

# This presentation premiered at WaterSmart Innovations

[watersmartinnovations.com](http://watersmartinnovations.com)



---

# Behavioral Economics and Water: The Revolution Will be Live

**Robert Hahn**

Professor and Director of Economics,  
Smith School, University of Oxford

--

US Commission on Evidence-Based Policymaking

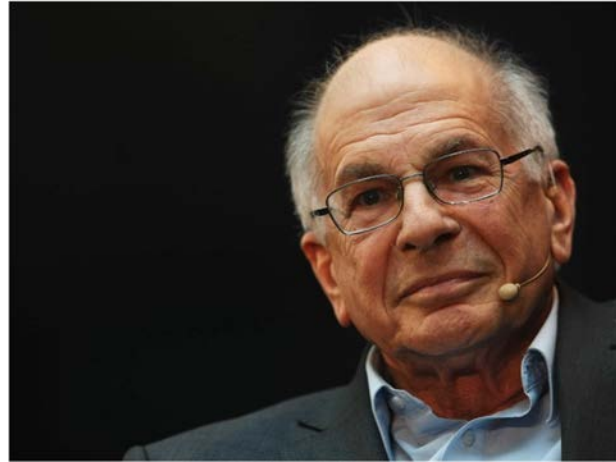
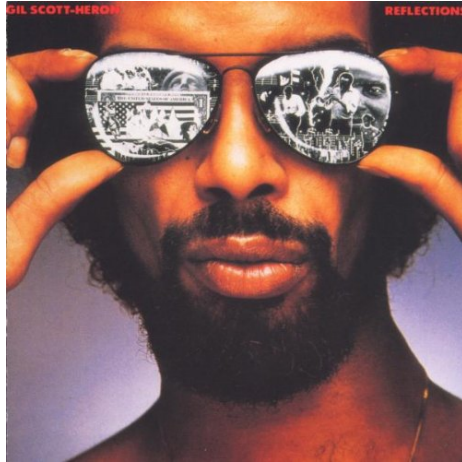
October 5, 2016

WaterSmart Innovations Conference



# Sketch

---



# Definition

---

Behavioral science: Study the effect of psychological, social, economic factors on decision-making (e.g., opt-in vs opt-out)

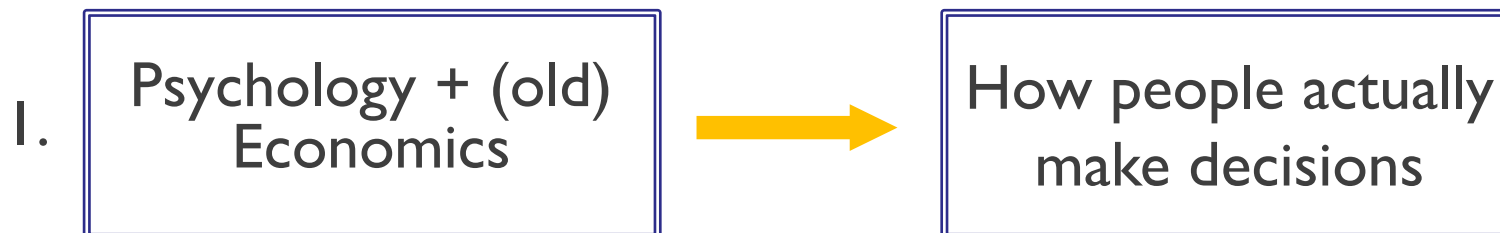
Claim: Ushered in a “revolution” in economic thinking



Conserve water. **Save the Planet.**

---

## New Econ



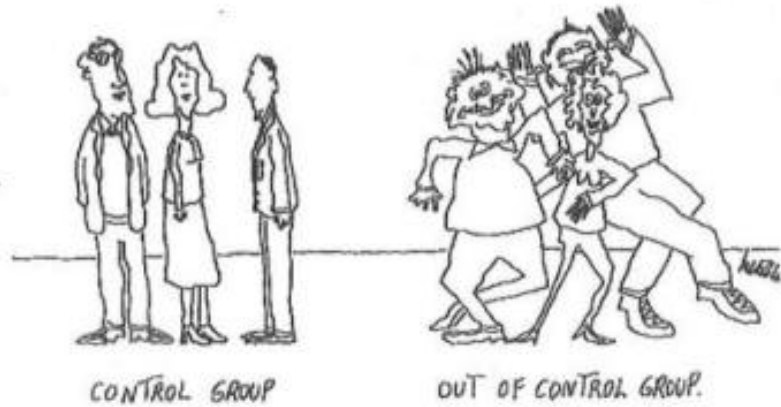
2. We can **experimentally** test how people actually make decisions in the real world.





# The secret sauce I

---



# How do we experiment?

---



## The secret equation



+



=

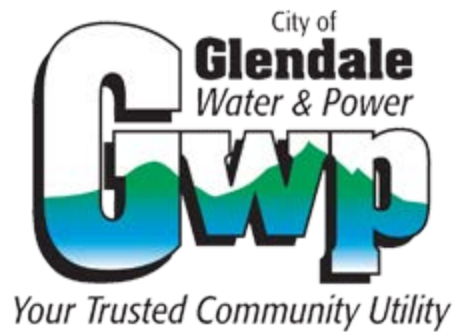


Good news: water often fits the bill!

