Preface

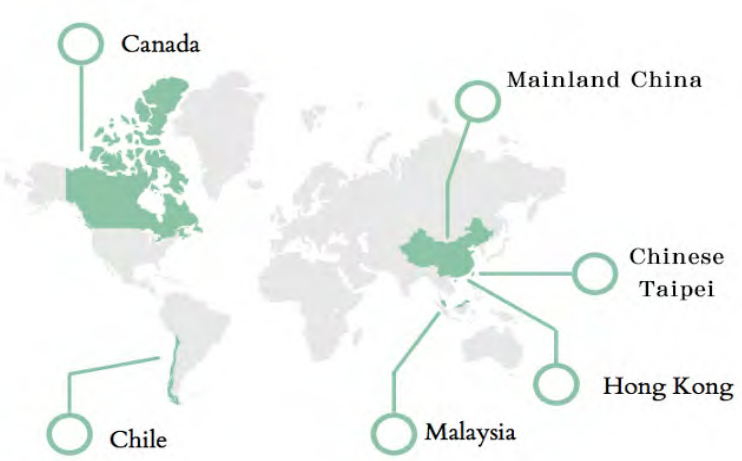
The International Student Summit 2021 was held successfully on 26th June 2021. We would like to express our gratitude to the Trade and Industry Department, the Government of the Hong Kong Special Administrative Region for sponsoring the Summit. The APEC Study Centre, Hong Kong Institute of Asia-Pacific Studies (HKIAPS) was the organiser, with the support from Department of Economics, the Chinese University of Hong Kong, and HKIAPS (Economic Research Centre, Centre for Youth Studies).

The Summit aims to bring students with different majors of studies around the world together and study policies from an economics perspective. The economics way of thinking is different from the non-economics way, which would require additional work to learn the techniques. Other than the economics way of thinking, we hoped the participants could also have international exposure to policies and cultures from others' presentations, and polish their skill sets, such as teamwork, literature research, presentation, writing and quantitative analysis.

This booklet presents the products from the teams and is a tribute to their hard work. Our motivation is to share the findings by the students with you, and to encourage them to go for graduate schools in economics and apply the economics way they have learnt to analyse public policies in their future careers.

Travis Ng
Director of the APEC study Centre
Hong Kong Institute of Asia-Pacific Studies
The Chinese University of Hong Kong

Facts



14 teams from all over the world

Process

Prize and Winner

HKD $5,000/ student

Team Liang

Cui Xiaotong
Liang Yong Yin

HKD $2,000/ student

Team Yeoh

Lim Her Yong
Tan Jiun Wei
Yap Pey Ting Abigail
Yeoh Shu Quan

HKD $1,000/ student

Team YT

Hou Che
Huang Yaoting
Shen Yu Tung
Wang Zih Ling

Research Works

Research Works

Research Works

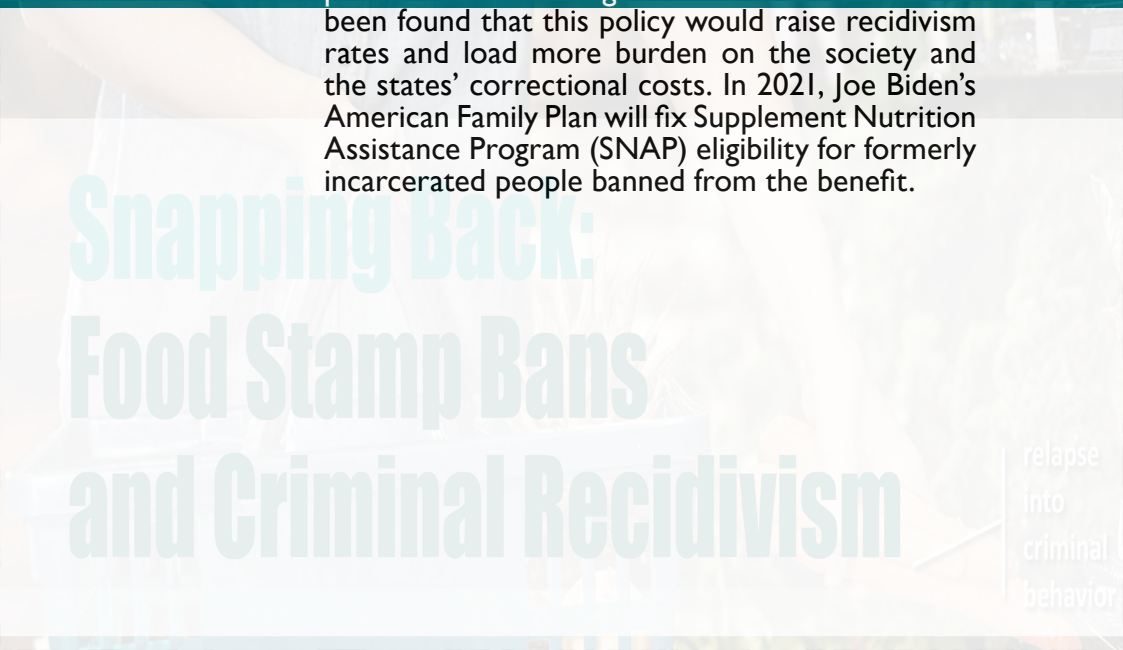
Research Works

01

Winner

The effects of banning food stamps on recidivism in the United States

Among the released prisoners, three-quarters were rearrested within five years of their releases in the United States. A food stamp ban for felons introduced in 1996 drew public attention with its' potential in increasing the recidivism rate. It has been found that this policy would raise recidivism rates and load more burden on the society and the states' correctional costs. In 2021, Joe Biden's American Family Plan will fix Supplement Nutrition Assistance Program (SNAP) eligibility for formerly incarcerated people banned from the benefit.



Comments from students

CUI Xiaotong

We feel very lucky and appreciated to be the winner in this competition. This competition taught us as long as you devoted into it and do things with an easy mind, you will definitely be able to do things well.

LIANG Yongyin

Public policies always intrigue me with their practical significance. A fascinating part of this event is that it encourages us to take a quantitative view on policies and use mathematical models and econometrics to shed some light on the real world. We will keep paying attention to the frontier research and devote ourselves to public policy analysis soon.

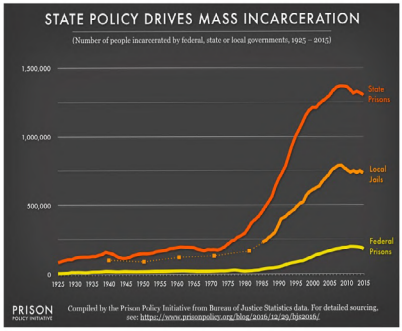
High Incarceration Spending

In the United States, government spending on **the criminal justice system** is significant.

The direct costs of incarceration totaled **over 80 billion dollars** (CEA, 2016).

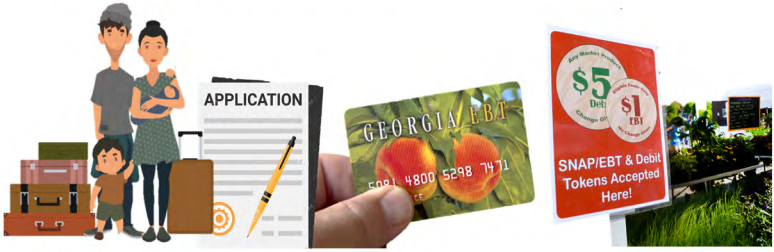
Reduce recidivism >> reduce burden

→ **Food Stamps**



What is SNAP

Supplemental Nutrition Assistance Program (SNAP, or food stamp):
A federal welfare program in the United States



Low-income families → EBT card → Buy food in stores

Ban SNAP

In 1996, a federal law banned drug felon from receiving SNAP.

