



Industry/University
Cooperative Research
Centers

IUCRC PROGRAM FINDINGS FROM THE CENTER STRUCTURE DATABASE

DRAFT RESULTS: FY 2013-2014

***Data collected from 65 out of total 66 active centers**

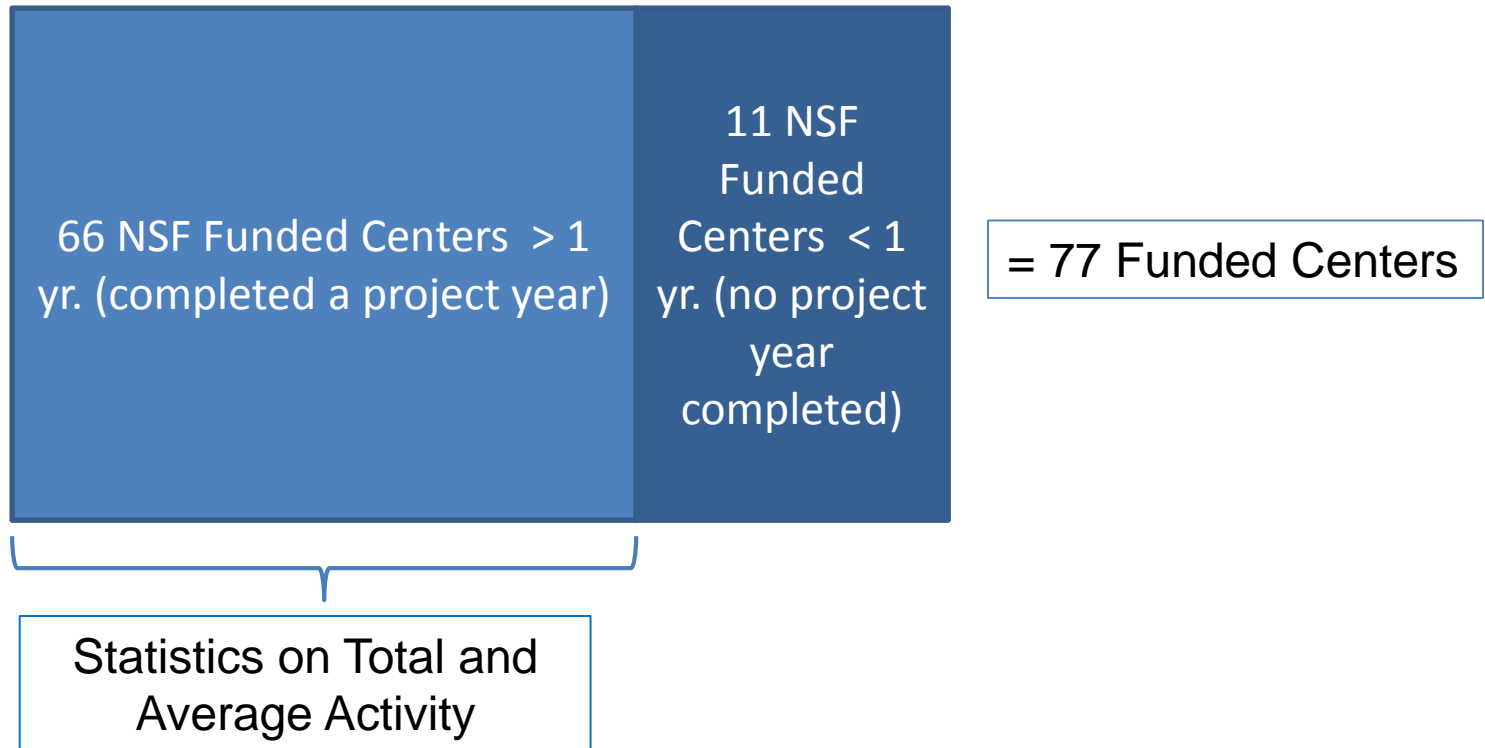
**TRENDS FROM CENTER STRUCTURE DATABASE:
1980-2014**

*Gray, D.O., Leonchuk, O., & McGowen, L.C.
North Carolina State University*

Understanding Center Count and Activity Statistics

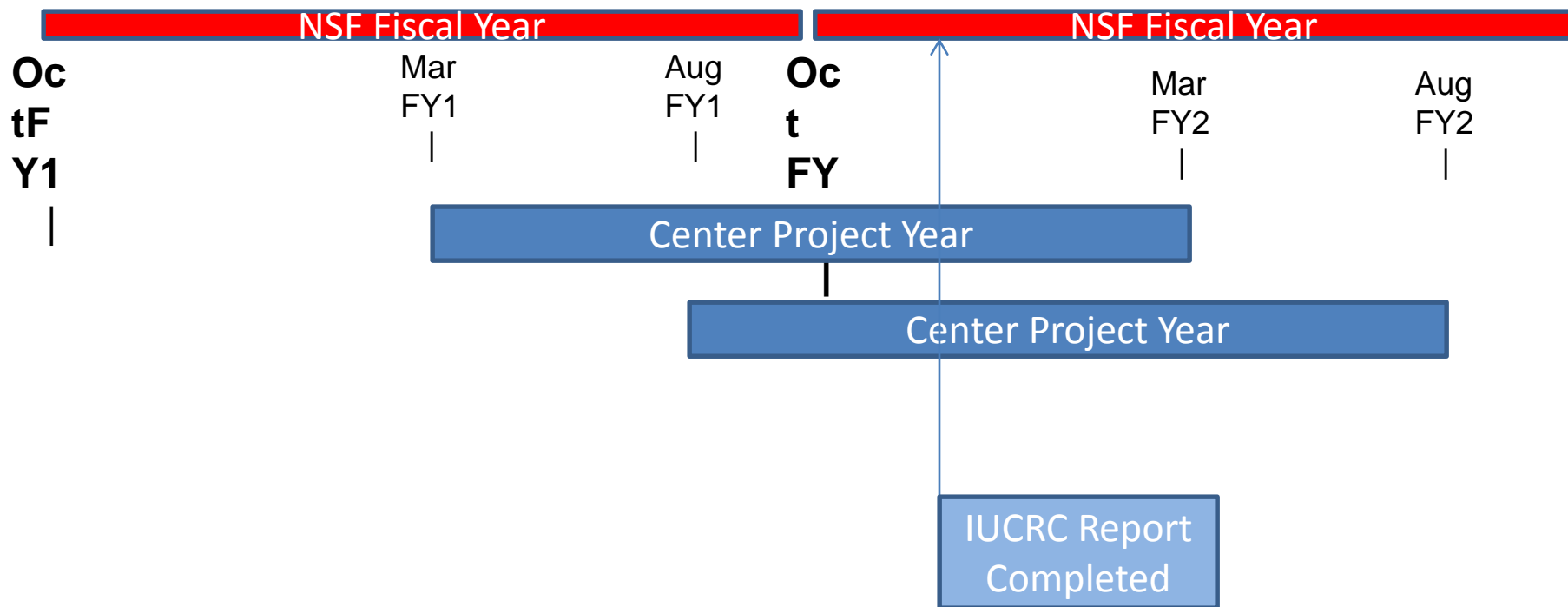


FY 2014





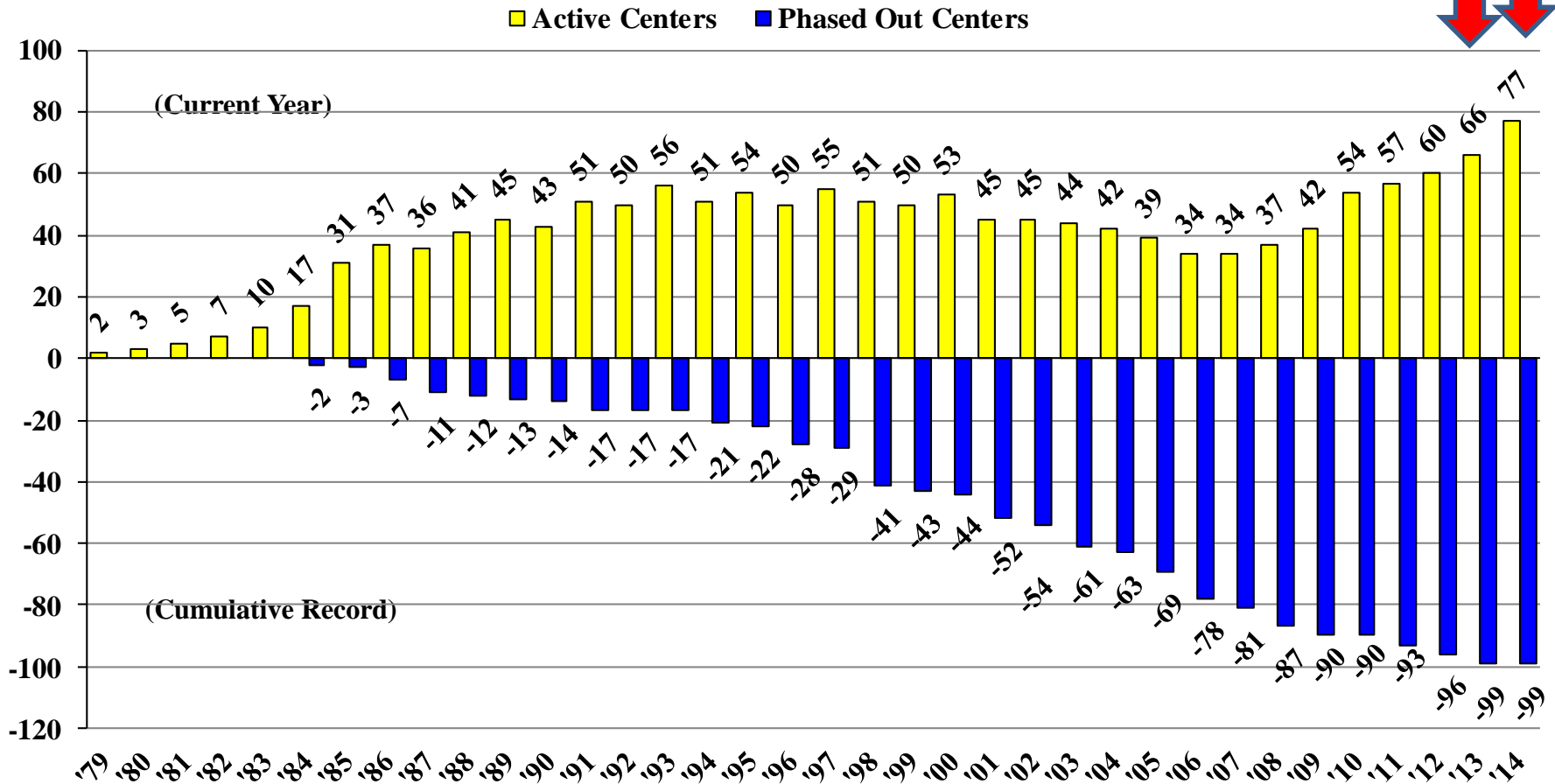
NSF and Center Budgeting Life Cycle



Center Life Cycle*



Industry/University
Cooperative
Research
Centers
Program

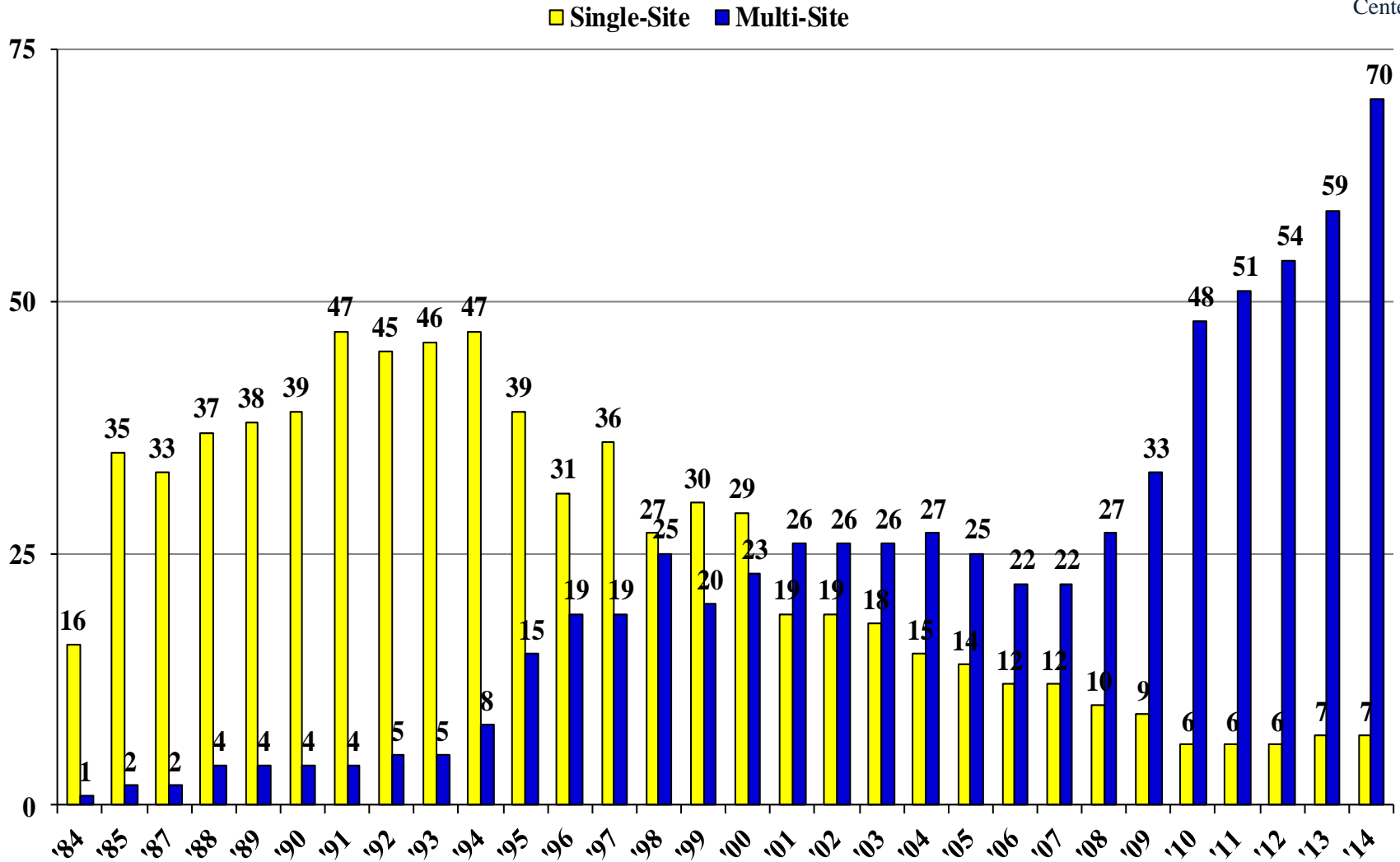


*Data Current for NSF FY2014

Single & Multi-Site Centers*



Industry/University
Cooperative Research
Centers



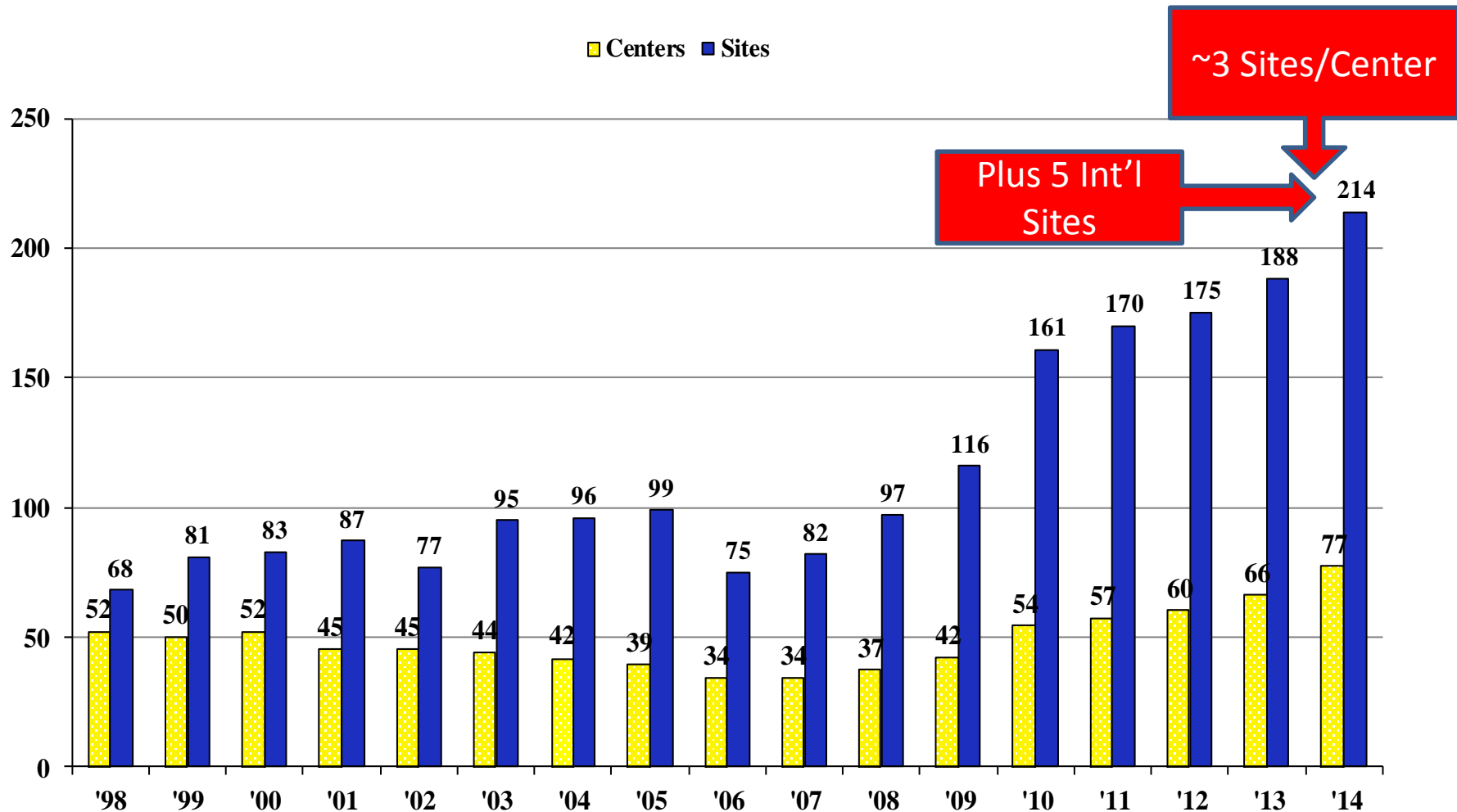
NSF-I/UCRC Center Structure Database

*Data Current for NSF FY2014

ACTIVE CENTERS AND SITES BY YEAR*



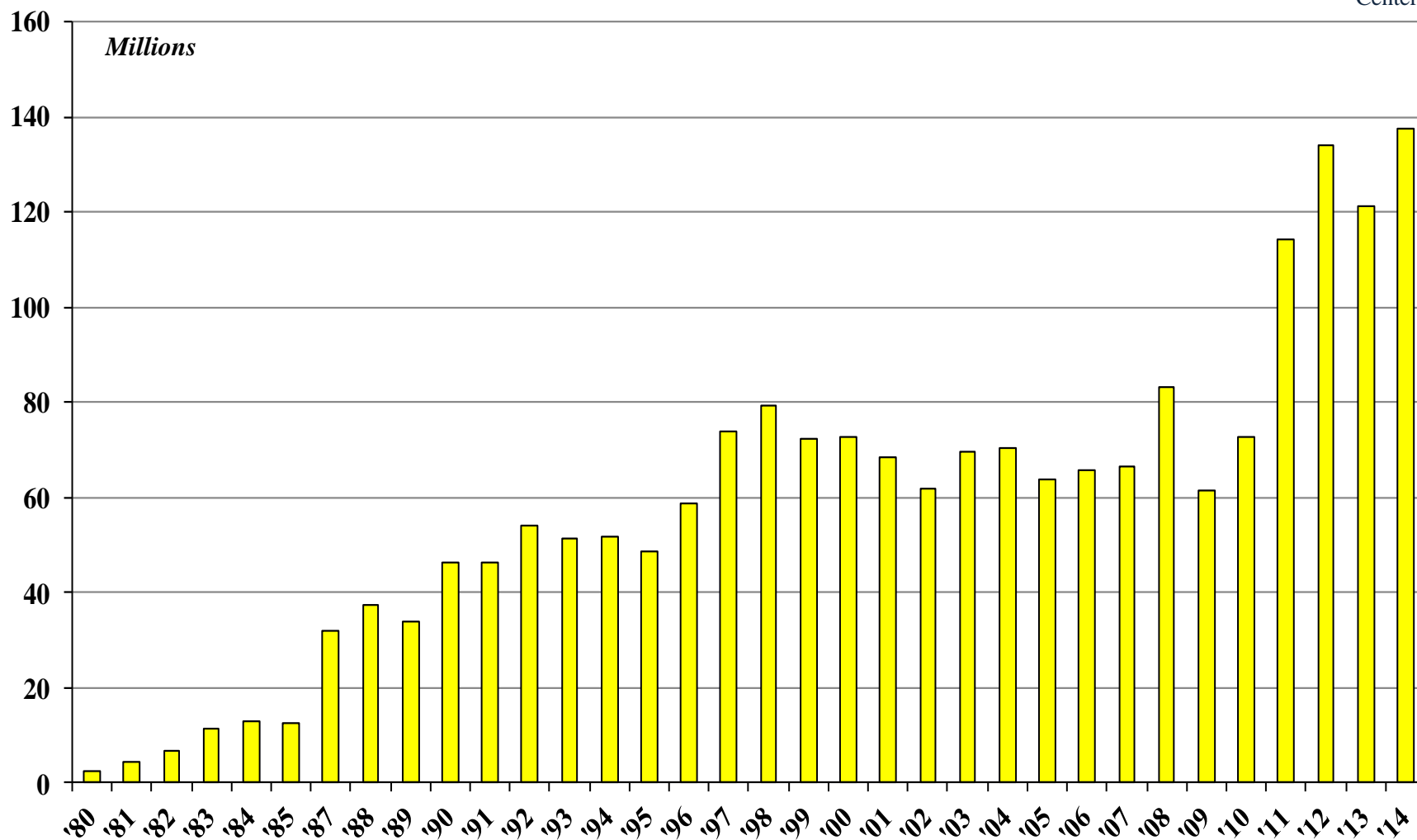
Industry/University
Cooperative Research
Centers



