

IN SERVICE TO OTHERS: THE ECONOMIC, COMMUNITY AND SOCIAL IMPACT OF VILLANOVA UNIVERSITY

FINAL REPORT – Spring 2019

FINAL REPORT SUBMITTED TO:

Villanova University
800 E. Lancaster Avenue
Villanova, PA 19085



VILLANOVA
UNIVERSITY
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EXECUTIVE SUMMARY

This report articulates the economic and social impact of Villanova University within the Commonwealth of Pennsylvania, the Philadelphia region, and locally within Radnor Township. Villanova produces an estimated **\$887 million annual economic impact within the state of Pennsylvania, supporting 6,120 jobs with \$461 million in earnings from its ongoing operations, capital investments, and the student and visitor spending that it attracts.** More than half that statewide economic and employment impact occurs within Radnor Township. This impact is situated within Villanova's commitment to being a faith-infused and values-led institution, which manifests itself in meaningful investments of financial and programmatic resources in initiatives that produce local benefit as well as broader societal advancement.

BACKGROUND

This report represents an update of Villanova's 2011 economic impact study. Since that time, higher education institutions, particularly those with religious affiliations, have faced increased scrutiny from governments, students, and parents to justify their value proposition in terms of the tuition they charge, the space they inhabit, and the tax-exempt status they enjoy. This report demonstrates the many ways that Villanova produces a compelling return on investment – to its students, to nearby communities, and to society as a whole. It does so in the process of fulfilling its core institutional mission of providing a comprehensive education rooted in the liberal arts and in a shared commitment to the Augustinian ideals of truth, unity, and love, and carried out by a community dedicated to service to others.

Since the prior report, Villanova has made significant investments in updating and upgrading its campus infrastructure. Furthermore, its elevation to the "Doctoral Research" category and subsequent inclusion in the US News and World Report "National Universities" ranking has increased the national prominence of the institution in a sustainable way. This distinction in turn has produced an increase in interest from prospective students all over the world, and helped to fuel a significant fundraising campaign, all of which translates into greater economic activity in the Philadelphia region and furthers Villanova's contribution to society.

ECONOMIC IMPACT

Villanova's economic impact comes from its direct expenditures on annual operations and capital projects, and from the additional spending by students and visitors that it attracts into the area. This report quantifies direct and spillover impacts at various geographic levels for the following non-overlapping impact categories:

Annual Operations – Villanova contributes to the local and state economy as a major employer and procurer of goods and services. Villanova directly employs more than 2,700 faculty and staff, who recirculate their earnings in the local and state economy as household spending, and its procurement is a major source of activity for vendors in the region and state. Importantly, Villanova's selective nature and national applicant pool mean that much of the revenue supporting this activity (including student tuition and research funding) is new to the region. The total economic impact from Villanova's operations is estimated at \$656 million within Pennsylvania annually.

Capital Investments – Villanova is in a major physical investment phase, taking its annual capital outlays from \$20 million per year from FY 2014 to 2015 to more than \$120 million per year from FY 2016 to 2019. These investments represent economic opportunities for the regional construction sector, producing jobs and tax revenues within the state. They also support Villanova’s continued pursuit of excellence in educating students, serving and engaging with its local community, and conducting cutting-edge research. The total economic impact from Villanova’s capital investments is estimated at \$130 million within Pennsylvania annually.

Ancillary Spending – Villanova’s student body of around 11,000 and the estimated 340,000 visitors that the institution attracts to the region (including friends and family and spectators and participants at a wide range of athletic, academic and cultural events) inject considerable spending power into the local economy. The demand for food, shopping and entertainment experiences represented by the Villanova community is crucial to enabling the concentration of commercial activity along Lancaster Avenue, amenities that are enjoyed by residents and build to tax base of the Township. The total economic impact from ancillary spending is estimated at \$101 million within Pennsylvania annually.

These three categories total \$887 million in annual economic impact within Pennsylvania, supporting 6,120 jobs with \$461 million in earnings. Importantly, these economic impacts are produced in the pursuit of Villanova’s core institutional mission of educating students, serving and engaging with its local community, and providing broader benefit to society.

BENEFITS TO RADNOR TOWNSHIP

Villanova embraces its status as an anchor institution in Radnor Township, and the mutual benefit that derives from its contribution to the quality of life for nearby residents. Villanova is a major source of demand for businesses of all types in Radnor through its direct procurement, the purchasing power of its employees, students and visitors, and the base of nearly 1,500 alumni that live in the Township. These contributions not only sustain the local tax base, but also amenities like restaurants and shops that residents enjoy. **\$62 million in annual economic impact from operations, capital investments and ancillary spending takes place directly within Radnor Township.**

In addition to its status as a major employer and demand generator, Villanova also supports the fiscal position of the Township directly. Villanova’s payments to local government entities for purposes ranging from permits and fees to property taxes on commercial uses totaled more than \$1.8 million in FY 2018 and \$11.4 million over the past six years.

Villanova’s campus itself also serves as an amenity, through the popular “Friends of Villanova” program that gives neighbors access to on-campus facilities and through its role as a hub of academic, arts and culture and athletic events. In addition, the University has developed its own police force, in close coordination with the Township, to serve the campus along with its volunteer student-run Emergency Medical Services team.

SOCIAL IMPACT

As Villanova produces these positive economic and community impacts, it also continues to pursue its core mission of advancement of and service to humanity. This is reflected in the productivity and ethos of its research work, the significant community service and service learning it catalyzes, and the many ways it invests real resources to be a “good neighbor” to Radnor Township and beyond.

Villanova provides a comprehensive education rooted in the liberal arts and in a shared commitment to the Augustinian ideals of truth, unity, and love, and carried out by a community dedicated to service to others. Villanova is committed to integrating service learning into its curriculum, and provides numerous coordinated opportunities for community service. The Villanova community contributes nearly 250,000 hours of community service annually, more than one-quarter of which are generated through service-learning programs. The highlight of this program is the annual St. Thomas of Villanova Day of Service, which brings nearly 5,000 members of the Villanova community together in celebration of the institution’s religious and intellectual tradition of service. Social impacts are articulated throughout this report in order to express the full impact of Villanova, and in doing so to convey the strong return it produces to students, communities, and society.

WAGE PREMIUM

Villanova’s core function of educating and credentialing students is also an economic generator. This function has become ever more important to the region’s vitality in an increasingly knowledge-based economy, given the accelerating gains in competitiveness to regions with high concentrations of well-educated workers and academic/research assets. Therefore, an additional impact category was included in this report, of the wage premium earned by Villanova alumni, which reflects their economic contribution to the communities in which they reside, and translates into additional spending power in a local economy. It is estimated that 33,000 Villanova alumni live and work in Pennsylvania, and their education and credential from Villanova translates into an additional \$1 billion in annual household earnings that circulates through the state economy. A portion of these earnings are spent locally, supporting local merchants and additional jobs. The economic impact of this spending on the state economy is estimated at \$826 million within Pennsylvania annually.

1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

The purpose of this report is to articulate the economic and social impact of Villanova University to a wide range of stakeholder audiences. This impact comes from the economic footprint it generates from its annual operations, its capital investments, and additional spending by students and visitors, as well as from its contribution to the regional economy from the increased earning power of alumni it educates and then retains in the region. This impact also comes from its commitment to being a faith-infused and values-led institution, which manifests itself in meaningful investments of financial and programmatic resources in initiatives that produce local benefit as well as broader societal advancement.



This report represents an update of Villanova’s 2011 Economic Impact study. Two key shifts since that time underlie this updated analysis. First, higher education institutions face increased scrutiny from governments, students and parents to justify their value proposition. This report demonstrates the many ways that Villanova produces a compelling return on investment – to its students, to nearby communities, and to society as a whole. Importantly, it produces this return in the process of fulfilling its core institutional mission of providing a comprehensive education rooted in the liberal arts and in a shared commitment to the Augustinian ideals of truth, unity, and love, and carried out by a community dedicated to service to others.

Second, Villanova’s elevation to the “Doctoral Research” category and subsequent inclusion in the US News and World Report “National Universities” ranking has increased the national prominence of the institution in a sustainable way. This distinction, along with athletic successes, have produced an increase in interest from prospective students all over the world, and helped to fuel a significant fundraising campaign, which has helped Villanova make significant investments in updating and upgrading its campus infrastructure. These dynamics create external investment in the Philadelphia region, leading to more local economic activity, as it helps to further Villanova’s contribution to society.

1.2 COMPARABILITY WITH PREVIOUS ECONOMIC IMPACT REPORT

ESI conducted a similar economic impact analysis for Villanova in 2011, based on the data available at that time. This analysis represents the most accurate quantification of Villanova’s impact given currently available data and methods, rather than a direct update of the prior analysis. Therefore, differences in results between this report and the past report should be understood to be based on a combination of changes in activity levels and changes in methodological approach and data availability, rather than solely reflecting changes in Villanova’s annual impact level over the intervening years.¹

¹ See Appendix A.2 for additional detail on comparability with the previous economic impact report, including a discussion of changes in the input-output modeling software from government issued RIMS to privately produced IMPLAN.

1.3 ABOUT VILLANOVA UNIVERSITY

Villanova University is a vibrant academic community and Roman Catholic institution of higher learning situated on a 260 acre-campus in Radnor Township, in the heart of the Main Line suburbs of Philadelphia. Founded by the Order of Saint Augustine in 1842, Villanova's Augustinian intellectual tradition is the cornerstone of an academic community in which students learn to think critically, act compassionately, and succeed while serving others.

Villanova was among the top 50 of the nation's best colleges and universities in the 2018 *U.S. News & World Report* rankings, placing #46 in the "National Universities" category. The university was elevated in 2016 in the Carnegie Classification System to a "Doctoral University" based on the increasing number of PhDs awarded annually.² This momentum, aided by the visibility of Villanova's 2016 and 2018 men's basketball national championship teams, have helped to grow applications and selectivity to new heights.



Rev. Peter M. Donohue, OSA, PhD
University President

² The Carnegie Classification has been the leading framework for recognizing and categorizing U.S. higher education institutions since 1970. Villanova's prior classification was in the "Master's Colleges and Universities" category.

Villanova Fast Facts

Location: Radnor Township,
Delaware County, PA

Year Established: 1842

Affiliation: Augustinian Catholic

Colleges/Schools: 6

Enrollment: 11,000
6,500 Undergraduate full-time
3,200 Graduate
850 Law School
450 part-time and other

Annual Operating Expenditures:
\$424 million

Faculty/Staff: 2,700 (full and part time)

Mission Statement

Villanova University is an Augustinian Catholic community of higher education, committed to excellence and distinction in the discovery, dissemination and application of knowledge. Inspired by the life and teaching of Jesus Christ, the University is grounded in the wisdom of the Catholic intellectual tradition and advances a deeper understanding of the relationship between faith and reason. Villanova emphasizes and celebrates the liberal arts and sciences as foundational to all academic programs. The University community welcomes and respects members of all faiths who seek to nurture a concern for the common good and who share an enthusiasm for the challenge of responsible and productive citizenship in order to build a just and peaceful world.



Source: Villanova (2018)

1.4 VILLANOVA AS AN ECONOMIC ENGINE AT THE LOCAL, REGIONAL AND STATE LEVEL

Villanova is a tax-exempt entity devoted to an academic and social mission. It is also a driver of local economic growth, a large-scale producer of local and state tax revenues, and an important component of the Philadelphia region's future competitiveness.

These impacts come in part because Villanova's sheer size and scope gives it a large economic footprint that benefits its local, regional, and state economy. As one of the area's largest employers and procurers of goods and services, it directly and indirectly supported a large number of jobs and a considerable amount of economic activity throughout the region.

More uniquely, a significant amount of Villanova's economic impact comes from its core function of advancing human knowledge by educating students and conducting research. This work is increasingly understood to be the linchpin of a region's economic competitiveness. A region's economic vitality depends in large part on its ability to foster intellectual discoveries and promote human innovation, and on its ability to produce and retain an educated workforce. Villanova plays an important function for the region in these regards, conducting high-end research, drawing students from all walks of life and all parts of the country, and producing graduates who can contribute more substantively to the economies in which they participate.

1.5 VILLANOVA AS A POSITIVE INFLUENCE WITHIN RADNOR TOWNSHIP

An important part of Villanova's economic impact narrative is its positive contribution to and partnership with Radnor Township. There is an enhanced awareness of the importance of place to both municipalities and universities – that the location and its characteristics are a big part of what they are selling to prospective residents, businesses, students, and employees – and therefore of the importance of working together to collectively improve and promote that shared space. Radnor benefits from the presence of multiple institutions of higher education located within the Township. In turn, a lot of the Villanova experience for students and employees is influenced by the quality of life provided by the Township.

From Villanova's perspective, a strong working relationship with and a beneficial investment in the community in which it is located is paramount. This is borne of this shared sense of commitment to a place and to the success that comes from that place's attractiveness. It is also borne of Villanova's core mission and spiritual foundation, which place a high value on "being a good neighbor." Within this economic impact framework, this manifests itself in a number of ways that will be explored in this report, from the very localized nature of the commercial opportunity associated with Villanova's economic footprint to the many ways Villanova partners with and provides resources to its immediate neighborhood.

1.6 METHODOLOGY OVERVIEW

Within this report, Econsult Solutions, Inc. (ESI) employs industry-standard economic modeling techniques to estimate direct economic activity generated by Villanova and to translate that activity into total economic output, employment and associated earnings, as well as tax revenue impact. The appendices to this report describes in detail the approach and methodology utilized.

About Econsult Solutions, Inc. (ESI)

This report was produced by Econsult Solutions, Inc. (“ESI”). ESI is a Philadelphia-based economic consulting firm that provides businesses and public policy makers with economic consulting services in urban economics, real estate economics, transportation, public infrastructure, development, public policy and finance, community and neighborhood development, planning, as well as expert witness services for litigation support. Its principals are nationally recognized experts in urban development, real estate, government and public policy, planning, transportation, non-profit management, business strategy and administration, as well as litigation and commercial damages. Staff members have outstanding professional and academic credentials, including active positions at the university level, wide experience at the highest levels of the public policy process and extensive consulting experience.

ESI is an experienced provider of economic and fiscal impact studies for institutions of higher education. Recognizing that the economic impact from these institutions arises not only from their direct expenditures but also from their impact on the local knowledge base, workforce, and community, ESI has developed and applied a rigorous methodology to a wide range of educational institutions and groups.

Data inputs on institutional activity are largely provided by Villanova, and are verified and supplemented with other public data sources and assumptions as needed. For each input, the most recent and appropriate available dataset is utilized (often but not always from FY 2018). In the case of capital investments, activity levels are averaged over multiple years to generate an appropriate assessment of typical annual activity. Therefore, the analysis should be understood to represent the current annualized level of activity for Villanova, rather than representing the impact for any specific fiscal year.³

Economic impacts are the sum of direct activity attributable to Villanova (either direct spending by the institution on operations and capital activity, spending by students and visitors it attracts, or spending by alumni attributable to the enhanced earning power conferred by their degrees) and the spillover impacts of that direct activity.⁴ Within an interconnected economy, each dollar of direct expenditures generates multiple waves of spillover impacts through spending on goods and services purchased within a given region (“indirect impacts”) as well as spending resulting from the labor income generated by the initial activity the ripples

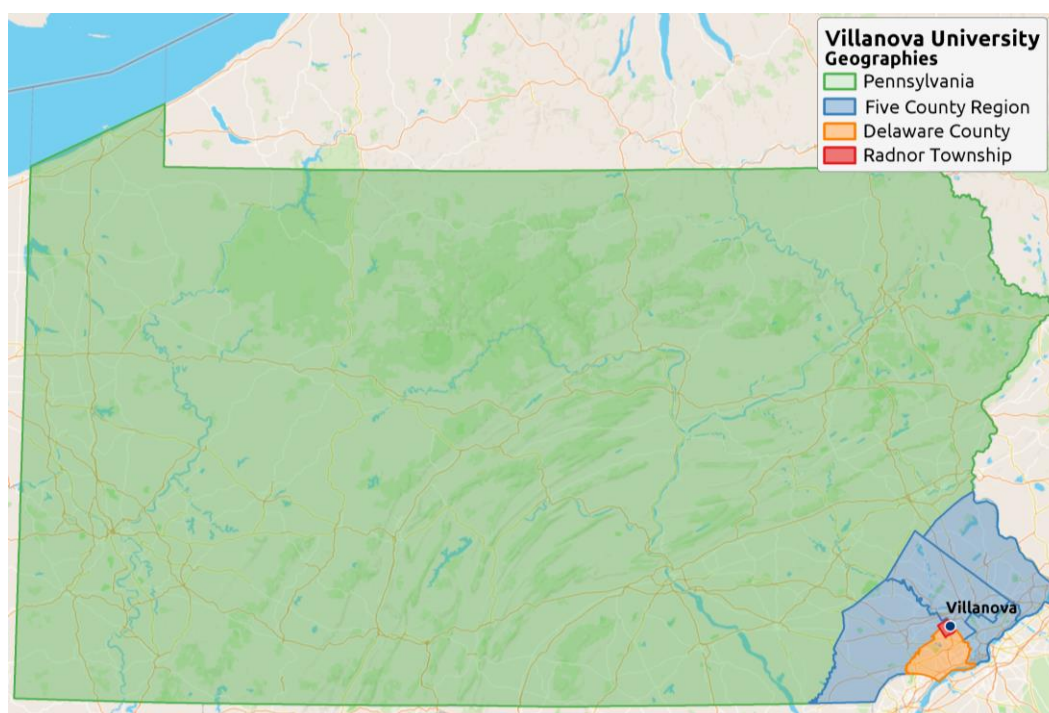
³ Appendix A provides further detail on the data collection process, approach and scope of this analysis.

⁴ Appendix B provides a detailed description of the methodology utilized to define the direct activity attributable to Villanova in each of these categories.

through the region (“induced impacts”). ESI uses IMPLAN modeling software to estimate indirect and induced impacts, and sums them with the direct activity to produce total economic impacts.⁵

Economic impact results are calculated for Radnor Township, Delaware County, the five-county Philadelphia region,⁶ and the Commonwealth of Pennsylvania (see Figure 1.1). Key outputs for each geography include total economic output, employment supported, and earning supported.

FIGURE 1.1 – GEOGRAPHIES OF ANALYSIS



Source: ESI using Mapbox (2018)

Tax revenue impacts are expressed for Radnor Township and the Commonwealth of Pennsylvania. Fiscal modeling accounts for which types of economic activity are and are not subject to taxation given Villanova’s status as a non-profit institution.⁷ Villanova’s economic activity also generates taxable activity within and therefore tax revenues to additional jurisdictions including the City of Philadelphia, suburban municipalities and county governments, and nearby state governments like New Jersey and Delaware. These amounts smaller and more diffuse than those calculated for Radnor Township and Pennsylvania, and are excluded for this analysis to be conservative.

⁵ Appendix C provides a detailed description of the economic modeling approach utilized.

⁶ Bucks, Chester, Delaware, Montgomery and Philadelphia counties, all of which are located in Pennsylvania.

⁷ Appendix C provides a detailed description of the fiscal modeling approach utilized

1.7 ORGANIZATION OF REPORT

This report reviews Villanova's contribution to the economy, to society at large and to the local community in a number of dimensions. The report is organized as follows:

- **Impact from Operations** (Section 2) estimates the impact of Villanova's annual operating expenditures, including employment, procurement, and the provision of educational services.
- **Impact from Capital Investments** (Section 3) estimates the impact from Villanova's physical investments in construction, renovation, and maintenance.
- **Impact from Ancillary Spending** (Section 4) estimates the economic benefit from student and visitor spending drawn into the region and captured within the local economy by Villanova.
- **Impact from Wage Premium** (Section 5) estimates the impact from additional household income and spending in the local economy attributable to Villanova's education and credentialing function and its role in cultivating a talented local workforce.
- **Impact on Society** (Section 6) highlights the ways Villanova's core value to exist in service to others manifests itself in scholarship, research, and service initiatives that produce a profound impact on society at large.
- **Impact on Radnor Township** (Section 7) explores the ways that Villanova's desire to live out the command to "be a good neighbor" is reflected in a wide range of efforts that directly benefit Radnor Township.
- **Summary of Impacts** (Section 8) aggregates the calculated impacts and themes from the preceding sections.

As will be discussed further in the report, the calculations in Sections 2 through 5 were made in a way to ensure that the economic impacts described in these sections were not overlapping, and therefore they can be summed together to yield the annual aggregate economic impact of Villanova. Sections 6 and 7, in contrast, reflect activities undertaken by Villanova that are accounted for in Sections 2 through 5, and therefore any impacts discussed in Sections 6 and 7 are illustrative of rather than additive to the economic impacts in Sections 2 through 5. The methodology utilized throughout the report and ESI's qualifications are detailed in the Appendices.

2.0 IMPACT FROM OPERATIONS

Villanova is a major driver of local, regional and state economic activity in the course of its operating activity as an education and research institution. Villanova directly employs more than 2,700 faculty and staff, who recirculate their earnings in the local and state economy as household spending. Villanova's procurement is also a major source of activity for vendors within the region and state. Including these spillover impacts, Villanova's ongoing operations generate \$656 million in economic output within Pennsylvania annually. Importantly, Villanova's selective nature and national applicant pool mean that much of the revenue supporting this activity (including student tuition and research funding) originates outside of the region

2.1 INSTITUTIONAL STATURE AND EXPORT ACTIVITY

Since its most recent economic impact study in 2011, Villanova has seen its national prominence increase on multiple dimensions. This change in institutional stature translates into larger and more impactful economic footprint in the Philadelphia region in a number of ways. As discussed below, Villanova's elevation to the "Doctoral Research" category and subsequent inclusion in the *US News and World Report* "National Universities" ranking has increased the national prominence of the institution in a sustainable way. This in turn has attracted an increase in interest and applications from prospective students, and also helped to fuel a significant fundraising campaign (discussed in detail in Section 3).



Notably, Villanova has not grown the size of its student body or its operating budget (beyond inflationary growth) over this period. Instead, Villanova has increased its capital spending (as explored in Section 3) while maintaining operational efficiency, ensuring a sound financial foundation for the institution and maintaining value for its students. In addition, the increased prominence, reputation and sophistication of intellectual activity enable Villanova to better compete against peer institutions to attract talented students and faculty from across the country into the Philadelphia region. This activity serves as key export items in the modern economy for a Philadelphia region increasingly reliant on knowledge driven fields like higher education and medicine. This shift has revamped the traditional export model from manufacturing physical goods and selling them externally to attracting external students and research activity, and with them tuition and funding, into a region that sells knowledge activity. As discussed throughout this report, this model has additional economic benefits in engendering spillover activity from innovation and ensuring an educated and productive workforce.

In 2016, Villanova received a classification change to the "Doctoral Universities" category (from the "Master's Colleges and Universities" category) from the Carnegie Classification, the leading framework for U.S. higher education. The categorization, which is updated every five years by the Carnegie Foundation, is based on the number and nature of doctoral degrees awarded, research grants and

"Villanova's overall ranking among the finest universities in the country further highlights our strong academics, impressive student outcomes and national reach. A particular point of pride is the recognition we received for our continued excellence in the education of undergraduates. Villanova's inclusion in this select group validates our unwavering focus on undergraduate teaching and how it is uniquely enhanced by connecting and involving undergraduates in the research and scholarly pursuits of our outstanding faculty."

- Patrick G. Maggitti, PhD, Villanova University Provost

activity occurring, and other measures of scholarly productivity. Villanova's elevation was triggered the number of PhDs awarded annually, indicating the forward momentum of the university and its research program. In fall 2016, Villanova initiated its first student cohort in a new doctoral program in Theology, adding to existing programs in Engineering, Nursing and Philosophy. Villanova faculty and students are also involved in innovative research funding by federal agencies, including the Department of Defense (DOD), National Science Foundation (NSF) and Environmental Protection Agency (EPA).

The elevated Carnegie classification also triggered a reclassification in the closely watched *US News and World Report* "Best Colleges" rankings from the "Regional Universities North" category (where Villanova has ranked #1 for decades) to the "National Universities" list. Villanova has been ranked in the top 50 in its first two years in this classification, rating #46 in the 2018 rankings (released in fall 2017). It also ranked in the top 50 in a number of sub-categories, including #17 for "Best Undergraduate Teaching," #21 for "Alumni Giving" and #48 for "Best Value."

These rankings are not only a reflection of Villanova's academic excellence amongst its national peers, but impact the visibility and reach of the institution due to their role in the research process for many prospective students and families. This change in classification coincided with Villanova's 2016 men's basketball championship, which also increased the visibility of the institution to a national audience. In the fall 2017 admissions cycle (the first after the new classification by *US News* and the championship), Villanova saw a 22 percent jump in admissions applications, followed by an increase of another 8 percent in the fall 2018 admissions cycle. This increase in applications have led to a significant increase in selectivity, with the admissions rate declining from 48 percent in fall 2015 to 29 percent in fall 2018 (see inset on following page).

This increase in admissions interest enhances Villanova's ability to attract high achieving-students from around the country to the Philadelphia region. Table 2.1 below shows the home location of the undergraduate student body (all cohorts) as of fall 2017. 80 percent of the student body originates from outside of Pennsylvania, with New Jersey representing the top state of origin and New York a close third.

TABLE 2.1 – DISTRIBUTION OF UNDERGRADUATE STUDENT BODY, FALL 2017

Rank	State	Share of Undergrads
1	New Jersey	24.4%
2	Pennsylvania	20.0%
3	New York	16.4%
4	Massachusetts	6.4%
5	Connecticut	5.5%
6	Illinois	3.4%
7	California	3.4%
8	Maryland	3.4%
9	Florida	2.1%
10	Virginia	2.1%
	Other Domestic	10.4%
	International	2.3%

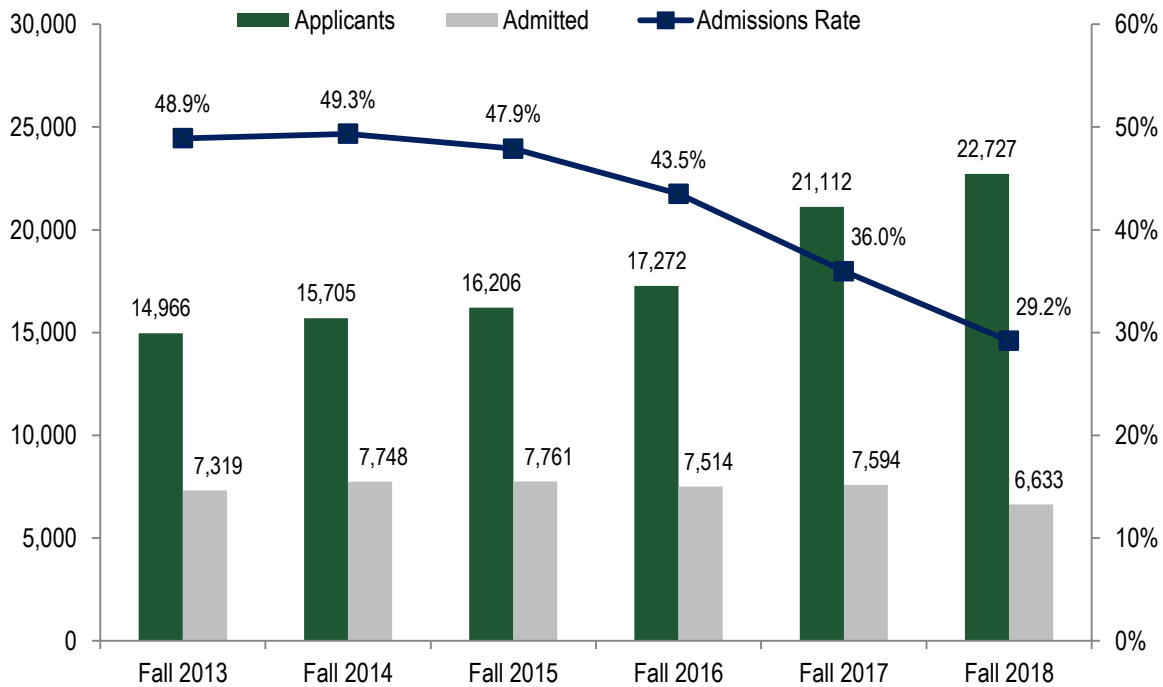
Source: Villanova (2018)

Increase in Applications and Selectivity

Villanova has seen a material increase in the volume of applications it has received over the past five years. From fall 2013 to fall 2016, the institution saw steady application growth of around 5 percent per year, an impressive clip given demographic trends that are causing demand challenges across higher education. In fall 2017, Villanova saw a 22 percent increase to more than 21,000 applications. This jump was driven by the institution’s greater prominence in the *US News and World Report* rankings through its inclusion in the “National Universities” category and through the national attention triggered by the 2016 men’s basketball national championship.

