

THE UNIVERSITY OF ILLINOIS AT CHICAGO

How the University of
Illinois at Chicago Benefits
the Economy of the State
of Illinois



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Summary

With about 27,000 students, the University of Illinois at Chicago (UIC) is the third-largest institution of higher education in Illinois. This report examines the ways in which UIC benefits the Illinois economy. We can classify and measure these benefits in three ways:

- the university's **economic contribution** to the state (the number of people UIC employs, the amount of money it pays its employees, the value of goods and services for which it accounts, and the tax payments its employees and students make to the state and local governments);
- the university's broader **economic impact** on the state (the number of jobs and value of goods and services from all economic activities and amounts of employee compensation and state and local tax revenue that would not exist in Illinois if UIC did not exist);
- the university's **economic support activities** (other ways in which the university supports economic development and/or economic equity in the state).

More than 13,000 people work at UIC, 93.5 percent of whom live in Illinois.

In 2013, UIC had 13,361 full-time equivalent employees, of whom 12,492 lived in Illinois. The university paid its Illinois resident employees a total of about \$1.1 billion in employee compensation (wages, salaries, and employee benefits), and produced about \$1.1 billion in value added (the standard measure of the value of the goods and services produced in an organization or geographic area). UIC employees and students paid a total of about \$99 million in individual income, sales, and property taxes to Illinois state and local governments.

These figures comprise UIC's economic contributions but they do not reflect the impact that UIC has on the Illinois economy, i.e., the numbers of jobs and the amounts of employee compensation and value added that would not exist in the state if UIC did not exist. Those impacts may be higher than UIC's contributions because UIC's purchases and those of its employees and students generate additional jobs and production in the state. Or they may be lower because if UIC did not exist, other universities in Illinois might enroll some of its students and perform some of its research and other activities.

Using standard economic modeling techniques, the report estimates that:

UIC adds \$4.0 billion to the economy of the Chicago region, most of which comes from UIC's impact on educational attainment in the state.

In 2013, UIC generated about \$4.0 billion in value added, \$3.8 billion in employee compensation, and at least 12,968 jobs that would not otherwise have existed in Illinois. It also added at least \$60 million to the tax revenue of the state and local governments in Illinois.

Most of UIC's economic impact comes from increasing the percentage of Illinois workers who hold bachelor's and graduate degrees, who typically have high earnings. The university increases overall educational attainment in the region because its presence leads some residents of the state to obtain degrees that they would not otherwise have obtained and because some out-of-state students who come to UIC remain in Illinois after graduation. In addition to the impact through educational attainment, UIC enlarges the state's economy through its own purchases of goods and services in Illinois; those of its employees, students, and visitors; and through the creation of spinoff businesses in the state.

Summary

UIC also supported the State of Illinois' economy in 2013 by:

- **contracting for a total of \$25.8 million with firms owned and controlled by minorities, women, and persons with disabilities;**
- **conducting \$266.6 million of sponsored research of which \$228.4 million was funded by the federal government;**
- **receiving 24 new patents and generating \$20.5 million in royalties from new and existing patents**
- **providing \$665.3 million in uncompensated medical care;**
- **awarding \$460.8 million in student financial aid including federal loans.**

The report concludes that UIC is an important economic engine for the State of Illinois.

Introduction

With 27,000 students, 15 colleges, and the state's major public medical center, the University of Illinois at Chicago (UIC) is the second-largest nonprofit four-year university in Illinois. As part of the University of Illinois system, it shares the system's state-mandated commitment to economic development. This report examines the ways in which UIC benefited the Illinois economy in fiscal year 2013 (July 1, 2012–June 30, 2013), the most recent year for which data are available.

UIC began in the 19th century as a collection of Chicago-based private health colleges, including the College of Physicians and Surgeons, the Chicago College of Pharmacy, and the Columbian College of Dentistry. In 1913, these colleges became part of the University of Illinois as the University of Illinois' Colleges of Medicine, Dentistry, and Pharmacy. These colleges, along with several additional medical education and research institutions in the area, became the University of Illinois at the Medical Center in 1961.

In 1946, the University of Illinois established a temporary, two-year branch campus in Chicago at Navy Pier to educate returning veterans of World War II. Students were able to complete the first two years of their education in Chicago and finish their degrees at

the Urbana campus. The Chicago branch drew approximately 4,000 students each semester, and the demand for a four-year public university in the Chicago area intensified. The legislature responded, and in 1965 a new campus, the University of Illinois at Chicago Circle, began enrollment.

In 1982 the University of Illinois at the Medical Center and the University of Illinois at Chicago Circle consolidated to form UIC. By 1987, UIC had reached Carnegie Research 1 institution status. UIC currently has 16,600 undergraduate students and 10,929 graduate and professional students enrolled in 82 bachelor's, 93 master's, and 67 doctoral degree programs.²

UIC's large contributions to the state's educational attainment and professional employment are some of the ways it has helped fuel the economies of Illinois and the Chicago area. As of 2005, the university estimated that approximately one in six Illinois physicians was a graduate of the UIC College of Medicine (the nation's largest medical school), while one in three Illinois pharmacists was a graduate of the College of Pharmacy, and 44 percent of the state's dentists were graduates of the College of Dentistry.³

Economic Contribution, Economic Impact, and Economic Support Activities

The **economic contribution** of UIC to the state is simply the gross economic activity of the university as dollars it spends enter the region's economy.⁴ It may be expressed in terms of employment (i.e., the number of university employees), employee compensation (the wages and benefits that the university pays to its employees), or value added (sometimes called gross state product—a measure of the value of the university's economic output, comparable to gross national product). This report uses all three of these measures.

Although often mislabeled as “economic impact,” an economic-contribution analysis says nothing about how UIC affects the size of the state's economy because it does not include spending by other people or companies in the state (e.g., the university's contractors, employees, students, visitors, and spinoff companies) that would not occur if the university were not present; it does not include the additional earnings that the university produces because it increases educational attainment in the state; nor does it account for the possibility that university spending may crowd-out spending in other parts of the state's economy.

State and local taxes do not directly contribute to the state's economy, but rather finance the state and local government services that do so. However, because of their importance to state and local budgets, the economic contribution section of this report includes estimates of major state and local taxes (individual income tax, sales tax, and property tax) paid directly by UIC employees and students.

The university's **economic impact** on the state is the difference between the current size of the state's economy and the size of the state's economy if UIC did not exist. Like economic contribution, economic impact may be expressed in terms of employment (the number of jobs that would not exist in Illinois if UIC were not present), employee compensation (the wages and benefits that would not otherwise be paid to

public and private sector workers in Illinois), or value added (the economic output that would not otherwise exist in the state), and this report uses all three measures. Figures included in the economic impact analysis are limited to activities that bring new dollars into the state or keep dollars in the state that would otherwise leak out; this is the standard definition of impact used by top practitioners in the field of economic impact analysis.⁵ In short, UIC's economic impact is the best estimate of the amount of economic activity that would likely be lost in Illinois if UIC did not exist.

Tax revenue impacts depend on economic impacts because taxes are levied on real economic activity; they are not themselves measures of economic impact.⁶ In addition to UIC's economic impacts, this report estimates UIC's impact on Illinois state and local tax revenue. The tax revenue impact is the total tax revenue that state and local governments in Illinois would not collect if UIC did not exist.

