

# Rutgers

## Return on Investment



## The Economic Benefits to the Citizens of New Jersey

## University Mission

As the sole comprehensive public research university in the state's system of higher education, Rutgers, The State University of New Jersey, has the threefold mission of:

- providing for the instructional needs of New Jersey's citizens through its undergraduate, graduate, and continuing education programs;
- conducting the cutting-edge research that contributes to the medical, environmental, social, and cultural well-being of the state, as well as aiding the economy and the state's businesses and industries; and
- performing public service in support of the needs of the citizens of the state and its local, county, and state governments.

Each component of the university's mission reinforces and supports the other two. For example, research creates the new knowledge so necessary to support quality instruction and innovative public service. The mission of the university is accomplished through its three regional campuses (Camden, Newark, and New Brunswick/Piscataway) and the New Jersey Agricultural Experiment Station, which complement and support each other, fostering the most effective use of state resources.

In pursuit of its mission, Rutgers seeks to be both academically excellent and fully accessible and representative of the state's diverse citizenry.

## Rutgers at a Glance

- Is the eighth-oldest college in the nation
- Named New Jersey's land-grant college in 1864
- Designated The State University of New Jersey by legislative acts in 1945 and 1956
- Is the only public university in New Jersey that is a member of the Association of American Universities, a group comprising the 62 leading research universities in North America
- Made up of 29 degree-granting schools and colleges, 16 of which offer graduate programs of study
- Enrolls 51,500 students, 13,000 of whom are graduate and professional school students
- Employs 2,600 faculty, 99 percent of whom hold the terminal degree in their field
- Employs 6,500 administrators and staff
- Has a top-ranked library system
- Has 330,000 living alumni, nearly 200,000 of whom live in New Jersey
- Offers more than 100 distinct bachelor's, 100 master's, and 80 doctoral and professional degree programs
- Conferred more than 100,000 bachelor's, master's, professional, and doctoral degrees from 1994 to 2003

RUTGERS :

# Return on Investment

## *The Economic Benefits to the Citizens of New Jersey*

### Contents

<b>An Engine for Economic Growth</b>	<b>3</b>
State Support: The Core of Rutgers' Earning Power	4
Record-Breaking Private Giving	5
Rutgers Stimulates the Economy	5
Making Capital Investments	6
A Major New Jersey Employer	7
A Key Source of Tax Revenue	8
Contributing to the State Credit Base	8
<b>A Producer and Supplier</b>	<b>9</b>
Providing a Sophisticated Workforce	10
A Research and Development Powerhouse	12
A Source of Intellectual Property	14
When the Public and Private Sectors Intersect	16
Rutgers and New Jersey's Business and Industry Sectors: What's New?	18
Small Business, Consulting Services, and Start-ups	20
A Culture of Service	22
Rutgers' Presence in the 21 Counties of New Jersey	24

**You know Rutgers** as the institution dedicated to teaching, scholarship, and preparing young people to become productive members of society and good citizens of the world.

**You know Rutgers** as the land-grant institution and leading public research university that creates new knowledge, adds depth to our understanding of the human condition, and generates new ideas for improving people's lives.

## **But do you know Rutgers as an engine for economic growth?**

### **Rutgers is:**

- *home to New Jersey's most extensive and diversified research laboratories*
- *the educator of a well-prepared, sophisticated workforce, with more than 10,000 new graduates each year*
- *the creator of advanced technology and inventions that fuel economic growth and development locally, nationally, and globally*
- *one of New Jersey's largest employers*
- *a major purchaser of goods and services*
- *a significant contributor to New Jersey's tax and credit bases*
- *a key capital investor in three of New Jersey's most important cities*
- *a low-cost statewide service provider of data; reports; business consulting; and human service, educational, and legal outreach*
- *the source of \$2.8 billion in direct and indirect spending that is channeled into the New Jersey economy each year—more than five times the state's annual investment in Rutgers*

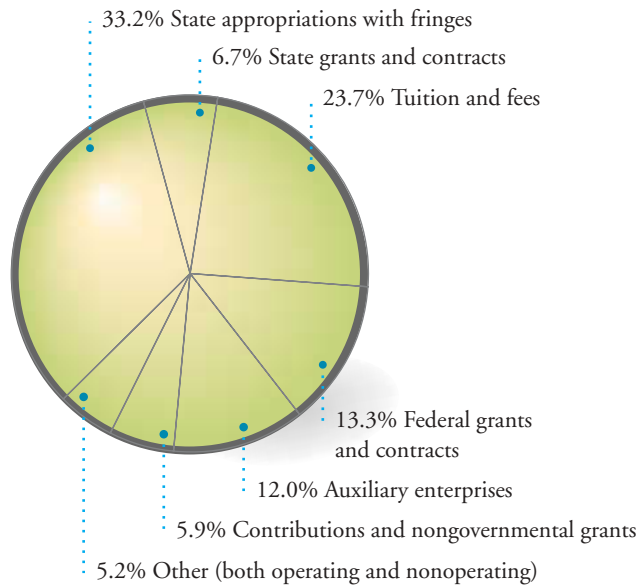
R U T G E R S :

## *an engine for economic* growth

Since 1766, Rutgers, The State University of New Jersey, has been dedicated to teaching, scholarship, and preparing young people to become productive members of society and good citizens of the world. Through the centuries, however, the university's responsibilities have necessarily broadened and evolved. As New Jersey's land-grant institution and as one of the nation's leading public research universities, Rutgers also creates new knowledge and generates new ideas for improving people's lives. Increasingly, it also serves as an engine for economic growth—especially in New Jersey. In this report, you will learn how the Rutgers community contributes to the economic vitality of the state. New Jersey invests in Rutgers and trusts us as a strong partner in working together to benefit the citizens of our state.

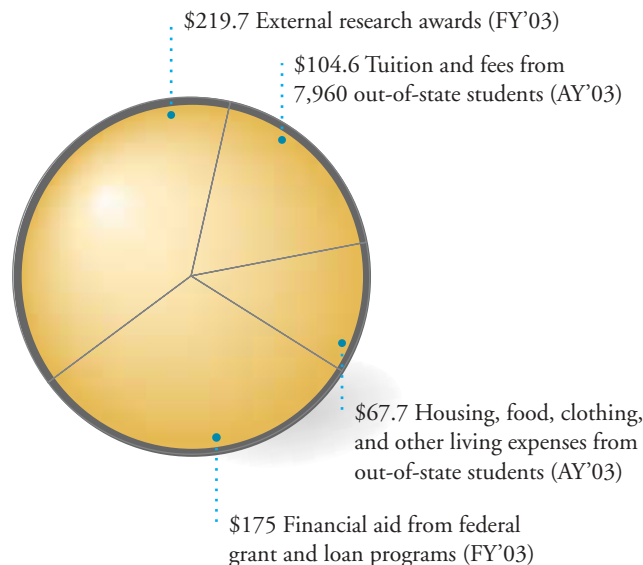
## Rutgers Revenue Sources Fiscal Year 2003

(Total Revenues: \$1.314 Billion)



## Rutgers Draws Revenue into the State from outside New Jersey

(in \$ Millions)



## State Support: The Core of Rutgers' Earning Power

Rutgers is a state supported institution of higher education. State appropriations are the fiscal base upon which Rutgers' operations are built, and provide the university with the capacity to generate, compete for, and leverage other revenue sources. In fiscal 2003, state appropriations including fringe benefits comprised 33.2 percent (\$436.1 million) of Rutgers' revenue from all sources. An additional 6.7 percent is provided in the form of state grants, contracts, and financial aid, bringing the state's total investment in Rutgers to \$524.4 million.<sup>1</sup> The balance of Rutgers' total revenue in fiscal 2003 came from a variety of sources, including tuition and fees; federal grants, contracts, and financial aid; auxiliary enterprises; contributions and nongovernmental grants and contracts; and other sources.

## Attracting Revenue from Out-of-State

Rutgers attracts economic activity from outside the state in several important ways. This includes research support, spending by out-of-state students, and federal student assistance. In 2003, Rutgers received \$219.7 million in external research awards, which is derived from federal, foundation, and corporate sources.

In academic year 2003, 3,793 out-of-state undergraduates and 4,167 out-of-state graduate/professional students were enrolled at the university. These nonresidents spent a total of \$104.6 million on tuition and fees, and an additional \$67.7 million on housing, food, clothing, and other living expenses.

Rutgers students also bring money into New Jersey by means of federal student assistance. In fiscal year 2003, Rutgers students received \$175 million in financial aid from federal grant and loan programs.

## Record-Breaking Private Giving

In a climate of tenuous state support, Rutgers puts great effort into cultivating private sources of income. Since its founding three decades ago, Rutgers' fund-raising arm, the Rutgers University Foundation, has attracted more than \$1 billion in private giving. An important part of that effort has been *The Rutgers Campaign: Creating the Future Today*. Despite the economic downturn in recent years, this \$500 million, six-year fund-raising campaign surpassed its goal one year ahead of schedule. The campaign total stood at \$572 million in March 2004, with three months remaining until its conclusion. More than 81,000 individuals and 6,100 organizations have contributed to the campaign.

