



# TAXING DISPOSABLE BAGS

*Preliminary Analysis from the City of Chicago*

Doug Palmer  
October 11, 2017



# OUTLINE

1. What is ideas42?
2. Tax instead of a ban
3. Methodology
4. Results
5. Next steps

# What is ideas<sup>42</sup> ?

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we use insights from **behavioral science** to **design solutions** to some of the world's most **persistent social problems.**

# WE WERE FOUNDED BY & WORK CLOSELY WITH LEADING ACADEMICS



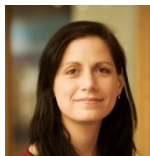
**Sendhil Mullainathan**  
Harvard (co-founder)



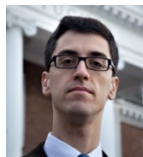
**Antoinette Schoar**  
MIT Sloan (co-founder)



**Daniel Kahneman**  
Princeton University



**Kate Baicker**  
University of Chicago  
Dean, Harris School



**Manuel Adelino**  
Dartmouth  
Tuck School of Business



**Richard Thaler**  
University of Chicago  
Booth School of Business



**Michael Barr**  
University of Michigan  
Law School



**Betsy Levy Paluck**  
Princeton University



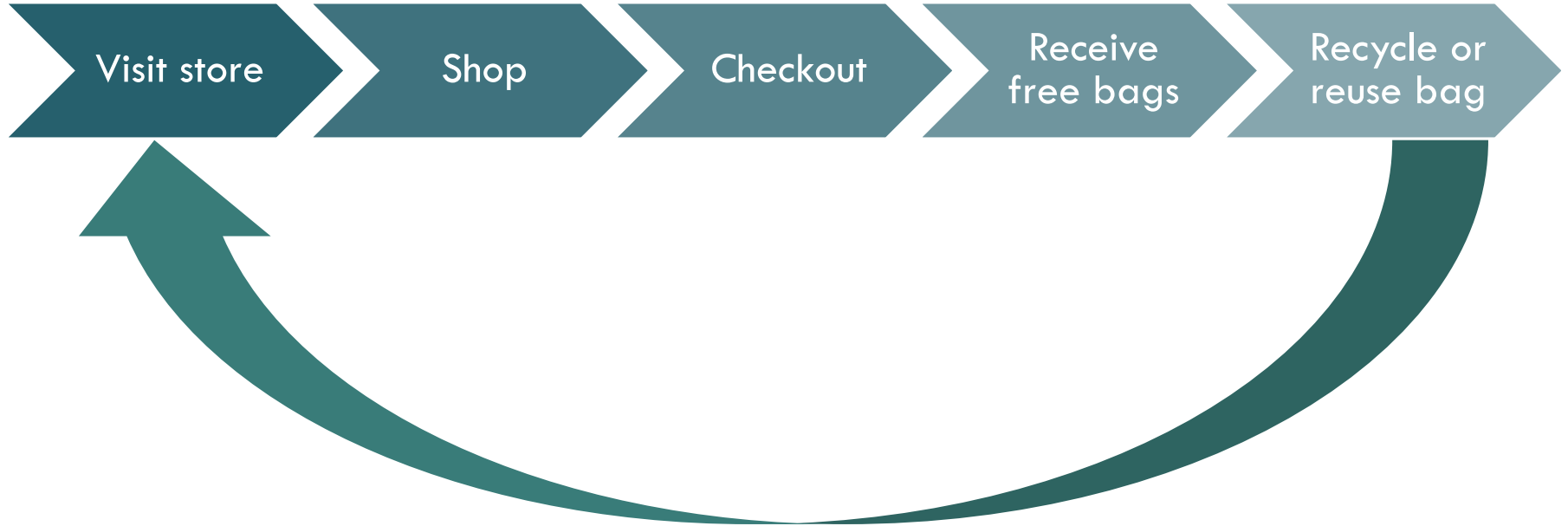
**Todd Rogers**  
Harvard University  
Kennedy School of Gov't

# WHO ARE WE, REALLY?



# WHY THE TAX?

# BAGS – A BASIC MODEL



# AUGUST 2015 – THIN BAGS BANNED

## **11-4-4010 Plastic carryout bags prohibited.**

No store shall provide a plastic carryout bag to any customer for the purpose of enabling the customer to carry away goods from the point of sale.

