations, such as hospitals, research institutes, and non-profit corporations governed by your Board of Trustees. The estimate should also include spending from all fund types, including the General fund, Capital funds, and Research & Development programs if the spending is not included in the General fund.

Total spending – \$_____

2) What percentage of your institution's total spending for non-labor goods and services were purchased from companies located in the GPR?

Percent of purchases from local suppliers – _____%

- 3) Describe programs you have that help local companies sell goods and services to your institution:

IV. Research & Development

- 1) Provide information on the value of Research & Development (R&D) grants and contracts held by your institution, including those from the Federal Government (e.g., Department of Defense, National Institutes of Health, and other federal agencies), State and Local governments, and Private corporations.

Total number of R&D grants & contracts held – _____

Total value of R&D grants and contracts held – \$_____

- 2) What was the amount spent from all R&D grants and contracts held by your institution? \$_____
- 3) What was the total value of all R&D grants and contracts awarded to your institution during the 2005–2006 Academic Year? \$_____
- 4) During the last 5 years how many private companies have been started as a direct result of activities performed at your institution, such as research and development? Include companies started by faculty and staff, and those established by your institution.

Number of companies started – _____

Number of companies still operating – _____

- 5) List any new degree programs or colleges that your institution will be starting in the next five (5) years.

- 6) List any new areas of Research & Development that your institution is planning to pursue in the next five (5) years.

V. Student Spending

- 1) Indicate which system your academic year is based on:

Quarter

Semester

- 2) Estimate spending per semester by a full-time student living on-campus in University housing; do not include Room and Board paid to your institution:

Spending Category	Amount
Books & other Educational Supplies (including Computers & Software)	\$
Food & Beverage (excluding Meal Plans)	\$
Clothing	\$
Entertainment & Recreation	\$
Other Services (e.g. Dry Cleaning, Medical & Dental)	\$

- 3) Estimate spending per semester by a full-time student living off-campus in private housing, who did not commute on a daily basis:

Spending Category	Amount
Rent	\$
Utilities (e.g. Electricity, Natural Gas, Phone, Cable, Internet)	\$
Books & other Educational Supplies (including Computers & Software)	\$
Food & Beverage	\$
Clothing	\$
Entertainment & Recreation	\$
Automobile	\$
Other Services (e.g. Dry Cleaning, Medical & Dental)	\$

- 4) Estimate on-campus spending per semester by a commuting student:

Spending Category	Amount
Books & other Educational Supplies (including Computers & Software)	\$
Transportation (e.g. Gasoline, Parking & Mass Transit Fares)	\$
Entertainment & Recreation	\$
Food & Beverage	\$

1. Campus Visitors & Visitor Spending

- 1) Estimate the number of visitors to your institution for the on-campus activities listed below:

Types of On-Campus Activities	Number of Visitors
Music Concerts & Theater Performances	
Academic Conferences and Professional Seminars	
Art Festivals	
Individual Sports Events	
Summer Academic & Sports Camps	
Non-Student, Campus Visitors not attending any of the above events	

- 2) Estimate the average number of days a visitor is on-campus for these activities:

Types of On-Campus Activities	Number of Days
Academic Conferences and Professional Seminars	
Summer Academic & Sports Camps	

- 3) Estimate the amount spent per visitor–day:

Types of On-Campus Activities	Spending Per Visitor–Day
Music Concerts & Theater Performances	\$
Academic Conferences and Professional Seminars	\$
Art Festivals	\$
Individual Sports Events	\$
Summer Academic & Sports Camps	\$
Non-Student, Campus Visitors not attending any of the above events	\$

- 4) If you do not have spending figures for the individual activities listed above, please provide the following overall estimates:

Spending per visitor day, all activities, no overnight stay – \$_____

Spending per visitor day, all activities, stays overnight – \$_____

VI. Capital Projects

- 1) Provide a list of capital projects costing over \$3 Million that have been completed within the last five (5) years, are currently under construction, or are scheduled to be completed during the next five (5) years in the chart below. Include both new facilities and renovations/upgrades of existing facilities. See chart on page 9.

Type of Project	Estimated Cost	Construction Start & End Dates	Project Description
<i>Example: Dorm</i>	<i>\$5 Million</i>	<i>June 06 – Jan 06</i>	<i>500 New Dorms Built & 100 Dorms Renovated</i>
	\$		
	\$		
	\$		
	\$		
	\$		
	\$		
	\$		
	\$		
	\$		

VII. Economic Development Programs & Partnerships

Institutions of higher education enhance economic development through programs and partnerships with local governments, businesses, and community and non-profit organizations. Select would like to know about the significant programs and partnerships your institution participates in whose purpose is to promote economic development, either directly through participation in a local economic development corporation, or indirectly through education partnerships.

