



## **The Impact of Higher Education**

### **In Western New York**

November 17, 2008

**Final Report Submitted to the  
Western New York Consortium of Higher  
Education**

**by the University at Buffalo Regional Institute  
The State University of New York**



# Table of Contents

---

<b>I.</b>	<b>Executive Summary</b>	<b>1</b>
<b>II.</b>	<b>Introduction</b>	<b>4</b>
<b>III.</b>	<b>Scope and Methodology</b>	<b>6</b>
<b>IV.</b>	<b>The Impact of Higher Education in Western New York</b>	<b>8</b>
	<b>a. An Economic Engine for the Region</b>	<b>8</b>
	<b>b. Laying the Knowledge Economy Foundation</b>	<b>17</b>
<b>V.</b>	<b>Conclusions</b>	<b>23</b>
<b>VI.</b>	<b>Data Sources and Notes</b>	<b>24</b>

---

## I. Executive Summary

The higher education industry plays a pivotal role in Western New York's emerging knowledge economy. Not only does the industry prepare the knowledge workforce and provide a rich supply of ideas and technology, but it directly pumps dollars into the economy and supports a major employment base. The following analysis, conducted by the University at Buffalo Regional Institute and commissioned by the Western New York Consortium of Higher Education, provides a detailed assessment of the economic and related impacts of higher education in Western New York. Among the study's key findings are:

- Western New York's 22 higher education institutions **induce a \$3.2 billion annual impact on the regional economy**. The recurring impact reflects \$2 billion spent directly by the 22 institutions and their students and visitors, as well as a \$1.2 billion ripple effect as these dollars course through the economy.
- The economic impact of Western New York higher education is **20 times greater than that of nonprofit arts and cultural institutions** in Erie and Niagara Counties and **almost double that of the Buffalo Niagara Medical Campus**.
- **The impact cycle begins with the nearly \$1.7 billion the 22 institutions earn in revenues; nearly all of these dollars are new to the region** and would be lost to other knowledge economies if these schools did not exist here.
- Higher education-related spending is driven primarily by the institutions' operations and payment of wages. **Significant spending also results from discretionary spending by the schools' more than 105,200 students (about \$6,500 per student) and 1.9 million visitors (\$67 million annually).**

- The industry **supports more than 32,000 full- and part-time jobs**, including direct employment by the schools and employment sustained in related industries.
- Spending by the colleges and their faculty, staff, students and visitors **generated \$122 million in state and local taxes in 2005-06.**
- **The more than 105,200 students attending the 22 institutions represent one student for every seven Western New York residents. Twenty-eight percent of these students are from outside Western New York, boosting the region’s population and contributing to regional diversity.** Meanwhile, 72 percent of enrolled students hail from the eight-county region – students who may have opted to leave the region to attend college if these 22 institutions did not exist.
- In 2005-06, approximately **13 percent of degrees conferred by the 22 institutions were in the life sciences discipline**, a growing niche area of Western New York’s knowledge economy. Other concentrations in degree awards were education (20 percent), business and management (15 percent) and health (10 percent).
- **College graduates in Western New York annually earn significantly more than high school graduates**, contributing to a higher quality of life and long-term economic security for college graduates. There is a 20 percent increase in average annual earnings with an associate’s degree, 60 percent with a bachelor’s degree and nearly 90 percent for those with a graduate or professional degree. However, a gender gap in earnings potential continues to exist in the region – **women earn only 63 cents for every dollar earned by their male counterparts.**
- Western New York reaps broad social and economic benefits from a college-educated population, with **fewer than 5 percent of those with a four-year degree or more living in poverty in Western New York in 2006** compared to 11 percent of those with only a high school diploma.

- Regionally, the knowledge and skills college graduates bring to the workplace help realize higher productivity even for those without college degrees. **Productivity increased in the Buffalo metropolitan area from about \$56,000 per worker in 2001 to nearly \$60,000 in 2005, a 6 percent increase over and above inflation.**

## II. Introduction

Through the process of educating students, generating research, developing technologies, advancing ideas and preparing human capital for the knowledge workforce, the higher education sector produces significant economic and social benefits for Western New York. Although economic impact studies have been prepared for individual institutions and the region's private colleges collectively, an objective, region-wide assessment of the industry's various impacts upon Western New York has been missing. The following evaluation seeks to shed light on higher education's contributions to the regional economy, ultimately guiding strategic investment in an industry critical to the region's knowledge economy and competitive standing on a national scale.

To quantifiably gauge the economic benefits derived by this industry and to measure additional contributions to the region, the Western New York Consortium of Higher Education, representing 22 colleges and universities in Erie, Niagara, Cattaraugus, Chautauqua, Allegany and Genesee Counties, commissioned the University at Buffalo Regional Institute to carry out the following analysis. The study is part of the consortium's *Better by Degrees* initiative to build understanding of the region's higher education industry and leverage the sector for regional progress. The Regional Institute has produced several other analyses for the *Better by Degrees* effort, including a review of regional higher education collaborative networks ("Higher Education Connections"); an assessment of national best practices ("Regional Higher Education Consortia: A Review of Best Practices"); and an assessment of Western New York higher education relative to 12 peer regions ("A Comparative Analysis of Higher Education in the Buffalo Metropolitan Region"). A match-gap analysis of graduates and workforce needs in the region is forthcoming.

Results of this economic impact analysis reveal that collectively the region's 22 colleges and universities represent a significant economic engine. The sector employs nearly 20,000 faculty and staff (representing 4 percent of the region's total employment base), enrolls more than 105,000 students and attracts nearly two million visitors annually, with \$2 billion spent directly in the regional

economy. Spending by the colleges and their faculty, staff, students and visitors generated \$122 million in state and local taxes in 2005-06.

Beyond the industry's direct dollar effect is the foundation it lays for long-term growth in the knowledge economy as it develops and supplies the knowledge workforce. Western New York's higher education institutions prepare students for employment in new economy fields, attract diverse students from outside the region while retaining many of the region's own young adults, and contribute to higher quality of life by providing graduates with significantly higher earnings potential. Regional leaders, then, may consider leveraging these strengths to favorably position this region in the 21<sup>st</sup> century knowledge economy.

### III. Scope and Methodology

Several concepts and assumptions frame the following analysis, as defined by the availability of data, limitations and requirements of economic impact modeling tools and best practices in economic impact assessment. For each figure appearing in the report, *Data Sources and Notes (Section VI)* provides a detailed explanation of relevant assumptions and calculations.

**Defining Higher Education in Western New York:** For purposes of this study, the higher education industry includes the 22 colleges and universities comprising the Western New York Consortium of Higher Education.

**Geographic Scope:** Based on the location of the 22 institutions and the geographic range of the majority of their spending (particularly employee wages), this study examines the sector's impact upon the eight-county region of Western New York (Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming). Where data are not available for all eight counties, data for the U.S. Census Bureau-defined Buffalo metropolitan area (Erie, Niagara and Cattaraugus Counties) are employed.

