Actual versus Predicted Institutional Graduation Rates at California's Four-Year Colleges and Universities

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Problem Statement

- Various stakeholders are interested in graduation rates (GRs);
- GRs often used as sole/primary indicator of institutional effectiveness
- GRs do not account for the characteristics of the institution or entering students;
- Value-added approach

Background

- College graduation rates are associated with student characteristics
  - (NCES studies include Adelman 2006, Berkner, He, and Cataldi 2002, Choy 2002, looking at academic preparation and SES)
- Graduation rates are related to size of low-income population in freshman cohort
  - *Placing Graduation Rates in Context: How 4-Year College Graduation Rates Vary with Selectivity and the Size of Low-Income Enrollment* (NCES: Horn and Carroll 2006)
- Implications
  - Compare institutions that have similar student characteristics
  - Some institutions outperform comparable institutions enrolling higher-income students

Research Question(s)

1. How do graduation rates vary by characteristics of postsecondary institutions?

2. What institutional and student characteristics are most strongly related to graduation rates?

3. What institutions have significantly different graduation rates than predicted given their characteristics?

Methodology

- <u>Data Source:</u>
  - 1,449 institutions from IPEDS database (IC & GR surveys)
  - Size Larger than 1,000 students
  - Bachelor's degree granting and above
- <u>Method:</u>
  - Descriptive statistics
  - Linear regression w/ 150% GR as outcome
- <u>Predictor Variables:</u>
  - Demographics (ethnicity/race, Pell recipients, women)
  - Selectivity (admissions rates, standardized test scores)
  - Institutional type (control)
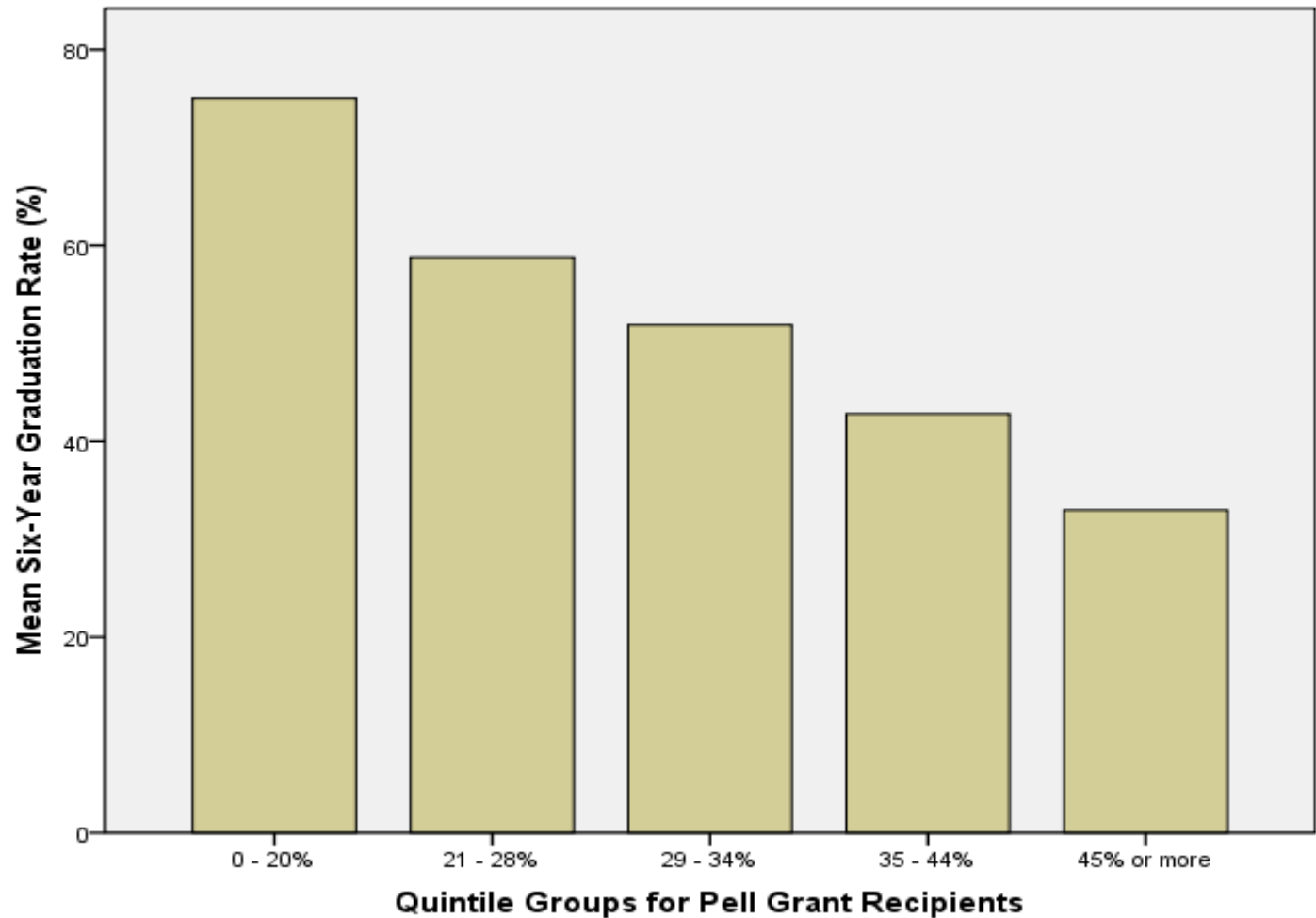 - Institutional resources (student-to-faculty ratio)

