

# **Environmental Scan**

University of Illinois  
Office for Planning and Budgeting  
7<sup>th</sup> Edition, September 2015

# Environmental Scan: Purpose and Process

*The purpose of an environmental scan is to support and inform the strategic planning process. A good environmental scan will help an organization understand and respond effectively to changes in their environments.<sup>1</sup>*

- This environmental scan provides information on **demographics, higher education, economic and budgetary matters, research, technology, and economic development**, the **political landscape**, and the related implications, opportunities, and challenges for the University of Illinois.
- The University of Illinois' initial environmental scan was developed in March 2005 to set a context for the University's strategic planning framework. Subsequent editions of the environmental scan have updated source data for many of the charts and graphs and added elements of increasing importance (e.g., information has also been added on the topics of **global competitiveness in higher education participation, completion, and attainment, energy, online education**, and the impacts of the **aging** population).
- Because the external environment in which the University of Illinois operates is continually changing, the environmental scan will be updated and refined periodically to reflect the most recent available information on key opportunities and challenges facing the University.
- Feedback on the usefulness of the environmental scan and suggestions for improvement are welcome and encouraged. Please direct any comments or questions to the University Office for Planning and Budgeting (UOPB) via e-mail to [envscan@uillinois.edu](mailto:envscan@uillinois.edu).

<sup>1</sup> Bryson, John M. Strategic Planning for Public and Nonprofit Organizations. 2004.

## Key Highlights: Opportunities

- Creatively addressing the educational, health care, and other needs of an increasingly diverse Illinois population
- Developing a niche within the rapidly developing market for online education both nationally and globally
- Responding to the growing global demand for individuals with training in the sciences and engineering
- Enhancing capacity in energy research and development (both traditional and renewable sources)
- Developing new and enhanced University revenue sources from the growing demand for higher education and R&D activities
- Effectively responding to the increased interest of state and federal policymakers in the public accountability of colleges and universities

## Key Highlights: Challenges

- Maintaining and enhancing access to the University for minority, low income, and first-generation students
- Recruiting and retaining high quality faculty and staff given increasing competition and looming retirements
- Ensuring the highest level of academic quality in the face of state and federal funding constraints
- Maintaining the University's physical environment absent new infusions of state capital funding
- Expanding the University's R&D capacity given federal funding constraints
- Balancing interest in enhancing higher education's public accountability with legitimate privacy concerns within the University community (students, faculty, and staff)

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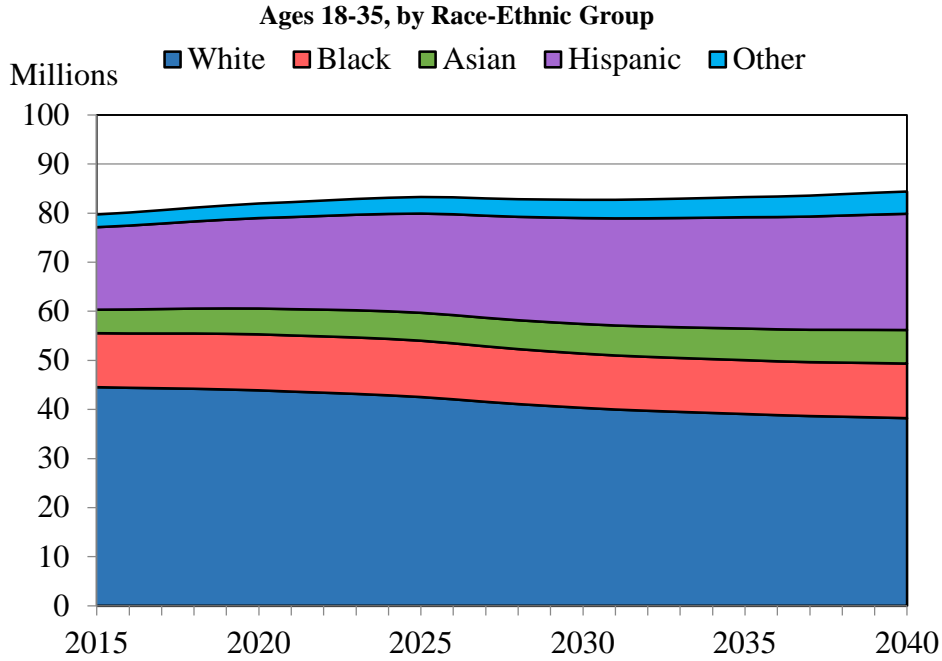
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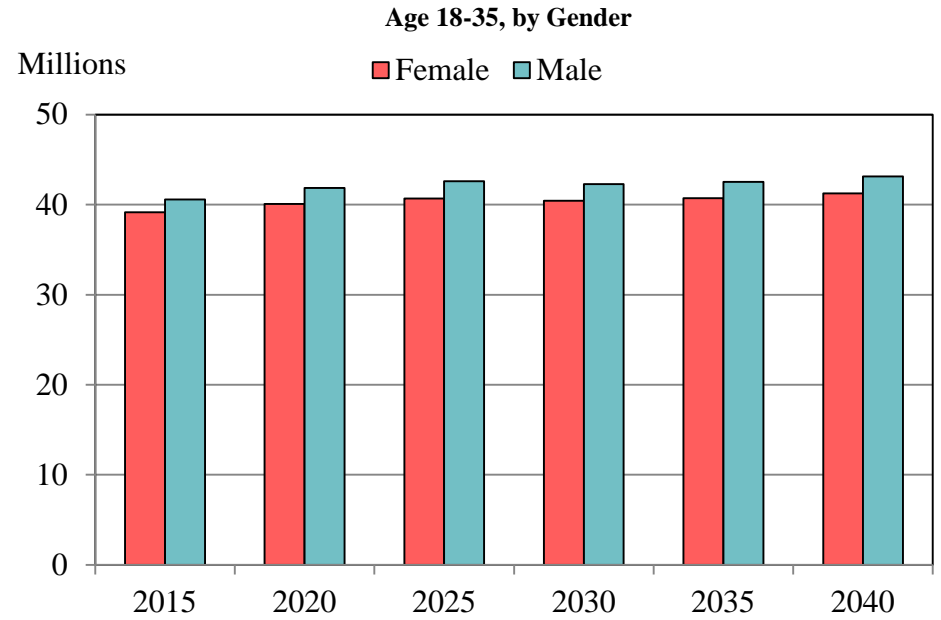
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# Demographics

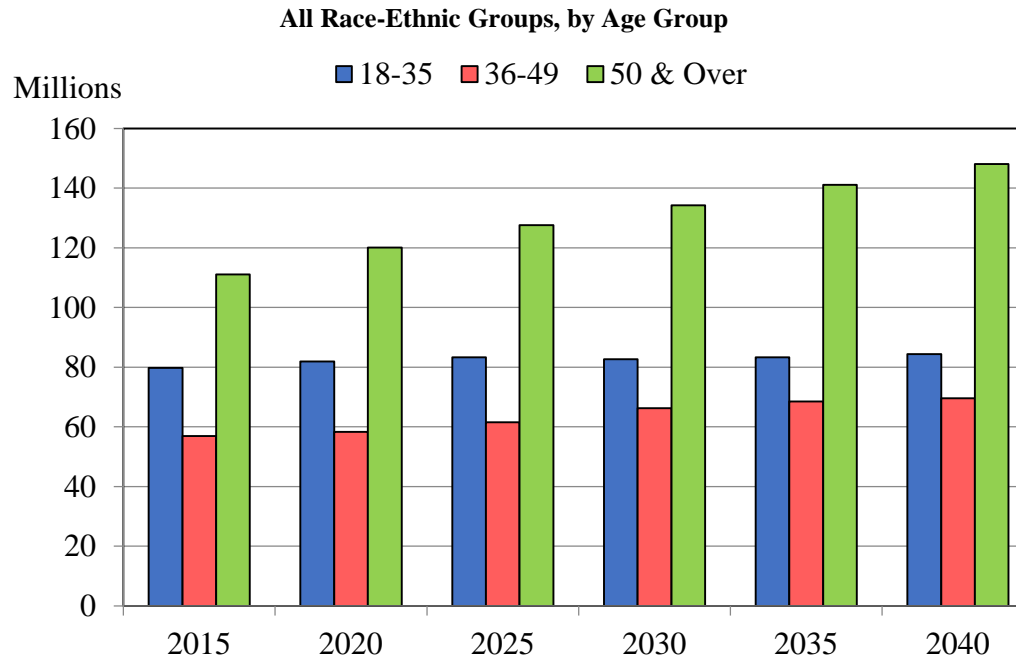
# U.S. Population Projections, 2015-2040



Source: U.S. Census Bureau



Source: U.S. Census Bureau

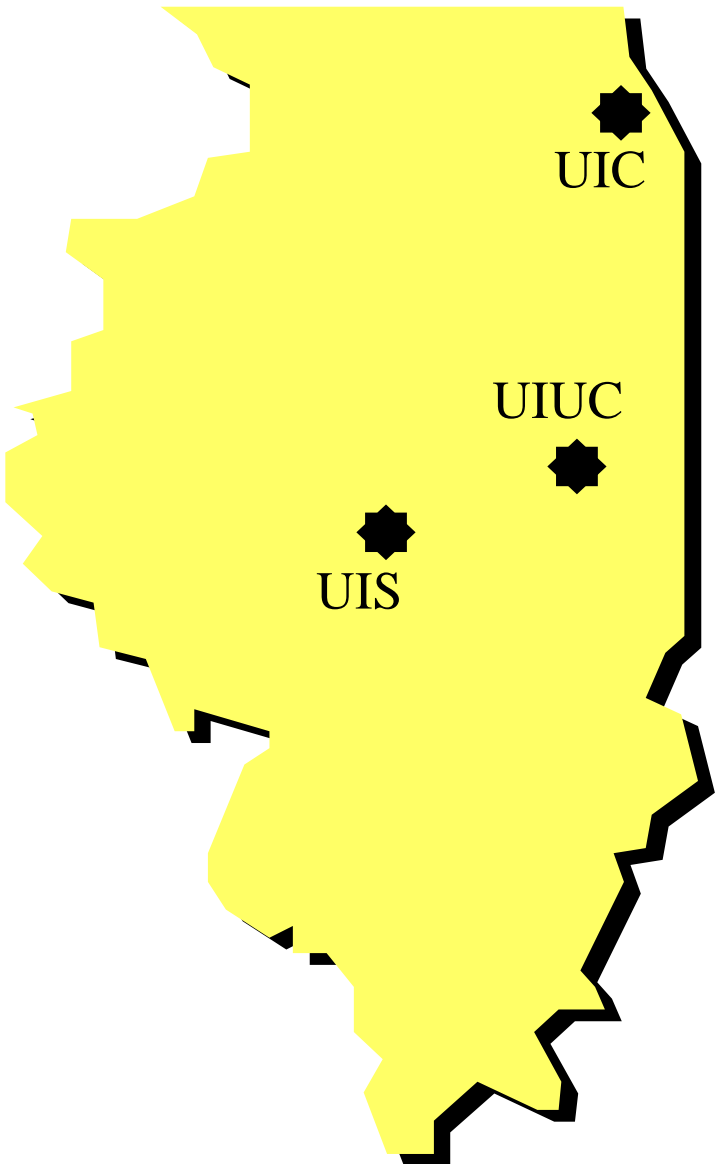


Source: U.S. Census Bureau



# University of Illinois Statewide Presence

## University of Illinois Campus Locations



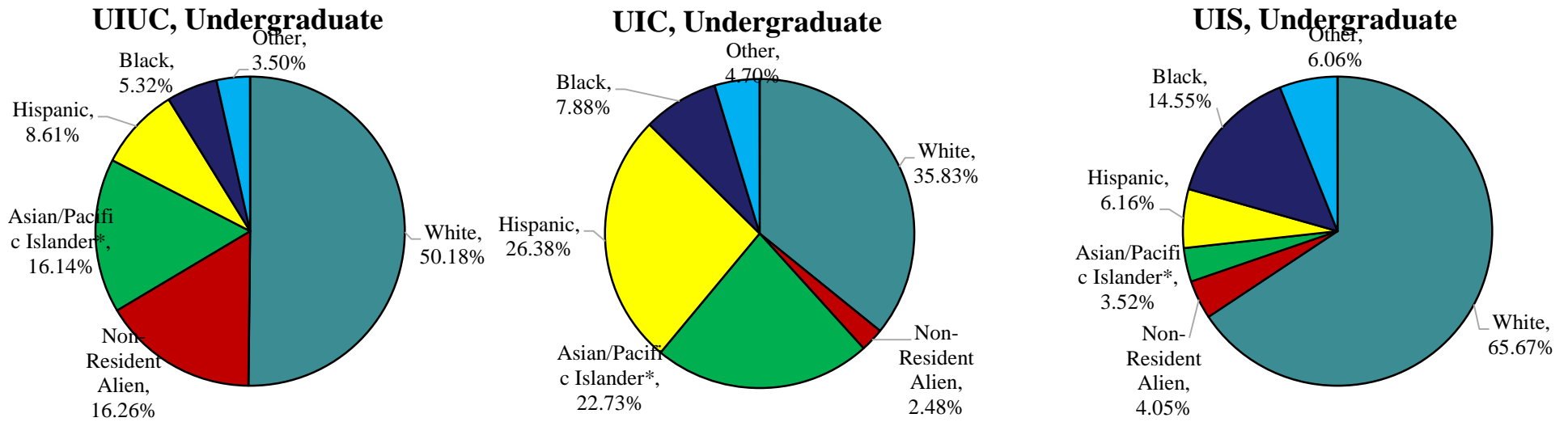
## Additional Facilities

- Regional Medical Colleges
  - Rockford
  - Peoria
  - Urbana-Champaign
- Illinois has 102 Counties
  - U of I Extension serves all 102 Counties
  - Police Training Institute  
FY 2014 students from 66 Illinois Counties
  - FY 2014 State-wide Programming Course Locations in 31 Illinois Counties
  - Online Instruction accessible from all 102 Illinois Counties
  - Regional Agricultural Stations
  - 4-H Camps

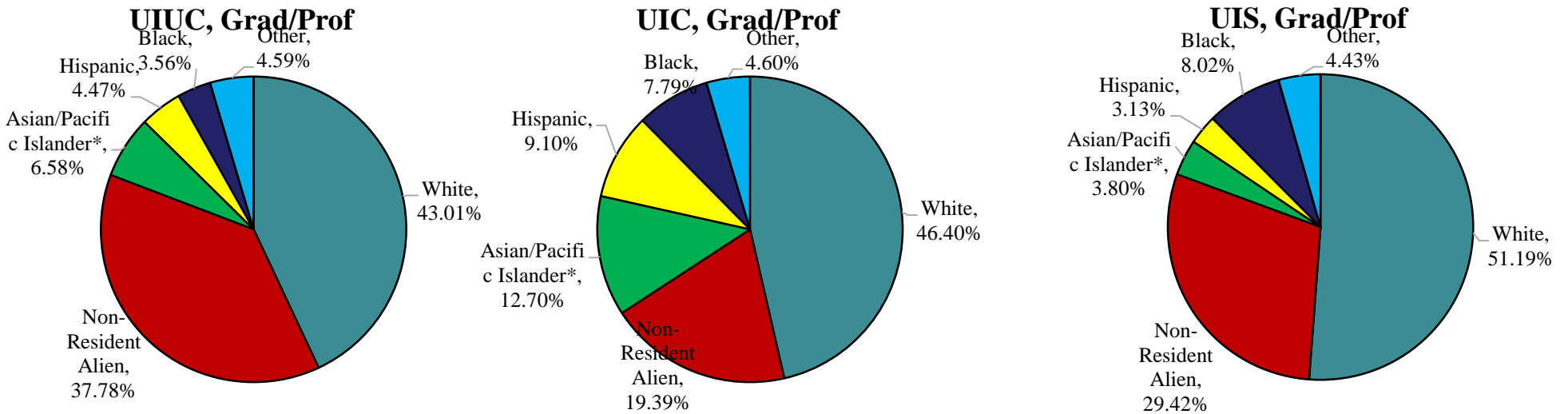
## On-Campus Headcount Enrollment by County, Fall 2014



# Undergraduate Enrollments by Race/Ethnicity Fall 2014

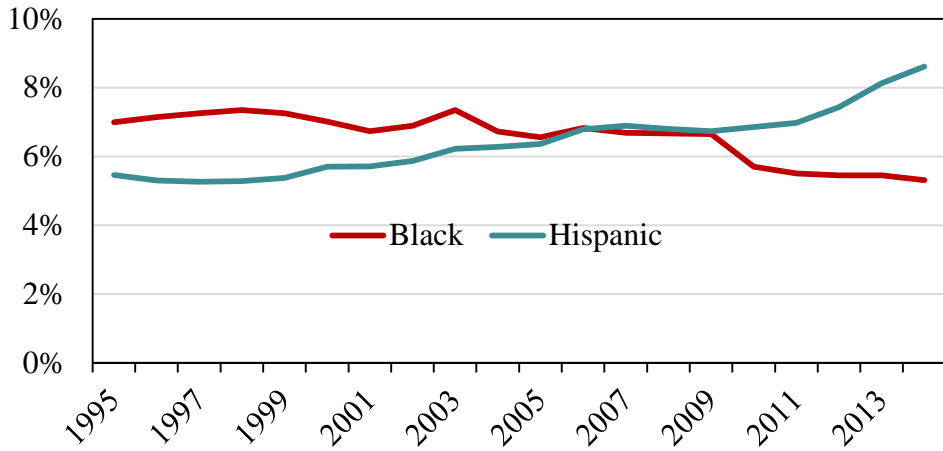


# Graduate/Professional Enrollments by Race/Ethnicity Fall 2014

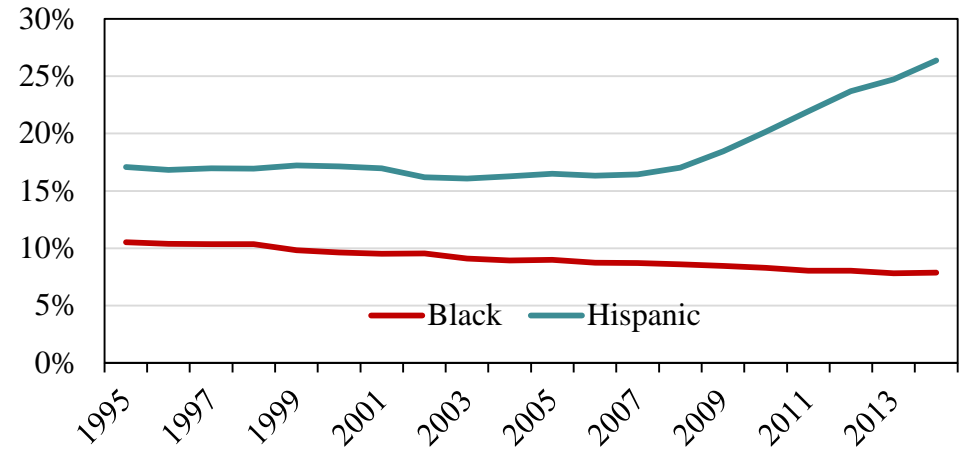


# Minority Enrollment Data Fall 1995 through Fall 2014

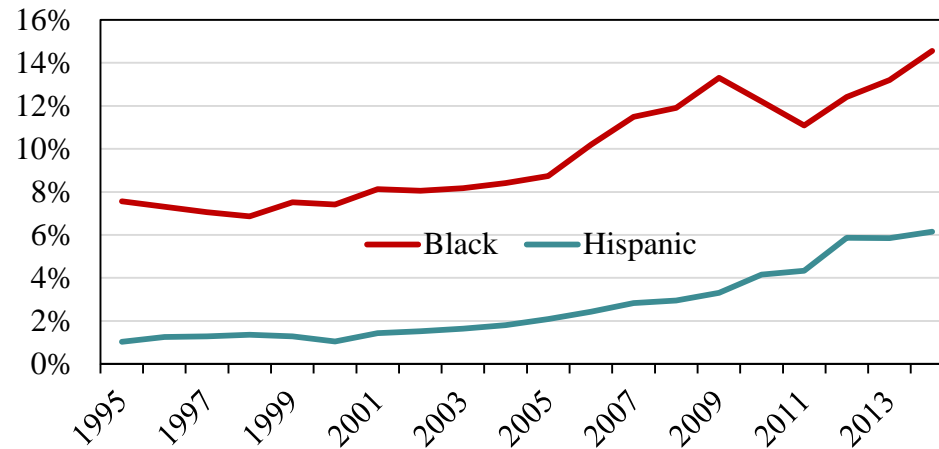
UIUC, Undergraduate



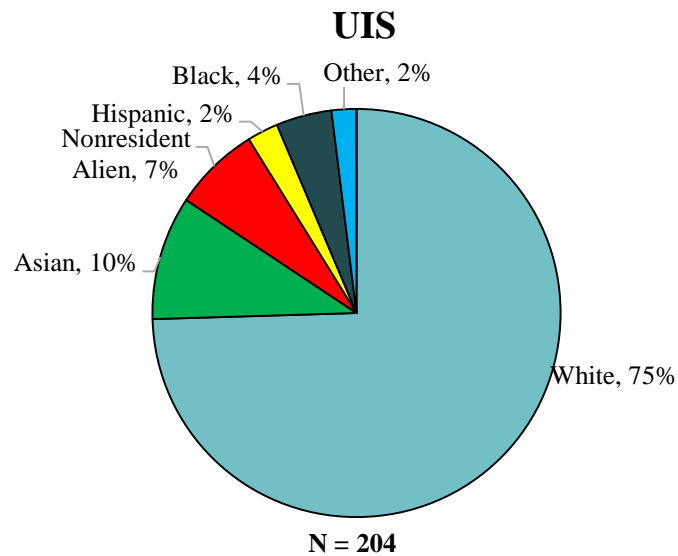
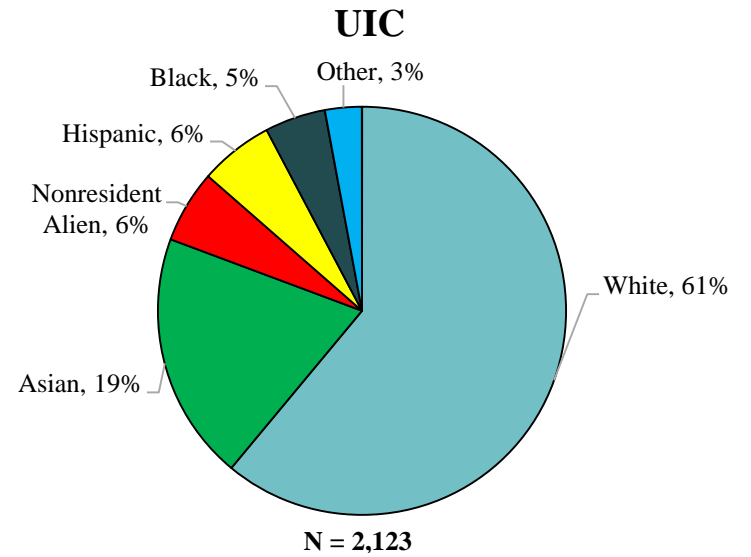
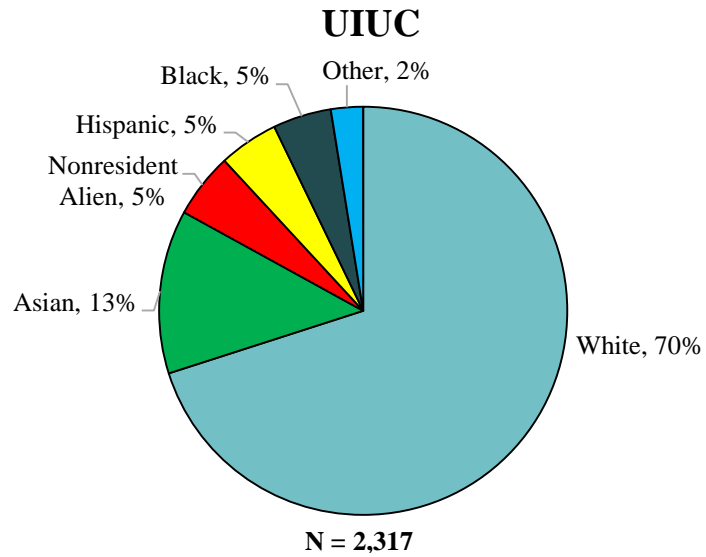
UIC, Undergraduate



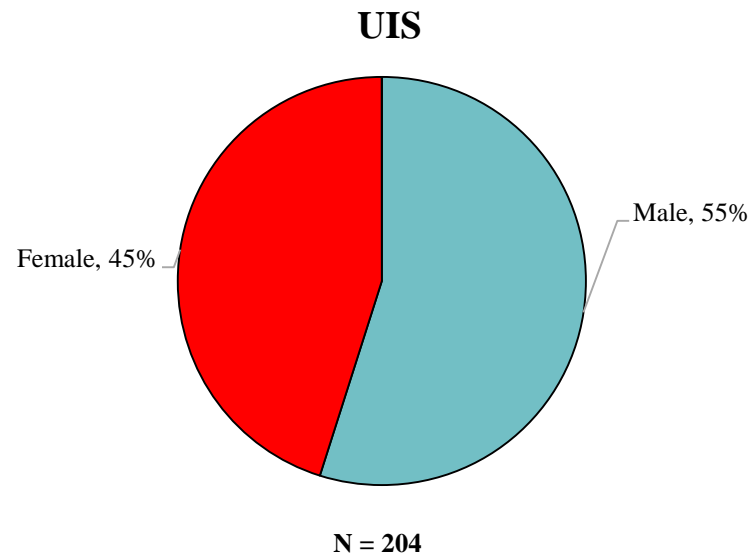
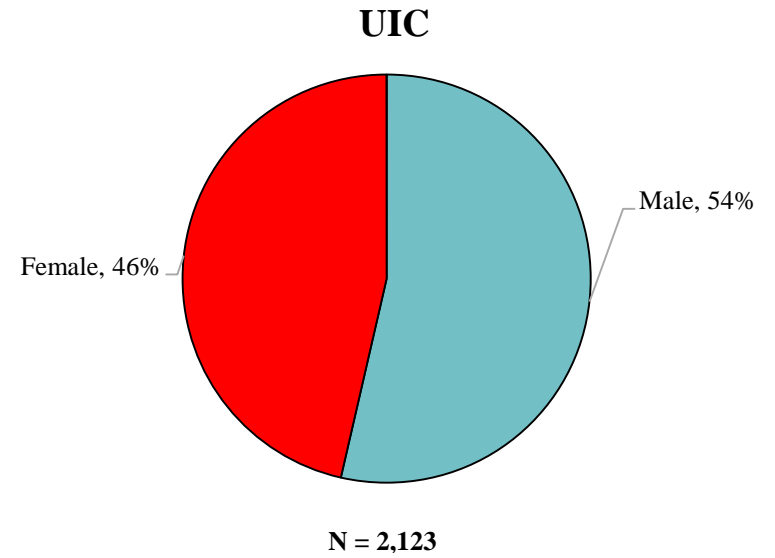
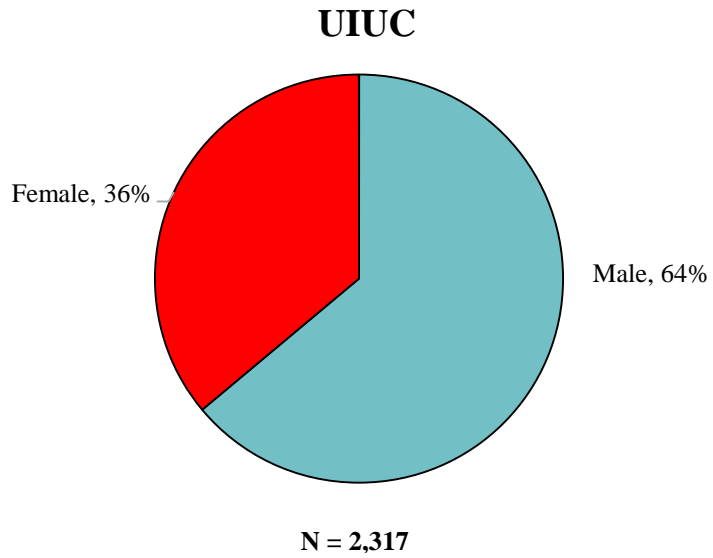
UIS, Undergraduate



