



Behavioral Economics as An Implementation Strategy to Improve Reach

Wen You

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Road Map

- Behavioral Economic Brief Intro
- Implementation Research + BE = ?
- Selected Concepts & Applications
- BE Informed Implementation Research Protocol Example
- Case Study Illustration



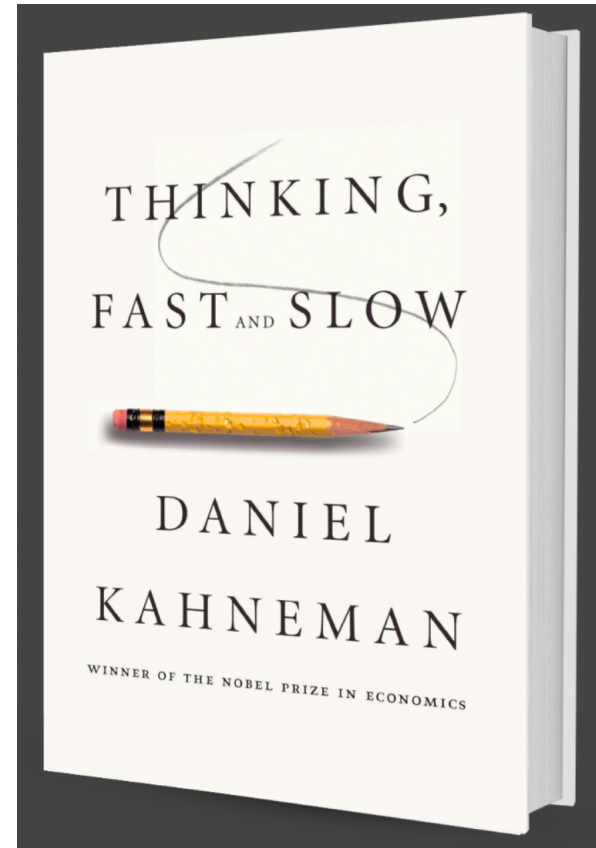
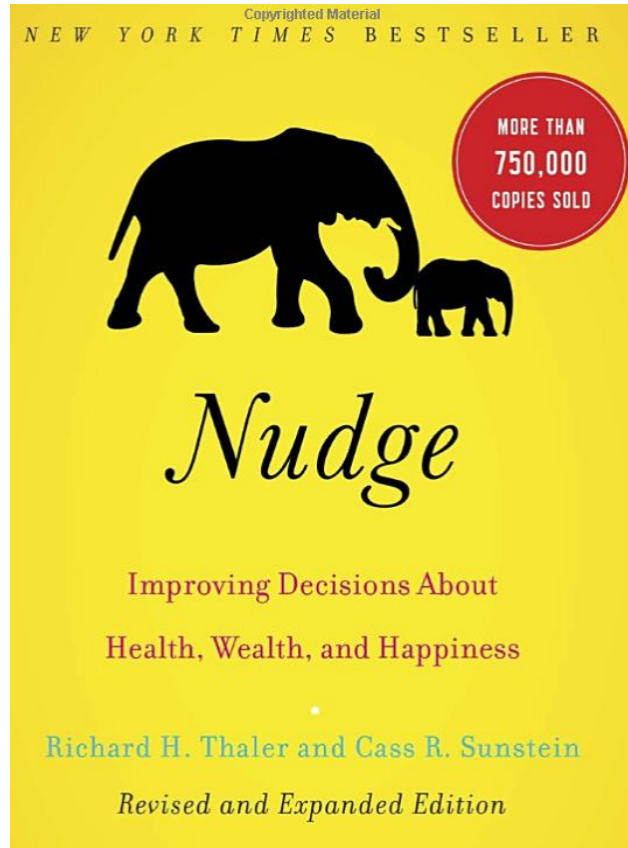
Behavioral Economics

- Interdisciplinary field: psychology + economics + ...
- Differs from psychology: considers the contexts and institutions under which decisions are made
- Differs from economics: uses more realistic and more complicated model for decision making
- Overall: BE studies how the context of decisions interacts with our expanding understanding of human psychology
- It is not based on “irrationality”
- It is not about “controlling” behaviors



Behavioral vs. Traditional Economics

- Traditional view of economics:
 - have unlimited rationality and stable preferences
 - have absolute self-control
 - can do optimization effectively under all circumstance
- BE challenge those: We are just human
 - have bounded rationality → not accurately processing all info
 - have bounded willpower → not have absolute self-control
 - have bounded selfishness → not max benefit for self always





FREAKY FAST  **FREAKY**

1 CHOOSE ORIGINAL OR GIANT

ORIGINAL

-  **SUBWICH® LETTUCE WRAP**
Lettuce & Plain Steer™ has 200 Calories and 240 cal
-  **8" FRENCH BREAD**
-  **9-GRAIN HAND-SLICED WHEAT**
Lettuce & Plain Steer™ has 200 Calories and 18 cal
-  **9" 9-GRAIN WHEAT BREAD**
Lettuce & Plain Steer™ has 200 Calories and 150 cal

GIANT

-  **16" FRENCH BREAD**
-  **16" 9-GRAIN WHEAT BREAD**
Lettuce and 40 Calories and 250 cal

NEW

■ Context:

This is the menu of J.J. lunch order for tomorrow's workshop working lunch time together

■ What is your choice?

2 CHOOSE A SANDWICH

Calories are shown for Original/Giant on French bread

GARGANTUAN

ORIGINAL ★ GIANT

SALAMI, CAPICOLA, TURKEY, ROAST BEEF, HAM & PROVOLONE
THE J.J. GARGANTUAN® onion, lettuce, tomato, mayo, oil & vinegar, & oregano-basil 1100/2190 cal

EXTRA Thick

FAVORITES

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#8 ROAST BEEF, HAM & PROVOLONE	830/1660	950/1890
BILLY CLUB® Dijon, lettuce, tomato & mayo		
#9 BIG ITALIAN	950/1890	1100/2190
ITALIAN NIGHT CLUB® salami, capicola, ham, provolone, lettuce, tomato, onion, mayo, oil & vinegar, & oregano-basil		
#10 DOUBLE ROAST BEEF & PROVOLONE	850/1690	950/1890
HUNTER'S CLUB® lettuce, tomato & mayo		
#14 ROAST BEEF & TURKEY BREAST	710/1410	810/1610
BOOTLEGGER CLUB® lettuce, tomato & mayo		
#16 SLICED TURKEY & BACON	710/1410	810/1610
CLUB LULU® lettuce, tomato & mayo		
#17 ULTIMATE HAM BLT	720/1430	820/1630
ULTIMATE PORKER® lettuce, tomato & mayo		

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#7 DOUBLE HAM & PROVOLONE	810/1610	910/1810
SMOKED HAM CLUB lettuce, tomato & mayo		
#11 TURKEY, HAM & PROVOLONE	800/1590	900/1790
COUNTRY CLUB® lettuce, tomato & mayo		
#12 TURKEY BREAST, PROVOLONE & AVO	860/1720	960/1920
BEACH CLUB® cucumber, lettuce, tomato & mayo (sprouts optional)		
#13 VEGGIE CLUB	1020/2040	1120/2240
GOURMET VEGGIE CLUB® double provolone, avocado, cucumber, lettuce, tomato & mayo (sprouts optional)		
#15 TUNA SALAD & PROVOLONE	890/1770	990/1970
CLUB TUNA® cucumber, lettuce & tomato (sprouts optional)		

CLASSICS

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#2 ORIGINAL ROAST BEEF	540/1070	640/1270
BIG JOHN® lettuce, tomato & mayo		
#4 TURKEY BREAST	510/1010	610/1210
TURKEY TOM® lettuce, tomato & mayo (sprouts optional)		
#5 PERFECT ITALIAN	620/1230	720/1430
VITTO® salami, capicola, provolone, onion, lettuce, tomato, oil & vinegar, & oregano-basil		
JJ J.J.B.L.T.®	570/1130	670/1330
Bacon, lettuce, tomato & mayo		

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#1 HAM & PROVOLONE	630/1250	730/1450
THE PEPE® lettuce, tomato & mayo		
#3 TUNA SALAD	560/1110	660/1310
TOTALLY TUNA® cucumber, lettuce & tomato (sprouts optional)		
#6 THE VEGGIE	690/1380	790/1580
Sliced provolone, avocado, cucumber, lettuce, tomato & mayo (sprouts optional)		

PLAIN SLIMS®
(PERFECT FOR KIDS) ORIGINAL ONLY. NO FREEBIES.

	ORIGINAL	GIANT
#1 HAM & CHEESE	570 cal	670 cal
#2 ROAST BEEF	480 cal	580 cal
#3 TUNA SALAD	650 cal	750 cal
#4 TURKEY	450 cal	550 cal
#5 ITALIAN	660 cal	760 cal
#6 CHEESE	610 cal	710 cal



FREAKY FAST  **FREAKY**

1 CHOOSE ORIGINAL OR GIANT

ORIGINAL

-  **ONION® LETTUCE WRAP**
French & Plain Stew™ less 200 Calories less 240 cal
-  **8" FRENCH BREAD**
-  **9 GRAIN HAND-SLICED WHEAT**
French & Plain Stew™ less 20 Calories less 18 cal
-  **9" 9-GRAIN WHEAT BREAD**
French & Plain Stew™ less 20 Calories less 18 cal

GIANT

-  **16" FRENCH BREAD**
-  **16" 9-GRAIN WHEAT BREAD**
French & Plain Stew™ less 40 Calories less 36 cal

NEW

■ Context:

This is the menu of J.J. lunch order for your lunch break when you will eat alone

■ What is your choice?