150% GR by Sector
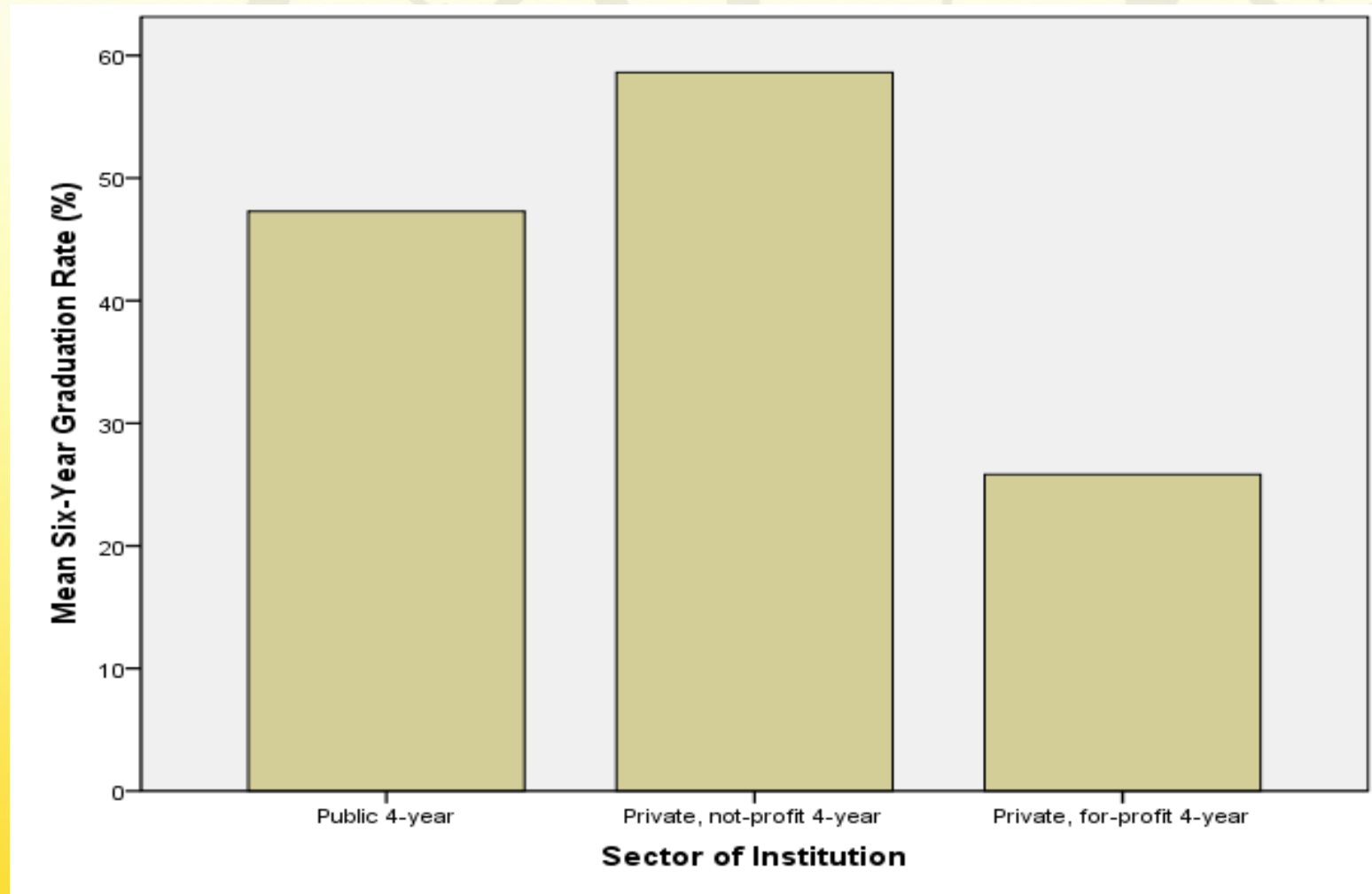
150% GR by Percent Nonwhite
