

THE WEALTH OF OPTIONS: INTERVENTIONS TO CREATE MORE INCLUSIVE ECONOMICS DEPARTMENTS

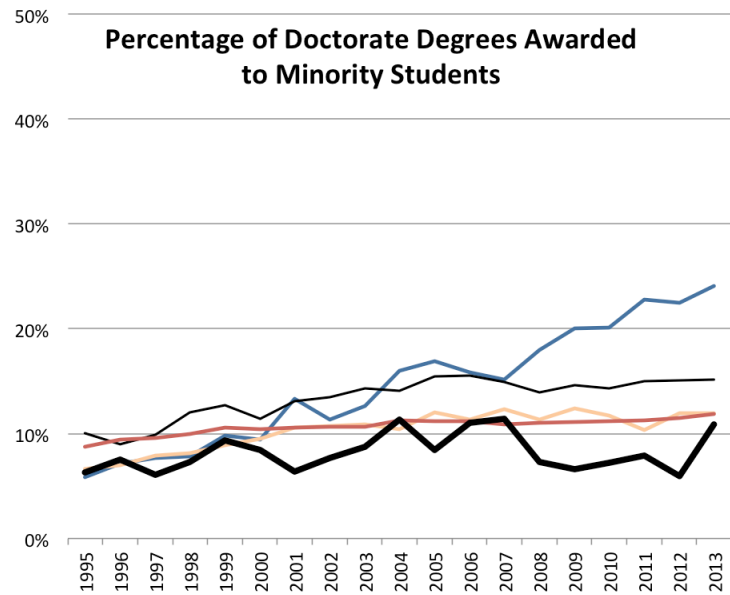
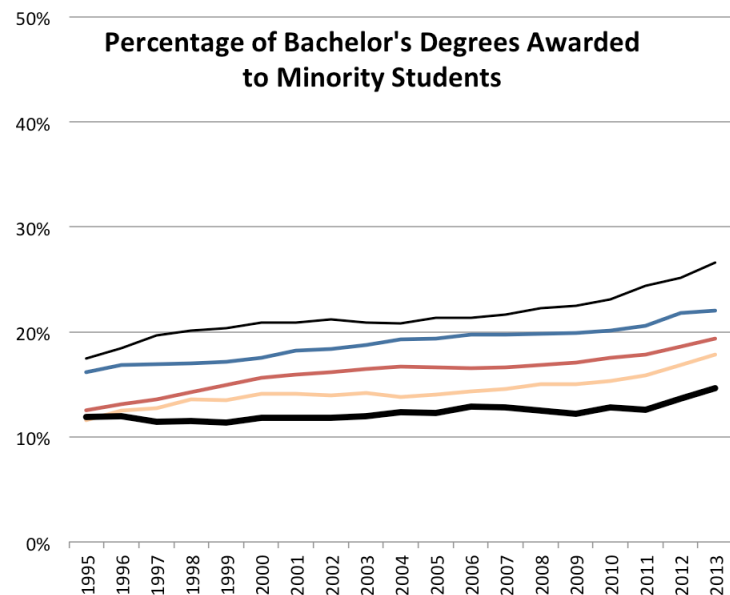
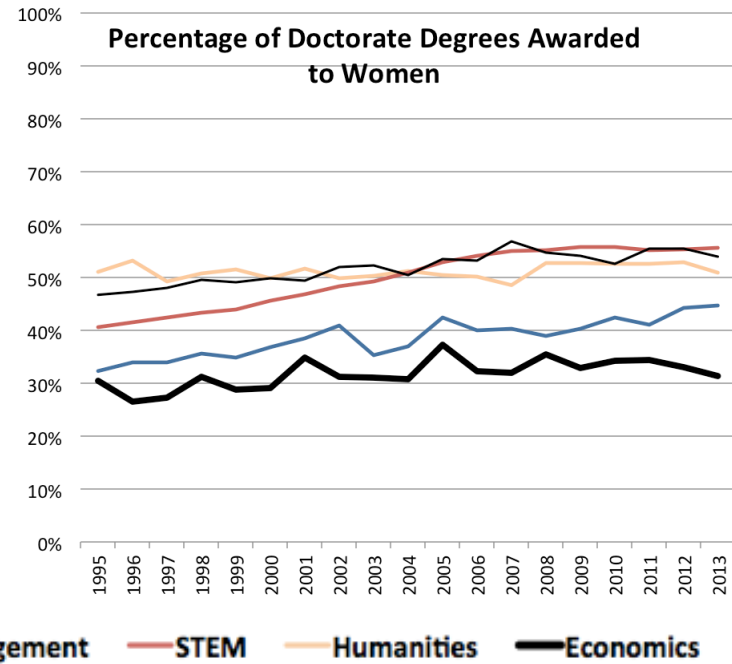
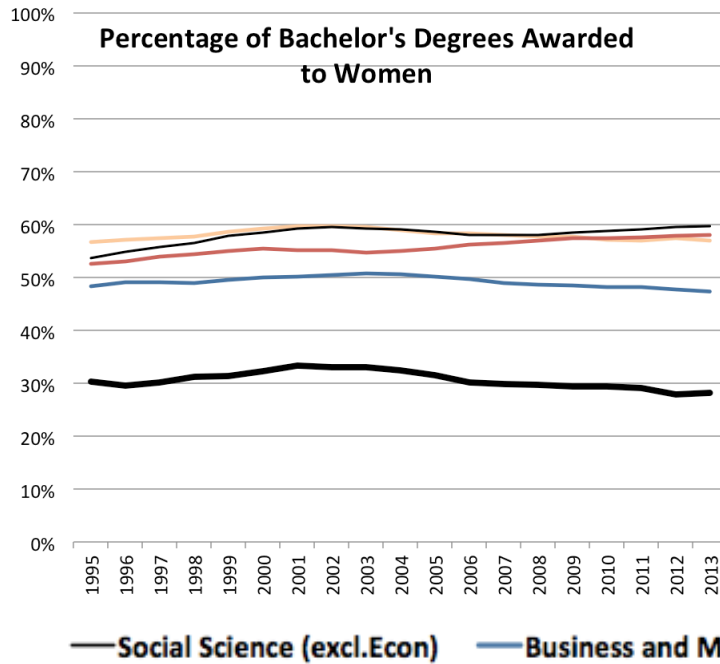
UNDERGRADUATE WOMEN IN ECONOMICS CHALLENGE MEETING
NATIONAL BUREAU OF ECONOMIC RESEARCH
MAY 2, 2015