2 CHOOSE A SANDWICH

Calories are shown for Original/Giant on French bread

GARGANTUAN

ORIGINAL ★ GIANT

SALAMI, CAPICOLA, TURKEY, ROAST BEEF, HAM & PROVOLONE
THE J.J. GARGANTUAN™ onion, lettuce, tomato, mayo, oil & vinegar, & oregano-basil 1100/2190 cal

EXTRA Thick

FAVORITES

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#8 ROAST BEEF, HAM & PROVOLONE	830/1660	cal
BIG JOHN™ Dijon, lettuce, tomato & mayo		
#9 BIG ITALIAN	950/1890	
ITALIAN NIGHT CLUB™ salami, capicola, ham, provolone, lettuce, tomato, onion, mayo, oil & vinegar, & oregano-basil		
#10 DOUBLE ROAST BEEF & PROVOLONE	850/1690	
HUNTER'S CLUB™ lettuce, tomato & mayo		
#14 ROAST BEEF & TURKEY BREAST	710/1410	
BOOTLEGGERS CLUB™ lettuce, tomato & mayo		
#16 SLICED TURKEY & BACON	710/1410	
CLUB LULU™ lettuce, tomato & mayo		
#17 ULTIMATE HAM BLT	720/1430	
ULTIMATE PORKER™ lettuce, tomato & mayo		

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#7 DOUBLE HAM & PROVOLONE	810/1610	
SMOKED HAM CLUB lettuce, tomato & mayo		
#11 TURKEY, HAM & PROVOLONE	800/1590	
COUNTRY CLUB™ lettuce, tomato & mayo		
#12 TURKEY BREAST, PROVOLONE & AVO	860/1720	
BEACH CLUB™ cucumber, lettuce, tomato & mayo (sprouts optional)		
#13 VEGGIE CLUB	1020/2040	
COURTNEY VEGGIE CLUB™ double provolone, avocado, cucumber, lettuce, tomato & mayo (sprouts optional)		
#15 TUNA SALAD & PROVOLONE	890/1770	
CLUB TUNA™ cucumber, lettuce & tomato (sprouts optional)		

CLASSICS

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#2 ORIGINAL ROAST BEEF	540/1070	cal
BIG JOHN™ lettuce, tomato & mayo		
#4 TURKEY BREAST	510/1010	
TURKEY TOM™ lettuce, tomato & mayo (sprouts optional)		
#5 PERFECT ITALIAN	620/1230	
VITO™ salami, capicola, provolone, onion, lettuce, tomato, oil & vinegar, & oregano-basil		
JJ J.J.B.L.T.®	570/1130	
Bacon, lettuce, tomato & mayo		

ORIGINAL ★ GIANT

	ORIGINAL	GIANT
#1 HAM & PROVOLONE	630/1250	
THE PEPE™ lettuce, tomato & mayo		
#3 TUNA SALAD	560/1110	
TOTALLY TUNA™ cucumber, lettuce & tomato (sprouts optional)		
#6 THE VEGGIE	690/1380	
Sliced provolone, avocado, cucumber, lettuce, tomato & mayo (sprouts optional)		

PLAIN SLIMS®
(PERFECT FOR KIDS!) ORIGINAL ONLY. NO FREEBIES.

	ORIGINAL	GIANT
#1 HAM & CHEESE	570 cal	
#2 ROAST BEEF	480 cal	
#3 TUNA SALAD	650 cal	
#4 TURKEY	450 cal	
#5 ITALIAN	660 cal	
#6 CHEESE	610 cal	

2 CHOOSE A SANDWICH

Calories are shown for Original/Giant on French bread

GARGANTUAN

ORIGINAL ★ GIANT

SALAMI, CAPICOLA, TURKEY, ROAST BEEF, HAM & PROVOLONE

THE J.J. GARGANTUAN[®] onion, lettuce, tomato, mayo, oil & vinegar, & oregano-basil 1100/2190 cal

FAVORITES

ORIGINAL ★ GIANT

- | | | |
|-----|--|----------|
| #8 | ROAST BEEF, HAM & PROVOLONE | 830/1660 |
| | BILLY CLUB [®] Dijon, lettuce, tomato & mayo | |
| #9 | BIG ITALIAN | 950/1890 |
| | ITALIAN NIGHT CLUB [®] salami, capicola, ham, provolone, lettuce, tomato, onion, mayo, oil & vinegar, & oregano-basil | |
| #10 | DOUBLE ROAST BEEF & PROVOLONE | 850/1690 |
| | HUNTER'S CLUB [®] lettuce, tomato & mayo | |
| #14 | ROAST BEEF & TURKEY BREAST | 710/1410 |
| | BOOTLEGGERS CLUB [®] lettuce, tomato & mayo | |
| #16 | SLICED TURKEY & BACON | 710/1410 |
| | CLUB LULU [®] lettuce, tomato & mayo | |
| #17 | ULTIMATE HAM BLT | 720/1430 |
| | ULTIMATE PORKER [®] lettuce, tomato & mayo | |

ORIGINAL ★ GIANT

- | | | |
|-----|---|-----------|
| #7 | DOUBLE HAM & PROVOLONE | 810/1610 |
| | SMOKED HAM CLUB lettuce, tomato & mayo | |
| #11 | TURKEY, HAM & PROVOLONE | 800/1590 |
| | COUNTRY CLUB [®] lettuce, tomato & mayo | |
| #12 | TURKEY BREAST, PROVOLONE & AVO | 860/1720 |
| | BEACH CLUB [®] cucumber, lettuce, tomato & mayo (sprouts optional) | |
| #13 | VEGGIE CLUB | 1020/2040 |
| | GOURMET VEGGIE CLUB [®] double provolone, avocado, cucumber, lettuce, tomato & mayo (sprouts optional) | |
| #15 | TUNA SALAD & PROVOLONE | 890/1770 |
| | CLUB TUNA [®] cucumber, lettuce & tomato (sprouts optional) | |

CLASSICS

ORIGINAL ★ GIANT

- | | | |
|----|---|----------|
| #2 | ORIGINAL ROAST BEEF | 540/1070 |
| | BIG JOHN [®] lettuce, tomato & mayo | |
| #4 | TURKEY BREAST | 510/1010 |
| | TURKEY TOM [®] lettuce, tomato & mayo (sprouts optional) | |
| #5 | PERFECT ITALIAN | 620/1230 |
| | VITO [®] salami, capicola, provolone, onion, lettuce, tomato, oil & vinegar, & oregano-basil | |
| JJ | J.J.B.L.T. [®] | 570/1130 |
| | Bacon, lettuce, tomato & mayo | |

ORIGINAL ★ GIANT

- | | | |
|----|--|----------|
| #1 | HAM & PROVOLONE | 630/1250 |
| | THE PEPE [®] lettuce, tomato & mayo | |
| #3 | TUNA SALAD | 560/1110 |
| | TOTALLY TUNA [®] cucumber, lettuce & tomato (sprouts optional) | |
| #6 | THE VEGGIE | 690/1380 |
| | Sliced provolone, avocado, cucumber, lettuce, tomato & mayo (sprouts optional) | |

PLAIN SLIMS[®]

(PERFECT FOR KIDS!) ORIGINAL ONLY. NO FREEBIES.

- | | | | | | | | | |
|----|--------------|---------|----|------------|---------|----|------------|---------|
| #1 | HAM & CHEESE | 570 cal | #2 | ROAST BEEF | 480 cal | #3 | TUNA SALAD | 650 cal |
| #4 | TURKEY | 450 cal | #5 | ITALIAN | 660 cal | #6 | CHEESE | 610 cal |



Context:

You had a long day at work. You picked up your kid from daycare and stopped by J.J. to order for you and your husband. You are trying to be careful with calories. You had 620 cal for BF and 550 cal for lunch. You try to stay within 2,000 cal.

Now, what is your choice?

Implementation Research + BE = ?

Implementation Research

Designed to increase knowledge

Encourages stakeholder involvement but needs more efficient operation of how

RCT testing of whether or not IS work but lacks testing of mediation and pathways

Implementation Research + BE

Designed to change the environment/context

Multilevel-incentivized systematic approach recognizing asymmetric information flow

Provide platform for developing statistical approaches that allow multilevel mediation analysis



4

REASONS

you should add behavioral economics (BE)
to your implementation team's toolkit.



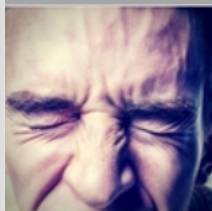
New perspectives on the work & the team.

BE insights can prompt the team to explore new approaches, as well as reflect on how its own biases impact the work.



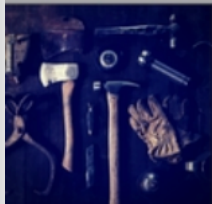
Increased empathy for 'change resisters'.

BE helps us to understand the biases, which most of us have, that make resistance happen. Resisters aren't difficult so much as they are human.



More realistic expectations – change is hard!

Research from BE illustrates why change is inherently hard to implement. Challenges are not a sign a failure; they should be expected and planned for.



It's a complement, not an alternative.

BE insights are not all purpose solutions. BE can best be used in conjunction with other methods, and a strong understanding of context.



wendyhirsch.com

Selected Concepts & Applications

- The Power of Social Norms:
 - People tend to behave in accordance with real or perceived social norms
 - Example: Pro-environmental behaviors uptake

Injunctive

YOUR EFFICIENCY STANDING:

▶ **GREAT** 😊😊

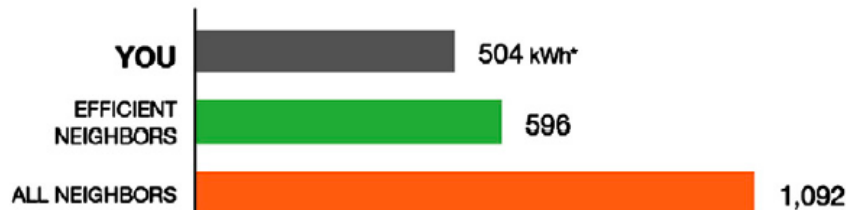
GOOD 😊

BELOW AVERAGE

Descriptive

Last Month Neighborhood Comparison

Last month you used **15% LESS** electricity than your efficient neighbors.



* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

Fig. 1. Home energy reports: social comparison module.

Selected Concepts & Applications

- Framing Effect:
 - Present choices in a way that highlights the positive or negative aspects of the same decision, leading to changes in their relative attractiveness
 - ✓ risky choice framing
 - ✓ attribute framing
 - ✓ goal framing

Targeting less stigmatized risk factors/disorders that are associated with main treatment goal

Substance use
disorder treatment

Anxiety or mood
disorder treatment

Selected Concepts & Applications

- Status Quo Bias / Inertia
 - People tend to prefer for things to remain the same: tendency not to change behavior without strong incentives
 - Classic application: 'opt-in' vs. 'opt-out'

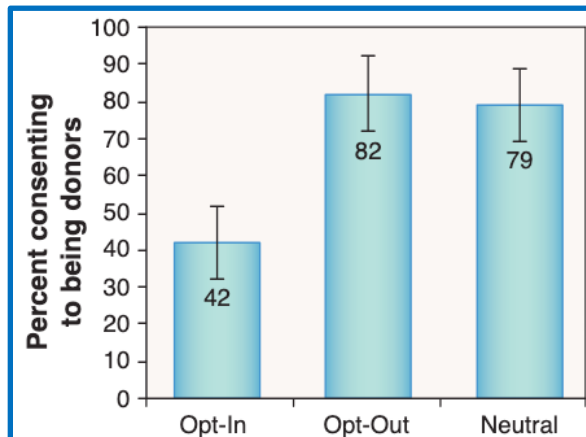
POLICY FORUM | MEDICINE

Do Defaults Save Lives?

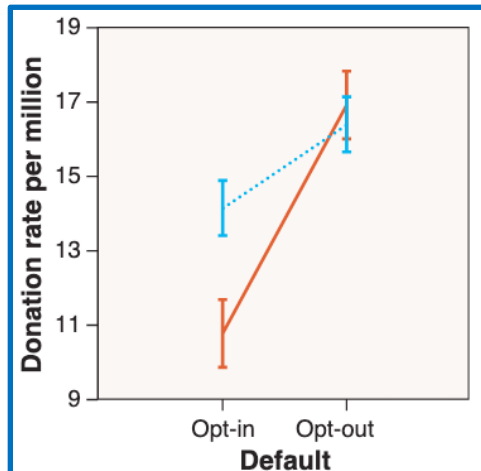
Eric J. Johnson*, Daniel Goldstein

+ See all authors and affiliations

Science 21 Nov 2003:
Vol. 302, Issue 5649, pp. 1338-1339
DOI: 10.1126/science.1091721



Effective consent rates, online experiment, as a function of default.



Estimated donation rate, opt-in versus opt-out, as a function of default, 1991–2001. Means \pm SEM; this paper, blue; Gimbel *et al.* (5), red.

Selected Concepts & Applications

- Incentives:
 - Something that motivates an individual to perform an action
 - They can help to create desirable and break undesirable habits
 - Upfront incentives can address present bias (i.e., focusing on immediate gratification)

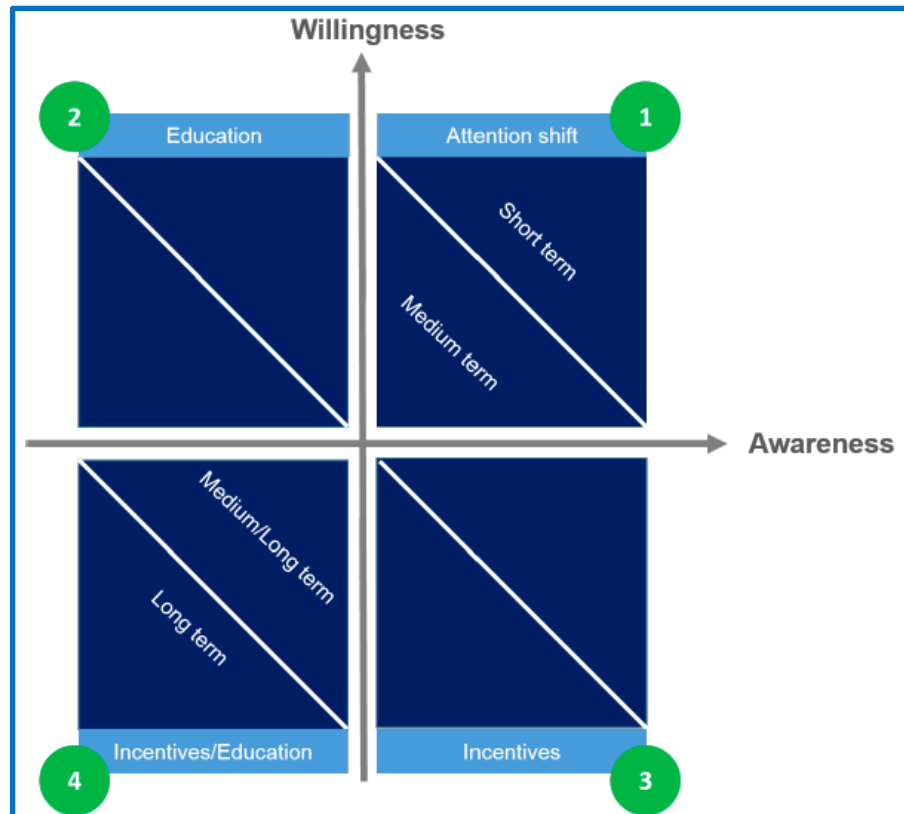


Figure 2: BEA™ Behavioral Change Matrix

How to Design Better IS Through BE?

JMIR RESEARCH PROTOCOLS

Beidas et al

Protocol

Transforming Mental Health Delivery Through Behavioral Economics and Implementation Science: Protocol for Three Exploratory Projects

Rinad S Beidas^{1,2,3}, PhD; Kevin G Volpp^{2,3,4,5,6,7,8}, MD, PhD; Alison N Bittenheim^{2,3,4,9}, PhD, MBA; Steven C Marcus¹⁰, PhD; Mark Olfson¹¹, MD, MPH; Melanie Pellecchia¹, PhD; Rebecca E Stewart^{1,3}, PhD; Nathaniel J Williams¹², PhD, LCSW; Emily M Becker-Haimes¹, PhD; Molly Candon^{1,3}, PhD; Zuleyha Cidav^{1,3}, PhD; Jessica Fishman^{1,13}, PhD; Adina Lieberman¹, MPH; Kelly Zentgraf¹, BA; David Mandell¹, ScD

Protocol Example

- Project: motivating outpatient therapists to implement: valuing a team effort (organizational-level)
 - Participatory design approach:
 - ✓ 1st: **innovation tournament** among clinicians (end users) → best ways for organizations to use incentives
 - ✓ 2nd: **behavioral diagnosis process** to refine ideas from 1st → identify specific barriers impeding the use of EBP → IS
 - ✓ 3rd: **discrete choice experiment** to systematically elicit and quantify stakeholder's preferences on how IS are designed and structured → quantify the extent to which specific design features are desired

Case Study Illustration



DESIGNING FINANCIAL INCENTIVES TO ENHANCE PARTICIPATION OF TARGET POPULATIONS

in Weight Loss Programs

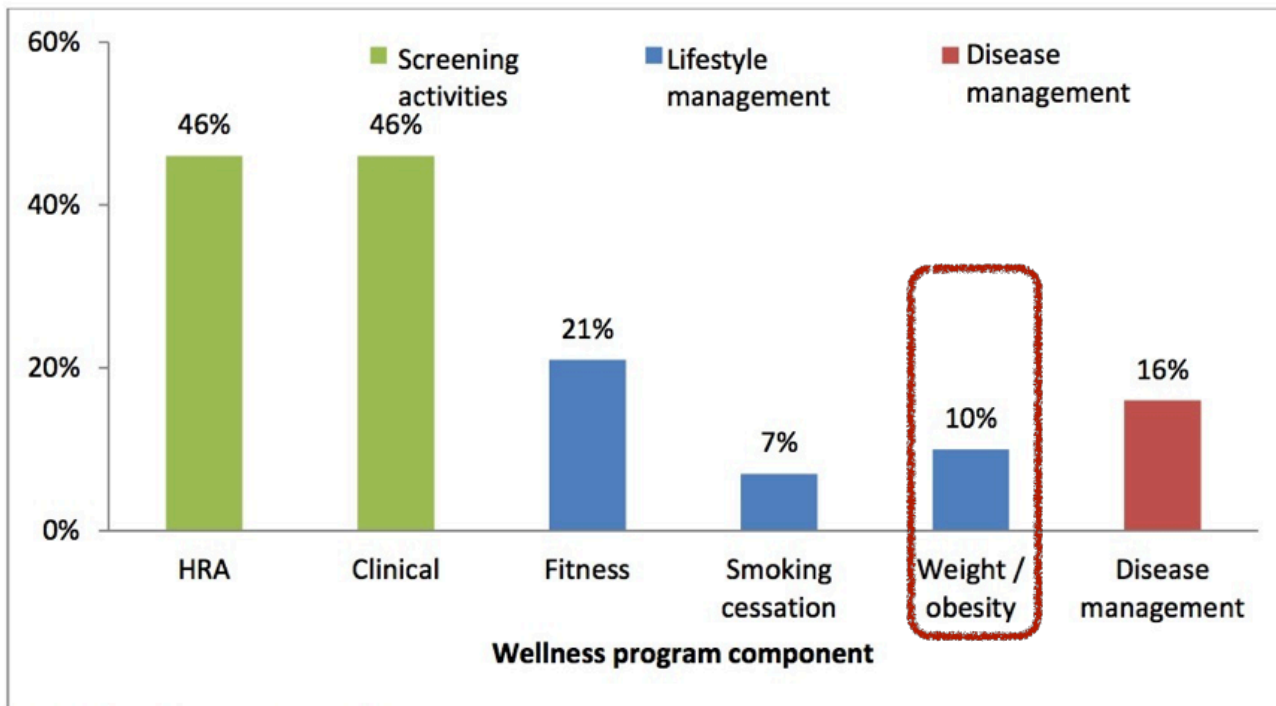
Research Team:

- Wen You (AAEC VT, VT Fralin Translational Obesity Research Center)
- Kevin Boyle (AAEC VT)
- Paul Estabrooks (HNFE, VT Fralin Translational Obesity Research Center, VT Carilion)
- Richard Seidel (PSYC, VT Carilion)
- Yuan Yuan (Ph.D. Candidate, AAEC VT)
- Barbara Kanninen (BK Econometrics, LLP)
- Christopher Parmeter (ECON, U of Miami)



Puzzle: Is Help Not Needed?