Economic support activities

These are university activities that are not part of UIC's economic contribution or impact, as defined above, but that support economic development and/or economic equity in the state. They include:

- research expenditures;⁷
- intellectual property disclosures, patent applications filed, patents issued, licenses, and royalties;
- Medicare revenue, campus expenditures on health service initiatives, and the value of charity health care services provided by UIC;
- female and minority-owned business expenditures;
- financial aid expenditures.

The Sources of UIC's Economic Impact

UIC's economic impact on the state comes from several sources.⁸ Among the most important of these, and those that we are able to measure in this report, are:

- the university's own spending in Illinois;
- student spending in Illinois;
- spending in Illinois by visitors to the university;
- spending by spinoff companies started by UIC faculty, if the companies have a presence in Illinois;⁹
- higher earnings due to increased educational attainment by Illinois residents who are UIC graduates or who work in the same companies with UIC graduates.

We are unable to measure some other potential sources of UIC's economic impact. UIC may exert upward pressure on wages paid by other universities in Illinois. The university may increase the rate of entrepreneurship in the state. The university is also an amenity that increases the quality of life in the Chicago area by providing public lectures and cultural and entertainment activities. The university also provides economic development leadership in the state. Because we cannot measure any of these impacts, the estimates provided in this report understate the true economic impact of UIC.

A complete assessment of the economic impact of the university would subtract any public subsidies that it receives. UIC is partially financed by Illinois tax revenue and receives grants from the state government and local governments. Similarly, Illinois residents pay for some portion of the federal grant funding that the university receives. This report does not take the financing of the university into account. For this reason, it does not provide a cost-benefit analysis of the university.¹⁰

University spending

Economists often divide regional economies into two components:

1. "export" industries that sell most of their goods and services to other regions, thus bringing economic activity into the region from elsewhere;
2. "local-serving" industries that sell goods and services primarily to the people who live in the region.

A less technical way of stating this is to say that export goods and services are those for which demand is national in nature, or at least extends far beyond the borders of Illinois, while local services are consumed almost exclusively in Illinois. For example, nearly all manufacturing is considered an export industry because nearly all manufactured products are sold outside the place where they are manufactured. On the other hand, nearly all restaurants are local-serving.

An economic impact analysis deals only with export industries because they are the ones that either bring new economic activity into the state or prevent economic activity from leaving the state. The impacts of such activities are classified into three categories: "direct," "indirect," and "induced." The "direct" effect is the amount of new output (or alternatively, the amount of new employee compensation or the number of new jobs) created in the state by an export industry. The "indirect" effect is the amount of new output created in the state by suppliers to the industry. The "induced" effect is the amount of new output created when the industry's employees spend their incomes within the state on the products of local-serving industries (such as restaurants). The total economic impact of an export industry is the sum of the industry's direct, indirect, and induced effects.

Local-serving industries employ most of Illinois' workers and account for most of the state's economic output. Therefore, they make a large contribution to the state's economy. However, local-serving industries are not included in calculations of economic impact. This is because these industries are present in the state only because of the induced spending of people who work in export industries.

Like many universities, UIC is partly export-oriented and partly local-serving. Some UIC students are residents of Illinois; if UIC closed, then those students would attend another university in the state. To the extent that the university serves those students, it is local-serving. Other students come from outside the state. Those students, as well as some in-state students, would not go to another university in Illinois if UIC closed. Instead, they would go to an out-of-state university. To the extent that the university serves the latter group of students, it is export-oriented. In addition, some colleges within UIC are so highly specialized that it would take a long time to create similar institutions in the region if they closed. Their students, even if drawn largely from within Illinois, would not readily find other institutions within the state to meet their needs. Those colleges are also export-oriented. Similar considerations apply to the university's medical center because its patients come from both Illinois and out of state. In assessing the economic impact of UIC, we first estimate the impact that the UIC would have if it were purely export-oriented (the contribution the UIC makes to the state economy) and then reduce those estimates by factors that reflect the extent to which UIC is local-serving.

Student spending

Spending in Illinois by university students who would not otherwise be present in Illinois ("export-oriented" student spending) is part of UIC's economic impact. Those students include out-of-state students who would not otherwise be in Illinois and Illinois students who would go to school or work out of state if UIC did not exist. We distinguish between "local" student spending (spending by students who would likely be present in the state even if UIC did not exist) and export-oriented student spending in the same way that we distinguish the local-serving and export-oriented components of UIC's own spending.

Visitor spending

UIC attracts a variety of visitors over the course of a year. These include visitors to conferences and meetings, artistic and sporting events, job fairs, commencement and orientation, and visitors who accompany patients at the university's medical center. Visitor spending that would not otherwise occur in Illinois is an additional component of economic activity that adds to the university's economic impact on the state. Typically this means spending by out-of-state visitors whose reason for coming to the university would not otherwise bring them to Illinois. For example, out-of-state visitors who come to a university-sponsored sporting event add to the university's economic impact, while those who come to an externally sponsored sporting event that would otherwise be held at an off-campus stadium do not.¹¹

The Sources of UIC's Economic Impact

Business spinoffs

Research activities within UIC sometimes lead to the creation of new companies in Illinois. These spinoffs increase the size of the state's economy, and our analysis includes information about spinoffs started by UIC faculty members.¹²

Higher earnings by Illinois residents as a result of increased educational attainment

The educational function of UIC increases the size of the state economy by increasing the percentage of the state's population that has a bachelor's or graduate degree. This increase in educational attainment comes about in two ways. First, UIC's presence in the state leads some state residents to obtain degrees that they would not otherwise have obtained and to earn higher salaries than they would otherwise have earned. Second, some people who come to Illinois to study at UIC remain in the state after they graduate, thereby adding more people with bachelor's and higher degrees (and with the associated higher salaries) to the state's population. To the extent that the higher salaries of these university graduates reflect higher productivity (as we assume in this report), UIC makes the state's economy larger by increasing educational attainment in Illinois. The increased educational attainment that results from the presence of UIC also has spillover effects on the productivity and earnings of other workers in the state who are not UIC graduates. Research has shown that both college graduates and nongraduates are more productive and earn more in regions where the percentage of the population with college degrees is higher.¹³ UIC increases the size of the state economy through this channel as well as through its impact on the earnings of its own graduates.

Table 1 shows that UIC conferred a total of 6,953 bachelor's, master's, and doctoral degrees between July 1, 2012, and June 30, 2013. About 55 percent of these were bachelor's degrees.

TABLE 1

Degrees Conferred by UIC, July 1, 2012–June 30, 2013

Type of Degree	Number of Degrees
Bachelor's	3,809
Master's	2,170
Doctoral, Research	352
Doctoral, Professional	622
Total Degrees	6,953

*includes graduate degrees from departments and programs associated with the College of Liberal Arts and Sciences.

Source: Authors' analysis of Illinois Board of Higher Education Table Z data from UIC for fiscal year 2013, available at www.oir.uic.edu/tableZ/TableZFY2013.pdf

Methodology

The analysis contained in this report uses 2011 IMPLAN input-output modeling software to estimate the total economic contribution and economic impact of UIC on the Illinois economy.¹⁴ Input-output models describe the way industries are connected to one another and take into account that each industry's nonlabor product inputs are the output of other industries. IMPLAN is a standard software package used to estimate or project the regional economic impacts of economic activities. IMPLAN treats all economic activities as part of a region's export base unless researchers adjust its estimated impacts to account for local-serving and mixed export-oriented/local-serving activities. To adjust for the mixed export and local-serving nature of UIC, we developed college-by-college estimates of economic activity (measured in jobs, employee compensation, or value added) that would not otherwise exist in the state.