- 1) **Economic Development:** Local community economic development organizations and improvement districts:

- 2) **Business Development:** Facilities and programs designed to help startup and small businesses prosper, including small business assistance programs and technology incubators:

- 3) **Education:** Programs with local public and private K–12 schools and school districts, also participation in regional organizations designed to achieve specific education outcomes, such as the Greater Philadelphia Business – Higher Education Science, Technology, Engineering and Math (STEM) Partnership:

- 4) **Company and Industry Programs:** Education and training programs for individual companies, specific industries, or professional associations and trade groups:

If you have any questions about the survey, please contact:

Meghan Kang, Research Analyst
Select Greater Philadelphia
200 South Broad Street, Suite 700
Philadelphia, PA 19102-3896
Phone: 215.790.3709
Fax: 215.790.3720
Email: MKang@SelectGreaterPhila.com

Thank you for participating in this survey.
Select Greater Philadelphia will release the results of the survey in the Spring of 2007.
A copy of the final report will be sent to all institutions who participated in the study.

Appendix B. *Greater Philadelphia Colleges & Universities Websites*

Institution Name	Web site
Academy of Vocal Arts	www.avaopera.com
American College	www.theamericancollege.edu
Arcadia University	www.arcadia.edu
Art Institute of Philadelphia	www.artinstitutes.edu/philadelphia
Aviation Institute of Maintenance	www.aviationmaintenance.edu
Biblical Theological Seminary	www.biblical.edu
Bryn Athyn College of The New Church	www.brynathyn.edu
Bryn Mawr College	www.brynmawr.edu
Bucks County Community College	www.bucks.edu
Burlington County College	www.bcc.edu
Cabrini College	www.cabrini.edu
Calvary Baptist Theological Seminary	seminary.cbs.edu
Camden County College	www.camdencc.edu
Chestnut Hill College	www.chc.edu
Cheyney University of Pennsylvania	www.cheyney.edu
CHI Institute	www.chitraining.com
Community College of Philadelphia	www.ccp.cc.pa.us
Curtis Institute of Music	www.curtis.edu
Delaware College of Art And Design	www.dcad.edu
Delaware County Community College	www.dccc.edu
Delaware Technical & Community College	www.dtcc.edu
Delaware Valley College	www.devalcol.edu
DeSales University	www.desales.edu
Devry University–Pennsylvania	www.devry.edu
Drexel University	www.drexel.edu
Eastern University	www.eastern.edu
Gloucester County College	www.gccnj.edu
Goldey–Beacom College	www.gbc.edu
Gratz College	www.gratz.edu
Gwynedd–Mercy College	www.gmc.edu
Harcum College	www.harcum.edu
Haverford College	www.haverford.edu
Holy Family University	www.holyfamily.edu
Hussian School of Art	www.hussianart.edu
Immaculata University	www.immaculata.edu
Institute for Advanced Study	www.ias.edu
ITT Technical Institute	www.itt-tech.edu
JNA Institute of Culinary Arts	www.culinaryarts.com
Katharine Gibbs School	www.gibbspa.com
La Salle University	www.lasalle.edu
Lincoln Technical Institute	www.lincolntech.com
Lincoln University	www.lincoln.edu
Lutheran Theological Seminary at Philadelphia	www.ltsp.edu
Manor College	www.manor.edu
Mercer County Community College	www.mccc.edu

Montgomery County Community College	www.mc3.edu
Moore College of Art And Design	www.moore.edu
Neumann College	www.neumann.edu
Peirce College	www.peirce.edu
Pennco Tech	www.penncotech.com
Pennsylvania Academy of the Fine Arts	www.pafa.edu
Pennsylvania College of Optometry	www.pco.edu
Pennsylvania Institute of Technology	www.pit.edu
Pennsylvania State University – Great Valley	www.gv.psu.edu
Pennsylvania State University – Delaware County	www.de.psu.edu
Pennsylvania State University – Abington	www.abington.psu.edu
Philadelphia Biblical University	www.pcb.edu
Philadelphia College of Osteopathic Medicine	www.pcom.edu
Philadelphia University	www.philau.edu
Princeton Theological Seminary	www.ptsem.edu
Princeton University	www.princeton.edu
Reconstructionist Rabbinical College	www.rrc.edu
Rider University	www.rider.edu
Rosemont College	www.rosemont.edu
Rowan University	www.rowan.edu/camden
Rutgers University	www.camden.rutgers.edu
Saint Charles Borromeo Seminary	www.scs.edu
Saint Josephs University	www.sju.edu
Salem Community College	www.salemcc.edu
Strayer University	www.strayer.edu
Swarthmore College	www.swarthmore.edu
Talmudical Yeshiva of Philadelphia	Not Available
Temple University	www.temple.edu
The College of New Jersey	www.tcnj.edu
The Restaurant School at Walnut Hill College	www.therestaurantschool.com
The University of the Arts	www.uarts.edu
Theological Seminary of the Reformed Episcopal Church	None Available
Thomas Edison State College	www.tesc.edu
Thomas Jefferson University	www.tju.edu
University of Delaware	www.udel.edu
University of Medicine & Dentistry Of New Jersey	www.umdnj.edu
University of Pennsylvania	www.upenn.edu
University of Phoenix	www.phoenix.edu
University of the Sciences in Philadelphia	www.usip.edu
Ursinus College	www.ursinus.edu
Valley Forge Christian College	www.vfcc.edu
Valley Forge Military College	www.vfmac.edu
Villanova University	www.villanova.edu
West Chester University	www.wcupa.edu
Westminster Theological Seminary	www.wts.edu
Widener University	www.widener.edu
Wilmington College	www.wilmcoll.edu