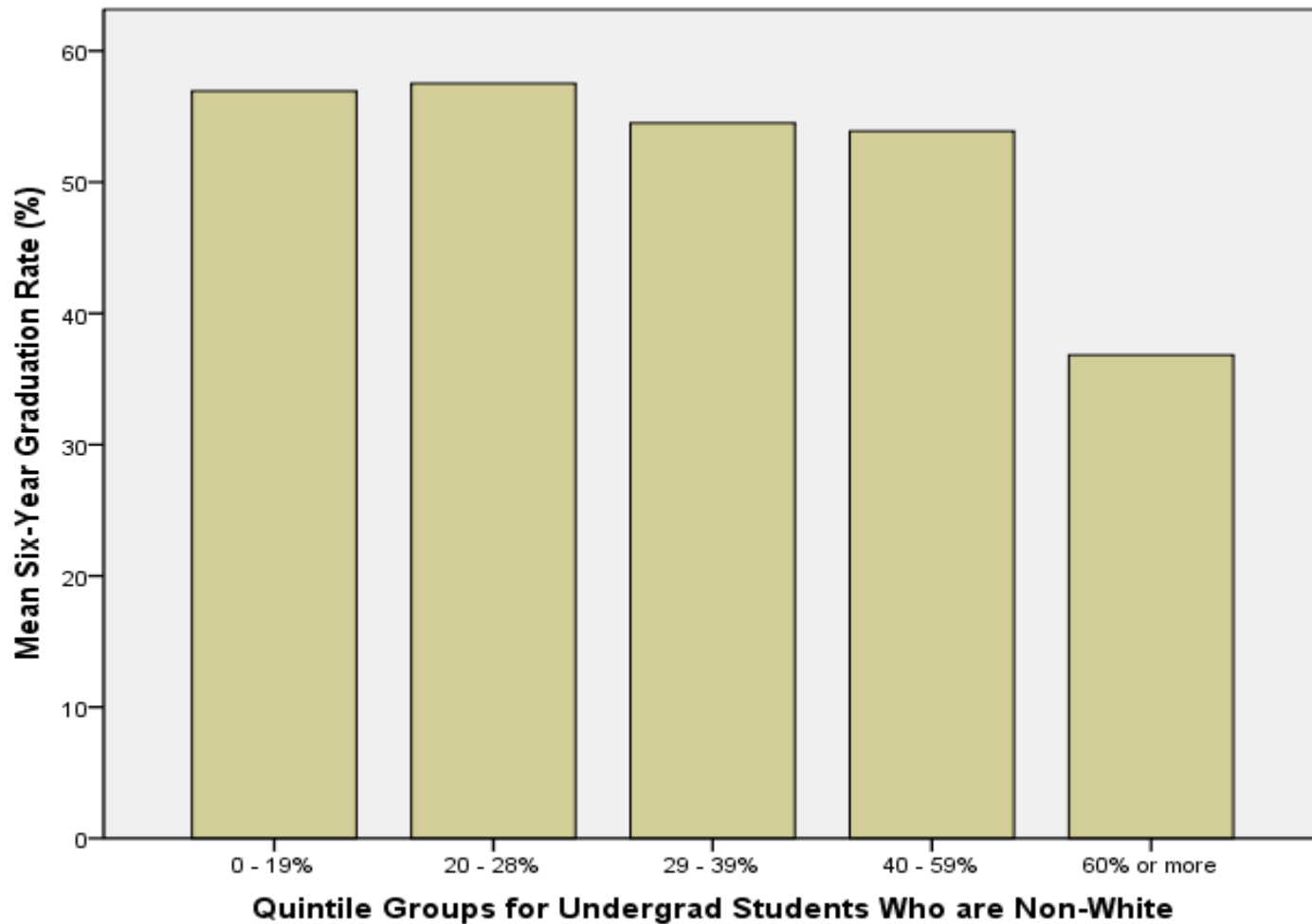
150% GR by Pell Recipients