**Timeframe:** Spending impacts reflect the institutions' fiscal year ending in 2006, the most current year for which data are available.

#### Members of the Western New York Consortium of Higher Education:

##### 6 Two-Year Schools

Bryant & Stratton College  
Erie Community College  
Genesee Community College  
Jamestown Community College  
Niagara County Community College  
Trocaire College

##### 16 Four-Year Schools

Alfred State College  
Alfred University  
Buffalo State College  
Canisius College  
Christ the King Seminary  
D'Youville College  
Daemen College  
Empire State College  
Hilbert College  
Houghton College  
Medaille College  
Niagara University  
St. Bonaventure University  
SUNY Fredonia  
University at Buffalo, SUNY  
Villa Maria College

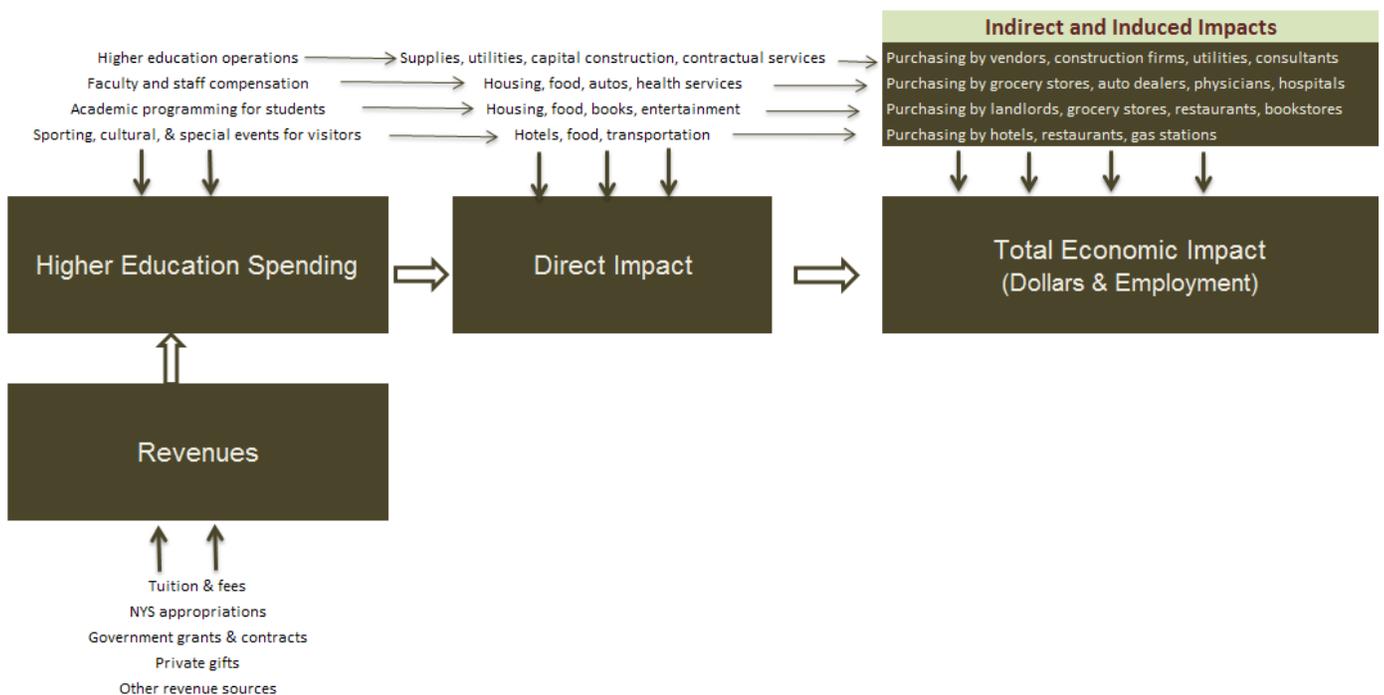
**Economic Impact Tools:** To calculate economic impact, this analysis employs IMPLAN (Impact Analysis for Planning), a computer-based input-output model that traces dollars spent inside a region to determine total economic impact in dollars and jobs leveraged. The program traces spending across more than 500 inter-related industrial sectors to capture the multiplier effect of spending, or the impact as dollars are spent and re-spent within a study area. IMPLAN calculations are based on region-specific data to measure direct and secondary spending impacts. The data used in this impact assessment were culled from a variety of sources, including financial data provided by the institutions and national sources of educational and socioeconomic data (see *Data Sources and Notes* for a full review of data).

## IV. The Impact of Higher Education in Western New York

### a. An Economic Engine for the Region

The stream of revenues to higher education – from tuition to government appropriations – starts the cycle of economic impact, which is realized as Western New York’s higher education institutions operate and pay wages and salaries to thousands of employees. Student spending on rent, food, books and entertainment, and visitor expenses on lodging, dining and shopping propel additional dollars into the economy. This spending then channels through local businesses in related industries, such as printing, utilities and hospitality, to generate spin-off economic activity, support additional employment and contribute to the industry’s significant overall economic impact (**Figure 1**). This multiplier effect continues until the initial dollars are leaked out of the region’s economy through spending on goods and services manufactured or sold outside the region.

**Fig. 1: Higher education revenues start the economic impact cycle, with spending by the institutions and their faculty, staff, students and visitors leveraging new economic returns for the region.**



In 2005-06, \$2 billion in direct spending by Western New York’s 22 colleges and universities and their faculty, staff, students and visitors induced another \$1.2 billion of spending in related industries, producing a total regional economic impact of \$3.2 billion (**Figure 2**). In other words, each dollar of higher education spending generated an additional 60 cents for the Western New York economy. At this level, higher education in Western New York has a regional economic impact 20 times greater than the nonprofit arts and cultural industry in Erie and Niagara Counties (\$155 million per year in 2005), and about double that of the Buffalo Niagara Medical Campus (\$1.5 billion a year for its nine institutions).<sup>2</sup> The \$3.2 billion higher education impact equates to over \$30,000 a year for each college student enrolled in the region.

**Fig. 2**  
**The region’s 22 higher education institutions generated a \$3.2 billion economic impact in 2006.**

Spending Category	Total Spending (in millions)	% Spent in WNY	Spending in WNY (in millions)	Add'l Spending Supported (in millions)	Total Economic Impact (in millions)
Colleges and universities (excl. employee compensation)	694	80%	556	540	1,095
Wages and benefits paid to employees	1,056	71%	750	280	1,029
Students (off-campus expenditures)	689	87%	602	359	961
Campus visitors (off-campus expenditures)	67	99%	66	23	89
<b>Total Higher Education-Related Spending:</b>	<b>\$2.5 Billion</b>	<b>79%</b>	<b>\$2.0 Billion</b>	<b>\$1.2 Billion</b>	<b>\$3.2 Billion</b>

A closer look reveals the three largest components of higher education-related spending – operations spending (excluding labor), faculty and staff investment of wages, salaries and benefits, and student spending – each accounted for approximately one-third of the total impact (35 percent, 32 percent and 30 percent, respectively). Visitors to the 22 campuses contributed a small but not insignificant 3 percent of the economic impact total. The region’s

---

*Center, Relocation of Clinical Services to Downtown Campus*, describing a \$1.5 billion economic impact of the campus (<http://www.bnmc.org/BNMC/News/06092008.html>).

