

PEOPLE, PLACES & INDUSTRY: ECONOMIC IMPACT ON THE CITY OF PITTSBURGH





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Prepared by:



ABOUT THE PITTSBURGH COUNCIL ON HIGHER EDUCATION

The Pittsburgh Council on Higher Education (PCHE) is a consortium of the ten, not-for-profit, accredited colleges and universities in Allegheny County, Pennsylvania. Founded in 1966, the members include: Carlow University, Carnegie Mellon University, Chatham University, Community College of Allegheny County, Duquesne University, La Roche College, Pittsburgh Theological Seminary, Point Park University, Robert Morris University, and University of Pittsburgh.

From the beginning, PCHE's purposes have been:

- + To provide a means for sharing resources, insights, and information among the participating member institutions;
- + To engage in joint or cooperative activities and projects;
- + To offer a common voice on matters that affect all of the member institutions.

Through association and collaboration, the diverse membership of PCHE works to enhance the intellectual, cultural, and economic vitality of Pittsburgh. Cooperation through PCHE strengthens each individual institution, its faculty, its administration, and its student body.

MEMBER INSTITUTIONS

**Carnegie
Mellon
University**



**POINT
PARK
UNIVERSITY**



**CARLOW
UNIVERSITY**

**chatham
UNIVERSITY**



EXECUTIVE SUMMARY

The Pittsburgh region is ushering in a new era of innovation, development and economic prosperity. The ten member institutions of the Pittsburgh Council on Higher Education (PCHE) are critical parts of the regions economic evolution.

As dynamic education and research entities, each PCHE member offers its students cutting edge education in a variety of fields with one goal- to turnout the next generation of thinkers, doers and inventors.

**THIS REPORT HIGHLIGHTS THE
SIGNIFICANT ECONOMIC
IMPACT THAT PCHE MEMBER
INSTITUTIONS HAVE ON
PITTSBURGH.**

Since 2014 (the year of our last economic impact report), six PCHE member institutions have changed leadership. These new leaders have joined a group of experienced and strong collaborators who understand the role academia, government, and industry can play to ensure an economy prepared for the opportunities of the future. Together, with newer ideas and renewed focus, they are working with urgency and determination toward actionable goals, ones that are capitalizing on existing traditions while charting paths to create new ones.

This report highlights the significant economic impact that PCHE member institutions have on Pittsburgh. In addition, the report underscores PCHE members' broader impacts that are critically important to the social vitality of the Pittsburgh region. PCHE members are unwavering in their commitment to bring quality higher education, groundbreaking research, and supportive community programs to the City of Pittsburgh and the region. PCHE members have dedicated themselves to being a catalyst for positive, lasting change.

STRENGTHENING OUR REGION'S PEOPLE, PLACES & INDUSTRIES

A number of significant projects by PCHE member institutions are building on the assets of the region - particularly its people, places, and industry strengths - and generating high economic impact. In 2017, PCHE members generated an overall economic impact of \$9.05 billion and supported 61,389 annual jobs in the City of Pittsburgh - one out of every 8 jobs and approximately 19 percent of the GDP for the City of Pittsburgh is attributable to PCHE members. The overall economic impact is the output generated by PCHE member's direct expenditures that include operations, student and visitor spending, research, federal financial aid, and in-kind contributions.



**\$ 9.05
BILLION**

OVERALL ECONOMIC
IMPACT OF PCHE
MEMBERS

**61,000+
JOBS**

SUPPORTED IN THE
CITY OF PITTSBURGH
BY PCHE MEMBERS



K. LEROY IRVIS SCIENCE CENTER CONSTRUCTION

CCAC

The K. Leroy Irvis Science Center is a five-story, 66,000 square foot science building that includes microbiology labs, biology labs, geology labs, physics labs, multimedia labs, chemistry labs, along with classrooms and faculty offices. "As CCAC's newest center of learning dedicated to the pursuit of STEM-related fields, the K. Leroy Irvis Science Center offers students access to programs that will help them no matter what career path they choose—by developing critical thinking skills, acquiring knowledge of complex concepts and advancing their understanding of how the world around them works. At CCAC, we are committed to providing our students with a conducive environment in which to grow and achieve success, and I believe this center has accomplished this and more," says CCAC President Dr. Quintin Bullock.



PEOPLE



Combined, the PCHE members account for 31,193 direct jobs, which support an additional 13,219 total jobs. Annual construction investments support an average of 1,893 jobs per year. PCHE members attract an estimated \$511 million in direct student and visitor spending, which supports 7,864 jobs. Research conducted by PCHE members supports 7,422 total jobs in Pittsburgh - inside and outside the schools. Together, both direct employment and employment supported by PCHE member spending totals 61,592 jobs.

In addition, PCHE members are creating new ways to introduce resources, skills and careers to students and the population at-large.

- + **Community College of Allegheny County**'s newly constructed, five-story, 66,000-square-foot science building is introducing non-traditional and economically disadvantaged students to STEM careers.
- + **La Roche College** is adding strength to its science curriculum with state-of-the-art classrooms and labs that are conducive to the changing nature of STEM education in a \$4 million renovation of its Palumbo Science Center.
- + **Robert Morris University** is preparing its talent for future careers in cloud computing and architecture, being the first Pennsylvania university to become members of the Amazon Web Services' AWS Academy program.
- + **Chatham University** is supporting women entrepreneurs, providing advanced manufacturing tools and skills through its Prototyping and Design Lab housed in the newly constructed Entrepreneurship Hub.

