

# How much do you know about emissions? Scan the QR code to find out!



#### Or go to: https://tinyurl.com/2wes993a



April 29, 2023

#### Making the Invisible, Visible: What Do People Know About Emissions?

Eric J. Johnson, Norman Eig Professor of Business, Center for Decision Sciences, Columbia Business School Eli Sugerman, Vicki Morwitz, Gita Johar and Michael Morris

Support from the Tamer Center

#### Harry wants to cut their carbon footprint





#### What should Harry do?

Harry reduces their meat consumption by 50%

Harry purchases carbon offsets equal to 50% of their emissions

Harry lives car-free

Harry reduces their home electricity usage by 75%

Harry takes one less long-haul round-trip flight

Harry reduces their waste (garbage) by 25%



# How much do you know about emissions? Scan the QR code to find out!



#### Or go to: https://tinyurl.com/2wes993a

#### Claim is that consumers' care about sustainability...





**Sustainable Business Practices** 

#### **Research: Actually, Consumers Do Buy Sustainable Products**

by Tensie Whelan and Randi Kronthal-Sacco



#### But do they know what is sustainable?

- Confusion between sustainability as labeled and carbon emissions
- -Involves decisions in production that are not observable
- Difficult to observe emissions of an invisible, odorless gas

-Consequences are delayed and geographically distant



#### Why does it matter?







Objective Rank	Individual Behavior (Annual Impact)	Metric Tons of CO <sub>2</sub> e Reduced
1	The average American purchases carbon offsets equal to 50% of their emissions	7.0
2	The average American lives car-free	3.1
3	The average American reduces their home electricity usage by 75%	1.8
4	The average American takes one less long-haul round-trip flight	0.9
5	The average American reduces meat consumption by 50%	0.5
6	The average American reduces their waste (garbage) by 25%	0.1

How could they manage their carbon budget/footprint when they don't know the prices?

-How good are consumers at knowing the impact of

- Behaviors?
- Firms?
- Industries?



#### Differences between industries and firms



Objective Rank	Industry	Bloomberg Scope 1 Emissions (Millions Metric Tons CO <sub>2</sub> e)
1	Airlines	120.04
2	Personal Care & Home Products	5.39
3	Non-Alcoholic Beverages	5.08
4	Restaurants	2.67
5	Lodging	2.23
6	Wireless Telecommunications	1.63
7	Apparel, Footwear, and Accessory Design	0.42

Rank	Industry	(N
1	Airlines	
2	Personal Care & Home Products	
3	Non-Alcoholic Beverages	
4	Restaurants	
5	Lodging	

Objective Rank	Firm	Bloomberg Scope 1 Emissions (Millions Mt CO <sub>2</sub> e)	CDP Scope 1 Emissions (Millions Mt CO <sub>2</sub> e)
1	PepsiCo	4.07	3.55
2	Coca-Cola	0.78	0.79
3	Keurig Dr Pepper	0.32	0.29
4	Monster Beverage	0.005	0.004

#### What we think people might do: Attribute substitution







- A methodological note
- -For behaviors, estimates from prior research (EPA, Heller et al.)
- –For firms and industries, we use CDP and Bloomberg Green
- -We ask people to rank each sources
- -Six different studies, total of 1730 respondents





## How did people do?

#### **Accuracy: Behaviors**



**Study 3 4** Columbia Business School **Accuracy: Behaviors** 



Columbia Business School Alumni Magazine Readers





#### **Accuracy: Behaviors**

- -Are experts more accurate?
- -Experts at <u>Rare</u>, an international conservation organization





#### Accuracy: Industry





#### **Attribute Substitution: Behaviors**

- -Objective (log) emissions
- -Perceived difficulty
- -Network-wide adoption
- -Recommendation frequency
- \* all z-scored



Significance Key: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05 • 0.1



#### What to do?

- -Nothing
- -Using price to communicate carbon intensity
- -Labeling and disclosure: Useful for some consumer goods, current labeling has limited success
- -Room for improved choice architecture

#### -Innovative Businesses?







## How did you do?

https://confplot.tiiny.site





# Thanks for your (scarce) attention. Questions?

### THE ELEMENTS OFCHOICE



"Indispensable... An essential guide to the construction of better choices." – DANIEL KAHNEMAN, author of Thinking, Fast and Slow

WHY THE WAY WE DECIDE MATTERS ERIC J. JOHNSON

#### Industry-Level Objective CO<sub>2</sub>e Emissions

Objective Rank	Industry	Bloomberg Scope 1 Emissions (Millions of Metric Tons CO <sub>2</sub> e)
1	Airlines	120.04
2	Personal Care & Home Products	5.39
3	Non-Alcoholic Beverages	5.08
4	Restaurants	2.67
5	Lodging	2.23
6	Wireless Telecommunications	1.63
7	Apparel, Footwear, and Acc Design	0.42



#### Firm-Level Objective CO<sub>2</sub>: Non-Alcoholic Beverages

Objective Rank	Firm	Bloomberg Scope 1 Emissions (Millions Mt CO <sub>2</sub> e)	CDP Scope 1 Emissions (Millions Mt CO <sub>2</sub> e)
1	PepsiCo	4.07	3.55
2	Coca-Cola	0.78	0.79
3	Keurig Dr Pepper	0.32	0.29
4	Monster Beverage	0.005	0.004



#### Behavior-Level CO<sub>2</sub>e Emission Reductions

Objective Rank	Individual Behavior (Annual Impact)	Metric Tons of CO <sub>2</sub> e Reduced
1	The average American purchases carbon offsets equal to 50% of their emissions	7.0
2	The average American lives car-free	3.1
3	The average American reduces their home electricity usage by 75%	1.8
4	The average American takes one less long-haul round-trip flight	0.9
5	The average American reduces meat consumption by 50%	0.5
6	The average American reduces their waste (garbage) by 25%	0.1