

# 30 Years of CTE

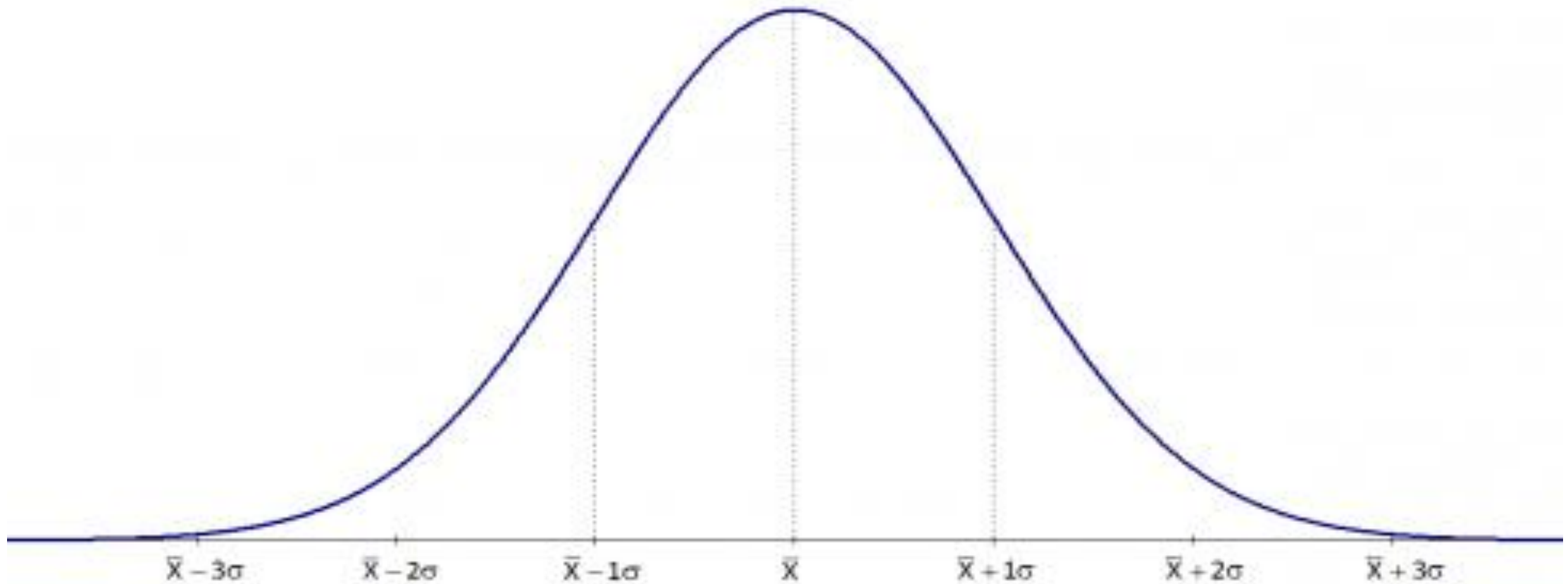
## 1982–2013

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Nat Malkus



# Questioning everything in Career & Technical Education





Opinion

# The Misguided Priorities of Our Educational System

We spend too much money on college students and not enough on everyone else.

By Oren Cass



37%

# CTE programs

- High school coursework
- *High school career pathways*
- *Regional CTE high schools*
- Career academies
- CTE part-time schools
- Dual Enrollment/ ECHS programs
- Apprenticeship

# Transcript Data 1982 to 2013

High School graduates:

- High School & Beyond, 1982
- High School Transcript Study: 1990, '94, 2000, '05 & '09
- High School Longitudinal Study: 2013

Coding transcripts using current framework.

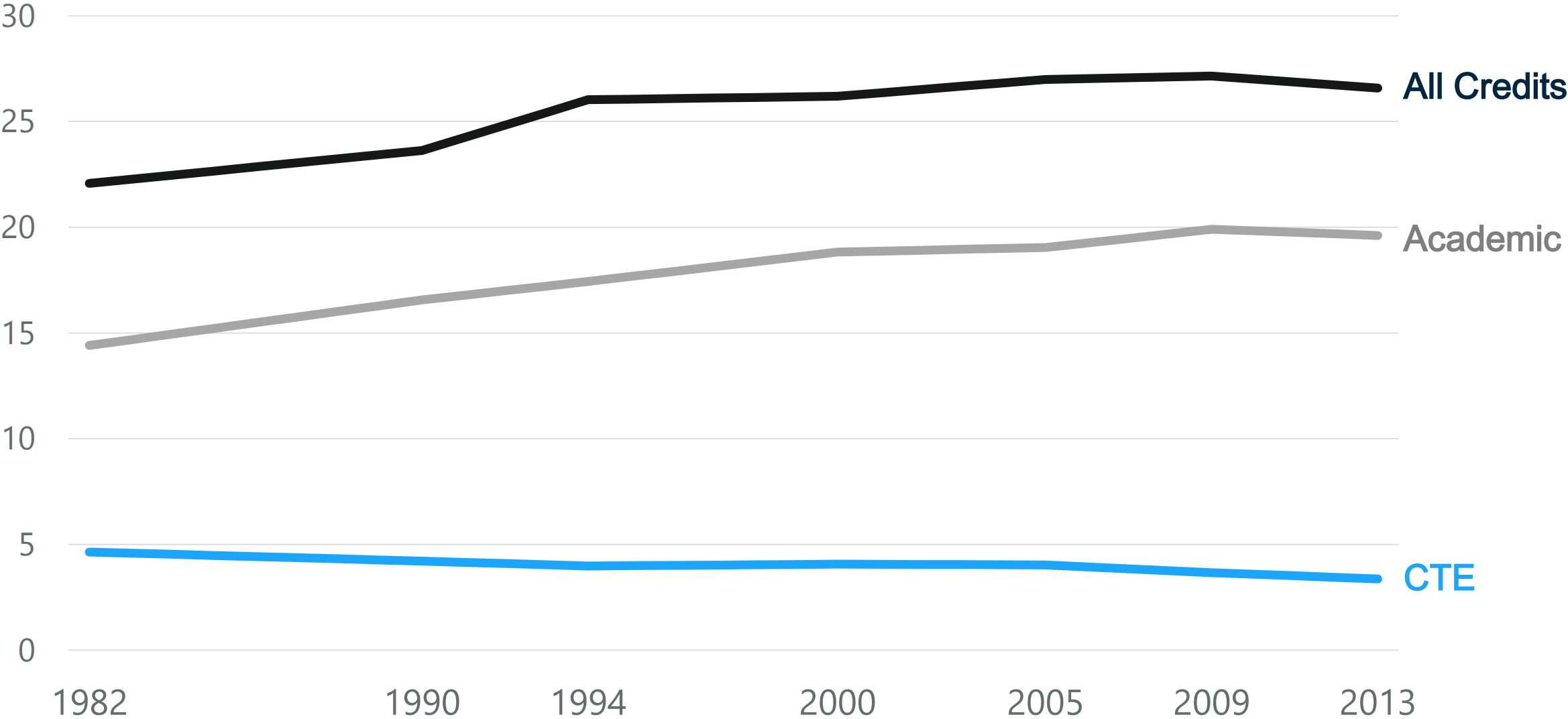
Start in 2013 & move backwards.

# Transcript Data

## SCED Occupational Clusters

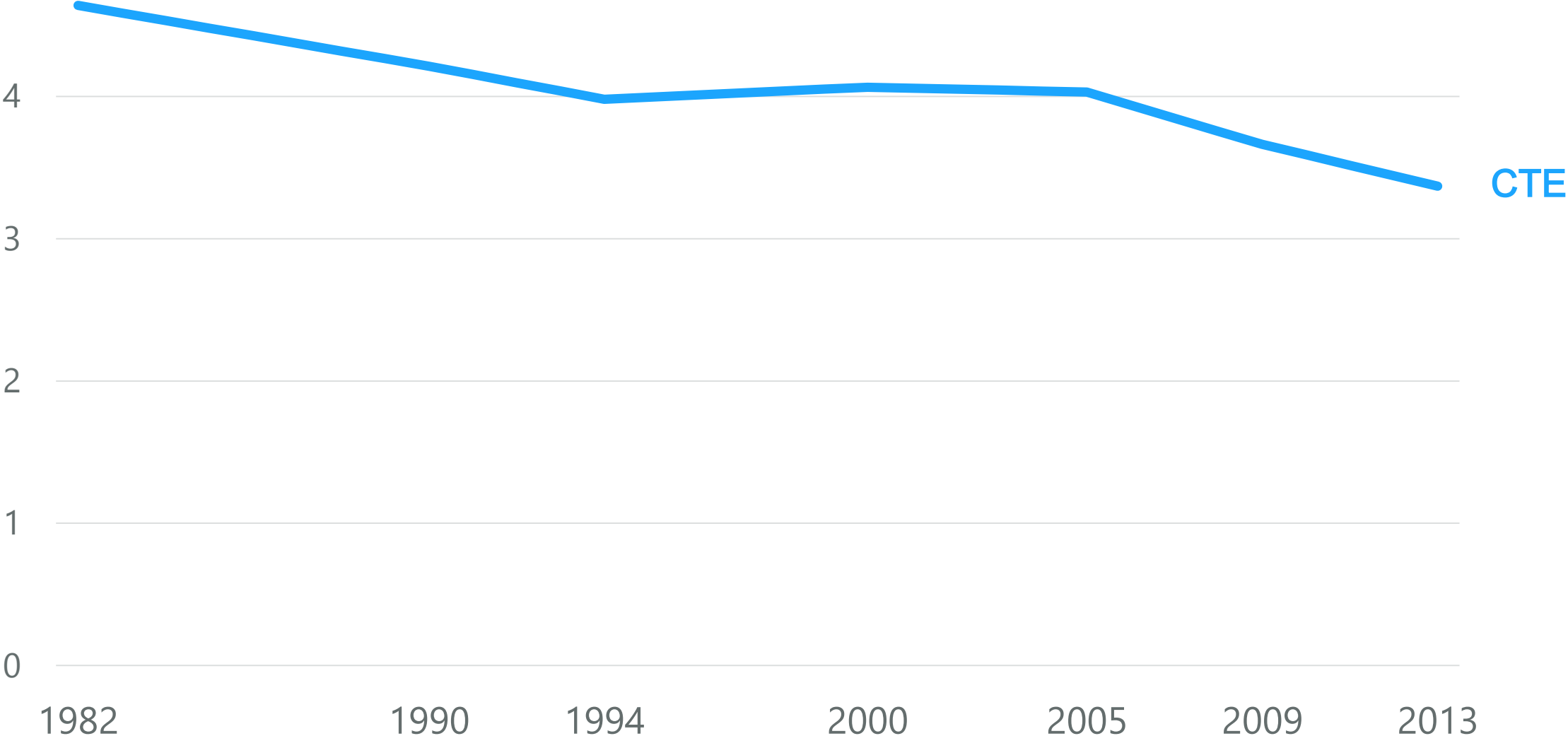
1. Agriculture
2. Construction
3. Business
4. Communications
5. Computer Sciences
6. Engineering
7. Health Care
8. Hospitality
9. Human Services
10. Manufacturing
11. Public Service
12. Transportation