Amanda Bayer
Swarthmore College

WHO'S MISSING?

DOES IT MATTER?

WHAT CAN WE DO?





Female Tenured and Tenure-Track Faculty

Author's calculations based on the 2013-2014 AEA Universal Academic Questionnaire



Black & Hispanic Tenured and Tenure-Track Faculty

Author's calculations based on the 2013-2014 AEA Universal Academic Questionnaire



**THE 75 LAUREATES OF
THE SVERIGES RIKSBANK PRIZE IN ECONOMIC
SCIENCES IN MEMORY OF ALFRED NOBEL**

Bayer, May 2015

WHO'S MISSING?

DOES IT MATTER?

WHAT CAN WE DO?

CONSEQUENCES

INEQUITY *and* INEFFICIENCY

CONSEQUENCES FOR THE PROFESSION

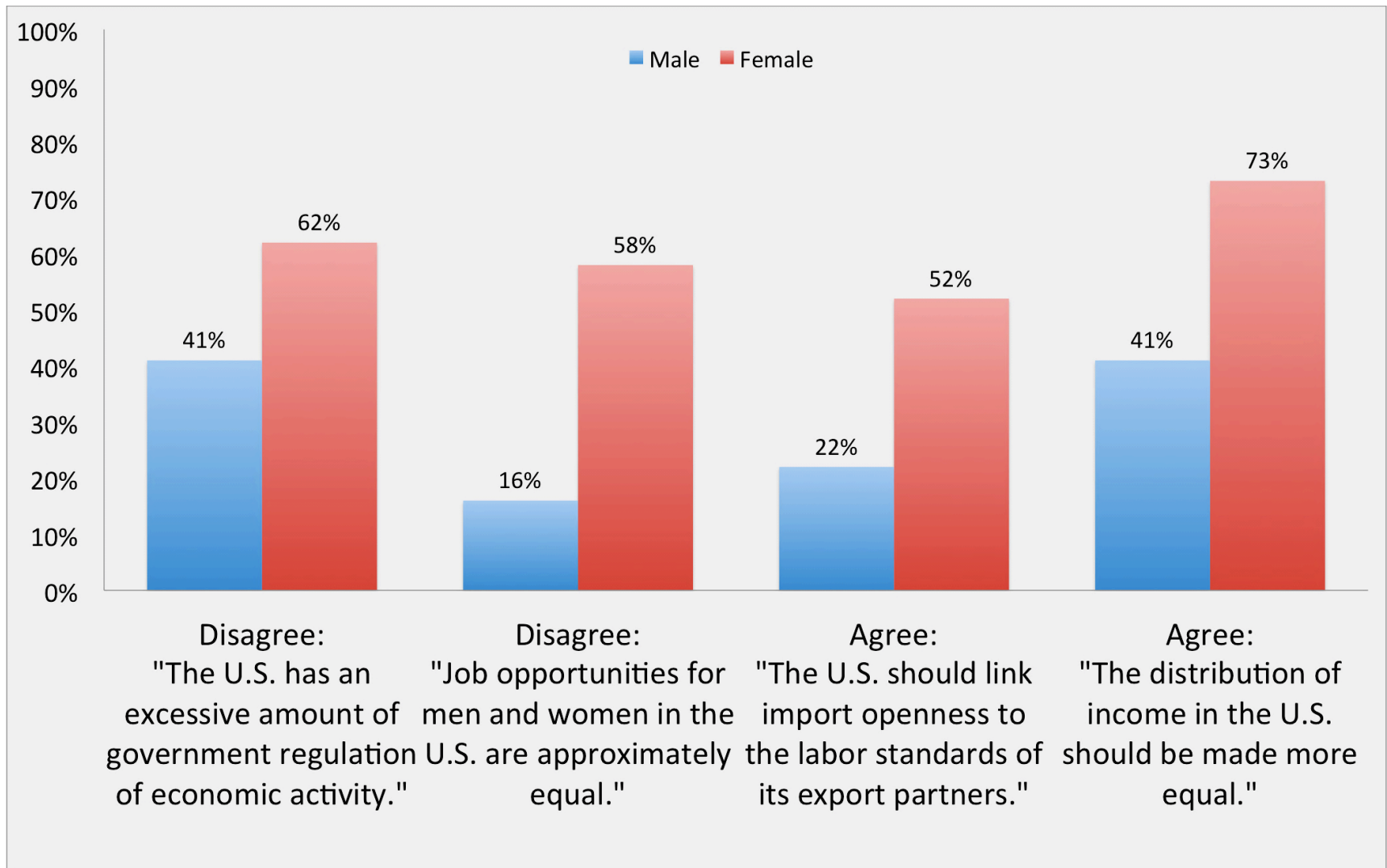
Diversity brings a greater range of insights and perspectives

