

Using Data for Decision: Beyond Retention and Graduation Rates toward Leading Indicators of Student Success



In God we trust,
everyone else must have data.

Goals

- Leading indicators of student success
 - What are they?
 - How do we know they are important?
 - What is the process to organize and analyze the data into meaningful information for practical use?
- Other types of data and their uses for monitoring progress towards graduation initiative goals

CSU Graduation Initiative

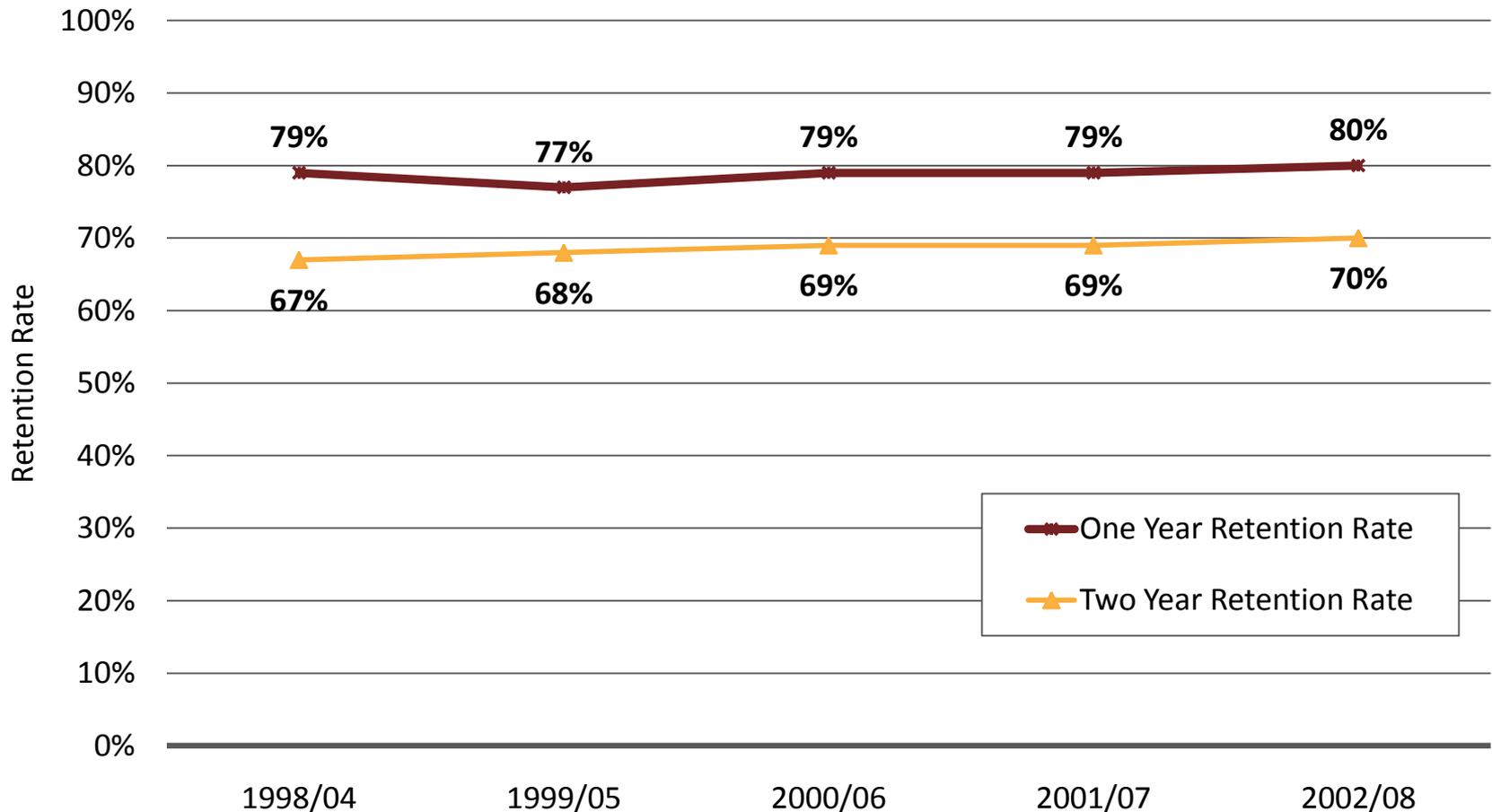
- Outcome to be achieved clearly articulated
- Campus plans identify activities to meet 2015 goals

What data do you have to tell if you are on track to your goals?

You can look at retention and
graduation rates ...

What does this tell you?

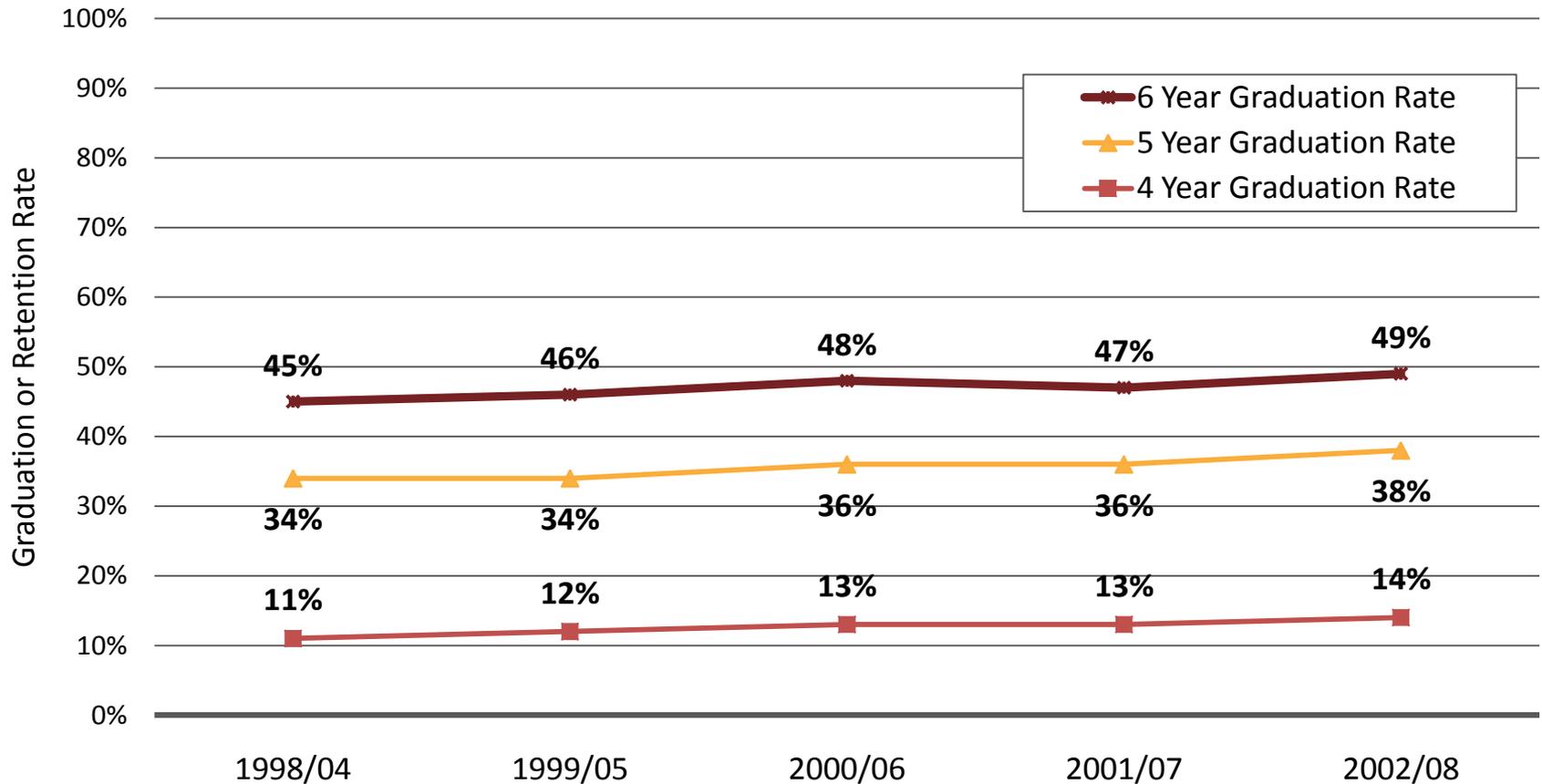
CSU System First and Second Year Retention Rates



Source: California State University, First-Time, Full Time Freshmen, 1975-2007

What does this tell you?

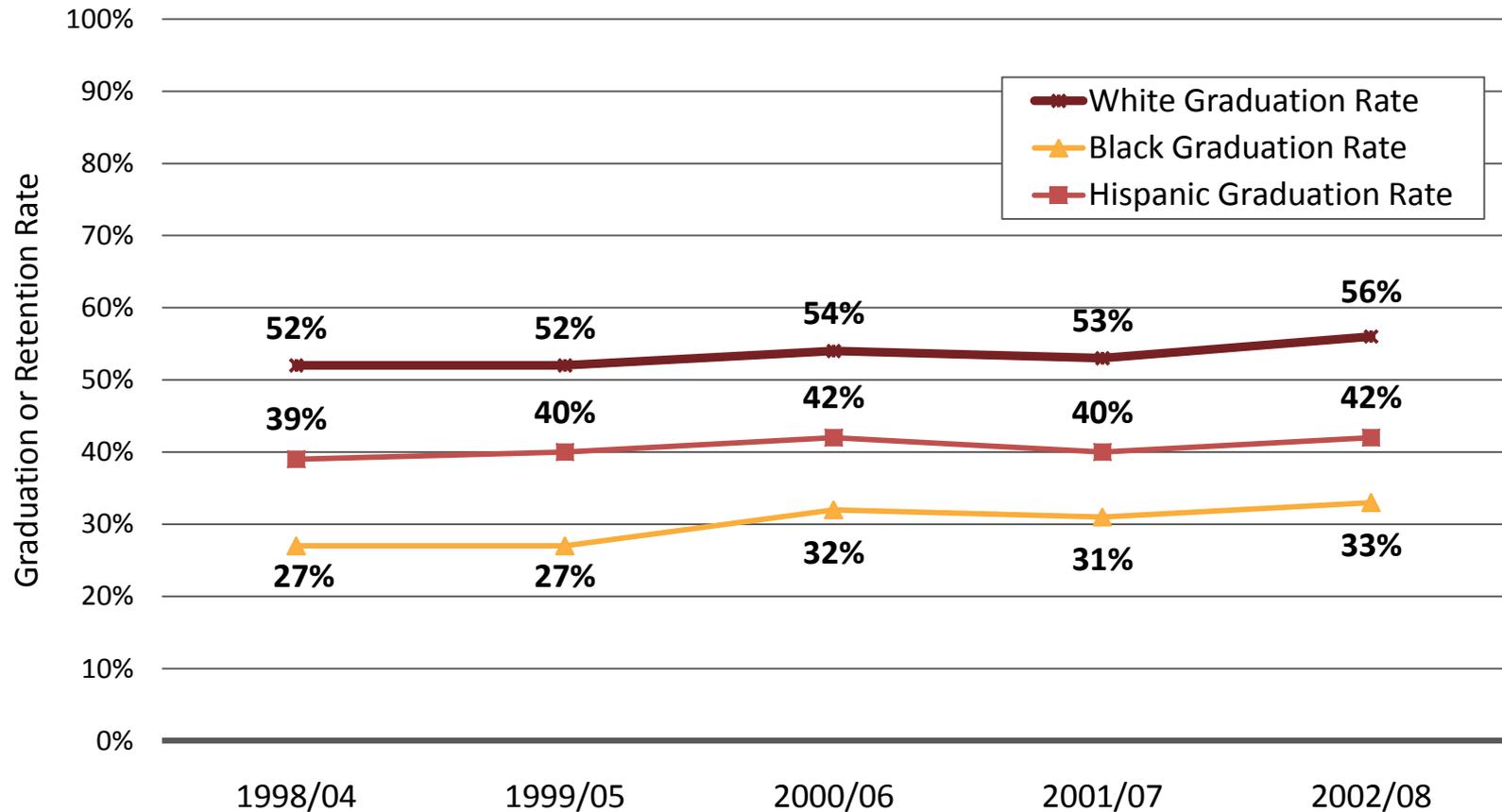
CSU System 4, 5, and 6 year Graduation Rates



Source: California State University, First-Time, Full Time Freshmen, 1975-2007

What does this tell you?

