

# GDC®

## History Shaping Design Inequality and Player Behavior

**GAME DEVELOPERS CONFERENCE®** | MARCH 19-23, 2018 | EXPO: MARCH 21-23, 2018 #GDC18



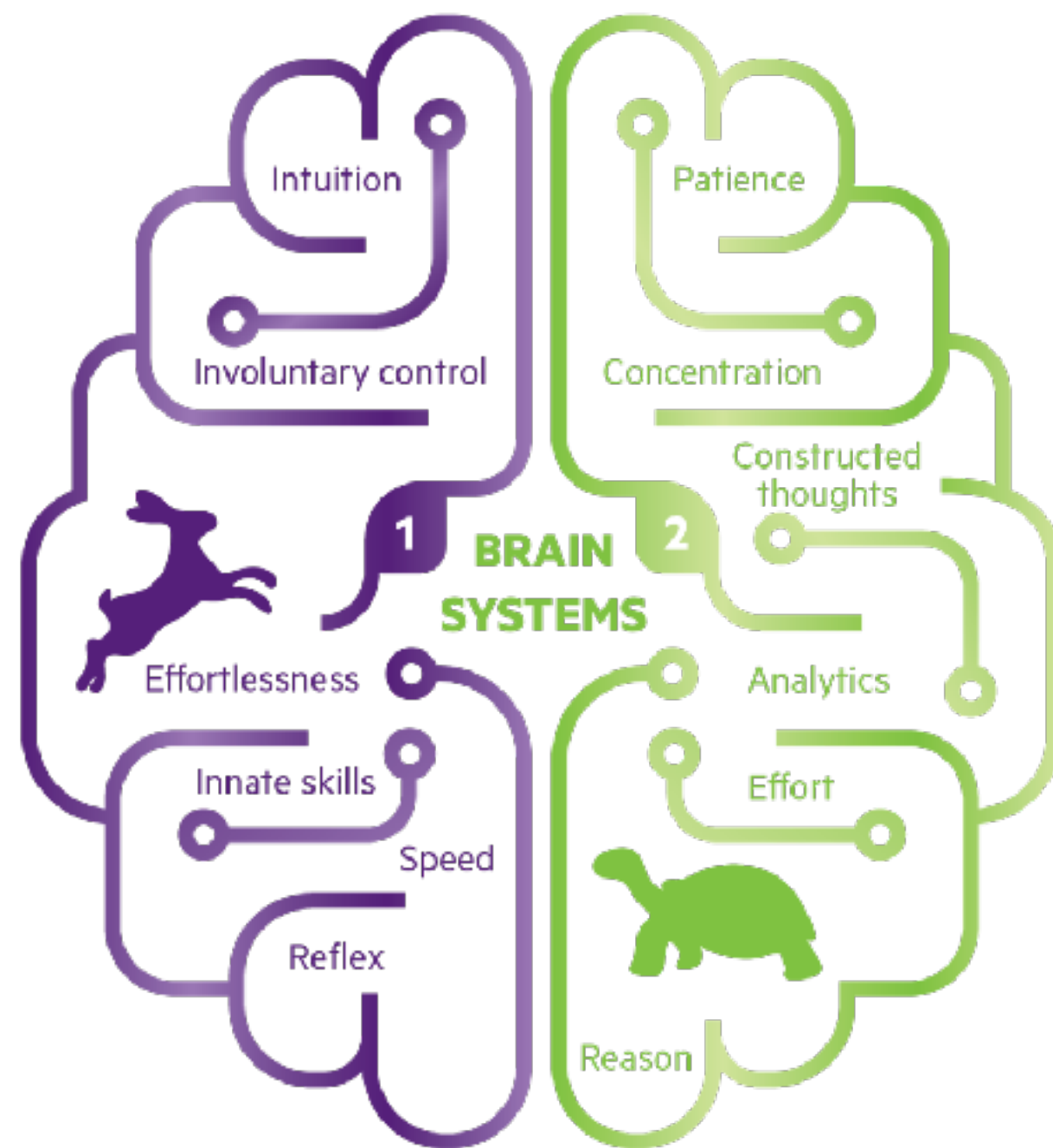


# Disclaimers

- Focusing on more recent events
- Comparing game and economic systems
- Psychology research tends to be muddy
- Focused on western economics (particularly the US)















List Price: ~~\$69.99~~

Price: **\$34.84** ✓prime & FREE Returns

You Save: **\$35.15 (50%)**





# Priming / Framing









# So\_p





# Soap





# Sou\_p













Was ~~\$499~~ Now \$399!





Was ~~\$30,199~~ Now \$30,099!







toothpaste

Crest

ONE Crest® Toothpaste 3.0 oz or larger  
OR Liquid Gel

\$2.00

of reduction in store\*



## FEES AFFECT SAVINGS OVER TIME

Investing \$10,000 a year in a retirement plan that averages 7% returns over 30 years is great. But investing with a 2% fee instead of a 0.5% fee can cost your plan \$222,284.

Savings after fees of: ● 0.5% ● 1.0% ● 2.0%



**NOTE** With annual contributions of \$10,000

**SOURCE** USA TODAY research

George Petras, USA TODAY

● USA TODAY

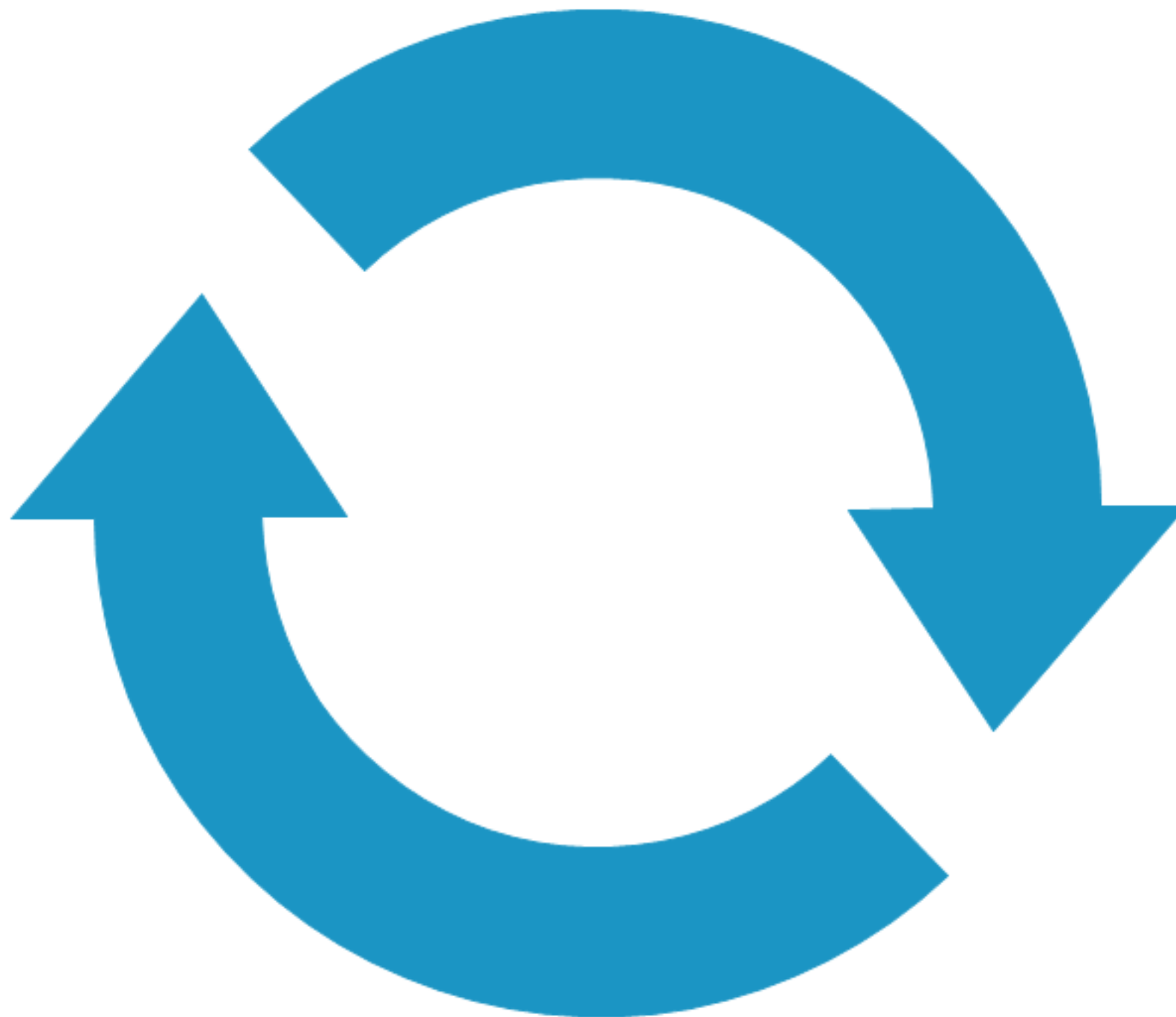




Krishna  
Savani, Aneeta  
Rattan (2012). [A  
Choice Mind-Set  
Increases the  
Acceptance and  
Maintenance of  
Wealth  
Inequality.](#)  
*Psychological  
Science*, Vol 23,  
Issue 7, pp. 796  
- 804







Karla Hoff and  
Priyanka Pandey  
(2011). [Making Up  
People—The  
Behavioral Effects of  
Caste](#). *The World  
Bank*







Photo credit: Ayodhya Ouditt/NPR

[How Stereotypes Can Drive Women To Quit Science](#), *Hidden Brain*, NPR 2012









# Priming Takeaways

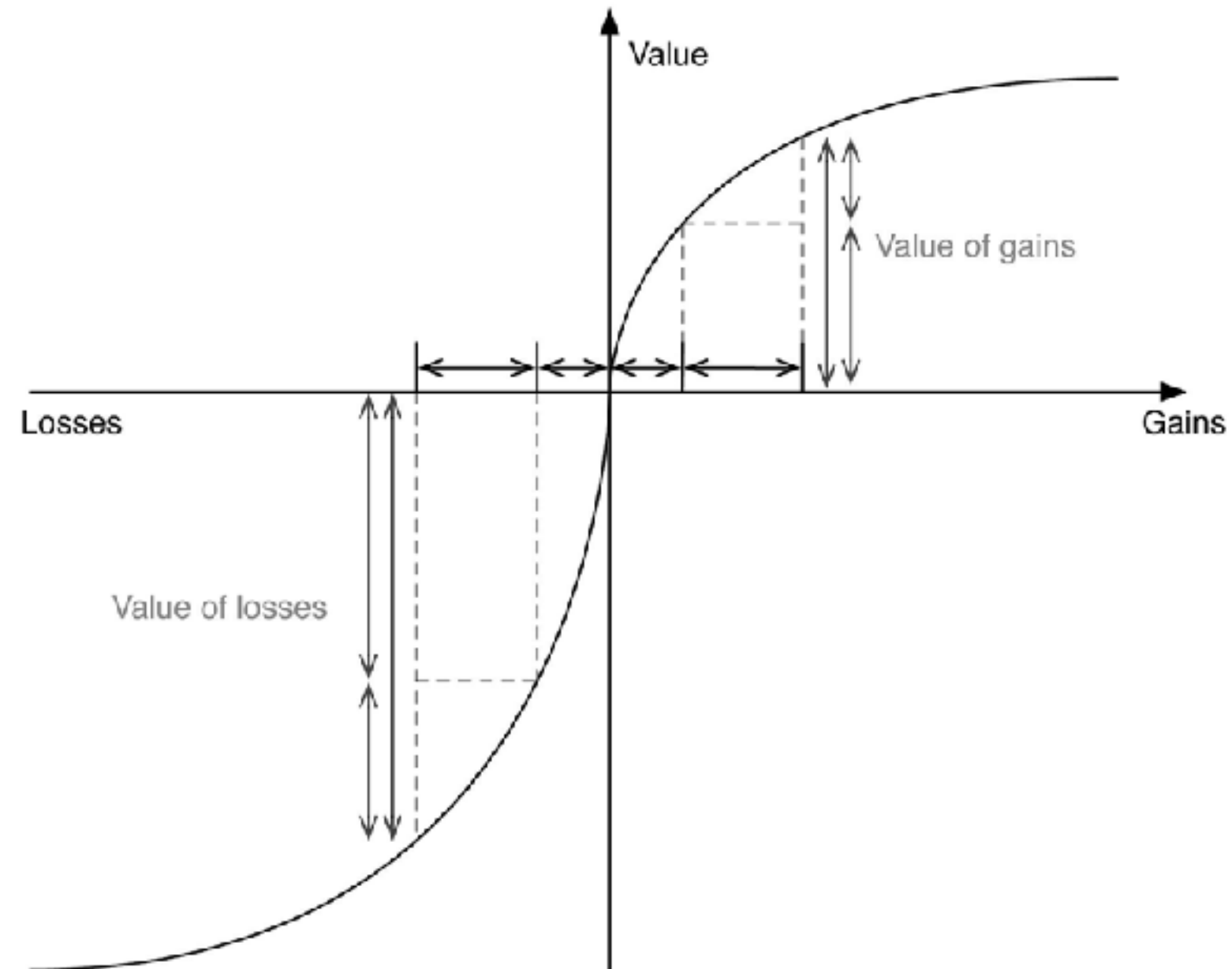
- We are always making comparisons.
- We use the most recent, immediate or well known data available to shape our choices and thoughts.
- Perceptions can perpetuate.