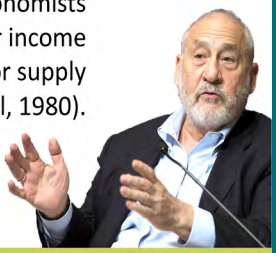
Senator Phil Gramm

If the government was serious about drug abuse, officials should not extend benefits to those in violation of the law.

Rationale for banning SNAP

Policy Makers
The potential of loosing SNAP welfare can **deter** drug felony (reduce crimes).

Labor Economists
Decreasing transfer income **increases** ex-offenders' labor supply (Mallar & Thornton, 1978; Berk et. al, 1980).



What Research Limitation Conclusion

Rationale for banning SNAP

Policy Makers
The potential of loosing SNAP welfare can **deter** drug felony (reduce crimes).

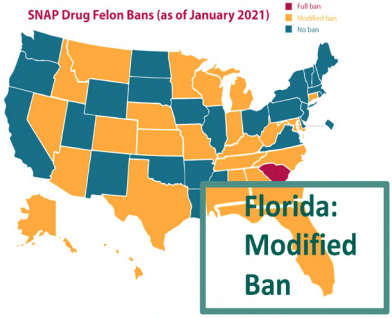
Banning drug felon from SNAP **increases the recidivism rate** (increase crimes).

Finding job is hard for ex-offenders

Labor supply = Legal labor + Illegal labor

Does it work?

Research: Tuttle, C. (2019). Snapping back: Food stamp bans and criminal recidivism. *American Economic Journal: Economic Policy*, *11* (2), 301-327.



Only apply to **drug trafficking crimes** committed on and after **Aug 23rd, 1996**.

Does it work?

Only apply to drug trafficking crimes committed on and after Aug 23rd, 1996.

	Crime	Target Group
Time: Aug 23 1996	**Drug trafficking crimes** committed **BEFORE** Aug 23rd, 1996.	**Drug trafficking crimes** committed **ON/AFTER** Aug 23rd, 1996.
	Other drug felonies committed **BEFORE** Aug 23rd, 1996.	**Other drug felonies** committed **ON/AFTER** Aug 23rd, 1996.

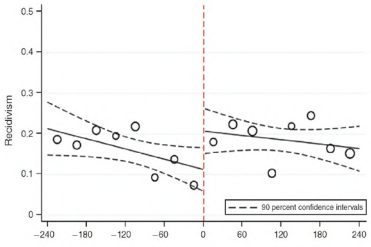
Research – Data & Methodology

- Regression Discontinuity Design
  - $After_{it}$, $Residivism_{it}$ are **dummy variables**
  - **DaysFromCutoff:** Number of days from August 23rd, 1996
  - g(x): flexible function, nonparametric.

$$Recidivism_{it} = \alpha + \beta_1 After_{it} + g(DaysFromCutoff_{it}) + g(DaysFromCutoff_{it}) \times After_{it} + \omega_{it},$$

Research – Result

1. SNAP ban increased any recidivism among <u>drug traffickers</u> by **9.5%** on average.

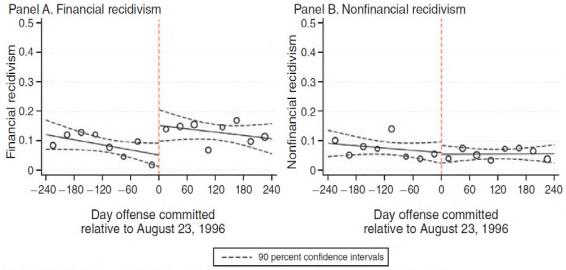


All kinds of recidivism are counted.

Source: Tuttle, C. (2019). Snapping back: Food stamp bans and criminal recidivism. *American Economic Journal: Economic Policy*, *11*(2), 301-27.

Research – Result

2. The total increase in recidivism comes almost 100% from **financial crime**.



Source: Tuttle, C. (2019). Snapping back: Food stamp bans and criminal recidivism. *American Economic Journal: Economic Policy*, *11*(2), 301-27.

Research - Result

- Denying drug offenders SNAP benefits has **increased** their likelihood of recidivism.
- Increase in recidivism is driven by crimes that **have a monetary motive** rather than crimes like drug possession or violent crimes.

Limitation - Data

This estimate is based on the small sample of about **1,000 Florida's drug traffickers** committing an offense sufficiently close to the cutoff date.

- **Small sample size**, noisy and large Confidence Interval
- **Only Florida's data**, can't guarantee it can represent the whole country (*Also available: California, Oklahoma, Montana)*
- **Only drug traffickers**, not general conclusion

Limitation – Behavior Bias

- **The drug traffickers** may be more cautious when committing the crime.
- **The police and the judges** may be more lenient to felons whose conviction is relatively light that could be judged as non-trafficking.
- All will internally bring the recidivism rate **down after the cut-off date.**

Conclusion

- This policy is originally generated for denial of benefits of moral and social issues.
- However, through the research by economists including Tuttle, it is found that this policy will raise recidivism rates and will load more burden on the society and also the states' correctional costs.

Does the SNAP Drug Felon Ban Save West Virginia Money?

No. SNAP benefits are federally funded, so allowing an individual with drug convictions to receive them does not burden the state budget, nor does it produce state savings. In fact, the drug felon ban hinders economic growth because decreases the amount of money that will be spent in local grocery stores and other community businesses. In 2016, 2,100 individuals with drug felonies were denied SNAP benefits, adding up to over $3.1 million in missed federal funds for the state. Every dollar received through SNAP benefits results in about $1.80 in economic activity. Meaning, West Virginia could have missed out on around $5.7 million in economic activity by denying SNAP benefits to the 2,100 drug felons in 2016.

What's more...

- Although the research has limitations, analysis of the ban contributes to an active policy discussion about the repeal of these bans.

Biden's American Families Plan would fix SNAP eligibility for formerly incarcerated people banned from benefits

by Simran Sethi
04.30.2021, 1:52pm

Politics

Share Save for later

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Appendix

Outcome	Recidivism (1)	Financially motivated recidivism (2)	Non-financially motivated recidivism (3)
Panel B. Consistent bandwidth of ±240 days			
Offense committed after Aug. 23, 1996 (banned)	0.0950	0.1003	−0.0053
	(0.0467)	(0.0404)	(0.0286)
Control group mean	0.1644	0.0880	0.0764
Observations	918	918	918
Bandwidth (in days)	±240	±240	±240
Degree of polynomial in days from Aug. 23, 1996	1	1	1

Source: Tuttle, C. (2019). Snapping back: Food stamp bans and criminal recidivism. *American Economic Journal: Economic Policy*, *11*(2), 301-27.

Appendix

Table A2. Evidence RD Identifying Assumption Holds: No Differences in Observable Characteristics

Characteristic:	# Other Offenses	Years Sentenced	Black	Age	# Prior Offenses	Male	Trafficking Cocaine	Risk Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel B. Consistent Bandwidth of ±240 Days								
Offense Committed After	-0.0108	0.3198	-0.1096	0.1294	-0.0072	0.0196	-0.0342	-0.0085
Aug. 23, 1996 (Banned)	(0.1305)	(0.4950)	(0.0830)	(1.4691)	(0.1046)	(0.0461)	(0.0626)	(0.0240)
Control Group Mean	1.5046	5.1615	0.4861	33.4352	0.2616	0.8611	0.8009	0.2083
Observations	918	918	918	918	918	918	918	918
Bandwidth (in Days)	±240	±240	±240	±240	±240	±240	±240	±240
Degree of Polynomial in Days from Aug. 23, 1996	1	1	1	1	1	1	1	1

Source: Tuttle, C. (2019). Snapping back: Food stamp bans and criminal recidivism. *American Economic Journal: Economic Policy*, *11*(2), 301-27.