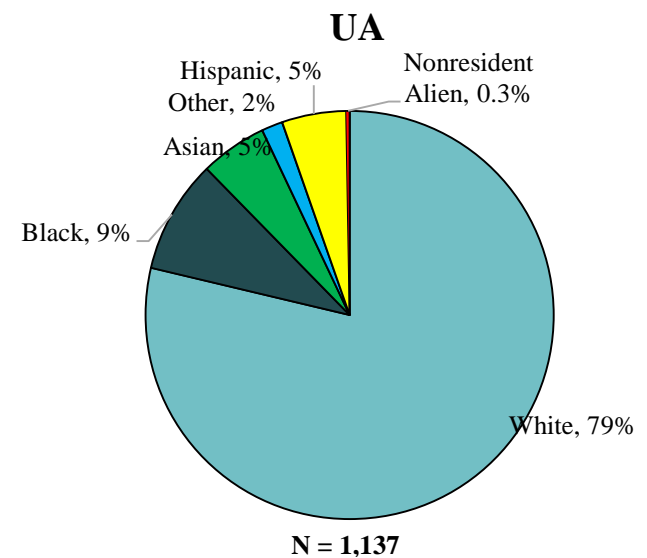
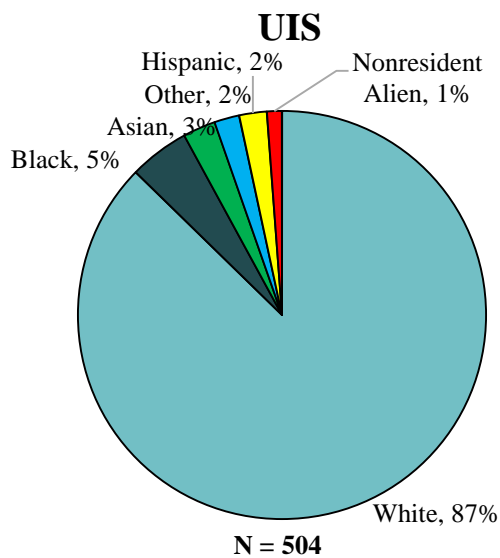
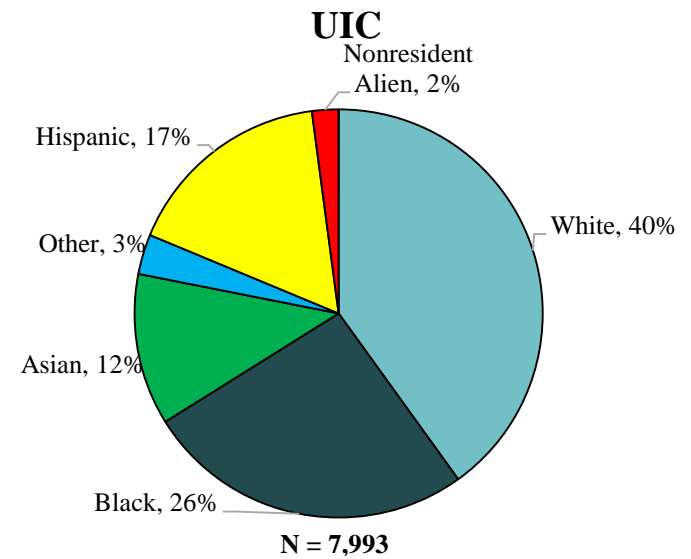
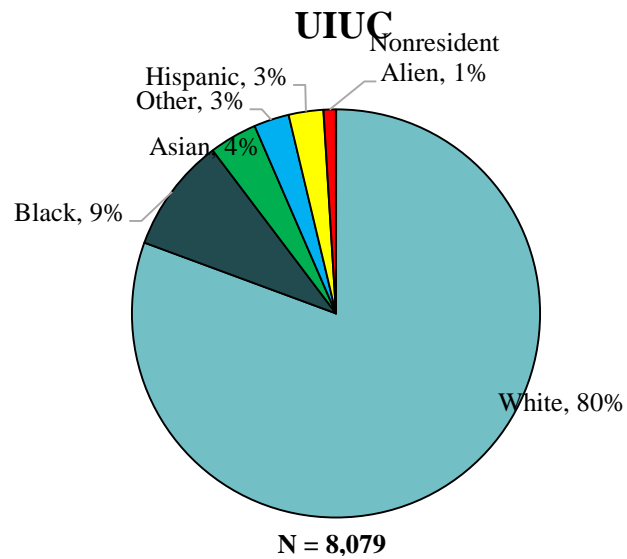
# University of Illinois Full-Time Faculty by Race/Ethnicity Fall 2014 – All Fund Sources



# University of Illinois Full-Time Faculty by Gender Fall 2014 – All Fund Sources

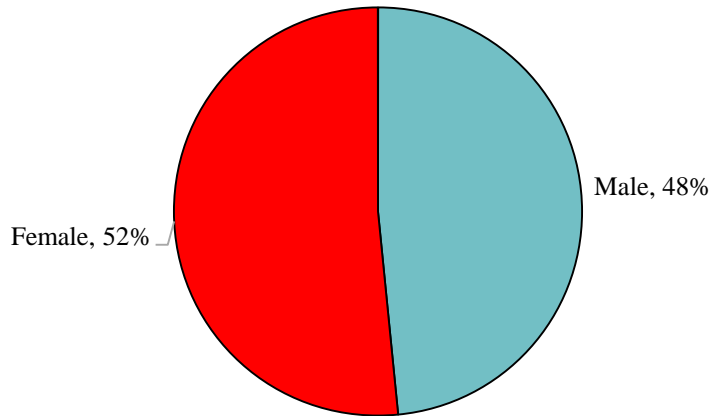


# University of Illinois Full-Time Staff by Race and Ethnicity Fall 2014 – All Fund Sources



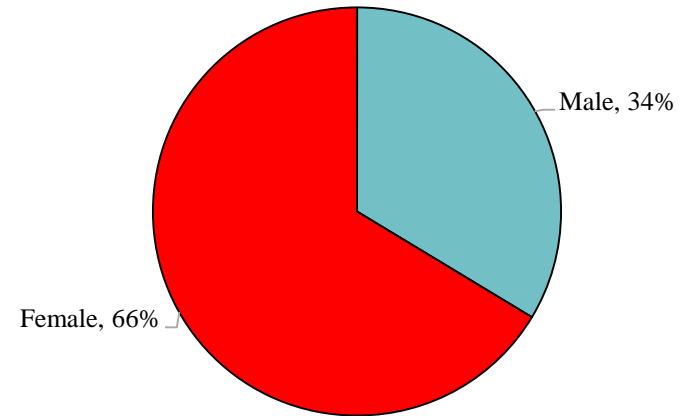
# University of Illinois Full-Time Staff by Gender Fall 2014 – All Fund Sources

**UIUC**



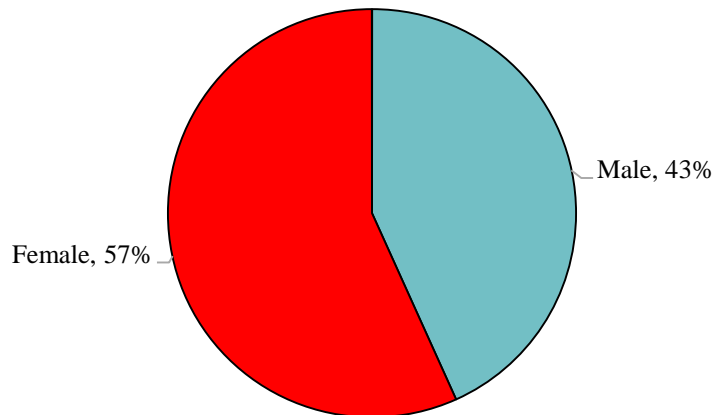
**N = 8,079**

**UIC**



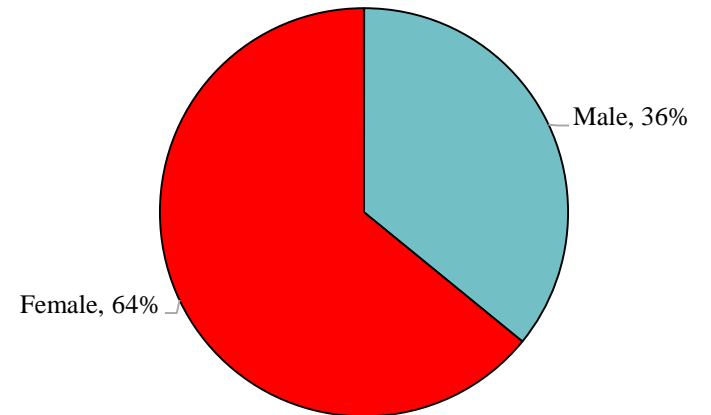
**N = 7,993**

**UIS**



**N = 504**

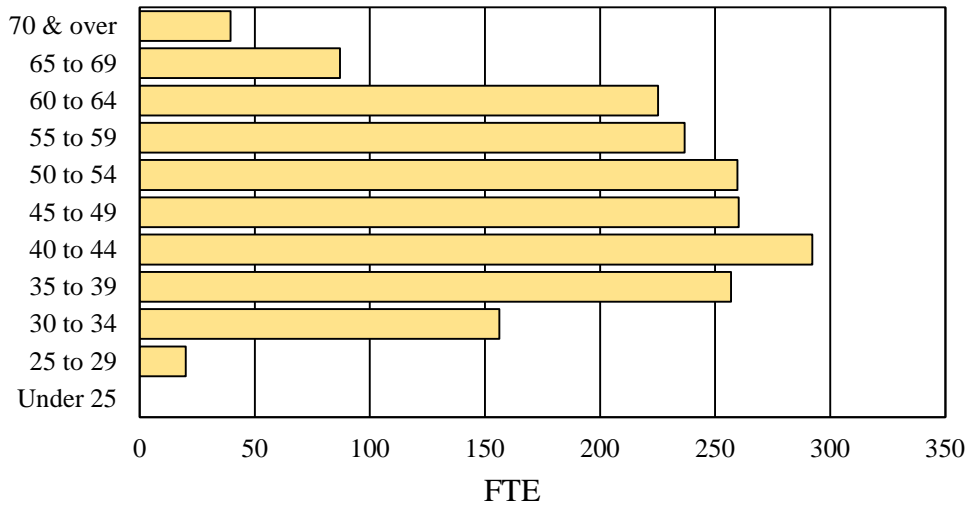
**UA**



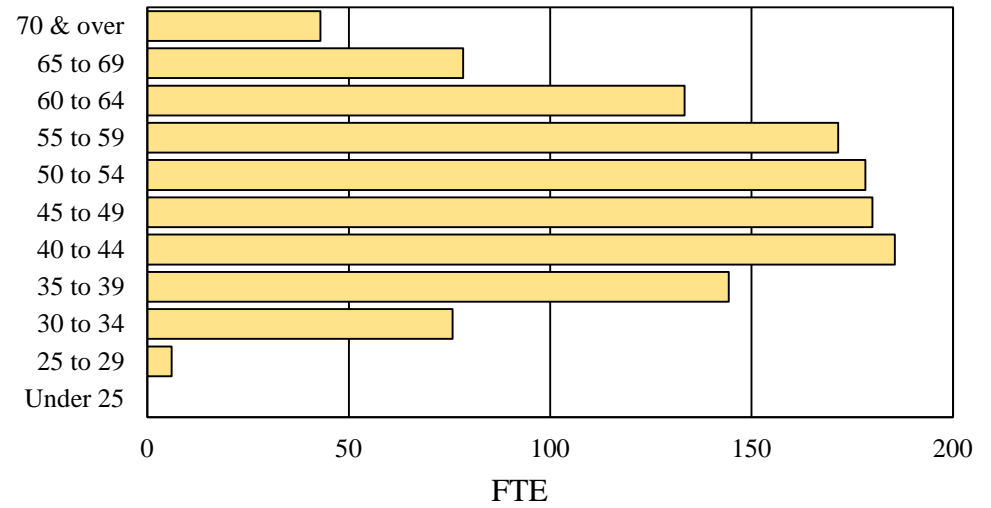
**N = 1,137**

# University of Illinois SURS Participants, Tenure-System Faculty Age Distribution Fall 2014

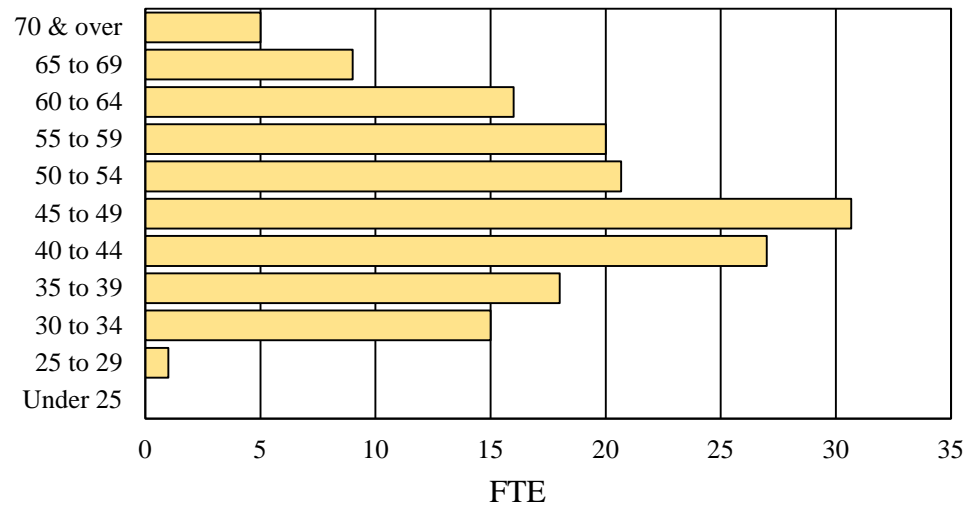
UIUC



UIC



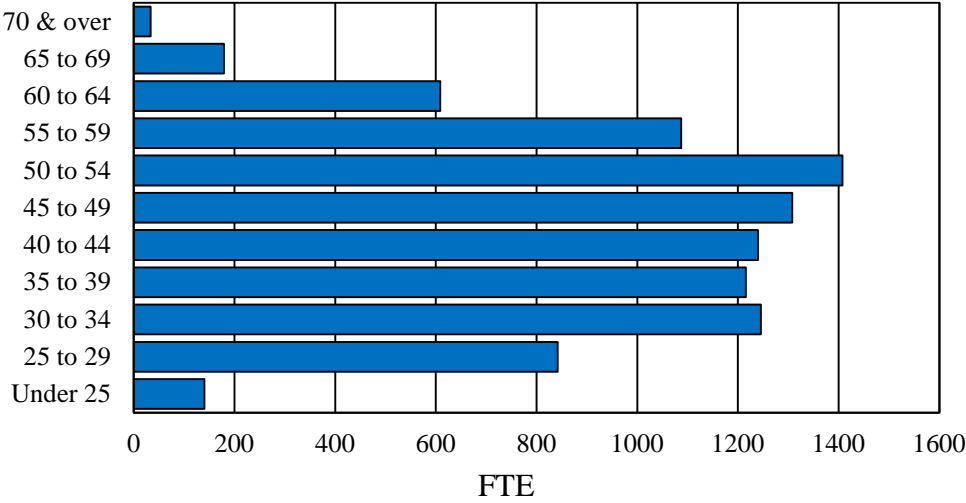
UIS



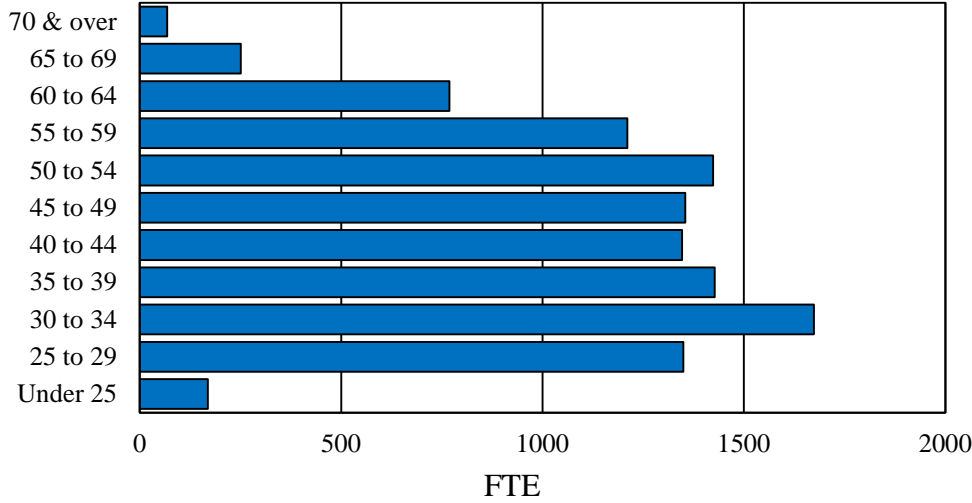


# University of Illinois SURS Participants, Non-Tenure Faculty and Staff Age Distribution Fall 2014

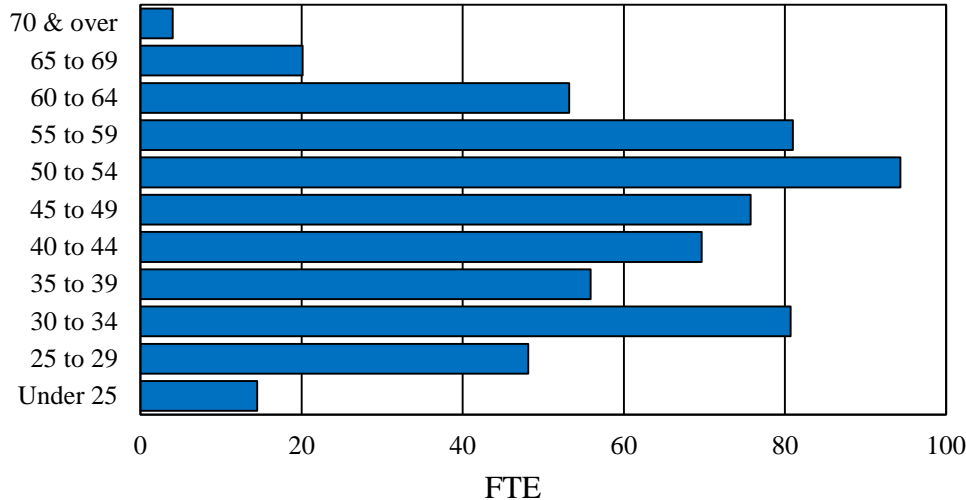
UIUC



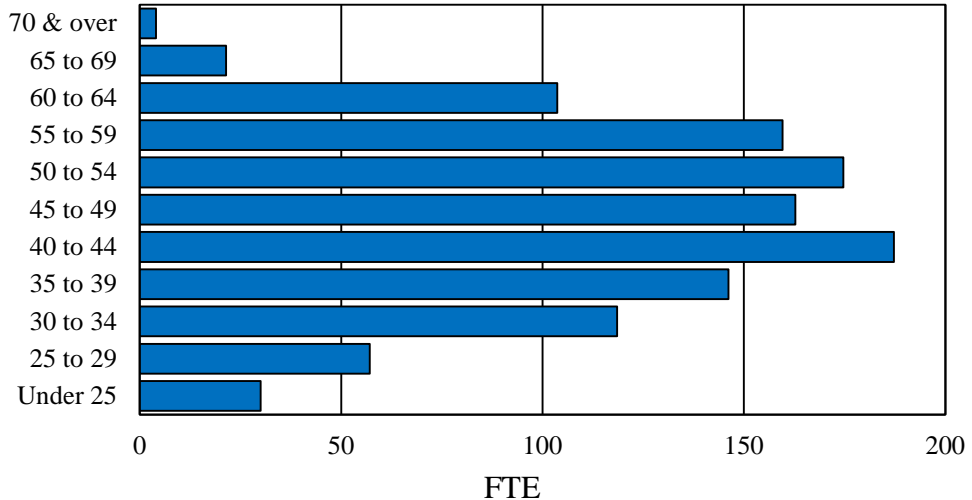
UIC



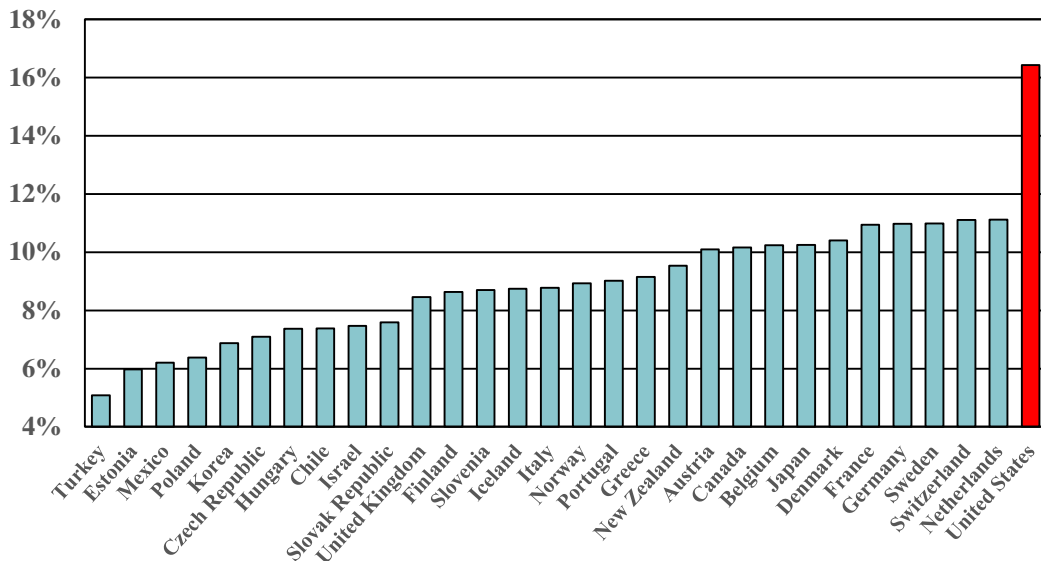
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UA

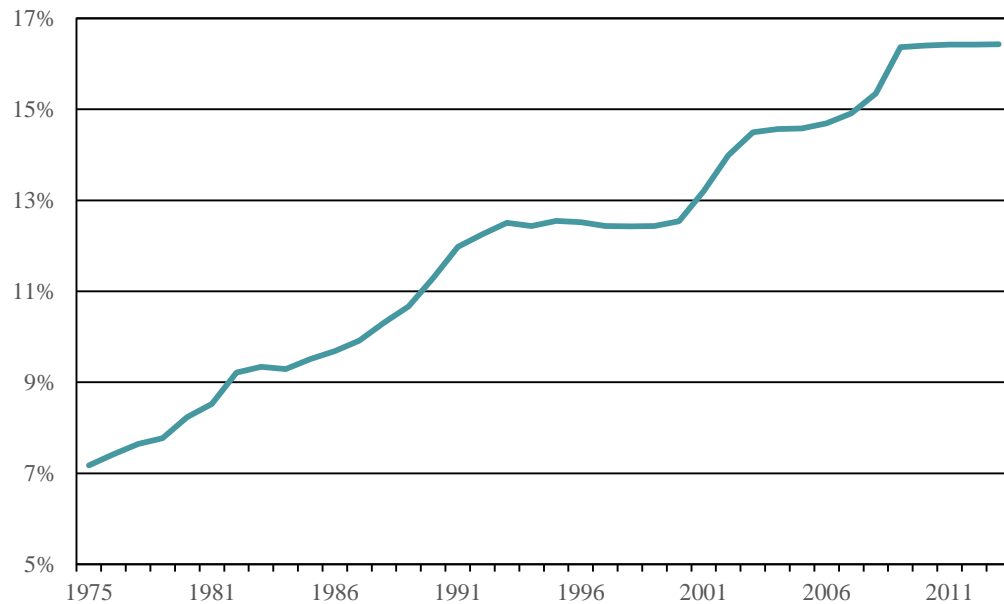


**Health Care Expenditures, % of GDP  
2013**

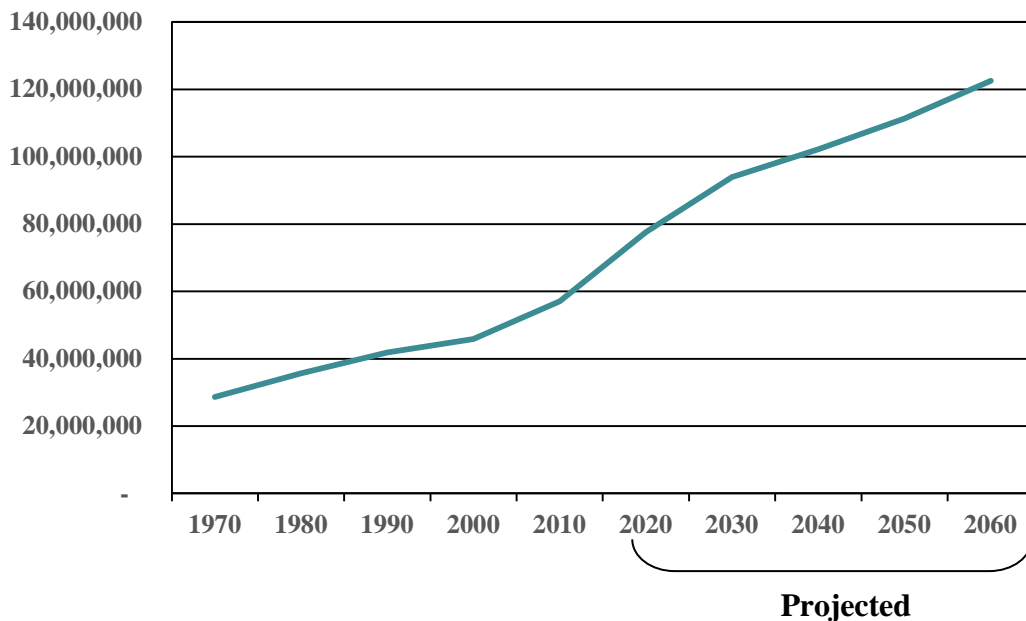


Source: OECD Health Data Statistics.

