

Highlights of Membership Data FY 2017-2018

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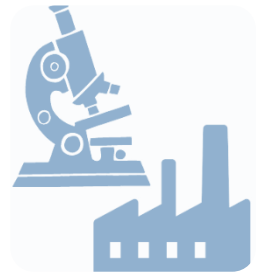
Membership Report Data

- 2017-2018 Data
 - Type of members
 - Multiple center members
- Membership Trends Over Time
 - Overview of factors affecting Membership
 - Total membership trends
 - By member type
 - Net Gain/Loss
 - Turnover

Take Home Message

- Tracking “membership” is important because it may be the most important measure of success for centers and the IUCRC program
- But...
 - We need to be very careful in interpreting changes in membership overtime

FY18 Member Fast Facts



1165 Memberships
197 new and 195 terminated memberships



\$45M Provided by Members
53% of total IUCRC program funding



~17 Members per Center



Membership fee leveraging
ratio 1:31



Membership Summary

	Count	Percent
Total memberships	<i>1165</i>	<i>100%</i>
Industry: large firms (500 + employees)	583	50%
Industry: small firms (< 500 employees)	321	28%
US Government: Federal	143	12%
US Government: State or local	51	4%
Other	67	6%
# of organizations with memberships¹	<i>786</i>	<i>--</i>

1. Many firms and agencies maintain more than 1 membership in the I/UCRC program. This count considers a firm or agency with multiple memberships as a single member. For example, the Army holds 20 memberships but is considered a single organization in this count.

Unique Members and Total Memberships Over Time



Membership: Organizations with the Most Memberships

N Memberships	Organizations
25	Army
20	Air Force, DoE
15	NASA
14	DoD
12	Lockheed Martin, Raytheon
11	Intel Corporation
10	Honda
9	Navy
8	*Alphacore Inc., Corning Inc, DHS
6-7	Boeing, Cisco Systems, EPRI, Ford Motor Company, Hewlett-Packard, Honeywell, Huawei, L3 Communications, NSA, Northrop Grumman, Samsung
5	IBM, Weyerhaeuser

- Since 2016, N of organizations with 5+ memberships shifted from 27 to 33.
- Since 2017, the N went back to 26 organizations
- 22% of All memberships from these organizations
- *New to this list