*Data Current for NSF FY2014



Total Program Funding

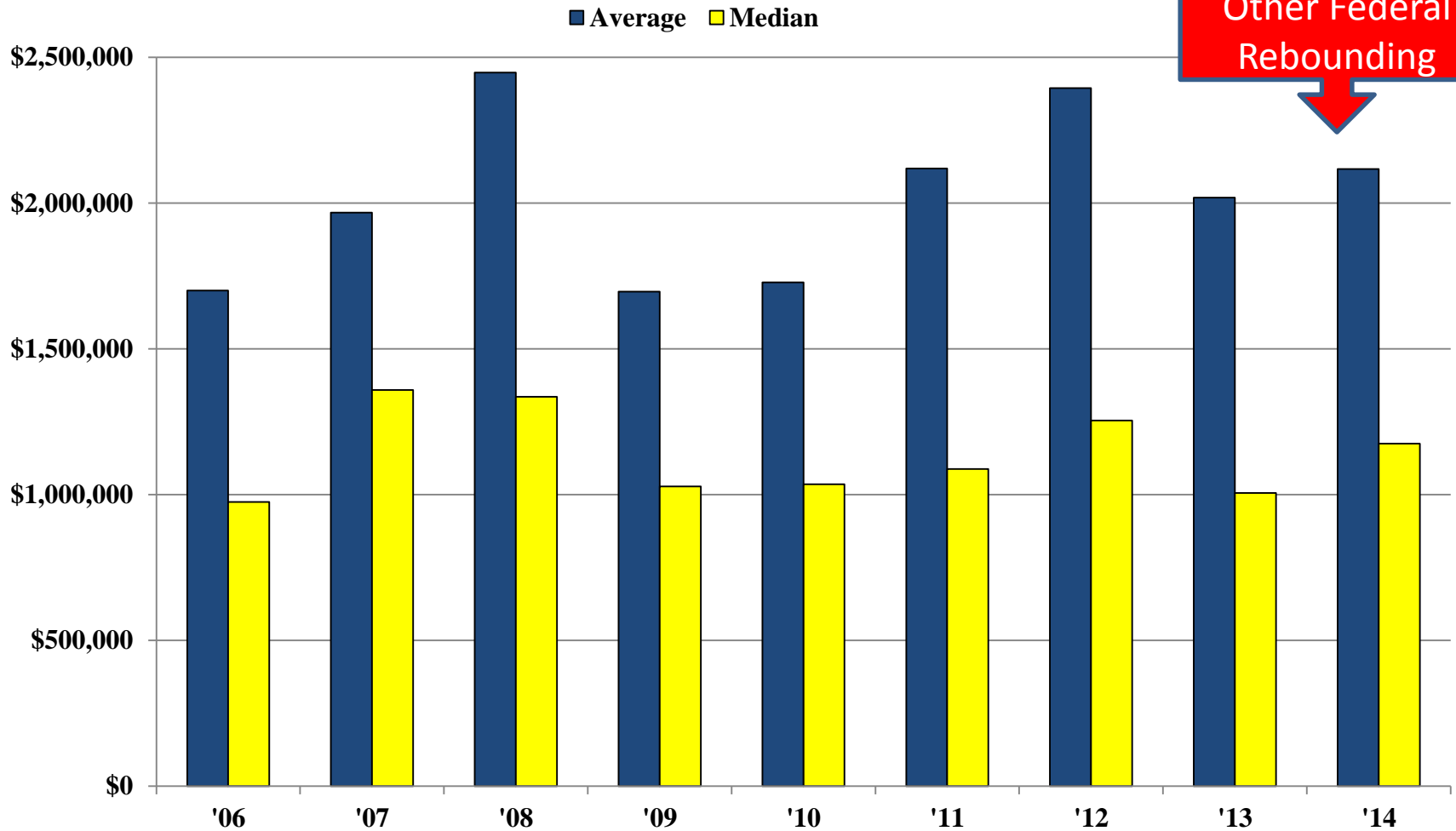


Average & Median Total Center Funding



Industry/University
Cooperative Research

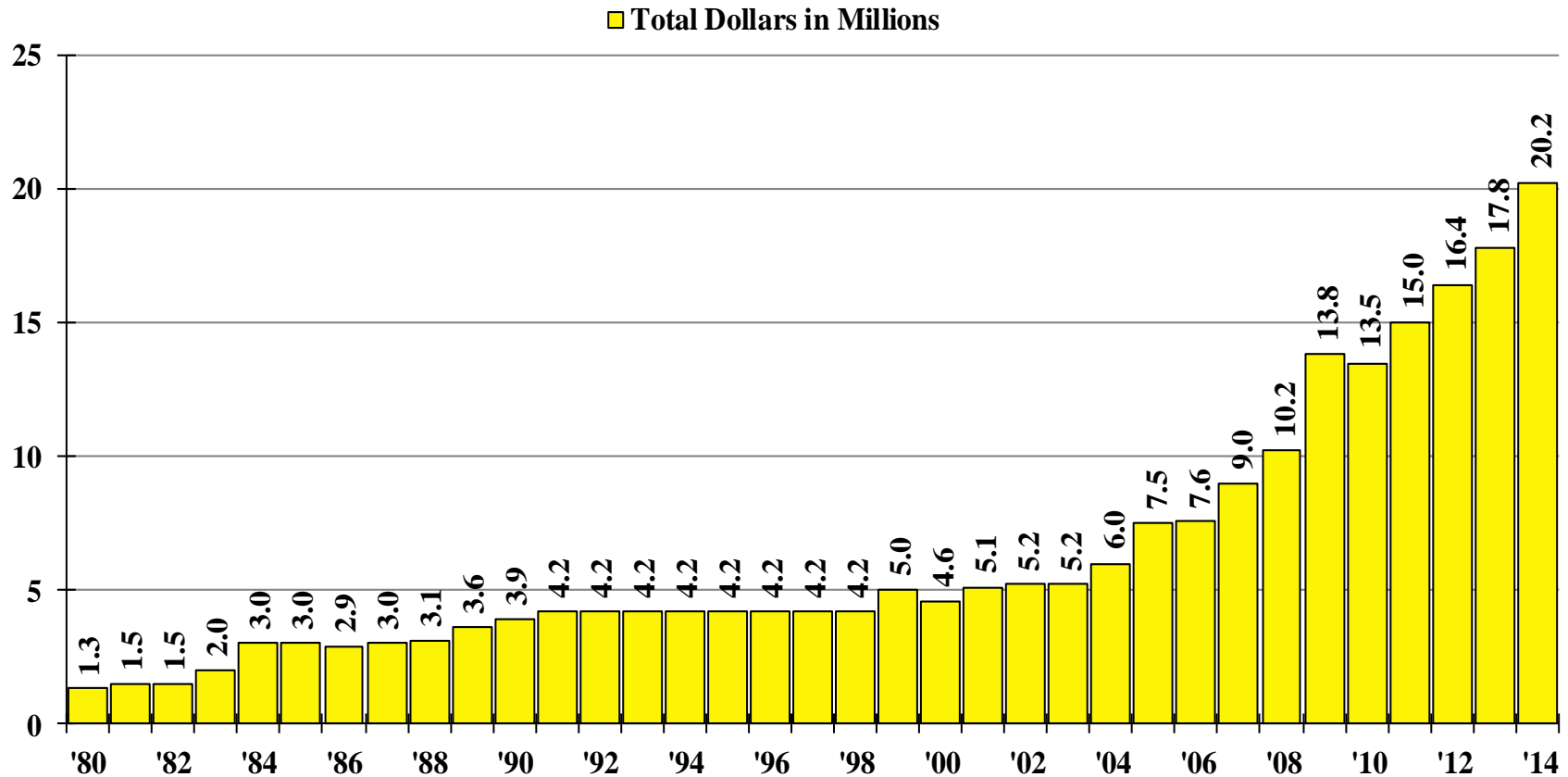
Other Federal
Rebounding



NSF Budget by Year



Industry/University
Cooperative Research
Centers

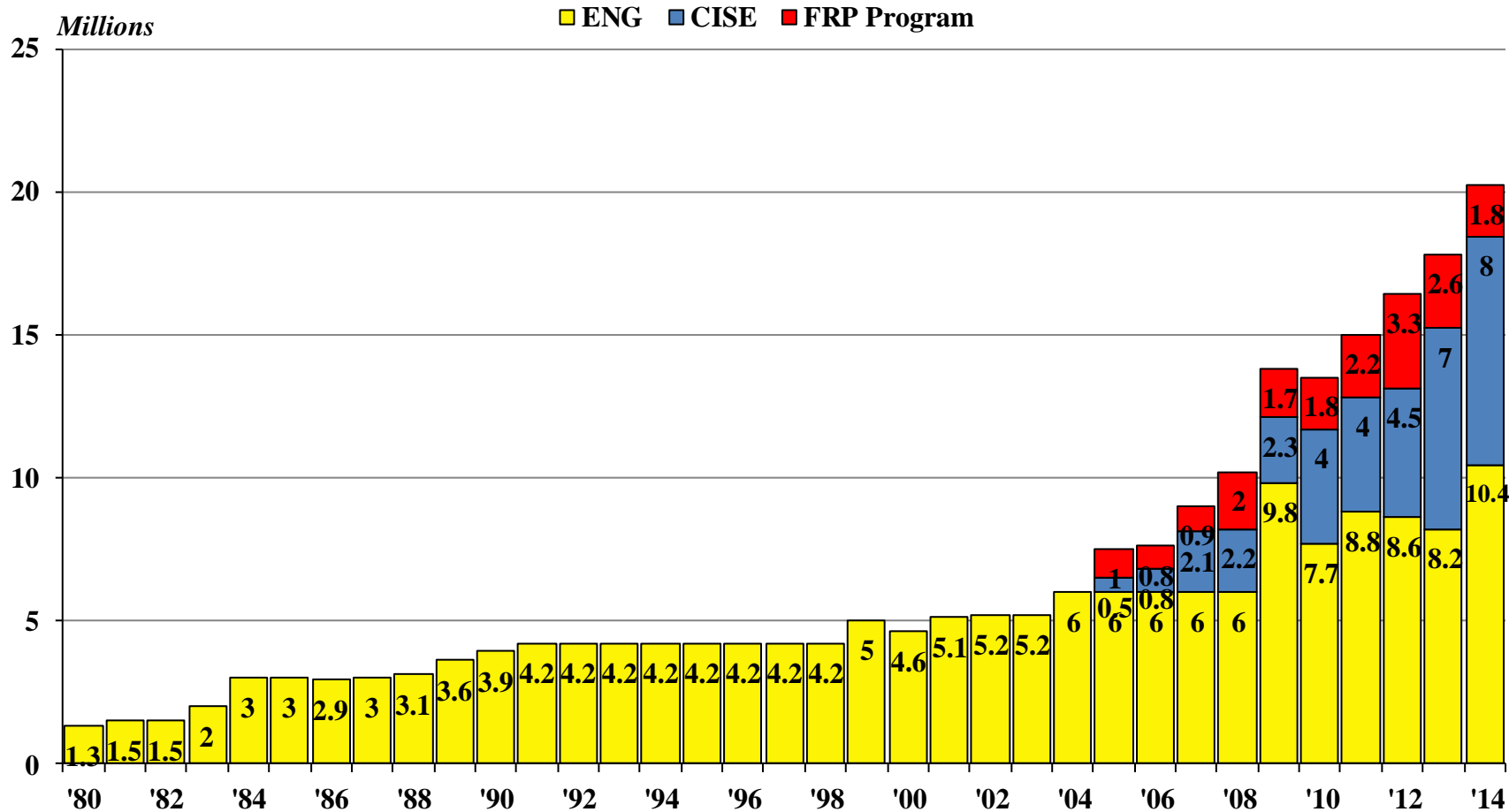


Note: 2005-2014: Include Supplemental Funding and CISE



NSF Budget by Year

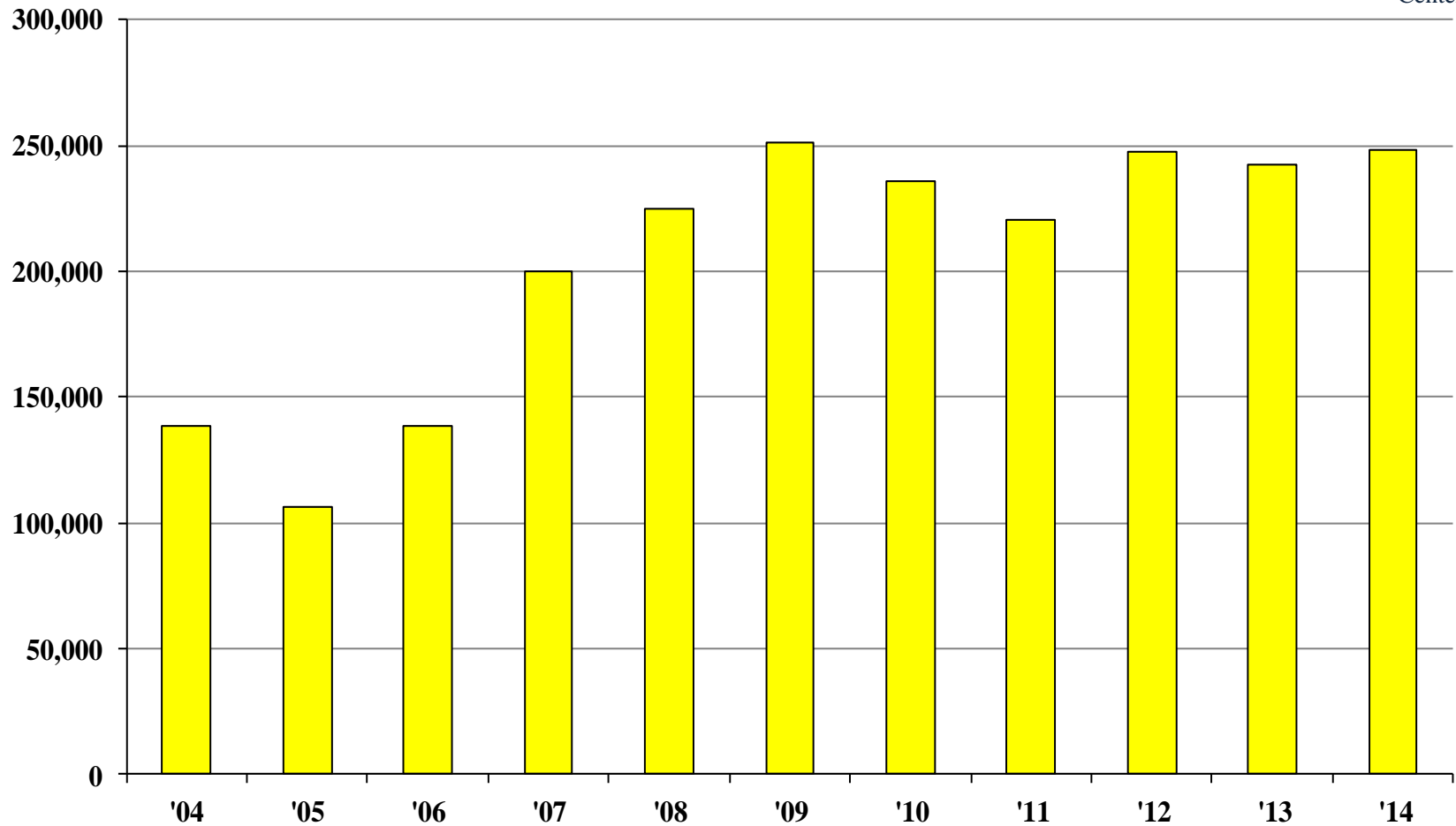
Other Programs co-fund too!



Average NSF IUCRC Awards & Supplements per Center



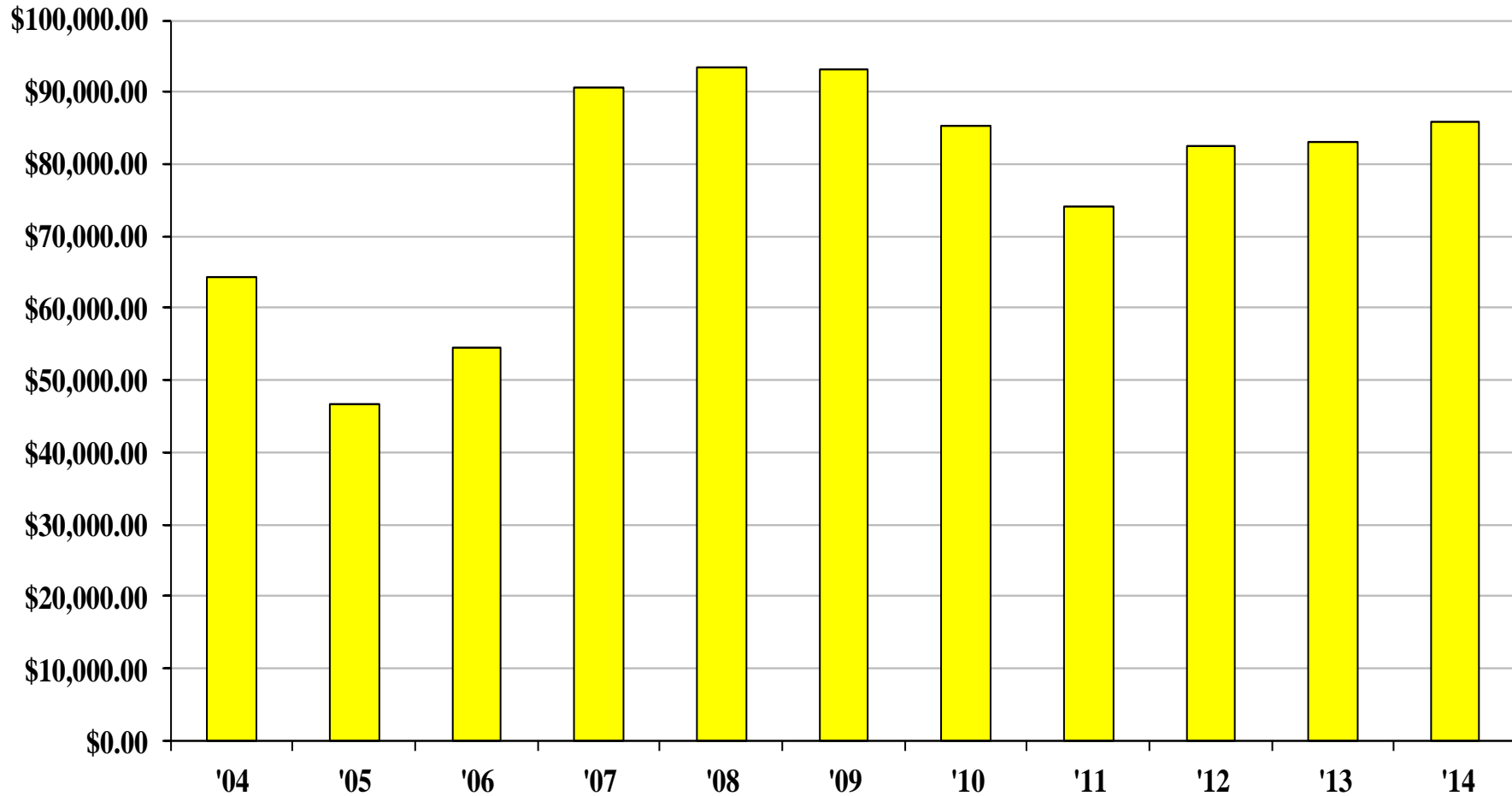
Industry/University
Cooperative Research
Centers



Average NSF IUCRC Funding per Site



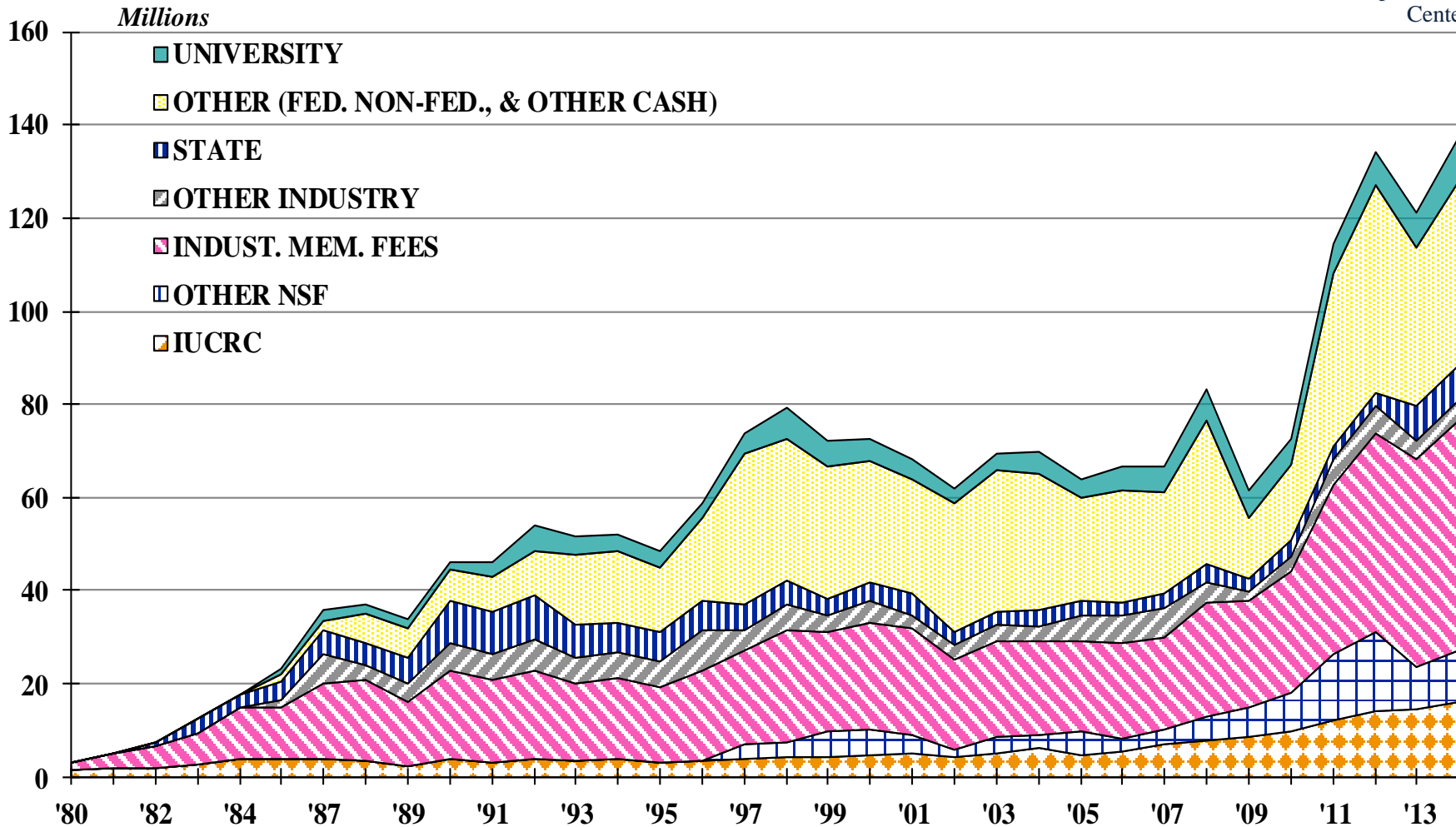
Industry/University
Cooperative Research
Centers



Total Funding by Source in Dollars



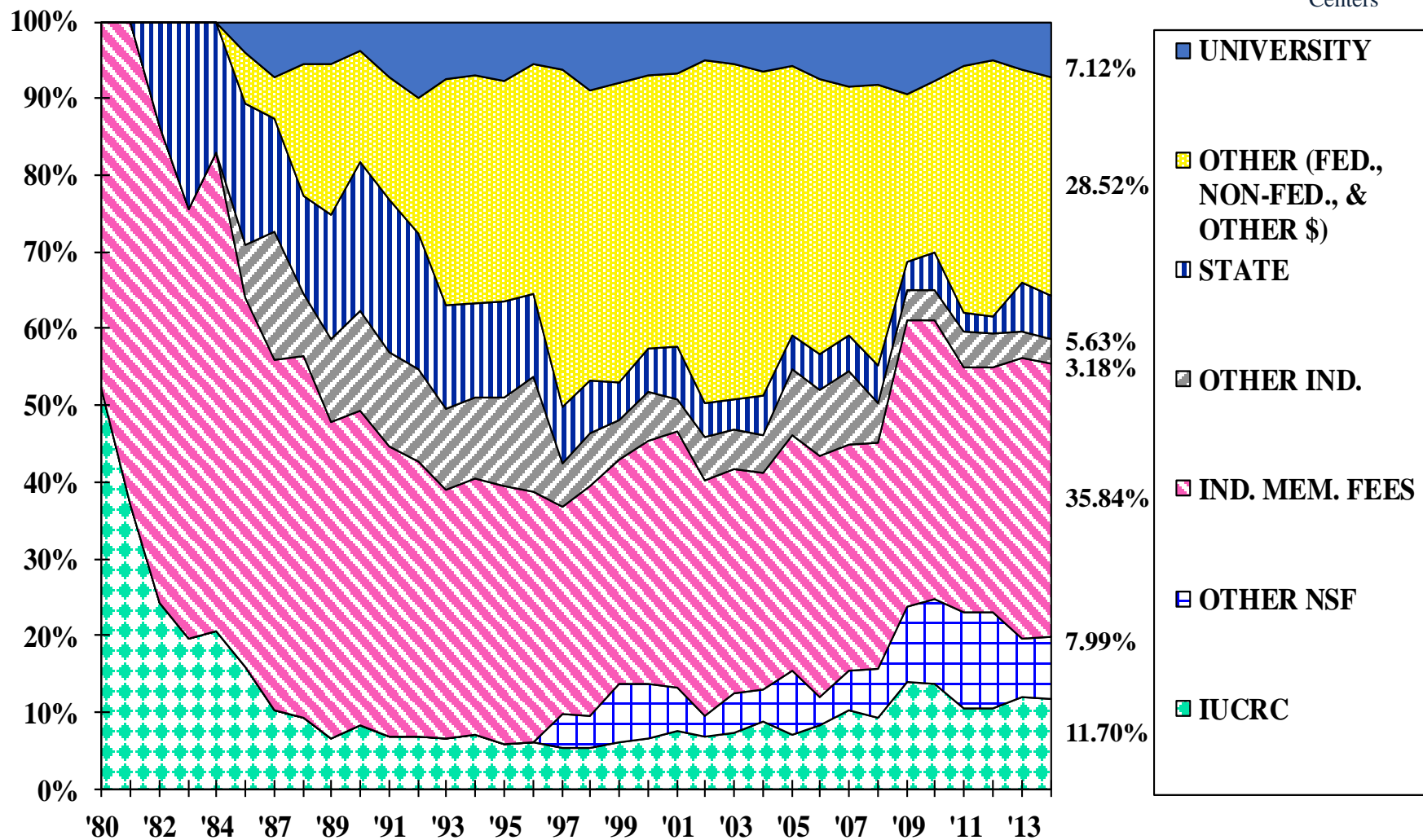
Industry/University
Cooperative Research
Centers