Acknowledgements

Select Greater Philadelphia would like to thank the regional college and university Presidents, as well as the following research & communications staff listed below and numerous other individuals whose help was essential to this study. We appreciate your support of Select's efforts to promote GPR's Higher Education Community Sector.

Ms. Teri Ryan, Arcadia University
Ms. Carise Mitchell, Art Institute of Philadelphia
Ms. Heather Mitchell, Art Institute of Philadelphia
Ms. Carole Reese, Bucks County Community College
Ms. Marie Tuscano, Bucks County Community College
Ms. Holly Staatse, Burlington County College
Mr. Chad May, Cabrini College
Mr. William Thompson, Camden County College
Ms. Michelle Barnhill, Camden County College
Ms. Val Chevenson, Center City District
Mr. Harding Faulk Jr., Cheyney University
Dr. Thomas Hawk, Community College of Philadelphia
Mr. Chris Pollard, DVRPC
Mr. Steve Frederick, Delaware County Community College
Ms. Marie Stetson, Delaware County Community College
Ms. Erin Ervin-Blankenheim, Delaware Valley College
Dr. Bernard Lentz, Drexel University
Ms. Leanne Li, Drexel University
Dr. Beth Frederick, Gloucester County College
Dr. Gary Wirt, Goldey-Beacom College
Ms. April Dobbs, Gwynedd-Mercy College
Mr. Tim Ely, Harcum College
Ms. Cathy Fennell, Haverford College
Mr. Michael Van Thuyne, Holy Family University
Ms. Erin Ebersole, Immaculata College
Mr. Joe DiGironimo, JNA Institute of Culinary Arts
Mr. Raymond Ricci, La Salle University
Dr. Michael J. Roszkowski, La Salle University
Dr. Renford Brevett, Lincoln University
Ms. Chesiree Wise, Lincoln University
Ms. Lois La Croix, Lutheran Theological Seminary at Philadelphia
Dr. Philip Krey, Lutheran Theological Seminary at Philadelphia
Mrs. Marialice Stanzascki, Manor College
Ms. Nina May, Mercer County Community College
Dr. Katherine Swanson, Montgomery County College
Mr. William Hill, Moore College of Art and Design
Ms. Ayshe Ergine, Neumann College
Mr. Brad Hodge, Peirce College
Mr. Daniel Meuleners, Penn State – Abington College
Ms. Lisa Yerges, Penn State Delaware County
Ms. Sheryl Kessler, Pennsylvania Academy of the Fine Arts
Mr. Craig Jacobs, Pennsylvania Institute of Technology
Ms. Annemarie Cassidy, Pennsylvania Institute of Technology
Ms. Lynda Hayes, Philadelphia Biblical University–Langhorne
Mr. Mark Palladino, Philadelphia University
Ms. Karen Jezierny, Princeton University
Mr. Matther Camp, Princeton University
Mr. Ron Walker, Rider University
Mr. Joseph Orlins, Rowan University
Ms. Peg Soden, Rowan University
Mr. Mike Sepanic, Rutgers University – Camden
Ms. Kathy Gaval, Saint Joseph's University
Ms. Annemarie McMullin Bartlett, Saint Joseph's University
Mr. Richard Davis, Strayer University
Ms. Nancy Nicely, Swarthmore College
Dr. Melissa Coopersmith, Temple University
Mr. Timothy Walsh, Temple University
Mr. Joe Guzzardo, Thomas Edison State College
Mr. Alfred Salvato, Thomas Jefferson University
Ms. Margaret G. Siegfeldt, Thomas Jefferson University
Ms. Joyce Haden, University of Pennsylvania
Dr. Karl Ostermann, University of Pennsylvania
Mr. Tak Paung, University of Pennsylvania
Mr. Anthony Sorrentino, University of Pennsylvania
Mr. Erik Mickelberg, University of the Arts
Ms. Anne Horowitz, University of the Sciences in Philadelphia
Ms. MaryKate McGinty, University of the Sciences in Philadelphia
Ms. Sally Widman, Ursinus College
Ms. Miriam Blimm, Villanova University
Dr. Mary Lou D'Allegro, West Chester University
Dr. William Dabney, Westminster Theological Seminary
Ms. Rose Torian, Westminster Theological Seminary
Mr. Steven Thorpe, Widener University
Dr. Angela Suchanic, Wilmington College



200 South Broad Street
Suite 700
Philadelphia, PA 19102
T: 215-790-3777
www.selectgreaterphiladelphia.com

