THE ECONOMIC IMPACT OF THE MUSC HOLLINGS CANCER CENTER 2025

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Hollings Cancer Center
An NCI-Designated Cancer Center

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UNIVERSITY OF South Carolina
Darla Moore School of Business

Prepared For:

MUSC Hollings Cancer Center

Prepared by:

Joseph C. Von Nessen, Ph.D.
Research Economist
Darla Moore School of Business
University of South Carolina

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EXECUTIVE SUMMARY

The Hollings Cancer Center (HCC) was first established by MUSC in 1993, and over the past 30 years has become one of the preeminent cancer centers in the United States and the only NCI-designated cancer center in South Carolina. With a twin focus on patient care and cutting-edge research & development, the Hollings Center is both improving the lives of South Carolinians today and developing new technologies and treatments to increase the future effectiveness of cancer prevention efforts and cancer treatments.

The purpose of this study is to provide a comprehensive assessment of the economic impact of the Hollings Cancer Center on the state of South Carolina. The impact of the HCC arises not only from its large workforce and ongoing operations, but also through the economic activity that emerges from the extensive supply chain network that it supports throughout the Charleston region (as well as statewide) that generates sizable economic ripple effects across many industries. These ripple effects include additional indirect job creation, which supports higher incomes for residents and a substantial increase in overall economic activity.

With South Carolina experiencing both a growing and aging population base, the demand for health care – and especially for oncology-related services, will continue to rise. As such, the Hollings Cancer Center will play an increasingly critical role in the economic and physical health of South Carolina in the coming years.

The key findings of this study are as follows:

- The current economic impact of the Hollings Cancer Center (HCC) on South Carolina totals approximately **$860 million annually**. This figure reflects the dollar value of all final goods and services produced in the state that can be attributed, directly or indirectly, to the HCC. This level of economic activity also supports more than **4,000 jobs** each year for South Carolinians.
- This $860 million impact includes both the ongoing operations of the HCC R&D facilities as well as a statewide community cancer network that the HCC supports alongside its many strategic partners to provide localized patient care. Each year, the Hollings Cancer Network helps to facilitate approximately **250,000 cancer-related patient treatments across South Carolina** through the MUSC Regional Health Network (RHN). This includes RHN facilities in Charleston, Florence (Pee Dee), Lancaster (Catawba), and the Midlands.
- The net annual contribution that the Hollings Cancer Center makes to the South Carolina gross state product is approximately $391.6 million. This implies that the HCC generates economic activity, directly and indirectly, which brings in about **$17.5 million in tax revenue annually** for the state of South Carolina.
- Because of its relatively high emphasis on cutting-edge R&D designed to improve cancer prevention efforts and cancer treatments, the **HCC R&D facilities maintain an employment multiplier effect of 2.8, which is uniquely high within South Carolina's health care industry**. For every 10 jobs that are created directly at the HCC R&D facilities, another 18 jobs are created elsewhere in South Carolina. This is significantly higher than the average employment multiplier effect for hospitals (2.0) and for the state's health care industry as a whole (1.6). Moreover, this implies that **future expansions of these facilities have the ability to disproportionately scale up employment levels** relative to other health care facilities in South Carolina and thus improve long-run rates of economic growth.
- Such a multiplier effect also reveals the HCC's potential to establish South Carolina as a major health care innovation hub in the domain of cancer research. As the only NCI-designated cancer center in South Carolina, the **HCC has the ability to attract and retain high-skilled talent** that can not only expand the state's workforce over time, but can also generate high-wage jobs for South Carolinians. For example, **the average job tied directly to the HCC R&D facilities maintains a 63 percent wage premium over the average job in South Carolina**.
- **The demand for cancer research and cancer treatment is rapidly increasing in South Carolina**, which will further increase the need for the types of services available at the Hollings Cancer Center over time. Not only is **South Carolina part of the long-run national demographic shift towards an older population base**, but it has also consistently ranked as having **one of the top five population growth rates in the U.S.** in recent years. Furthermore, the Southeastern U.S. is projected to have the highest population growth rate over the next thirty years. South Carolinians aged 65 and above will likely represent about 23 percent of the state's population base by the year 2030, up from just 14 percent as recently as 2010.

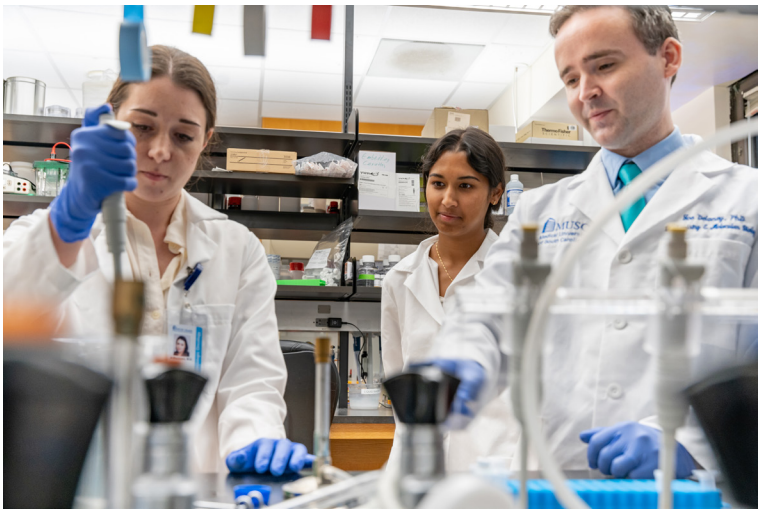
Section I
INTRODUCTION

The Hollings Cancer Center was first established by MUSC in 1993, and over the past 30 years has become one of the preeminent cancer centers in the United States. With a twin focus on patient care and cutting-edge research & development, the Hollings Center is both improving the lives of South Carolinians today and developing new technologies and treatments to increase the future effectiveness of cancer prevention efforts and cancer treatments. This strategy has led the Hollings Center to become one of just 71 National Cancer Institute (NCI)-designated cancer centers in the United States, which collectively represent the top 4 percent of cancer centers nationally. Moreover, it is the only NCI-designated cancer center in South Carolina.

