

# A Dying Degree?

The Change in Value of the **Associate's Degree** after the Financial Crisis of 2007/2008?  
by Kenneth Foster, Paul Schumacher, & Prachya Tantivatana



\*Picture Credit: wikiHow Staff, 2021. How to Transfer from a Community College to a University. Retrieved 6/1/2022.  
<https://www.wikihow.com/Transfer-from-a-Community-College-to-a-University>

# The Change in Value of the Associate's Degree (AD)

## Underlying Theory

- As unemployment rate grows, college enrollment rates increases (Long, 2004b\*)
- Effect will be reinforced among 16-24 year-olds due to lack of employment opportunities (Bell and Blanchflower, 2011\*\*)

## Research Questions

- How did the **Demographics** (= *share of people owning just an Associate's Degree*) and **Quality** (= *wage differences towards other degrees*) evolve after the Great Financial Crisis (GFC) of 2007/2008?

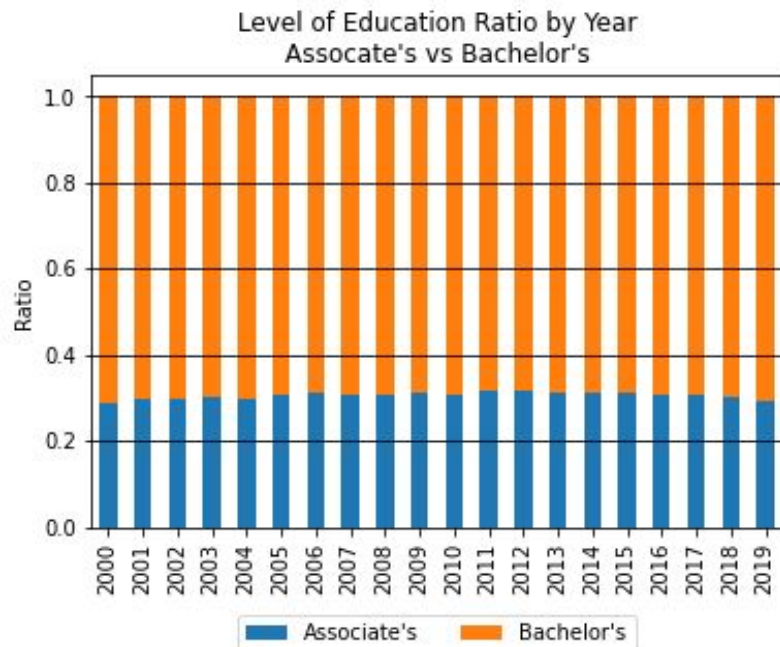
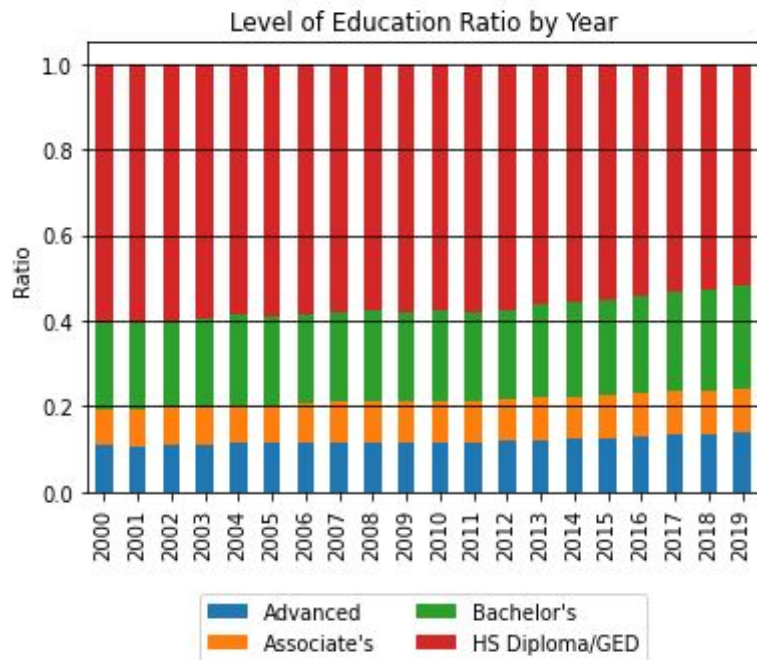
## Data

- U.S. Census Bureau, 2000-2019 American Community Survey 5-year Estimates. Retrieved from [usa.ipums.org](https://usa.ipums.org)
- Wages are adjusted to 2019 USD (\$)

\*Long, B. T. (2004). How have college decisions changed over time? An application of the conditional logistic choice model. *Journal of econometrics*, 121(1-2), 271-296.