02

First Runner-up
Analysis of the three-strikes law in California




YAP Pey Ting Abagail
LIM Her Yun
TAN Jiun Wei
YEOH Shu Quan

California in the 1990s was a time plagued with crimes. The Three-Strikes Law was passed in California to lock up repeated felons for 25 years up to life in prison, upon accumulating three "strikes" of criminal offences, where the third strike includes minor offences such as petty theft, minor drug sales. It was designed to reduce serious and violent crimes by increasing the punishment for crime significantly. However, a closer look shows that criminals are not thinking rationally before committing a serious crime and would not consider the significantly heavier sentence. In 2011, the policy was deemed ineffective, and the California Three Strikes Law was reformed. Our report aims to analyse the effectiveness of the policy to reduce crime rates while weighing the cost increases in the criminal justice system.

California's Three-Strikes Law

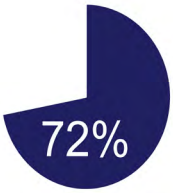
Team Yeoh

Background

Kimber Reynolds
18 years old
Murdered outside a restaurant in an armed robbery

1994
California Three-Strikes

Polly Klaas
12 years old
Murdered and raped on the way home



in favor of the policy

Introduction
Definition

3 strikes

Reduce Crime

Targets Repeated Offenders

25 years to life sentence

3

Introduction
Quick Facts

Harshest Form of Three-strikes
California implemented the harshest form across 28 states with the law

Petty Crimes Count as Strikes
A broad range of crimes are counted in the three-strikes

Policy Reformed in 2011
After two decades, the policy was ineffective to reduce violent crimes

Core Assumption is Wrong!

Increase punishment

Demotivate criminals from serious crimes

Criminals do not think rationally at the moment of crime.

4

Introduction

Three-strikes decreased crime, but increased prisoners

30% decrease

Serious felonies

Appearance of

Pizza thief & Cookie thief

5X increase

Number of prisoners

Is the California Three-Strikes Law effective in reducing serious and violent crimes?

5

Background

Background of the policy & research

Parameter Definition

Serious Crime

Violent Crime

- Murder
- Forcible Rape
- Aggravated Assault
- Robbery
- Burglary
- Auto Theft
- Arson

Research Area

Three-Strikes	Non-Three-Strikes
California	Illinois
Colorado	New York
Maryland	Ohio
New Jersey	Texas
Wisconsin	Arizona
Florida	Massachusetts
Georgia	Michigan
Washington	Minnesota
Pennsylvania	

6

Background

Two measures of effectiveness used

Serious Crime

Violent Crime

1 California's Crime Rates Before and After the Three-Strikes Law Compared to States with Three-Strikes Law

2 California's Crime Rates Compared to Non-Three-Strikes States

7

Analysis of Crime

Rapid decline in serious crime rates, but inconclusive

Serious Crime

After three-strikes, California had the **most rapid decline** of **serious crime** rates

Drop-in crime rates started before 1994. So, **cannot conclude** for drop-in **serious crime** rates being directly correlate to three-strikes

Rate of Decline

1991-92	-1.4%
1992-93	-3.3%
1993-94	-4.4%
After the law	
1994-95	-5.6%
1995-96	-10.7%

Figure 2.10a: Serious Crimes per 100,000 Residents in California and States with Three-Strikes Law (CO,MD,NJ,WI)

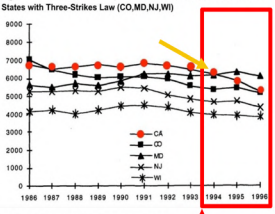
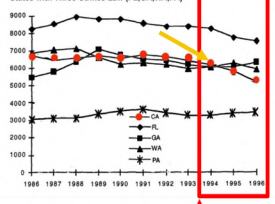


Figure 2.10b: Serious Crimes per 100,000 Residents in California and States with Three-Strikes Law (FL,GA,WA,PA)



Source: An Early Assessment of Implementation and Effects
(Peter W. Greenwood ; Susan S. Everingham ; Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ; James Chiesa 1998)

Three-strikes law implemented in 1994

9

Analysis of Crime

Still no conclusion from rapid decline in violent crime rates

Violent Crime

Similarly, California also experienced the most **rapid decline** in **violent crime** rates after the law was imposed in 1994.

Due to prior downwards trend of crime rates, we **cannot** directly attribute decline in **violent crime** to Three-strikes law.

Figure 2.11a: Violent Crimes per 100,000 Residents in California and States with Three-Strikes Law (CO,MD,NJ,PA)

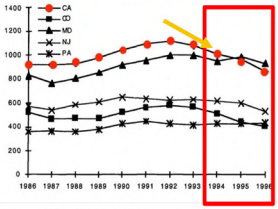
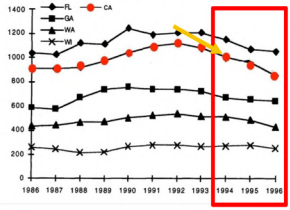


Figure 2.11b: Violent Crimes per 100,000 Residents in California and States with Three-Strikes Law (FL,GA,WA,WI)



Source: An Early Assessment of Implementation and Effects
(Peter W. Greenwood ; Susan S. Everingham ;Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ;James Chiesa 1998)

Three-strikes law implemented in 1994

10

Analysis of Crime

States without three-strikes had unclear reductions in crime

Serious Crime

The accelerated rate of reduction of serious crimes is **less clear** in the non-three-strikes states. **5 out of 8** states **did not show accelerated reductions**.

Illinois (IL), Ohio (OH), Texas (TX), Michigan (MI), Minnesota (MN)

Figure 2.21a: Serious Crimes per 100,000 Residents in California and States without Three-Strikes Law (IL,NY,OH,TX)

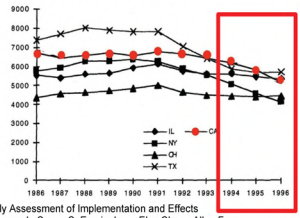
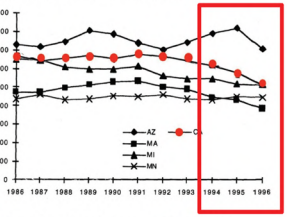


Figure 2.21b: Serious Crimes per 100,000 Residents in California and States without Three-Strikes Law (AZ,MA,MI,MN)



Source: An Early Assessment of Implementation and Effects (Peter W. Greenwood ; Susan S. Everingham ;Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ;James Chiesa 1998)

Three-strikes law implemented in 1994

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Analysis of Crime

Still no conclusion from decline in crime rates

Serious Crime

3 of the 8 non-three-strikes states **experienced accelerated crime reductions**

Arizona (AZ), New York (NY) and Massachusetts (MA)

Cannot conclude that the policy had driven down crime more rapidly

State	Rate of increase in crime reduction from 1994-96 (%)
California (CA)	3.9%
Arizona (AZ)	1.1%
New York (NY)	0.03%
Massachusetts (MA)	2.9%

Figure 2.21a: Serious Crimes per 100,000 Residents in California and States without Three-Strikes Law (IL,NY,OH,TX)

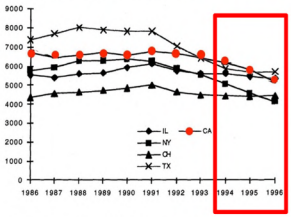
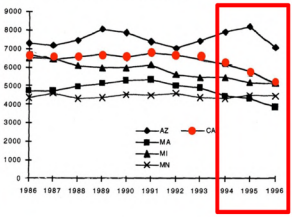


Figure 2.21b: Serious Crimes per 100,000 Residents in California and States without Three-Strikes Law (AZ,MA,MI,MN)



Source: An Early Assessment of Implementation and Effects
(Peter W. Greenwood ; Susan S. Everingham ;Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ;James Chiesa 1998)

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Analysis of Crime

Crime rates between California & Non-Three-Strike states

Violent Crime

Similar trends can be observed in **violent** crimes: the rate of reduction of crimes was **less clear** in non-three-strike states