Figure S.3: Average Participation Rates of Employees Identified for Inclusion in Select Wellness Program Components



SOURCE: RAND Employer Survey, 2012.

NOTES: The graph represents information from employers with at least 50 employees that offer the specific component as part of a wellness program.



Literature Summary

- Four decades ago (Jeffery, 1978)
- Mostly focused on Effectiveness and “Stick”
- Short-term effectiveness that cannot be sustained
- Few reported Representativeness and Reach
- Arbitrarily set incentive arms with limited variations

Kane et al. 2004a,b;

Paul-Ebhohimhen and Avenell, 2008;

Wall et al., 2006

Finkelstein et al., 2007

Volpp et al., 2008, 2012

Jeffery 2012



Financial incentives and weight control

Robert W. Jeffery *

Division of Epidemiology and Community Health, Obesity Prevention Center, University of Minnesota School of Public Health, USA

“... many important questions about the use of incentives have not yet been clearly answered...”

“...Major obstacles to sustained applications of incentive in weight control are funding sources and **acceptance by those who might benefit.**”

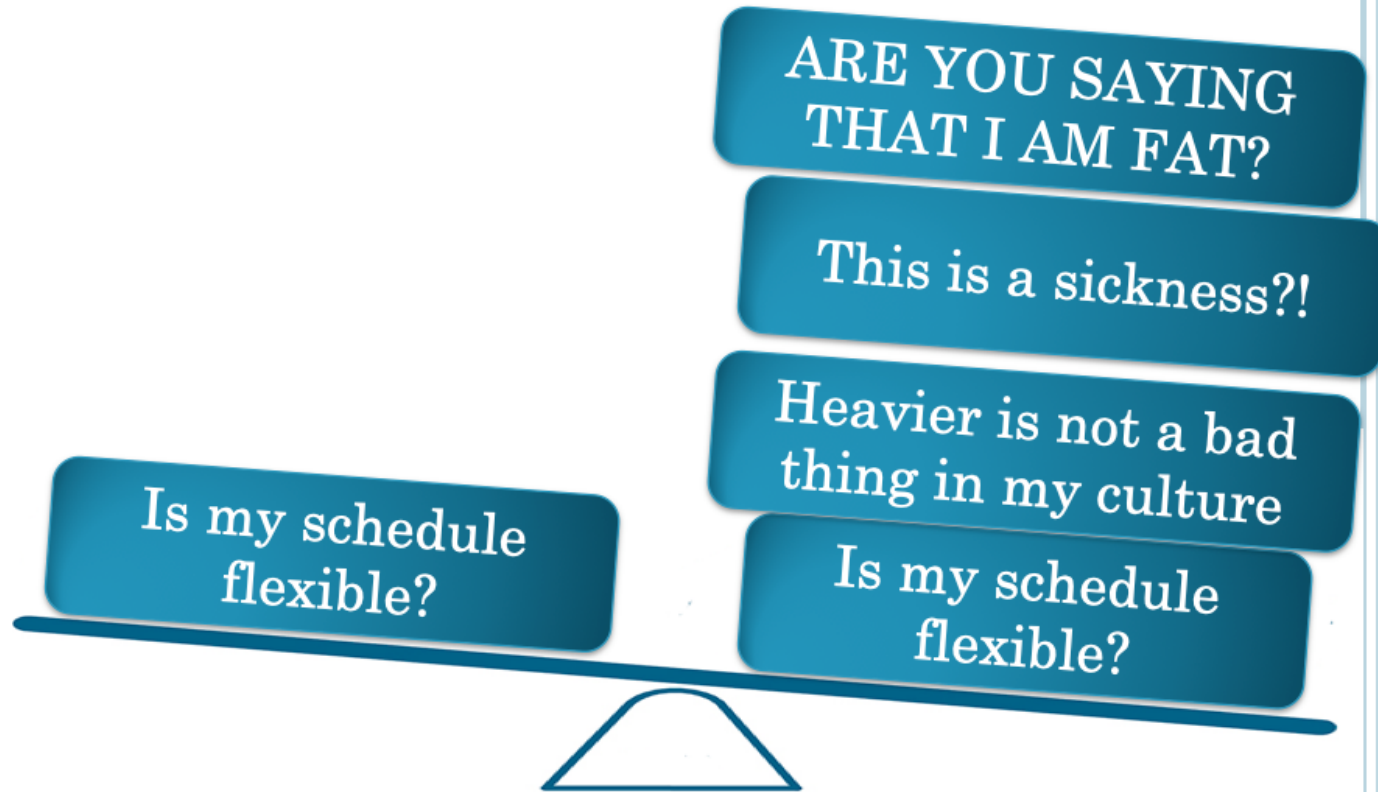
“Another important issue that has received almost no attention is whether financial incentives for weight control are useful at all **in people who are not interested in losing weight.**”

“...little or no research has been published to evaluate **population reach...**”

Why Reach is Unique Here?

Diabetes Program

Weight Loss Program



Importance of Reach

Econometrica, Vol. 77, No. 3 (May, 2009), 909–931

INCENTIVES TO EXERCISE

BY GARY CHARNESS AND URI GNEEZY¹

Can incentives be effective in encouraging the development of good habits? We investigate the post-intervention effects of paying people to attend a gym a number of times during one month. In two studies we find marked attendance increases after the intervention relative to attendance changes for the respective control groups. This is entirely driven by people who did not previously attend the gym on a regular basis. In our second study, we find improvements on health indicators such as weight, waist size, and pulse rate, suggesting the intervention led to a net increase in total physical activity rather than to a substitution away from nonincentivized ones. We argue that there is scope for financial intervention in habit formation, particularly in the area of health.

KEYWORDS: Exercise, field experiment, habit formation, incentives.

- Incentivize people into doing exercise first
- The habits can be maintained after incentives are withdrawn
- Crowding-Out (i.e., backfire)?



Study Objectives

- Answer: how can we get people into the program at the first place?
- Examine: whether program acceptance differ across subgroups:
 - ✓ Obesity-vulnerable group: Black, low-income females
 - ✓ Intervention trials under-studied group: males
- Investigate: how to better construct incentive arms for weight loss programs to achieve better population reach



Methods

- Participatory Approach:
 - 1st: Focused group meetings to identify attributes and levels of incentive design
 - 2nd: Discrete choice experiment (DCE) to elicit and quantify individual preference towards incentive constructions
- Policy-friendly ways to translate DCE results
 - Partial log-likelihoods and probability analysis
 - Form a synthetic population via cross-tabulation of NHANES

1st: Involving the End-Users

- A two-hr listening sessions with 22 EFNEP program assistance and nutrition outreach instructors (Richmond, VA)
- Four focus group meetings were held with DCE eligible participants (overweight/obese adults) recruited from Virginia Cooperative Extension and Carilion Clinic

B

Weight control program

This section is about a weight control program to start people on the path to losing weight. It is 6 months long, which is 24 weeks. People who followed this program closely lost about

1-2 lbs
per week

—————→
results in

24-48 lbs
over 24 weeks

Each picture below represents one part of the program.



Dietitian meeting

Have a one-time meeting with a dietitian to develop personal diet and exercise plans.



Coaching calls

Receive weekly calls to help you follow your diet and exercise plans.



Diet plan

Use a personal workbook with recipes and more to plan healthy meals.



Diet tracking

Record meals and snacks online or on paper. Find out how many calories you ate.



Exercise plan

Use a personal workbook to plan exercise that's just right for you.



Exercise tracking

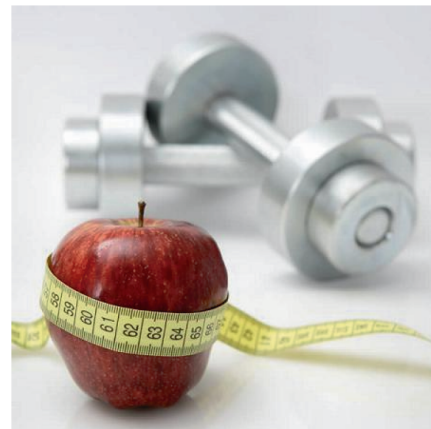
Record physical activity online or on paper. Find out how many calories you used.



Program weigh-ins

Weekly weight checks at program location. Only program staff will see your weight.

2nd: DCE – Program Description



Weight Control Survey

brought to you by **CARLION CLINIC**



C

Program Incentives

The weight control program described in Section B can include incentives for participation. The information on this page is about different incentives that can be added to the program.