Organizations with the Most Memberships Over Time



Industry/University
Cooperative Research
Centers

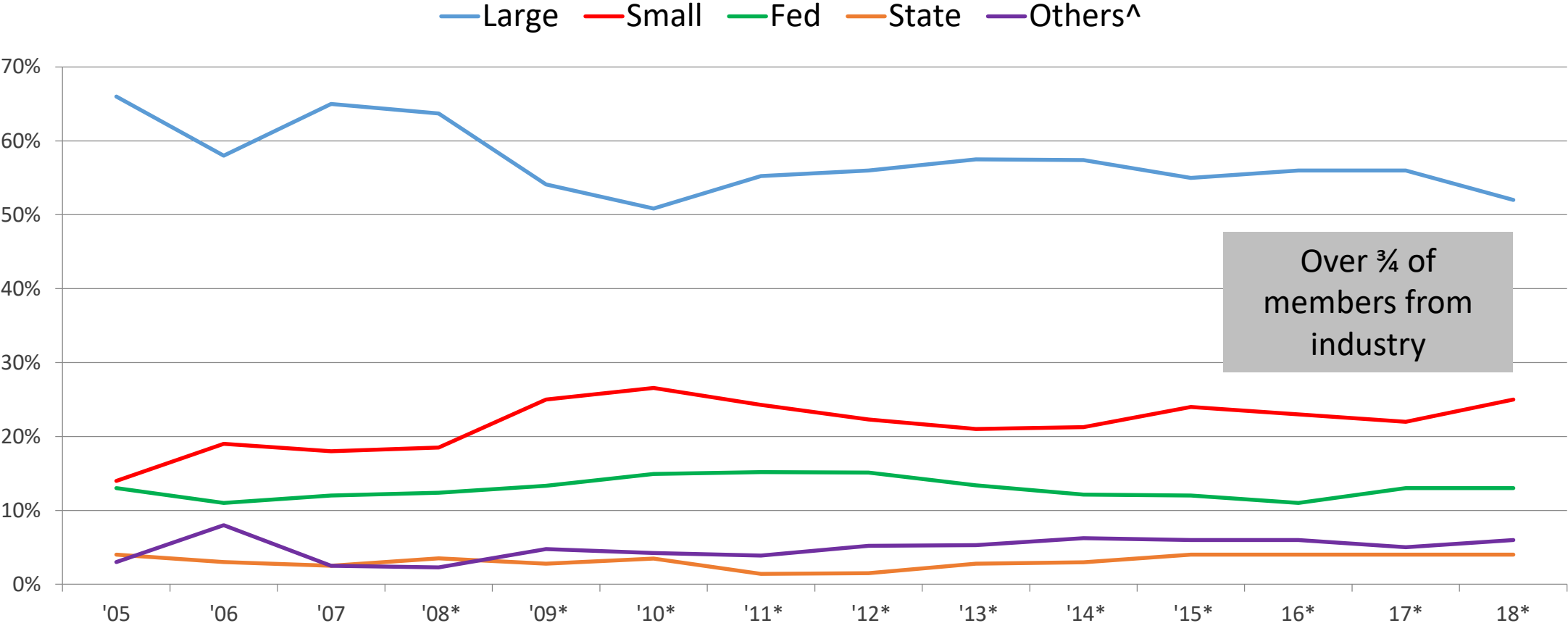
1995		2000		2005		2010		2017		2018	
N	Name	N	Name	N	Name	N	Name	N	Name	N	Name
10	Dow Chem.	10	Motorola	17	DoE	26	Army	23	Army	25	Army
9	DuPont	9	Army	13	Army	18	DoE	20	Air Force, NASA	20	Air Force, DoE
8	3M, Motorola, Ford, GM	8	Lucent Tech., DoE	10	Boeing	15	Lockheed Martin	15	DoE, Raytheon	15	NASA
7	GM	7	Boeing, IBM, Honeywell	8	Intel, Air Force	13	Boeing, NASA	13	Intel	14	DoD
6	Amoco, Boeing , Texas Inst.	6	Daimler Chrysler	7	Raytheon, HRL, DoD	11	Air Force	12	DoD, Lockheed Martin	12	Lockheed Martin, Raytheon
		5	Ford	6	Honeywell, Navy	10	GM, IBM	10	Huawei, Navy	11	Intel
				5	Dow Chem., Siemens	7	Intel, Raytheon	8	Cisco, Corning, DHS , Honda	10	Honda
						5	DoD, Navy	7	ERPI, IBM, NSA , Samsung, Weyerhaeuser	9	Navy
								5-6	Boeing , Ford Motor Company, Hancock Forest Management, Hewlett-Packard, Merck, Northrop Grumman , Qualcomm, Bayer, Campbell Global, Dell, DuPont, L3 , Rayonier, Toyota	5-8	Alphacore Inc., Boeing , Corning, Cisco, DHS , EPRI, Ford, Hewlett-Packard, Honeywell, Huawei, IBM, NSA , L3 Communications, Northrop Grumman , Samsung, Weyerhaeuser

Increased Defense / Defense Contractors

Overall Increase in Firms with Multiple Memberships

Dropped	Dow Chem., DuPont, 3M, GM, Amoco, Texas Inst., EPA, Navy	Motorola, LucentTech., IBM, Daimler Chrysler, Ford	HRL, Honeywell, Dow Chem., Siemens	GM	Hancock Forest Management, Merck, Qualcomm, Bayer, Campbell Global, Dell, DuPont, Rayonier, Toyota
New	Lucent Tech., IBM, Honeywell, Daimler Chrysler, DoD	Intel, Air Force, Raytheon, HRL Labs, Dow Chem., Siemens, Navy	Lockheed Martin, NASA, GM, IBM	Huawei, Cisco, Corning, Honda, DHS, ERPI, NSA, Samsung, Weyerhaeuser, Ford, Hancock Forest Mgmt., HP, Merck, North.Grumm., Qualcomm, Bayer, DuPont, Campbell Global, Dell, L3, Rayonier, Toyota	Alphacore Inc.