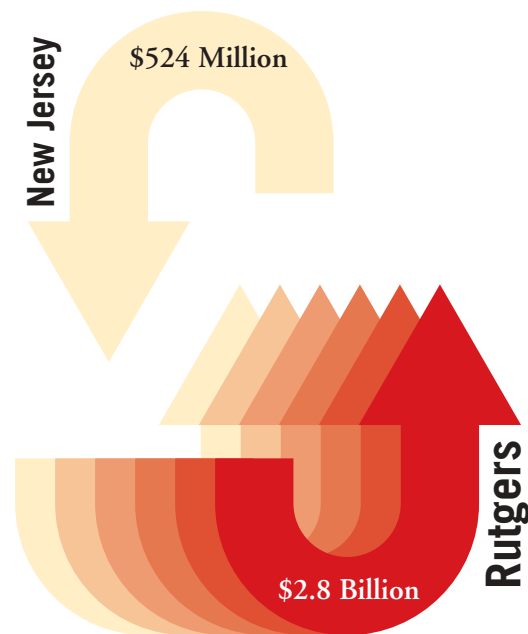
## Rutgers Stimulates the Economy

Rutgers directly channeled more than \$1.4 billion into the New Jersey economy in fiscal 2003, further stimulating economic activity within the state. Economic impact studies produced by other research universities conservatively estimate that for every dollar spent by a university another dollar's worth of economic activity is generated in their state's economy.<sup>2</sup> The combined effect of university direct and indirect spending is therefore \$2.8 billion—more than five times the amount of the state's \$524 million investment in the university.

Spending activities are divided into two distinct categories: university expenditures and university-related expenditures.

- University expenditures include employee compensation and direct university purchases, including capital improvements. These expenditures contributed more than \$1 billion to the state economy in 2003.
- University-related expenditures include student spending and visitor spending. In 2003, university students spent \$393.7 million for housing, food, transportation, clothing, and other living expenses. Also in 2003, nearly one-half million people visited Rutgers' campuses, contributing conservatively \$10 million to the local and state economies.<sup>3</sup> In total, university-related expenditures contributed \$403.7 million to the state economy in 2003.

Through direct and indirect spending, Rutgers channels more than \$2.8 billion into the state economy each year, more than five times the state's investment in the university.



## Making Capital Investments

Rutgers makes major capital investments in its campuses and surrounding communities. In fiscal 2003, the total budget for approved multiyear capital improvement projects exceeded \$276 million. These construction projects generate income for New Jersey architects, contractors, laborers, and a wide range of related businesses.

### Camden Highlights

- The Camden recovery bill signed in the summer of 2002 included an \$11 million appropriation to the Rutgers–Camden campus as part of the state’s vision to make Camden a premier university city. The grant, being matched and supplemented by the university, will support the ongoing purchase and rehabilitation of nearby properties and support a **\$31 million expansion of the law school** to include a mock courtroom, state-of-the-art teaching facilities, and space to increase its *pro bono* legal programs.
- Rutgers is a key force in the effort to revitalize Cooper Street, a principal thoroughfare in Camden. Rutgers’ efforts include an **\$8 million, multiyear investment** in a three-block area of Victorian row houses, one of which, dating from 1857, has been restored to its original beauty and now houses Rutgers–Camden’s executive offices. In 2003, School of Business–Camden alumna Liz Ashley opened Lizzie’s Café in a restored row house. The restaurant is thriving.
- With a major development grant from Wachovia Regional Foundation, the Rutgers **Fairview Neighborhood Partnership** in Camden is helping to bring back one of the nation’s first planned communities, originally built for workers in the

Camden shipyards. Five new businesses already have been launched in the neighborhood with help from a neighborhood center collaboratively staffed by the School of Business, the School of Law, and the Walter Rand Institute at Rutgers–Camden. Each entity provides support to the community through business, legal, and development experts.

### Newark Highlights

- A new **\$22.6 million Life Sciences Building** at Rutgers–Newark will house academic and research laboratories, including space for 15 faculty researchers. The six-story, 57,000-square-foot building, which will rise on the corner of University Avenue and Warren Street, will also have a state-of-the-art multipurpose media seminar room and will be an exciting centralized venue for life science research, education, and industry/university collaboration.
- A **\$100 million housing project** at Rutgers–Newark will include housing and mixed-use development at the corner of New Street and Washington Street. The project will accommodate nearly 700 graduate students and include retail space, commercial/office space, faculty/staff apartments, and parking.
- If the four schools that comprise the Council for Higher Education in Newark (CHEN)—Rutgers–Newark, Essex County College, New Jersey Institute of Technology, and the University of Medicine and Dentistry of New Jersey—were a business, they would be a **\$1.1 billion corporation** with more than 11,800 employees and a \$480 million payroll.<sup>4</sup> Capital improvements by these institutions in a 10-year period have generated nearly \$925 million in spending and 7,900 construction-related jobs throughout New Jersey. They work with the city of Newark and with public and private entities to develop Newark’s University Heights district, which is located within a designated Urban Enterprise Zone.

### New Brunswick/Piscataway Highlights

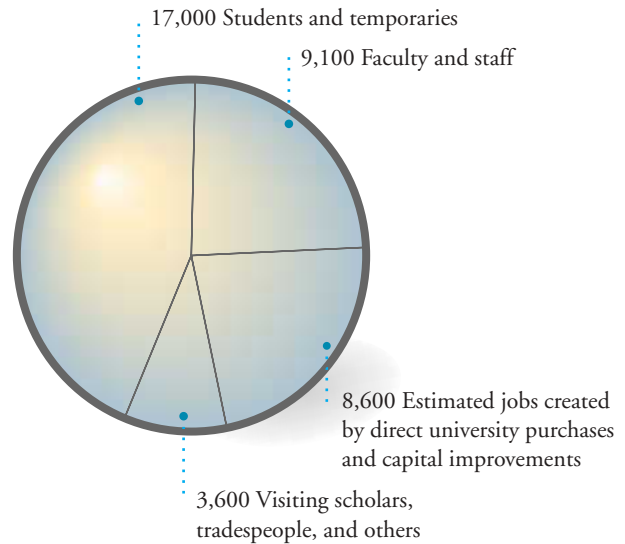
- In February 2004, the university broke ground on its latest residence hall project in New Brunswick. College Hall—for which the New Brunswick Development Corp. is the lead developer—is a **\$75 million, 12-story dormitory** and parking garage. Located between the College Avenue and Douglass/Cook campuses in downtown New Brunswick, it will house approximately 700 students and provide 13,000 square feet of retail space.
- The **\$105 million, 11-story Heldrich Plaza** is a major project of the New Brunswick Development Corp., Rutgers, and the city of New Brunswick. Located in downtown New Brunswick, the plaza will include space for Rutgers' John J. Heldrich Center for Workforce Development, as well as a 250-room luxury hotel, a conference center, condominiums, an art gallery, and retail space. Heldrich Plaza will complement Rutgers' Civic Square development initiative, which already includes the Edward J. Bloustein School of Planning and Public Policy and the Mason Gross School of the Arts.
- The **\$28.3 million Human Genetics and Biomaterials Building** in Piscataway will provide space for the Department of Genetics and the New Jersey Center for Biomaterials and will serve as the focal point for diverse academic departments involved in the life sciences. The free-standing three-story building will include enclosed links and bridges connecting it with other existing buildings. A multipurpose atrium space will provide a central meeting place for the life sciences community.

### A Major New Jersey Employer

Rutgers, one of New Jersey's largest employers, directly employs more than 29,500 individuals. This number includes more than 9,100 faculty and staff; almost 17,000 students and temporary employees; and over 3,600 visiting scholars, tradespeople, and other employees. In-state spending activities by the university create an additional 8,600 jobs through both direct purchases and capital improvements.<sup>5</sup>

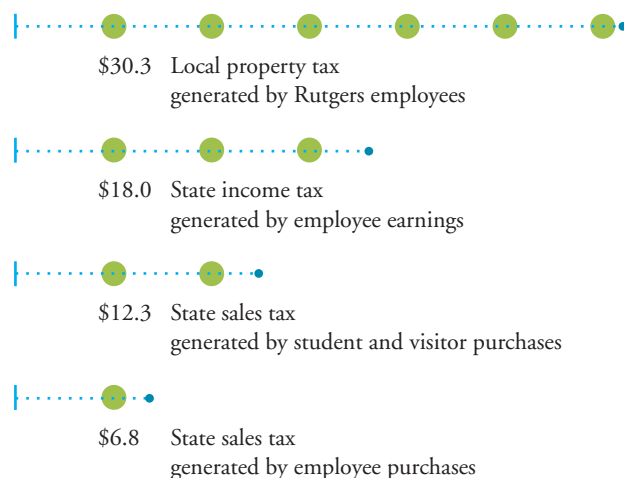
### New Jersey Jobs Created by Rutgers

*Figures as of February 2004*



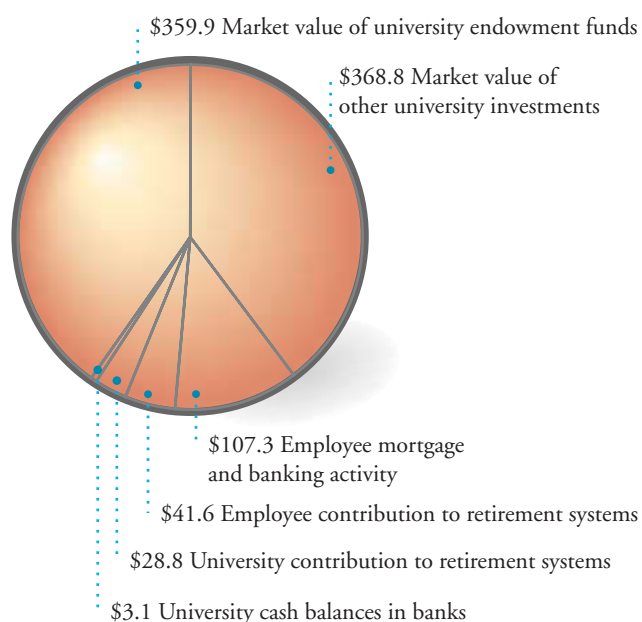
## State Tax Revenue Generated through Rutgers in 2003

Total state tax revenue: \$67.4 Million  
(Each green circle represents \$5 Million)



## Rutgers' Contribution to the State's Credit Base

FY 2003 (in \$ Millions)



## A Key Source of Tax Revenue

In 2003, Rutgers faculty and staff paid \$18 million in state income tax and an additional estimated \$6.8 million in state sales tax.<sup>6</sup> Rutgers employees paid \$129 million in federal income tax, FICA, and Medicare tax. Additionally, students and visitors contribute to the New Jersey tax base through sales tax. In 2003, off-campus expenditures by students accounted for \$11.7 million in sales tax revenues, while taxes from visitor spending accounted for an additional \$600,000.<sup>7</sup> A third source of tax revenue generated through Rutgers is faculty and staff property taxes. It is estimated that faculty and staff who own homes paid \$30.3 million in local property taxes.<sup>8</sup> Taken together, Rutgers faculty, staff, students, and visitors contributed \$196.4 million to the local, state, and federal tax bases.