<sup>2</sup> See page 3 of the study conducted by Americans for the Arts, *Arts & Economic Prosperity III, The Economic Impact of the Nonprofit Arts and Culture Organizations and Their Audiences in Greater Buffalo*, showing the economic activity generated by industry expenditures to be \$155 million in FY 2005 ([http://www.erie.gov/regionalcoalition/pdfs/GreaterBuffaloNY\\_FinalReport.pdf](http://www.erie.gov/regionalcoalition/pdfs/GreaterBuffaloNY_FinalReport.pdf)). See also the June 8, 2008, news release by the Buffalo Niagara Medical Campus, *Buffalo Niagara Medical Campus Leadership Supports Heart Center, Relocation of Clinical Services to Downtown Campus*, describing a \$1.5 billion economic impact of the campus (<http://www.bnmc.org/BNMC/News/06092008.html>).

16 four-year schools accounted for about 82 percent of the overall impact (\$2.6 billion) compared to \$565 million (18 percent) for the six two-year schools.

## Revenues

The bulk of higher education’s economic impact cycle originates in the revenues the institutions receive from tuition and fees, research grants, government appropriations and other sources. In 2006, Western New York colleges and universities received \$1.7 billion in total revenues. Government is an important source of revenues, with state appropriations and government grants and contracts comprising 55 percent of institution support (**Figure**

**Fig. 3**  
**The 22 institutions of higher education in Western New York generated \$1.7 billion in revenues in 2006.**

Revenue Source	\$ Total, 2006 (in millions)	% Total
State Appropriations	570	34%
Tuition & Fees	548	33%
Govt. Grants & Contracts	354	21%
Other	97	6%
Private Gifts	42	3%
Local Appropriations	33	2%
Investment Returns	32	2%
<b>Total Revenues</b>	<b>\$1.7 Billion</b>	<b>100%</b>

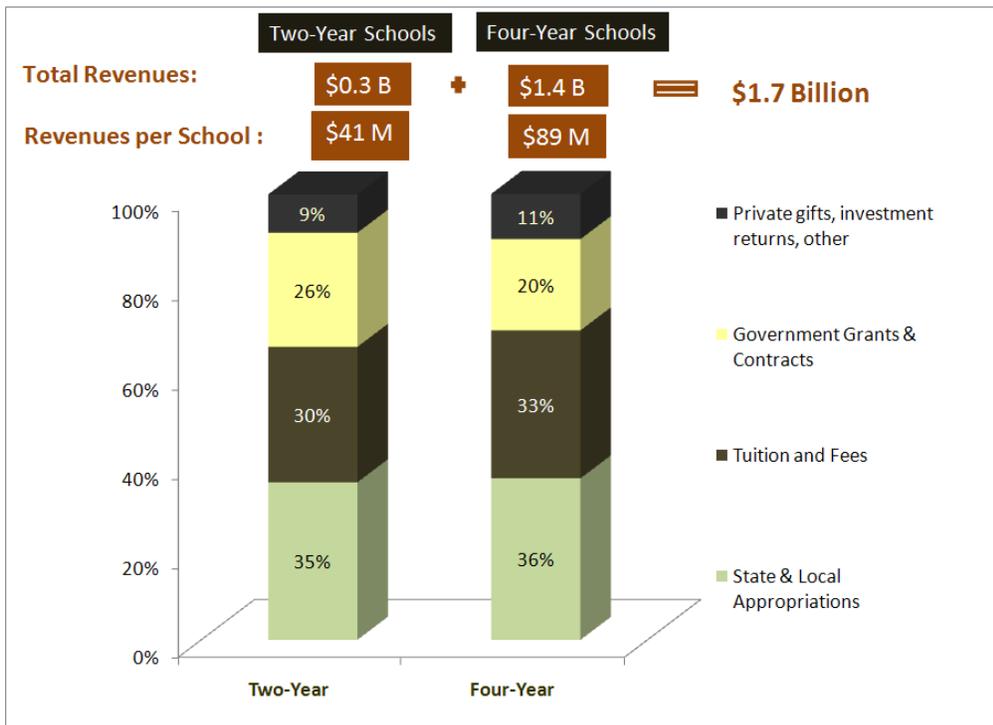
**3**). Tuition and fees – 33 percent of revenues – represented the next most substantial revenue source, with private gifts, local appropriations and investment returns comprising smaller slices of revenues.

A significant majority of these dollars were new to the regional economy, received from sources outside the region such as state and federal government. In addition, 28 percent of students enrolled in regional institutions were from beyond Western New York. The industry’s economic boon is even more significant considering that the institutions’ students native to Western New York (72 percent of total enrollment) might have chosen to take their tuition dollars elsewhere if not for the wide range of higher education options in Western New York.

Overall averages mask some difference between two-year and four-year schools, most significantly the capacity for revenue generation. In 2006, the region’s six two-year schools generated an average of

\$41 million per school, compared to \$89 million per school for Western New York’s 16 four-year schools. This discrepancy is driven primarily by four-year institutions’ higher tuition. In terms of revenue types as a proportion of the overall budget, two- and four-year schools are nearly identical, with the most marked difference in the government grants and contracts category, where four-year schools collect 20 percent compared to 26 percent for two-year schools (Figure 4).

**Fig. 4**  
**Largely due to higher tuition rates, Western New York’s four-year schools pull in greater revenues than do the region’s two-year colleges.**



## Spending

The industry’s economic impact upon the region is generated as the institutions funnel their revenues into the regional economy on the labor, goods and services they need to operate. Related spending occurs as faculty and staff live off their wages and salaries, and students and campus visitors make additional purchases. In 2006, higher education-related spending totaled \$2.5 billion (Figure 5).