Member Composition 2005-2018*



Over 3/4 of members from industry

*Years Advanced Forestry excluded as a small business outlier: '08=36, '09=49, '10=57, '11=66, '12=71, '13=77, '14=86, '15=71, '16=70, '17 = 91, '18 = 53.

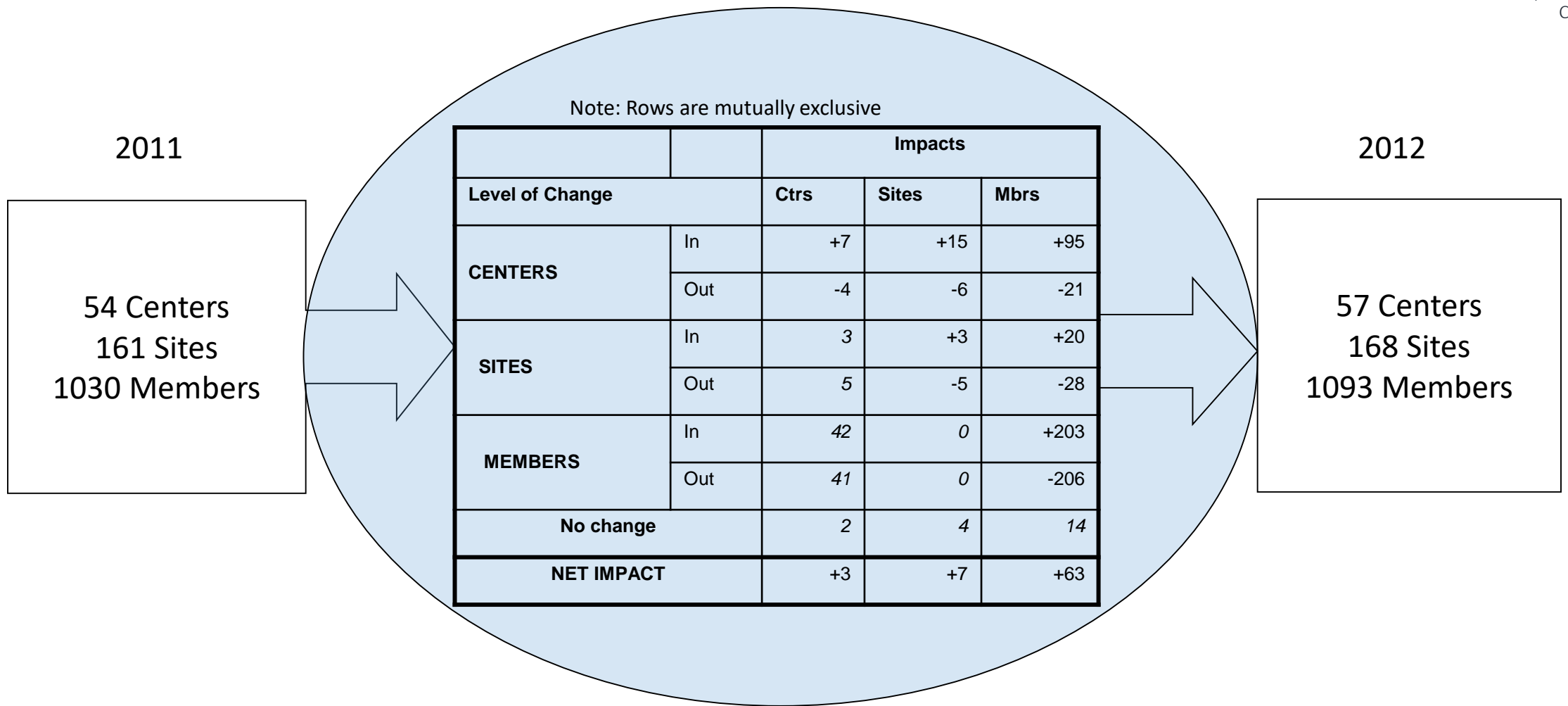
^ Categories comprising Others include: non-profit, non-US gov't, and other org.