Regression Model of Institutional GRs

Significant Variables	B	Std. Error	Beta	t	Sig.
(Constant)	-1.683	6.397		-.263	.793
ACT Composite 75th Percent	2.994	.150	.548	19.927	.000
Percent Pell Grant Recipients	-.446	.037	-.334	-12.128	.000
Percent Admitted	-.083	.020	-.084	-4.154	.000
Private Non-Profit	3.735	.769	.102	4.857	.000
Student-to-Faculty Ratio	-.241	.084	-.064	-2.862	.004
Percent Black	.076	.035	.078	2.139	.033
Non-Significant Variables					
Percent Women	.051	.028	.033	1.811	.070
Percent Hispanic/Latino	.055	.048	.029	1.143	.253
Percent White	-.006	.029	-.007	-.211	.833
Percent 2 or More Races	-.265	.184	-.026	-1.443	.149
Private For-Profit	5.509	5.208	.019	1.058	.290

Predicted vs. Actual GRs

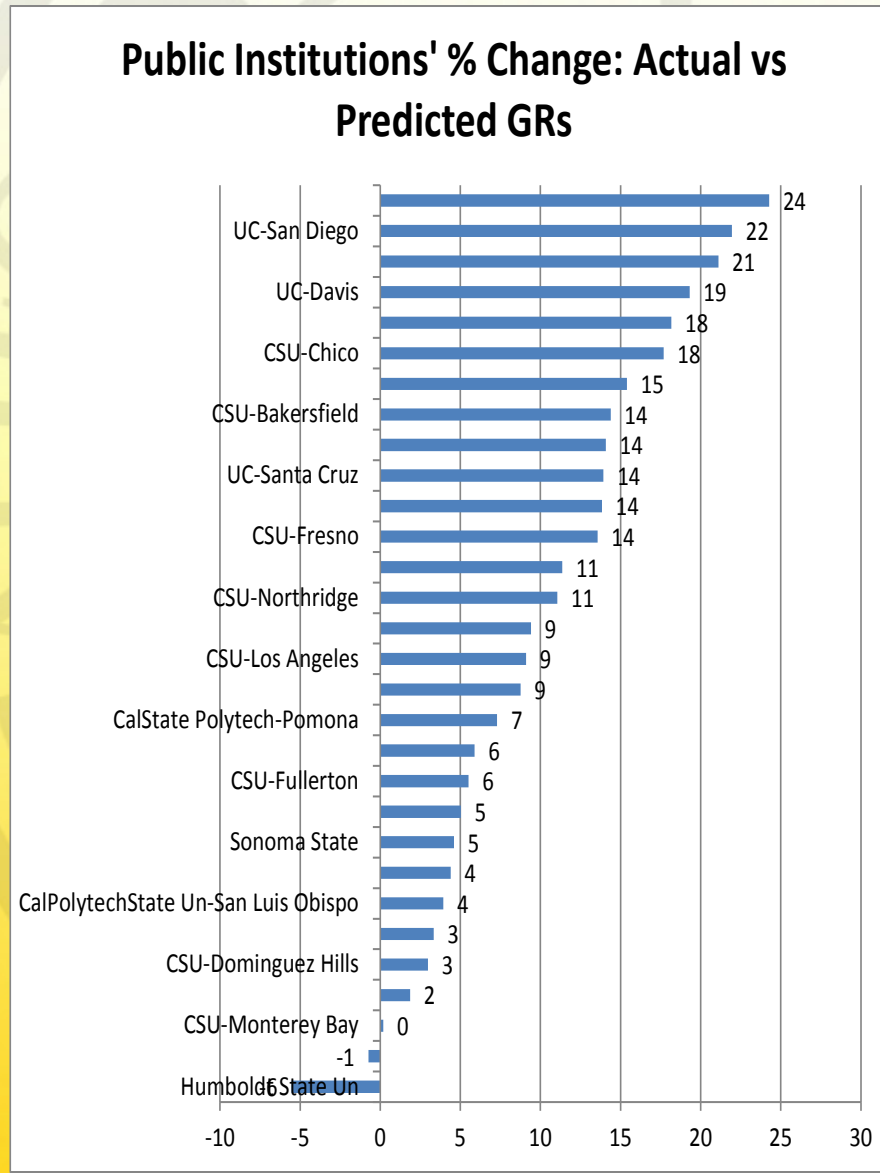

Scatterplot