- in policymakers' choices (Chattopadhyay & Duflo *Econometrica* 2004)
- in dictator experiments (Kamas, Preston & Baum *Feminist Economics* 2008)
- in AEA members' views (May, McGarvey & Whaples *Contemporary Economic Policy* 2013)

Diverse groups are more innovative than homogeneous groups

- in solving problems (Phillips, Northcraft & Neale *Group Processes & Intergroup Relations* 2006, Woolley et al. *Science* 2010, Hong & Page *Proceedings of the National Academy of Sciences* 2004)
- in markets and in business competitions (Hoogendoorn, Oosterbeek & van Praag *Management Science* 2013, Levine et al. *Proceedings of the National Academy of Sciences* 2014)
- in scientific research (Freeman & Huang *Journal of Labor Economics* forthcoming)

AEA MEMBERS' VIEWS (May, McGarvey & Whaples 2013)



WHO'S MISSING?

DOES IT MATTER?

WHAT CAN WE DO?

THE PIPELINE



INTERVENTIONS

SUPPLY *and* DEMAND

INTERVENTIONS

SUPPLY *and* DEMAND

Math ability

Preferences

Family responsibilities

Stereotype threat

Competitiveness

Risk taking

Grade sensitivity

Role models

Implicit biases

Micro-inequities

Classroom habits

Department policies

etc.

Instructor race or gender

INTERVENTIONS

- I. Faculty education
- II. Department outreach
- III. Classroom practices

FACULTY EDUCATION

Common misconceptions:

“There’s no problem” I

“There’s no problem” II

“There’s nothing we can do about it”

FACULTY EDUCATION

Evidence suggests:

Our profession includes disproportionately few women and members of historically underrepresented racial and ethnic minority groups.

The underrepresentation is present at all stages of the pipeline.

We are less diverse than other disciplines.

We are not getting better over time.

The lack of diversity impedes the development of the discipline.

There are things we economists can change.

INTERVENTIONS

I. Faculty education

- Implicit bias
- Micro-inequities
- The effect of rules and habits

IMPLICIT VS. EXPLICIT BIASES

	Implicitly biased	Implicitly unbiased
Explicitly biased	A few	NA
Explicitly unbiased	Most of us	A few

IMPLICIT ASSOCIATION TESTS

at <https://implicit.harvard.edu>

Disability IAT	Disability ('Disabled - Abled' IAT). This IAT requires the ability to recognize symbols representing abled and disabled individuals.
Skin-tone IAT	Skin-tone ('Light Skin - Dark Skin' IAT). This IAT requires the ability to recognize light and dark-skinned faces. It often reveals an automatic preference for light-skin relative to dark-skin.
Native IAT	Native American ('Native - White American' IAT). This IAT requires the ability to recognize White and Native American faces in either classic or modern dress, and the names of places that are either American or Foreign in origin.
Race IAT	Race ('Black - White' IAT). This IAT requires the ability to distinguish faces of European and African origin. It indicates that most Americans have an automatic preference for white over black.
Age IAT	Age ('Young - Old' IAT). This IAT requires the ability to distinguish old from young faces. This test often indicates that Americans have automatic preference for young over old.
Gender-Career IAT	Gender - Career. This IAT often reveals a relative link between family and females and between career and males.
Weight IAT	Weight ('Fat - Thin' IAT). This IAT requires the ability to distinguish faces of people who are obese and people who are thin. It often reveals an automatic preference for thin people relative to fat people.
Presidents IAT	Presidents ('Presidential Popularity' IAT). This IAT requires the ability to recognize photos of Barack Obama and one or more previous presidents.
Gender-Science IAT	Gender - Science. This IAT often reveals a relative link between liberal arts and females and between science and males.
Asian IAT	Asian American ('Asian - European American' IAT). This IAT requires the ability to recognize White and Asian-American faces, and images of places that are either American or Foreign in origin.
Weapons IAT	Weapons ('Weapons - Harmless Objects' IAT). This IAT requires the ability to recognize White and Black faces, and images of weapons or harmless objects.