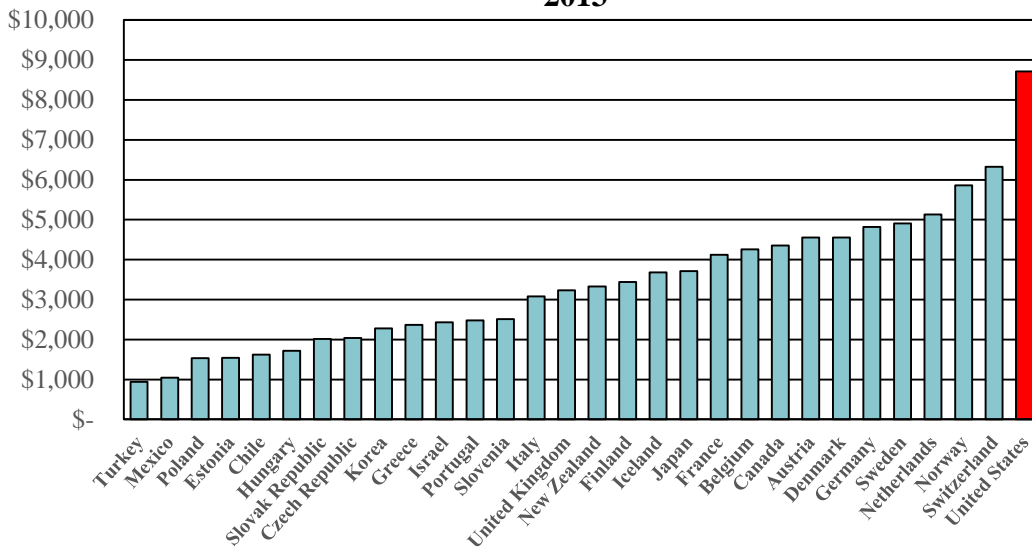
**Health Care Spending, % of GDP in the U.S.  
1975 - 2013**



**Number of Americans Over 60 by Decade**



**Health Care Expenditures per Capita, Current PPP  
2013**



Source: OECD Health Data Statistics.

# Demographics

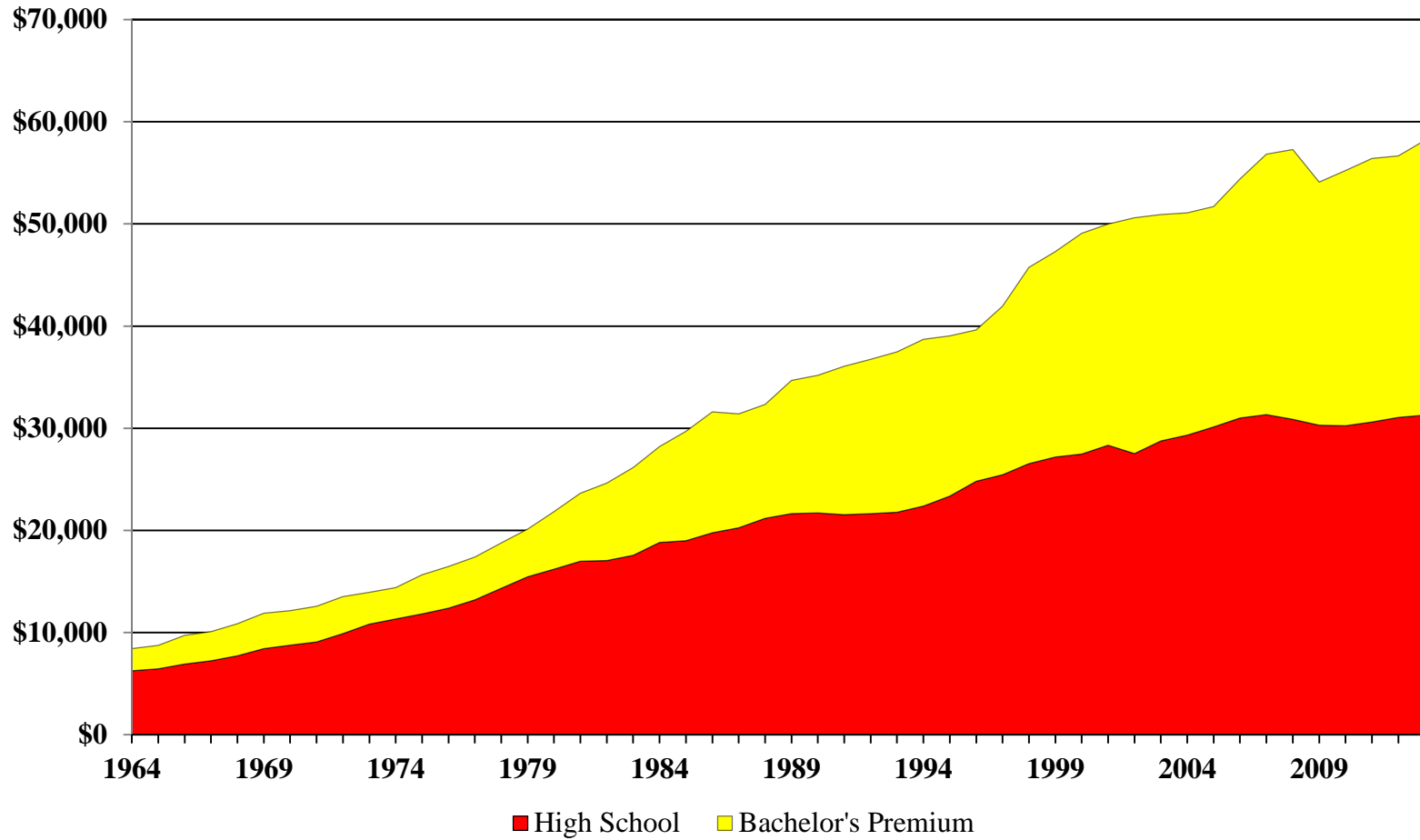
## Implications for the University of Illinois

- As with the rest of the U.S., Illinois' population will become more diverse and the Hispanic population will grow faster than any other segment.
- The proportion of African-American students at UIC and UIUC grew slightly after a period of decline, while the proportion of Hispanic students has generally grown at all three campuses in recent years. Pressure from University stakeholders to enhance diversity among students, staff, and faculty will continue.
- The over 50 population will grow rapidly. This aging population will put increasing pressure on social services and health care and may view higher education as less of a priority in the future.
- A significant proportion of the University's tenure/tenure-track faculty are age 55 or over creating the potential for large numbers of retirements in the near future.

# Higher Education

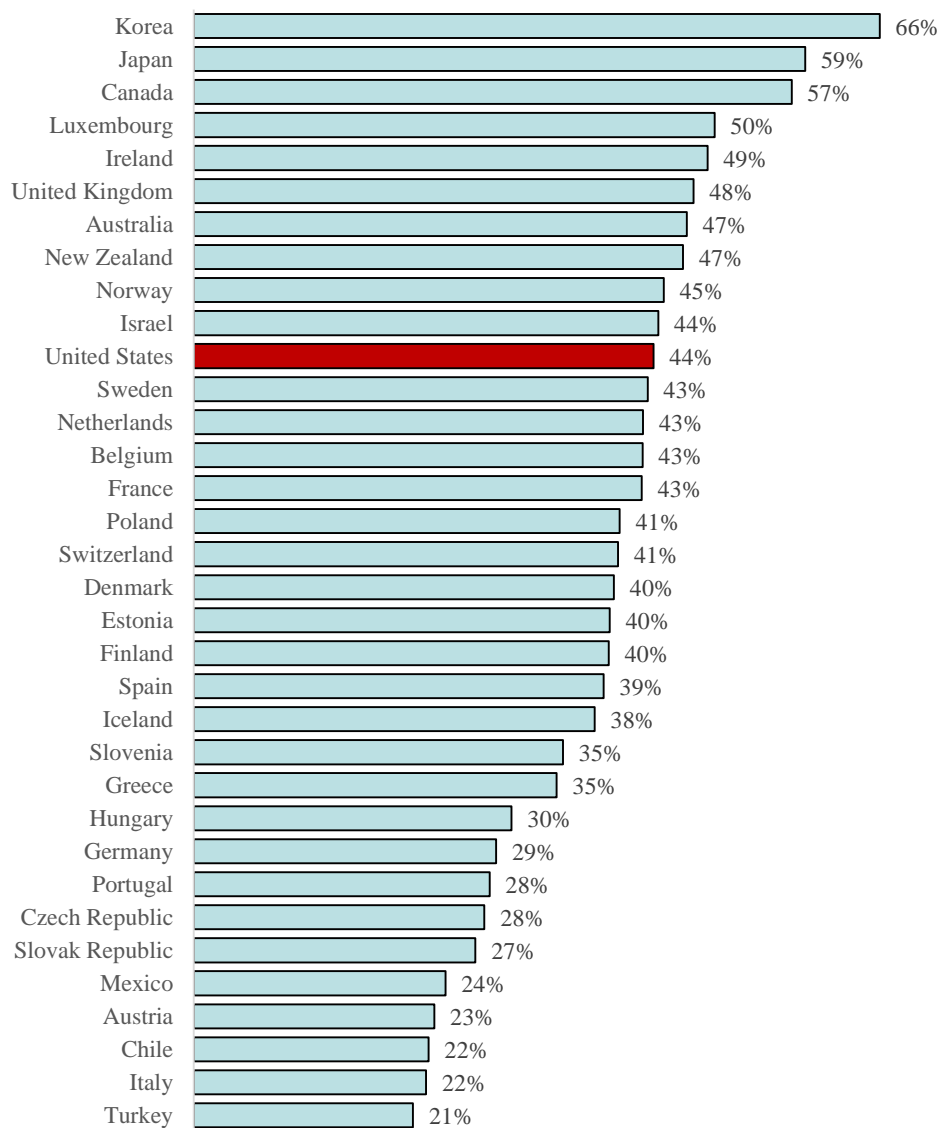
# Value of Higher Education

Median Income by Educational Attainment, 1964 - 2013  
(Males)

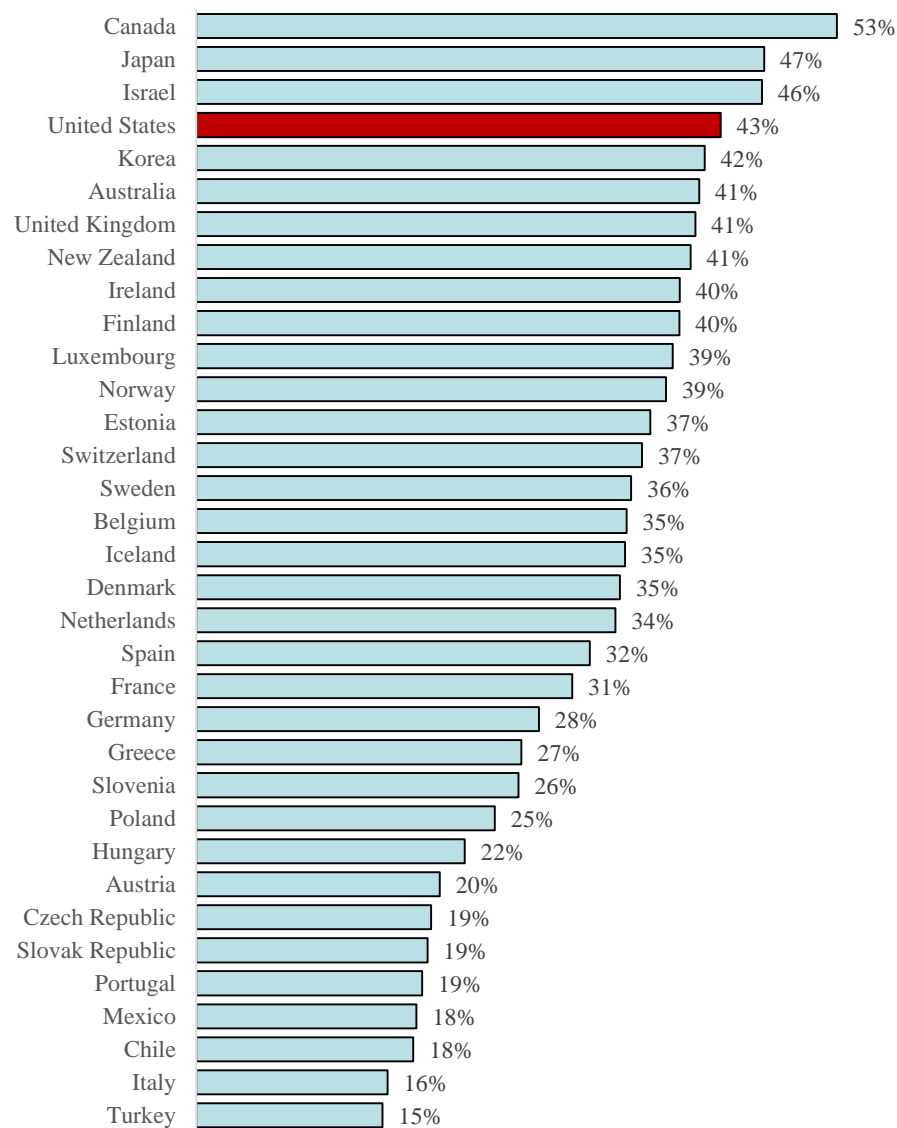


# International Comparison: Higher Education Attainment 2012

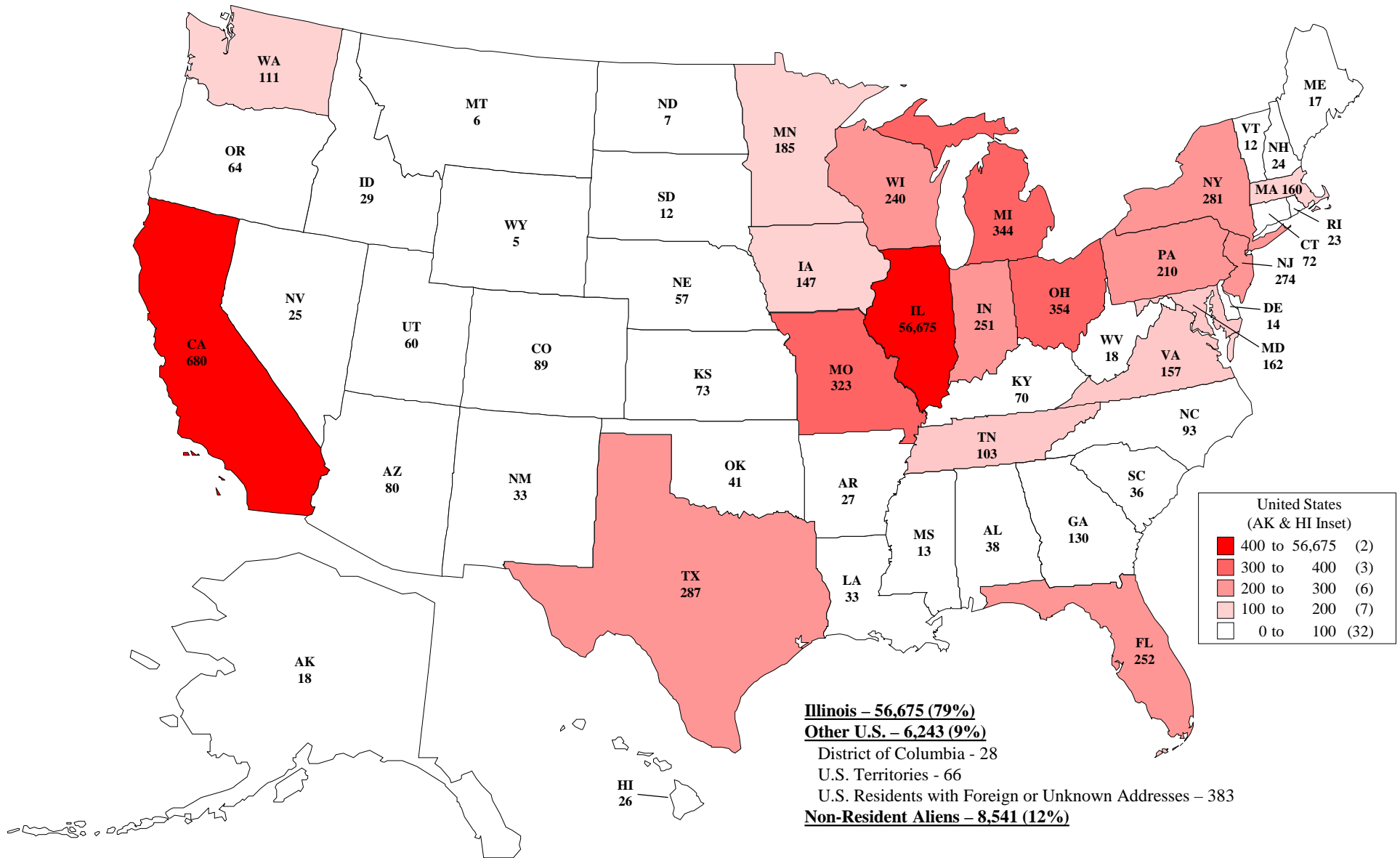
## Ages 25-34



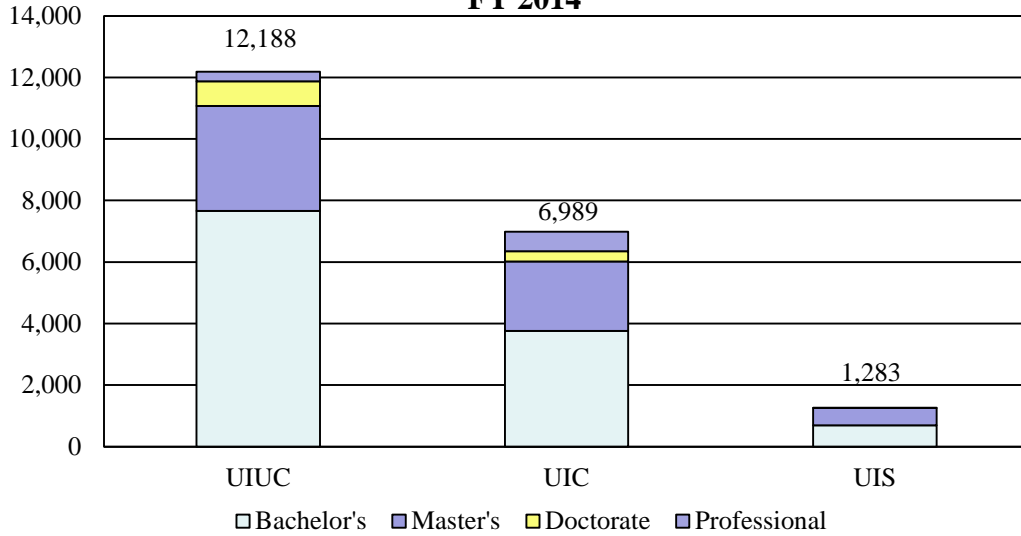
## Ages 25-64



# University of Illinois On-Campus Headcount Enrollment by State Fall 2014

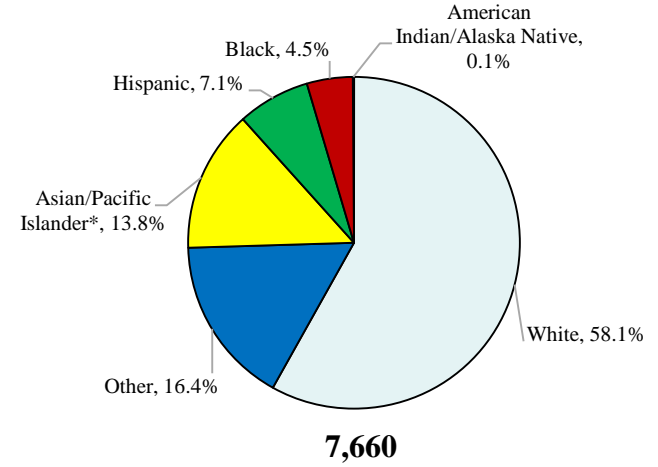


**Degrees\* Conferred  
FY 2014**

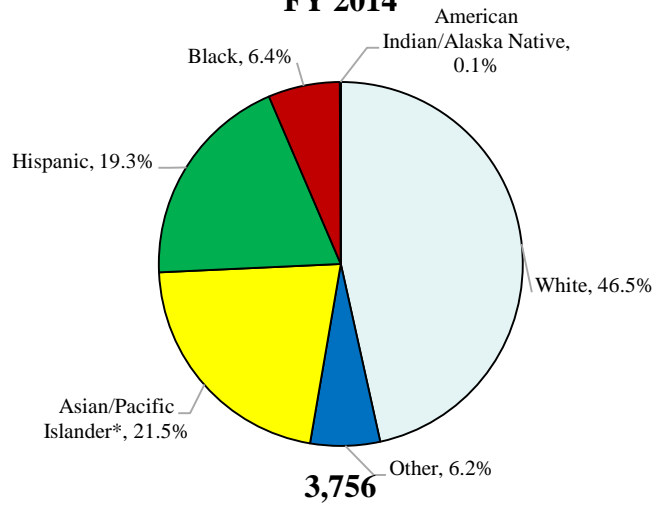


\* Does not include certificates.

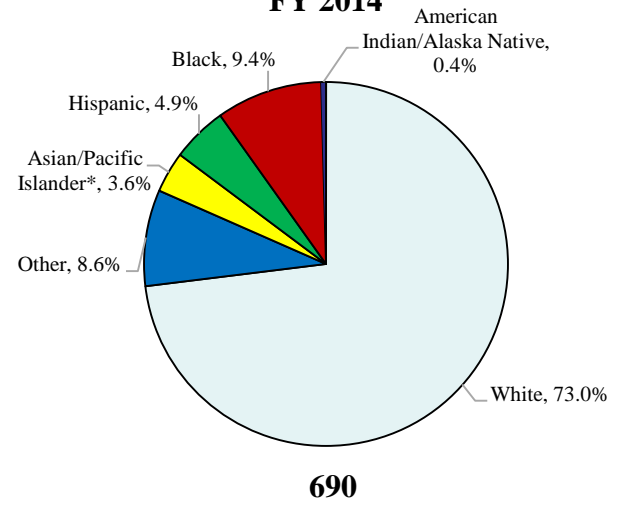
**UIUC Bachelor's Degrees Conferred by Race/Ethnicity  
FY 2014**



**UIC Bachelor's Degrees Conferred by Race/Ethnicity  
FY 2014**



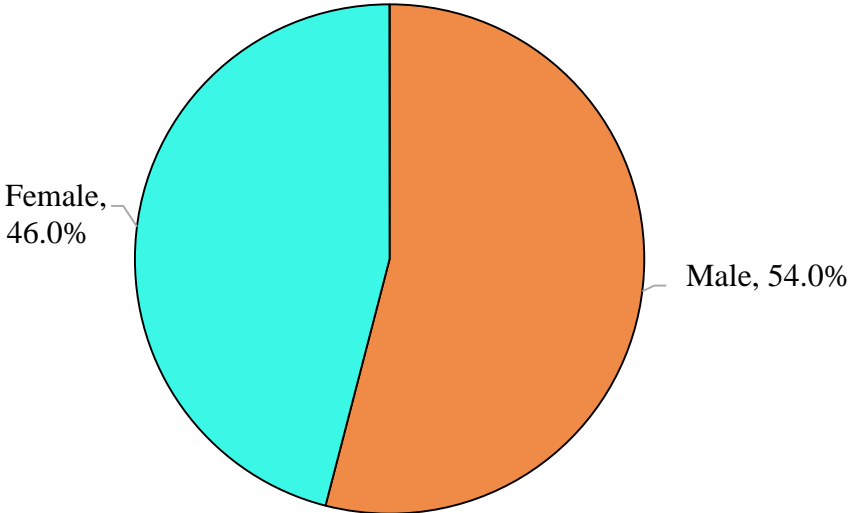
**UIS Bachelor's Degrees Conferred by Race/Ethnicity  
FY 2014**