# Loss Aversion





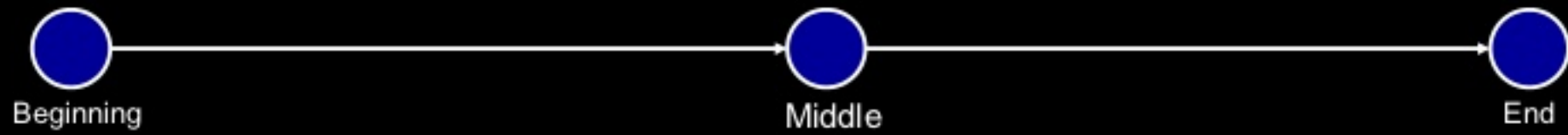




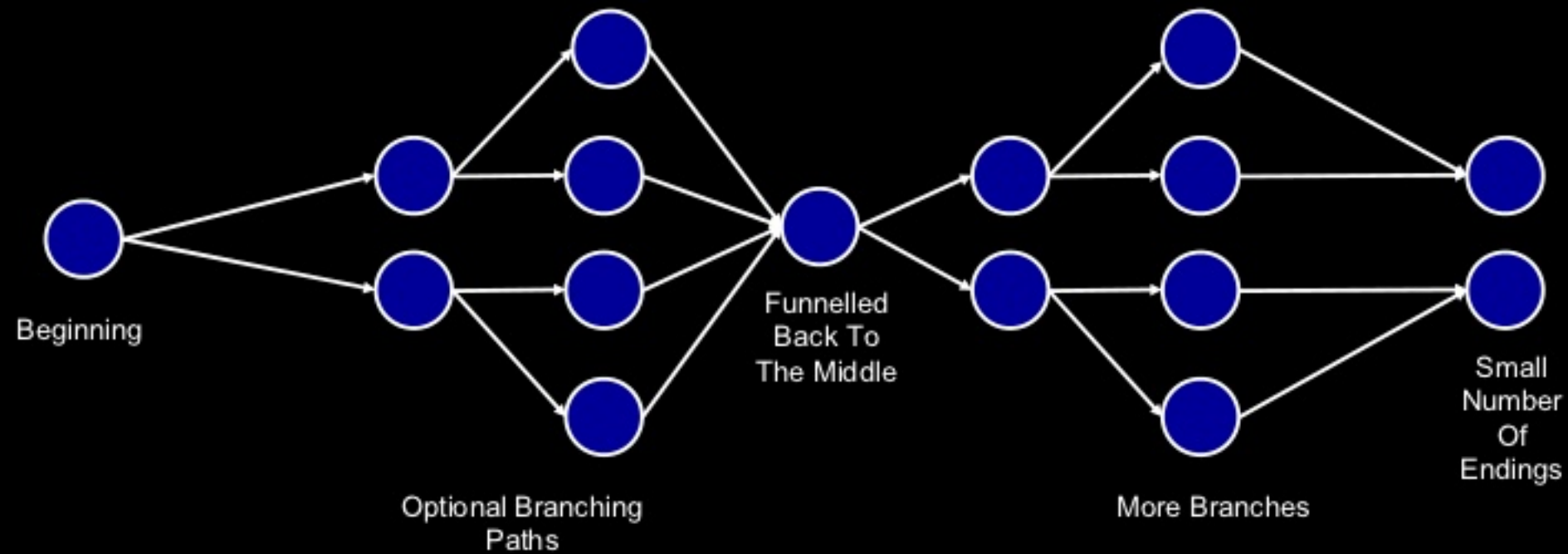








Standard Game Narrative (Half Life)



Branching Game Narrative (Mass Effect)

Alan Jack (Aug 18, 2011) [Emergent Systems As A Narrative Device](#)

[www.slideshare.net](http://www.slideshare.net).





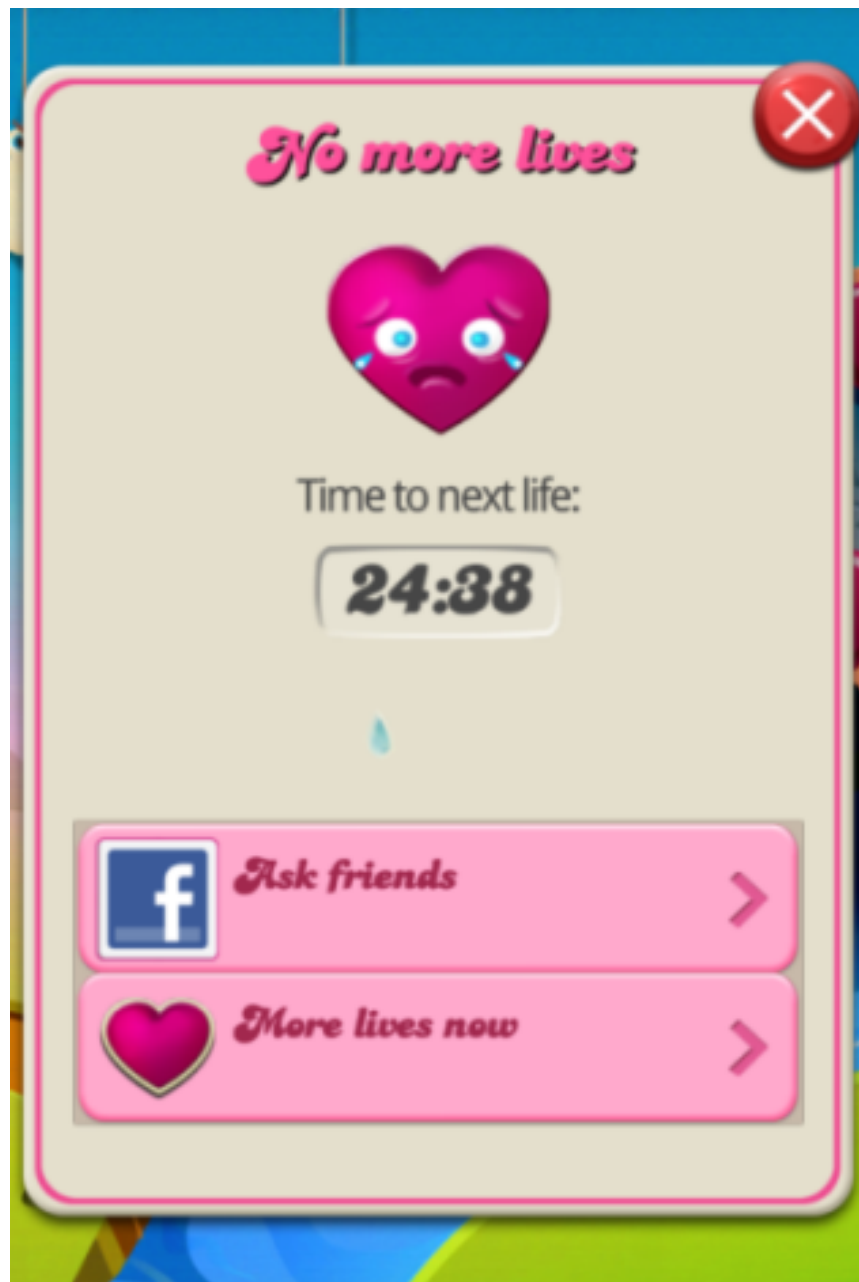




Sumitava Mukherjee, Arvind Sahay, V. S. Chandrasekhar Pammi, Narayanan Srinivasan (2017). [Is loss-aversion magnitude-dependent? Measuring prospective affective judgments regarding gains and losses.](#) *Judgment and Decision Making*, Vol. 12, No. 1, January 2017, pp. 81–89











