



# Making Labor Market Data Useful: In Practice not Theory

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# CAPSEE

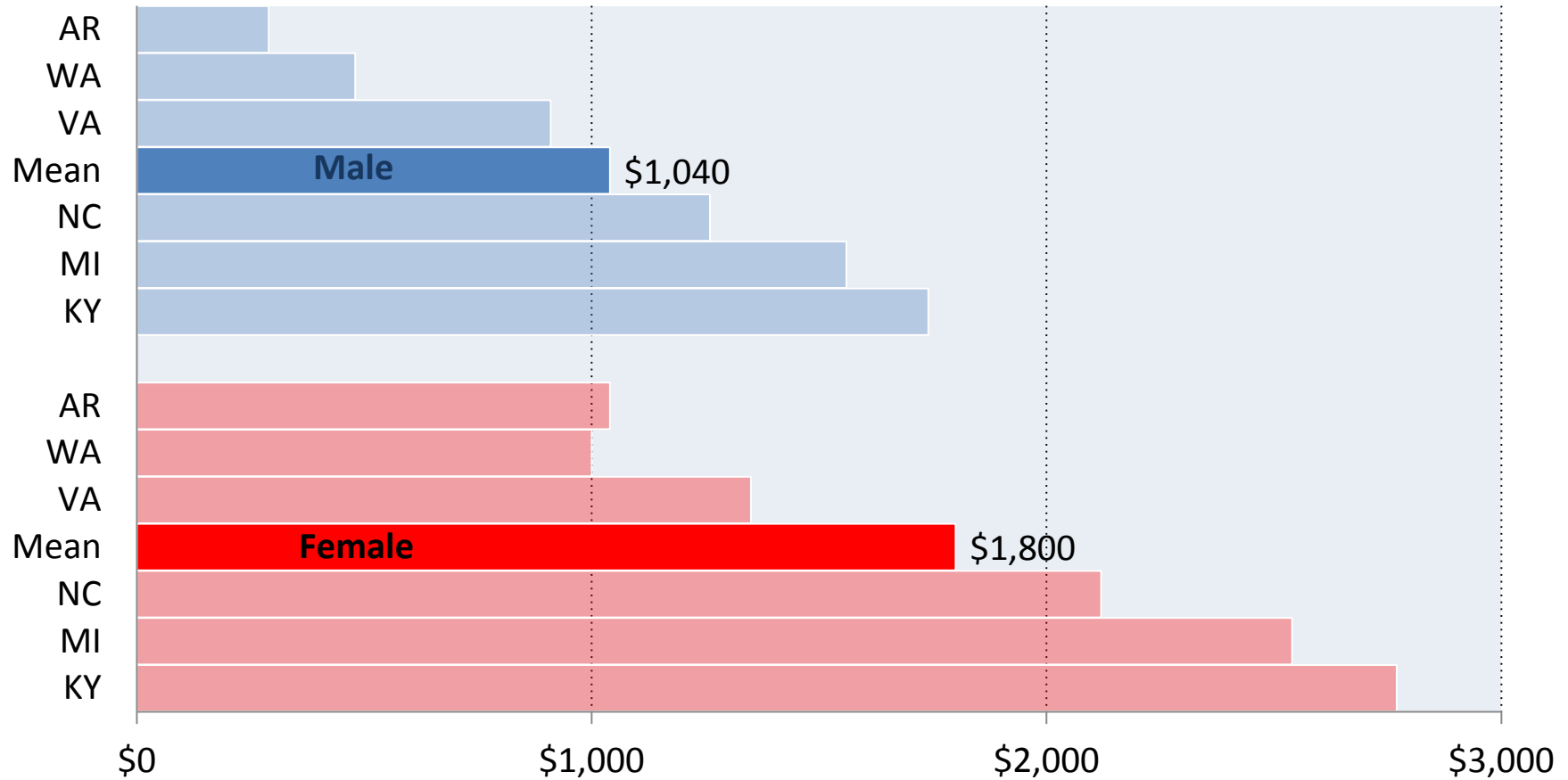
- ① What are the employment/earnings benefits of CC?
- ② What institutional programs and public policies improve student outcomes?

## Big data:

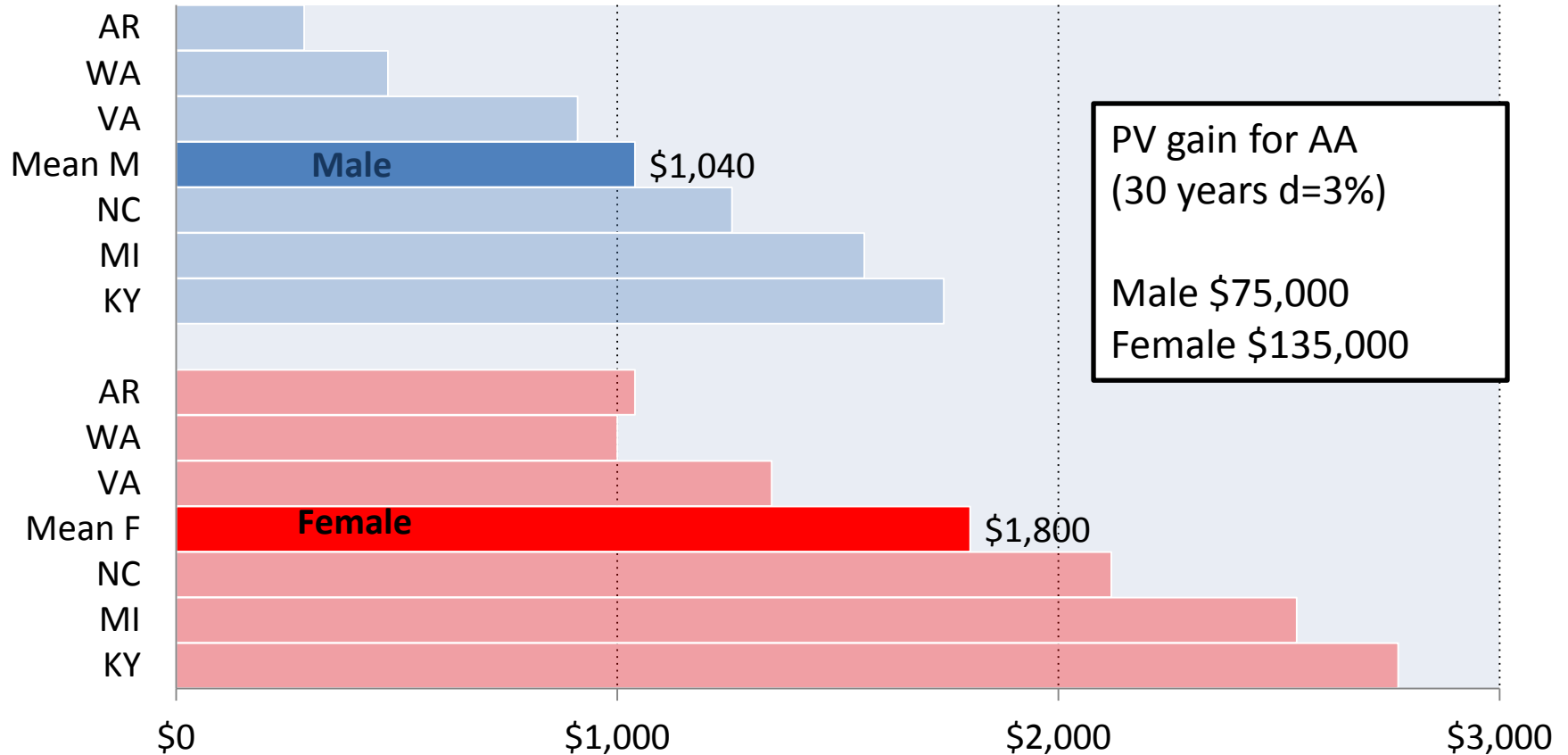
- Transcripts: state-wide CC systems for FTIC cohorts
- Transfers: National Student Clearinghouse
- Earnings: UI wage records pre-, in-, post-college
- AR, CA, MI, NC, NY, OH, VA, WA in 2000s