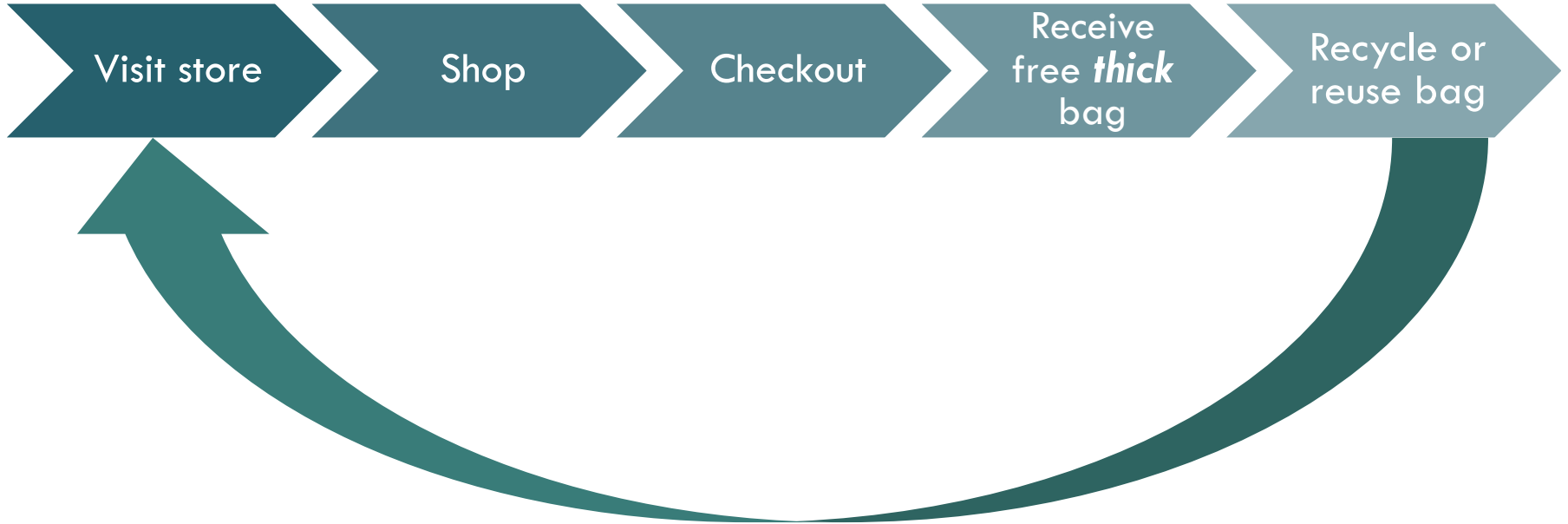
## **11-4-4020 Reusable bags.**

Each operator shall provide reusable bags to customers for the purpose of enabling the customer to carry away goods from the point of sale. Such reusable bags shall either be sold to the customer or provided to the customer at no charge.

- Goal is to reduce bags in the environment.
- Stores offered thicker, reusable plastic bags that met certain criteria:
  - 125 uses, minimum
  - Carry 22 lbs of goods 175 feet, 125 times
  - If plastic, at least 2.25 mils thick
  - Stores are still required to recycle bags (per 2009 ordinance).



# BAGS – A THIN BAG BAN MODEL



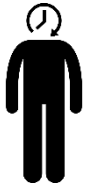
# FEBRUARY 2017 – DISPOSABLE BAG TAX IMPLEMENTED

## 3-50-030 Tax imposed.

A tax is hereby imposed on the retail sale or use of checkout bags in the City. The tax shall be paid by the user, and nothing in this chapter shall be construed to impose a tax on the occupation of a wholesaler or a store. The tax shall be imposed at the rate of seven cents (\$0.07) per checkout bag sold or used in the City.