**Fig. 5**  
**Higher Education Spending in 2006**

Institutional Operations	\$1.8	billion
Students	\$686	million
Campus Visitors	\$67	million
<b>Total Spending</b>	<b>\$2.5</b>	<b>billion</b>
<b>Spending in WNY</b>	<b>\$2</b>	<b>billion</b>

Nearly 80 percent of these dollars – \$2 billion – remained within the Western New York economy, while the remainder supported out-of-region suppliers and contractors.<sup>3</sup>

*Higher education spending.* The largest chunk of higher education spending is made by the institutions themselves to support labor and daily operations – from utilities and printing to banking and computers. In 2006, the region’s 22 institutions spent \$1.8 billion.<sup>4</sup>

**Fig. 6**  
**Annual salary and benefits packages paid to higher education employees in Western New York average \$77,200.**

School Type	Average employee salary (including benefits), 2006
Two-Year colleges and universities:	\$60,000
Four-Year colleges and universities:	\$81,200
All 22 colleges and universities in WNY:	\$77,200

For daily operations, higher education depends more on people than on buildings. Fittingly, the overwhelming majority of higher education spending in 2006 – \$1.1 billion, or two out of every three

core dollars – supported the wages, salaries and benefits of the institutions’ 20,000 employees.<sup>5</sup> Wages, salaries and benefits averaged \$77,200 per employee in 2005-06 (**Figure 6**). Annual compensation packages at the region’s four-year schools are, on average, 35 percent higher than at two-year schools (\$81,200 compared to \$60,000). Faculty and staff pumped approximately seven out of every 10 dollars of their income, or \$752 million overall, into the Western New York economy on living expenses such as housing, health care, food, banking, automobiles and insurance.

<sup>3</sup> This excludes spending on taxes that were taken out of employee wages.

<sup>4</sup> \$1.8 billion includes about \$158 million spent by SUNY on capital projects at the region’s eight state institutions.

<sup>5</sup> Core expenditures exclude the \$158 million SUNY spends in WNY on capital.

Examining spending through another lens – by operational area – reveals a concentration of industry spending on instruction, with one-third (\$646 million) of industry expenditures in 2006 supporting the labor, goods and services behind all academic programs, including vocational and community education (**Figure 7**). “Other” expenses such as student scholarships, non-operating capital and plant maintenance represented the next largest spending area, accounting for 18 percent, or \$324 million of overall spending. Institutional support services – from legal services to public relations – comprised 13 percent (\$236 million) of the total. Public service expenses, including conferences and public broadcasting, accounted for a relatively small portion of institution spending (\$20 million, or about 1 percent).

**Fig. 7**  
**Spending by the 22 institutions is concentrated in the area of instruction.**

Higher Education Spending	\$ Expenditures (in millions)	\$ Spending Per FTE Student	% Total
Instruction (academic, occupational and vocational instruction)	646	7,243	37%
Other (student scholarships, non-operating capital, plant maintenance)	324	3,630	18%
Institutional Support (legal, recordkeeping, printing, public relations, planning)	236	2,645	13%
Capital (NYS support of SUNY institutions)	158	1,775	9%
Academic Support (libraries, museums, galleries, academic clinics)	156	1,751	9%
Student Services (newspapers, intramural athletics, student organizations)	124	1,386	7%
Research (research projects and centers)	102	1,145	6%
Public Service (conferences, public service institutes, reference bureaus)	20	225	1%
<b>Total Higher Education Institutional Expenditures</b>	<b>\$1.8 Billion</b>	<b>\$19,800</b>	<b>100%</b>

*Student Spending.* Student costs for housing, meals, books and discretionary items such as snacks, music, videos, concerts and travel represents a hefty component of higher education spending in the region. It is estimated that the region’s 105,200 full- and part-time students spent \$689 million in 2006 – an average of more than \$6,500 per student (**Figure 8**). Nearly all student spending takes place in the region, with the exception of small amounts on travel outside the region and online purchases of music, books and videos.

**Fig. 8**

**Off-campus student spending totaled \$689 million in 2006.**

Student Spending	\$ Expenditures (in millions)	\$ Spending Per Student
Housing (including board)	298	2,836
Discretionary spending (entertainment, travel, snacks)	298	2,831
School-related books	92	876
<b>Total Student Spending</b>	<b>\$689 Million</b>	<b>\$6,543</b>

*Visitor Spending.* According to a 2008 survey of the 22 colleges and universities, an estimated 1.9 million visitors are drawn to the region’s campuses annually for campus tours, athletic events, conferences, cultural amenities, graduation ceremonies and as guests of students and faculty. These visitors spend roughly \$67 million annually as they shop, dine, travel and lodge during their stay. Not surprisingly, the region’s 16 four-year schools draw the majority of visitors – 77 percent or 1.4 million visitors – compared to 429,000 visitors at the six two-year colleges. An estimated one in five visitors is drawn to the campuses from outside Western New York.

Approximately **1.9 million visitors** are attracted to Western New York’s 22 college campuses every year, pumping an additional **\$67 million** into the regional economy.

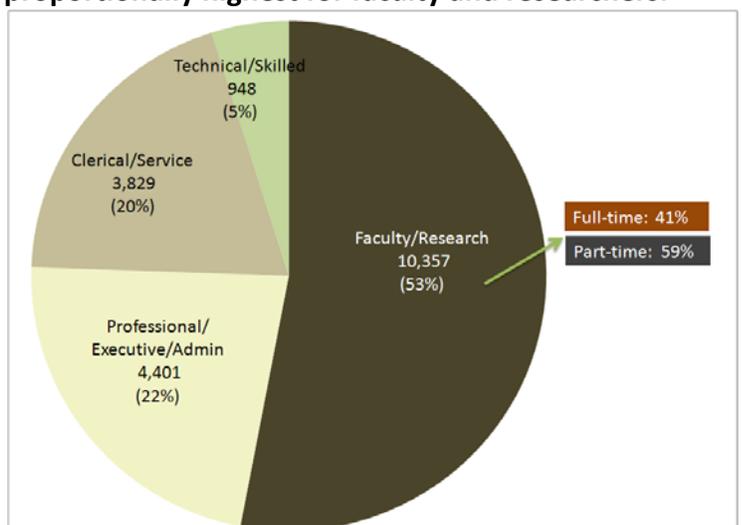
### Related Impacts

In addition to leveraging direct dollar impacts on the region, Western New York’s colleges and universities are significant sources of employment, and an important source of tax revenues for local and state government.

*Employment Impact.* Of the nearly 20,000 employed by Western New York’s

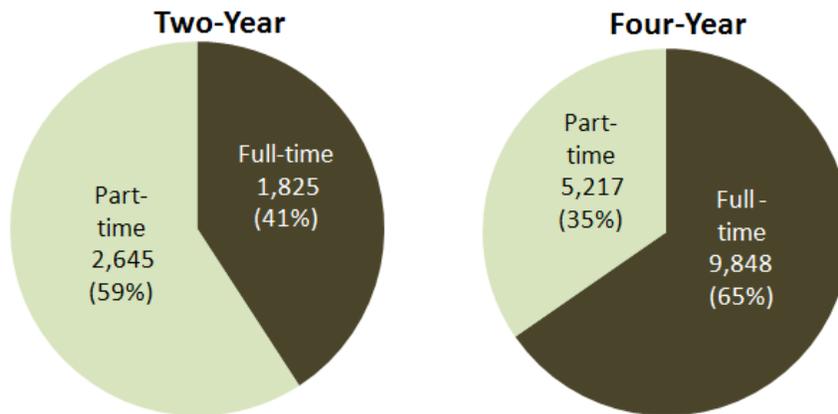
**Fig. 9**

**Nearly 20,000 are employed by Western New York’s colleges and universities, with three-quarters in professional positions. Part-time employment is proportionally highest for faculty and researchers.**



colleges and universities, three-quarters are professional positions including faculty, researchers, professional staff and administrators (**Figure 9**). Full-time employment is predominant across these areas with the exception of faculty and researchers, where nearly 60 percent of positions are part-time. This is likely due to the need for flexibility in resource allocation for academic programming. Part-time employment, which includes adjunct instructors, is also relatively higher for two-year colleges – 35 percent of four-year school employees are part-time compared to about 60 percent for two-year schools (**Figure 10**).