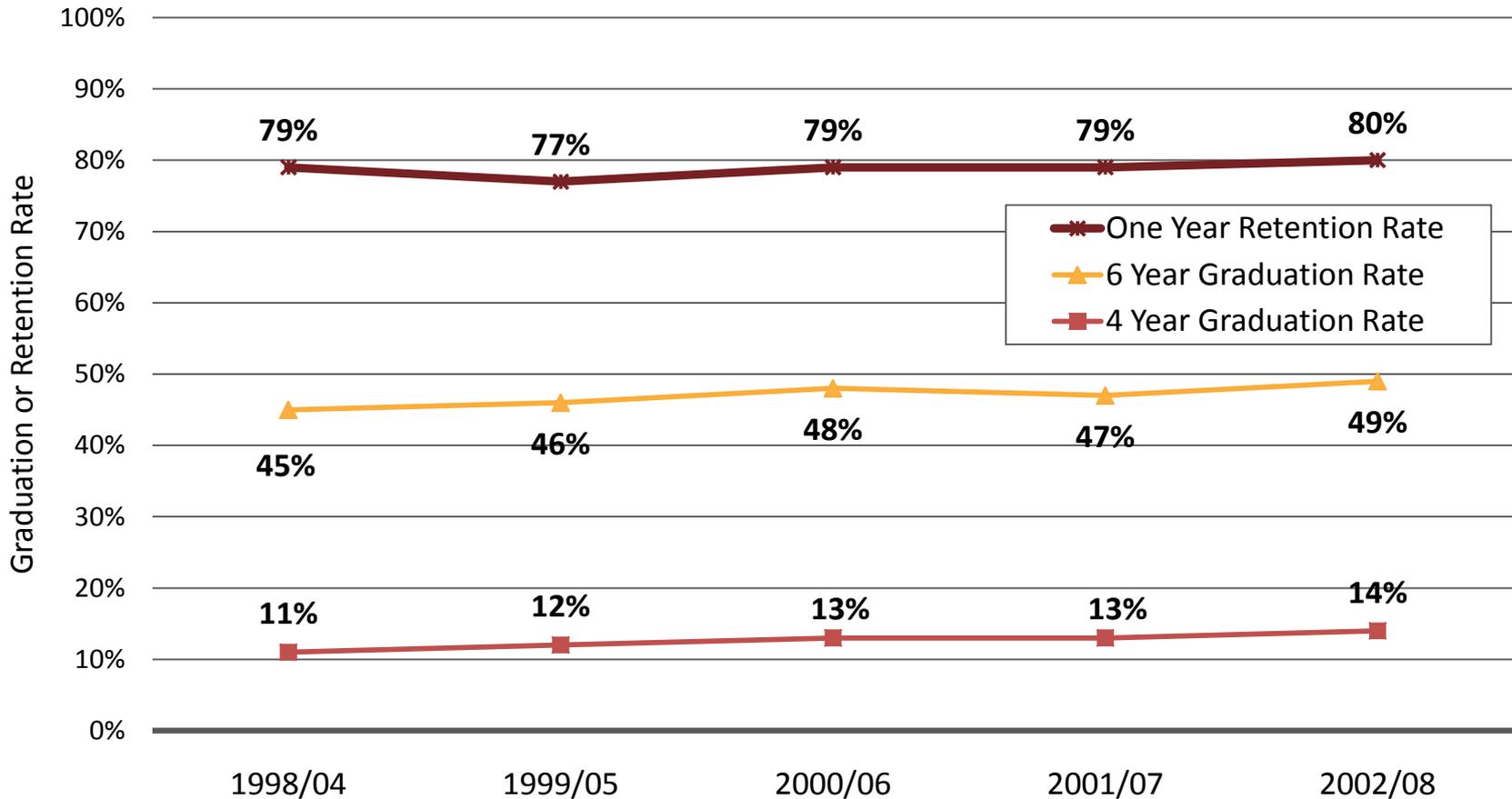
CSU System Graduation Rates by Race/Ethnicity



Source: California State University, First-Time, Full Time Freshmen, 1975-2007

What does this tell you?

CSU System Graduation and Retention Rates



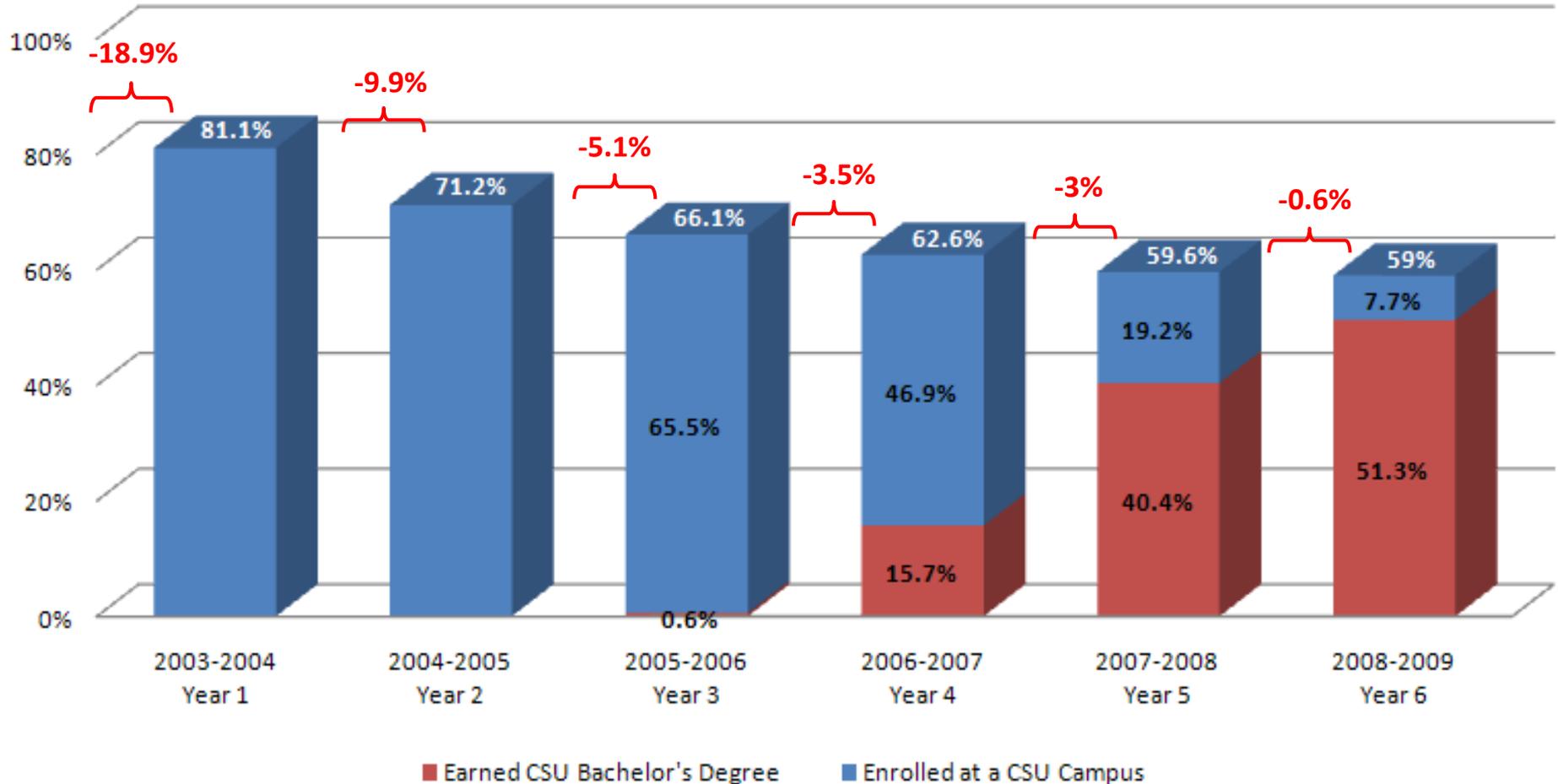
Source: California State University, First-Time, Full Time Freshmen, 1975-2007

This data tells a story, but it does not tell you why students fall off the path to degree completion or suggest specific practice and policy interventions.

Beyond Retention and Graduation Rates

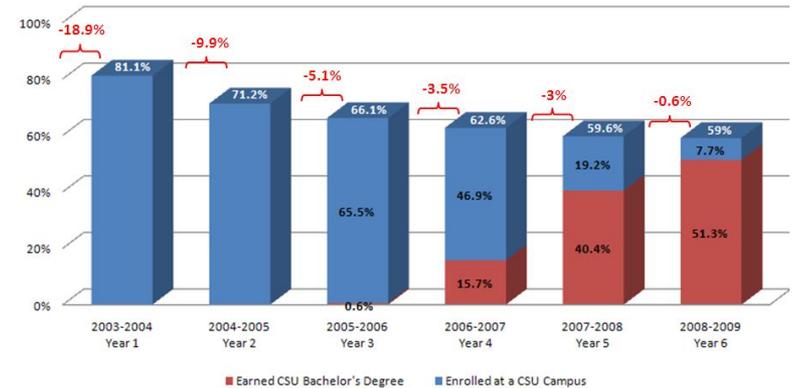
Step 1: Leaky Pipeline Analysis

CSU System 6-Year Full-Time Freshmen Graduation and Persistence Rates (2003-2009 Cohort)



Source: CSU System Data

Discussion Questions



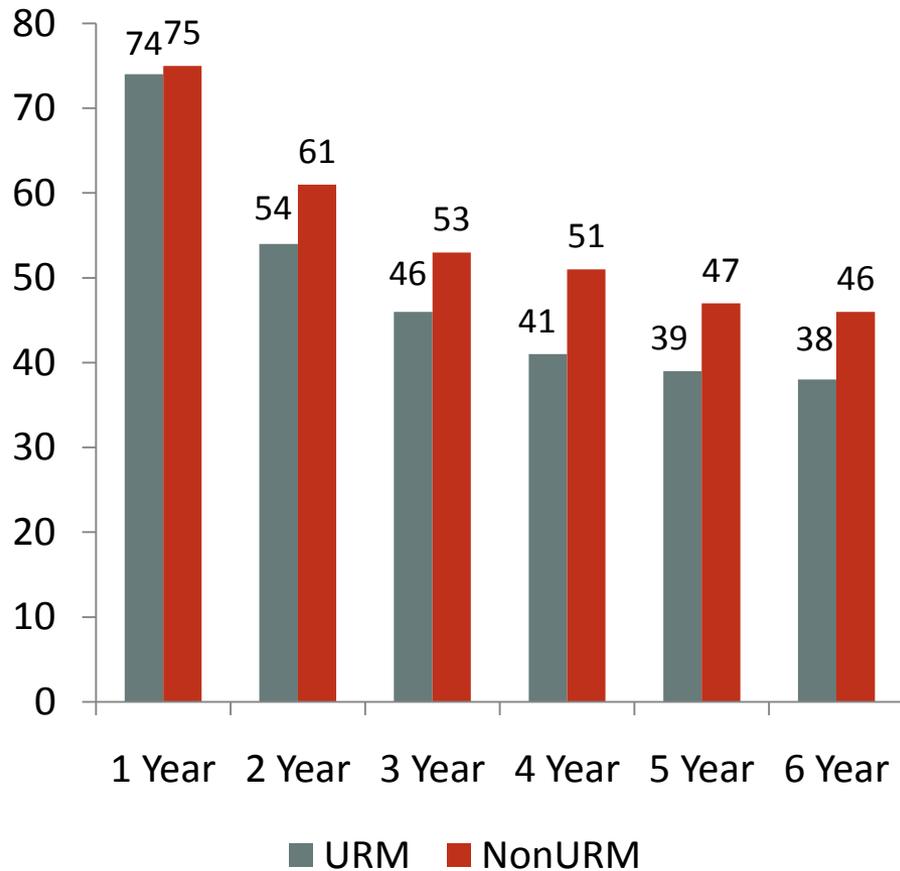
- Does anything surprise you about your campus graduation/persistence chart?
- What additional information do you need to understand and fix your leaky pipeline?

Other Questions to Ask about the Leaky Pipeline

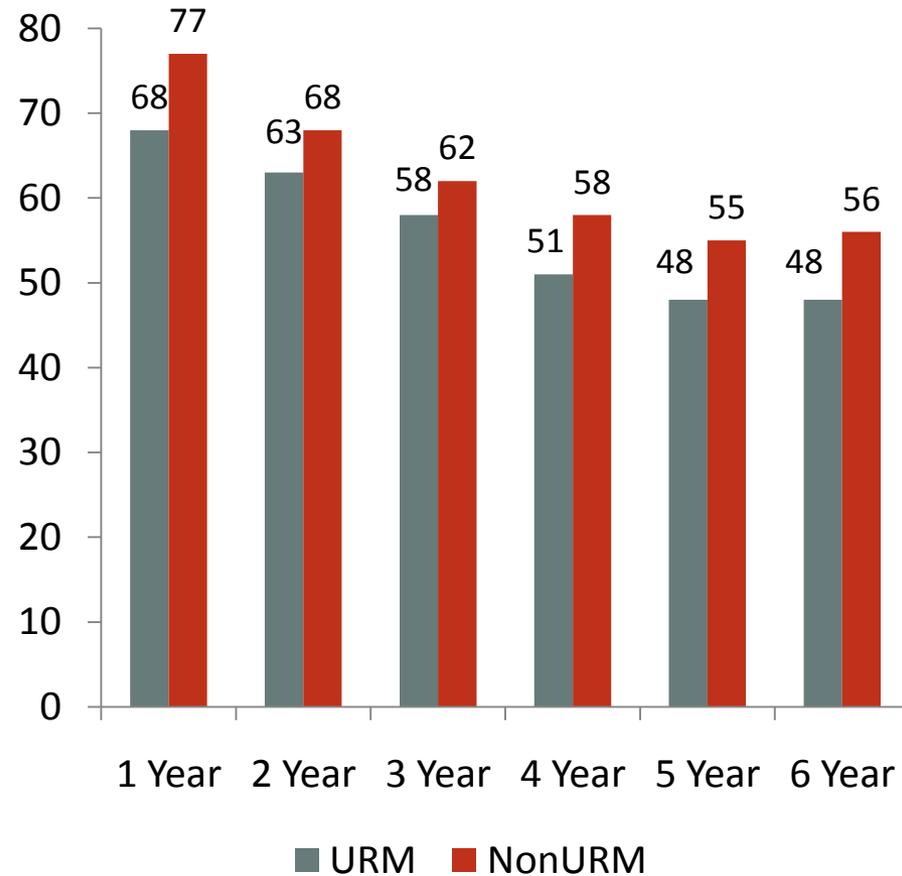
- Are the two biggest leaks in your pipeline the same for different groups of students, particularly groups with graduation gaps?
- Where do groups with gaps start to pull apart?
- Do certain groups do better right from the start?
- Do all groups start out equally but then certain groups drop out more over time?