IMPLICIT BIAS:

SOME EXPERIMENTAL RESULTS

- Implicit biases affect the professional decisions of physicians and police officers. (Schulman, et al. *The New England Journal of Medicine* 1999, Correll *Journal of Personality and Social Psychology* 2007)
- White job candidates with mixed or moderate qualifications are chosen significantly more often than black candidates with identical credentials. (Dovidio & Gaertner *Psychological Science* 2000)
- Evaluators systematically change the importance they ascribe to various factors to justify their decisions. (Hodson, Dovidio & Gaertner *Personality and Social Psychology Bulletin* 2002, Uhlmann & Cohen *Psychological Science* 2005)

REDUCING IMPLICIT BIAS

- **Faculty awareness** (Price & Wolfers *QJE* 2010; Pope, Price & Wolfers 2014)
 - Take the tests at <https://implicit.harvard.edu>
- **Faculty exposure to counterstereotypes** (Dasgupta et al.)
- **Time, clarity, accountability for faculty decisions** (Bertrand, Chugh & Mullainathan *AER* 2005)
- **Faculty training** (e.g., *Bank of England*, FRB)

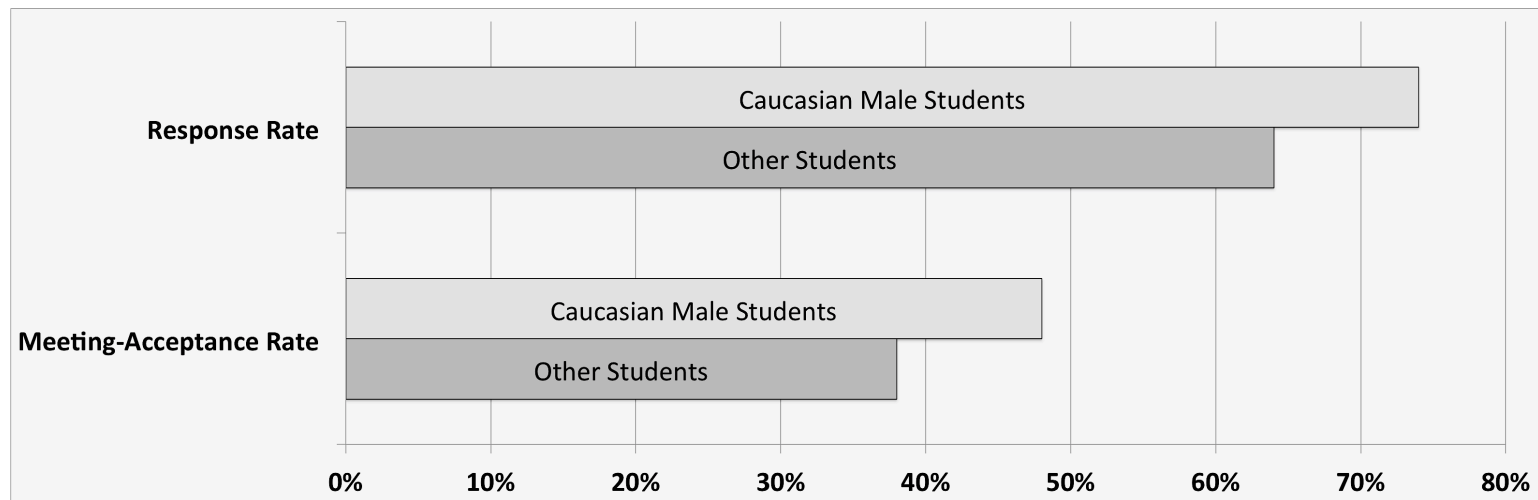
INTERVENTIONS

I. Faculty education

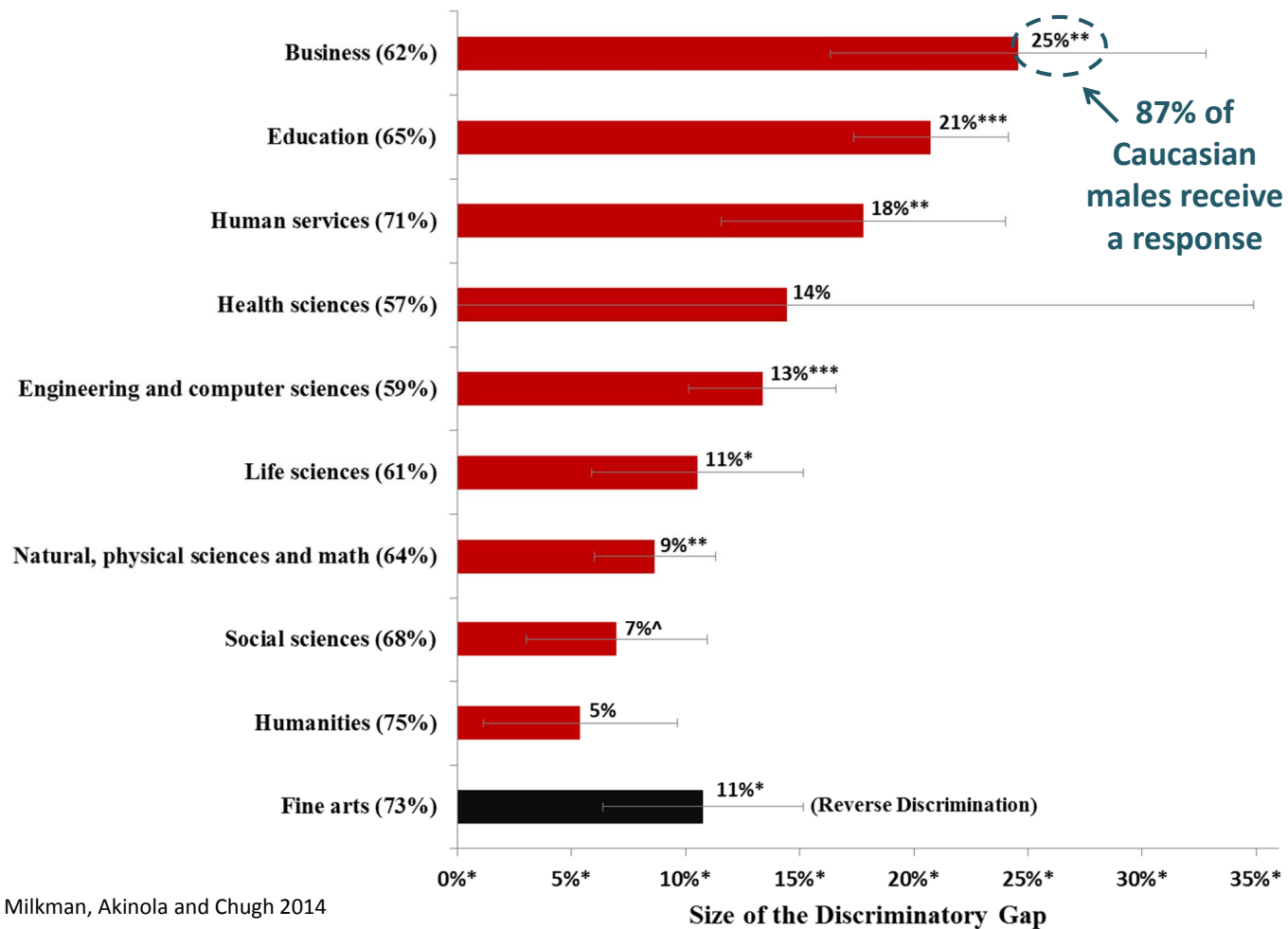
- Implicit bias
- **Micro-inequities**
- The effect of rules and habits

A FIELD EXPERIMENT SET IN ACADEMIA

- Subjects—6,548 faculty in 89 disciplines at 259 universities—received an email from a prospective doctoral student requesting a 10 minute meeting.
- The gender (male, female) and race (Caucasian, Black, Hispanic, Chinese, Indian) of the student, as signaled by the name, was randomly assigned.



PROFESSORS' RESPONSE RATES