University spending

To account for the mixed export and local-serving nature of the colleges within UIC, we developed assumptions about the percentage of total tuition and fees (net of financial aid) paid by undergraduate and graduate students in each UIC college that would not be spent in Illinois if UIC did not exist. We multiplied each UIC college's spending by its calculated percentage. Our approach is based on the following assumptions, the justifications for which are explained in the Technical Appendix.

1. In colleges other than Medicine, Dentistry, Engineering, and Pharmacy, 7 percent of in-state undergraduates would not be in Illinois (either as students at other colleges and universities or as non-students) if UIC did not exist. The tuition and fees paid by that 7 percent of in-state undergraduates would not be spent in Illinois if UIC did not exist, and those students' purchases of other goods and services in Illinois would be made in other states. Therefore, we count the portions of university, student, and visitor spending in Illinois that are attributed to this 7 percent of in-state undergraduates as generating economic impact on the state, and we consider the spending attributed to the remaining in-state undergraduates as having no impact on the state. Our assumption reflects our view, explained in the Technical Appendix, that the next-best alternative for the vast majority of in-state undergraduates would be to remain in Illinois.

2. In colleges other than Medicine, Dentistry, Engineering, and Pharmacy, 75 percent of out-of-state undergraduates would not be in Illinois if UIC did not exist. The tuition and fees paid by that 75 percent would not be spent in Illinois if UIC did not exist, and those students' purchases of other goods and services in Illinois would be made in other states. Therefore, we count the portions of university, student, and visitor spending in Illinois that are attributed to this 75 percent of out-of-state undergraduates as generating economic impact on the state, and we consider the spending attributed to the remaining out-of-state undergraduates as having no impact on the state. Our assumption reflects our view, explained in the Technical Appendix, that the next-best alternative for a large majority of out-of-state undergraduates would be to go to school out of state.
3. In colleges other than Medicine, Dentistry, Engineering, and Pharmacy, all in-state graduate or professional students would be in Illinois if UIC did not exist. The tuition and fees paid by those in-state graduate students would be spent in Illinois if UIC did not exist, and those students' purchases of other goods and services would be made in Illinois. Therefore, we consider the portions of university, student, and visitor spending in Illinois attributed to in-state graduate students as having no impact on the state. Our assumption reflects our view, explained in the Technical Appendix, that the next-best alternative for virtually all in-state graduate students would be to remain in Illinois.
4. In colleges other than Medicine, Dentistry, Engineering, and Pharmacy, no out-of-state graduate or professional students would be in Illinois if UIC did not exist. The tuition and fees paid by those out-of-state graduate students would not be spent in Illinois if UIC did not exist, and those students' purchases of other goods and services in Illinois would be made in other states. Therefore, we count the portions of university, student, and visitor spending in Illinois that are attributed to out-of-state graduate students as generating economic impact on the state. Our assumption reflects our view, explained in the Technical Appendix, that the next-best alternative for virtually all out-of-state graduate students would be to go to school out of state.
5. We counted 100 percent of the spending by the Colleges of Medicine, Dentistry, Engineering, and Pharmacy. This approach reflects our research findings that indicate that these colleges would be difficult to replicate within a few years and that other local schools would have difficulty expanding to take in their students if they did not exist. For these particular colleges, therefore, we assumed that the next-best alter-

Methodology

native for in-state students would be to go to school out of state. Therefore, we count the portions of university, student, and visitor spending in Illinois that are attributed to these colleges' students as generating economic impact on the state. As a consequence, we did not reduce IMPLAN's initial estimates of the impacts of those colleges.

To estimate the impact of spending by the UIC medical center, we multiplied that spending by the percentage of medical center patients who are from outside Illinois (3.2 percent). This approach assumes that none of the out-of-state patients would be in Illinois if UIC's medical center did not exist, but that all the in-state patients would receive treatment at other hospitals in Illinois. This assumption is reasonable because our research indicates that UIC's medical center does not have any specialized services that would be available out of state but not in other nearby hospitals in Illinois.

We combined all spending by units of the university other than colleges and the medical center into a single category, which we term "central administration." Because the units in this category provide services to all parts of the university, we multiplied these units' spending by the average university-wide percentage of total tuition and fees (net of financial aid) counted in the economic impact analysis for the university's colleges (54.4 percent).

On the basis of these assumptions, we counted 47.7 percent of total university spending in the analysis of the impact of university spending on the state of Illinois.

Student spending

We estimated student spending by using the UIC financial aid office's estimates of room and board, books, supplies, and spending money and estimates of student enrollment at UIC, as reported to the College Board.¹⁵ To develop economic impact estimates that account for the mixed export and local-serving nature of student spending, we developed assumptions (explained above and in the Technical Appendix) about the percentage of undergraduate and graduate students in each college who would not be in Illinois if UIC did not exist. For each college other than Medicine, Dentistry, Engineering, and Pharmacy, we multiplied the estimated spending of that college's students by the appropriate percentage. We counted 100 percent of the students in the Colleges of Medicine, Dentistry, Engineering, and Pharmacy. This approach parallels the method we used to account for the mixed export and local-serving nature of university spending. On the basis of these assumptions we counted 40.4 percent of all estimated student spending in the analysis of the impact of student spending on the state of Illinois.

Student spending is part of the induced impact of UIC on the state's economy. Because spending in Illinois by UIC students is respent by its recipients, student spending has additional induced impacts, which we estimated using IMPLAN.

Visitor spending

UIC has at least 1 million annual visitors that can be documented. The university estimates that 5 percent of these visitors spend two or more days on campus. To calculate daily visitor spending in Illinois, we use the federal per diem rate in Chicago for hotel rates and daily spending.¹⁶ We estimate that 54.4 percent of total estimated visitor spending comes from out-of-state visitors (the same as the university-wide percentage of total tuition and fees counted in the economic impact analysis for the university's colleges). Therefore, we discount total estimated visitor spending by 45.6 percent to count only the impact of out-of-state visitors, who we assume would not otherwise be in Illinois. Total annual visitor spending in our impact analysis is estimated at approximately \$46 million.

Visitor spending is part of the induced impact of UIC on the state's economy. Because spending in Illinois by university visitors is respent by its recipients, visitor spending, like student spending, has additional induced impacts, which we estimated using IMPLAN.

Business spinoffs

Companies started by UIC faculty members are included in our economic impact analysis if they have a presence in Illinois. Because the university does not track companies started by UIC students or alumni, we are unable to include such companies in our impact analysis. Furthermore, the data on faculty spinoffs are based on a survey to which not all companies responded. Thus, this report underestimates the impact of UIC spinoff companies on Illinois. Table 2 shows the number and estimated employment of the 19 spinoff companies that were in existence in 2013 and responded to a survey by the UIC Office of Technology Management. These spinoffs are included in the UIC economic impact analysis. One hundred percent of these estimates are included in the impact analysis because we assumed that the companies and their employees would not exist in Illinois if not for UIC and that no other companies would substitute for them in the absence of UIC.

Spending in Illinois by business spinoffs is part of UIC's indirect impact on the state's economy. The spinoffs themselves also spend money on in-state suppliers, and their employees and those of their in-state suppliers also spend money in the state. We used IMPLAN to estimate these indirect and induced impacts of the spinoffs, which are also included as indirect and induced impacts of the university.

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TABLE 2
UIC Spinoff Companies and Associated Employment in Illinois, 2006–2013

Note: This table reports information on companies for which information was available to UIC. The numbers are underestimates because they are derived from a survey to which not all UIC spinoff companies responded.