As a leading cancer center, the economic impact of the Hollings Center results not only from its large workforce, but also through the economic activity that emerges from the extensive supply chain network that it supports throughout the Charleston region (as well as statewide) that generates sizable economic ripple effects across many industries. These ripple effects include additional indirect job creation, which supports higher incomes for residents and a substantial increase in overall economic activity.

In addition, the Hollings Center provides significant contributions to South Carolina's knowledge economy – that is – the set of industrial sectors engaged in innovation and the commercialization of new ideas. For example, highly specialized medical professionals working at the Hollings Center often combine the creative skills necessary for research and innovation with the practical applications of patient care. The intellectual talent required for jobs in these fields is highly sought after across the world. Regions with high concentrations of professionals working in the knowledge economy generate enormous human capital resources and knowledge spillover effects. More generally, regions in the U.S. with a large knowledge economy have typically grown at the fastest rates throughout the early 21st century.

Yet the impact of the Hollings Center also goes beyond just economics. The HCC's statewide footprint is largely unique in that it offers both economic and social benefits in ways that most other organizations do not. The Hollings Center not only supports a sizable amount of economic activity as a major health care institution that invests heavily in South Carolina, but it also provides a critical need of the community – namely medical care. Thus, the Hollings Center is one of the few organizations that enhances the quality of life for its community on multiple levels – by enhancing the health of both the local economy and the health of local residents.



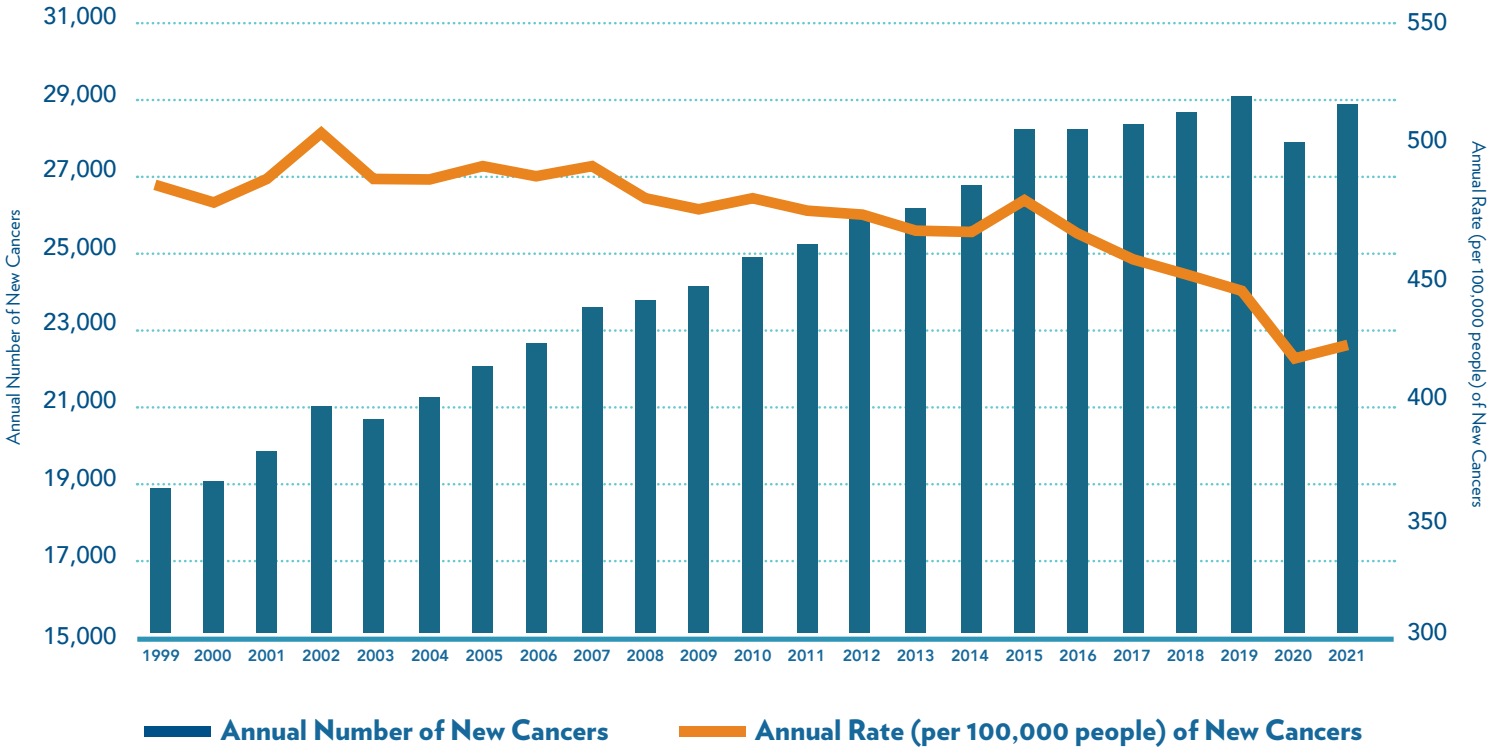
The purpose of this study is to conduct a comprehensive assessment documenting each of these impacts of the MUSC Hollings Cancer Center on the state of South Carolina.