Response rates to minorities/females are in parentheses.

Milkman, Akinola, and Chugh, "What Happens Before? A Field Experiment Exploring How Pay and Representation Differentially Shape Bias on the Pathway into Organizations (April 23, 2014). Available at SSRN: abstract=2063742.

Bayer, May 2015

REDUCING MICRO-INEQUITIES

- **Crowd out micro-inequities with micro-affirmations**

(Rowe Journal of the International Ombudsman Association 2008)

e.g.,

- Open doors to opportunity (offer research assistantships, advise women to take higher level math class,...)
- Listen, Encourage
- Make gestures of inclusion and caring
- Provide fair and specific feedback to all students, helping them build on strengths and correct weakness

INTERVENTIONS

I. Faculty education

- Implicit bias
- Micro-inequities
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REMOVING INSTITUTIONAL DISCRIMINATION

Carefully examine rules, habits, practices, and culture, which can systematically and unintentionally advantage or disadvantage members of particular groups

- in judges' nomination of grand jurors (Haney Lopez *Yale Law Journal* 2000)
- in teaching, hiring, evaluating, admitting, and advising (Bayer 2014, DiTomaso 2013)
 - Course prerequisites
 - Timing of TA sessions
 - Kinds of examples used in class
 - Assuming the students most comfortable in speaking about economics with the instructor are those who have the best understanding of, or most interest in, the material

INTERVENTIONS

- I. Faculty education
- II. Classroom practices**
- III. Department outreach

WHAT ARE OUR PROFESSION'S HABITS IN THE CLASSROOM?