Source: UIC Office of Technology Management.

Economic Sector	Number of Spinoff Companies	Est. Full-time Equivalent Employment
Biomedical	12	41.5
Industrial/Mechanical Engineering	6	2.0
Software/Information Technology	1	12.0
Total Degrees	19	55.5

Higher earnings by Illinois residents as a result of increased educational attainment

We estimated the educational attainment impacts of UIC by adapting the method described by Timothy Bartik and George Erickcek to take available UIC-specific information into account.¹⁷ Because the annual impact of new university graduates on the state's economy takes about 40 years to stabilize, we conducted our analysis by assuming that the most recently available annual numbers of UIC graduates (from fiscal year 2013, as shown in Table 1), and total employee compensation of Illinois workers (from 2013), as well as the percentage of Illinois residents who have at least a bachelor's degree (from 2012), would remain constant for the next 40 years.¹⁸ We adjusted the annual number of UIC graduates to account for the fact that some would obtain degrees from other universities if UIC did not exist; we made this adjustment using the same assumptions we used to adjust student spending for the mixed export and local-serving nature of UIC student spending, as described above. Because 69.3

percent of all UIC alumni live in Illinois, we further adjusted the annual number of UIC graduates by assuming that this percentage would apply for the next 40 years.¹⁹ We totaled the number of net college graduates that 40 years of UIC alumni would add to the percentage of the state's population with at least a bachelor's degree. Using this estimate along with estimates from national studies of the impact of college graduates on employment and earnings, we estimated the amount by which total employee compensation in Illinois is higher with UIC than it would be without UIC.²⁰ This is an estimate of the annual impact, after 40 years, of UIC on employee compensation as a result of UIC's contribution to educational attainment in the state; annual estimates after shorter time periods would be proportionally lower.

The Technical Appendix provides additional details about our estimation of economic impact and explains how we estimated the university's tax contribution and impact.

Findings

The findings of this report summarize UIC's economic benefit to the state in three ways: economic contribution (finding A), economic impact (finding B), and economic support activities (finding C).

Finding A: More than 13,000 people work at UIC, 93.5 percent of whom live in Illinois.

Table 3 shows that in fiscal year 2013, UIC had 13,361 full-time equivalent employees, to whom it paid a total of approximately \$1.2 billion in employee compensation (wages, salaries, and employee benefits). Of these employees, 12,492 (or 93.5 percent of the total) lived in Illinois; they received about \$1.1 billion in employee compensation. The university's total and in-state value added were the same as its total and in-state employee compensation, respectively.

TABLE 3
UIC's Economic Contribution, 2013

Measure of Economic Activity	Total (ALL STATES)	Illinois only
Employment Full-time Equivalent	13,361	12,492
Employee Compensation millions of dollars	\$1,206	\$1,127
Value Added millions of dollars	\$1,206	\$1,127

*wages, salaries, and employee benefits.

Source: Authors' analysis of UIC data sources described in the Technical Appendix to this report.

Table 4 presents estimates of major taxes (individual income tax, sales tax, and property tax) paid directly by UIC employees and students to the state and local governments in Illinois. The table shows that UIC employees and students paid a total of about \$99 million in these state and local taxes, of which nearly 40 percent came from the individual income tax.

TABLE 4
Estimates of Major Illinois State and Local Taxes Paid by UIC Employees, 2012–2013*

Type of Tax	Taxes Paid (IN MILLIONS)	% of Total
Individual Income Tax	\$38	39%
Sales Tax (6.25% state rate) Employees	\$19	19%
Sales Tax (6.25% state rate) Students	\$10	10%
Property Tax	\$32	32%
TOTAL	\$99	100%

*Estimates are based on the most recent data available. Sales tax estimates are based on 2013 data. Property tax estimates are based on 2012 data. Income tax estimates are based on 2013 university salary data and 2012 state income tax data.

Note: Types of tax may not add to total because of rounding.

Source: Authors' analysis of Illinois Department of Revenue data and UIC data as described in the Technical Appendix.

TABLE 5**UIC's Impact on Value Added in Illinois, 2013**

Source of Impact	Value Added (IN MILLIONS)	% of Total
University Spending (direct, indirect & induced impact)	\$1,003	25%
Student Spending	\$80	2%
Visitor Spending	\$47	1%
Business Spinoffs	\$13	0%
Higher Earnings Due to Increased Educational Attainment	\$2,894	72%
TOTAL	\$4,037	100%

Note: Sources of impact may not add to total because of rounding.

Source: Authors' estimates using IMPLAN 3.0 2011 data for Illinois and UIC data described in the Technical Appendix to this report.

Finding B: UIC adds \$4.0 billion to the Illinois economy, most of which comes from UIC's impact on educational attainment in the state.

In 2013, UIC added a total of about \$4.0 billion in value added to the state economy, including the direct, indirect, and induced effects of spending by UIC, the impact of spending by UIC students, visitors, and business spinoffs, and higher earnings due to the increased educational attainment of residents of the state that is attributable to UIC. This meant that UIC made the output (value added) of the state economy about 0.6 percent higher than it would have been without UIC.²¹

About \$2.9 billion of UIC's total \$4.0 billion value-added impact came from the higher earnings that result from increased educational attainment in the region (Table 5)²² or nearly three-fourths of the total impact. This finding underscores the importance of the educational functions of UIC as a driver of regional economic development. Although the university also contributes to the region's economy by bringing its own export-oriented economic activity into the region (nearly 25 percent of UIC's total economic impact) and by bringing student, visitor, and business spinoff spending into the region (about 3 percent of UIC's total impact), by far its greatest contribution to the region's economy comes

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TABLE 6

UIC's Impact on Employee Compensation in Illinois, 2013

Source of Impact	Employee Compensation (IN MILLIONS)	% of Total
University Spending (direct, indirect & induced impact)	\$811	21%
Student Spending	\$45	1%
Visitor Spending	\$30	1%
Business Spinoffs	\$10	0%
Higher Earnings Due to Increased Educational Attainment	\$2,894	76%
TOTAL	\$3,790	100%

Note: Sources of impact may not add to total because of rounding.

Source: Authors' estimates using IMPLAN 3.0 2011 data for Illinois and UIC data described in the Technical Appendix to this report.

from the education of its students. In an era when government, business, and the general public increasingly look to universities to meet economic development needs through industry-university research partnerships and technology spinoffs, it is important to bear in mind that education is the primary means by which UIC contributes to regional economic development.²³

A comparison of Tables 3 and 5 shows that the overall impact UIC has on the state economy is higher than UIC's own value added. This is because the university has indirect and induced impacts on the regional economy in addition to its direct impacts and because it generates student spending, visitor spending, busi-

ness spinoff spending, and higher earnings through increased educational attainment.

When economic impact is measured in terms of employee compensation, the results are similar to those obtained when it is measured by value added. UIC's total impact on employee compensation in the state is about \$3.8 billion. Once again, higher education's impact on educational attainment in the region accounts for most of the district's total impact on the regional economy (Table 6).

TABLE 7**UIC's Impact on Employment in Illinois, 2013**

Source of Impact	Employment	% of Total
University Spending (direct, indirect & induced impact)	10,930	84%
Student Spending	951	7%
Visitor Spending	962	7%
Business Spinoffs	125	1%
Increased Employment Due to Increased Educational Attainment	N/A	N/A
TOTAL	12,968	100%

N/A = not available.

Note: Sources of impact may not add to total because of rounding.

Source: Authors' estimates using IMPLAN 3.0 2011 data for Illinois and UIC data sources described in the Technical Appendix to this report.