**Fig. 10**  
Part-time employment is more common at two-year colleges than at four-year schools.



Additional employment is supported in related industries in the region as colleges and universities, their employees, students and visitors pour dollars into the economy. More than 12,000 full- and part-time jobs were generated in 2006 in such industries as printing, hospitality and utilities, resulting in more than 32,000 total jobs provided or supported by higher education (**Figure 11**).

**Fig. 11**  
Higher education in Western New York supports more than 12,000 jobs in related industries.

Employment Impact	Full- and part-time employees, 2006
Direct employment	19,535
Add'l employment supported	12,475
<b>Total Employment Impact</b>	<b>32,010</b>

This overall employment level stands greater than the populations of Jamestown (29,557) and North Tonawanda (31,411).

*Public Sector Impact.* The public sector also reaps economic benefits from spending by the higher education institutions and their employees, students and visitors. In 2005-06, the industry supported \$122 million in state and local taxes (**Figure 12**). Local governments in Western New York received \$54 million, or 44 percent of the total, in the form of property taxes (\$27 million) and local sales taxes (\$27 million).<sup>6</sup> New York State government received \$68 million, more than half the tax total, with \$25 million in sales taxes and \$44 million in income taxes.<sup>7</sup> Overall, higher education generated about \$6,250 per employee for New York State and Western New York governments.

**Fig. 12**  
**\$122 million in taxes were generated by the Western New York higher education sector in 2005-06.**

Tax Revenue	NYS (in millions)	WNY (in millions)
Sales	25	27
Income	44	NA
Property	NA	27
<b>Total</b>	<b>\$68 Million</b>	<b>\$54 Million</b>

**= \$122 Million**

<sup>6</sup> Property taxes calculated as \$3,416 per year for the 7,800 faculty and staff estimated to own their own homes. Local sales tax total is based on the estimated \$614 million in local, taxable spending by employees, students and visitors.

<sup>7</sup> State sales taxes reflect the 4 percent state tax on local spending. The income tax total assumes that 5 percent of employee compensation not withheld for federal taxes or other purposes is subject to the state income tax.

## b. Laying the Knowledge Economy Foundation

Equally significant to advancing the current regional economy is higher education's role in setting the stage for future economic growth. Western New York's 22 colleges and universities are key to the region's success in a knowledge economy as they prepare, expand and diversify the knowledge workforce.

*Attracting Human Capital.* In decades past, attracting companies and factories served as the foundation for a region's economic success. Today, economic growth is based on the ability of a region to attract and retain talented, educated workers. Western New York's colleges and universities play a major role in attracting and retaining human capital.

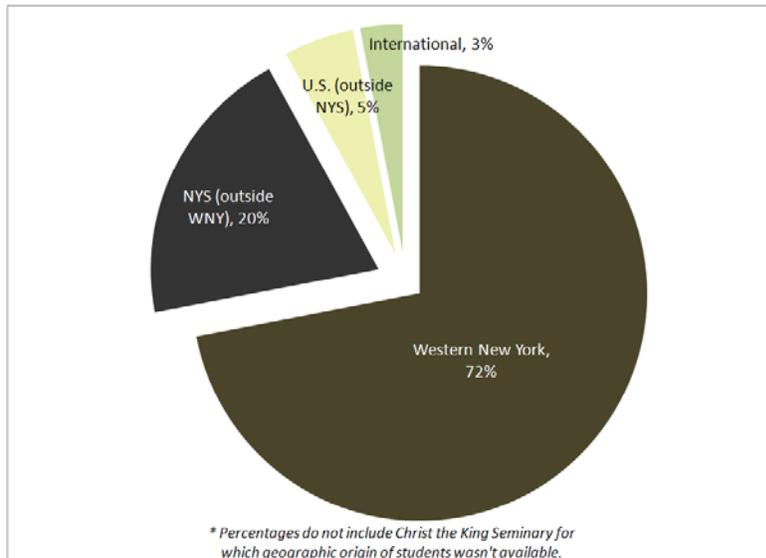
In fall 2006, over 105,200 students were enrolled at these 22 institutions, representing seven students for every 100 persons living in the eight counties of Western New York. Three out of 10 were enrolled at two-year schools, while seven out of ten were at one of the region's 16 four-year schools. Together, about 83 percent of these students were undergraduates, with 15 percent pursuing graduate degrees and 2 percent seeking professional degrees in law, medicine and dentistry (**Figure 13**).

These institutions play a significant part in retaining many of the region's young adults, with nearly three out of four college students enrolled hailing from Western New York (**Figure 14**).

**Fig. 13**  
Total student enrollment in Western New York exceeded 100,000 in fall 2006.

Student Type	Enrollment (Fall 2006)
Undergraduate	86,928
Graduate	16,184
Professional	2,126
<b>Total Students</b>	<b>105,238</b>

**Fig. 14**  
**Nearly three out of four college students in the region are from Western New York.**



At the same time, higher education lures new youth to the region – 28 percent of students come from outside Western New York, with 20 percent from elsewhere in New York State, 5 percent from across the United States (especially northeastern spots such as Ohio, Pennsylvania and New Jersey), and 3 percent from international locations.

In terms of supplying the region’s workforce, the generation – and retention – of college graduates by the region’s schools is complemented by an influx of new residents already equipped with college degrees. Those moving to the region from other states and nations between 2005 and 2006 were more likely to be college educated than the region’s overall population. Just over one-quarter of the adult population in the Buffalo metro area is college educated, compared to 44 percent of those moving here from a different state within the past year, and 37 percent of those moving from abroad.<sup>8</sup> However, it is unclear whether these newcomers arrive for additional education, employment in the region’s emerging knowledge economy or some other factor.

<sup>8</sup> Residence one year ago by educational level for adults ages 25 and over with a four-year degree or higher living in the Buffalo metropolitan statistical area (Erie, Niagara and Cattaraugus Counties) in 2006. Data are from the U.S. Census Bureau, 2006 American Community Survey.

*Workforce Preparation.* The region’s colleges and universities graduate thousands every year, providing the highly skilled human capital to power the region’s knowledge economy.