Importantly, Villanova appears well-positioned to maintain and build on these gains. Villanova remained in the National University’s category and increased its ranking for the fall 2018 cycle, and received another strong increase in applications (growing 8 percent to around 22,700). The university also captured another men’s basketball championship in spring 2018, bringing an infusion of positive attention to the institution yet again.

APPLICATIONS AND ADMISSIONS RATES, 2013-2018



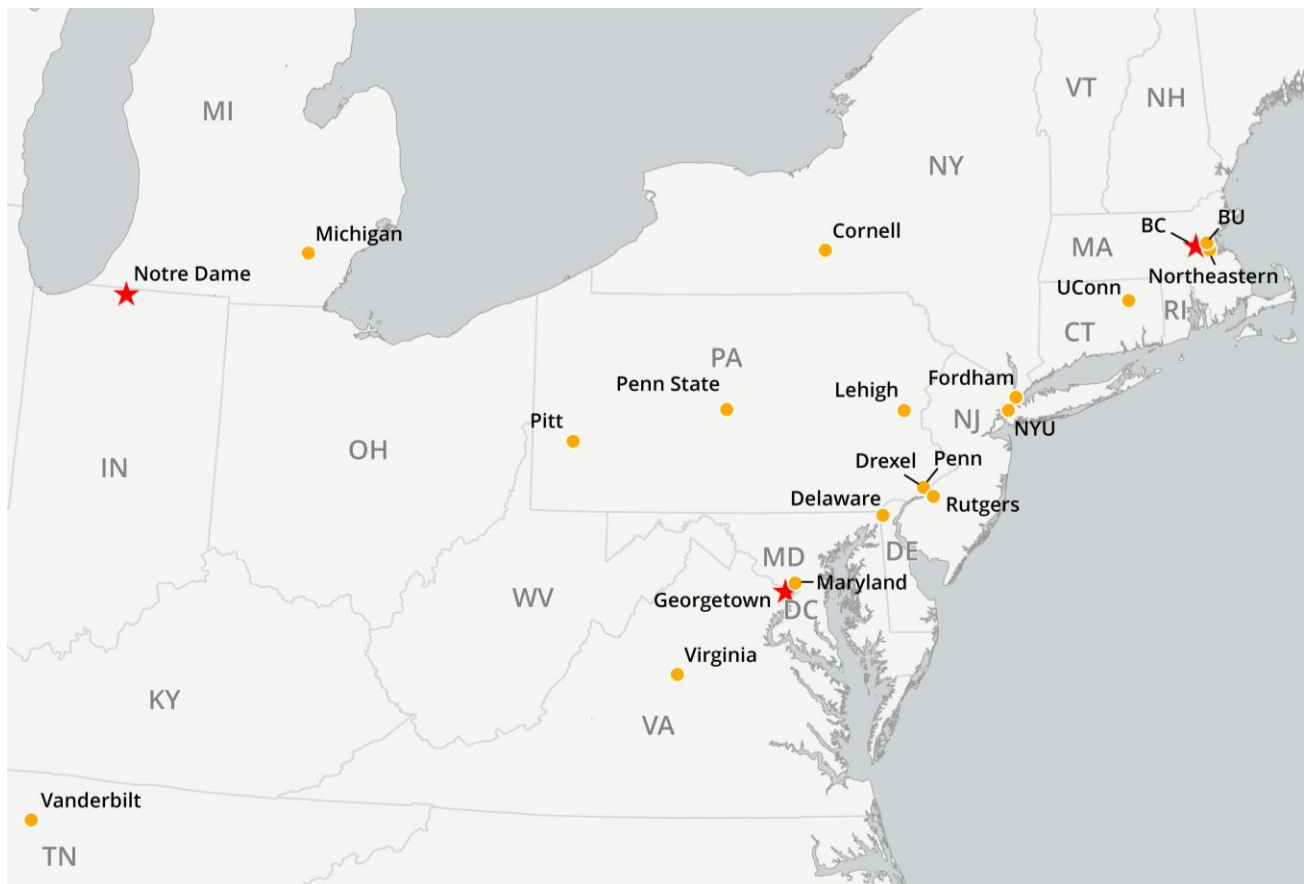
Source: Villanova (2018)

Villanova maintained a similar level of admitted and enrolled students throughout this period, meaning that its selectivity increased significantly, as reflected in the declining admissions rate.

In addition to attracting students from other regions, Villanova also plays an important role in retaining local students who may otherwise leave the Philadelphia region. One useful measure of attraction and retaining is institutional data on the admissions choices of students who are admitted to Villanova but ultimately choose to attend another institution. These observed choices define a list of peer institution that likely would attract the majority of Villanova students if the institution did not exist.

The top alternative institutions for Villanova admitted students from fall 2014 to fall 2017 were Notre Dame, Boston College and Georgetown, three Catholic institutions also known nationally for their academic excellence. Among the top 20 alternative institutions, only two (University of Pennsylvania and Drexel University) were located in the Philadelphia region, with the remainder scattered throughout the Northeast, mid-Atlantic and Midwest (see Figure 2.1).

FIGURE 2.1 – TOP 20 INSTITUTIONS ATTENDED BY VILLANOVA ADMITTED STUDENTS WHO ENROLL ELSEWHERE (2014-2017)



Source: Villanova (2018)

This distribution of peers indicates that most Villanova students are not specifically seeking a school in the Philadelphia region. Rather, they are attracted (or retained) in the region by the presence of Villanova when they otherwise may have left. Accordingly, this activity is an export for the regional economy, bringing in tuition dollars from across the country that then circulate locally in the form of institutional employment and purchasing.

2.2 DIRECT OPERATING ACTIVITY

Villanova enrolls nearly 11,000 total students within six colleges and schools.⁸ Full-time undergraduates for fall 2017 numbered approximately 6,500, making up about 60 percent of the total student body. Graduate students in the colleges of Arts & Sciences, Engineering, Business and Nursing numbered nearly 3,200, and total graduate students numbered around 4,000 including the Charles Widger School of Law (see Table 2.2).

TABLE 2.2 – VILLANOVA STUDENT ENROLLMENT, FALL 2017

Category	Enrollment
Undergraduate (Full-Time)	6,521
Graduate (Arts & Sciences, Engineering, Business, Nursing)	3,187
Law School (including joint enrollments)	830
Part-Time / Other	445
Total	10,983

Source: Villanova (2018)

Villanova's academic enterprise is supported by its operating budget, which totaled \$424 million in expenditures for FY 2018. Net of depreciation and bank interest payments, Villanova's modeled expenditure footprint was \$394 million (see Table 2.2). Salary and benefits for Villanova faculty and staff represent around 64% percent of these expenditures, or \$271 million. An instructional staff of around 1,050 is supported by another 1,650 employees across a variety of functions needed to operate a large-scale institution.

TABLE 2.3 – OPERATING EXPENSES AND EMPLOYMENT, FY 2018

Category	FY 2018
Total Operating Expenses (\$M)	\$423.6
(net Depreciation and Interest) (\$M)	(\$29.2)
Modeled Expenditures (\$M)	\$394.4
Salary and Benefit Expenditures (\$M)	\$271.2
Other Uses (\$M)	\$123.2
Total Faculty and Staff	2,692
Instructional Staff	1,046
Other Staff	1,646

Source: Villanova (2018)

⁸ College of Liberal Arts and Sciences, Villanova School of Business, College of Engineering, Fitzpatrick College of Nursing, College of Professional Studies, Villanova University Charles Widger School of Law

The operating footprint produces spillover impacts throughout the region, both through the spending of salaries and wages earned by Villanova employees who live in the region and through the economic activity represented by goods and services purchased by Villanova from vendors in the region. Institutional data was provided on the residential distribution of Villanova's faculty and staff, as well as on the geographic distribution of purchasing.⁹

Villanova's employees tend to live close to campus, allowing the \$270 million in wages and benefits to support further activity within the local economy. Institutional data indicates that 46% of the annual earnings accruing to Pennsylvania residents go to residents of Delaware County, including 21% to residents of Radnor Township. These dollars recirculate within the region to a significant degree. For example, anonymized data provided by Villanova on employee health benefits over a one-year period shows more than \$20 million in approved health care claims. These dollars are recirculated almost exclusively within the Philadelphia region, supporting local health care providers and prescription medicine distributors throughout the area.

Villanova is also a major procurer of goods and services, with more than \$123 million in non-payroll spending in FY 2018. The majority of procurement activity is with vendors within the Philadelphia region, providing an economic stimulus for vendors in a variety of sectors, who further recirculate those dollars within the regional and state economy. Purchasing activity is densest near the campus, including \$7 million with vendors from Radnor Township in FY 2017. Purchases with Radnor vendors span a variety of service types, including food, office supplies, real estate and financial services, and insurance provision.

2.3 ECONOMIC IMPACT FROM OPERATIONS

Direct operations produce "spillover" effects at each geographic level, stimulating business activity and supporting higher employment across a variety of sectors. The total economic impact is the sum of the direct expenditures made by Villanova, the indirect impacts that result from institutional spending on goods and services with vendors within each geography, and the induced impacts that result when Villanova employees spend their wages in local communities. Data provided by Villanova on the location of employees and institutional procurement are used to refine the calculations of spillover impacts in each geography.¹⁰ Indirect and induced impacts grow at each successive level of geography, due both to more purchasing and recirculation activity happening within the larger geography and to a greater capture of downstream activity.¹¹

On an annual basis, the activity attributable to Villanova's operations (including these spillover effects) generates \$656 million in economic output within Pennsylvania, supporting 4,650 jobs with \$382 million in earnings (see Table 2.4).

⁹ This information helps inform the modeling of indirect (supply chain) and induced (labor income) impacts from Villanova's direct spending, as described in Section 2.3 and in Appendix C.

¹⁰ See Appendix C for a detailed description of the economic modeling approach in this analysis, which uses IMPLAN modeling software.

¹¹ For example, Villanova purchasing and employees living in Bucks, Chester, Montgomery and Philadelphia counties contribute to the indirect and induced impacts for the Five-County Region but not Delaware County. In addition, Villanova purchasing and employees living in Delaware County create another wave of spillover effects into the other four counties in the region. Each of these effects contributes to the increased indirect and induced effects in each successive geography.

TABLE 2.4 – ECONOMIC IMPACT FROM ANNUAL OPERATIONS

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Direct Output (\$M)	\$22	\$124	\$323	\$335
Indirect & Induced Output (\$M)	\$6	\$108	\$315	\$321
Total Output (\$M)	\$28	\$232	\$638	\$656
Total Employment (Jobs)	240	1,880	4,530	4,650
Total Earnings (\$M)	\$21	\$151	\$372	\$382

Source: Villanova (2018), IMPLAN (2015), Econsult Solutions (2018)

Columns may not sum due to rounding

This economic impact is important in part due to its sheer scale, reflecting Villanova's role as a large employer and procurer and the contribution of these expenditures to regional activities. However, it is also important to note that Villanova's operations form the basis from which its educational mission is enabled and from which its social and community contributions emerge. As reviewed throughout this report, Villanova's operating expenditures make it an economic powerhouse, but the nature of this activity is the foundation of its true impact.

It is also important to note that while Villanova is a tax-exempt institution, much of the economic activity it produces (both through its operations and through the impact categories to follow) is tax generating. Earnings of Villanova employees and the employees of companies supported by institutional procurement build the state tax base, and spillover private economic activity generated by Villanova's spending is largely subject to sales and business taxes. Tax revenue impacts from Villanova's activity at the local and state level across all categories are addressed in Section 7 and Section 8 respectively.

3.0 IMPACT FROM CAPITAL INVESTMENTS

Villanova also generates economic activity through capital investments in construction and maintenance of its facilities and campus. A historic fundraising campaign has enabled Villanova to vastly increase its annual capital spending level and to undertake a transformation of its campus. These projects support construction-related jobs and create demand for goods and services in a variety of local industries. Including spillover impacts, Villanova's annual capital investments generate \$130 million in economic output within Pennsylvania annually. In addition to the short-term stimulus while projects are underway, these upgrades advance the academic and research enterprise, allowing for a greater level of operating activity moving forward.

3.1 CAMPUS INVESTMENT AND EXPANSION

Villanova is in the midst of a historic set of investments to transform its campus and environs and to fortify the University's future. Shortly after the selection of Rev. Peter M. Donohue, OSA, PhD as Villanova's 32nd President in 2006, the University developed a Campus Master Plan and University Strategic Plan to guide the institution in the deployment of its resources and physical plant moving forward. This process has been made possible by a successful comprehensive capital fundraising campaign.

"For the Greater Great: The Villanova Campaign to Ignite Change" ran from October 2013 through May 2018. The campaign surpassed its \$600 million goal 18 months ahead of schedule, and raised \$760 million from more than 77,500 donors. Villanova exceeded \$100 million in pledges for five consecutive years. These funds are used to increase student opportunities and financial aid, advance the academic enterprise and transform the campus environment. Many of these donations originate from outside of the Philadelphia region, meaning that the projects undertaken with these donations represent localized economic activity supported by contributions that originate externally.

As discussed in Section 3.2, these resources have allowed Villanova to materially increase its level of annual capital investment from prior levels in recent years, and this activity is scheduled to continue in the near future. Major projects (reviewed below) include the Transformation of the Campus Landscape, the Lancaster Avenue Development Project (including the Performing Arts Center and The Commons) and the Finneran Pavilion.

Much of the \$760 million raised in the "For the Greater Great" came from donations originating outside the Philadelphia region or Delaware County. Notable gifts include a \$50 million donation from Baltimore-based alumni Kim and Jim Davis '81 (founder of Allegis Group), a \$25 million donation from Berwyn-based Charles Widger, Esq. '73 CWSL (Founder of Brinker Capital Holdings) and a \$22.6 million donation from Palm Beach-based William B. Finneran '63 (co-founder of EXOP Capital).

Transformation of the Campus Landscape

Over the course of eight years and four phases, Villanova has modified the layout of the campus grounds in order to create a park-like, vehicle free campus core that enhances the quality of life for Villanova community members and improve the pedestrian experience. Following previous phases that re-routed vehicular traffic, transformed the new Grotto and Riley Eclipse, and transformed the Area around Corr and Alumni Halls,

Phase IV was initiated in May 2017. This phase, scheduled to be completed in Summer 2019, will create a circular walkway around Mendel Field, add three new plazas at the St. Thomas of Villanova Monastery, John Barry Hall and Old Falvey; and improving the areas on each side of St. Thomas of Villanova Church. Along with a number of aesthetic improvements, the project involves improving the campus so that it becomes more pedestrian friendly and transit accessible, accommodating the needs of differently abled students

RENDERING OF UPGRADES TO OLD FALVEY



Source: Villanova (2018)

Lancaster Avenue Development Project

The transformation of the campus along Lancaster Avenue represents a key step in the implementation of the University's Strategic Plan and Campus Master Plan. The University is turning non-descript surface parking lots along the western side of Lancaster Avenue into The Commons residence hall community (with amenities like retail space and fitness centers), construct a performing arts center (see inset), new and relocated garages to improve traffic flow, and a pedestrian bridge for safer access to the western part of the campus.

These interrelated projects will accomplish a number of goals for the University over the long-term:

- Allow the University to provide on-campus housing for approximately 85% of its undergraduate student body on campus, addressing a growing desire for on-campus living and reducing student and vehicle presence in the surrounding neighborhoods;
- Decrease traffic to and from campus and improve the attractiveness of the visual landscape along Lancaster Avenue;

- Enhance the student experience, satisfaction and safety, helping to improve Villanova's competitive positioning among its peer institutions.

The site will also incorporate an environmentally sensitive design with innovative storm water controls and community green spaces.

Performing Arts Center

In January 2018, Villanova broke ground on a new \$60 million Performing Arts Center. The Center is a key element of Villanova's broader transformation along Lancaster Avenue. It will unite Villanova's artistic community under one roof, serving as the home for the University's world-class education program in the arts, including the award-winning Villanova Theatre. It will feature state-of-the-art performance spaces and studios, including a 400-seat proscenium-style theater and a 200-seat courtyard theater. In addition, it will have rehearsal space, performance labs, classrooms to support education and artistic innovation, and common areas for collaboration.

RENDERING OF THE PERFORMING ARTS CENTER



Source: Villanova (2018)

The project is also an anchor for the transformation of the campus along Lancaster Avenue into an attractive living and learning environment. On the site of former surface parking lots, the Performing Arts Center will provide a destination where the Villanova community and its neighbors can share their passion for the arts.

Finneran Pavilion

In June 2017, Villanova began a comprehensive \$60 million renovation of the on-campus Pavilion. The renovation (funded entirely by donor support) transformed the existing building into the Finneran Pavilion, a high-quality venue befitting Villanova's elite men's and women's basketball programs that has also enhanced the experience for students, supporters, staff and fans. Construction was completed for the start of the 2018-19 season, as the men's basketball team began its defense of its most recent national championship.

EXTERIOR ENTRANCE OF FINNERAN PAVILION



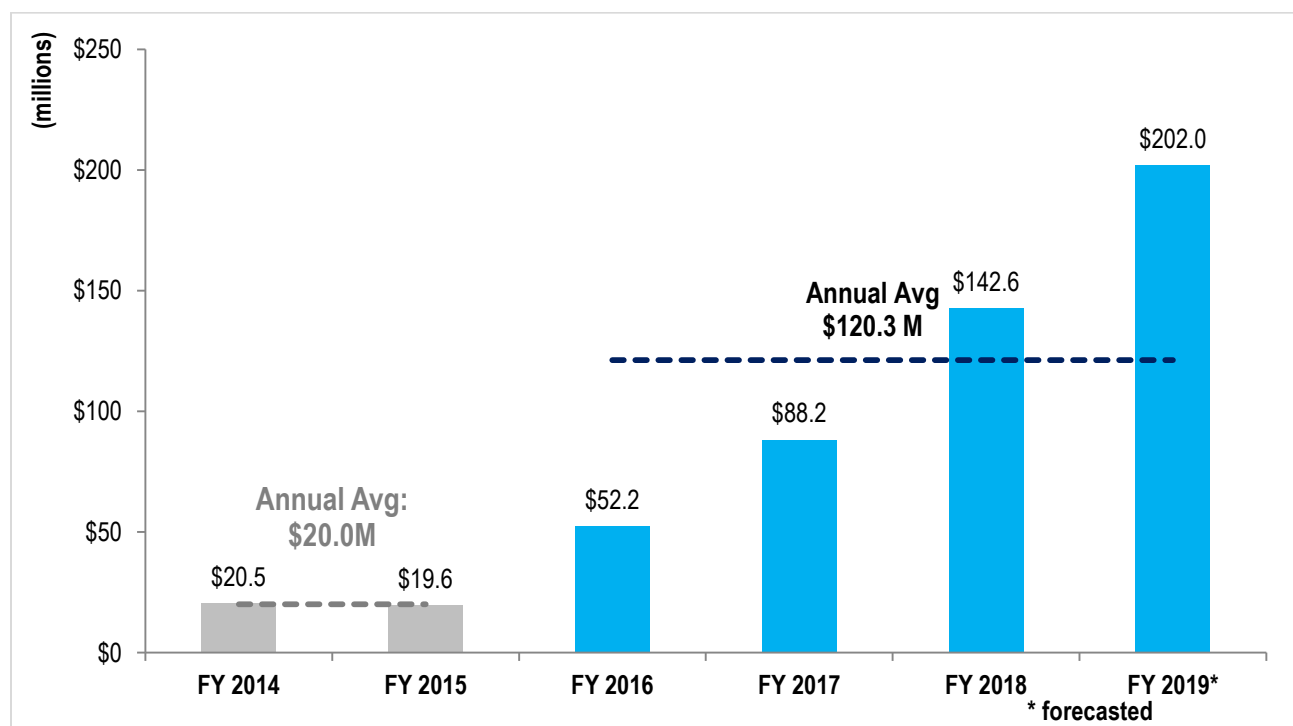
Source: Villanova (2018)

3.2 DIRECT CAPITAL INVESTMENTS

The major capital projects described above are augmented by smaller projects and by ongoing maintenance needs, the sum of which reflects Villanova's annual capital investments. Figure 3.1 below shows annual outlays from FY 2013 – FY 2017, and anticipated investments for FY 2018 – FY 2019 included major projects only.¹² Supported by the “For the Greater Great” fundraising campaign, Villanova's investment levels have grown significantly over this period. Annual investments, which averaged \$20 million in FY 2014 and FY 2015, grew materially each year from FY 2016 to FY 2018, and are anticipated to exceed \$200 million for FY 2019. Average annual investment levels from FY 2016-2019 are \$121 million (see Figure 3.1).

¹² Impact modeling includes only those projects directly undertaken and financed by Villanova. There are additional third-party investments that may not take place absent the presence of Villanova and the demand from its students, visitors and staff, such as recent commercial investments along Lancaster Avenue. These amounts are not included here, but are discussed in Section 4 in the context of ancillary spending.

FIGURE 3.1 – VILLANOVA ANNUAL CAPITAL EXPENDITURES, FY 2014-2019



Source: Villanova (2018)

The averaged investment level from FY 2016 – FY 2019 of \$120.3 million is used as a representation of the current investment level of the institution.¹³ Project level expenditures for this period are sorted by type, distinguishing new construction of various types (academic, administrative and athletic) from maintenance activity of existing structures (see Table 3.1).¹⁴

TABLE 3.1 – VILLANOVA CAPITAL INVESTMENTS BY TYPE, FY 2016-2019

Category	Average (\$M)
New Construction (\$M)	\$68.9
Maintenance and Repair (\$M)	\$34.2
Architecture and Engineering (\$M)	\$17.2
Total (\$M)	\$120.3

Source: ESI Analysis of Villanova University data

¹³ Due to the nature of construction activity, expenditure levels and expenditure types can vary in any given year, and consistent increases in activity make it difficult to define a typical activity level through a snapshot in time. A multi-year time frame is used to minimize potential distortions and produce a reliable proxy for annual activity.

¹⁴ For new construction, a standard proportion of 20% was assumed to be dedicated to “soft costs” like architecture and engineering

3.3 ECONOMIC IMPACT FROM CAPITAL INVESTMENTS

Villanova’s capital investments represent an infusion of activity for the construction sector, as well as supporting and related sectors like wholesalers, manufacturers and professional service providers. Institutional purchasing data was utilized to estimate the share of total capital spending sourced within each of the geographies of interest. These shares were then applied to the average annual activity level to yield direct capital expenditures by geography.

This spending also recirculates within the region across a variety of sectors through the wages it generates. These spillover impacts grow larger for each successive geography. On an annual basis, the activity attributable to Villanova’s capital investments (including these spillover effects) generates \$130 million in economic output within Pennsylvania, supporting 670 jobs with \$47 million in earnings (see Table 3.2).

TABLE 3.2 – ANNUALIZED ECONOMIC IMPACT FROM CAPITAL INVESTMENTS

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Direct Output (\$M)	\$5	\$19	\$72	\$76
Indirect & Induced Output (\$M)	\$1	\$13	\$45	\$54
Total Output (\$M)	\$6	\$31	\$117	\$130
Total Employment (Jobs)	30	170	610	670
Total Earnings (\$M)	\$2	\$11	\$43	\$47

Source: Villanova (2018), IMPLAN (2015), Econsult Solutions (2018)

Columns may not sum due to rounding

Importantly, while the economic impact of capital investments are quantified here in terms of upfront impacts during the construction period, this activity is also crucial to laying the foundation for the long-term operations of the institution. These expenditures represent an investment by Villanova (financed primarily by its alumni, many of whom live outside of the region) in improving its campus and academic enterprise to improve the student and faculty experience and better compete with its national peers. As such, these investments are important contributors to Villanova’s ability to “export” intellectual and financial assets into the Philadelphia region on an ongoing basis, as well as to continue to enhance its academic and social mission.

4.0 IMPACT FROM ANCILLARY SPENDING

Villanova draws students and visitors from around the globe to the Philadelphia area and to Radnor Township. These students and visitors represent new spending in the local economy, which in turn helps to support employment and build the local tax base. Ancillary spending by students and visitors in the local economy generates \$101 million in economic output within Pennsylvania annually.¹⁵ Villanova's relationship with nearby retailers through its Nova Bucks™ program and the demand for food, shopping and entertainment experiences represented by the student body is crucial to enabling the concentration of commercial activity along Lancaster Avenue, amenities that are enjoyed by residents and build to tax base of the Township. Villanova also attracts visitors into the region through on campus events and through its athletics program, generating additional demand for local merchants and the local hospitality industry.

4.1 LOCALIZED ECONOMIC IMPACT

Unlike Sections 2-3, which represent spending by Villanova on operations and capital investments, ancillary spending is not initiated directly by the institution, but rather by those students and visitors it attracts. Where institutional spending can be accounted for at a high level of precision based on budgetary data, ancillary spending estimates are based on a combination of direct information from Villanova and assumptions anchored by research.¹⁶

Villanova attracts and retains students and visitors that would not have otherwise been in the region. Spending by these students and visitors with local merchants (referred to as “ancillary” throughout this report) is therefore net new to the local economy and additive to the spending by the institution on operating and capital activity. While student expenditures like tuition and on-campus room and board are captured by the institution, students have a meaningful spending footprint off-campus within the local community. These dollars circulating through the economy support local business owners in categories like food and beverage, retail and lodging.

All graduate students and some undergraduate students live off-campus, meaning they spend locally on housing and food. All students to some extent are consumers of off-campus food, entertainment and retail. Villanova encourages its students to frequent local retailers through the Nova Bucks program (see inset). Visitors to the campus are another important source of demand for local merchants and provide a boost to the local hospitality industry. Over the course of the year, Villanova attracts a wide range of visitors, including parents of students, alumni, prospective students and their families, and conference and arts event attendees.

Villanova's athletics program is also responsible for a significant infusion of visitation. Villanova's membership in the reconstituted Big East conference, which includes institutions from ten different states across the

¹⁵ “Ancillary spending” includes only those student and visitor expenditures taking place with local merchants, rather than with the institution itself. Spending that accrues to Villanova, such as student tuition and on-campus room and board or event revenue, becomes operating revenue for the university. Therefore, its impact is already captured within the ongoing operations section of this analysis, and must be excluded from this category in order to ensure that impact categories are non-overlapping.

¹⁶ Where possible, a conservative approach was taken to arrive at these estimates, in order to avoid overstating these amounts. Appendix B.3 provides a more detailed description and discussion of the underlying methodology and calculations reviewed in this section.

Northeast, mid-Atlantic and Midwest, means that in addition to out of town attendees, visiting teams themselves often stay overnight in the region, generating additional spending impact. In addition, athletic success like Villanova's two recent national championship runs in men's basketball engender additional spending as the Villanova and Radnor communities congregate at local restaurants and bars to cheer on the team and celebrate its success.

Supporting Local Retailers with Nova Bucks™

The Nova Bucks Debit Account is a restricted spending account that students can use to make purchases conveniently at over 70 vendors on and off University campus. Students can easily add funds to their Nova Bucks account online – friends and family can also add money to the account – and the funds are ready to use with a single swipe of the Wildcard. Students can swipe or tap their Wildcard as payment for vending machines, VPrint and VLaundry all around campus. In the surrounding community, all kinds of merchants accept Nova Bucks as payment, from restaurants, dry-cleaners, grocery stores, salons, and pharmacies. By including off-campus retailers in the program, Villanova is encouraging students to support local businesses.

The impact of student and visitor demand on local retailers is reflected in the significant private investment and development along Lancaster Avenue near the campus in recent years. Villanova Center, located just steps from the Campus at the intersection of Lancaster Avenue and Spring Mill Road in Radnor Township, recently completed a \$40 million overhaul by local developers the Provco Group.¹⁷ The center now has 173,000 square feet of retail and office space, featuring dining options and retail that appeal to students and neighborhood residents alike. The complex is also a significant addition to the Township's employment and tax base.

East of the campus along Lancaster Avenue in Lower Merion Township is Bryn Mawr Village, a 52,000 square foot mixed-use office and retail complex. The location was recently described by the *Philadelphia Inquirer* as a "developer's demographic dream" thanks to its proximity to Villanova and other colleges as well as an affluent residential base.¹⁸ The center features "lifestyle" amenities like a coffeehouse and fitness and massage vendors in addition to traditional retailers and food options. Villanova's students and visitors are crucial to generating the demand needed to sustain these amenities, which are then enjoyed on a year-round basis by residents in the area.

First Watch Villanova

First Watch is a national chain of breakfast, brunch and lunch options that opened its second Philadelphia area location in Villanova Center in March 2016. The restaurant employs about 25 people, participates in the Nova Bucks program, and is a popular option among students and residents alike.