6-Year Persistence Rates at Two CSU Campuses

Campus A



Campus B



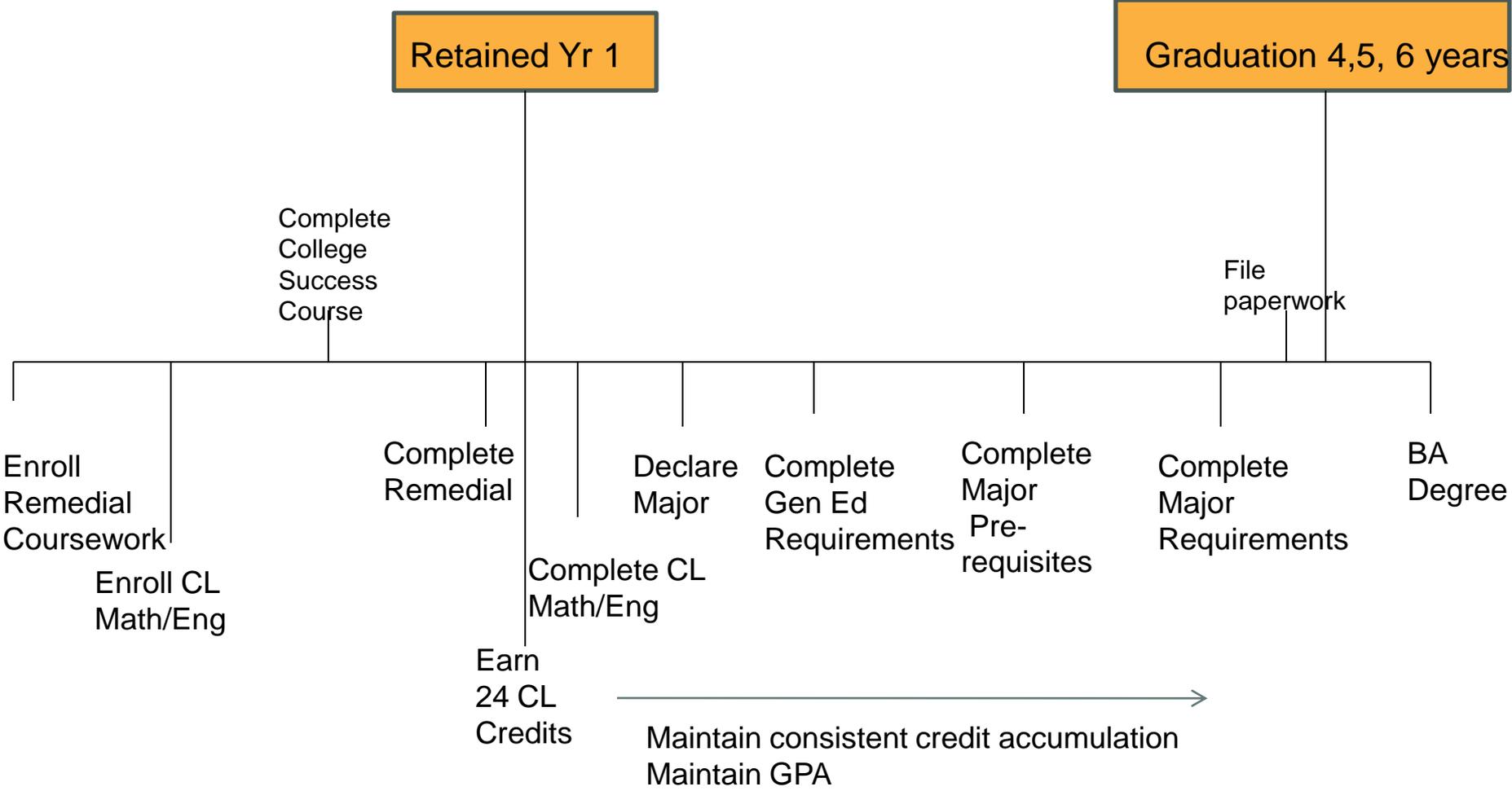
Beyond Retention and Graduation Rates

Step 2: Leading Indicators

Leading Indicators

- Outcome measures come back too late to inform decision making about programs, instruction
- LI are **early signals** of progress towards goals
 - Are campuses on the path towards producing results down the road for successive cohorts of students?

Milestone Events in Student Pathway to Completion



Key Characteristics of LI

- **Timely and actionable:** reported with enough time to change a course of action in order to improve lagging outcome
- **Benchmarked:** progress from baseline can be measured and evaluated
- **Powerful and predictive:** show progress or lack of progress toward outcome

Powerful and Predictive!

- Research shows that achievements during college provide momentum toward completion
 - Course participation
 - Student enrollment patterns
 - Course performance
 - Participation in support programs for new students

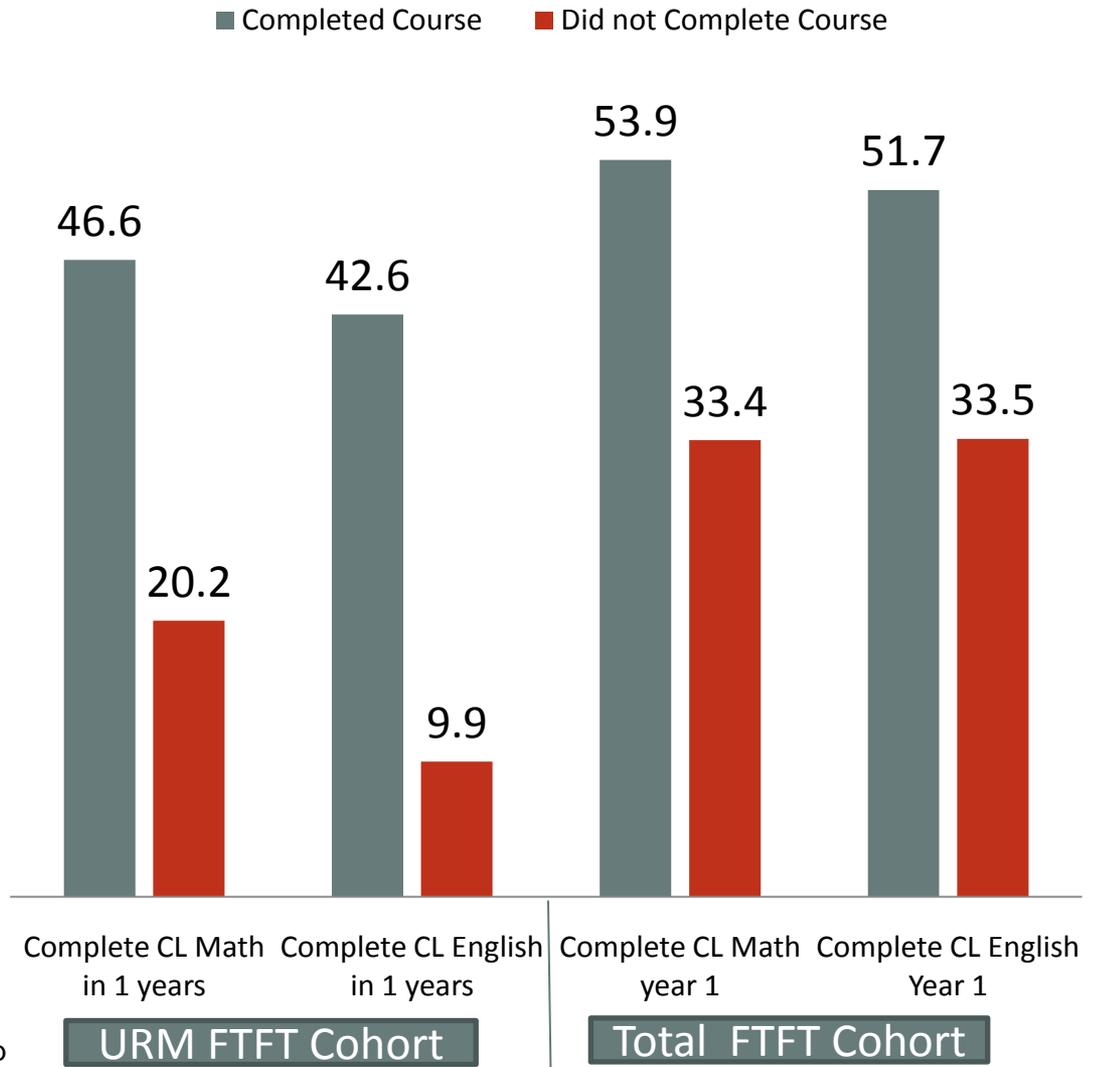
Probability of Completion Based on Completion of Gateway Courses

Course Participation

-Certain courses are required to progress to upper level courses:

-Indicators

- Remedial Coursework
- Gateway Courses
- General Education



Source: Access to Success Leading Indicators Workgroup

Student Enrollment Patterns

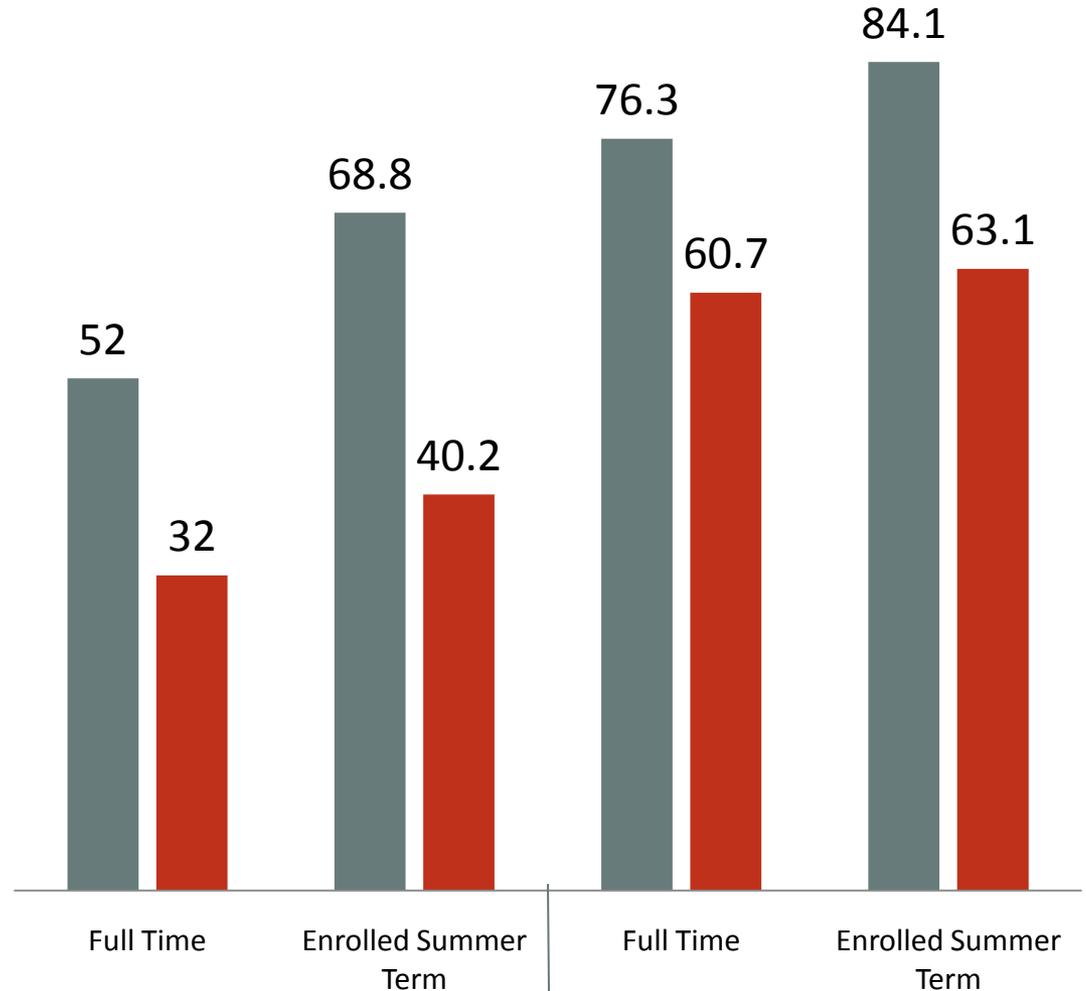
-Certain patterns lead to faster credit accumulation and provide momentum