PLACES

In order to invest in their students, PCHE members are investing in the renovation and construction of new buildings, which can generate real economic activity for the region. Since 2005, PCHE members have invested \$3 billion in direct construction activity, generating \$4.3 billion in total economic impact. In addition, PCHE member institutions are contributing nearly \$47.8 million annually in in-kind contributions that create a better quality of place for the region. These contributions include university public safety, as well as community services such as volunteering at local charities and human service organizations.

The combination of construction projects and in-kind contributions are transforming communities.

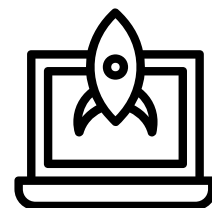
- + As an anchor institution in Uptown, **Duquesne University** is actively involved in investing in the Uptown/West Oakland EcoInnovation District (EID) Plan, serving as the convener of the Uptown Task Force, engaging academic resources related to the EID Plan, and revitalizing the Forbes Avenue corridor through streetscape upgrades to benefit both students and residents.

- + **Point Park University's** Academic Village Initiative has re-imagined the educational process while giving new life to historic buildings in the central business district of Pittsburgh. The Village Park, enhanced infrastructure developments along Wood Street, new student housing, George Rowland White Performance Center, Center for Media Innovation and the new Pittsburgh Playhouse at Point Park University stand as a framework for innovative hands on experiential learning for every Point Park University student.

- + The **University of Pittsburgh** Manufacturing Assistance Center's recent relocation to Pittsburgh's Homewood neighborhood is an example of PCHE members extending impact beyond physical infrastructure, serving underserved communities in a direct way and building greater partnerships. The Center provides technical education for the community and operates a makerspace where educational programming for local schools and small business development services are bringing new opportunities to local residents and businesses.

INDUSTRY

With new leadership adding new perspectives and ideas, universities are future-focused, finding creative ways to advance our economy - from working to support emerging industries to charting pathways to high-opportunity careers. The research conducted at PCHE member institutions has played a large role in this tremendous effort toward economic recovery. In 2017, PCHE member institutions received a total of \$1.2 billion in non-Pennsylvania funds for research and education in science and engineering. In the same fiscal year, the research conducted by PCHE members added \$2 billion in total economic output and supported 9,617 jobs.



PCHE members have also supported the creation of new companies in the region. Since 2014, PCHE members have launched 176 startup businesses. This represents an incredible growth in startup creation; the average startup creation from 2005 - 2014 was 18 per year, compared to 44 startups per year from 2014 - 2018.

PREPARING FOR THE FUTURE

PCHE's greatest asset is partnership. Over the past few years, the region's higher education institutions and private industry leaders have collaborated on a number of economic initiatives centered around economic progress. Over the next few years, PCHE will continue working together on a number of initiatives, with a large focus on innovation and talent.

Pittsburgh's status as a global innovation center will be powered by a newly-formed public-private coalition, InnovatePGH, led by a coalition of civic leaders from Allegheny County, City of Pittsburgh, The University of Pittsburgh, Carnegie Mellon University, UPMC, the Allegheny Conference on Community Development and regional philanthropies. Another new collaboration around workforce development will include Carlow University, Carnegie Mellon University, Chatham University, and The University of

Pittsburgh collaborating with the Community College of Allegheny County, Partner4Work, and the Pittsburgh Council for Higher Education to launch a pilot program aimed at serving economically disadvantaged populations. As recently detailed in the Allegheny Conference's Inflection Point study, re-skilling and up-skilling the western Pennsylvania workforce will be critical to meeting future employer requirements. Furthermore, Robert Morris University's management development partnerships with Koppers, the Port Authority of Allegheny County, and the Pittsburgh Penguins is an example of university support of this region's workforce development needs.

As PCHE member institutions continue to develop forward-thinking partnerships, the economy will be well-positioned to tackle issues head on and continue to play a major role in the region's economic growth.

ENTREPRENEURSHIP HUB AT THE CENTER FOR WOMEN'S ENTREPRENEURSHIP

CHATHAM UNIVERSITY

Chatham University opened a new 3,000-square-foot Entrepreneurship Hub located at its Penn Avenue Eastside campus. The valuable services at the hub include free business counseling, training programs, technical support and mentoring focused on business planning and financing, access to capital, federal contracting, and business expansion through international markets and exporting. The Hub features Financial Literacy and Digital Literacy programs which include training programs about building and sustaining a compelling online presence as well as a Prototyping & Design Lab. "By providing women with access to advanced manufacturing equipment in a supportive environment, the Hub serves as a place for testing and developing products and planning for commercialization, thus making economic inclusion a reality," says Rebecca Harris, Executive Director.



Photo courtesy of Chatham University.

ABOUT THIS ECONOMIC IMPACT REPORT

PCHE member institutions are a vital economic development component within the City of Pittsburgh. However, not-for-profit colleges and universities are many times thought of primarily for providing education and conducting research, not for generating economic impact and creating jobs. In fact, higher education institutions are often a city's most significant economic generators.