"Villanova was an easy choice for our second Philadelphia-area opening. The vibrant student community near the university as well as the restaurant's proximity to neighboring I-476 make it an ideal spot to bring First Watch's unique breakfast, brunch and lunch."

– Chris Tomasso, First Watch President

¹⁷ Kostelni, Natalie, "Villanova Center Reaches the Finish Line." *Philadelphia Business Journal*, June 3, 2016.

¹⁸ Parmley, Suzette, "How Bryn Mawr Village Found its Main Line Shopping Niche." *The Philadelphia Inquirer*. February 25, 2018.

4.2 ANCILLARY STUDENT SPENDING

Ancillary student expenditures are estimated by combining institutional data on the volume of students with spending profiles by category developed for each student type.¹⁹ Aggregate expenditures are then adjusted to remove the portion captured by the institution (leaving only ancillary spending) and to remove expenditures taking place outside of the relevant geographies.²⁰

Villanova's 11,000 students are estimated to total nearly \$100 million in ancillary expenditures on an annual basis. The majority of these ancillary expenditures come from undergraduate and graduate students living off-campus, all of whom have expenditures for housing and food (that are not captured by Villanova) in addition to transportation and retail (see Table 4.1).

TABLE 4.1 – AGGREGATE ANCILLARY SPENDING BY VILLANOVA STUDENTS

Category	On-Campus	Commuter	Off-Campus	Total
Number of Students	4,598	1,466	4,919	10,983
Ancillary Spending per Student	\$3,502	\$4,300	\$15,653	\$9,051
Aggregate Ancillary Spending	\$16.1 million	\$6.3 million	\$77.0 million	\$99.4 million

Source: Villanova (2018), Econsult Solutions (2018)

Around 85 percent of this spending (\$84 million is estimated to be taking place within Pennsylvania, a proportion which decreases at smaller geographic levels. An estimated \$37 million in spending takes place each year in Radnor Township (see Table 4.2).

TABLE 4.2 – ANCILLARY STUDENT SPENDING BY CATEGORY AND GEOGRAPHY

Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Housing (\$M)	\$34.4	\$11.5	\$23.0	\$31.0	\$32.7
Food & Beverage (\$M)	\$29.9	\$15.0	\$19.9	\$26.9	\$28.4
Transportation (\$M)	\$11.8	\$5.9	\$7.8	\$10.6	\$11.2
Other (Retail) (\$M)	\$23.3	\$4.7	\$7.8	\$10.5	\$11.7
Total	\$99.4 million	\$37.0 million	\$58.5 million	\$79.0 million	\$83.9 million

Source: Villanova (2018), Econsult Solutions (2018)

¹⁹ Appendix B.3 reviews how data on undergraduate and graduate status and residential location and translated into estimates of student types and spending, and the institutional data used to determine student spending profiles.

²⁰ Student spending may leak outside of the local geography in two ways. First, students may travel to a different geography and spend dollars there (such a food and beverage or entertainment purchases that may take place in New Jersey). Second, students may purchase items online (ranging from basic supplies to textbooks), in which case the transaction is also not likely to be captured locally.

4.3 ANCILLARY VISITOR SPENDING

Ancillary visitor spending estimates begin with attendance estimates provided by Villanova for event visitors and for visitors associated with the athletics program. Each year, the campus welcomes more than 110,000 visitors for a variety of purposes including prospective student visits, family and alumni events, academic conferences, cultural performances, and career-related events for current students (see Table 4.3).

TABLE 4.3 – ESTIMATED ANNUAL EVENT VISITATION

Event Type	Total Attendees	Description
Prospective Students	50,000	Daily, Group and Special Events visitors considering attendance
Family Events	30,000	Family weekend, Orientation and Commencement
Alumni Events	7,000	Registered attendees at on and off-campus events
Conferences	17,000	Local and non-local guests at University conferences
Theater and Arts	9,000	Theater events and productions and art events and exhibits
Careers	1,500	Fairs, information sessions and interviews
Total	114,500	

Source: Villanova (2018)

Villanova's athletic program also generates significant attendance and economic activity. One tangible consequence of the national prominence of the sports program is that it draws in out of town teams, fans, referees, media, all of whom represent spending in the region. As noted earlier, visiting athletes often spend the night in the region due to the national nature of the Big East Athletic Conference in which Villanova is a member. Villanova athletics produces a visitor's guide to help visiting teams and fans navigate their trips to the region, which plays a role in directing ancillary activity to local merchants.

Villanova hosts the Pennsylvania Special Olympics Fall Festival on its campus and athletic facilities each year, in addition to ongoing games across more than twenty sports. The men's basketball team also plays several games per year at the Wells Fargo Center, which features a greater capacity and easier access for out of town fans. These athletic events generate an aggregate attendance of more than 225,000 visitors per year (see Table 4.4).

TABLE 4.4 – ESTIMATED ATHLETICS VISITATION

Event Type	Total Attendees	Description
Men's Basketball	145,000	On campus and at Wells Fargo Center in Philadelphia
Football	30,000	Five home games per year
Other Sports	40,000	On-campus and near-campus locations
Special Olympics	6,500	Athletes, coaches and volunteers
Visiting Teams – Overnight Trips	5,280	Estimated based on distance of travel for Big East opponents
Total	226,780	

Source: Villanova (2018)

The Inn at Villanova

The university owns and operates The Inn at Villanova, which is located two miles away from campus. The property recently underwent extensive renovations to update its hotel and conference center, making it a prime destination for events and conference in addition to overnight stays by visitors and families. This facility helps to increase local spending impact by attracting and retaining visitors to the immediate vicinity of the campus.



The distribution of visitors by type is estimated based on institutional data and assumptions, and a unique spending profile for each visitor type is developed based on tourism industry data sources.²¹ Expenditure estimates are again adjusted to exclude spending captured by the institution of taking place outside of the local geographies. Aggregate visitor spending is estimated at \$16 million annually, of which about \$15 million takes place in Pennsylvania and about \$5 million takes place in Radnor Township (see Table 4.5).

TABLE 4.5 – ANCILLARY VISITOR SPENDING BY CATEGORY AND GEOGRAPHY

Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Event Visitor Spending (\$M)					
Lodging	\$3.7	\$0.9	\$1.2	\$3.3	\$3.5
Food & Beverage	\$2.5	\$1.3	\$1.7	\$2.3	\$2.4
Transportation	\$0.8	\$0.3	\$0.5	\$0.8	\$0.8
Other (Retail)	\$2.7	\$1.4	\$1.8	\$2.5	\$2.6
Event Visitor Spending Total	\$9.9	\$3.9	\$5.2	\$8.9	\$9.4
Athletics Visitor Spending (\$M)					
Lodging	\$2.5	\$0.4	\$0.6	\$2.3	\$2.4
Food & Beverage	\$1.7	\$0.6	\$0.8	\$1.5	\$1.6
Transportation	\$0.5	\$0.1	\$0.2	\$0.5	\$0.5
Other (Retail)	\$1.5	\$0.5	\$0.7	\$1.4	\$1.5
Athletics Visitor Spending Total	\$6.2	\$1.6	\$2.4	\$5.6	\$5.9
Visitor Spending Total	\$16.1 million	\$5.5 million	\$7.5 million	\$14.5 million	\$15.3 million

Source: Villanova (2018), Econsult Solutions (2018). Columns may not sum due to rounding

²¹ See Appendix B.3 for further detail on data and assumptions.

4.4 ECONOMIC IMPACT FROM ANCILLARY SPENDING

Like operations and capital spending, ancillary expenditures generate multiplier effects and support employment and earnings as they circulate through the economy at the various geographic levels. Together, ancillary student and visitor expenditures associated with Villanova are estimated to total more than \$115 million annually, \$99 million of which takes place in Pennsylvania and \$43 million of which takes place in Radnor Township. An additional adjustment to these direct expenditures is made to include only the “retail margin” on items sold locally but manufactured outside of each geography.²² This adjustment yields \$63 million in ancillary spending in Pennsylvania (see Table 4.6).

Villanova students and visitors spend \$99 million per year in Pennsylvania, close to half of which is spent in Radnor Township.

TABLE 4.6 – ANCILLARY SPENDING BY GEOGRAPHY

Ancillary Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Student Spending	\$99.4	\$37.0	\$58.5	\$79.0	\$83.9
Event Visitor Spending (\$M)	\$9.9	\$3.9	\$5.2	\$8.9	\$9.4
Athletics Visitor Spending (\$M)	\$6.2	\$1.6	\$2.4	\$5.6	\$5.9
Ancillary Spending Total (\$M)	\$115.5	\$42.5	\$66.1	\$93.5	\$99.2
(Retail margin deduction) (\$M)		(\$16.0)	(\$25.1)	(\$33.7)	(\$35.9)
Modeled Ancillary Spending		\$26.5 million	\$41.0 million	\$59.8 million	\$63.3 million

Source: Villanova (2018), Econsult Solutions (2018)

Columns may not sum due to rounding

These ancillary expenditures by Villanova students and visitors in these categories generate a significant infusion of revenue for local merchants which translates into spillover activity and employment.²³ On an annual basis, the ancillary spending attributable to Villanova generates more than \$101 million in economic output within Pennsylvania, supporting 800 jobs with \$32 million in earnings.

²² Many local stores originally buy goods from wholesalers and manufacturers outside of the local geographies. In those instances, our model conservatively attributes only the “retail margin” (the difference between purchase price for the retailer and the sales price to the customer) as contributing to local economic activity. This deduction ranges from \$16 million in Radnor Township to \$57 million in Pennsylvania (see Table 4.6)

²³ Note that unlike operations and capital investments, direct activity in this category increases at each successive geography due to a greater capture of the initial student and visitor spending. Spillover activity also increases with each successive geography (as with operations and capital).

TABLE 4.7 – ANNUALIZED ECONOMIC IMPACT FROM STUDENT AND VISITOR ANCILLARY SPENDING

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Direct Output (\$M)	\$26	\$41	\$60	\$63
Indirect & Induced Output (\$M)	\$2	\$22	\$34	\$38
Total Output (\$M)	\$28	\$63	\$94	\$101
Total Employment (Jobs)	250	510	740	800
Total Earnings (\$M)	\$8	\$19	\$30	\$32

Source: Villanova (2018), IMPLAN (2015), Econsult Solutions (2018)

Columns may not sum due to rounding

Ancillary expenditures ebb and flow throughout a given year due to the periodic nature of the academic calendar and athletic seasons. Nevertheless, they are reliable from year to year and generate a sufficient volume of spending to support a greater quantity and quality of amenities than would be sustainable without them. These amenities are enjoyed by residents year-round, contributing to attractiveness of the region, and in turn help local governments and economic development agencies attract further investment into the area.

5.0 IMPACT FROM ALUMNI WAGE PREMIUM

Villanova's core institutional function educating students also provides an enormous economic value. This undertaking has become ever more important to the region's vitality in an increasingly knowledge-based economy, given the accelerating gains in competitiveness to regions with high concentrations of well-educated workers and academic/research assets. Therefore, in addition to the traditional impacts from Villanova's direct spending on operations and capital and the student and visitor spending it attracts to the area, an additional impact category was included in this report reflecting activity from the "wage premium" earned by Villanova alumni attributable to their education and credentialing.

The wage premium associated with higher education is often quantified from the perspective of students in terms of the return on investment of their tuition spending, but can also be conceived from the perspective of the local economy. The increased earnings for Villanova alumni living and working within the region and state due to the education and credentialing they have received is estimated at more than \$1 billion. These alumni then re-circulate a portion of these larger paychecks through the economy in the form of household spending, generating \$826 million in economic output within Pennsylvania annually. These additional earnings and spending are a reflection of the enhanced productivity of the local workforce, and this talent provides a crucial boost in the ongoing economic development competition with other regions. Given the trajectory of knowledge activity, this educational premium should continue to grow in importance, and Villanova's contribution bodes well for its students, for the region, and for the broader economy.

5.1 CAREER OUTCOMES

The higher education sector faces scrutiny about its value proposition for students and families as the focus on tuition costs and student loan debt increases. A strict "return on investment" framework is by nature incomplete, since the benefits of a comprehensive higher education certainly go beyond what a student realizes in increased wages alone. Villanova produces graduates who are prepared to contribute substantively to communities, families and local economies in ways that incorporate the values of the institution in addition to the academic skills it instills. Nonetheless, it is important to consider career outcomes from the perspectives of both graduates and the local economy. In an increasingly knowledge based economy, regional economies need to train and retain highly qualified graduates who drive innovation activity and regional competitiveness. These contributions are reflected in part through higher earning power, but also through business start-up, agglomeration effects, and social impacts.

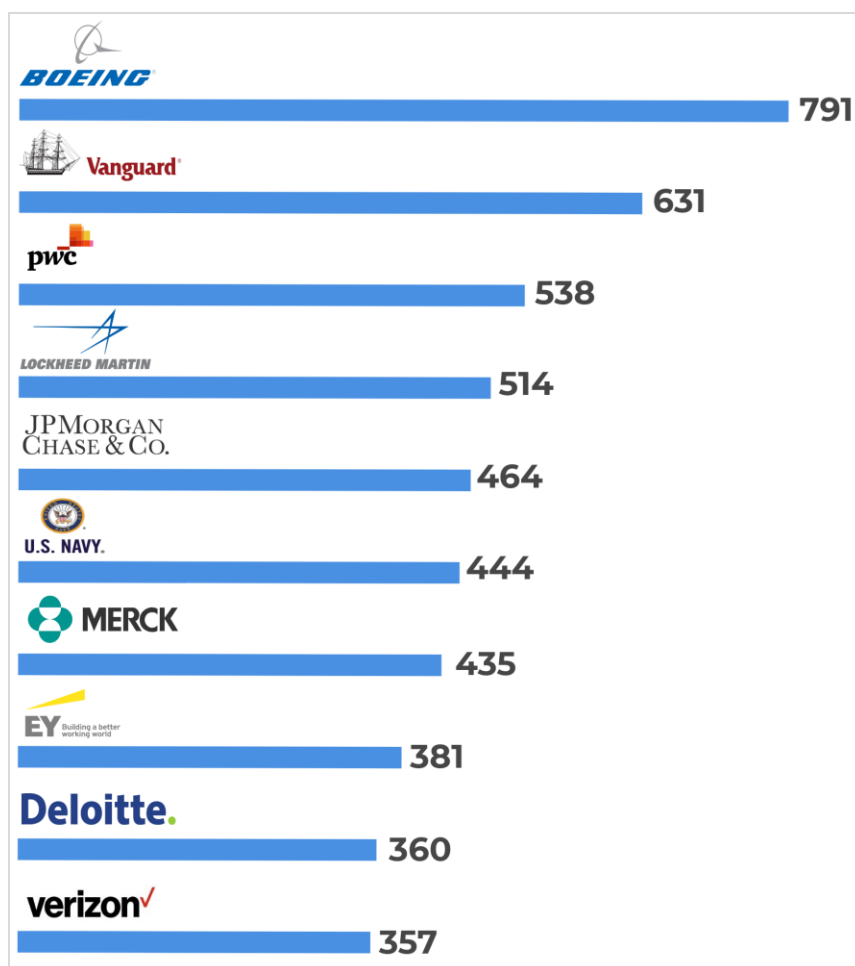
Institutional and third party data indicate that Villanova graduates are highly successful in finding meaningful and well-compensated employment. Tracking by the Career Center on the undergraduate class of 2017 found a successful placement rate of 96.3 percent, and an average starting salary of more than \$59,000 for bachelor's degree recipients.²⁴ These results are consistent with the Classes of 2015 and 2016, each of which achieved an initial placement rate of higher than 96 percent. The ability to attain an initial job placement that is

²⁴ Successful placements include those students who are employed (73%), pursuing continuing education (17%), or choosing to pursue other endeavors (6%). Only 4% of graduates were seeking opportunities unsuccessfully as data publication. The average starting salary is drawn from those employed graduates.

a significant income source helps young graduates stabilize their financial situation and begin immediately to pay down student debt that they may have. These salary levels are also indicative of positions with meaningful growth opportunities and career paths.

Villanova graduates are also highly successful as they advance through their careers. Alumni Data from LinkedIn²⁵ indicates that the top employers of Villanova graduates (other than the institution itself) are Boeing, Vanguard, PWC, Lockheed Martin and JP Morgan Chase (see Figure 5.1). The pipeline from Villanova to these leading corporations is indicative of the satisfaction of these firms with the institution's talented graduates and the satisfaction of alumni with the career paths that they offer.

FIGURE 5.1 – TOP EMPLOYERS OF VILLANOVA GRADUATES



Source: LinkedIn Alumni Widget (April 2018). Excluding Villanova University, which represents the #1 employer.

²⁵ LinkedIn data for a given institution is publicly available through the "Alumni Plug-In widget," which aggregates information on the current location and employment status of alumni based on the information listed on their individual profiles. Given the increasing view of LinkedIn as a professional necessity, coverage rates are very high, and researchers (including the Metropolitan Policy Program at the Brookings Institution and Richard Florida's Martin Prosperity Institute) have begun to tap into this data set to investigate trends in alumni activity.

Value-Add to Alumni Earnings

The success of Villanova’s graduates is due to a combination of factors, including the talented students the institution attracts, the education it provides, the work of its career services staff and the power of its alumni network. From the perspective of the regional economy, each of these factors is of benefit in enhancing productivity and competitiveness, and each is a contributor to the “wage premium” calculation undertaken below. However, from the perspective of talented students with a range of educational options, it is worth noting that studies that attempt to assess the “value-add” to earnings provided by an institution from the perspective of the student rate Villanova as a national leader.

In 2015, *The Economist* released a rigorous analysis of a variety of socio-economic characteristics of students and a series of characteristics of each institution in the database federal College Scorecard database to estimate the “expected earnings” figure for the attendees of each school had they studied elsewhere. The difference between the expected earnings estimated and the observed earnings of graduates from each university is a representation of the “value-add” of each institution’s contribution to alumni earnings above and beyond the characteristics of its student body. **Villanova was ranked as the #3 four-year institution in the nation** by this methodology, with a value-add of more than \$13,000 based on median earnings relative to expected earnings. A conceptually similar calculation from the Brookings Institution based on PayScale.com earnings data estimates that Villanova’s “value-added” for the “mid-career earnings” of a typical graduate is nearly \$21,000, and ranks in the 89th percentile of all institutions in percentage terms.

TOP FOUR YEAR-INSTITUTIONS BY EARNINGS ABOVE EXPECTED (RANKINGS BY *THE ECONOMIST*)



Source: *The Economist* (2015)²⁶

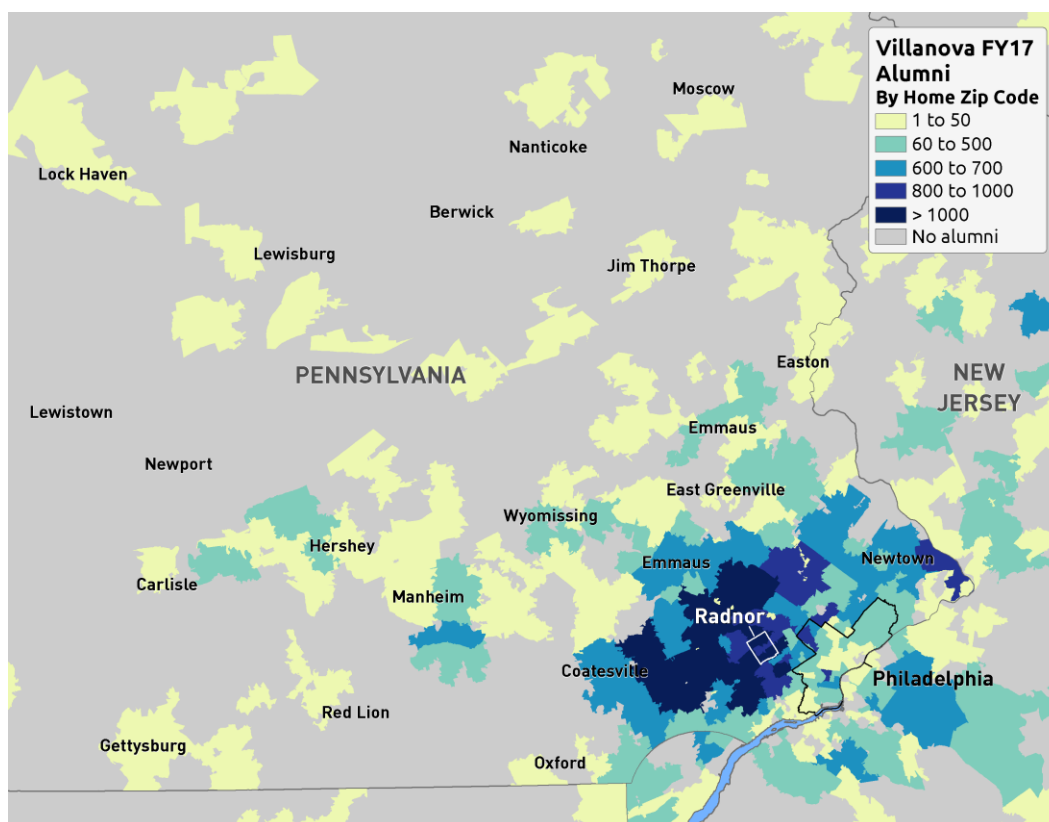
²⁶ “The Value of a University: Our First-Ever College Rankings.” *The Economist*, Oct 29, 2015

5.2 DISTRIBUTION OF ALUMNI IN THE WORKFORCE

The link between educational location and location of employment is central to the notion of an institutionally driven wage premium in the local economy. While the proportion of college graduates retained within a local workforce varies (based on the particulars of the institution, its student body, and the geographies in question) post-graduation location decisions are impacted by educational experience, with a clear correlation between locations during and after schooling. This means that the presence of a selective institution like Villanova has a significant impact on the composition, educational attainment and skill level of the local workforce.

Figure 5.2 below shows the distribution of Villanova alumni by zip their current zip code. Clusters of graduates are concentrated in Radnor Township and in nearby zip codes in Delaware County and Montgomery County, as well as elsewhere throughout the Philadelphia region.

FIGURE 5.2 – RESIDENTIAL LOCATION OF VILLANOVA ALUMNI BY ZIP CODE



Source: Villanova (2018)

Of the nearly 113,000 domestic alumni with a known address, institutional data indicates that more than 46,000 (or 41%) currently reside in Pennsylvania, with nearly 1,500 residing in Radnor Township. From an economic standpoint, Villanova graduates living and working within the region and state are either imported to those geographies or retained within these geographies (in the case of local high school students who could have attended other institutions absent the presence of Villanova). This is borne out by admissions data (reviewed earlier in this report) indicating that the consideration set for students admitted to Villanova consists largely of peer institutions in other regions around the country.

The attainment level of these alumni are estimated based on data indicating that 55% of degrees granted by the institutions over the past five academic years (2013-2017) have been bachelor's degrees. This proportion is applied equally to the alumni within each geography. The portion of Villanova alumni currently in the workforce is estimated based on national data on the workforce participation rate from the Bureau of Labor Statistics.²⁷ This yields an estimate of 33,000 Villanova alumni currently in the Pennsylvania workforce (see Table 5.1).

TABLE 5.1 – ESTIMATED VILLANOVA ALUMNI IN THE WORKFORCE BY GEOGRAPHY

Category	Total	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Domestic Alumni (known addresses)	112,915				
Share of Alumni (%)		1.3%	9.7%	34.6%	40.8%
Alumni (#)		1,483	10,988	39,109	46,032
Bachelor's Degrees (%)	55%				
Bachelor's Alumni (#)		814	6,032	21,470	25,270
Advanced Degrees (%)	45%				
Bachelor's Alumni (#)		669	4,956	17,639	20,762
Workforce Participation Rate	72%				
Bachelor's Alums in Workforce (#)		586	4,343	15,458	18,195
Advanced Alums in Workforce (#)		482	3,568	12,700	14,949
Total Alumni in Workforce (#)		1,068	7,911	28,158	33,143

Source: Villanova (2018), Bureau of Labor Statistics (2017), Econsult Solutions (2018)

5.3 ANNUAL ALUMNI WAGE PREMIUM

The annual wage premium enjoyed by Villanova alumni in the workforce is a function of two factors: the incremental earnings boost from educational attainment in general, and the additional earnings premium associated with a degree from Villanova. Longitudinal data from the federal Department of Education indicates that Villanova graduates earn a considerable premium above median earnings by education level. The latest "College Scorecard" released publicly by the Department of Education reports that earnings by institution based unique tracking of tax filings of students who applied for student loans ten years after they entered school. This comprehensive data source indicates that the median salary ten years after entering Villanova is currently \$74,500.²⁸ Comparing this figure to the median national earnings for bachelor's or

²⁷ This proportion is itself comprised of a labor force participation rate of approximately 74% and an unemployment rate of approximately 2.5%. Thus, the majority of non-working alumni are anticipated to be out of the labor force, rather than actively seeking employment but unable to find it.

²⁸ This figure is likely conservative relative to the true average earnings of Villanova alumni currently in the workforce for a number of reasons. First, it is calculated ten years after entering school and thus only a few years into the workforce for many graduates. These graduates are likely to see their wages increase over time as they stay in the workforce. Second, it includes only students who seek federal financial aid for school (since this forms one of the characteristics necessary for data collection). In doing so, it omits students from higher income families, a characteristic which may be correlated with higher earnings. Finally, it includes earnings of all attendees ten years after entering school, regardless of whether they in fact graduated. Nevertheless, it represents a widely used federal data source for which comparable data is available for nearly all institutions, and as such serves as an appropriate benchmark.

advanced degree holders of \$57,500²⁹ yields an estimated “wage premium” to Villanova undergraduate alumni of 29.7 percent relative to the typical bachelor’s degree.³⁰

No similar data source has been identified to calculate the incremental earnings potential associated with advanced degrees from specific institutions. Earnings for advanced degree holders tend to vary significantly by field of study, which may represent a stronger determinant of earnings potential than institutional selectivity. Accordingly, the premium observed for Villanova undergraduates is conservatively scaled down by 50 percent to estimate the premium for Villanova advanced degree holders, which is therefore estimated at 14.8 percent. Percentage premiums by degree type and geography are then applied to the median wage by educational attainment within the geographies of interest to yield estimated earnings for Villanova alumni by degree level within each geography.³¹

These Villanova-specific earnings premiums are then combined with the educational attainment premium associated with each degree level. This framework is implemented by comparing estimated earnings for Villanova graduates by geography and degree level to average earnings by geography for workers of one lower degree level.³² Combined wage premiums range from around \$32,000 to nearly \$35,000 depending on degree level and geography. These premiums are then applied to the estimated volume of alumni in the workforce to yield the aggregate annual wage premium within each geography (see Table 5.2).

The estimated 33,000 alumni living and working in the state earn an aggregate \$1.06 billion more per year because of the education and credentialing they received at Villanova.

²⁹ Note that the figure of \$57,500 represents a blended average of bachelor’s and advanced degree holder earnings (as reported in the American Community Survey), since Villanova graduates in the College Scorecard data set may also hold additional advanced degrees.

³⁰ Note that this premium does attempt to disentangle the “value-add” of the institution for higher alumni earnings from the “credit” from the gains attributable to attracting and retaining talented students. From the perspective of the regional economy, either type of gain adds to productivity and earnings, and therefore no allocation of “credit” is required. As discussed in Section 5.1, statistical analysis like those from *The Economist* that seek to calculate an institutional “value-add” to alumni earnings identify Villanova as a national leader in this regard.

³¹ This approach accounts for the fact that average earnings vary by geographic area, and adjusts estimated Villanova alumni earnings and the resulting wage premium accordingly (in dollar terms).

³² For example, estimated earnings Villanova advanced degree holders within each geography are compared to average earnings for bachelor’s degree holders to calculate a wage premium for a Villanova advanced degree.

TABLE 5.2 – ESTIMATED ANNUAL VILLANOVA WAGE PREMIUM BY GEOGRAPHY

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Estimated Alumni in the Workforce	1,483	7,911	28,158	33,143
Bachelor's Alums in Workforce	586	4,343	15,458	18,195
Advanced Alums in Workforce	482	3,568	12,700	14,949
Average Annual Wage Premium	\$32,000	\$32,000	\$33,300	\$32,000
Bachelor's Alums in Workforce	\$31,900	\$31,900	\$34,800	\$33,600
Advanced Alums in Workforce	\$32,100	\$32,100	\$31,500	\$30,200
Aggregate Annual Wage Premium	\$34 million	\$253 million	\$939 million	\$1.061 billion
Bachelor's Alums	\$19 million	\$138 million	\$538 million	\$611 million
Advanced Alums	\$15 million	\$115 million	\$401 million	\$451 million

Source: Villanova University (2018), Bureau of Labor Statistics (2018), Econsult Solutions (2018)

Rows and columns may not sum due to rounding

5.4 ECONOMIC IMPACT FROM ANNUAL WAGE PREMIUM

While the full amount of additional earnings are relevant to Villanova alumni and their households, the impact on local economic activity is most clearly measured when these earnings are re-circulated in the form of household spending. Due to savings rates, tax withholdings, and non-local spending, the impact of these additional earnings on total output is typically less than aggregate value of the wage premium itself. This injection of additional household spending is nevertheless significant, and support jobs and earnings across a range of sectors.³³

On an annual basis, the wage premium attributable to Villanova generates \$826 million in economic output within Pennsylvania, supporting nearly 5,500 jobs with \$300 million in earnings (see Table 5.3).