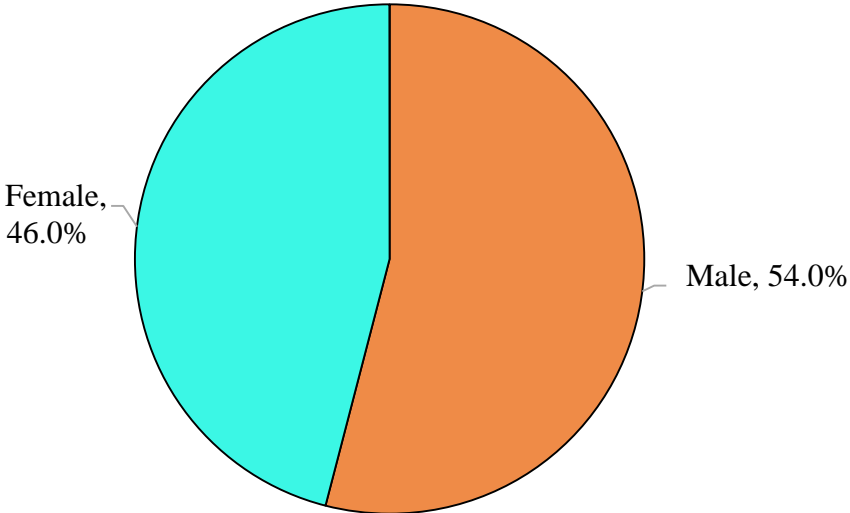


# Percentage of FY 2014 Bachelor's Degrees Awarded by Gender

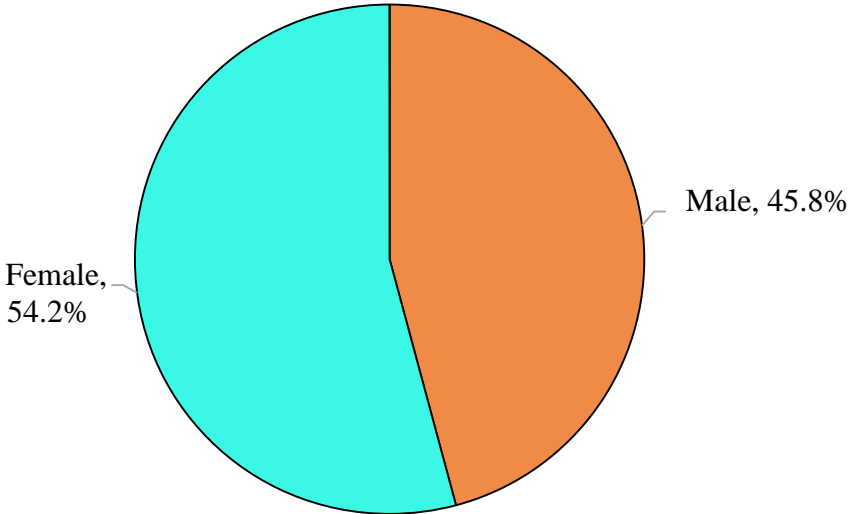
**UIUC**



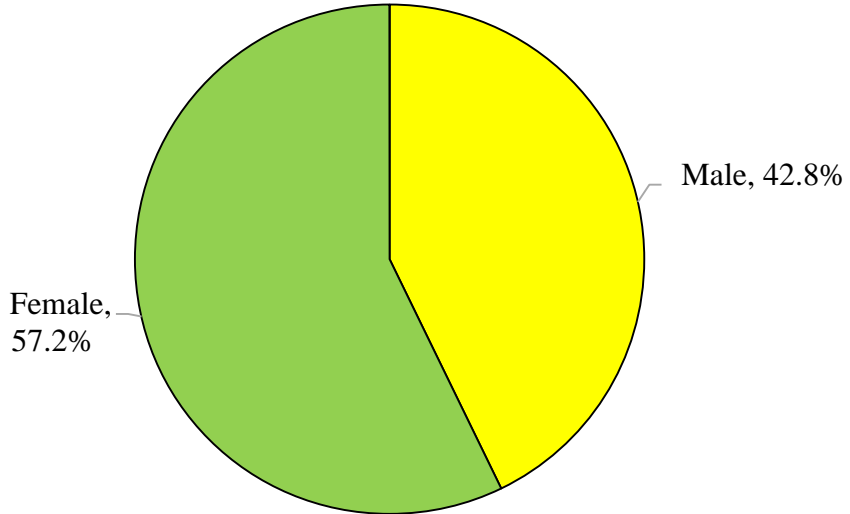
**UIUC**



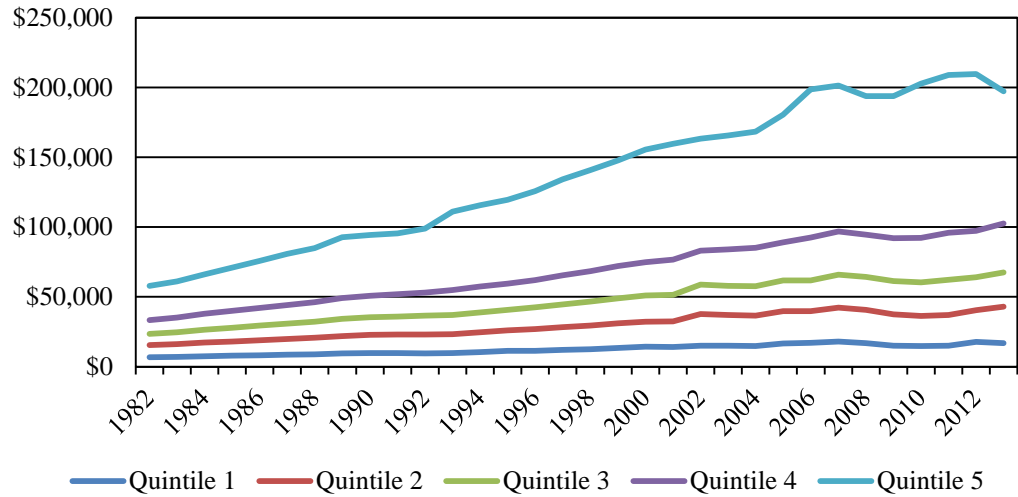
**UIS**



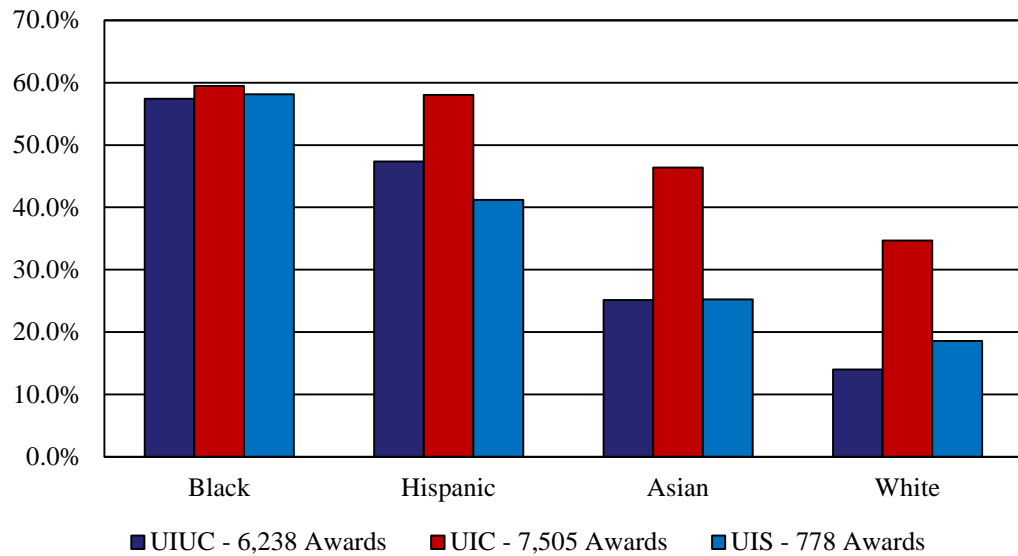
**National Average**



### Mean Income by Quintile in Illinois 1982 to 2013

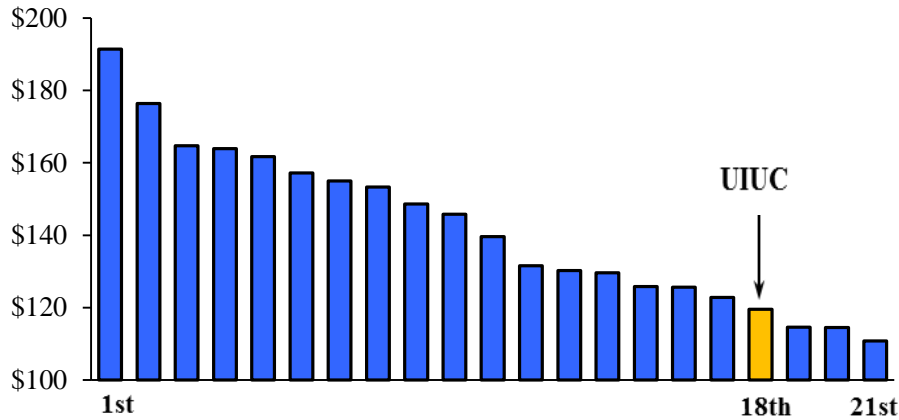


### % of Undergraduates Who Receive MAP Awards by Race Fall 2014

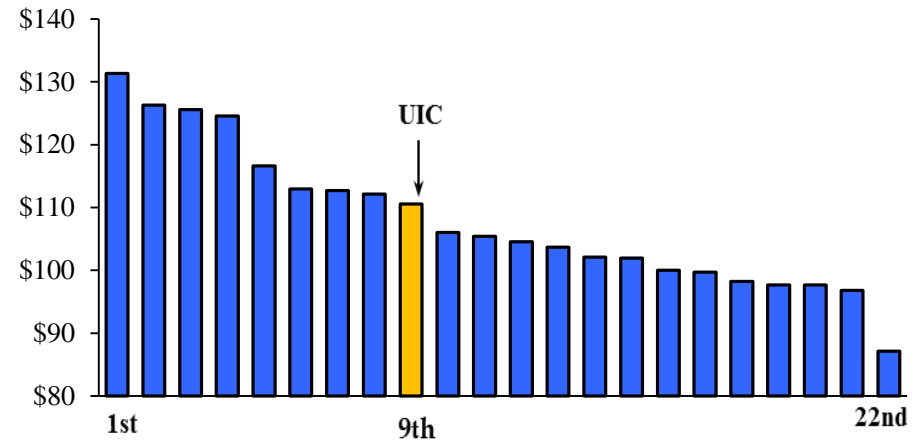


# Faculty Salary Comparisons, IBHE Peers

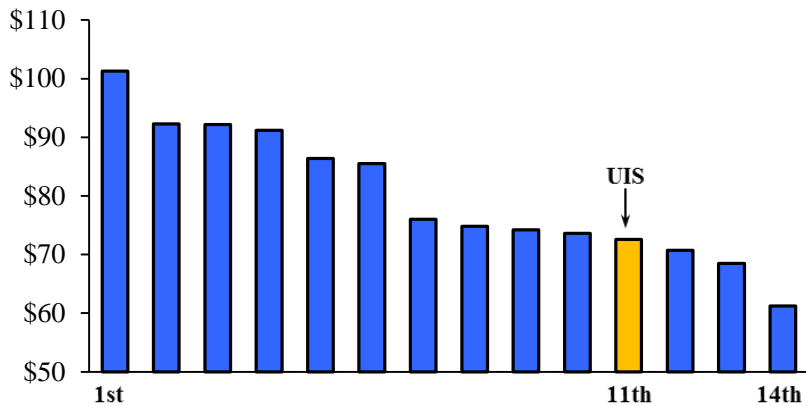
**Full-time Instructional Faculty Salary Rank, Fall 2015**  
**UIUC**



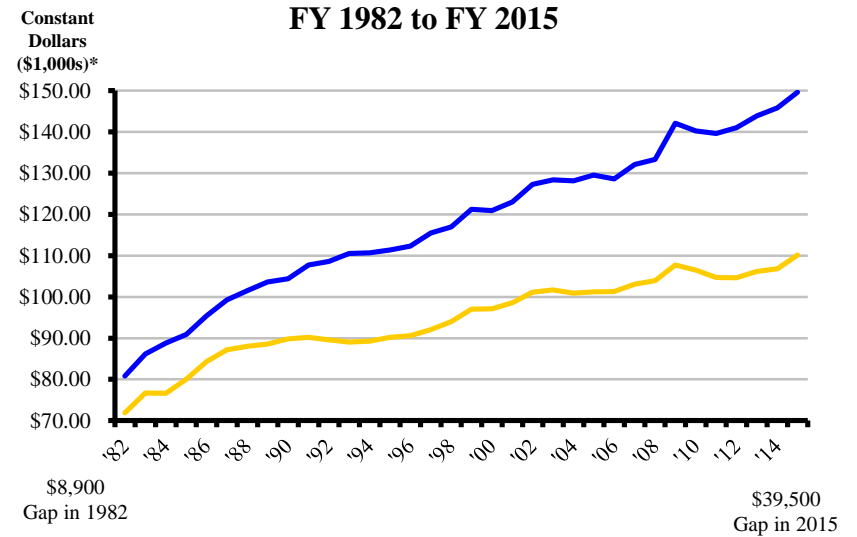
**Full-time Instructional Faculty Salary Rank, Fall 2015**  
**UIC**



**Full-time Instructional Faculty Salary Rank, Fall 2015**  
**UIS**



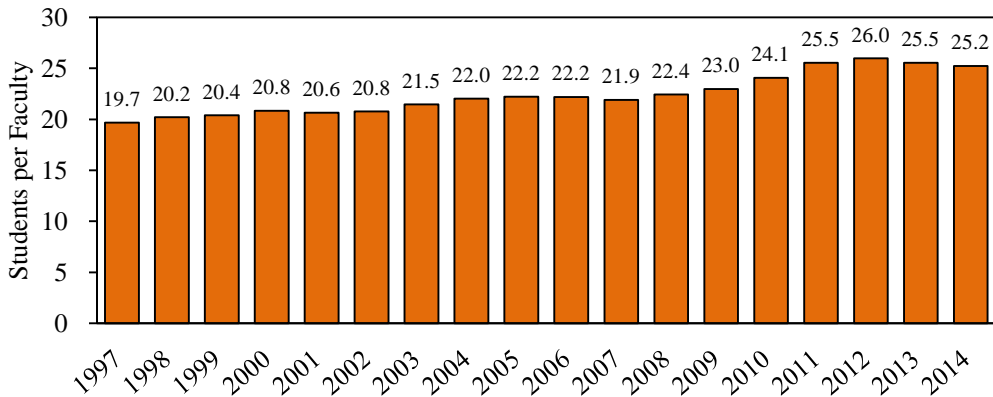
**Research I Universities**  
**Full-Time Instructional Faculty Average Salaries**  
**FY 1982 to FY 2015**



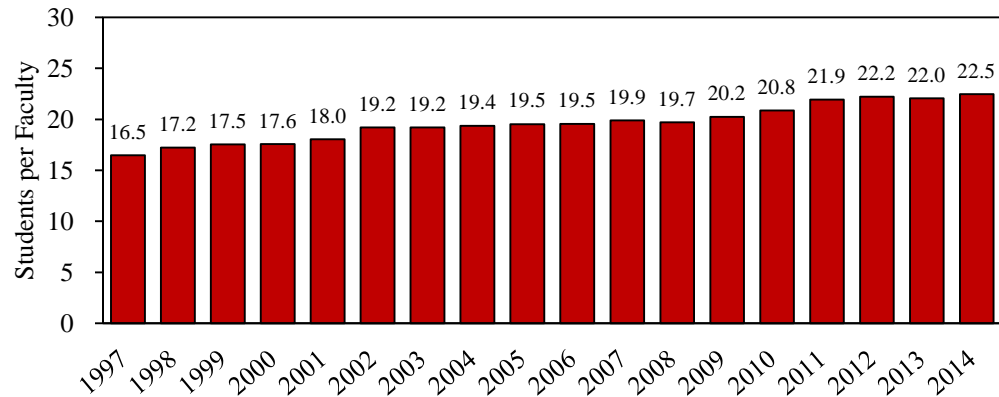
\* Constant (FY 2015) dollars calculated using CPI-U (not seasonally adjusted).

# University of Illinois Faculty and Enrollments

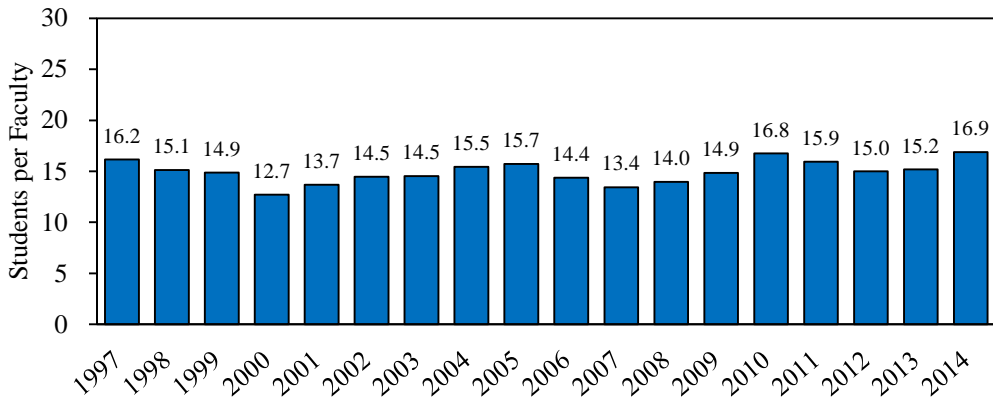
**UIUC FTE On-Campus Enrollment per FTE Tenure-System Faculty  
Fall 1997 - Fall 2014**



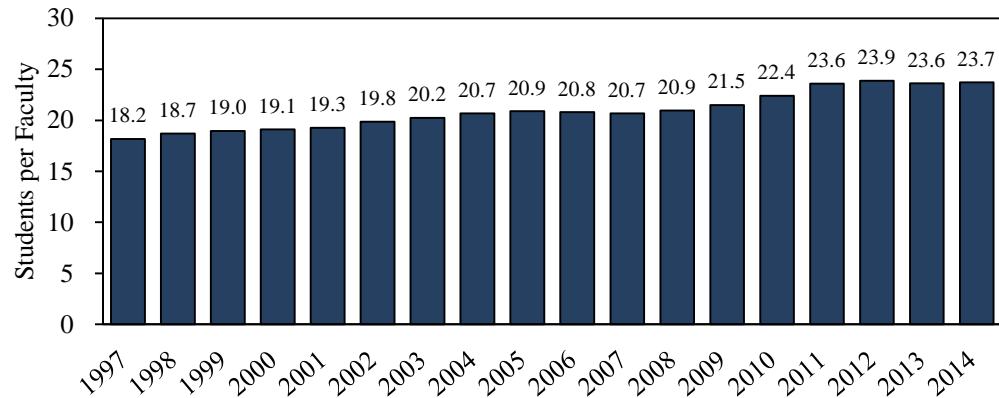
**UIC FTE On-Campus Enrollment per FTE Tenure-System Faculty  
Fall 1997 - Fall 2014**



**UIS FTE On-Campus Enrollment per FTE Tenure-System Faculty  
Fall 1997 - Fall 2014**

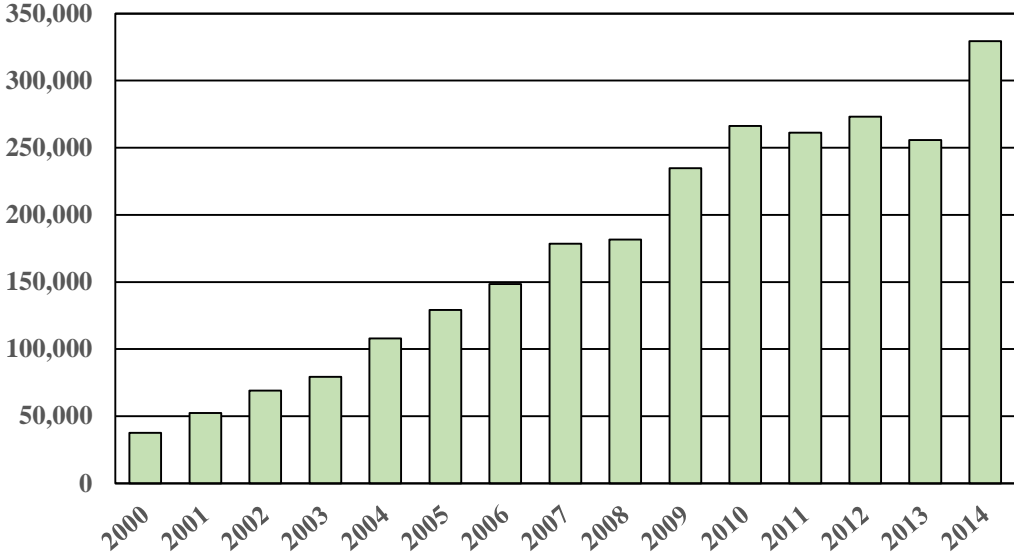


**UI Total FTE On-Campus Enrollment per FTE Tenure-System Faculty  
Fall 1997 - Fall 2014**

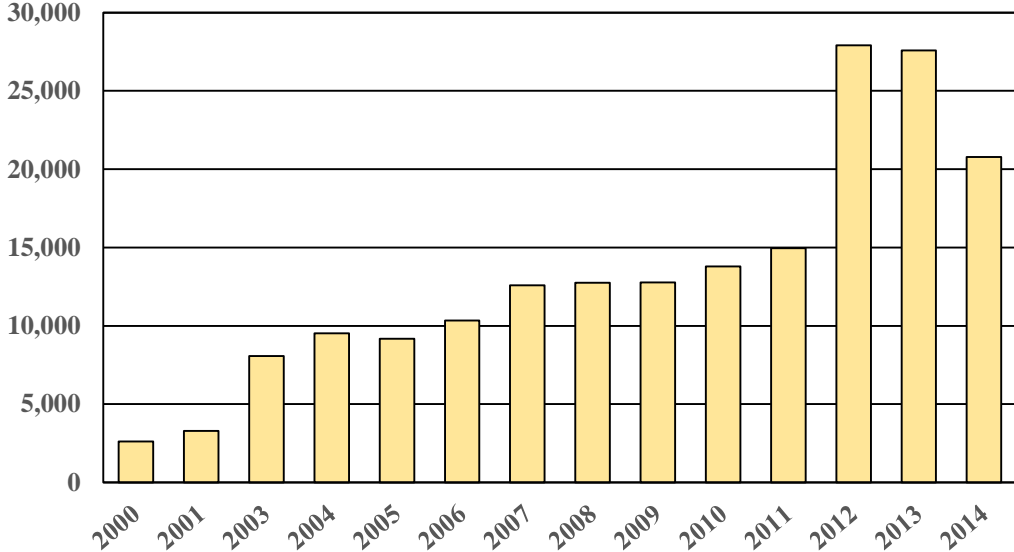


# Enrollment in Online Courses

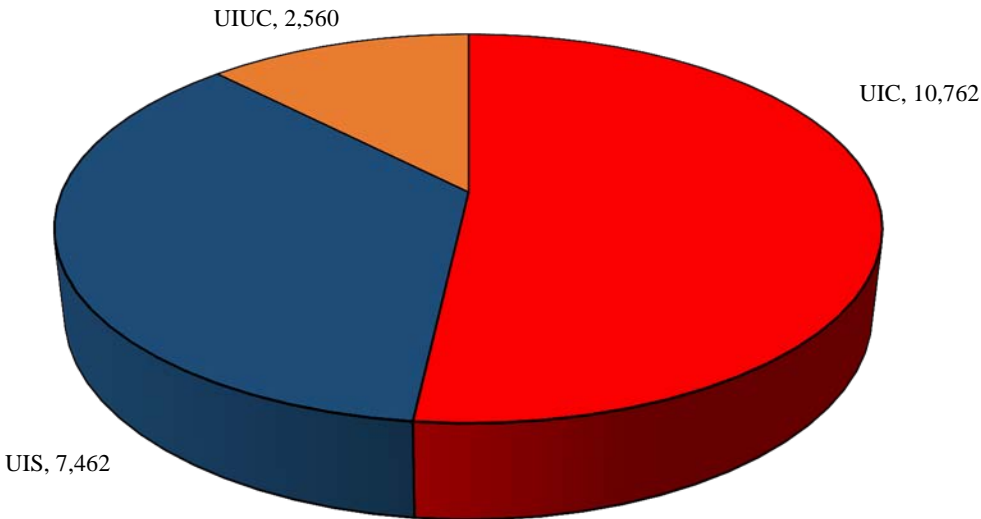
**Illinois College and Universities  
Fall 2000 to Fall 2014**



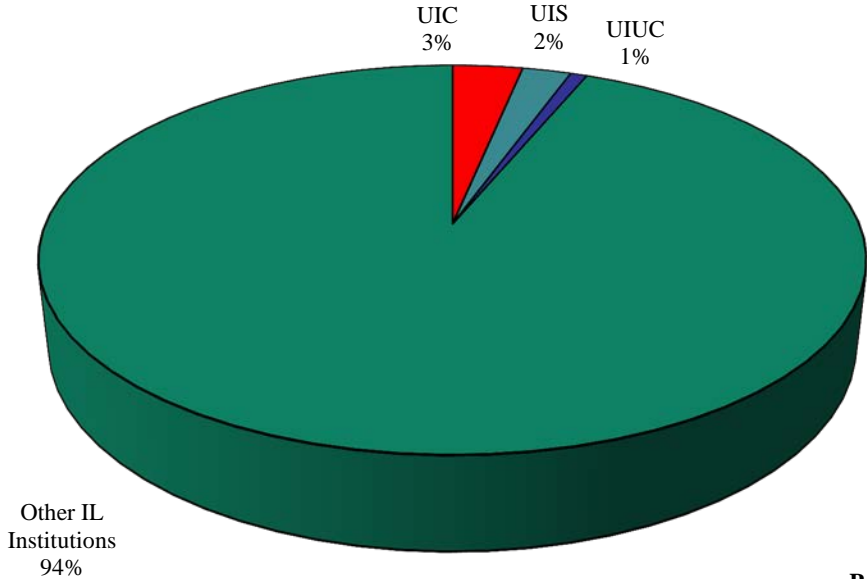
**University of Illinois  
Fall 2000 to Fall 2014**



**University of Illinois, Fall 2014**



**Illinois, Fall 2014**



# Online Learning Trends

- Online enrollments have continued to grow at rates far in excess of the total higher education student population, albeit at slower rates than for previous years.
  - Over 7 million students were taking at least one online course during the fall 2012 term
  - The 6.1 percent growth rate for online enrollments far exceeds the 1.2 percent growth of the overall higher education student population.
  - More than one-third of all U.S. higher education students were taking at least one online course in the fall of 2012.

	Total Enrollment	Annual Growth Rate Total Enrollment	Students Taking at Least One Online Course	Online Enrollment Increase over Previous Year	Annual Growth Rate Online Enrollment	Online Enrollment as a Percent of Total Enrollment
Fall 2002	16,611,710	NA	1,602,970	NA	NA	9.6%
Fall 2003	16,911,481	1.8%	1,971,397	368,427	23.0%	11.7%
Fall 2004	17,272,043	2.1%	2,329,783	358,386	18.2%	13.5%
Fall 2005	17,487,481	1.2%	3,180,050	850,267	36.5%	18.2%
Fall 2006	17,758,872	1.6%	3,488,381	308,331	9.7%	19.6%
Fall 2007	18,248,133	2.8%	3,938,111	449,730	12.9%	21.6%
Fall 2008	19,102,811	4.7%	4,606,353	668,242	16.9%	24.1%
Fall 2009	20,427,711	6.9%	5,579,022	972,669	21.1%	27.3%
Fall 2010	21,016,126	2.9%	6,142,280	563,258	10.1%	29.2%
Fall 2011	20,994,113	-0.1%	6,714,792	572,512	9.3%	32.0%
Fall 2012	21,253,086	1.2%	7,126,549	411,757	6.1%	33.5%

- Two-thirds of institutions report that online learning is critical to their long-term strategy.
- Five percent of institutions have Massive Open Online Courses (MOOCs).