Failed expectations of future gains  
equals to losing them

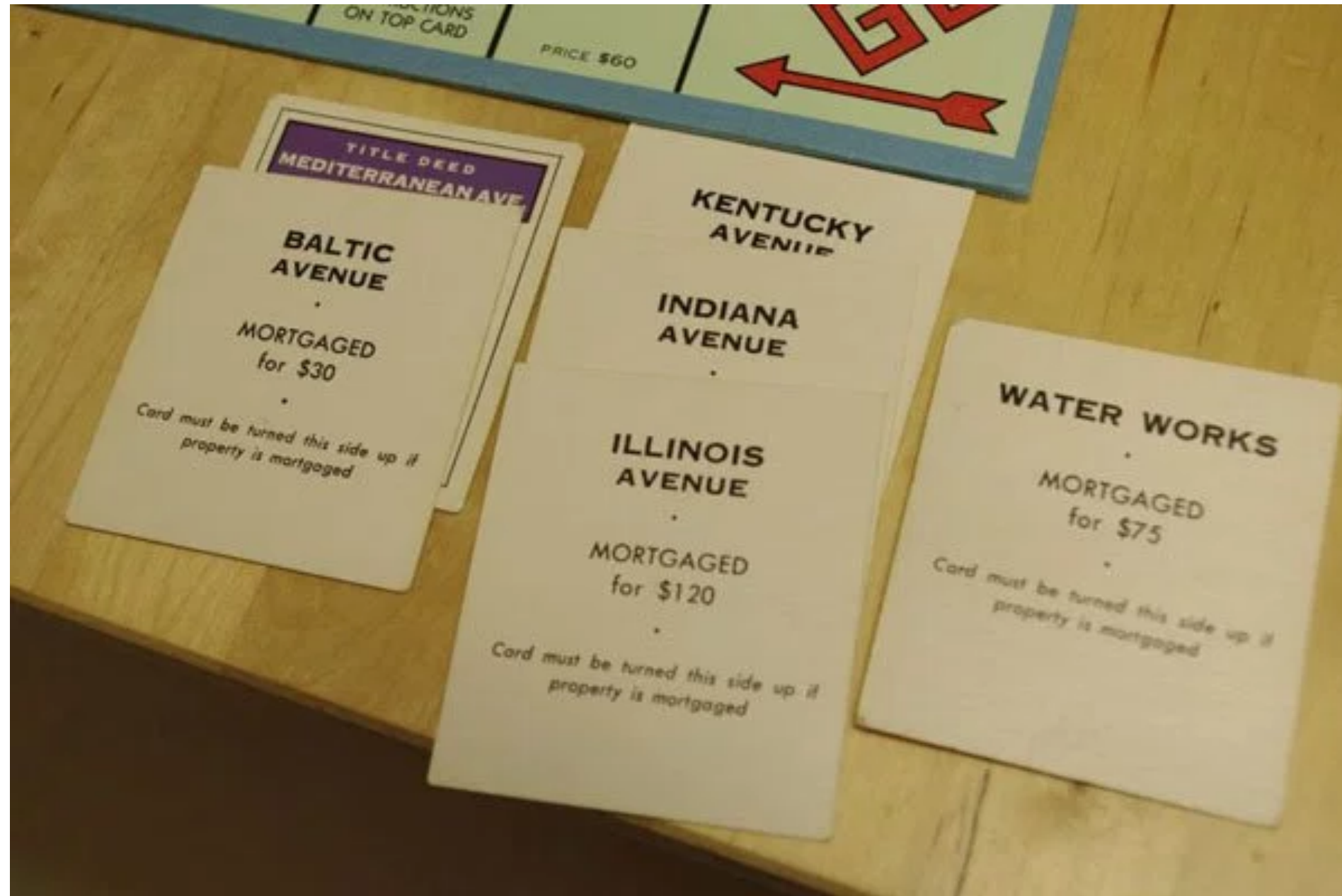




Many losses are more painful than a  
single big loss













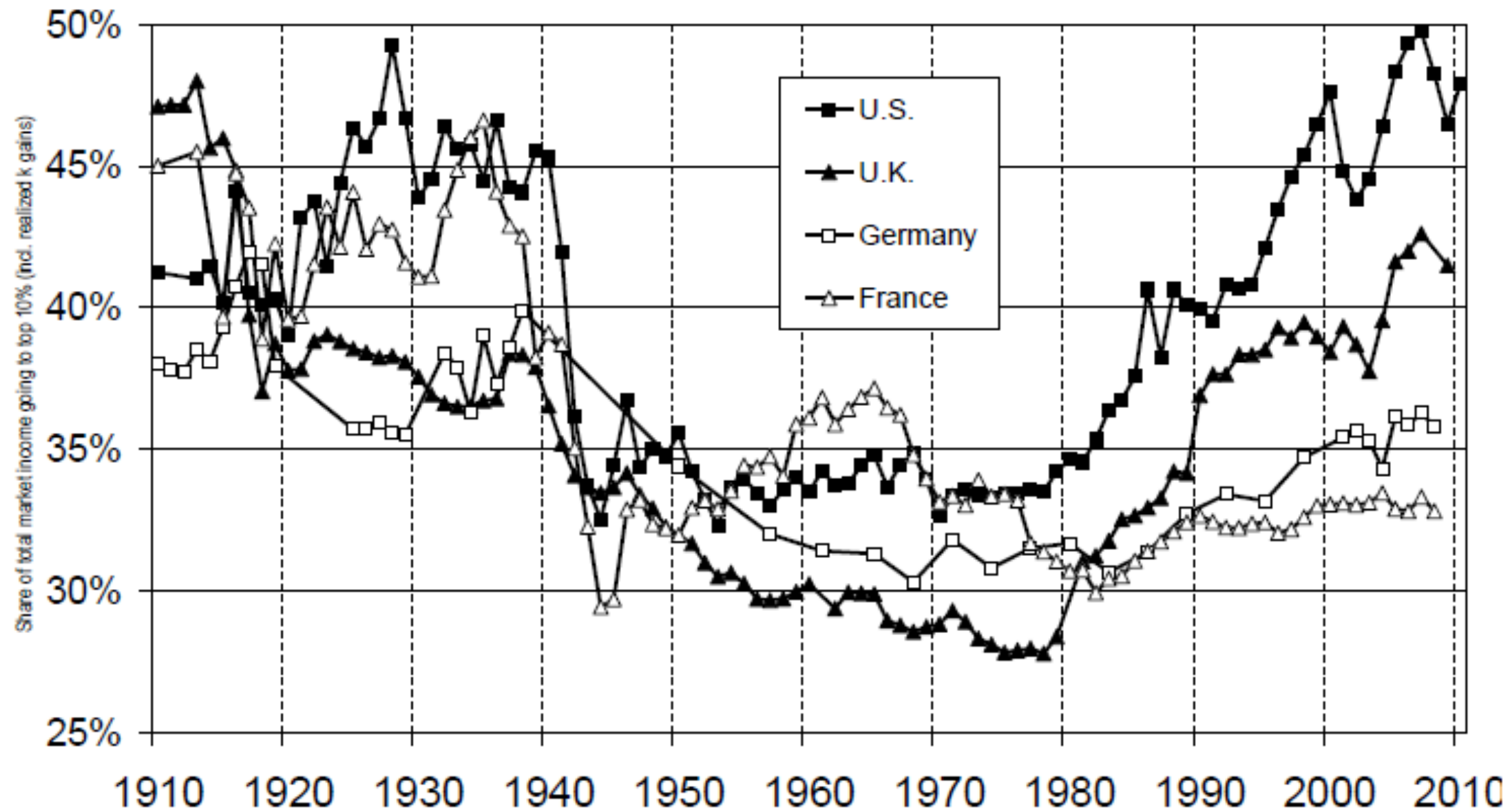
M. Keith Chen,  
Venkat  
Lakshminarayanan  
and Laurie R. Santos  
(2006). [How Basic  
Are Behavioral  
Biases? Evidence  
from Capuchin  
Monkey Trading  
Behavior](#). *Journal of  
Political Economy* by  
*The University of  
Chicago*, vol. 114, no.  
3







Figure 3: Top Decile Income Shares 1910-2010

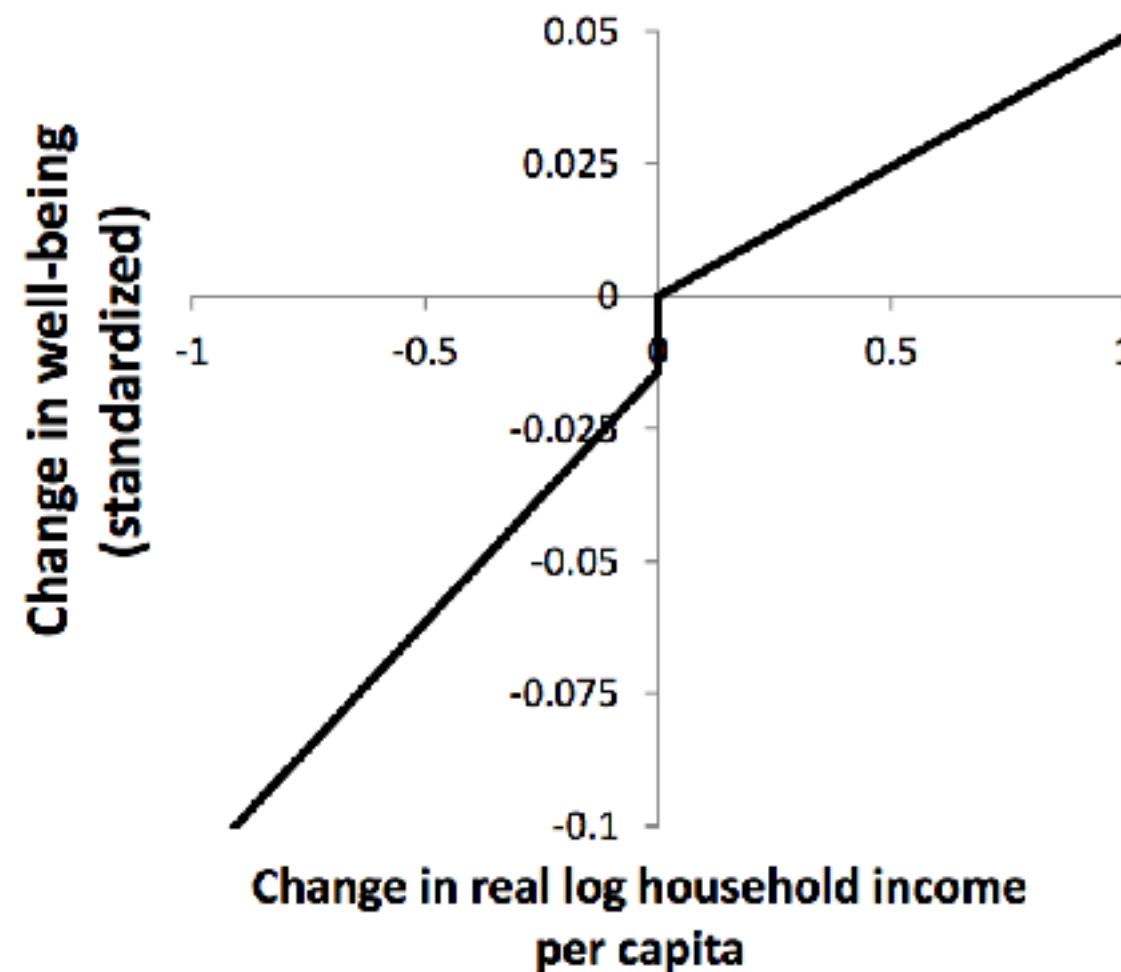


Source: World Top Incomes Database, 2012. Missing values interpolated using top 5% and top 1% series.





*Figure 1: The relationship between life satisfaction and household income losses and gains based on estimates from the GSOEP (Table 1, Regression 2).*



Christopher J. Boyce, Alex M. Wood, James Banks, Andrew E. Clark, Gordon D.A. Brown (2014). [Money, Well-being and Loss Aversion: Does an Income Loss have a Greater Effect on Wellbeing than an Equivalent Income Gain?](#). Centre for Economic Performance, Occasional Papers







# The Freelance Economy



## How “Work” Has Changed

Christopher J. Boyce,  
Alex M. Wood, James  
Banks, Andrew E.  
Clark, Gordon D.A.  
Brown (2014).

[Money, Well-being  
and Loss Aversion:  
Does an Income Loss  
have a Greater Effect  
on Wellbeing than an  
Equivalent Income  
Gain?](#). *Centre for  
Economic  
Performance,  
Occasional Papers*





# Loss Aversion Takeaways

- A loss is twice as painful as the joy of gaining the same thing.
- Losses need to be proportional to have an effect.
- Many small losses are more painful than one big loss.
- An unrealized future gain is the same as losing that gain.







# Hindsight Bias



from [TraderHQ.com](http://TraderHQ.com)

## TRADING INDICATORS

# 5 Indicators that Foretold the 2008 Crash

Justin Kuepper Jun 03, 2014



Share

Traders have access to countless tools designed to help predict future price movements, ranging from technical to economic indicators. While no individual indicator can definitively predict a market rally or decline, savvy traders can draw conclusions by looking at the story that multiple indicators are telling. The 2008 crash provides an excellent example of how certain readings can predict problems.