Section II
THE GROWING DEMAND FOR CANCER RESEARCH AND TREATMENT

One of the primary long-run national trends that is affecting almost every major segment of U.S. society is the aging of the population and the accompanying retirement of the baby-boomer generation. This trend is especially pronounced in South Carolina, which has long maintained an older population base relative to the national average. An aging population, in turn, will significantly increase the demand for health care and oncology services in the coming years for at least two major reasons. First, there will be an increase in the total incidence of cancer because older adults are at the highest risk of developing cancer. Second, older populations generate a higher demand for preventative care, the quality and availability of which has increased dramatically throughout the 21st century. This is a primary factor behind the decreased incidence of age-specific cancers since the year 1999. As **Figure 1** illustrates, the annual ***rate*** of new cancers in South Carolina has decreased by more than 13 percent between 1999 and 2021, even as the annual ***number*** of new cancer cases has increased by roughly 53 percent over the same time period.

Figure 1 – Per Capita Rate and Number of New Cancers in South Carolina: 1999-2021

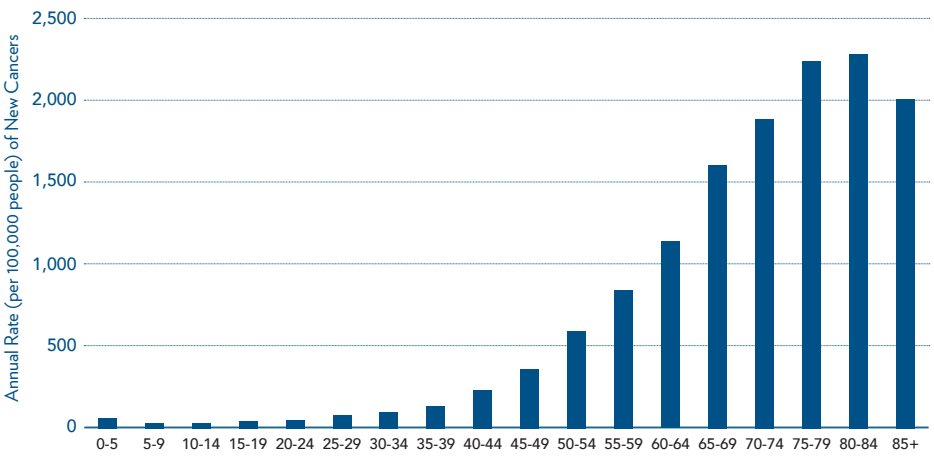
Source: U.S. Centers for Disease Control and Prevention



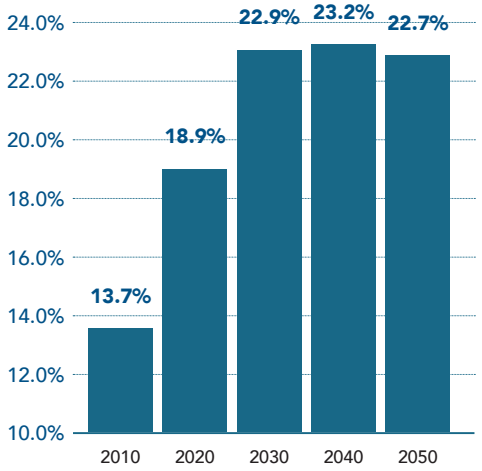
The number of South Carolinians aged 65 and above is projected to increase by nearly 45 percent by the year 2050 – or by about 430,000 people. To put this into perspective, consider that the number of South Carolinians between ages 25 and 54 is projected to increase by just 17 percent over the same time period – or by about 310,000 people. In addition, South Carolinians aged 65 and above will represent about 23 percent of South Carolina's total population base by the year 2030, up from just 14 percent as recently as 2010. **Figure 2** summarizes these changes in the age distribution of South Carolina's population base and also highlights the degree to which cancer incidence rises with age.

Figure 2 – Cancer Incidence and Population Projections

U.S. Rate of New Cancers by Age Group
Source: U.S. Centers for Disease Control and Prevention



Estimated Pct. of S.C. Population 65 and Above: 2010-2050
Source: U.S. Census Bureau; Weldon Cooper Center for Public Service