Weigh in weekly



Achieve weight control goal



Earn weekly reward



Get paid periodically



Receive payment

Program location

This is where you go for the weekly weight checks and meet with the dietitian. It is *not* where you have to exercise.

Examples

- Clinic
- Workplace
- Community center
- Church

Weekly weight control goal

You must achieve this goal to earn the reward each week. Some weeks you may not meet the goal. In those weeks you will not earn the reward.

Examples

- Losing 2 lbs
- Turning in complete records of diet and exercise
- Attending weekly weigh-ins

Weekly reward available

This is the dollar value of the weekly reward. You have an opportunity each week to earn this reward by achieving your weekly weight control goal.

Examples

- \$5 per week
- \$24 per week
- \$36 per week

Payment frequency

This is how often you get paid the rewards you have earned. Remember that you earn rewards by achieving the weekly weight control goal.

Examples

- Weekly
- Monthly
- Quarterly
- Once at program end

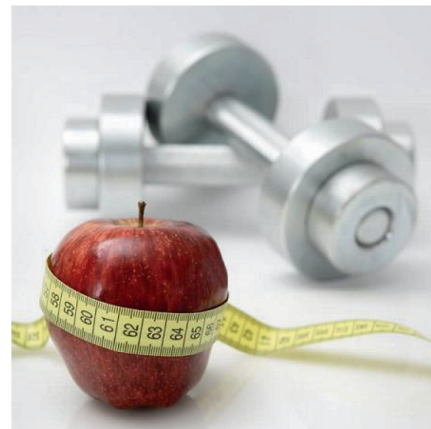
Payment form

This is how you are paid. Each type will have the same dollar value as if you were paid in cash.

Examples

- Cash or debit card
- Pre-paid gym pass
- Health debit card for doctor's visits, prescriptions, and other medical expenses

2nd: DCE – Incentive Description



Weight Control Survey

brought to you by **CARLION CLINIC**



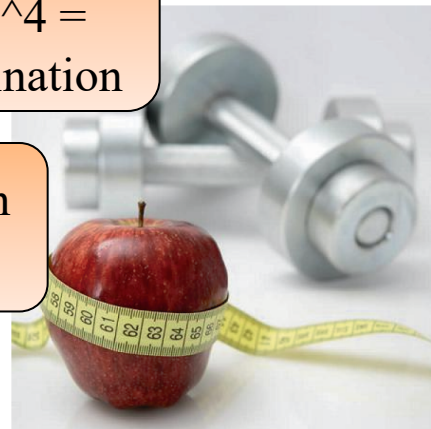


Attribute	Attribute levels
Reward amount	\$0, \$48, \$96, \$216, \$384, \$576
Payment form	Cash Pre-paid gym pass (gym) <i>Health debit card for doctor's visits, prescriptions, and other medical expenses</i> (medical) Debit card (debit)
Payment frequency	<i>Once at end of program</i> (once) Quarterly Monthly Weekly
Program location	<i>Clinic</i> Workplace Community center Church
Reward condition	Losing 2 lbs (weight) <i>Attending weekly weight checks</i> (attendance) Turning in records of diet and exercise (compliance) Attending weekly weight checks and turning in records of diet and exercise (att.comp)

2nd: DCE – Incentive Attributes

Full-Factorial Design
would need: $6 \times 4^4 =$
1,536 unique combination

D-efficiency Design
reduces to 96 pairs!



Weight Control Survey

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4 Please consider the following two weight control programs.

	Program A	Program B
Program location	Workplace	Church
Weekly weight control goal	Turning in records of diet and exercise	Losing 2 lbs
Weekly reward available	\$24	\$16
Payment frequency	Weekly	Monthly
Payment form	Pre-paid gym pass	Debit card
Total reward available in program	$\$24 \times 24 \text{ wks} = \576	$\$16 \times 24 \text{ wks} = \384

Which weight control program would you choose?

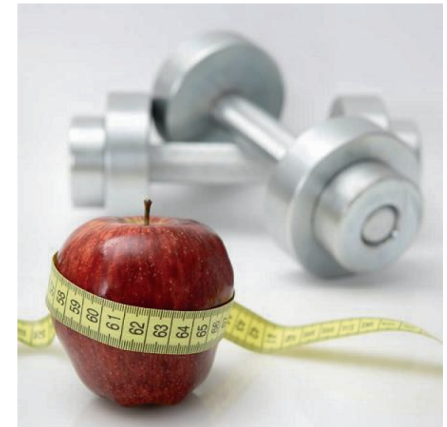
Please check one box.

☐ ₁ Program A

☐ ₂ Program B

☐ ₃ I would not choose either program.

2nd: DCE – Example Choice Question



Weight Control Survey

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2nd: DCE – Survey Implementation

Initial
Letter

- 7,554 overweight/obese and Medicaid eligible adults (identified via Carilion electronic patient database through 3 rounds of data draw)

Phone
Call

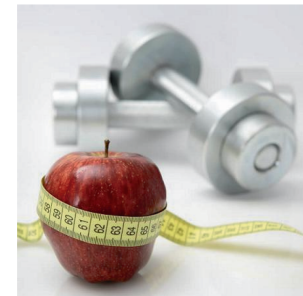
- 3,371 individuals were reached over the phone to ask for their willingness to participate in the mail survey

Mail
Survey

- 2,737 mail surveys were sent out to individuals who agreed over the phone (82%) to the survey

Final
Data

- 1,297 completed surveys were returned (47%)



Weight Control Survey

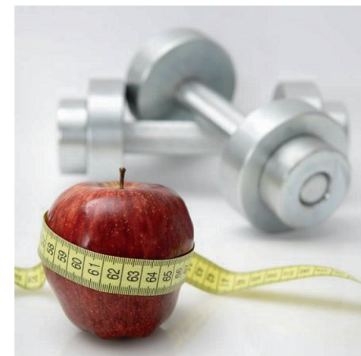
DCE Results – Summary Statistics

	Sample	Virginia
<i>Age</i>		
65 years and over	15.0%	12.5%
Female	43.1%	50.9%
<i>Race</i>		
White	49.0%	71.3%
Black	41.1%	19.8%
Native American	0.48%	0.1%
Asian	4.0%	5.8%
<i>Ethnicity</i>		
Hispanic or Latino origin	7.1%	8.2%
<i>Education</i>		
High school graduate or higher, percent age 25+	87.0%	86.6%
Bachelor's degree or higher, percent age 25+	27.1%	34.4%
Persons per household	2.8	2.6



	Means	Standard deviations
ASC.SQ	0.050 (0.113)	1.378*** (0.077)
<i>Reward amount</i>		
log(Mag + 1)	0.362*** (0.042)	0.453*** (0.026)
Mag.0	0.184 (0.131)	0.862*** (0.130)
<i>Program location</i>		
Workplace/Clinic	-0.244*** (0.048)	-0.433*** (0.099)
Community center/Clinic	0.174*** (0.048)	0.120 (0.116)
Church/Clinic	-0.180*** (0.048)	0.361*** (0.104)
<i>Payment form</i>		
gym/cash	-0.129* (0.052)	0.497*** (0.115)
medical/cash	-0.182*** (0.049)	0.312** (0.113)
debit/cash	0.167*** (0.049)	-0.064 (0.135)
<i>Reward condition</i>		
weight/attendance	0.098 (0.053)	0.295* (0.120)
compliance/attendance	-0.064 (0.050)	-0.183 (0.123)
att.comp/attendance	-0.131** (0.048)	0.203 (0.114)
<i>Payment frequency</i>		
weekly/once	0.136* (0.054)	0.215 (0.128)
monthly/once	-0.020 (0.048)	0.097 (0.124)
quarterly/once	0.048 (0.049)	0.289* (0.114)
Log-likelihood	-4372.206	
N	4994	

DCE Results – Random Parameter Logit

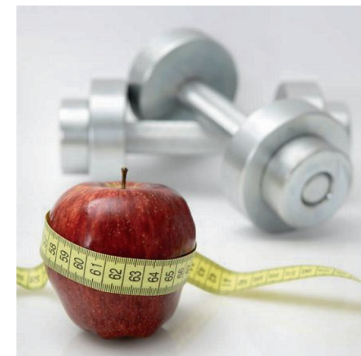
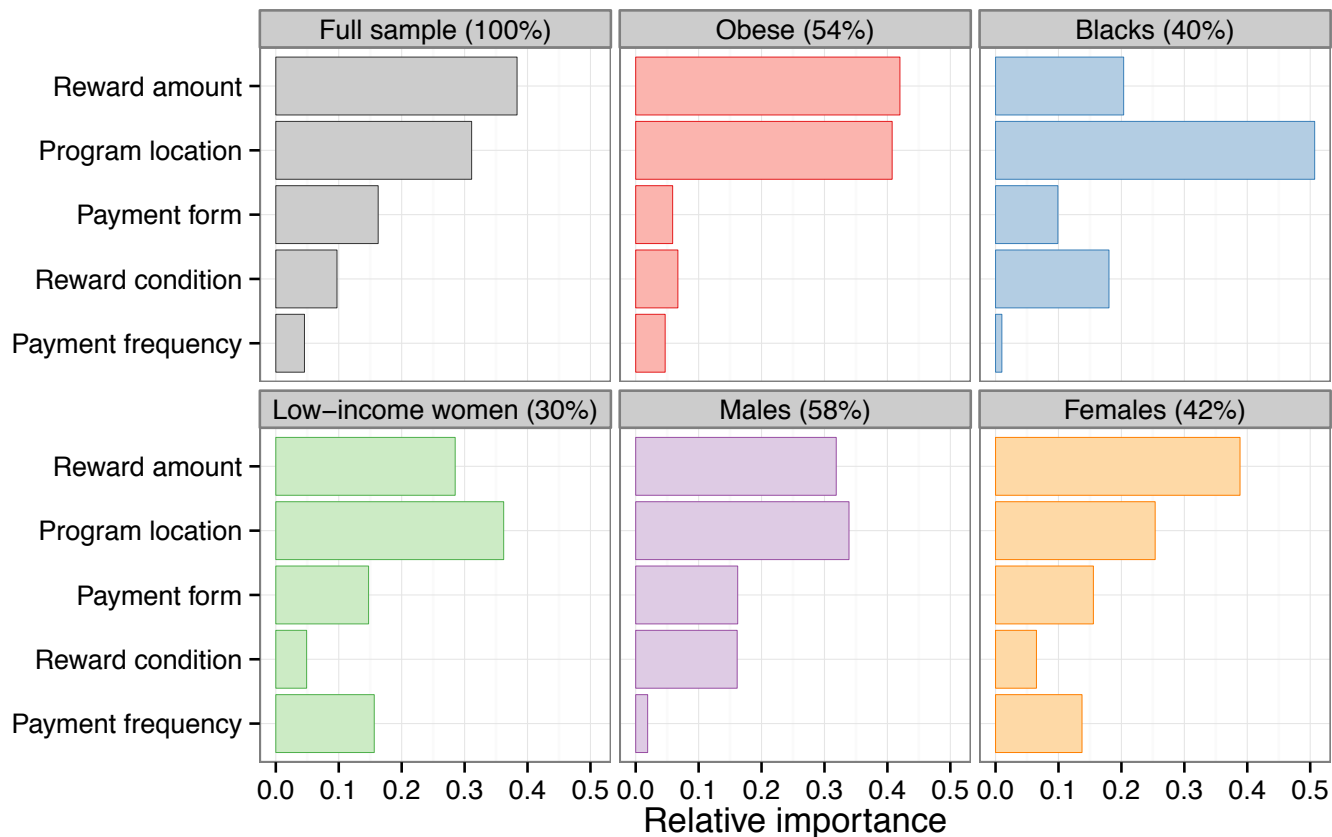