UIC adds at least 12,968 jobs to the state's economy (Table 7). This estimate of job impact includes the direct, indirect, and induced employment effects of UIC and the employment effects of spending by UIC students, visitors, and business spinoffs. We are not able to estimate the job impacts of increased educational attainment in the region from UIC because we are not able to estimate to what extent that increased educational attainment leads to new jobs for people who would not otherwise live in the region. Because increased educational attainment is likely to lead to the creation of some new jobs (even though we cannot say how many), our estimate of UIC's employment impact understates the true impact.

The total number of jobs that UIC adds to the state is only slightly larger than the total number of jobs within UIC. This is primarily because the university and UIC medical center are, in part, local-serving organizations and, as such, generate fewer jobs in the state than they provide for their own employees. If some of UIC's colleges were to close, other universities in Illinois would expand to serve some of their students. This is also true of the UIC medical center; nearly all of its patients would otherwise go to other nearby hospitals. This is to be expected of nearly all hospitals, regardless of location, and does not mean that the UIC medical center is a poor job generator.

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TABLE 8

UIC's Impact on State and Local Tax Revenue Generated from Illinois, 2013

Source of Impact	Tax Revenue (IN MILLIONS)	% of Total
University Spending (direct, indirect & induced impact)	\$45	75%
Student Spending	\$8	13%
Visitor Spending	\$6	10%
Business Spinoffs	\$1	2%
Higher Earnings Due to Increased Educational Attainment	N/A	N/A
TOTAL	\$60	100%

N/A=not available.

Note: Sources of impact may not add to total because of rounding.

Source: Authors' estimates using IMPLAN 3.0 2013 data for Illinois, and UIC data sources described in the Technical Appendix to this report.

Table 8 shows UIC's impact on Illinois state and local tax revenue. The total impact of \$60 million should be regarded as an underestimate because it does not include the tax revenue impact of the increased local earnings that result from the university's impact on educational attainment in the region. (Increased local earnings will generate increased tax revenue, but the amount of that increase depends on how the increased earnings are distributed, which is something we are unable to estimate.)

TABLE 9**Sponsored Research Funding by College or Other Unit, 2013**

College or Other Unit	Federal	State	Other Government	Private Grants & Contracts	Total
Medicine	\$104,962,176	\$2,705,461	\$54,069	\$10,710,716	\$118,432,422
Public Health	\$28,677,932	\$133,290	(\$6,056)	\$5,293,850	\$34,099,016
Liberal Arts & Sciences	\$27,323,121	\$350,039	\$90,012	\$3,216,497	\$30,979,669
Engineering	\$16,651,959	\$3,043,911	\$29,047	\$1,754,504	\$21,479,421
Pharmacy	\$12,683,398	\$0	\$0	\$2,555,905	\$15,239,302
Dentistry	\$12,833,332	\$0	\$13,211	\$319,860	\$13,166,403
Applied Health Sciences	\$10,816,832	\$593,999	\$0	\$1,672,285	\$13,083,116
Nursing	\$6,297,120	\$354,708	\$0	\$467,405	\$7,119,233
Urban Planning & Public Affairs	\$2,888,270	\$316,231	\$52,826	\$840,262	\$4,097,588
Vice Chancellor for Research	\$2,293,265	\$284,178	\$0	\$236,925	\$2,814,368
Education	\$1,894,964	\$170,672	\$83,436	\$385,501	\$2,534,573
Social Work	\$1,056,093	\$459,723	\$0	\$179,934	\$1,695,750
Healthcare System, Institute for Patient Safety Excellence	\$744,070	\$0	\$0	\$3,053	\$747,123
Graduate College	\$116,632	\$333,301	\$0	\$5,000	\$454,933
Healthcare System, Mile Square Health Center	\$46,964	\$154,600	\$0	\$168,458	\$370,022
Business Administration	\$78,157	\$0	\$0	\$28,901	\$107,058
Architecture, Design, & the Arts	\$42,653	\$0	\$0	\$18,816	\$61,469
Facilities Management	\$12,100	\$43,800	\$0	\$0	\$55,900
Provost	\$0	\$0	\$0	\$33,709	\$33,709
Library	\$21,037	\$0	\$0	\$0	\$21,037
Total	\$229,440,073	\$8,943,913	\$316,545	\$27,891,581	\$266,592,112

Source: UIC Office of Business and Financial Services

Findings

Finding C: UIC also supported the state's economy in 2013 by:

1. contracting for a total of \$25.8 million with firms owned and controlled by minorities, women, and persons with disabilities;
2. conducting \$266.6 million of sponsored research, \$228.4 million of which was funded by the federal government;
3. receiving 24 new patents and generating \$20.5 million in royalties from new and existing patents;
4. providing \$665.3 million in uncompensated medical care;
5. providing \$460.8 million in student financial aid.

Minority and Female Business Enterprise Supplier Diversity Program

In 2013, UIC contracted for a total of \$25.8 million in goods and services with 745 firms owned and controlled by minorities, women, and persons with disabilities.

It is the public policy of the state to promote and encourage the continuing economic development of businesses owned and controlled by minorities, women, and persons with disabilities and to provide these businesses with the opportunity to participate in the state's procurement process as both prime contractors and subcontractors.²⁴ The Minority and Female Business Enterprise Supplier Diversity Program is a university initiative committed to vendor diversification by ensuring that businesses with ownership meeting the definitions of "minority," "female," and "persons with disabilities," are included in the university procurement process.²⁵ The program fosters an equitable and competitive business environment by encouraging campus departments to consider certified qualified businesses for their contracting needs.

Sponsored research

UIC conducted \$266.6 million worth of sponsored research in 2013, 86.1 percent of which came from federal government sources (Table 9). The College of Medicine was by far the largest recipient, with 44.4 percent of the university's sponsored research funding.

TABLE 10**Disclosure, Patent, and License Information by College or Other Unit, 2013**

College or Other Unit	Disclosures	Patents Filed	Patents Issued	Licenses
Applied Health Sciences	6	4	0	0
Architecture, Design & the Arts	2	2	0	1
Business Administration	1	1	0	0
Center for Clinical & Translational Science	1	0	0	0
Dentistry	6	10	1	3
Engineering	43	36	8	11
Innovation Center	13	6	0	5
Liberal Arts & Sciences	18	8	0	1
Medicine	83	88	7	24
Nursing	2	1	0	0
Pharmacy	27	45	8	7
Public Health	3	0	0	0
Social Work	0	2	0	2
TOTAL	205	203	24	54

Source: University of Illinois Offices of Technology Management, Fiscal 2013 Annual Report, available at http://otm-info.uic.edu/annual_report/FY2013.pdf

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Intellectual property

Many UIC research efforts lead to disclosures, patents, and licenses (Table 10). The university received 24 patents in 2013, most of which came from research conducted in the Colleges of Engineering, Medicine, and Pharmacy. In addition, the university earns royalties from previous research efforts. In 2013, royalties earned from UIC research totaled \$20,513,400. For more on the role of technology within UIC, see the University of Illinois Offices of Technology Management Annual Report.²⁶

Campus losses on uncompensated health care

In 2013, UIC absorbed \$665,338,104 in non-reimbursed medical related expenses (Table 11). Medicare costs at UIC were \$484.7 million in 2013, for which the university was reimbursed for 30.5 percent. For Medicaid, total 2013 costs were \$535.5 million, for which the university was reimbursed for 43.9 percent. The UIC medical center also provided \$28.4 million in charity care. These figures do not include Medicaid Managed Care for the medical center, Mile Square, or faculty practice plans in Nursing, Dentistry, and Pharmacy.