# Higher Education

## Implications for the University of Illinois

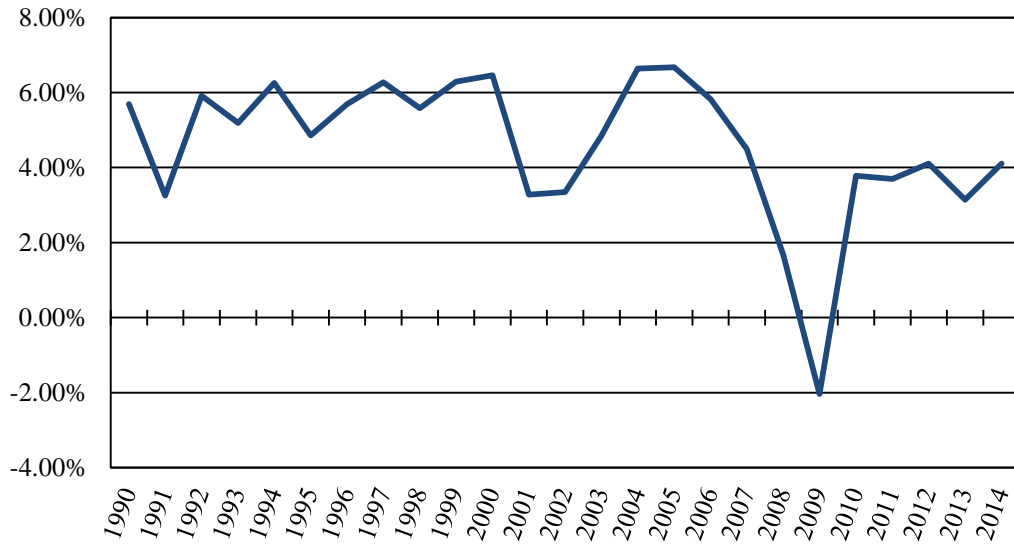
- The economic value of higher education to the individual – especially those with post-baccalaureate degrees – continues to grow.
- U.S. competitiveness in higher education participation, completion, and attainment, while still strong, is slipping relative to other developed and developing nations.
- A larger percentage of women are attending higher education than men and the gap is increasing.
- Competition from proprietary institutions and other non-traditional educational providers in the marketplace for students (both nationally and internationally) has greatly increased in recent years.
- Growth in faculty compensation at private institutions has surpassed public universities, and the intense competition for faculty will continue.
- Relatively flat incomes at the lower income brackets in recent years will have implications for tuition and financial aid policies particularly with regard to promoting access for low income and first-generation students.
- Rapid technological innovation has led to a need for lifelong learning that will allow individuals to continuously adapt and update skills. On-line instruction has grown rapidly in the last 15 years as it has gained mainstream acceptance due to increasing internet access and innovations in instructional technologies.

# **Economy and Budget**

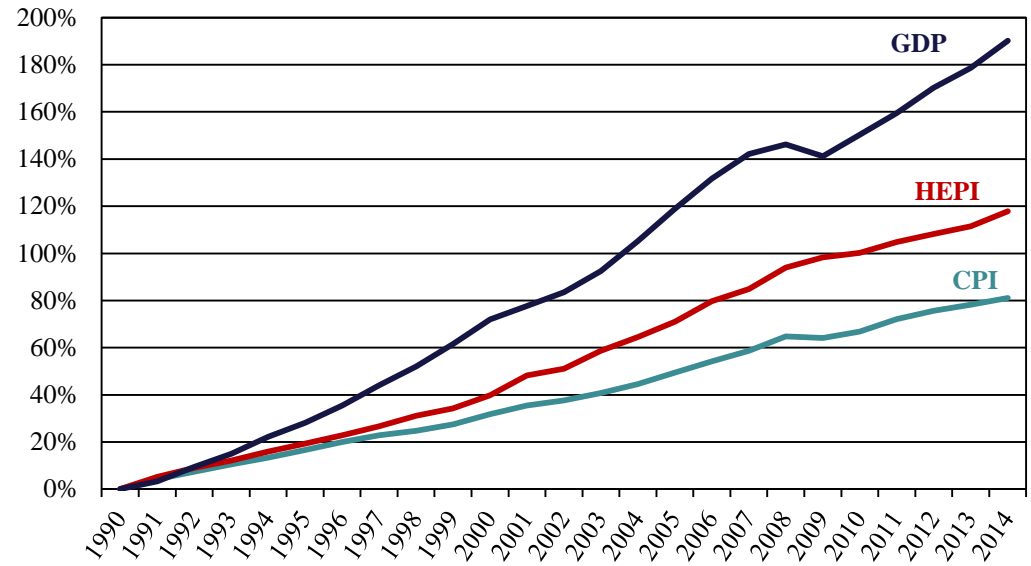


# U.S. Economic Indicators

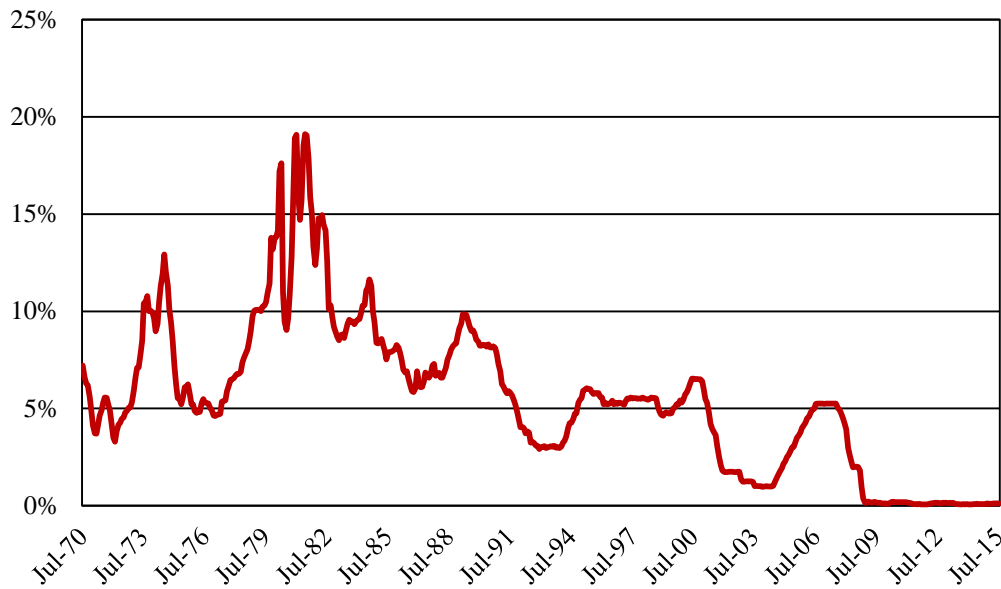
## Annual Change in US Gross Domestic Product



## Cumulative Inflation Increases

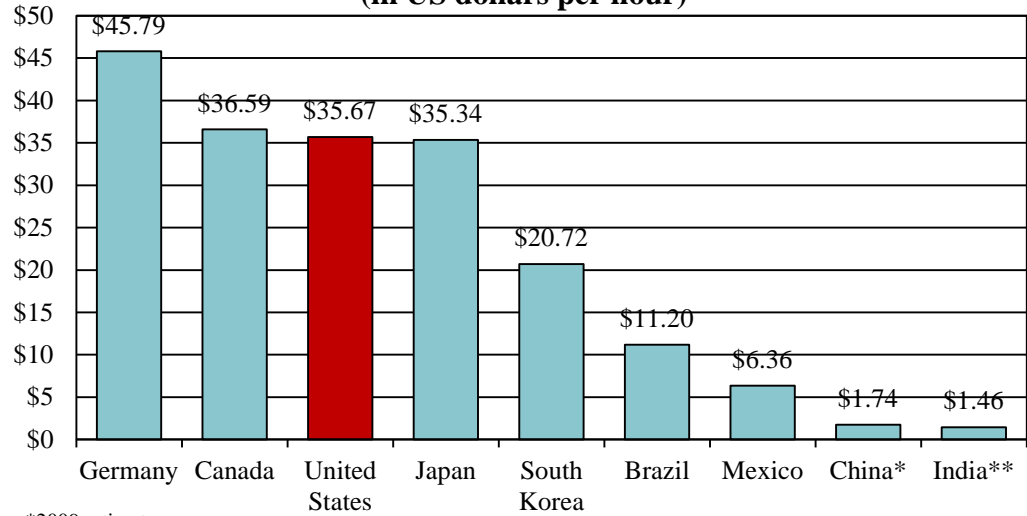


## Federal Funds Rate



# U.S. Economic Indicators

**Labor Costs Among Major Auto-Producing Nations, 2012  
(in US dollars per hour)**

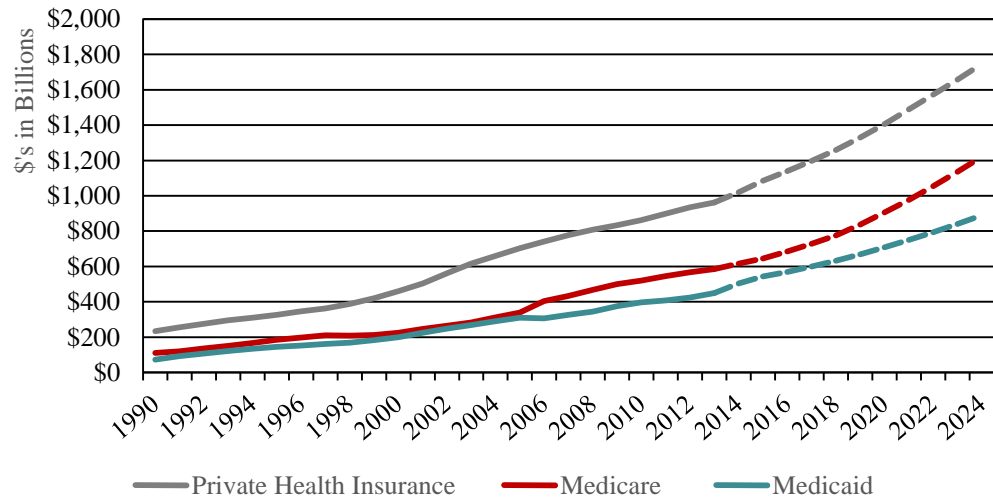


\*2009 estimate.

\*\*2010 estimate.

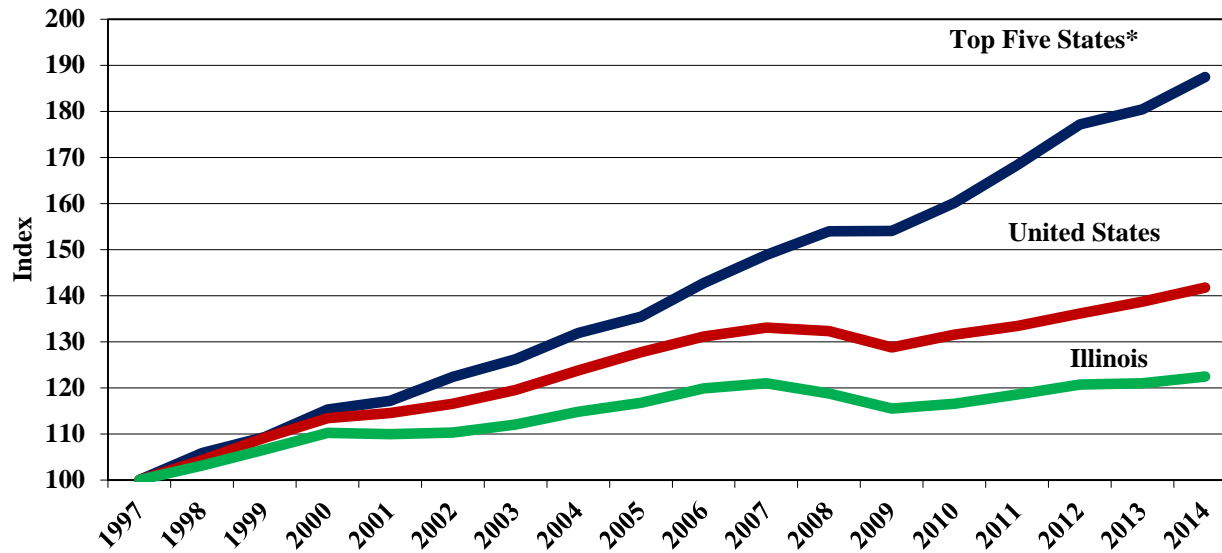
Source: Bureau of Labor Statistics.

**Growth in Public and Private Health Spending  
1990 - 2024**

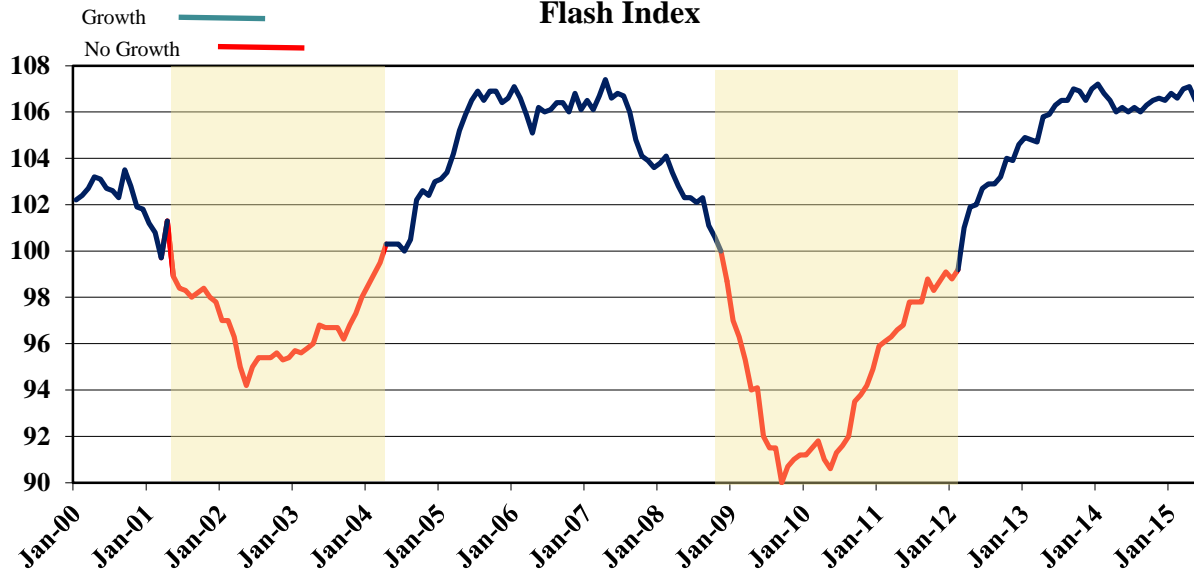


# State of Illinois Economic & Fiscal Indicators

## Cumulative Growth in Real GDP by State FY 1997 - FY 2014

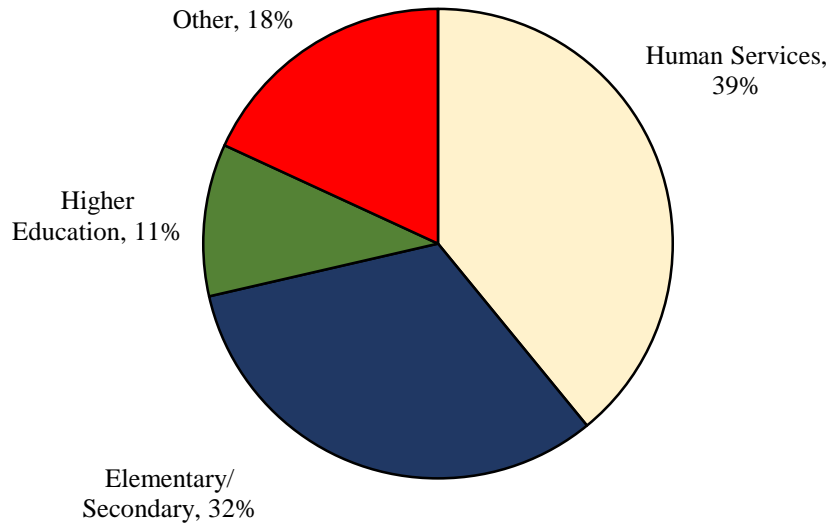


## University of Illinois Flash Index

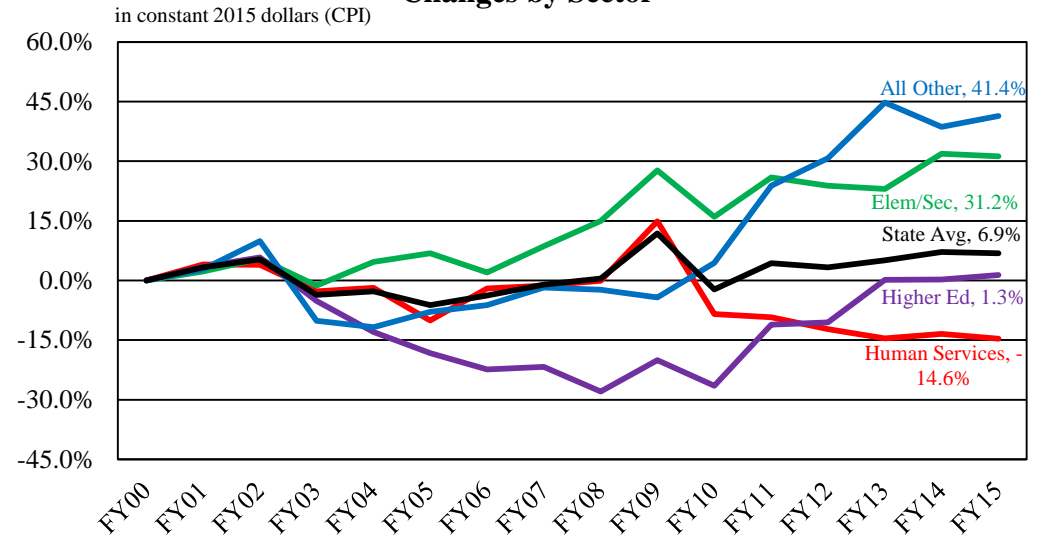


# State of Illinois Economic & Fiscal Indicators

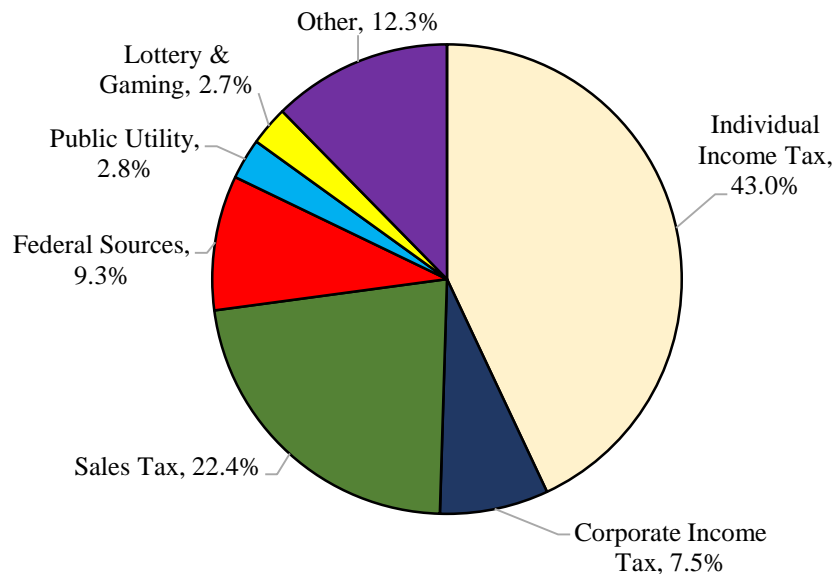
## State Appropriations by Sector



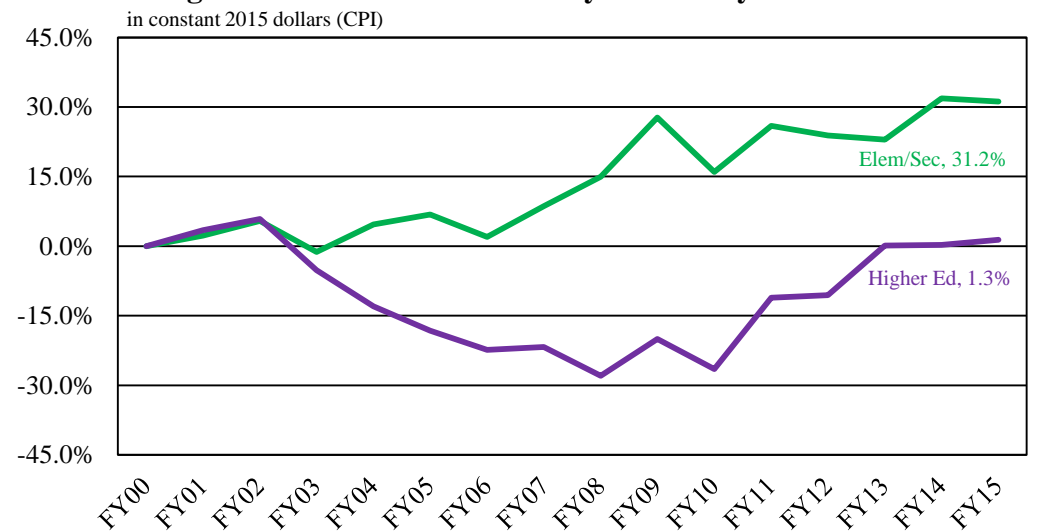
## State Tax Appropriations Changes by Sector



## General Funds Revenues by Source



## State Tax Appropriations Higher Education vs Elementary/Secondary Education

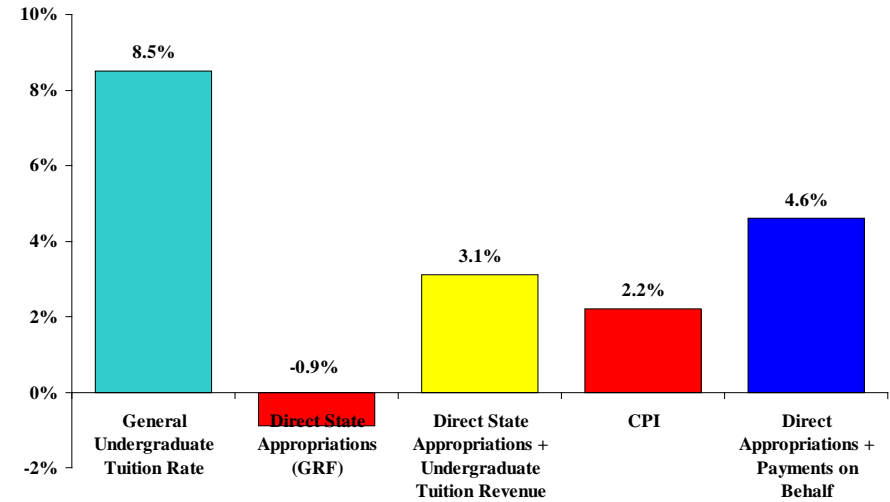


## University of Illinois Share of State Tax Appropriations FY 1980 to FY 2016



Note: FY02-FY16 exclude \$45 million in payments to CMS from Universities for Health Insurance.  
FY09-FY16 excludes transfer of State Scientific Surveys.

## University of Illinois Average Compounded Annual Increases FY 2000 – FY 2015



CPI: Consumer Price Index, BLS  
State Appropriation excluding transfer of State Surveys.

## University of Illinois Payments on Behalf

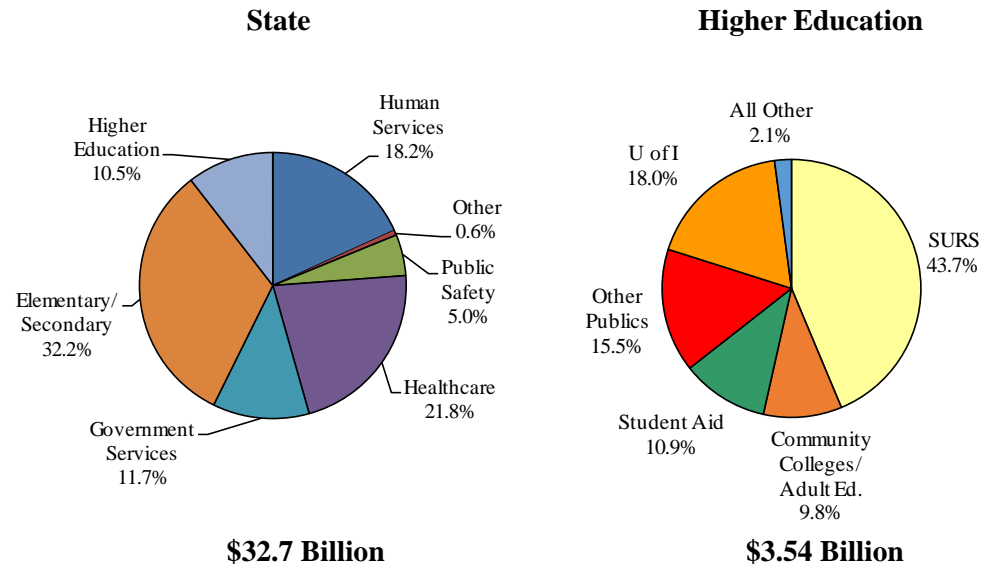
### State Payments on Behalf of the University (Dollars in Thousands)

	Retirement	Fringe Benefits	Health Insurance	Total
1999	\$ 87,425.1	\$ 112,200.3		\$ 199,625.4
2000	90,606.5	127,261.8		217,868.3
2001	94,267.3	154,420.1		248,687.4
2002	99,014.4	157,024.2	\$ 24,893.2	280,931.8
2003	112,980.6	169,170.4	24,893.2	307,044.2
2004	727,269.3	210,084.4	24,893.2	962,246.9
2005	114,279.8	232,952.6	24,893.2	372,125.6
2006	70,462.8	257,464.0	24,893.2	352,820.0
2007	107,981.7	268,675.0	24,893.2	401,549.9
2008	144,642.4	296,838.0	24,893.2	466,373.6
2009	191,959.8	294,061.8	24,893.2	510,914.8
2010	291,255.1	343,490.0	24,893.2	659,638.3
2011	321,272.4	361,929.0	24,893.2	708,094.6
2012	403,628.5	414,456.0	24,893.2	842,977.7
2013	588,267.0	495,399.0	24,893.2	1,108,559.2
2014	644,332.0	430,581.0	24,893.2	1,099,806.2
2015	681,677.0	491,054.0	24,893.2	1,197,624.2

**INCREASE** **\$ 997,998.8**

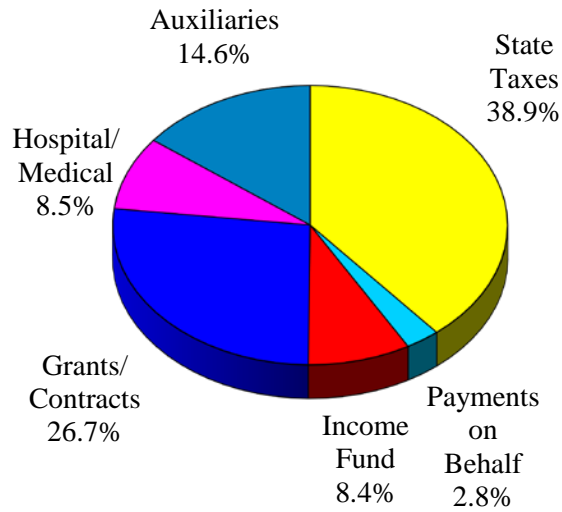
\*Retirement estimate based on the University's actual percentage of total SURS from prior year and fringe benefits based on 5 year average increase.  
FY2004 reflects sale of pension obligation funds. Portion from bonds \$597,245.0 thousand.  
FY2015 SURS increased by \$34 million, U of I share is approximately 42-43%.