## Contributing to the State Credit Base

Rutgers contributes significantly to the local and state credit base through its payroll, endowment and investments, and retirement funds. It is estimated that Rutgers employees who are New Jersey residents generated \$107.3 million in mortgage payments or savings in 2003.<sup>9</sup> Moreover, the university also deposits its available cash in New Jersey banks, some \$3.1 million at the close of fiscal year 2003. In addition, the university has endowment funds with a market value of \$359.9 million and other investments totaling an additional \$368.8 million. Contributions to retirement funds are a third source of investment derived from Rutgers. In 2003, the university contributed a total of \$28.8 million in retirement funds for faculty and staff, while employees contributed an additional \$41.6 million.

R U T G E R S :

## *a producer and* **supplier**

What does Rutgers create? What goods and services do we supply? Rutgers offers outstanding educational opportunities and produces a top-quality, highly educated workforce. We are a renowned source of human capital for New Jersey and home to the state's most diversified, state-of-the-art R&D laboratory network. Rutgers is an important source of intellectual property, increasingly resulting in patents, licenses, and copyrights that translate into jobs for New Jersey. We supply objective data and consulting services to a wide range of constituencies, from government agencies, to start-up ventures, to Fortune 500 companies. Rutgers guides decision makers in making good choices for their enterprises and good choices for New Jersey. We offer a broad spectrum of government, public, and volunteer resources at little or no cost. Citizens in all 21 New Jersey counties rely on Rutgers for information and a wide range of services.

## University Enrollment by Program

Fall 2003

<i>Program</i>	<i>Total</i>
Agricultural Sciences	532
Area/Ethnic and Cultural Studies	262
Biological Sciences	2,263
Business Management and Administrative Services	8,160
Communications	757
Computer and Information Sciences	1,107
Conservation and Renewable Natural Resources	498
Criminal Justice	951
Education	1,255
Engineering	2,655
English Language and Literature/Letters	1,390
Health Professions	2,374
Law	1,566
Liberal Arts	226
Library Science	491
Mathematics	575
Philosophy/Religion	248
Physical Sciences	840
Psychology	1,942
Public Policy and Administration	1,770
Social/Political/Historical Studies	4,092
Visual/Performing Arts	1,581
World Languages and Literatures	581
Yet to Be Declared Area of Study *	15,152
<b>TOTAL</b>	<b>51,268</b>

Source: Office of Institutional Research

\* Undergraduates are not required to declare a major until the end of the third or beginning of the fourth semester.

## Providing a Sophisticated Workforce

From the reading-ready child to the career-shifting seasoned executive, Rutgers focuses its energy and resources on the entire educational continuum.

### Outstanding Undergraduate, Graduate, and Professional Education

One of the reasons New Jersey's businesses continue to stay ahead of the competition is the availability of a sophisticated workforce. Rutgers is a major direct supplier of that workforce. The university offers more than 100 undergraduate programs from which students can choose a major. From 1994 to 2003, 70,918 individuals received a baccalaureate degree from the university. Over the same 10-year period, Rutgers granted 30,816 postbaccalaureate degrees. At the master's, professional, and doctoral levels, approximately 13,000 Rutgers students annually pursue degrees in a wide range of fields, including arts and sciences, engineering, pharmacy, education, law, business and management, planning and public policy, communication and library studies, nursing, criminal justice, and management and labor relations.

### Valuing Rutgers Graduates

New Jersey employers regularly seek out Rutgers students and graduates. Career services offered by Rutgers connect employers to outstanding candidates. The top 10 companies recruiting at Rutgers in 2003 are listed below by campus.

#### Camden Career Center

Cendant Mortgage, Commerce Bank, New Jersey Department of the Treasury, Lockheed Martin, L-3 Communications, Liberty Mutual Insurance Co., Holman Enterprises, PricewaterhouseCoopers, Ernst & Young, KPMG

#### Newark Career Development Center

Prudential Financial, MBNA Bank, New Jersey Department of the Treasury, PricewaterhouseCoopers, Deloitte & Touche, Enterprise Rent-A-Car, Johnson & Johnson, Ernst & Young, Merrill Lynch, KPMG

#### New Brunswick/Piscataway Career Services

Johnson & Johnson, Bloomberg, Deloitte & Touche, Merrill Lynch, Prudential, L'Oreal, AT&T, Ernst & Young, IBM, PricewaterhouseCoopers

## Alumni Repay the Investment in Their Education

Most Rutgers alumni stay in New Jersey after they graduate, working in New Jersey, contributing to the state economy, and repaying the investment the state has made in their education. An analysis of undergraduates who received their baccalaureates from Rutgers indicates that most are gainfully employed and working in New Jersey years after graduating from Rutgers.<sup>10</sup> As for graduate students, while over 30 percent come from out of state, many remain in New Jersey to pursue their careers after graduating. An examination of data for students earning a graduate degree from Rutgers during the latter part of the 1990s shows that over 50 percent of students earning graduate degrees from the university work for New Jersey employers.<sup>11</sup> Of the more than 330,000 Rutgers alumni, nearly 60 percent reside in New Jersey.

## Responding to Workforce Needs

The John J. Heldrich Center for Workforce Development is the state's focal point for university-based research and policy planning aimed at raising the effectiveness of the local and national workplace. In its latest initiative, the center and the State Employment and Training Commission—along with partners Electric Vine, Inc. and NJBiz, Inc.—are addressing the growing disconnect between job skills required in the marketplace and the preparation of students entering the job market. To reverse the trend, the group has launched a new web site, *www.NJNextStop.org*. The site offers the latest research on the skills needed for New Jersey's hottest industries and provides statistical overviews that identify weekly earnings and projected growth in different job sectors.

## The Foundation for Success: K–12 Education

Rutgers contributes fundamentally to K–12 education in New Jersey through its extensive role in preparing teachers and administrators. All three campuses have long-established teacher preparation programs and the Graduate School of Education offers the state's only Ph.D. in education. Special programs focus specifically on partnerships with K–12 schools and educators in Camden, Newark, and New Brunswick/Piscataway. In an initiative with profound statewide impact, Rutgers is a key partner in the National Science Foundation-sponsored Statewide Systemic Initiative to reform science and mathematics education in New Jersey.

## Continuing Education for an Agile Workforce

Continuing professional education is crucial for an increasing number of New Jerseyans who must regularly upgrade their job skills to remain competitive.

### Continuous Education and Outreach, Fiscal Year 2003

94,000 noncredit enrollments

Over 2,000 courses and course sections, located in more than 20 legislative districts

Credit and noncredit continuing education courses were available in 232 municipalities

### New Jersey Agricultural Experiment Station Continuing Education and Professional Education Programs (A Sampling)

Involved with every New Jersey state agency

Provides Department of Health bioterrorism training

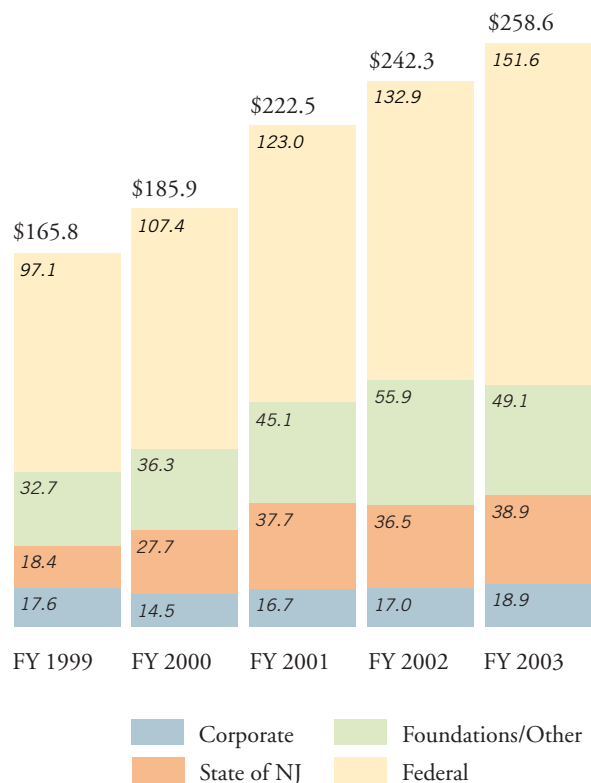
Sets state storm water standards

Offers landscaping certificate program (in English/Spanish)

Teaches food safety training

## Research Grants and Contracts

FY 1999–FY 2003 (in \$ Millions)



**Since 2003 alone, Rutgers was awarded over \$61 million in external funding for research projects that specifically relate to New Jersey.**

## A Research and Development Powerhouse

Rutgers’ research and development programs—often conducted in collaboration with New Jersey industry—generate ideas that become practical inventions with the potential to transform our daily lives and fuel the economy. As President Richard L. McCormick remarked in his April 13, 2003, inaugural address, “Wherever the innovation economy is thriving, a research university is the engine of that growth.”