However, some states experienced accelerated rate of reduction even **without** the implementation of Three-Strikes Law

Figure 2.22a: Violent Crimes per 100,000 Residents in California and States without Three-Strikes Law (IL,NY,OH,TX)

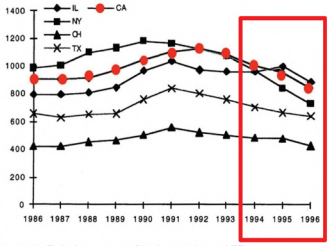
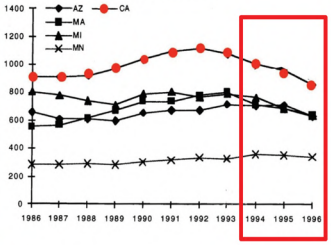


Figure 2.22b: Violent Crimes per 100,000 Residents in California and States without Three-Strikes Law (AZ,MA,MI,MN)



Source: An Early Assessment of Implementation and Effects
(Peter W. Greenwood ; Susan S. Everingham ;Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ;James Chiesa 1998)

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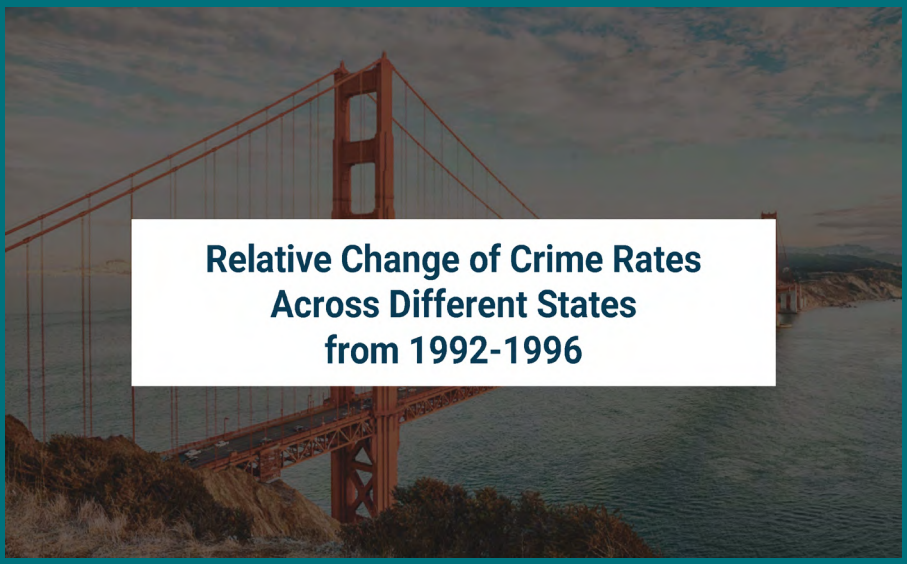
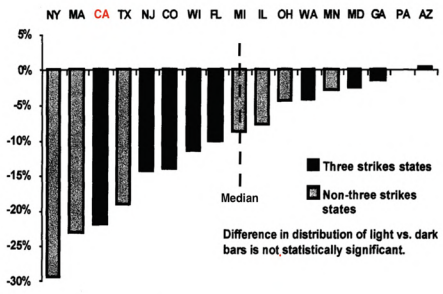


Analysis of Crime

Serious crime comparison is statistically insignificant

Serious Crime

Relative Change in Serious Crime rate, 1992 VS. 1996



Equal number of three-strikes states and non-three strikes states below the median

Not statistically significant association of three-strikes law and ranking of states in crime fall rates

Source: An Early Assessment of Implementation and Effects
(Peter W. Greenwood ; Susan S. Everingham ;Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ;James Chiesa 1998)

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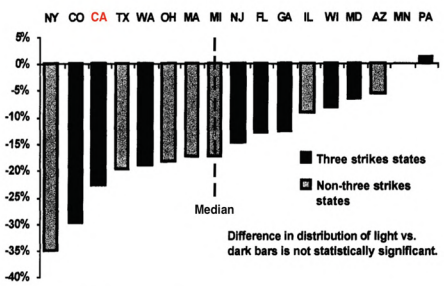
Analysis of Crime

Violent crime comparison is statistically insignificant

Violent Crime

Relative Change in Violent Crime rate, 1992 VS. 1996



The placement of three-strikes states appears **virtually random**

Not statistically significant association of three-strikes law and ranking of states in crime fall rates

Source: An Early Assessment of Implementation and Effects
(Peter W. Greenwood ; Susan S. Everingham ;Elsa Chen ; Allan F. Abrahamse ; Nancy Merritt ;James Chiesa 1998)

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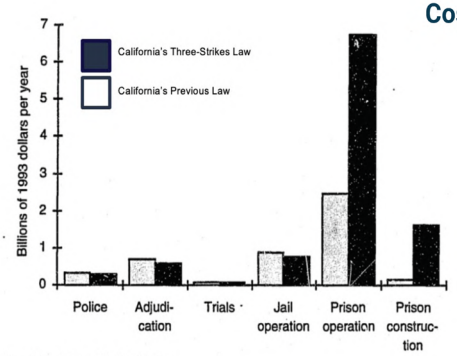
Costs Analysis

Significant increase in criminal justice costs



Cost of Criminal Justice System

↑5.5 B
USD per year

↑122%
compared to previous law

Source: Estimated benefits and Costs of California's New Mandatory Sentencing Law
(Greenwood, Rydell, Abrahamse, Caulkins, Chiesa, Klein 1994)

18

Limitations

Limitations of research study

1. Time Period of Research Study

Research was conducted shortly after the enactment of law.

For example: No incapacitative effect could be observed until only after the extensions of the terms of offenders began.

2. Parameter Definition

No control for various demographic and policy parameters

For example: The definitions of "violent" and "serious" felonies

3. Variations in Existing Laws

Variations in existing laws in each state may affect crime patterns.

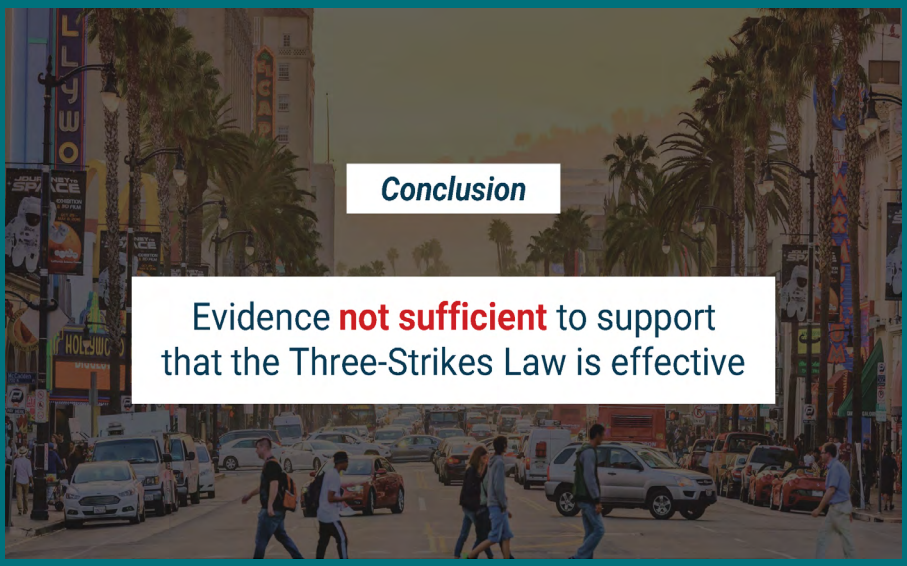
For example: Pre-existing habitual offender statutes similar to the Three-Strikes Law and/ or other types of enforcement actions.

4. Small Sample Size

2/3 of states were excluded from our analysis.