TABLE 11
Uncompensated Medical Costs Borne by UIC, 2013

Source	Amount
Unreimbursed Medicare	\$336,696,266
Unreimbursed Medicaid	\$300,199,375
Charity Care	\$28,442,463
TOTAL	\$665,338,104

Source: UIC Medical Center

TABLE 12

Tuition and Financial Aid by College and Enrollment Status, 2013

College		Total Financial Awards GRANTS, SCHOLARSHIPS, LOANS, WORK STUDY	Direct Financial Aid GRANTS AND SCHOLARSHIPS	Net Tuition & Fees
UNDERGRADUATE	Applied Health Sciences	\$10,068,623	\$4,780,848	\$9,272,339
	Architecture, Design, & the Arts	\$13,520,164	\$6,672,150	\$14,476,890
	Business Administration	\$30,467,229	\$17,567,365	\$30,052,956
	Education	\$3,764,459	\$2,451,007	\$3,404,169
	Engineering	\$33,137,943	\$18,031,965	\$34,260,346
	Liberal Arts & Sciences	\$123,759,978	\$70,502,131	\$120,731,578
	Nursing	\$5,328,029	\$2,198,045	\$5,439,575
	Public Health	\$571,102	\$270,180	\$124,897
	Urban Planning & Public Affairs	\$881,597	\$399,320	\$775,452
	Continuing Studies	\$529,164	\$480,303	\$1,202,615
	Other	\$206,183	\$114,482	\$215,003
	SUBTOTAL	\$222,234,471	\$123,467,796	\$219,955,820
GRADUATE	Applied Health Sciences	\$12,180,834	\$418,392	\$3,366,300
	Architecture, Design, & the Arts	\$3,795,426	\$393,791	\$2,023,868
	Business Administration	\$6,984,995	\$942,527	\$9,622,541
	Dentistry	\$180,661	\$23,854	\$37,058
	Education	\$8,402,059	\$1,226,978	\$3,436,205
	Engineering	\$13,515,460	\$722,351	\$7,160,925
	Liberal Arts & Sciences	\$26,801,683	\$2,064,765	\$1,367,434
	Medicine	\$3,859,997	\$513,543	\$692,199

Findings

TABLE 12 CONTINUED

	College	Total Financial Awards GRANTS, SCHOLARSHIPS, LOANS, WORK STUDY	Direct Financial Aid GRANTS AND SCHOLARSHIPS	Net Tuition & Fees
GRADUATE	Nursing	\$14,943,482	\$1,152,076	\$10,719,870
	Pharmacy	\$3,043,520	\$277,222	\$138,595
	Public Health	\$12,446,572	\$859,593	\$5,104,897
	Social Work	\$8,546,733	\$480,173	\$3,781,439
	Urban Planning & Public Affairs	\$6,143,495	\$583,781	\$3,691,730
	Graduate College	\$1,859,289	\$330,763	\$1,259,505
	Continuing Studies	\$529,164	\$480,303	\$170,687
	SUBTOTAL	\$123,233,370	\$10,470,112	\$52,573,254
PROFESSIONAL	Applied Health Sciences	\$4,088,064	\$34,033	\$3,032,183
	Medicine	\$60,829,165	\$3,892,793	\$53,585,264
	Dentistry	\$24,769,756	\$282,561	\$19,381,944
	Pharmacy	\$25,651,369	\$427,388	\$21,047,276
	SUBTOTAL	\$115,338,354	\$4,636,775	\$97,046,667
UNIVERSITY TOTAL		\$460,806,195	\$138,574,683	\$369,575,741

Source: UIC Office of Budget & Program Analysis (EDW)

Student financial aid

Table 12 shows that in 2013, UIC students were awarded \$460.8 million in financial aid. Approximately 48 percent of the total aid went to undergraduate students of which just over 50 percent are Pell eligible (low-income). This amount represents all financial aid

available and includes loans, grants, work-study, private and institutional aid. Because not all of that funding is paid to UIC as tuition and fees, the difference in the net amount collected covers the cost of books, housing and other expenses related to attending UIC.

Conclusion

UIC is an important economic engine for the state of Illinois.

Our analysis of UIC's economic contribution to the state shows that in 2013, UIC directly provided 12,492 jobs to Illinois residents and paid them a total of \$1.1 billion, accounting for \$1.1 billion in value added in the state. UIC employees and students paid Illinois state and local governments \$99 million in income, sales, and property taxes.

Our analysis of UIC's economic impact on the state shows that, in 2013, UIC increased the state's employment by at least 12,968 jobs; increased its total

employee compensation by \$3.8 billion; and increased the overall size of its economy (value added) by \$4.0 billion — a 0.6 percent increase in the size of the Illinois economy. UIC also increased Illinois state and local tax revenue by at least \$60 million.

UIC also supports the state's economy in other less tangible ways by contracting with firms owned or controlled by members of underrepresented groups, performing sponsored research, creating intellectual property, providing health care to those who would not otherwise obtain it, and providing financial aid to students.

Technical Appendix

Data sources

We obtained detailed data on university spending for fiscal year 2013 from the Office of Business and Financial Services (OBFS). Data were provided for each college of the university, the UIC medical center, and all other units of the university (the latter of which we combined into a single unit that we designated “central administration”). We translated the spending categories in UIC’s internal accounting system into appropriate IMPLAN codes. Using information from OBFS and, where necessary, our own judgment, we estimated the percentage of spending in each category that went to employees, contractors, and vendors within Illinois. We backed out transfer spending between colleges to avoid double-counting economic impact. The analysis was done at the account level for each college, the medical center, and central administration, providing the most accurate mapping, and hence economic impact modeling, possible.

The OBFS data on university-paid wages and salaries show that in 2013 UIC paid a total of \$934.0 million in wages and salaries to its employees. We estimated normal employee benefit costs in 2013 at 29.1 percent of wages and salaries, or \$271.8 million.²⁷ We used this estimate rather than using actual spending on employee benefits because Illinois’ state government is currently making more than normal cost payments for both pensions and health insurance to make up for past underfunding.

In 2013 UIC spent \$803.4 million on supplies and services, the majority of which went directly to Illinois-based businesses. Major spending categories within the supply and service category included \$71.7 million in capital expenditures and \$379.8 million in sponsored program expenditures.²⁸

The Office of Budget and Program Analysis provided us with information regarding tuition and financial

aid; the Office of Institutional Research provided relevant student data. Student budget information from the Office of Financial Aid provided the basis for our estimates of student spending, while the in-state/out-of-state student breakdown enabled us to adjust university spending, student spending, and educational attainment impacts on earnings for the mixed export and local-serving nature of the university.

The offices of Career Services and Student Affairs provided information about visitors to university events and assisted us in estimating the numbers of visitors in each category who were likely to have come from outside Illinois. The Office of Technology Management provided information about intellectual property and business spinoffs and assisted us in estimating employment in Illinois spinoffs. The Office of the Vice Chancellor for Research provided information about sponsored research funding. Campus Auxiliary Services, the College of Medicine, the School of Public Health, and the Office of Public and Government Affairs provided additional information used in the report.

Modeling approach

Although IMPLAN has default assumptions about broad categories of government spending, we were able to obtain detailed information on institutional spending patterns at the college level for all UIC spending and, therefore, did not need to rely on the default assumptions. Using these spending patterns to conduct what IMPLAN refers to as “Analysis by Parts,” we calculated the direct, indirect, and induced impacts separately and added them up manually. We used this method to estimate the combined direct, indirect, and induced impacts of all UIC spending, student spending, visitor spending, and business spinoff spending.