-Indicators:

- Full Time
- Enroll Continuously
- Summer Term

Probability of Completion Based on Enrollment Indicators

■ Met Indicator ■ Did not Meet Indicator



CSU First Time Freshman

CSU Transfer Students

Probability of Completion Based on Credit Indicators

Course Performance

-behavior and outcomes associated with course participation

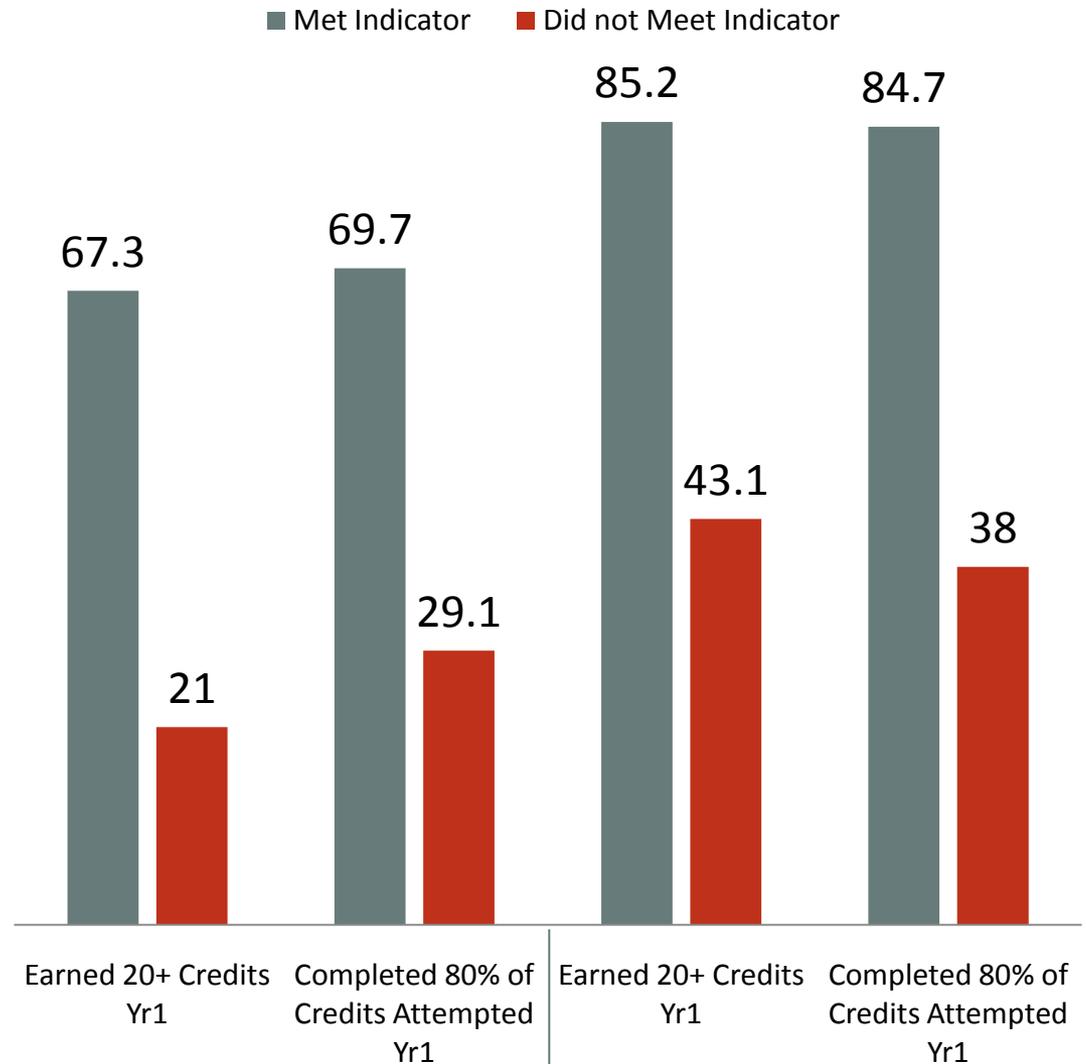
-Indicators:

Excessive withdrawal

Course completion ratio

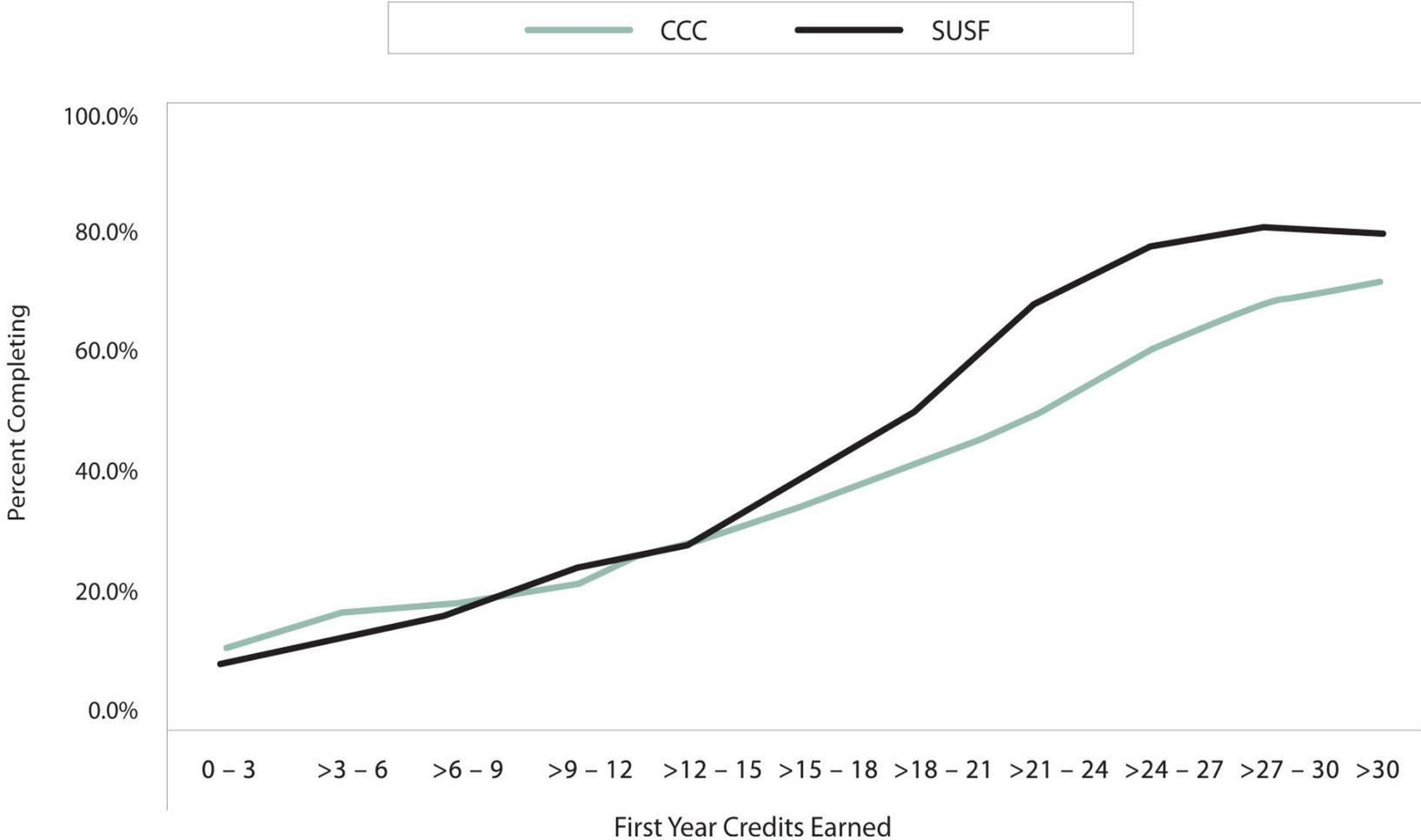
Credit accumulation

GPA



Source: Access to Success Leading Indicators Workgroup

Probability of Completion by First Year Credits Earned



Support Programs

- Participation in programs designed to provide early support and the necessary skills to negotiate campus life

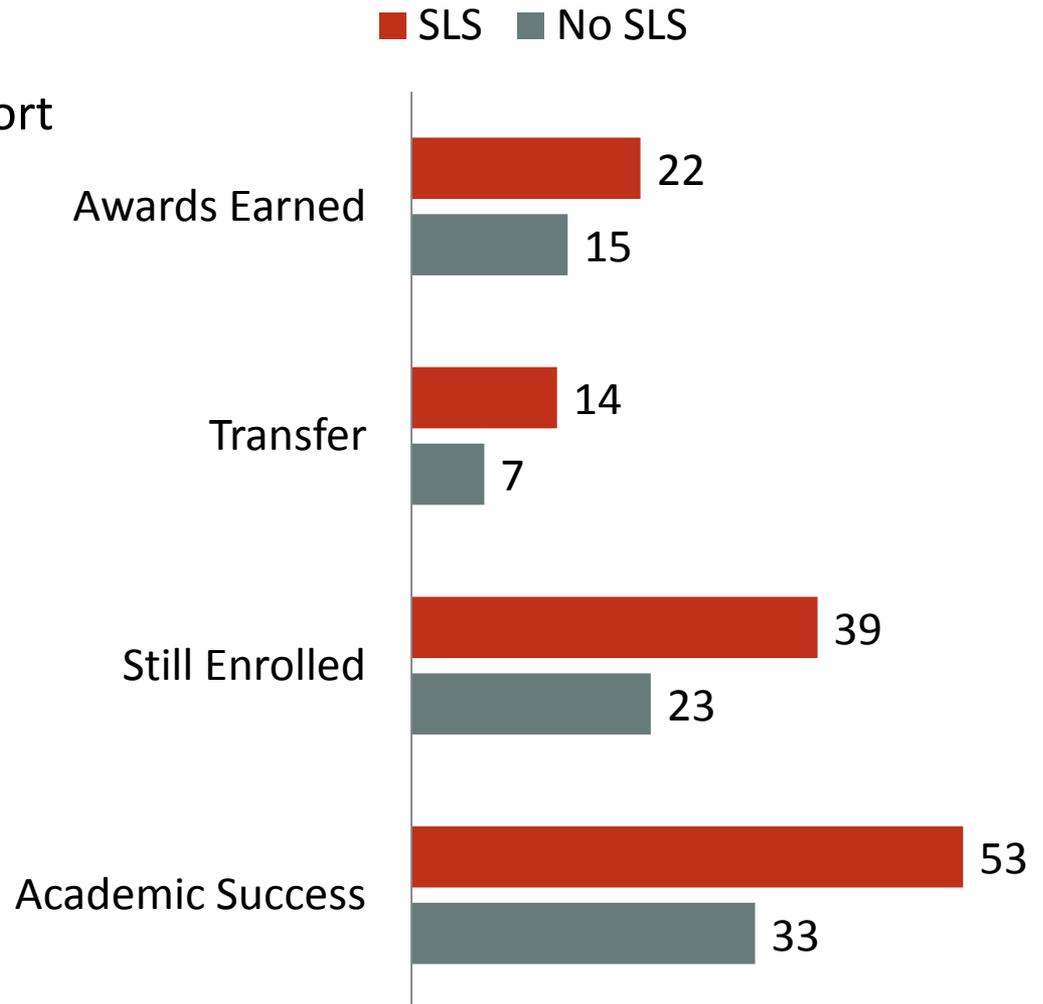
-Indicators:

First Year Experience Programs

Orientation Courses

Learning Communities

Percentage of Remedial Students Who Succeeded After Five Years



A2S Leading Indicators Workgroup

Purpose

To test the predictive power of the leading indicators.