In 2005-06, the region’s 22 colleges and universities awarded over 22,000 degrees, three-quarters of which were at the bachelor’s level (**Figure 15**).

Fewer than 600 students – or about 4 percent – graduated with doctoral degree or professional degrees in fields including law, medicine, dentistry and pharmacy.

Nearly half of all degrees were granted in the fields of education (20 percent), business and management (15 percent) and health (10 percent) (**Figure 16**).

Over 2,800 students – about 13 percent of all graduates – earned a degree in life sciences-related fields such as biology, health, biomedical science or agriculture, a small but burgeoning niche area of Western New York’s knowledge economy. Over time, the region has seen its

**Fig. 15**  
The region produced over 22,000 college graduates in 2005-06.

Degree Type	Number Granted, 2005-06	% Total
Associate's	5,498	24%
Bachelor's	10,258	46%
Master's	5,795	26%
Doctoral	362	2%
First-professional	556	2%
<b>Total Degrees Granted</b>	<b>22,469</b>	<b>100%</b>

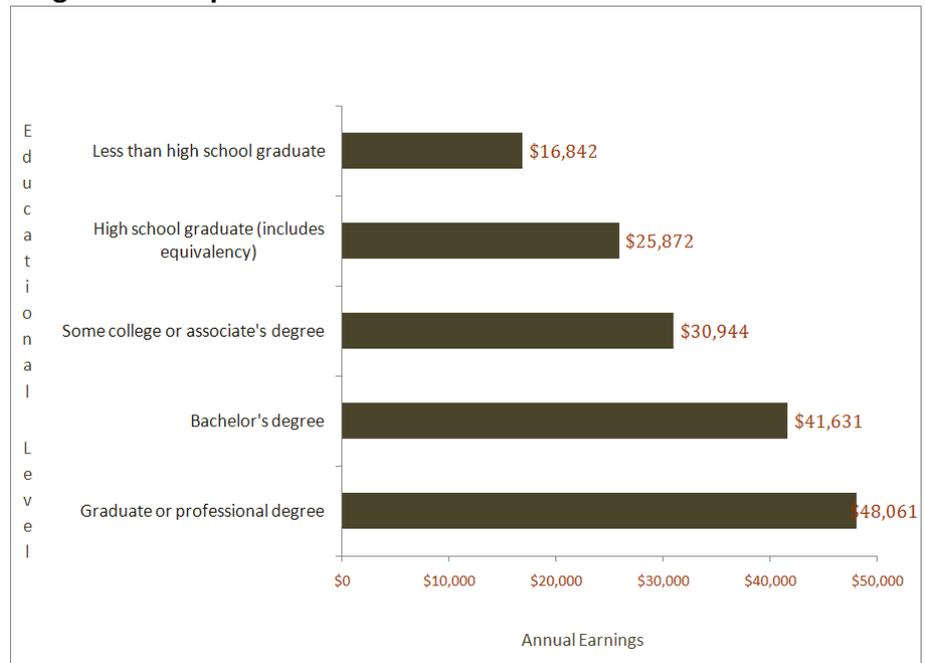
**Fig. 16**  
Higher education degrees were granted across a diverse range of fields of study in 2005-06.

Program Area	Number Degrees Granted, 2005-06	% Total
Education	4,500	20%
Business, Management & Marketing	3,439	15%
Health	2,309	10%
Liberal Arts, General Studies & Humanities	2,108	9%
Psychology, Cultural Studies & Social Sciences	1,737	8%
Engineering & Related Technologies	1,146	5%
Communication, Journalism & Support Technologies	1,015	5%
Architecture, Visual & Performing Arts	985	4%
Security, Protective Services & Military Technology	700	3%
Biology, Physical Science & Science Technologies	696	3%
Languages & Literature	556	2%
Public Administration, Transportation & Social Service	539	2%
Computers and Information Sciences & Support Services	530	2%
Library Science & Other Multi/interdisciplinary Studies	475	2%
Legal	369	2%
History	340	2%
Construction, Production & Mechanic Technologies	336	1%
Agriculture, Natural Resources, Parks & Recreation	272	1%
Consumer and Family Sciences & Culinary Services	149	1%
Mathematics & Statistics	146	1%
Philosophy, Theology & Religion	122	1%
<b>Total Degrees Granted</b>	<b>22,469</b>	<b>100%</b>

levels of educational attainment increase, most certainly an outgrowth related to the region’s growing higher education industry. As of 2006, 26 percent of adults ages 25 and over in Buffalo metro had at least a four-year degree, compared to 19 percent in 1990, according to data from the U.S. Census.

*Economic Security.* By equipping graduates for employment in today’s economy, higher education is foundational to achieving individual and societal economic security. Among the returns of a college education are higher earnings potential, lower rates of poverty and even increased levels of worker productivity, volunteerism and charity.

**Fig. 17**  
**A bachelor’s degree generates 60 percent more in annual earnings over a high school diploma in the Buffalo metro area.**



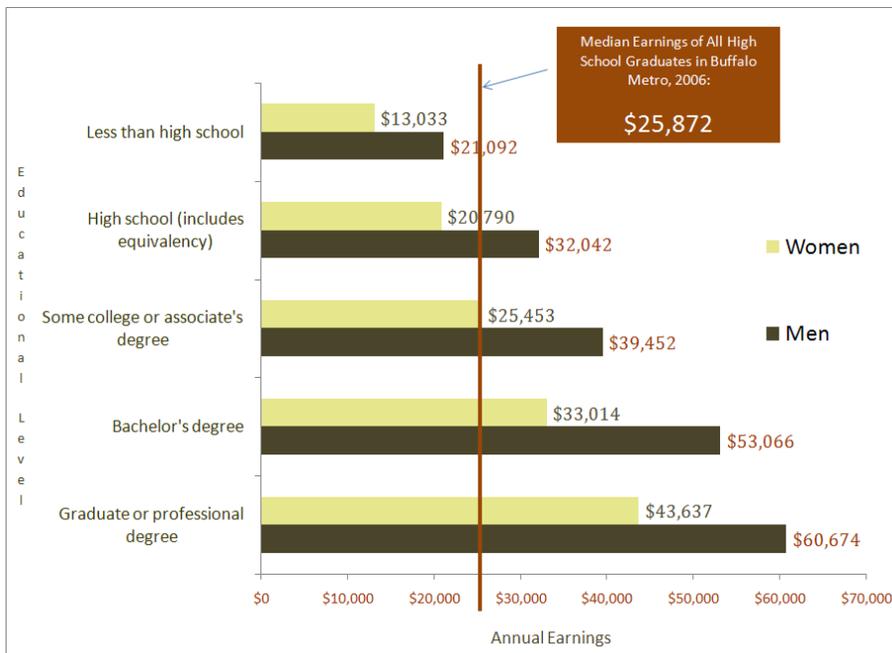
In 2006, Buffalo metro area adults age 25 and older with a two-year degree earned, on average, 20 percent more than a high school graduate. Those with a four-year degree earned 60 percent more, while those with a graduate or professional degree earned nearly double (**Figure 17**). Over the course of a working lifetime, this earnings differential translates into an income edge of more than a million dollars (**Figure 18**). And while obtaining a higher education costs money – in terms of tuition and foregone income – it is still a wise investment. Assuming the cost of obtaining a four-year degree is \$23,000 per year (\$10,000 in tuition and fees and \$13,000 in foregone income), the net return of the degree over a lifetime is still \$1 million, representing a return of \$12 for each dollar invested into a college education.