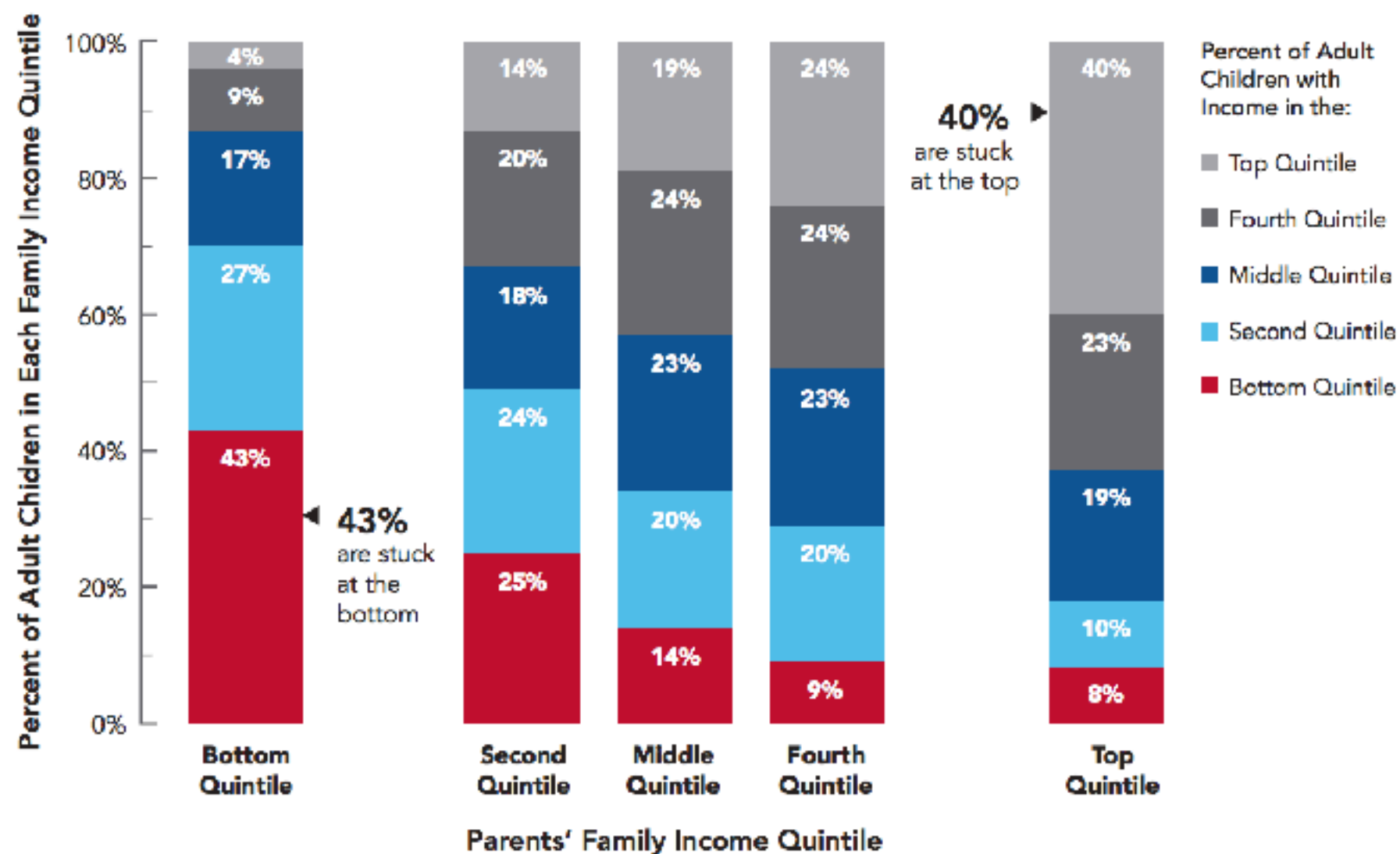




Figure 3

## Americans Raised at the Top and Bottom Are Likely to Stay There as Adults

Chances of moving up or down the family income ladder, by parents' quintile

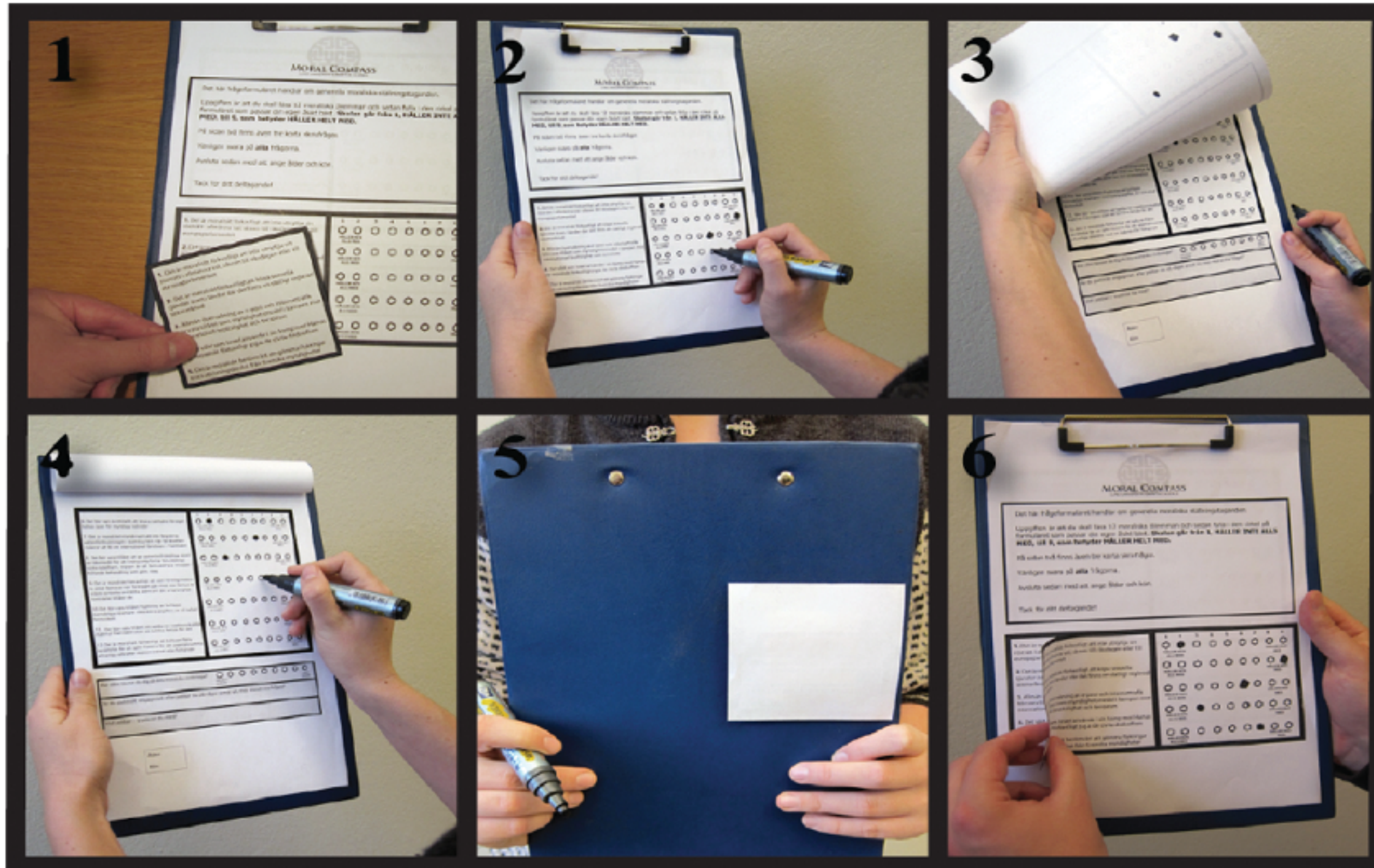


Note: Numbers are adjusted for family size.

[Pursuing the American Dream: Economic Mobility Across Generations.](#)  
The Pew Charitable Trusts, (July, 2012)







Lars Hall, Petter Johansson, Thomas Strandberg (2012).

[Lifting the Veil of Morality: Choice Blindness and Attitude Reversals on a Self-Transforming Survey.](https://doi.org/10.1371/journal.pone.0174557) PLoS ONE 7(9): e45457





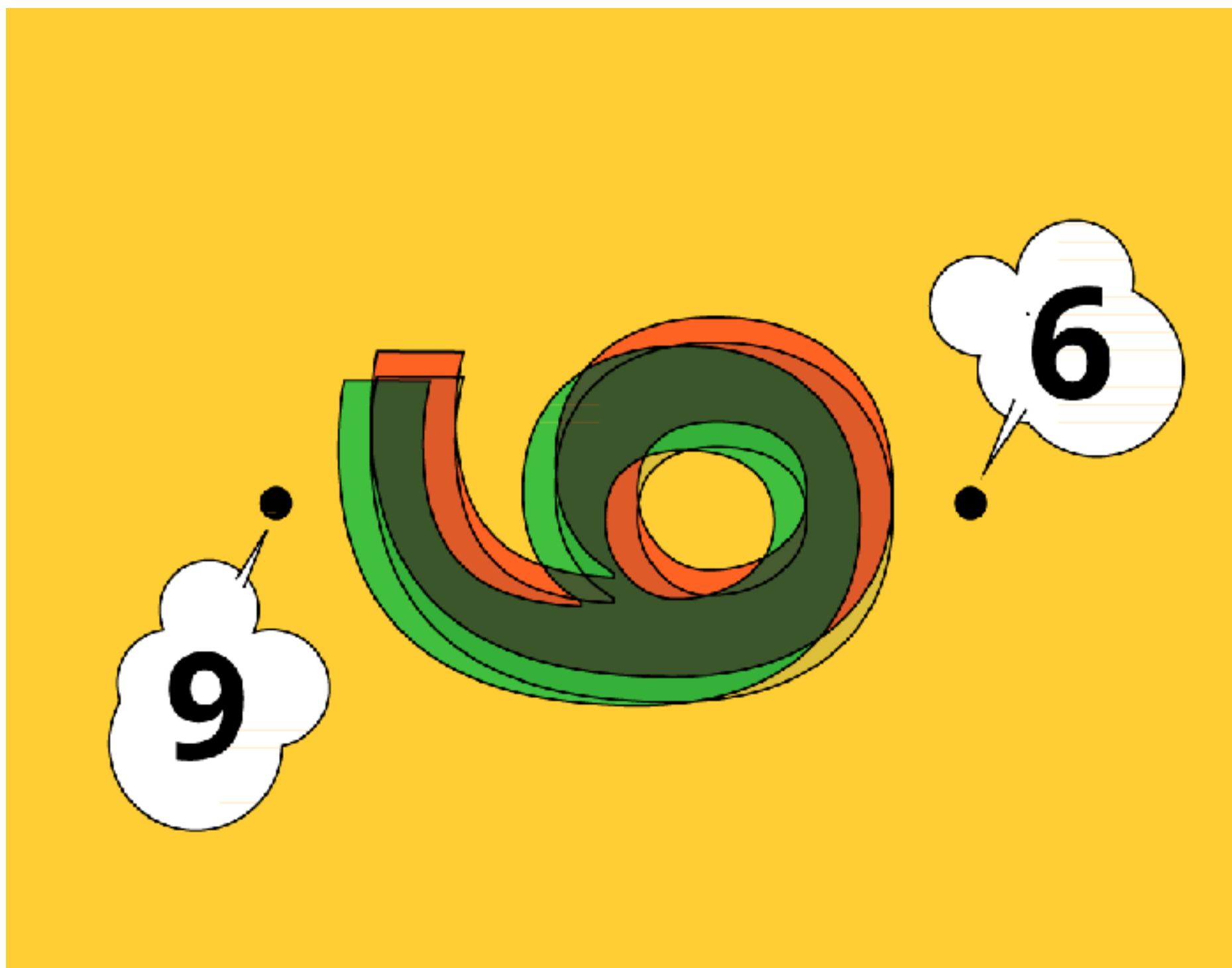






## GROUPTHINK CONSENSUS













# Hindsight Bias Takeaways

- Hindsight bias can increase confidence, but decrease rational thinking.
- It can be stronger when there are negative impacts or a perceived limited set of explanations.
- Having people think about other possible outcomes or effects can minimize the bias.







# Last Place Aversion







Ryan W. Buell  
(2018). [Last Place  
Aversion in Queues.](#)  
*Harvard Business  
School, HBS Working  
Paper #18-053*

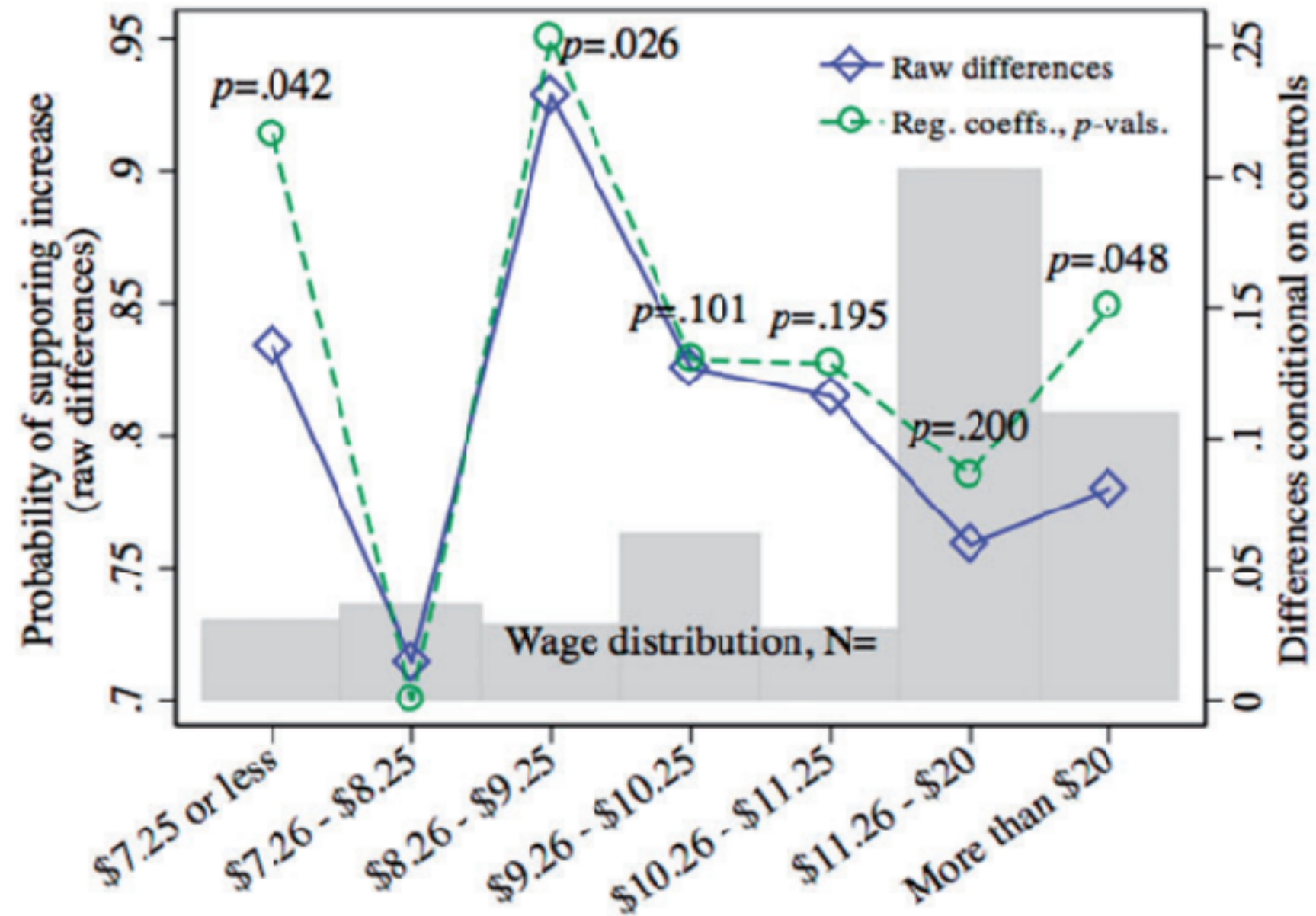






## LAST-PLACE AVERSION

137



Ilyana Kuziemko,  
Ryan W. Buell, Taly  
Reich, Michael I.  
Norton (2011). ["Last-place Aversion":  
Evidence and  
Redistributive  
Implications.](#) *The  
National Bureau of  
Economic Research,  
NBER Working Paper  
No. 17234*