---

# Who's experimenting?

---





# Test, learn, and adapt

Developing public policy  
with randomized controlled trials



# Some key stuff for encouraging behavior change

---



## Example: Terminal 4 JFK

---



Success = 80% reduction in “spillage”

---

# Examples: water and energy

---



# Incentives and smart technology

---

## Adopting Smart Meters in the UK



£5 and £10 voucher for smart meter increase adoption by about 50%

**Precisely why we need to test!**



- Virgin saves \$5.5 million in fuel by giving pilots fuel targets and a token amount to donate
- Pilots had higher job satisfaction
- 26k tonnes CO<sub>2</sub> reduced at *negative* cost
- A “win-win-win”

virgin atlantic 





# Adopting water resistant gardens – (SAWS)

---

- 25,000 high-usage homes offered a \$100 rebate for drought-resistant landscaping.
- Loss + norms groups: 36% increase in take up of “technology”
- Norms group 2.5% reduction in total water use over the next twelve months



## In-home water audits (Money talks) – ES&W

---

- 15,000 homes identified in East London; Pay for referring a friend for a free water audit.
- Control – 19% take-up!
- Control (£0) vs. £5 – no increase in adoption.
- Control (£0) vs. £15 – a 15% increase.
- Testing: reducing cost / increasing take-up.



## Habits – Glendale and Palo Alto

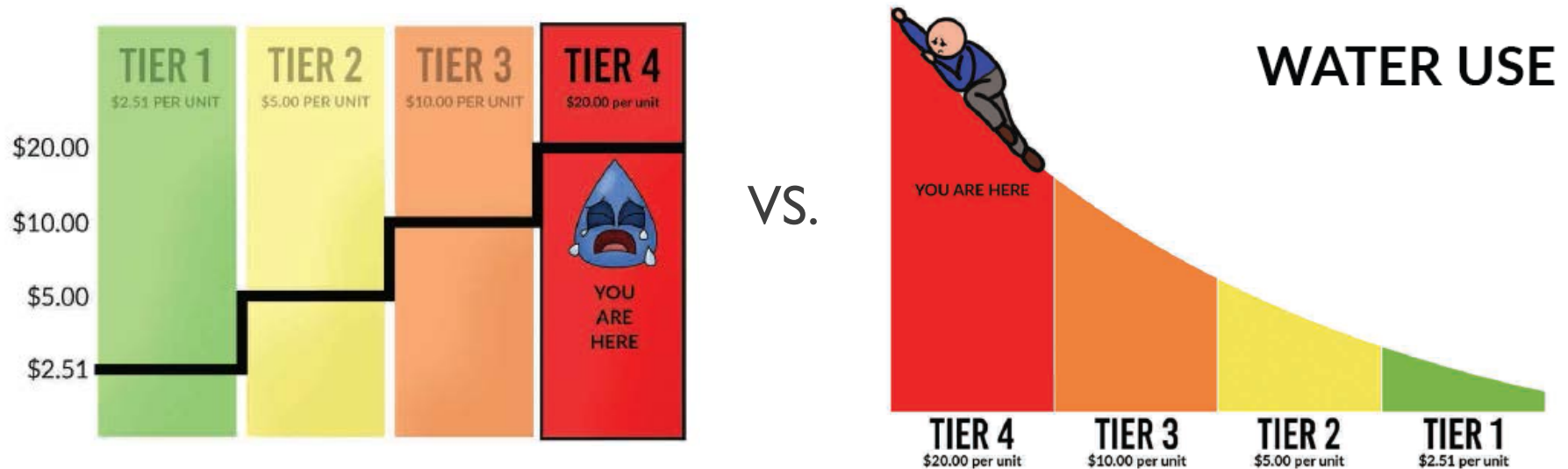
---

MOTIVATION  
IS WHAT GETS YOU STARTED.

HABIT  
IS WHAT KEEPS  
YOU  
*going.*

- Getting AMI water customers to go online to a portal to receive tips about conservation and check their consumption consistently for four weeks – a habit.
- Paid people and gave them reminders.
- Both money and reminders matter – but the reminders had the largest effects (Glendale).

# Can we get people to be more responsive to prices?



- Testing different ways to use imagery to get customers to respond to marginal prices – i.e. the pricing tiers.
- Coachella Valley Water District, CA

## Positive results

---

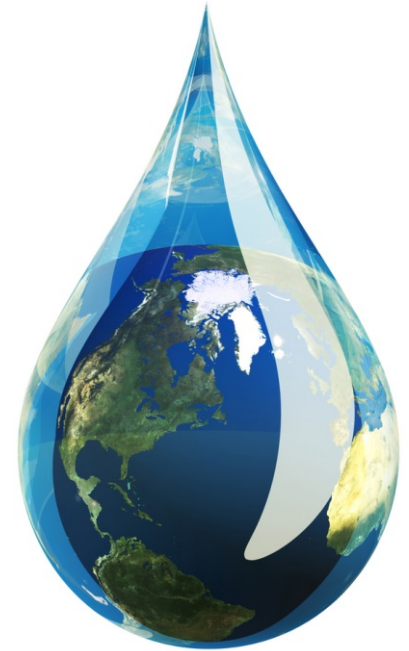
- Regulators are increasingly concerned with
    - Customer engagement
    - Improving water management
    - Figuring out what really works (evidence)
  - The revolution is about behaviour change for the better and figuring out what works
-



# Working together to build a better future

---

- We have much more to learn about
  - Demand and conservation
  - Changing habits and technology
  - Using apps and online platforms
  - Helping the poor
  - Paying bills in a timely manner
  - Energy-water nexus, and CO<sub>2</sub> credits
- Working together we can
  - Design interventions tailored to your needs
  - Be more responsive to customer needs






Thank you

---

[robert.hahn@smithschool.ox.ac.uk](mailto:robert.hahn@smithschool.ox.ac.uk)



### 20% reduction in the price of natural gas

-  increase participation by 10%.
- Demand responsiveness higher than we expected
- Consumers gain \$100s of millions, but environment loses



# The basic insight

---

EXPERIMENT + BEHAVIOURAL SCIENCE = BEHAVIOUR CHANGE

---