PCHE members have been long-standing partners with various public and private sector industries throughout the City, working together to serve the community and its residents, improving the quality of life for everyone in the City of Pittsburgh. As a whole, PCHE members compete with other higher education institutions across the country for students, faculty and administrators, as well as competing for research grants, and economic development opportunities and resources. In turn, the members' investment in capital infrastructure, and educational programming and research is extremely beneficial for Pittsburgh as it represents direct expenditures that support local employment and generate local tax revenues. In addition, their investments strengthen Pittsburgh's competitive position as a destination of choice for higher education, research, healthcare, and cultural activity. Public support for this common cause has been a key component in this effort, and

Figure 1



Figure 1: Types of Economic Impact Effects

PCHE members have contributed both directly and indirectly to the benefit of the City and its residents.

PCHE periodically updates its economic impact data to track the actions and impacts of its members. Fourth Economy Consulting was invited to conduct this comprehensive economic impact study. **This report focuses on the economic, social, and fiscal impacts of PCHE members on the City of Pittsburgh in FY 2016-17 (except where noted)** from expenditures, in-kind services and other operations. Output represents the total dollar value of the economic activity generated by the direct operations of PCHE members and its indirect and induced effects. Indirect effects represent the spending and jobs created by other businesses that provide support services or supply goods to PCHE members. Induced effects represent the household spending on goods and services from earnings created by direct and indirect expenditures.

The following report highlights three different types of economic impact that PCHE members have on the City:

ECONOMIC OUTPUT AND JOB CREATION

- + As major employers - they provide thousands of local jobs
- + As major tourist destinations - they attract thousands of visitors who spend their dollars in the local economy
- + As leaders of capital improvement projects - they support high levels of construction projects and jobs
- + As leaders of product and service purchasing - they support local business, directly and indirectly, with their immense purchasing power

These expenditures from PCHE member institutions are made possible in large part by dollars brought into the City from across the country and around the world in the form of tuition from non-Pittsburgh students. In turn, these outside dollars help to support Pittsburgh jobs and produce Pittsburgh tax revenues.

SUPPORTING THE CITY'S NEIGHBORHOODS AND ECONOMY

Aside from the impacts of their spending and operations, these impacts stem from PCHE members' in-kind contributions, support of workforce and economic opportunity goals, and contributions to the growth of our entrepreneurial economy.

CITY OF PITTSBURGH TAX REVENUES

PCHE members, like all not-for-profit organizations, are largely, though not entirely, exempt from paying property taxes. They do in fact pay taxes on properties that are not used in direct support of their given institution's mission; which equaled more than \$34.5 million in 2017. Additionally, PCHE members collectively paid \$27 million in Employee Wage Tax and \$3.9 million in Parking Tax to the City of Pittsburgh. This establishes PCHE members as some of the City's largest payers of the Wage and Parking Taxes.

MANUFACTURING ASSISTANCE CENTER

UNIVERSITY OF PITTSBURGH

Established in 1994, the MAC boasts a job placement rate of more than 95 percent. The center relocated from its original location in Allegheny County's Harmar Township to the Bridgeway Capital Building, a 9,000-square-foot facility, in Pittsburgh's Homewood neighborhood. The new facility provides a larger learning space within a more densely populated area, making the Swanson School's resources more accessible to underrepresented communities. The new facility also allows the Swanson School to expand its programs and services. Equipped with lasers, 3-D printers and other high-tech machinery, the makerspace provides students with opportunities to showcase their creativity using the latest technologies. The unit also offers small business development services by PantherlabWorks, part of the University's Institute for Entrepreneurial Excellence.



ECONOMIC OUTPUT AND JOB CREATION

PCHE members are some of the City's most significant economic generators. They are among the City's largest employers, draw a large number of students and visitors into the City, and lead major capital projects, which create significant impacts within the Pittsburgh economy. PCHE members generate \$8.8 billion annually in direct operating activity which generates an annual economic impact on the City of \$9.1 billion and supports 61,389 jobs (see Table 1). These impacts result from operations (see Tables 2a and 2b), student and visitor spending (Tables 3a and 3b) and construction projects (Tables 4a and 4b).



**\$9.1
BILLION**

OVERALL ECONOMIC
IMPACT OF PCHE
MEMBERS

**61,389
JOBS**

SUPPORTED IN THE
CITY OF PITTSBURGH
BY PCHE MEMBERS



TABLE 1

ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM EMPLOYMENT ACTIVITY, SPENDING BY STUDENTS AND VISITORS, AND CONSTRUCTION ACTIVITY BY PCHE MEMBERS

ECONOMIC IMPACTS	DIRECT OUTPUT	TOTAL OUTPUT	TOTAL JOBS SUPPORTED
University Operations	\$4,275,266,195	\$6,447,045,138	44,412
External Research Impacts	\$938,838,193	\$1,584,244,358	7,422
Student and Visitor Spending	\$511,302,365	\$724,609,389	7,864
Total University Operations	\$5,725,406,753	\$8,755,898,885	59,698
Construction - Annual Average	\$209,212,288	\$295,441,631	1,691
Total Annual Impact	\$5,934,619,041	\$9,051,340,516	61,389

PCHE MEMBERS CONTRIBUTE TO THE LOCAL ECONOMY THROUGH: OPERATIONS

The operations of PCHE members generate a significant amount of employment and represent a large pool of purchasing power throughout the City. In aggregate, it is estimated that the jobs supported by PCHE members generate \$4.3 billion annually in direct output from operating activity, which generates an estimated \$6.4 billion in total economic impact annually and supports 44,412 jobs (see Tables 2a and 2b).