THUNDER FORCE IV			
EXPERT PILOTS			56
RANK	SCORE	STAGE	NAME
ACE	3872730	ALLCLEAR	MOD
2ND	68000	ALLCLEAR	MST
3RD	43150	VERSUS	MAD
4TH	11270	WALL	KJM
5TH	10530	BIO-BASE	KND
6TH	9840	DESVID	GZY
7TH	8780	VOLBADOS	FDG
8TH	8520	DASER	CAS
9TH	6750	AIR-RAID	ALF
10TH	1000	RUIN	ASA





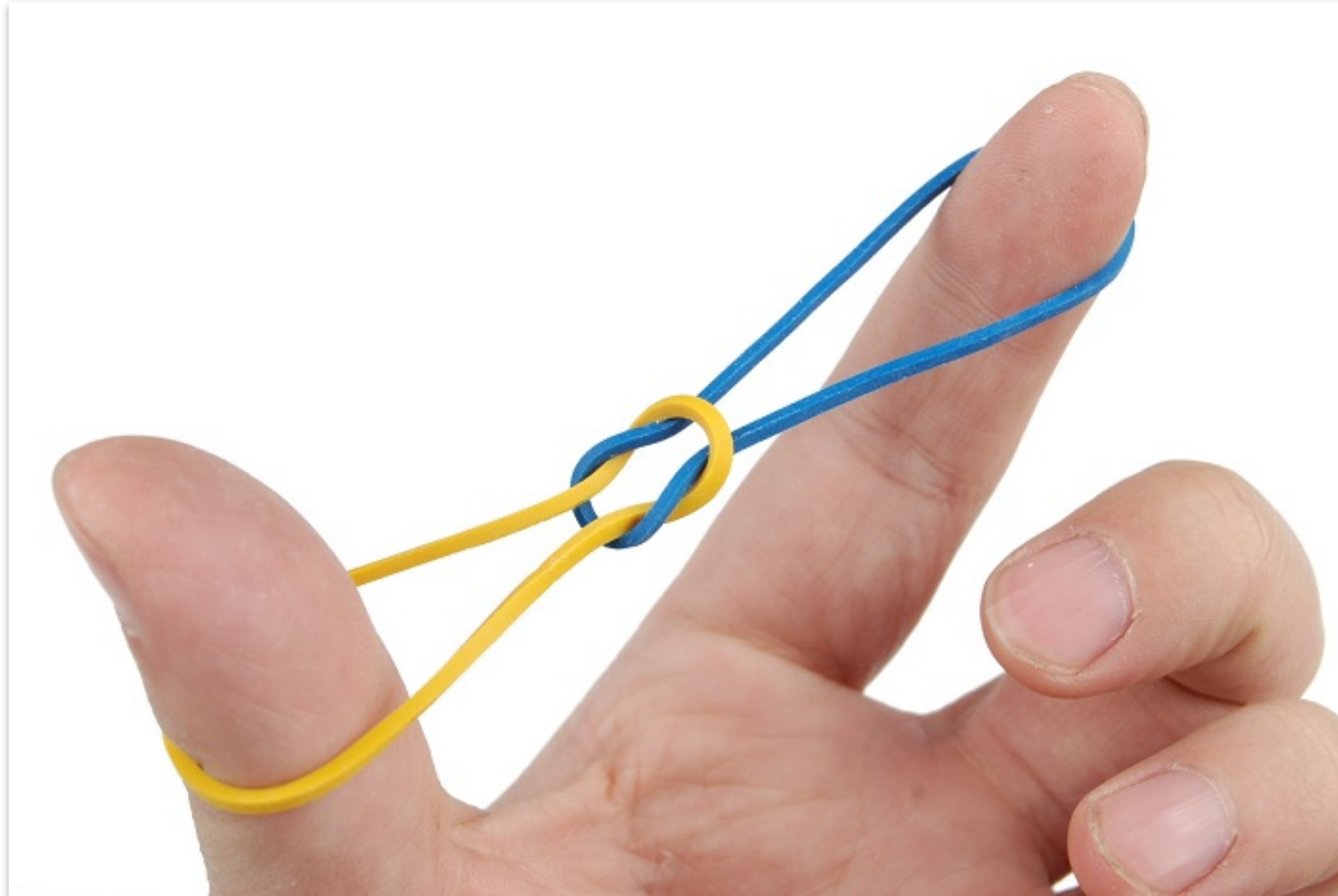
























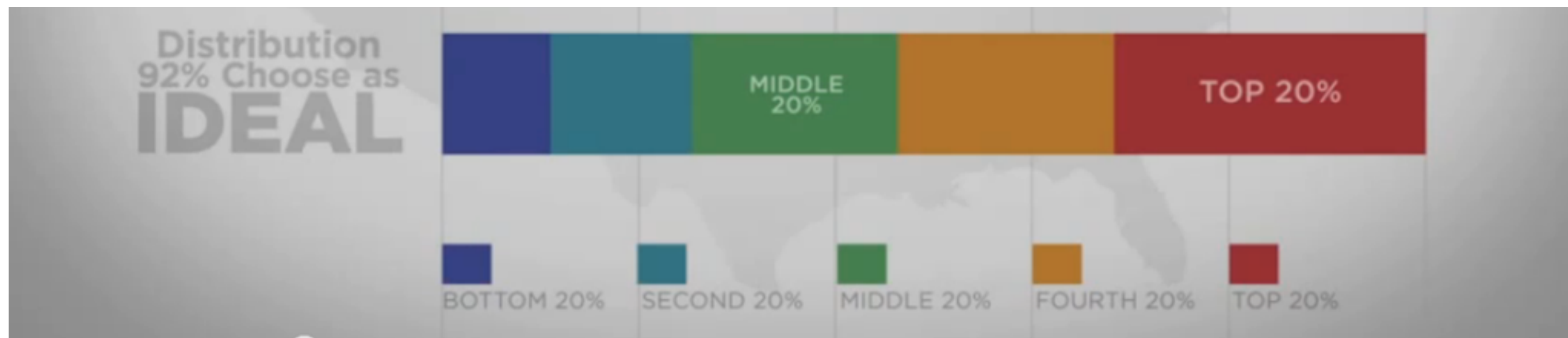






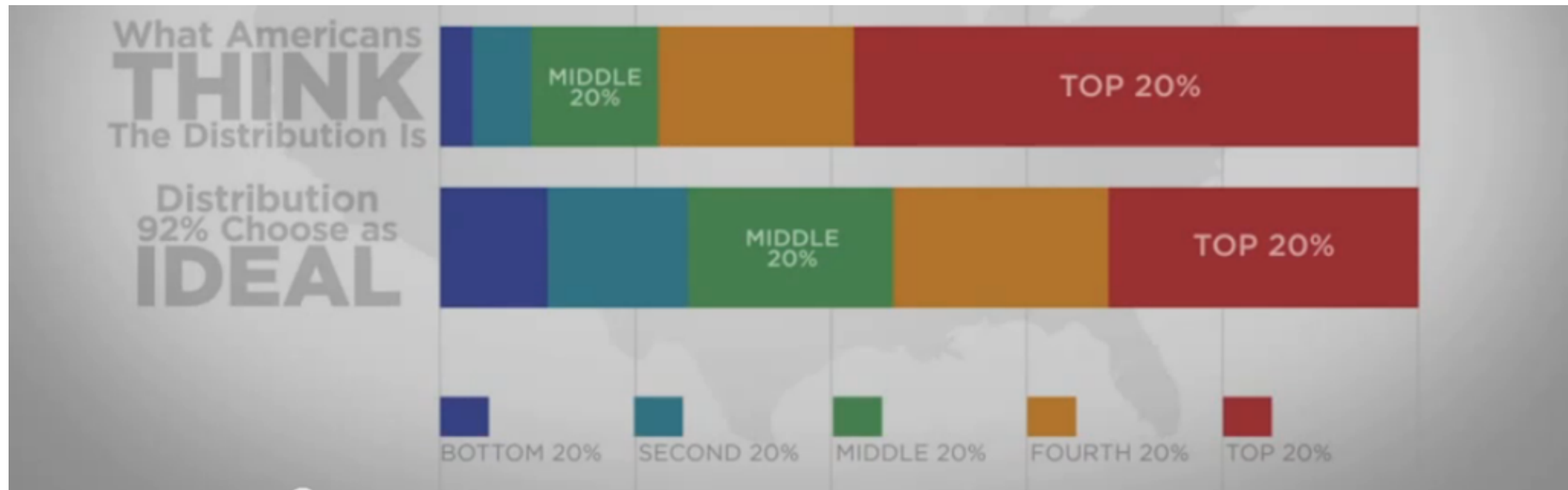


Michael I.  
Norton and  
Dan Ariely  
(2011).  
[Building a  
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America--One  
Wealth Quintile  
at a Time.](#)  
*Perspectives  
on  
Psychological  
Science* 6: 9  
DOI:  
10.1177/17456  
91610393524