³³ In the terminology of the economic modeling used throughout this report, all impacts from the wage premium are “induced” rather than direct or indirect, since they are related to additional earnings available to households within the geography. Appendix C contains further detail on the economic modeling approach and the distinctions between categories.

As with ancillary spending, these impacts increase with each successive geography due both to the greater premium captured at larger geographic levels (for example, alumni living in Bucks, Chester, Montgomery and Philadelphia counties are included in the premium for the Five-County region but not for Delaware County) and to the greater capture of induced spending within each successive geographic area.

TABLE 5.3 – ANNUALIZED ECONOMIC IMPACT FROM ALUMNI WAGE PREMIUM

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Direct Wage Premium (\$M)	\$34	\$253	\$939	\$1,062
Total Output (\$M)	\$25	\$195	\$706	\$826
Total Employment (Jobs)	170	1,380	4,610	5,470
Total Earnings (\$M)	\$8	\$68	\$260	\$300

Source: Villanova (2018), IMPLAN (2015), Econsult Solutions (2018)

Columns may not sum due to rounding

Importantly, while the alumni who achieve these additional earnings are spread across graduating classes from several decades, the earnings premium is a “snapshot in time” that captures incremental earnings for a given year.³⁴ This premium will repeat in subsequent years (modified for an additional class of graduates, alumni dropping out of the workforce, changes in earning power, etc.). Moving forward, the centrality of knowledge activity to the modern economy suggests that this aspect of Villanova’s economic contribution will only continue to grow in importance. Villanova’s demonstrated ability to attract talented students and to prepare them for successful careers serves as an anchor (along with other similar institutions) to the region’s future workforce strategy and its economic competitiveness.

VILLANOVA GRADUATES AT COMMENCEMENT



Source: Villanova (2018)

³⁴ This annualized approach allows for this category of impact to be aggregated with the other impact categories captured in this report into a “total impact” figure.

6.0 IMPACT ON SOCIETY

While the economic impacts reviewed in Sections 2-5 are considerable, they do not represent the full breadth of Villanova's contributions to the region and to society more broadly. Institutions of higher education and research are uniquely positioned to extend their impact beyond their campuses by applying their expertise and the collective power of their community to address social problems on a broad and small scale. Villanova's connection to its Augustinian tradition informs the way it approaches this responsibility. Its mission statement states that the University is a community that "seeks to reflect the spirit of Saint Augustine by the cultivation of knowledge, by respect for individual differences, and by adherence to the principle that mutual love and respect should animate every aspect of University life." This section reviews the ways in which this ethos is manifested in Villanova's service learning and community service programs, and in Villanova's increasing efforts to fostering research and innovation activity. Further, in recognition of the ever-growing connection between higher education and opportunity in a knowledge-driven economy, it reviews Villanova's range of efforts to increase diversity on its campus and enable access to the institution across the economic spectrum.

6.1 AN ETHOS OF SERVICE

Villanova provides a comprehensive education rooted in the liberal arts and informed by the Augustinian tradition. Academic inquiry is informed by the search for truth in open discussion, a commitment to ethical values, and a dedication to social justice and human rights. This manifests at a practical level in part through the institution's commitment to and culture of service.

Villanova integrates service learning into its curriculum and provides numerous coordinated opportunities for community service. In the academic year 2012-13 (the most recent year for which comprehensive data is available), programs that tracked students' hours yielded a total of nearly 250,000 aggregate hours of student service for the academic year. More than one-quarter of these hours (65,000) were generated through service learning programs, demonstrating the commitment of Villanova to incorporate an ethos of service into its curriculum. Service learning is a form of educative civic engagement allows students to not only grasp a better understanding of broad concepts from the classroom, but also to "do more" for the greater good. Programs are designed to simultaneously meet educational goals and community-identified needs.

The annual St. Thomas of Villanova Day of Service is hallmark of the Villanova's commitment to community service. Together, the Villanova community performs service in partnership with local organizations and neighborhood agencies, visiting more than 120 service sites, including many communities close to campus (see inset).



St. Thomas of Villanova Day of Service

St. Thomas of Villanova was a 16th century Augustinian bishop and known for his great charity to the poor and marginalized. Each year, the Villanova community begins its academic year with a celebration of its patron saint and his legacy of Caritas (Love) with several days of events capped by a Day of Service in his name.

Initiated by President Donohue in 2006, this annual event brings together nearly 5,000 students, faculty, staff and alumni who work in partnership with neighborhood agencies to perform service at more than 120 locations throughout Greater Philadelphia. This includes approximately 10 sites in Radnor Township and more than 40 throughout the Main Line and Delaware County. This event serves as a keystone to Villanova's community service programming throughout the year and a reminder of the connection between the institution, its religious and intellectual tradition, and its current community.

THE VILLANOVA COMMUNITY GATHERS IN THE PAVILION FOR ST. THOMAS OF VILLANOVA DAY OF SERVICE



Source: Villanova (2012)

Villanova students also volunteer their free time across a number of community service initiatives. Many programs pair students and faculty with local institutions and departments to provide essential social services. The variety of opportunities for students includes community outreach; service trips that give students the opportunity to gain knowledge on social justice issues; engineering and business workshops to high school students; participate in local sustainability initiatives; and fundraising for important causes (see inset for examples of specific programs).

Villanova has been recognized for its considerable service efforts. The Corporation for National & Community Service recognized Villanova with its President's Higher Education Community Service Honor classification in 2015. The University also received the Carnegie Community Engagement classification in 2015 based on documented aspects of institutional mission, identity and commitments, highlighting Villanova's sustained commitment to community engagements.

Community Service Opportunities

The Villanova community has established itself as a responsible and invested civic partner with a commitment to community engagement. Villanova has a rich tradition of volunteerism, which activates students, faculty, and staff to a wide range of service opportunities that build leadership and instill civic pride in the volunteers while contributing to communities throughout the community.

- RUIBAL – a freshman service program that allows a group of first-year Villanova students the opportunity to build community by volunteering one day a week to serve and support children in inner-city Philadelphia schools and community centers. RUIBAL provides opportunities for social justice education as well as personal and spiritual reflection.
- Community Outreach of Villanova – a weekly outreach program that works with several different organizations in the Philadelphia area by taking Villanova students to volunteer at various sites. The purpose of this program is to engage students in a variety of local issues to create lasting social change.
- Relay for Life – a program that plans events and awareness activities throughout the year to heighten education of cancer and to raise funds for the American Cancer Society.
- UNIT Manna Service Project – a collaborative non-profit program that cooks and delivers nutritious meals and provides nutrition counseling to neighbors who are afflicted with life-threatening illnesses.
- Villanova Undergraduate Program at SCI-Graterford – this program that grants bachelor's degrees in liberal arts to inmates at Graterford, with about five to four courses offered each year. Volunteers help in their rehabilitation, reduce recidivism and assist into their possible re-entry into society.



Source: *The Villanovan* (2017)

6.2 RESEARCH AND INNOVATION ACTIVITY

As noted in Section 2, Villanova has seen a steady increase in its research activity, as reflected in its recent elevation to the Doctoral University category within the Carnegie Classification. Doctoral education and research specialties in niche areas provide a complement to Villanova's traditional focus on undergraduate and Master's level education. This research and innovation activity also has important economic and social consequences. Research advances address practical problems that benefit society, providing new solutions to pressing problems. Further, entrepreneurial activity can meet underserved market needs, as well as spur economic and employment growth. Villanova's focus on supporting research, innovation and entrepreneurship helps its community of faculty and students turn ideas into reality.

The Villanova research community has generated seven invention disclosures and secured nine patents. In addition, six patents are in the application process. Dr. Qianhong Wu is a leading example who has filed two invention disclosures with the University, a patent with the patent office and another patent in the works. After comprehensive and extensive research on human brain injury due to external impact, Dr. Wu and his team devised a novel theoretical and numerical approach to capture the motion of brain matter during and after impact. This has broad application potential in both brain biomechanics and helmet design among others.

Villanova's research opportunities lead to the advancement of human knowledge, innovation, and discoveries that benefit society. The development of a low-cost explosive ordinance robot is exemplary of this in practice. Working with the non-profit Golden West Humanitarian Foundation, Villanova faculty and students helped design and build a low-cost explosive disposal robot capable of operating in low-income countries with a legacy of conflict. Since 2013, four Villanova Engineering faculty and more than 25 Engineering students have worked on the robot project. Nearly complete, the robot will soon provide safe disposal of dangerous landmines and unexploded ordnance in countries like Cambodia. The low-cost nature of the EOD robot (under \$10,000 compared to \$50,000 to \$100,000 for commercial alternatives) will allow developing world governments to have a viable alternative to having someone directly manipulate potentially dangerous unexploded ordnance.

Disclosures and patents are just one indicator of a culture of innovation and entrepreneurship. The institution demonstrates its commitment to translating technological innovation into action through the Villanova University Innovation, Creativity, and Entrepreneurship Institute (the ICE Institute). The ICE Institute provides scholastic, educational, and professional development opportunities for the Villanova community to develop their entrepreneurial skills. It has also helped to foster a supportive intellectual community for many successful entrepreneurs associated with Villanova (see inset).

Entrepreneurial Ventures

The Villanova community has spawned a number of successful ventures, including:

Convène, a provider of modern, vibrant venues corporate events, meetings, and conferences. Founded in 2009 by Villanova alums, Ryan Simonetti and Chris Kelly, the innovative company raised over \$113.5 million in funding. Both of the co-founders appeared on Inc. Magazine’s “30 Under 30” list of Most Promising Young Entrepreneurs; paving the way for Convène to be named “One of America’s 100 Most Promising Companies” by Forbes in 2014. Convène currently services 16 venues in New York City, Philadelphia, Boston, the D.C. Metropolitan Area, and Los Angeles.

Minus the Moo, a Boston-based brand of lactose-free ice cream founded in 2015 by Villanova alums Katy Flannery and Gwen Burlingame. Their vision was to bring a premium lactose-free ice cream with the same taste and texture as the real thing and they succeeded. Minus the Moo uses the same exact ingredients as traditional ice cream – milk, cream, eggs, and sugar – with the addition of lactase enzyme that breaks down lactose from milk. The duo began their business out of Commonwealth Kitchen in Dorchester, Massachusetts, a non-profit incubator. Currently, Minus the Moo is sold at over 20 locations in the Northeast Region and available in 13 Whole Foods locations and Amazon Fresh.

Huckberry, a rising star in the outdoor retail and lifestyle brand industry that specializes in curated selection of men’s apparel targeting the young, hip, and affluent male clientele;

Novalyse, a company that produces next-generation, superbug-killing disinfectants using patented formulas after years of cutting-edge research led by Associate Professor of Chemistry, Dr. Kevin Minbiole;

roundCorner, based in Villanova, provides effective solutions for non-profit organizations, public media and higher education institutions using cloud-based systems for donor management and marketing automation. The company was acquired by Salesforce.org in January 2019.

MINUS THE MOO FOUNDERS KATY FLANNERY AND GWEN BURLINGAME



Source: Minus the Moo

The ICE Institute also offers immersion programs such as Villanova in the Valley that exposes students to the entrepreneurial ecosystem in Silicon Valley, as well as skill-building initiatives such as ICE Workshops. In its commitment to nurture and motivate Villanovans, ICE also offers incentives and rewards for outstanding Villanovans who are leaders in the fields of innovation and entrepreneurship. Finally, the ICE Institute in its broader mission supports the University's strategy to encourage multi-disciplinary learning and cross-college learning through the Idea Accelerator initiative. The Idea Accelerator provides space and resources for individuals from all corners of campus to interact and generate new ideas together. On average, the Idea Accelerator hosts 100 events every semester and over one-third of the student body utilizes the space.

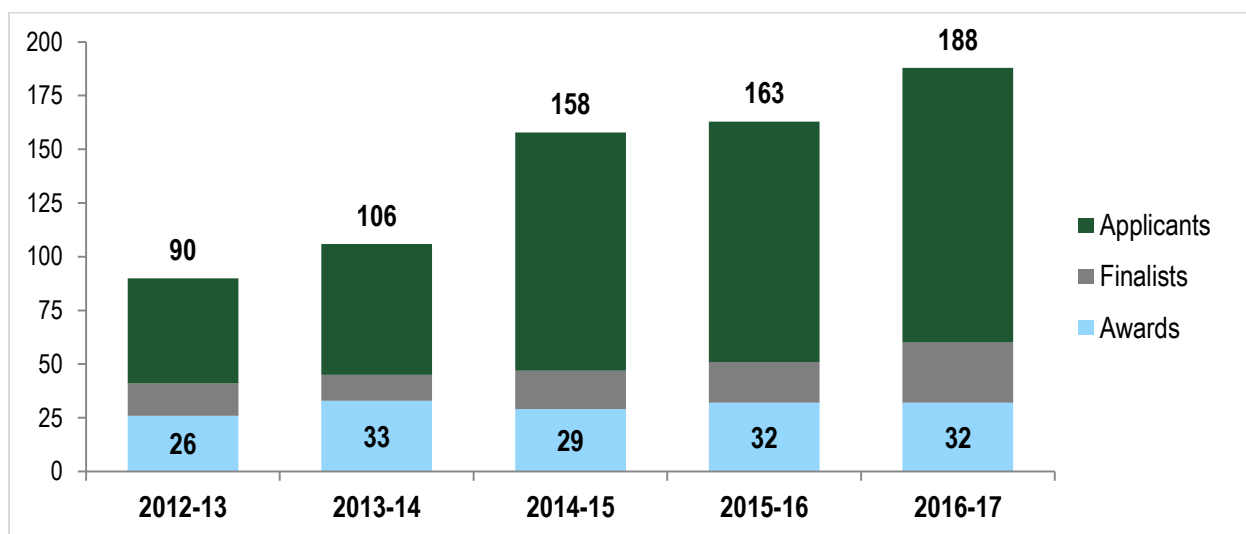
Villanova researchers and students also engage in partnerships that allow them to improve lives and collaborate with these communities, which in turn further inform their work. The ongoing nature of many of these commitments ensure the best results for both individuals and for faculty and student research, which benefits strong relationships from those they are trying to help.

Villanova's continuing commitment is evident in their partnership with University City Science Center which aims to foster mutually beneficial relationship. Villanova is one of 26 organizations in the Quorum Strategic Partner Alliance. As a Quorum Strategic Partner, Villanova supports the Science Center's initiative to support tech-based entrepreneurship and innovation. In addition, the University served as a promotional partner for the Innovators Walk of Fame 2017 at the University City Science Center. The event helped to recognize the outstanding individuals who made groundbreaking innovations in scientific and entrepreneurial communities. Another way Villanova demonstrates its commitment to the surrounding communities is through Startup Opportunity Fair co-hosted by Villanova University Innovation, Creativity and Entrepreneurship (ICE) Institute, Villanova Career Center, and Villanova Beyond Ideas. The Fair provides an exciting platform to bring together the startup community in the Philadelphia area. At the Fair, startup ventures present their opportunity pitch – internship, job, and project – to students from any Philadelphia area higher education institute followed by an open networking session.

Another important goal for the University is to support and promote high-quality undergraduate student-faculty collaborative research and scholarship. Undergraduate students have several options to learn more about the research process, develop projects, and excel with faculty mentoring. This includes the Villanova Freshman Match Research program, which provides opportunities for motivated freshmen to pursue undergraduate research. Freshmen under the Match program are sponsored and paired with a faculty member to conduct research 10 hours per week for 10 weeks. In recent years, over 150 Villanova undergraduates have received Match funding for research that they have published in peer-reviewed scholarly journals and presented at national and international conferences.

The Villanova Undergraduate Research Fellows (VURF) program is also another opportunity that provides a stipend for student research during the summer. The program was established on the premise that active, independent research experience helps student scholars develop important skills research such as proposal writing, obtaining funding, project management and reporting. Over 150 students have participated in the VURF program since 2012, conducting research in areas such as education, cognitive science, geography, engineering, biochemistry, environmental science, and astronomy and astrophysics, and applications have steadily increased year after year (see Figure 6.1).

FIGURE 6.1 – VILLANOVA FELLOWSHIP APPLICANTS AND AWARDS, FY 2013-2017



Source: Villanova (2018)

In this manner, Villanova’s increasing research capabilities connect back to its undergraduate academic program, helping its positioning among peer institutions over the long term. Given the competitive nature of research funding and the national sources that it accesses, research grants also bring dollars into the Philadelphia region that could easily otherwise be deployed in other parts of the country. As Villanova’s research program continues to advance and attract more external dollars, it increasingly becomes another important source of export activity for the region.

6.3 A COMMITMENT TO DIVERSITY

Ethnic and socioeconomic diversity on college campuses confers a variety of benefits to universities and their surrounding communities. Diversity and inclusivity efforts help to address the achievement gaps between races and economic groups. This ensures a thriving society and cultivates a vibrant on-campus community. Villanova embodies this diversity by cultivating an academic environment marked by genuine curiosity about different perspectives and a sensitivity to the variety of human experience. As a Catholic Augustinian institution of higher education, Villanova recognizes that diversity is an essential element of the ongoing intellectual, social and spiritual development of every member of the community, as reflected in the institution’s diversity statement (see inset).

Villanova University’s Diversity Statement

Villanova University, as a Catholic Augustinian institution of higher education, recognizes diversity as an integral component of the teaching and learning experience and as an essential element of the ongoing intellectual, social and spiritual development of every member of the Villanova community.

Accordingly, Villanova University will be a diverse community. We commit ourselves to cultivating an academic environment marked by genuine curiosity about different perspectives, ardent receptivity to knowledge generated through intercultural connections and a genuine sensitivity to the variety of human experiences marked by domestic and global differences.

Villanova has organized efforts to increase enrollment for minority students, focusing on students currently underrepresented in higher education. According to data provided by the Integrated Postsecondary Education Data System (IPEDs), the University’s minority undergraduate population was 11 percent in 1998; this grew to 26 percent in 2015 (see Figure 6.2). Similarly, the share of undergraduate women enrolled at Villanova increased by 6 percentage points in the same period (see Figure 6.3).

FIGURE 6.2 – VILLANOVA DEMOGRAPHIC CHANGE, 1998 TO 2015

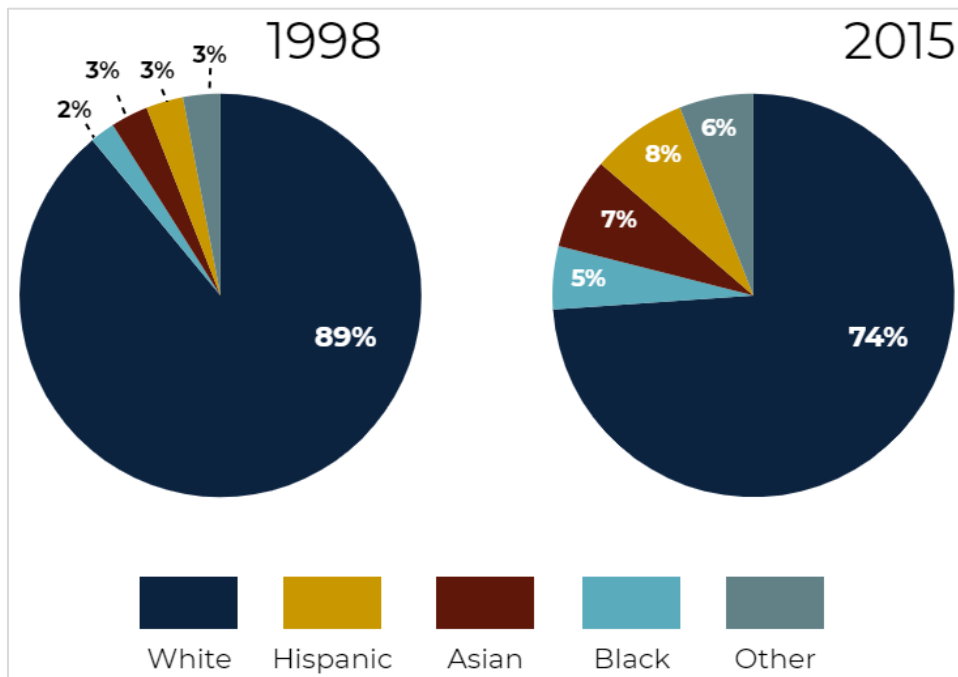
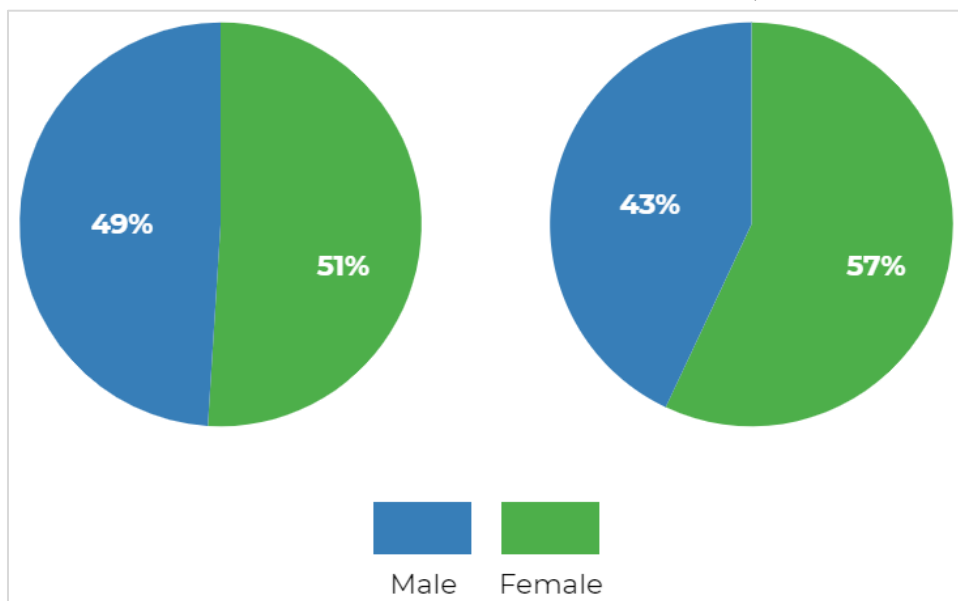


FIGURE 6.3 – VILLANOVA UNDERGRADUATE ENROLLMENT CHANGE, 1998 TO 2015



Source: IPEDs (2018)

Importantly, Villanova invests attention and resources not only to ensuring diversity among its incoming students but to providing diversity resources on campus, both in terms of investing in support mechanisms for students from traditionally disadvantaged populations as well as providing programmatic resources that celebrate diversity. Villanova's diversity programming is organized by the Office for Diversity and Inclusion (ODI), along with the Center for Access Success and Achievement (CASA) and the Office of Intercultural Affairs (OIA) to promote diversity in the Villanova community.

CASA focuses on recruiting and graduating underrepresented first generation college students by creating a supportive academic environment. CASA offers a number of different resources to aid students by providing access to academic counseling, promoting greater visibility and awareness of issues facing underrepresented students, and providing safe and open spaces where CASA students feel encouraged to interact with peers, graduate students, and faculty. CASA also organizes numerous outreach programs for high school students to engage current students in recruitment and service efforts.³⁵ OIA also organizes programs for underrepresented students to engage with the community.³⁶

These explicit commitments allow Villanova to utilize the diverse community it brings together to cultivate knowledge and cultural exchange that better prepares its students to live, work, and be a part of an increasingly interconnected globe. Villanova not only promotes a diverse student body, but embraces it to develop the cultural intelligence of each and every student.

6.4 ENABLING ACCESS TO OPPORTUNITY

As discussed in Section 5, Villanova has had great success in helping its graduates secure successful placements, and its alumni enjoy a significant earnings premium throughout their careers. This positive return and the centrality of higher education to the modern economy only increases the imperative to ensure that the opportunities provided by the institution are broadly accessible across the economic spectrum. Villanova also recognizes the importance for students to have access to higher education without being burdened by excessive debt upon graduation. As a result, Villanova provides a number of on-ramps to help make college affordable and accessible

Villanova strives to allocate its financial aid to those in need to make opportunities available to those who otherwise might not have access to sufficient resources and pathways to success. Financial support, financial counseling, and educational programs provide pathways to opportunity for those with fewer resources who might not have access to the same avenues of success. The available programs target barriers to higher education and employment to provide opportunities for people from all backgrounds to become a part of

³⁵ These programs include the Academy at Palumbo High School Partnership Program, which guides Palumbo students through the college application process; the REACH program, organized by a student run organization that offers tutoring and mentoring to under-resourced schools in the Philadelphia area; the Villanova Engineering, Science, and Technology Enrichment and Development (VESTED) Academy, an 8 week introduction to engineering offered to high school students from underrepresented backgrounds; and the Villanova Initiative for Engaging Women (VIEW), an enrichment program for women that includes SAT Prep, leadership and professional development, and a two week residential program.

³⁶ One of the organizations in the OIA community is The Association for Change and Transformation (ACT), which organizes events to allow students to have dialogue about social identity, power, and identity with the goal of eliminating forms of prejudice in Villanova and the surrounding community. OIA also organizes the annual Dr. Martin Luther King Jr. Day of service, which encourages students of all backgrounds to work together in making the community a better place.

Villanova's community. Once students are enrolled at Villanova they are eligible to receive financial aid in the form of need-based aid, merit-based aid, federal work-study, educational loans, tuition remission and veterans' benefits.

For the freshman class of 2021 (those enrolling in Fall 2017), 71 percent of students who applied for institutional need-based assistance were determined to have financial need, and 83 percent of those students received a need-based university grant. Villanova grant awards totaled \$21.6 million, an average of more than \$30,000 per student, and the average total financial aid package (including grants, scholarships, loans and student employment) for students with a demonstrated need was \$38,681 (see Figure 6.4).

FIGURE 6.4 – FINANCIAL AID STATISTICS - FRESHMAN CLASS OF 2021



Source: Villanova (2018)

In addition to need-based aid, Villanova offers merit-based scholarship opportunities to high-achieving students. These opportunities are generally renewable based on demonstrated academic performance and commitment to community service while at the institution. Table 6.1 below illustrates specific merit and need-based scholarships available to Villanova students.

TABLE 6.1 – AVAILABLE MERIT AND NEED-BASED SCHOLARSHIPS

Program	Award	Details
Presidential Scholarship	Full base tuition, room, board, general and the cost of textbooks	Renewable; application based on academic performance and commitment to community service
Saint Augustine Scholarship	15,000 per year	Renewable; application based on academic performance and commitment to community service
St. Martin de Porres Grants	Varies	Recipients generally members of underrepresented and economically disadvantaged backgrounds; based on exemplary academic performance
Villanova University Grant	Varies	Renewed each year; applies to students eligible for need-based assistance

Source: Villanova (2018)

Institutional aid not only provides access to opportunity, but from an economic standpoint brings outside dollars into the region and state to benefit local residents. Villanova’s “For the Greater Great” fundraising campaign (discussed in Section 3) has helped to bolster the University’s ability to support current students financially. In this manner, alumni contributions from around the globe are directed to current students, many of whom originate in the local area. In the fall 2017 academic year, institutional aid awards totaled \$7.6 million for students from Delaware County, \$25.4 million for students from the Five-County region, and \$32.6 million for students from Pennsylvania (see Table 6.2).

TABLE 6.2 – INSTITUTIONAL STUDENT AID BY GEOGRAPHY, FALL 2017

Geography	Awards	Total Institutional Aid
Delaware County	319	\$7.6 million
Five-County Region	1,056	\$25.4 million
Pennsylvania	1,326	\$32.6 million

Source: Villanova (2018)

7.0 IMPACT ON RADNOR TOWNSHIP

Finally, while Villanova's draw and impact are national and regional in nature, it is firmly rooted to its nearby community and to Radnor Township. Anchor institutions like Villanova are inevitably tied to the quality of life in their communities in both economic and qualitative ways. Villanova is a major employer, initiator of economic activity, a hub of demand for goods and services, as well as a direct and indirect contributor to the tax base. It serves as an amenity for the community both aesthetically and in the cultural and recreational resources that it offers. Like any large-scale institution, these activities and events generate the need for public services, and Villanova has taken an increasingly active role in working to foot the financial burden and minimize disruption to the community to the greater extent possible. Ultimately, Villanova recognizes and embraces the shared importance of place, since the attractiveness and competitiveness of the institution is tied in part to the community around it, and therefore works collectively with its neighbors and with Radnor Township to continue to improve and promote that shared space.