# Average Academic & CTE Credits: 1982–2013

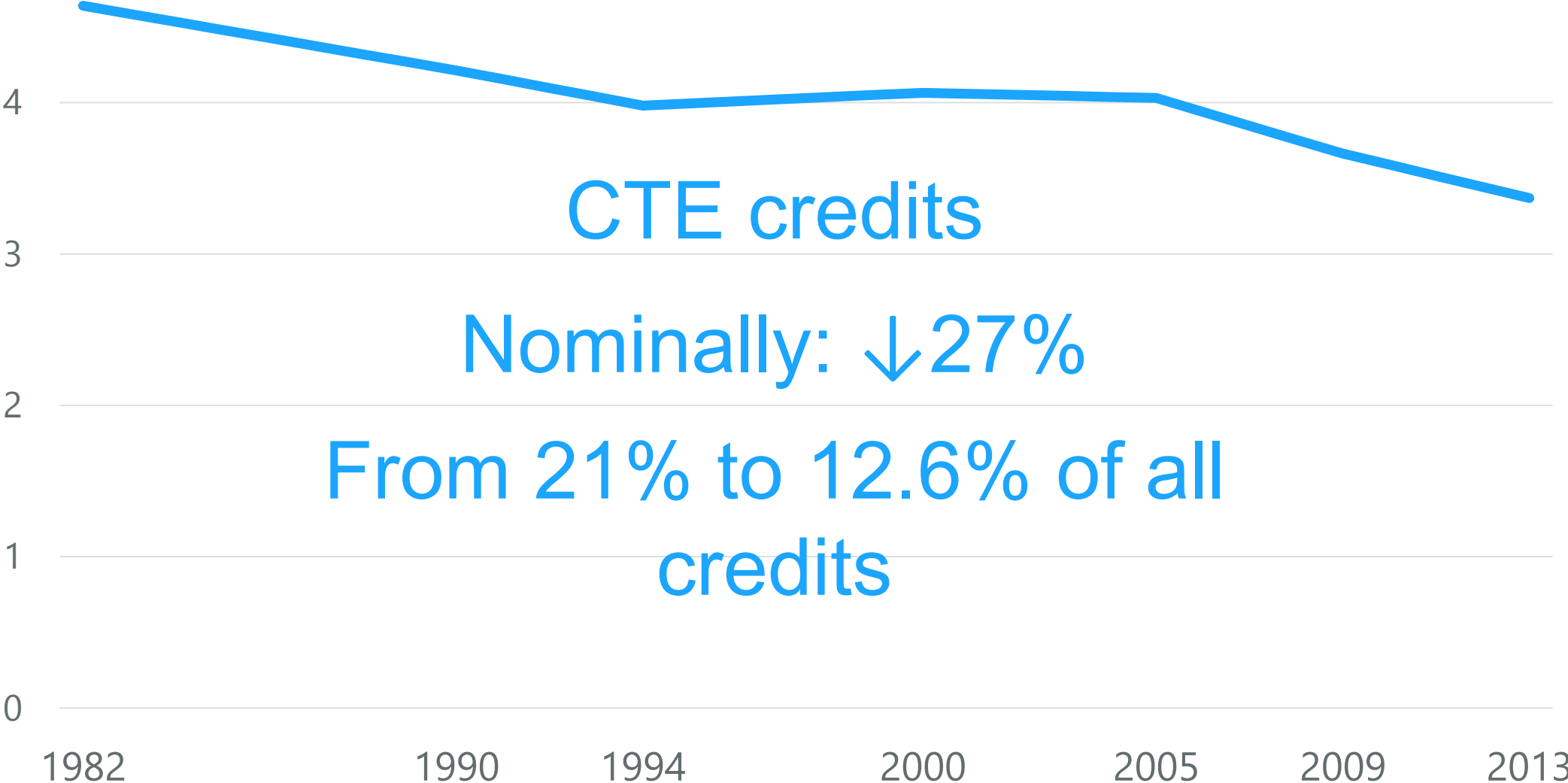




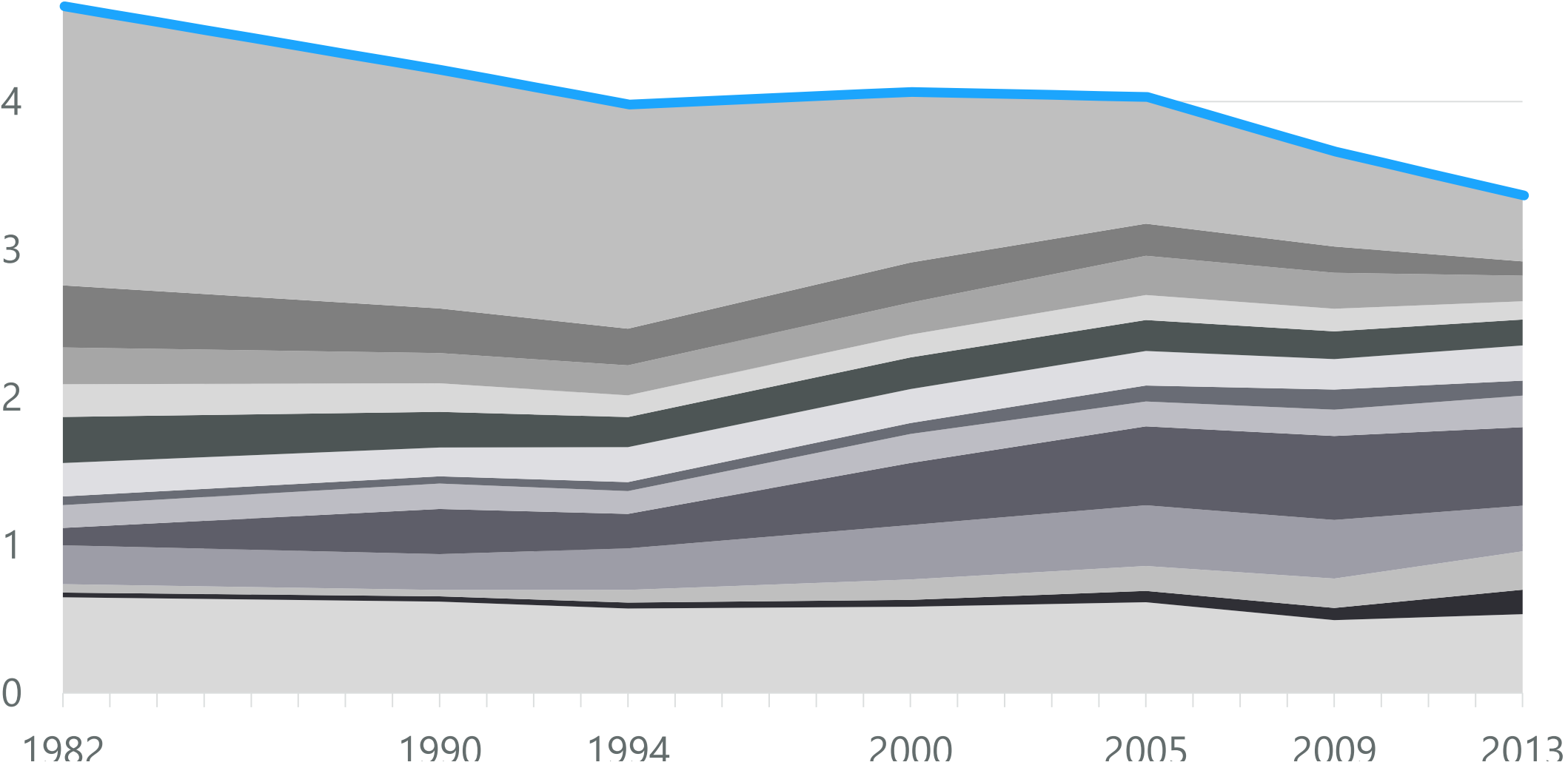
# CTE Credits: 1982–2013



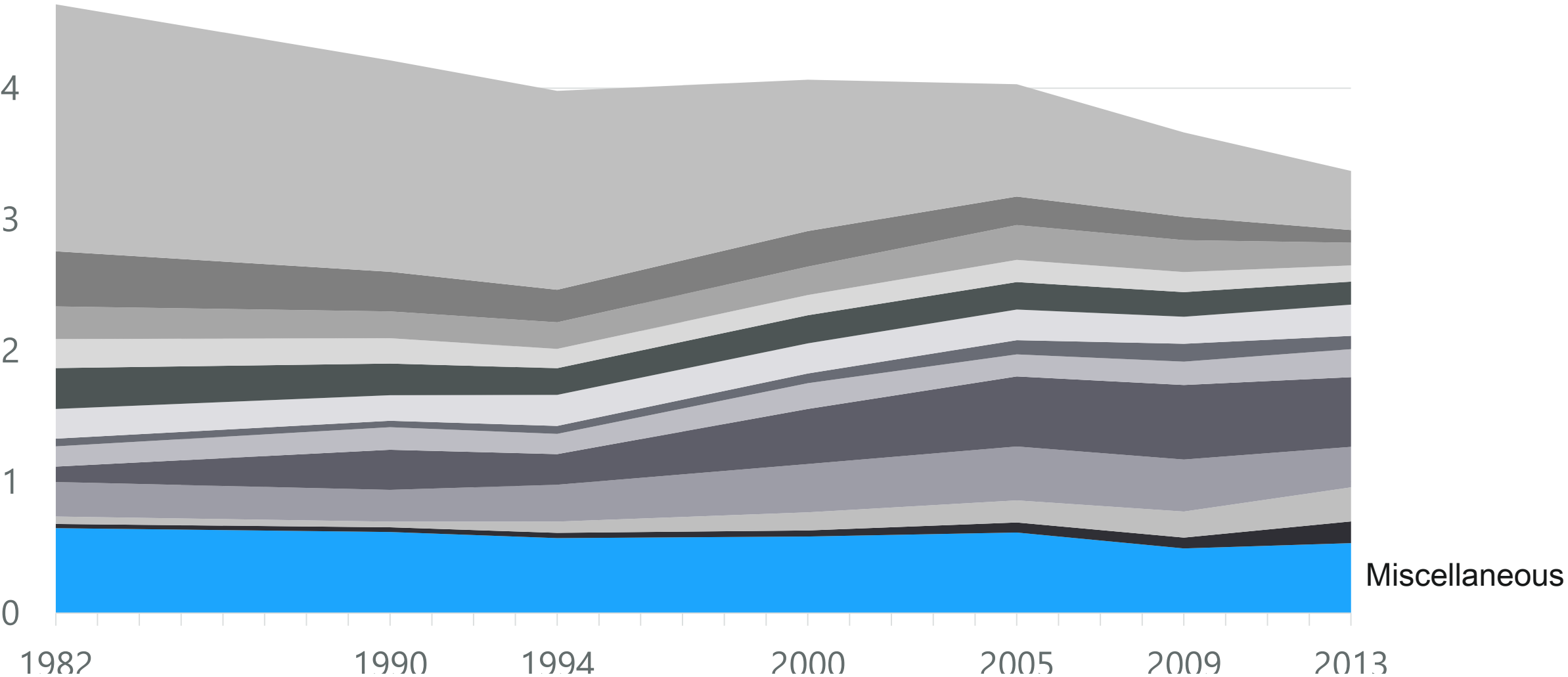
# CTE Credits: 1982–2013



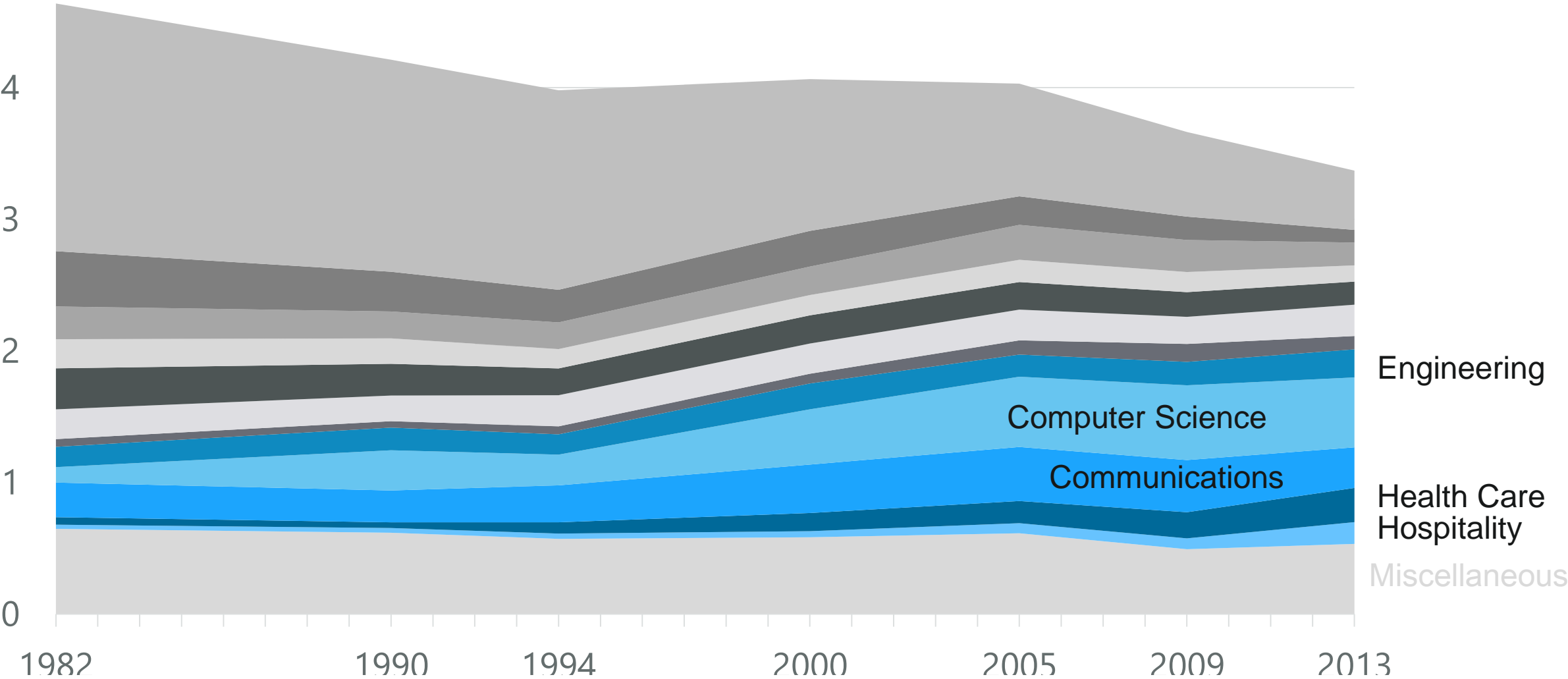
# CTE Credits by Concentration: 1982–2013



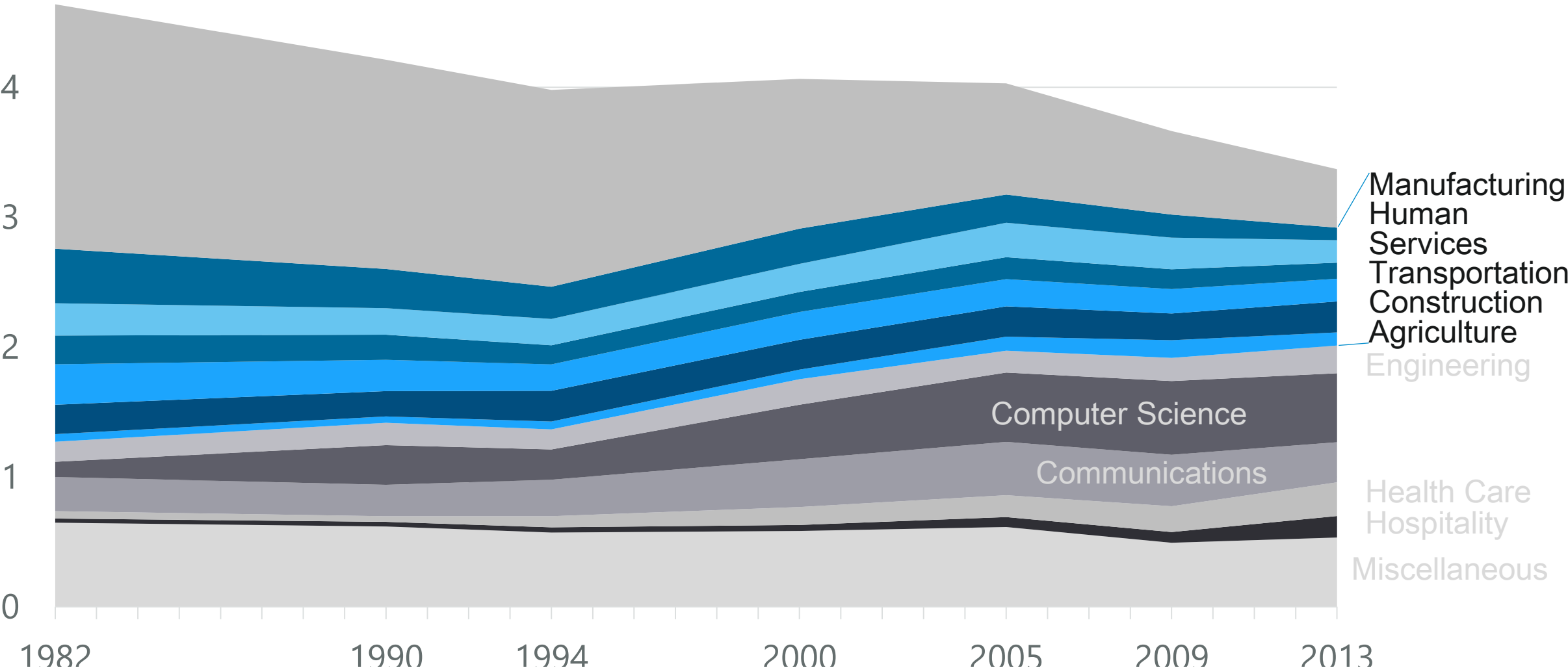