Intellectual property in the form of new products are tangible outcomes of research at the university. This occurs when technology that derives from research is transferred to the marketplace. Once patents are granted, the university, to further its research and development efforts, leverages income from royalties that patents generate.

### Attracting Investment to a Leading R&D State

Over a 10-year period, between 1993 and 2003, Rutgers income from externally funded research and sponsored programs nearly doubled, growing from \$130.2 million in 1993 to \$258.6 million in 2003. Over the last three years alone, R&D awards increased by approximately 40 percent. During this period, Rutgers saw a significant increase in investments for research and development from outside the state. The most notable increase has been in federal research and contract funding, with nearly \$80 million in 1993 increasing to more than \$151 million in 2003. Revenue from corporate sources, foundations, and other sources has also increased. Corporate research and contract funding rose from \$15.5 million in 1993 to almost \$19 million in 2003, and funding from foundations and other sources increased from under \$20 million in 1993 to \$49.1 million in 2003.

New Jersey ranks fourth among all states in total R&D expenditures and is one of six states that together account for half of the R&D activities in the nation. According to the latest statistics from the National Science Foundation, New Jersey expended \$13.1 billion in R&D in 2000.<sup>12</sup> New Jersey ranks 14th among all states in the number of science and engineering doctorates awarded and places sixth and eighth in the number of doctoral engineers and scientists, respectively, working in the state.<sup>13</sup>

## R&D Highlights

● The Susan Lehman Cullman Laboratory for Cancer Research at the Ernest Mario School of Pharmacy is shedding new light on such areas as mechanisms of **cancer prevention with dietary and synthetic compounds**, the mechanisms of cancer causation, and the function of growth factors and their receptors in cancer. The center receives major funding from the National Institutes of Health, the National Science Foundation, and the American Cancer Society and is one reason why the School of Pharmacy ranks in the top 10 percent among pharmacy schools nationwide in research dollars awarded by the National Institutes of Health.<sup>14</sup>

● In a state that is the birthplace of the communications industry, Rutgers' WINLAB (Wireless Information Network Laboratory) is a key partner in advancing wireless networking technology. With funding from the New Jersey Commission on Science and Technology, WINLAB is the lead institution in a statewide collaborative to develop tiny wireless multimodal sensor-on-silicon (MUSE) chips. The devices can be imbedded anywhere and will be the **key building blocks of the future networked society** in which computing devices, people, and objects are seamlessly connected to the Internet. The MUSE grant, coupled with a recent award from the National Science Foundation, brings more than \$8 million in research funding to WINLAB to advance the state of the art in wireless communication technologies.

● The New Jersey Commission on Science and Technology calls the Center for Advanced Information Processing (CAIP) at Rutgers a "central element in New Jersey's overall research efforts in information technologies . . . critical to the economic health of our state." CAIP faculty play a major role in the state's Homeland Security program by partnering with Rutgers' Plasma Physics Laboratory in **developing bomb detection technologies**. Industrial partners who join CAIP gain access to powerful computing hardware at below market rates.

● Located in the heart of New Jersey's "cure corridor," Rutgers' **biomedical engineering** activities are essential to New Jersey's future success in this fast-growing field. A new \$33.5 million, 80,000-square-foot building is rising on the Busch campus in Piscataway that will consolidate Rutgers' biomedical engineering activities. The state-of-the-art building will serve as a common meeting ground for collaboration among members of New Jersey's academic and industrial biomedical engineering community.

● In the next 10 years, nanotechnology—the science and engineering of processing materials and devices at an ultrafine scale—is expected to be a \$5 billion industry; in the long term, the impact will be in the hundreds of billions of dollars. Rutgers is leading an effort to establish a **"nanotechnology valley"** in the mid-Atlantic region. This region will be an analog of Silicon Valley where industry, both large and small, surrounds research universities that generate innovative nanotechnologies.

### Rutgers Turfgrass Center Is a National Leader

The Center for Turfgrass Science at Rutgers' Cook College and New Jersey Agricultural Experiment Station was established in 1991. The center is the largest turfgrass center in the nation and has an impressive track record in research and intellectual property development:

Approximately half of all premium turfgrass seed sold in the United States originates at Rutgers.

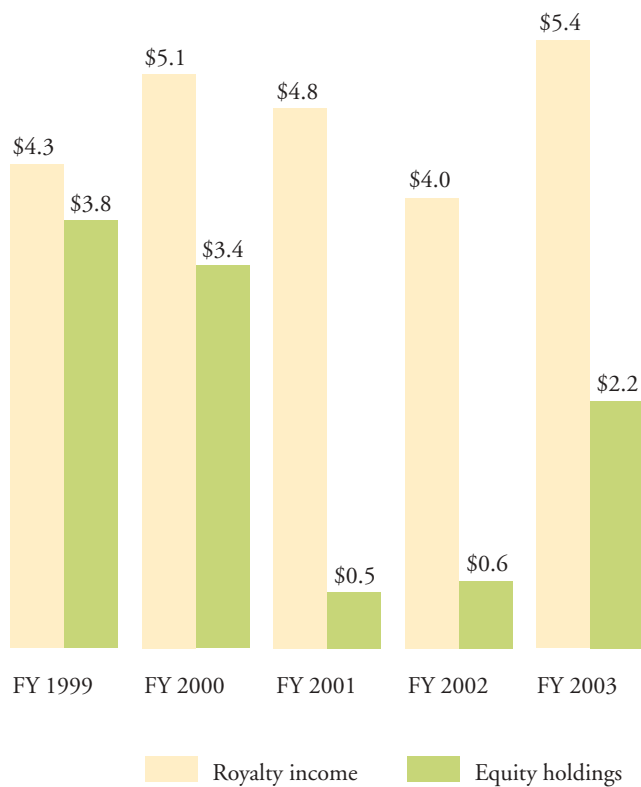
Rutgers turf varieties generate more than \$2 million in royalties each year and are licensed to over 20 companies.

Rutgers turfgrass varieties are used at Houston's Reliant Stadium, Yankee Stadium, the Washington Monument, and Central Park.

Rutgers faculty have collaborations with major turfgrass seed companies that generate significant funding for research.

## Annual License Revenue and Equity Holdings

FY 1999–FY 2003 (in \$ Millions)



## A Source of Intellectual Property

Rutgers ranks ninth among public institutions in the Association of American Universities in the dollar amount of royalties received in fiscal 2002 (the latest comparative data available).<sup>15</sup> In 2003, Rutgers disclosed 174 inventions, was granted 34 of 114 initiated patents, and received \$5.4 million from 82 royalty-generating licenses.

### Intellectual Property Highlights

- Rutgers is the lead institution in the New Jersey Center for Biomaterials, which has emerged as a unique and remarkably diverse research consortium, **attracting more than \$15 million in federal, state, and corporate funding**, including support for biomedical research, educational programs, and forming innovation partnerships with industry. Using many of its more than 30 patents, the center has built a successful track record of advancing university research toward commercial clinical application, attracting the membership of 25 companies and the participation of about 50 faculty members from all major research universities in New Jersey.
- The Biotechnology Center for Agriculture and the Environment (Biotech) at Rutgers works to sustain intensive crop and livestock production in developing areas, reduce chemical burdens on farms and urban lands, and **use biological processes to clean up toxic wastes**. Companies currently licensing patented Biotech technology include Advanced Remediation Kinetics, Dupont, ForBio America, the Hughes Institute, Merck, and Pioneer Hi-Bred. Phytomedics, Inc., a Dayton, New Jersey-based start-up biopharmaceutical company founded on discoveries licensed from Cook College, recently secured \$7.5 million in a new round of venture capital financing.
- As the official demonstration site for the U.S. Department of Defense food manufacturing program, the Center for Advanced Food Technology (CAFT) at Rutgers has worldwide impact. Most ready-to-eat meals manufactured for our nation's troops are produced using Rutgers-developed technology. Closer to home, CAFT and the Department of Food Science have **generated more than 25 patents and copyrights** that have led to the direct creation of new businesses and jobs in the state. In addition, more than 100 New Jersey companies use CAFT's mass spectrometry, rheology, and extrusion facilities, and CAFT's Food Manufacturing Technology Facility houses a group of start-ups that employ New Jerseyans in food-related businesses.

## Technology Transfer

From 1999 through 2003, Rutgers contributed to the pool of new knowledge with:

161 new patents

\$23.6 million in licensing income

18 start-up companies, with about 80 total employees

## Licensing

In fiscal year 2003, Rutgers earned \$5.4 million in license revenue from a variety of innovations, including:

*Cengent Therapeutics, Inc.*: bioinformatics of protein structure

*Connotate Technologies, Inc.*: database search strategies

*Diagnostics and Devices, Inc.*: method for analyzing analytes

*Enzon Pharmaceuticals, Inc.*: nonimmunogenic compositions such as pegylated interferon for the treatment of hepatitis

*Hybrid Dogwood Trees*: unique hybrids that are showy and disease-resistant

*Jersey Asparagus*: strains that far outyield conventional varieties

*Plastid Transformation*: genetically enhanced plants that do not contaminate nearby crops

*Scientific Learning Corporation*: therapeutic reading strategies for the learning disabled

*SpeakEZ/T-Netix, Inc.*: speech recognition technology

*Teoma Technologies Inc.*: web sub-search engine

*Turfgrass*: virtually all major U.S. producers, distributors, and marketers of turfgrass rely on Rutgers for new varieties

**Rutgers' Teoma technology powers the Ask Jeeves Internet search engine, one of the most popular search engines on the web.**

## Start-up Successes

Since 1989, Rutgers has licensed 46 start-up or early stage companies—34 of which are based in New Jersey, including:

*Latitude Manufacturing Technologies*, Hackettstown: low pressure injection molding of powdered metal and ceramic components

*Polymerix Corporation*, Piscataway: plastic aspirin and polymerized drugs

*Polywood, Inc.*, Edison: plastic lumber

*Phytomedics, Inc.*, Dayton: nutraceuticals from plants

*TyRx Pharma, Inc.*, New Brunswick: biomaterials, next-generation resorbable polymers

*Wellgen, Inc.*, New Brunswick: nutraceuticals for the human food, pet food, human therapeutics, and dietary supplement markets

## When the Public and Private Sectors Intersect

Energy. Transportation. Environmental regulation. Public health and safety. These are sectors of the economy where industry, government, and members of the general public all are major stakeholders, often at odds. For these areas, Rutgers offers objective data grounded in research and a neutral meeting ground for solving vexing problems.