Weight Control Survey

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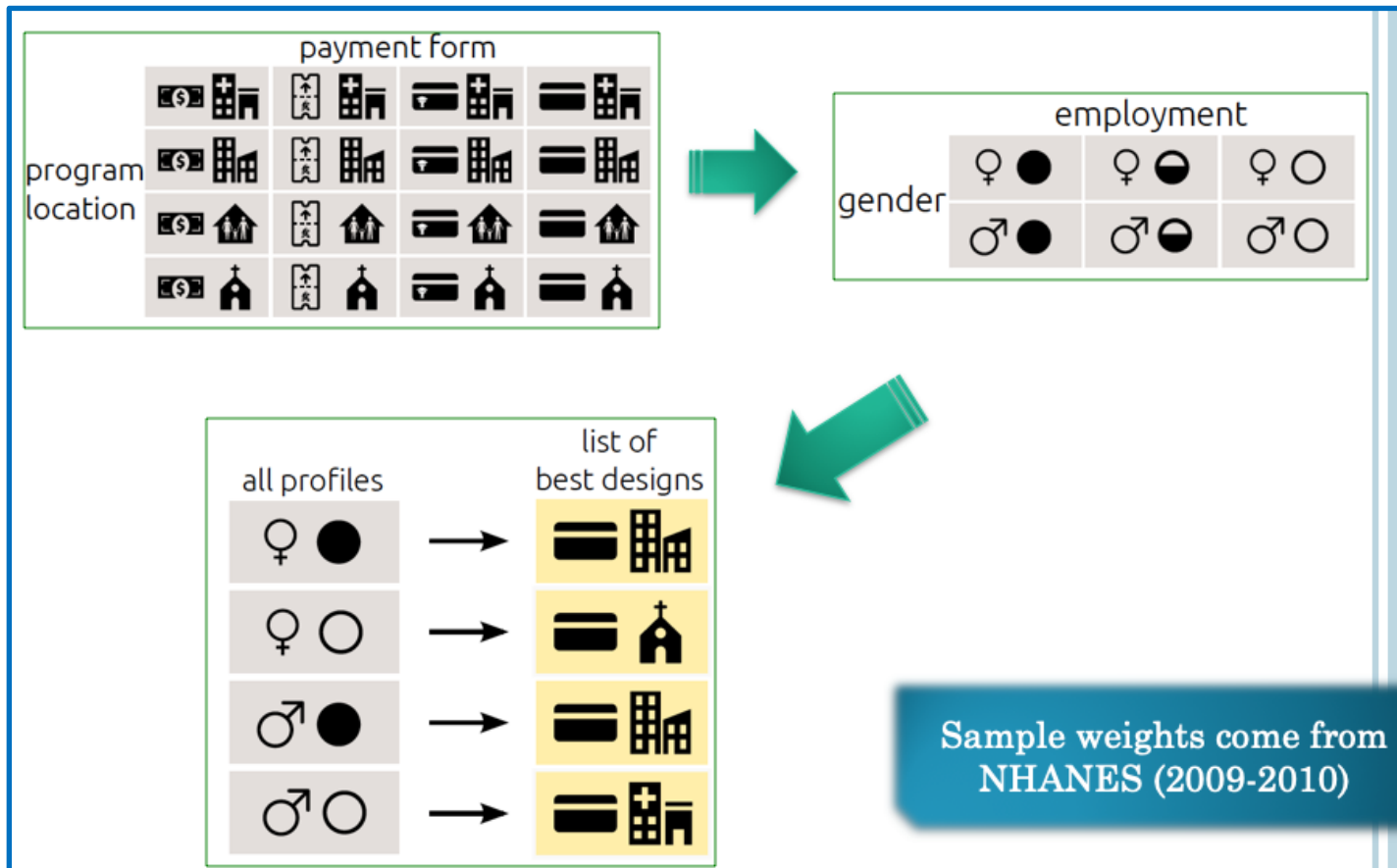