Source: An Early Assessment of Implementation and Effects

19



03

Second Runner-up
Per bag trash collection fee in New Taipei city

There has been a general awareness of environmental protection in recent years. People care more about their living quality. Thus, we start to investigate the policy related to the reduction of solid waste generation. Eventually, we noticed the per bag trash collection fee implemented by Taipei and New Taipei city government and we started to research and analyze this policy.

Comments from students

HOU Che

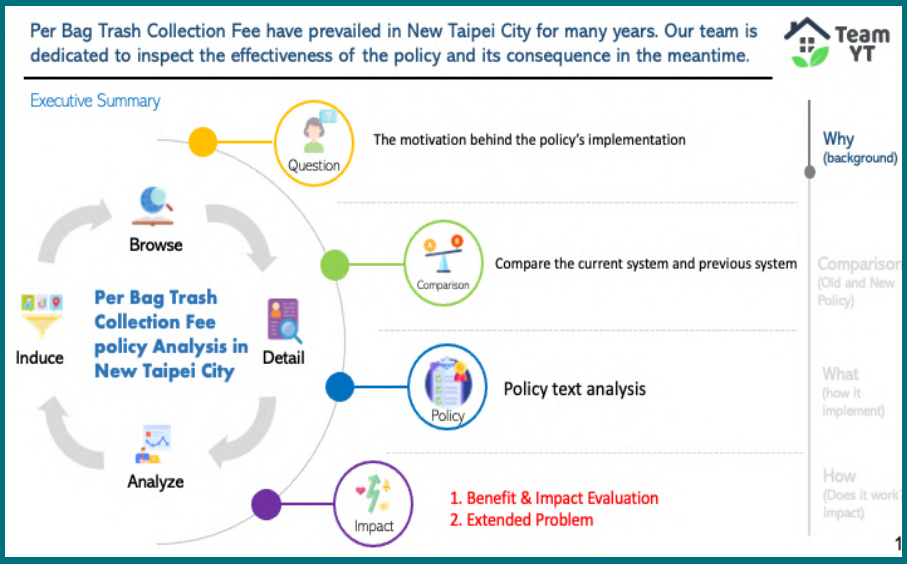
HUANG Yaoting

SHEN Yutung

WANG Zih Ling

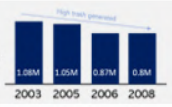
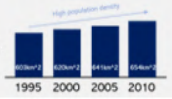
It's our pleasure, and an honor, to participate in ISS. Thanks to Economic Research Centre's endeavors, this summit provided us with an ideal opportunity to gain insight and understanding of the policy we are concerned about. We sincerely acquired knowledge from those who are brilliant and talented.


Per Bag Trash
Collection Fee
In New Taipei City
Team
YT
Yu Tung, Shen
Yaoting, Huang
Hou, Che
Zih Ling, Wang
International
Student
Summit
2021


Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. Our team is dedicated to inspect the effectiveness of the policy and its consequence in the meantime.
Team
YT
Executive Summary
Question
The motivation behind the policy's implementation
Why
(background)
Browse
Comparison
Compare the current system and previous system
Comparison
(Old and New Policy)
Induce
Per Bag Trash Collection Fee policy Analysis in New Taipei City
Detail
Policy
Policy text analysis
What
(how it implement)
Analyze
Impact
1. Benefit & Impact Evaluation
2. Extended Problem
How
(Does it work
Impact)

Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. The chapter focuses on "Why" behind the policy, which is categorized in three dimension.

Team YT

Background	Key Reasons	Data
1998 in Taipei City	Trash: The amount of waste in New Taipei city has leveled off in relatively high numbers.	
	Land: There was little land available for waste disposal and managing waste in New Taipei City.	
New Taipei City	Opposition: The awareness of environment protection in Great Taipei Sparked a wide opposition against new erection of dumping place.	
	Violation: The trash collection fee per volume of water policy violates the "User-Pay-Principle" for most households.	Boost the Establishment

Why (background)
Comparison (Old and New Policy)
What (how it implement)
How (Does it work? Impact)

2

Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. The chapter focuses on the comparison between the old and the new policy.

Team YT

The difference between old and new

VS

How it Charges?

Garbage Fee Based on Water Consumption	Garbage Fee Charged with Designated Bag
Charged by water usage	Charged by Garbage produced
Is it positive correlation?	
Is it efficient?	

0.554-0.668 kg/person
100-600 NT$ per person

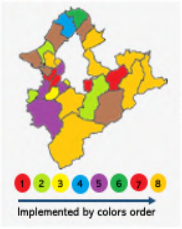
Why (background)
Comparison (Old and New Policy)
What (how it implement)
How (Does it work? Impact)

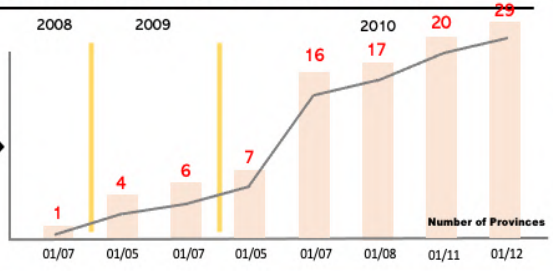
3

Per Bag Trash Collection Fee are implemented according to different locations and times as well. In this slides, we put emphasis on the evolution of the Trash Fee Policy.

Team YT

Place and Time





Why (background)

Comparison (Old and New Policy)

What (how it implement)

How (Does it work? Impact)

The Reason

Difficulties of the Implementation

Vast Territory 2,053 km^2

Large Population 4.01 million

High Density 2,000/km^2

Huge Urban-Rural Gap (Compare to Taipei City)

4

Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. The chapter focuses on "What is the policy about?", which contains five dimensions.

Team YT

Target Group & Actions/Tools

The designated garbage bag produced by the government

Official price is 0.36 NTD per litter (Higher than private bags)

residents who refuse to follow the rule be fined about 1,200-6,000 NTD.

based on the "User Principle"

Format Price
3L NT$21
5L NT$36
14L NT$100
25L NT$180
33L NT$237

Business waste produced in factories excluding

Why (background)

Comparison (Old and New Policy)

What (how it implement)

How (Does it work? Impact)

5

Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. The chapter focus on "The Coordinated Sets of Measures", which contained four supporting measures.

Team YT

Coordinated sets of measures

In order to implement the policy more efficiently, the government had launched several supporting measures.

Reusable Double -functions eco-friendly bag	Second-hand reBAG platform	The Coupon of the Designated Garbage Bags	Golden Village Recycling Station

Why (background)
Comparison (Old and New Policy)
What (how it implement)
How (Does it work? Impact)

6

Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. The chapter focuses on "Benefit Evaluation", which proved the effectiveness of the policy.

Team YT

Change in the amount of Garbage

1.08 to 0.43 M
Tons in merely 6 years

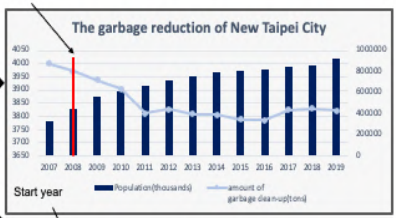
60%
decrease
The amount of garbage clearance

0.63 to 0.29KG
person/day in 13 years

54%
decrease
Garbage clearance per capita

HIGHLY CORRELATED

Start year



Source: Chen, Hsiu-Min. "垃圾費隨袋徵收費用政策之研究-以新北市為例." *Department of Political Science College of Social Sciences National Taiwan University Master Thesis Proposal*, 2020

Why (background)
Comparison (Old and New Policy)
What (how it implement)
How (Does it work? Impact)

7

Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. The chapter focuses on "Benefit Evaluation", which proved the effectiveness of the policy.

Team YT

Recycle Rate

25.9% to **57.8%**
Recycling rate grew in **12** years.

6.46% to **17.68%**
Leftover recycling rate grew in only **4** years.

Great Significance
on the increase of leftovers recycling.