7.1 MUTUALLY BENEFICIAL TOWN/GOWN RELATIONSHIPS

The increasing value of "place" has elevated the importance of town-gown relations. As both localities and universities market themselves to potential customers – residents and employers for localities, students and staff for universities – they know that such site selection choices are influenced by things beyond cost and school quality, and extend to such quality of life considerations as active recreational amenities, social and cultural offerings, quality and quantity of retail and food options, and public safety perceptions. The presence of multiple institutions of higher education is a big selling point for prospective Radnor Township employers and residents, and the thriving, safe and bucolic community around campus is a big selling point for prospective Villanova students and employees. In symbolic and practical ways, both institutions are anchored in a specific place, and have much to gain in working together to improve and market that place.

Nevertheless, strong town-gown collaborations are not guaranteed, and require real effort. In the case of Villanova University and Radnor Township, that effort has been put forth, to great mutual gain. It is that commitment to place, and to having a positive effect on that place, that impels Villanova's academic, operational, and service efforts, which are articulated further in this section. As a faith-based and values-led institution that is in the business of education, research, and service, Villanova's engagement with and impact on its local community is an important part of its overall economic and social impact narrative.

7.2 ECONOMIC IMPACTS IN RADNOR TOWNSHIP

As reviewed throughout this report, Villanova is a hub of economic activity in a number of dimensions. The activity attributable to Villanova's operational spending and employment, its capital investment, the ancillary student and visitor spending it attracts and the wage premium its alumni enjoy are all centered on Radnor Township. This section aggregates the analyses from earlier sections of the report to calculate the total annual economic impact of this activity within the Township.

Villanova's direct operational expenditures and its capital investments have considerable spillover effects within the Township. Villanova employees living in the Township earned a total of \$14 million in FY 2017.

Villanova also purchased \$7 million in goods and services in FY 2017 from vendors located in the Township. Its capital investments also create considerable opportunities for local construction firms and related suppliers in construction, engineering/design and maintenance.

The institution also attracts significant spending power into the area, much of which is captured off-campus by private merchants. As reviewed in Section 4, Villanova's students and the visitors attracted for a variety of events and athletic activities are estimated to spend \$43 million within the Township in sectors like food and beverage, lodging and hospitality, supporting local business owners and enabling the commercial corridors of the Township to attract and support amenities that residents enjoy.

On an annual basis, the economic activity attributable to Villanova in these three categories (including spillover effects) generates \$62 million in economic output within Radnor Township, supporting 520 jobs with \$31 million in earnings (see Table 7.1).³⁷

TABLE 7.1 – ANNUAL ECONOMIC IMPACT WITHIN RADNOR TOWNSHIP

Category	Operations	Capital Investments	Ancillary Spending	Total
Total Output (\$M)	\$28	\$6	\$28	\$62
Total Employment (Jobs)	240	30	250	520
Total Earnings (\$M)	\$21	\$2	\$8	\$31

Source: Econsult Solutions, IMPLAN, Villanova University

In addition, nearly 1,500 Villanova alumni currently live within the Township, illustrating the close connection between the institution and the community. As reviewed in Section 5, these alumni see an estimated \$34 million in additional earnings each year due to the education and credentialing they have received at Villanova. A portion of these additional earnings then recirculating locally in the form of household spending, supporting \$25 million in economic output and an additional 170 jobs within the Township (see Table 7.2).

TABLE 7.2 – ANNUAL ECONOMIC IMPACT FROM WAGE PREMIUM WITH RADNOR TOWNSHIP

Category	Radnor Township
Villanova Alumni in Township	1,483
Direct Wage Premium (\$M)	\$34
Total Output (\$M)	\$25
Total Employment (Jobs)	170
Total Earnings (\$M)	\$8

Source: Econsult Solutions, IMPLAN, Villanova University

³⁷ Direct impacts for Radnor County are described within each of the component calculation in this report. Spillover impacts are modeled first for Delaware County (the smallest geographic level for which IMPLAN modeling multipliers are available and then estimated for Radnor Township as a share of Delaware County based on a mix of direct information and proxy indicators as needed. Appendix C.2 details the methodology utilized to generate economic impact estimates for Radnor Township.

Supporting Local Businesses



"We chose Garrett Hill 15 years ago as the location for Antonella's because of the quality and diversity of the neighborhood, and its proximity to Villanova University. The support we get from those affiliated with Villanova represents roughly 25% of our total business and has played a big role in helping us grow."

- Antonella and Raymond Santacroce, Owners of Antonella's Italian Kitchen

7.3 REVENUE IMPACTS IN RADNOR TOWNSHIP

While Villanova as a non-profit institution is exempt from many taxation types, its economic activity described above is nonetheless a major contributor, directly and indirectly, to the tax base for Radnor Township and School District. Villanova makes direct payments to local government entities for purposes ranging from permits and fees to property taxes on commercial uses that totaled more than \$1.8 million in FY 2018 and more than \$11 million over the past six years. More broadly, Villanova's role as a hub of employment and demand supports stimulates activity that produces business tax revenue and supports residential and commercial property values throughout the Township contributing greatly to its fiscal stability.

While Villanova's non-profit mission and status make most of its activities exempt from taxation, the institution nonetheless makes significant direct payments to Radnor Township and related local government entities each year. Villanova's direct payments to Radnor Township, Radnor School District, Radnor Fire Company and the Radnor Stormwater fund totaled more than \$1.8 million in FY 2018 (see Table 7.3).

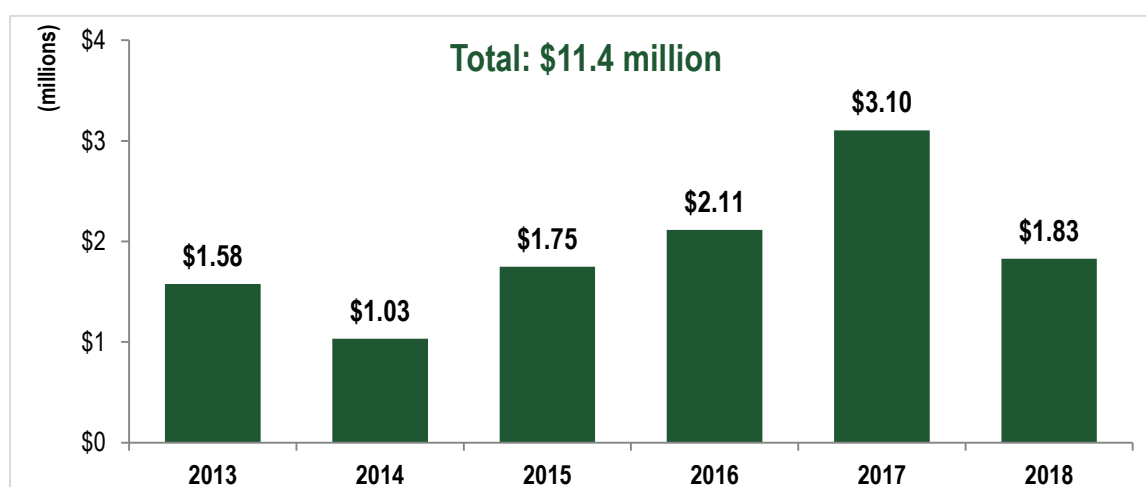
The largest payment of \$763,000 was for sewer and stormwater costs, while about a quarter of the total (\$541,000) was for fees and permits related to construction activity, most notably a fee of nearly \$500,000 related to the Performing Arts Center construction project (detailed in Section 3.1). \$414,000 was paid in property taxes for parcels that have a commercial rather than non-profit use, such as the Inn at Villanova.

TABLE 7.3 – DIRECT PAYMENTS TO RADNOR TOWNSHIP, FY 2018

Payment Type	Total	Radnor Township	Radnor School District	Radnor Stormwater	Radnor Fire Company
Sewer and Storm Water	\$763,000	\$675,000		\$88,000	
Permits / Fees	\$541,000	\$541,000			
Property Taxes (Commercial Uses)	\$414,000	\$66,000	\$348,000		
Events (Public Safety Cost)	\$99,000	\$99,000			
Misc / Other	\$9,600	\$2,500			\$7,100
Total	\$1,826,600	\$1,383,500	\$348,000	\$88,000	\$7,100

Source: Villanova (2018)

Over the six-year period from FY 2013-2018, Villanova's direct payments to Radnor Township totaled \$11.4 million (see Figure 7.1), or nearly \$2 million per year.

FIGURE 7.1 – ANNUAL DIRECT PAYMENTS TO RADNOR TOWNSHIP, FY 2013-2018 (IN MILLIONS)

Source: Villanova (2018)

In addition to these direct payments, the economic activity related to Villanova is a major contributor to the tax base of the Township and School District. While Villanova itself is exempt from most real estate taxes, it plays a major role in generating the real estate demand that sustains the Township and School District's property tax revenues. Many Villanova faculty and staff live in the Township, and they make significant contributions to the local School District in the form of property taxes. Further, the demand generated by students, visitors and staff gives a significant boost to the value for commercial uses, including not only landlords of rental properties appropriate for student housing but also commercial developments like Villanova Center that are supported in part by University-related demand. The development activity along the Lancaster Avenue commercial corridor not only increases the Township's property tax base but also generates upfront revenues for the Township and County through development costs like permits, fees and realty transfer tax.

Radnor Township also generates revenue through local business taxes, most notably Business Privilege and Mercantile taxes on gross receipts for local businesses which generates more than \$10 million a year for the

Township, and a Local Services Tax (LST) on employees that generates more than \$1 million per year. Villanova generates considerable demand to support private business activity in the Township through its suppliers, its staff, and the students and visitors it attracts to the Township. This activity is responsible for \$267,000 in tax revenues for Radnor Township in Business and Local Service taxes, more than 2 percent of total Township revenues from these two sources (see Table 7.4).

TABLE 7.4 – ANNUAL RADNOR TOWNSHIP BUSINESS TAX REVENUE FROM VILLANOVA-RELATED ECONOMIC ACTIVITY

Tax Type	Rate	Total Revenues	Villanova Related-Revenues	Share
Business Privilege / Mercantile	3 mils of gross receipts	\$10,844,000	\$127,000	1.2%
Local Services Tax	\$52 per employee	\$1,078,000	\$140,000	13.0%
Combined		\$11,923,000	\$267,000	2.2%

Source: Villanova, Econsult Solutions, Radnor Township 2018 Adopted Budget

Villanova's impact on the Township's tax base and its fiscal health has been specifically noted by Moody's in reviews of debt issued by the Radnor School District. Moody's upgraded the School District's General Obligation Bonds to Aa1 in 2014, and twice affirmed this rating when new debt was issued in 2015, reducing the District's cost of capital, noting the "stabilizing presence of Villanova University."³⁸

7.4 VILLANOVA AS A COMMUNITY AMENITY

In addition to its financial and economic contributions, Villanova's campus serves as an amenity for the community, both from an aesthetic standpoint and through the facilities and activities that it offers. Villanova purposely invites its nearby neighbors to share in these amenities through the Friends of Villanova program. Further, it generates a wide range of programs of interest to the community, whether athletic, artistic or academic in nature. Villanova's status as an attractive neighbor is evidenced by real estate listings that emphasize proximity to campus as a benefit for nearby properties.

Villanova's campus has a variety of natural and cultural amenities that serve as resources for the surrounding community. Villanova has well-planned spaces for socializing, recreation, and gathering that serve the needs of students, faculty, staff and visitors. Plenty of green and open spaces are accessible through Villanova's campus, such as large field areas, green landscaping and plenty of trees and planting. These green, open and aesthetically beautiful spaces are accessible to the public to enjoy. The University has been recognized for its achievements in green space developments. Villanova placed first in "Best Green Building Project" by the General Building Contractors Association of Philadelphia and named Green Business of the Year by the Main Line Chamber of Commerce in 2014. The University was also recognized as one of the nation's greenest colleges by the Princeton Review and the Sierra Club.

³⁸ Moody's Investor Service: Rating Action, "Moody's Assigns Aa1 to Radnor Twp SD, PA's \$17.1M 2015A GO Bonds." Jan 7,2015. Moody's Investor Service: Rating Action, "Moody's Assigns Aa1 to Radnor Twp SD, PA's \$4.2M 2015A GO Bonds." Apr 7,2015.

Villanova University offers a hub of resources to residents from Radnor Township and select neighborhoods contiguous to the University. Township residents can access various amenities such as green open space, concerts and performances, and fitness equipment for free or at a discounted price via on-campus resources. Township residents therefore can enjoy easy access to valuable quality of life amenities. One such example includes the “Friends of Villanova” card, which grants residents access to state-of-the-art recreational facilities on the Villanova campus for just \$25 a year (see inset).

Friends of Villanova

The Friends of Villanova Program provides local residents with access to fitness, aquatic, and open recreational facilities on University campus. The facilities available are the Pavilion Pool Aquatic Facility, Davis Center for Athletics and Fitness, Jake Nevin Field House, and Villanova Stadium. Program participants can also enroll in group exercise classes and personal training sessions at the Davis Center. The program is open to residents of Radnor Township and select neighborhoods contiguous to the university such as County Line Road, Broughton Lane, and Spring Mill Road. Residents can purchase and renew Friends of Villanova card for an annual fee of \$25. This program is a testimony of Villanova’s continuous commitment to the local community.

DAVIS CENTER FOR ATHLETICS AND FITNESS



Source: J.B. Nicholson Architecture (2018)

In addition, Villanova fosters a meaningful relationship with local community members by providing a range of opportunities for them to explore their interests and gain new knowledge on campus. Radnor Township residents are invited to attend daily liturgies, exhibits and receptions at the University Art Gallery, theatre productions and film screenings. Community members are also encouraged to be involved in various events such as One Book Villanova, St. Thomas of Villanova Celebration and the Senior Citizens Personal Enrichment Program.

Villanova's status as an amenity for residents is evidenced by frequent references to proximity to the campus in real estate listings for houses in the area (see inset). These references illustrate the real estate brokers, who interface with the preferences of home buyers on a daily basis, view proximity to the campus as an asset that improves the attractiveness of a property.

This beautifully appointed and character filled stone home allows the new homeowners a wonderful opportunity to live in a gorgeous home in the sought after neighborhood of Ashwood Manor in Villanova. The quaint neighborhood has award winning schools, convenient walk to the train station and Villanova University. As a "Friends of Villanova" you can join and use the university gym facility.

(Zillow listing)

Villanova's transformation of the campus along Lancaster Avenue is enhancing its status as a community amenity. As detailed in Section 3, this project will transform parking lots along the west side of Lancaster Avenue into a living and learning space that will feature retail, a new performing arts center, a pedestrian bridge, and landscaping. This project will benefit Township residents in a number of ways, improving the visual landscape along Lancaster Avenue, improving traffic flow around campus, and developing new amenities easily accessible to nearby residents.

7.5 PROVISION OF PUBLIC SERVICES

As a large-scale entity responsible for the safety and well-being of its grounds and community, Villanova provides for itself a number of services that are generally provided by the public sector. These include public safety, sanitation, snow removal, and recycling. Villanova's activity and investments in these areas in coordination with the Township benefits the community and alleviates the Township's cost burden.

Villanova's Department of Public Safety is responsible for providing a safe and secure environment for the University. In 2016, Villanova established a University police department with a combination of security officers and police officers within the department. Villanova police officers, which represent about 20 percent of the 75-member department have the same authority and undergo the same training as law enforcement officers, and are armed. This change is responsive to student safety needs, and consistent with best practices against large higher education institutions.

In addition to its student safety implications, the establishment of a Villanova police force also strengthens the relationship between the Department of Public Safety and the Radnor Township police. As discussed in Section 4, Villanova's hosts large-scale events (such as athletic events, graduations, student move-ins) which may require a public safety presence. Its students also shop, recreate and in some cases live in the community, which creates significant economic activity but may also increase the flow of off-campus activity. These activities are hubs of culture and commerce for the community, but also by their nature may impose to some extent on the regular activities of local residents. Villanova works diligently both to minimize this imposition logistically, and to shoulder the financial burden by working in concert with the municipality. The greater empowerment of the Public Safety Department through the creation of a police force, and parity in authority with the Township's law enforcement, allows the institution to better address public safety needs related to its community and lessens the burden on the Township.

In addition to public safety, Villanova invests in a number of services in and around its campus that are otherwise publicly provided. For example, Villanova's Facilities Management Office tends to sanitation,

maintaining roadways and sidewalks and snow removal needs on campus. Villanova also takes an active role in preserving the environment through its recycling program, which has been existence since 1990. Villanova is also major provider of community service (as detailed in Section 6). Villanova's annual St. Thomas of Villanova Day of Service, for example, features more than twenty service locations on the Main Line. While many service programs are aimed a high-need communities, service also takes place at a local level within Radnor Township on an ongoing basis. Villanova's Student Government Association approached Radnor Township in 2010 about enhancing the relationship between the student body and local residents, and SGA has since initiated a number of service projects in the Township, serving more than 200 Radnor residents in 2014.

7.6 EVALUATING VILLANOVA IN FISCAL IMPACT TERMS

Part of the dynamic that can strain town-gown relations is the sentiment that universities impose a fiscal burden on municipalities without paying their fair share of taxes. As this section has argued, Villanova is actually a tax generating and public service providing presence in Radnor Township. Its operations and capital investments, as well as the student and visitor spending it draws into the Township, represent economic activity for a wide range of businesses in the Township, supporting jobs for local residents and generating tax revenues for Township government. And, as an anchor institution with a service orientation that is committed to being a "good neighbor," Villanova provides a number of tangible benefits for the Township and its residents that are often thought of as public amenities usually paid for by the public sector, such as green space, cultural and recreational resources, and public safety coverage.

To be sure, a taxable entity located in the Township, such as a residential development or a commercial property, might also support local jobs and generate local tax revenues, and would also have the fiscal benefit of paying property taxes. But its net municipal expenditure burden may be greater, as it may not be nearly as comprehensive as Villanova is in taking care of its own public service needs (such as public safety, sanitation, and streetscape). This is particularly true if the private use involves the addition of school-aged children to the Township, which would then impose an expenditure burden on Radnor Township School District. Conversely, another alternative land use that is favored in the Township is protected open space, which imposes a relatively low expenditure burden and has been proven to produce many fiscal and quality of life benefits for a municipality. However, it does not generate property tax revenues, nor does it produce meaningful economic activity that enriches Township businesses and strengthens the local tax base.

8.0 SUMMARY OF IMPACTS

Villanova University is a vibrant academic community and Roman Catholic institution of higher learning situated on a 260 acre-campus in Radnor Township, in the heart of the Main Line suburbs of Philadelphia. This report calculates and articulates the economic, social and community impacts that it generates through its mission as an institution of higher education and its commitment to the common good and service to others.



Institutions of higher education face increasing scrutiny from governments, students and parents to justify their value proposition in terms of the tuition they charge, the space they inhabit, and the tax-exempt status they enjoy. This report demonstrates the many ways that Villanova produces a compelling return on investment – to its students, to nearby communities, and to society as a whole. This impact comes not only from the institution’s economic footprint and the spending it attracts and supports, but also from its commitment to being a faith-infused and values-led institution, which manifests itself in meaningful investments of financial and programmatic resources in initiatives that produce local benefit as well as broader societal advancement.

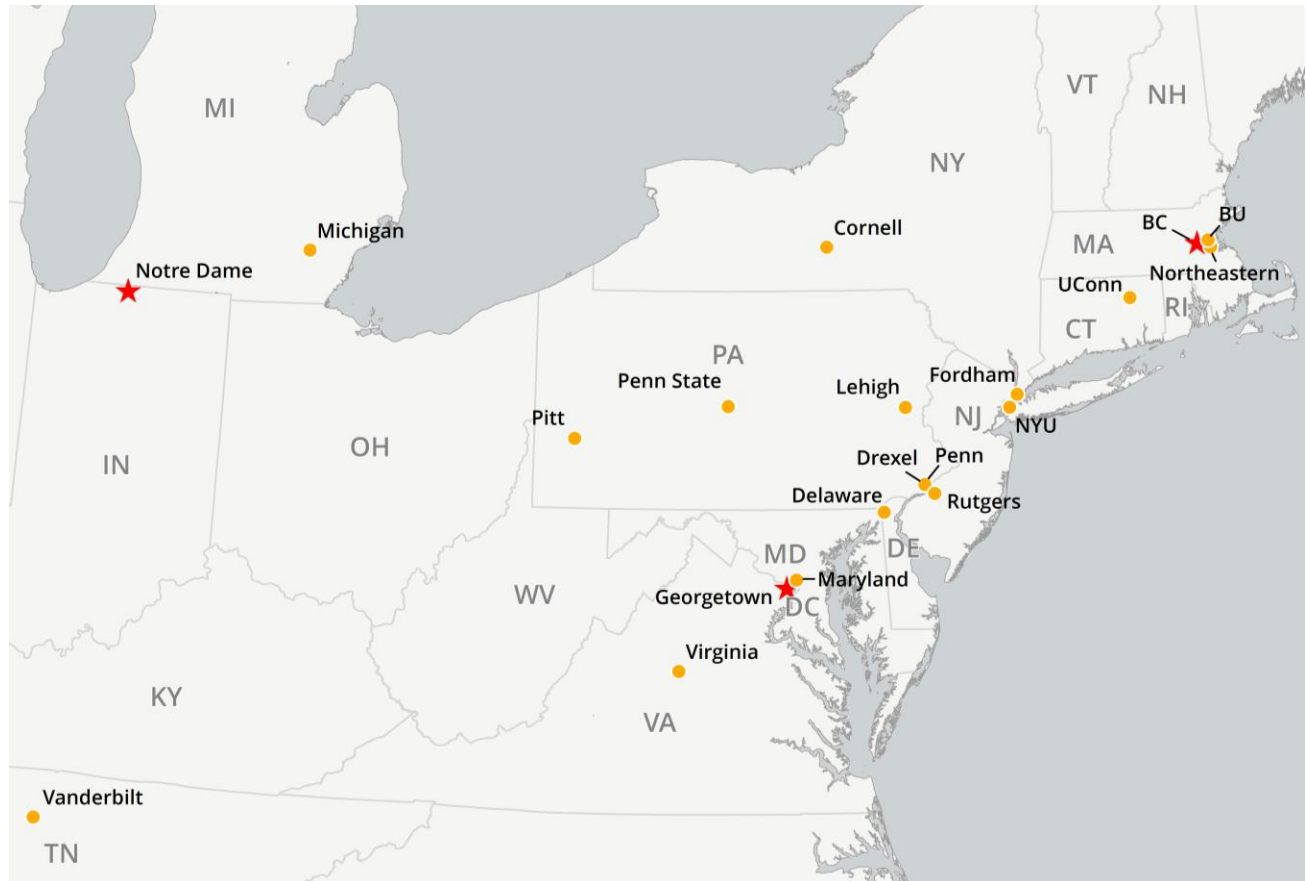
8.1 AGGREGATE ECONOMIC IMPACTS

The size and scope of Villanova’s economic footprint make it an important economic driver for Pennsylvania, the Philadelphia region, and for Radnor Township. As recent academic and athletic success have helped to enhance Villanova’s institutional stature, it is increasingly able to attract talented students, visitors, faculty and staff, research funding and alumni contributions from outside of the state and region. These activities not only help develop the region’s future workforce, but also attract external dollars that circulate locally, supporting direct and spillover employment in a range of sectors. The demand associated with Villanova and its community of students, visitors and staff supports local merchants and local amenities that residents enjoy while building the tax base for Radnor Township.

This report quantifies direct and spillover impacts at various geographic levels in the non-overlapping categories of ongoing operations, capital investments and ancillary spending.

Ongoing operations represent Villanova's economic contribution through its employment, procurement and provision of educational services. Villanova directly employs more than 2,700 faculty and staff, who recirculate their earnings in the local and state economy as household spending, and its procurement is a major source of activity for vendors in the region and state. Importantly, Villanova's selective nature and national applicant pool mean that much of the revenue supporting this activity (including student tuition and research funding) is new to the region, since many of its peer institutions (as reflected by the alternatives chosen by admitted students) are located elsewhere (see Figure 8.1). The total economic impact from Villanova's operations is \$656 million within Pennsylvania annually.

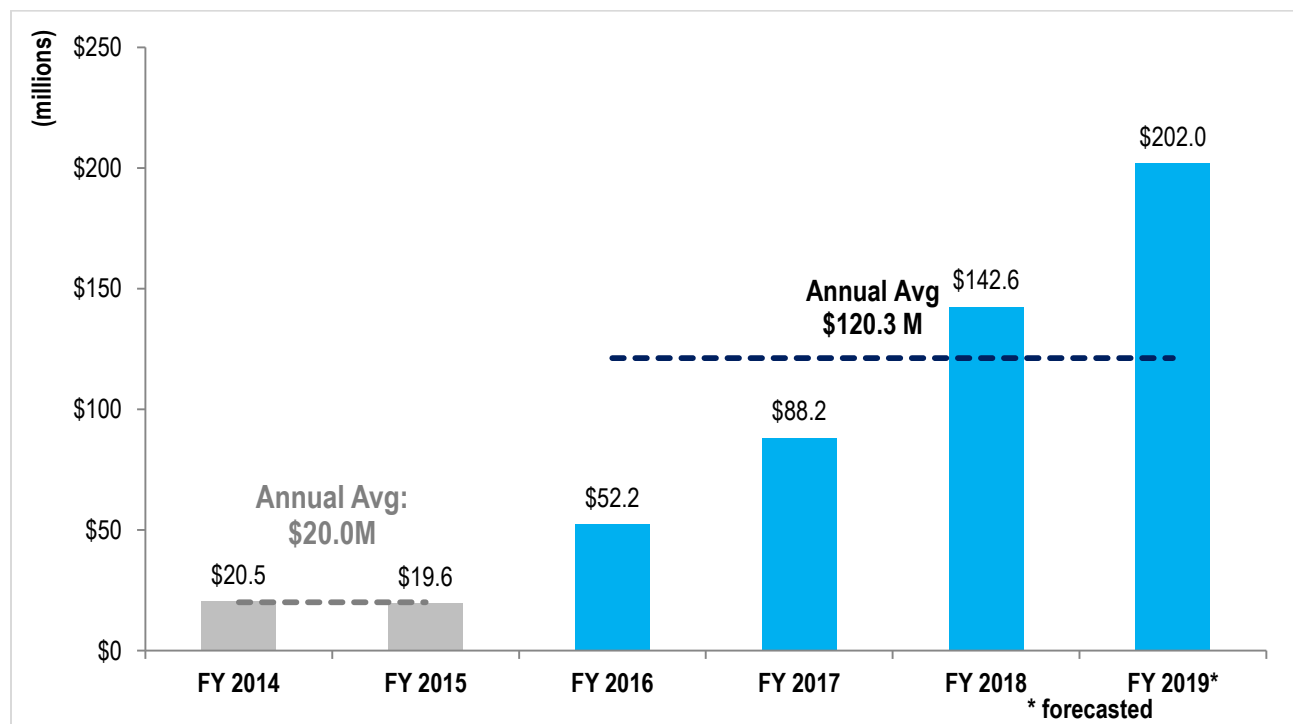
FIGURE 8.1 – TOP 20 INSTITUTIONS ATTENDED BY VILLANOVA ADMITTED STUDENTS WHO ENROLL ELSEWHERE (2014-2017)



Source: Villanova (2018)

Capital investments represent Villanova’s economic contribution through its activity in construction, renovation and maintenance of its campus. The historic “For the Greater Great” fundraising campaign has enabled Villanova to vastly increase its annual capital spending level in recent years and transform its campus and set the foundation for its future (see Figure 8.2). These projects support construction-related jobs and create demand for goods and services in a variety of local industries in the short-term, and once completed allow for a greater level of operating activity. Accounting for purchasing patterns and spillover impacts, the total economic impact from Villanova’s capital investments is \$130 million within Pennsylvania annually.

FIGURE 8.2 – VILLANOVA ANNUAL CAPITAL EXPENDITURES, FY 2014-2019



Source: Villanova (2018)

Ancillary spending represents Villanova’s economic contribution through dollars spent with local merchants by the students and visitors it attracts. The demand for food, shopping and entertainment experiences represented by the Villanova community is crucial to enabling the concentration of commercial activity along Lancaster Avenue, amenities that are enjoyed by residents and build to tax base of the Township. Villanova also attracts visitors into the region through on campus events and through its athletics program, generating additional demand for local merchants and the local hospitality industry. The total economic impact from Villanova-associated ancillary spending is \$101 million within Pennsylvania annually.

