Social interactions and incentives II

MPA 612: Public Management Economics

January 29, 2018

Fill out your reading report on Learning Suite!

Plan for today

Games and math

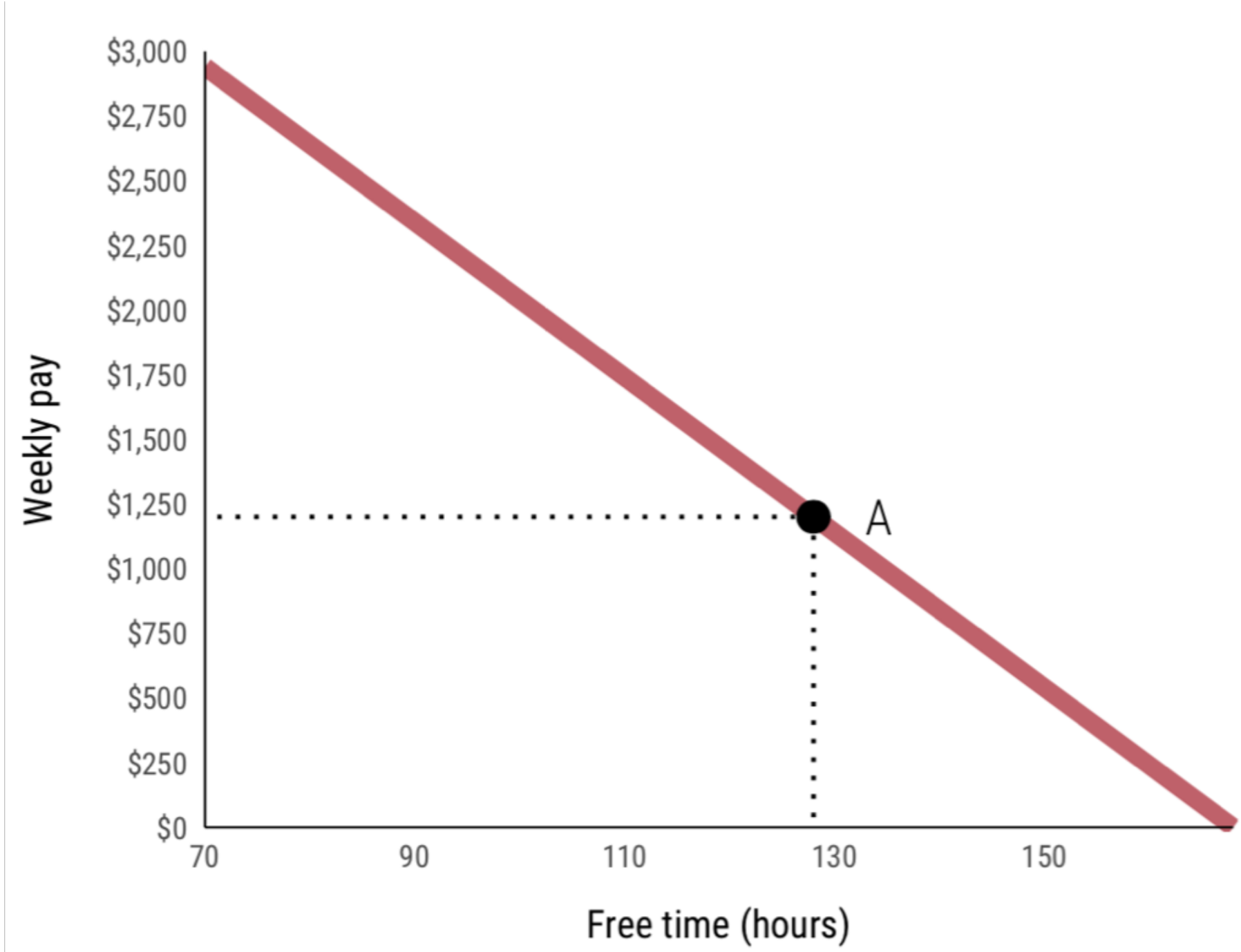