An important contributor to university operations is federal grant aid given to PCHE students. It is estimated that the \$55.7 million in federal grant aid generated \$83 million in total economic impact and supported 631 jobs within the City of Pittsburgh. During the 2017 academic year nearly 61 percent of undergraduates and 52 percent of graduate students received some type of financial aid. Many higher education students and



**\$6.4
BILLION**

TOTAL ECONOMIC
IMPACT

**44,412
JOBS**

SUPPORTED BY PCHE
MEMBERS



their families would not be able to afford the cost of tuition, books, and room and board without some type of financial aid.

PALUMBO SCIENCE CENTER LA ROCHE COLLEGE

La Roche College recently announced its largest enrollment to date, with enhancements to facilities to match expanded course offerings. Included in the renovations was the Palumbo Science Center, costing approximately \$4 million. "We need to renovate the Science Center to elevate it to reflect the faculty expertise," said Dr. Howard Ishiyama, Ph.D. Vice President for Academic Affairs and Academic Dean. PWWG's scope reconfigures the layout with dynamic circulation spaces that encourage informal gathering. New MEP systems will insure that labs meet current standards for pedagogy, safety, and human health.



TABLES 2A AND 2B
ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH
FROM OPERATING ACTIVITY BY PCHE MEMBERS

ECONOMIC IMPACTS	DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT
Federal Grant Aid-Supported	\$55,718,356	\$14,449,162	\$12,950,124
Other Operations Spending	\$4,219,547,839	\$1,158,078,141	\$986,301,516
Total University Operations	\$4,275,266,195	\$1,172,527,303	\$999,251,640

ECONOMIC IMPACTS	DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS
Federal Grant Aid-Supported	466	74	92
Other Operations Spending	30,727	6,058	6,996
Total University Operations	31,193	6,131	7,087

PCHE MEMBERS CONTRIBUTE TO THE LOCAL ECONOMY THROUGH:
STUDENT AND VISITOR SPENDING

PCHE member institutions are major catalysts for economic activity. Annually they attract hundreds of thousands of students and visitors who reside outside the City, and come to study or attend cultural or sporting events. In turn, Pittsburgh benefits financially from this influx of spending.

In aggregate, it is estimated that PCHE members generate \$511 million annually in direct student and visitor spending, providing an estimated \$725 million in total economic impact and supporting 7,864 jobs (see Tables 3a and 3b).



\$725
MILLION
 TOTAL ECONOMIC
 IMPACT

7,864
JOBS

SUPPORTED BY
 STUDENT AND
 VISITOR SPENDING



TABLES 3A AND 3B

ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM SPENDING BY STUDENTS AND VISITORS BY PCHE MEMBERS

DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT	TOTAL OUTPUT
\$511,302,365	\$119,117,682	\$94,189,343	\$724,609,389
DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS
6,531	665	669	7,864

Student spending is comprised of purchases made by on-campus students and off-campus students for off-campus goods and services. According to data from the National Center for education statistics, the off-campus students in PCHE schools spent \$9,033 on room and board and \$3,093 on

other expenses. On Campus students spent \$2,218 on other expenses. The spending of on-campus students for room and board is considered part of the university operations. This spending does not include other purchases made at PCHE institutions such as books and supplies.

UPMC EVENTS CENTER

ROBERT MORRIS UNIVERSITY

The largest construction project in RMU history, the 140,000-square-foot UPMC Events Center will be the newest addition to RMU's Moon Township campus. With the Peoples Court, the center will provide a competitive facility for the NCAA Division I Colonials basketball and volleyball programs and will add a modern convention and meeting space for the Pittsburgh West/Airport Corridor region.



PCHE MEMBERS CONTRIBUTE TO THE LOCAL ECONOMY THROUGH: CONSTRUCTION PROJECTS

As a result of strong demand from students, PCHE members have invested in an extensive number and range of construction and renovation projects, as well as site acquisitions, between 2005 and 2017. These projects represent real economic activity within the City of Pittsburgh and demonstrate PCHE members' commitment to invest in and grow the local economy. PCHE members continue to initiate, sustain, and complete major construction projects at a time when other sectors have slowed their construction activity. Since PCHE members have invested more than \$2.7 billion in direct construction activity, generated \$3.8 billion in total economic impact and supported total 21,979 jobs and an annual average of 1,691 jobs in Pittsburgh (see Tables 4a and 4b).



TABLES 4A AND 4B

ESTIMATED ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM CONSTRUCTION ACTIVITY BY PCHE MEMBERS 2005-2017

	DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT	TOTAL OUTPUT
Total 2005-2017	\$2,719,759,750	\$583,968,503	\$537,012,951	\$3,840,741,205
Annual Average	\$209,212,288	\$44,920,654	\$41,308,689	\$295,441,631

	DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS
Total 2005-2017	14,438	3,722	3,819	21,979
Annual Average	1,111	286	294	1,691



PCHE MEMBERS CONTRIBUTE TO THE LOCAL ECONOMY THROUGH: RESEARCH

The research conducted at PCHE member institutions has played a large role in our region's economic recovery. The university research conducted by PCHE members is a vital economic catalyst for creating new companies and jobs, and attracting millions of research dollars to the City of Pittsburgh. The academic research conducted here provides multiple, ongoing opportunities to create new products, develop new medical treatments and develop new businesses and innovative technologies. In turn, academic research strengthens new and existing businesses by licensing university technology which is the basis for new products coming to market. Additionally, faculty researchers are able to partner with industries to start up or incubate new businesses until they can establish a more permanent business location.