Source: Chen, Hsiu-Min. "垃圾費隨袋徵收費用政策之研究-以新北市為例." *Department of Political Science College of Social Sciences National Taiwan University Master Thesis Proposal*, 2020

+123%
Increase Recycling Rate

+173%
Increase Leftover recycling rate

- Why (background)
- Comparison (Old and New Policy)
- What (how it implement)
- How (Does it work? Impact)

8

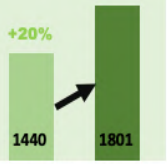
Per Bag Trash Collection Fee have prevailed in New Taipei City for many years. However, it still provokes some extended problems.

Team YT

Extended Problems

Throw Away Illegally

1. **Some Citizens don't want to spent on the Designated Garbage Bags.**
2. **They just throw it away illegally in wild with ordinary plastic bags.**
3. **The government still can't figure a way to solve completely.**



The Number Of Dirty Spots

Plastic Bags in the Designated Garbage Bag

1. **Taiwanese are accustomed to put trash into plastic bag and then put it into designated garbage bag.**
2. **This phenomenon occurs more in traditional market due to the lack of universal implementation**

Multi-functional bags

The government can't solve the problem efficiently

- Why (background)
- Comparison (Old and New Policy)
- What (how it implement)
- How (Does it work? Impact)

9


THANK YOU
Taipei City
Team YT
Yu Tung, Shen
Yaoting, Huang
Hou, Che
Zih Ling, Wang
International Student Summit 2021
10

Research Topic:

Crime

04 Is juvenile incarceration effective?

Giselle KIM

Naoki ONO

The United States has been showing growing trends of spending in the confinement and incarceration of young people. Juvenile incarceration is a policy used to prevent criminal activity. We plan to analyze if juvenile incarceration is effective in disincentivizing young adults into committing a crime, or if they tend to cause greater harm to society. It has been found that Juvenile detention increases the probability of dropping out of high school and committing crimes once again. One way to reduce the probability of young children committing crimes could be the improvement in their education.

Is Juvenile Incarceration effective?

Giselle Kim, Naoki Ono

26 JUNE 2021

Agenda

01 Introduction

02 Why do juvenile prisons exist?

03 Economic Costs of Juvenile Prison

04 Empirical Framework

05 Results

06 Conclusion

Introduction

Wee see expenditures per person have grown more in incarceration rather than in education in the last decade

44% increase in average cost of **confinement**. ($214.620/juvenile/year).

11% expenditure per person increase in USA **education**

Number of **detained** youth dropped 14% since 2014

Number of **trials** dropped by approximately 20% since the referred year

Why do juvenile prisons exist?

Cost of incarceration deters people from committing crimes

Costs involve the **probability** of getting caught and the **severity** of punishment

Highly damaging crimes should involve greater probability of getting caught and harsher punishments

---

The government must **invest** in increasing the cost committing crimes

Costs for juvenile prisons are **greater** than for adult criminals

Economic Costs of Juvenile Prison

The expected benefits may be overtaken by the costs

Cost of returning to school may **increase** significantly

Conditions in the facilities could affect **mental health**

Poor **social environment** may incentivize criminal activity

Higher **education costs** may provoque more offenses

Empirical Framework

Effects on the probability of graduating and recividism

$$Y_i = \beta_0 + \beta_1 JI_i + \beta_2 X_i + \epsilon_i$$

instrumental variable: tendency of the judge to order a juvenile to be placed in custody

Results

Juvenile incarceration has a negative impact in human capital

	OLS	IV
High School Graduation	-7.3%	-12.5%
Recidivism	16%	23.4%

Juvenile incarceration can also affect highly damaging crimes

	OLS	IV
Homicide	2.1%	3.5%
Violent Crime	6.1%	14.9%
Property Crime	4.7%	14.2%
Drug Abuse	7.8%	9.7%

Lochner (2004) estimates that education has great effects in reducing crime (violent and property)

Conclusion

Juvenile Incarceration has shown greater social costs than benefits

Higher probability high school drop outs and recidivism

Annual expenditures per juvenile have increased more in incarceration than in education.

Current trends in criminal detention: less efforts, longer stays, better education

Further Studies: Impact of the length of stay and interaction with education

TU
谢谢!
Thanks!

Research Topic:

Education

05 Did gratuity improve equity in the access to higher education in Chile?



Maria Carolina KREFFT Victoria OVANDO Josefina WAUGH

The policy that we are studying was defined in President Bachelet´s program as the "gradual advance in the universal and effective gratuity of higher education. This public policy focuses on improving equity through improving access to higher education. In our work, we investigate the effects of gratuity on access to education in Chile. In its first year of implementation, the gratuity did not produce gains in terms of improving immediate access to higher education for the population most exposed to the benefit. Results have shown that it did not have an impact on improving equity, which was one of the purposes that motivated it.

¿Did gratuity improve equity in the access to higher education in Chile?

Team Krefft
Maria Carolina Krefft
Victoria Ovando
Josefina Waugh

Meet the Team

Josefina Waugh

Victoria Ovando

María Carolina Krefft

From Pontificia Universidad Católica de Chile

Background in Chile

n1.

Battle with the inequallty:
Most unequeal country in the OECD (2019)

The Gini index for Chile, after taxes and transfers, is 0.47.

Big advances in diminish Social Inequiality

Gini index has fallen around 10%

n2.

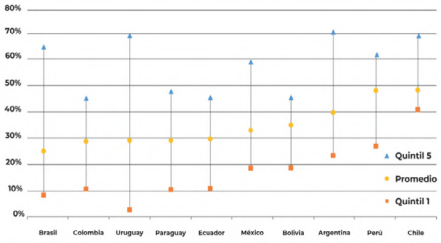
Significant increase in access to higher education in recent decades, from 245 thousand students in 1990 to more than 1.2 million in 2020.

This has allowed it to advance rapidly in a greater coverage of this educational level, as well as to significantly reduce the socio-economic gaps, although these continue to be of considerable magnitude.

Background in Chile

In the past 3 decades, the impressive increase in the coverage of higher education has allowed Chile to rank above the average of the OECD countries and as leaders in the region.

NET ENROLLMENT RATE IN HIGHER EDUCATION, COUNTRIES OF LATIN AMERICA



Fuente: Elaboración propia a partir de información de CEDLAS publicada a marzo de 2021. *Los datos corresponden al año 2018, excepto para Chile (2017), Uruguay (2017) y Argentina (2019).

Why?

Students Protests in 2011

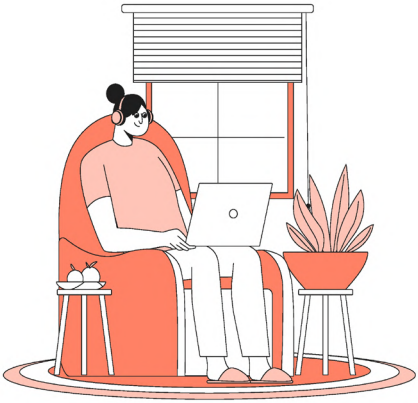
The demands of the youngest were based on free and quality higher education

A way to achive universal gratuity in higher education

Eliminate the "financial gaps" that have traditionally discriminated against the poorest sectors of the population

Final Goal: increase equity in access by reducing socioeconomic gaps

Our Study: we analyze what the impact of free tuition has been on improving the access of lower-income students to this educational level.



What was the policy?

1. Budget path
2. Legal way

Budget path

2015

PRESIDENT BACHELET INTRODUCES GRATUITY IN THE NATIONAL BUDGET FOR 2016.

2017

TECHNICAL-PROFESSIONAL ESTABLISHMENTS ARE INCORPORATED.

2018

EXTENSION OF THE BENEFIT TO THE SIXTH DECILE.

Legal path: in detail

Law N° 21.091, promulgated in 2018.

Voluntary subscription

High educational institutions are free to subscribe to this free system (as long as they meet certain requirements.)