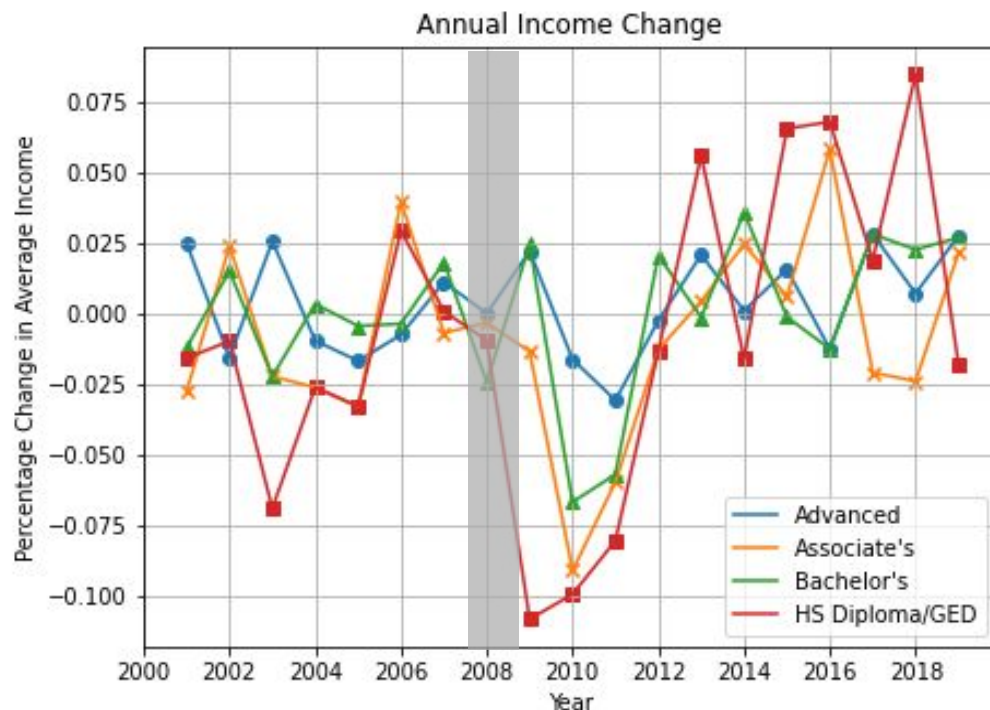
\*\*Bell, D. N., & Blanchflower, D. G. (2011). Young people and the Great Recession. *Oxford Review of Economic Policy*, 27(2), 241-267.

# The Demographic Change of the AD



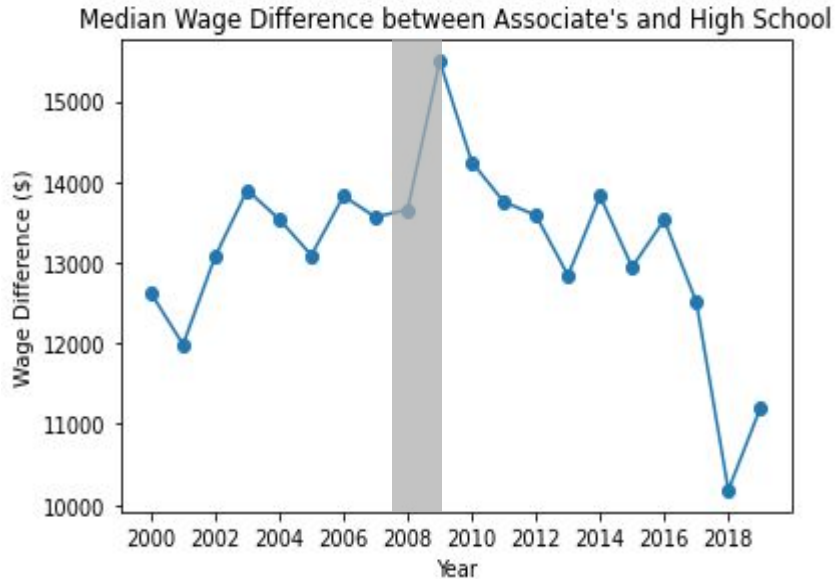
The share of people with an **AD** as their highest degree grows with respect to people with a **high school degree** as their highest degree but shrinks with respect to people with a **bachelor's** or **master's** degree as their highest degree.