## State of Illinois by Outcomes FY 2015 General Fund Appropriations (does not include bond payments or statutory transfers)



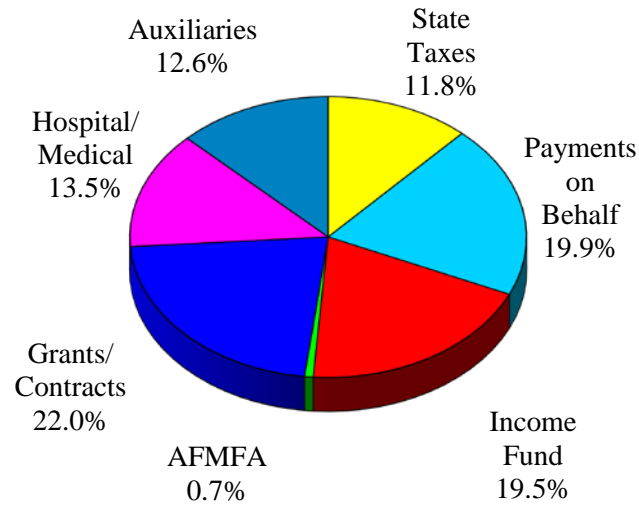
# University of Illinois Budget by Source of Funds FY 1990, FY 2015 and Projected FY 2030

**FY 1990**



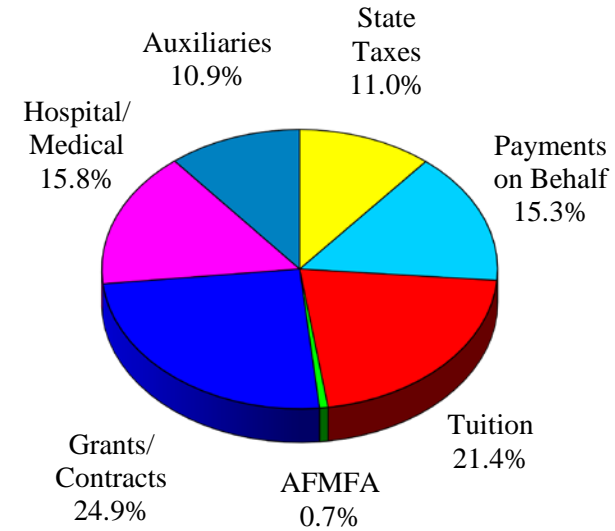
**\$2,639.9 Million**

**FY 2015**



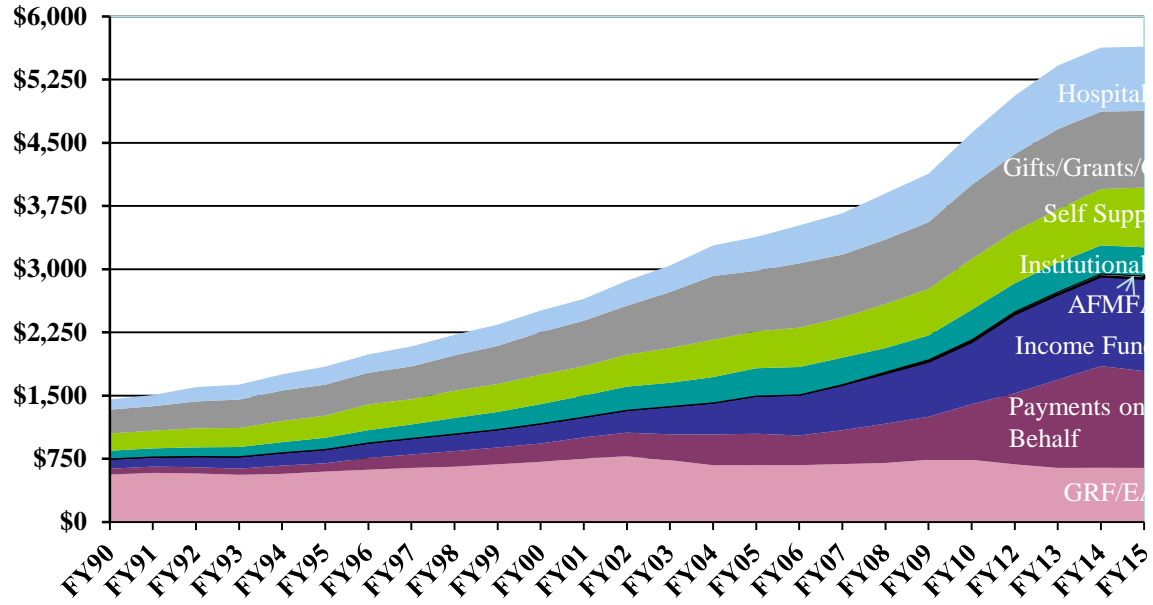
**\$5,640.5 Million**

**Projected FY 2030**

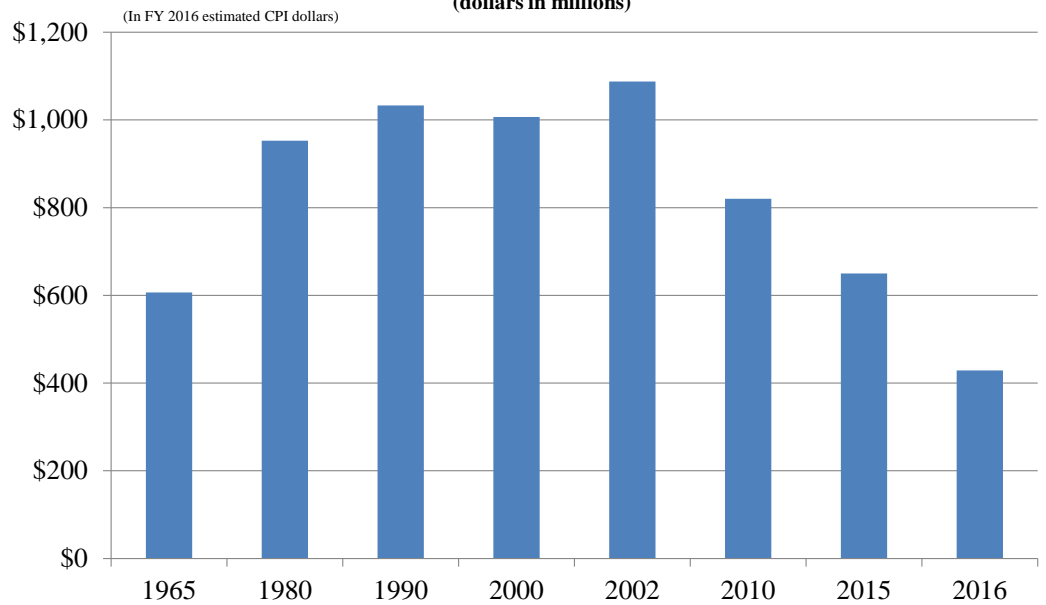


**\$7,099.2 Million**

**University of Illinois  
All Sources of Funds, FY 1990 – FY 2015**  
(dollars in millions)

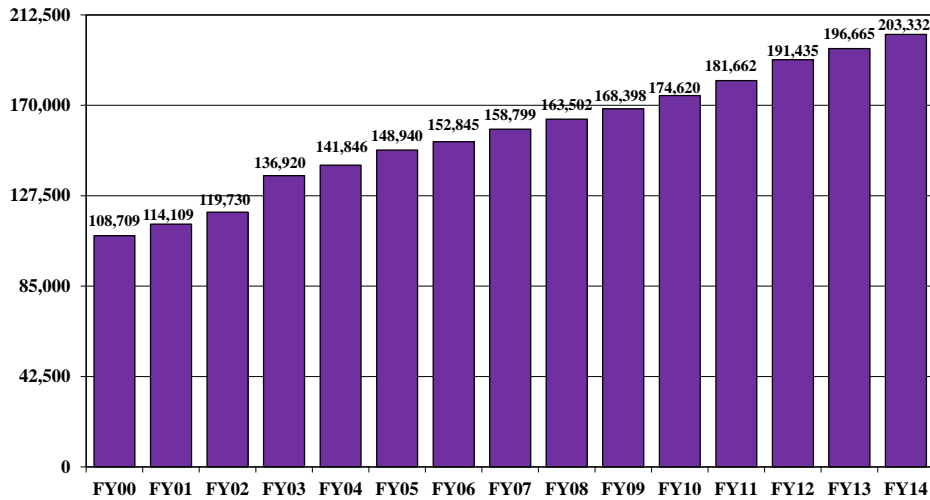


**University of Illinois  
State Tax Support**  
(dollars in millions)



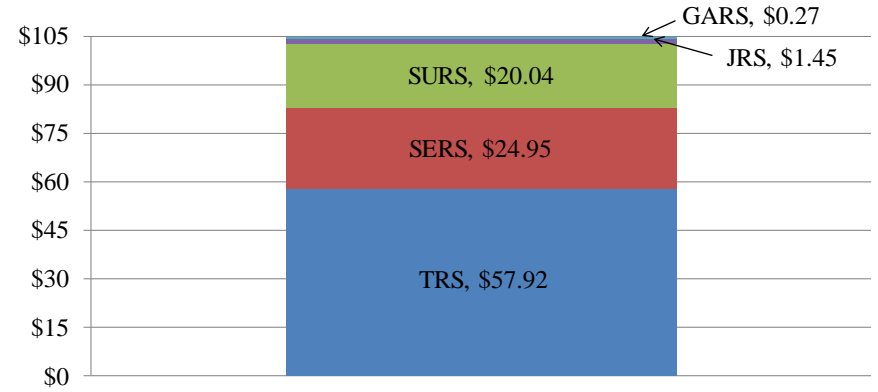
FY 2002 and FY 2015 at original appropriation amount. FY 2010, FY 2015 & FY 2016 *excludes* transfer of State Surveys and health insurance redirection.  
FY 2016 based on Governor's Budget.

### Total Retirees, Public Pension Systems TRS, SERS, SURS, JRS, GARS



Source: COGFA's IL State Retirement Systems Financial Condition Report, February 2015.

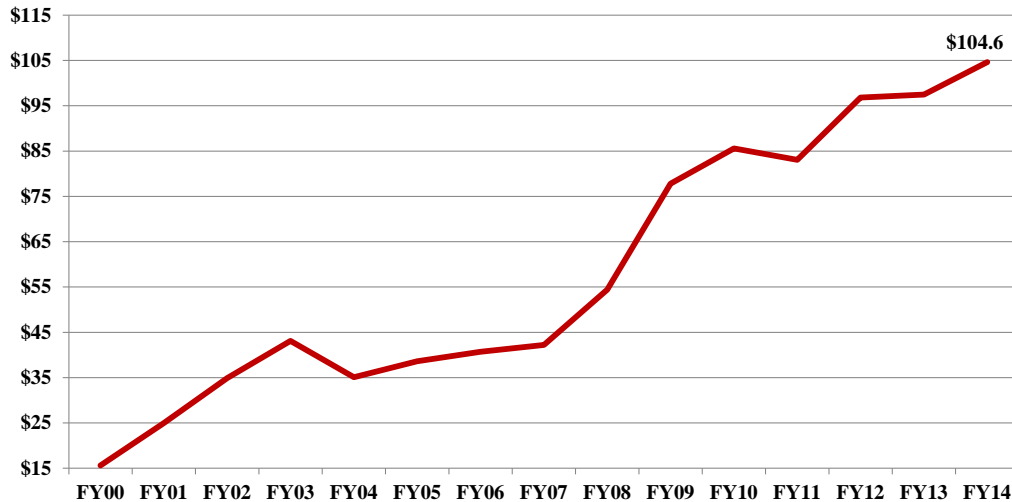
### State of Illinois Unfunded Pension Liability Estimated as of June 30, 2014 (Dollars in Billions)



**\$104.6 Billion**  
Asset/Liability Ratio 42.9%

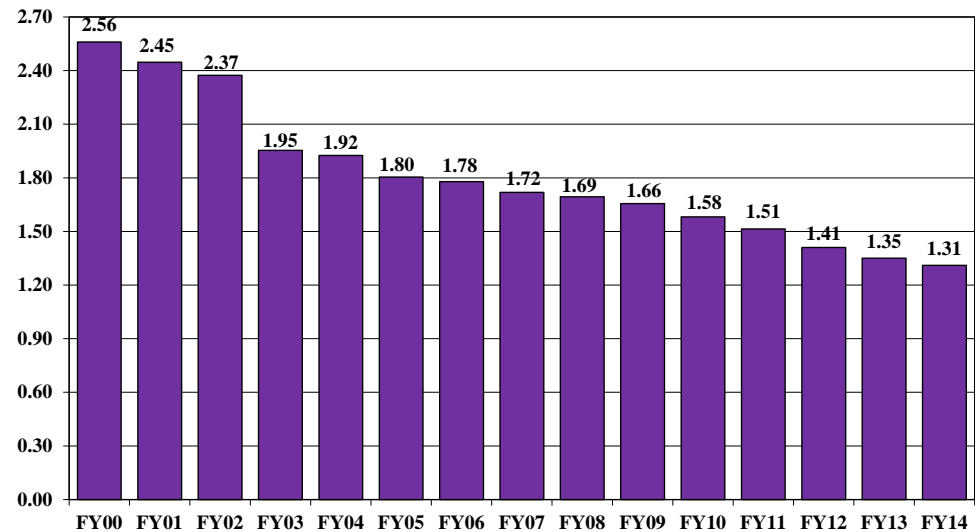
Using Actuarial Accrued Liability at Market Value.

### State of Illinois Unfunded Public Pension Obligations (SERS, SURS, JRS, GARS, TRS) (Dollars in Billions)



(At end of Fiscal Year, FY 2003-04 sale of Pension Bonds)  
Using Actuarial Accrued Liability at Market Value without asset smoothing.

### # Active Members to # Retirees State of Illinois Unfunded Public Pension Obligations (SERS, SURS, JRS, GARS, TRS) (Dollars in Billions)



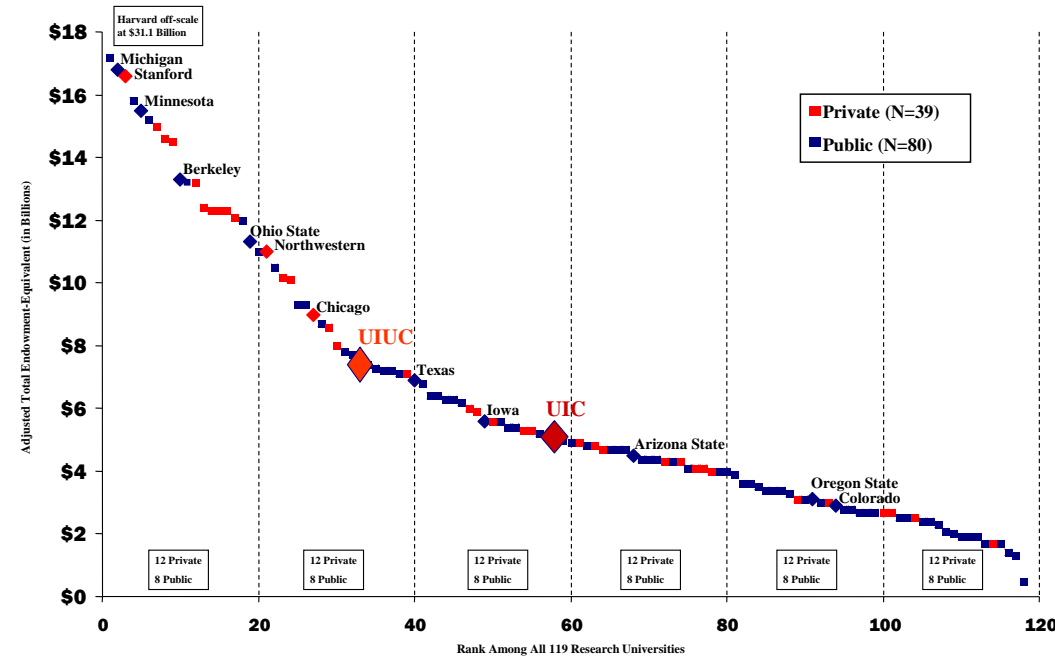
Source: COGFA's IL State Retirement Systems Financial Condition Report, February 2015.



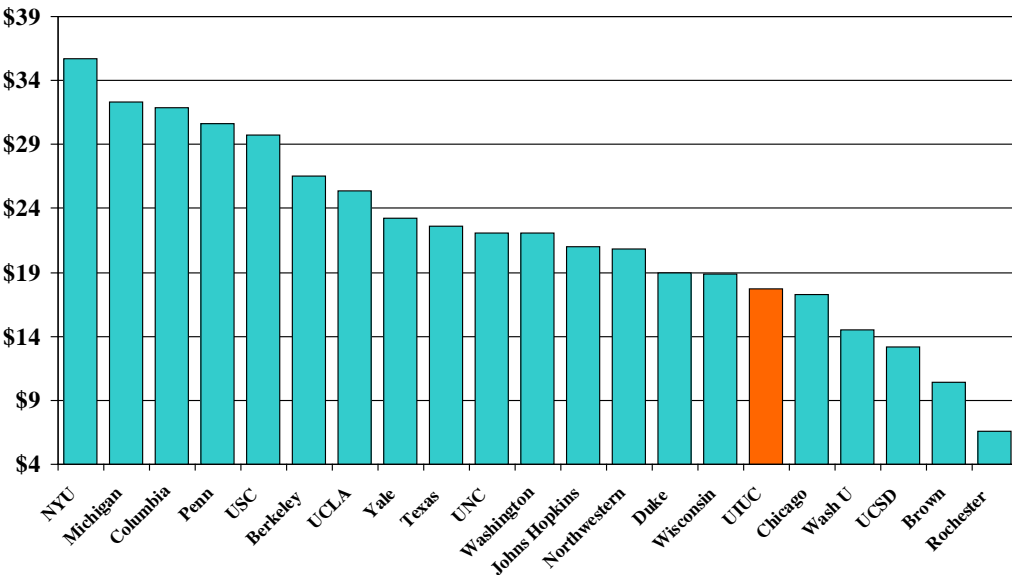
## The Center: The Top American Research Universities (August 2002)

- An Annual Report from the Lombardi Program on Measuring University Performance.
- Intended to assess the relative economic strength of research universities.
- Evaluated universities based on the market value of their endowments and an endowment equivalent calculation for other revenue streams
  - Endowment equivalent is the amount of endowment that would be required to generate the revenue stream (assuming a 4.5% growth).
  - Revenue streams included annual giving, tuition and fees, and state appropriations.
  - Adjusted for size based on student enrollment.
- Public universities can compete with private institutions because of the significant state support received.
- Updated with 2012 data.

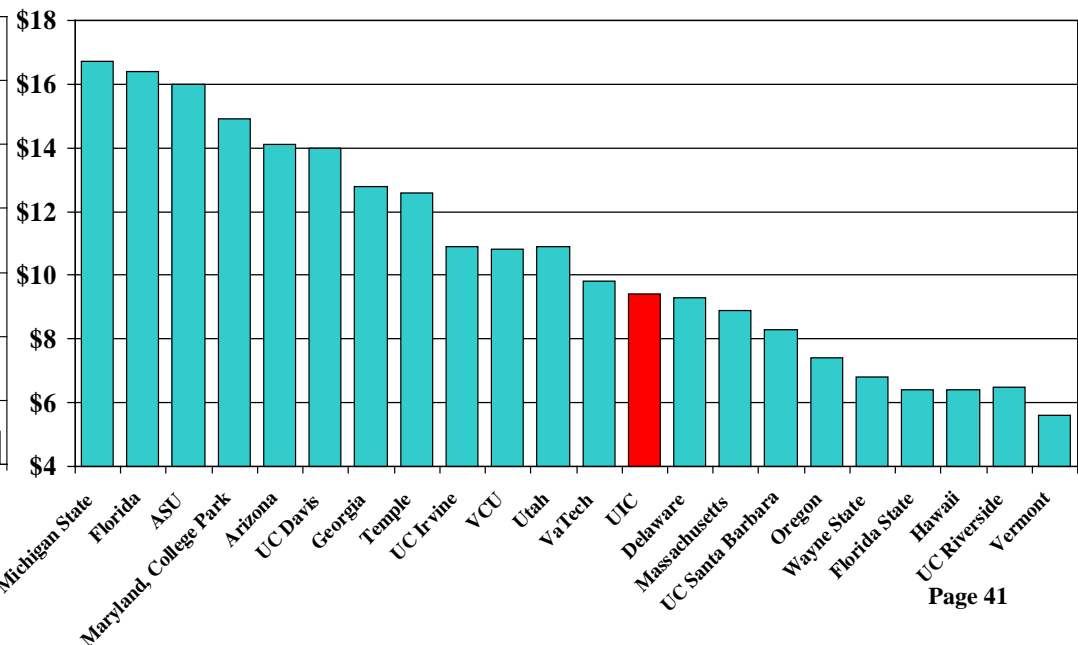
## Total Endowment-Equivalent Adjusted for Student FTE Enrollment Universities with More Than \$20 Million in Federal Research in Rank Order



## 2012 Adjusted Total Endowment-Equivalent Based on The Center's Methodology UIUC – Peer Institutions (in billions)

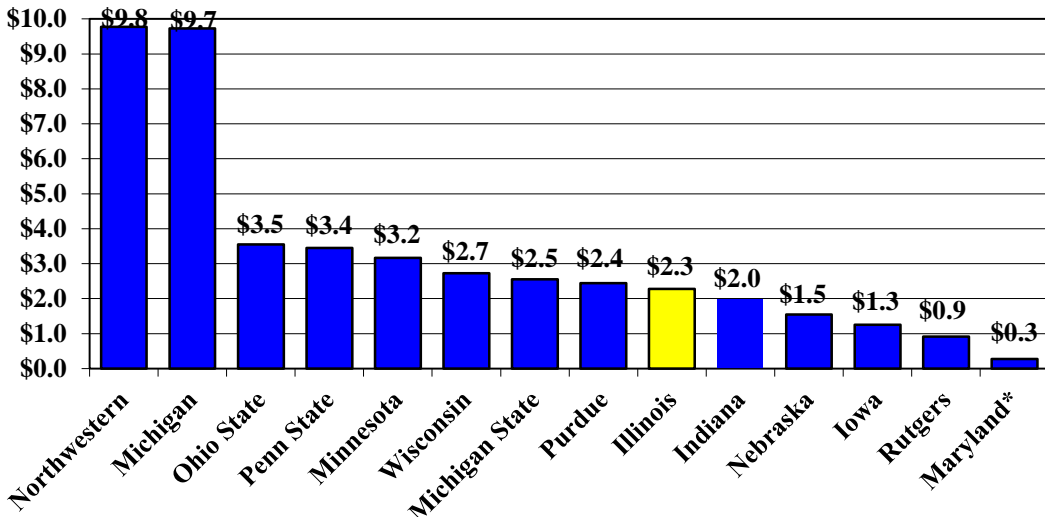


## 2012 Adjusted Total Endowment-Equivalent Based on The Center's Methodology UIC – IBHE Peer Institutions (in billions)

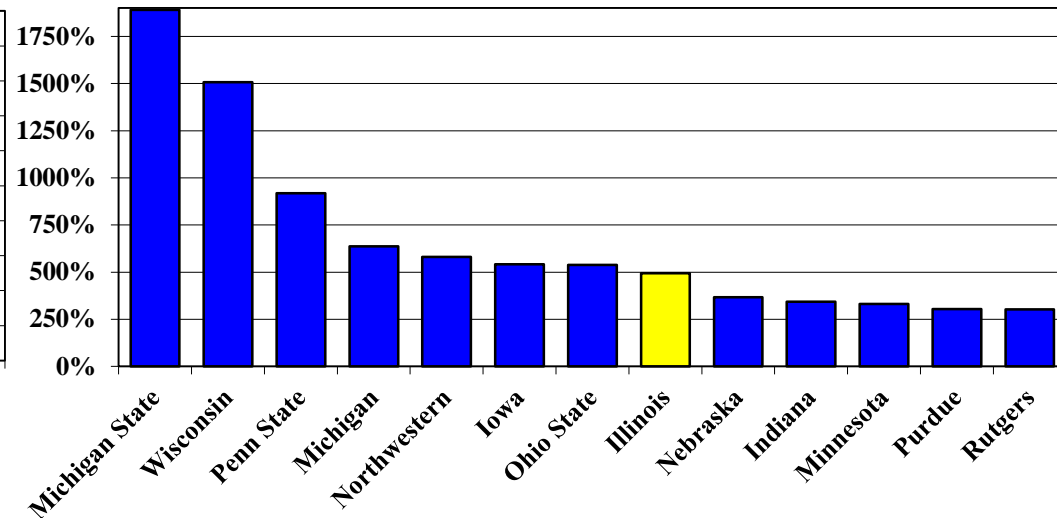


# Big Ten University and Foundation Endowments (Dollars in Billions)

FY 2014



Percentage Growth from 1995-2014



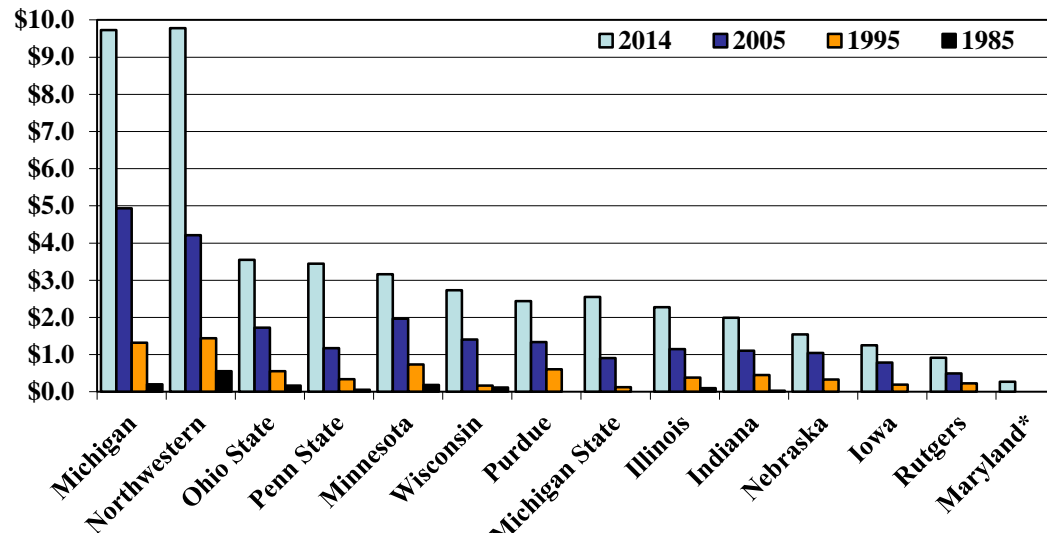
Source: NACUBO-Commonfund Study of Endowments FY 2014.