Stags, hares, and prisoners

Preference falsification

Fixing collective action problems

Current events

Problem set 2.5


$3,000
$2,750
$2,500
$2,250
$2,000
$1,750
$1,500
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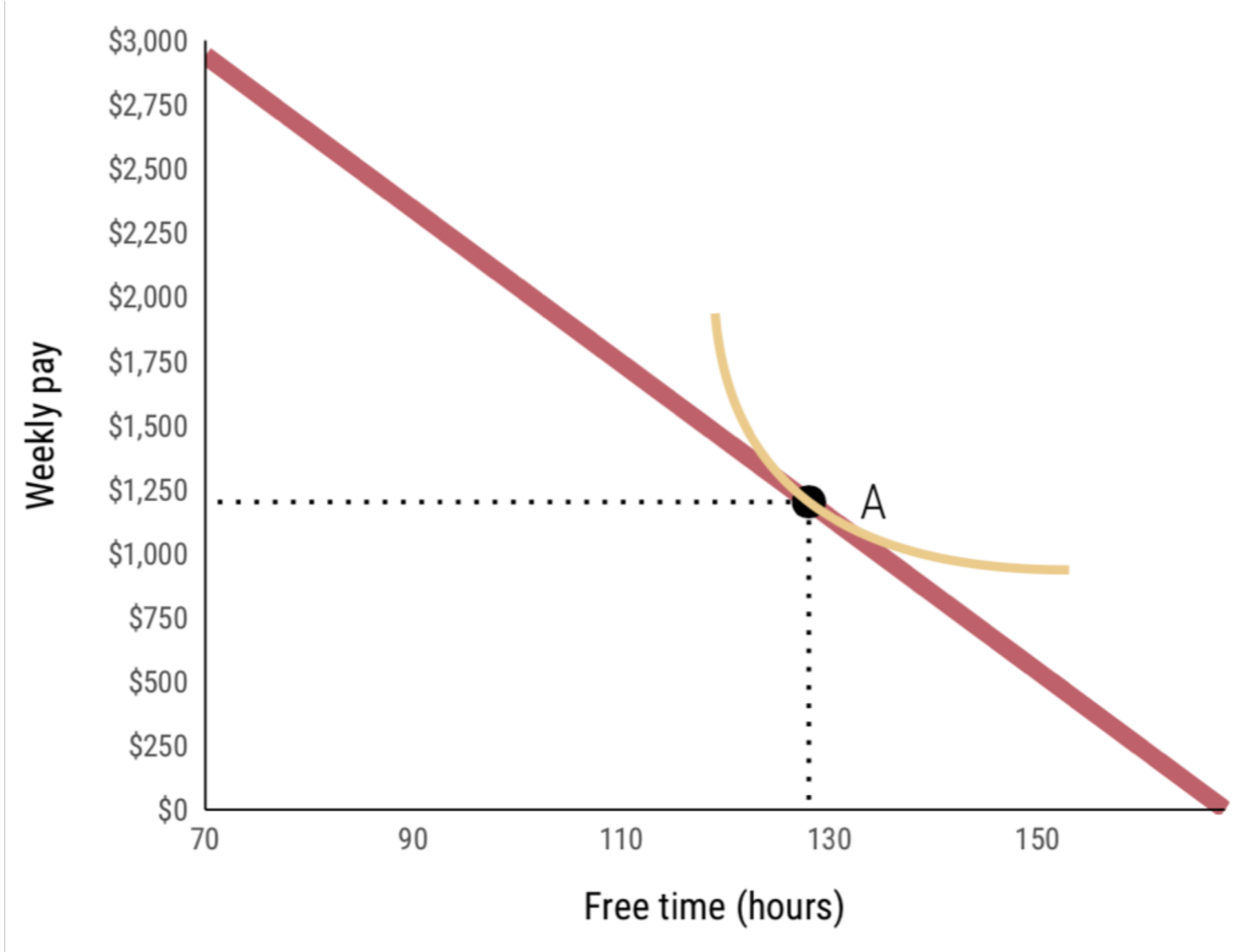