Participants

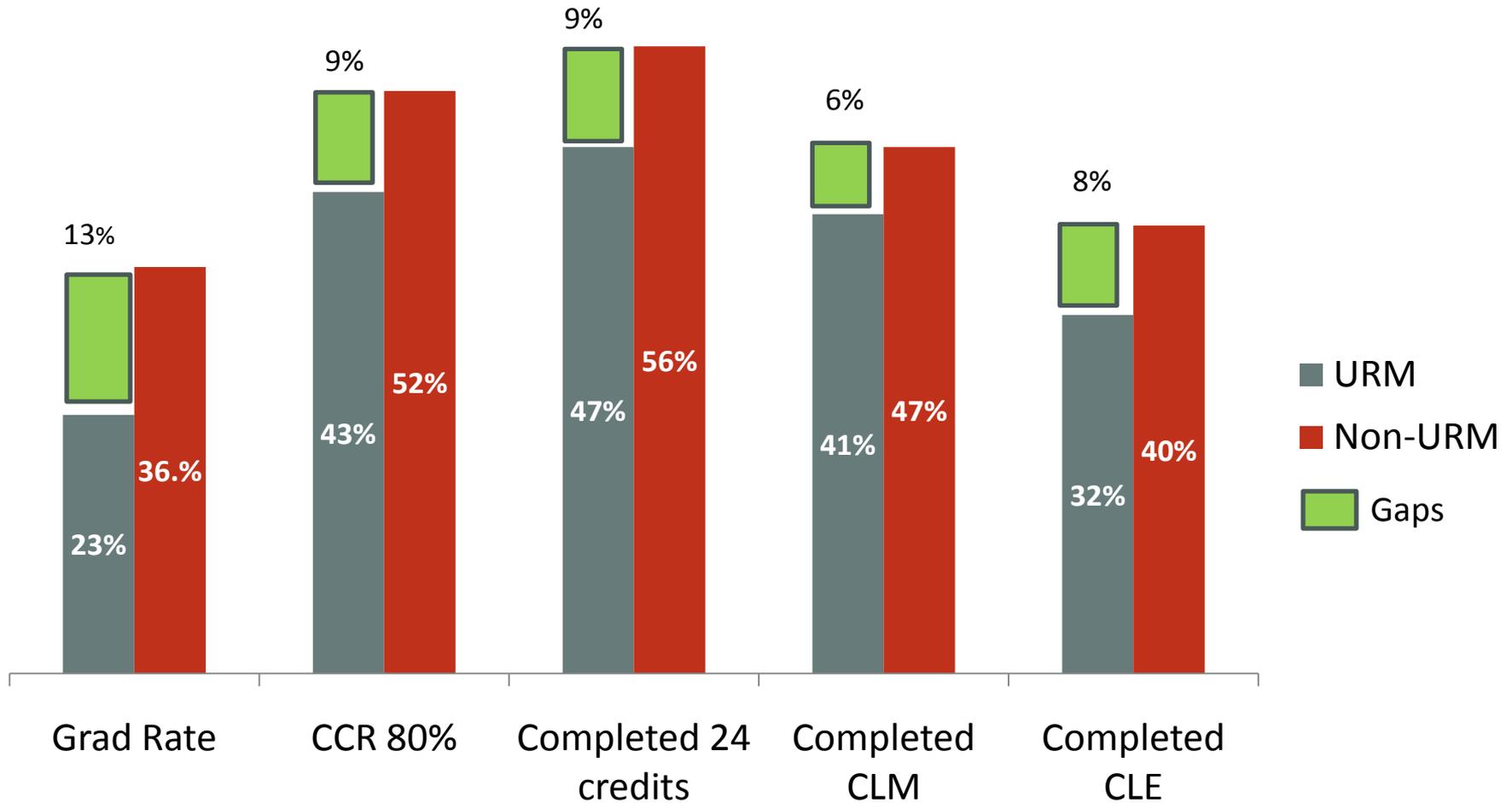
City University of New York • University of Hawaii System •
Louisiana Board of Regents • University of Louisiana System •
Minnesota State Colleges and Universities • Tennessee Board of Regents •
Vermont State Colleges • University of Wisconsin System

Outcomes

Achieving the milestone/indicator increased the likelihood of graduation for all student subgroups tested.

Leading indicators statistically improve predicted probabilities of completion beyond student background characteristics.

Reaching on-track indicators narrows race graduation gaps



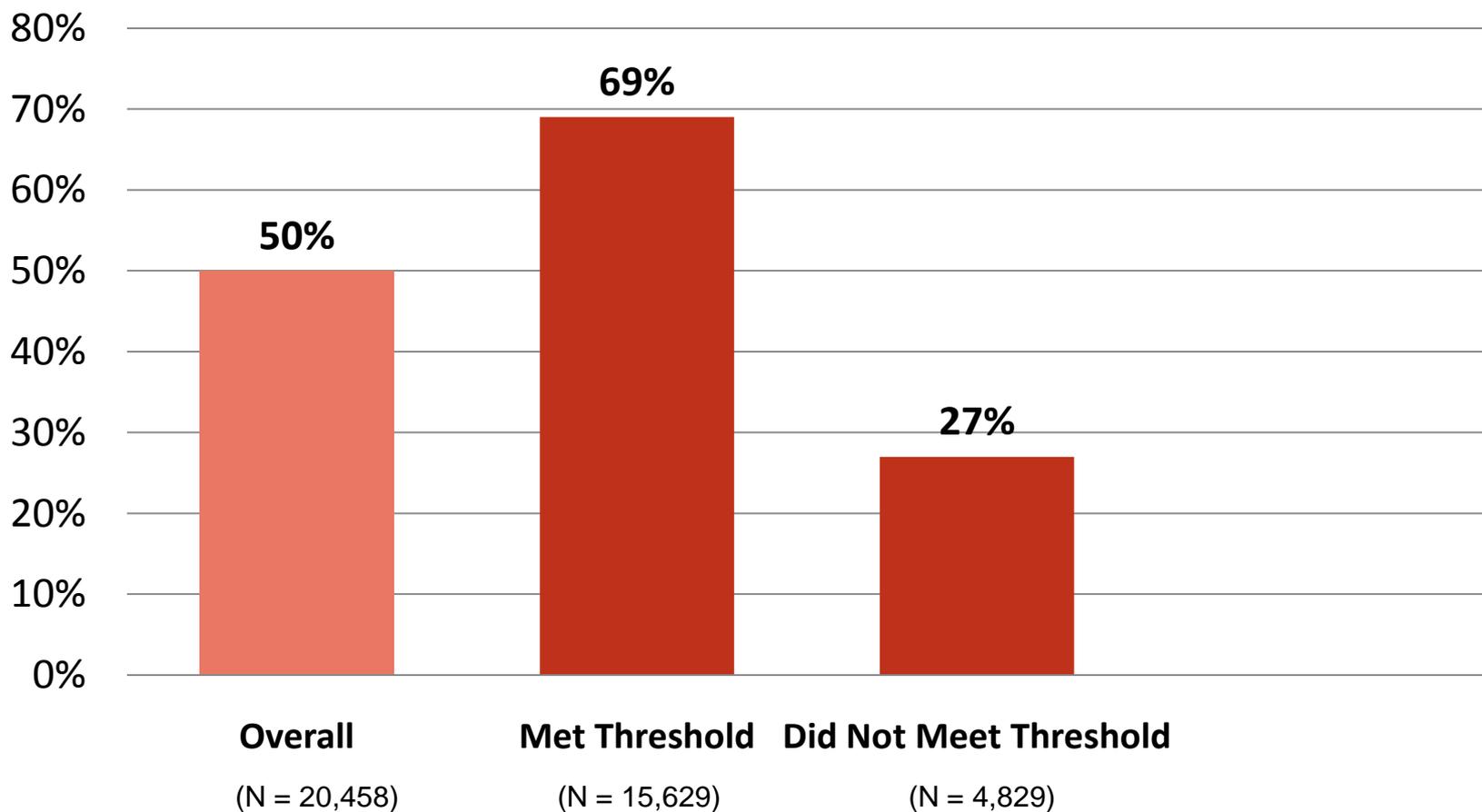
Beyond Retention and Graduation Rates

Activity 1:

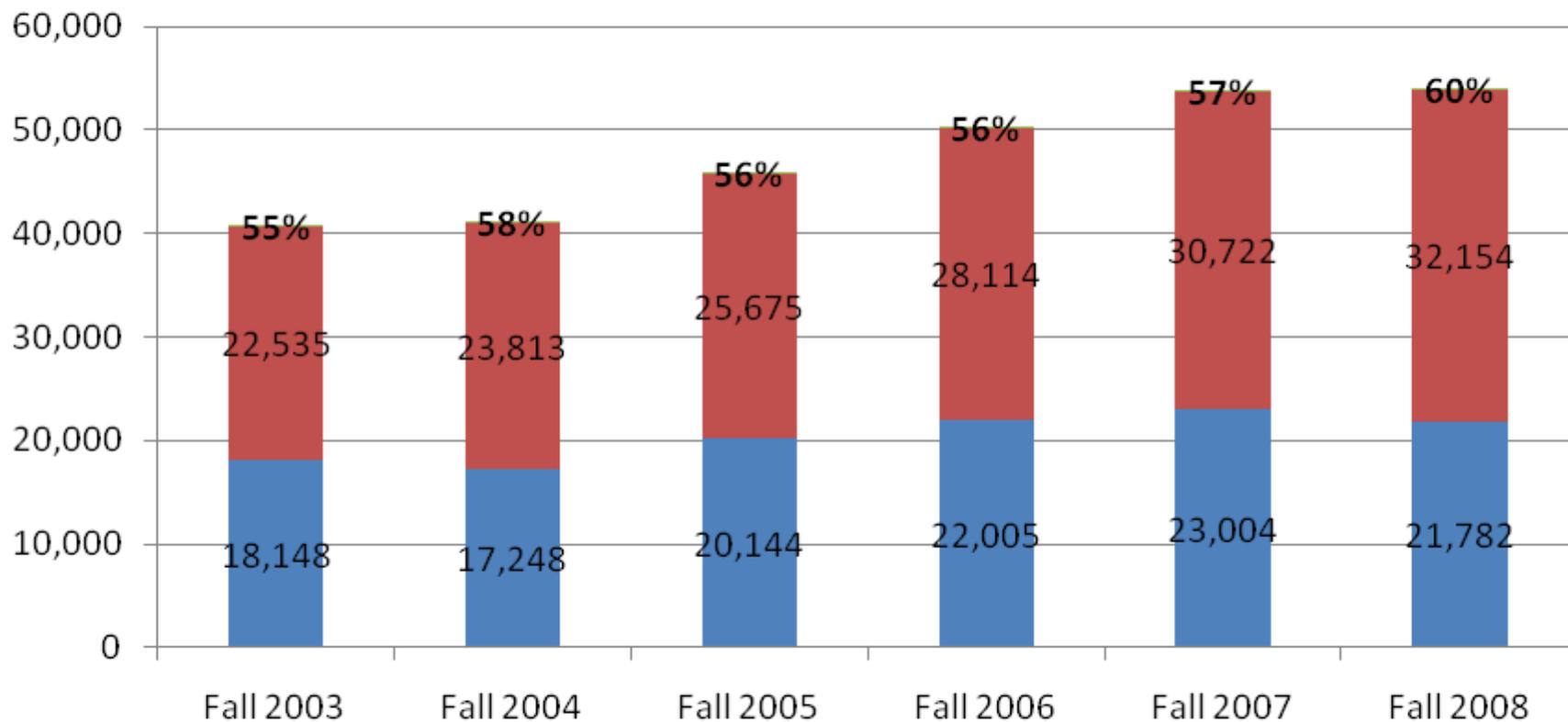
Leading Indicators on Your Campus:
Credit Accumulation
and Undeclared Majors

CSU 6-year Graduation Rate of the Fall 2003 First-Time Freshmen and Number of Degree Recipients - All Those who Met the Threshold and Those who did Not

Graduation Rates

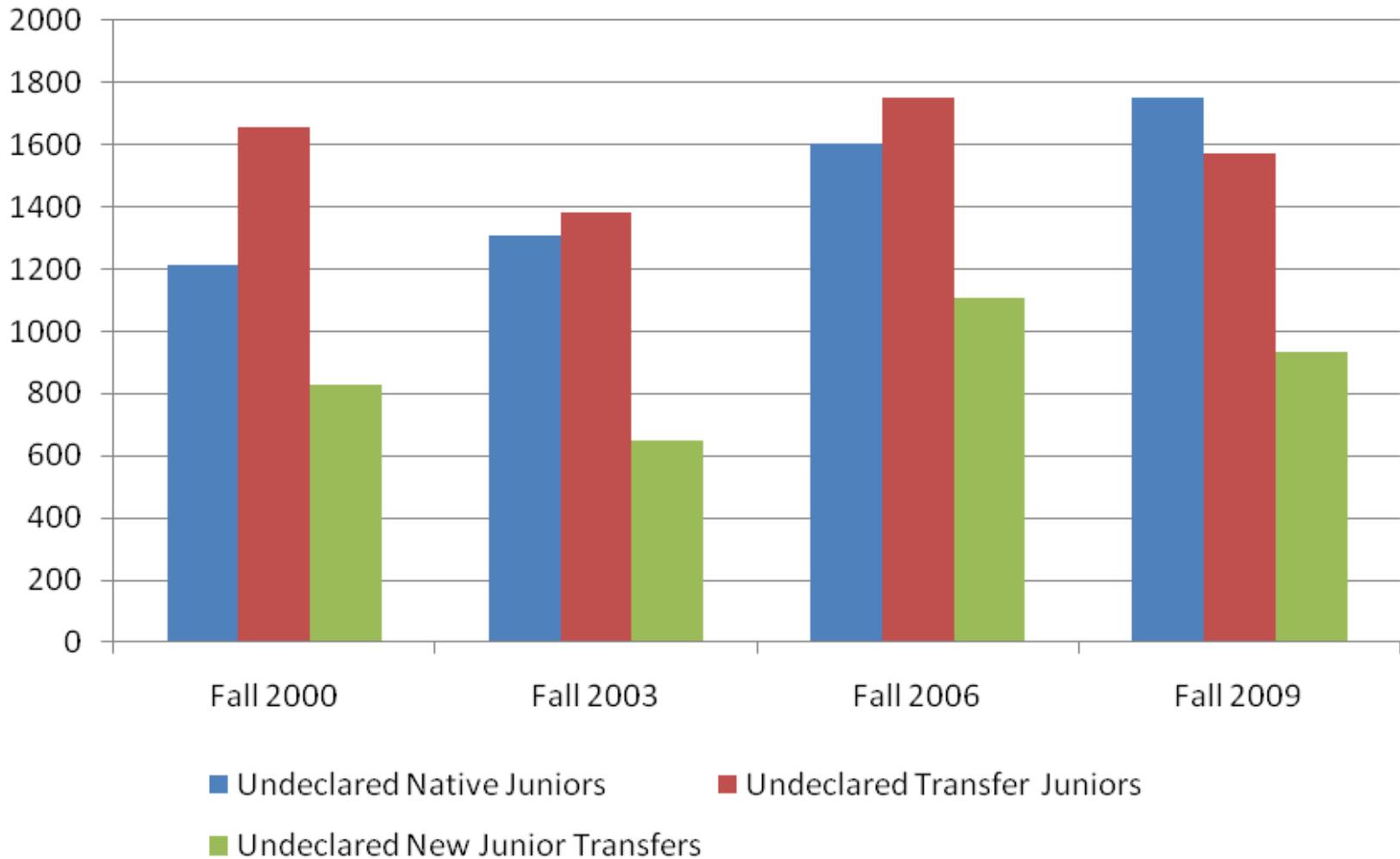


CSU Freshmen who Did and Did Not Earn 24 Semester/36 Quarter Units in the First Year