- Goal is still to reduce the bags in the environment.
- 7 cents for paper and plastic checkout bags
  - 5 cents for the City
  - 2 cents for the wholesaler
- Removed the minimum thickness and reusable bag criteria from the bag ban

# BAGS – A BAG TAX MODEL



**Change in  
Status Quo**



**Salience  
of tax**



**Loss  
Aversion**

# METHODOLOGY USED

# METHODOLOGY

- Collected observational data at 14 grocery stores in Chicagoland area
- Grocery stores were large chains; located in diverse neighborhoods
- Collected over 14,000 observations; continuing to collect data
  
- Research assistants visited stores, observed bags used:
  - Paper bags
  - Plastic bags
  - Reusable cloth bags
  - No bags

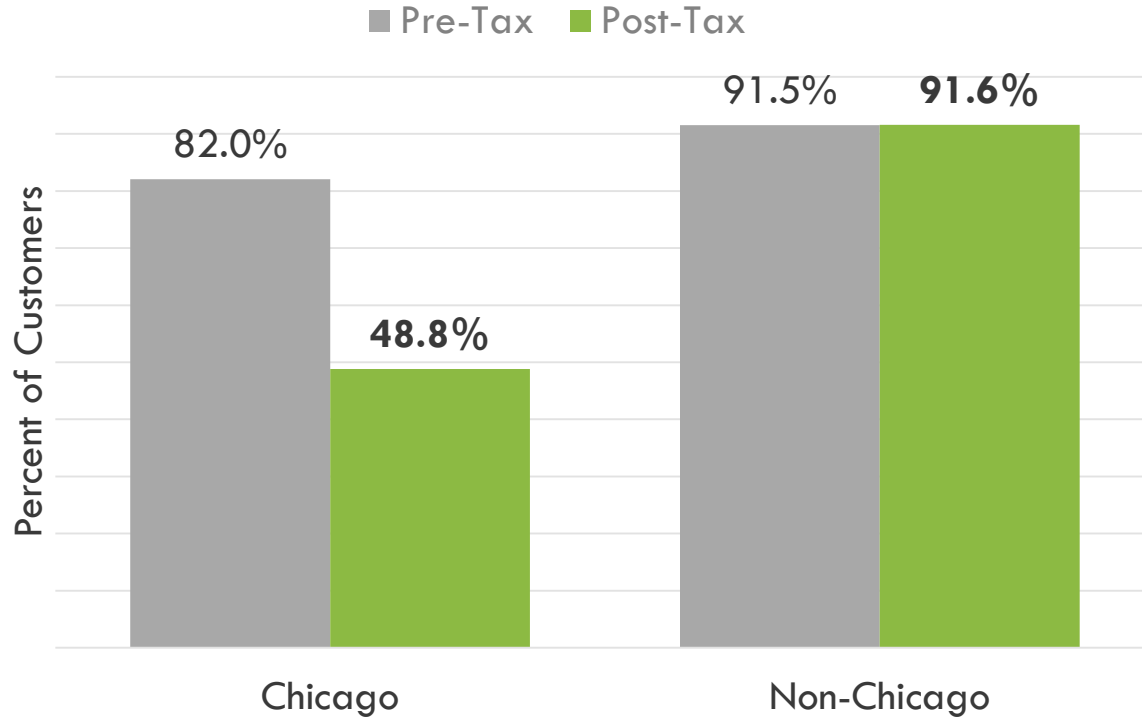
# DIFFERENCE-IN-DIFFERENCES ANALYSIS



The changes that we see in Chicago from pre and post tax are relative to the changes we see in suburban stores pre and post tax.