# Results from Big Data

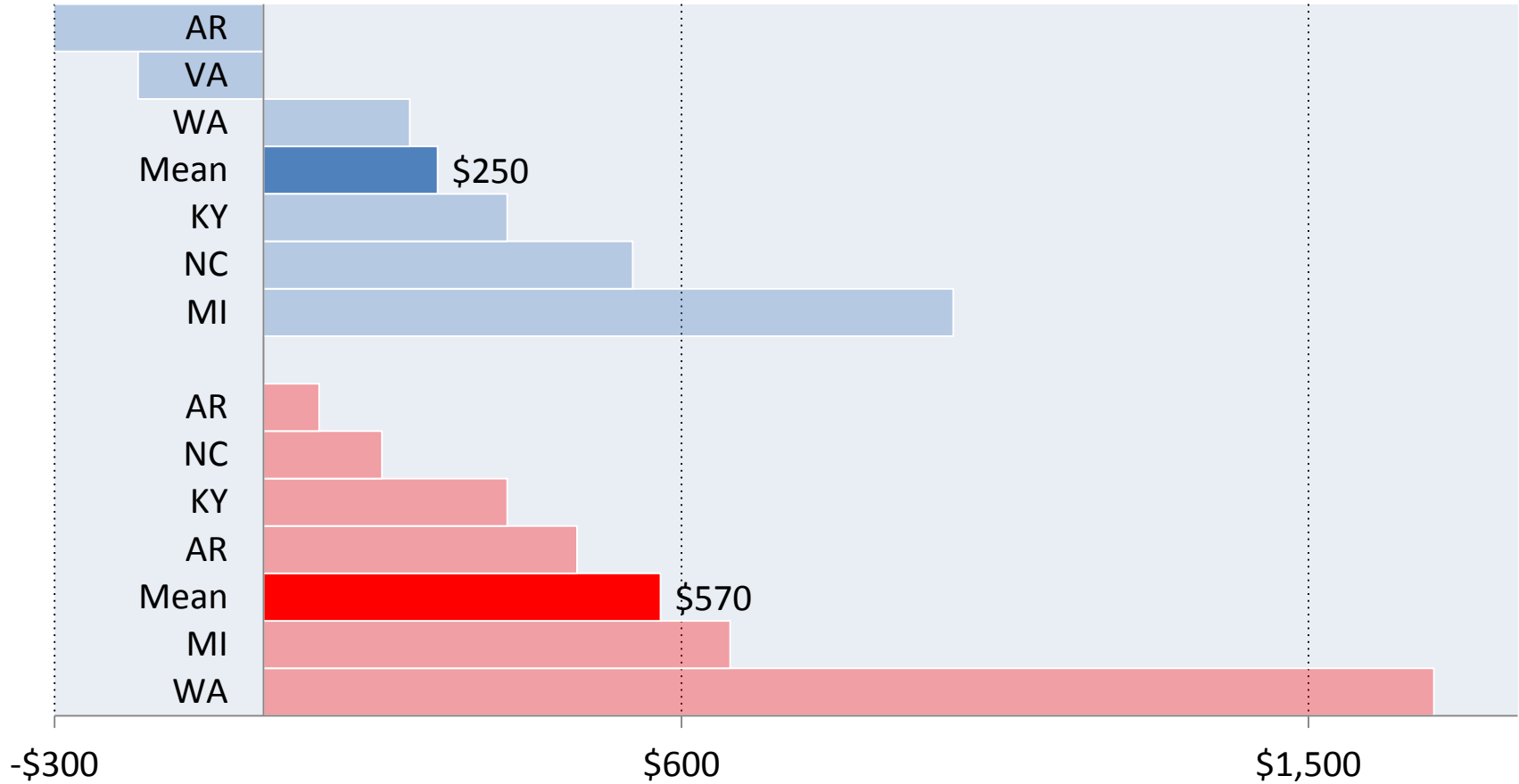
## Quarterly Earnings Gains: AA over No Award 8 Years Post-FTIC (Fixed Effects)



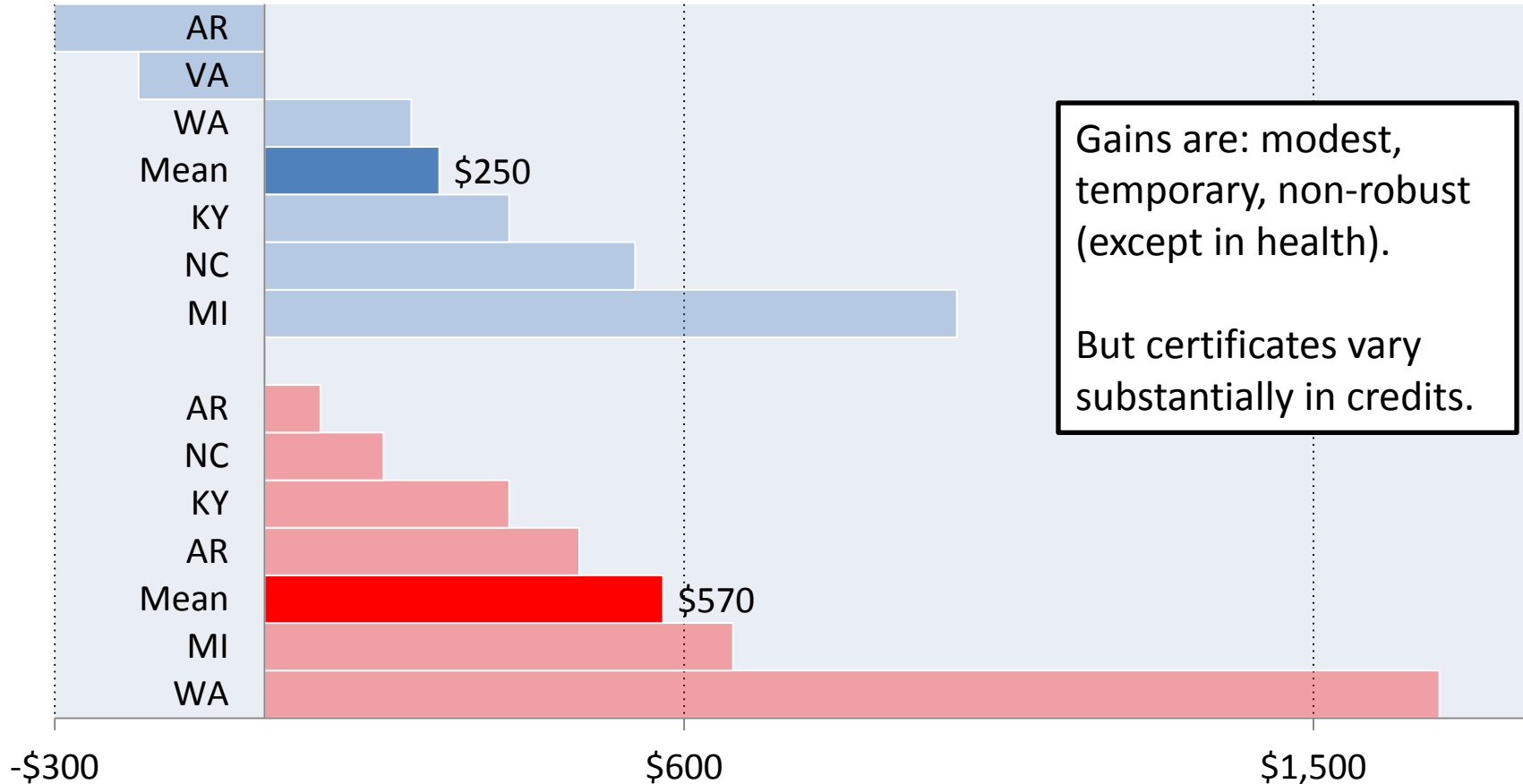
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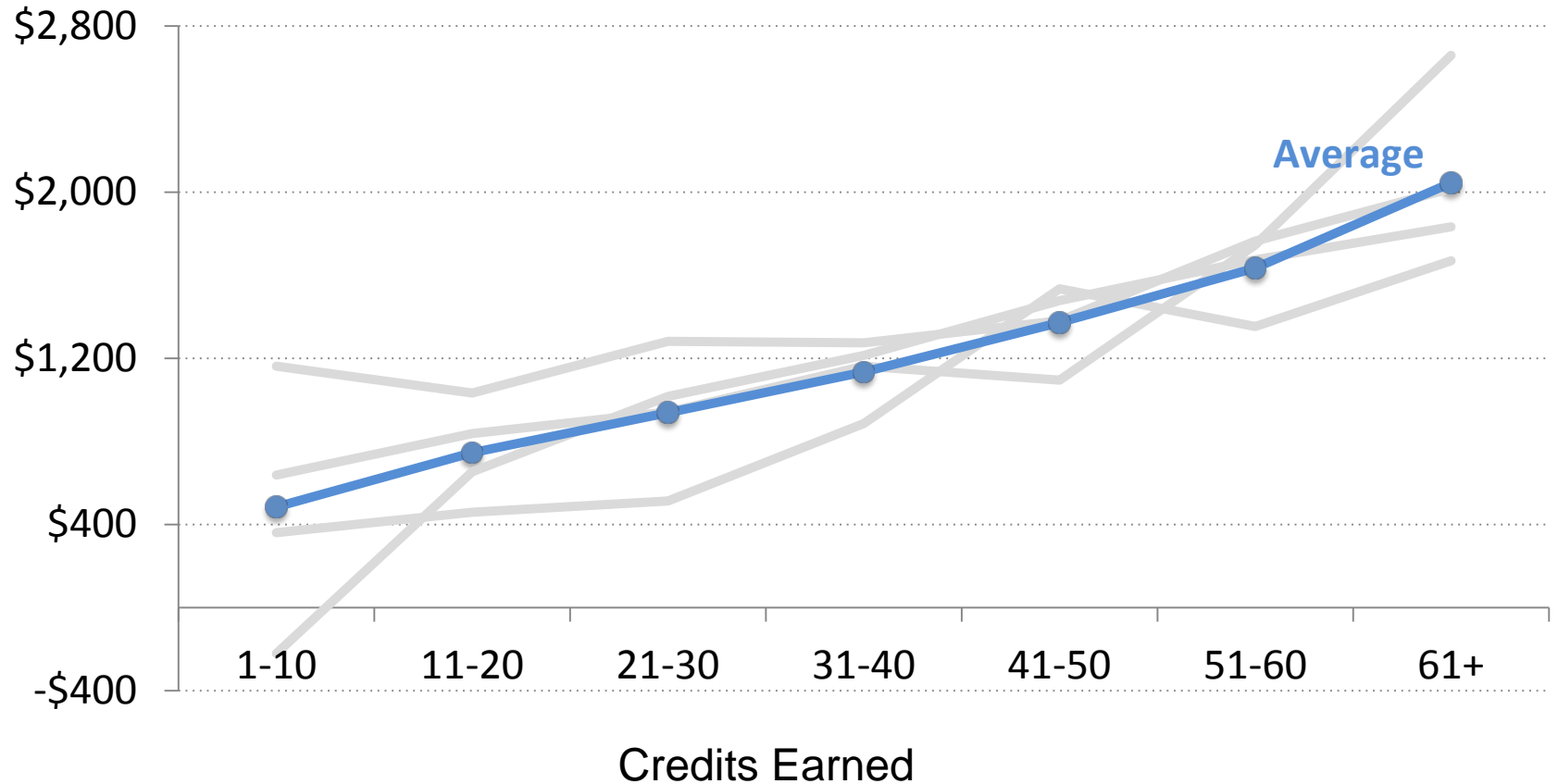
## Quarterly Earnings Gains: Certificate over No Award 8 Years Post-FTIC