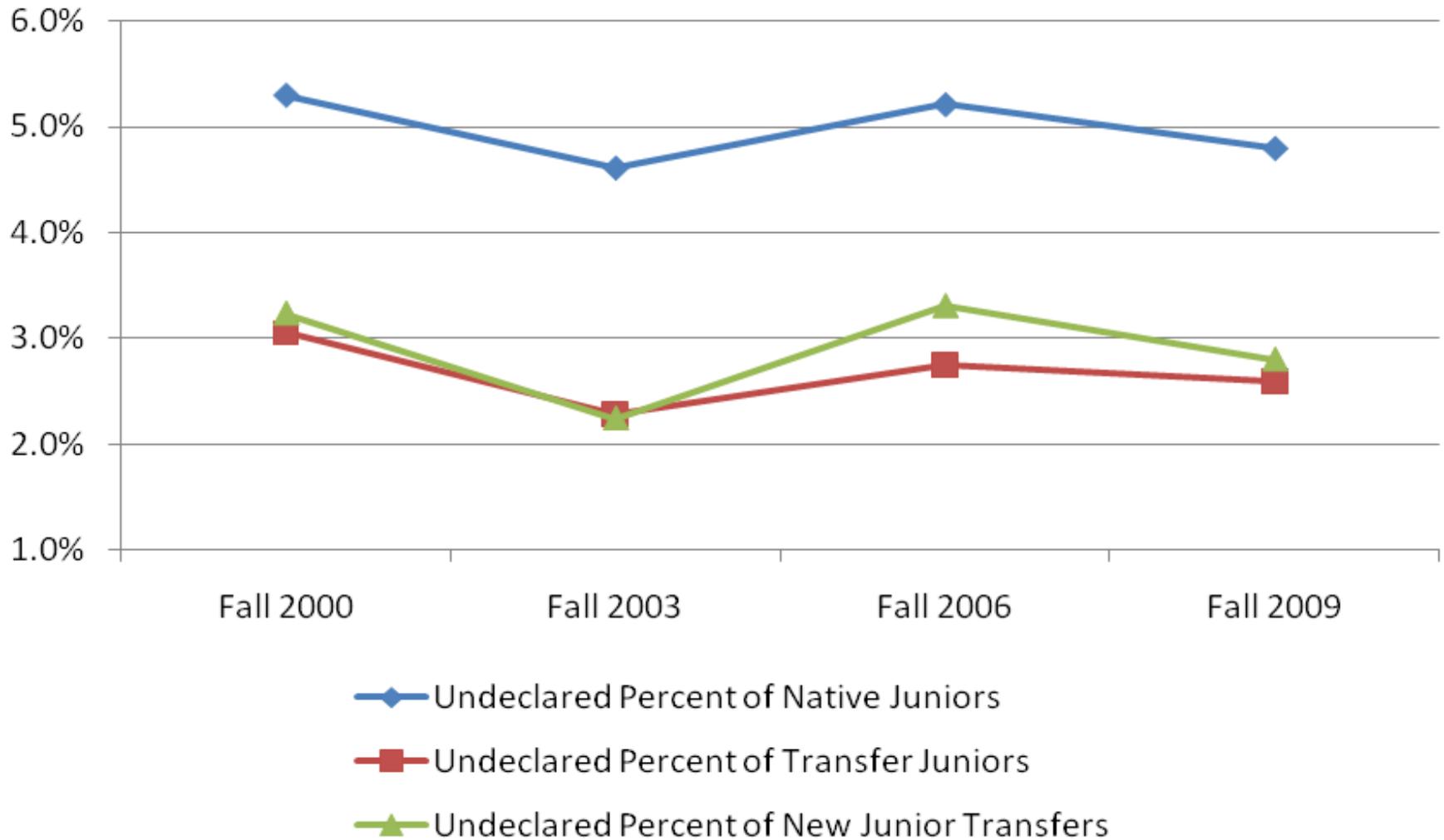


■ Freshmen who Did Not Meet the Threshold
 ■ Freshmen who Met Threshold
■ % who Met Threshold

Number of Undeclared Juniors in CSU System -- Native, Transfer, New Transfer



Undeclared Percent of Juniors in CSU System-- Native, Transfer, New Transfer



Questions to Ask About Leading Indicators

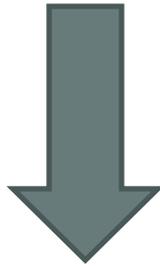
- How do the leading indicators compare to your yearly retention and graduation rates?
- Do these leading indicators help explain the leaks in your pipeline?

Can you do these analyses for your campus?

- Data availability
 - Where stored?
 - Defining the indicators from raw data
- What cohorts of students are important to disaggregate
- Capacity to work with and translate raw data into usable/consumable format
- Once you have the data, what is the best communication approach

First Round of Analysis

- Identify students who need help



- Identify institutional weaknesses; where are groups of students losing momentum

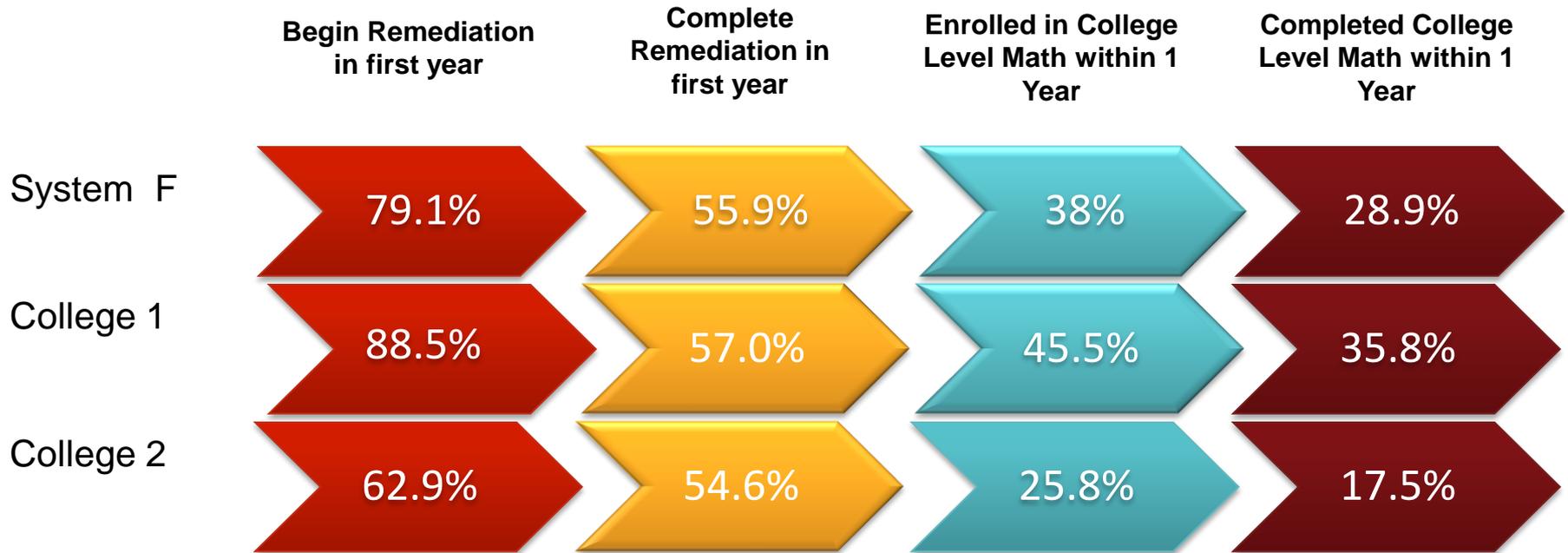


One Question Our LI Workgroup Asked About Remedial Students Was:

What are the most significant drop-off points in the remedial to college-level course pipeline in math?



Students progress through the remedial pipeline at different rates in different institutions in this system

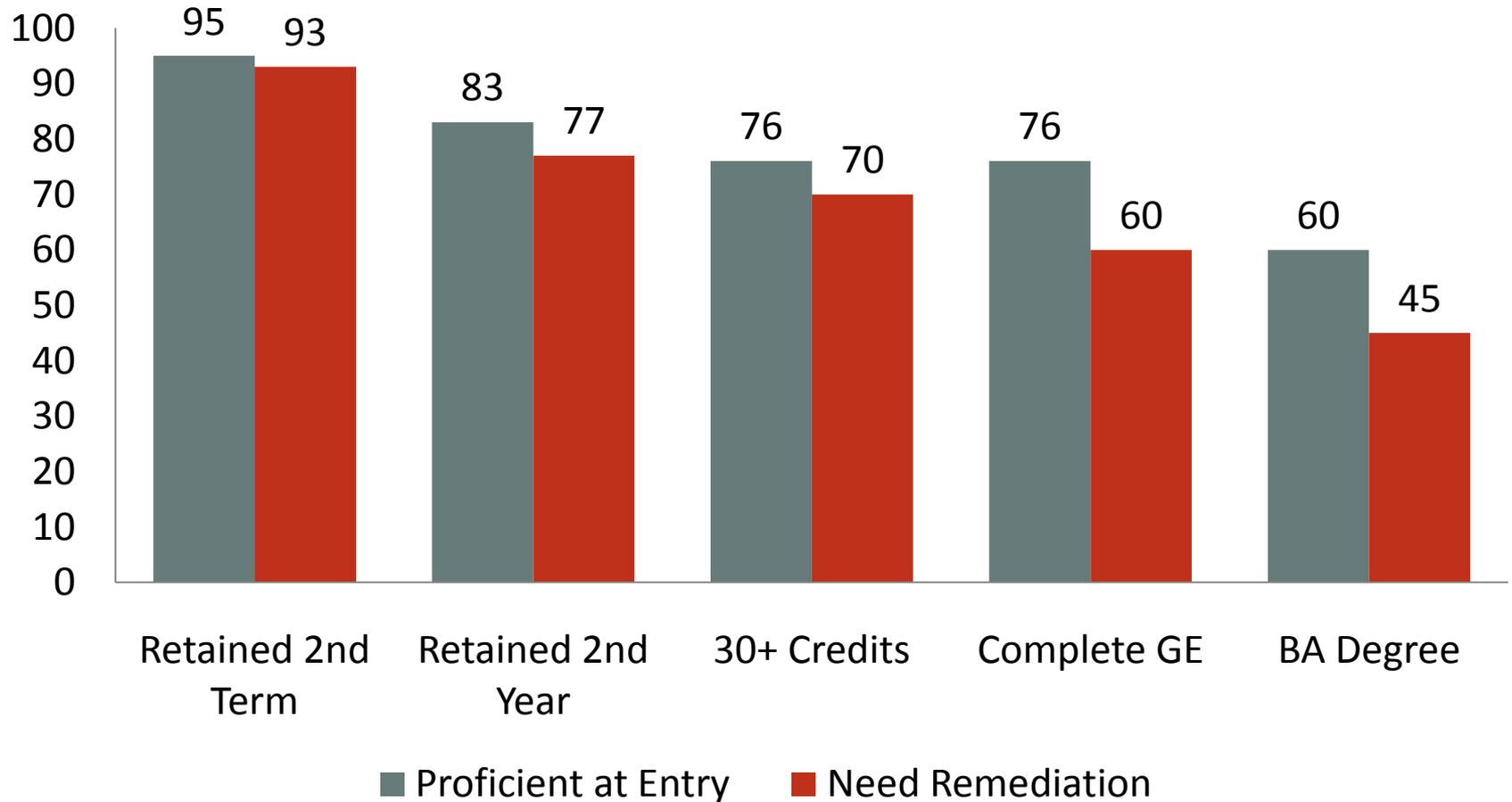


Look at Trends Between Groups and Over Time

Questions to ask:

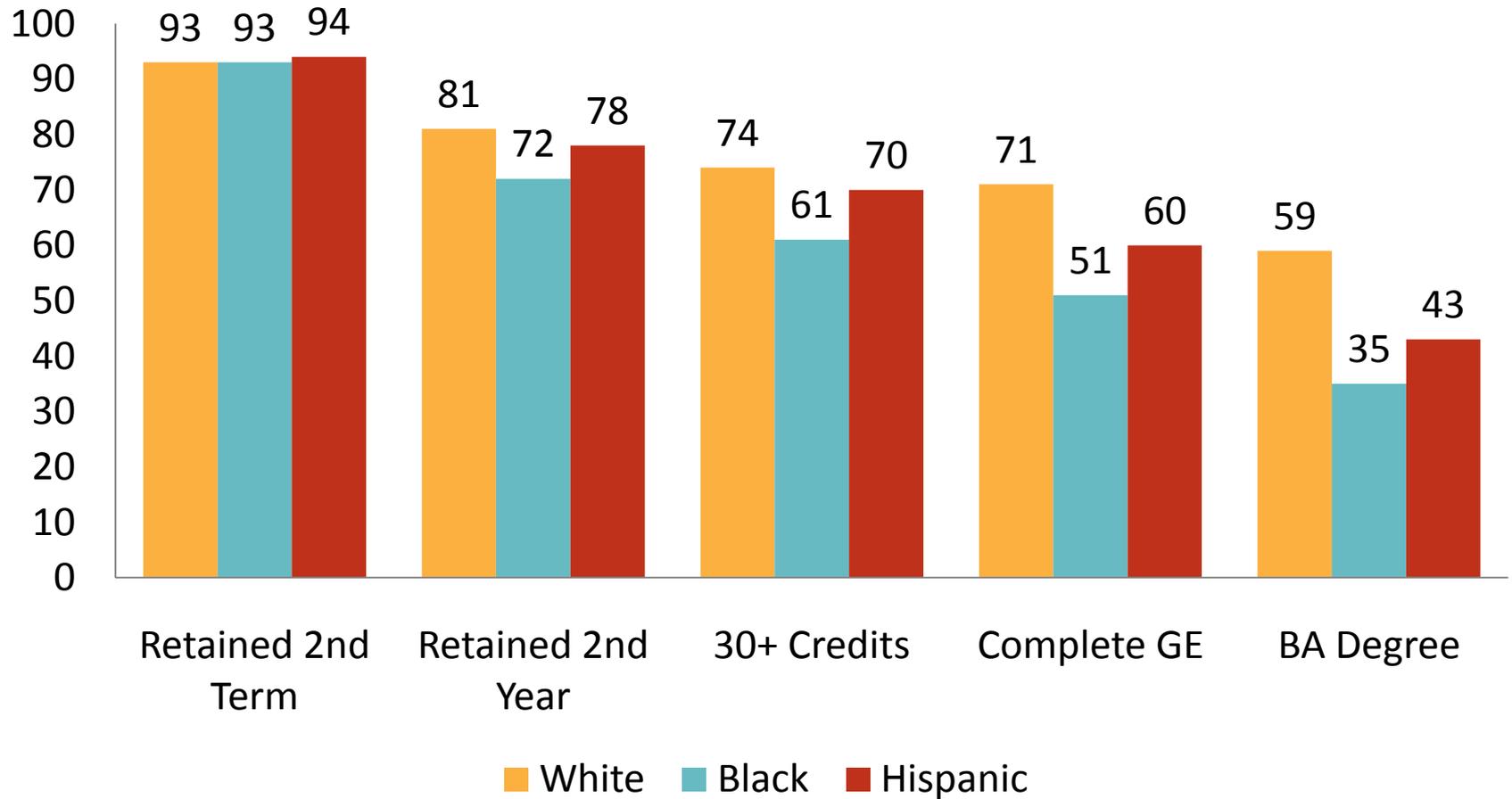
1. Are there group differences?
 - In the pattern?
 - In the level?
2. Has there been any movement on the indicator?
 - Have we made any changes in policies or practices that have resulted in changes in the data?

CSU Milestone Achievement Among Freshman



Source: Student Flow Analysis: CSU Student Progress Toward Graduation

CSU Milestone Achievement Among Freshman

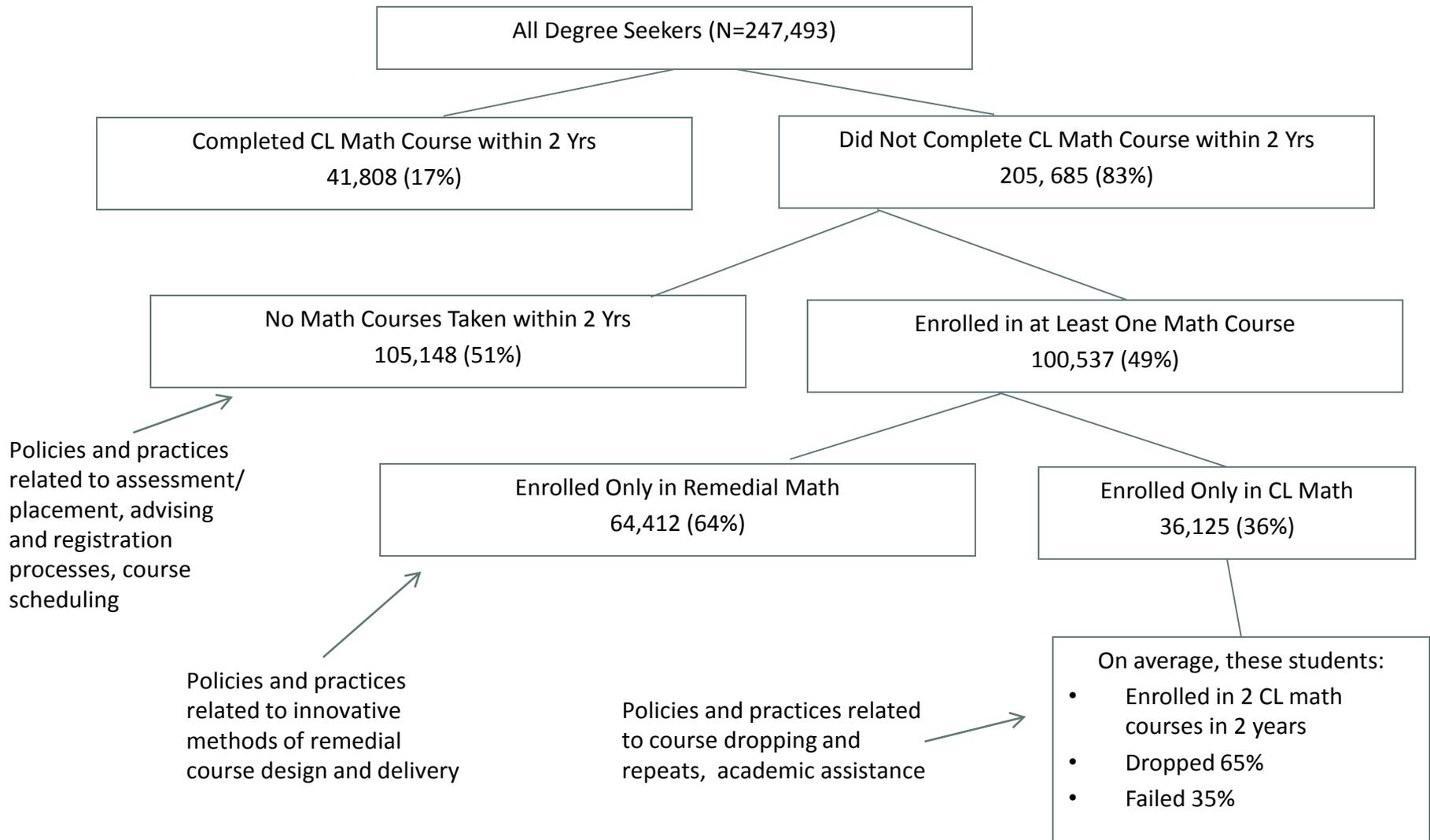


Source: Student Flow Analysis: CSU Student Progress Toward Graduation

Second Round of Analysis

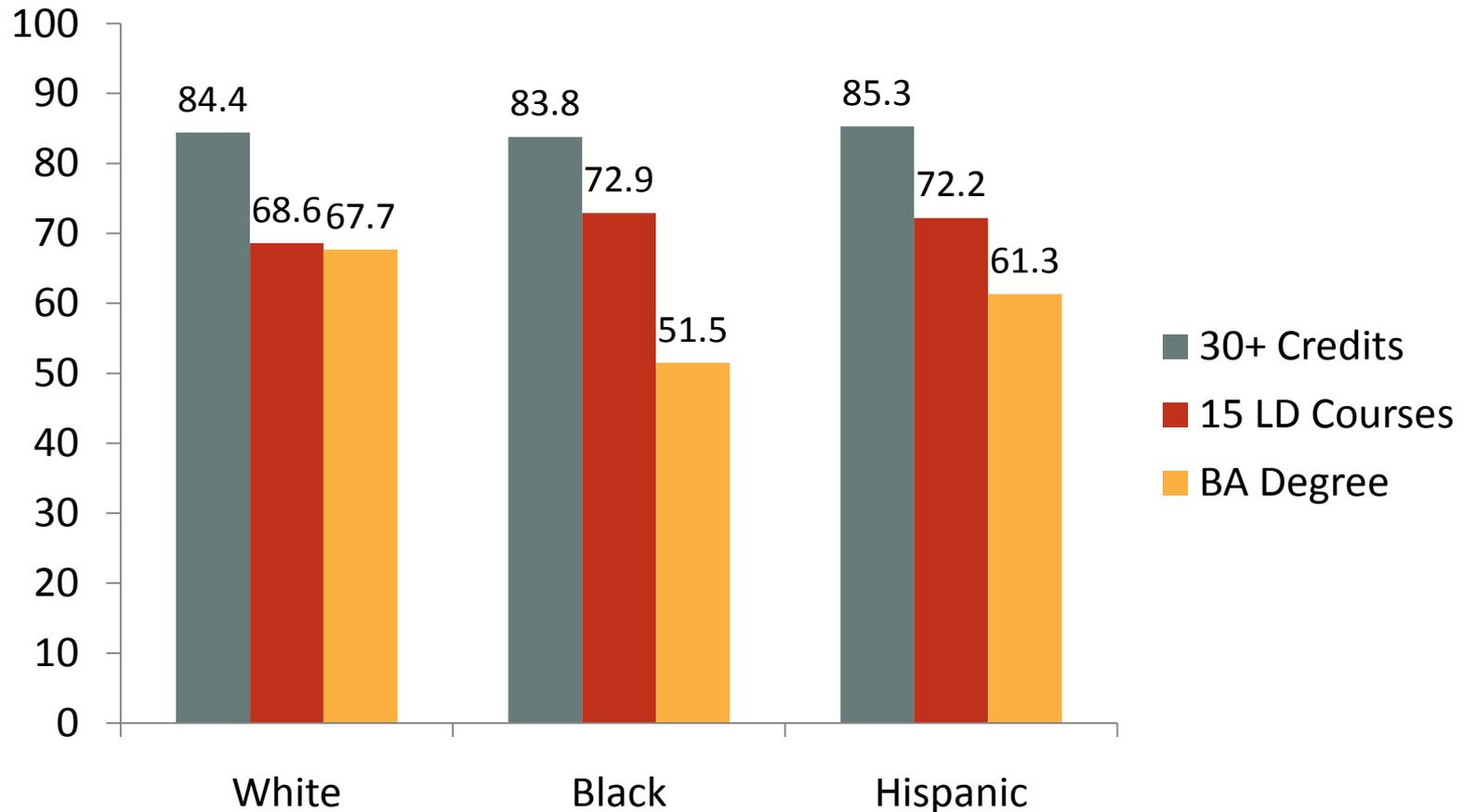
- Drill down into individual indicators to fully understand student pathways, barriers, and points for intervention
 - This requires more data manipulation

Example 1: CL Math Enrollment



Example 2: Credit Accumulation

On-Track on the First Two Milestones, But Not Completing the Journey



Example 2: Credit Accumulation

Looking at the Data Another Way

	Black Students		Hispanic Students	
	30 Credits 15 LD Courses + BA	30 Credits 15 LD Courses <u>NO</u> BA	30 Credits 15 LD Courses + BA	30 Credits 15 LD Courses <u>NO</u> BA
Gateway Courses				
Math	91.5%	84.3%	88.7%	87.9%
English	89.8%	94.1%	89.6%	95.5%
Credit Accumulation				
80% Completion Ratio	92.6%	53.0%	94.4%	57.5%
Enrolled Continuously	81.3%	58.7%	83.1%	51.3%
	<i>N = 2625</i>	<i>N = 1315</i>	<i>N = 2460</i>	<i>N = 751</i>

Source: Advancing by Degrees

Integrating Data Into Campus Improvement Plans: Creating Data Routines

Top Gainer and Gap Closer: Georgia State University

- Downtown Atlanta with about 19,000 undergrads
- 1/3 minority, mostly African American
- Minority students now graduate at higher rates than peers
- Enrollment has grown more diverse in recent years

	2002	2007
Minority Six Year Grad Rates	32.3%	50.7%
Non-minority- Minority Graduation Rate Gap	5.2	-5.2%