Interpreting Membership Changes Over Time

Interpreting Membership Changes Over Time

- Changes in Membership numbers over time are influenced by changes at different levels:
 - Members: Individual members will leave a center and new members will be added
 - Centers: Mature centers will graduate (and their members will be dropped) and new centers will be created (and their members added)
 - Sites: New sites (and their members) are added to existing centers
- Changes in program totals and averages per center can be due to any combination of these factors

Example: 2012 IUCRC System Changes



2011

54 Centers
161 Sites
1030 Members

2012

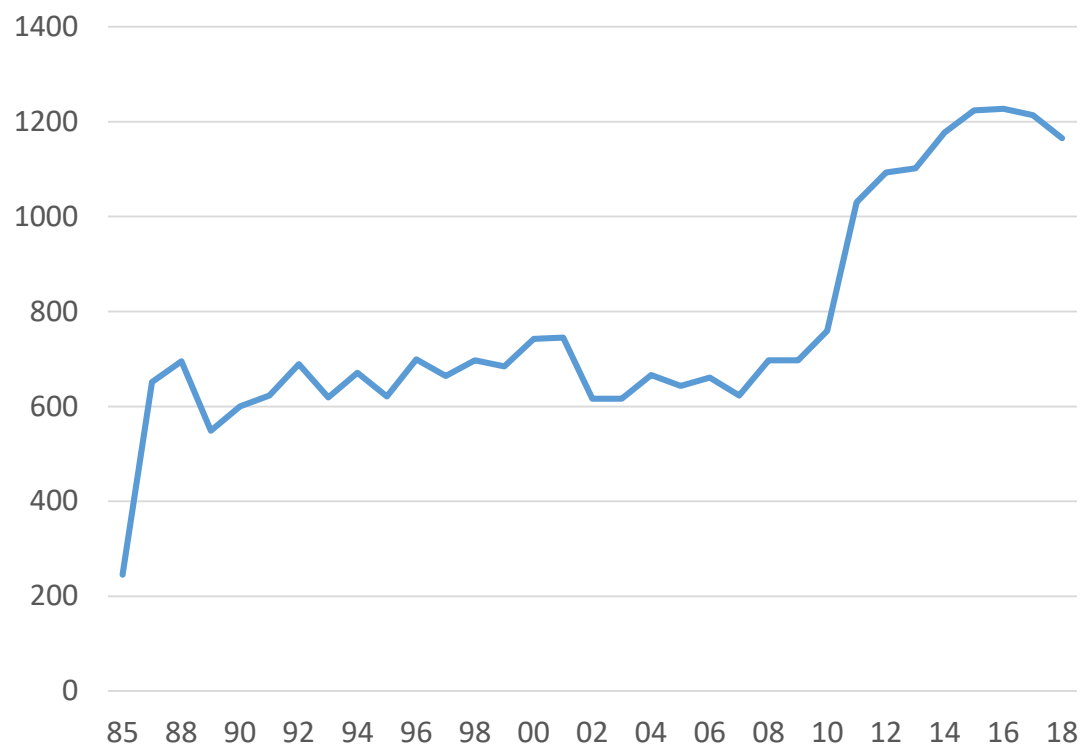
57 Centers
168 Sites
1093 Members

Membership Turnover Variables and Indicators

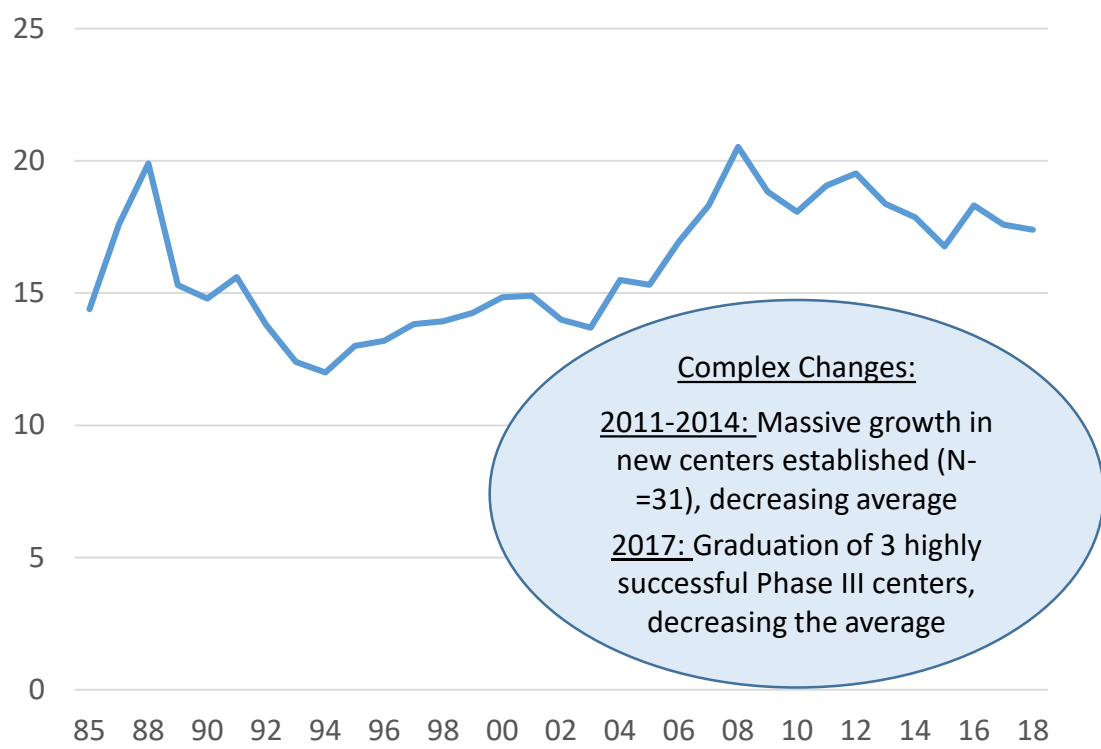
- **Members added:** number of members center reports adding during past year (may include new individual members or members from added site)
 - Does not include addition of new centers
- **Members left:** number of members a center reports leaving the center during past year (would only include site-level loss if site left center)
- **Member Net Gain/Loss:** the relative gain or loss of members (members added – members left) centers experience during each calendar year
- **Member Turnover:** percentage of a center's members from year x that leave the center the following year (year $x + 1$)
- **Aside:** Other membership indicators we've looked at:
 - Dwell time, turnover by center fidelity to IUCRC model, membership for single vs. multi-site centers, private vs public sector membership, fortune ranking of members, defense membership, phase based growth and retention, firms with multiple memberships, Chinese firm membership