$750
$500
$250
$0
Weekly pay
A
70
90
110
130
150
Free time (hours)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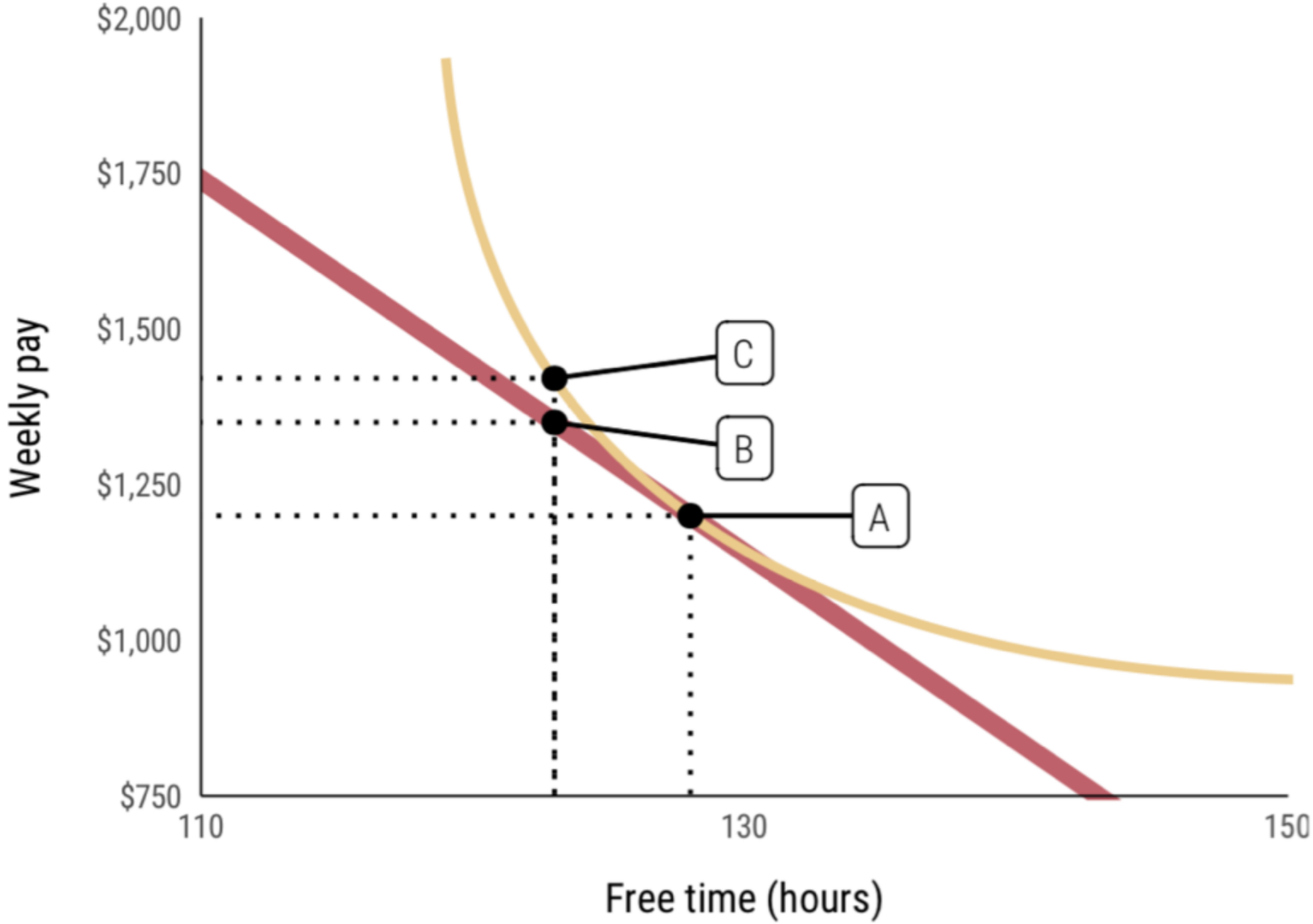
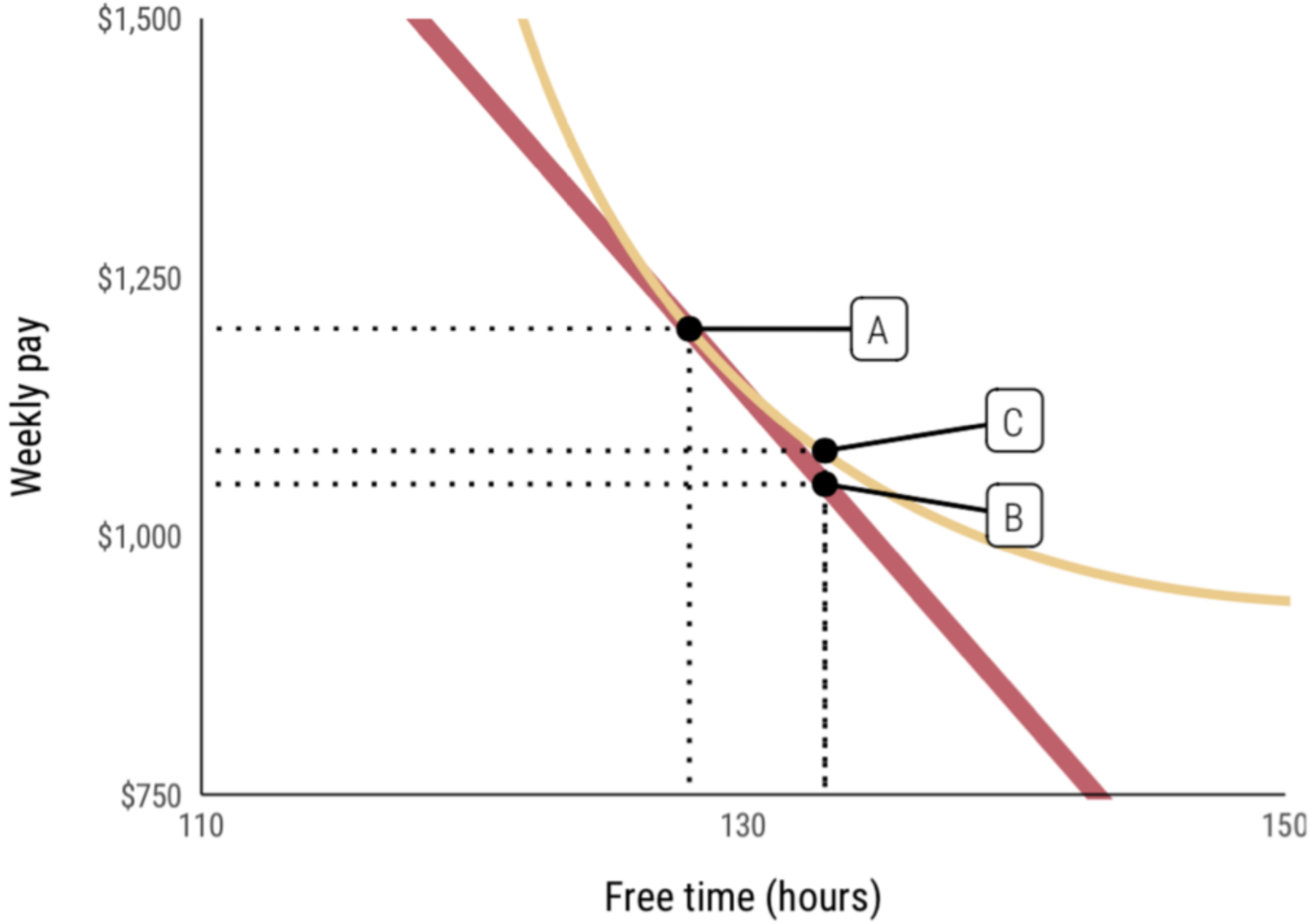