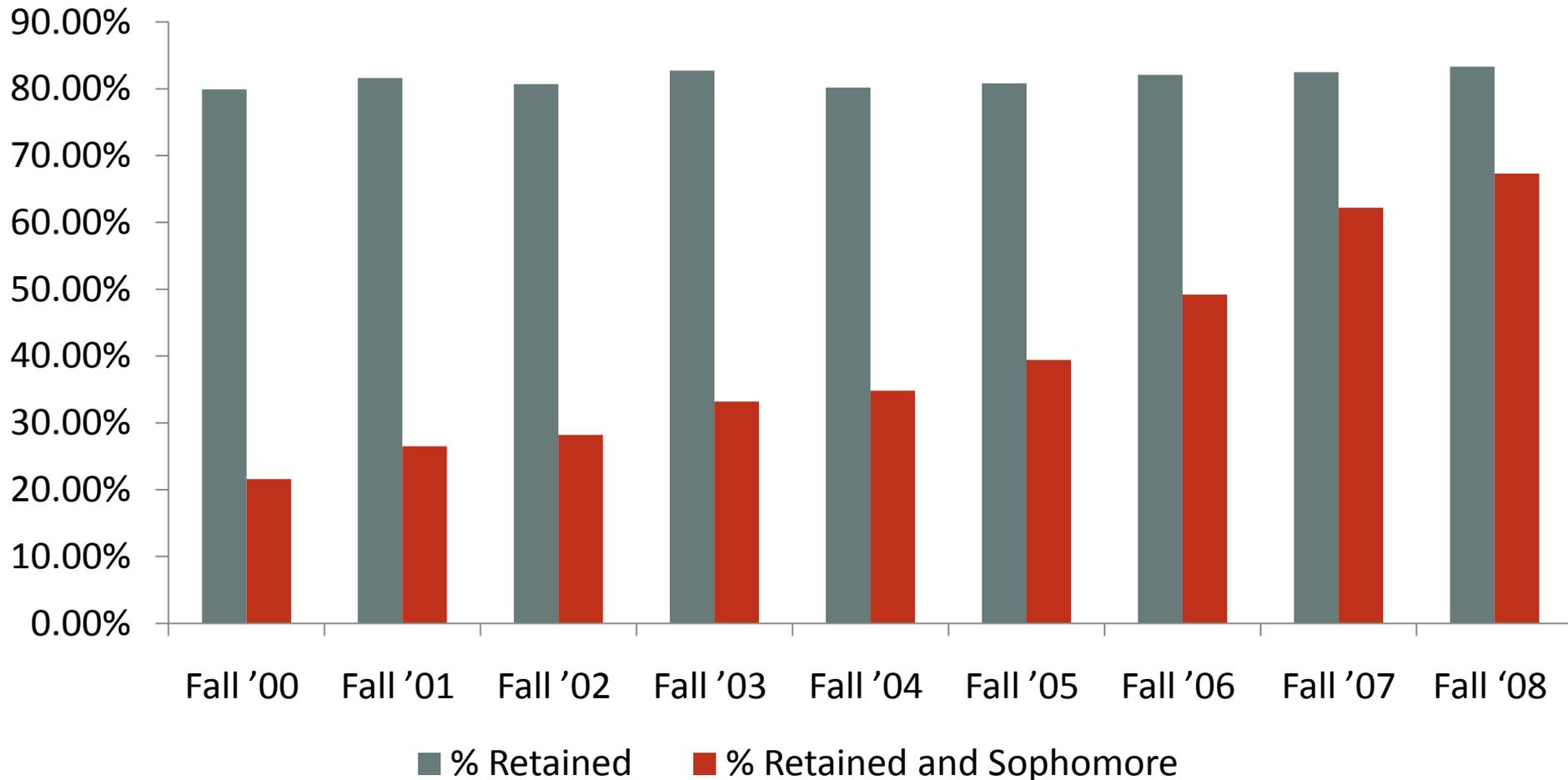
Keys to Georgia State's Success: Focusing first and foremost on the data

- Identify potholes on pathway to bachelor's degree:
 - Low credit accumulation in first year
 - High introductory course failure rates
 - Drop off in retention during transition to majors
- Evaluate effectiveness of intervention strategies
- Develop and monitor department retention plans

Disaggregated all data by race, income, and
first-generation status

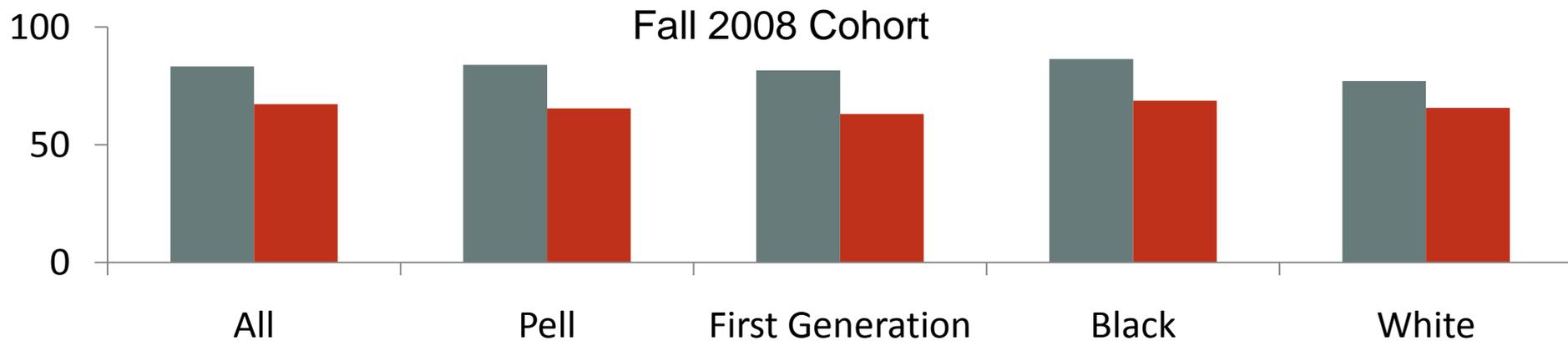
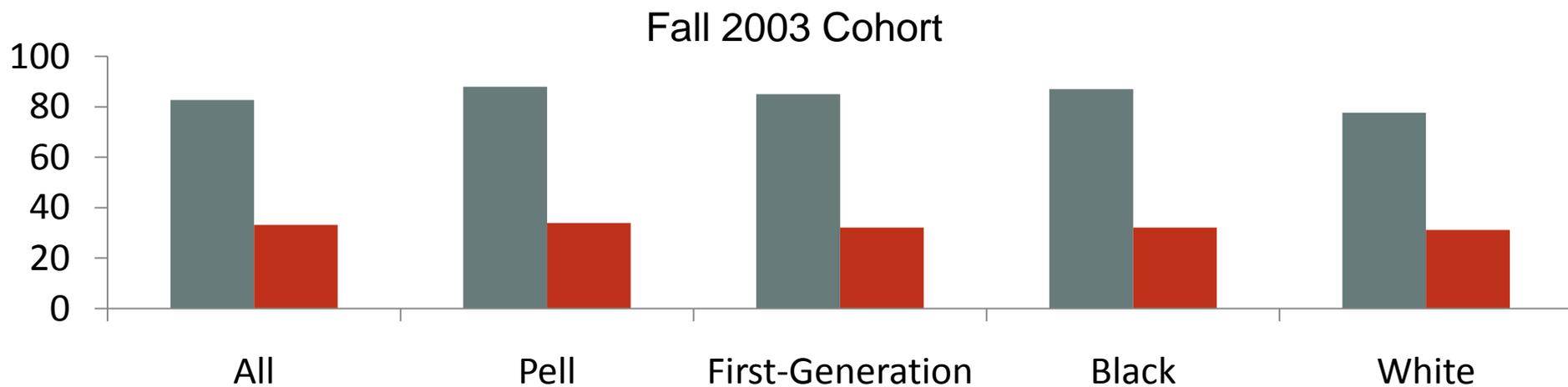
First-Year Retention vs. Credit Accumulation

The Silent Retention Problem



Source: Georgia State University

Disaggregated Retention and Progression Rates



Source: Georgia State University

■ % Retained ■ % Retained + Sophomore

Impact of Freshman Learning Communities on First-Year Retention Rates (%)

Cohort	FLC	Non-FLC	Difference All	Difference Black	Difference White
Fall '99	78.6	71.9	6.7	12.2	4.4
Fall '00	86.6	77.9	8.7	10.2	7.9
Fall '01	86.5	78.9	7.6	5.3	9.7
Fall '02	83.9	76.2	7.7	8.5	7.1
Fall '03	86.6	79.4	7.2	9.3	5.9
Fall '04	81.3	78.6	2.7	6.2	0.3
Fall '05	80.6	78.8	1.8	4.1	0.4
Fall '06	84.1	77.8	6.3	8.7	5.9
Fall '07	85.2	78.4	6.8	9.1	6.4

Source: Georgia State University

Using Departmental Data

- All departments required to submit retention plans
- Monitored three-year retention and graduation rates for students with 60-75 hours at start of term
- Monitored DFW and AB rates in 3000 and 4000 level courses

GSU Retention Strategies

- **Focusing on the first-year experience** through freshman seminar (credit), learning communities
- **Improving instruction** through course redesign, supplemental instruction, tutorials/labs
- **Improving academic advising**, particularly in departments, developing degree maps, targeting at-risk students and students near completion

Other Types of Data

1. **Input data:** what resources are dedicated to the project, program or goal?
2. **Implementation data:** how well was the service delivered?
3. **Output data:** evidence of service delivery
4. **Outcome data:** what success was achieved and for whom?

“Errors using inadequate data are much less than those using no data at all.”

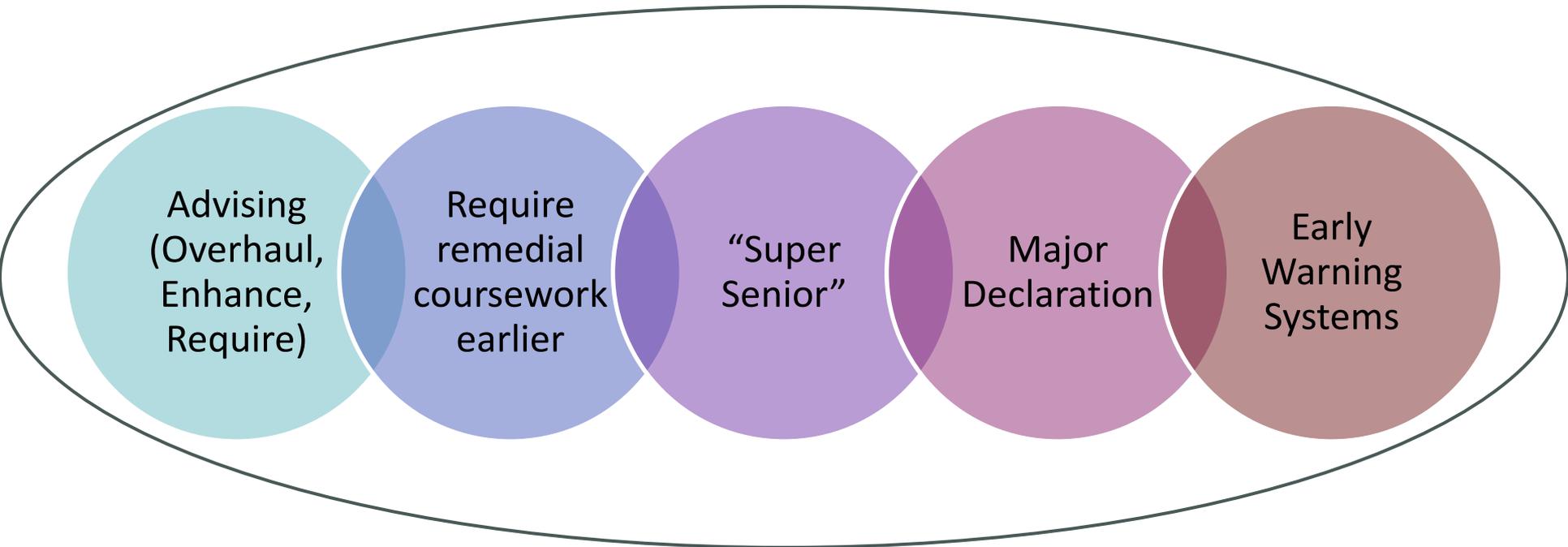
Charles Babbage

Integrating Data into Campus Delivery Plans

Leading indicator analyses can be a powerful tool in helping leaders to shape strategies and interventions based on past student experiences.

But the data may not tell you if your current array of strategies to increase grad rates will be successful.

Campuses have committed to several strategies as part of the Graduation Initiative



What other kinds of data do you need to know that these strategies will impact retention AND increase graduation rate?

Measuring the implementation and impact of these strategies requires several kinds of data

Data on Advising

- Utilization
- Credits attempted/passed
- GPA for advised versus other students
- Early warning data
- Message
- Satisfaction

Data inform strategy & allow proactive intervention

- Shift Policy
- Change Practice
- Raise new analyses needed

New Advising
Data

...and the cycle to become a data-driven institution continues.