## Quarterly Earnings Gains: Certificate over No Award 8 Years Post-FTIC



## Quarterly Earnings Gain over Zero Credits (8 Years After FTIC in VA/NC)





## Quarterly Earnings by Gender Degree Completers (AR, KY, MI, OH)

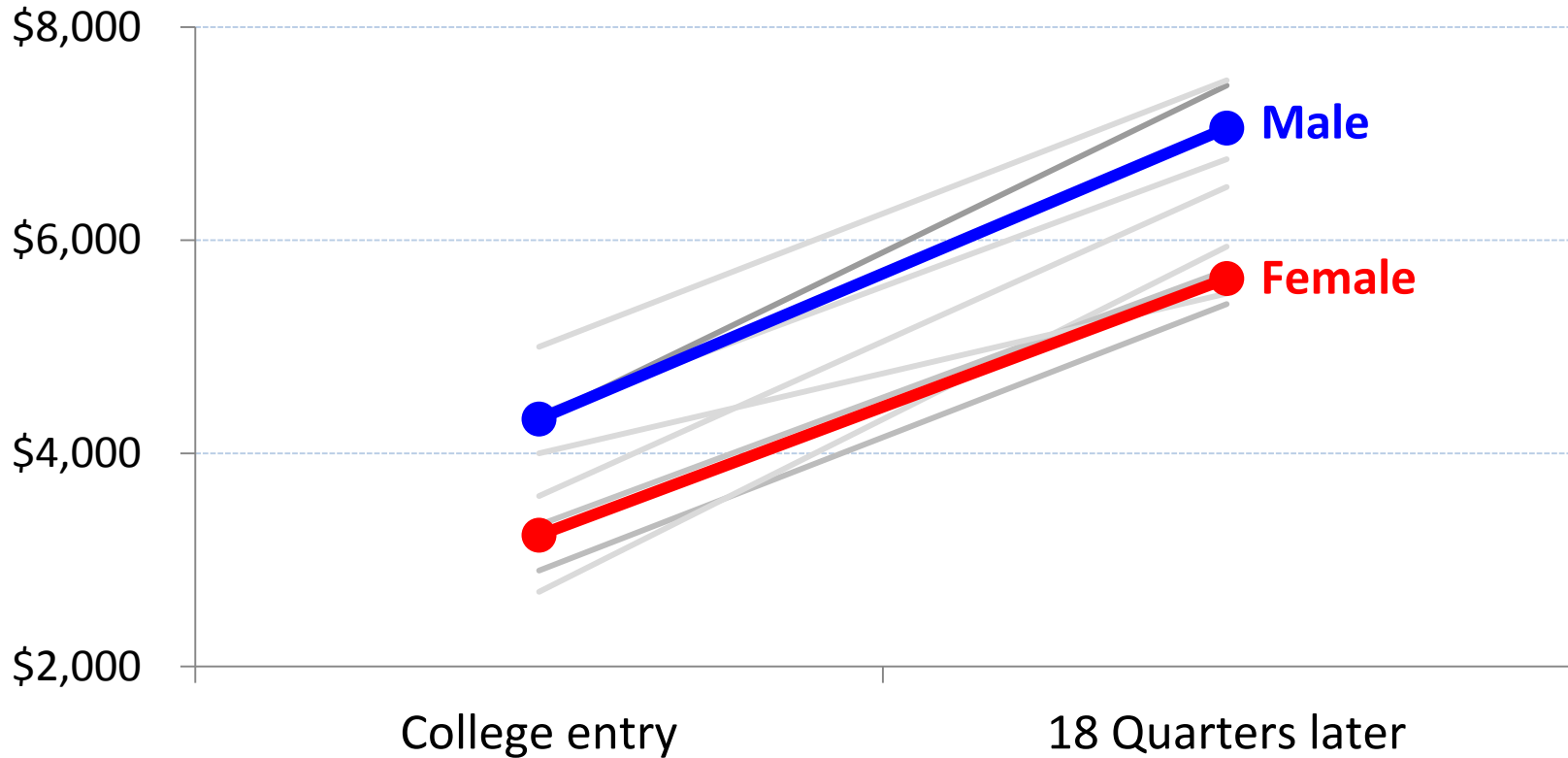
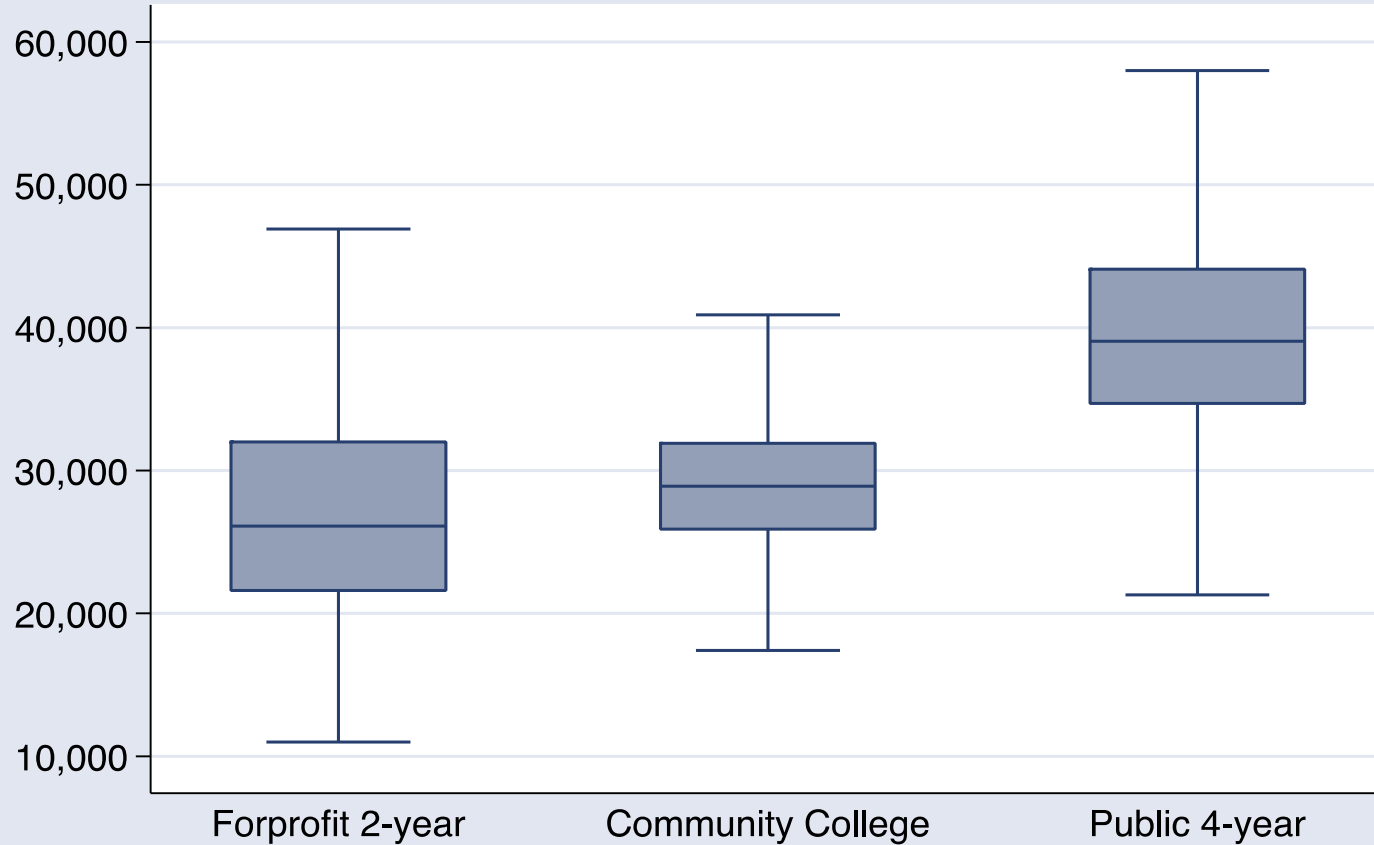