Note: Plot is zoomed in on intersections



Note: Plot is zoomed in on intersections

Games and math

Battle of the sexes

		Woman	
		Boxing	Opera
Man	Boxing	**2, 1**	**0, 0**
	Opera	**0, 0**	**1, 2**

Non-zero-sum

Two pure equilibria

One mixed strategy

		Woman		
		Boxing (q)	Opera ($1 - q$)	Man's expected utility
Man	Boxing (p)	**2, 1**	**0, 0**	
	Opera ($1 - p$)	**0, 0**	**1, 2**	
	Woman's expected utility			

		Woman		
		Boxing (q)	Opera ($1 - q$)	Man's expected utility
Man	Boxing (p)	**2, 1**	**0, 0**	$2q + 0(1 - q)$ or **$2q$**
	Opera ($1 - p$)	**0, 0**	**1, 2**	
	Woman's expected utility			

		Woman		
		Boxing (q)	Opera ($1 - q$)	Man's expected utility
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	Woman's expected utility			

		Woman		
		Boxing (q)	Opera ($1 - q$)	Man's expected utility
Man	Boxing (p)	**2, 1**	**0, 0**	$2q + 0(1 - q)$ or **2q**
	Opera ($1 - p$)	**0, 0**	**1, 2**	$0q + 1(1 - q)$ or **1 – q**
	Woman's expected utility	$1p + 0(1 - p)$ or **p**		

		Woman		
		Boxing (q)	Opera ($1 - q$)	Man's expected utility
Man	Boxing (p)	**2, 1**	**0, 0**	$2q + 0(1 - q)$ or **$2q$**
	Opera ($1 - p$)	**0, 0**	**1, 2**	$0q + 1(1 - q)$ or **$1 - q$**
	Woman's expected utility	$1p + 0(1 - p)$ or **p**	$0p + 2(1 - p)$ or **$2 - 2p$**	

		Woman		
		Boxing (q)	Opera ($1 - q$)	Man's expected utility
Man	Boxing (p)	**2, 1**	**0, 0**	2q + 0(1 – q) or **2q**
	Opera ($1 - p$)	**0, 0**	**1, 2**	0q + 1(1 – q) or **1 – q**
	Woman's expected utility	1p + 0(1 – p) or **p**	0p + 2(1 – p) or **2 – 2p**	

Solve for q

$$2q = 1 - q$$

$$3q = 1$$

$$q = \frac{1}{3}$$

Solve for p

$$p = 2 - 2p$$

$$3p = 2$$

$$p = \frac{2}{3}$$

		Woman	
		Boxing (q = **1/3**)	Opera (**2/3**)
Man	Boxing (p = **2/3**)	**2, 1**	**0, 0**
	Opera (**1/3**)	**0, 0**	**1, 2**

Man's best response

If woman's actual q > 1/3:	Opera
If woman's actual q = 1/3:	Whatever
If woman's actual q < 1/3:	Boxing

Woman's best response

If man's actual p > 2/3:	Boxing
If man's actual p = 2/3:	Whatever
If man's actual p < 2/3:	Opera

Expected payoffs

		Woman	
		Boxing (q = **1/3**)	Opera (**2/3**)
Man	Boxing (p = **2/3**)	**2/9** **2, 1**	**4/9** **0, 0**
	Opera (**1/3**)	**1/9** **0, 0**	**2/9** **1, 2**

For the man $(2 \times \frac{2}{9}) + (0 \times \frac{4}{9}) + (0 \times \frac{1}{9}) + (1 \times \frac{1}{9}) = \frac{2}{3}$

Expected payoffs

		Woman	
		Boxing (q = **1/3**)	Opera (**2/3**)
Man	Boxing (p = **2/3**)	**2/9** **2, 1**	**4/9** **0, 0**
	Opera (**1/3**)	**1/9** **0, 0**	**2/9** **1, 2**

For the woman $(1 \times \frac{2}{9}) + (0 \times \frac{4}{9}) + (0 \times \frac{1}{9}) + (2 \times \frac{1}{9}) = \frac{2}{3}$

Strategy payoffs

Pure strategy

1 or 2

Mixed strategy

2/3

		Woman	
		Boxing (q = **1/3**)	Opera (**2/3**)
Man	Boxing (p = **2/3**)	**2, 1**	**0, 0**
	Opera (**1/3**)	**0, 0**	**1, 2**

With communication, best to just compromise; otherwise gamble

Chicken

		Racer 2	
		Keep going	Swerve
Racer 1	Keep going	**-100, -100**	**5, -5**
	Swerve	**-5, 5**	**0, 0**

Stags, hares, and prisoners

Rediscovering the most criminally underused game theoretic game

Perfectly rational individual behavior can create irrational and inferior social outcomes

Prisoner's dilemma

		Bala	
		Magic bugs	Poison
Anil	Magic bugs	**3, 3**	**1, 4**
	Poison	**4, 1**	**2, 2**

Non-zero-sum

One dominant equilibrium

Not socially optimal!

Guaranteeing cooperation in PD land

Repetition and iteration

One-shot vs. repeated

Infinitization

Defect at n – 1

PD games underpredict voluntary cooperation

(since the dominant strategy is always defect)

Payoffs for cooperation greater than payoffs for defection

There’s still an incentive to defect

Stag hunt

		Bala	
		Stag	Hare
Anil	Stag	**10, 10**	**0, 2**
	Hare	**2, 0**	**2, 2**

Non-zero-sum

Two pure equilibria

Not socially optimal!