Dependent Variable: BachelorsGR_6year

R^2 Linear = 0.692
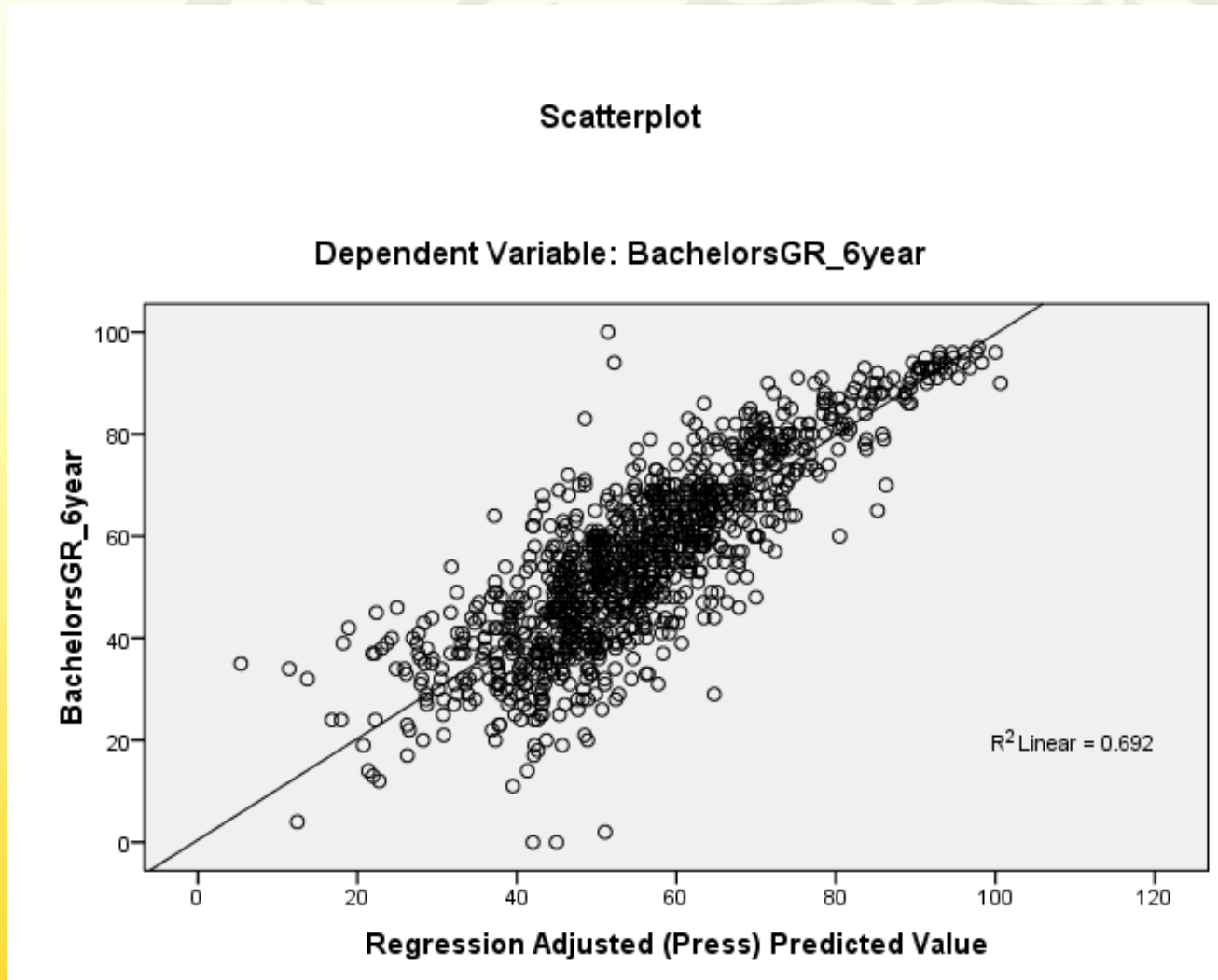
Outlier Institutions

- "Overachievers"
  - Warner-Pacific College = +42
  - Ashford University = +37
  - Livingstone College = +31
- "Underachievers"
  - Hodges University = -41
  - Newman University = -34
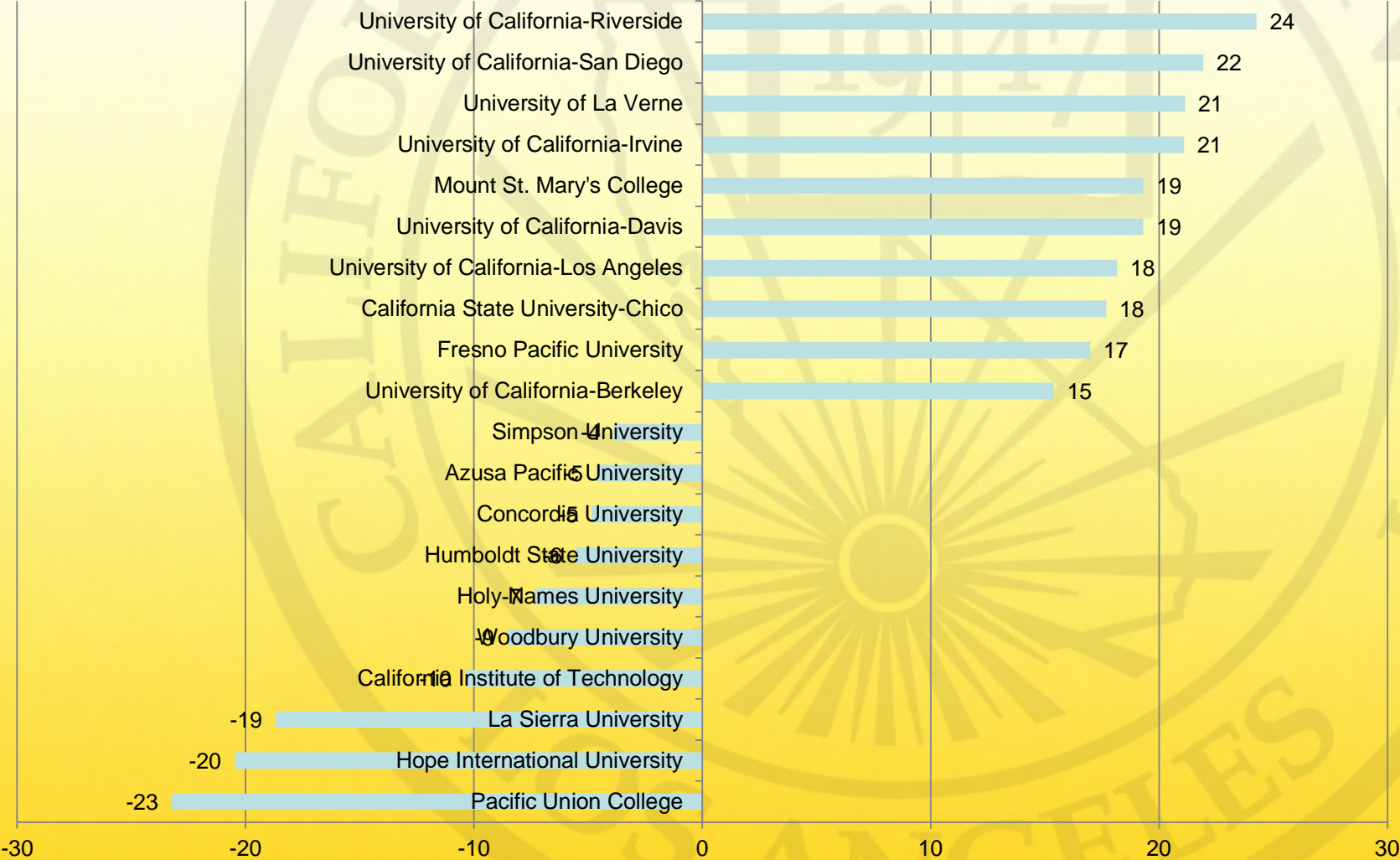 - Louisiana State University (LSU) at Alexandria = -31