# The Change in Value of the AD - Annual Income Change -

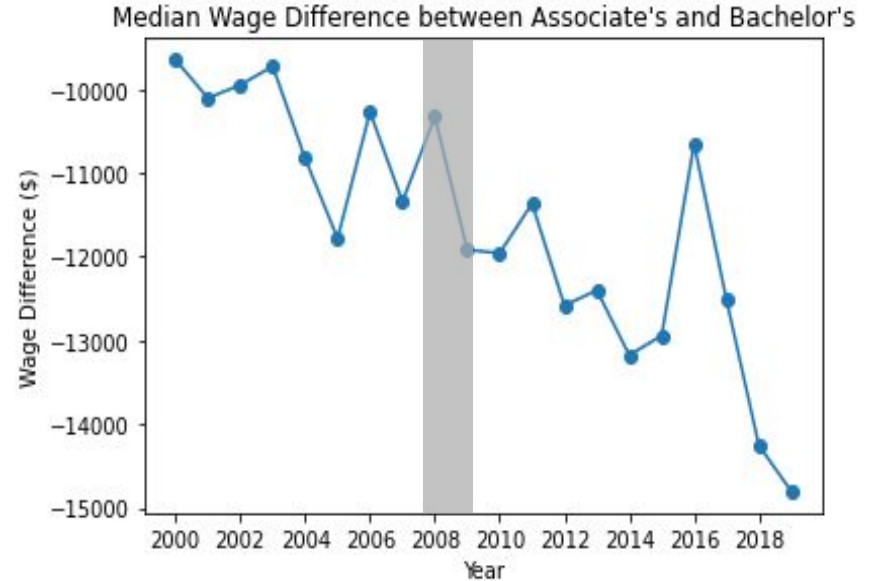


For the post crisis period 2008 to 2011, the lower the level of a person's highest educational degree the **more severe** was the negative percentage change in annual average income.

# The Change in Value of the AD - Median Wage Differences -



The wage premium for people with an **AD** as their highest degree with respect to people with a **high school degree** as their highest degree grew until 2008, where it stagnated, then decreased.



The wage premium for people with an **AD** as their highest degree with respect to people with a **bachelor's degree** decreases faster after 2008.

# The Change in Value of the AD

## - Regression for wage on all people -

	(1)	(2)	(3)	(4)	(5)
<i>Associate's</i>	0.965*** (0.008)	0.391*** (0.005)	0.404*** (0.005)	0.405*** (0.005)	0.404*** (0.005)
<i>Bachelor's</i>	1.426*** (0.005)	0.644*** (0.004)	0.655*** (0.004)	0.646*** (0.004)	0.649*** (0.004)
<i>Advanced</i>	2.009*** (0.007)	1.012*** (0.005)	1.022*** (0.005)	1.005*** (0.005)	1.003*** (0.005)
<i>Person Characteristic</i>		Yes	Yes	Yes	Yes
<i>Time Trend</i>			Yes	Yes	Yes
<i>State Fixed Effect</i>				Yes	Yes
<i>Interaction</i>					Yes
<i>Observation</i>	4,097,495	4,097,495	4,097,495	4,097,495	4,097,495
<i>R-Squared</i>	0.030	0.558	0.559	0.559	0.560

On Average, those compared to High School degree:

- 2-year college (AD) earn 40% more
- 4-year college (Bachelor's) earn 65% more
- Graduate or higher degree (Advanced) earn 100% more

Controls:

- (1) None
- (2) Person Characteristic: race, age, sex, employment status, citizenship status
- (3) Time Trend
- (4) State Fixed Effect
- (5) Interaction Term: race, sex, employment status, citizenship status

Robust estimators

# The Change in Value of the AD

## - Regression for wage on people with income $\neq 0$ only -

Values for 800,000 people were dropped because their income was equal to zero.