Total Funding by Source in Percentages



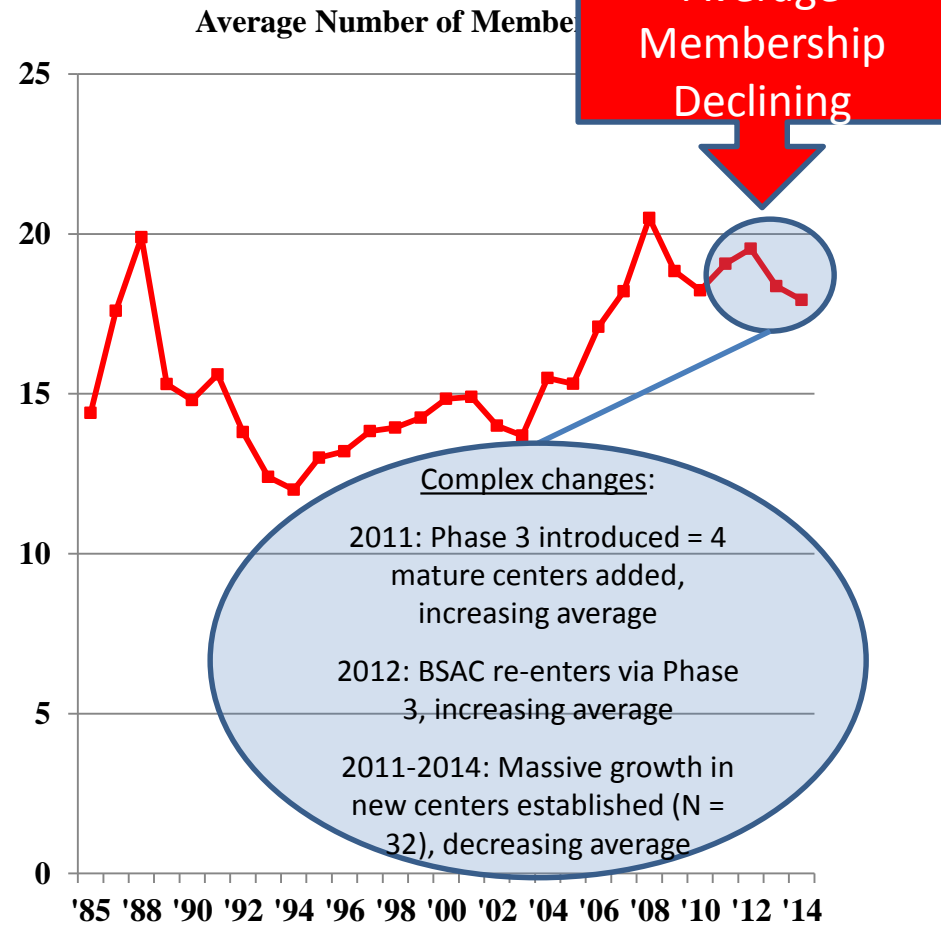
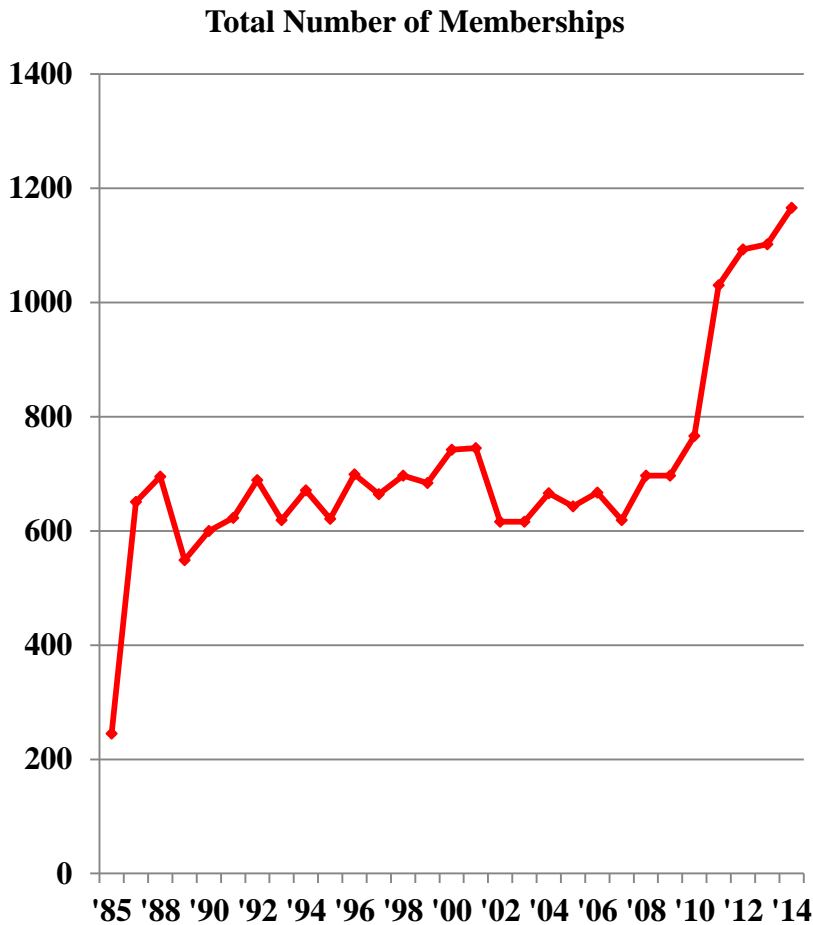
Industry/University
Cooperative Research
Centers



Industrial Memberships



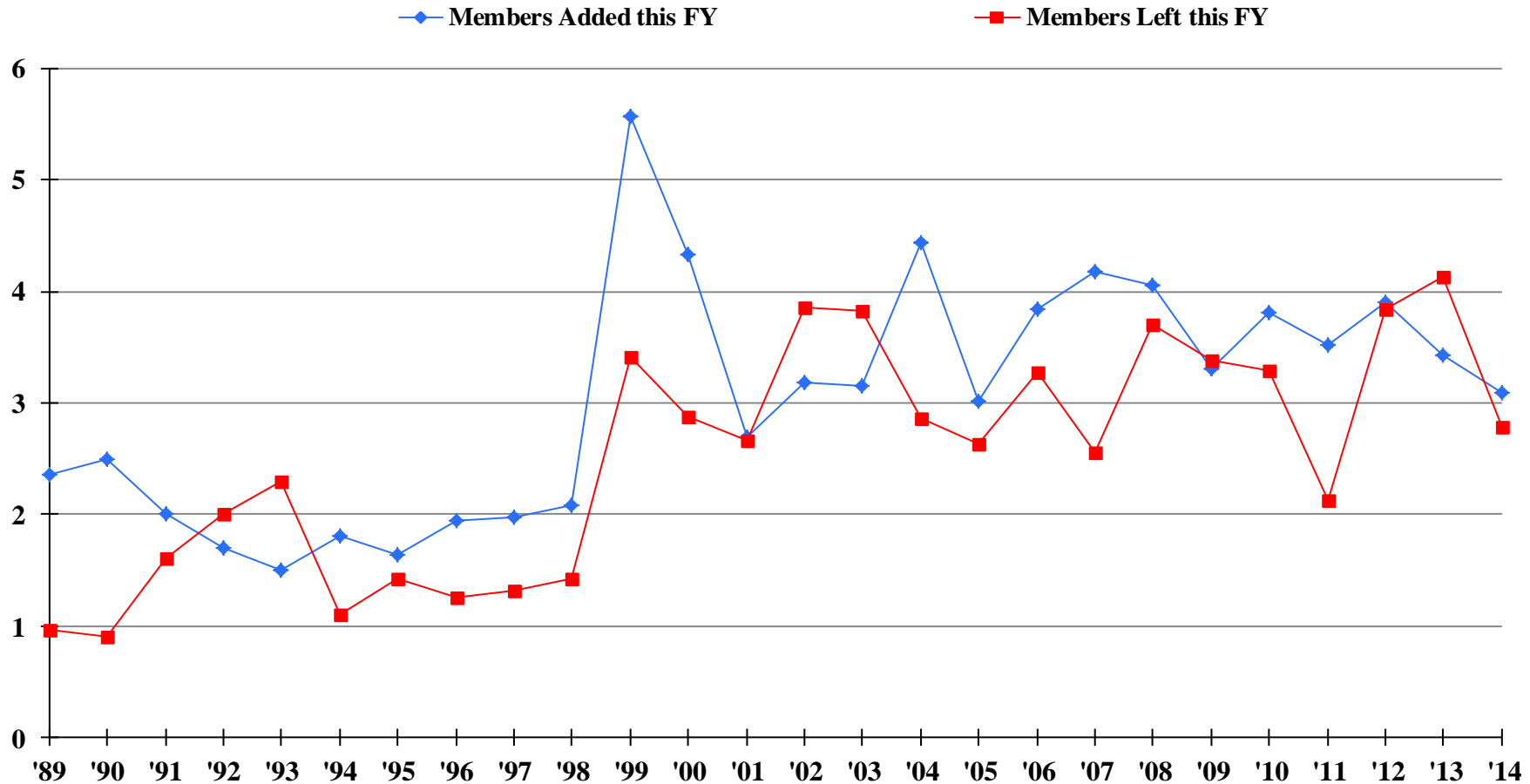
Industry/University
Cooperative Research
Centers



Average Membership Turn Over



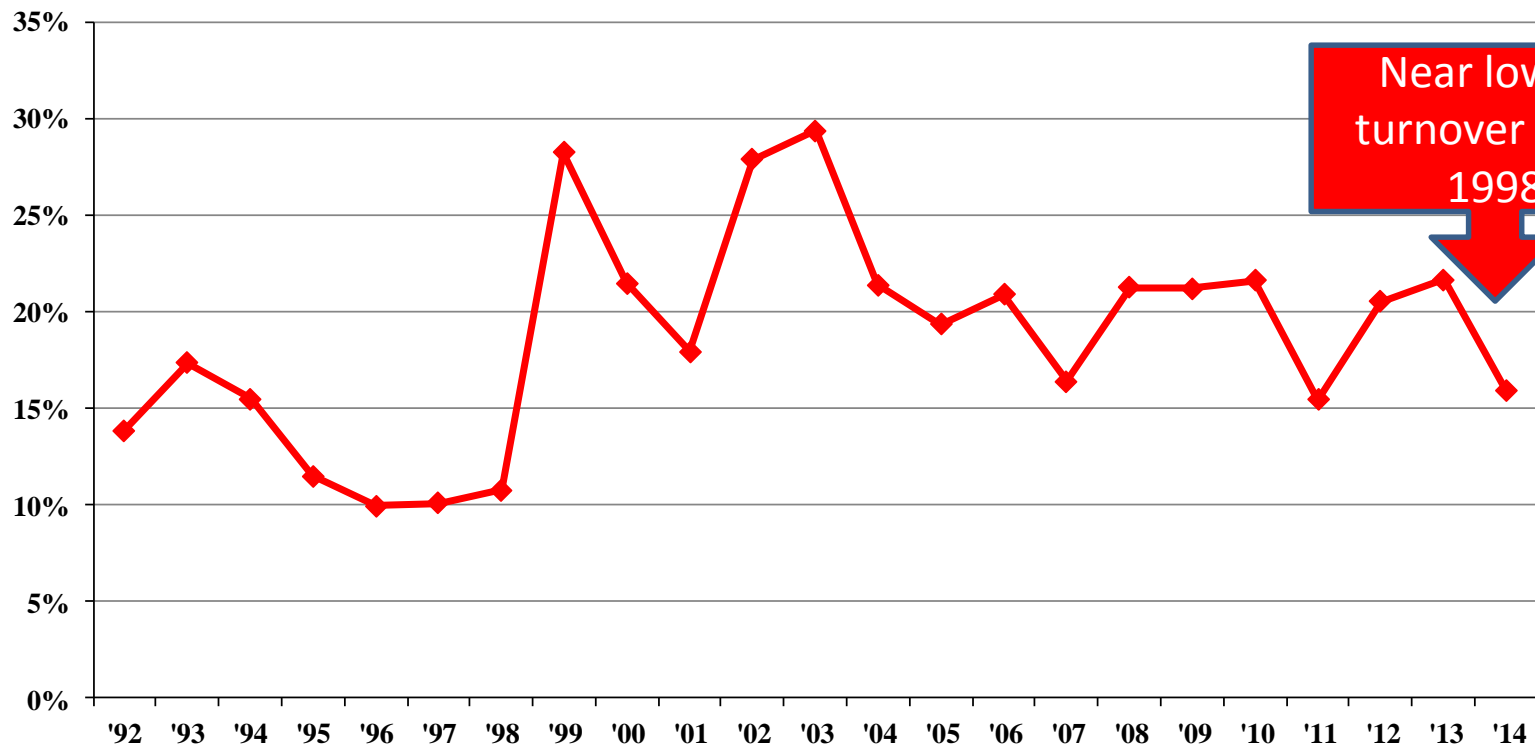
Industry/University
Cooperative Research
Centers



*Newly funded Centers' members are not counted as Members Added
FY 2013-2014 NSF-I/UCRC Center Structure Database



Member Turnover Rate



Near lowest
turnover since
1998



Turnover % = Members terminated in “year X+1” / Total members in “year X”

National Context for Industry Membership: Theory and Reality



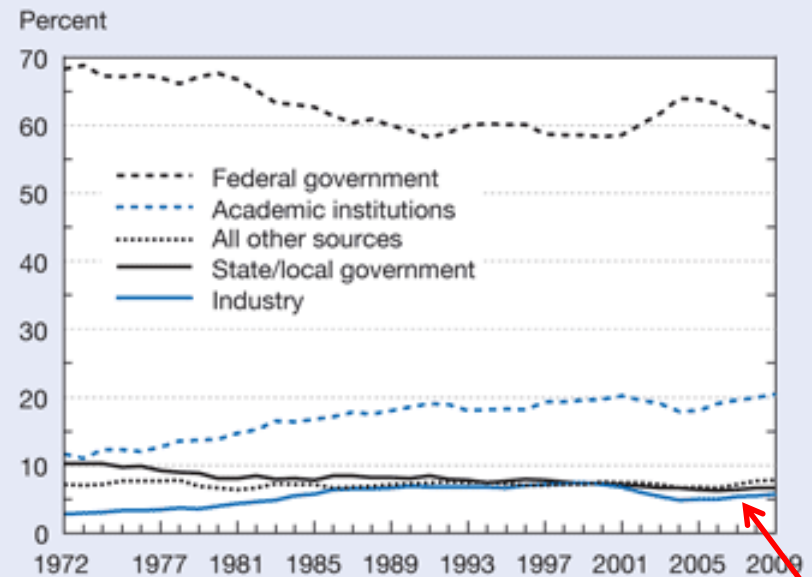
Industry/University
Cooperative Research
Centers

Open Innovation

- Challenge
 - Even the largest firms and N.I.S. can only capture a fraction of scientific talent available
- Open Innovation
 - Increasing use of external sources of R&D
 - VP for Open Innovation; National Meetings on Open Innovation
 - Absorptive capacity; networks; partner scanning



Figure 5-2
Academic R&D expenditures, by source of funding:
1972-2009



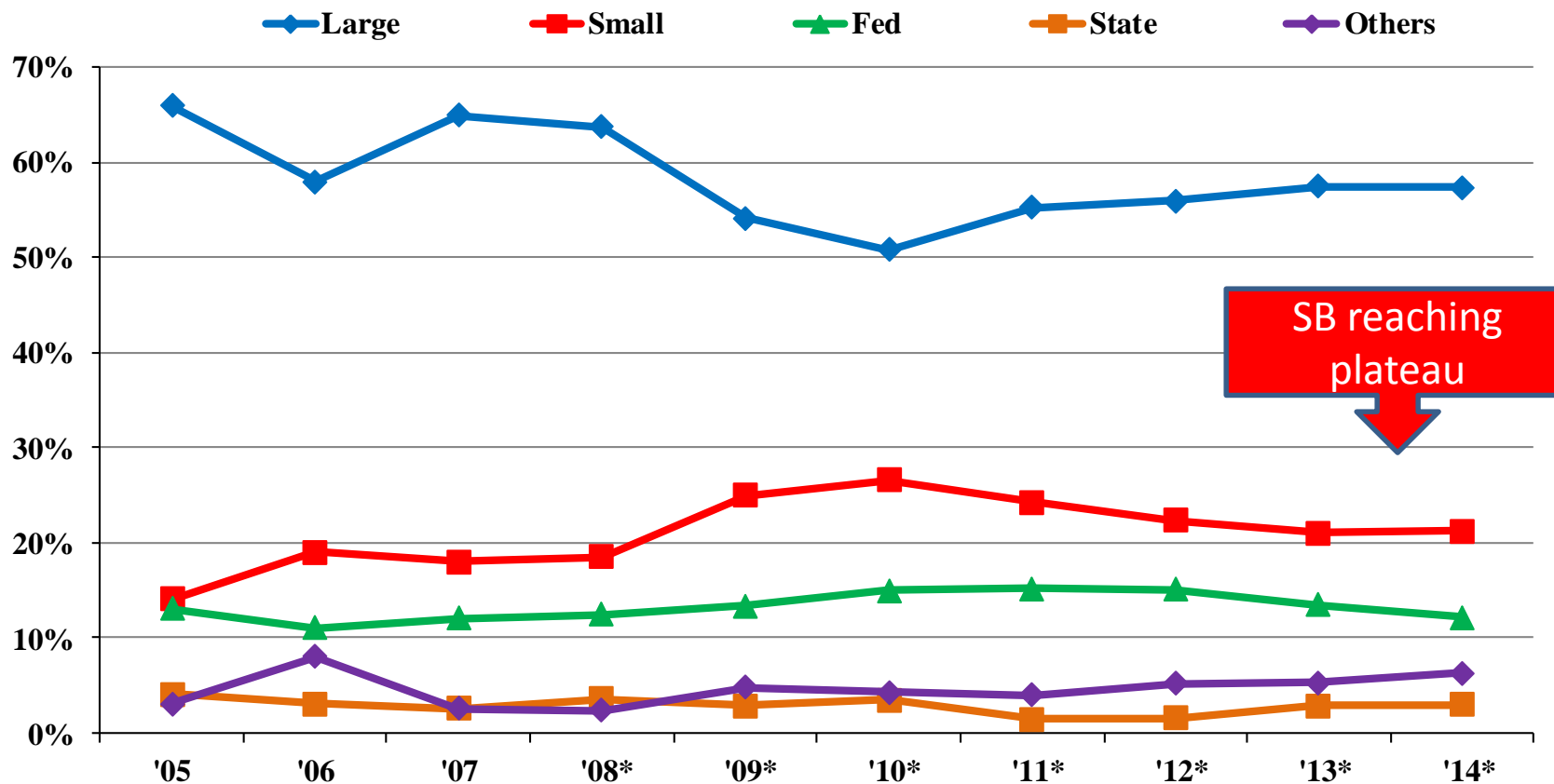
NOTE: Science and engineering R&D; non-S&E R&D not included.

SOURCE: National Science Foundation, National Center for Science and Engineering Statistics, Survey of Research and Development Expenditures at Universities and Colleges. See appendix table 5-2.

Science and Engineering Indicators 2012



Member Composition 2005-2014

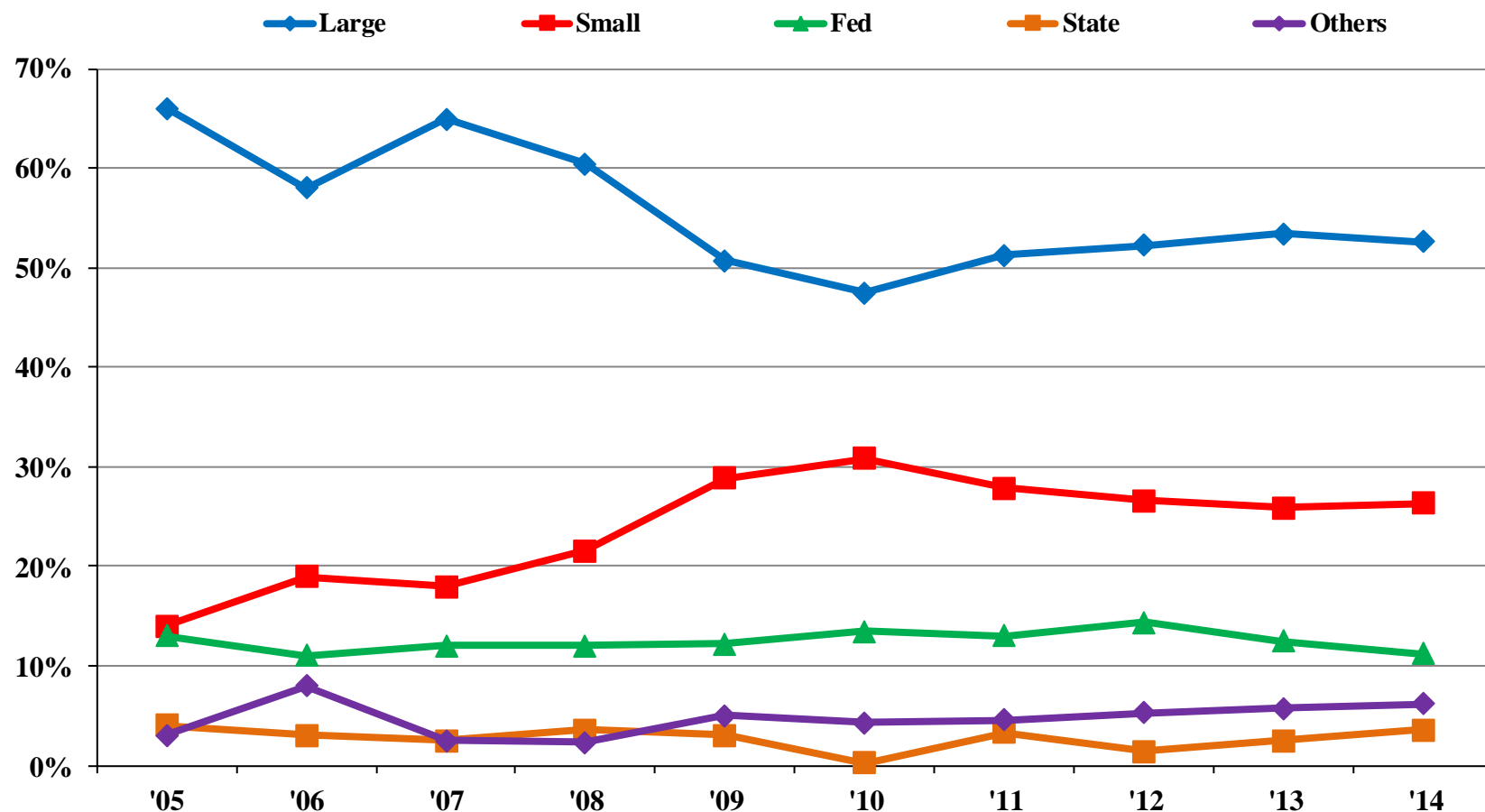


*Years Advanced Forestry excluded as a small business outlier: '08 Small = 36, '09 Small = 49, '10 Small = 57, '11 Small = 66, '12 = 71, '13 = 77, '14 = 86.

^ Categories comprising Others include: non-profit, non-US gov't, and other org.