Figure 3. Earnings of College Enrollees Ten Years Later  
[Aggregated by College]



Source: U.S.DOE (2015). Median earnings.

# Evaluating Big Data

Why isn't it more useful?

- ① Time/resources for analysis
- ② Obvious or outdated or useless conclusions
- ③ Barriers to change

What can we do about it?

# 1. Time/Resources for Analysis

- Lots of data curating
- Lots of questions
- Identification problems (but not much methodological sensitivity)
- Cannot easily use short-cuts

# Data Curating is a Lot of Work

## Requirements:

- Individual-level data (not college-level or program-level)
- Long “windows” per student

## Tasks:

- Collating data longitudinally and across systems
- Cleaning data for missings (transfers/earnings)
- Coding data from flat files over courses/colleges

# Labor Market Gains to Whom?

## By Award

- Associate degree, certificate/diploma, different non-award

## If Transfer

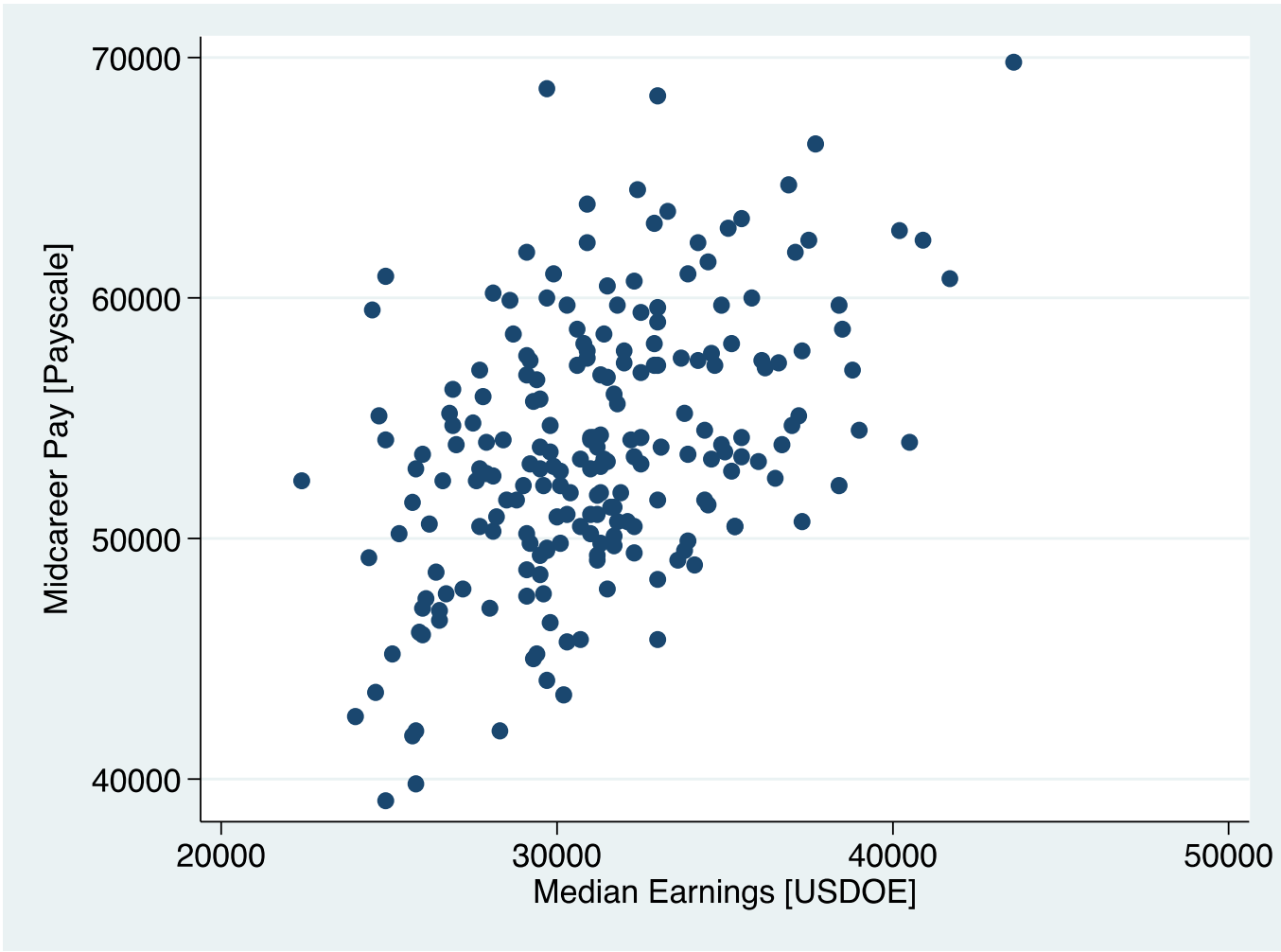
- For-profit college, four-year college, with award