DCE Results – Average Preference Ranking

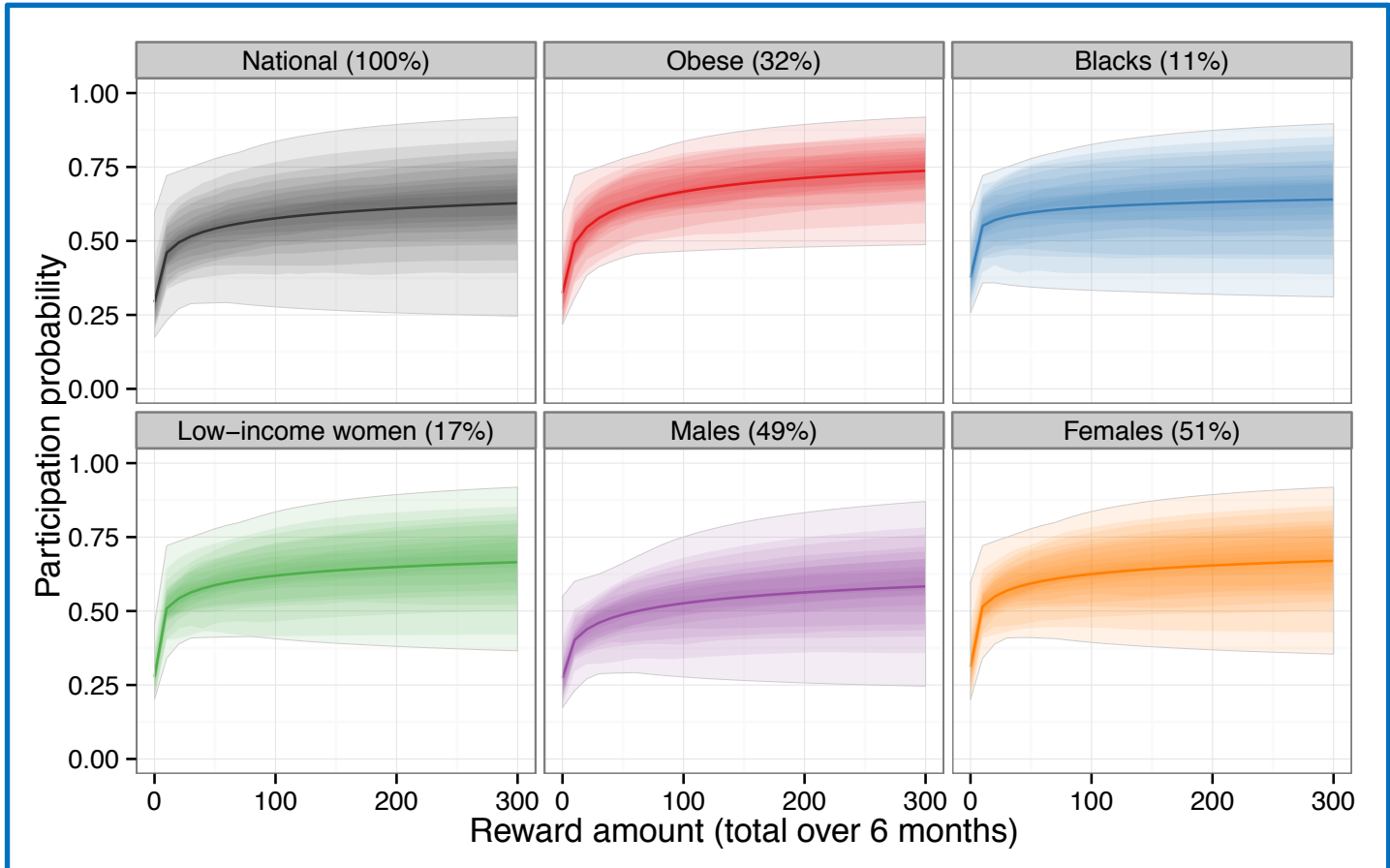


Weight Control Survey

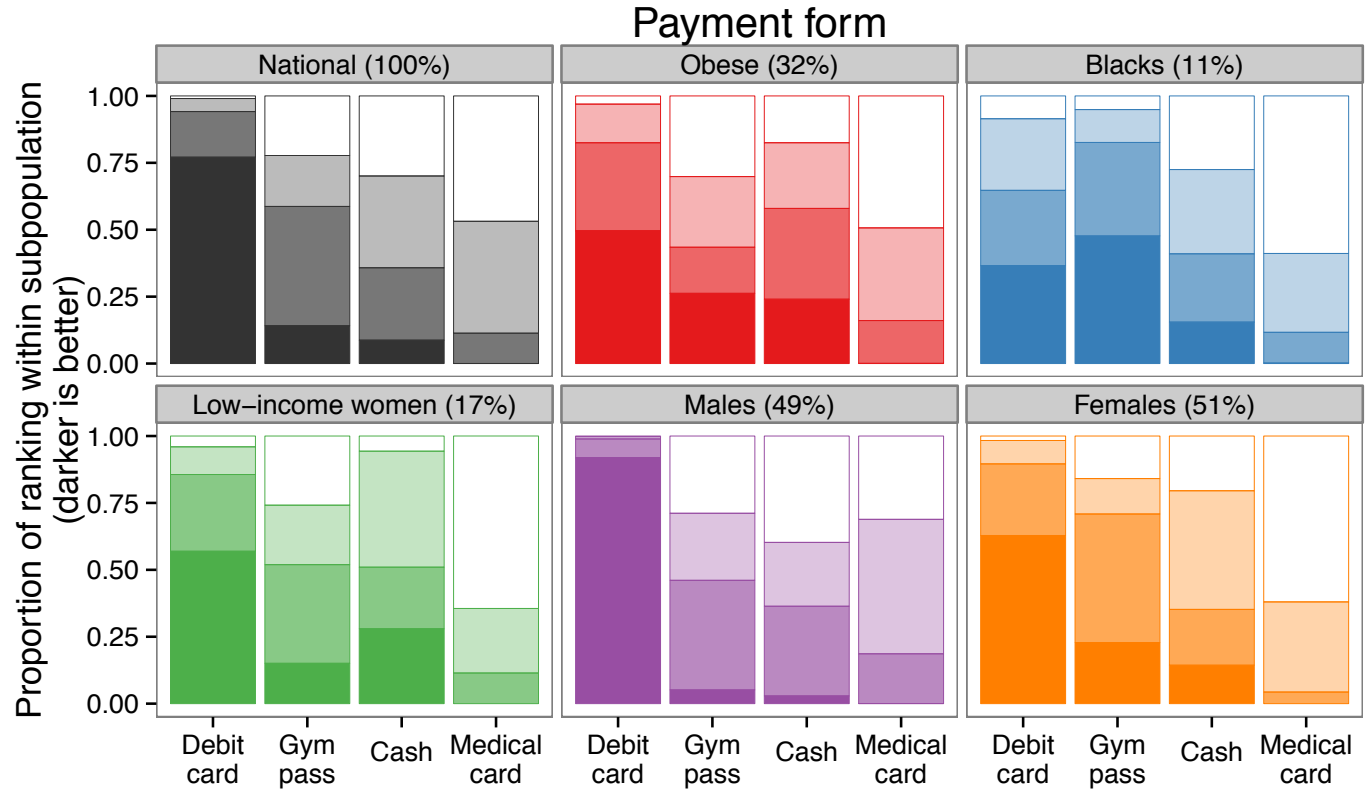
Policy-Implication: Synthetic Subgroups



Policy-Implication: Is \$ More Better?

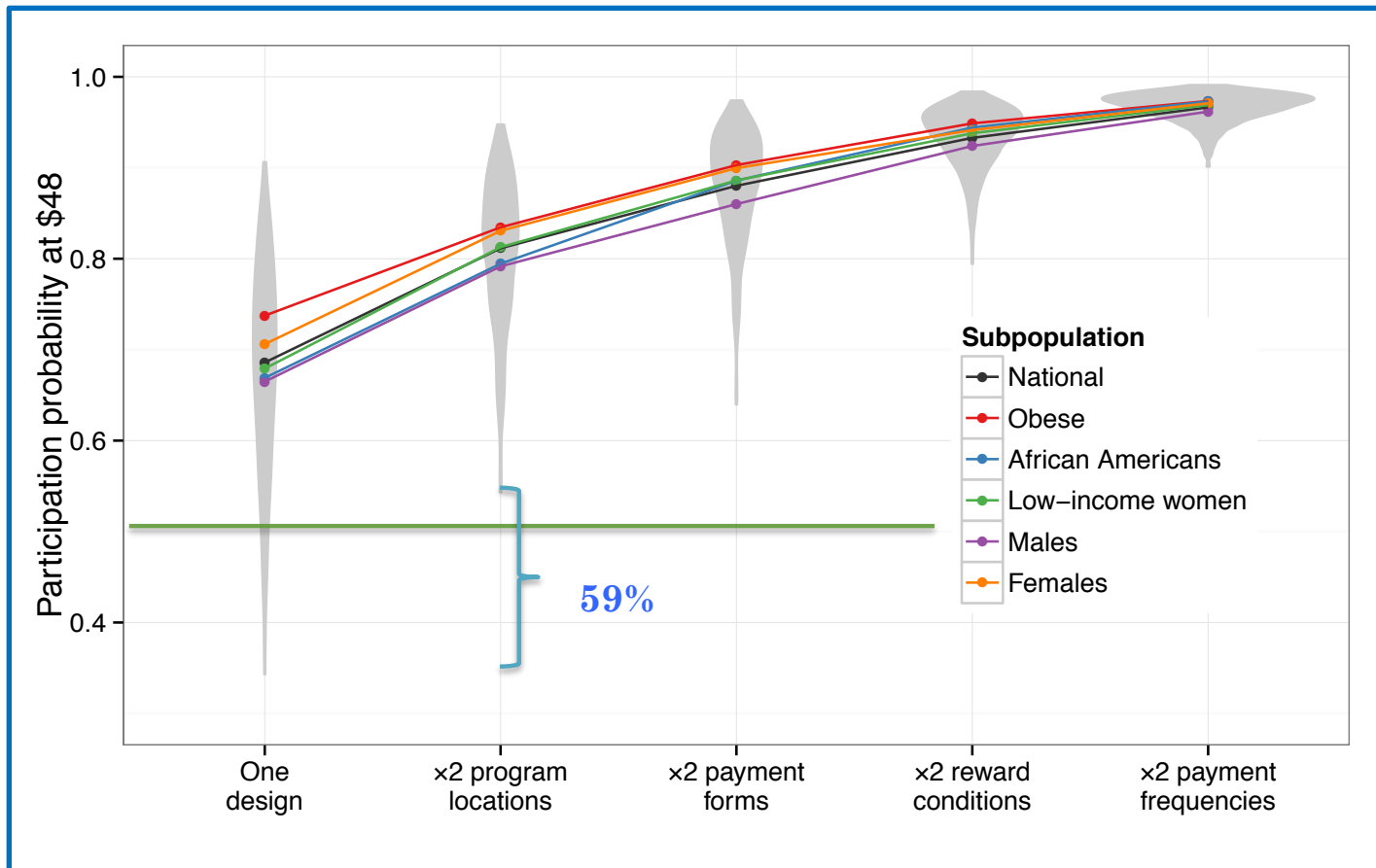


Policy-Implication: Form of Payment?



