The Impact of Economic Cycles on Access and Success in California Community Colleges

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Outline of the Presentation

- Conventional wisdom about recessions
- Literature review
- Data & methods
- Impact of recessions on CCC headcount
- Impact on FTES & course success
- Implications for equitable achievement gaps

Year to Year Change in CCC Head Count Enrollment During Economic Cycles, Fall 1993 - Fall 2015

Recession Period: -63213
Growth Period: -9573

Sources: CCC Data Mart, National Bureau of Economic Research, California EDD
Conventional Wisdom

- State higher education enrollments are driven by the economy (state revenues)
- Budget cuts at CSU & UC
  - They result in increased enrollment pressures at CCC level
  - Better student quality at CCC level
  - Better rates of transfer course completion
  - But…reduced access for traditional URM students
- We test this conventional wisdom using data from 1992 to 2015

UC & CSU enrollments

More & better CCC Students, but equity impacts…
Strong correlation between economic cycles & community college enrollments

- National economic downturn was correlated with increased demand for higher education (Douglass, 2008; Green, 2009; National Student Clearinghouse, 2011)
- Surge in CC enrollments in the last recession (Pew and AACC, 2009)
- Unemployment increases are a key driver of CC demand (see Pennington & McGinty, 2002)
- During last recession – surge in transfers of CCC students to for-profit institutions as access was restricted in the UC & CSU system (Perry, 2009; Van Ommeren, 2010)
- Recent studies suggest significant declines in the current economic growth cycle (-2.4% this year for CC’s; AACC/ National Student Clearinghouse, 2016)

• Drop in 2-Year Public Enrollment, Fall 2015
  -2.4%

• Drop in FT Enrollment in Public 2 year Colleges
  -4.6%
Research Questions

- How much do economic cycles impact CCC enrollment?
- How much do economic cycles impact patterns of access and success across ethnic groups?

Source: California Labor Market Review, March 2011 and February 2016 (California Employment Development Department)
Data and Methods

Data
CCC enrollment & budget data drawn from Data Mart & Fiscal Services Unit

CSU data drawn from Office of Analytic Studies

Economic cycle data drawn from National Bureau of Economic Research (NBER), Bureau of Labor Statistics (BLS), and California EDD

Methods

OLS Regression
Concerns about auto-regression and correlated error terms

Can generate biased indicators of statistical significance

ARIMA Time Series Models
Attempt to reduce series to “white noise” through differencing, suppression of autocorrelation, and seasonality
Example of Autocorrelation

- STATA results: correlation between change in CCC head count from year to year
  - 1 year lag = .741
  - 2 year lag = .432
  - 3 year lag = .255
Total Fall and Spring CCC Course Enrollments and Successful Completions, Fall 1992 to Fall 2015

Dec. 2000 – April 2002
Mar. 2007 – Feb. 2010

Total Course Enrollments
Successful Completions

Source: CCC Data Mart
Unemployment Levels and Fall and Spring Head Count Enrollments in the CCC System, 1992, 2015

An increase of 1,000 unemployed Californians is correlated with 100 new CCC students… but much of the variance is unexplained (consider returning students).

Sources: CCC Data Mart, California EDD
Economic Factors and the Percentage of FTES Growth 2012-15

20 Districts have experienced zero or negative growth since 2012-13

3.3% Reflects the overall growth in FTES in the state CCC system since 2012-13

Sources: CCC Apportionment Reports, 2012-13 through 2014-15; Chancellor’s Office Fiscal Services Division
State CCC Headcount Enrollment in Fall and Spring Terms Since Spring 2010

State Unemployment Rate = 12.1%

State Unemployment Rate = 6.0%

167,380

Fewer students served today by CCC’s compared to 5 years ago – enough to fill AT&T Park four times

Sources: CCC Data Mart, San Francisco Giants
Fall and Spring Successful Course Completion Rates for All CCC Students and African American Students, Fall 1992 to Fall 2015

Success Rate for All Students

Success Rate for African Americans

12.6% Success gap during recessions

12.2% during periods of growth

Source: CCC Data Mart
Fall and Spring Successful Course Completion Rates for All Students and Hispanics, Fall 1992 to Fall 2015

Success Rate for All Students
Success Rate for Hispanics

4.6% Success gap during recessions
4.5% during periods of growth
Explaining Changes in System Head Count Enrollment, 1992-2015

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>Confidence Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in System Funding (in Million $)</td>
<td>69,495</td>
<td>20,894</td>
<td>99.9%</td>
</tr>
<tr>
<td>Change in CSU Head Count</td>
<td>2.49</td>
<td>0.66</td>
<td>99.9%</td>
</tr>
<tr>
<td>Change in Unemployed</td>
<td>0.16</td>
<td>0.07</td>
<td>99%</td>
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<tr>
<td>Recession</td>
<td>23,143</td>
<td>24,889</td>
<td>n.s.</td>
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<tr>
<td>Recession – 1 year lag</td>
<td>-47,797</td>
<td>23,091</td>
<td>95%</td>
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<tr>
<td>Prior Year CCC Head Count Change</td>
<td>0.14</td>
<td>0.13</td>
<td>n.s.</td>
</tr>
<tr>
<td>Constant</td>
<td>-17,144</td>
<td>11,296</td>
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</table>

| N                                             | 43          |                |                  |
| F Test                                        | 10.99       |                |                  |
| Adj. R Square                                 | .588        |                |                  |

Note: OLS Regression results; inclusion of prior year change in enrollment attempts to control for correlation between the dependent variable in t-minus one year.
Explaining Changes in System Head Count Enrollment, 1992-2015 [ARIMA 1,0,0 Model]

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<th>Confidence Level</th>
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</thead>
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<tr>
<td>Change in System Funding (in Million $)</td>
<td>43,994</td>
<td>17,974</td>
<td>99%</td>
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<td>Change in CSU Head Count</td>
<td>2.16</td>
<td>.80</td>
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<tr>
<td>Change in Unemployed</td>
<td>.11</td>
<td>.06</td>
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<tr>
<td>Recession</td>
<td>29,965</td>
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<td>n.s.</td>
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<td>Recession – 1 year lag</td>
<td>-6,418</td>
<td>13,110</td>
<td>n.s.</td>
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<td>Prior Year CCC Head Count Change</td>
<td>.66</td>
<td>.16</td>
<td>99.9%</td>
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<td>Constant</td>
<td>-21,784</td>
<td>14,079</td>
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<tr>
<td>N</td>
<td>43</td>
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Note: Analysis of Autocorrelation and Partial Autocorrelation indicated a 1,0,0 model
Recessions have a positive impact on enrollment in CCC’s…but not when looking at lagged effects.

The 2011-2015 economic growth period has fostered minimal system growth in FTES.

Achievement gaps are not substantially different during times of recession.

Decline in FTES Stability Funding

167,380

Fewer students served today by CCC’s compared to 5 years ago.
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