# CTE Credits by Concentration: 1982–2013



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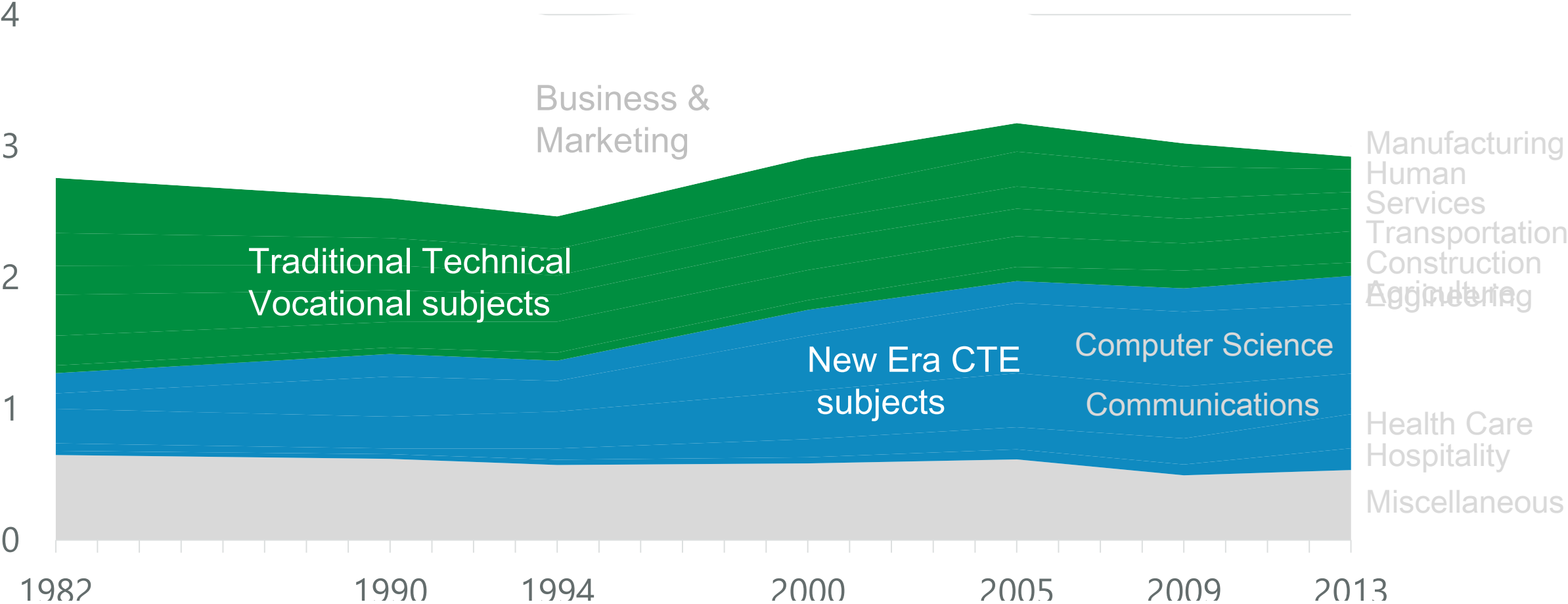








# CTE Credits by Concentration: 1982–2013



Manufacturing  
 Human Services  
 Transportation  
 Construction  
 Agriculture  
 Health Care  
 Hospitality  
 Miscellaneous

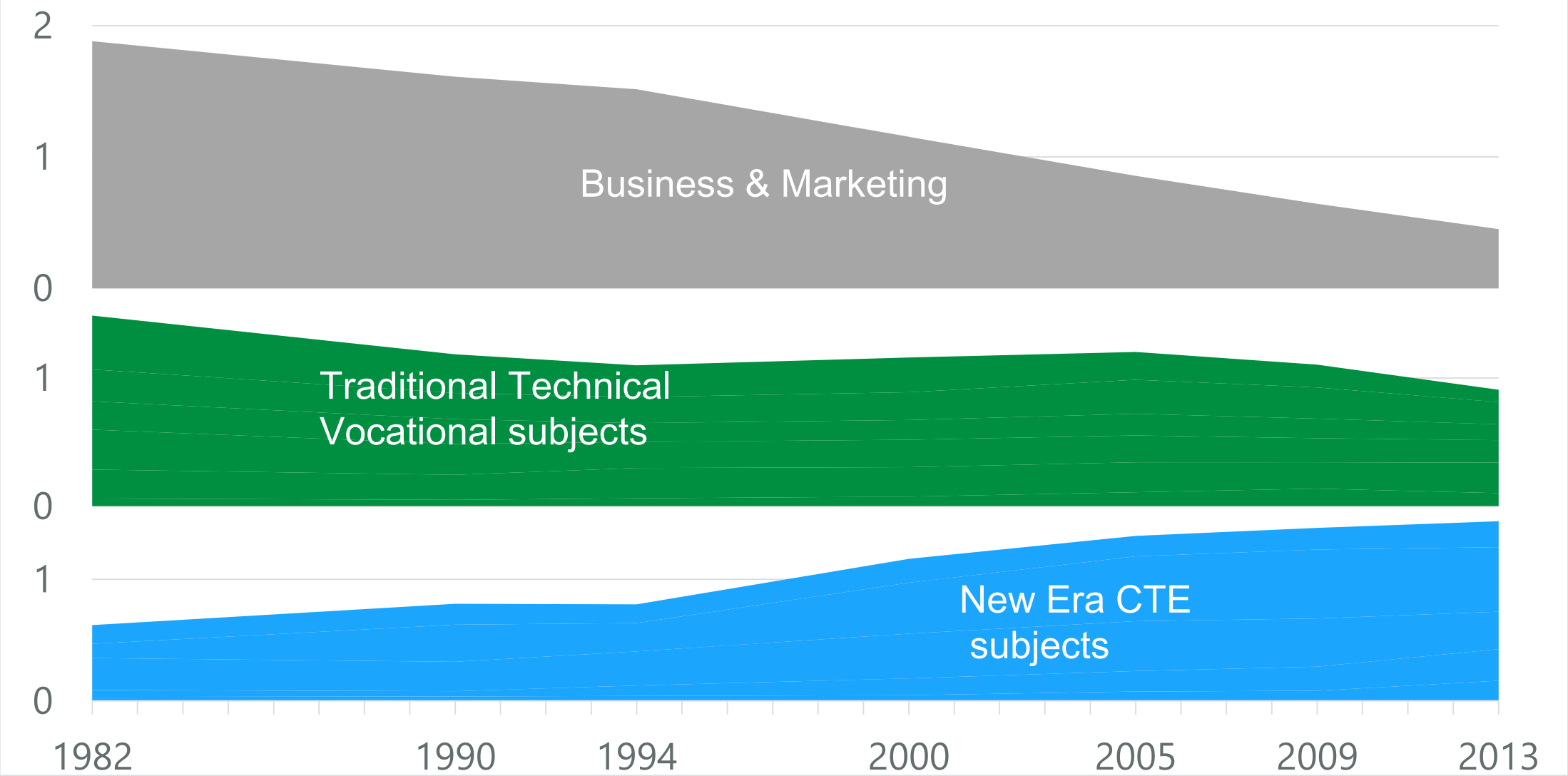
Traditional Technical  
 Vocational subjects