Student fee

Prohibition of charging fees to elegible students. The State will finance the equivalent of a regulated fee for each beneficiary, a value that will be determined by a committee.

Gradual and permanent

Starts financing decils 1-6, and as structural fiscal revenue increases with respect to trend GDP, it will move towards deciles 7 to 10.

Does it work?

01

Difference-in-difference model (DD)

It allows estimating the average effect of gratuity on the access rate of the population eligible to receive the benefit.

Assumptions:
1) Criteria that determine eligibility for the benefit are exogenous
2) Similar or parallel trajectory if the policy had not been implemented

02

Triple difference model (DDD)

Makes a comparison based on two dimensions, which are related to the degree of exposure to the policy whose impact is to be evaluated, in addition to making the distinction between periods before and after introduction of the policy.

Divide population according to:
i) priority or non-priority
ii) Scientific-humanistic vs technical-professional education or NEM> = 475 vs NEM <475
Assumptions:
1) Similar or parallel trajectory if the policy has not been implemented

Does it work?

RESULTS

In its first year of implementation, the gratuity did not produce gains in terms of improving immediate access to higher education for the population most exposed to the benefit, that is, priority students graduated from scientific-humanist secondary education, and therefore, it did not had an impact on improving equity, which was one of the purposes that motivated it

Is it the best policy to make a change?

Research Topic:

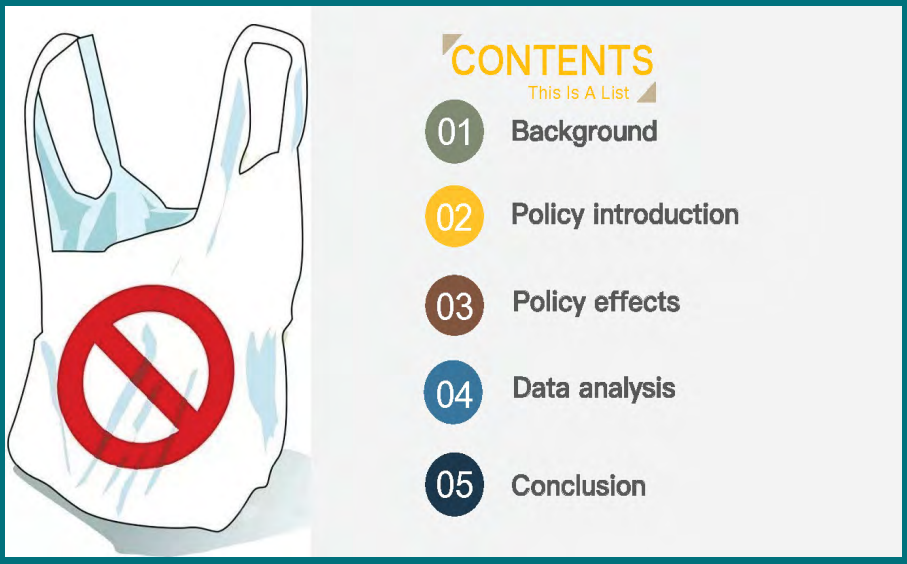
Environment

06 The economics of plastic bag legislation in South Africa

LIU Xinyi He Zhongwen

About 8 billion 'flimsy' plastic carrier bags with a thickness of about 17μ were distributed in South Africa annually (Wilson & Smit, 2002). South Africa passed the plastic bag regulation in 2002 to bring down the usage of it, where Initially all retailers were obliged to charge consumers for bags, but shortly this obligation became applicable to supermarkets. We found that the increase in the price of plastic bags would have to be considerable to induce a noteworthy change in consumption. Alternatively, the reuse and recycling avenues need to be promoted. Compared with the policy restricting the use of plastics, it is more important to strengthen people's awareness of environmental protection from the cognitive level.


The economics of plastic bag legislation in South Africa
WELCOME
—— HE Zhongwen
LIU Xinyi


CONTENTS
This Is A List
01 Background
02 Policy introduction
03 Policy effects
04 Data analysis
05 Conclusion

01 Background

1 The widespread use of plastic bags

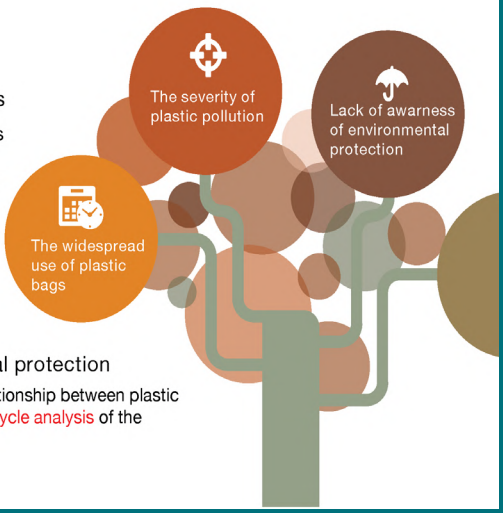
· About 8 billion 'flimsy' plastic carrier bags with a thickness of about 17μ were distributed annually. (Wilson & Smit, 2002)
· "Free of charge"

2 The severity of plastic pollution

The extensive use of plastic bags could damage the environment and contribute to livestock and marine life fatalities...

3 Lack of awarness of environmental protection

The policy makers are unaware of the relationship between plastic and environment. There had been no life cycle analysis of the various carrier bag alternatives.



02 Policy Introduction

2002

The primary idea:
In the Schedule of Plastic bag Regulations was to
Restrict the production of non-reusable plastic bags and unnecessary use of excessive amounts of disposable thin plastic film for packaging.

2003

Revision of regulations:
Through the public participation process involving government, labor and business representatives,
1.A minimum thickness of 30μ for plastic bags (a 20% margin of flexibility for five years. effectively lowered this to 24μ)
2.Specifications on the ink to plastic ratio.
3.Transparency regarding the cost of the bags.
4.A mandatory levy on each bag.

Phase 1:

(May 2003 to July 2003)
24μ plastic bags cost 46c each
2c cost-recovery levy was ostensibly earmarked for environmental purposes.

Phase 2:

(August 2003 to June 2004)
Plastic producers lower 24μ bag price to 32c. Retailers absorbed 15c of this cost, leaving the public to pay 17c per bag.
The levy increased to 3c.

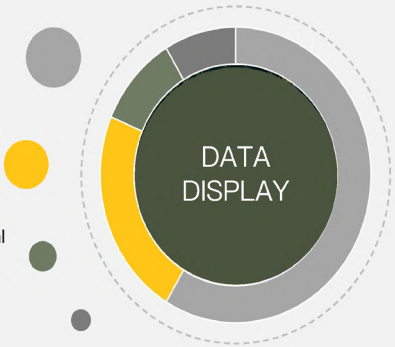
03 Policy Effects

Data results

1. Following the levying of a charge of 46c, the use of plastic bags fell by 80%.
2. Following the levying of a charge of 17c, the sales increased to 30% of the original production capacity

Consumers response

Accoridng to the survey of Ryan and Rice:
1. 82% of respondents viewed an environmental levy on bags positively.
2. If faced with such a levy, 56% said that they would bring their own shopping bags.



04 The factors that affect the policy effects

4.1 Price of the plastic bags

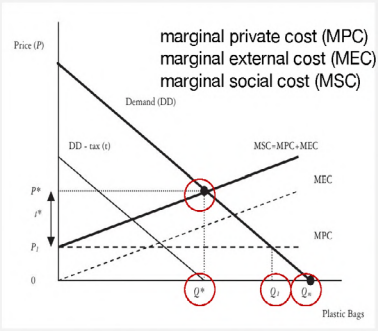


Figure 1. Stylized diagram illustrating the costs of Thin plastic bags in South Africa

Source: Hasson, Reviva, Leiman, Anthony, and Visser, Martine. "THE ECONOMICS OF PLASTIC BAG LEGISLATION IN SOUTH AFRICA." The South African Journal of Economics 75.1 (2007): 66-83.