In aggregate, the total activity from these three categories generates **\$887 million in economic output** within Pennsylvania annually, supporting **6,120 jobs with \$461 million in earnings** (see Table 8.1).

TABLE 8.1 – ANNUAL ECONOMIC IMPACT BY GEOGRAPHY

	Operations	Capital Investments	Ancillary Spending	Total
Pennsylvania				
Direct Output (\$M)	\$335	\$76	\$63	\$474
Indirect & Induced Output (\$M)	\$321	\$54	\$38	\$413
Total Output (\$M)	\$656	\$130	\$101	\$887
Total Employment (Jobs)	4,650	670	800	6,120
Total Earnings (\$M)	\$382	\$47	\$32	\$461
Five-County Region				
Direct Output (\$M)	\$323	\$72	\$60	\$455
Indirect & Induced Output (\$M)	\$315	\$45	\$34	\$394
Total Output (\$M)	\$638	\$117	\$94	\$849
Total Employment (Jobs)	4,530	610	740	5,880
Total Earnings (\$M)	\$372	\$43	\$30	\$445
Delaware County				
Direct Output (\$M)	\$124	\$19	\$41	\$184
Indirect & Induced Output (\$M)	\$108	\$13	\$22	\$142
Total Output (\$M)	\$232	\$31	\$63	\$326
Total Employment (Jobs)	1,880	170	510	2,560
Total Earnings (\$M)	\$151	\$11	\$19	\$181
Radnor Township				
Direct Output (\$M)	\$22	\$5	\$26	\$52
Indirect & Induced Output (\$M)	\$6	\$1	\$2	\$9
Total Output (\$M)	\$28	\$6	\$28	\$62
Total Employment (Jobs)	240	30	250	520
Total Earnings (\$M)	\$21	\$2	\$8	\$31

Source: Econsult Solutions, IMPLAN, Villanova University

Rows and Columns may not sum due to rounding

In addition to the economic activity generated by Villanova's expenditures and the expenditures of its current students and visitors, Villanova makes a significant contribution to the lifelong earning potential of its graduates through its educational activities. These alumni are vital contributors to the state and local workforce, enabling additional productivity year after year. More than 33,000 alumni are estimated to be within the Pennsylvania workforce, and the **wage premium** they enjoy due to their Villanova degrees is estimated at more than \$1 billion annually, reflecting the increased productivity they bring to the economy.

These alumni then re-circulate a portion of these larger paychecks through the economy in the form of household spending, which supports the local economy across the wide variety of sectors in which households participate (health care, real estate, retail, food, etc.). The total economic impact from Villanova's alumni wage premium is \$826 million within Pennsylvania annually, supporting nearly 5,500 additional jobs (above and beyond the employment of the alumni themselves) with \$300 million in earnings.

TABLE 8.2 – ANNUAL WAGE PREMIUM IMPACT BY GEOGRAPHY

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Direct Wage Premium (\$M)	\$34	\$253	\$939	\$1,062
Total Output (\$M)	\$46	\$195	\$706	\$826
Total Employment (Jobs)	170	1,380	4,610	5,470
Total Earnings (\$M)	\$8	\$68	\$260	\$300

Source: Econsult Solutions, IMPLAN, Villanova University

Rows and Columns may not sum due to rounding

8.2 AGGREGATE TAX REVENUE IMPACTS

While Villanova itself is a tax-exempt organization by virtue of its non-profit status and public-serving mission, the large volume of economic activity that it generates is still a significant revenue source for state and local governments. The direct operating activity and capital investments undertaken by Villanova generate taxable activity, most notably salaries and wages, which are subject to state incomes taxes. Further, the ancillary spending Villanova attracts to the area and the household expenditures of alumni retained in the region ripple through the private economy and build the tax base. Finally, the indirect and induced impacts of all of activity accrue to suppliers and contractors that are largely not tax exempt, meaning that its ripple effects also build the local and state tax base.³⁹

The economic activity from Villanova's operations, capital investments and ancillary spending are estimated to generate **\$13 million** in annual aggregate annual tax revenue for the Commonwealth of Pennsylvania government (see Table 8.2).

³⁹ See Appendix C.3 for further explanation of how tax revenues resulting from economic activity are estimated.

TABLE 8.2 – ANNUAL TAX REVENUE GENERATION FOR THE COMMONWEALTH OF PENNSYLVANIA

	Operations	Capital Investments	Ancillary Spending	Total
Income (\$M)	\$7.7	\$0.9	\$0.6	\$9.2
Sales (\$M)	\$1.5	\$0.6	\$0.8	\$2.9
Business (\$M)	\$0.5	\$0.2	\$0.3	\$1.0
Total (\$M)	\$9.6 million	\$1.7 million	\$1.6 million	\$13.0 million

Source: Econsult Solutions, IMPLAN, Villanova University

Rows and Columns may not sum due to rounding

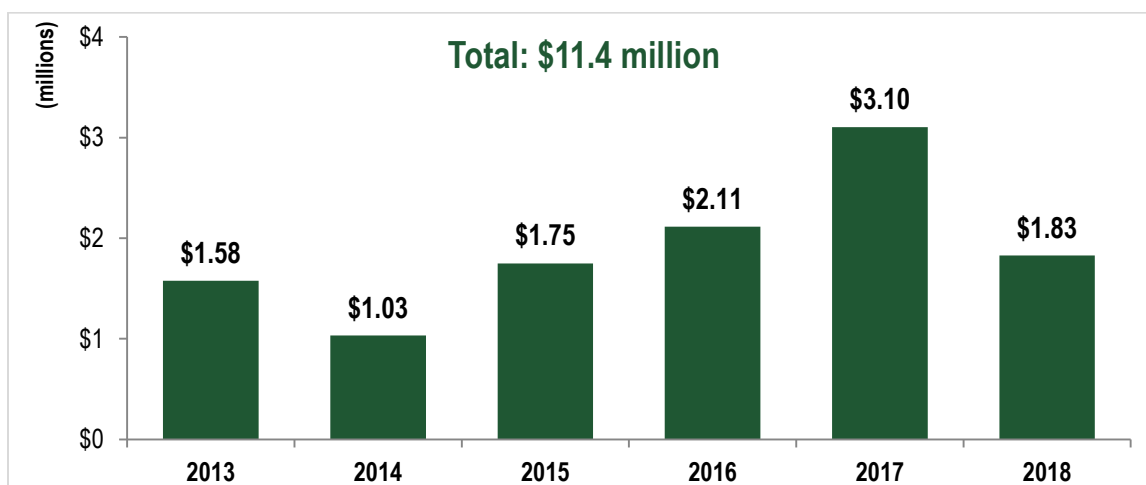
The alumni wage premium is also a significant tax generator. Both the earnings of the alumni themselves and the earnings supported by additional household spending contribute to the state's income tax base, and the household spending also generates sales and business tax. In aggregate, the economic activity associated with the wage premium is estimated to generate nearly \$35 million per year in tax revenue for the Commonwealth of Pennsylvania (see Table 8.3).

TABLE 8.3 – ANNUAL TAX REVENUE GENERATION FOR THE COMMONWEALTH OF PENNSYLVANIA FROM WAGE PREMIUM

	Wage Premium
Income (\$M)	\$26.7
Sales (\$M)	\$6.0
Business (\$M)	\$2.0
Total (\$M)	\$34.7 million

Source: Econsult Solutions, IMPLAN, Villanova University

Villanova is also a major contributor, directly and indirectly, to the tax base for Radnor Township and School District. Villanova makes direct payments to local government entities for purposes ranging from permits and fees to property taxes on commercial uses that totaled more than \$1.8 million in FY 2018 and \$11.4 million over the past six years (see Figure 8.3).

FIGURE 8.3 – ANNUAL DIRECT PAYMENTS TO RADNOR TOWNSHIP, FY 2013-2018 (IN MILLIONS)

Source: Villanova (2018)

More broadly, Villanova's role as a hub of employment and demand supports activity that produces an estimated \$267,000 annually in business and local services tax revenue, more than 2 percent of total Township revenues from these sources. In addition, Villanova and the demand it generates supports residential and commercial property values throughout the Township, contributing greatly to its fiscal stability.

8.3 SOCIAL AND COMMUNITY IMPACTS

Importantly, these economic and fiscal impacts are achieved through Villanova's educational, research and service activities. Villanova provides a comprehensive education rooted in the liberal arts and in a shared commitment to the Augustinian ideals of truth, unity, and love, and carried out by a community dedicated to service to others. This ethos means that its activities are not just economic drivers, but deliver meaningful social and community benefits.



Villanova is committed to integrating service learning into its curriculum and provides numerous coordinated opportunities for community service. The Villanova community contributes nearly 250,000 hours of community service annually, more than one-quarter of which are generated through service-learning programs. The highlight of this program is the annual St. Thomas of Villanova Day of Service, which brings nearly 5,000 members of the Villanova community together in celebration of the institution's religious and intellectual tradition of service.

The university is also home to a robust intellectual community that increasingly advances human knowledge and its application through a culture of research and innovation. And the institution recognizes the power of access to that community an increasingly knowledge-driven economy, and has worked to materially increase diversity on its campus and provide institutional aid to assist students from across the economic spectrum.

UNDERGRADUATE RESEARCH FROM VILLANOVA'S COLLEGE OF NURSING

Source: Villanova (2018)

Villanova also embraces its status as an anchor institution in Radnor Township, and the mutual benefit that derives from its contribution to the quality of life for nearby residents. Villanova is a direct and indirect contributor to demand that helps to sustain not only the local tax base, but amenities like restaurants and shops that residents enjoy. The campus itself also serves as an amenity, through the popular “Friends of Villanova” program that gives neighbors access to on-campus facilities and through its role as a hub of academic, arts and culture and athletic events. These activities and the scale of the Villanova community generate the need for public services, and the institution has recognized its role in alleviating that burden by developing its own police force in close coordination with the Township.

In sum, Villanova produces a compelling return to the economy, society, and its neighboring community. It is an economic driver and a direct and indirect hub of employment and tax revenue at the local and state level. And its values-infused approach to its academic mission yields both hyper-local and broad societal benefits. Villanova lives out its ethos of service to others in a manner that benefits both the Villanova community and the broader communities around it.

APPENDIX A – REPORT METHODOLOGY

The purpose of this appendix is to highlight the scope and methodology of this report and of the quantitative analysis tools used in it, so that its findings can be properly understood and interpreted. Additional detail on the methodology and data sources used to calculate the direct economic impact in each component category (Appendix B) and the economic and fiscal modeling undertaken (Appendix C) can be found in the appendices that follow.

A. 1 SCOPE OF ANALYSIS

Economic and fiscal impacts are calculated in four categories of activity: VU expenditures on operations, VU expenditures on capital investments, ancillary spending by students and visitors attracted or retained by VU, and wage premium for VU alumni. Impacts are calculated on an annual basis, and are undertaken in non-overlapping fashion, meaning that they can be summed to represent aggregate impact.⁴⁰ Section 8 of this report sums impacts from the categories of ongoing operations, capital investments and ancillary spending. Impacts from alumni wage premium calculated in this report are presented in this aggregate sum, but are separate and distinct from these categories.

The goal of this analysis is to quantify the current annual level of economic activity associated with Villanova. Data inputs on institutional activity are largely provided by Villanova, and are verified and supplemented with other public data sources. In addition, assumptions are at times required to estimate the level of activity where direct data is not available (for example, on average expenditures per visitor, or on the labor force participation of alumni). These assumptions are anchored in research and available information, and are detailed transparently throughout the report and appendices.

For each input, the most recent and appropriate available dataset is utilized. In the case of institution data, this information often but not always covers FY 2018 (the most recently completed fiscal year). In the case of capital investments, activity levels are averaged over multiple years to generate an appropriate assessment of typical annual activity. Therefore, the analysis should be understood to represent the current annualized level of activity for Villanova, rather than representing the impact for any specific fiscal year.

The geographies of interest for this study are Radnor Township, Delaware County, the five-county Philadelphia region,⁴¹ and the Commonwealth of Pennsylvania. Economic impacts are calculated for each of these geographies, while tax revenue impacts are calculated for Radnor Township and for Pennsylvania. Additional coverage is included in Section 7 of Villanova's economic and community impacts in its host municipality of Radnor.

⁴⁰ For example, student and visitor expenditures that accrue to Villanova (such as tuition or on-campus housing and food) are excluded from the ancillary spending calculation undertaken in Section 4, because this revenue contributes to Villanova's operating budget, which is modeled in Section 2.

⁴¹ Bucks, Chester, Delaware, Montgomery and Philadelphia counties, all of which are located in Pennsylvania.

Economic impact results for each geographic region include total economic output, employment supported, and earning supported. Tax revenue impacts are expressed for Radnor Township and the Commonwealth of Pennsylvania.

Economic impact analyses can estimate the magnitude of either the net or the gross impact of its subject. A net impact analysis, which sometimes takes the form of a cost-benefit analysis, develops a “counterfactual” that overall impact amounts are netted against impact levels that might have occurred anyway in place of the subject’s existence and operations. This form of analyses, while appealing in its economic logic, is often highly speculative. In this case, such an analysis would require modeling an alternative development path for the local and regional economy over decades absent Villanova.

This report takes a gross, rather than net, approach to measuring Villanova’s economic impact. With this approach, the direct, indirect, and induced activity associated with Villanova is estimated without accounting for potential offsetting increases in activity in other institutions or sectors absent Villanova. Therefore, economic impact figures implicitly represent a comparison of current activity levels to a scenario in which the institution does not exist, and all other activity within the economy is held constant.

It should also be noted that impacts are only estimated in four categories (ongoing operations, capital investments, ancillary spending and wage premium) that are common to economic impact studies of educational institutions, and for which data sources and calculation frameworks are well-defined. However, these categories do not represent the only potential economic impacts of Villanova, which contributes to knowledge activity in ways that defy straightforward quantification. Thus, while aggregate results in this analysis are gross rather than net, they are conservative as to the categories of impact that can be reliably measured.

A.2 ADDITIONAL DETAIL ON COMPARABILITY WITH PAST ANALYSIS

ESI conducted a similar economic impact analysis for Villanova in 2011, some components of which were updated in a 2014 study in partnership with Eastern University and Cabrini College. The studies rely on similar economic principles and statistical techniques, and on operational and budgetary data provided by Villanova. However, the studies differ in the time period they evaluate, the methodology and models utilized to quantify impacts, and in some cases in the category of impacts quantified.

Accordingly, this analysis should be understood to represent the most accurate current quantification of Villanova’s impact given available data and methods, rather than a direct update of the prior analysis (limited to the tools and methods available at that time). The results from the current analysis therefore cannot be compared to 2011 results to establish a “growth rate” for intervening time period, because these impacts were not computed in a parallel manner.

ESI’s 2011 economic impact analysis for Villanova considered the operating impacts as of the most recent available fiscal year (FY 2010), similar to the approach used in this analysis. However, when considering the impact of capital investments, calculated impact calculations in that analysis were based on a five-year period (FY 2006-2010). Results were expressed over the full seven year time period, and were not aggregated with operating impacts. By contrast, this study utilizes average activity levels over a four-year period (FY 2016-2019) and expresses results in annualized terms to allow them to be summed with other calculated

categories. Notably, this annualized figure is higher than prior levels due to Villanova's elevated level of capital activity associated with its "For the Greater Great" fundraising campaign. No comparable annualized figure exists as a point of comparison from the previous study, but if one were calculated it would be far lower due to the higher current expenditure levels.

In addition, the wage premium category captured in this report was not included in the 2011 study. As the return on investment of higher education has come under greater scrutiny, it has become increasingly important for institutions to demonstrate their impact on alumni long after they leave campus. Accordingly, research and calculations methods for capturing an alumni wage premium (in addition to the traditional categories of institutional spending and spending by current students and visitors) have advanced, and this category is more commonly included in institutional economic impact analyses.

Student and visitor ancillary spending amounts that were modeled for the purpose of estimating economic impact were flat or lower than those in the 2011 study for two reasons. First, students procure more goods online and therefore a lower proportion of their spending was assumed to take place within the geographies of interest. Second, a more conservative approach was taken on goods procured locally in terms of including only retail margins rather than full amounts, so as not to overstate the amount of economic activity actually circulating in the local economy (for example, even if a consumer good like laundry detergent is purchased locally, the original manufacturer is likely outside the region, such that some of the purchase value leaves the local economy).

Finally, a different modeling tool is utilized to calculate indirect and induced economic impacts in the current study. This analysis uses the IMPLAN input-output model (produced by the private sector Minnesota IMPLAN group), while the 2011 study utilized, the RIMS model produced by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA). RIMS was relied upon as an industry-standard tool for many years due in part to its open source nature and wide availability. In recent years, budget cuts due to sequestration caused BEA to cease updating the data in the RIMS model for several years. During this time, many economic analysts (including ESI) began to rely on IMPLAN software. Today, IMPLAN is generally considered to yield more accurate results, due to its more frequent updates, larger volume of industries, and greater flexibility in creating customized models.

One major difference between the IMPLAN and RIMS models are the differing definitions of "employment" embedded within each model. IMPLAN generates employment results in terms of "annual jobs", meaning that 12 months of employment equates to one job. Seasonal employees are counted fractionally, meaning that three months of employment would equate to one-quarter of a job.⁴² The BEA approach embedded in RIMS, by contrast, does not distinguish between full-time and part-time jobs in its employment count. Therefore, the total employment figure reported in the 2011 report includes a mix of full-time and part-time jobs without any adjustment, while the total employment reported in this analysis adjusts jobs to an annualized basis.

These differing definitions are evident when comparing the ratio between total employment and total earnings, i.e. the average earnings per job, between the two studies. In the current analysis, average earnings for employment supported directly or indirectly by Villanova's activity are around \$75,000, significantly more than

⁴² This approach is conceptually similar to a Full-Time Equivalent (FTE) calculation, although not identical since it normalizes employment to a 12 month year but not to a standard 40 hour work week.

the \$34,000 average earnings per job in the 2011 study. Differences in employment results between the two studies are thus not reflective of changes in employment impact attributable to Villanova over the intervening years.

TABLE A.1: COMPARABILITY OF METHODOLOGY AND RESULTS WITH 2011 IMPACT STUDY

Component	Methodological Enhancements	Comments on Difference in Activity Levels / Approach
Operations	A more complete dataset was available on the residential location of Villanova's employees, including the proportion living in Radnor Township	Direct operating budget slightly up from FY 2011-2018
Capital Investments	A more conservative approach to the geographic location of construction employees and earnings based on vendor location	Current spending levels (FY 2015-2019) are significantly higher than those from prior analysis period (FY 2006-2010)
Ancillary Spending	A more conservative approach to the geographic location of impact footprint based on leakage of retail sales activity to original producer	Student and visitor spending is up from FY 2011-2018 commensurate with higher activity levels, but a greater proportion of student spending is now done online and therefore has no local impact
Wage Premium	In line with the growing importance of an educated workforce to a region's economic competitiveness, this category of impact has been enhanced in terms of more accurately accounting for the aggregate effect of higher household earning potential in the University's overall impact	Impact tends to increase over time due to net increase in graduates in the workforce (more joining than leaving), and trends in increasing returns to education

APPENDIX B – DIRECT ECONOMIC ACTIVITY DETAIL

The methodology described below details the process and calculations for arriving at estimates of direct economic activity in the four economic impact categories quantified within this report (ongoing operations, capital investments, ancillary spending, and wage premium). Those direct amounts are then translated into the total economic, employment and fiscal impacts shown within the body of this report through the economic and fiscal modeling described in Appendix C.

B.1 ONGOING OPERATIONS

Annual operations are modeled based on information contained in Villanova's Fiscal Year 2017 Financial Statements.⁴³ These financial statements distinguish university expenditures on employee salary and benefits from other operating costs.

⁴³ Villanova's fiscal year ends on May 31, meaning that, for example, FY 2018 covers the period from June 1, 2017 to May 31, 2018 and aligns with the 2017-18 academic year.

Total operating expenditures for Villanova in FY 2018 were \$424 million. Deductions are made for budgetary items that do not represent direct expenditures circulating in the local economy. Most notably, depreciation is a standard accounting practice that represent the reduction in the value of physical assets due to deterioration and use over the course of a year. While this effect is important to the balance sheet of the institution, it does not represent expenditures that circulate to generate economic output.

The majority of modelable expenditures go to salaries and benefits for Villanova's faculty and staff of around 2,700 employees (see Table B.1).

TABLE B.1 – OPERATING EXPENSES AND EMPLOYMENT, FY 2017

Category	FY 2017
Total Operating Expenses (\$M)	\$423.6
(net Depreciation and Interest) (\$M)	(\$29.2)
Modelable Expenditures (\$M)	\$394.4
Salary and Benefit Expenditures (\$M)	\$271.2
Other Uses (\$M)	\$123.2
Total Faculty and Staff	2,692
Instructional Staff	1,046
Other Staff	1,646

Source: Villanova Financial Statements, Villanova Reporting to IPEDS

Rows and Columns may not sum due to rounding

Impact modeling is undertaken based on this annualized budget level, with a distinction made between employee costs and other operating costs as shown above. Direct activity at each geographic level is modeled based on data provided by the institution on the location of its vendors and the residential location of its employees.

TABLE B.2 – VILLANOVA DIRECT OPERATING ACTIVITY BY GEOGRAPHY

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Employee Compensation (\$M)	\$19	\$114	\$263	\$271
Others Ops Procurement (\$M)	\$3	\$10	\$61	\$64
Direct Output (\$M)	\$22	\$124	\$323	\$335

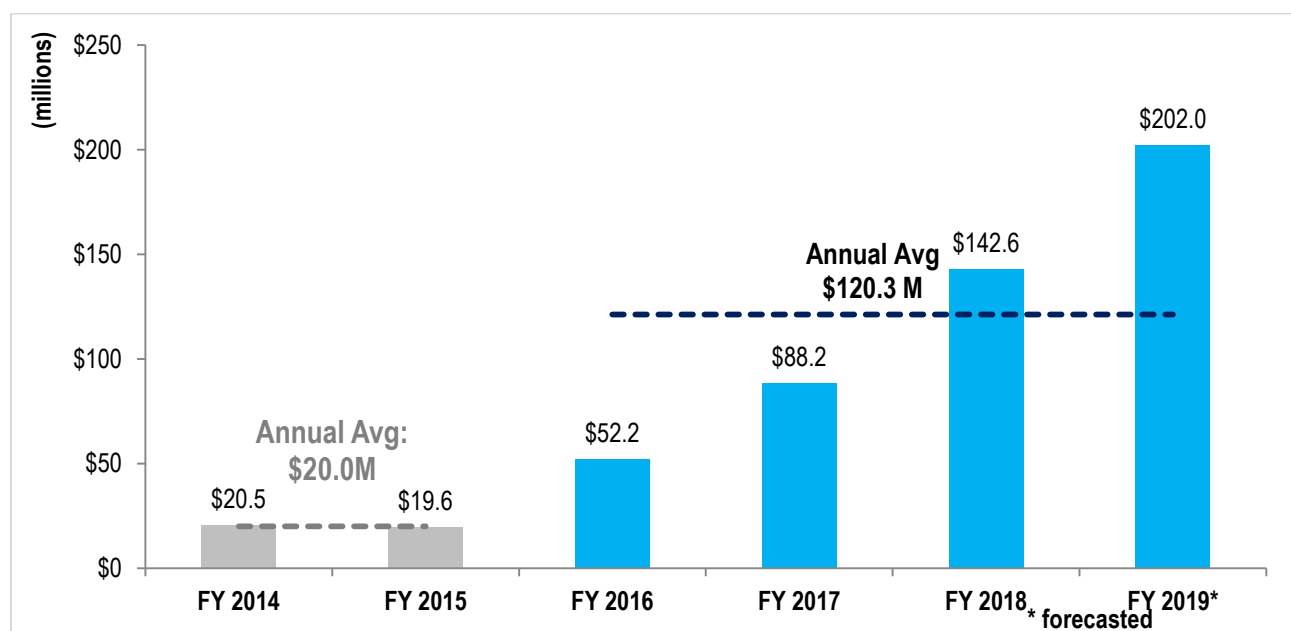
Source: Villanova Payroll and Procurement Data (2018).

B.2 CAPITAL INVESTMENTS

Capital investments are modeled based on expenditure data provided by Villanova. The data provided includes annualized expenditures in total and by project, which allowed for analysis of overall activity levels as well as a more granular modeling by project type.

Villanova's level of investment has grown significantly over the period, supported by a significant fundraising campus (as described in Section 3.1). Annual investments averaged \$20 million in FY 2014 and FY 2015, and grew materially in each subsequent year to a forecasted \$202 million in FY 2019 (see Figure B.1).

FIGURE B.1 – VILLANOVA ANNUAL CAPITAL EXPENDITURES, FY 2014-2019 (IN MILLIONS)



Source: Villanova (2018)

Due to the nature of construction activity, expenditure levels and expenditure types can be “lumpy” in any one year due to the imperatives of project schedules. Further, consistent increases in activity make it difficult to define a typical activity level through a snapshot in time. Therefore, a multi-year timeframe is generally utilized to minimize these potential distortions and produce a more reliable indicator of typical activity levels than data from any single year. Averaged expenditures from FY 2016 - 2019 used for the purpose of quantifying current annual impact levels in this analysis, which reflects a cross-section of activity levels as investments enabled by Villanova's “For the Greater Greater” fundraising campaign ramped up.

Project expenditures undertaken in the FY 2016-2019 period were then coded by type, distinguishing new construction of various types (educational facilities, commercial facilities and streets) from maintenance activity of existing structures. For new construction, a standard proportion of 20% was assumed to be dedicated to “soft costs” like architecture and engineering. Using this approach, the proportion of spending undertaken in each category is estimated, and applied to the average annualized expenditure of \$120 million to estimate direct expenditures by category. Next, Villanova's purchasing data is utilized to estimate the proportion of direct activity taking place within each geography (see Table B.3).

TABLE B.3 – VILLANOVA CAPITAL INVESTMENTS BY TYPE, FY 2016-2019

Category	Avg (\$)	Avg (%)	FY 2016	FY 2017	FY 2018	FY 2019
New Construction	\$68.9	45%	58%	49%	49%	64%
Maintenance and Repair	\$34.2	23%	28%	39%	28%	16%
Architecture and Engineering	\$17.2	20%	14%	12%	20%	20%
Total Capital Expenditures (\$M)	\$120.3		\$52.2	\$88.2	\$136.4	\$202.0
Purchasing by Geography	Total		Radnor Township	Delaware County	5-County Region	Pennsylvania
Share by Geography			3.3%	15.7%	60.1%	63.0%
Direct Expenditures by Geography (\$M)	\$120.3		\$4.0	\$18.9	\$72.3	\$75.7

Source: ESI Analysis of Villanova University data

B.3 ANCILLARY SPENDING

Ancillary spending represents expenditures by Villanova students and visitors that are captured by local merchants rather than by the institution itself.⁴⁴ This spending (referred to as “ancillary” throughout this report) is therefore additive to the other categories of direct activity (operations, capital expenditures and wage premium) calculated in this analysis.

Ancillary spending is undertaken by students attracted or retained in the region by Villanova, and by visitors drawn to the region by the university. In Villanova’s case, visitation includes both general event visitors (drawn for a variety of reasons including family events, alumni events and conferences) and athletic event visitors (including spectators and participants). Estimating the magnitude and composition of ancillary spending captured in the local economy for each of these categories follows the same basic three-step process:

1. First, we estimate the volume and composition of Villanova students and visitors by type (by type of residence in the case of students and by distance traveled in the case of visitors).
2. Next, we estimate a per capita spending profile for each student and visitor type, accounting for only the portion of that spending that is ancillary (i.e. not captured). Combining the volume of students or visitors by their per capita spend yields an estimate of aggregate ancillary spending by industry.
3. Finally, an adjustment is then made to include only the portion of spending estimated to take place within each geographies of interest. This yields estimates of ancillary spending captured within Radnor Township, Delaware County, the five-county region, and Pennsylvania.

Each of the three-steps for each category of spending is discussed in turn below.

⁴⁴ Spending that accrues to Villanova, such as student tuition and on-campus room and board or event revenue, becomes operating revenue for the university. Therefore, its impact is already captured within the ongoing operations section of this analysis, and must be excluded from this category in order to ensure that impact categories are non-overlapping.