## On Entry Status

- High school quality, college-ready, age

## Per Pathway

- College, subject, sequence, aid, while working



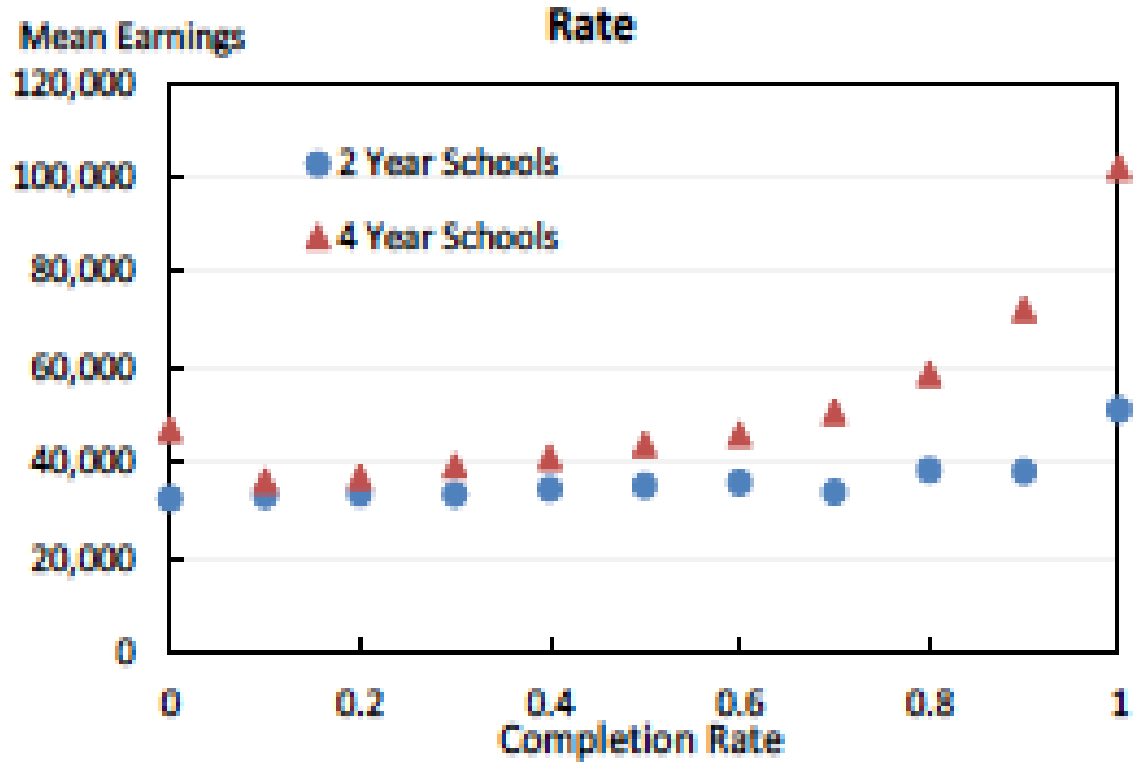
## 2A. Obvious Conclusions

Get students to:

- accumulate more credits (!!)
- complete programs (?!)
- transfer onward (??)



**Figure 5-9a: Relationship Between Earnings and Completion Rate**



Completion rate and average earnings: zero correlation per college

Note: Chart uses 10 year mean earnings and the 150% completion rate from IPEDS.

Source: Department of Education, College Scorecard Data

# Transfer to Four-year Colleges

Students who transfer to a four-year public college have:

- Higher earnings than students who do not transfer (Reynolds, 2012)
- Lower earnings than those who started at a four-year college (Andrews et al., 2013)

Earnings gains are sensitive to pathways:

- Which type of college a student transfers to
- Whether student completes an award before transfer

# Transfer to For-Profit Colleges

- Evidence (but weak) of earnings penalty from attending FP instead of CC
- No earnings gain from even attending FP after CC
- Big tuition / loan balance penalty to FP
- Bachelor's degrees from FPs have worst callback outcomes (Deming et al., 2016)

## 2B. Old News

Now	2016
Students need ~4 years in labor market	2012
Students need ~3 years to complete AA	2009
Students need ~6 years to complete BA	2006

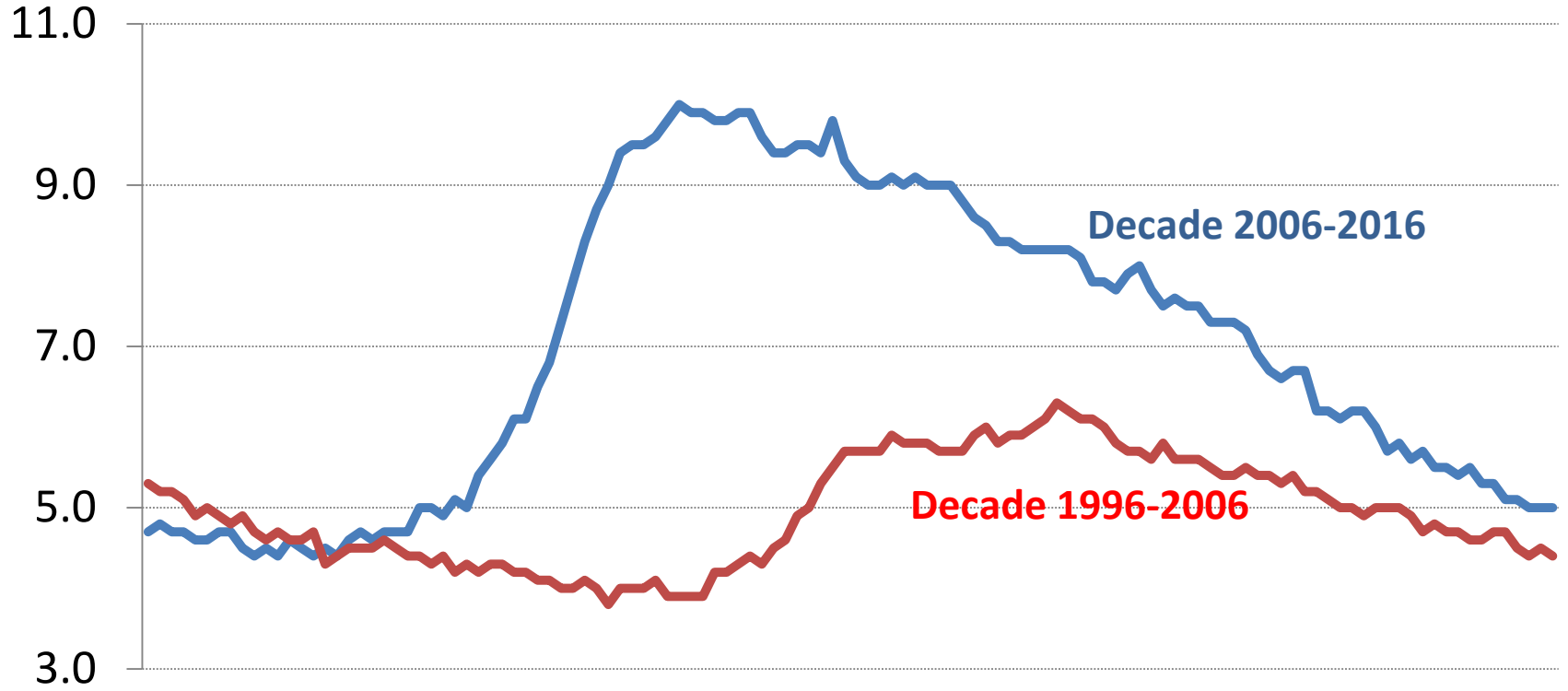
Ten years out of date

Labor market change over a decade...

# Unemployment Rate (%)



# Unemployment Rate (%)



## 2C. Useless Conclusions

Outcomes depend on differences across student characteristics...

# Gender Differences?

## Female characteristics:

- More prepared (HSGPA +0.15)
- Older and richer (Age > 24 +8%p; EFC +\$1950)