Member Composition 2005-2014



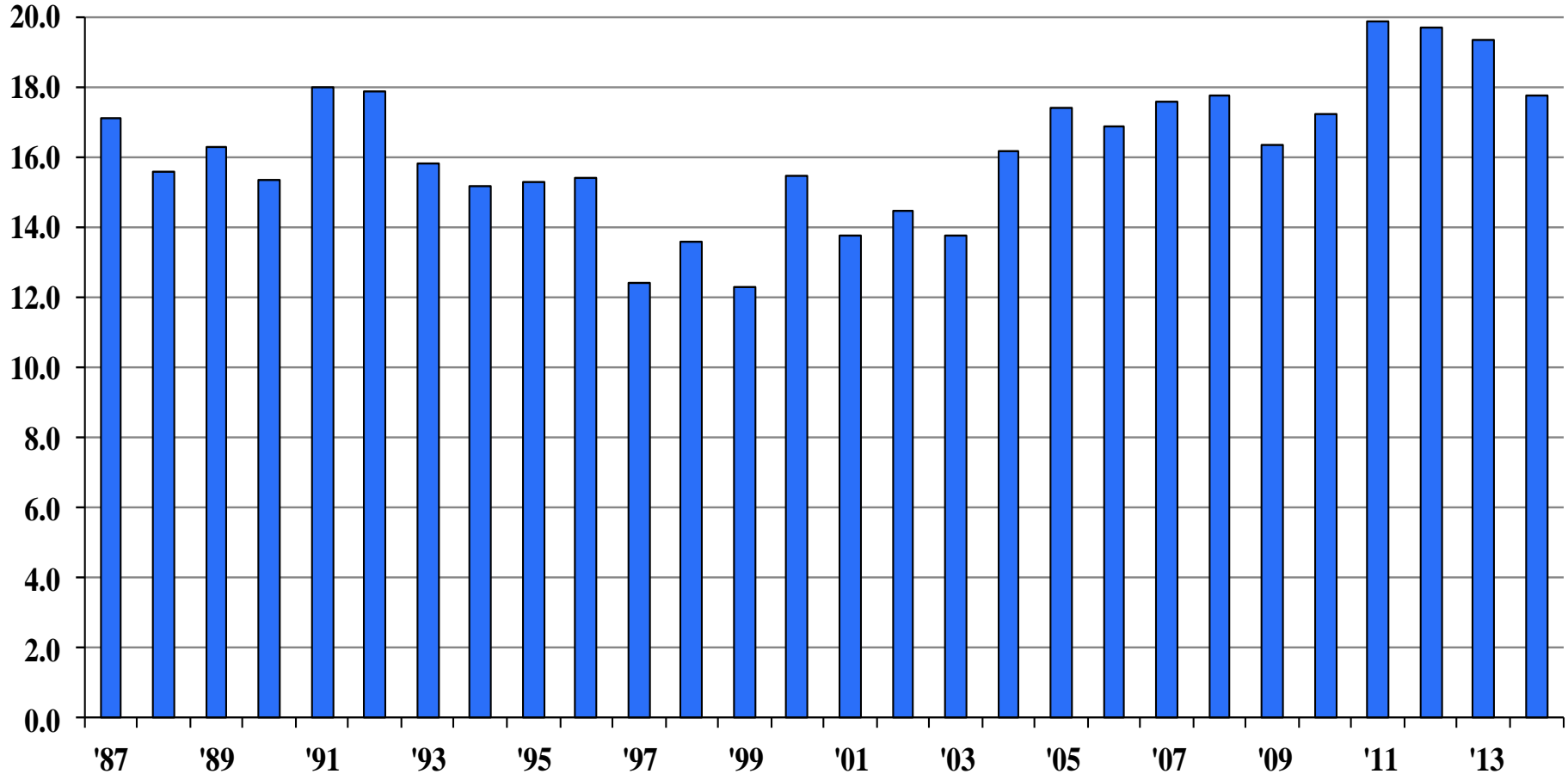
^ Categories comprising Others include: non-profit, non-US gov't, and other org.

Average Number of Researchers per Center



Industry/University
Cooperative Research
Centers

FACULTY & POST DOC RESEARCHERS

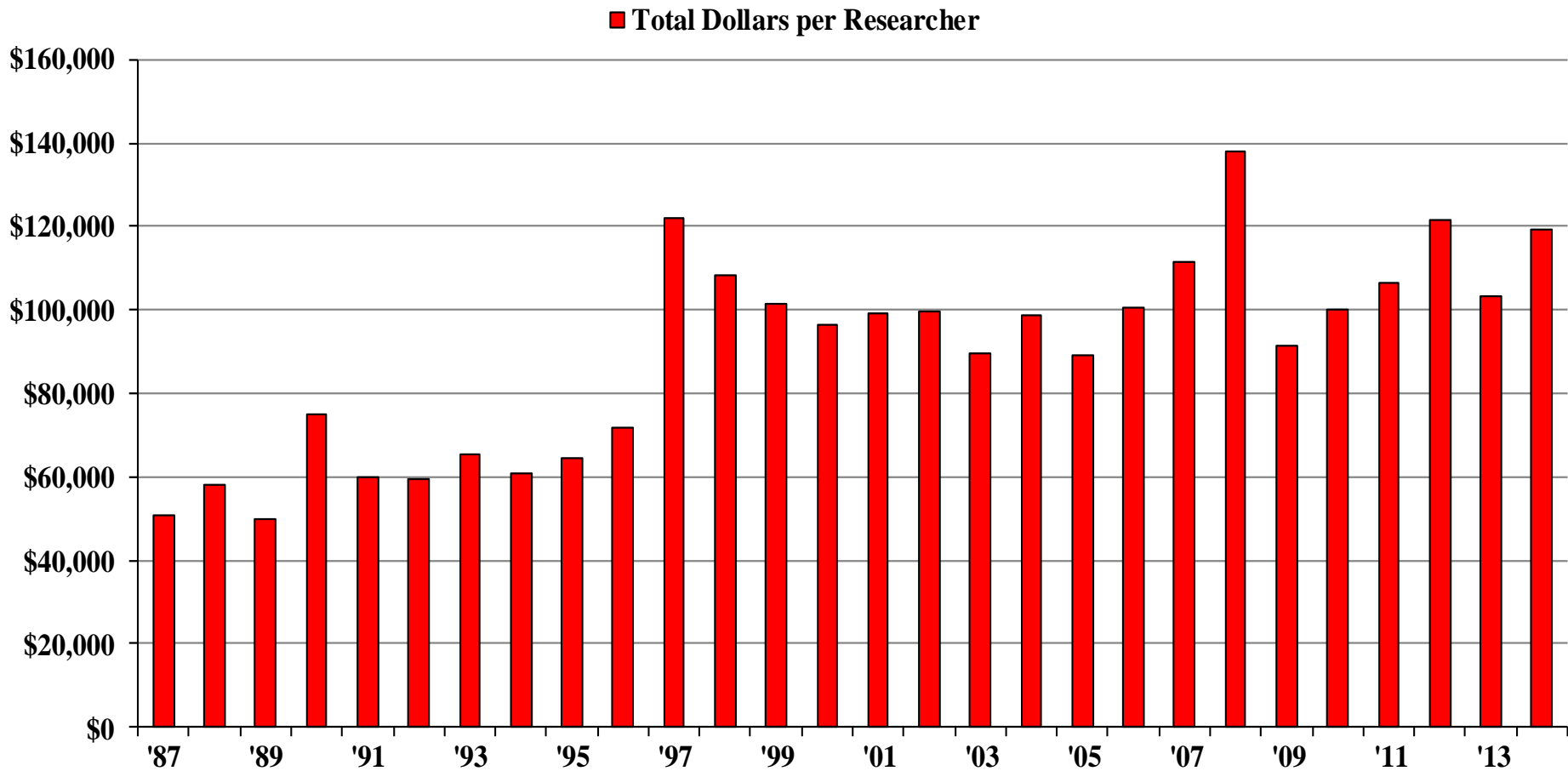


Note: As of 2003, NSF changed the label of "non-faculty" researchers to "post doc" researchers

Funding per Researcher Total



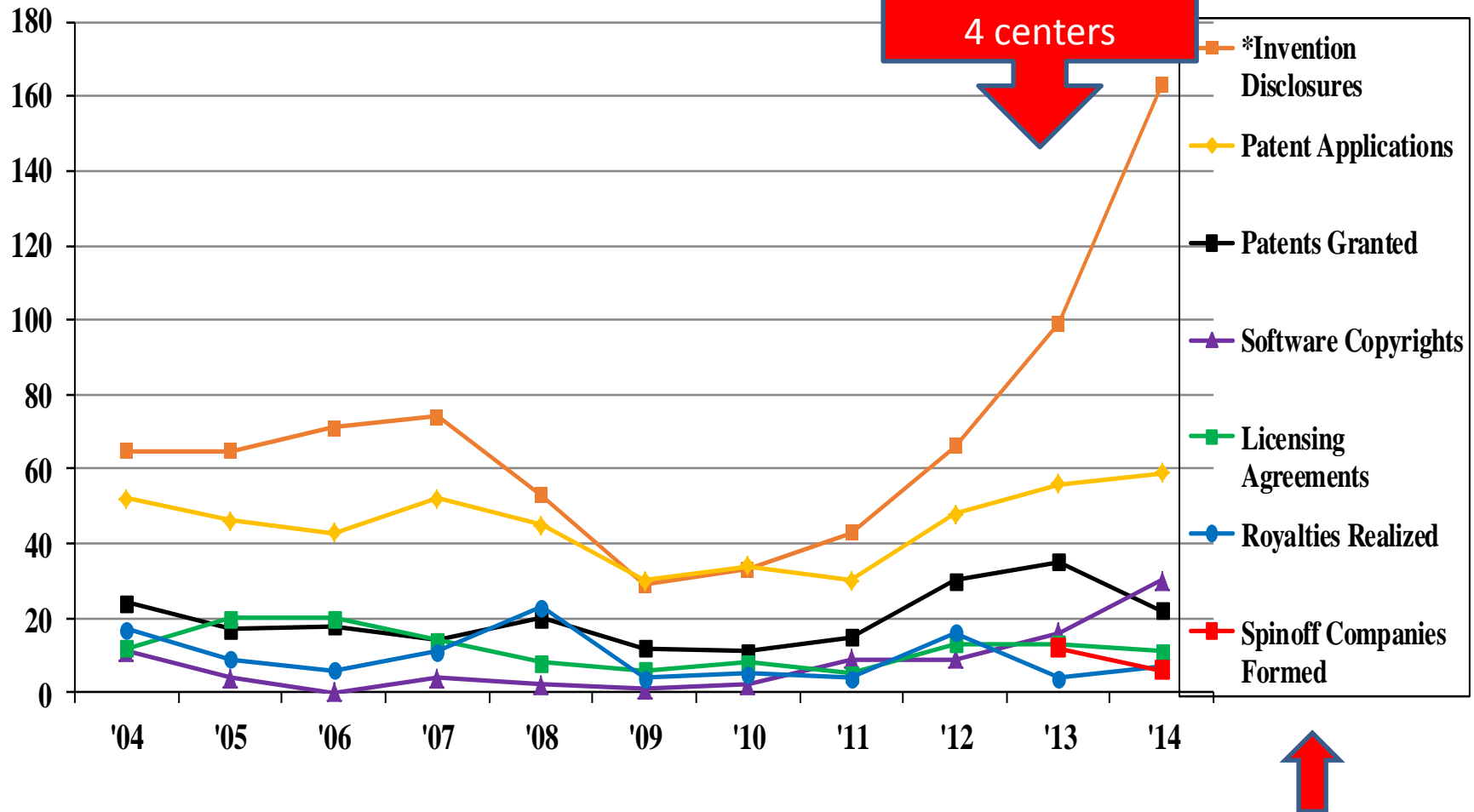
Industry/University
Cooperative Research
Centers



Intellectual Property & Commercialization Events 04-14 Totals



Industry/University
Cooperative Research
Centers

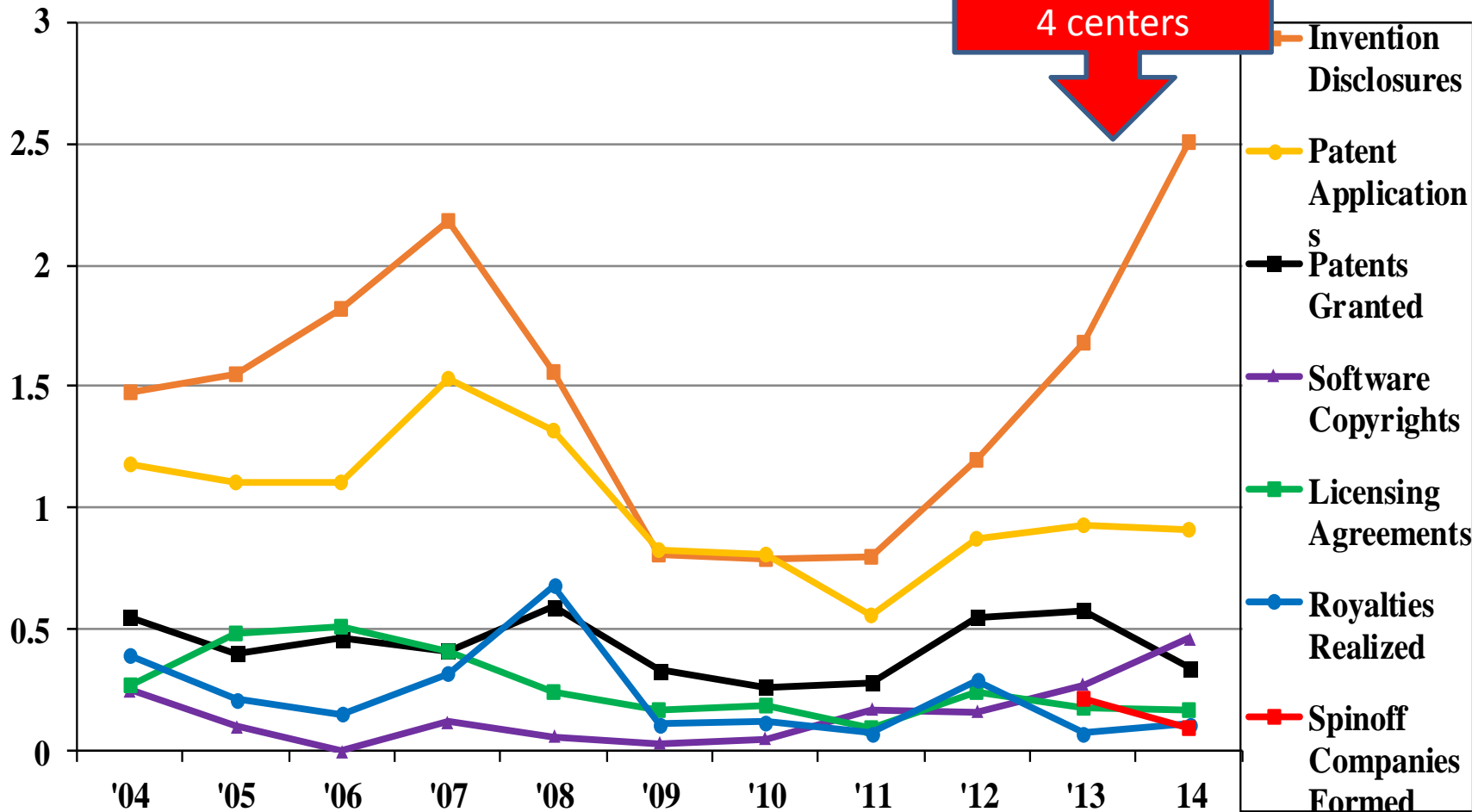


*2014 Invention Disclosures outliers: Visual Decision Informatics = 40, Berkeley Sensor & Actuator Center = 20, E-Design = 12, Identification Technology Research = 17.

Average Number of Intellectual Property & Commercialization Events 04-14



Industry/University
Cooperative Research
Centers

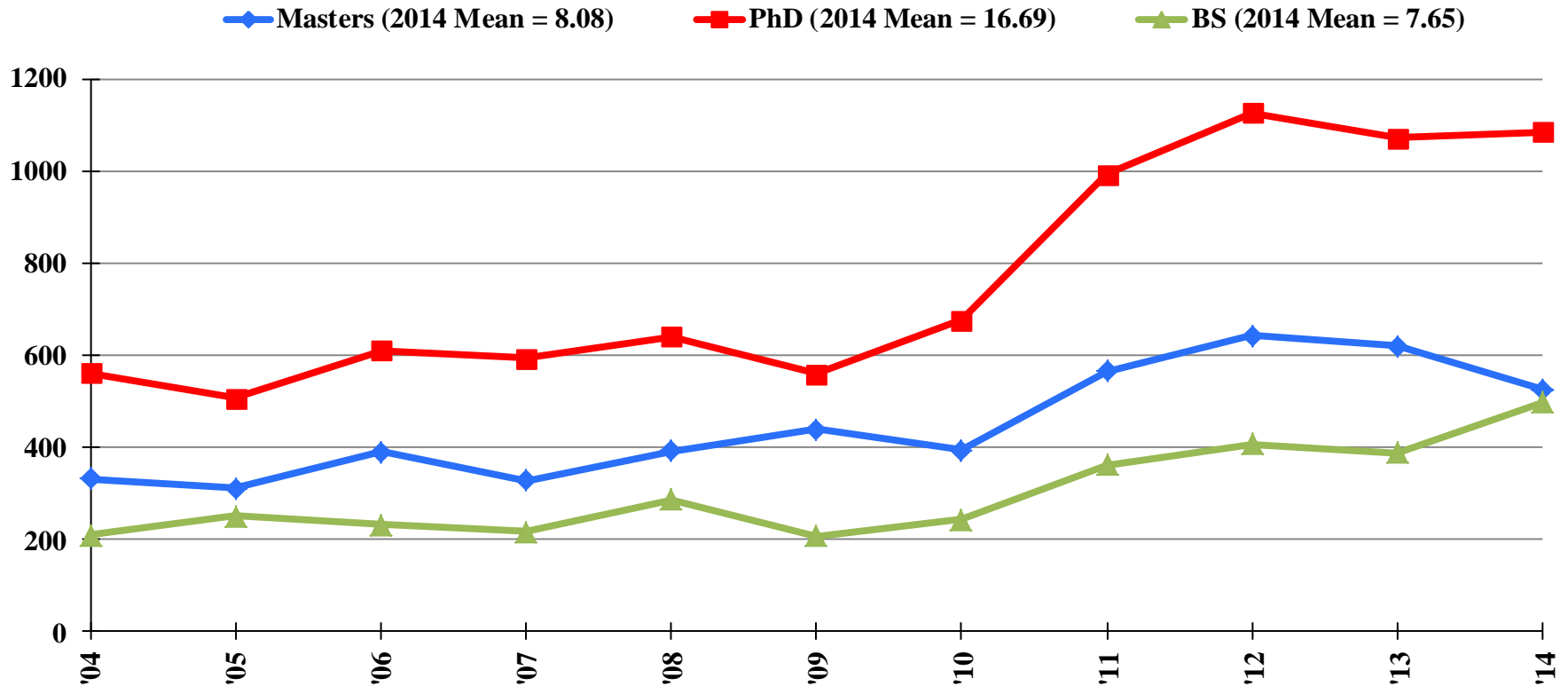


*2014 Invention Disclosures outliers: Visual Decision Informatics = 40, Berkeley Sensor & Actuator Center = 20, E-Design = 12, Identification Technology Research = 17.

Total Students Trained



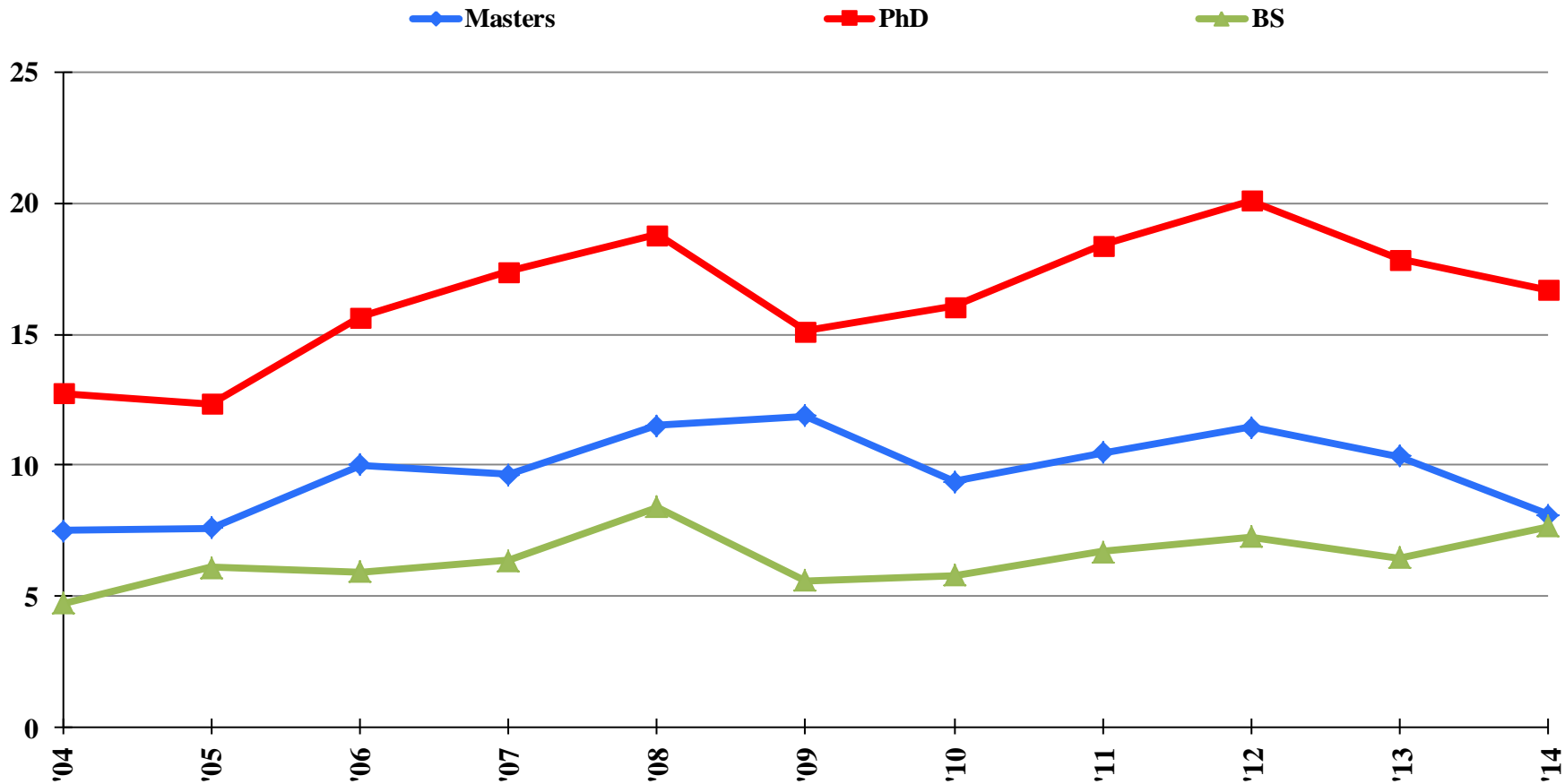
Industry/University
Cooperative Research
Centers



Average Students Trained



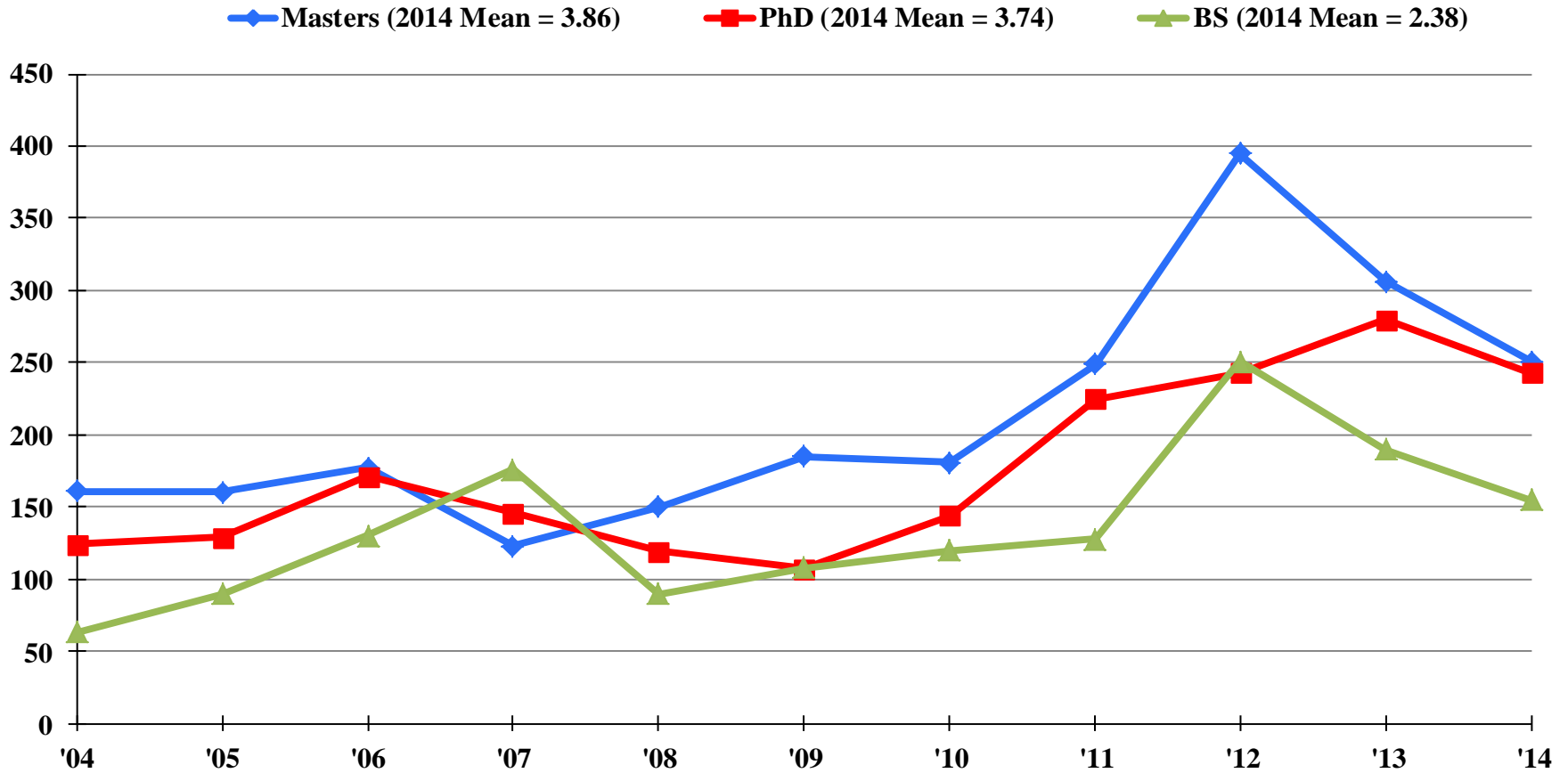
Industry/University
Cooperative Research
Centers