Total Members and Average Memberships per Center by Year

Total Number of Memberships

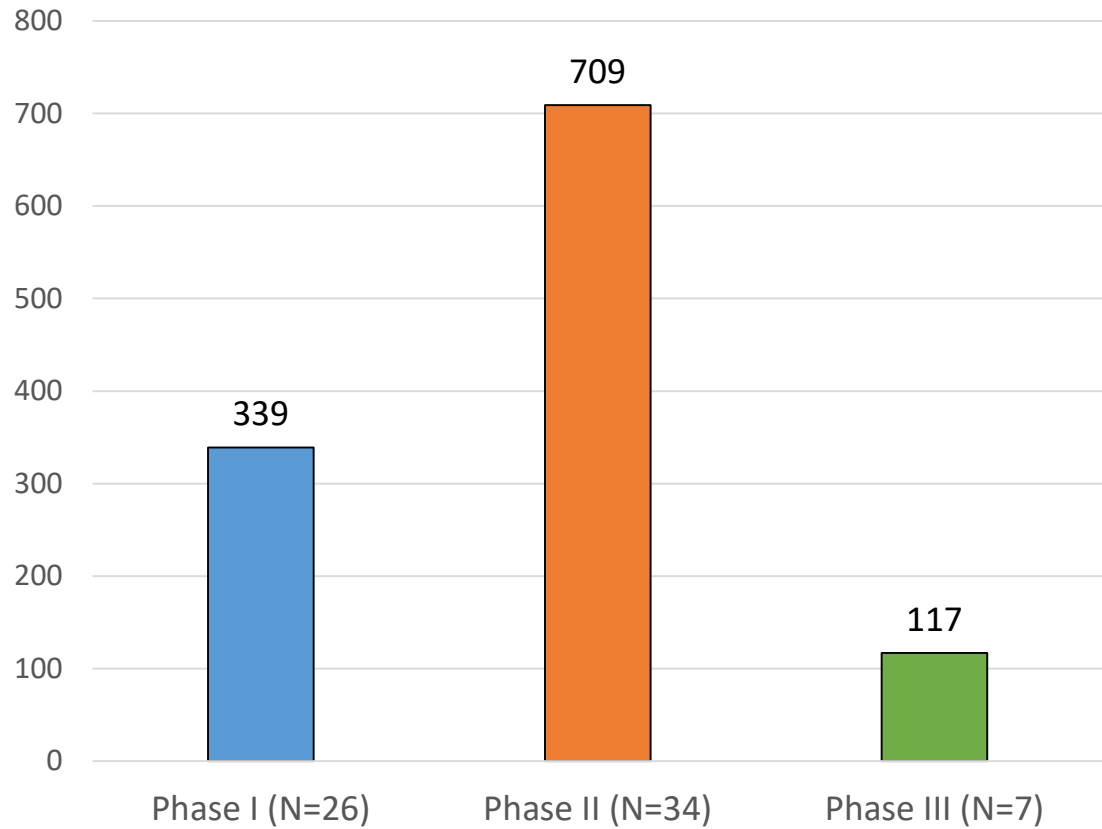


Avg. Number of Memberships per Center

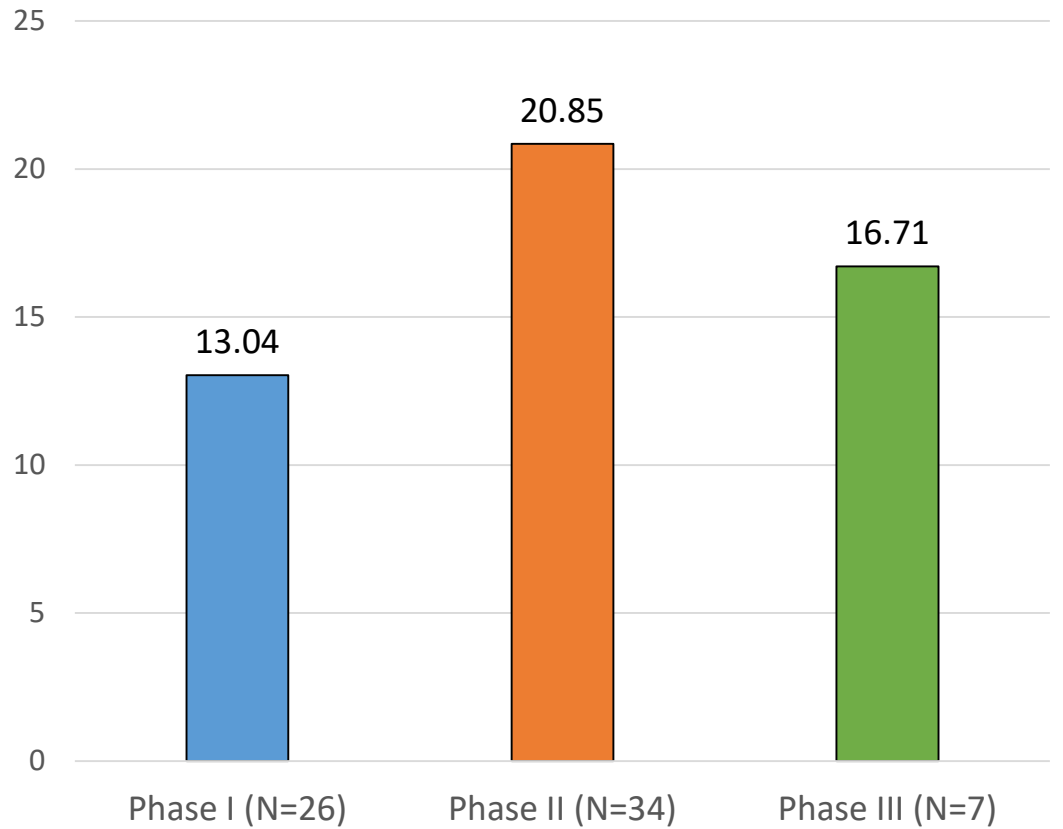


Industrial Memberships by Center Phase

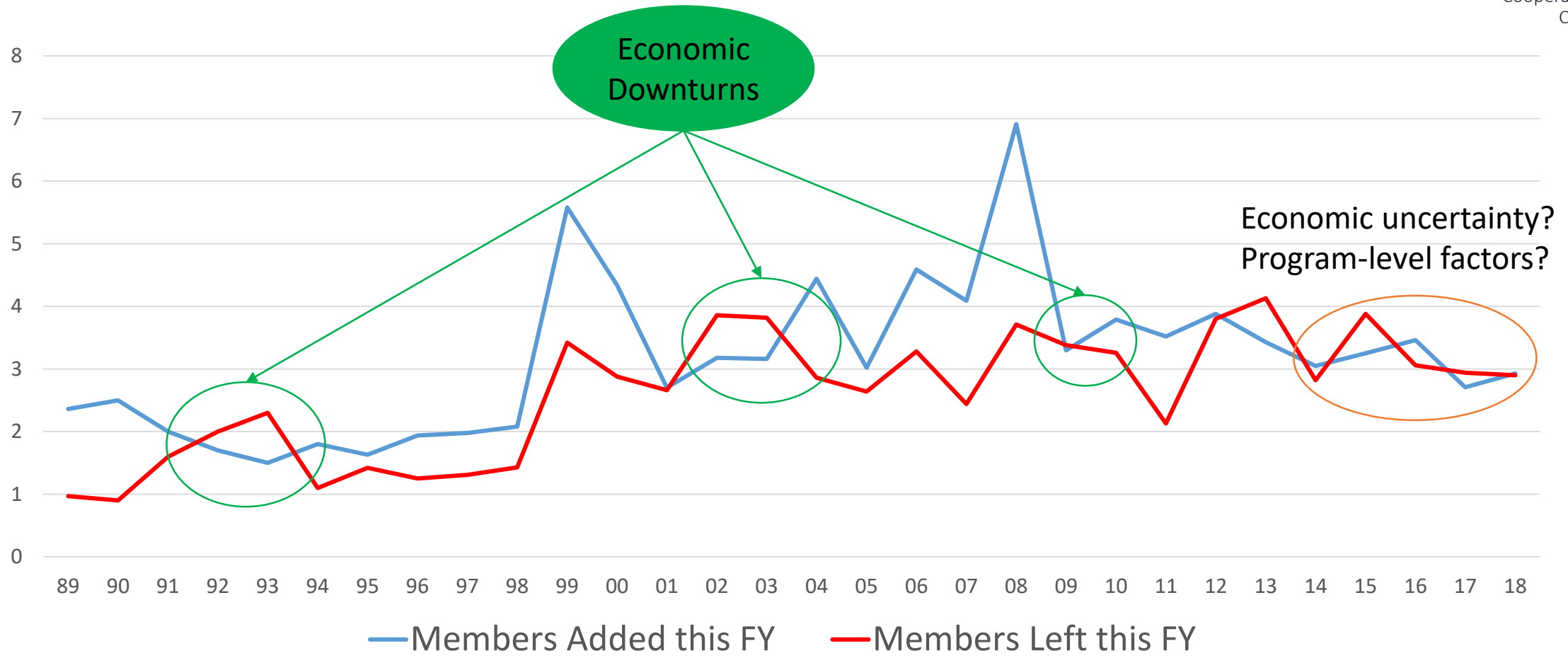
Total Number of Memberships



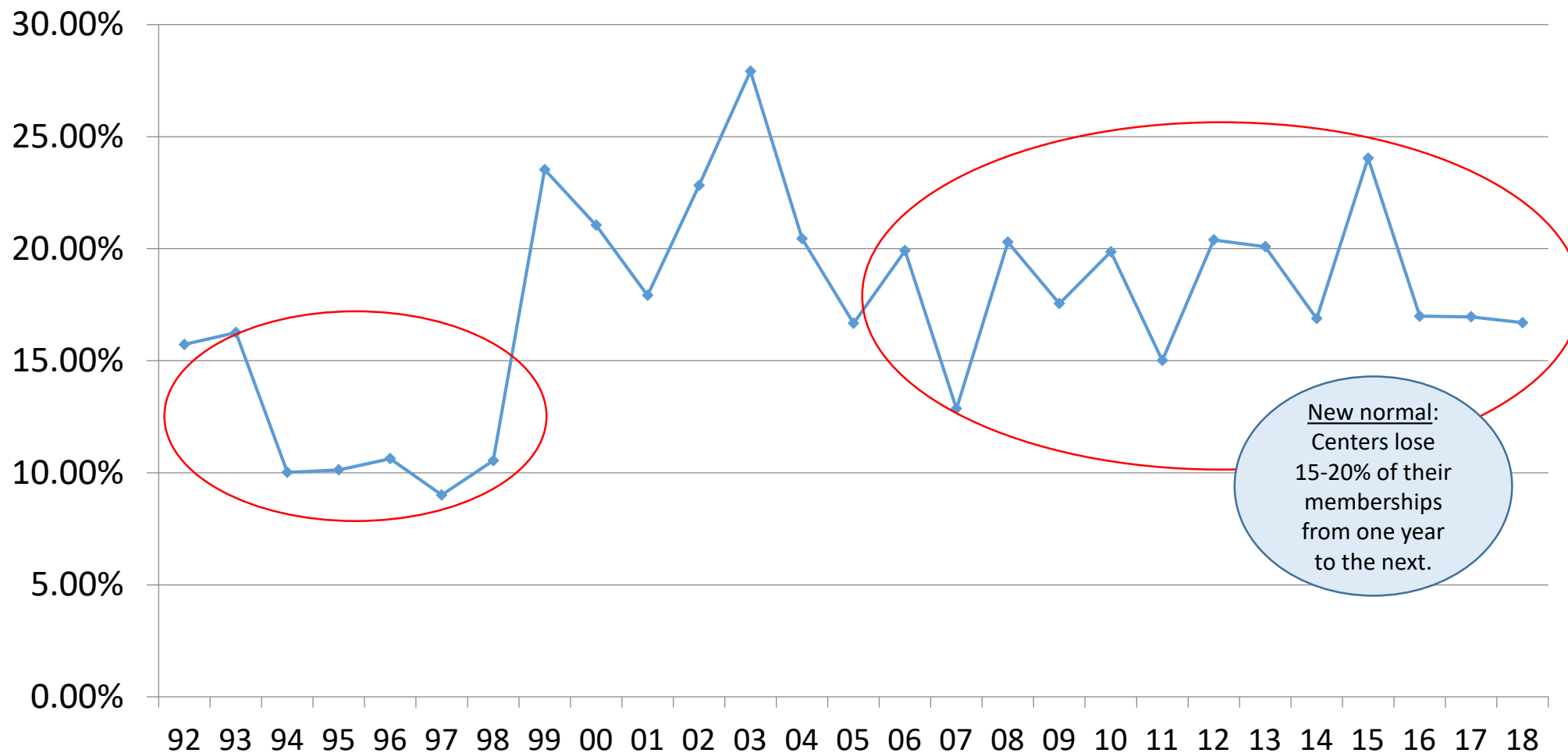
Average Number of Memberships



Average Membership Gain/Loss



Membership Turnover Rate



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

Conclusions: Turnover

- Membership growth and stability
 - Average number of members has been relatively stable, decreasing slightly, over the last 5 years; ~17 members/center
 - Member turnover rate is at a new normal of 15-20% over the last 10+ years
- Membership is dynamic
 - Program level picture positive based on continuous growth in new centers and sites
 - Most fluctuations attributable to initiation of Phase 3 funding opportunity and graduation of Phase 3 mega-centers
 - Membership picture is volatile
 - Causal factors are hard to pin down
 - Explanations may reside with center level variables like leadership, technology salience, as well as structural issues like the churn of old and new centers, site transitions, etc.
 - Useful both as a measure of overall program health and to benchmark center performance relative to program level norms