# RESULTS

# FEWER CUSTOMERS USE DISPOSABLE BAGS



**40% decrease**

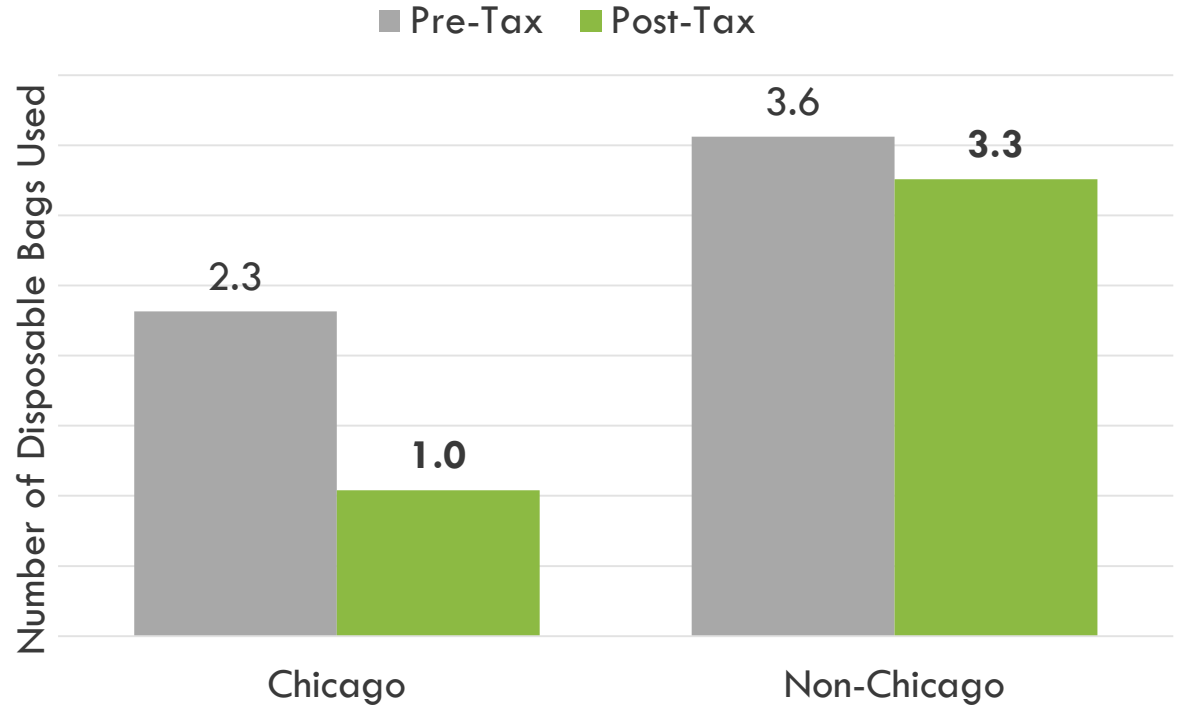
in customers using disposable bags (paper or plastic) compared to before the tax was implemented.



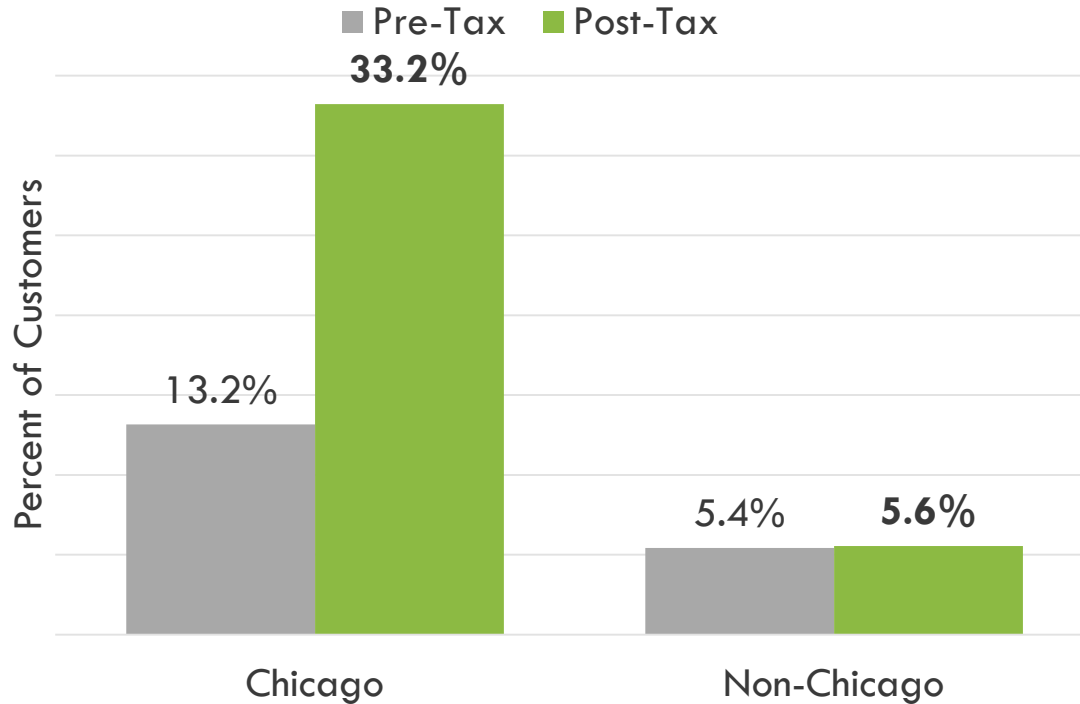
# FEWER DISPOSABLE BAGS USED PER CUSTOMER

**42% decrease**

in number of disposable bags used per person compared to suburb stores.