\*Represents endowment balance for the University of Maryland College Park Foundation.

Source: NACUBO-Commonfund Study of Endowments FY 1995 to FY 2014.

Note: The University of Maryland College Park Foundation was not included in the NACUBO report until 2008.

## Big Ten University and Foundation Endowments



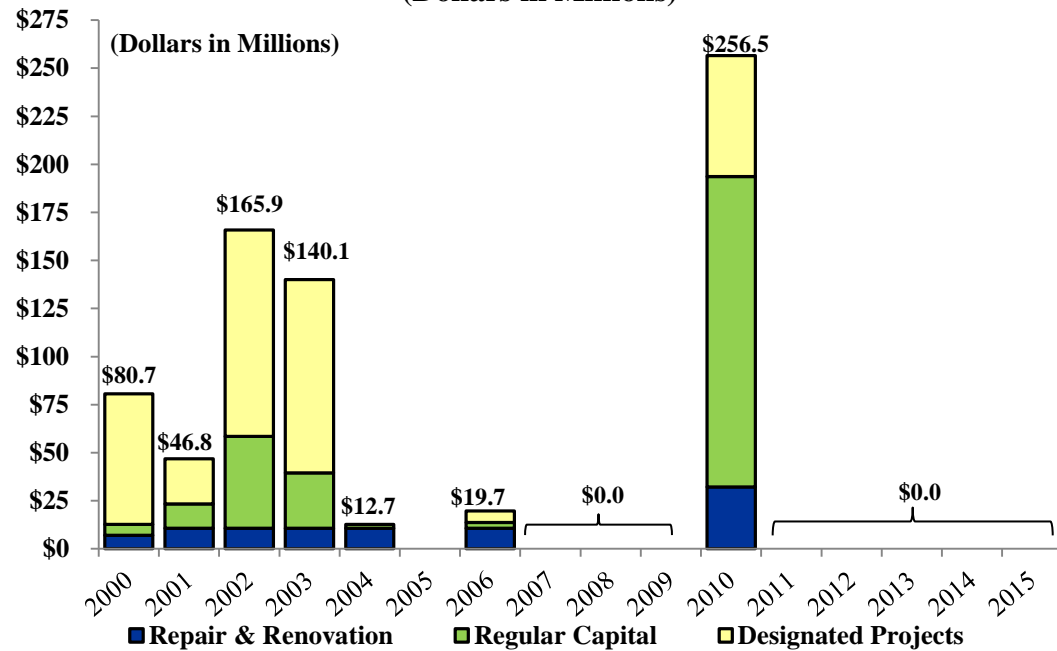
Source: NACUBO-Commonfund Study of Endowments FY 2013.

\*Represents endowment balance for the University of Maryland College Park Foundation. Does not include

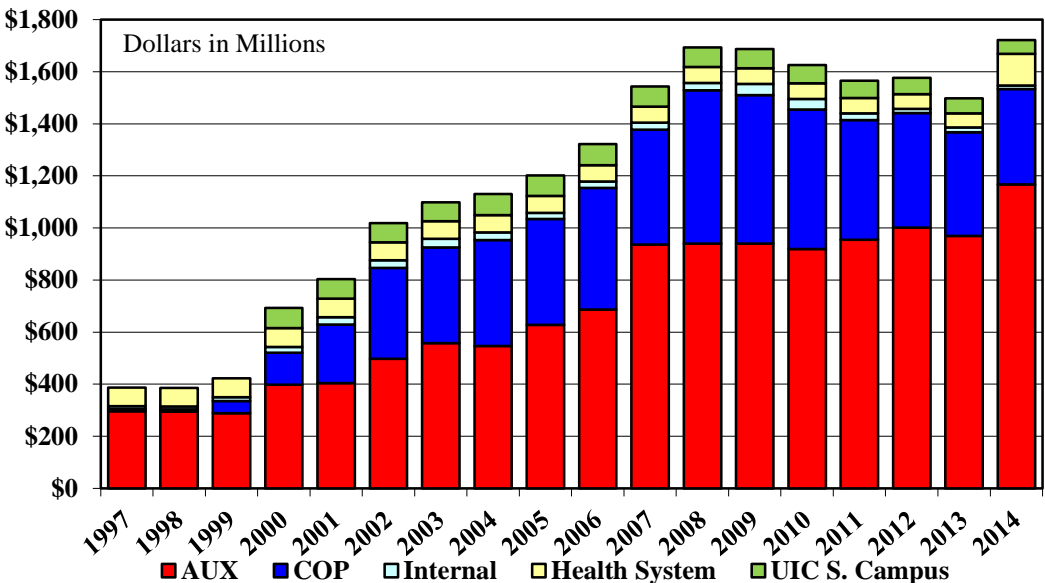
**Public Higher Education Capital Appropriation History  
FY 1999 to FY 2015  
(Dollars in Thousands)**

<u>FY</u>	<u>B.O.G.</u>	<u>B.O.R.</u>	<u>S.I.U.</u>	<u>U of I</u>	<u>I.C.C.B.</u>	<u>OTHER</u>	<u>TOTAL</u>
	\$	\$	\$	\$	\$	\$	\$
2000	70,622.6	28,852.3	29,938.5	80,685.6	96,189.3	11,000.0	317,288.3
2001	44,099.7	8,131.8	42,573.8	46,821.9	63,532.5	415.0	205,574.7
2002	84,186.5	20,770.5	22,730.0	165,949.4	75,736.4	2,000.0	371,372.9
2003	38,096.8	7,214.5	30,072.1	140,096.9	80,679.2	13,943.8	310,103.3
2004	8,721.9	25,415.5	5,752.5	12,735.0	59,107.6	0.0	111,732.5
2005	<b>NO CAPITAL APPROPRIATIONS</b>						
2006	5,703.8	3,270.5	10,391.4	19,725.0	59,107.6	2,465.1	100,663.4
2007	<b>NO CAPITAL APPROPRIATIONS</b>						
2008	<b>NO CAPITAL APPROPRIATIONS</b>						
2009	<b>NO CAPITAL APPROPRIATIONS</b>						
2010	294,068.1	97,824.6	172,273.9	256,478.0	434,201.0	60,135.0	1,314,980.6
2011	<b>NO CAPITAL APPROPRIATIONS</b>						
2012	<b>NO CAPITAL APPROPRIATIONS</b>						
2013	<b>NO CAPITAL APPROPRIATIONS</b>						
2014	<b>NO CAPITAL APPROPRIATIONS</b>						
2015	<b>NO CAPITAL APPROPRIATIONS</b>						

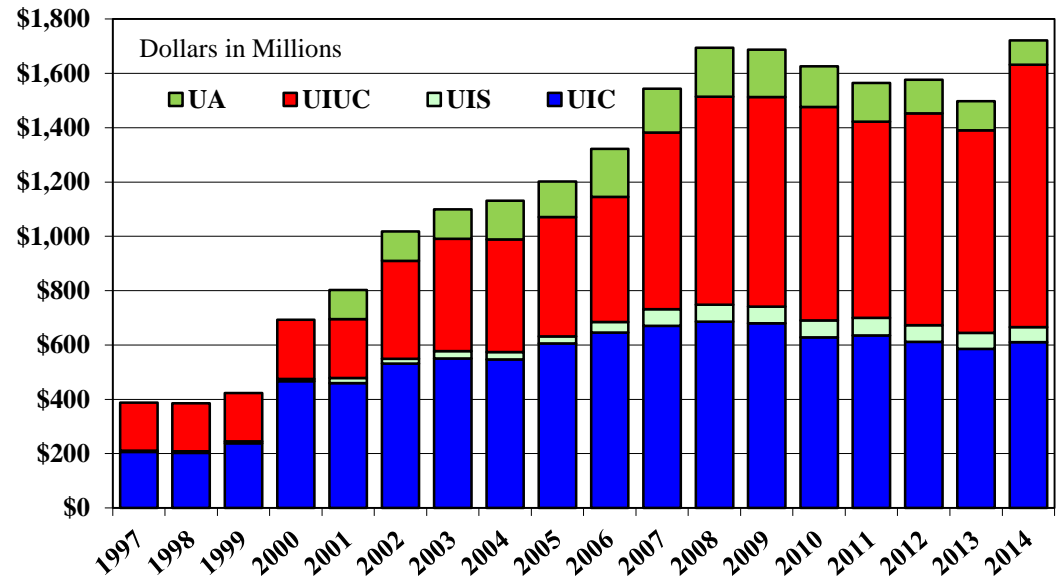
**U of I Capital Appropriations  
FY 2000 to FY 2015  
(Dollars in Millions)**



**Total Debt by Type**

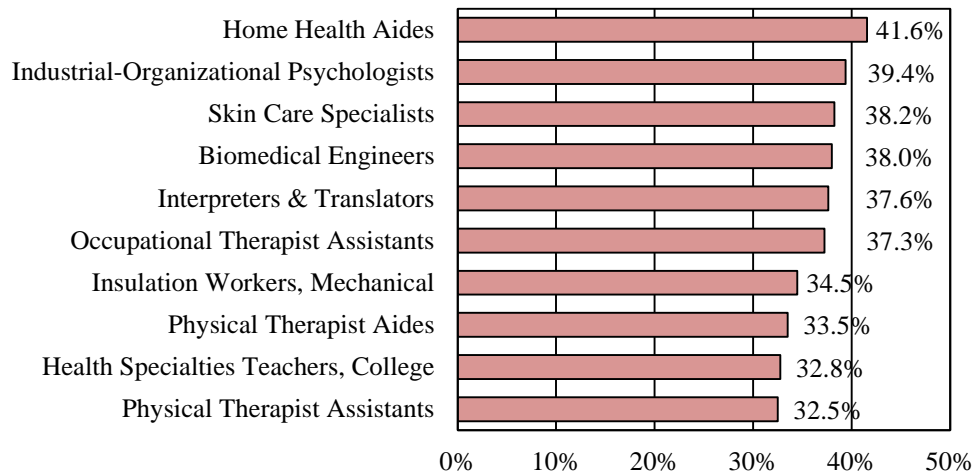


**Total Debt by Campus**

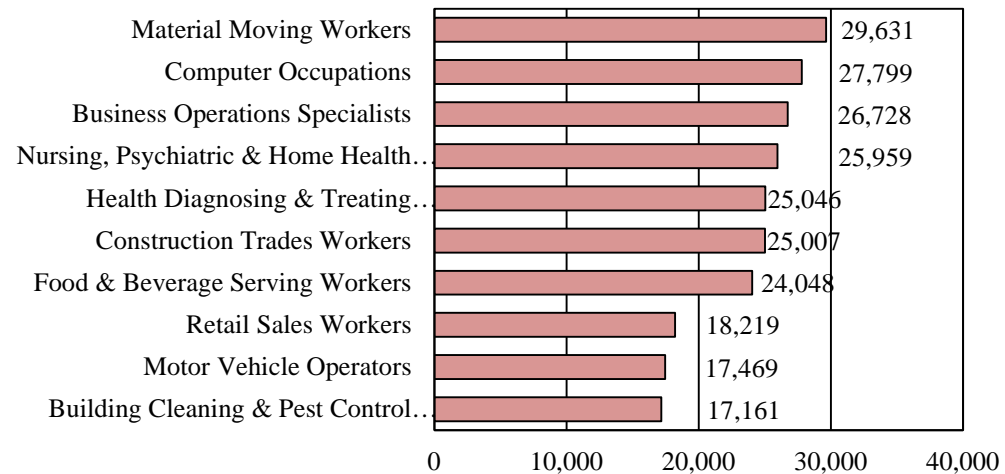


# Illinois Projected Employment Growth, 2012-2022

## IL Fastest Growing Occupations, 2012 - 2022 (Percentage increase)



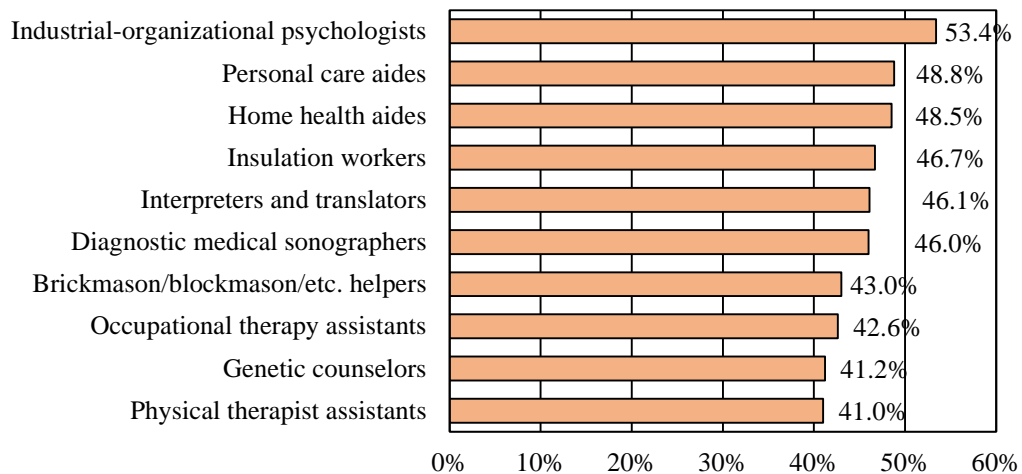
## IL Fastest Growing Occupations, 2012 - 2022 (number of jobs)



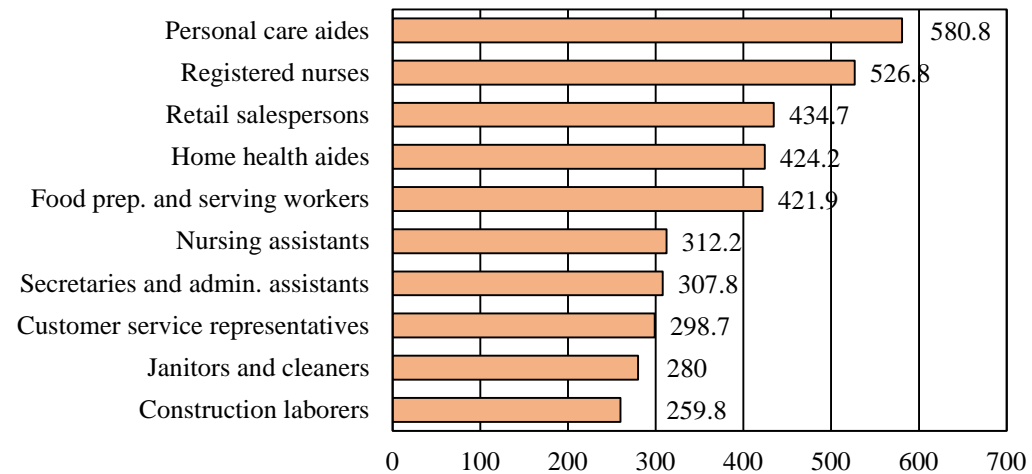
Source: Illinois Department of Employment Security

# U.S. Projected Employment Growth, 2012-2022

## US Fastest Growing Occupations, 2012 - 2022 (Percentage increase)



## US Fastest Growing Occupations, 2012 - 2022 (thousands of jobs)



Source: U.S. Bureau of Labor Statistics

# Economy and Budget

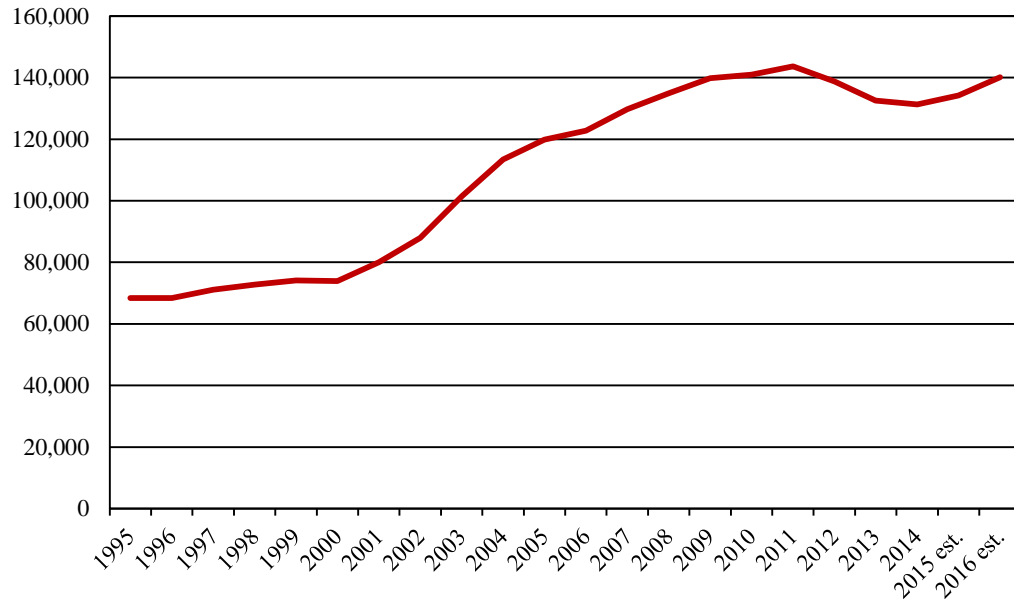
## Implications for the University of Illinois

- The U.S. economy will continue to grow, but at a slower rate. Health care costs continue to grow at a more rapid rate than general inflation and earnings which has an impact on both the national economy and governmental spending at all levels.
- The state's fiscal situation, faces continued challenges in the coming years. Health care and pension obligation costs are expected to continue rising rapidly and will likely outpace any state revenue growth realized resulting in continued constraints on “discretionary spending” in the state budget (e.g., higher education).
- The University has increasingly needed to rely on internal sources for funding capital projects, which in turn has contributed to increased debt service levels.
- The University has become more reliant on multiple revenue streams and state policymakers may interpret this trend as meaning the University can more easily absorb reductions or at least flat funding in the general appropriation.

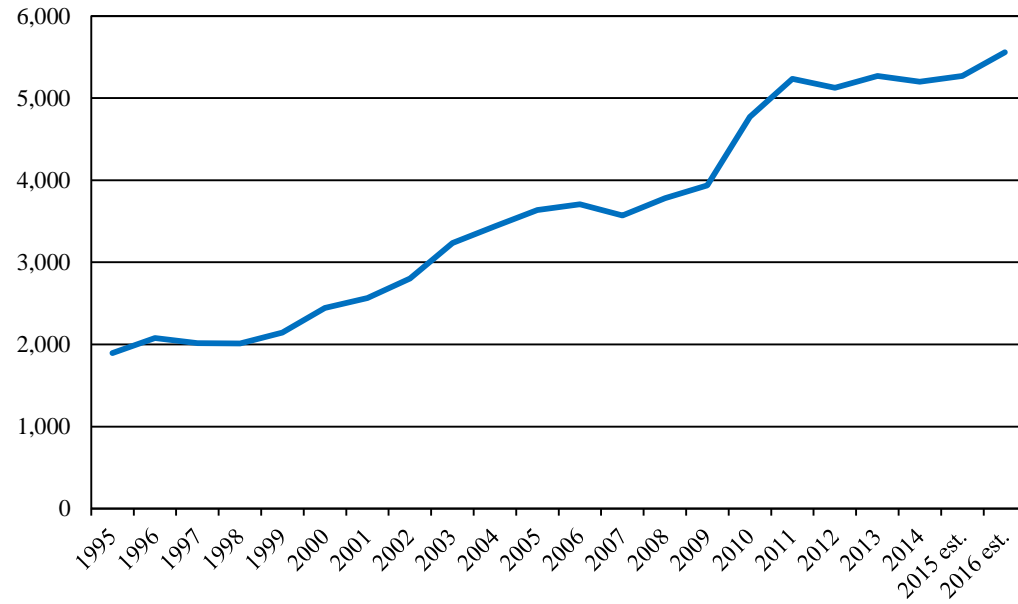
# **Research, Technology, and Economic Development**

# Trends in Federal R&D Funding

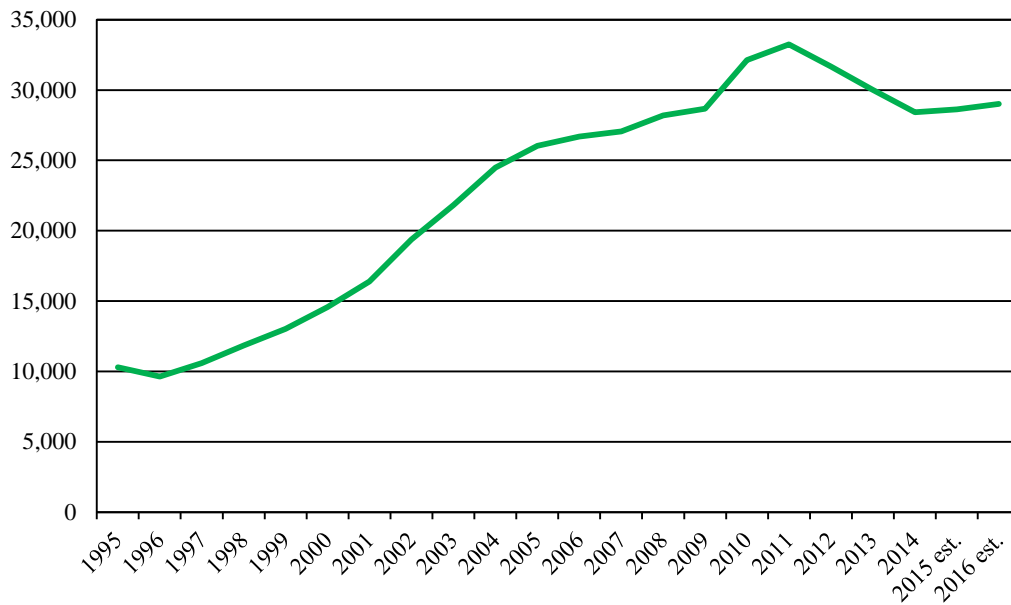
## Federal Outlays for R&D All Agencies



## Federal Outlays for R&D National Institute of Health



## Federal Outlays for R&D National Science Foundation



## Federal R&D Budget Proposal (Dollars in Millions)

Agency or Dept.	2014 Actual	2015 Estimate	2016 Estimate	% Change 2014 - 2015
Defense	\$ 70,576	\$ 72,618	\$ 76,946	2.9%
NIH	28,429	28,636	29,008	0.7%
NASA	11,257	11,172	11,172	-0.8%
Energy	2,363	2,341	2,771	-0.9%
NSF	5,198	5,271	5,558	1.4%
Agriculture	1,823	2,404	2,200	31.9%
Other	11,660	11,795	12,433	1.2%
<b>Total</b>	<b>\$ 131,306</b>	<b>\$ 134,237</b>	<b>\$ 140,088</b>	<b>2.2%</b>

## Higher Education R&D Expenditures, FY 2013

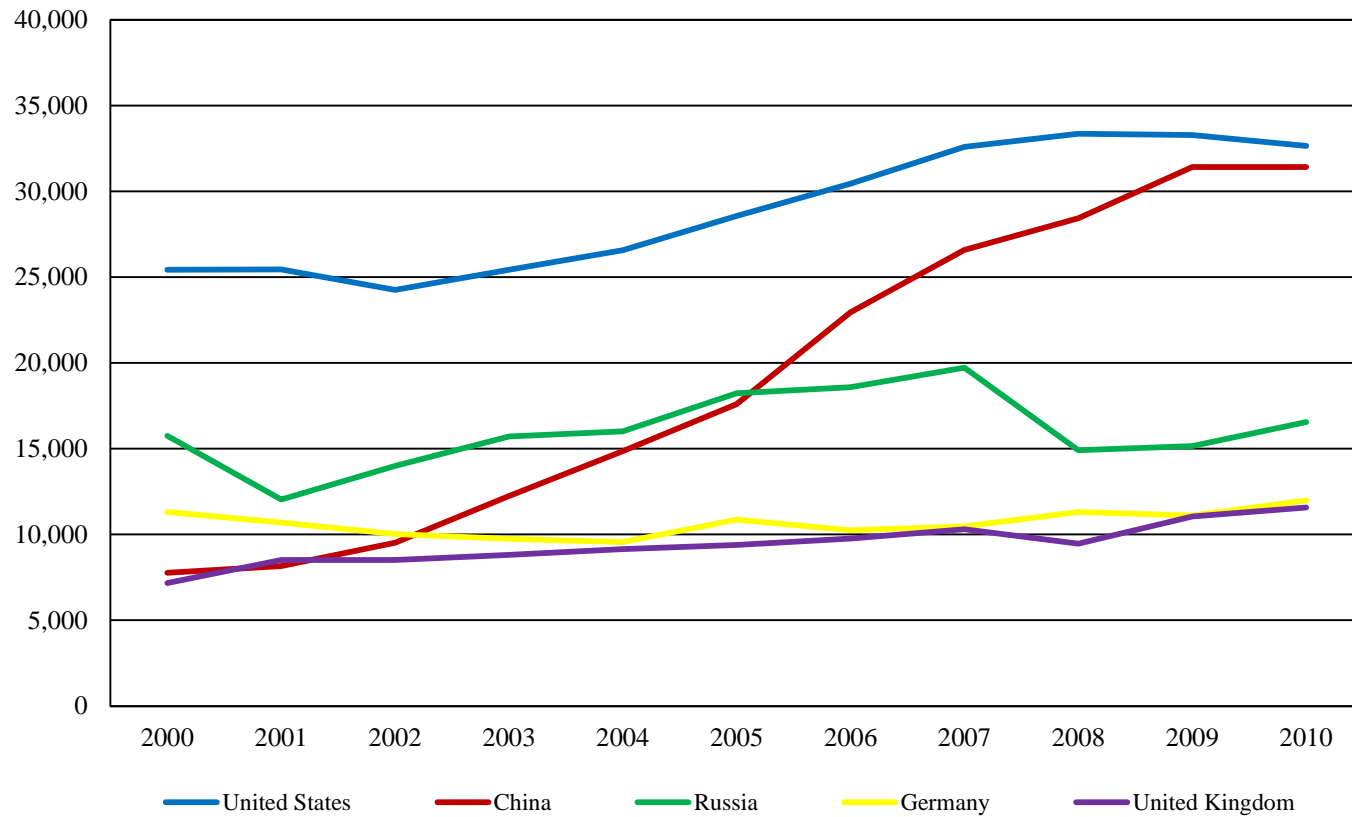
Rank	Institution	All R&D expenditures
1	Johns Hopkins U.	\$ 2,168,568
2	U. Michigan, Ann Arbor	1,375,117
3	U. Washington, Seattle	1,192,513
4	U. Wisconsin-Madison	1,123,501
5	U. California, San Diego	1,075,554
6	U. California, San Francisco	1,042,841
7	Harvard U.	1,012,766
8	Duke U.	992,821
9	U. North Carolina, Chapel Hill	973,007
10	U. California, Los Angeles	966,659
11	Stanford U.	945,450
12	Massachusetts Institute of Technology	900,524
13	Columbia U. in the City of New York	889,188
14	U. Pittsburgh, Pittsburgh	872,736
15	U. Minnesota, Twin Cities	858,378
16	Cornell U.	845,184
17	Penn State U., U. Park and Hershey Medical Center	837,880
18	U. Pennsylvania	828,422
19	Texas A&M U., College Station	820,015
20	Ohio State U.	793,373
21	Yale U.	788,784
22	U. Illinois, Urbana-Champaign	743,487
23	Georgia Institute of Technology	730,488
24	U. California, Berkeley	727,002
25	U. California, Davis	725,734
26	U. Texas M. D. Anderson Cancer Center	718,096
27	U. Florida	695,063
28	Washington U., St. Louis	684,847
29	U. Southern California	645,636
30	Northwestern U.	639,781
31	U. Texas, Austin	634,132
32	U. Arizona	629,466
33	Purdue U., West Lafayette	595,739
34	Emory U.	575,943
35	Vanderbilt U.	571,603
36	Michigan State U.	515,707
37	Baylor C. of Medicine	508,799
38	Virginia Polytechnic Institute and State U.	496,169
39	U. Utah	494,058
40	Rutgers, State U. New Jersey, New Brunswick	493,320