## Female choices:

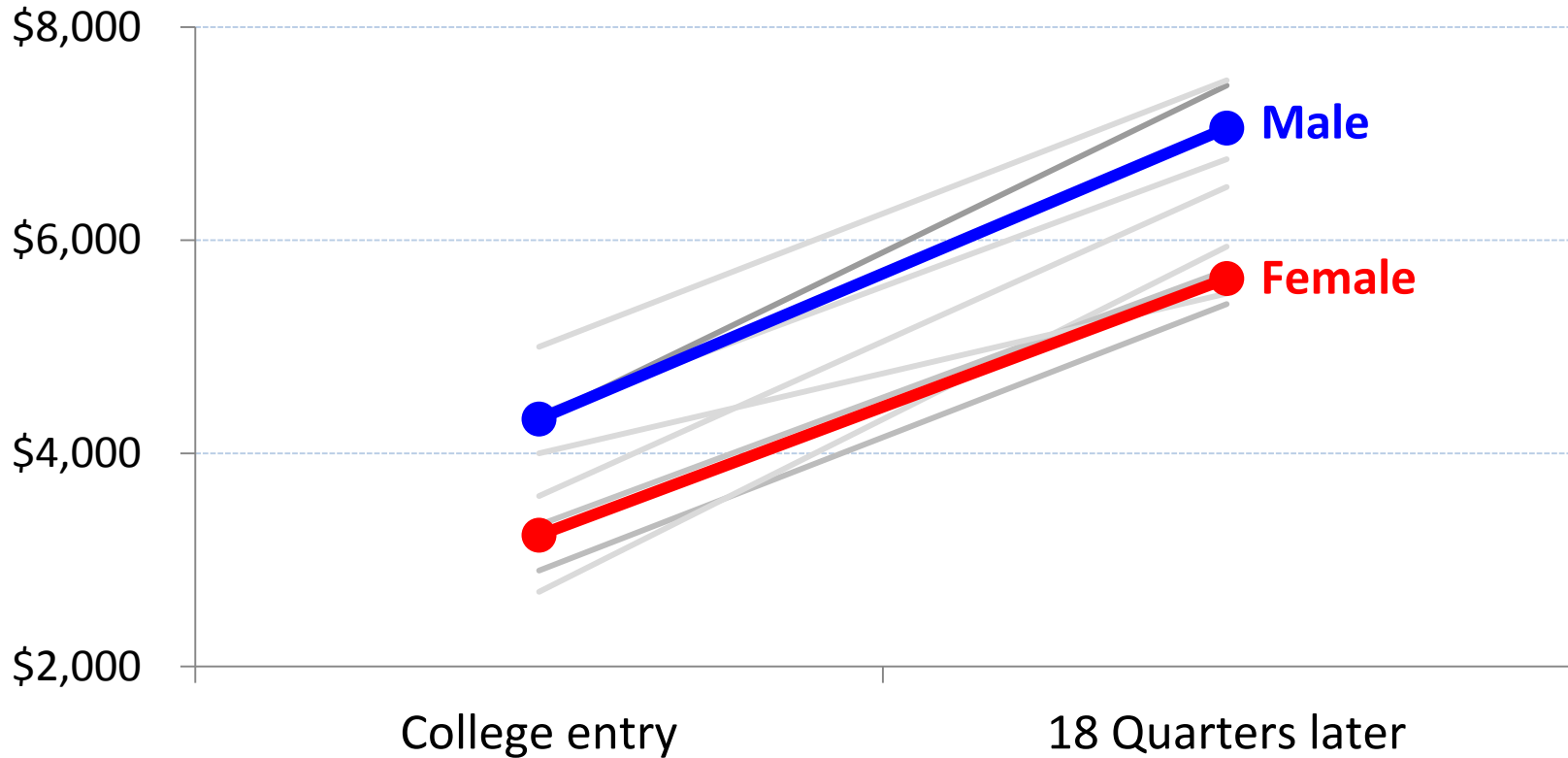
- More intent on AA (+11%p)
- Study health/nursing (+++)

## Female performance:

- Better in first semester (CGPA +0.24)
- More credits (+6) and more awards (+5%p)



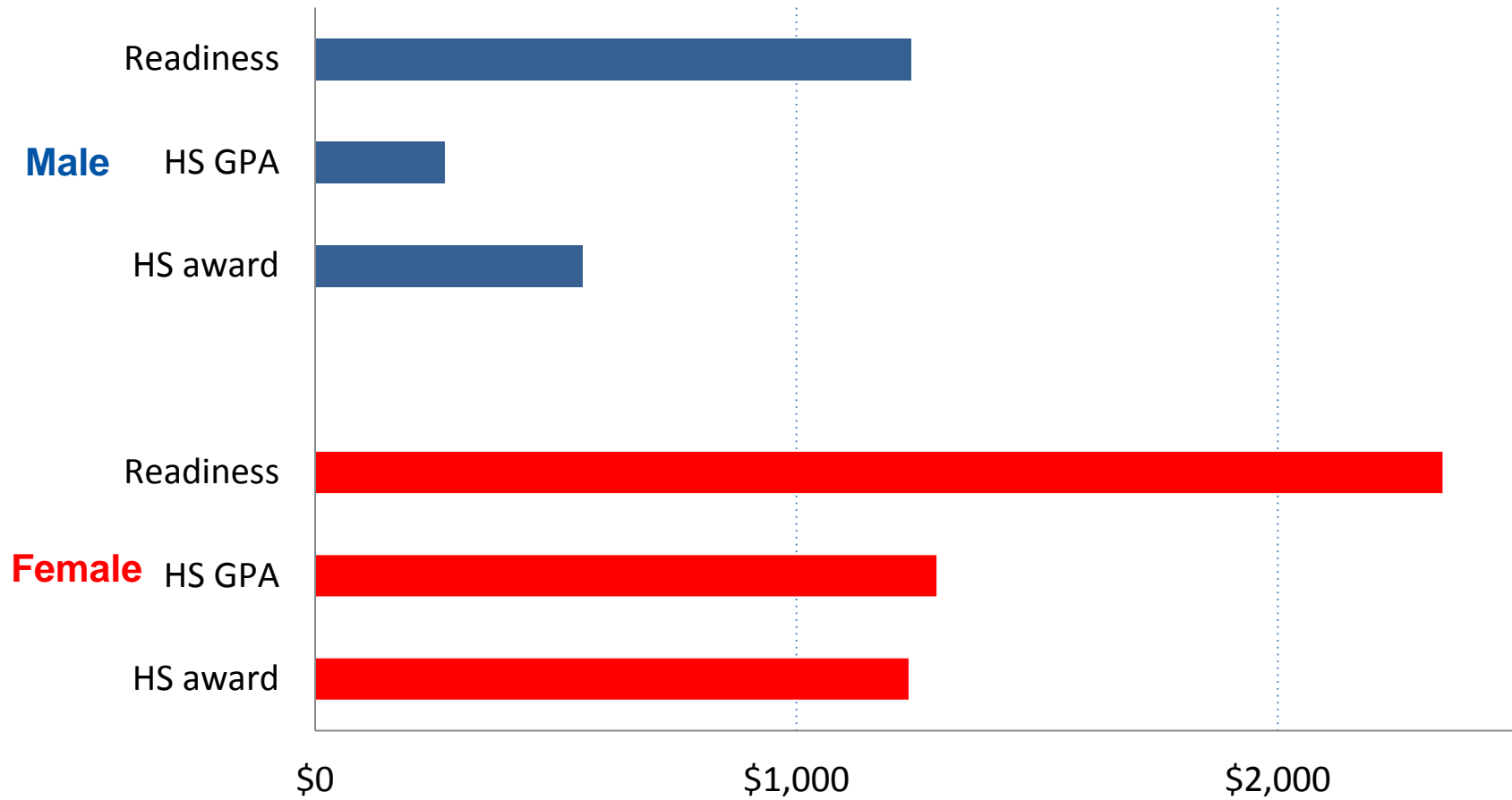
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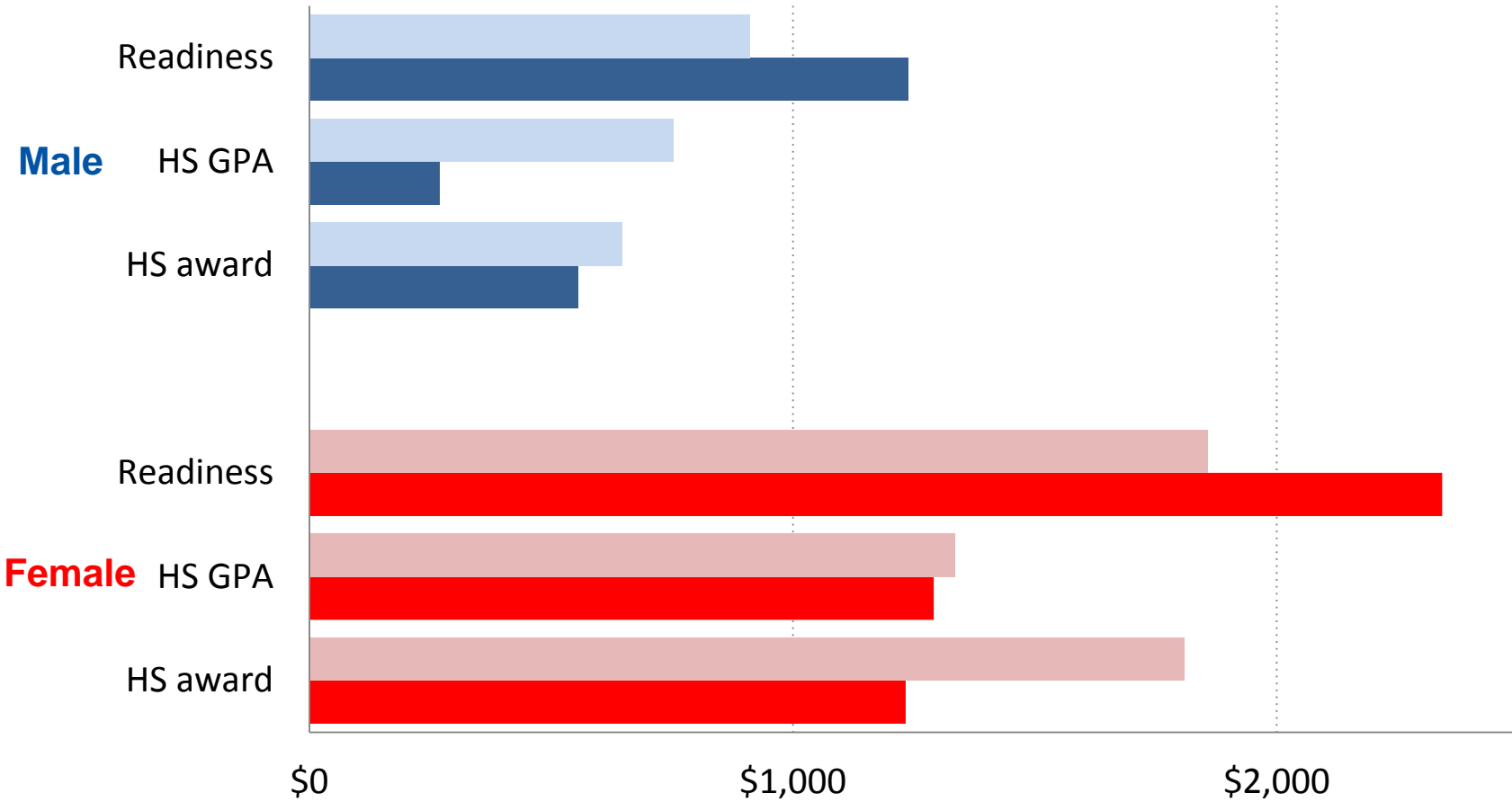
# Entry Status Differences?