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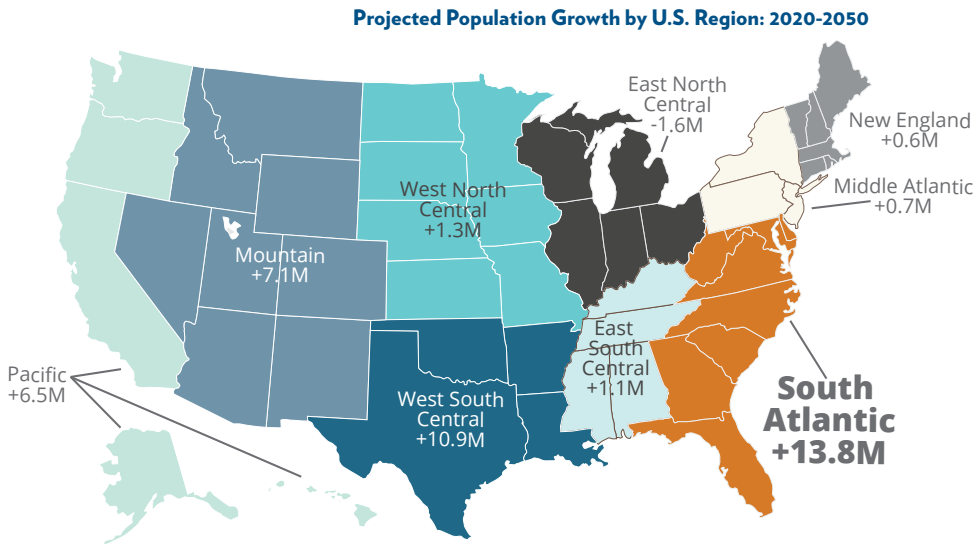
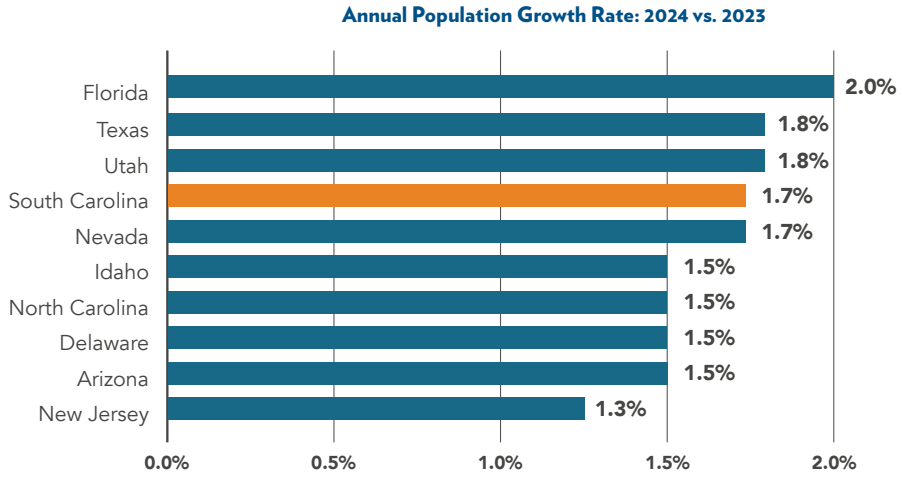
In addition to an aging population, South Carolina's population base is also expanding. Following the onset of the COVID-19 pandemic in February 2020, there has been a major shift in national migration patterns in which more people are relocating to the Southeastern United States. More specifically, the Southeastern United States is projected to experience more population gains than any other U.S. region through the year 2050, with these gains especially concentrated in the South Atlantic Region. Moreover, South Carolina's rate of population growth has accelerated faster than most other states following the onset of the pandemic in February 2020, with South Carolina having had the 4th fastest population growth rate in the nation in 2024. These trends are summarized in **Figure 3**. As with an older population base, a larger population base also leads to a rise in the demand for health care and oncology services.

Figure 3 – Population Growth Trends in the United States

Source: U.S. Census Bureau



The Southeastern United States is projected to experience more population gains than any other U.S. region through the year 2050.



In 2024, South Carolina experienced the 4th highest population growth rate in the nation.

Section III
ECONOMIC IMPACT METHODOLOGY

As one of the preeminent cancer centers in the United States, the Hollings Cancer Center maintains a dual focus on patient care and cutting-edge research & development. The HCC employs a large workforce and supports an extensive supply chain network throughout the state of South Carolina in order to facilitate its ongoing operations. The purchases made by the HCC through various expenditures with local businesses and through wages and salaries paid to employees introduce new spending activity that would not exist otherwise. As a result, the presence of the HCC provides a stable base of activity that also helps contribute to long-run economic growth.

Yet these activities do not provide a complete picture of the impact of the HCC to the local economy. The expenditures that occur as part of the ongoing operations of the HCC represent direct economic activity within the regions in which they are made. However, these expenditures also lead to additional job creation and economic activity throughout the local area by way of the economic multiplier effect (or economic ripple effect).

Economic multiplier effects can be divided into direct, indirect, and induced impacts. The direct effect represents the initial change in economic activity. This includes, for example, the initial dollars that are directly injected into the economy of Charleston from operational expenses on the part of the HCC. This would include any employee wages and benefits, medical devices or equipment, office supplies, or other overhead and administrative costs. This spending increases demand for goods and services and leads to the creation of new jobs and more income for employees and suppliers of the HCC.

The indirect effect reflects all of the additional economic impacts resulting from inter-industry linkages between other local businesses. For example, consider a medical equipment purchase that is made by the HCC for an on-campus lab. In this situation, the medical equipment provider would, as a result of the HCC's purchase, experience an increase in demand. This would require this medical equipment provider to purchase additional raw materials to accommodate the new increase in demand and to potentially hire additional employees if the increase in demand were high enough. The vendors of the medical equipment providers would then experience an increase in demand and have to purchase additional inputs as well, and so on. These indirect effects ripple through the economies of both Charleston and South Carolina.

The induced effect reflects additional economic activity that results from increases in the spending of household income. For example, when the aforementioned medical equipment provider hires new workers to satisfy an increase in demand, these workers will earn incomes. They will then spend part of this new income locally on, for example, food, entertainment, or housing. These industries will then see an increase in demand for their goods and services, which will lead to higher incomes for some of their employees, part of which will also be spent locally.

These successive rounds of indirect and induced spending do not go on forever, which is why a specific value can be calculated for each of them. In each round, money is "leaked out" for a variety of reasons. For example, firms may purchase some of their supplies from vendors located outside of South Carolina. In addition, employees may save part of their income or spend part of it with firms located elsewhere. In order to determine the total economic impact that will result from an initial direct impact, economic multipliers are used. An economic multiplier can be used to determine the total impact (direct, indirect, and induced) that results from an initial change in economic activity (the direct impact). Multipliers are different in each sector of the economy and are largely determined by the size of the local supplier network as well as the particular region being examined. In addition, economic multipliers are available to calculate not just the total impact, but also the total employment and income levels associated with the total impact.

To estimate the economic impacts in this study, a detailed structural model (known as an input-output model) of the South Carolina economy was used, which contains specific information on economic linkages between different industries at the county-level. The input-output modeling software IMPLAN was utilized in combination with other customized regional forecasting models that were developed. This allows for the inclusion of additional local data, industry knowledge, and ongoing economic growth trends.