Adjustment of local-serving and mixed export and local-serving components of UIC

Because UIC is a mixed export-oriented and local-serving organization, we adjusted our estimates of each college's economic activity as described in the methodology section of this report.

For colleges other than Medicine, Dentistry, Engineering, and Pharmacy, we assumed that 7 percent of in-state undergraduates and 75 percent of out-of-state undergraduates would not be in Illinois, and that their tuition payments would not be spent in Illinois, if UIC did not exist. We derived these assumptions from information that UIC's admissions office provided to us about undergraduates admitted to UIC who chose to attend college elsewhere. This information has some important limitations. It covers the majority of such applicants but not all of them, and is limited to the 25 schools enrolling the largest numbers of undergraduates admitted to UIC but attending school elsewhere. In using it, we must assume that all UIC undergraduates would attend some other college or university if they were not attending UIC. We must also assume that the first-choice college preferences of admitted

undergraduates who did not attend UIC reflect the second-choice college preferences of UIC undergraduates; this assumption may not be correct. Nevertheless, the admissions office information is the only relevant information on which to base our estimates.

For undergraduates admitted to UIC but enrolling elsewhere, the information provided by the admissions office contains detailed student breakdowns of (a) the 25 colleges and universities attended by the largest numbers of these students, (b) the 20 attended by the largest numbers of U.S. out-of-state students, (c) the 11 attended by the largest numbers of foreign students, and (d) the 20 attended by the largest numbers of students scoring 28 or higher on the ACT. To estimate the percentage of in-state students who would otherwise be in a state other than Illinois, we first subtracted from the enrollment totals in category (a) the out-of-state student enrollment totals at the same schools that are also in categories (b) and (c) and then calculated the percentage of the remaining students who attended the out-of-state schools in category (a). This yielded an estimate of 4 percent of in-state students who would otherwise be in a state other than Illinois. Because we believe that students with very high test scores may

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be more mobile among states than other students, we recalculated our estimate, subtracting the students in category (d) who chose to attend each of the schools in category (a). This yielded an estimate of 10 percent of in-state students who would otherwise be in a state other than Illinois. Because category (d) does not distinguish between in-state and out-of-state students, however, we believe that 10 percent is an overestimate. Therefore, we averaged the two estimates to obtain our estimate that 7 percent of in-state undergraduates would not be in Illinois if UIC did not exist. To obtain our estimate that 75 percent of out-of-state undergraduates would not be in Illinois if UIC did not exist, we combined the out-of-state student enrollment estimates for the schools in categories (b) and (c) and then calculated the percentage of the combined number of students who attended the out-of-state schools appearing in those categories.

No corresponding information is available for graduate students. In the absence of such information, we assumed, for colleges other than Medicine, Dentistry,

Engineering, and Pharmacy, that all in-state graduate students, but no out-of-state graduate students, would attend other in-state institutions if UIC did not exist. These assumptions reflect the view that out-of-state graduate students primarily choose graduate programs on the basis of nationwide comparisons of departments or programs, while in-state students largely choose graduate programs because they have job or family responsibilities that keep them in the state. This view is not correct for all students, as some out-of-state students probably have personal reasons for being in Illinois and some in-state students probably choose UIC on the basis of a nationwide comparison. To the extent that these two sources of error in our assumptions are roughly equal in size, our assumptions will produce fairly accurate estimates. To the extent that one is much larger than the other, our assumptions will under- or overestimate UIC's economic impact on Illinois.

Appendix Table 1 shows the percentages of university spending and of students, respectively, that we includ-

APPENDIX TABLE 1

Percent of Spending Included in Economic Impact Analysis, 2013

College or Other Unit	% of University Spending Counted in the Economic Impact Analysis	% of students included in the Economic Impact Analysis
Applied Health Sciences	38.9%	38.8%
Architecture, Design, & the Arts	28.2%	22%
Business Administration	35.1%	33.9%
Central Administration	54.4%	N/A
Medicine	100%	100%
Dentistry	100%	100%
Education	18.1%	12.8%
Engineering	100%	100%
Graduate College	24%	14.6%
Honors College	29.8%	N/A
Liberal Arts & Sciences	26.1%	20.7%
Medical Center	3.2%	N/A
Nursing	19.6%	14.9%
Pharmacy	100%	100%
Continuing Studies	8.7%	7.9%
Public Health	46.9%	39.2%
Social Work	17.9%	12%
Urban Planning & Public Affairs	37.9%	27.7%
UNIVERSITY TOTAL	47.7%	40.4%

N/A= not applicable

Source: Authors' analysis of data provided by UIC.

ed in the analysis on the basis of the above assumptions and others explained in the methodology section of this report. We used the percentages of university spending shown in the table to adjust our estimates of the impact of university spending. We used the percentages of students shown in the table to adjust our estimates of student spending and educational attain-

ment impacts. (We did not adjust business spinoff impacts because we considered that none of the business spinoffs would exist in Illinois in the absence of the university. We did not adjust visitor spending because we counted only visitor spending that we had reason to believe was done by out-of-state visitors who would not otherwise be in Illinois.)

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Tax contribution and impact estimates

We estimated the Illinois state and local tax payments made by UIC employees and students (shown in Table 4 in the text) and impacts on Illinois state and local tax revenue (Table 8) as follows.

1. Individual Income Tax

The most recent data available from the Illinois Department of Revenue (for tax year 2012) indicates that income tax filers who earned between \$50,000 and \$75,000 paid an average of \$2,864 in income tax.²⁹ (The average UIC employee salary for 2013 is \$69,909, which falls within the \$50,000-\$75,000 range.) We multiplied the average income tax by the number of UIC employees who live in Illinois. This yields an estimate of \$38.3 million in Illinois individual income taxes paid by UIC employees.

2. Property tax

The starting point in developing this estimate is average property tax credit information for Illinois.³⁰ The property tax credit is 5 percent of property taxes paid. The average property tax credit for all returns with an income level between \$50,000 and \$75,000 is \$126.60. This average credit amount suggests that UIC employees who live in Illinois pay a total of \$31.6 million in property taxes annually.

3. Employee Sales Tax

Using 2013 Consumer Expenditure Survey data, we estimated that, on average, 52.1 percent of consumer spending within the income range of \$50,000 to \$79,999 is subject to sales tax.³¹ Using a statewide sales tax rate of 6.25 percent for most major expenditure categories (with the exception of food for consumption in the home, drugs, and medical supplies, which

are taxed at a 1 percent rate), we estimated the average annual sales tax paid by individuals within this income rate at \$1,533. We then multiplied this annual average amount of sales tax by the number of UIC employees who live in Illinois. We did not estimate local sales tax paid because we did not have information on where employees make their purchases. We estimated that UIC employees pay \$19.1 million annually in Illinois state sales tax.

4. Student Sales Tax

To make sales tax estimates associated with student spending, we started with student budget estimates.³² This yielded an average per-student spending of \$11,875. We then used the Consumer Expenditure Survey to determine how much of this spending is subject to the sales tax in Illinois. We used the spending distribution in the income range \$10,000 to \$14,999 to distribute student budget spending. We then calculated sales tax based on the categories of Consumer Expenditure Survey spending that are subject to Illinois sales tax. This approach produced an annual estimate of \$10.4 million.