Integral to PCHE members' mission is to serve the public through research, teaching and service, and the work of faculty researchers is reshaping the frontier of medical and scientific discoveries and outcomes. In fields ranging from cancer and liver disease to regenerative medicine and vaccine development, to information technology and materials engineering, faculty researchers are transforming these fields and having a local, national, and international impact on future research development and outcomes. Historically, the research expertise at Pittsburgh's higher education institutions is rooted with nationally and internationally recognized faculty researchers who play a pivotal role in many groundbreaking discoveries. This research provides an ongoing supply of new technologies and inventions that are the foundation for new business start-ups.

In 2017, PCHE member institutions received a total of \$1.2 billion in non-Pennsylvania funds



**\$2
BILLION**
OVERALL ECONOMIC
IMPACT OF PCHE
RESEARCH

**9,617
JOBS**

SUPPORTED IN THE
CITY OF PITTSBURGH
BY PCHE RESEARCH



for research and education in science and engineering. These include funds received from all federal agencies, as well as other sources like state and local government and private funders. In particular, PCHE members forge and maintain valuable relationships with private industry partners that can translate into positive economic returns. These relationships develop through a variety of avenues, such as when private organizations sponsor student projects, hire faculty as consultants, sponsor research, and recruit on campus, to name a few. Of the \$1.2 billion in research funds, private industry sponsored \$38 million. This influx of fresh dollars ripples through the local economy not only from the spending of faculty researchers, technicians and support staff but also through university purchases of goods and services with local vendors and suppliers.

In 2017, the research conducted by PCHE members added \$2 billion in total economic output and supported 9,617 jobs (see Tables 5a and 5b). As a result, these numbers underestimate the impact of university research. The results below do distinguish

between the research staff jobs supported within the universities (Internal Research Impacts) and the jobs supported in firms and institutions outside the universities (External Research Impacts). The External Research

Impacts reflect the direction operations of the research activity but not the full job creation and commercialization that occurs in the city as a result of university research activities.

TABLES 5A AND 5B

ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM RESEARCH ACTIVITY WITHIN THE CITY BY PCHE MEMBERS

	DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT	TOTAL OUTPUT
Total 2005-2017	\$277,665,787	\$130,136,896	\$60,745,001	\$468,547,684
Annual Average	\$938,838,193	\$440,016,355	\$205,389,810	\$1,584,244,358
Total Research Impacts	\$1,216,503,980	\$570,153,251	\$266,134,811	\$2,052,792,042

	DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS
Internal Research Impacts	1,030	734	431	2,195
External Research Impacts	3,483	2,482	1,458	7,422
Total Research Impacts	4,513	3,216	1,889	9,617

**UNIVERSITY COMMONS
RENOVATION**

CARLOW UNIVERSITY

The University Commons project — Carlow University's first LEED certified eligible building — involved the complete renovation of the 82,500 square foot Grace Library Building on the Oakland campus, turning it into the center of campus life and learning at Carlow University. Construction began in August 2014 and was completed in August 2015. The University Commons integrates an array of faculty and student services that support student and faculty learning and collaboration. Amenities include three computer labs, a café, a state-of-the-art home for the Center for Digital Learning and Innovation, study spaces, and informal, shared workspaces for students.



SUPPORTING THE CITY'S NEIGHBORHOODS AND ECONOMY

PCHE MEMBERS' IN-KIND CONTRIBUTIONS

PCHE member institutions are committed to fulfilling their individual missions while integrating instruction and research with service and a commitment to benefitting neighborhoods throughout the City. They invest of themselves and their resources to improve the communities in which they reside and serve. PCHE member institutions are vital economic and social partners who work in concert with City government and neighborhood based groups in order to maximize the benefits that the institutions bring to Pittsburgh.

As a result, PCHE member institutions contribute nearly \$53 million annually in community services that supports 921 jobs in the City of Pittsburgh. In addition to the public safety provided by university security, community services include volunteering at local charities and human service organizations, and other donated services. This does not include volunteer hours outside of work, on staff members' personal time. PCHE members contribute \$24.4 million in



**\$53
MILLION**
CONTRIBUTED
ANNUALLY IN
COMMUNITY SERVICE

**921
JOBS**

SUPPORTED IN THE
CITY OF PITTSBURGH
BY COMMUNITY
SERVICE



public safety services that supported 517 jobs in the City of Pittsburgh. In fact, University of Pittsburgh has the third largest police force in Allegheny County. Public safety services include hiring public safety officers to patrol and protect member campuses and surrounding City neighborhoods.