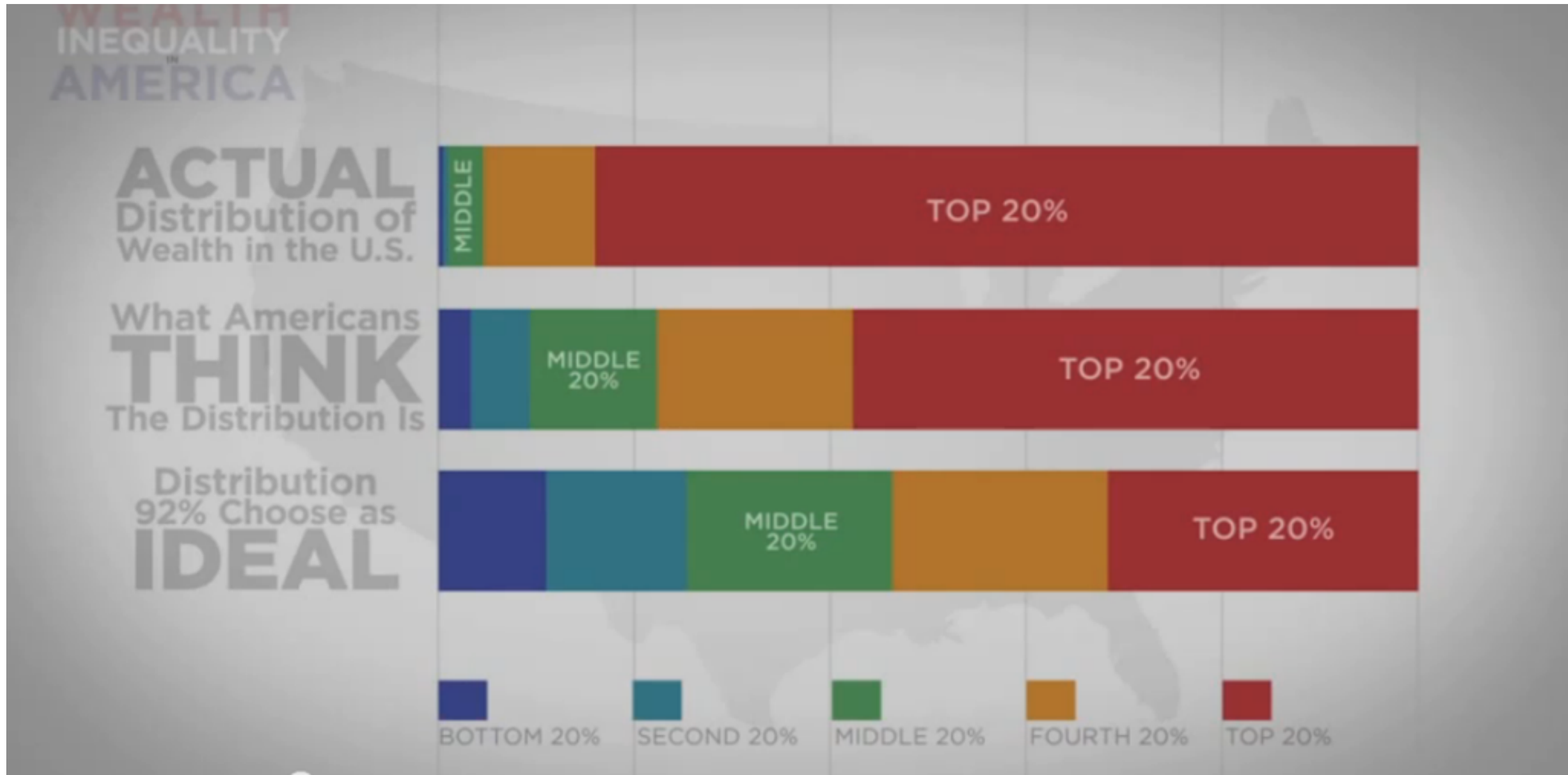




Michael I.  
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Dan Ariely  
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*Perspectives  
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Psychological  
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DOI:  
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Michael I. Norton and Dan Ariely (2011). [Building a Better America--One Wealth Quintile at a Time](#). *Perspectives on Psychological Science* 6: 9  
DOI: 10.1177/1745691610393524



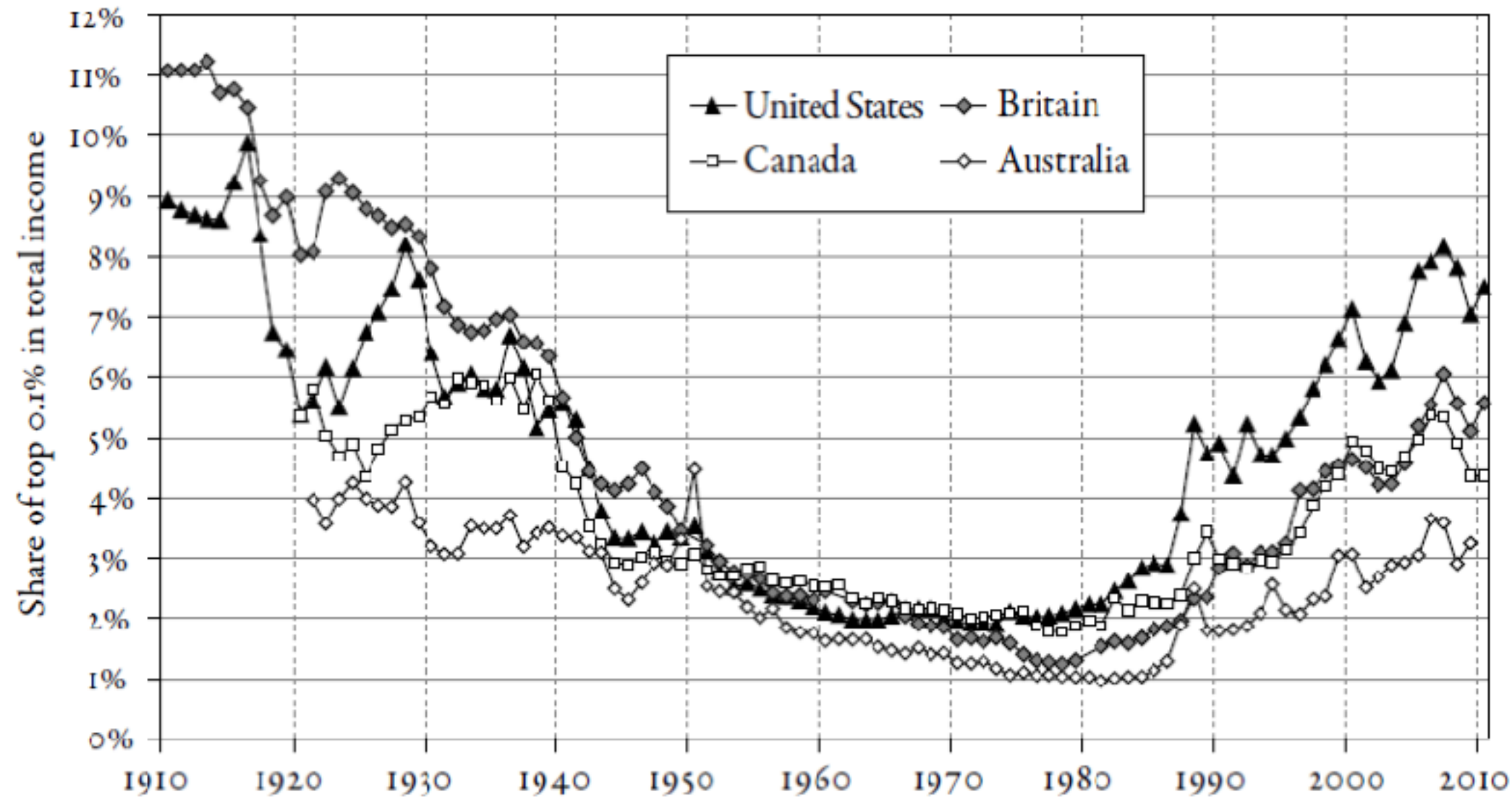


FIGURE 9.5. The top decile income share in Anglo-Saxon countries, 1910–2010

The share of the top 0.1 percent highest incomes in total income rose sharply since the 1970s in all Anglo-Saxon countries, but with varying magnitudes.

Sources and series: see [piketty.pse.ens.fr/capital21c](http://piketty.pse.ens.fr/capital21c).





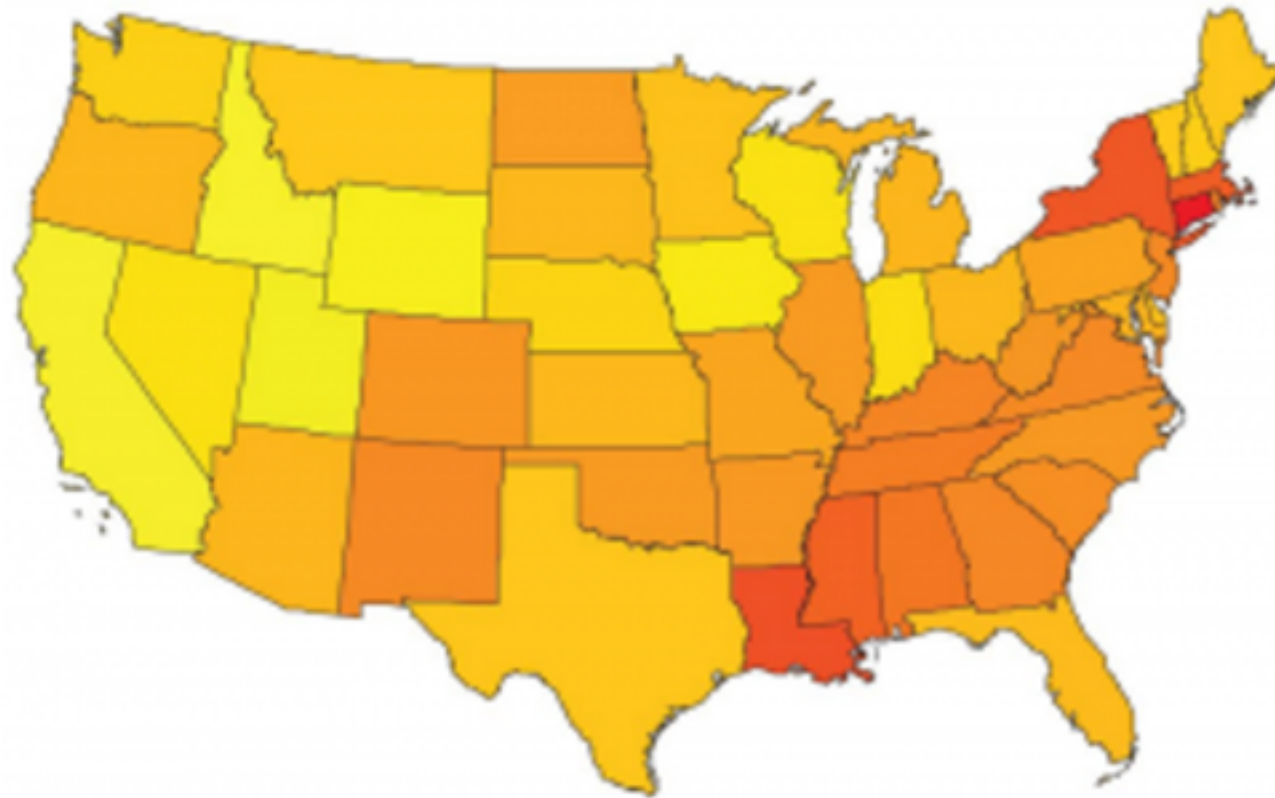


# Emphasis on Status



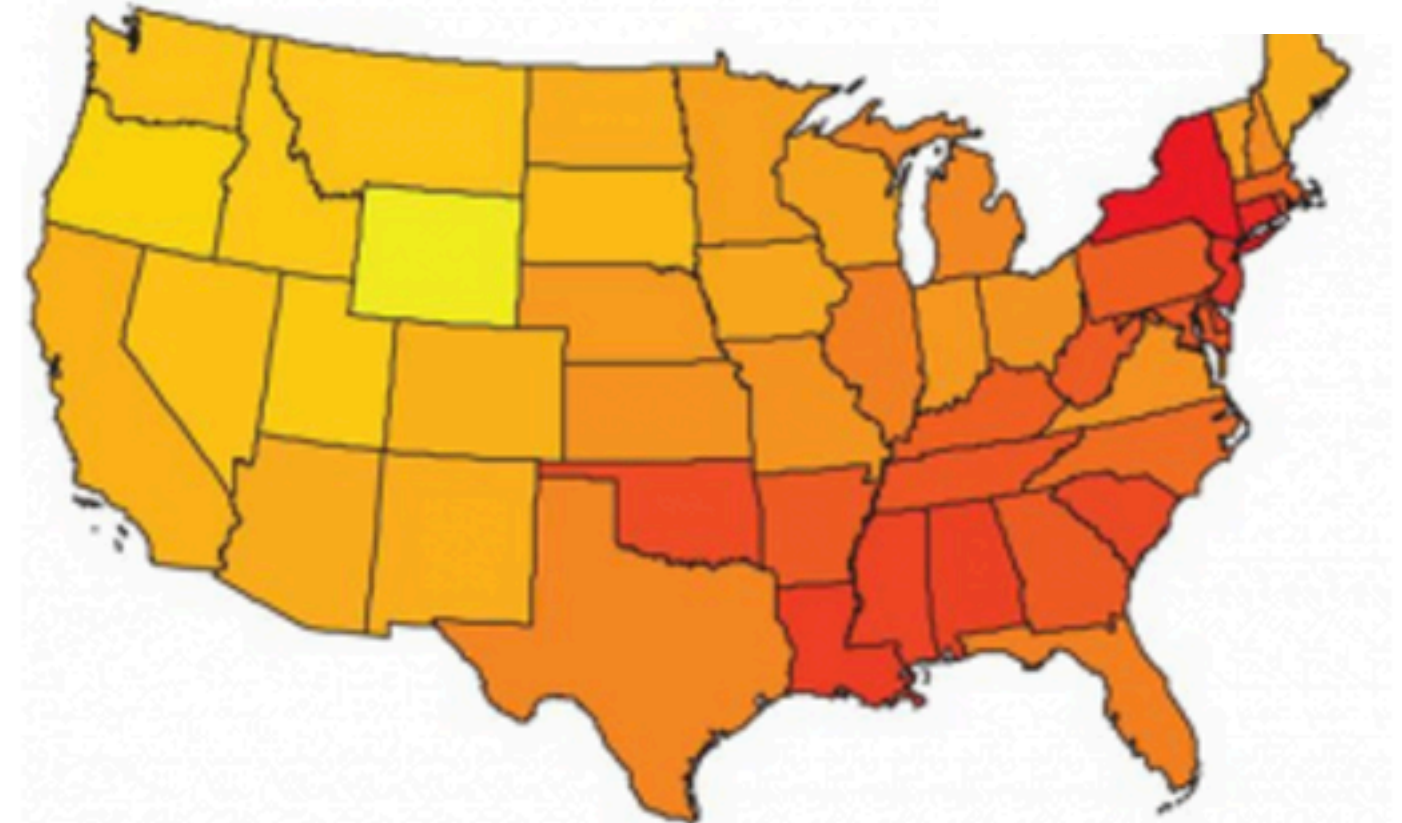


Residual Income Inequality



Redder states had higher income inequality. (Psychological Science)

## "Ralph Lauren"



This map shows the level of correlation for a search term that was positively associated with[+]

Lukasz Walasek, Gordon D. A. Brown (2015). [Income Inequality and Status Seeking: Searching for Positional Goods in Unequal U.S. States](#). *Psychological Science*, Vol 26, Issue 4, pp. 527 - 533







Marianne Bertrand & Adair Morse  
(2016). [Trickle-Down Consumption](#).  
*The Review of Economics and  
Statistics*, MIT Press, vol. 98(5),  
pages 863-879, December.