- We love to lecture. (Watts & Schaur *The Journal of Economic Education* 2011)
- References to “gender, race, and ethnic issues” are rare. (Ibid.)
- Most economists are either not aware of alternative teaching methods or think preparation is too time consuming. (Goffe & Kauper *The Journal of Economic Education* 2014)
- There is solid evidence that other methods are more effective than lecturing.



Diversifying Economic Quality: A Wiki for Instructors and Departments

Div.E.Q. is an online resource promoting inclusive, innovative, and evidence-based teaching practices in economics.

[\[see more\]](#)

HOW CAN YOU PARTICIPATE?

READ these pages.

TELL others.

SHARE your research and your strategies.

PRODUCE new evidence.

Follow @Div_E_Q

Email us.



Div.E.Q. is sponsored by the AEA's [Committee on the Status of Minority Groups in the Economics Profession](#) .

NEWS: [The Chronicle of Higher Education](#) featured Div.E.Q. as a diversity initiative having success!

Proven strategies for the classroom

- ▶ Consider the impact of [wait time](#).
- ▶ Employ [technology](#) wisely.
- ▶ Avoid [stereotype threat](#).
- ▶ Use [cooperative learning](#).
- ▶ Use [inquiry-based learning](#).
- ▶ Promote [inclusive communication](#).
- ▶ Provide students with [rubrics](#).
- ▶ Incorporate [service learning](#).
- ▶ Join the [Wikipedia Education Program](#).
- ▶ [Flip](#) your classroom.

Proven policies for departments

- ▶ Encourage peer and faculty [mentoring](#).
- ▶ [Actively recruit](#) students who may be underprepared or unsure.
- ▶ Utilize [summer bridge programs](#).
- ▶ Offer a course on [Race, Ethnicity, and Gender in Economics](#).
- ▶ [Alter](#) the introductory textbooks.
- ▶ [Recruit and retain](#) a diverse faculty.
- ▶ [Educate](#) faculty.

Proven practices for instructors

- ▶ Provide opportunities for [involvement with research](#).
- ▶ Reflect on [personal prejudices](#).
- ▶ [Foster](#) a growth mindset in your students.
- ▶ Offer [wise criticism](#).
- ▶ [Vary](#) your assessments and retrieval exercises.
- ▶ [Get to know](#) students personally.
- ▶ Share these [study tips](#).
- ▶ Be aware of a third theory of [discrimination](#).
- ▶ Incorporate [heterodox theories](#) into your courses.
- ▶ Teach economics with [nuance](#) and [humility](#).

**Take an
Implicit
Association
Test.**





DIVERSIFYING ECONOMIC QUALITY

(DIVERSIFYING ECONOMIC QUALITY: A WIKI FOR INSTRUCTORS AND DEPARTMENTS)

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- ▶ Share these study tips.
- ▶ Be aware of a third theory of discrimination.
- ▶ Incorporate heterodox theories into your courses.
- ▶ Teach economics with nuance and humility.

Help your students move up Bloom's pyramid.