Total Students Graduated



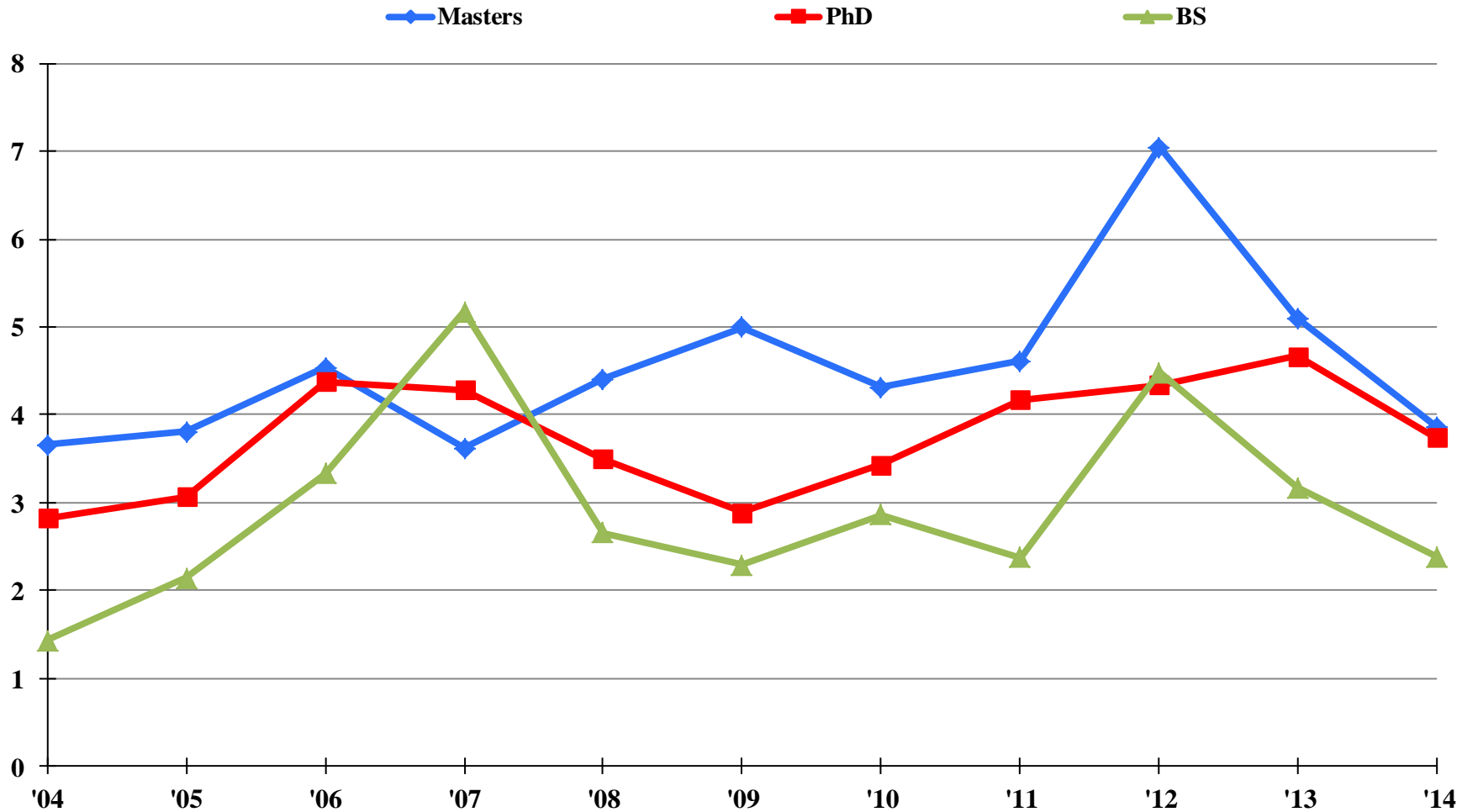
Industry/University
Cooperative Research
Centers



Average Students Graduated



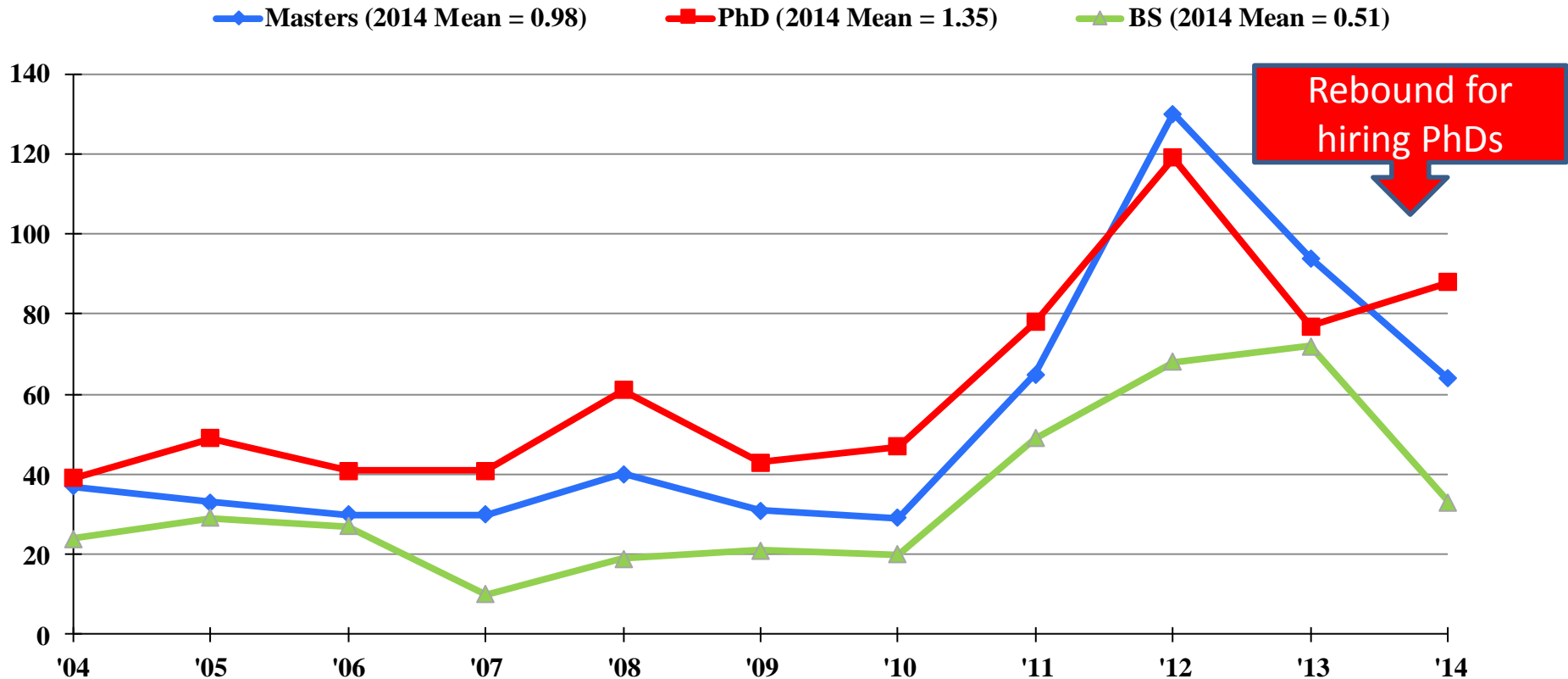
Industry/University
Cooperative Research
Centers



Total Students Hired by Members



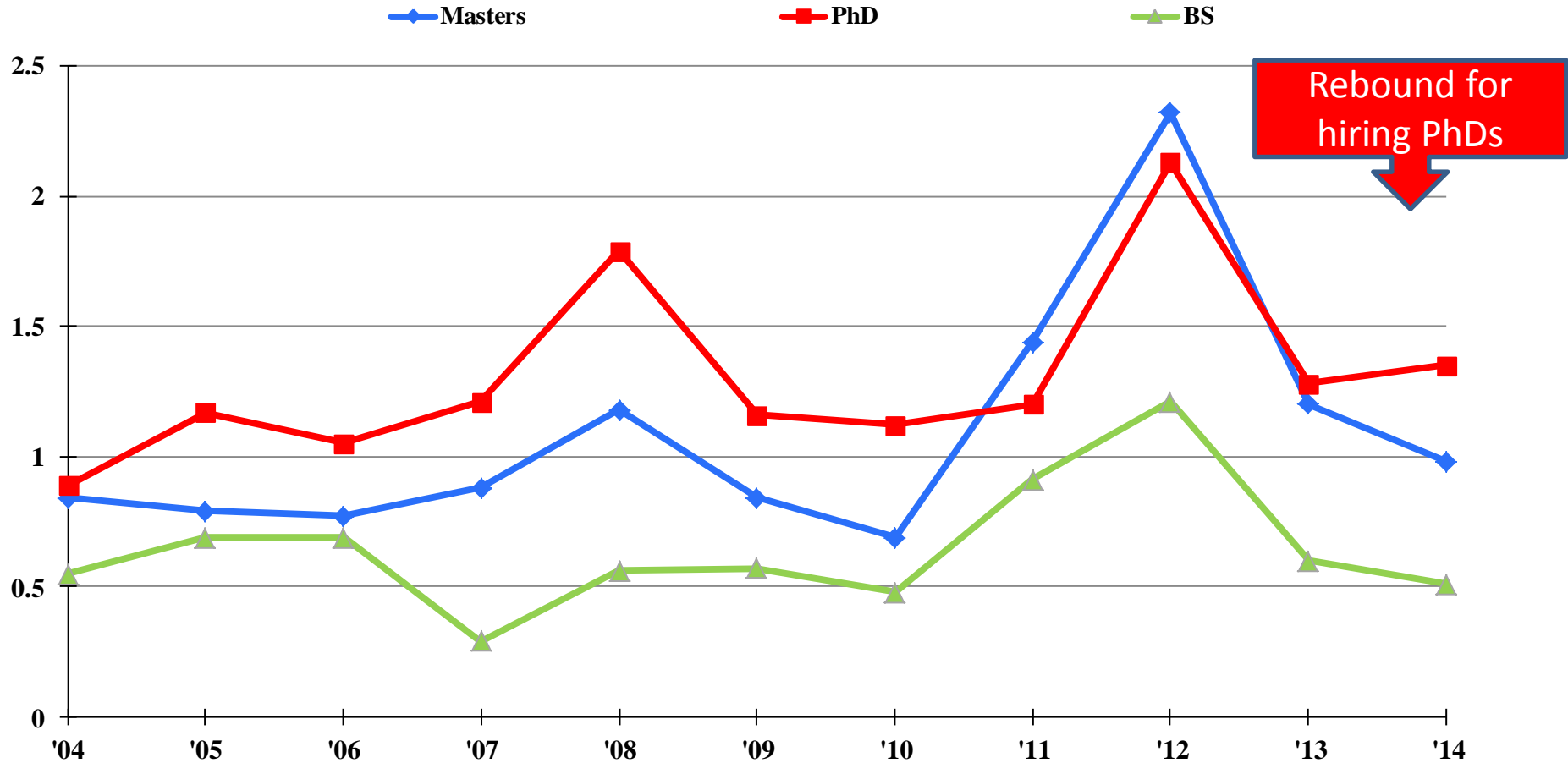
Industry/University
Cooperative Research
Centers



Average Students Hired by Members



Industry/University
Cooperative Research
Centers





Industry/University
Cooperative Research
Centers

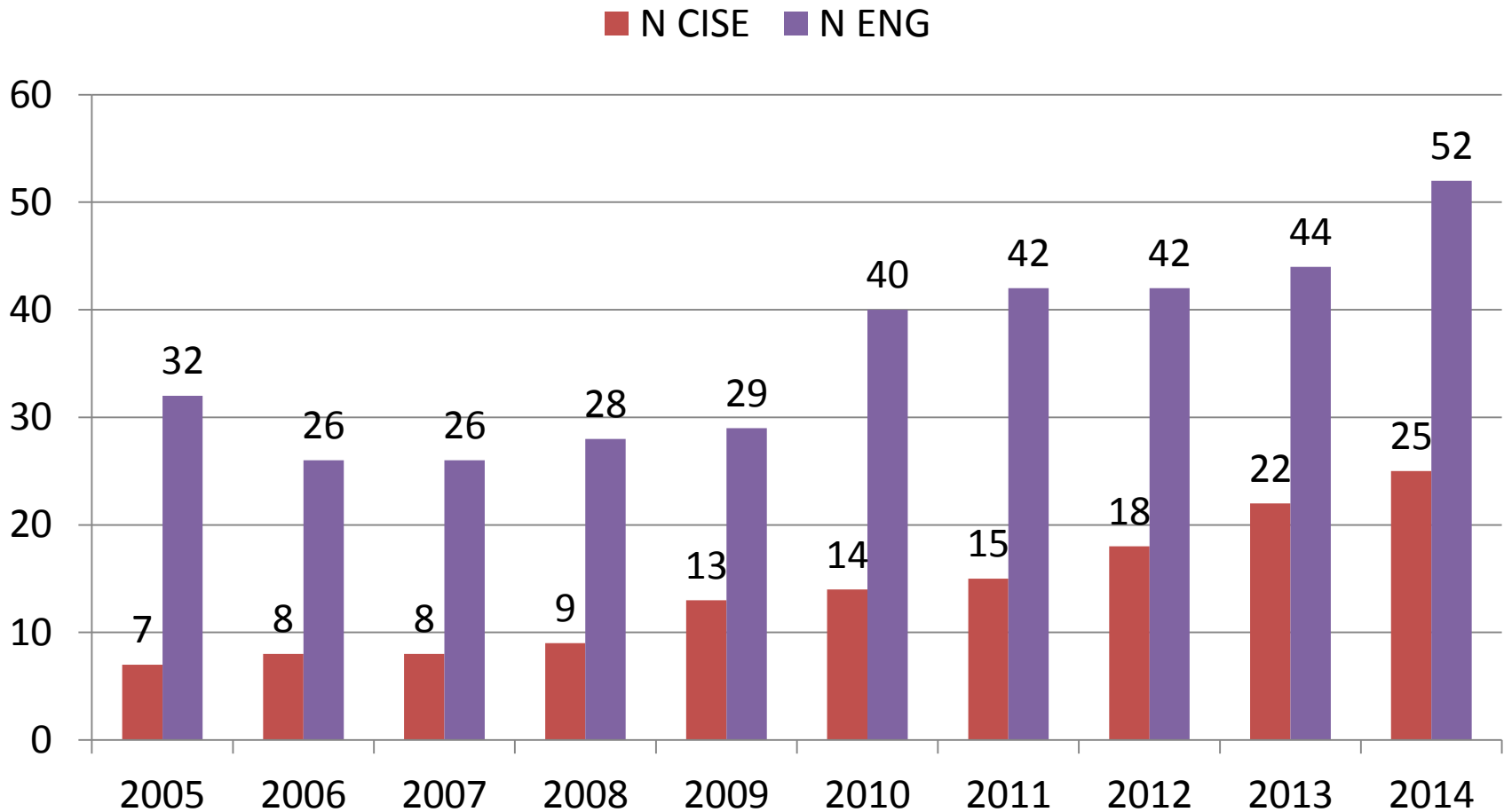
CISE & ENG Partnership

Some Comparisons and Recent Trends

Growth in # of CISE & ENG Centers over time*



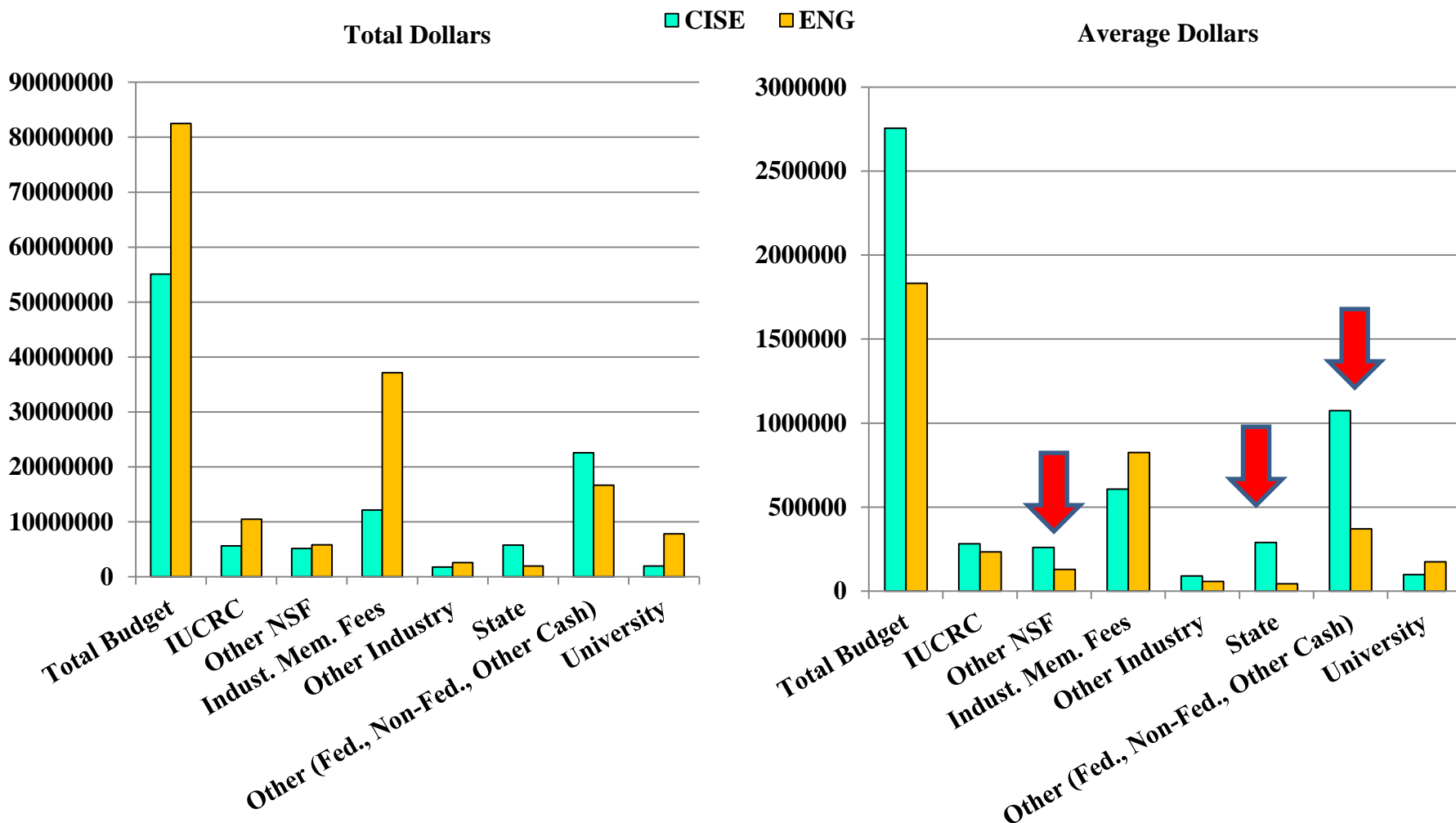
Industry/University
Cooperative Research
Centers



*Data Current for NSF FY2014



2014 CISE & ENG: Funding by Source

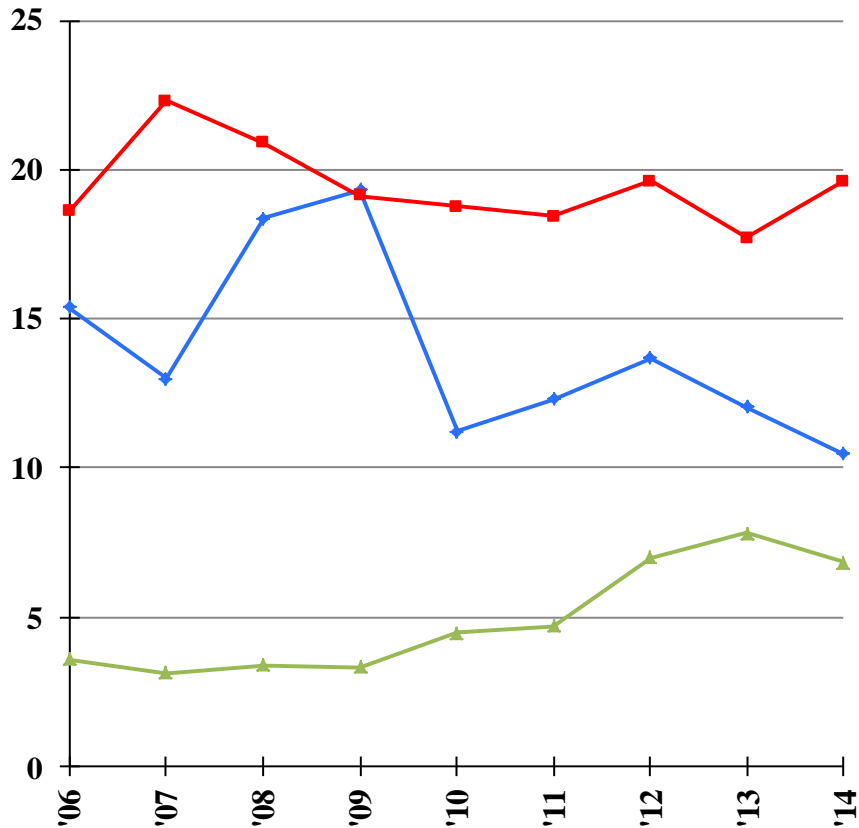


CISE & ENG: Average Students Trained

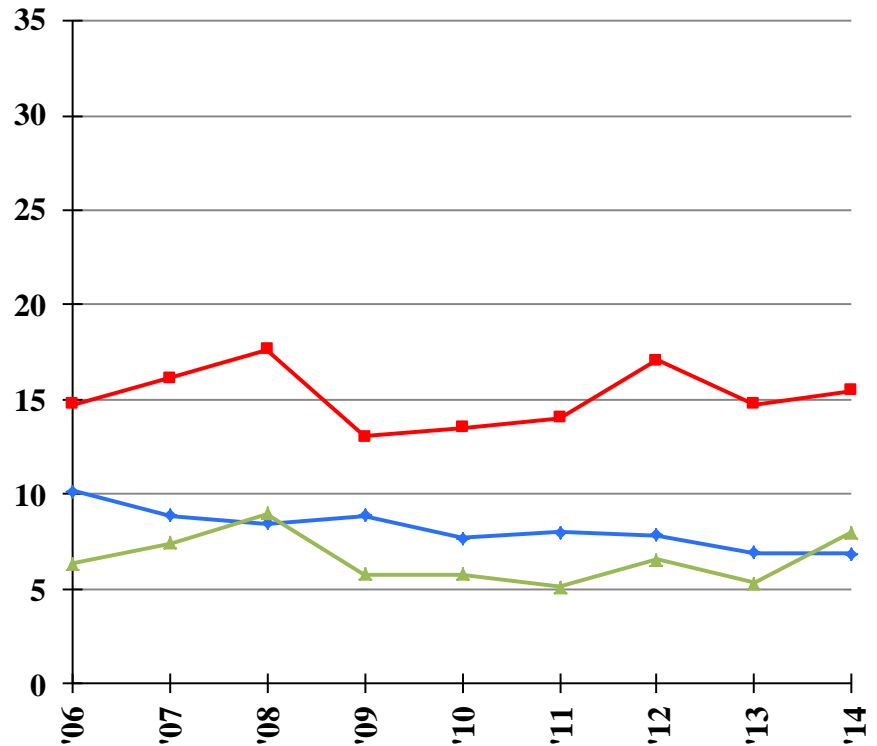


Industry/University
Cooperative Research
Centers

CISE



ENG



— Masters — PhD — BS

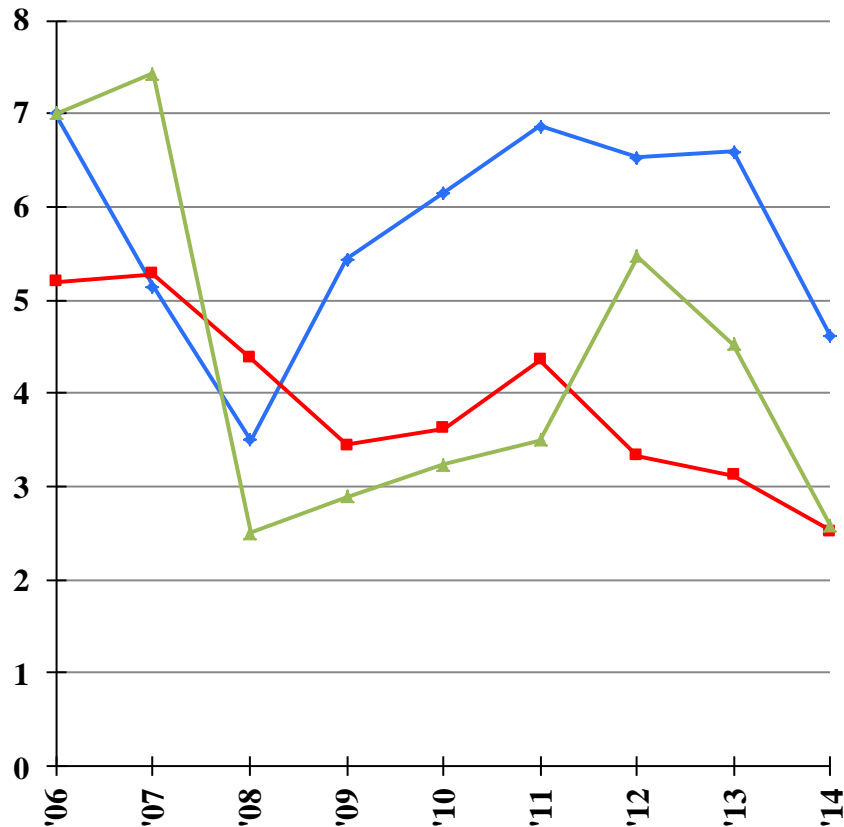
* CISE averages exclude one outlier Center
FY 2013-2014 NSF-I/UCRC Center Structure Database