## What Kind of Mindset Do You Have?



Cecilia L. Ridgeway  
(2014). [Why Status Matters for Inequality](#).  
*American Sociological Review*,  
Vol. 79(1) 1–16 DOI:  
10.1177/0003122413  
515997







Inequality promotes the need to show outward signs of status, leading to increased consumption and decreased savings.



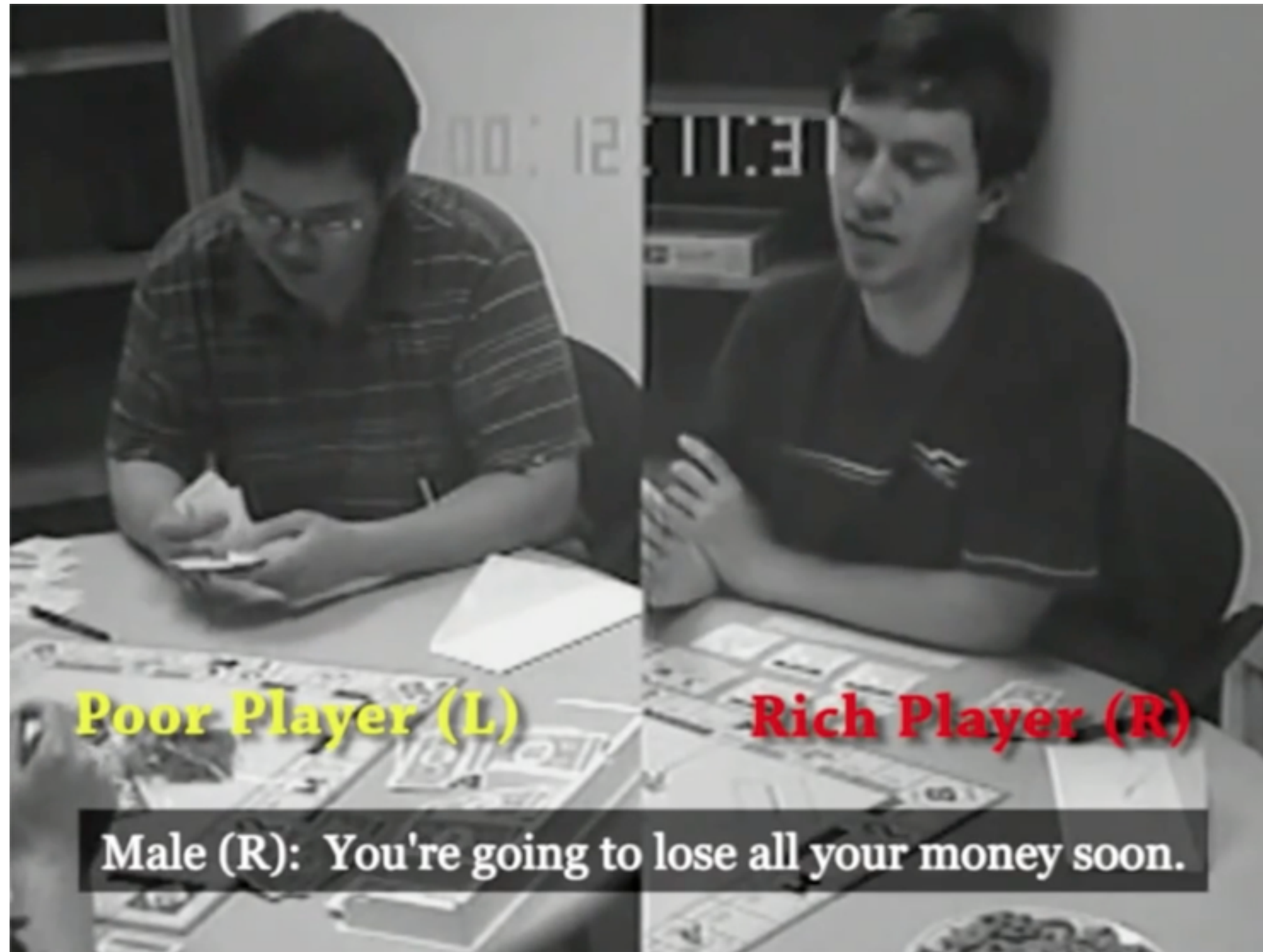


Katherine A. DeCelles and Michael I. Norton (2016). [Physical and situational inequality on airplanes predicts air rage](#). *PNAS*, 113 (20) 5588-5591









Kraus, M. W., Piff, P. K., Mendoza-Denton, R., Rheinschmidt, M. L., & Keltner, D. (2012). [Social class, solipsism, and contextualism: How the rich are different from the poor.](#) *Psychological Review*, 119, 546-572



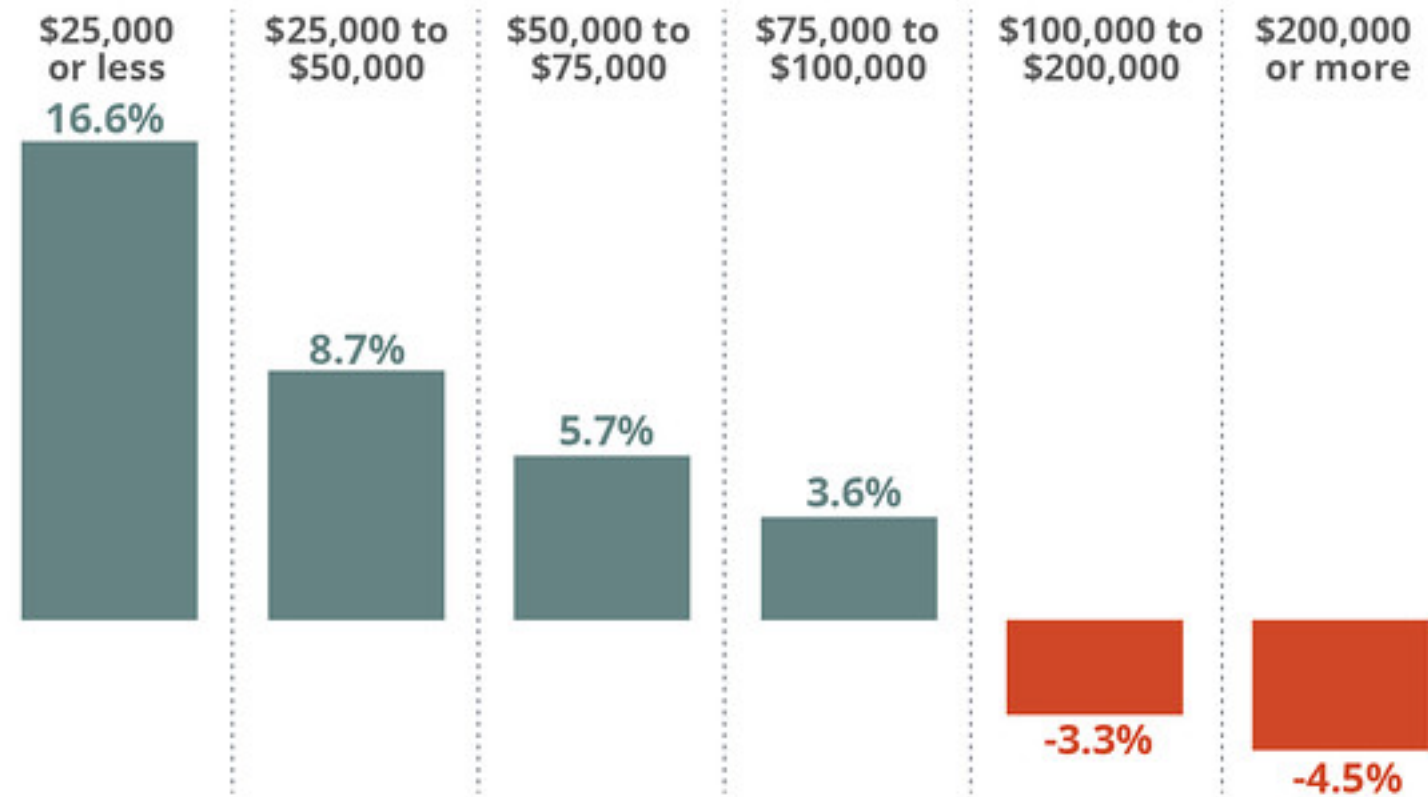




Alex Daniels (2014). [As Wealthy Give Smaller Share of Income to Charity, Middle Class Digs Deeper](#). *The Chronicle of Philanthropy*, How America Gives

## Rich man, poor man

Change in the share of income given to charity from 2006 to 2012



Source: The Chronicle of Philanthropy

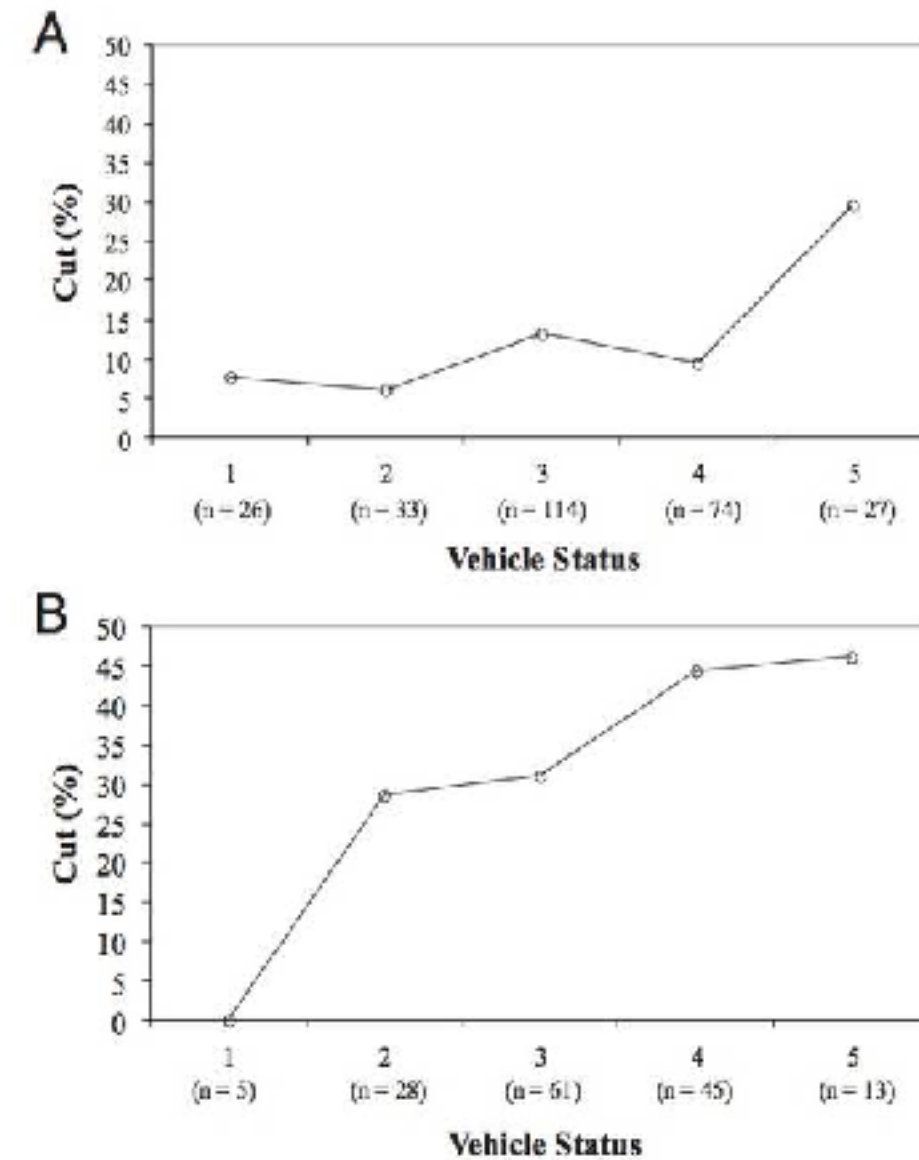








**Fig. 4.** Photo series depicting crosswalk from study 2 with confederate posing as a pedestrian approaching (*Top*) and standing at crosswalk (*Middle*) as target vehicle fails to yield (*Bottom*).