Yet the return on investment is not equivalent for men and women. In Buffalo metro, a four-year degree provides a \$20,000 annual income advantage over a high school degree for a man, but only \$12,000 for a woman (Figure 19). In other words, women take home only 63 cents for every \$1 earned by their

**Fig. 18**  
**Obtaining a college degree yields financial returns of more than \$1 million over a lifetime.**

Income advantage of bachelor's degree over high school diploma over 40-year working lifetime:	\$1,125,839
Cost of a four-year degree:	— \$89,756
<b>NET VALUE OF INVESTMENT</b>	<b>\$1 Million</b>

**Fig. 19**  
**Obtaining a college degree is a better investment for men in the Buffalo metro area than for women.**

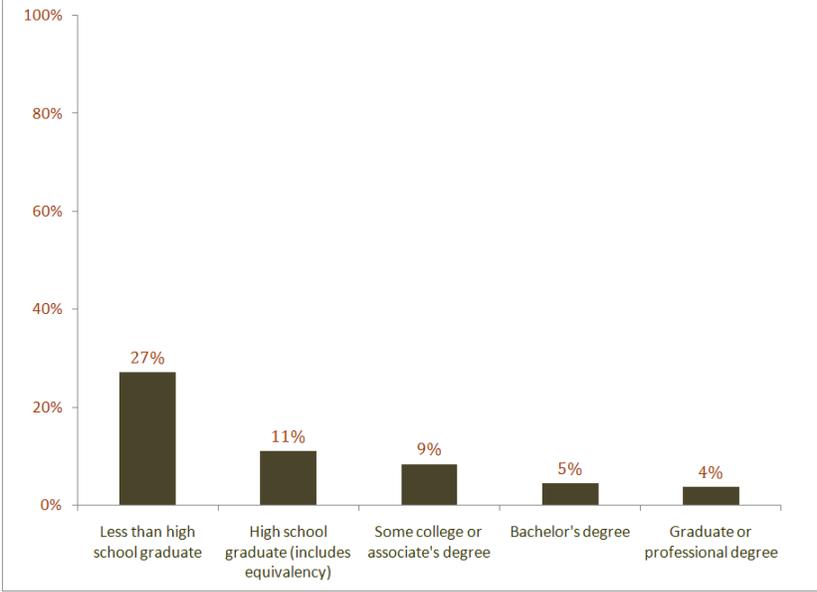


male counterparts. The region's gender gap in earnings is wider compared to what exists nationally but narrower as educational attainment increases. Reasons for this discrepancy may include women opting not to work or working less than full-time, the fields of study women pursue (men more often pursue the high-paying fields of computers and science), and employer type (with women possibly

choosing lower-paying jobs in the public and nonprofit sector to obtain better benefits and greater flexibility in hours).<sup>9</sup>

<sup>9</sup> Farrell, Warren, "Exploiting the Gender Gap," *The New York Times*, September 5, 2005.

**Fig. 20**  
**Poverty rates in the Buffalo metro area are more than twice as high among high school graduates compared to college graduates.**



Beyond the individual, society reaps valuable returns from a college-educated population, including higher levels of volunteerism and charitable giving, lower levels of crime and reduced reliance on public support. Not surprisingly, poverty is markedly less prevalent among the college-

educated, with fewer than 5 percent of those with a four-year degree or more living in poverty in Western New York in 2006, compared to 11 percent of those with only a high school diploma (**Figure 20**). Moreover, increases in educational attainment have been implicated in productivity growth not only among the college-educated and the sectors that employ them, but for the economy as a whole. In other words, the knowledge and skills college graduates bring to the workplace help realize higher productivity even for those without college degrees. In the Buffalo metro area, productivity increased from about \$56,600 per worker in 2001 to nearly \$60,000 in 2005, a 6 percent increase over and above the inflation level.<sup>10</sup>

<sup>10</sup> This represents an increase in the gross domestic product generated per employee in the Buffalo metropolitan area, as calculated using GDP and employment data from the Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce. Numbers shown are in 2005 dollars.

## V. Conclusions

The impact of higher education upon the Western New York economy extends to tangible fiscal gains for the region – at a sum of \$3.2 billion a year – as well as to the region’s economic future in terms of workforce development. The industry enhances economic security for the individual – though at different levels for men and women – and leverages important social benefits including reduced poverty, higher wages, enhanced standards of living for Western New Yorkers and greater worker productivity for all companies in the region. In the end, investment in higher education – by the individual determining whether to enroll or by the sectors that support the industry – reap long term rewards that translate into additional socioeconomic benefits now and in the future. The region’s economic vitality and long-term growth is thus intricately tied to the strategic support and advancement of its higher education industry.

## VI. Data Sources and Notes

### a. An Economic Engine for the Region

**Figure 1— Path of a Dollar:** Illustration of how spending related to higher education stimulates additional economic activity within a region’s economy, resulting in a total economic contribution that is larger in magnitude than the initial dollar impact.

**Figure 2 – Total Economic Impact of Higher Education Spending:** Summary of total higher education-related spending, the proportion of total spending within the eight counties of Western New York and the additional spending this supports in the region (the multiplier effect). Total economic impact reflects total in-region, spending related to higher education plus the multiplier effect.

**Figure 3 – Total Revenues:** Total core revenues reflect dollars received by institutions in fiscal year 2006 from tuition and fees, federal, state and local government appropriations, government grants and contracts, gifts, investment income and other sources. All figures are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>). Core revenues do not include dollars from a school’s related foundation, where one exists, since these reflect revenues to the foundation and not the school. Also excluded are dollars designated for capital projects or operations at a school where the funding is never actually received by the institution but spent directly by a third party.

**Figure 4 – Revenue Sources for Two- and Four-Year Schools:** Total core revenues reported by the 16 four-year colleges and universities and the six two-year colleges. Data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>).

**Figure 5 – Higher Education Spending in 2006:** Summary of total higher education-related spending and the amount of this total expended within the eight counties of Western New York.

**Figure 6 – Annual Salary and Benefits Package for Higher Education Employees:** Data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>) and were calculated by multiplying core higher education expenditures by the percentage of core expenditures that goes toward employee salaries and benefits. This was divided by the number of full-time or equivalent employees, with three part-time employees counting as one full-time employee. For two schools—Bryant & Stratton and Medaille—the proportion of core expenditures allocated to salaries and benefits was not available and was estimated by applying the average proportion across the other 20 schools (66 percent).