TABLE 6
ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM COMMUNITY

IN-KIND CONTRIBUTIONS	DIRECT OUTPUT	TOTAL OUTPUT	TOTAL OUTPUT
Community Service	\$28,170,680	\$41,100,731	404
Public Safety	\$24,389,280	\$35,893,334	517
TOTAL	\$52,559,960	\$76,994,065	921

TABLES 7A AND 7B
ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM COMMUNITY SERVICE ACTIVITY BY PCHE MEMBERS

DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT	TOTAL OUTPUT
\$28,170,680	\$8,219,939	\$4,710,112	\$41,100,731

DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS
315	55	33	404

**SCHOOL OF BUSINESS'S
CENTERS OF EXCELLENCE IN
ENTREPRENEURSHIP**
DUQUESNE UNIVERSITY

The newly renovated Rockwell Hall 's 4th Floor is the new home of the School of Business's Centers of Excellence in Entrepreneurship, Professional Selling and Supply Chain Management. These Centers support applied educational experiences for students and innovative research as well as promote interaction with local business leaders and entrepreneurs. This innovative project gives Duquesne students the skills they need to act entrepreneurially, sell effectively and manage sustainable supply chains while also enhancing job creation and workforce development in the region.



TABLES 8A AND 8B

ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM COMMUNITY SERVICE ACTIVITY WITHIN THE CITY BY PCHE MEMBERS IN THE CITY

DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT	TOTAL OUTPUT
\$28,170,680	\$8,219,939	\$4,710,112	\$41,100,731
DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS
315	55	33	404

If the universities did not provide security services and policing on their campuses, it would require additional police personnel from the City of Pittsburgh to provide the same level of public safety. Based on an average cost of \$103,424 in total costs to

support a field officer¹, PCHE members public safety expenditures would equate to 236 additional police officers, or the addition of nearly three new zone stations.

¹ Based on the 2017 operating budget reported for the Pittsburgh Police including \$92.3 million for salaries and benefits for 892 personnel .

TABLES 9A AND 9B

ESTIMATED ANNUAL ECONOMIC AND JOB IMPACT ON THE CITY OF PITTSBURGH FROM PUBLIC SAFETY ACTIVITY BY PCHE MEMBERS

DIRECT OUTPUT	INDIRECT OUTPUT	INDUCED OUTPUT	TOTAL OUTPUT
\$24,389,280	\$4,363,228	\$7,140,826	\$35,893,334
DIRECT JOBS	INDIRECT JOBS	INDUCED JOBS	TOTAL JOBS
438	28	51	517

BARBOUR LIBRARY RENOVATION

PITTSBURGH THEOLOGICAL SEMINARY

Pittsburgh Theological Seminary has raised the funds for a complete, \$12 million modernization of the Barbour Library. This project addresses the full range of renovation needs to establish creative, new spaces that will inspire people to engage with theological ideas and each other in community and collaboration; to incorporate innovation that supports theological reflection, inquiry, and research; and to preserve the collection purposefully.



WORKFORCE DEVELOPMENT AND THE WAGE PREMIUM

With tens of thousands of alumni living in the local area, PCHE members play a significant role in supplying and preparing the workforce in the City of Pittsburgh and throughout the region. They accomplish this through traditional degree programs as well as specialized workforce programs. These programs provide both short- and long-term benefits to the well-being of the region and its residents.

In the 2016-17 academic year alone, PCHE members awarded 22,401 degrees. This included:

- + 1,891 Associate's degrees
- + 9,982 Bachelor's degrees
- + 9,420 Graduate or first professional degrees
- + 1,108 Other degrees

Non-traditional education and training programs also help prepare a workforce to

meet current and future needs of businesses and organizations. Programs can be sector- or skill-specific, and they serve a wide variety of populations. PCHE members provide a variety of workforce development and worker retraining programs.

These include:

- + Programs for single parents and displaced homemakers who are attempting to re-enter the workforce
- + Training to support the life sciences and medical device manufacturing industries
- + Customer service training for the insurance industry
- + Management and technical assistance to small businesses and individuals seeking assistance in developing a business plan
- + Leadership training for not-for-profit executives
- + Continuing education for CPAs and Certified Financial Planners, attorneys and

ADVANCED ROBOTICS MANUFACTURING INSTITUTE CARNEGIE MELLON UNIVERSITY

The Advanced Robotics for Manufacturing (ARM) Institute is a Pittsburgh-based, public-private partnership founded by Carnegie Mellon University. ARM actively develops, demonstrates and facilitates early adoption of robotic solutions in an effort to grow the national manufacturing ecosystem. ARM focuses on growth sectors that are ripe for rapid adoption of robotics in manufacturing, including: aerospace, automotive, electronics, textiles, logistics, and composites. ARM seeks to lower the technical, operational and economic barriers for small- and medium-sized enterprises (SMEs) as well as large companies to adopt robotics technology, and build U.S. leadership in advanced manufacturing.