New Era CTE  
 subjects

Business &  
 Marketing

Computer Science  
 Communications

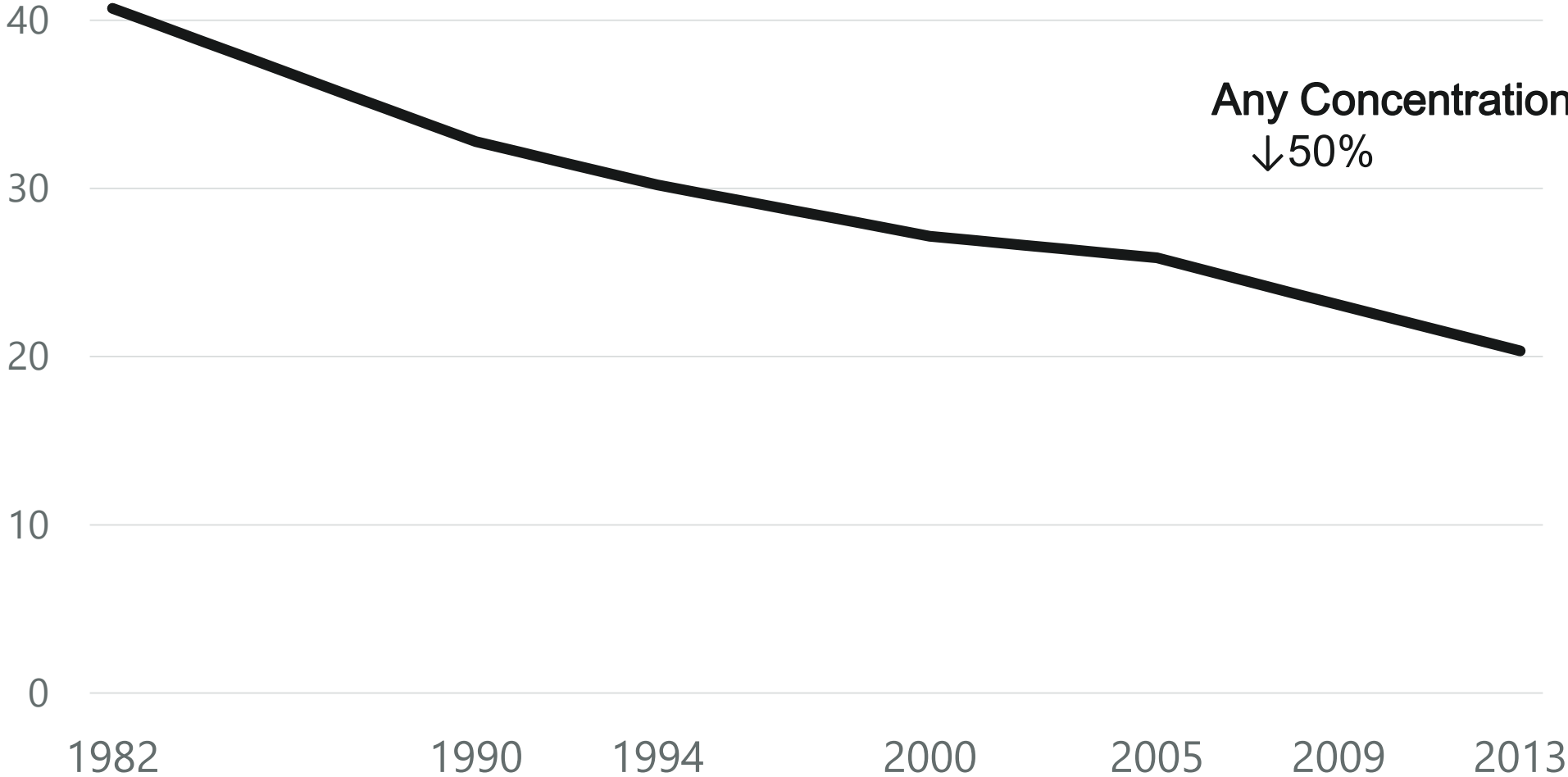
# CTE Credits by Concentration: 1982–2013



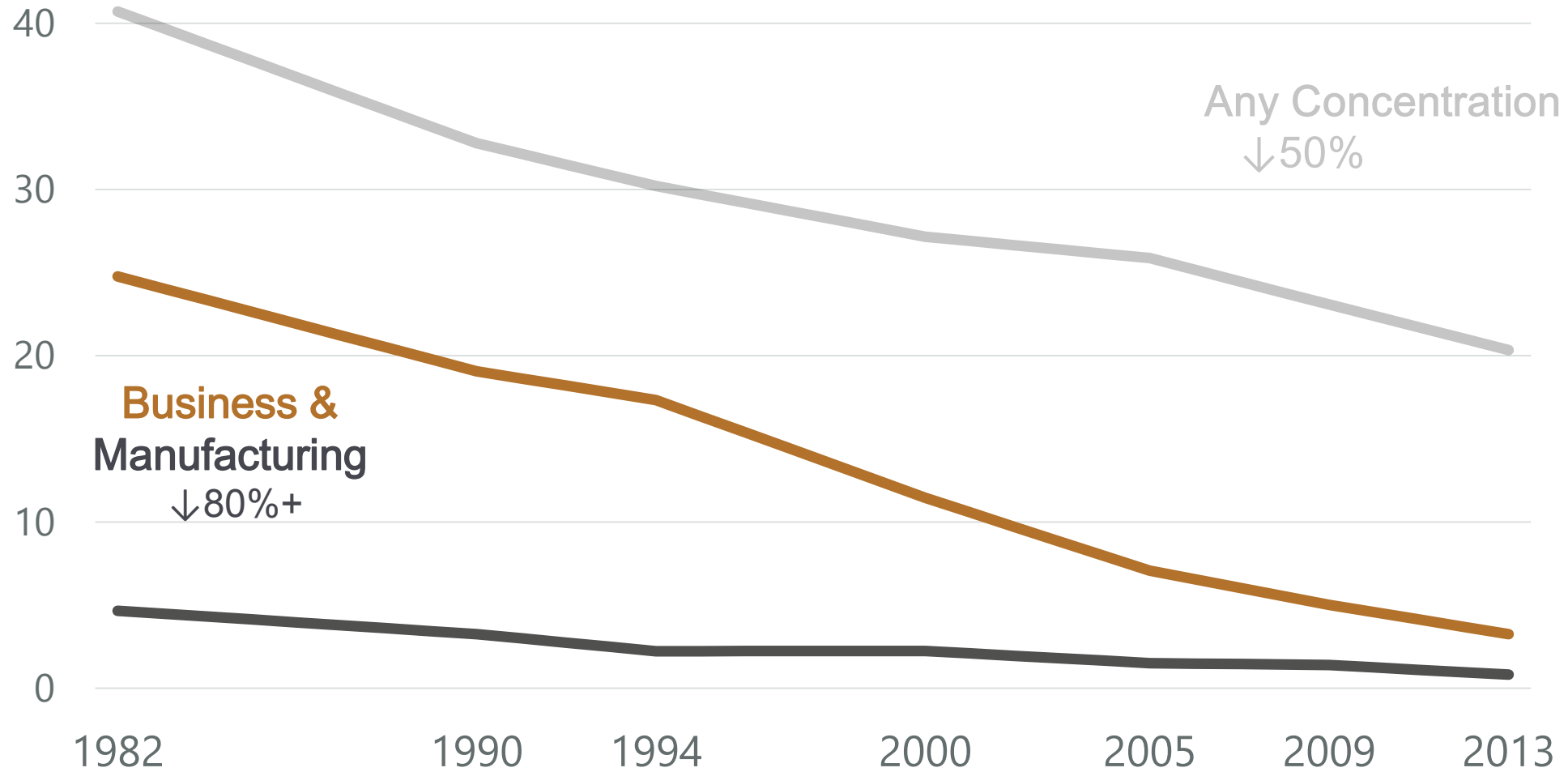
# Credits to Concentrators

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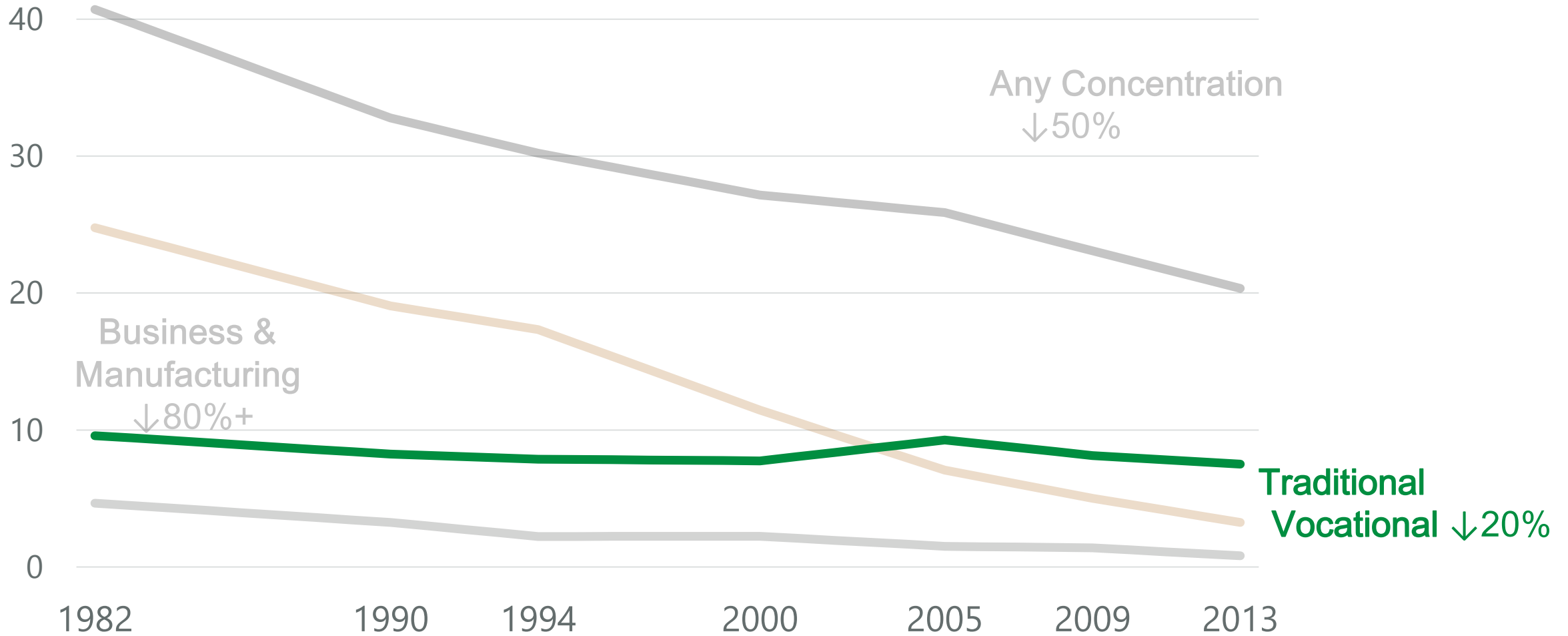
# Decline in Concentrators