Section IV
THE ECONOMIC IMPACT OF THE MUSC HOLLINGS CANCER CENTER

THE ECONOMIC IMPACT OF THE HOLLINGS CANCER CENTER (HCC) ON SOUTH CAROLINA

Although the Hollings Cancer Center facilities are primarily located within Charleston County, the economic impact of the HCC nevertheless extends across the Palmetto State. In addition to the ongoing operations of the HCC itself, the Hollings Cancer Center has also created a statewide community cancer network with strategic partners to provide localized patient care. Each year, the Hollings Cancer Network helps to facilitate approximately 250,000 cancer-related patient treatments across South Carolina through the MUSC Regional Health Network (RHN). This includes RHN facilities in Charleston, Florence (Pee Dee), Lancaster (Catawba), and the Midlands.

As of the 2023 fiscal year (FY23), the HCC generates more than $105 million in annual revenue associated with oncology-related R&D. This level of economic activity not only employs a workforce of 177 FTEs, but also supports a large volume of non-labor expenditures including capital equipment purchases, professional services, laboratory upgrades/remodeling, temporary employees, and other general operating expenses.[1] In addition, each RHN facility also employs a sizable workforce and engages in similar types of non-labor expenditures in service of its ongoing cancer-related operations and cancer-related patient care, which generates an additional $400 million in annual revenue. This high volume of economic activity stimulates further demand statewide through the use of various suppliers across South Carolina, although the bulk of all spending activity associated with the HCC and the RHN facilities takes place within the counties in which these facilities are located.

The structural input-output models estimate economic impacts in terms of three specific measures: economic output, employment, and labor income. Economic output is defined as the dollar value of the final goods and services purchased that can be attributed (directly or indirectly) to all ongoing operations associated with the HCC. It can also be thought of as an aggregate measure of total spending resulting from an initial direct expenditure. Because it includes all spending by consumers and businesses on both goods and services, it is an all-inclusive measure of the impact on total economic activity. Employment measures the impact on total job creation. Labor income represents total employee compensation, including wages, salaries, and benefits.

As previously described, all direct economic impacts associated with the HCC R&D facilities in Charleston and the RHN facilities across South Carolina engaged in cancer-related treatments lead to indirect and induced impacts through increases in demand for goods and services in other related industries and through increases in household spending activity – all of which are estimated using economic multipliers. Each impact is reported in **Table 1**, along with the accompanying totals. These totals represent the overall impact of the Hollings Cancer Center on the state of South Carolina.

[1] FTE refers to the number of "full-time equivalent" employees.

Table 1 – Total Economic Impact of the Hollings Cancer Center			
	Employment	Labor Income	Economic Output
Direct Impact	1,737	$139,367,520	$504,906,473
Indirect Impact	1,415	$72,686,733	$212,655,353
Induced Impact	869	$41,074,221	$142,479,134
Total Impact	**4,021**	**$253,128,474**	**$860,040,960**

All R&D initiatives at the HCC along with all cancer-related treatments at the RHN facilities throughout South Carolina collectively generate approximately $504.9 million in direct annual economic output, which supports an estimated direct employment base of 1,737. This level of direct economic activity leads to indirect effects totaling approximately $212.7 million in economic output and 1,415 jobs. These estimates reflect the increased demand for goods and services of local suppliers resulting from in-state expenditures on the part of the HCC and the RHN facilities. The direct economic activity also leads to induced effects totaling another $142.5 million in economic output and 869 jobs. This is a reflection of economic activity in South Carolina generated across all industries that is the result of increased household spending.

The combination of the direct, indirect, and induced effects leads to a total economic impact of approximately $860.0 million, which is associated with 4,021 jobs across South Carolina. These economic impact totals can also be broken down by specific facility, as shown in **Table 2**. Note that all estimates associated with RHN facilities represent the specific subset of economic activity generated at these facilities that derive specifically from business operations tied to cancer-related treatments.