- New Jersey has a high concentration of regulated industries. The Rutgers Business School–Newark and New Brunswick’s **Center for Research in Regulated Industries** conducts research in this increasingly important field as New Jersey and other states face energy blackouts, energy market manipulation, telecommunications billing fraud, security weaknesses in the wireless world, and more.
- Abandoned industrial sites, or “brownfields,” are potentially hazardous eyesores that hurt the communities in which they are located. Cleaning them up and finding new uses for them is the job of the Edward J. Bloustein School of Planning and Public Policy’s **National Center for Neighborhood and Brownfields Redevelopment**. The center is working with Plainfield and Trenton to build support for cleaning up brownfields and constructing new schools and commercial facilities on the old brownfields sites.
- As seaport security tightens under post-9/11 federal mandates, New Jersey’s port, trucking, and warehouse industries must ensure safety without compromising timely delivery of

inventory to New Jersey businesses. The **Center for Supply Chain Management** at the Rutgers Business School–Newark and New Brunswick is training 60 import specialists at the Port of Newark and New York on supply chain management and security issues.

- A streaming flow of traffic on our highways and efficient mass transit are essential to New Jersey’s continued economic health. Finding ways to fund transportation projects in the state has been a longstanding topic of debate. The Bloustein School’s **Alan M. Voorhees Transportation Center** is New Jersey’s primary resource for transportation research and outreach. In a recent project, the center helped the newly consolidated New Jersey Turnpike Authority define the functions of its new Office of Strategic Planning and Policy.
- Mosquitoes have a direct impact on public health and influence the state’s economy, including coastal and mountain tourism, agriculture, and urban development. The **Mosquito Research and Control Unit** at Rutgers’ New Jersey Agricultural Experiment Station is statutorily authorized to investigate and disseminate information about mosquito habits and control. The unit annually reviews all New Jersey county mosquito control plans to ensure that pesticide usage is targeted and justified.

### Objective Economic Data

Rutgers furnishes New Jersey with authoritative, objective data about the state’s economic health with economic reports and polls that are highly anticipated and receive wide media coverage. Furthermore, faculty members routinely study trends and conduct research in their individual areas of specialization.

**If there is a question about almost any subject in New Jersey, chances are a Rutgers faculty member has studied the topic and can speak about it authoritatively.**

- The Edward J. Bloustein School of Planning and Public Policy's **Rutgers Regional Report** is a university-funded series of reports on state and regional economic and demographic issues that receives wide media attention. Twenty issues have been published to date, and the report has become a significant part of the planning and public policy fabric of the region.
- Broadcast on Comcast local cable in southern New Jersey and the greater Delaware Valley region, the Rutgers School of Business–Camden's **Quarterly Business Outlook** is a periodic barometer of South Jersey's current and future economic conditions.
- Rutgers' Center for Government Services' annual **New Jersey Legislative District Data Book** presents a detailed statistical description of the state's legislative and congressional districts including population, fiscal resources, governmental expenditures, tax rates, voter registrations, election results, and forms of municipal and school governments.
- The **Star-Ledger/Eagleton-Rutgers Poll**—managed by Rutgers' Eagleton Institute of Politics—is New Jersey's definitive public opinion poll. A new searchable online archive covers 30 years of polling data on topics from auto insurance to consumer confidence to the Nets and Devils leaving the Meadowlands.

## Then and Now

*Highlights from "Then and Now: Sixty Years of Economic Change in New Jersey." Rutgers Regional Report, Issue Paper Number 20, January 2004, published by the Edward J. Bloustein School of Planning and Public Policy.*

**The current New Jersey economy bears scant resemblance to that of the mid-20th century. It has been completely reinvented.**

In 1940, the size of New Jersey's economy was 1.3 million jobs. Today, it is three times as large (4.0 million jobs).

In 1943, New Jersey was solidly blue-collar; manufacturing accounted for fully 55 percent of total state employment, compared to only 41 percent nationally.

By 1988, manufacturing employment's share of total state employment (18 percent) fell below that of the nation for the first time. By 2000, its share had dropped to 11.6 percent.

In 1950, the state's total employment base (1.7 million jobs) was less than half that of New York City (3.5 million jobs). In 2002, it was 12 percent larger (4.0 million versus 3.6 million). This reflects a vast reshaping of the region's economic geography.

In just half a century, New Jersey shifted from a production state to a consumption state. While there were many severe casualties—involving both people and places—services soared as the replacement source of employment.

Of the total increase in service-providing employment (468,400 jobs between 1990 and 2002), more than 75 percent was accounted for by education and health services (166,300 jobs), professional and business services (146,400 jobs), and financial activities (42,300 jobs).

## Rutgers and New Jersey's Business and Industry Sectors: What's New?

The following is a sampling of Rutgers' latest initiatives in partnering with business and industry in New Jersey.

- Aquaculture: New Jersey's aquaculture industry will get a boost from a new \$7.8 million, **22,000-square-foot aquaculture complex** under construction in Cape May. The facility will include indoor tanks and outdoor ponds for raising fish and shellfish, an outdoor hatchery, and a pumping station.
- Arts and Culture: Rutgers offers an ever-changing array of **visual and performing arts events**, many of which are free to the public or accessible at reasonable rates. The university's art galleries, for instance, include the Mason Gross Galleries at Civic Square and the Jane Voorhees Zimmerli Art Museum in New Brunswick; the Stedman Art Gallery in Camden; and the Paul Robeson Gallery in Newark.
- Biomedical: In February 2004, Rutgers biomedical engineering faculty brought together industry and academic leaders from across the state for a **biomedical engineering showcase**. With 330 attendees from the major research universities as well as from industry, the event will help nurture collaborative relationships and grow the biomedical economy in New Jersey.
- Communications Technology: Rutgers' Wireless Information Network Laboratory won a \$5.45 million, four-year grant from the National Science Foundation to enable researchers around the nation to create and test the next generation of wireless and mobile networks. This **wireless networking test bed** will be located in and around Rutgers' New Brunswick/Piscataway campus and nearby central New Jersey communities. Wireless web surfers will be able to sample conventional and advanced wireless Internet access free of charge and may be the first to try out emerging new mobile terminals and applications.
- Energy/Utilities: Rutgers' new Center for Energy, Economic, and Environmental Policy at the Edward J. Bloustein School of

Planning and Public Policy explores the **interrelation of energy, economic, and environmental policy issues**. A Fund for New Jersey and the New Jersey Board of Public Utilities grant is supporting research on state public policy issues related to the establishment of a hydrogen fuel infrastructure in New Jersey. The New Jersey Board of Public Utilities has also engaged the center to manage and evaluate New Jersey's Clean Energy Program.

- Engineering: Rutgers is establishing a new Center for Critical Infrastructure Engineering, a multidisciplinary **technology development center** to promote research in key areas of infrastructure, including energy, logistics, transportation, and aviation. The center will be formed in partnership with Princeton University, New Jersey Institute of Technology, Stevens Institute of Technology, and Rowan University, and with public sector agencies and industry.
- Environment/Renewable Resources: The New Jersey EcoComplex, a joint project of Rutgers and Burlington County, **promotes growth that is economically viable and environmentally sustainable** and helps move science from the lab to the real world. In one project, research focuses on reusing landfill methane gas as an energy source. This renewable energy source can be used for heat production and electrical generation for homes and businesses while reducing atmospheric greenhouse gases.
- Equine: In New Jersey, the horse industry accounts for more than \$3.2 billion in property and equine inventory and \$811 million annually in expenditures for wages, goods, and services.<sup>16</sup> Rutgers' Equine Science Center is dedicated to the **well-being of equine athletes** and the continued viability of the equine industry.