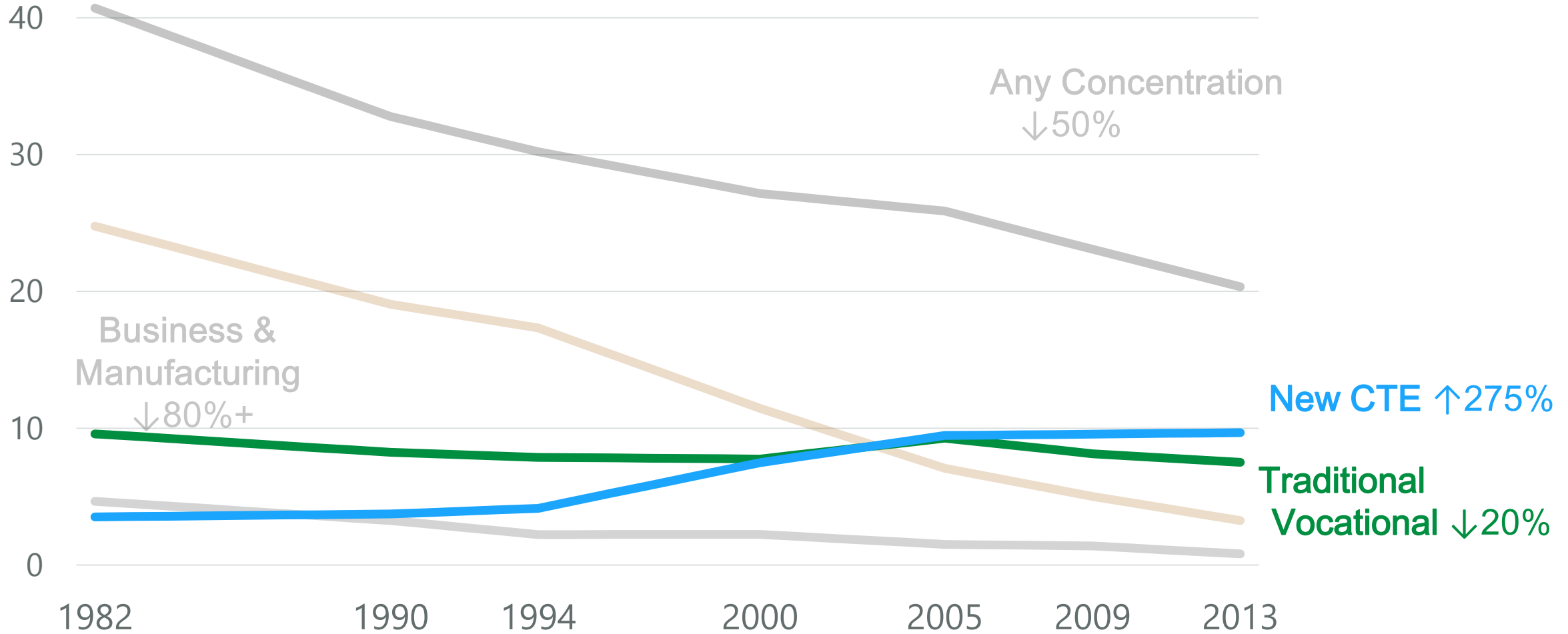
# Decline in Concentrators



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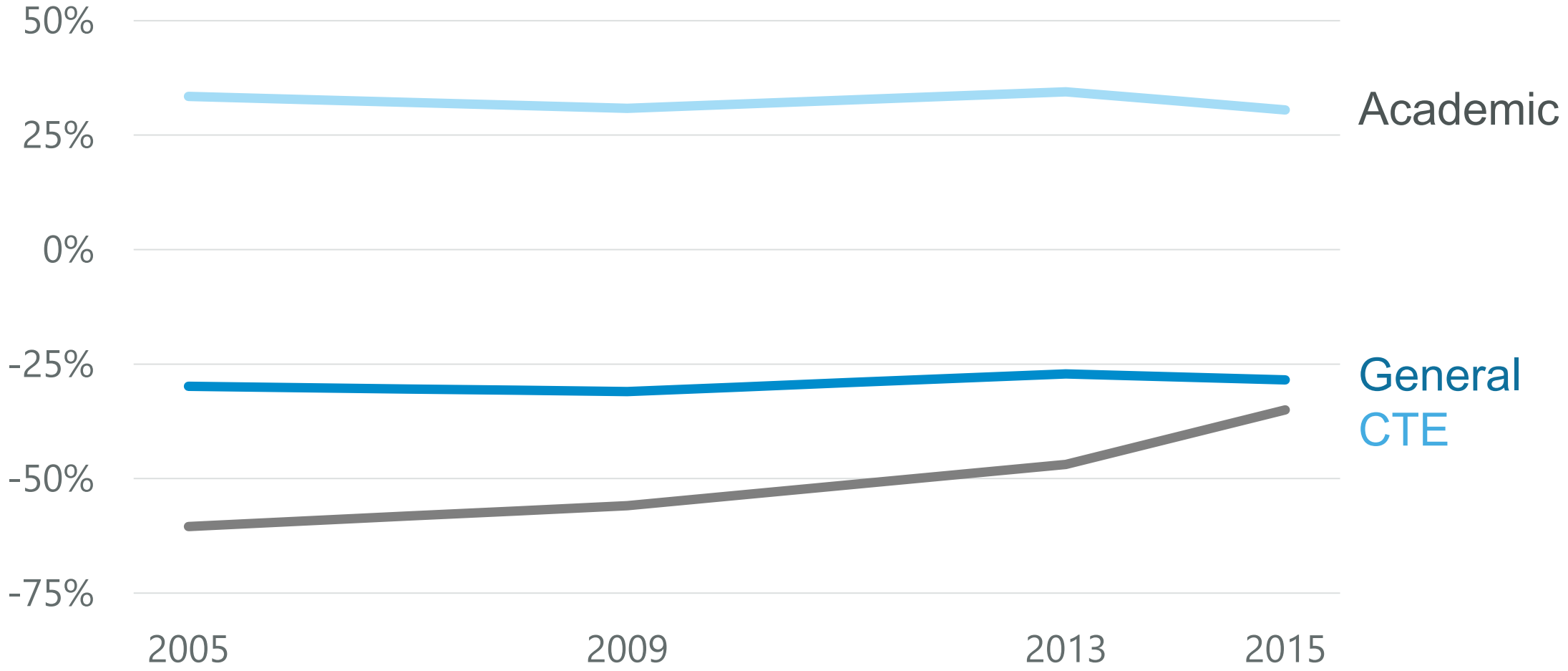


# Decline in Concentrators

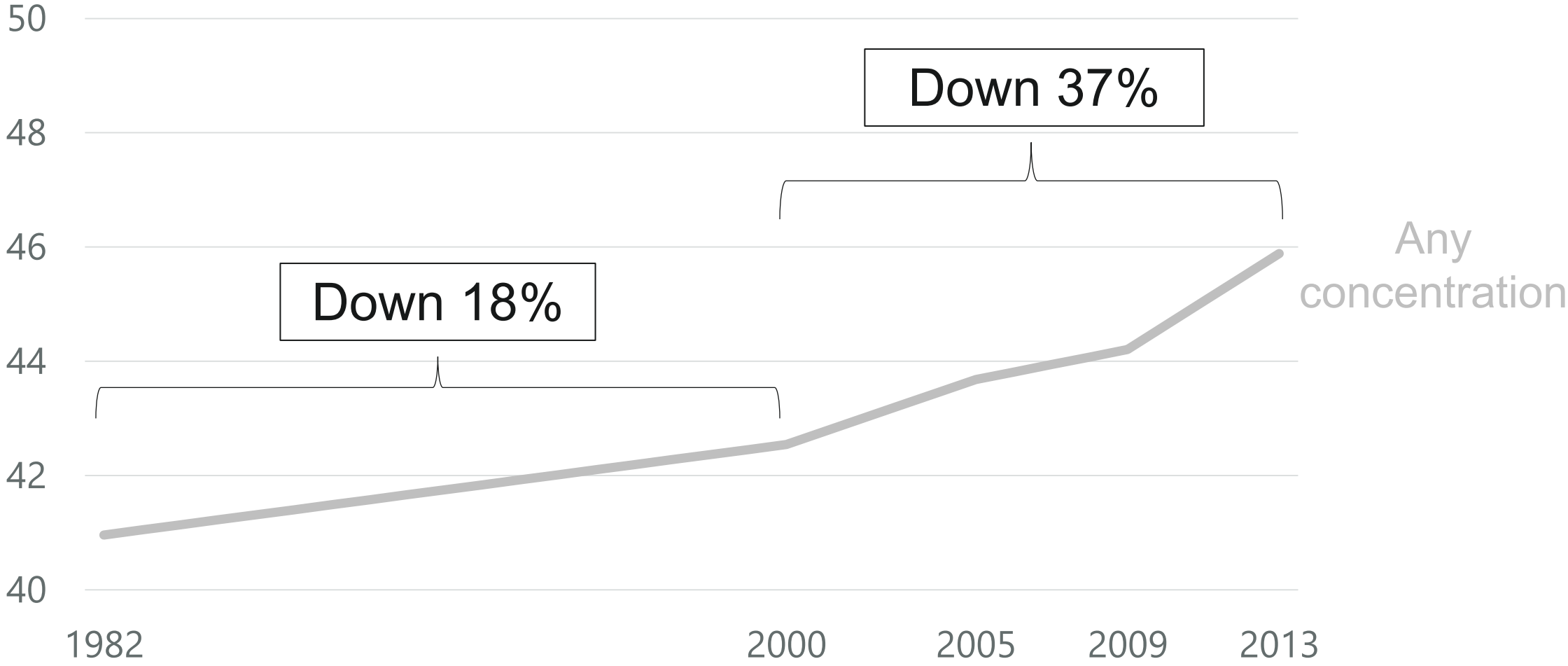




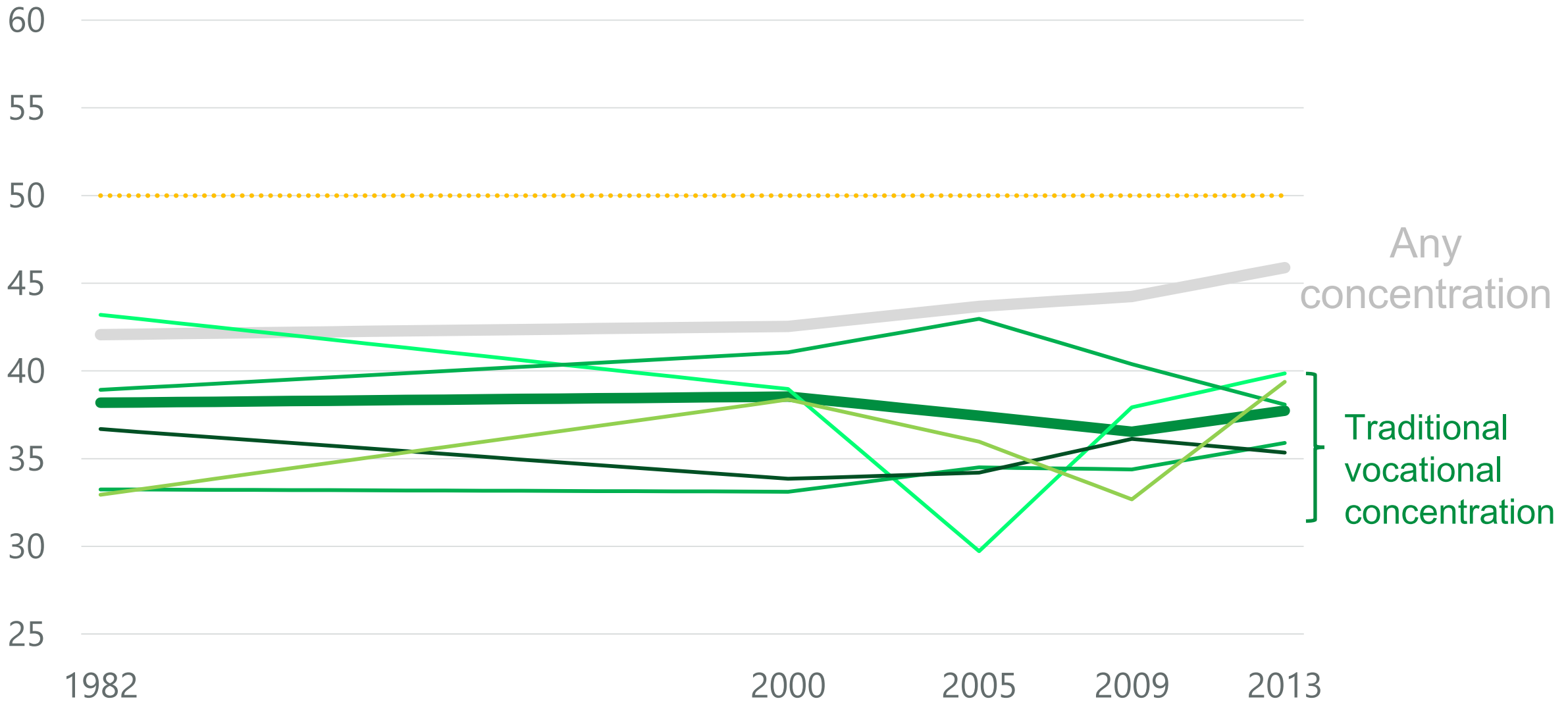
# Math NAEP Scores by H.S. Program: 2005–2015



