“Does the business cycle impact our enrollments?”

King Banaian
Dean, School of Public Affairs
The opportunity cost of enrollment
JOBS vs ENROLLMENT

We last had this unemployment rate and this labor shortage back in the late 1990s.

Tight labor markets bid students away from classrooms.

- Erik Schmidt (U.S. Census, 2018) shows postsecondary enrollment rose from 17.2m in 2006 to 20.4m in 2011 and back to 19.1m in 2015.

- Diana Barbu (Fla. St. dissertation, 2015) shows public enrollments increase 1.2% for males and 1.9% for females when the national unemployment rate increases 1%.

- Amy Gehring (DEED, 2013) finds relationship is only significant for four-year institutions, strongest in northwest Minnesota. “More than half the variation in new enrollments for state universities can be explained by the unemployment rate.”
The impact of the recession was more on 4-year institutions than 2-year or grad schools.

*The rise was about 1.5% of all people 15-34.*
Modeling

- Two very naïve models
  - Pure time-series analysis (2 lags plus a trend)
  - Use unemployment rate in August and the age-18 population data (do these variable add anything?)
- One VAR model that includes other state universities
  - Impact of demographic and business cycle should affect our sister institutions
- Fitted data initially 1996-2013 for fall headcount and FYE.
Results (qualitative)

- R² of naïve model (time series only) 0.745 for FYE, .906 for headcount
- Including unemployment and population raises it to 0.804 for FYE, .908 for HC.
  - Coefficient test strongly rejects the null hypothesis that these two variables have no effect.
- Headcount is better fit than FYE. Impact might be more on part-time students.
- Vector time series methods use many parameters but give us good fit in-sample.
- Question is out-of-sample predictiveness
Headcount results

Ex ante models for headcount

Banded tuition begins F17, mitigation ends F19
FYE results

1-step ahead forecasts of FYE

- Full model
- Naïve 1
- Naïve 2
- Actual
**Impact of demographic and business cycle (in percentages)**

<table>
<thead>
<tr>
<th></th>
<th>Age 18 population (+1%)</th>
<th>Unemployment rate (+1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Headcount</td>
<td>FYE</td>
</tr>
<tr>
<td><strong>SCSU</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without state university effects</td>
<td>0.50%</td>
<td>0.96%</td>
</tr>
<tr>
<td>With state university effects</td>
<td>-0.02%</td>
<td>-0.03%</td>
</tr>
<tr>
<td><strong>MANKATO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without state university effects</td>
<td>-0.31%</td>
<td>&lt;0.01%</td>
</tr>
<tr>
<td>With state university effects</td>
<td>-0.37%</td>
<td>-0.12%</td>
</tr>
</tbody>
</table>
**Impact of migration**

**State demographer’s estimate of impact of migration on age 18 population**

- 66000
- 67000
- 68000
- 69000
- 70000
- 71000
- 72000
- 73000
- 74000
- 75000

Impact of no-migration hypothesis on age 18 population in Minnesota

- Projection
- Hypothetical zero migration

**Impact might be zero (with state university effects) but might be negative otherwise**

Impact of migration on SCSU headcount and FYE (no state university effects)

- 1.5%
- 1.0%
- 0.5%
- 0.0%
- -0.5%
- -1.0%
- -1.5%
- -2.0%
- -2.5%
- -3.0%

- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022
- 2023
- 2024

- Headcount
- fyf
What will be next August’s unemployment rate?

- August 2018 rate was 2.9%
- Forecast for Minnesota from MMB is for drop in 2019 unemployment rate from 3% to 2.4%
- Seems likely natural rate of unemployment for Minnesota is closer to 3%

<table>
<thead>
<tr>
<th>Estimated 2018 FYE</th>
<th>10,625</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact from other universities</td>
<td>From 30-day reports, various sources</td>
</tr>
<tr>
<td>Age 18 population in Minnesota</td>
<td>-175 (-0.24%)</td>
</tr>
<tr>
<td>Unemployment impact</td>
<td>-0.6% (from MMB)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated 2019 FYE</th>
<th>10,437</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memo: current university estimate</td>
<td>10,548</td>
</tr>
</tbody>
</table>
Ask Questions!

- kbanaians@stcloudstate.edu
- @profbanaians on Twitter
- Search “SCSU School of Public Affairs” on Facebook