CISE & ENG: Average Students Graduated

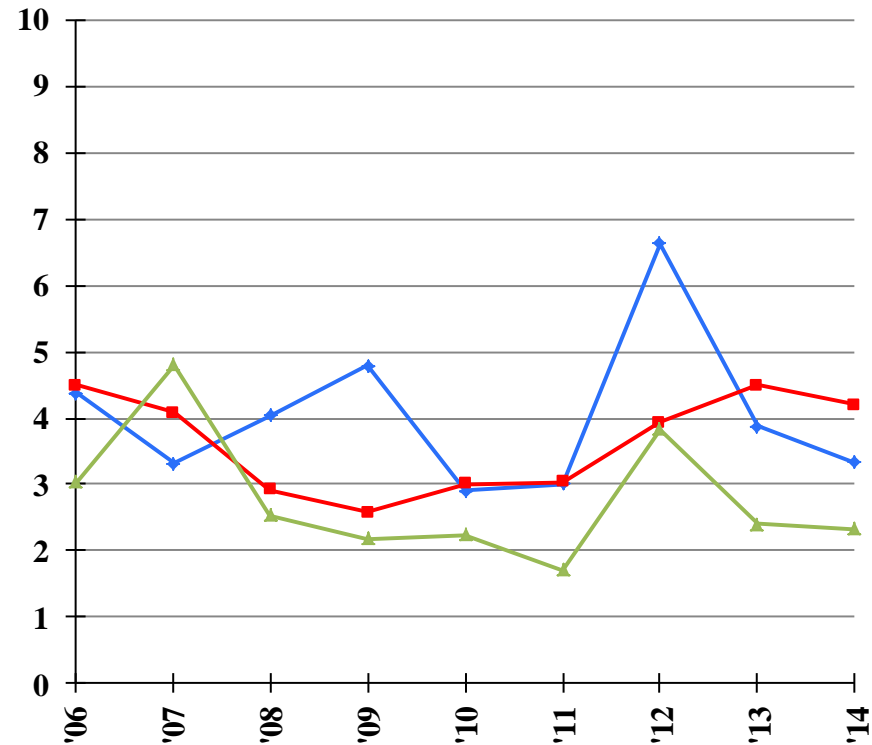


Industry/University
Cooperative Research
Centers

CISE



ENG



◆ Masters ■ PhD ▲ BS

* CISE averages exclude one outlier Center
FY 2013-2014 NSF-I/UCRC Center Structure Database

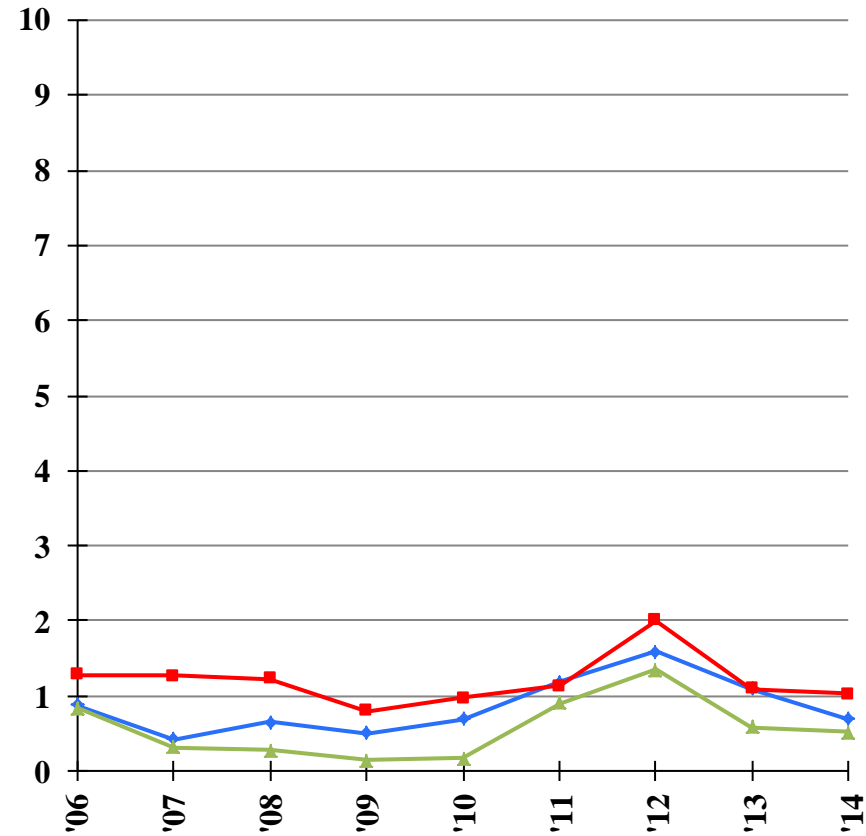
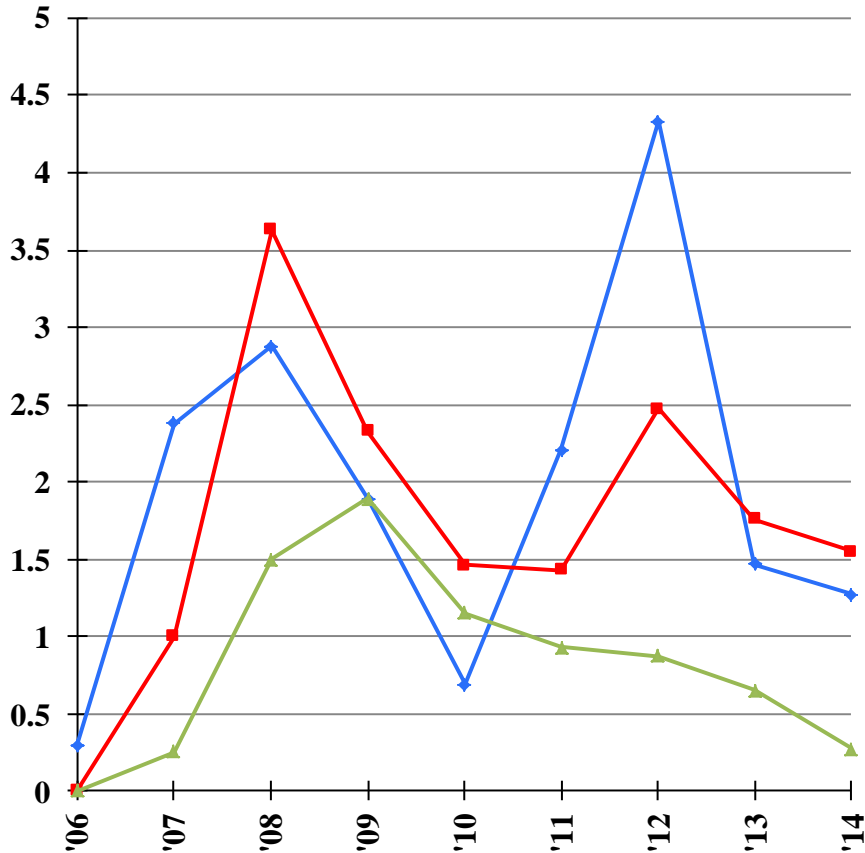
CISE & ENG: Average Students Hired



Industry/University
Cooperative Research
Centers

CISE

ENG



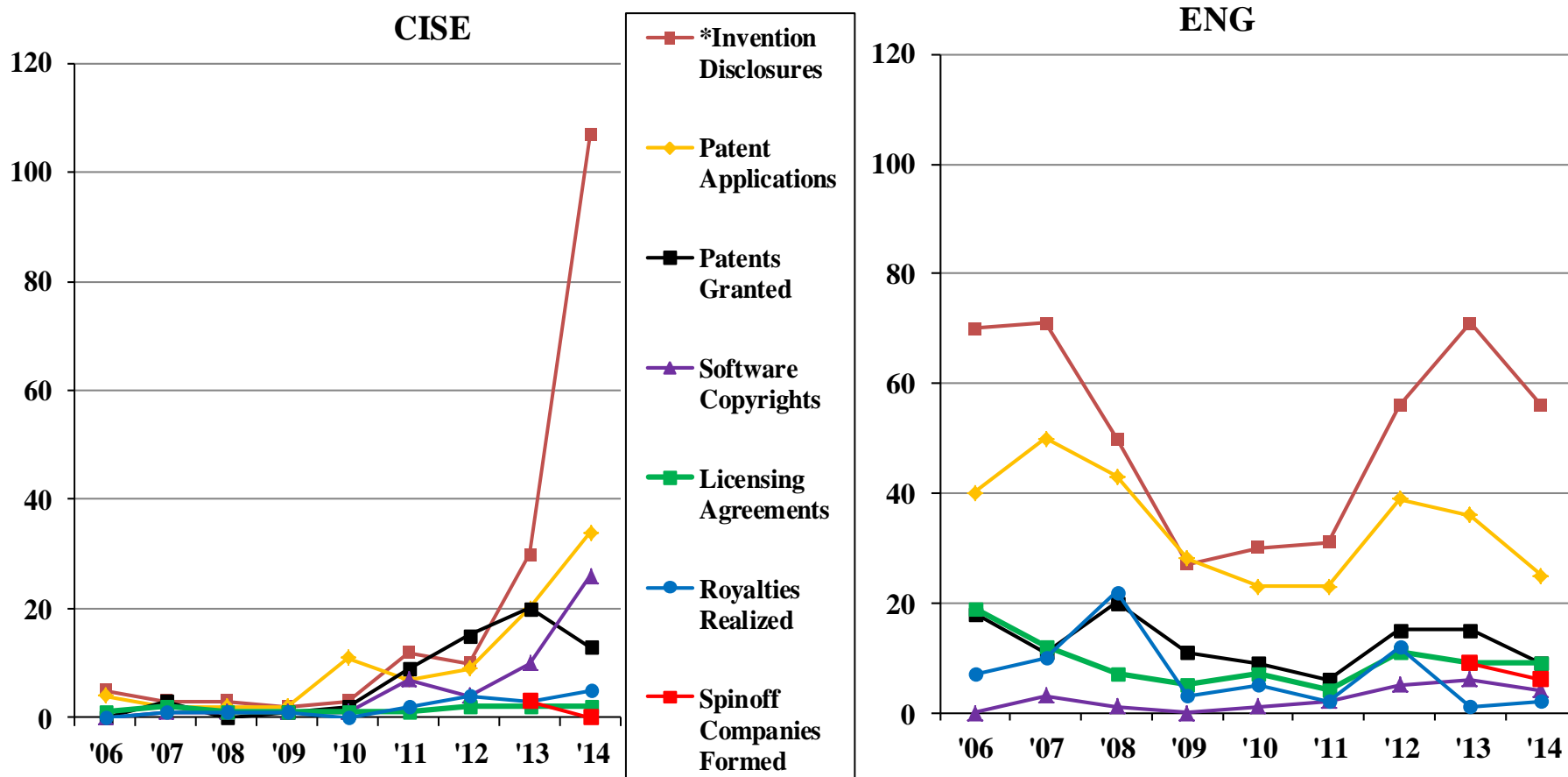
◆ Masters ■ PhD ▲ BS

* CISE averages exclude one outlier Center
FY 2013-2014 NSF-I/UCRC Center Structure Database

CISE & ENG: Intellectual Property & Commercialization Events 06-14 Totals



Industry/University
Cooperative Research
Centers



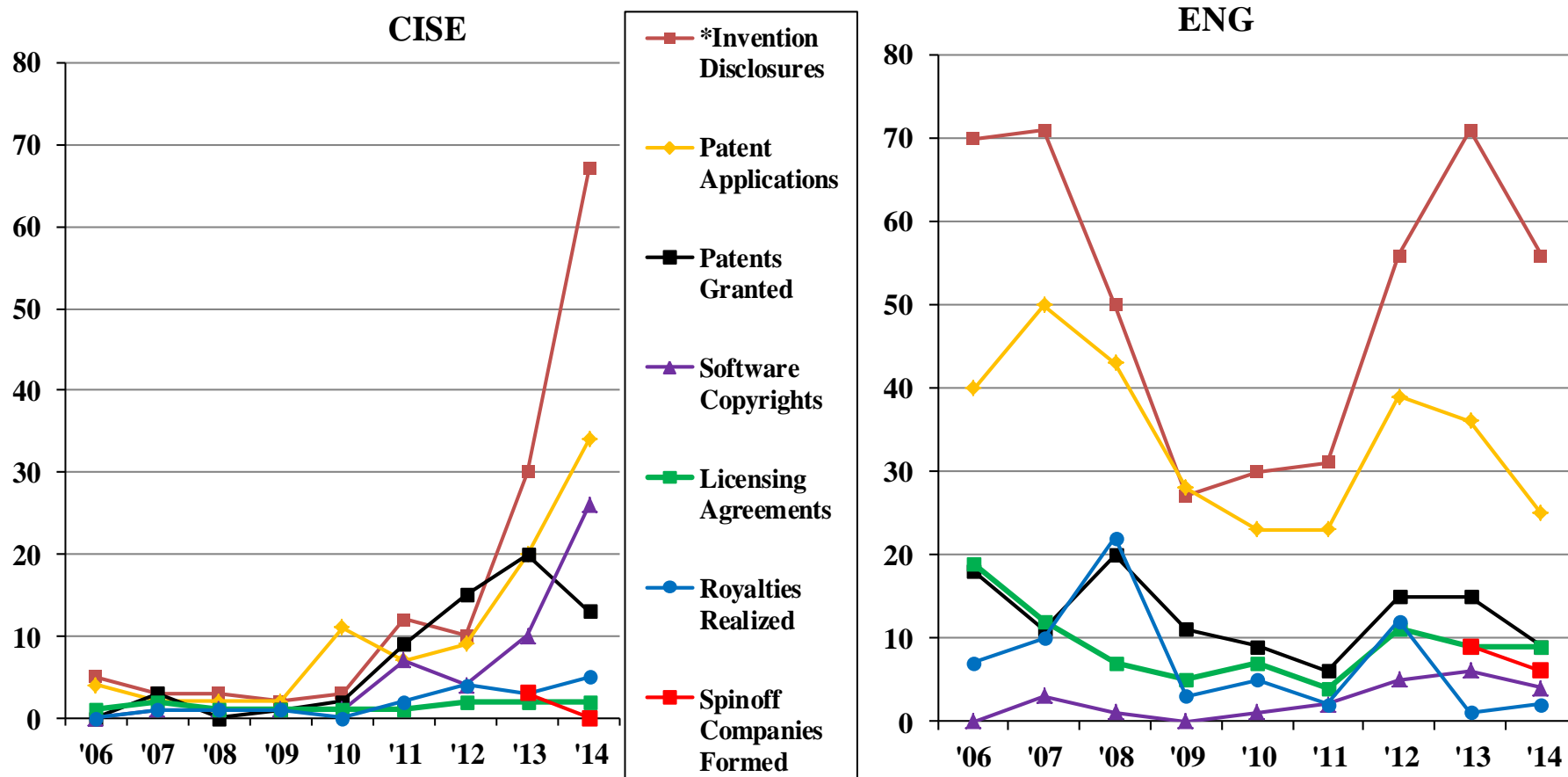
*2014 CISE Invention Disclosures outliers: Visual Decision Informatics = 40, Identification Technology Research = 17, and E-Design = 12.

*2014 ENG Invention Disclosures outliers: Berkeley Sensor & Actuator Center = 20,

CISE & ENG: Intellectual Property & Commercialization Events 06-14 Totals (without VDI outlier)



Industry/University
Cooperative Research
Centers



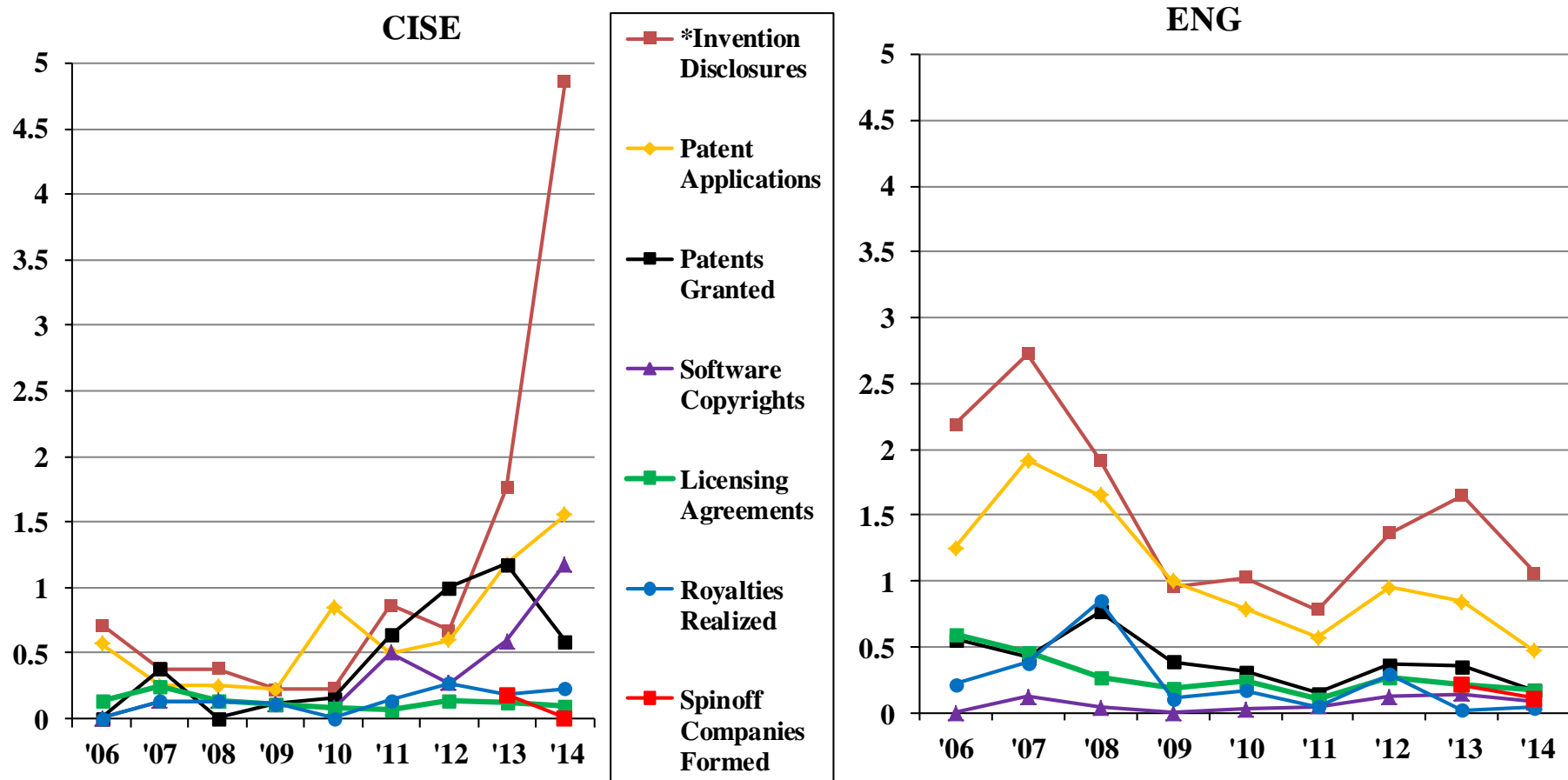
*2014 CISE Invention Disclosures outliers: Identification Technology Research = 17, and E-Design = 12.

*2014 ENG Invention Disclosures outliers: Berkeley Sensor & Actuator Center = 20,

CISE & ENG: Intellectual Property & Commercialization Events 06-14 Averages



Industry/University
Cooperative Research
Centers



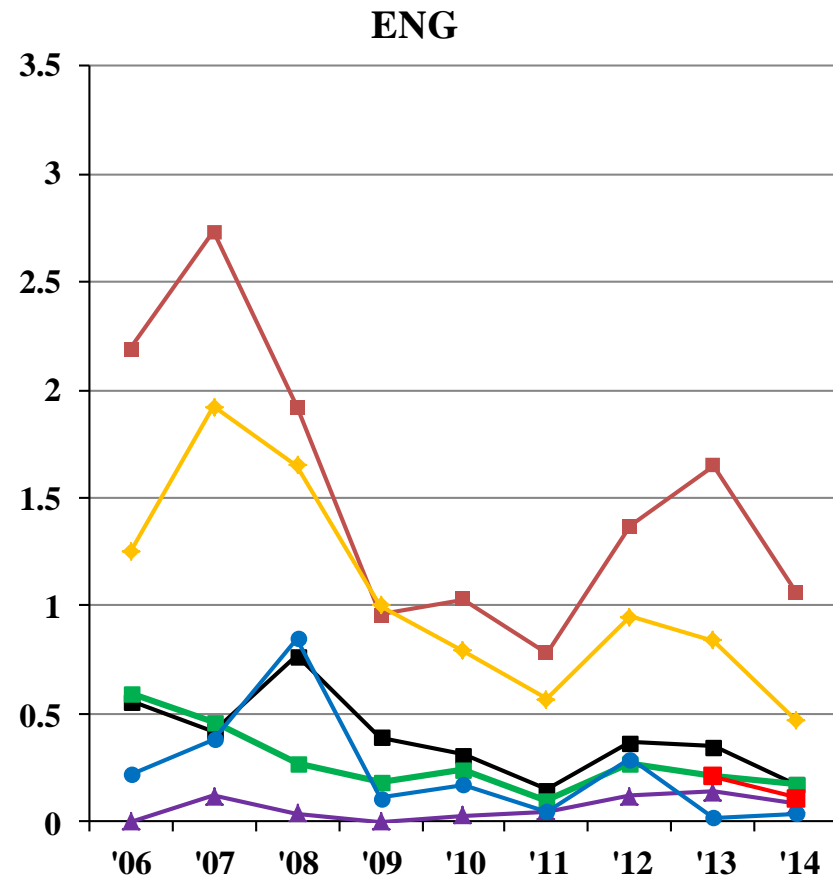
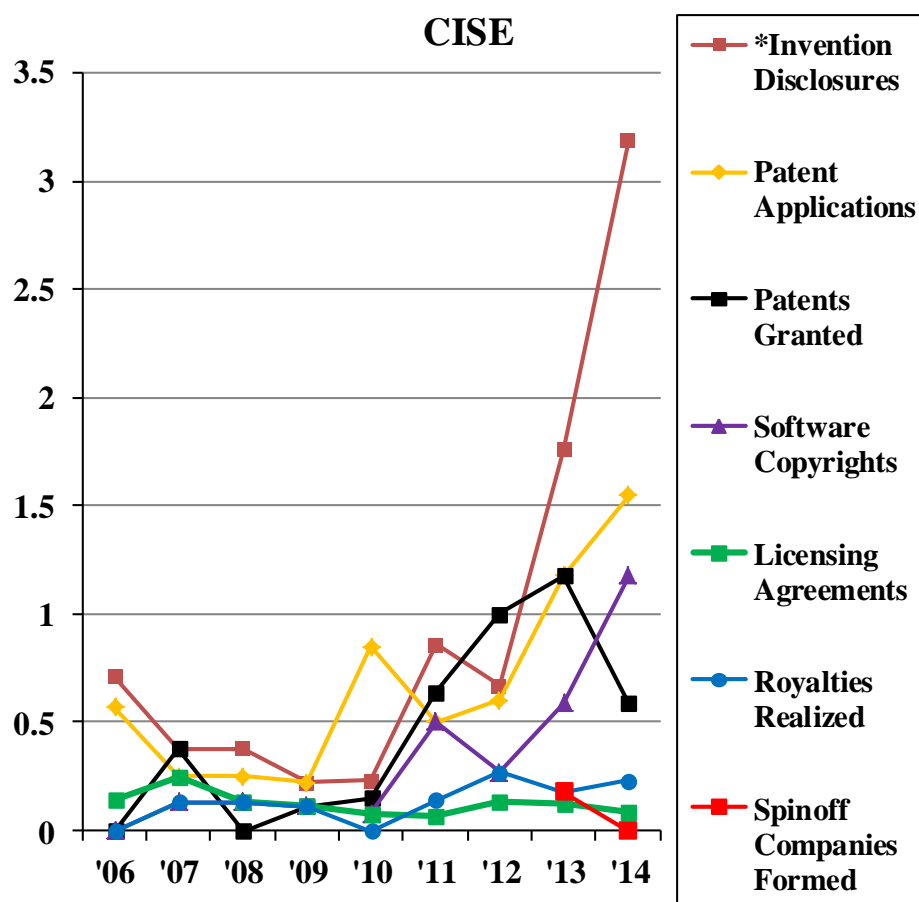
*2014 CISE Invention Disclosures outliers: Visual Decision Informatics = 40, Identification Technology Research = 17, and E-Design = 12.