On Average, those compared to High School degree:

- 2-year college (AD) earn 28% more
- 4-year college (Bachelor's) earn 57% more
- Graduate or higher degree (Advanced) earn 85% more

Robust estimators

⇒ Lower Effect of the Degree

	(1)	(2)	(3)	(4)	(5)
<i>Associate's</i>	0.329*** (0.002)	0.279*** (0.002)	0.284*** (0.002)	0.283*** (0.002)	0.283*** (0.002)
<i>Bachelor's</i>	0.639*** (0.002)	0.574*** (0.001)	0.579*** (0.001)	0.565*** (0.001)	0.565*** (0.001)
<i>Advanced</i>	1.023*** (0.002)	0.863*** (0.002)	0.868*** (0.002)	0.848*** (0.002)	0.847*** (0.002)
<i>Person Characteristic</i>		Yes	Yes	Yes	Yes
<i>Time Trend</i>			Yes	Yes	Yes
<i>State Fixed Effect</i>				Yes	Yes
<i>Interaction</i>					Yes
<i>Observation</i>	3,189,330	3,189,330	3,189,330	3,189,330	3,189,330
<i>R-Squared</i>	0.107	0.315	0.317	0.322	0.324

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# The Change in Value of the AD

## - Value of higher education across time -



From 2000, every kind of degree **increased** in value annually compared to only finishing High school. **However**, after the 2008 financial crisis, returns from an AD **decreased** each year, while the return from longer degrees increased. An Associate's Degree is relatively becoming a worse investment.

Plotted above are regression coefficient estimates, subset by year. Each point is a different year and education category coefficient.



# A Dying Degree? - Unknown! But its wage premium shrank after the GFC

## What we know

- *Demographics*: The share of people choosing AD as their highest degree shrinks compared choosing a BA or advanced degree
- *Quality*: The higher the degree, the better the wages, on average
  - The premium of an AD (compared to no college degree) is decreasing.
  - Bachelor's and Advanced degrees continue to yield better wages every year
  - There is a disparity between the return on different kinds of college degrees.

## What we don't know

Underlying reasons for the inequality in degree outcomes

- Does the return come from the degree itself (signaling) or the education (increased skill)?
- Changes in tuition cost for each degree and its gross return in wage.
- People with lower educational skills might be concentrated in associates degree programs

# The Change in Value of the AD

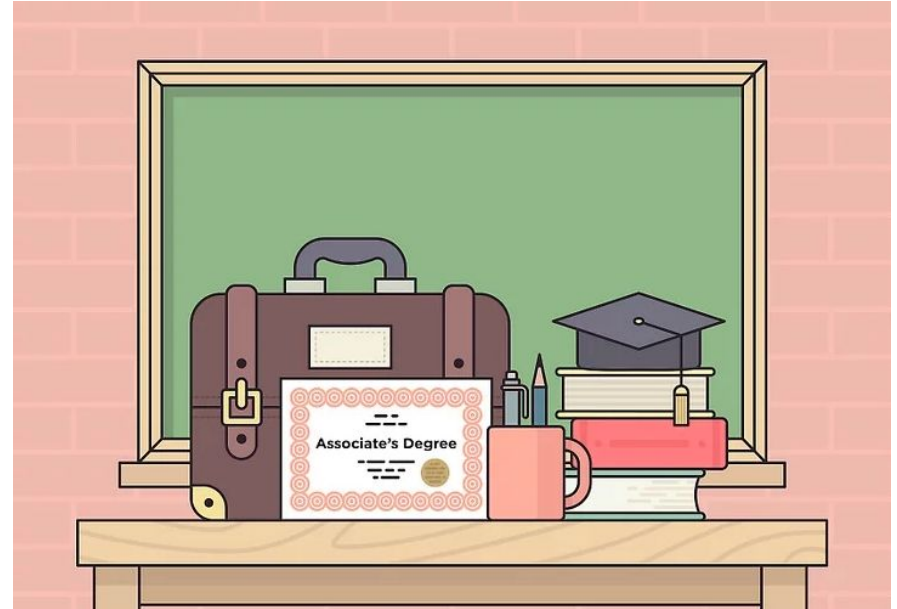
## - Future Work -

### **Question**

- Is an Associate's degree worse in itself, or does it reflect low student ability?

### **What to do**

- Find reliable assessment of individual skills, i.e. SAT and GRE score
- Track person across time to measure return on education in both short-run and long-run
- Adjust return on education with tuition across different cost structures



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