Mixed strategy

Not Pareto optimal!

Better model of social dilemmas

Climate change

Negative political campaigns

Points in soccer tournaments

Arriving on time

Banks

Preference falsification

Lying because you think everyone else isn’t lying

Everyone loves the dictator

Utility = 3 parts

Intrinsic — We like what we like because we just do

Reputational — Our happiness is determined by what other people think

Expressive — Distance between intrinsic and reputational (cognitive dissonance)

Falsification

Someone finds utility in some opinion

They get reputational utility from having the opposite public opinion

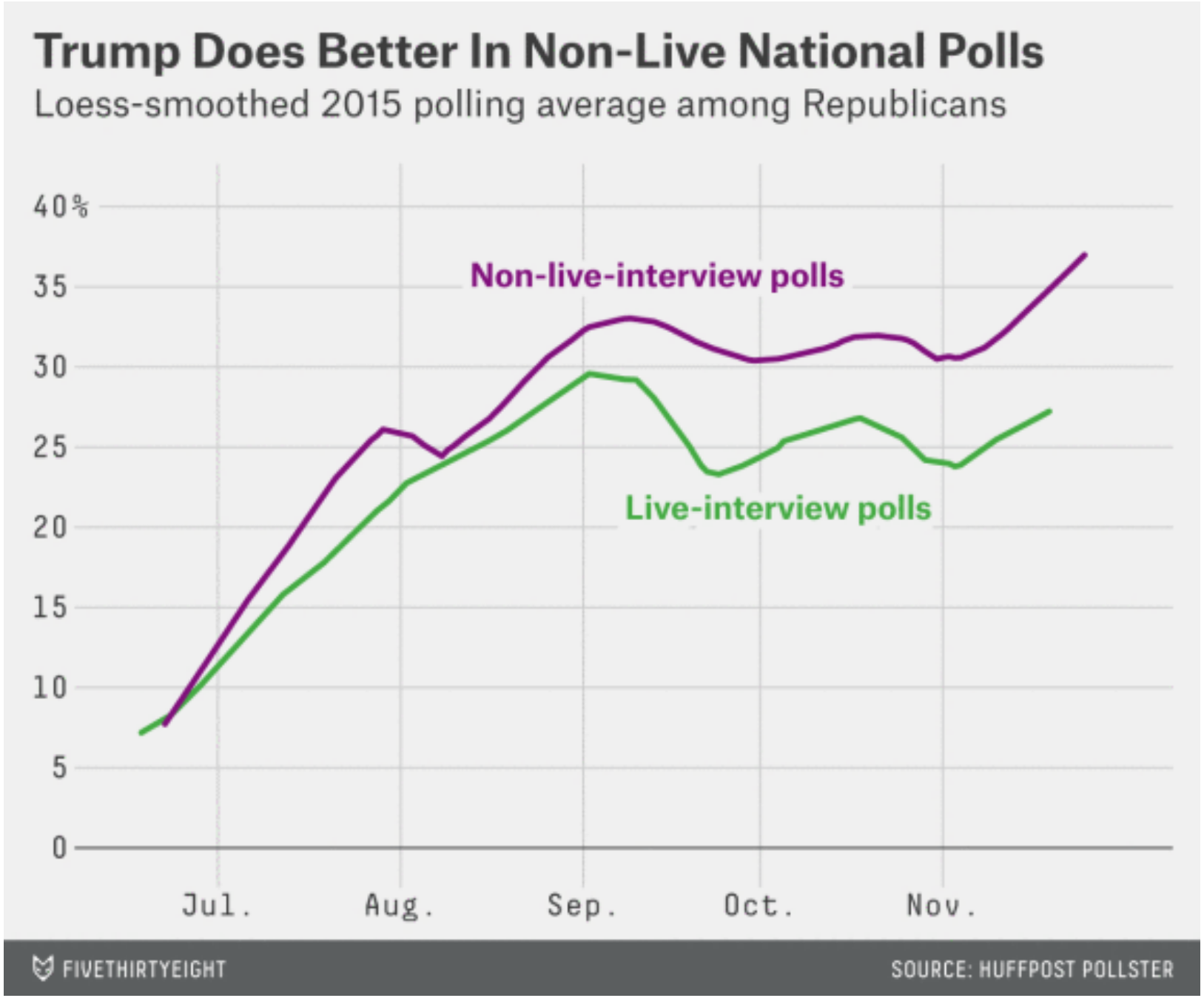
So, they falsify public preferences

(Unless they have high expressive utility—then they speak out)

Public opinion = sum of everyone's fake public preferences

Bradley effect

Social desirability bias


Trump Does Better In Non-Live National Polls
Loess-smoothed 2015 polling average among Republicans
40%
35
30
25
20
15
10
5
0
Non-live-interview polls
Live-interview polls
Jul.
Aug.
Sep.
Oct.
Nov.
FIVETHIRTYEIGHT
SOURCE: HUFFPOST POLLSTER