- More prepared students earn more
- Controls for preparedness do not much influence returns to college
- Few high schools are relatively high-quality
- Younger entrants do better, after a time

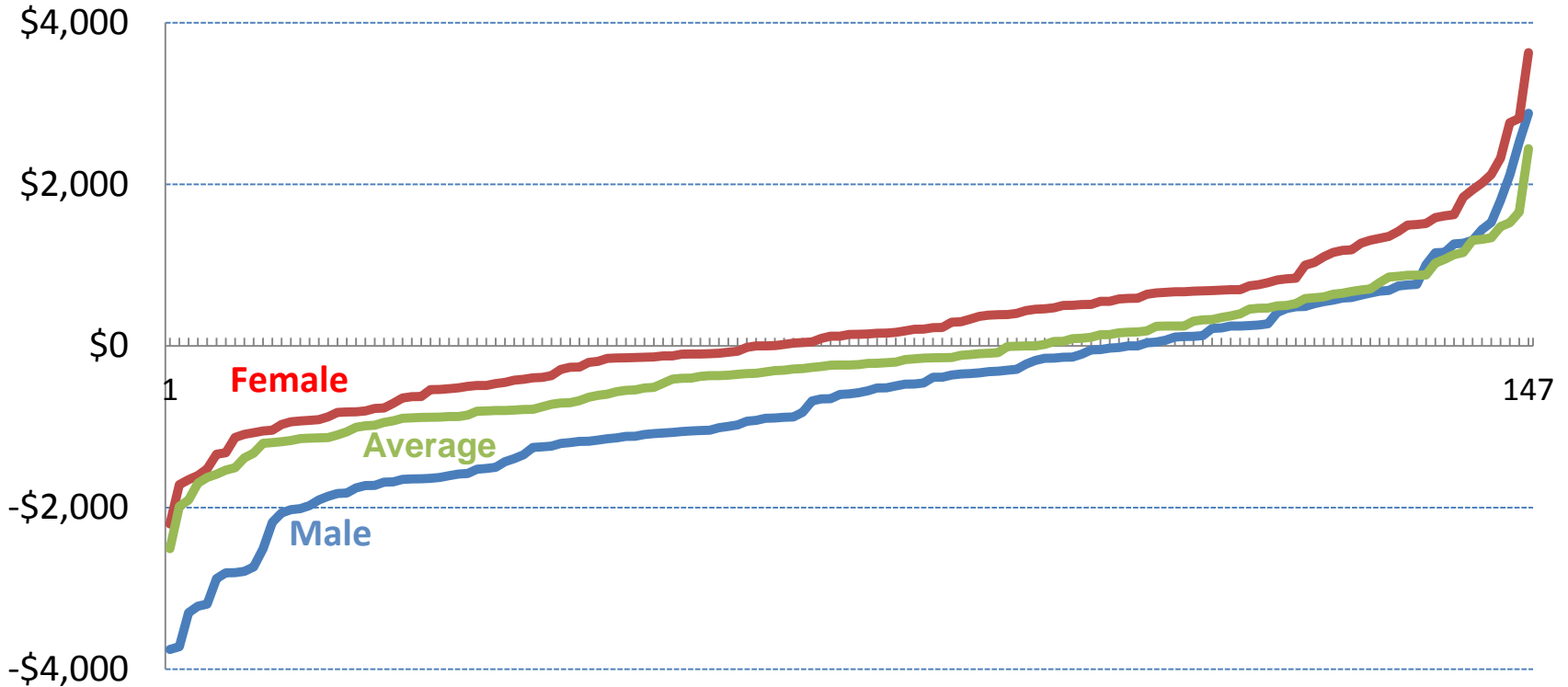
## Earnings Gains: AA over No Award, Well-Prepared Students



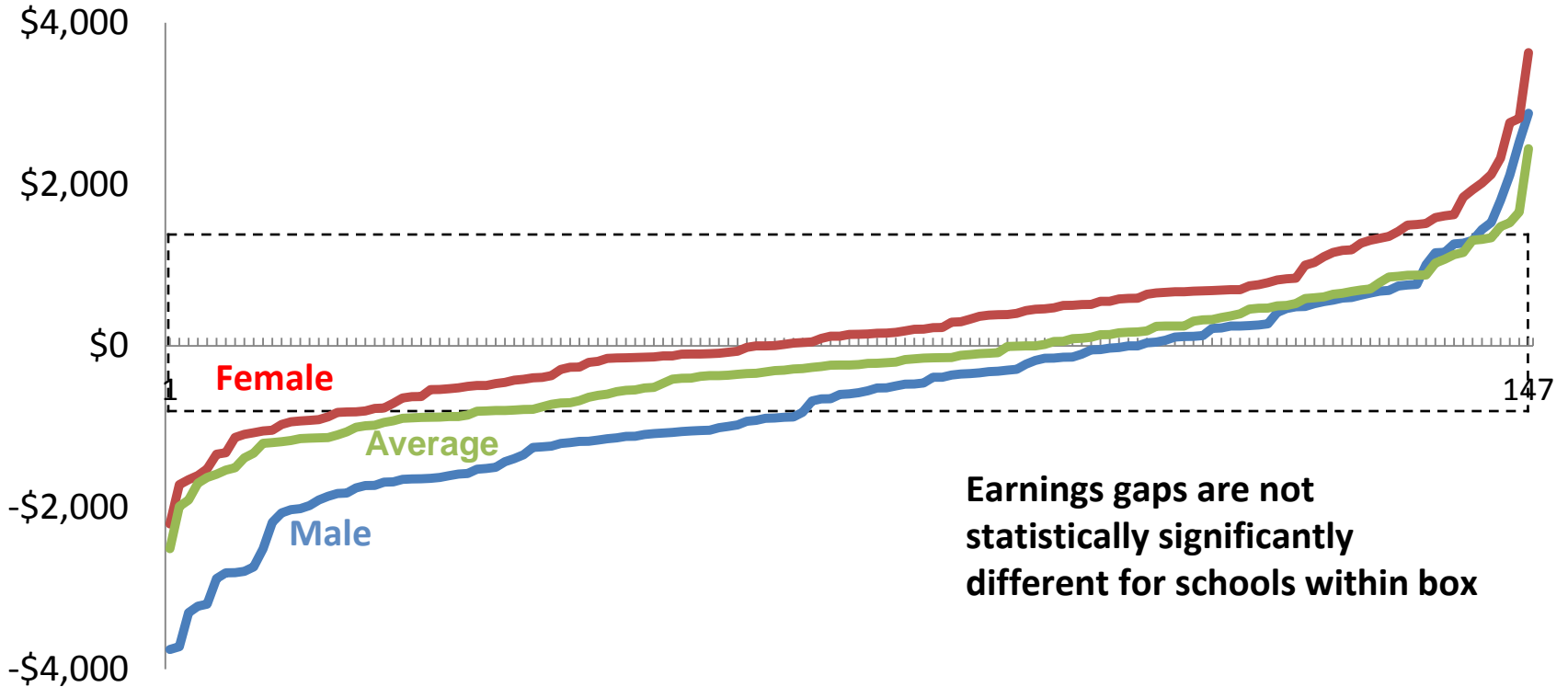
## Earnings Gains: AA over No Award, Ill-Prepared (Light Bars) and Well-Prepared Students