**Rutgers' Wireless Information Network Laboratory won a \$5.45 million, four-year grant from the National Science Foundation to construct and operate a facility for researchers nationwide to test the next generation of wireless and mobile networks.**

- Finance/Banking: The School of Business–Camden is home to the **Multinational Finance Society**, an internationally known center dedicated to disseminating and promoting financial knowledge, philosophies, techniques, and research findings about industrialized and developing countries. The center publishes the highly regarded *Multinational Finance Journal* and holds an annual conference that brings together academics and practitioners from all over the world to focus on timely financial issues. This year's conference will be held in Turkey.
- Food: Rutgers has received a \$140,000, two-year grant from the USDA Food Safety Research Program to investigate ways to **ensure that processed foods are protected from anthrax** as they pass from the farm to the retail counter.
- Health: With an award from the Rutgers Academic Excellence Fund, a **Center for Obesity Research and Intervention** will be established at the Institute for Health, Health Care Policy, and Aging Research at Rutgers. The new center will tackle one of the most important public health challenges currently facing the nation by conducting research on obesity from the cellular level to social influences, designing and testing interventions, and examining policy considerations.
- Manufacturing: Deep Vacuum UV Light Source technology developed at Rutgers–Newark will be used in the semiconductor industry for materials processing. The technology, which has generated three patents, is a new **method for producing ultraviolet light** and promises environmentally friendly, efficient devices for clean materials processing in the manufacturing of semiconductor devices.
- Pharmaceutical: Rutgers cell biologists have discovered that a protein known as cypin could be the newest target for drugs in the **treatment of memory and learning disabilities**, as well as diseases such as Alzheimer's and fetal alcohol syndrome. Cypin, which works as an enzyme in the brain, shaping neurons and regulating their growth and division into branches, appears to play a role in certain neurological diseases.
- Tourism and Gaming: As New Jersey enters its second quarter-century of casino gaming in Atlantic City, a new study produced by the School of Business–Camden suggests that the industry has only just begun to hit its stride. The **"Report on the Future and Impact of Gaming on Atlantic City 2003–2008"** anticipates an increase in direct and indirect employment that will add \$2.3 billion in compensation by 2008, predicts the industry will provide more than \$2 billion in business to New Jersey counties, and calculates that casino taxes will top \$400 million dedicated to New Jersey's senior and disabled citizens.

## Professional Development

The New Jersey Small Business Development Centers offer training classes statewide, including:

Business Start-up Workshop (Lincroft)

Buying a Business (Newton)

Conversational Spanish for Business (Wildwood)

Demystifying International Trade (Somerville)

Disaster Planning for Small Business (Vineland)

Entrepreneurial Assessment Workshop (Atlantic City)

Financing a Small Business Plan (Hackensack)

A Fine-Tuned Marketing Plan That Works (Washington)

Franchise Basics (Morristown)

Legal I and II Contracts (Paramus)

Marketing for the 21st Century (Newark)

Partnership Agreement (North Branch)

Small Business Association Microloan Program (Paterson)

Tapping the Internet for Global Market Intelligence (Union)

Top Ten Mistakes in E-Commerce (Plainfield)

Writing a Winning Business Plan (Franklin Township)

## Small Business, Consulting Services, and Start-ups

Rutgers provides direct assistance to businesses both large and small throughout New Jersey. Clients can access the expertise of Rutgers students, faculty, and staff on everything from preparing a business plan to avoiding the interpersonal pitfalls of running a family business.

### Small Business Development Centers

New Jersey's small businesses, those with fewer than 500 employees, employed 50.8 percent of the state's 3,548,429 nonfarm sector employees in 2000, according to the U.S. Small Business Administration's 2003 profile of New Jersey's small business sector.<sup>17</sup> In 2002, according to the same profile, small business income in the state (excluding farm businesses) amounted to \$27.7 billion. Clearly, small business represents a major economic force in New Jersey.

The New Jersey Small Business Development Centers (NJSBDC) program—funded by the U.S. Small Business Administration, the New Jersey Commerce and Economic Growth Commission, and Rutgers—is headquartered at Rutgers Business School–Newark and New Brunswick. Eleven full-service regional centers and 20 affiliate offices serve all 21 New Jersey counties.

### Consulting Services and Start-ups

- The MBA Interfunctional Team Consulting Program at Rutgers Business School–Newark and New Brunswick delivers consulting services for a moderate, fixed project fee. Through the program, Rutgers students have **completed more than 1,500 projects** for clients including Fortune 500 companies, private firms, not-for-profits, state agencies, municipalities, and entrepreneurs.

- The Tropicana Resort and Casino, the *Battleship New Jersey*, and the New Jersey Board of Public Utilities have all been clients of the School of Business–Camden's William G. Rohrer Center for Management and Entrepreneurship. The center, whose mission is to **help southern New Jersey businesses succeed**, is a single point of contact for tapping the expertise of Rutgers faculty and staff at extremely reasonable fees.

**The Food Innovation Research and Extension Center helps farmers develop and market new, niche products to maintain economic viability and to preserve farmland in New Jersey.**

● Family businesses represent 50 percent of the nation’s Gross National Product and account for 65 percent of all wages paid.<sup>18</sup> These crucial engines of economic growth struggle with unique issues such as transfer of control to the next generation and interpersonal family dynamics that affect important business decisions. For a modest fee, Rutgers–Sun Bank Family Business Program at the School of Business–Camden supplies members with **confidential advice and guidance**.

● The Food Innovation Research and Extension Center helps farmers develop and market new, niche products to **maintain economic viability** and to preserve farmland in New Jersey. Located in a federal Economic Empowerment Zone in Bridgeton, Cumberland County, the center serves a broad range of clients including farmers, cooperatives, start-ups and small to midsize food companies. In the past year, the center aided more than 100 clients, including 15 located in the Cumberland Empowerment Zone, and helped clients secure about \$400,000 in grants from the USDA and the Department of Labor.

● Rutgers–Camden Business Incubator of Rutgers–Camden Technology Campus Inc. continues to grow, now housing 44 resident and virtual tenants. By the end of 2004, companies graduating from the incubator are expected to bring 50 **additional new jobs** to Camden. An \$850,000 U.S. Department of Commerce grant will help select a general partner for the incubator that will establish a venture capital fund to seek investors willing to add between \$25 million and \$40 million in exchange for equity in the new businesses.

New Jersey Small Business Development Centers
<i>2003 Statistics</i>
31 offices in all 21 New Jersey counties
7,255 clients served
914 low-cost business training classes
17,411 individuals in business training classes
\$40 million in loans, contracts, grants, and equity financing obtained for clients

## Bringing Research to the People

### Reaching All 21 New Jersey Counties through the Rutgers Cooperative Extension

2003 Statistics

8,500 volunteer direct contacts

2,250 volunteers trained

34,000 one-on-one home, farm, field, and office visits

50,000 email and phone inquiry responses

1,603 issues of various newsletters; total circulation of 106,475

24 home study courses

59 television programs

870 radio programs

22 educational and promotional videotapes

95 software/computer programs

## A Culture of Service

Rutgers provides many governmental and other public services to the citizens of New Jersey at no or low cost. Were it not for Rutgers' deep commitment to the public, these services might not be available or might otherwise have to be absorbed at a greater cost by the citizens of New Jersey.

### Government Services

- New Jersey's government offices frequently refer to weather and climate information generated by the **Office of the New Jersey State Climatologist**. The office's web site is a treasure trove of New Jersey weather data (<http://climate.rutgers.edu/stateclim>).
- The Center for Government Services of the Edward J. Bloustein School of Planning and Public Policy provides research, continuing education, and technical **assistance to elected and nonelected officials** statewide. Annually, 24,000 municipal employees obtain professional certification as finance officers, municipal clerks, tax collectors, and tax assessors, among others. The center also offers a popular certificate program for experienced and newly elected government officials.

### Rutgers Cooperative Extension

Operating within the New Jersey Agricultural Experiment Station is Rutgers Cooperative Extension, a "classroom without walls" through which **university research is delivered to people in their communities** in all 21 counties. Whether helping municipalities set up waste-composting systems, helping families better handle their personal finances, teaching good nutrition, or developing life skills in youth through more than 1,400 4-H organized clubs or other experiential learning methods, Rutgers Cooperative Extension activities improve the lives of residents throughout the state.

### Faculty Service and Volunteerism

**In a 2003 survey of Rutgers faculty, nearly 70 percent of respondents indicated that they performed service to the community.**<sup>19</sup> The survey defined service as activities that made use of professional expertise but were not related to performing research and for which Rutgers students were not the direct beneficiaries. Of the respondents, two-thirds reported benefits to research, three-quarters reported benefits to teaching, and

**Master’s students at the School of Social Work contribute to social service agencies in New Jersey through unpaid work in field placements. In 2003, 664 students each contributed 30 weeks of service for a combined annual contribution equal to more than \$4.5 million.**

seven-eighths reported benefits to personal and professional development. The five most popular venues for performing services were: web sites, newspapers, lectures to general audiences, work with K–12 students, and newsletters.

### **Student Service Learning**

Citizenship education plays a key part in fulfilling Rutgers’ research, teaching, and service missions. Numerous **curricular and cocurricular programs offer students the opportunity to learn the skills they need to be good citizens.** Rutgers’ many professional schools make service central to their mission statements; the many student governing associations are incubators of democratic leaders; the college honors programs and the many honors societies require service; and all fraternities and sororities, as well as dozens of student organizations, make community service integral to their activities. The centerpiece of our efforts, however, is the universitywide, curriculum-based Citizenship and Service Education Program, through which students apply classroom theory to volunteer placements in the community.

### **Clinics, Fieldwork, and Internships**

Rutgers’ legal and human services **clinics offer low and no cost services** to citizens across the state. In addition, students provide low or no cost services to the community through fieldwork, internships, and practicum placements. On any given day, students in psychology, education, law, social work, nursing, criminal justice, and more give personal attention to citizens throughout New Jersey. They represent vulnerable children in court cases, they advise victims of domestic abuse, they counsel the mentally ill, they student-teach in dozens of New Jersey schools, and they tend to the sick in New Jersey hospitals, typically without any paid compensation.