FREEDOM

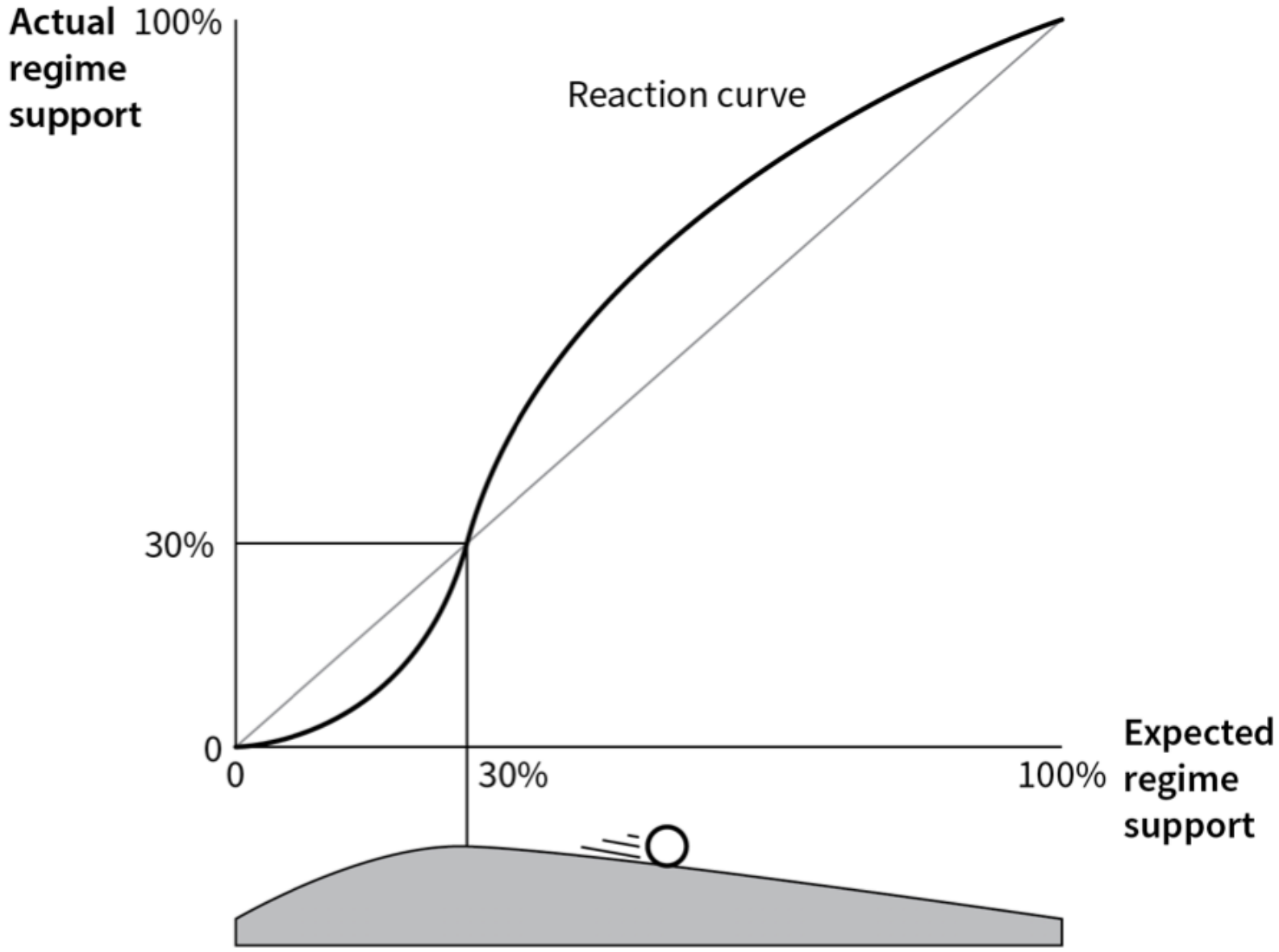
If you believe that 100% of the country supports the regime, you'll publicly support the regime, even if you only support it 40%

This makes everyone revise their public stance upward

You guess 40% support

You see more

You adjust up
(with everyone else)