STUDENT SPENDING

STUDENT VOLUME AND DISTRIBUTION

Information provided by Villanova in the university's submission to the Common Data Set on Fall 2017 enrollment is used to define the volume and distribution of students. This data indicates that there were nearly 11,000 enrolled students as of October 15, 2017, including nearly 7,000 undergraduates and around 4,000 graduate students.

Reported data also indicates that 34% all undergraduate students, but just 2% of freshman undergrads, live off campus or commute. It is assumed from this information that 2% of undergraduates are "commuters" (i.e. living at home), while the remaining 32% live in off-campus housing. In the case of graduate students, the roughly two-thirds of students attending full-time are assumed to be living off-campus, while the roughly one-third attending part-time are assumed to be commuters.⁴⁵ Matching these distributions to the student counts yields an estimate of the number of students by residential location (see Table B.4).

TABLE B.4 – STUDENT DISTRIBUTION BY RESIDENTIAL LOCATION

Student Type	Total	On-Campus	Commuter	Off-Campus	Basis
Undergraduates	6,966				Undergrad vs. freshman off-campus proportion
Residential Location (%)		66%	2%	32%	
Residential Location (#)		4,598	139	2,229	
Graduate Students	4,017				Part-time vs. full-time proportion
Residential Location (%)		--	33%	67%	
Residential Location (#)		--	1,327	2,690	
Total	10,983				Blended Average
Residential Location (%)		42%	13%	45%	
Residential Location (#)		4,598	1,466	4,919	

Source: Villanova University (Fall 2017 Enrollment Data)

ANCILLARY SPENDING BY STUDENT TYPE

Next, spending profiles are estimated for each of the three student types, with adjustments for expenditures captured by Villanova to yield only "ancillary" expenditures. Data reported by Villanova within the Common Data Set details an estimated annual student budget for residents, commuters living at home, and commuters not living at home (termed here "off-campus"). This budget is inclusive of all spending estimated to be undertaken by a student in the course of the academic year, not just costs directly related to their education (like tuition and fees and books).

⁴⁵ Note that while "commuter" undergraduate students typically refers to students living at home with their parents, "commuter" graduate students are more often adults residing within the region for another purpose (such as their employment) who are also taking graduate classes. As detailed below, expenditures like housing and food are not attributable to the institution in these instances, because it is assumed that the student would already have been living in the region independent of their enrollment. For this reason, part-time students represent a reasonable proxy for this category in the case of graduate students.

Estimates are made of the portion of expenditures in each of four categories that are ancillary (i.e. not captured by Villanova). In the case of housing for on-campus students, all expenditures are captured by Villanova. Further, food and beverage is assumed to be largely captured by Villanova for these on-campus students via the meal plan, although a small portion is assumed to be spent off campus. Conversely, most food spending for off-campus students and most retail spending (including books and supplies) for all students is assumed to be ancillary, with a small portion captured by Villanova through on-campus options like the bookstore and on campus cafes.

Combining the estimated per student expenditures with the estimated ancillary percentages yields an estimated ancillary spend per student for each student type and expenditure category (see Table B.5).

TABLE B.5 – ANCILLARY PER STUDENT SPENDING BY STUDENT TYPE

Category	On-Campus	Commuter	Off-Campus	Basis
Housing	\$7,000	\$0	\$7,000	On-campus: captured by VU Commuter: no additive spending
Ancillary (%)	0%	0%	100%	
Ancillary (\$)	\$0	\$0	\$7,000	
Food & Beverage	\$6,120	\$0	\$6,120	On-campus: primarily dining hall Commuter: no additive spending Off-Campus: some on-campus spend
Ancillary (%)	10%	0%	90%	
Ancillary (\$)	\$612	\$0	\$5,508	
Transportation	\$850	\$2,500	\$850	No spend captured by VU
Ancillary (%)	100%	100%	100%	
Ancillary (\$)	\$850	\$2,500	\$850	
Other (Retail)	\$2,550	\$2,000	\$2,550	Some spend captured by VU (such as supplies and apparel at bookstore)
Ancillary (%)	80%	90%	90%	
Ancillary (\$)	\$2,040	\$1,800	\$2,295	
Total	\$16,520	\$4,500	\$16,520	Blended average
Ancillary (%)	21%	96%	95%	
Ancillary (\$)	\$3,502	\$4,300	\$15,653	

Source: Villanova University, Econsult Solutions

The ancillary spending profiles per student are then combined with the volume of students from Table B.4 above to yield the total volume of annual ancillary expenditures by student type. In aggregate, it is estimated that ancillary expenditures for Villanova students total nearly \$100 million per year, with the majority of those expenditures coming from off-campus students (see Table B.6).

TABLE B.6 – AGGREGATE ANCILLARY STUDENT SPENDING

Category	On-Campus	Commuter	Off-Campus	Total
Number of Students	4,598	1,466	4,919	10,983
Housing (per student)	\$0	\$0	\$7,000	
Aggregate (\$M)	\$0	\$0	\$34.4	\$34.4 million
Food & Beverage (per student)	\$612	\$0	\$5,508	
Aggregate (\$M)	\$2.8	\$0	\$27.1	\$29.9 million
Transportation (per student)	\$850	\$2,500	\$850	
Aggregate (\$M)	\$3.9	\$3.7	\$4.2	\$11.8 million
Other (Retail) (per student)	\$2,040	\$1,800	\$2,295	
Aggregate (\$M)	\$9.4	\$2.6	\$11.3	\$23.3 million
Total (per student)	\$3,502	\$4,300	\$15,653	\$9,051
Aggregate (\$)	\$16.1 million	\$6.3 million	\$77.0 million	\$99.4 million

Source: Econsult Solutions. Rows and columns may not sum due to rounding

STUDENT SPENDING BY GEOGRAPHY

Finally, aggregate spending is adjusted to account for transactions that do not take place within the local geographies of interest. Student spending may leak outside of the local geography in two ways. First, students may travel to a different geography and spend dollars there (such a food and beverage or entertainment purchases that may take place in New Jersey). Second, students may purchase items online (ranging from basic supplies to textbooks), in which case the transaction is also not likely to be captured locally.

Estimates are made for each category of the proportion of spending captured within each geography of interest (Radnor Township, Delaware County, Five-County Region and Pennsylvania). In the case of housing, food and beverage and transportation spending, estimates are based largely on the likelihood of students living or travelling out outside of the geography (which decreases with each successive expansion of the geographic radius). In the case of retail spending, local capture is assumed to be much lower (given the increasing prevalence of online purchases).

Combining the estimated aggregate expenditures by category with the local capture estimates yields the total ancillary student spending that is estimated to be captured within each geography (see Table B.7).

TABLE B.7 – AGGREGATE ANCILLARY STUDENT SPENDING BY GEOGRAPHY

Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Housing	\$34.4 million				
Local Capture (%)		33%	67%	90%	95%
Local Capture (\$M)		\$11.5	\$23.0	\$31.0	\$32.7
Food & Beverage	\$29.9 million				
Local Capture (%)		50%	67%	90%	95%
Local Capture (\$M)		\$15.0	\$19.9	\$26.9	\$28.4
Transportation	\$11.8 million				
Local Capture (%)		50%	67%	90%	95%
Local Capture (\$M)		\$5.9	\$7.8	\$10.6	\$11.2
Other (Retail)	\$23.3 million				
Local Capture (%)		20%	33%	45%	50%
Local Capture (\$M)		\$4.7	\$7.8	\$10.5	\$11.7
Total	\$99.4 million				
Local Capture (%)		37%	59%	79%	84%
Local Capture (\$)		\$37.0 million	\$58.5 million	\$79.0 million	\$83.9 million

Source: Econsult Solutions. Rows and columns may not sum due to rounding

EVENT VISITOR SPENDING

VISITOR VOLUME AND DISTRIBUTION

Information provided by Villanova on annual attendance in a variety of categories are combined with available proxy information to estimate the volume of event visitors and the distribution of those visitors by type. Attendance estimates were provided for prospective student visits, family events (including family weekend, orientation, and commencement),⁴⁶ alumni events, conferences, theater and arts productions and career-related events (including career fairs, information sessions and interviews).

Attendees at these events were then divided into local / students (whose spending is not new to the local economy), regional visitors on a day trip (not staying overnight) and overnight visitors. Where available, proxy indicators of geographic distance appropriate to each category were utilized. For example, data on the geographic distribution of students was used as a proxy for family visitation, while data on the geographic distribution of alumni were used for alumni events. Where data was not available, conservative estimates were made (which assume attendance to be largely local). Matching these distributions to attendance estimates yields an estimate of the annual volume of visitors by type (see Table B.8).

⁴⁶ Commencement attendance figures were not directly available, and were estimated by ESI based on a proportion of available capacity on the field and in the stands at Villanova Stadium.

TABLE B.8 – EVENT VISITATION BY VISITOR TYPE

Category	Total Attendees	Local / Student	Regional (Day Trip)	Overnight Trip	Distributional Basis
Prospective Students	50,000				
Share of Attendees (%)		30%	35%	35%	Admissions Data
Attendees (#)		15,000	17,500	17,500	
Family Events	30,000				
Share of Attendees (%)		20%	40%	40%	Student Distribution
Attendees (#)		6,000	12,000	12,000	
Alumni Events	7,000				
Share of Attendees (%)		40%	30%	30%	Alumni Distribution
Attendees (#)		2,800	2,100	2,100	
Conferences	17,000				
Share of Attendees (%)		50%	49%	1%	VU Conference Data
Attendees (#)		8,500	8,305	195	
Theater and Arts	9,000				
Share of Attendees (%)		80%	10%	10%	ESI Estimate
Attendees (#)		7,200	900	900	
Careers	1,500				
Share of Attendees (%)		80%	10%	10%	ESI Estimate
Attendees (#)		1,200	150	150	
Total	114,500				
Share of Attendees (%)		36%	36%	29%	Blended Average
Attendees (#)		40,700	40,955	32,845	

Source: Villanova University, Econsult Solutions. Rows and columns may not sum due to rounding

ANCILLARY SPENDING BY EVENT VISITOR TYPE

Next, profiles of per capita visitor spending are developed for different visitor types. Survey data on visitors to the region provided by Visit Philadelphia form the basis of spending estimates in food and lodging, transportation and retail categories for day visitors and overnight visitors.⁴⁷ This data is supplemented with information from Smith Travel Research on average hotel room rates by county, which are used to estimate lodging costs for overnight visitors.⁴⁸ Expenditures from students and local visitors are conservatively excluded from the analysis, since they do not represent net new expenditures in the region.⁴⁹

Combining the estimated expenditures by visitor type with the estimated volume of visitors in each category yields the total ancillary spending associated with these events on an annual basis (see Table B.9).

TABLE B.9 – ANCILLARY PER VISITOR SPENDING BY VISITOR TYPE

Category	Local / Student	Regional (Day Trip)	Overnight Trip	Total
Number of Visitors	40,700	40,955	32,845	114,500
Lodging (per visitor)	\$0	\$0	\$113	
Aggregate (\$)	--	--	\$3,712,000	\$3.7 million
Food & Beverage (per visitor)	\$0	\$23	\$48	
Aggregate (\$)	--	\$942,000	\$1,577,000	\$2.5 million
Transportation (per visitor)	\$0	\$9	\$16	
Aggregate (\$)	--	\$369,000	\$526,000	\$0.9 million
Other (Retail) (per visitor)	\$0	\$29	\$47	
Aggregate (\$)	--	\$1,188,000	\$1,544,000	\$2.7 million
Total (per visitor)	\$0	\$61	\$224	\$86
Aggregate (\$)	--	\$2.5 million	\$7.4 million	\$9.9 million

Source: Econsult Solutions, Longwoods International and Smith Travel Research via Visit Philadelphia.
Rows and columns may not sum due to rounding

⁴⁷ This information is drawn from Travel USA® syndicated survey data panel operated by Longwoods International, which surveys hundreds of thousands of travelers nationwide each year on their travel destinations, activities and expenditures.

⁴⁸ Hotel room rates in Delaware and Montgomery counties (where the majority of visitors are anticipated to stay) averaged \$113 per night in 2016. In some cases, multiple visitors may stay in a room, implying a lower per visitor spend, while in other cases visitors may stay multiple nights, implying a higher per visitor spend. These factors are assumed to be roughly equivalent in magnitude, making the expenditure per room per night an appropriate benchmark.

⁴⁹ Locals and students attending Villanova events are likely to have some volume of ancillary spending associated with the activity, if for example they stop for food near campus before or after the event. In most cases, this spending is likely shifted from some other expenditure that would have taken place within the geography (such as stopping for food in another location, eating at home, etc.). It is possible that this activity spurs some additional net spending, or shifts spending between geographies (such as from nearby Townships into Radnor Township) but these amounts are likely to be small and are excluded from this analysis.

EVENT VISITOR SPENDING BY GEOGRAPHY

Finally, as with student spending, aggregate spending is adjusted to account for transactions that do not take place within the local geographies of interest. Estimates are again made for each category of the proportion of spending captured within each geography of interest (Radnor Township, Delaware County, Five-County Region and Pennsylvania).

Leakage of lodging spending out of Radnor Township and Delaware County is estimated to be significant, since many nearby lodging properties are located in neighboring Montgomery County. In categories like food and beverage, transportation and retail, local capture rates are anticipated to be relatively higher than for student spending, since online purchases are not a material part of a visitor spending profile.

Combining the estimated aggregate expenditures by category with the local capture estimates yields the total ancillary spending associated with these events that is estimated to be captured within each geography (see Table B.10).

TABLE B.10 – AGGREGATE EVENT VISITOR SPENDING BY GEOGRAPHY

Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Lodging	\$3.7 million				
Local Capture (%)		25%	33%	90%	95%
Local Capture (\$M)		\$0.9	\$1.2	\$3.3	\$3.5
Food & Beverage	\$2.5 million				
Local Capture (%)		50%	67%	90%	95%
Local Capture (\$M)		\$1.3	\$1.7	\$2.3	\$2.4
Transportation	\$0.9 million				
Local Capture (%)		33%	50%	90%	95%
Local Capture (\$M)		\$0.3	\$0.4	\$0.8	\$0.8
Other (Retail)	\$2.7 million				
Local Capture (%)		50%	67%	90%	95%
Local Capture (\$M)		\$1.4	\$1.8	\$2.5	\$2.6
Total	\$9.9 million				
Local Capture (%)		39%	53%	90%	95%
Local Capture (\$)		\$3.9 million	\$5.2 million	\$8.9 million	\$9.4 million

Source: Econsult Solutions. Rows and columns may not sum due to rounding

ATHLETICS VISITOR SPENDING

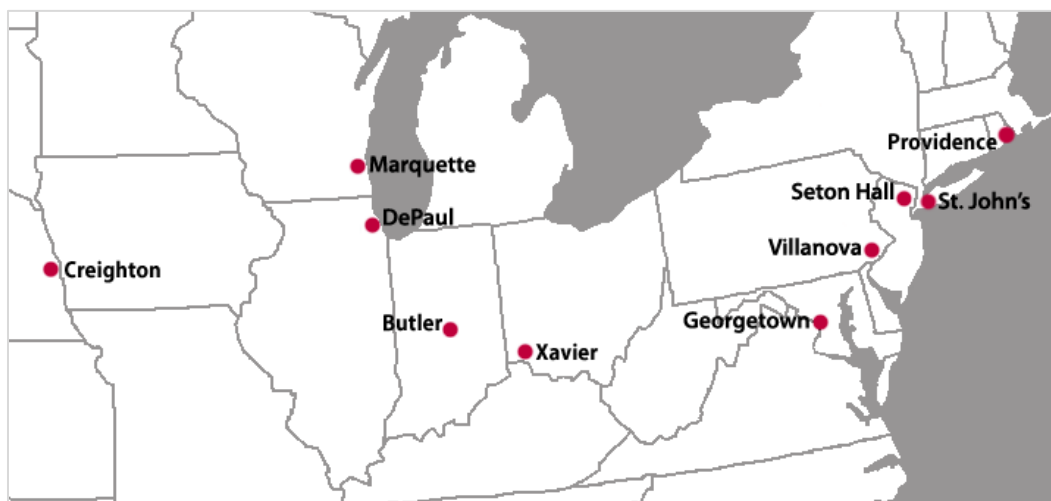
ATHLETICS VISITOR VOLUME

In addition to student, family and alumni events, Villanova's athletics program generates visitation and spending in the region. Spectators may come from out of the region to attend games, in particular for the men's basketball programs, which carries a national following and accounts for the majority of total athletic event attendance.

Data provided by Villanova indicates total attendance at athletic events for academic year 2016-2017 of approximately 215,000. The largest segment came from the Men's Basketball team, which had a total attendance of around 145,000, divided between games taking place on campus and taking place at the Wells Fargo Center in Philadelphia.⁵⁰ Villanova's football team, which plays around five on campus home games per year, has an aggregate attendance of around 30,000 annually. Villanova also has more than twenty other men's and women's teams, which together draw a collective attendance of around 40,000 annually. Attendees for basketball and football are conservatively estimated to be comprised of 80 percent students and locals, while attendees for other sports are estimated at 90 percent locals and students.

In addition to spectators, Villanova's membership in the reconstituted Big East Athletic Conference means that many of the visiting athletes travel long distances and require overnight stays. Figure B.1 below shows the location of the ten schools in the Big East Conference.⁵¹ Six of the nine visiting schools (all with the exception of Georgetown, Seton Hall and St. John's) come from outside of a regional drive radius.

FIGURE B.1 – LOCATION OF BIG EAST CONFERENCE INSTITUTIONS



Source: Wikipedia

⁵⁰ As noted in Section 3, Villanova's on campus basketball arena underwent a \$60 million renovation which began in June 2017. Accordingly, the Wells Fargo Center was used as the home arena for the 2017-18 season. This report utilizes attendance from the prior season, which represents a more typical split in light of the fact that Villanova will continue to play some games at the Wells Fargo Center when the renovation is complete.

⁵¹ Note that membership varies somewhat by sport. Villanova competes in the Big East for every sport except football and women's rowing, in which it competes in the Colonial Athletic Association (CAA).

The distance traveled by these visiting teams yields a meaningful ancillary spending footprint in the Philadelphia region. Since precise data is not available, overnight visits are conservatively estimated by assuming 12 annual games per sport with two-thirds of opponents originating outside of the mid-Atlantic region, and 30 visiting coaches and athletes per team.

In addition, Villanova hosts the Special Olympics Fall Festival annually on campus, an event that attracts an estimated 6,500 athletes, coaches and volunteers. To account for the fact that housing and meals for the event are provided on campus by Villanova and Special Olympics, limiting the ancillary spending footprint of the event, 25 percent of attendees are treated as day visitors and the remainder as locals.

Combining annual attendance estimates with the estimated distribution of visitor types yields an estimate of annual visitation by type (see Table B.11).

TABLE B.11 – ATHLETICS VISITATION BY VISITOR TYPE

Category	Total Attendees	Local / Student	Regional (Day Trip)	Overnight Trip	Overnight – Visiting Team
Men's Basketball – Philadelphia	72,500				
Share of Attendees (%)		80%	10%	10%	--
Attendees (#)		61,625	7,250	3,625	--
Men's Basketball – On Campus	72,500				
Share of Attendees (%)		80%	10%	10%	--
Attendees (#)		61,625	7,250	3,625	--
Football	30,000				
Share of Attendees (%)		80%	10%	10%	--
Attendees (#)		25,500	3,000	1,500	--
Other Sports	40,000				
Share of Attendees (%)		95%	2.5%	2.5%	--
Attendees (#)		38,000	1,000	1,000	--
Special Olympics	6,500				
Share of Attendees (%)		75%	25%	--	--
Attendees (#)		5,525	975	0	--
Visiting Teams – Overnight Trips	5,280				
Share of Attendees (%)		--	--	--	100%
Attendees (#)		--	--	--	5,280
Total	226,780				
Share of Attendees (%)		80%	9%	9%	2%
Attendees (#)		180,875	21,125	19,500	5,280

Source: Villanova University, Econsult Solutions.

Rows and columns may not sum due to rounding

ANCILLARY SPENDING BY ATHLETICS VISITOR TYPE

Spending profiles for athletics event visitors match those used for day and overnight visitors in the earlier event visitor analysis (drawn from tourism industry data). Local and students visitors are again conservatively assumed not to contribute any net new spending. Estimated expenditures for visiting teams are limited to the lodging and food categories, and lodging expenditures are set to one-half of the typical room rate to reflect the likelihood of athletes sharing rooms and staying for one night only.

Combining the estimated expenditures by visitor type with the estimated volume of visitors in each category yields the total ancillary spending associated with athletic events on an annual basis (see Table B.12)

TABLE B.12 –PER VISITOR ANCILLARY SPENDING BY ATHLETICS VISITOR TYPE

Category	Local / Student	Regional (Day Trip)	Overnight Trip	Overnight – Visiting Team	Total
Number of Visitors	180,875	21,125	19,500	5,280	226,780
Lodging (per visitor)	\$0	\$0	\$113	\$57	
Aggregate (\$)	--	--	\$2,204,000	\$298,000	\$2.5 million
Food & Beverage (per visitor)	\$0	\$23	\$48	\$48	
Aggregate (\$)	--	\$486,000	\$936,000	\$253,000	\$1.7 million
Transportation (per visitor)	\$0	\$9	\$16	\$0	
Aggregate (\$)	--	\$190,000	\$312,000	\$0	\$0.5 million
Other (Retail) (per visitor)	\$0	\$29	\$47	\$0	
Aggregate (\$)	--	\$613,000	\$917,000	\$0	\$1.5 million
Total (per visitor)	\$0	\$61	\$224	\$105	
Aggregate (\$)	--	\$1.3 million	\$4.4 million	\$0.6 million	\$6.2 million

Source: Econsult Solutions. Longwoods International and Smith Travel Research via Visit Philadelphia.

Rows and columns may not sum due to rounding

ATHLETICS VISITOR SPENDING BY GEOGRAPHY

Finally, aggregate spending by athletics visitors is adjusted to account for spending outside of the local geographies of interest. Local capture proportions for events taking place on and around the Villanova campus match the estimates for other event visitor types developed above. However, attendees at basketball games taking place in Philadelphia will have a somewhat different distribution of spending, and are conservatively assumed not to have any expenditures within Radnor Township.

Combining the estimated aggregate expenditures by category with the local capture estimates yields the total ancillary spending associated with athletic events that is estimated to be captured within each geography (see Table B.13).

TABLE B.13 – AGGREGATE EVENT VISITOR SPENDING BY GEOGRAPHY

Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Lodging	\$2.5 million				
Local Capture – Philadelphia		0%	10%	90%	95%
Local Capture – On Campus (%)		25%	33%	90%	95%
Local Capture (\$M)		\$0.4	\$0.6	\$2.3	\$2.4
Food & Beverage	\$1.7 million				
Local Capture – Philadelphia		0%	10%	90%	95%
Local Capture – On Campus (%)		50%	67%	90%	95%
Local Capture (\$M)		\$0.6	\$0.8	\$1.5	\$1.6
Transportation	\$0.5 million				
Local Capture – Philadelphia		0%	10%	90%	95%
Local Capture – On Campus (%)		33%	50%	90%	95%
Local Capture (\$M)		\$0.1	\$0.2	\$0.5	\$0.5
Other (Retail)	\$1.5 million				
Local Capture – Philadelphia		0%	10%	90%	95%
Local Capture – On Campus (%)		50%	67%	90%	95%
Local Capture (\$M)		\$0.5	\$0.7	\$1.4	\$1.5
Total	\$6.2 million				
Local Capture (%)		28%	41%	90%	95%
Local Capture (\$)		\$1.6 million	\$2.4 million	\$5.6 million	\$5.9 million

Source: Econsult Solutions.

Rows and columns may not sum due to rounding

AGGREGATE ANCILLARY SPENDING

Table B.14 below combines the ancillary spending estimates by category and geography for students, event visitors and athletics visitors. Total ancillary expenditures are estimated at \$110 million, for which \$94 million is estimated to be captured within Pennsylvania, \$89 million within the Five-County Region, \$64 million within Delaware County and \$41 million within Radnor Township.

TABLE B.14 – AGGREGATE ANCILLARY SPENDING BY GEOGRAPHY

Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Student Spending (\$M)					
Housing	\$34.4	\$11.5	\$23.0	\$31.0	\$32.7
Food & Beverage	\$29.9	\$15.0	\$19.9	\$26.9	\$28.4
Transportation	\$11.8	\$5.9	\$7.8	\$10.6	\$11.2
Other (Retail)	\$23.3	\$4.7	\$7.8	\$10.5	\$11.7
Student Spending Total	\$99.4 million	\$37.0 million	\$58.5 million	\$79.0 million	\$83.9 million
Event Visitor Spending (\$M)					
Lodging	\$3.7	\$0.9	\$1.2	\$3.3	\$3.5
Food & Beverage	\$2.5	\$1.3	\$1.7	\$2.3	\$2.4
Transportation	\$0.9	\$0.3	\$0.4	\$0.8	\$0.8
Other (Retail)	\$2.7	\$1.4	\$1.8	\$2.5	\$2.6
Event Visitor Spending Total	\$9.9 million	\$3.9 million	\$5.2 million	\$8.9 million	\$9.4 million
Athletics Visitor Spending (\$M)					
Lodging	\$2.5	\$0.4	\$0.6	\$2.3	\$2.4
Food & Beverage	\$1.7	\$0.6	\$0.8	\$1.5	\$1.6
Transportation	\$0.5	\$0.1	\$0.2	\$0.5	\$0.5
Other (Retail)	\$1.5	\$0.5	\$0.7	\$1.4	\$1.5
Athletics Visitor Spending Total	\$6.2 million	\$1.6 million	\$2.4 million	\$5.6 million	\$5.9 million
Ancillary Spending Total (\$M)					
Housing	\$34.4	\$11.5	\$23.0	\$31.0	\$32.7
Lodging	\$6.2	\$1.3	\$1.9	\$5.6	\$5.9
Food & Beverage	\$34.1	\$16.8	\$22.4	\$30.7	\$32.4
Transportation	\$13.2	\$6.3	\$8.5	\$11.8	\$12.5
Other (Retail)	\$27.6	\$6.5	\$10.3	\$14.3	\$15.7
Total Ancillary Spending	\$115.5 million	\$42.4 million	\$66.0 million	\$93.4 million	\$99.2 million

Source: Econsult Solutions.

Rows and columns may not sum due to rounding

Input-output modeling is then used to translate the direct ancillary expenditures in each category and geography into total economic impact, employment and tax revenue supported (as described in Appendix C). In the case of retail spending, an additional adjustment is made to reflect the fact that many retail goods are purchased directly from wholesalers outside of the geography. For those items, only the “margin” captured by the retailer (rather than the full sales price) represents additive economic activity. Therefore, the direct impact of ancillary spending in any given geography is somewhat smaller than the total direct expenditures shown above (see Table B.15).

TABLE B.15 – MODELED ANCILLARY SPENDING BY GEOGRAPHY

Ancillary Category	Total Ancillary	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Student Spending (\$M)	\$99.4	\$37.0	\$58.5	\$79.0	\$83.9
Event Visitor Spending (\$M)	\$9.9	\$3.9	\$5.2	\$8.9	\$9.4
Athletics Visitor Spending (\$M)	\$6.2	\$1.6	\$2.4	\$5.6	\$5.9
Ancillary Spending Total (\$M)	\$115.5	\$42.4	\$66.0	\$93.4	\$99.2
(Retail margin deduction) (\$M)		(\$15.9)	(\$25.0)	(\$33.7)	(\$35.9)
Modeled Ancillary Spending		\$26.5 million	\$41.0 million	\$59.8 million	\$63.3 million

Source: Econsult Solutions. Rows and columns may not sum due to rounding

B.4 WAGE PREMIUM

In addition to economic activity from institutional spending and the student and visitor spending they attract to a region, institutions of higher education have an enduring effect on the earning potential of their graduates through their core educational function. The link between educational attainment and earnings power is well-established, and a “wage premium” associated with additional education is often conceptualized and calculated from the perspective of the student, who can compare the costs associated with various educational (or non-educational) options with the expected return. This analysis utilizes this framework to estimate the gain not to the student, but rather to the local and state economy

The presence of these skilled graduates in the workforce has two quantifiable effects on earnings with a given geography:

- A university increases the educational attainment level of the local workforce, which can be translated into increased earnings based on the established relationship between educational attainment and wages.
- Universities may have a specific wage premium associated with the knowledge and credentials they impart, above and beyond earning power associated with a particular degree level. The selectivity of Villanova and the quality of the educational experience it offers manifests itself in an additional wage premium for its graduates above and beyond the average degree-holder.