*2014 ENG Invention Disclosures outliers: Berkeley Sensor & Actuator Center = 20,

CISE & ENG: Intellectual Property & Commercialization Events 06-14 Averages (without VDI outlier)



Industry/University
Cooperative Research
Centers



*2014 CISE Invention Disclosures outliers: Identification Technology Research = 17, and E-Design = 12.

*2014 ENG Invention Disclosures outliers: Berkeley Sensor & Actuator Center = 20,



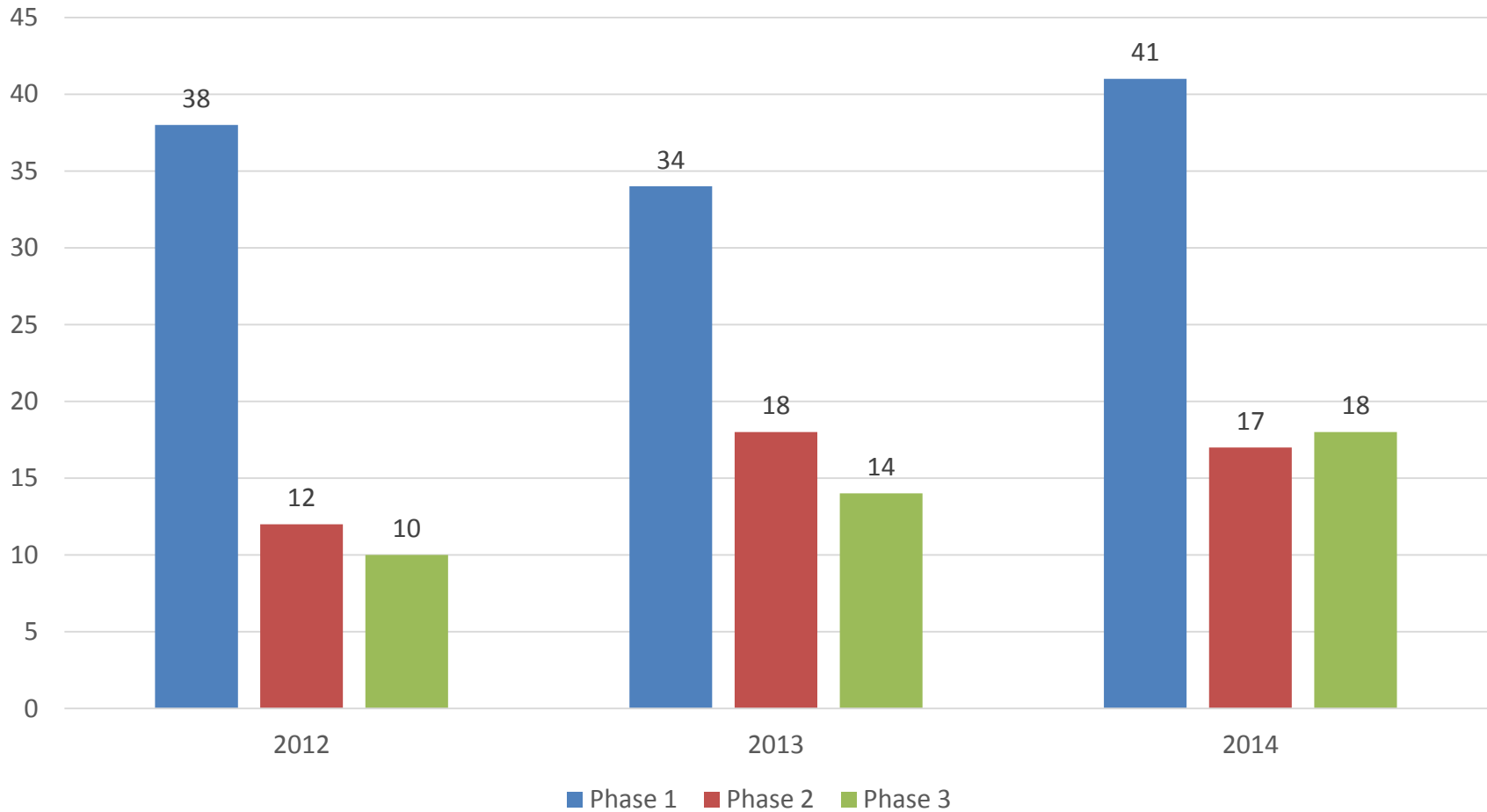
Industry/University
Cooperative Research
Centers