**Figure 7 – Higher Education Expenditures:** Total higher education spending by function or purpose of the expenditures in fiscal year 2006. With the exception of capital expenditures, all data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>). Capital expenditures reflect a four-year annual average (fiscal year 2003-06) of SUNY spending for capital projects on behalf of nine SUNY schools in Western New York. Figures were gathered and supplied by Buffalo State College. SUNY capital spending on behalf of community was doubled since it represents a 50 percent state share that must be matched by the county supporting the community college. Spending per full-time equivalent student was calculated by dividing higher education spending across expenditure categories by the number of full-time equivalent students in Western New York in fall 2006 (89,158).

**Figure 8 – Student Spending:** Student spending reflects estimated off-campus spending by 105,200 students in Western New York over a typical 10-month academic year. Spending on

books was estimated to be \$995 per year per full-time student. This represents the average annual cost of books across 20 institutions in Western New York, as provided by CollegeBoard and/or the institutions' Web sites. Estimates were not available for Christ the King Seminary and Empire State College. It was assumed that the cost of books for part-time students would be half this total. Discretionary spending was estimated to be \$3,214 per year per full-time student based on a national study of college students conducted by Harris Interactive in 2002. This study found that college students spend an average of \$287 a month on discretionary items such as snacks, entertainment, travel and technology (excluding tuition, room/board and school-related books and fees). Multiplying this monthly figure by 10 and adjusting it for inflation between 2002 and 2006 provides an estimated \$3,214 in annual discretionary purchases per student. Half of this amount was estimated to be the discretionary spending of part-time students attributable to their student status. Room and board, at \$8,070 over a 10-month period per student, was the estimated spending of full-time students living independently off campus in rental housing (about 46 percent of total students). This total reflects monthly rent of \$562 (based on the 2004 American Community Survey) and a monthly allowance of \$245 for meals (10 percent less than the Bureau of Labor Statistics estimate of what the average person spends per month on food).

**Visitor Spending:** Visitor counts were collected from the 22 institutions via a survey conducted during early 2008 and include prospective students, conference and special event attendees, guests of students and faculty. It was estimated that one in five of these visitors comes from outside Western New York and stays in the region overnight. This assumption is based on a recent University at Buffalo study that found 22 percent of campus visitors originated from outside the eight-county region. Total visitors spending was calculated by assuming day-only visitors spend \$20 off campus on snacks and transportation related to their visit, while overnight visitors spend \$100 a day on lodging, meals, and transportation.

**Figure 9– Higher Education Employment by Occupational Function and Status:** Data are from the National Center for Education Statistics Integrated Postsecondary Education Data System

(<http://nces.ed.gov/ipeds/pas/>) and reflect 2006. Figures for “faculty and research” include instructors, research assistant and public service employees. Figures for “technical/skilled crafts” include employees classified as paraprofessionals.

**Figure 10 – Higher Education Employment by School Type and Employment Status:** Data are from the 2006 National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>).

**Figure 11 – Employment Supported by Higher Education in Western New York:** Total employment impact was calculated using IMPLAN and reflects the number of full- and part-time jobs supported by direct, indirect and induced higher education spending. Direct employment represents full- and part-time employment at the 22 colleges and universities in Western New York. Additional employment supported equals total employment impact less direct employment.

**Figure 12—Taxes Generated:** Sales taxes were calculated by multiplying taxable spending by higher education employees, students and visitors by 4 percent to calculate taxes generated for New York State, and by 4.4 percent to calculate those generated for Western New York, with the latter representing a weighted average of sales tax rates across the region. Income taxes were calculated by multiplying estimated employee taxable income by a New York State income tax rate of 5 percent. In estimating property taxes, it was assumed that 67 percent of full-time higher education employees own homes in the region and pay an average \$3,416 annually in property taxes. This figure represents a weighted average property tax burden per household in Western New York, calculated using data provided by the New York State Comptroller’s Office.

## **b. Laying the Knowledge Economy Foundation**

**Figure 13 – Total Student Enrollment:** Number of full- and part-time students enrolled in fall 2006 at the undergraduate, graduate and professional-degree levels. Student data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>).

**Figure 14 – Geographic Origin of Students:** Percentages are based on the geographic origin of freshman enrollment in 2006 and represent a student's place of residence when first admitted. Data for Christ the King Seminary were not available, with this institution therefore excluded from the analysis. Data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>).

**Figure 15 – Number of Degrees Granted:** Total number of associate's, bachelor's, master's, doctoral and first professional degrees conferred to students in 2005-06. Data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>).

**Figure 16 – Number of Degrees Conferred by Field of Study:** Total number of associate's, bachelor's, master's, doctoral and first professional degrees conferred by instructional program. Data are from the National Center for Education Statistics Integrated Postsecondary Education Data System (<http://nces.ed.gov/ipeds/pas/>). Figures were gathered by CIP (Classification of Instructional Program), some of which have been combined, where closely related, for presentation purposes.

**Figure 17 – Earnings Potential by Educational Level:** Median earnings in 2006 dollars by educational attainment for adults ages 25 and up in the Buffalo metropolitan statistical area. Data are from the U.S. Census Bureau, 2006 American Community Survey

([http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_program=ACS&\\_submenuId=datasets\\_1&\\_lang=en&\\_ts=](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=datasets_1&_lang=en&_ts=)).

**Figure 18 – Lifetime Value of a Bachelor’s Degree:** The cumulative value of higher earnings for a bachelor’s graduate compared to a high school graduate was calculated over a working lifetime of 40 years. This increase in earnings—\$15,759 per year— was projected over 40 years and was estimated to grow 5 percent per year. A discount rate of 2.5 percent was used to adjust for inflation and calculate present values, or 2005-06 dollars. The \$23,000 present value cost of a four-year education reflects \$10,000 in annual tuition and fees (increasing 2.5 percent every year) and \$13,000 in foregone income (half of what a high school graduate could earn).

**Figure 19 – Earnings Potential by Educational Level and Gender:** Median earnings in 2006 dollars by educational attainment and gender for adults ages 25 and up in the Buffalo metropolitan statistical area. Data are from the U.S. Census Bureau, 2006 American Community Survey

([http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_program=ACS&\\_submenuId=datasets\\_1&\\_lang=en&\\_ts=](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=datasets_1&_lang=en&_ts=)).

**Figure 20 – Poverty Rates by Educational Level:** Poverty rate for adults ages 25 and over in the Buffalo metropolitan area by educational level. Data are from the U.S. Census Bureau, 2006 American Community Survey

([http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_program=ACS&\\_submenuId=datasets\\_1&\\_lang=en&\\_ts=](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=datasets_1&_lang=en&_ts=)).