Modeling of the direct wage premium within each geography is undertaken in a three-step approach:

1. First, we estimate the volume of Villanova alumni in the workforce within the geographies of interest (Radnor Township, Delaware County, Five-County Region, and Pennsylvania), and the degree level of those alumni.
2. Next, we estimate the annual wage premium attributable to Villanova for each of those attainment levels and geographies.
3. Finally, we combine these two calculations, multiplying the volume of alumni in the workforce by the annual wage premium in each geography and attainment level to yield an estimate of the aggregate annual wage premium attributable to Villanova.

Additional earnings by alumni in the local and state workforce attributable to the education and credentialing they received at Villanova are then translated into additional household spending (accounting for factors like savings and taxes). This household spending in turn supports further employment and earnings, the impacts of which are modeled through the standard input-output techniques described in Appendix C.

ALUMNI WITHIN THE WORKFORCE BY GEOGRAPHY

The link between educational location and location of employment is central to the notion of an institutionally driven wage premium in the local economy. While the proportion of college graduates retained within a local workforce varies (based on the particulars of the institution, its student body, and the geographies in question) post-graduation location decisions are impacted by educational experience, with a clear correlation between locations during and after schooling.⁵²

This means that the presence of a selective institution like Villanova has a significant impact on the composition, educational attainment and skill level of the local workforce. From an economic standpoint, Villanova graduates living and working within the region and state are either imported to those geographies (in the case of students originating from around the nation and the world) or retained within those geographies (in the case of the students originating within those geographies who are retained due to the presence of the university). This is borne out by admissions data (reviewed earlier in this report) indicating that the consideration set for students admitted to Villanova consists largely of institutions in other regions around the country.

Villanova's alumni database lists a known address for nearly 113,000 alumni within the United States. These addresses are sorted by geography, with more than 46,000 Villanova alumni living within Pennsylvania, and descending amounts at smaller geographic levels. The attainment level of these alumni are estimated based on data indicating that 55% of degrees granted by the institutions over the past five academic years (2013-2017) have been bachelor's degrees. This proportion is applied equally to the alumni within each geography.

Next, we estimate the proportion of alumni within each geography that are actively employed, and therefore generate a wage premium on an annual basis. National data from the Bureau of Labor Statistics indicates that the national employment to population ratio for degree holders ages 25 and older is 72 percent.⁵³ This ratio is

⁵² See, for example: Groen, J. A. (2004). "The Effect of College Location on Migration of College-Educated Labor." *Journal of Econometrics*, 121(1), 125-142.

⁵³ This proportion is itself comprised of a labor force participation rate of approximately 74% and an unemployment rate of approximately 2.5%. Thus, the vast majority of non-working alumni are anticipated to be out of the labor force, rather than actively seeking employment but unable to find it. Note that this national figure may be conservative due to the selective nature of Villanova and its graduates.

applied equally to alumni in each geography to estimate the proportion currently in the workforce (see Table B.16).

TABLE B.16 – ESTIMATED VILLANOVA ALUMNI WITHIN THE WORKFORCE BY GEOGRAPHY

Category	Total	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Domestic Alumni (known addresses)	112,915				
Share of Alumni (%)		1.3%	9.7%	34.6%	40.8%
Alumni (#)		1,483	10,988	39,109	46,032
Bachelor's Degrees (%)	55%				
Bachelor's Alumni (#)		814	6,032	21,470	25,270
Advanced Degrees (%)	45%				
Bachelor's Alumni (#)		669	4,956	17,639	20,762
Workforce Participation Rate	72%				
Bachelor's Alums in Workforce (#)		586	4,343	15,458	18,195
Advanced Alums in Workforce (#)		482	3,568	12,700	14,949

Source: Villanova University, Bureau of Labor Statistics, Econsult Solutions.

Rows and columns may not sum due to rounding

ALUMNI EARNINGS PREMIUM

The link between educational attainment and earnings is well-established, with Census Bureau data demonstrating a significant increase in median earnings for each increase in degree level. Increased earnings enjoyed as a result of schooling are a market-based representation of the additional productivity associated with those workers, and ultimately result in additional household spending within the local economy on other goods and services.

Returns to education are also impacted by the specific university that a student attends, due to variance in both institutional quality and fields of study offered.⁵⁴ Institutions of higher education vary widely in selectivity, curricular rigor and reputation. These qualitative factors are also reflected in the earnings potential of graduates above and beyond the level of degree they attain. Academic research has demonstrated a clear correlation between the selectivity of higher education institutions and the earnings of its graduates, which again reflects a market-based valuation of enhanced productivity.⁵⁵

⁵⁴ For a detailed overview of anticipated lifetime earnings by degree type, see Webber, D (2014). "The Lifetime Earnings Premia of Different Majors: Correcting for Selection Based on Cognitive, non-Cognitive, and Unobserved Factors." *Labour Economics*, Volume 28, June 2014, 14-23.

⁵⁵ See for example: Hoxby, C. (2015). "Computing the Value-Added of American Postsecondary Institutions." *Internal Revenue Service Statistics of Income Division Working Paper*, July 2015; and Monks, J. (2000). "The Returns of Individual and College Characteristics: Evidence from the National Longitudinal Survey of Youth." *Economics of Education Review*, 19, 279-289.

Longitudinal data from the federal Department of Education indicates that Villanova graduates earn a considerable premium above median earnings by education level. The latest “College Scorecard” released publicly by the Department of Education reports that earnings by institution based unique tracking of tax filings of students who applied for student loans ten years after they entered school. This comprehensive data source indicates that the median salary ten years after entering Villanova is currently \$74,500.

This figure is likely conservative relative to the true average earnings of Villanova alumni currently in the workforce for a number of reasons. First, it is calculated ten years after entering school and thus only a few years into the workforce for many graduates.⁵⁶ These graduates are likely to see their wages increase over time as they stay in the workforce. Second, it includes only students who seek federal financial aid for school (since this forms one of the characteristics necessary for data collection). In doing so, it omits students from higher income families, a characteristic which may be correlated with higher earnings. Finally, it includes earnings of all attendees ten years after entering school, regardless of whether they in fact graduated.

Despite these caveats, this figure can be compared to national earnings by degree type as reported in the American Community Survey to estimate the differential between earnings for Villanova alumni and the average degree holder. Since students may have completed advanced studies within ten years after undergraduate enrollment, the \$74,500 figure is most appropriately compared to a blended average of the median salaries for bachelors and advanced degree holders nationwide, which is around \$57,500. This differential indicates that a bachelor’s degree from Villanova is associated with a wage premium of 29.7% relative to the typical bachelor’s degree.

No similar data source has been identified to calculate the incremental earnings potential associated with advanced degrees from specific institutions. Earnings for advanced degree holders tend to vary significantly by field of study, which may represent a stronger determinant of earnings potential than institutional selectivity. Accordingly, the premium observed for Villanova undergraduates is conservatively scaled down by 50 percent to estimate the premium for Villanova advanced degree holders, which is therefore estimated at 14.8 percent.

The percentage premiums by degree type and geography are then applied to the median wage by educational attainment within the geographies of interest to yield estimated earnings for Villanova alumni by degree level within each geography (see Table B.17).⁵⁷ This approach accounts for the fact that average

⁵⁶ As discussed below, alternative data from Payscale.com indicates that PayScale.com estimates that the “median alumni mid-career salary” for the Villanova is \$101,200, considerably higher than the median salary reported in the College Scorecard. (see: Rothwell, J and Kulkarni, S. (2015). “Beyond College Rankings: A Value Added Approach to Assessing Two-and Four-Year Schools.” *Metropolitan Policy Program at Brookings*. This method analyzes salaries reported by graduates with at least ten years of experience who log on to PayScale.com and enter their salary information in exchange for a free “salary report” through the site. This approach yields a median mid-career earnings for graduates of four-year colleges of \$76,916, well above the median observed in more comprehensive government data, suggesting that the reported salaries may be non-representative of the full cohort of college graduates in the workforce. Nevertheless, it indicates a premium for Villanova graduates of 31.5%, in line with the premium detailed below and utilized in this analysis.

⁵⁷ To enhance the accuracy of the calculation in terms of its differentiation of different geographic levels, workers within the subsumed geographies are netted out of each successive calculation in estimating annual premiums and ultimately aggregate earnings. For example, the “Rest of Five-County” calculation relies on earnings and alumni location data for the four remaining counties (Bucks, Chester, Montgomery and Philadelphia) other than Delaware County that comprise the region. As shown in the Table B.x, median wages vary for each successive geography. Calculations undertaken by successive geography are then aggregated in the final table in this section to produce a total premium for each geography, inclusive of the smaller geographies within it.

earnings vary by geographic area, and adjusts estimated Villanova alumni earnings and the resulting wage premium accordingly (in dollar terms).

TABLE B.17 – ESTIMATED ALUMNI EARNINGS BY DEGREE AND LOCATION

Category	Total	Delaware County⁵⁸	Rest of Five-County Region	Rest of Pennsylvania
<i>Earnings Premium</i>				
Median Earnings – Villanova Grads (10 Yr)	\$74,500			
Median Earnings – National Bachelors +	\$57,466			
Villanova Earnings Premium – Bachelors	29.7%			
Est. Premium Discount – Advanced	(50%)			
Villanova Earnings Premium – Advanced	14.8%			
<i>Median Earnings</i>				
Associate's Degree		\$38,800	\$37,369	\$34,594
Bachelor's Degree		\$54,483	\$56,541	\$47,220
Bachelor's Degree - Villanova	+29.7%	\$70,658	\$73,327	\$61,239
Advanced Degree		\$75,400	\$76,502	\$60,560
Advanced Degree - Villanova	+14.8%	\$86,592	\$87,858	\$69,549

Source: American Community Survey Five-Year Estimates (2012-2016), College Scorecard Database (2017), Econsult Solutions

Importantly, the gains to the regional economy from the wage premium conferred by a selective institution like Villanova are not necessarily equivalent to the gains that individual students might experience. In general, it is difficult to disentangle the extent to which earnings gains are driven by an institution attracting talented students (who might achieve some or all of that premium at an alternative institution) from the “value-add” that the institution itself provides to alumni earnings relative to its peers.

Notably, studies that attempt to disentangle the earnings “value-add” from the perspective of the student rate Villanova as a national leader. In 2015, *The Economist* released a rigorous economic analysis to address this question for all of the schools in the federal College Scorecard database.⁵⁹ The study used multiple regression analysis of a variety of socio-economic characteristics of students and a series of characteristics of each of the 1,275 four-year non-vocational colleges in the database to estimate an “expected earnings” figure for the attendees of each school had they studied elsewhere. The difference between the expected earnings estimated and the observed earnings of graduates from each university is a representation of the “value-add” of each institution’s contribution to alumni earnings above and beyond the characteristics of its student body.⁶⁰ Villanova was ranked as the #3 four-year institution in the nation by this methodology, with a value-

⁵⁸ Note that earnings data for Delaware County are applied to both those alumni living in Radnor Township and those living elsewhere in the county, due to the diminishing reliability of earnings data at smaller geographic levels.

⁵⁹ The results of this analysis and a detailed description of its approach can be found at: (<http://www.economist.com/blogs/graphicdetail/2015/10/value-university>).

⁶⁰ Note that this value-add may be positive or negative for a given school, and by definition averages out to zero across the full database of schools.

add of \$13,243 based on median earnings of \$73,700 relative to expected earnings of \$60,457.⁶¹ A conceptually similar calculation from the Brookings Institution based on PayScale.com earnings data estimates that Villanova's "value-added" for the "mid-career earnings" of a typical graduate is nearly \$21,000, and ranks in the 89th percentile of all institutions in value-add in percentage terms.⁶²

From the perspective of the regional economy, both gains attributable to retaining and attracting talented students to the region and gains from the "value add" provided by the institution contribute to higher productivity and earnings for regional workers. Therefore, no precise allocation of "credit" between institutions and students is required to assess the household earnings impact. However, it is important for the analysis to recognize that alumni earnings are not purely additive to the regional economy, since alternative potential employees exist for any particular job within a given geography.

In keeping with the "gross impact" modeling approach utilized throughout this report, the analysis assumes that the overall level of employment within each geography of interest is fixed with or without the presence of Villanova.⁶³ The impact accruing to the economy is therefore not the full salary earned by Villanova alumni, but the incremental portion of that salary attributable to a) the level of their degree and b) the "value-add" for that degree level conferred by Villanova. This approach in effect assumes that the absence of Villanova would result in a substantial loss in the educational attainment level, and accordingly the productivity, of the regional workforce. In order to absorb this loss (while maintaining a fixed employment level) jobs held by Villanova alumni are assumed to "filter down" to workers with a lower educational level, with jobs held by alumni with bachelor's degrees absorbed by workers with associate's degrees, and jobs held by alumni with advanced degrees absorbed by workers with bachelor's degrees.⁶⁴

This framework is implemented by comparing estimated earnings for Villanova graduates by geography and degree level (as calculated in Table B.14) to average earnings by geography for workers of one lower degree level. Estimated earnings for Villanova bachelor's degree holders in each geography are therefore compared to associate's degree earnings in the same geographies to calculate a wage premium for a Villanova bachelor's degree, and estimated earnings for Villanova advanced degree holders within each geography are compared to average earnings for bachelor's degree holders to calculate a wage premium for a Villanova advanced degree (see Table B.18).

⁶¹ Note that while this study relies on the same College Scorecard dataset referenced above, it uses an earlier iteration, which accounts for the slight differential between the median ten-year alumni earnings of \$74,500 reported above and the \$73,700 used by *The Economist*.

⁶² Rothwell, J and Kulkarni, S. (2015). "Beyond College Rankings: A Value Added Approach to Assessing Two-and Four-Year Schools." *Metropolitan Policy Program at Brookings*. This method uses self-reported earnings information from PayScale.com for graduates with at least ten years of experience and uses student test scores and demographic characteristics to estimate predicted earnings for each schools. Villanova's "value-add" is calculated at 23.2% based on reported earnings of \$101,200 relative to predicted earnings of \$80,286. The 89th percentile ranking indicates that this percentage is larger than 89 percent of institutions included in this calculation.

⁶³ See Appendix A for more discussion of the distinction between "gross" and "net" modeling approaches, and the challenges in defining a counterfactual scenario for modeling economic impact. In this context, a net analysis would imply estimating an alternative growth path for the size and composition of the regional economy and workforce absent the presence of Villanova since the founding of the institution, an exercise well beyond the scope and precision possible in this study.

⁶⁴ Note that the "filtering" process many in practice involve a long sequence of steps. For example, a highly skilled position held by an alumnus with an advanced degree is first replaced with a slightly less skilled advanced degree holder, whose position is then replaced by a slightly less skilled advanced degree holder, until a worker with a bachelor's degree ultimately fills a position currently held by a worker with an advanced degree. This sequential process is mathematically equivalent to, and more easily conceptualized as, the replacement of one advanced degree worker with one bachelor's degree worker, and so on. This process is also made possible by the open enrollment practices of many community colleges or non-selective four-year institutions, which suggest that the supply of these workers is likely relatively unconstrained.

TABLE B.18 – ESTIMATED VILLANOVA WAGE PREMIUM BY GEOGRAPHY

Category	Degree Level	Delaware County	Rest of Five-County Region	Rest of Pennsylvania
<i>Villanova Bachelor's Degree</i>				
Without Villanova	Associates	\$38,800	\$37,369	\$34,594
With Villanova	Bachelor's	\$70,658	\$73,327	\$61,239
Wage Premium – Bachelor's		\$31,858	\$35,958	\$26,645
<i>Villanova Advanced Degree</i>				
Without Villanova	Bachelor's	\$54,483	\$56,541	\$47,220
With Villanova	Advanced	\$86,592	\$87,858	\$69,549
Wage Premium – Advanced		\$32,109	\$31,317	\$22,329

Source: Econsult Solutions

AGGREGATE EARNINGS FROM VILLANOVA WAGE PREMIUM BY GEOGRAPHY

The aggregate annual earnings impact from the alumni wage premium in each geography can be derived by combining the estimated volume of alumni in the workforce in each geography with the estimated per alumni premiums. Calculations are undertaken first for alumni in Radnor Township, and then are applied in sequence for each larger geography, net of alumni in the smaller geographies. These results are then summed to represent the total impact in the larger geography (see Table B.19).⁶⁵

⁶⁵ For example, the calculation for Delaware County precedes the calculation for the Five-County region (which includes Delaware County and four neighboring counties). To enhance the accuracy of the calculation, the calculation for the Five-County region is undertaken using only data (both on the volume of alumni and on earnings) from the remaining four counties only, yielding a result specific to those counties. This result is then summed with Delaware County estimates to yield a Five-County result. The same approach is then used to estimate the wage premium for the remainder of Pennsylvania, which is summed with the Five-County result to yield the statewide estimate.

TABLE B.19 – ESTIMATED VILLANOVA WAGE PREMIUM BY GEOGRAPHY

Category	Radnor Township	Delaware County	Five-County Region	Pennsylvania
Alumni in the Workforce				
Bachelor's Alums in Workforce (#)	586	4,343	15,458	18,195
Advanced Alums in Workforce (#)	482	3,568	12,700	14,949
Alumni in the Workforce (net smaller geographies) ⁶⁶				
Bachelor's Alums in Workforce (#)	586	3,757	11,115	2,736
Advanced Alums in Workforce (#)	482	3,087	9,132	2,248
Wage Premium per Working Alum				
Bachelor's Degree	\$31,858	\$31,858	\$35,958	\$26,645
Advanced Degree	\$32,109	\$32,109	\$31,317	\$22,329
Total Premium (net smaller geographies)				
Bachelor's Degree (\$M)	\$18.7	\$119.7	\$399.7	\$72.9
Advanced Degree (\$M)	\$15.4	\$99.1	\$286.0	\$50.2
Combined	\$34.1 million	\$218.8 million	\$685.7 million	\$123.1 million
Total Premium (with smaller geographies)				
Bachelor's Degree (\$M)	\$18.7	\$138.4	\$538.0	\$610.9
Advanced Degree (\$M)	\$15.4	\$114.6	\$400.6	\$450.8
	\$34.1 million	\$252.9 million	\$938.6 million	\$1.061 billion

Source: Villanova University, Bureau of Labor Statistics, Econsult Solutions.

Rows and columns may not sum due to rounding

Importantly, while the alumni who achieve these additional earnings are spread across graduating classes from several decades, the earnings premium is a “snapshot in time” that captures incremental earnings for a given year. This premium will be repeated in subsequent years (modified for an additional class of graduates, alumni dropping out of the workforce, changes in earning power, etc.). This annualized impact can therefore be aggregated with the other impact categories captured in this report.

The increase in household earnings is translated into household spending in order to model its impact on the economy within each geography. As described in Section 5, this process deducts a portion of earnings that do not result in additional spending (such as taxes, savings, etc.) and then estimates the total impacts of the remaining incremental household spending on economic output, employment, and wages.

⁶⁶ As described above, data at this step of the calculation is drawn only from the portion of the geography that is not included in the smaller geographies in the analysis (for example, the remaining four counties in the Five-County region excluded Delaware County). The results are then re-aggregated to the larger geographic level (for example, by summing Delaware County results with results for the other four counties).

APPENDIX C – ECONOMIC AND FISCAL IMPACT MODELS

Economic impact estimates are generated by estimating the initial amount of direct activity occurring within each geography of interest (as detailed in Appendix B), and then using input-output models to translate this direct economic activity into the total amount of economic activity that it supports. Expenditures within a given geography give rise to “spillover” impacts when those dollars are recirculated to suppliers and to employees within the local and state economy. In so doing, they also support additional employment and earnings, and generate tax revenue for local governments and for the Commonwealth of Pennsylvania.

ESI has constructed an input-output model of the regional and state economy using IMPLAN software to estimate the total impact of these expenditures. The detail that follows explains briefly the theory behind input-output modeling, the mechanics of utilizing it to estimate economic and employment impacts, and then fiscal model utilized to estimate tax revenue impacts to local and state government from Villanova’s economic activity.

C.1 INPUT-OUTPUT MODELING

OVERVIEW

Economic impact estimates for annualized capital and operating activity are generated by utilizing input-output models to translate an initial amount of direct economic activity into the total amount of economic activity that it supports, which includes multiple waves of spillover impacts generated by spending on goods and services and by spending of labor income by employees. In an inter-connected economy, every dollar spent generates two spillover impacts:

- First, some amount of the proportion of that expenditure that goes to the purchase of goods and services gets circulated back into an economy when those goods and services are purchased from local vendors. This represents what is called the “indirect effect,” and reflects the fact that local purchases of goods and services support local vendors, who in turn require additional purchasing with their own set of vendors.
- Second, some amount of the proportion of that expenditure that goes to labor income gets circulated back into an economy when those employees spend some of their earnings on various goods and services. This represents what is called the “induced effect,” and reflects the fact that some of those goods and services will be purchased from local vendors, further stimulating a local economy.

The role of input-output models is to determine the linkages across industries in order to model out the magnitude and composition of the spillover impacts to all industries of a dollar spent in any one industry. Thus, Villanova’s total economic impact is the sum of its own direct economic footprint, plus the indirect and induced effects generated by that direct footprint.

Indirect and induced impacts grow at each successive level of geography, due both to more purchasing and recirculation activity happening within the larger geography and to a greater capture of downstream activity.⁶⁷ For example, Villanova procurement that takes place elsewhere in the region outside of Delaware County increases its five-county impact relative to its Delaware County impact. Further, purchasing taking place in Delaware County has spillover impacts to the other four counties in the region, meaning that regional spillover impacts are also higher.

INPUT-OUTPUT MECHANICS

To model the impacts resulting from the direct expenditures ESI developed a customized economic impact model using the IMPLAN input/output modeling system. IMPLAN represents an industry standard approach to assess the economic and job creation impacts of economic development projects, the creation of new businesses, and public policy changes within a county on its surrounding area

IMPLAN has developed a social accounting matrix (SAM) that accounts for the flow of commodities through economics. From this matrix, IMPLAN also determines the regional purchase coefficient (RPC), the proportion of local supply that satisfies local demand. These values not only establish the types of goods and services supported by an industry or institution, but also the level in which they are acquired locally. This assessment determines the multiplier basis for the local and regional models created in the IMPLAN modeling system. IMPLAN takes the multipliers and divides them into 536 industry categories in accordance to the North American Industrial Classification System (NAICS) codes.

The IMPLAN modeling system also allows for customization of its inputs which alters multiplier outputs. Information from Villanova on the location of its purchasing, and the residential location of its employees and alumni are used to refine IMPLAN's calculation of purchasing patterns where appropriate to generate more customized estimates of indirect and induced impact. Importantly, procurement and employee locations are perfectly analogous to the indirect (supply chain) and induced impacts (labor income) effects within an area, both because initial expenditures trigger multiple waves of recirculation with various suppliers and because employees that live in one jurisdiction may still spend their earnings in part in another jurisdictions, particularly if it is where they work. To incorporate Villanova-specific information while retaining the impact of broader geographic spending patterns, local purchasing and employment information for Radnor Township is averaged with patterns assumed by IMPLAN from industrywide data to yield the local activity assumption used to model indirect and induced impacts. As described below, additional adjustments are made to estimate impacts for Radnor Township.

C.2 RADNOR TOWNSHIP ESTIMATES

Direct, indirect and induced impacts are modeled for Delaware County, the five-county region, and for the Commonwealth of Pennsylvania using IMPLAN modeling software, which does not directly calculate spillover impacts for jurisdictions below the county level (such as Radnor Township). Therefore, impacts for Radnor are estimated as a share of the impacts occurring in Delaware County.

⁶⁷ Note that the economy of smaller geographies (for example, Delaware County) are fully subsumed within the economies of larger geographies (for example, the five-county region), meaning that Villanova's economic impact is by definition equal or greater at the larger geographic level.

The “share down” framework utilizes a known proportions from institutional data where available, such as the proportion of Villanova employees, alumni and purchasing taking place in Radnor Township relative to the total in Delaware County. These shares are mixed with proxy measures of relative economic activity, most notably the proportion of primary jobs in Delaware County that are located in Radnor, which is understood as a broad measure of Radnor’s relative economic contribution to the Township. Separate proxies are developed for indirect and induced activity within each impact category, many of which reflect a blended average of two measures (see Table C.1). Each proportion is expressed as Radnor Township’s share of Delaware County’s impact

TABLE C.1: PROPORTION OF DELAWARE COUNTY ECONOMIC ACTIVITY ESTIMATED TO OCCUR IN RADNOR TOWNSHIP

Category	Radnor Share of Delaware County	Sharedown Basis
Operations		
Direct	17.5%	Share of payroll and direct procurement activity in Radnor as a share of the county
Indirect	11.3%	Primary jobs in Radnor as share of county
Induced	4.3%	Radnor residents as a share of workers in the county
Capital Investments		
Direct	28.4%	Proportion of Delaware County purchasing activity from Radnor vendors
Indirect	11.3%	Primary jobs in Radnor as share of county
Induced	4.3%	Radnor residents as a share of workers in the county
Ancillary Spending		
Direct	64.6%	Estimated Local Spend Capture (see Append B.3)
Indirect	11.3%	Primary jobs in Radnor as share of county
Induced	4.3%	Radnor residents as a share of workers in the county
Wage Premium		
Direct	--	N/A
Indirect	--	N/A
Induced	12.4%	Average of Villanova alumni in Radnor as share of county & Primary jobs in Radnor as share of county

The shares of activity by category c then applied to each Delaware County five-county impact (including output, employment and earnings) in each category (see Table C.2). This step generates Radnor Township results for each impact category, which can then be aggregated to total results as shown in Section 7.3.

TABLE C.2: RADNOR TOWNSHIP ANNUAL ECONOMIC IMPACT BY CATEGORY (IN \$MILLIONS)

Category	Delaware County	Radnor Share of Delaware County	Radnor Twp Activity
Operations			
Direct	\$124	17.5%	\$22
Indirect	\$14	11.3%	\$2
Induced	\$94	4.4%	\$4
Total	\$232 million		\$28 million
Capital Investments			
Direct	\$19	28.4%	\$5
Indirect	\$6	11.3%	\$0.7
Induced	\$6	4.4%	\$0.3
Total	\$31 million		\$6 million
Ancillary Spending			
Direct	\$39	64.6%	\$26
Indirect	\$10	11.3%	\$1.1
Induced	\$10	4.3%	\$0.5
Total	\$59 million		\$28 million
Wage Premium			
Direct	N/A	--	--
Indirect	N/A	--	--
Induced	\$195	12.4%	\$25
Total	\$195 million		\$25 million

Note: Rows and Columns may not sum due to rounding

C.3 TAX REVENUE IMPACTS

The direct, indirect and induced economic output from Villanova's activity produce increases in various tax bases, which in turn lead to increased tax revenue collections for local governments and for the Commonwealth. While IMPLAN produces estimates of these tax revenue amounts, ESI's does not utilize these results directly. Instead, we utilize a custom fiscal model that relies on the known relationships between various types of economic activity and tax collections (i.e. effective tax rates) to translate the increases in activity estimates by IMPLAN into attendant tax revenue results for the Commonwealth of Pennsylvania.

For a non-profit entity such as Villanova, care must also be given to ensure that taxable and non-taxable activity types are properly distinguished. Most notably, Villanova's direct activity is not subject to any sales, income or property tax. However, income generated by Villanova's employment footprint is subject to local wage tax and Pennsylvania income tax. In addition, the indirect and induced impact of Villanova's activity as it ripples throughout the economy occurs broadly within the private sector of the economy, and is therefore understood to be tax generating. In addition, the additional earnings of alumni attributable to the wage premium provide a significant boost to the state's income tax base.

Tax calculations for Radnor are based on a careful analysis of the Township's tax code to determine the local implications of economic activity attributable to the institution. The Business Privilege and Mercantile taxes of 3 mils on gross receipts were identified as applicable to direct and indirect activity attributable to Villanova, since the tax is borne by the merchant rather the purchaser. The millage rate is therefore applied to the estimate of total economic activity within Radnor Township in each of the three primary impact categories to yield the total estimated revenue.

Further, the Local Services Tax of \$52 per employee within the Township does not have an exemption for non-profit institutions and is therefore applied to Villanova's roughly 2,700 employees. This calculation conservatively excludes the additional employees within Radnor supported by activity in other impact categories or by indirect and induced activity associated with Villanova.

It is important to note that while local economies within the five-county region are wholly contained within the Pennsylvania economy, local and state governments are separate and distinct entities with distinct tax bases and revenues. Therefore, fiscal impacts do not overlap – each represents distinct tax revenues generated to the respective governments.

In addition, it is acknowledged that Villanova's activity also generates taxable activity within and therefore tax revenues to additional jurisdictions besides Radnor Township and Commonwealth of Pennsylvania, including within suburban jurisdictions throughout the Philadelphia region and within the City of Philadelphia. These amounts are much smaller than the ones calculated here, and are excluded from this analysis.