INTERVENTIONS

II. Classroom practices

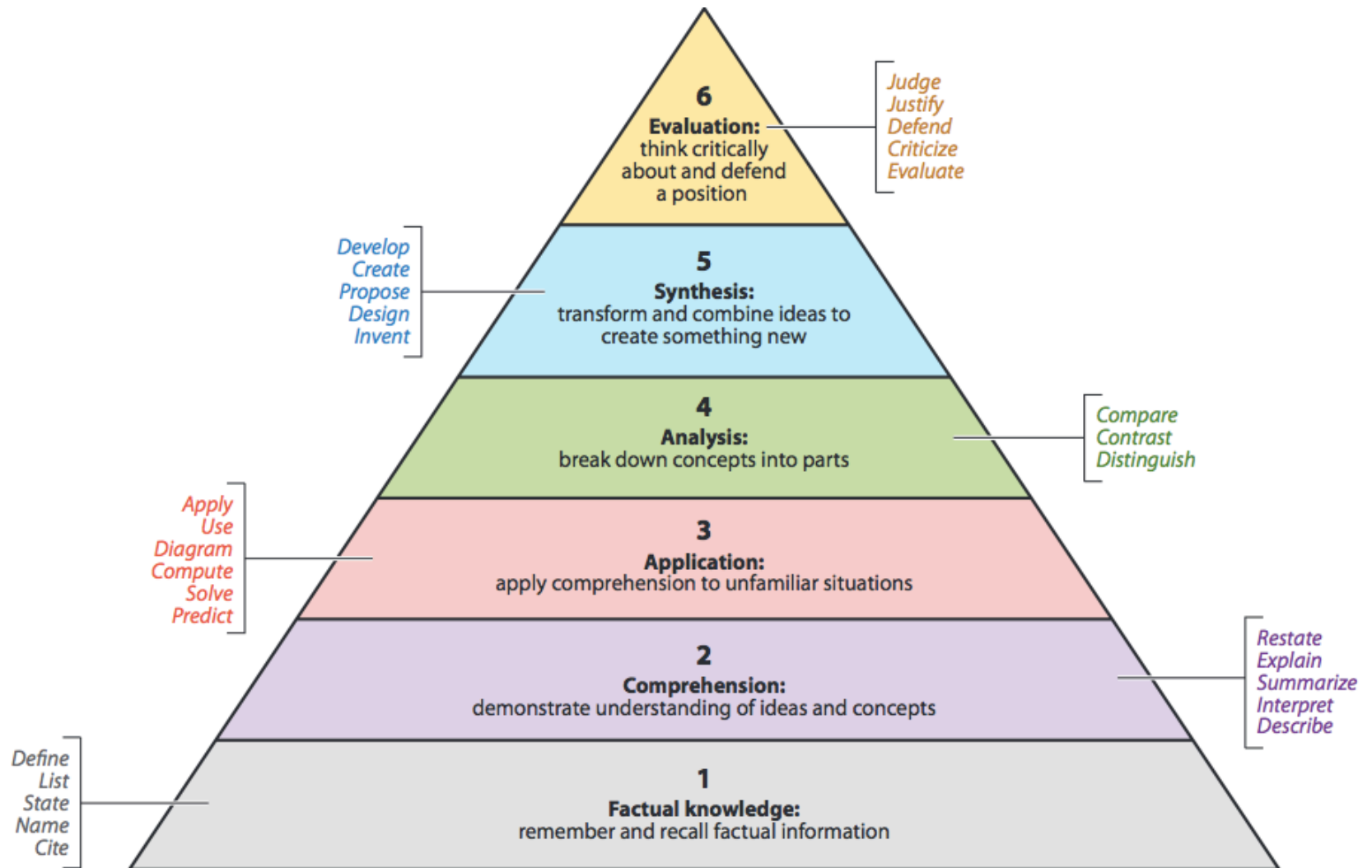
- Active learning
- Growth mindsets
- Meaningful content

INCORPORATE ACTIVE LEARNING.

- in-class inquiry and learning activities in which students engage in higher order thinking (Hoyt & McGoldrick 2011)
 - e.g., Think-Pair-Share
- strong increases in student performance (Freeman et al. *Proceedings of the National Academy of Sciences* 2014)
- disproportionate benefits for STEM students from disadvantaged backgrounds and for female students in male-dominated fields (Lorenzo, Crouch & Mazur *American Journal of Physics* 2006)

[Find more information at DiversifyingEcon.org.]

BLOOM'S LEVELS OF UNDERSTANDING



FOSTER A GROWTH MINDSET.

- Encouraging students to see intelligence as malleable can raise academic enjoyment, engagement, and performance. (Aronson, Fried & Good *Journal of Experimental Social Psychology* 2002)
- Teachers with growth mindsets allow a broader range of students to do well. (Rheinberg, 2000, Dweck, 2008)
 - Gender gaps in academic disciplines (Leslie et al. *Science* 2015)

[Find more information at DiversifyingEcon.org.]

FOSTER A GROWTH MINDSET.

Inform students and instructors that:

- ✓ Intelligence is not a fixed trait.
- ✓ Intelligence expands through effort, mistakes, and perseverance.
- ✓ Math ability can be developed.
- ✓ Economic intuition can be acquired.

OFFER MEANINGFUL CONTENT.

- Provide opportunities for students to use economics to examine issues important to them.
- Use some class time to present brief summaries of a wide range of empirical studies in economics.
- Implement carefully.

[Find more information at DiversifyingEcon.org.]

INTERVENTIONS

- I. Faculty education
- II. Classroom practices
- III. Department outreach**

INTERVENTIONS

III. Department Outreach

- Exposure to counterstereotypes
- PR events
- Mentoring
- Research opportunities

PROVIDE EXPOSURE TO COUNTERSTEREOTYPES.

- Instructor identity affects student performance. (Carrell, Page & West *QJE* 2010)
 - Female science students perform better when the images in their textbooks include women scientists. (Good, Woodzicka & Wingfield *The Journal of Social Psychology* 2010)
 - Observing and interacting with female experts in STEM fields improved female students' attitudes, identification, confidence, and interest in pursuing STEM careers. (Stout, Dasgupta, Hunsinger & McManus *Journal of Personality and Social Psychology* 2011).
- Invite a diverse array of speakers
 - Review and update images on department website

OFFER RESEARCH OPPORTUNITIES

- ...through in-class activities, course projects, independent study, and research assistantships.
- “Studies report that these experiences improve participation and persistence, often by strengthening students' views of themselves as scientists...yet, the evidence for these claims is weak.” (Linn et al. *Science* 2015)
- The benefits of research opportunities can be enhanced with
 - duration
 - individual mentoring
 - discussion of research with mentors
 - group meetings with other RAs to discuss current research
 - guided exploration of relevant literature
 - synthesis through writing reports or posters

[Find more information at DiversifyingEcon.org.]