### **Service Program Has Broad Impact**

The Citizenship and Service Education Program at Rutgers provides valuable resources to New Jersey. From 1989 through 2003, these included:

3-credit classroom courses combined with 1-credit service learning placements

40 hours of community service per course

13,000 student participants

730,000 hours of community service

\$4 million value of volunteer services based on the minimum wage

## Rutgers' Presence in the 21 Counties of New Jersey

### Atlantic

- Bachelor in Hospitality Management Degree (Atlantic City, Camden)
- New Jersey Small Business Development Centers Regional Center (Mays Landing)
- "Report on the Future and Impact of Gaming on Atlantic City 2003–2008," School of Business–Camden (Atlantic City)
- Rutgers Cooperative Extension (Mays Landing)

### Bergen

- Meadowlands Environmental Research Institute Field Research Sites (Carlstadt, East Rutherford)
- Meadowlands Environmental Research Institute Laboratories and Offices (Lyndhurst)
- Meadowlands Environmental Research Institute Land Use Planning and Mapping (East Rutherford, Little Ferry, Lyndhurst, Moonachie, North Arlington, Rutherford, South Hackensack, Teterboro)
- New Jersey Small Business Development Centers Regional Center (Hackensack)
- Rutgers Cooperative Extension (Hackensack)

### Burlington

- EcoComplex (Bordentown)
- New Jersey Small Business Development Centers Branch Offices (Mount Holly, Evesham, Westampton)
- Philip E. Marucci Center for Blueberry and Cranberry Research and Extension (Chatsworth)
- Pinelands Research Station (New Lisbon)
- Rutgers Office of Continuing Education at McGuire Air Force Base (New Hanover Township)
- Rutgers Cooperative Extension (Mount Holly)

### Camden

- Campbell's Field (Camden)
- Center for Strategic Urban Community Leadership (Camden)
- Cooper Street Revitalization (Camden)
- Leadership, Education, and Partnership (LEAP) (Camden)
- New Jersey Small Business Development Centers, Branch Offices (Camden, Cherry Hill, Clementon, Voorhees)
- Rutgers–Camden Campus (Camden)
- Rutgers–Camden Business Incubator (Camden)
- Rutgers–Camden Community Park (Camden)
- Rutgers–Camden Technology Campus Inc. (Camden)

- Rutgers Cooperative Extension (Clementon)
- Rutgers Fairview Neighborhood Partnership (Camden)
- Rutgers–Sun Bank Family Business Program (Camden)
- Senator Walter Rand Institute for Public Affairs (Camden)
- Stedman Art Gallery (Camden)
- William G. Rohrer Center for Management and Entrepreneurship (Camden)

### Cape May

- Cape Shore Laboratory (Green Creek)
- Fisheries Information Development Center (Cape May)
- Multispecies Aquaculture Demonstration Facility (Cape May)
- Rutgers Cooperative Extension (Cape May Court House)

### Cumberland

- Food Innovation Research and Extension Center (Bridgeton)
- Haskin Shellfish Research Laboratory (Port Norris)
- Rutgers Agricultural Research and Extension Center (Upper Deerfield)
- Rutgers Cooperative Extension (Millville)

### Essex

- Golden Dome Athletic Center (Newark)
- Joseph C. Cornwall Center for Metropolitan Studies (Newark)
- New Jersey Small Business Development Centers (Newark)
- Newark Center for Families and Communities (Newark)
- Paul Robeson Gallery (Newark)
- Rutgers–Newark Campus (Newark)
- Rutgers Cooperative Extension (Newark, Roseland)
- University Heights Development Program (Newark)
- University Heights Science Park (Newark)

### Gloucester

- New Jersey Small Business Development Centers Branch Offices (Woodbury, Mullica Hill)
- Rutgers Cooperative Extension (Clayton)

### Hudson

- Meadowlands Environmental Research Institute Land Use Planning and Mapping (Kearny, Jersey City, North Bergen, Secaucus)
- Meadowlands Environmental Research Institute Research Field Sites (Kearny, Secaucus)
- New Jersey Small Business Development Centers Regional Office (Jersey City)
- Rutgers Cooperative Extension (Jersey City)

## Hunterdon

- Clifford E. and Melda C. Snyder Research and Extension Farm, Rutgers Center for Sustainable Agriculture (Pittstown)
- New Jersey Small Business Development Centers (Flemington)
- Rutgers Cooperative Extension (Flemington)

## Mercer

- New Jersey Small Business Development Centers (Ewing)
- New Jersey Small Business Development Centers Regional Office (Trenton)
- Rutgers Cooperative Extension (Trenton)
- Trenton Academic Center (Trenton)

## Middlesex

- Agricultural Research Farm (New Brunswick)
- Douglass Developmental Disabilities Center (New Brunswick)
- Eagleton Institute of Politics (New Brunswick)
- Food Technology Manufacturing Facility (Piscataway)
- Headlee Research and Mosquito Control Laboratories (New Brunswick)
- Institute of Marine and Coastal Sciences (New Brunswick)
- Jane Voorhees Zimmerli Art Museum (New Brunswick)
- Louis Brown Athletic Center (Piscataway)
- New Jersey Agricultural Experiment Station (New Brunswick)
- Ralph Geiger Turfgrass Education Building (New Brunswick)
- Rutgers Cooperative Extension (New Brunswick)
- Rutgers Ecological Preserve (Piscataway)
- Rutgers Gardens (New Brunswick)
- Rutgers Geology Museum (New Brunswick)
- Rutgers–New Brunswick/Piscataway Campus (New Brunswick, Piscataway)
- Rutgers Stadium (Piscataway)
- Sonny Werblin Recreation Center (Piscataway)

## Monmouth

- Institute of Marine and Coastal Sciences Satellite Office (Sandy Hook)
- New Jersey Coastal Communiversity (Wall)
- New Jersey Small Business Development Centers Regional Office (Lincroft)
- Rutgers Center for Management Development Mini-MBA (Freehold)
- Rutgers Cooperative Extension (Freehold)
- Rutgers Plant Science Research and Extension Farm (Adelphia)
- Rutgers Tree Fruit Research and Extension Center (Cream Ridge)
- Western Monmouth Higher Education Center (Freehold)

## Morris

- New Jersey Small Business Development Centers (Randolph)
- Rutgers Center for Management Development Mini-MBA (Morristown)
- Rutgers Continuing Education Branch Office (Mount Arlington)
- Rutgers Cooperative Extension (Morristown)

## Ocean

- Jacques Cousteau Coastal Education Center (Tuckerton)
- Jacques Cousteau National Estuarine Research Reserve (Tuckerton)
- New Jersey Small Business Development Centers (Toms River)
- Rutgers Cooperative Extension (Toms River)
- Rutgers Marine Field Station (Tuckerton)

## Passaic

- New Jersey Small Business Development Centers Regional Offices (Wayne, Paterson)
- Rutgers Cooperative Extension (Wayne, Paterson)

## Salem

- New Jersey Small Business Development Centers Branch Offices (Carney's Point, Salem)
- Rutgers Cooperative Extension (Woodstown)

## Somerset

- Hutcheson Memorial Forest (East Millstone)
- New Jersey Small Business Development Centers Regional Office (North Branch)
- Rutgers Cooperative Extension (Bridgewater)

## Sussex

- Lindley G. Cook 4-H Youth Center for Outdoor Education (Branchville)
- Rutgers Cooperative Extension (Newton)

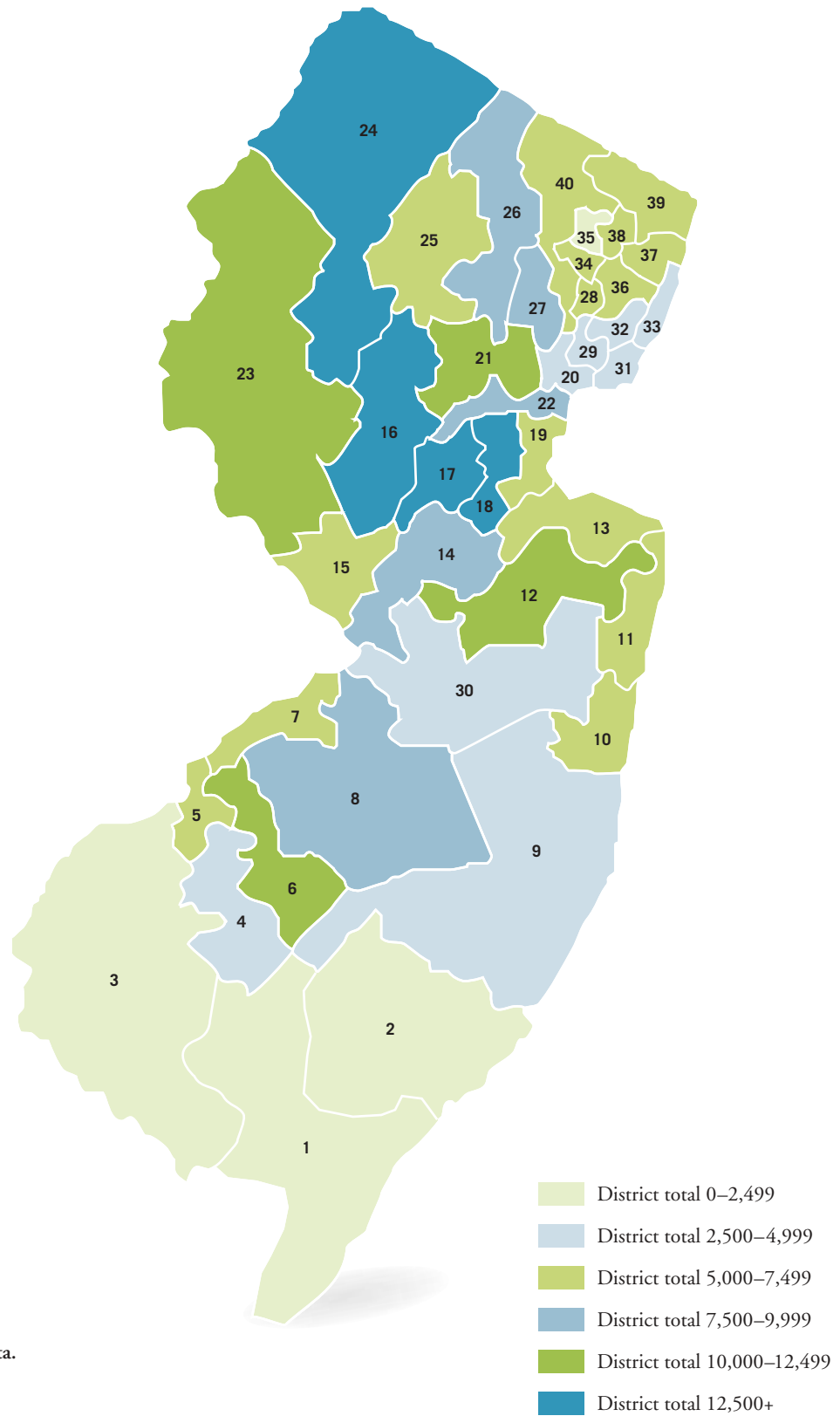
## Union

- New Jersey Small Business Development Centers Regional Office (Union)
- Rutgers Cooperative Extension (Westfield)

## Warren

- New Jersey Small Business Development Centers Regional Office (Washington)
- Rutgers Cooperative Extension (Belvidere)

## Rutgers Alumni, Students, Faculty, and Staff by Legislative District



Map and chart reflect 2003 data.