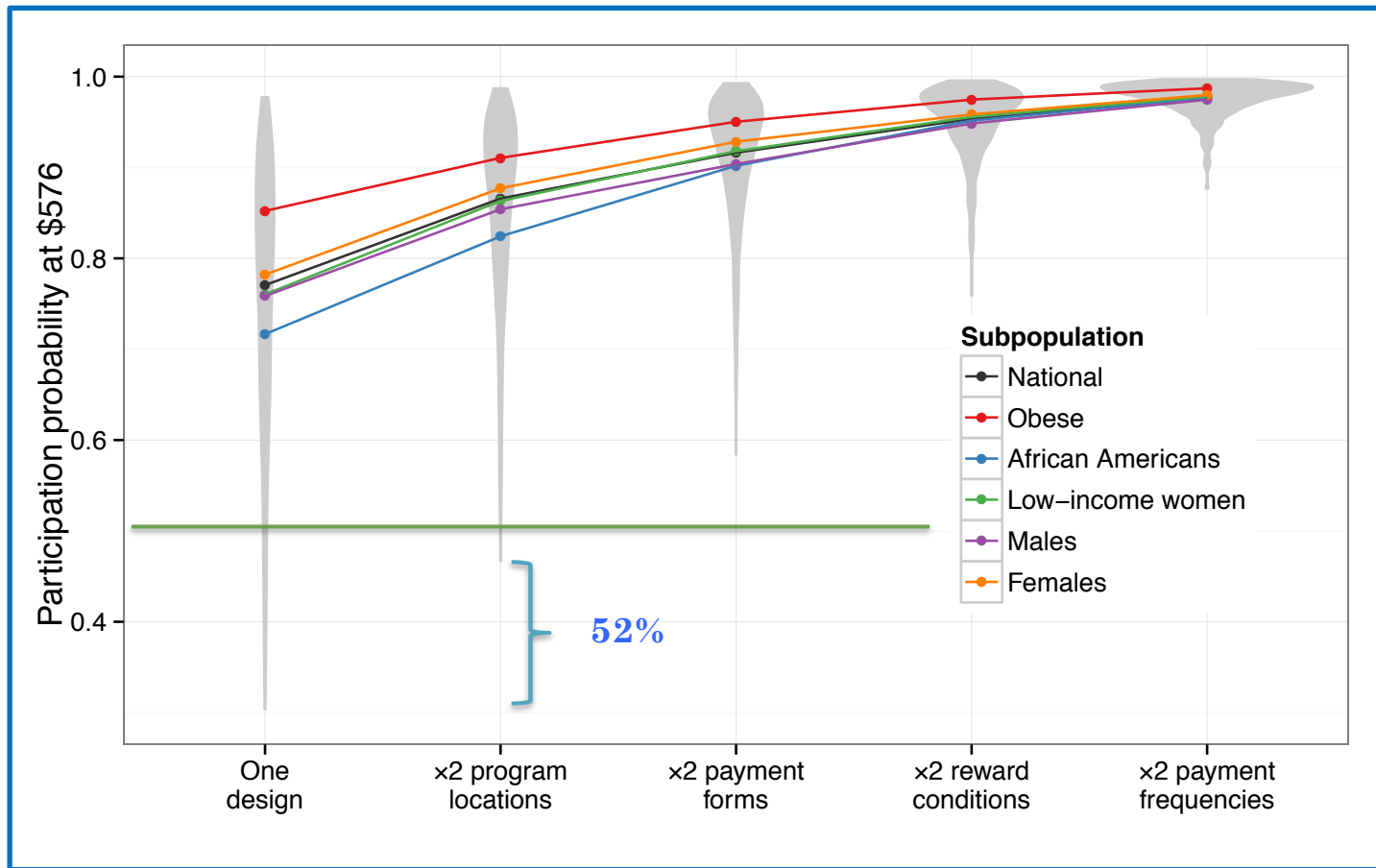
Policy-Implication: More Choices

\$48
(\$2/wk)



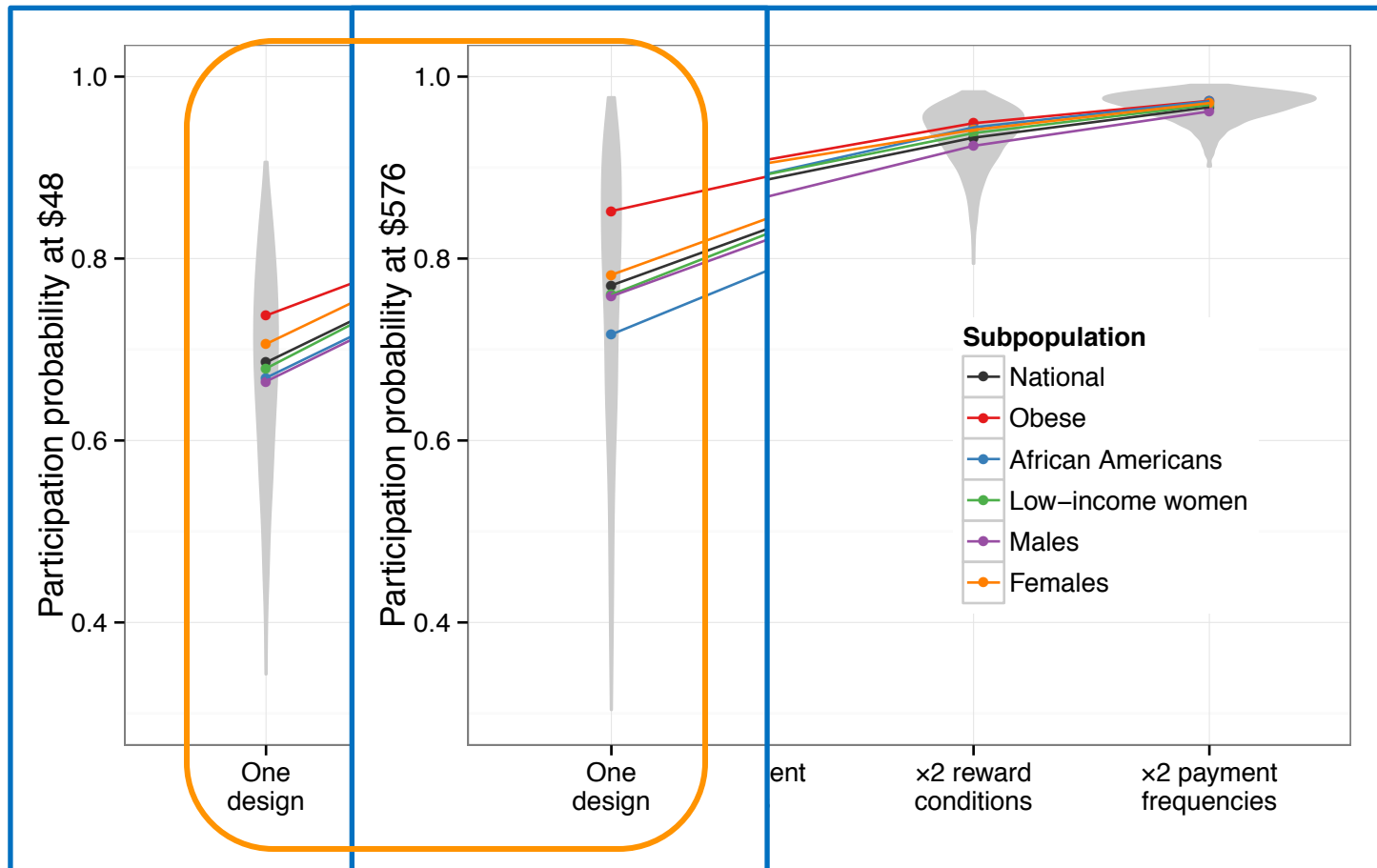
Policy-Implication: More Choices

\$576
(\$24/wk)

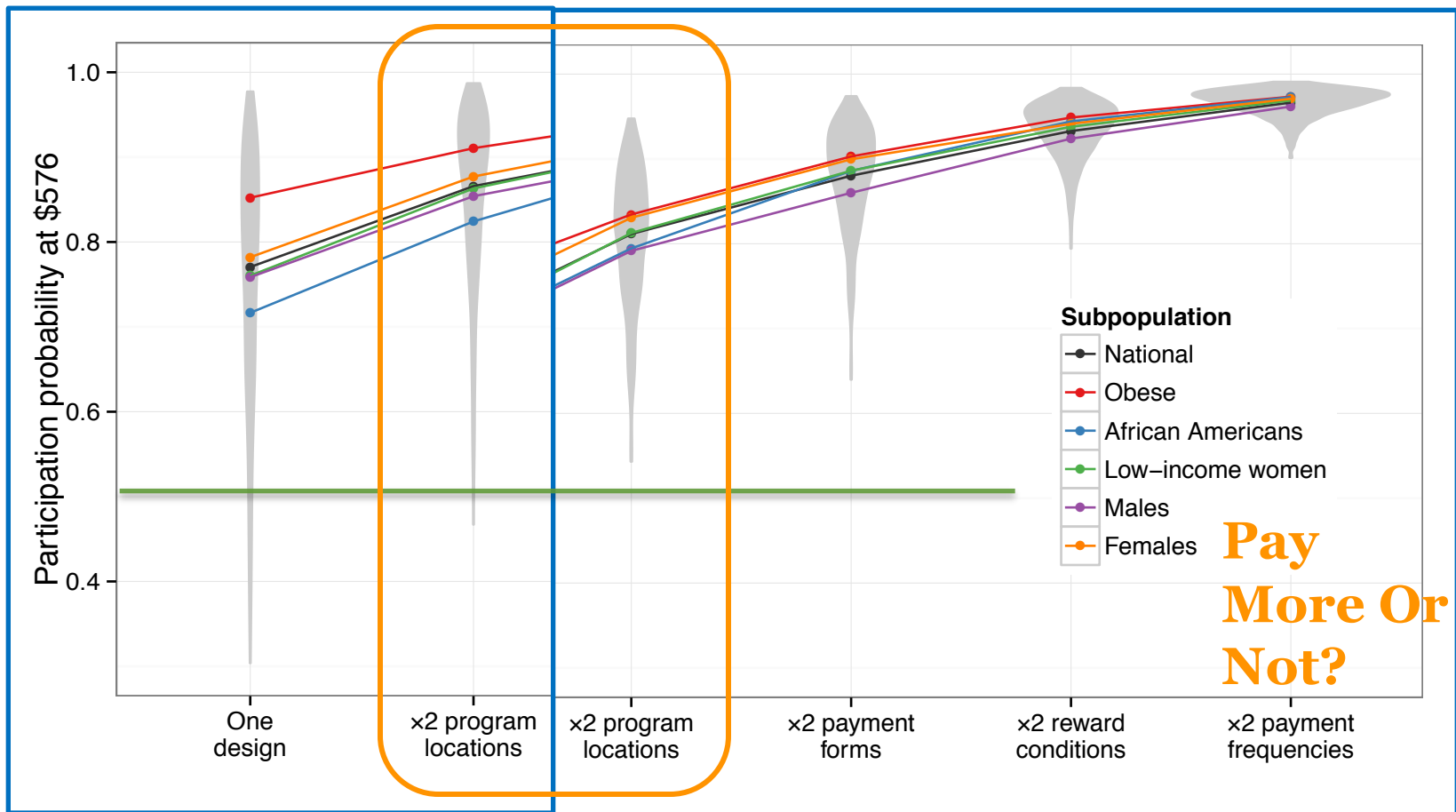


Policy-Implication: One Choice

Pay
More Or
Not?



Policy-Implication: Two Choices





Conclusion

- Population reach is important for closing disparity gap and improving cost-effectiveness
- Preference heterogeneity towards incentives is significant across subgroups
- Offering more than one incentive option will not only increase population reach but also reach more vulnerable subgroups
- Two carefully subgroup-targeted options can achieve the largest gain in reach
- Offering more options is better than paying more



THANK YOU!
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