# INCREASED USE OF REUSABLE BAGS



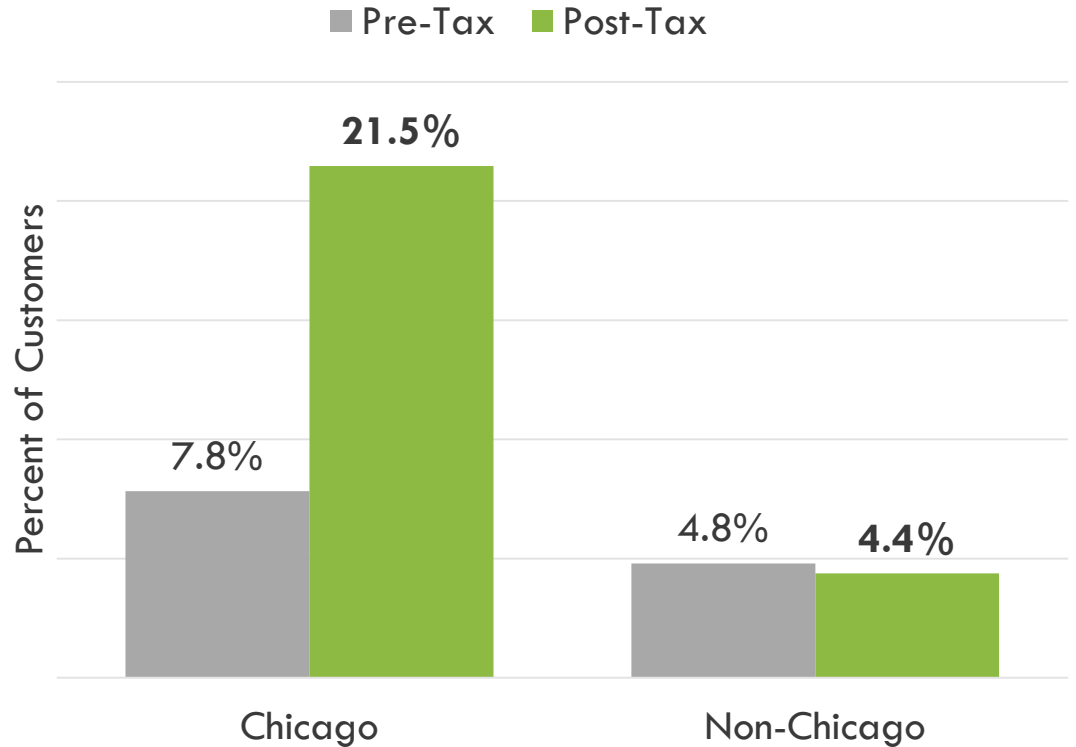
**19.8 ppt increase**

in customers using reusable bags (canvas, woven synthetic, etc) compared to before the tax was implemented.

# INCREASED USE OF NO BAGS

**14.1 ppt increase**

in customers using choosing to not use a bag compared to before the tax was implemented.



# WHAT THESE RESULTS DON'T EXPLAIN

- What happened in retail stores, or small grocery stores?
- Is this is short-term effect, or is it sustained?
- What would happen if you changed the tax to 5 cents? 25 cents?
- Does this displace Chicago shoppers, pushing them to the suburbs?
- How many people reuse plastic bags at home?
- What's the environmental lifecycle impact of plastic bags versus paper bags versus a cloth reusable bag?
- What is the impact that this policy may have on plastic bag manufacturing jobs?

# NEXT STEPS

# NEXT STEPS

- Answer the question:
  - Is this a short-term effect, or is it a sustained behavior change?
- Collect more data this fall and next spring
- Publish full report in late spring 2018



# Questions

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