## Breakdown by Category of Population

<i>Legislative District</i>	<i>Alumni</i>	<i>Undergraduate and Graduate/Professional Students</i>	<i>Continuing Professional Development Students</i>	<i>Faculty/Staff</i>	<i>Total</i>
<b>1</b>	1,474	321	606	46	<b>2,447</b>
<b>2</b>	1,518	486	455	29	<b>2,488</b>
<b>3</b>	740	649	647	90	<b>2,126</b>
<b>4</b>	2,526	665	362	60	<b>3,613</b>
<b>5</b>	3,880	1,135	535	152	<b>5,702</b>
<b>6</b>	9,152	1,637	871	276	<b>11,936</b>
<b>7</b>	5,229	1,130	545	121	<b>7,025</b>
<b>8</b>	6,589	1,115	771	130	<b>8,605</b>
<b>9</b>	2,053	355	815	60	<b>3,283</b>
<b>10</b>	3,914	629	905	81	<b>5,529</b>
<b>11</b>	4,829	778	1,127	120	<b>6,854</b>
<b>12</b>	7,357	1,538	1,855	245	<b>10,995</b>
<b>13</b>	4,750	1,133	1,312	184	<b>7,379</b>
<b>14</b>	6,515	1,416	971	551	<b>9,453</b>
<b>15</b>	5,246	789	854	425	<b>7,314</b>
<b>16</b>	8,569	1,453	2,086	522	<b>12,630</b>
<b>17</b>	12,390	4,997	1,303	4,194	<b>22,884</b>
<b>18</b>	9,150	2,550	1,239	1,250	<b>14,189</b>
<b>19</b>	4,070	1,092	739	293	<b>6,194</b>
<b>20</b>	3,015	796	587	258	<b>4,656</b>
<b>21</b>	9,257	1,181	1,538	245	<b>12,221</b>
<b>22</b>	5,898	768	859	312	<b>7,837</b>
<b>23</b>	7,552	912	1,397	250	<b>10,111</b>
<b>24</b>	3,780	568	8,581	78	<b>13,007</b>
<b>25</b>	5,053	757	1,258	89	<b>7,157</b>
<b>26</b>	5,662	896	1,178	69	<b>7,805</b>
<b>27</b>	6,137	1,116	805	219	<b>8,277</b>
<b>28</b>	3,619	1,077	341	213	<b>5,250</b>
<b>29</b>	2,119	840	280	165	<b>3,404</b>
<b>30</b>	3,534	568	695	148	<b>4,945</b>
<b>31</b>	1,714	817	250	87	<b>2,868</b>
<b>32</b>	1,869	708	192	53	<b>2,822</b>
<b>33</b>	2,532	867	223	71	<b>3,693</b>
<b>34</b>	4,190	812	614	147	<b>5,763</b>
<b>35</b>	1,477	397	583	32	<b>2,489</b>
<b>36</b>	4,074	1,059	657	98	<b>5,888</b>
<b>37</b>	3,549	929	717	52	<b>5,247</b>
<b>38</b>	3,486	980	750	54	<b>5,270</b>
<b>39</b>	4,159	782	1,332	28	<b>6,301</b>
<b>40</b>	4,593	681	1,221	54	<b>6,549</b>

## Endnotes

1. *2002–2003 Annual Report*, Rutgers, The State University of New Jersey. Financial Report 2003.
2. The combined effect of university spending includes both direct and indirect multiplier effects. Spending multipliers attempt to estimate the ripple effect in the local and state economies that invariably occurs as the initial money that is expended is recirculated and respent. The magnitude of expenditure multipliers is dependent on the structure and complexity of the economies where the spending occurs and usually ranges between 1.5 and 2.5 for colleges and universities. The more advanced and developed the local and state economies are, the larger the magnitude of the spending multiplier. The doubling of Rutgers' institutional spending is a conservative estimate, given New Jersey's highly developed and complex economy. For more background on multipliers and how they are used by institutions of higher education, see Robert J. Parsons and Allison Griffiths, "A Micro Economic Model to Assess the Economic Impact of Universities: A Case Example," Association of Institutional Research Professional File, 87, Spring 2003; Kevin Stokes and Paul Coomes, "The Local Economic Impact of Higher Education: An Overview of Methods and Practice," Association of Institutional Research Professional File, 67, Spring 1998; and Donald S. Elliot, Stanford L. Levin, and John B. Meisel, "Measuring the Economic Impact of Institutions of Higher Education," *Research in Higher Education*, 28, 1988, 17-33.
3. Estimates for visitor spending at Rutgers during fiscal year 2003 are based on revenues generated from athletic, cultural, and art events and programs; professional and academic conferences and meetings; college tours; and other university events including graduation ceremonies.
4. The Council for Higher Education in Newark *Economic Impact Report*, 2001.
5. The most recent job multiplier on the employment impacts of university expenditures for the state of New Jersey developed by the U.S. Department of Commerce Bureau of Economic Analysis and issued by the Association of American Universities estimates that for every \$1 million spent in the local economy, 27.8 jobs are created. Nils Hasselmo, "Employment Impacts of Academic R&D," Association of American Universities Memorandum, August 2003.
6. Estimation of the sales tax revenue is based on methodology offered by the New Jersey Department of the Treasury, Division of Taxation. Approximately 50 percent of the sales tax revenue generated in the state in any one year is attributed to individuals, with the remaining half being generated by business. The amount generated by individual spending can be divided by New Jersey payroll employment during a particular period to arrive at an estimate of the amount of sales tax revenue generated by full-time employees. Applying this approach, it is estimated that each employee generated approximately \$750 a year in sales tax revenue for the state of New Jersey in FY 2003, which resulted in a total amount of \$6.8 million generated by Rutgers employees.
7. Estimates for spending by commuter, off-campus, and on-campus students provided by the Rutgers Office of Financial Aid were used to derive sales tax revenue generated by student spending. These estimates of student spending were weighted by the enrollment in each student category, which was multiplied by the sales tax rate of 6 percent. Visitor sales tax revenue was similarly derived by the Rutgers Office of Institutional Research and Academic Planning by multiplying estimated visitor spending by the sales tax rate.
8. *2003 New Jersey Legislative District Data Book*. It is assumed that 65 percent of Rutgers employees residing in New Jersey own their own homes. County estimates for property values and tax rates were used to estimate the amount of local property tax paid by Rutgers employees.
9. Economic impact studies conducted at the University of Pittsburgh and Ohio State University have estimated that 18 percent of employees' gross earnings go toward savings and mortgage payments.
10. Data from the university registrar for selected cohorts of Rutgers' baccalaureate recipients was matched with data supplied by the New Jersey Department of Labor. This analysis indicates that at least 50 percent of Rutgers graduates were working within the state five years after receiving their baccalaureate degree.
11. Data supplied by the New Jersey Department of Labor and university registrar.
12. National Science Foundation, Division of Science Resource Studies, Directorate for Social, Behavioral and Economic Sciences. December 2002. "Top R&D-Performing States Display Diverse R&D Patterns in 2000." InfoBrief. NSF 03-303. Arlington, VA.
13. National Science Foundation, Division of Science Resource Studies, Science and Engineering State Profiles, 2000–2001, <http://www.nsf.gov/sbe/srs/nsf03324/start.htm>, February 2004.
14. American Association of Colleges of Pharmacies' 2003 NIH List, "Rutgers' Ernest Mario School of Pharmacy Ranks Among Top Schools for NIH Research Funding," February 23, 2004, <http://ur.rutgers.edu/medrel/viewArticle.html?ArticleID=3788>.
15. The Chronicle of Higher Education. Facts & Figures, Licensing and Patents, [http://chronicle.com/prm/premium/stats/autm/autm\\_results.php](http://chronicle.com/prm/premium/stats/autm/autm_results.php), February 2004.
16. *1996 Equine Survey*, New Jersey Department of Agriculture.
17. U.S. Small Business Administration Office of Advocacy. 2003 State Small Business Profile: New Jersey.
18. Rutgers–Camden Family Business Resource Center, "Family Business Forum," <http://camden-sbc.rutgers.edu/cme/FBC.htm>.
19. The overall response rate of the survey was 33 percent, and respondents were very similar to nonrespondents across variables such as gender, tenure status, and campus affiliation. *Report on the New Jersey Service Activities and Perspectives of Rutgers Faculty*. David H. Guston. 2004.





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