We used IMPLAN to estimate UIC's impact on the major sources of Illinois state and local tax revenue. Even though UIC itself is tax-exempt, it generates tax revenue through its indirect and induced impacts on the state's economy. For example, when the university buys goods or services from private companies in the state, it creates jobs in those companies, thereby generating state income tax revenue. Likewise, when the university's employees spend their earnings, they generate state income tax and state and local sales tax revenue. The tax impacts shown in Table 8 in the text represent estimates of all taxes paid by direct, indirect, and induced activities associated with UIC's economic impact.

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About the Center for Urban Economic Development

The Center for Urban Economic Development (CUED) conducts research, policy analysis, and evaluation on urban and regional economic and workforce development issues, programs, and strategies. Established in 1978, CUED is a unit of the College of Urban Planning and Public Affairs at the University of Illinois at Chicago and is affiliated with the university's Great Cities Institute.

See www.urbaneconomy.org

¹ Natalie Davila was formerly a senior associate in the Center for Urban Economic Development at the University of Illinois at Chicago, where Claire Thomison was also a research assistant. Howard Wial was formerly Executive Director and Associate Research Professor in the Center for Urban Economic Development at the University of Illinois at Chicago and Nonresident Senior Fellow of the Brookings Institution Metropolitan Policy Program.

² UIC Key Facts, University of Illinois at Chicago Office of Public Affairs, www.uic.edu/uic/about/keyfacts/index.shtml.

³ University of Illinois at Chicago, "The Illinois Bill of Health: By the Numbers," <http://uic.edu/depts/paff/billofhealth/overview/bythenumbers.html>.

⁴ The distinction between economic contribution and economic impact is due to Philip Watson, Joshua Wilson, Dawn Thilmany, and Susan Winter, "Determining Economic Contributions and Impacts: What Is the Difference and Why Do We Care?", *Journal of Regional Analysis and Policy* 37:140-146 (2007).

⁵ See Timothy J. Bartik and George Erickcek, "Eds and Meds' and Metropolitan Economic Development," in Margery Austin Turner, Howard Wial, and Harold Wolman, eds., *Urban and Regional Policy and Its Effects*, vol. 1, (Washington: Brookings Institution Press, 2008), pp. 21-59; John J. Siegfried, Allen R. Sanderson, and Peter McHenry, "The Economic Impact of Colleges and Universities," *Economics of Education Review* 26(5) (October 2007): 546-558.

⁶ Therefore, it is not correct to add tax revenue impacts to measures of economic impact.

⁷ The impact of university R & D spending as a contributor to the region's export base is included in our estimates of UIC's impact on the size of the region's economy, although it cannot be broken out separately from the impact of other university spending.

⁸ The material in this section is based on Bartik and Erickcek, "Eds and Meds'," and Siegfried, Sanderson, and McHenry, "Economic Impact."

⁹ Spinoff companies started by UIC students and alumni using ideas developed at the university should also count as part of the university's economic impact. However, we were not able to obtain information about those companies.

¹⁰ A cost-benefit analysis of UIC would require subtracting all sources of funding that would otherwise be spent in Illinois from our estimate of the university's economic impact and comparing the result with a measure of the university's cost. The university's state appropriation and Illinois state and local government grants and contracts would be the most important sources of funding that would otherwise be spent in Illinois, but some federal and private foundation grants may also be dedicated to Illinois universities.

¹¹ There could also be in-state visitors who would otherwise leave Illinois to attend the event for which they are visiting the university. For example, an academic conference that draws on expertise that exists at some out-of-state universities but nowhere else in Illinois other than UIC could attract such visitors. We have no information about events of this type at UIC (if any) and, therefore, do not count in-state visitors to UIC events as part of the university's economic impact on the state.

¹² New products or production processes introduced by existing companies in Illinois using the results of UIC research are also part of the university's economic impact on the state, but we are unable to estimate their value

¹³ For a review of this research see Enrico Moretti, "Human Capital Externalities in Cities," in J. Vernon Henderson and Jacques-Francois Thisse, eds., *Handbook of Regional and Urban Economics*, volume 4, pp. 2243-2291 (Amsterdam: Elsevier, 2004).

¹⁴ This analysis used IMPLAN's econometric regional purchasing coefficients trade flow model.

¹⁵ Available financial aid office estimates of student budgets were for the 2012-2013 academic year.

¹⁶ Federal Per Diem Rates for Chicago, Illinois, General Service Administration, www.gsa.gov/portal/category/100120 (accessed June 16, 2014).

Notes

¹⁷ See Bartik and Erickcek, “Eds and Meds.”

¹⁸ Illinois employee compensation for 2013 was obtained from the U.S. Bureau of Economic Analysis. The percentage of Illinois residents (age 25 or older) with at least a bachelor’s degree was obtained from the Census Bureau’s 2013 American Community Survey.

¹⁹ The 69.3 percent figure was generated in October 2013 from data provided to us by the UIC Alumni Association.

²⁰ For details of the estimates from national studies, see Bartik and Erickcek, “Eds and Meds.” Further information about the specific calculation used in this report is available from the authors on request.

²¹ Authors’ estimates based on estimated UIC value-added impact and Bureau of Economic Analysis data on GDP (value added) of Illinois for 2013, and the Bureau of Labor Statistics data on aggregate wages in Illinois. All data are for the year 2013. We divided the estimated UIC value-added impact by the estimated value added for the state minus UIC’s value-added impact.

²² As explained in the text, we assume that the higher earnings that are due to educational attainment reflect productivity gains and, therefore, that all those additional earnings represent additional economic output.

²³ In a multi-regional study of the role of universities in economic development, Richard Lester also found education is often universities’ most important contribution to regional economic development. See Richard K. Lester, “Universities, Innovation, and the Competitiveness of Local Economies,” MIT Industrial Performance Center Working Paper 05-010 (Cambridge: MIT Industrial Performance Center, 2005).

²⁴ Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575 (effective 1994).

²⁵ University of Illinois at Chicago, Minority and Female Business Enterprise Supplier Diversity Program, www.obfs.uillinois.edu/mafbe, accessed June 24, 2014.

²⁶ University of Illinois Offices of Technology Management, *Fiscal 2013 Annual Report*, available at http://otm-info.uic.edu/annual_report/FY2013.pdf.

²⁷ In estimating benefits, we include pension and health care costs. For pensions, we use normal pension costs only. This information was obtained from the State Universities Retirement System Comprehensive Annual Financial Report for Fiscal Year 2013 (page 73), www.surs.com/pdfs/ann_rep/content/PDFS/COMP.pdf, accessed May 7, 2014. Health care cost estimates are extrapolated from the Bureau of Labor Statistics estimates of employer costs, www.bls.gov/news.release/archives/ecec_06122013.pdf (page 8), accessed July 28, 2014. Combined employer pension and health care costs are estimated at 30.1 percent of wages and salaries.

²⁸ These figures are from the university’s General Ledger. As such they include spending by one College for services provided by another College. We eliminated this “double-counting” when conducting our economic impact analysis.

²⁹ Source: Illinois Department of Revenue, 2012 1040 Summary Data.

³⁰ Source: Illinois Department of Revenue, 2012 1040 Summary Data.

³¹ Source: Bureau of Labor Statistics, Annual Consumer Expenditure Survey, www.bls.gov/cex/22013/midyear/higherincome.pdf, accessed June 16, 2014.

³² Data obtained from College Board, Spring 2014. <https://bigfuture.collegeboard.org/college-university-search/university-of-illinois-at-chicago>.



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