CA Public Institutions' % Change: Actual vs Predicted GRs

Public Institutions' % Change: Actual vs Predicted GRs

CA Private, Nonprofit Institutions' % Change: Actual vs Predicted GRs
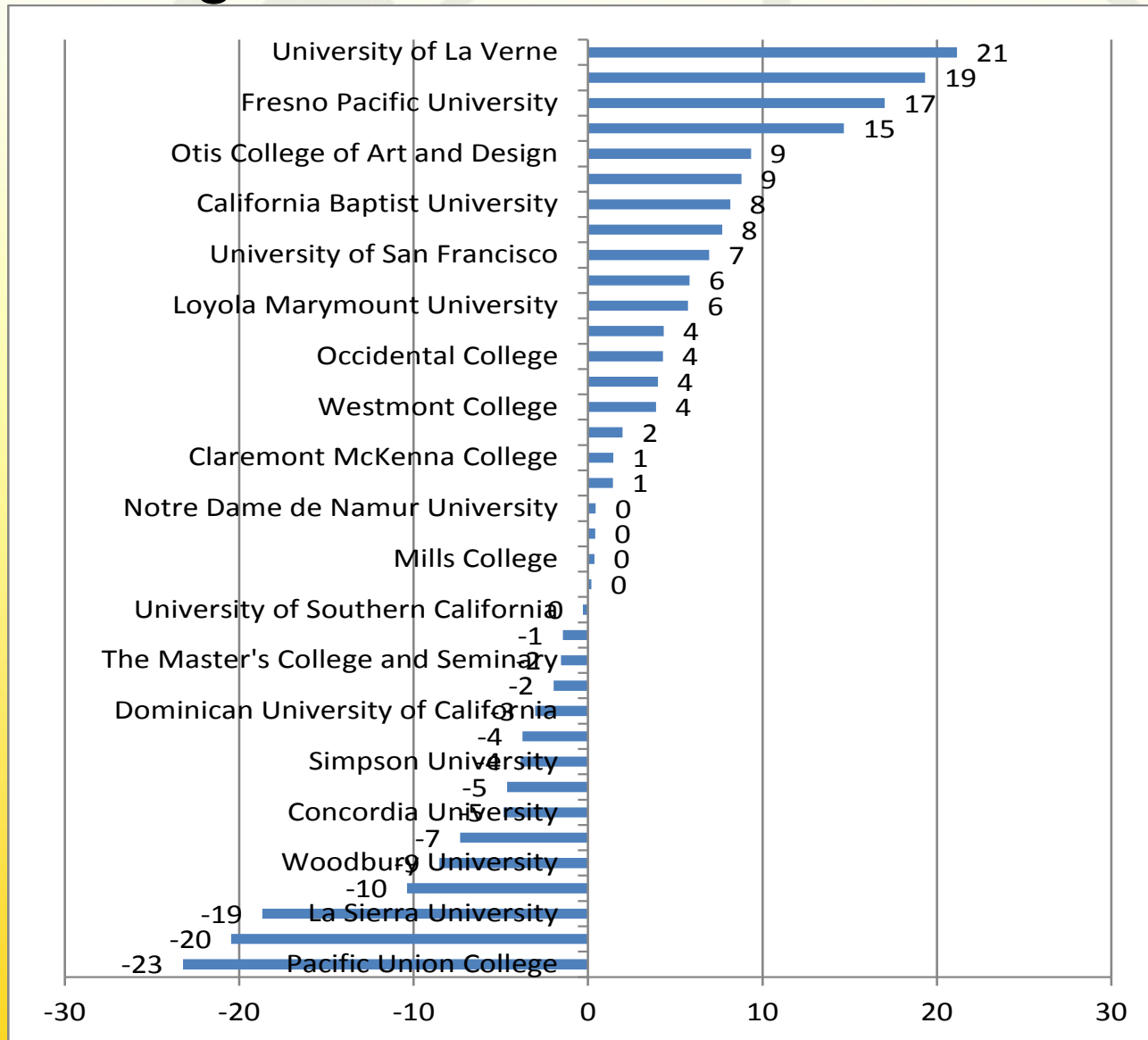
Over- and Under-Achievers

University	Value
University of California-Riverside	24
University of California-San Diego	22
University of La Verne	21
University of California-Irvine	21
Mount St. Mary's College	19
University of California-Davis	19
University of California-Los Angeles	18
California State University-Chico	18
Fresno Pacific University	17
University of California-Berkeley	15
Simpson University	-4
Azusa Pacific University	-5
Concordia University	-5
Humboldt State University	-6
Holy Names University	-7
Woodbury University	-9
California Institute of Technology	-10
La Sierra University	-19
Hope International University	-20
Pacific Union College	-23

Limitations

- Restricted sample of students (first-time, full-time, degree seeking)
- Limited number of for-profits may prevent accurate estimates
- Assumed institutional characteristics are static
- 2010 may have been an unusual year given the economic recession
- Institutional data are self-reported and may be inaccurate at time
- Omitted variable bias
- Missing values

Findings & Implications

- Analyses confirmed that institutional characteristics are highly significant in influencing GR

- ACT scores, selectivity, percentage Pell grant recipients, and student-to-faculty ratios are influential in determining GR

- For-profits do not perform significantly different than publics when controlling for institutional characteristics

- Judging institutions simply on GR rates may provide a biased perspective of institutional performance

Directions for Future Research

- Future research should examine more closely
  - How and why some institutions are outperforming expectations
  - For-profit graduation rates
  - Nested models of student and institutional characteristics(HLM) should be examined

Questions?