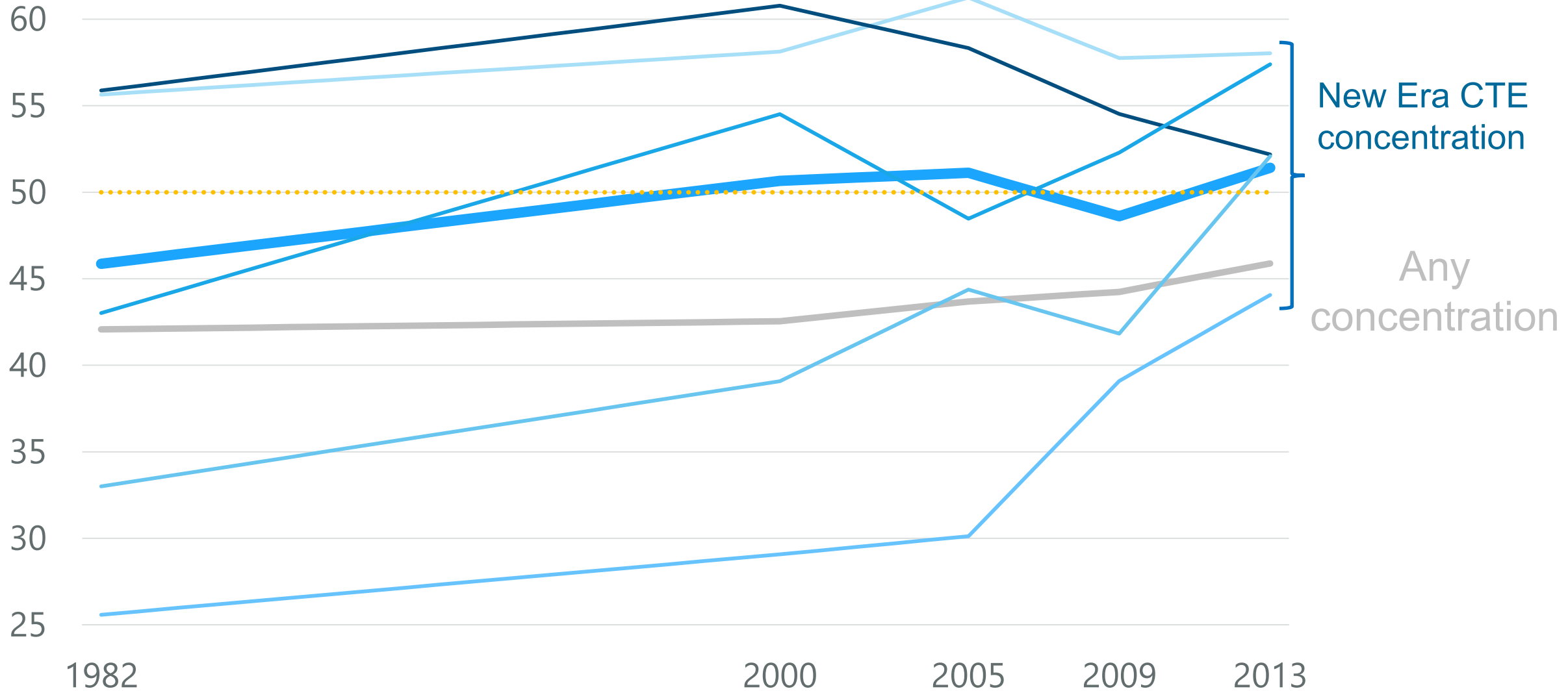
# Math Percentile for CTE Concentrators: 1982–2013