# Quarterly Earnings Gaps of Arkansas Community College Students Across 147 High Schools

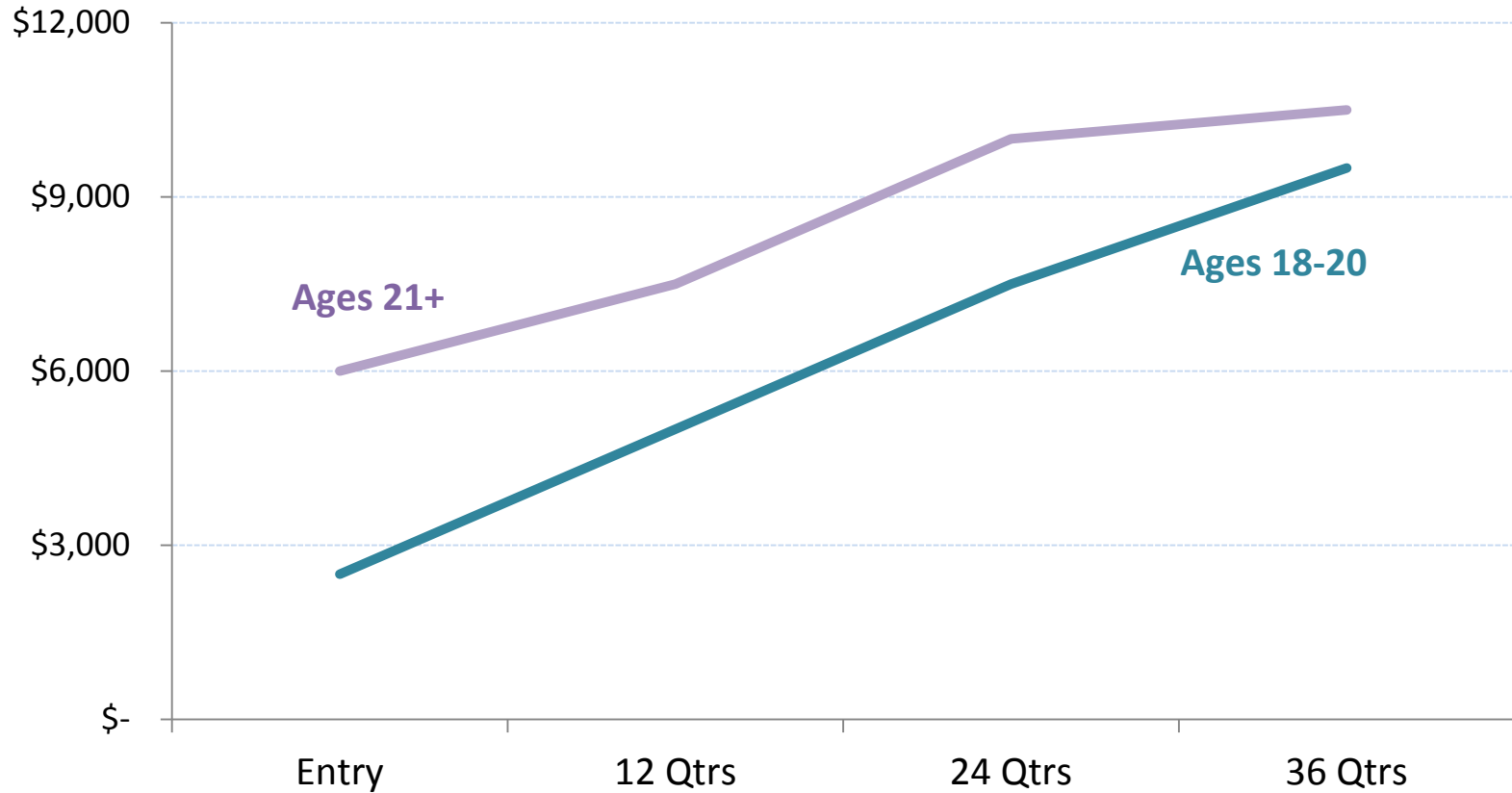


# Quarterly Earnings Gaps of Arkansas Community College Students Across 147 High Schools



Earnings gaps are not statistically significantly different for schools within box

## Earnings Growth: AA Completers by Age on Entry



## 2D. It Depends

Aid effects are extremely complicated:

- Type of aid
- Take-up of aid
- Incentives
- Targeting accuracy
- Changes in aid systems



# 3. Barriers to Change

- No point in having information if it does not change a decision

## 3A. No Incentive for CCs

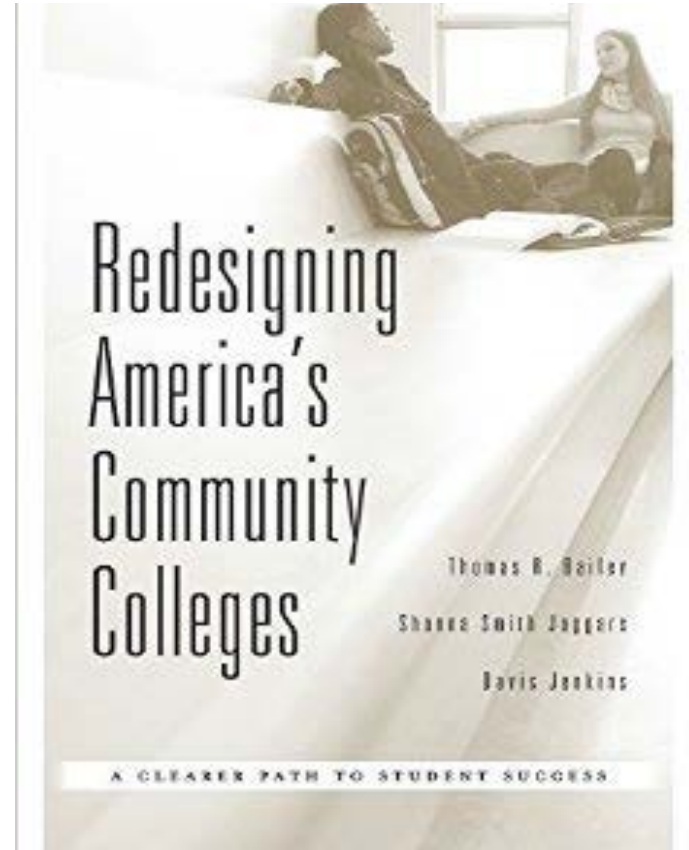
- Not CC benefit
  - Students earn more, CCs do not get more
- Policy perversity: less funding whatever is done
  - Do well, can do well with less funding
  - Do poorly, must be inefficient

## 3B. Barriers to Change

- Health sciences departments; hospital placements
- Weak articulation of 2-year to 4-year college programs

# 3C. Do Not Know How to Change

- Requires a lot of change
- Guided pathways
- Technical substitution of faculty = ?
- Nudges



## 3D. Cannot Afford to Change

- Labor contracts prevent reduction in low-demand programs
- Cross subsidy of upper-level courses by introductory/remedial courses
- Expanding in first-semester cannot be sustained until completion

# Making Big Data More Useful

What would change or can with this information?

- Work with policymakers
- Relate to actual decisions by senior personnel, faculty, counselors/advisors, students

# Making Big Data More Useful

Choose approach:

- *Either* specific/narrow hypotheses
- *Or* stylized, ahistorical, “big picture” facts
- Who is audience? What will be useful in the future? What is economic value of information?

# Actionable Narrow Questions

What is the labor market gain from:

- Summer session courses?
- First-semester course-loads (momentum)?
- Transfer with an Associate degree or as fast as possible?
- Higher instructor quality?
- Smaller class size?



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