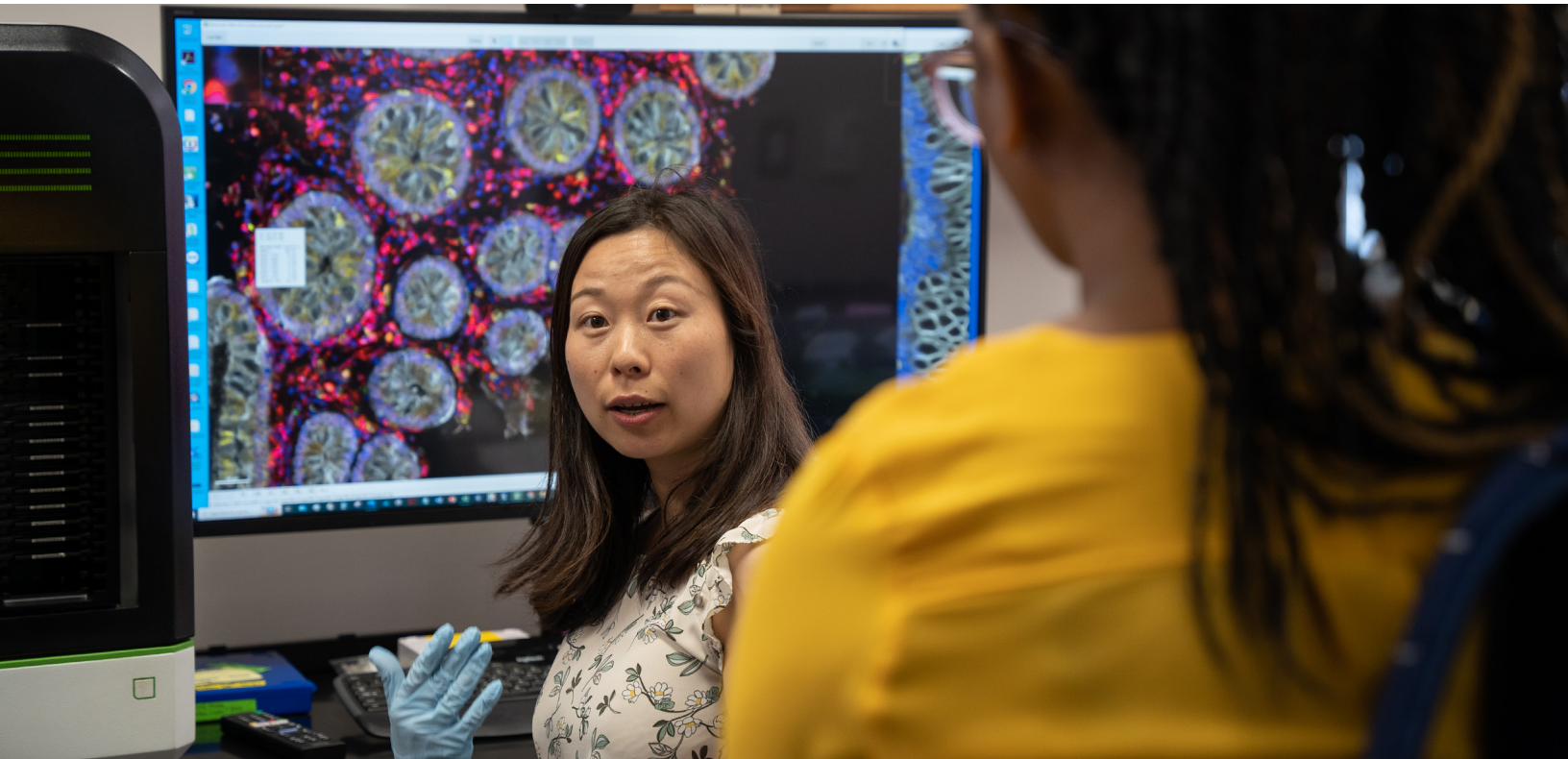


Table 2 – Economic Impact of the Hollings Cancer Center by Facility			
	Employment	Labor Income	Economic Output
Hollings Cancer Center R&D Facilities	655	$44,920,717	$175,631,680
Hollings Cancer Network – RHN Charleston	2,955	$182,696,481	$602,565,180
Hollings Cancer Network – RHN Florence	284	$16,816,963	$58,307,526
Hollings Cancer Network – RHN Lancaster	39	$2,625,656	$7,370,152
Hollings Cancer Network – RHN Midlands	88	$6,068,657	$16,166,422
Total Impact	**4,021**	**$253,128,474**	**$860,040,960**

ECONOMIC CONTRIBUTIONS TO STATE TAX REVENUE

Another major impact of the Hollings Cancer Center comes from the increase in state tax revenue that results from the economic activity it supports. As summarized in **Tables 1 and 2**, the total economic impact of the HCC on the state of South Carolina approximates $860.0 million annually.

Historically, every additional dollar that is generated in economic activity (i.e., nominal gross state product) within South Carolina also generates 4.4 cents in new state tax revenue.[2] By applying this figure to the economic activity generated by the HCC, the tax revenue from this total volume of activity can be estimated.[3] **Table 3** displays these results, which show that the annual total estimated tax revenue that arises from the HCC is approximately $17.5 million.

Table 3 – Annual State Tax Revenue Derived from the MUSC Hollings Cancer Center	
Category	Dollar Value
Estimated Economic Output for South Carolina	$860,040,960
Estimated Tax Revenue Generated for South Carolina	$17,516,037

[2] The historical relationship between South Carolina nominal gross state product and the South Carolina general funds revenue (as measured and tracked by the South Carolina Board of Economic Advisors) was estimated using industry-standard time-series regression techniques.

[3] Economic output represents the value of industry production and is therefore not synonymous with gross state product. As such, the dollar value of all intermediate inputs was subtracted from economic output before the 4.4-cent estimate was applied to estimate total tax revenue.

CONTRIBUTIONS TO THE KNOWLEDGE ECONOMY: JOB QUALITY AND JOB QUANTITY

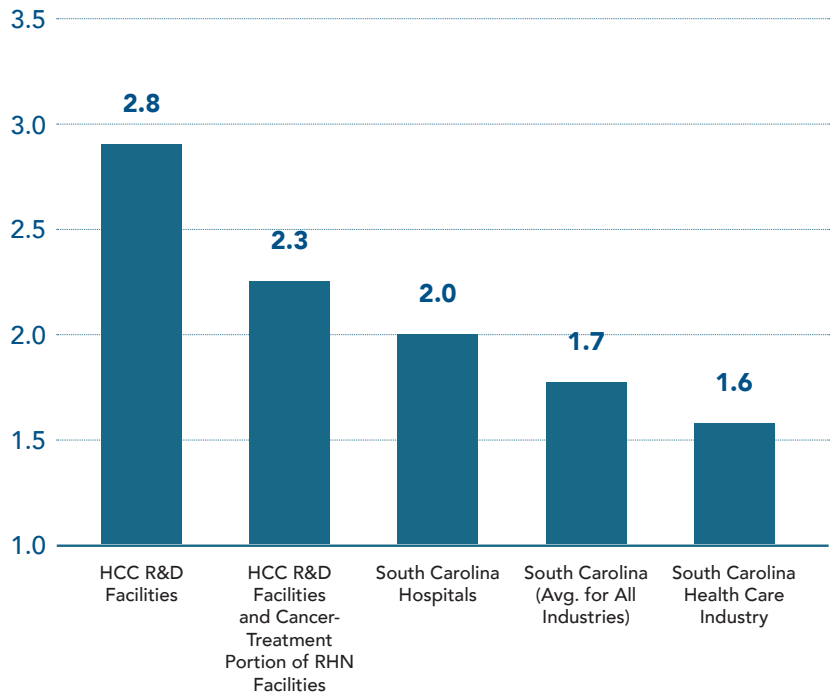
Perhaps the most important contribution that the Hollings Cancer Center makes to the state of South Carolina is its impact on the state's ***knowledge economy***. The knowledge economy does not represent any single industry, but rather the broader set of industry sectors that are engaged in innovation and the commercialization of new ideas. Regions with high concentrations of professionals working in the knowledge economy generate significant human capital resources and knowledge spillover effects. More generally, regions in the U.S. with a large knowledge economy have typically grown at the fastest rates throughout the early 21st century. The impact that the knowledge economy has in any local region is most easily observed through job creation – including the total volume of job creation (quantity) and the relatively high wages associated with these positions (quality) due to the high skillsets required.