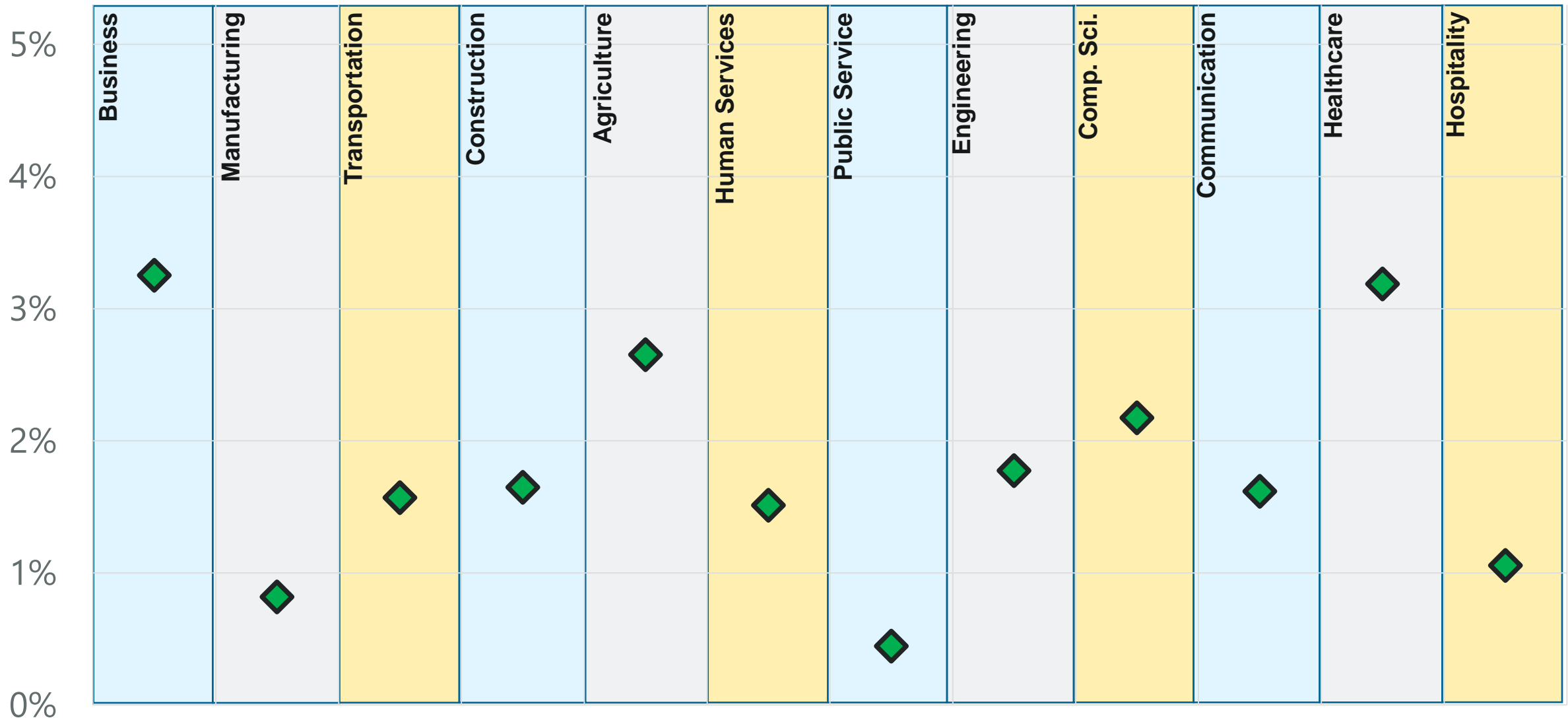


# Math Percentile for CTE Concentrators: 1982–2013



# Math Percentile for CTE Concentrators: 1982–2013





◆ Average

□ Males

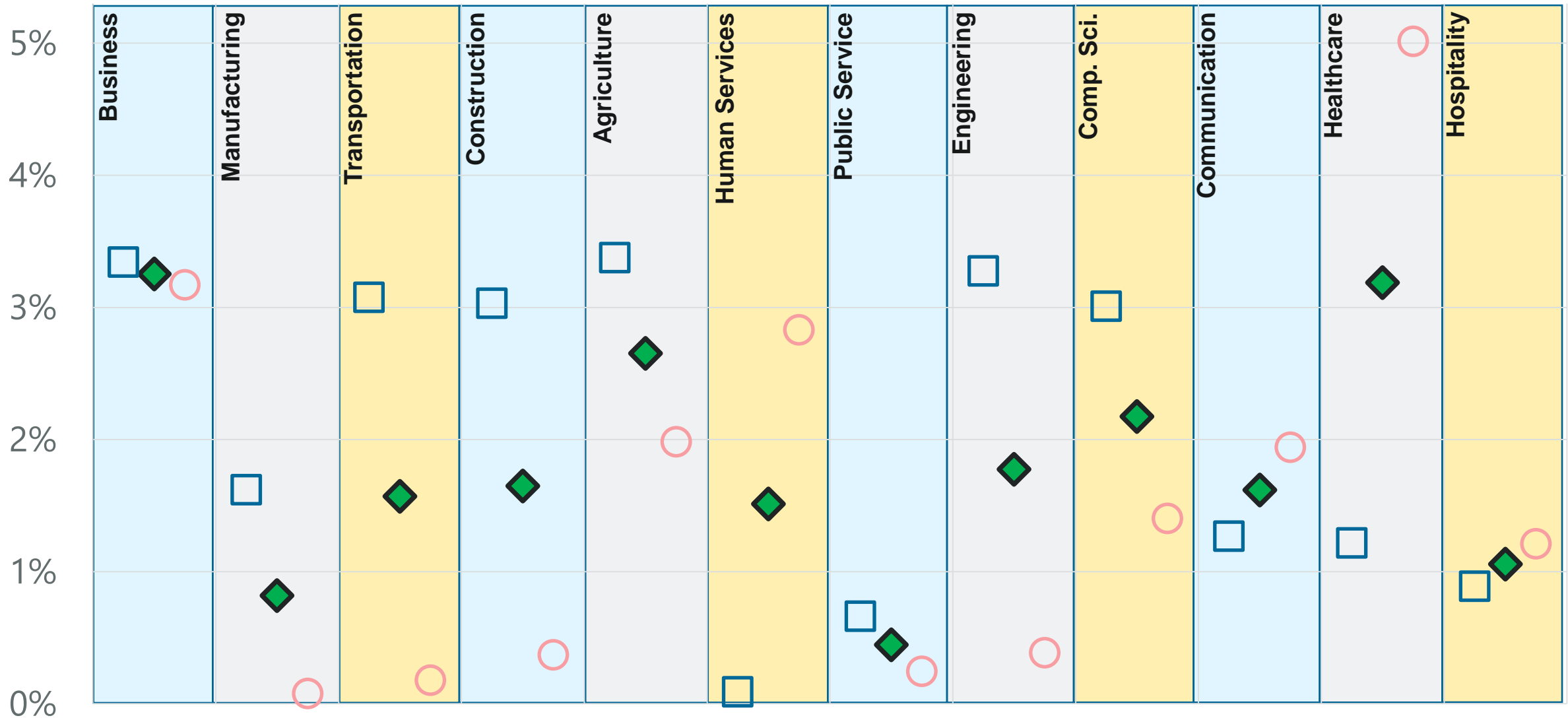
○ Female

■ Male  
College

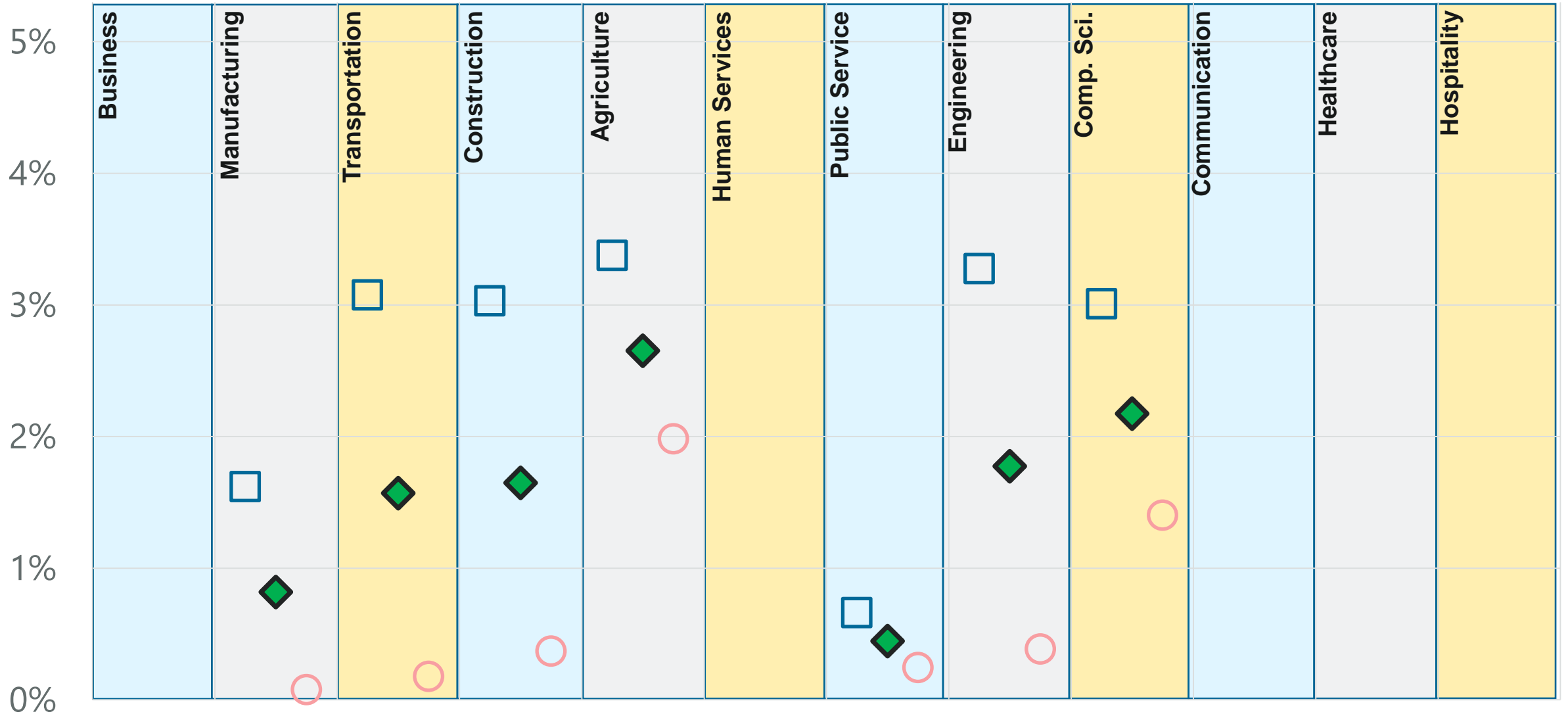
■ Male  
No college

● Female  
College

● Female  
No college



Average
  Males
  Female
  Male College
  Male No college
  Female College
  Female No college