- others
- + Entrepreneurial training for women and veterans
- + Degree completion programs for adult learners
- + Non-partisan educational programs specifically for public officials

Traditional college graduates are an excellent source of talent for regional businesses, particularly as the global economy continues to transition into a knowledge-based economy. Post-secondary education achievement also brings long-term benefits to employees. College graduates generally have more financial and job stability than those who only have a high school diploma. In fact, the median annual earnings for full-time workers 25 to 32 years of age with a bachelor's degree or higher was \$51,980 (in 2014 dollars), whereas the same age group with a high school diploma earned \$30,000.² High school graduates earn only 58 percent of the annual earnings of those with a bachelor's degree or higher. According to the Department of Education College Scorecard, 10-years after graduating, PCHC-educated graduates earn \$12,916 more compared to median earnings of college graduates nationwide.³

Based on estimated retention rates for each institution, ranging from 10 percent for Carnegie Mellon to 97 percent for CCAC,

² Source: National Center for Education Statistics (https://nces.ed.gov/programs/digest/d15/tables/dt15_502.30.asp)

³ Source: Department of Education College Scorecard (<https://collegescorecard.ed.gov/search/?state=PA&zip=15217&distance=30&sort=name:asc&page=0>)

the graduates that remain in the City of Pittsburgh will represent an aggregate wage premium of more than \$106 million each year compared to what they would have earned with only a high school degree. That wage premium generates \$1.1 million in city taxes, and \$2.1 million in school taxes.

Additionally, college graduates are significantly more likely than those without a college degree to say that their education has been "very useful" in preparing them for work and a career (46 percent vs. 31 percent, respectively). And young adults with a college degree are more likely than those with a high school diploma to say they have the necessary education and training to advance in their careers (63 percent vs. 41 percent, respectively)⁴. In turn, a study conducted by the National Association of College and University Business Officers further shows that there is a \$1 million difference between high school graduates' earnings and those who earn a bachelor's degree. This study also shows that there is another \$1 million difference between those with a bachelor's degree and those with a doctorate. On average, an individual with a bachelor's degree can expect to earn \$2.4 million over their lifetime.⁵

⁴ Source: Pew Research Center (<http://www.pewsocialtrends.org/2016/10/06/5-the-value-of-a-college-education/>)

⁵ Lifetime Earnings: College Graduates Still Earn More, National Association of College and University Business Officers, October 18, 2012. Available from <https://www.nacubo.org/News/2012/10/Lifetime-Earnings-College-Graduates-Still-Earn-More>



CREATING NEW COMPANIES

PCHE member institutions dedicate resources to creating an entrepreneurial environment and supporting the launch of new businesses and organizations within the City of Pittsburgh. These companies create jobs, generate tax revenues, and bring fresh dollars into the City through investments and sales.

Many innovative and entrepreneurial faculty, students, staff, and community residents benefit from this support and these programs. Faculty members and researchers start new businesses based on new discoveries with commercialization potential. Students in business classes and entrepreneurship programs launch new

businesses based on class projects and extracurricular activities.

Since 2005, PCHE members have launched 339 startup businesses; this is an average of 26 startups per year. Since the last report in 2014, the pace of startup creation has jumped from 18 per year from 2005-2013 to 44 startups per year from 2014 to 2017. Though Carnegie Mellon University and University of Pittsburgh are responsible for a large share of the startups, Duquesne University, Chatham University and Point Park University also have initiated several startup businesses. As these companies grow they will continue to hire new employees increasing their economic impact on the City and region.

THE NEW PITTSBURGH PLAYHOUSE

POINT PARK UNIVERSITY

When Point Park University envisioned a new Pittsburgh Playhouse, located in the heart of Downtown Pittsburgh, one of its foremost considerations was to create a state-of-the-art learning center where students could merge their energy, talent and ambition into a central location. The 90,000-square-foot structure, which cost \$60 million to build and furnish, is located on approximately 1.6 acres of land along the Forbes Avenue corridor between Wood and Smithfield streets. The new Pittsburgh Playhouse at Point Park University, given its size, state-of-the-art features and Downtown location, is an interdisciplinary space that will act as the entertainment hub for the entire campus.



CITY OF PITTSBURGH TAX REVENUES

In 2017 PCHE members paid more than \$35 million in total taxes to the City of Pittsburgh. Though PCHE members are not-for-profit institutions and as such do not pay real estate tax on properties used to further their individual missions, members collectively pay millions of dollars in other taxes to the City. The largest tax amount paid by PCHE members was \$27 million in City Employees

Wage Tax. In addition, PCHE members paid more than \$3.9 million in City Parking Tax and \$1.6 million in Local Service Tax.

In 2017, the City of Pittsburgh collected more than \$607 million in various taxes, 6 percent of this total was paid by PCHE members. The taxes ranked in order of PCHE's share of city tax revenues is presented in Table 10.

TABLE 10
DIRECT TAXES PAID AND PERCENT OF CITY TAX COLLECTED ATTRIBUTABLE TO PCHE, 2017

TAX CATEGORY	PCHE AMOUNT PAID	TAX COLLECTED BY THE CITY OF PITTSBURGH	PERCENT OF TAX COLLECTED ATTRIBUTABLE TO PCHE
City Employee Wage Tax	\$27,006,825	\$218,559,443.00	12%
City Parking Tax	\$3,935,888	\$56,162,591.00	7%
Local Service Tax	\$1,571,492	\$14,509,191	11%
Amusement Tax	750,603	17,441,514	4%
City Real Estate Tax	733,920	298,226,320	0%
City Telecommunications License	304,789	1,051,808	29%
Non-Profit Payment for Services	\$98,875	\$416,839.00	24%
Oakland Business Improvement District Tax	\$89,003	\$147,500.00	60%
Business Privilege Tax through University Contractors	\$15,550	\$589,957.00	3%
Miscellaneous	\$5,707	\$344,117.00	2%
TOTAL	\$34,413,777	\$607,032,441.00	6%
Miscellaneous	\$5,707	\$344,117.00	2%
TOTAL	\$34,413,777	\$607,032,441.00	6%

Source: City taxes from the City of Pittsburgh, Quarterly Financial & Performance Report For the Period Ending December 31, 2017. Available from Quarterly Financial & Performance Report For the Period Ending December 31, 2017.