**Fig. 1.** Percentage of cars that cut off (i) other vehicles at the four-way intersection (from study 1) (A) or (ii) the pedestrian at the crosswalk (from study 2) (B), as a function of vehicle status (1 = lowest status, 5 = highest status).

Piff, P. K., Stancato, D. M., Côté, S., Mendoza-Denton, R., & Keltner, D. (2012). [Higher social class predicts increased unethical behavior](#). *Proceedings of the National Academy of Sciences*, 109, 4086-4091.





Higher status people are less dependent on others.  
This leads to less cooperation and observation of people around them.







Piff, P. K., Stancato,  
D. M., Côté, S.,  
Mendoza-Denton, R.,  
& Keltner, D. (2012).  
[Higher social class  
predicts increased  
unethical  
behavior.](#) *Proceedings  
of the National  
Academy of  
Sciences*, 109,  
4086-4091.





# Effects of Status Takeaways

- The more unequal a system is, the stronger the desire to show and compete for status.
- As people climb up in status, they rely less on a social group for help.
- Closing empathy gaps caused by status can be done with a reminder of the importance of community and teamwork.







# Income Inequality in Games













Project Horseshoe,  
[Group Report: Ethical  
Video Game  
Monetization](#), 2017







Project Horseshoe,  
[Group Report: Ethical  
Video Game  
Monetization](#), 2017





# GDC







# Beyond Games













### Productivity and average real earnings

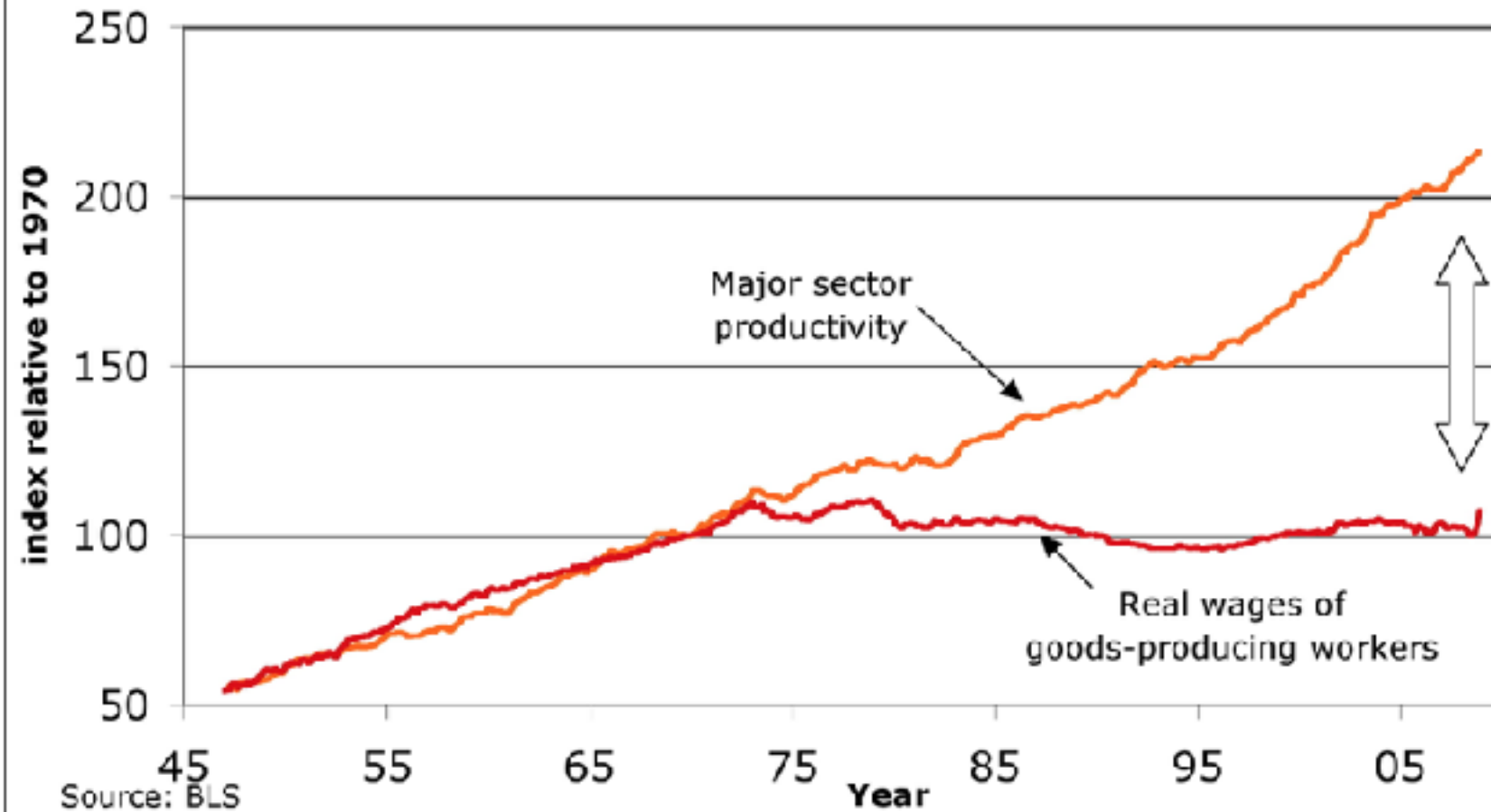
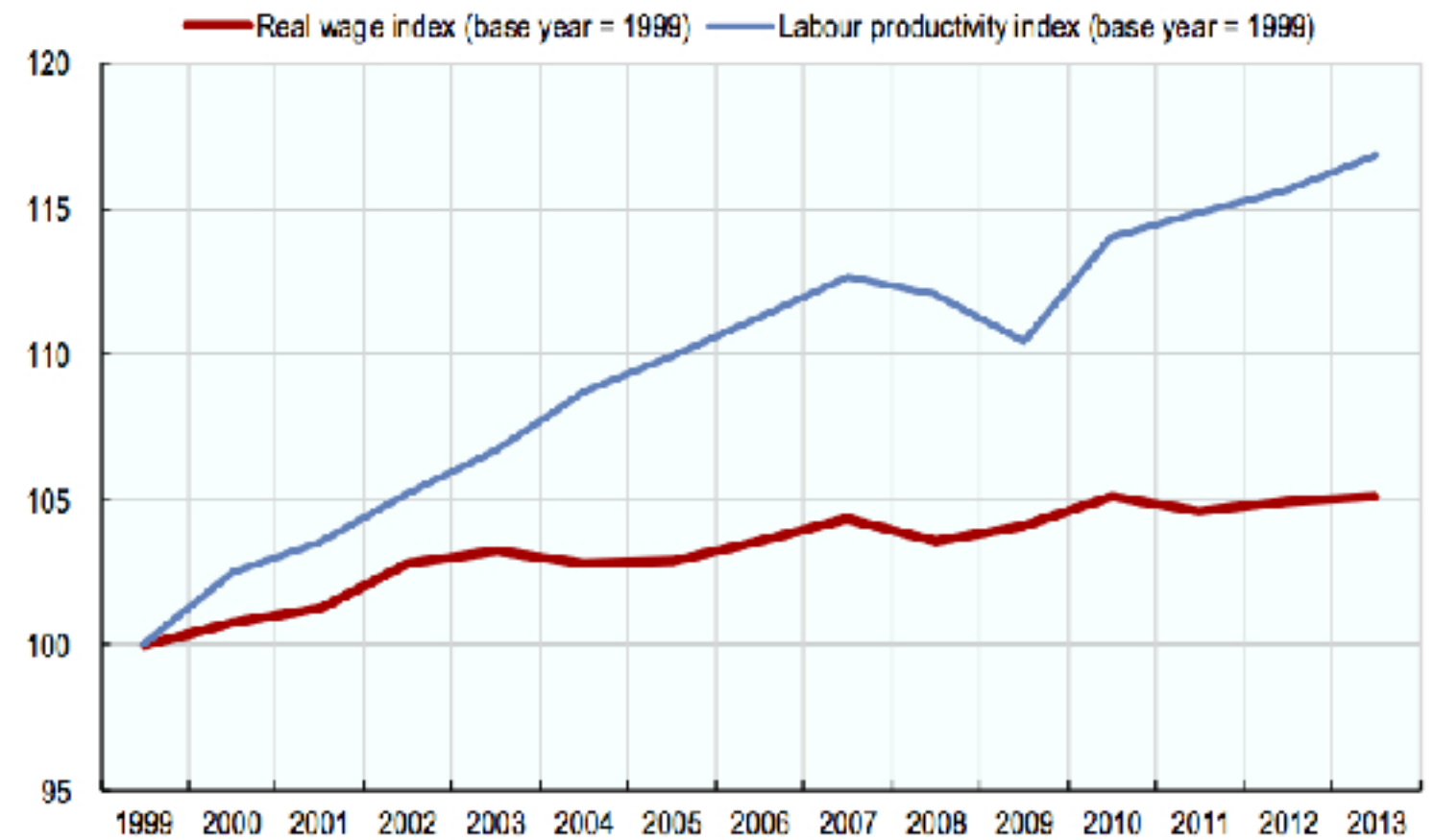


Figure 6: Productivity and wage index (G20 advanced economies)



Labour productivity is defined as GDP per employed person and uses GDP in constant 2005 PPP\$ for all countries. advanced economies include: Australia, Canada, France, Germany, Italy, Japan, the Republic of Korea, the United Kingdom, the United States. Both indices are based on a weighted average of all the countries in the group that takes into account labour productivity and the size of paid employment.

Source: ILO staff estimation, using data from the ILO Global Employment Trends reports and the ILO Global Wage Database, revised and updated.







## Getting a Personal Loan with a Low CIBIL Score

I Have a  
**Good Income**  
Now.



Great going!

If you have a good income and you can easily repay your loan, maybe your CIBIL score won't matter so much.

I Have  
**Filed**  
My Taxes.



Awesome!

Show the lenders you're a regular tax payer. They'll want to see that you've paid tax for the past 3 years.

Steady  
**Job?**  
I got that!



Perfect!

To prove that you're gainfully employed, show them your last 6 months salary statements.

Bank  
**Balance?**  
Got that too!



Yipee!

You would need your bank statements for the past 6 months.

Got your identity proof, address proof and PAN card handy? **Then you're sorted.**

bankbazaar.com





Joy Buolamwini  
[Algorithmic Justice League](#) Photo: Lenny Martinez







# Can Game Designers Save the World?





# Special Thanks

- Soren Johnson, Mohawk Games
- Geoffrey Engelstein, Ludosity, The Dice Tower
- Eric Zimmerman and Naomi Clark, NYU Gamecenter
- Project Horseshoe, Group Report: Ethical Video Game Monetization

**julia@untame.com**  
**@quiltingcrow**







# Readings

- *Capital in the Twenty First Century* by Thomas Picketty
- *The Broken Ladder: How Inequality Affects the Way we Think, Live, and Die* by Keith Payne
- *Misbehaving* by Richard Thaler
- *Success and Luck: Good Fortune and the Myth of Meritocracy* by Robert Frank
- *Janesville: An American Story* by Amy Goldstein
- *Inequality and Decision Making: Imagining a New Line of Inquiry* by David Moss, Anant Thaker, Howard Rudnick
- *The Price of Inequality* by Joseph Stiglitz