◆ Average

□ Males

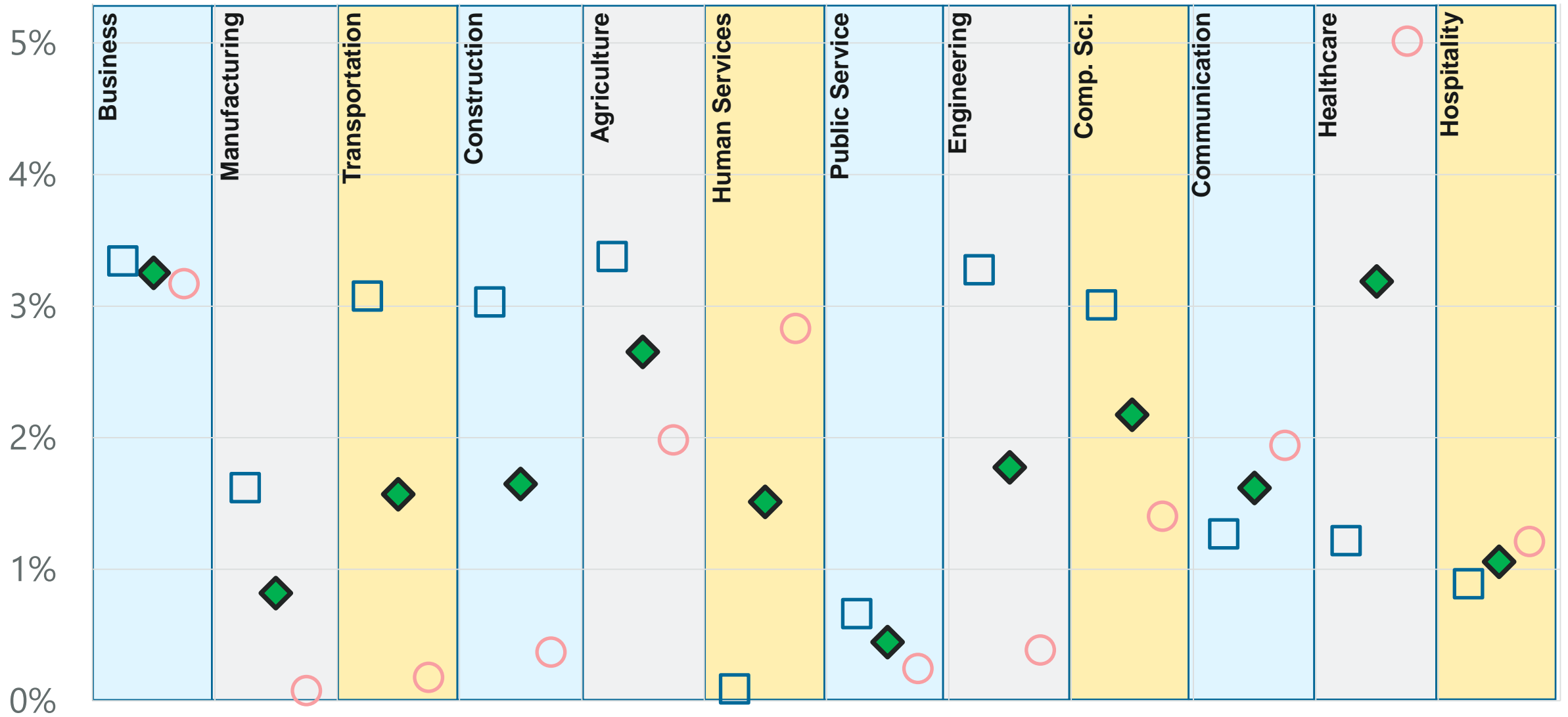
○ Female

■ Male  
College

■ Male  
No college

● Female  
College

● Female  
No college



◆ Average

□ Males

○ Female

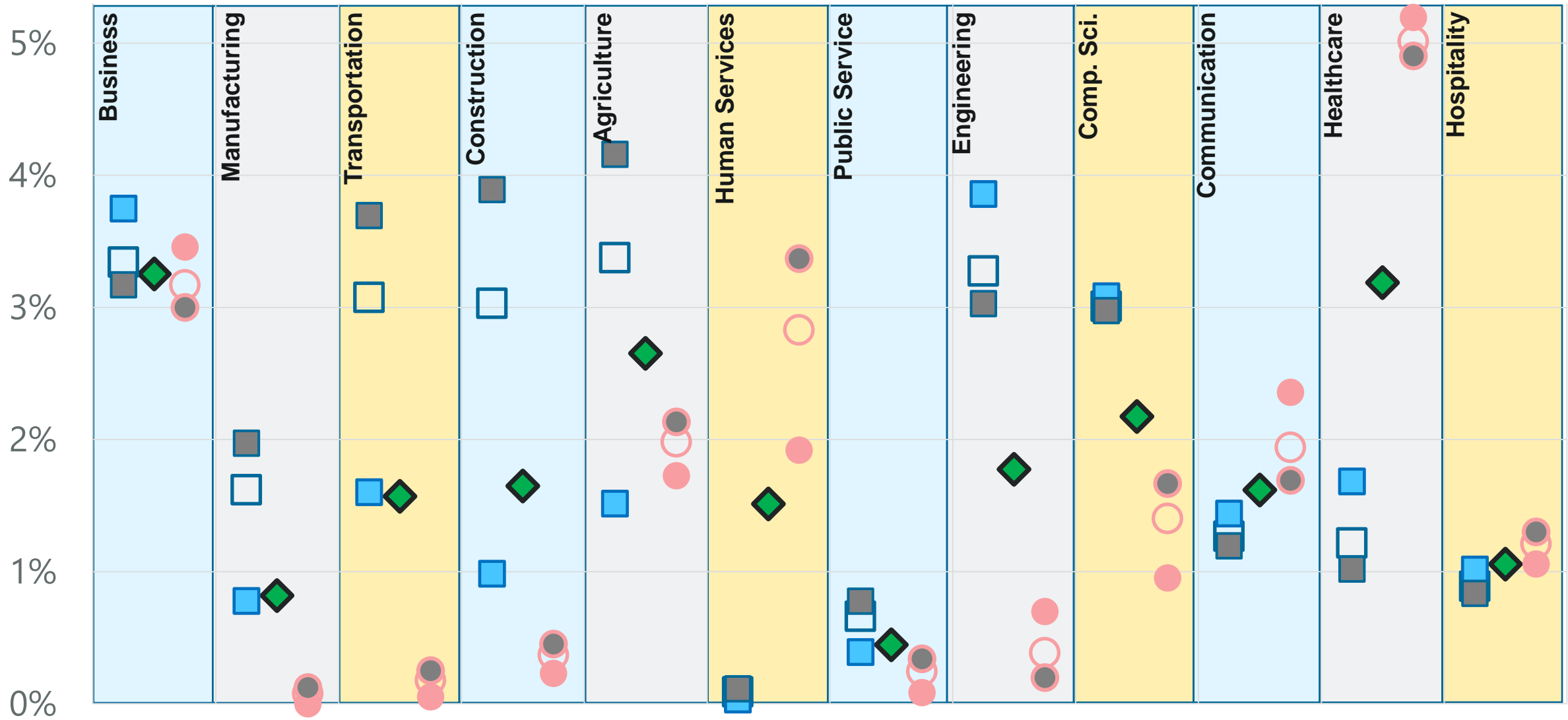
■ Male  
College

■ Male  
No college

● Female  
College

● Female  
No college





◆ Average

□ Males

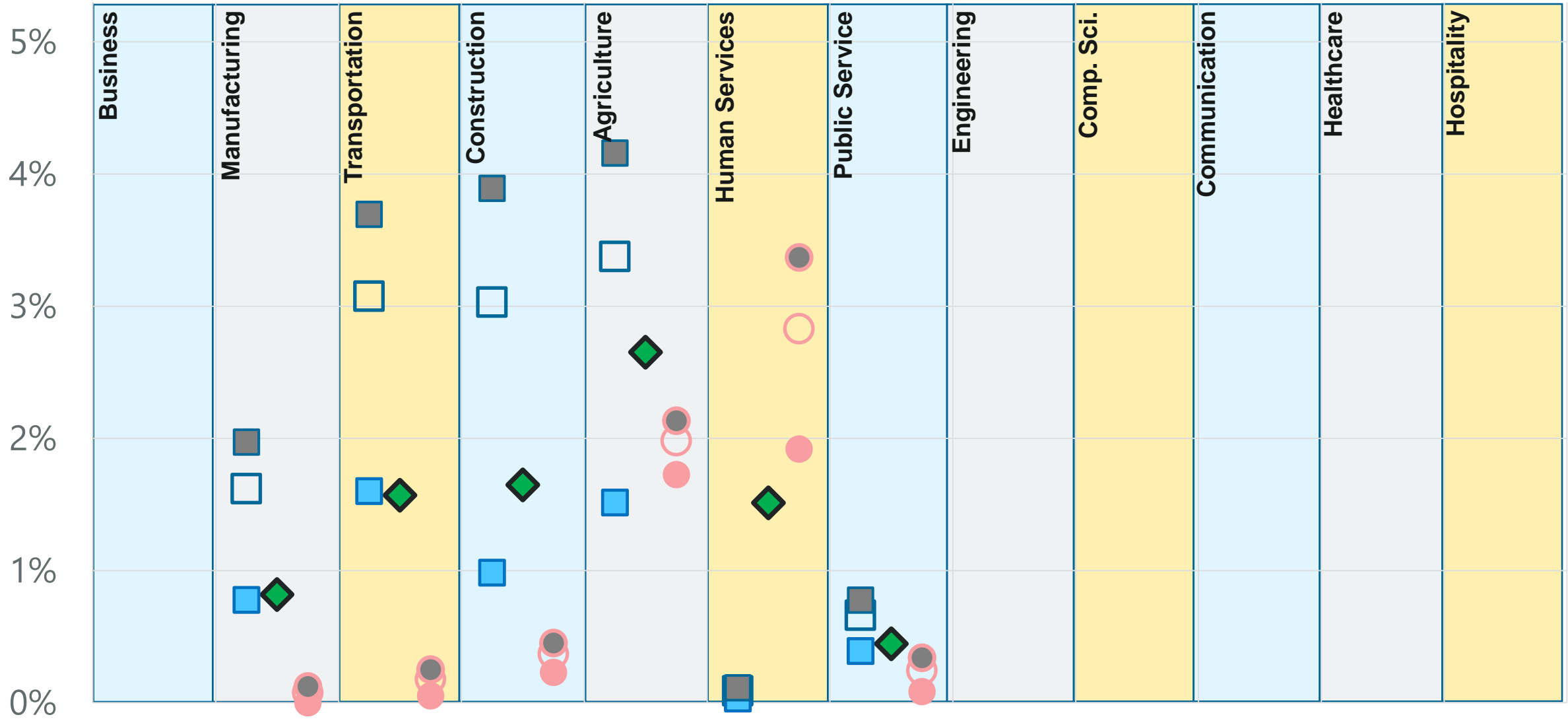
○ Female

■ Male  
College

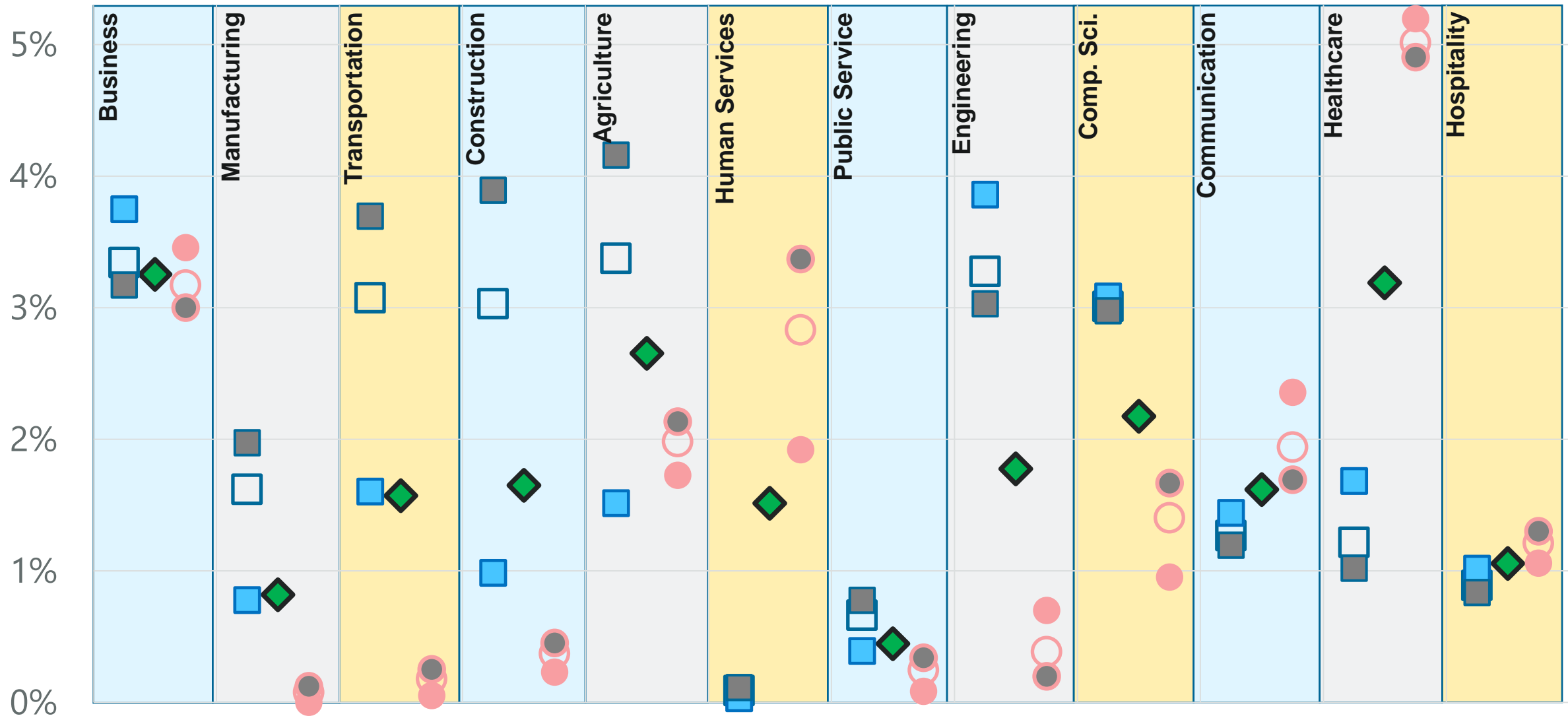
■ Male  
No college

● Female  
College

● Female  
No college



◆ Average   
 □ Males   
 ○ Female   
 ■ Male College   
 ■ Male No college   
 ● Female College   
 ● Female No college



◆ Average

□ Males

○ Female

■ Male  
College

■ Male  
No college

● Female  
College

● Female  
No college

# Takeaways & Questions

## CTE course taking is down

- By credit and concentrator percentage
- Concentrator differences by sex & College-going
- CTE student test scores rising over time—substantially

## Are these changes in students or programs?

If programmatic change, which students do those changes benefit?

	Attendance Level by 2016		
	High School	2 year College	4 year College
Business	17	37	47
Manufacturing	51	27	22*
Transportation	43	34	23*
Construction	41	43	16*
Agriculture	32	38	30*
Human Svc.	29	36	34*
Public Service	48	29	23*
Engineering	16	34	49
Computer Sci.	20	41	39
Communications	19	30	50
Health Care	18	34	48
Hospitality	18	41	42

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	High School	2 year College	4 year College
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<i>Manufacturing</i>	<i>51</i>	<i>27</i>	<i>22*</i>
<i>Transportation</i>	<i>43</i>	<i>34</i>	<i>23*</i>
<i>Construction</i>	<i>41</i>	<i>43</i>	<i>16*</i>
<i>Agriculture</i>	<i>32</i>	<i>38</i>	<i>30*</i>
<i>Human Svc.</i>	<i>29</i>	<i>36</i>	<i>34*</i>
<i>Public Service</i>	<i>48</i>	<i>29</i>	<i>23*</i>
Engineering	16	34	49
Computer Sci.	20	41	39
Communications	19	30	50
Health Care	18	34	48
Hospitality	18	41	42

	Belonging	Engagement	Grades	Work > College	Parents w/BA	On time Algebra 1	GPA
Business	~	~	~	~	~	~	~
Manufacturing	↓	↓	↓	↓	↓	↓	↓
Transportation	↓	↓	↓	↓	↓	↓	↓
Construction	~	↓	↓	↓	↓	↓	↓
Agriculture	~	~	↓	↓	↓	↓	↓
Human Svc.	~	~	~	~	↓	↓	~
Public Service	~	↓	~	~	~	↓	↓
Engineering	~	~	~	~	~	~	~
Computer Sci.	~	~	~	~	~	~	~
Communications	~	~	~	~	~	~	~
Health Care	↑	↑	~	↑	~	↓	~
Hospitality	~	~	~	~	~	~	~

# CTE concentrators and pathways

## Top 3 CTE courses by concentration in Texas

	Top course	2 <sup>nd</sup> course	3 <sup>rd</sup> course
Manufacturing	Welding	Princ. of Manufacturing	Advanced Welding
Health	Anatomy & Physiology	Princ. of Health Science	Health Science
Business	Busin Info Mgt I	Princ. of Busin, Mark, & Finan	Busin Info Mgt II
Marketing	Sports & Entertainment Marketing	Entrepreneurship	Fashion Marketing
Agriculture	Princ. of Ag, Food, & Nat Res	Princ.& Elem of Floral Design	Ag Mech & Metal Tech
Architecture	Princ. of Arch & Construction	Construction Technology	Interior Design



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<i>Agriculture</i>	Princ. of Ag, Food, & Nat Res	<i>Princ. &amp; Elem of Floral Design</i>	Ag Mech & Metal Tech
<i>Architecture</i>	Princ. of Arch & Construction	Construction Technology	<i>Interior Design</i>

# Decisions about CTE

## Influence on adding CTE Program

	Small to None	Moderate	Large– Very Large
Program costs	7%	19%	74%
Student Interest	8%	22%	69%
Facilities	11%	24%	64%
Labor market demand	27%	26%	46%
Pathways from HS to College	26%	33%	41%
Employer rec'd.	35%	32%	33%
Postsecondary rec'd.	36%	36%	27%
State DOE rec'd.	37%	34%	29%

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<i>Employer rec'd.</i>	35%	32%	33%
Postsecondary rec'd.	36%	36%	27%
State DOE rec'd.	37%	34%	29%

# Benefits of CTE

## Non-degree Attainment by Degree Attainment, Adults 25-64

	Post-secondary Certificate	Industry Certification	Professional License	Work-Experience Program	Apprenticeship
Less than HS	3%	1%	4%	3%	0%
HS Degree	11%	2%	10%	6%	1%
Some College	24%	4%	18%	13%	2%
AA/AS	21%	6%	27%	26%	3%
Bachelor's Degree	8%	5%	24%	35%	4%
Grad/Professional	4%	5%	43%	56%	7%

Source: Rooney Columbus calculations using ATES, NHES 2016, forthcoming.

**Coherent  
Tailored  
Job-filling**

11%

15%  
RURAL

17%  
POOR

39%  
DROPOUT