2014 Phase-based comparison

N of Centers by Phase*



Industry/University
Cooperative Research
Centers

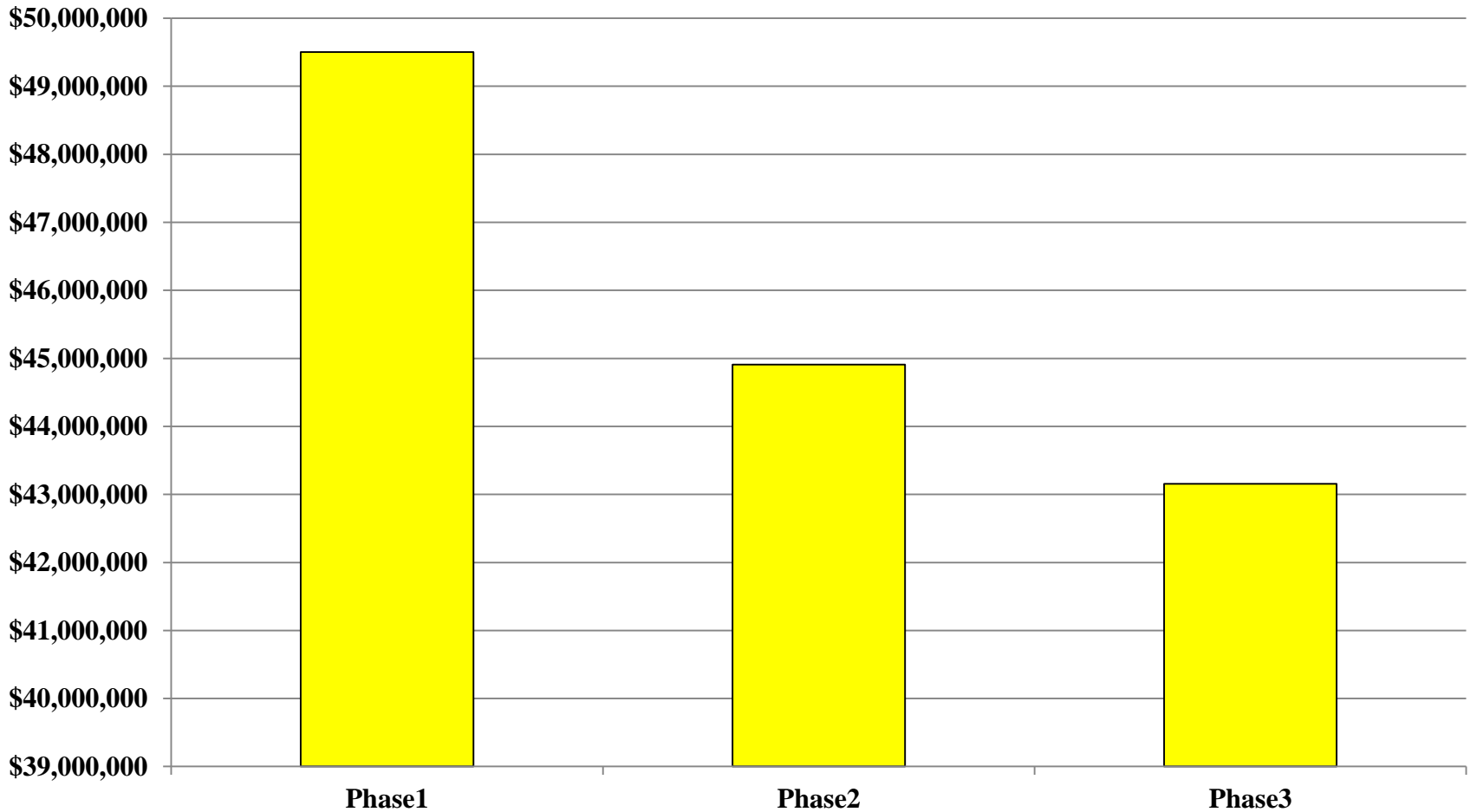


*Data Current for NSF FY2014

Total Program Funding

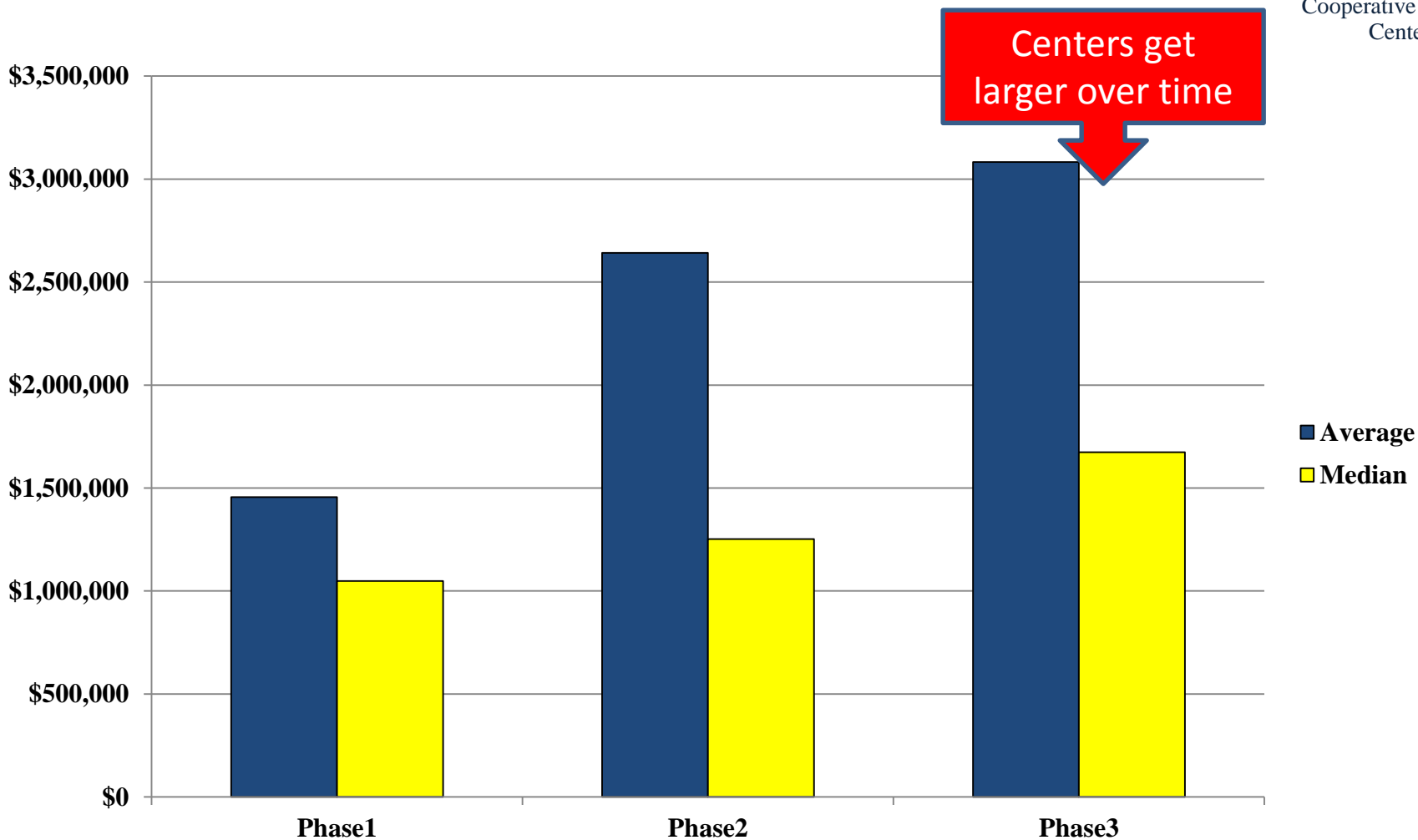


Industry/University
Cooperative Research
Centers





Average & Median Total Center Funding

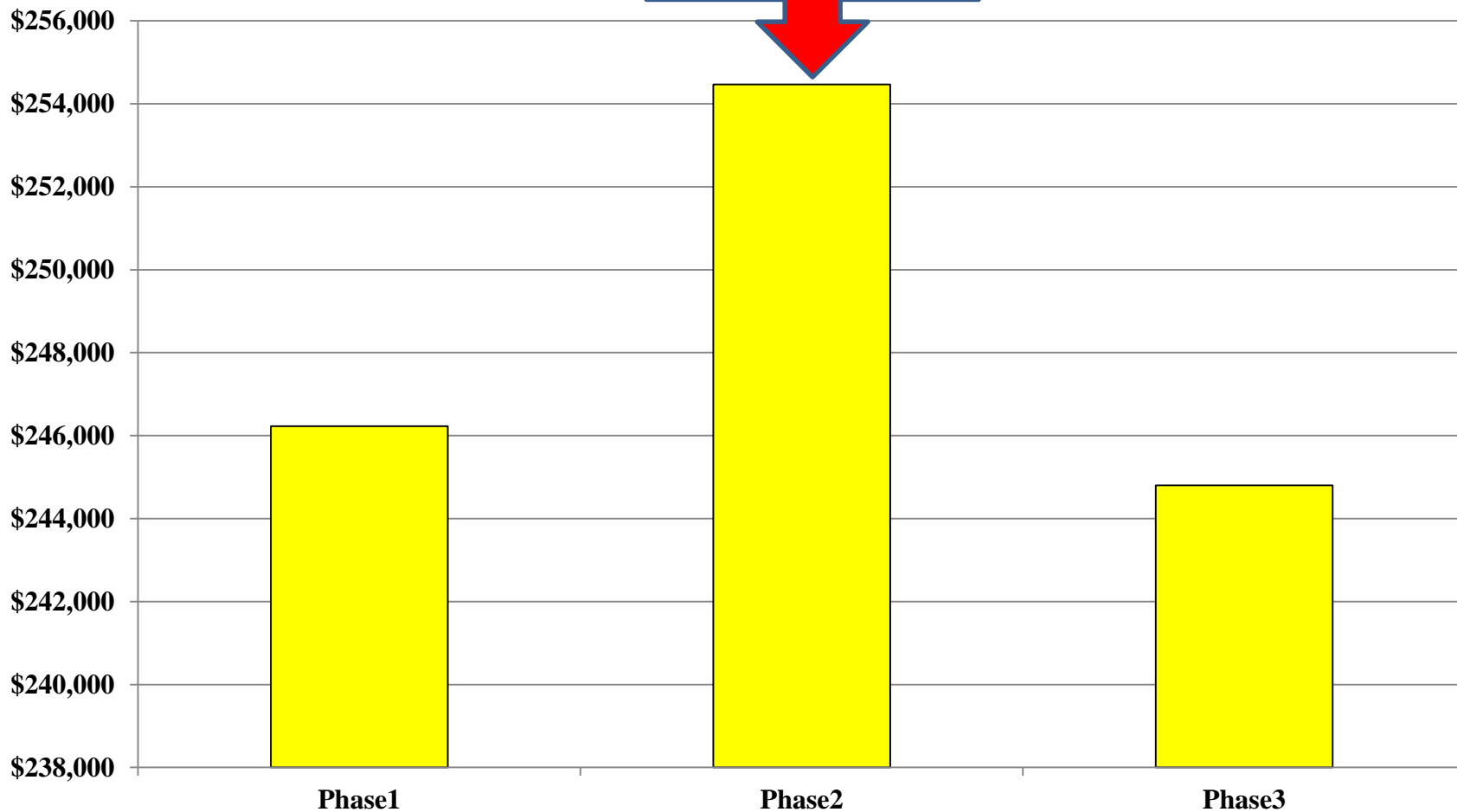


Average NSF IUCRC Awards & Supplements



Industry/University
Cooperative Research
Centers

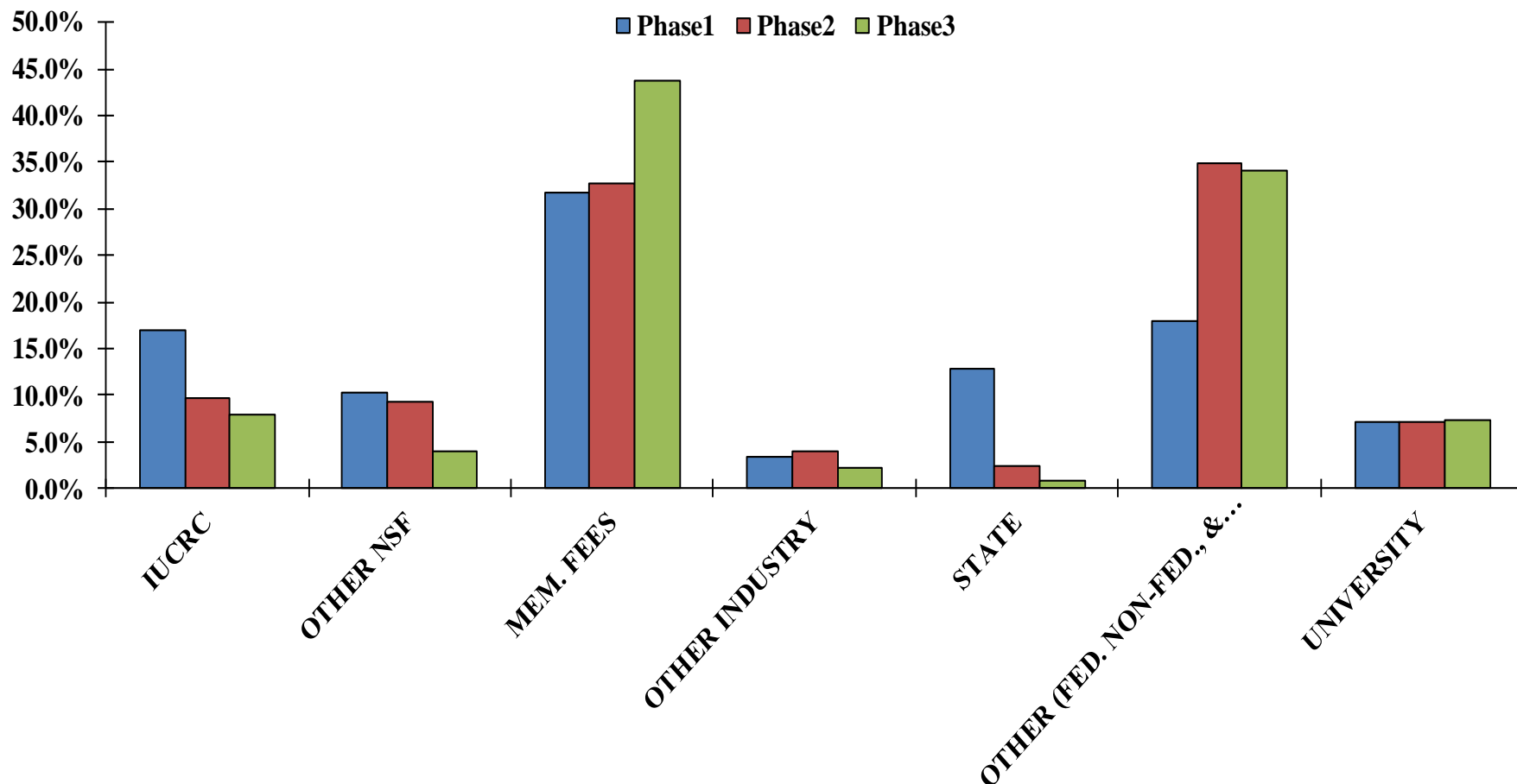
Phase 2 centers
getting rewarded



Total Funding by Source in Percentages



Industry/University
Cooperative Research
Centers

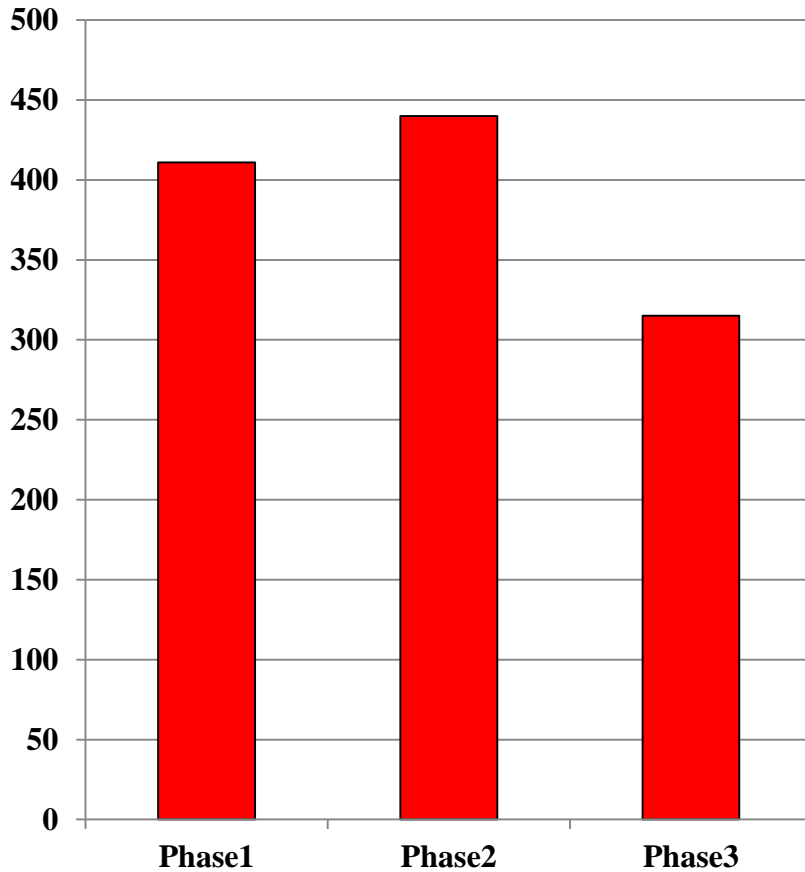


Industrial Memberships

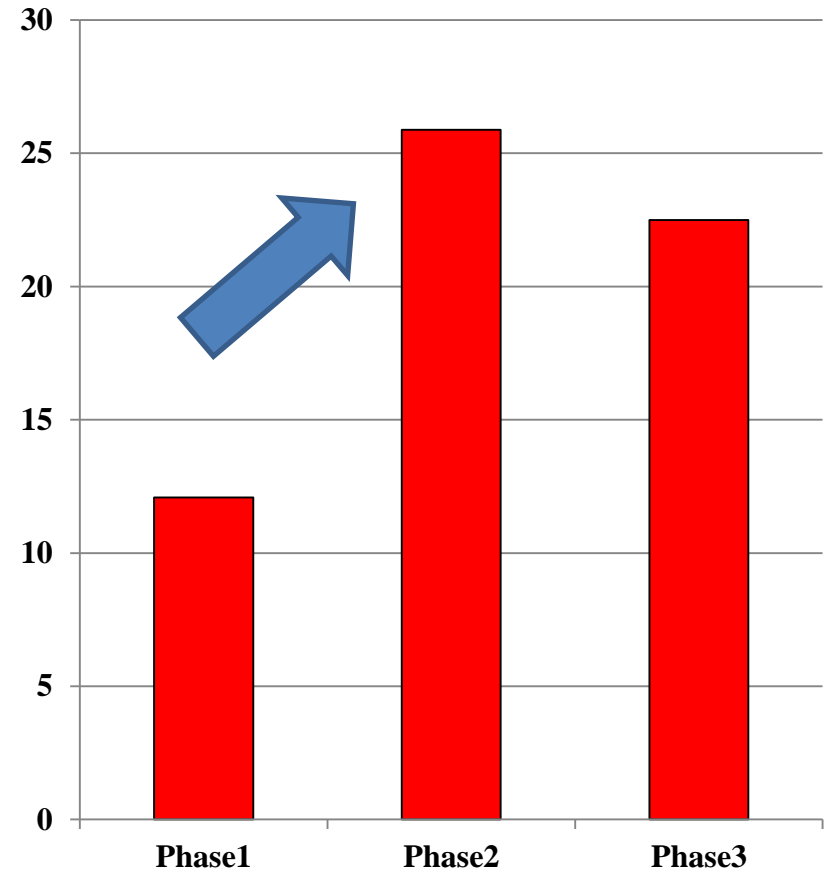


Industry/University
Cooperative Research
Centers

Total Number of Memberships



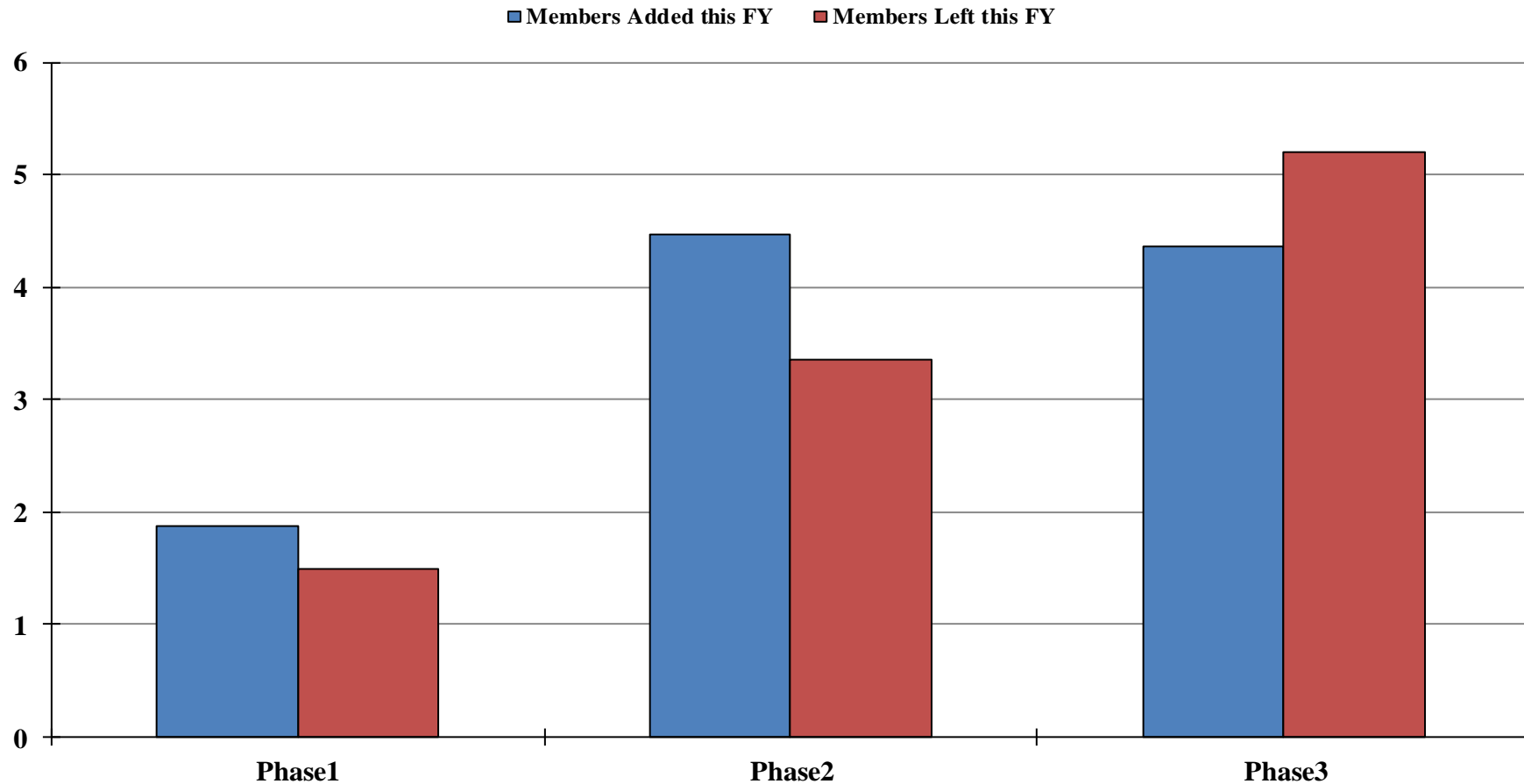
Average Number of Memberships



Average Membership Turn Over



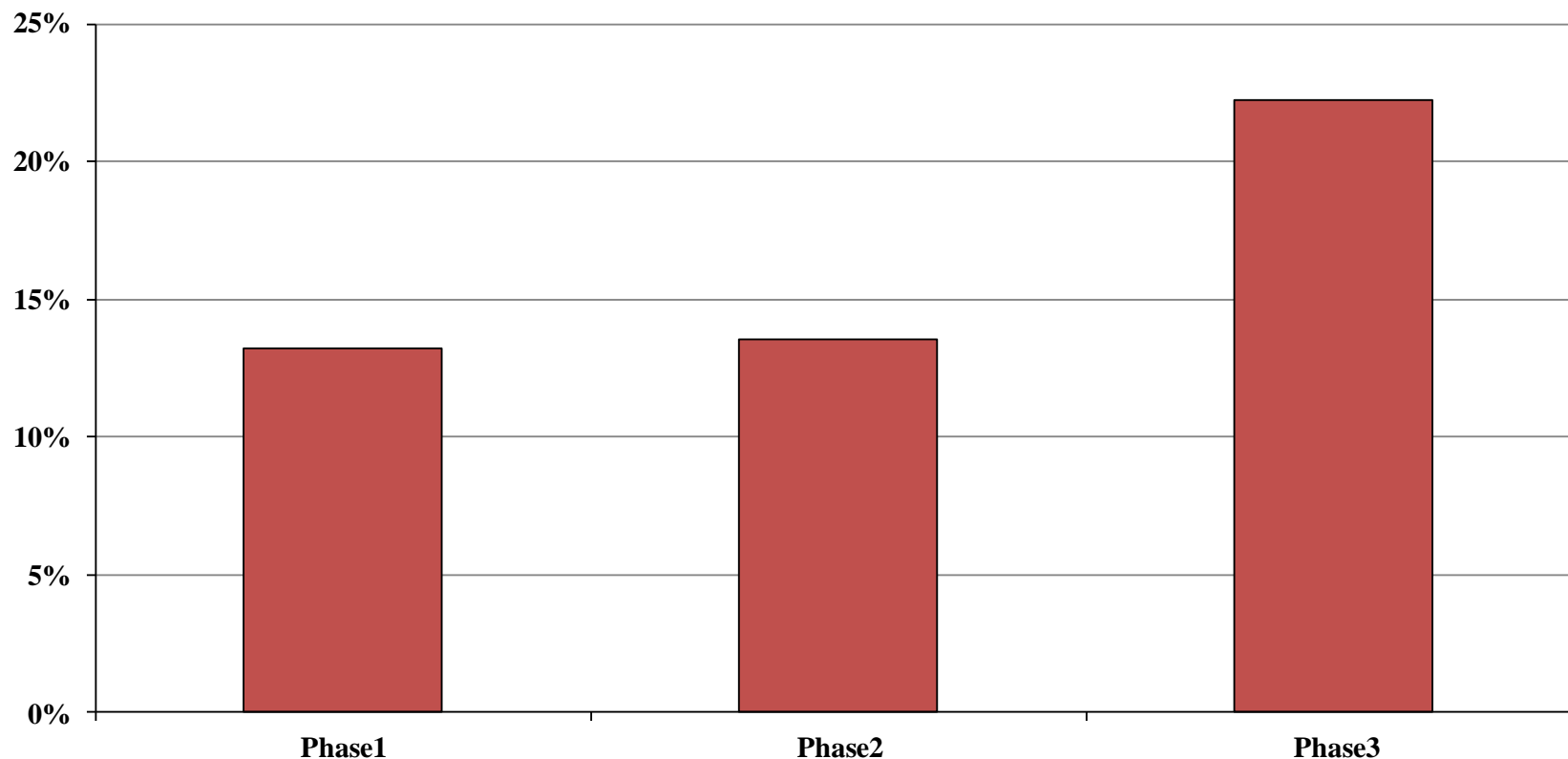
Industry/University
Cooperative Research
Centers



*Newly funded Centers' members are not counted as Members Added
FY 2013-2014 NSF-I/UCRC Center Structure Database



Member Turnover Rate

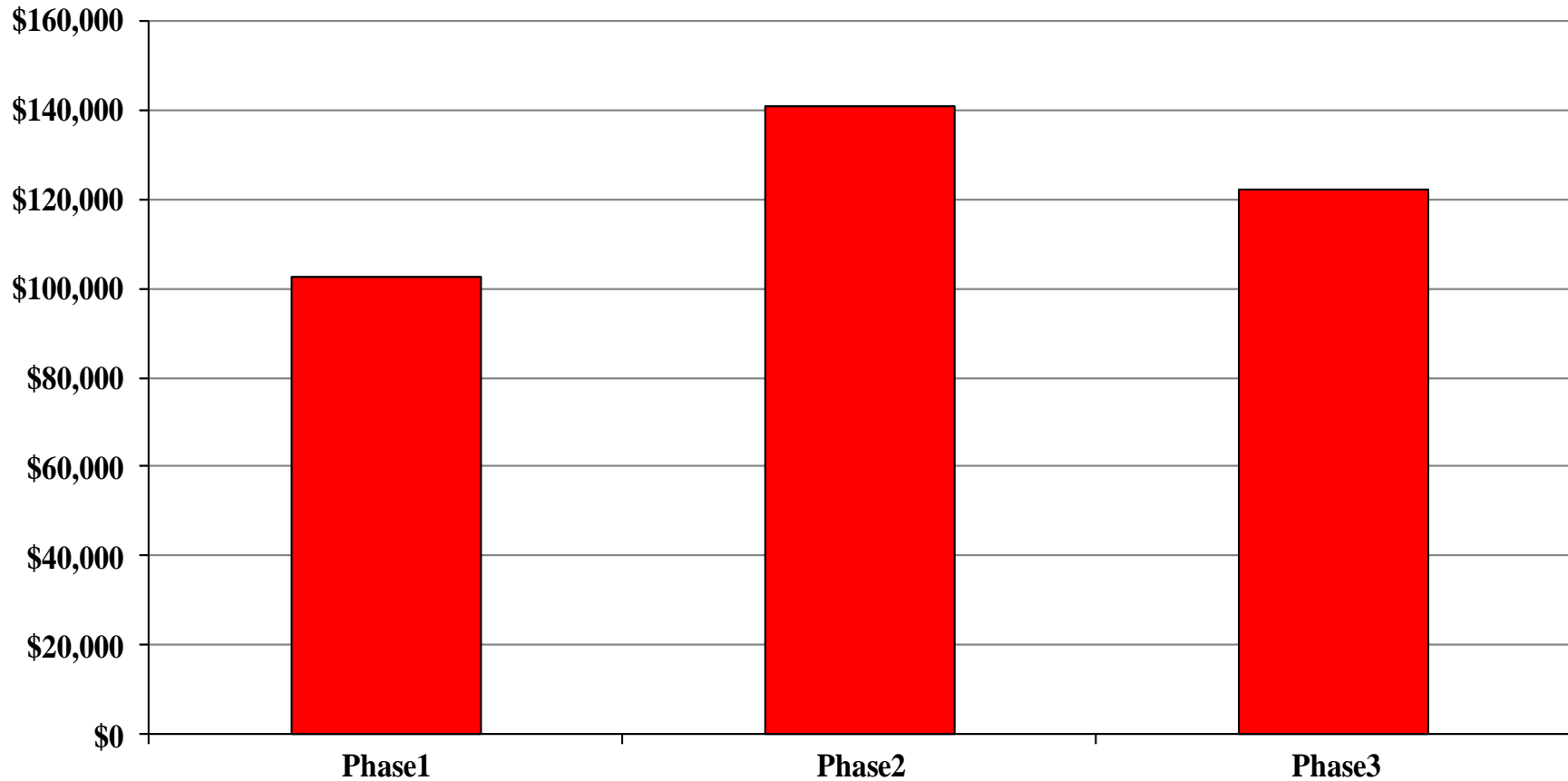


Turnover % = Members terminated in “year X+1” / Total members in “year X”

Average Funding per Researcher



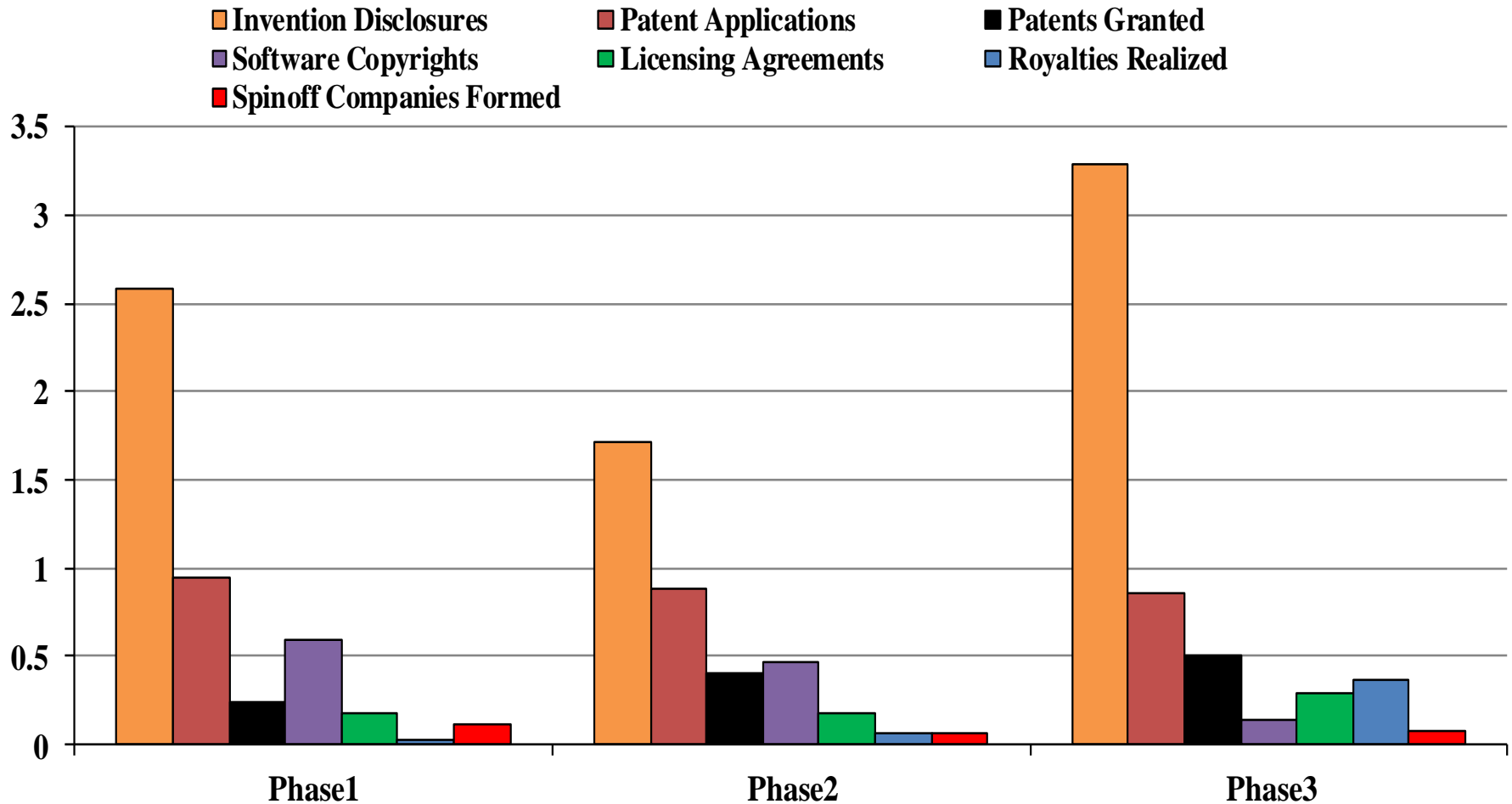
Industry/University
Cooperative Research
Centers



Average Number of Intellectual Property & Commercialization Events



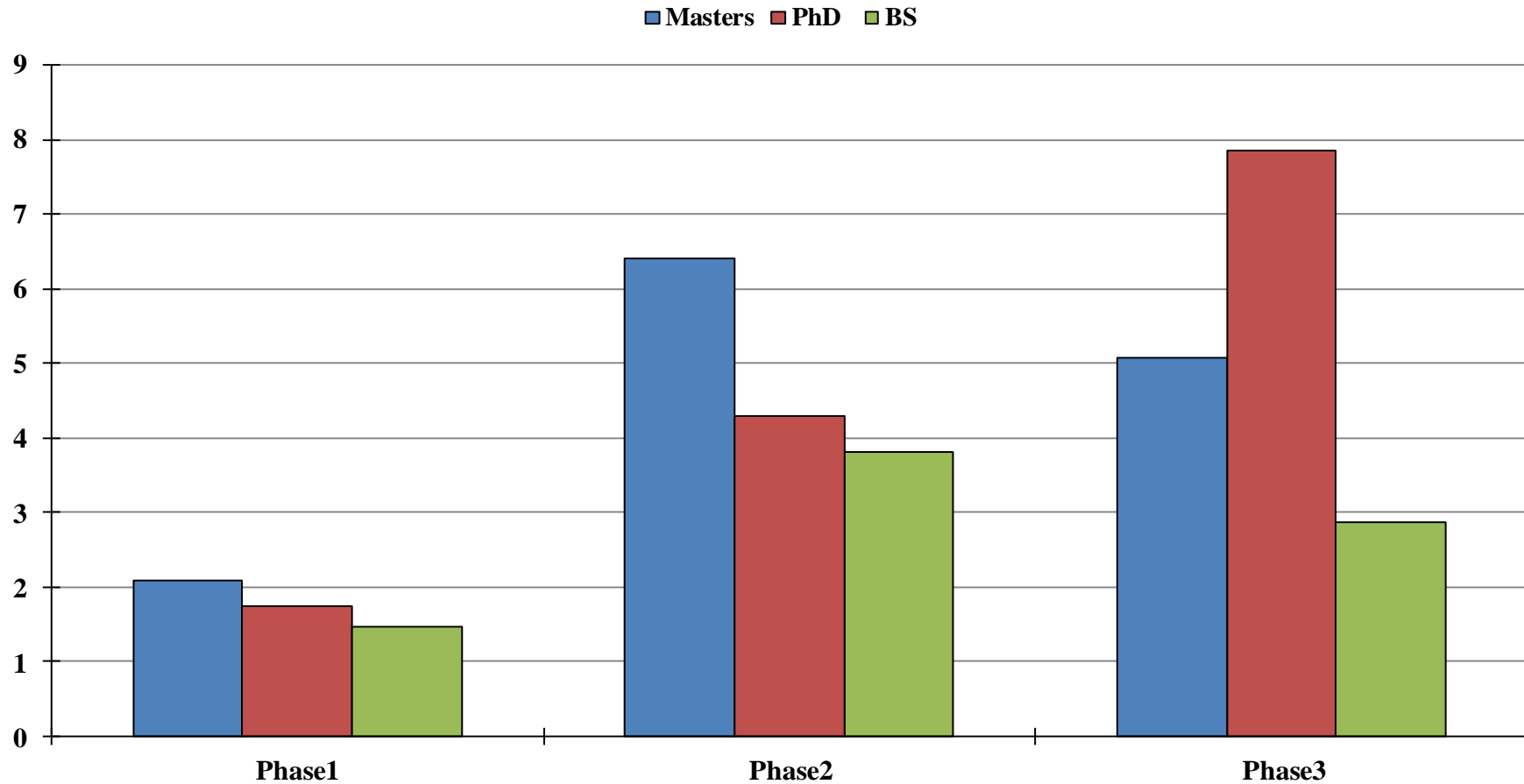
Industry/University
Cooperative Research
Centers



Average Students Graduated



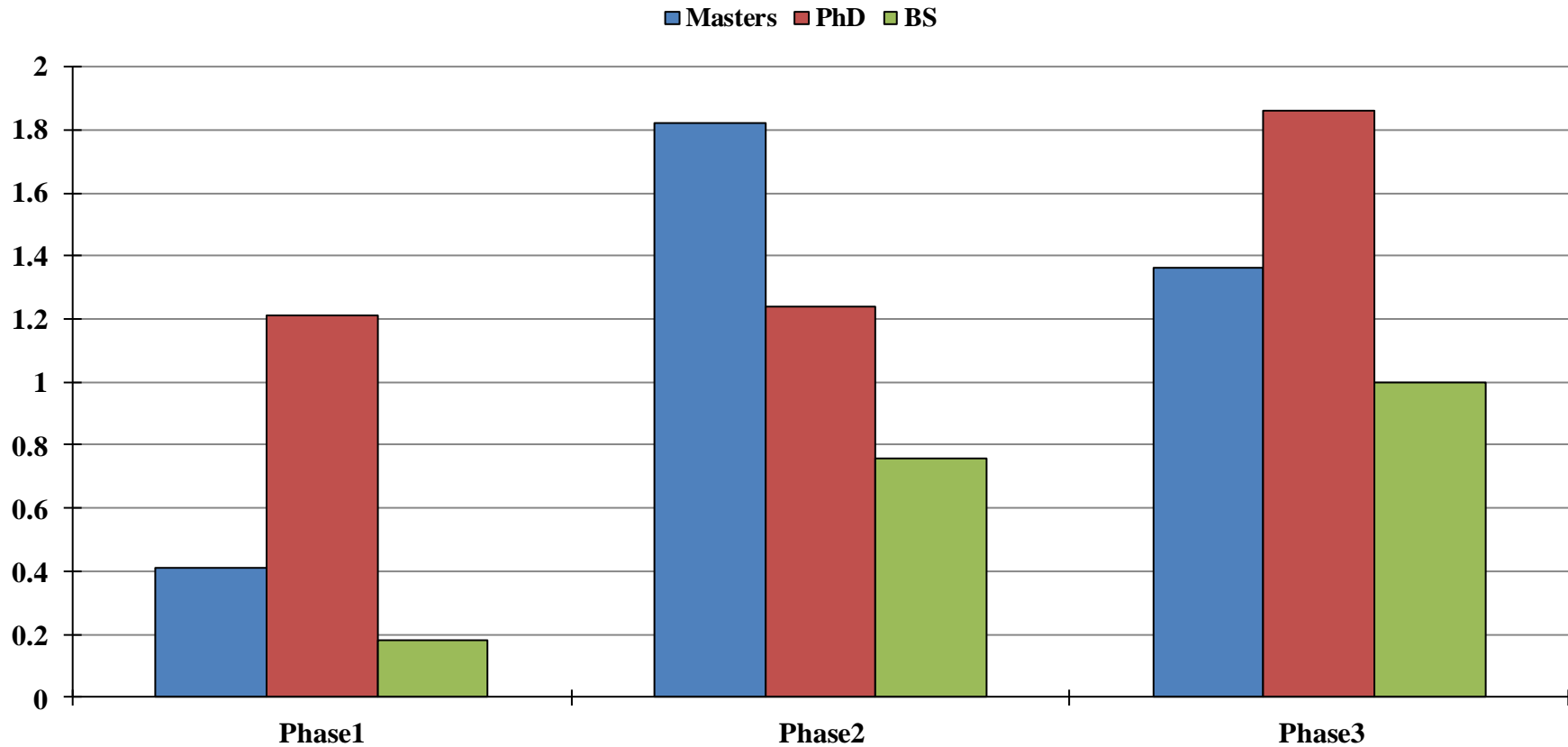
Industry/University
Cooperative Research
Centers



Average Students Hired by Members



Industry/University
Cooperative Research
Centers





Industry/University
Cooperative Research
Centers

QUESTIONS?