The Hollings Cancer Center represents an integral part of South Carolina's knowledge economy. The specialized medical professionals working at the HCC combine the creative skills necessary for research and innovation with the practical applications of patient care. As such, the presence of the HCC generates both short-run and long-run economic benefits for South Carolina. The Hollings Cancer Center currently supports (directly and indirectly) thousands of high-wage, high-skilled jobs and is also helping to establish South Carolina as a major health care innovation hub in the domain of cancer research. As the only NCI-designated cancer center in South Carolina, the HCC has the ability to continuously attract and retain high-skilled talent that has the potential to not only expand the state's workforce over time, but also to continue to generate additional high-wage jobs for South Carolinians.

Because of its relatively strong emphasis on cutting-edge R&D designed to improve cancer prevention efforts and cancer treatments, the Hollings Cancer Center R&D facilities in Charleston maintain an employment multiplier effect of 2.8, which is uniquely high within South Carolina's health care industry. For every 10 jobs that are created directly at the HCC R&D facilities, another 18 jobs are created elsewhere in South Carolina. This is significantly higher than the average employment multiplier effect for hospitals (2.0) and for the state's health care industry as a whole (1.6). Moreover, this implies that future expansions of the HCC R&D facilities have the ability to disproportionately scale up employment levels and thus improve long-run rates of economic growth. This is also why the employment multiplier associated with the HCC's total economic impact (as displayed in **Table 1**) is relatively high (2.3). **Figure 4** summarizes these multiplier effects.

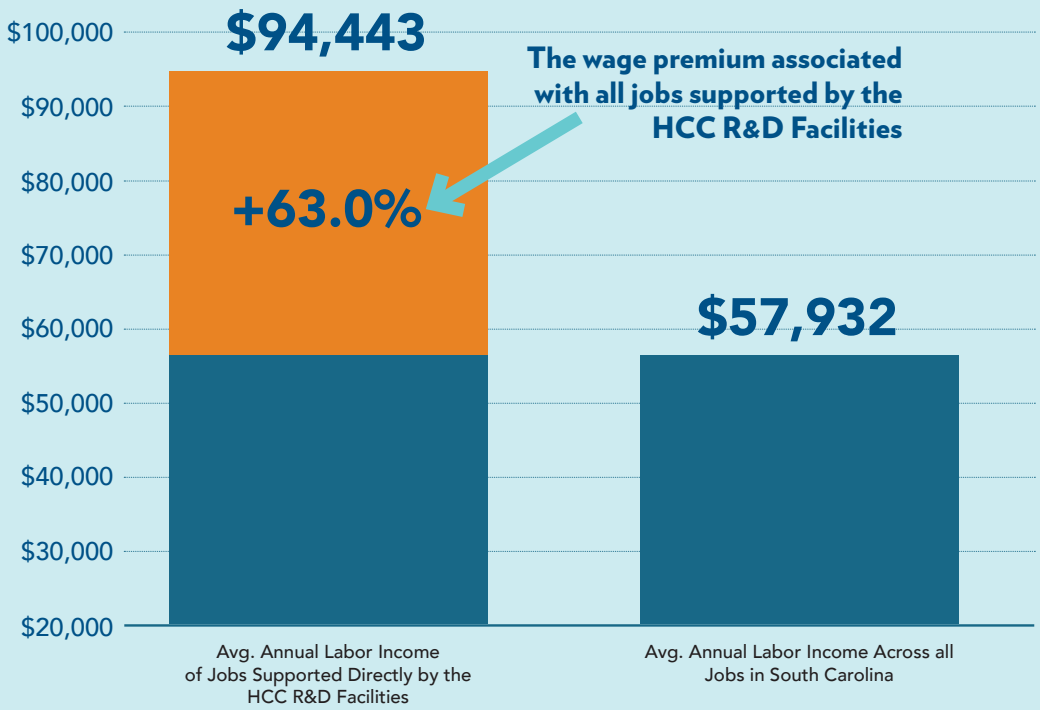
Because of its relatively strong emphasis on cutting-edge R&D designed to improve cancer prevention efforts and cancer treatments, the Hollings Cancer Center R&D facilities in Charleston maintain an employment multiplier effect of 2.8, which is uniquely high within South Carolina's health care industry.

Figure 4 – Selected South Carolina Employment Multipliers



The contribution that the Hollings Cancer Center makes to high employment ***quality*** can be most easily observed by examining the wage levels among all jobs supported (both directly and indirectly) by the HCC R&D facilities throughout South Carolina. As previously noted, the employment base associated with the HCC encompasses highly-skilled, highly-educated medical professionals that are focused on cutting-edge R&D along with patient care. As such, the average annual wage of these employees greatly exceeds that of South Carolina as a whole – by approximately 63 percent. Put another way, ***the Hollings Cancer Center R&D facilities create jobs that pay workers about 63 percent more than that of the average job in South Carolina***. Figure 5 illustrates these wage comparisons.