INVESTING IN PITTSBURGH

Pittsburgh Council on Higher Education members are major contributors to the vibrant economy and marketability of the Pittsburgh area. As anchor institutions in the City of Pittsburgh and its neighborhoods, PCHE members are significant economic generators, creating the places where people want to live, work, play and invest.

The 2017 report from Brookings, *Capturing the next economy: Pittsburgh's rise as a global innovation city*, highlighted the role of the universities in the region's ongoing economic transition.

Today, the competitive advantage of the region is no longer its rivers and raw materials but its high-skilled workers, world-class research institutions, and technology-intense advanced manufacturing. In 2016, for example, the region's per capita university research and development (R&D) spending was nearly two and a half times the national average. On a number of metrics, the region punches far above its weight in academic activity. The metropolitan area ranks ninth among the largest 100 cities for the amount of university R&D, given the size of its economy and is a powerhouse in fields like robotics, gerontology, critical care, artificial intelligence, cell and tissue engineering, neurotrauma, and software.

In addition, David Finegold, the new President of Chatham University, summed up student's response to the unique attributes of Pittsburgh's higher education institutions that set it apart from other higher-ed cities - in addition to their proximity to one another, leading programs in STEM, drama and media, business and sustainability;⁶

Students find Pittsburgh a particularly attractive choice in that it combines all of this with affordable, easy-access amenities and great job prospects, making it a top-rated city for new graduates. In addition to receiving a world-class education, they can enjoy great restaurants in diverse neighborhoods, wonderful museums and cultural institutions, a sports fan's dream in black and gold, and great outdoor activities in the rivers, parks and surrounding hills.

Perhaps the most distinctive feature of Pittsburgh's higher-ed institutions is their close partnership with government, corporations, nonprofits and Pittsburgh's strong set of foundations, which have played such a vital part in transforming the Steel City into a hub for technology innovation and "ed and meds."

These unique attributes and the City's competitive advantage is what's fueling the work of PCHE. As long-standing partners, PCHE members work with public and private sector organizations throughout the City to serve the community and its residents, and improve the quality of life for everyone in the City of Pittsburgh. PCHE members will continue to be key collaborators on many important and innovative initiatives, bringing positive economic and social benefits to the City of Pittsburgh.

⁶ David Finegold, Pittsburgh Post-Gazette, October 13, 2017. <http://www.post-gazette.com/opinion/2017/10/13/Pittsburgh-A-big-college-town-full-of-creativity/stories/201710120012>

IMPACT METHODOLOGY

Fourth Economy collected data from the PCHE member institutions about their Pittsburgh based enrollment, degrees granted, expenditures for various activities, as well as volunteer hours and donations. Additional data on university activities was sourced through the National Center for Education Statistics and the National Science Foundation. Information

on city taxes, police and other data was sourced independently by Fourth Economy and cited in this report.

Inputs from the data collection were used with an economic impact model for the City of Pittsburgh. IMPLAN provides an input/output model of economic activity that can be used to identify the effects of a specific stimulus, such as employment in a specific industry or investment in the construction of new facilities or even the impact of the expenditures from a firm or industry. An input/output model estimates the interactions between industries and households in an economy to identify how transactions impact the production and consumption of goods and services in an economy (Figure 1).

A type SAM model includes multipliers that estimate the direct, indirect, and induced effects based on the Social Account Matrix that includes industries, institutions, and households. Type SAM models account for social security and income tax leakage, institution savings, commuting, and inter-institutional transfers.

Indirect effects take account of everything that an industry needs to produce a unit of commodity. For example, the production of \$100 worth of paper will require inputs from a variety of supplier industries such as chemicals, toolmakers, trucking companies, and more. Furthermore, that \$100 worth of paper may then be inputs for other goods and services in schools, hospitals, architects, manufacturing plants and so on. Induced effects are the Impacts that result from household expenditures for goods and services as a result of earnings from the direct and indirect expenditures.



Figure 1: Types of Economic Impact Effects

Caution is required in interpreting the estimates of input-output models. These models estimate the resources required to produce given quantities of different kinds of output. In other words, what amount of concrete and other supplies does it take to produce \$1 million worth of new roads? For these new roads to have a net impact on the economy, we have to assume that the businesses providing those goods and services are at capacity and cannot produce them without additional workers and resources. If there is slack capacity, then the \$1 million helps to retain existing jobs. The input-output model is therefore more like an accounting tool that describes the allocation of resource requirements, but it does not tell us if they are new resources or substitutions.

Minnesota IMPLAN Group, Inc (MIG, Inc) are the developers of the IMPLAN® economic impact modeling system. IMPLAN® is used to create complete, extremely detailed Social Accounting Matrices and Multiplier Models of local economies. MIG, Inc. provides software tools, region-specific data, and outstanding technical support to enable users to make in-depth examinations of state, multi-county, county or sub-county, and metropolitan regional economies. See: http://implan.com/index.php?option=com_content&task=blogcategory&id=83&Itemid=28.