Note: Totals reported in thousands.  
Source: National Science Foundation



# International Comparison: Science and Engineering Degrees

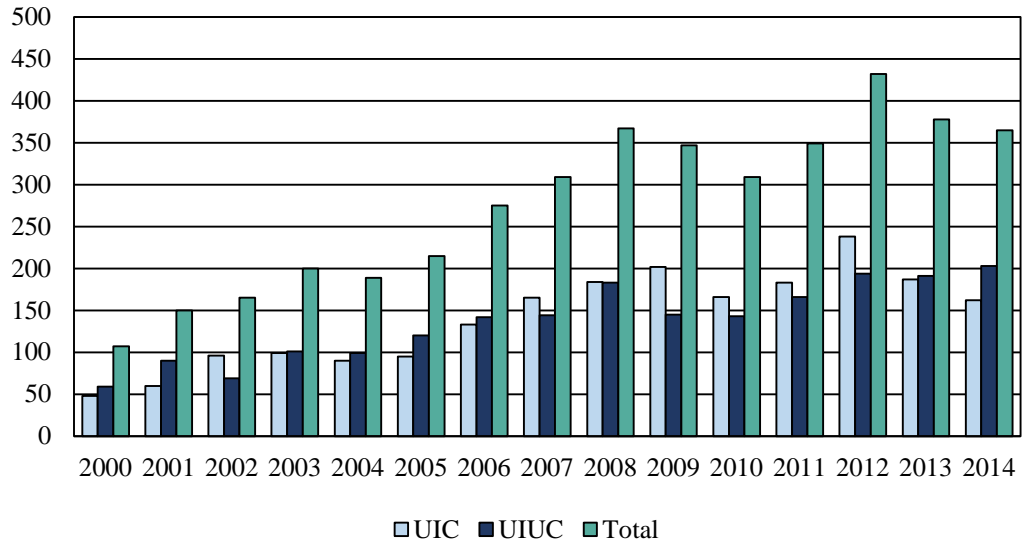
## Science & Engineering Doctoral Degrees, 2010



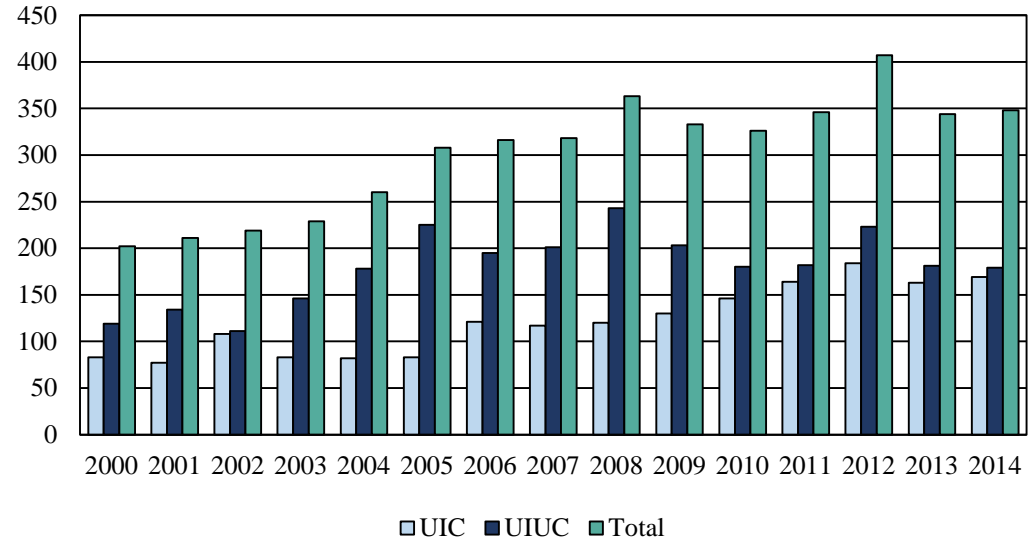
Source: NSF Science and Engineering Indicators, 2014.

# University of Illinois Technology Transfer

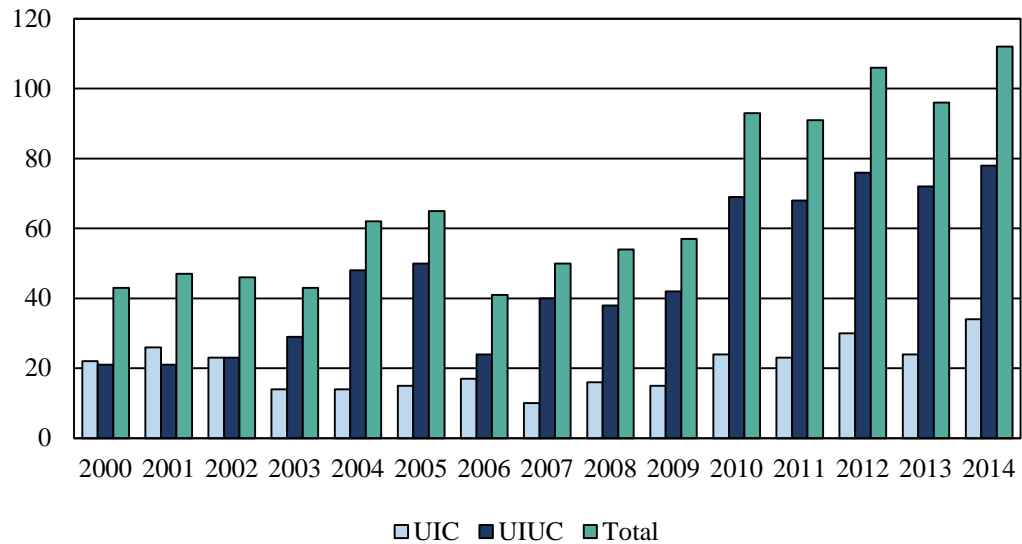
## Patents Filed



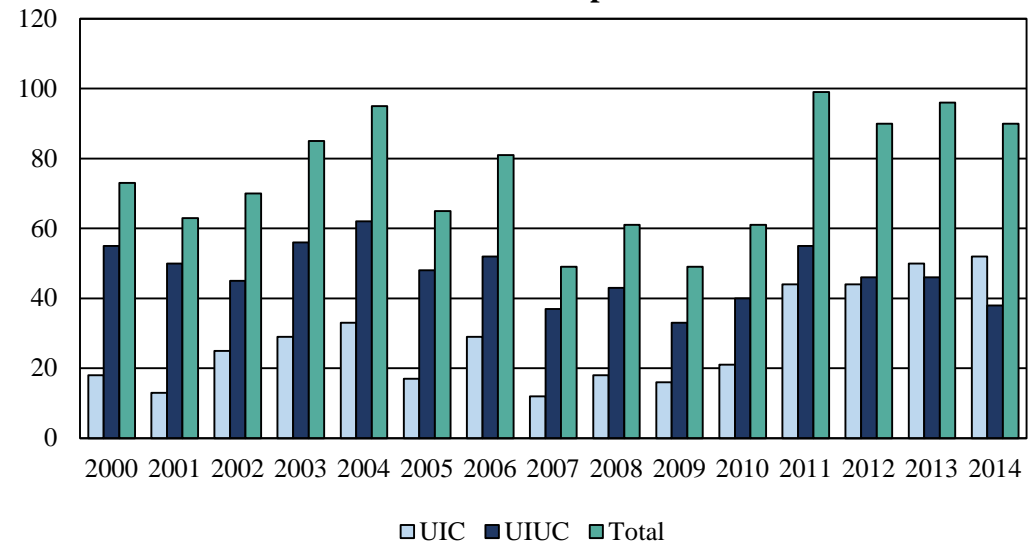
## Technology Disclosures



## Patents Issued

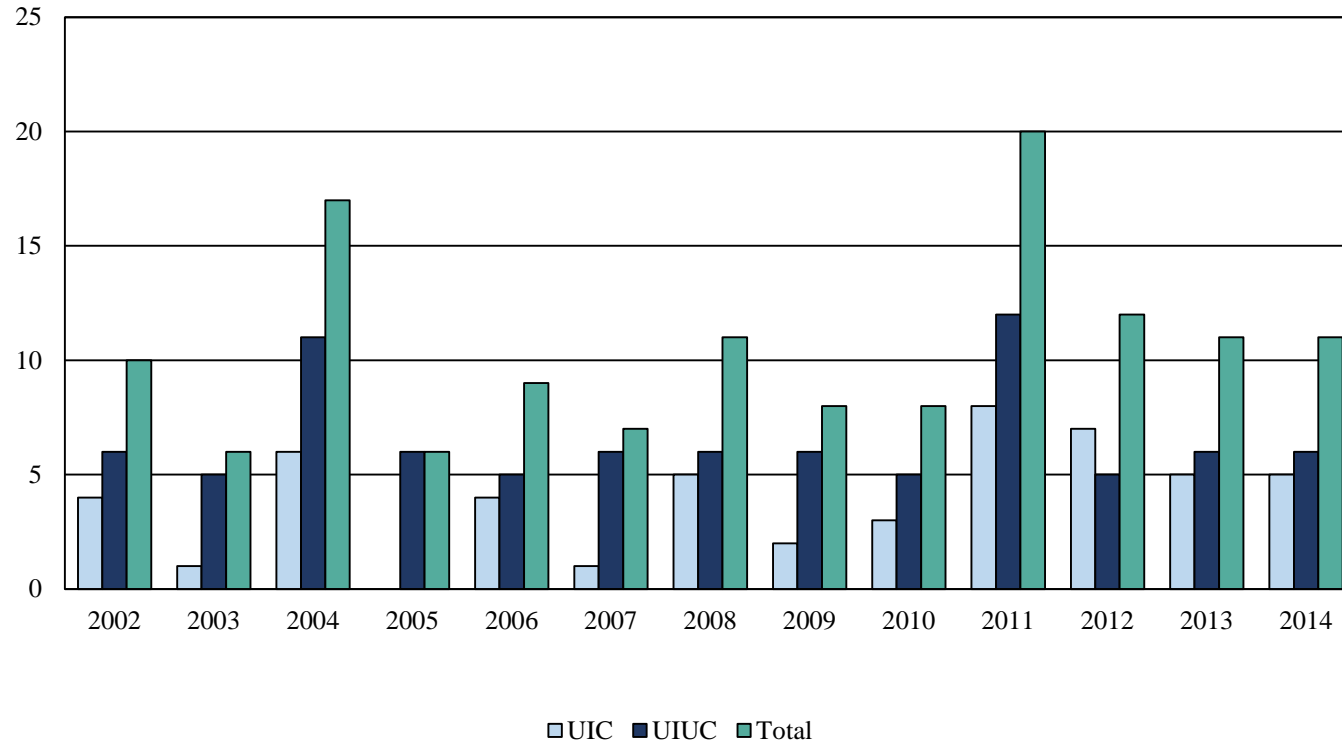


## Licenses and Options



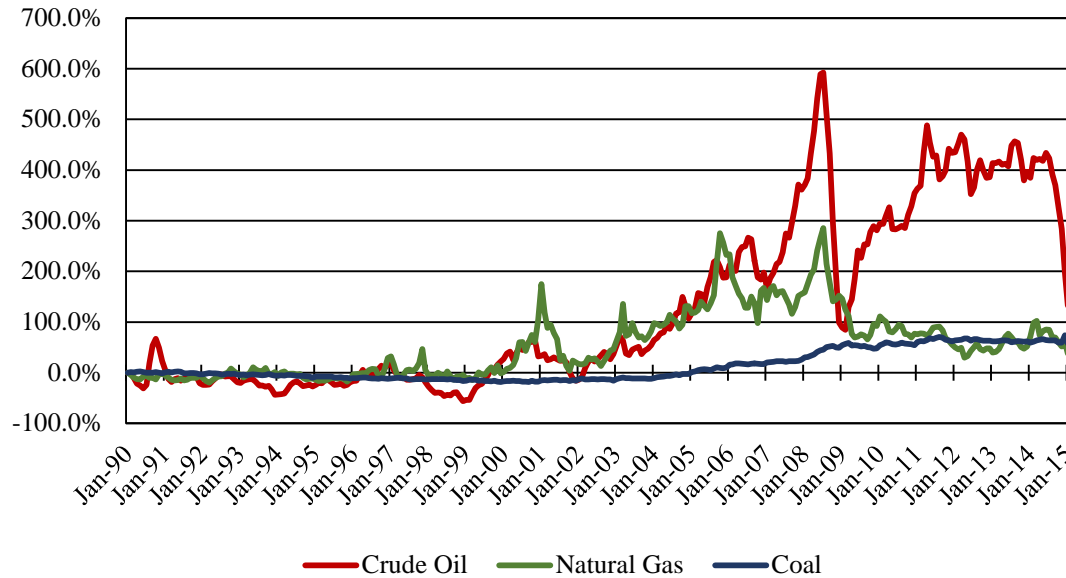
# University of Illinois Technology Transfer

## Startups

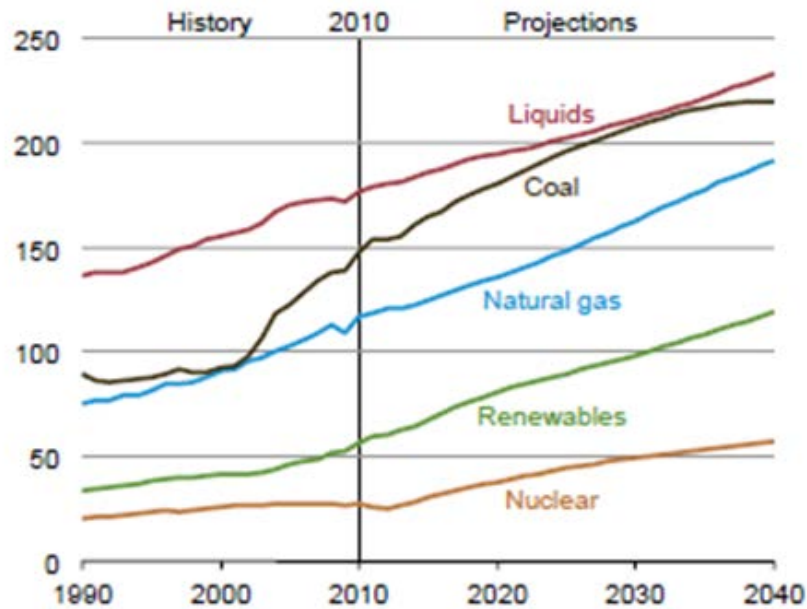


# Energy Costs and Source Usage

## Cumulative Energy Price Increases, 2000 - 2015



## Figure 2. World energy consumption by fuel type, 1990-2040 (quadrillion Btu)



# Energy Costs and Source Usage

## Renewable Energy's Role in U.S. Supply

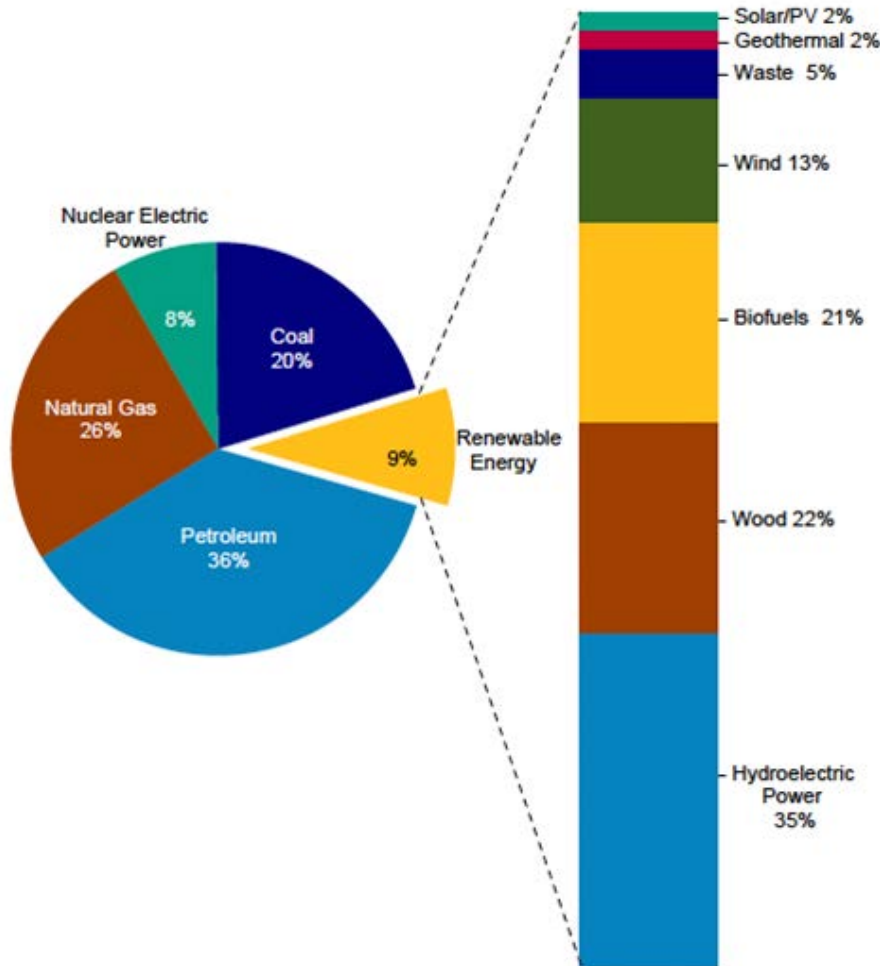


Figure 1: The Role of Renewable Energy Consumption in the Nation's Energy Supply, 2006

Source: Department of Energy. <http://www.eia.doe.gov/cneaf/solar/renewables/p>

## Illinois's Renewable Energy Presence

- Illinois currently has 14 ethanol plants in operation.
- UI's Renewable Energy Efforts:
  - UI has shown a commitment to energy efficiency in its new facilities.
  - UI has entered into ESCO partnerships to renovate existing facilities while achieving energy savings.

Source: Illinois Corn Growers Association.

<http://www.ilcorn.org/Ethanol/EthanolFact/ethanolfact.html>

## Illinois's Nuclear Presence

- Illinois has 6 nuclear power plants, the largest family of nuclear facilities in the Nation.
- Over half of Illinois's power is derived from nuclear.
- Illinois' nuclear generation capacity is greater than any other state. Illinois is also home to the Department of Energy's Argonne National Laboratory and Fermi National Accelerator Laboratory (Fermilab).
  - Argonne has a long history of research and development in nuclear reactor technology.
  - Fermilab conducts research on the frontier of high energy physics and related disciplines.
  - University of Illinois faculty have a history of collaboration with researchers at both facilities.

Source: U.S. Energy Information Administration. <http://www.eia.gov/state/?sid=IL#tabs-4>

# Research, Technology, & Economic Development

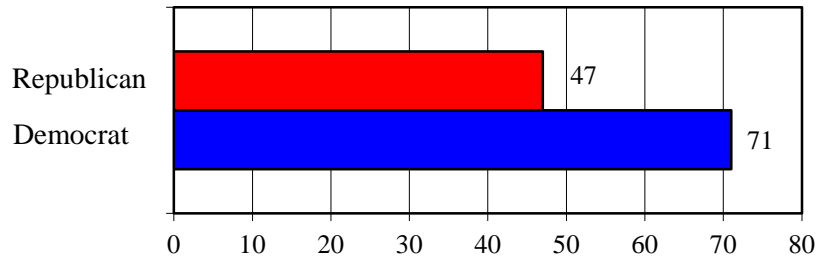
## Implications for the University of Illinois

- Federal R&D spending has slowed significantly in recent years and this pattern is likely to continue in the near term due to the slowing economy and other significant pressures on the federal budget.
- The bedrock of economic development through research and technology commercialization are top quality science and engineering faculty and students. Intense competition for science and faculty and students nationally and internationally coupled with stagnant state and federal funding will create serious challenges for major research institutions as they attempt to maintain and enhance the quality and competitiveness of their research programs and technology commercialization endeavors.
- Land grant and other major research universities are increasingly expected to have technology transfer as a key part of their overall economic development mission. The University's efforts in this area have grown considerably in recent years although many technical and competitive opportunities (and challenges) remain.
- Global interest in renewable energy sources will continue to grow in the future due to the overall increase in demand and continued concerns about the cost and supply of fossil fuels and other traditional energy sources. The University has an opportunity to take a leadership role in energy research and development given its proximity to traditional (e.g., coal, nuclear) and renewable (e.g., biomass, wind) energy sources and its fundamental strengths in science and engineering disciplines.

# Political Landscape

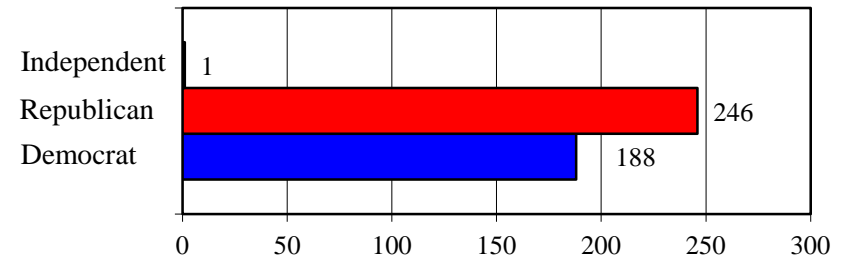
# Legislature Composition

**Illinois House of Representatives Membership**



Source: Illinois General Assembly Web site.

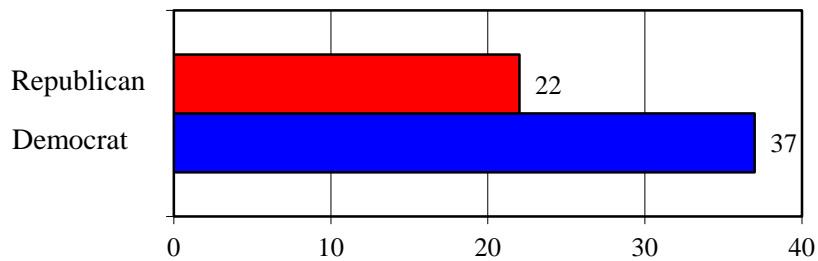
**U.S. House of Representatives Membership\***



Source: Congressional Profile. U.S. House of Representatives, Office of the Clerk.  
[http://clerk.house.gov/member\\_info/cong.aspx](http://clerk.house.gov/member_info/cong.aspx)

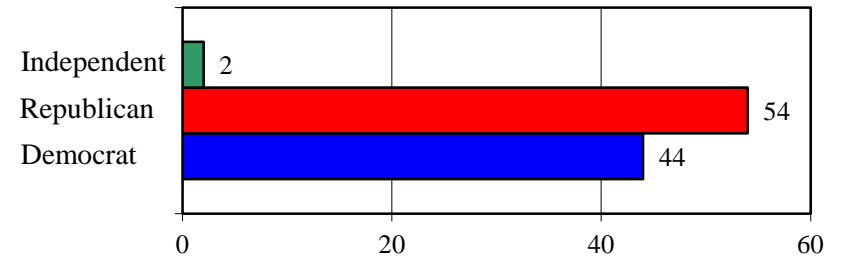
\* 1 Vacancy

**Illinois Senate Membership**



Source: Illinois General Assembly Web site.

**U.S. Senate Membership**



Source: Congressional Profile. U.S. House of Representatives, Office of the Clerk.  
[http://clerk.house.gov/member\\_info/cong.aspx](http://clerk.house.gov/member_info/cong.aspx)



# Political Landscape

## Implications for the University of Illinois

- Higher education issues have traditionally been state concerns, but Congress also has become much more interested in issues related to higher education's affordability and public accountability.
- Growing public concern over affordability will make major increases in tuition challenging to achieve.
- While the University enjoys a broad base of support within the General Assembly, the dominance of other issues facing the state legislature (e.g., health care, pensions, K-12 education) make it difficult to advance the University's (or higher education's) interests.
- There is growing interest at both the state and national levels in creating complex data systems that would provide policy makers and the general public with detailed information on student progress through the P-20 educational pipeline and beyond to the work place.

# Sources

## External Sources

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- WICHE Enrollment Projections 2006
- U.S. Bureau of Labor Statistics
- Post Secondary Education Opportunity Newsletter
- National Science Foundation Science and Engineering Indicators 2007
- National Center for Public Policy and Higher Education
- Organisation for Economic Co-operation and Development (OECD)
- U.S. Office of Trade and Economic Analysis
- U.S. Office of Management and Budget
- TIAA-CREF Institute Quarterly
- Illinois Economic and Fiscal Commission
- Milken Institute
- Governor's State Budget Recommendations for FY 2008
- House Democratic Budget Summit Document FY 2008
- Northern Illinois University 2007 Illinois Policy Survey

## U of I Reports

- Profile of Students, Faculty and Staff by Race/Ethnic Group, Gender and Disability
- Financial Aid Survey
- University Office for Planning and Budgeting Employment Statistics
- FY 2008 Budget Request for Operating and Capital Funds
- Institute for Government and Public Affairs
- Budget Summary for Operations
- Annual Report Technology Commercialization Activities