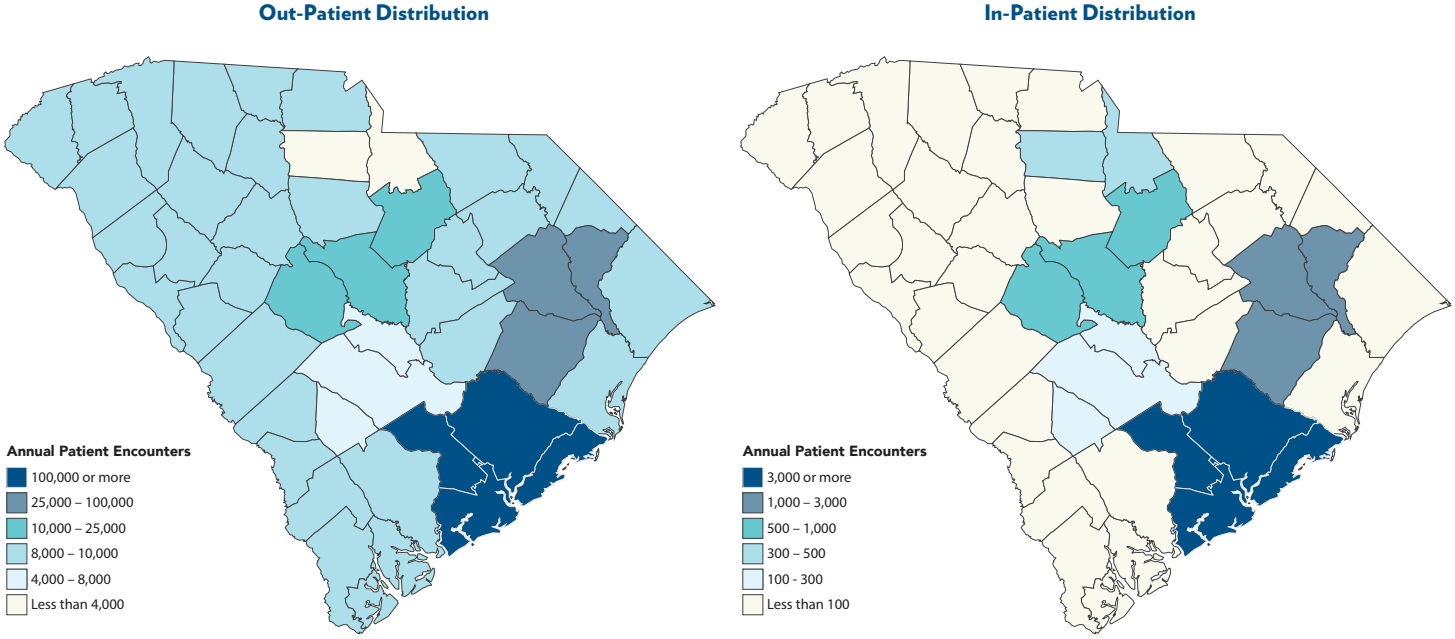
Figure 5 – Annual Labor Income Comparisons: Hollings Cancer Center R&D Facilities and South Carolina



STATEWIDE PATIENT CARE

The Hollings Cancer Center facilitates more than 250,000 cancer-related patient encounters each year – either directly or through MUSC's statewide RHN facilities. The vast majority of these (97 percent) are seen in outpatient settings. And while more than two-thirds (70%) of all patients are seen in the Charleston service region, the MUSC RHN Network serves residents across South Carolina. **Figure 6** highlights the number of unique patients served for cancer-related care in each of MUSC's regional networks.

Figure 6: Unique Patients Served for Cancer-Related Care



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Section V
CONCLUSION

Since its establishment in 1993, MUSC's Hollings Cancer Center has become one of the preeminent cancer centers in the United States and the only NCI-designated cancer center in South Carolina. Focusing on both patient care and cutting-edge research, the HCC generates an annual economic impact of more than $860 million annually on the state of South Carolina, which supports approximately 4,000 jobs statewide. This level of economic activity is the result of the ongoing operations of the HCC R&D facilities in Charleston as well as the statewide community cancer network that the HCC supports alongside its many strategic partners. More specifically, the Hollings Cancer Network facilitates approximately 250,000 cancer-related patient treatments each year through the MUSC Regional Health Network (RHN). This includes RHN facilities in Charleston, Florence (Pee Dee), Lancaster (Catawba), and the Midlands.

In addition, such a strong focus on cutting-edge R&D designed to improve cancer prevention efforts and cancer treatments has helped the HCC R&D facilities to generate an employment multiplier effect of 2.8, which is uniquely high within South Carolina's health care industry. For every 10 jobs that are created directly at the HCC R&D facilities, another 18 jobs are created elsewhere in South Carolina. This multiplier effect is significantly higher than the average multiplier effect for the state's health care industry (1.6) and implies that future expansions of the HCC have the ability to disproportionately scale up employment levels relative to other health care facilities and thus improve long-run rates of economic growth. This focus on R&D also means that the HCC has the ability to attract and retain high-skilled talent, which can be observed by the fact that the average job tied directly to the HCC R&D facilities maintains a 63 percent wage premium over the average job in South Carolina.

Over the next several decades, the population in South Carolina is expected to both increase and age significantly. For example, by 2030, South Carolinians aged 65 and above will likely represent approximately 23 percent of the state's population base, up from just 14 percent in 2010. These trends suggest that the importance of the Hollings Cancer Center to South Carolina will steadily grow over time – as the need for cancer prevention and treatment continues to rise. As such, the Hollings Cancer Center will provide an increasingly critical role in the coming years – generating not only a sizable statewide economic footprint and supporting long-run economic growth in South Carolina, but also simultaneously providing the necessary resources to meet the rapidly growing oncology-related health care needs of the state.

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