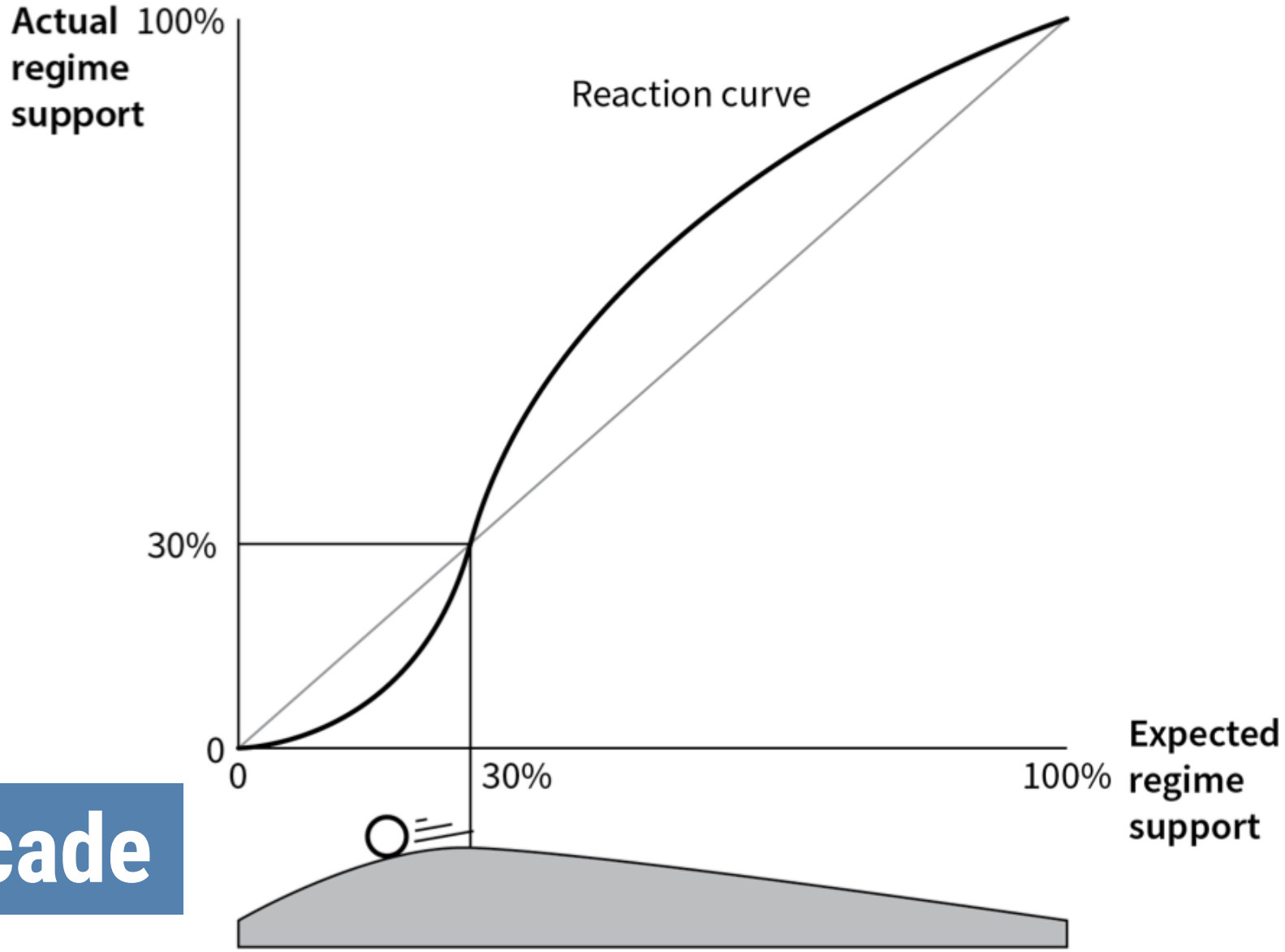


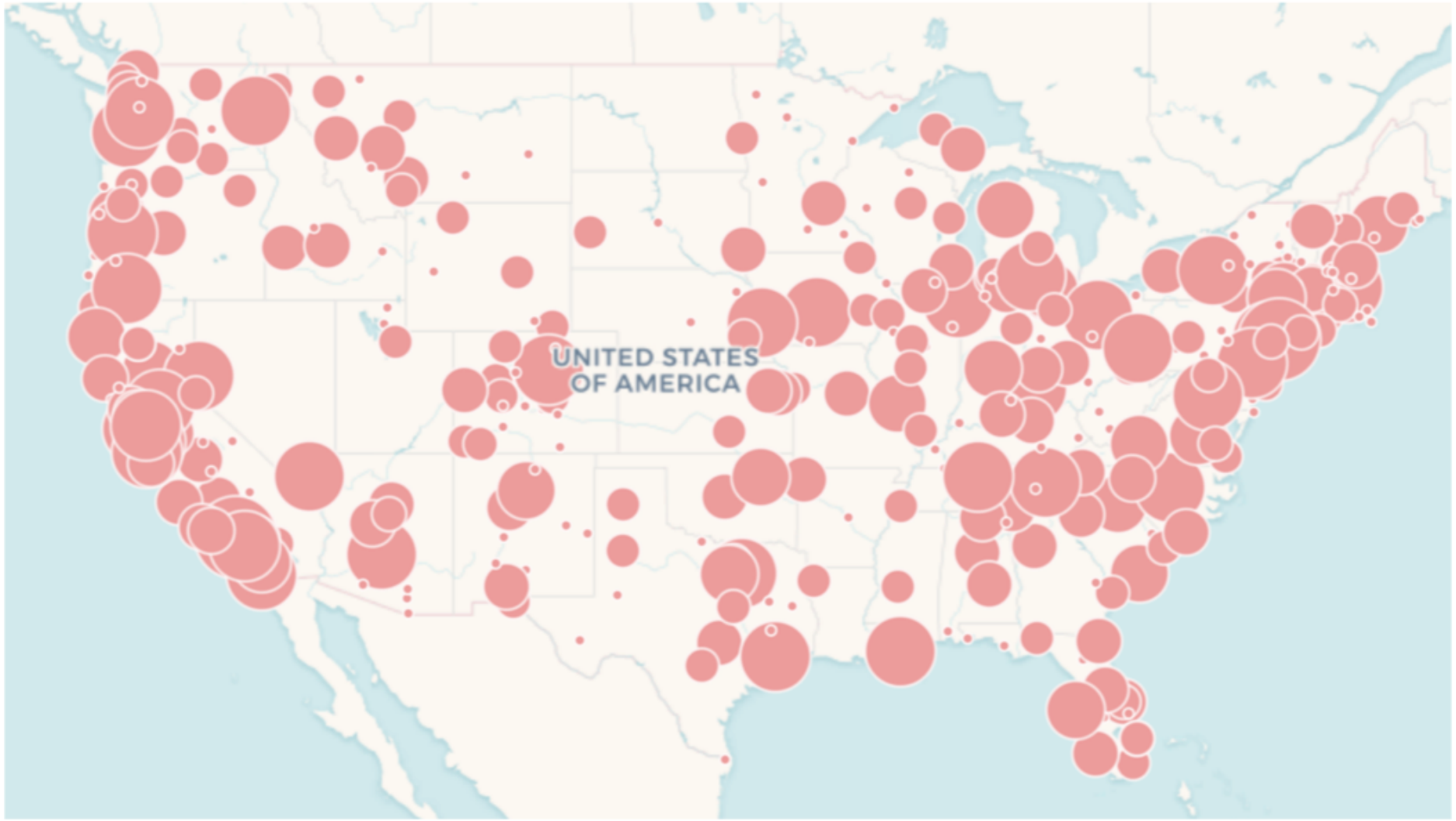
You guess 25% support

You see less

You adjust down
(with everyone else)

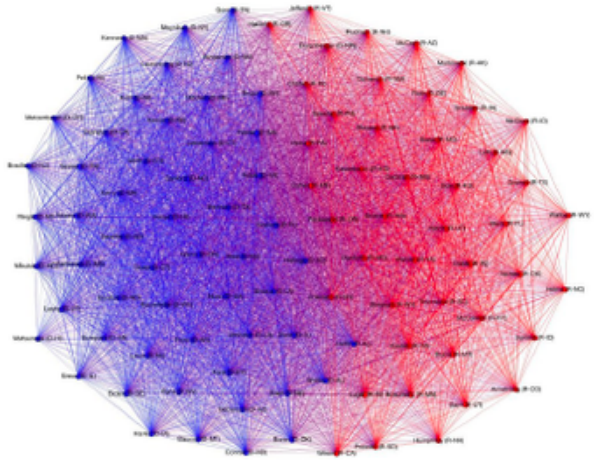
Revolutionary cascade



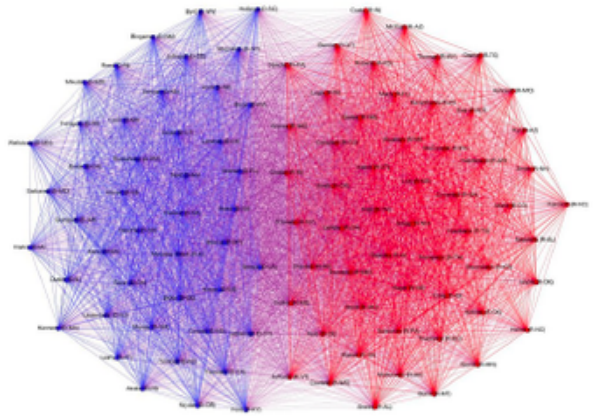

UNITED STATES
OF AMERICA

Voting Relationships in U.S. Senate, 1989–2013

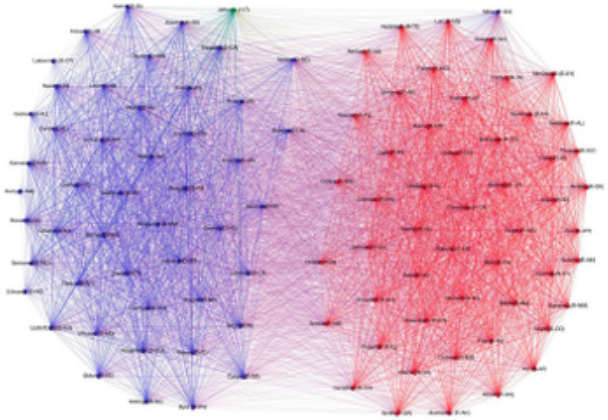
101st Congress, 1989 Session



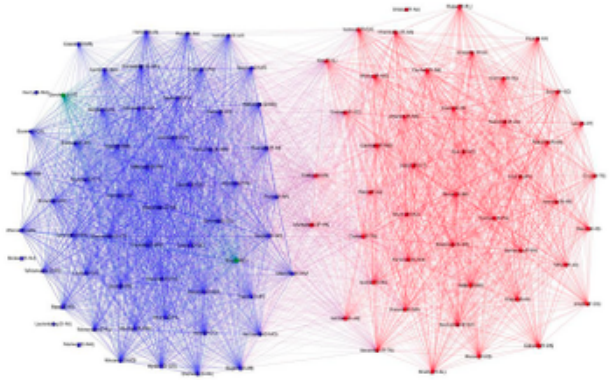
105th Congress, 1997 Session



108th Congress, 2003 Session



113th Congress, 2013 Session



Fixing collective action problems

How do we ensure cooperation and reach socially optimal outcomes?

What prevents us from cooperating?

Uneven payoffs

Lack of assurance

Preference falsification

Dishonesty

Selfishness

These are all rational things that utility-maximizing people do!

How do we fix this?

Repetition and iteration

Infinitization

Altruism

Punishment

Norms

Institutions

This is the whole 2nd unit of the class