OFFER MENTORING

- Establish peer networking.
- Offer graduate student mentors and/or near-peer mentoring.
- Faculty/student mentor programs have been found to raise academic performance and retention.
- Same-gender or same-race mentorship is particularly effective at increasing student's feelings of self-efficacy, academic motivation, and interest in a subject (Asgari, Dasgupta, and Cote, 2010)

[Find more information at DiversifyingEcon.org.]

IN SUM

Critical connections for students

- with material
- with each other
- with faculty

Critical moments for students

- entering college
- intro course
- intermediate theory

GRINNELL SCIENCE PROJECT

Components:

- Curricular reform
- Community building
- Student-faculty research
- Pre-orientation

Outcomes:

- In early 1990s, 42 women science majors per year and 8 students of color. By 2008, 90 women and 21 students of color.
- Other students have also benefited from the mentoring and the curricular and pedagogical changes.
- Nearly 70% of the College's science majors enter graduate programs. Grinnell ranks eighth on a per-capita basis in producing science PhDs.

PRINCETON DIVERSITY PROGRAMS IN MOLECULAR BIOLOGY AND QUANTITATIVE & COMPUTATIONAL BIOLOGY (DOCTORAL)

Components:

- A more holistic approach to evaluation of candidates
- Aggressive recruitment
- Undergraduate summer research program
- Pre-orientation

Outcomes:

- The percentage of underrepresented minority students in each entering class increased from 3% in the period from 2003-07 before the program started to 22% in 2008-12.

COMPUTER SCIENCE AT HARVEY MUDD COLLEGE

“We’ve focused on changing four things about learning CS: make it fun, make it relevant, make it not scary, and make it clear that lots of kinds of people have careers involving CS.

We changed the context of the intro course to ‘creative problem-solving...using computational approaches with Python’ instead of ‘learn to program in Java’.” President Maria Klawe

Outcomes:

- The number of women computer-science graduates quadrupled in six years.

Potential Interventions

Better Information	Mentoring and Role Models	Content and Presentation Style
Without accurate information about the broader application of economics (e.g., beyond finance and consulting), women are more likely to major in less rigorous fields, often within the social sciences or humanities.	Women are more sensitive to their grades in introductory courses when choosing their major than are men. The creation of networks among students within the department and showing support for their decision to major in the field has been effective in recruiting underrepresented minorities.	On average, female undergraduates are less confident about their quantitative skills than are men even if they are equally able and prepared. Their lack of confidence may diminish their belief that economics fits their personal strengths and abilities.
Use the <i>UWE-AEA Video</i> (to be produced by the AEA before Fall 2015) during freshman orientation week to highlight key points about the major, including: - The many applications of economics; - The diversity of its practitioners; and - The range of potential careers. Also use the video at the start of the introductory course, post it on the course website, and include it on the department's website. Augment the material provided on your department's website or in printed pamphlets to highlight information such as: - Subfields and upper-level courses; - Various career options and course requirements for the different career tracks; and - How economics relates to other fields and majors, and the high return to an economics degree. Guest speakers in lecture and other times: - Invite alumni working in diverse fields to talk about their jobs and interests. - Have talks during campus open days, e.g., freshman parents' weekend. - Guest speakers in lecture classes should include diverse faculty in terms of gender, race and field. - Recruit faculty, from non-business/non-finance fields, who are inspirational and approachable.	Mentoring: - Increase the number of female TAs/grad students/older undergrad mentors for students in intro and intermediate courses. - Make a video of your alumni talking about their work involving economics, even though "economist" may not be in their job title. - Facilitate opportunities for research and collaboration with the faculty. - Help students find summer jobs that value economics, are dynamic, and include human contact. Creating student learning communities: - Encourage coffee/study breaks in the economics department lounge. - Organize student groups to work with the department to create talks and conferences on diverse topics. - Connect with students through social media. Faculty lunches: - Have informal lunches with professors and TAs. - Pick faculty who specialize in diverse areas of economic research (e.g., health, labor, education, environmental, econ history, behavioral, corporate finance). Student counseling: - Offer faculty counseling at midterms and other grade times (research papers, presentations, etc.). Convey that making mistakes is often part of learning economics.	Add modules and case studies to introductory and intermediate courses. Use more evidence-based material in teaching. - Present information through real-world examples that cover diverse subfields in economics and related disciplines. - Include study results and also information on the researchers who did the work and how they became interested in the subject. Invite the researchers to give a lecture. - Help faculty communicate more clearly and encourage more evidence-based theory courses. Support independent/group projects in various sub-fields (e.g., health, education, poverty, crime, inequality, sports). - Have students interview community residents about issues in recent economics news (e.g., pay-day loans; Affordable Care Act; student debt) and how they have been affected. - Coordinate community service opportunities that apply economic concepts and tie into course material. Make sections more conducive to learning for students with different skill levels, styles of learning, and interests. - Separate sections based on students' quantitative experience, not by ability. - If sections are heavily skewed by gender, deliberately change the gender mix and collect data on grades and drop-off rates.