01 Table analysis

Qm: When bags are distributed for free, the public demand Qm.
Q1: When P = P1 (P1 = MPC) consumption falls to Q1.
The optimal Pigouvian tax (t*) is the difference between P* and P1, and equates DD with MSC.

02 Results

Bag pricing could constrain thin plastic bag use effectively.
*A low price elasticity of demand for the bags would constrain such a tax's effectiveness.

04 The factors that affect the policy effects

4.2 Thickness of the plastic bags

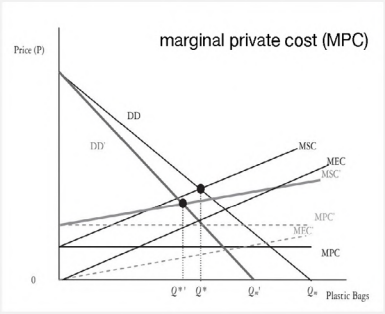


Figure 2. Regulation Approach: Increasing theThickness of Plastic Bags

01 DD pivot to DD'

Qm decreases to Qm': Thicker bags can increase packing efficiency and removing the need for double bagging. Their greater potential further reduces the number of packets consumed.

02 MPC shift upwards (MPC')

It shows the cost of producing bags increases with the gauge of plastic used.

03 MEC to MEC'

Heavier gauge packets reduce the negative externalities of plastic packets by increasing recycling and reuse.

Source: Hasson, Reviva, Leiman, Anthony, and Visser, Martine. "THE ECONOMICS OF PLASTIC BAG LEGISLATION IN SOUTH AFRICA." The South African Journal of Economics 75.1 (2007): 66-83.

04 The factors that affect the policy effects

4.3 A Combination of MSC Pricing and Standards

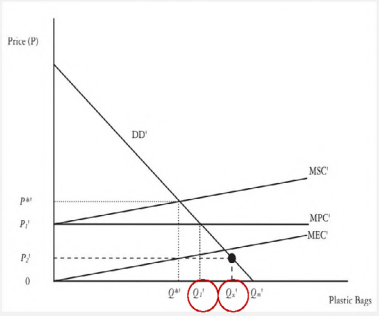


Figure 3. The South African Plastic Bag Legislation: A Combination of MSC Pricing and Standards

01 Table analysis

P1' & Q1': full MPC of thicker bags;
P2' & Qx': In August 2003 the consumer price decreased to P2'

02 Results

The current plastic bag policy combines regulatory and price measures. Such a mixed tool can achieve policy objectives more effectively than either instrument alone. (O'Connor)

Source: Hasson, Reviva, Leiman, Anthony, and Visser, Martine. "THE ECONOMICS OF PLASTIC BAG LEGISLATION IN SOUTH AFRICA." The South African Journal of Economics 75.1 (2007): 66-83.

05 Data Analysis

Effectiveness Assesment

01 **Have consumers been responsive** to these changes in price and standards?

02 How different were responses to **the initial price introduction** and to **the second price change**?

03 How important is **income** in determining price sensitivity?

04 Given **the short term trends**, what are **the long term expectations** of this policy?

05 Data Analysis

5.1 METHODOLOGY

Table 1. Retailer information[21]

Retailer	Market Share[22]	LSM[23]
Firm 1	7%	7-10
Firm 2	36%	6-9
Firm 3	29%	3-8
Firm 4	1%	1-6

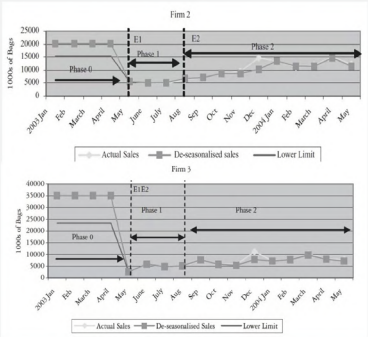
Total market share
=7% + 36% + 29% + 1%
= 73%

Firm 1 high income,
Firm 2 middle–upper income,
Firm 3 middle–lower income
Firm 4 lower income.
*LSM – Living Standard Measure. It gives an idea of the consumermarket, on a scale of 1–10

Source: Hasson, Reviva, Leiman, Anthony, and Visser, Martine. "THE ECONOMICS OF PLASTIC BAG LEGISLATION IN SOUTH AFRICA." The South African Journal of Economics 75:1 (2007): 66-83.

05 Data Analysis

5.2 The General Trend



01 Table analysis

1. The figure shows that phase 1 exhibits a substantial fall in bags used from consumption in phase 0

2. Following the August price decrease bag sales gradually increase.

Phase 0 : Before policy implementation
Phase 1 : 0-42c
Phase 2 : 42-17c

Source: Hasson, Reviva, Leiman, Anthony, and Visser, Martine. "THE ECONOMICS OF PLASTIC BAG LEGISLATION IN SOUTH AFRICA." The South African Journal of Economics 75.1 (2007): 66-83.

05 Data Analysis

5.3 Percentage change and price Elasticity

Table 2. Percentage decrease in plastic bags issued relative to pre-legislation levels

	Price change 0-46c gauge change to 24 μ		Price change 0-17c gauge change to 24 μ	
	Actual	Corrected for bag size (LL)	Actual	Corrected for bag size (LL)
Firm 1	−67.70%	na	−52.78%	na
excl. May03	−77.21%	na	na	na
Firm 2	−74.07%	−65.43%	−49.16%	−32.21%
Firm 3	−87.44%	−81.17%	−79.61%	−69.42%
Firm 4	−60.00%	−45.82%	−18.96%	8.06%

Table 3. De-seasonalised absolute arc elasticities of demand (24l bags)

	Market Share[33]	Price change 46-17c
Firm 1	7%	0.41
excl. May 2003		0.76
Firm 2	36%	0.70
Firm 3	29%	0.52
Firm 4	1%	0.72

01 Table analysis

1. While local plastic bag manufactures may have been heavily impacted by the legislation, these effects were moderated by the August 2003 price decrease.

2. However, consumer responses to this price fall were **price inelastic**

.

Source: Hasson, Reviva, Leiman, Anthony, and Visser, Martine. "THE ECONOMICS OF PLASTIC BAG LEGISLATION IN SOUTH AFRICA." The South African Journal of Economics 75.1 (2007): 66-83.

05 Data Analysis

5.4 Long term trend

01 Table analysis

The longer-term trend observed from Figure indicates that bag consumption has steadily picked up.

05 Questions review

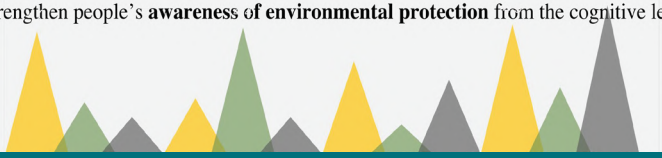
• **Have consumers been responsive** to these changes in price and standards?	**Public reactions to both** indicated that these policies do affect use of plastic bags in the short term.
• How different were responses to **the initial price introduction** and to **the second price change**?	**The initial 'price shock' had the greatest impact**. public became accustomed to the charge, its effectiveness declined
• How important is **income** in determining **price sensitivity**?	The 'income effect' initially appeared **Minimal**
• Given **the short term trends**, what are **the long term expectations** of this policy?	The longer term trend observed from indicates that **bag consumption has almost returned to original levels.**

06 Conclusion

Charging for the packets means that they are now seen **as economic goods** with a scarcity value. This **cognitive shift** has changed the public's general approach to bags and their reuse.

The implication for policy is that if plastic bag litter is still deemed a problem, the **price increase would have to be considerable** to induce a noteworthy change in consumption. Alternatively, the **reuse** and **recycling avenues** need to be promoted.

Compared with the policy restricting the use of plastics, it is more important to strengthen people's **awareness of environmental protection** from the cognitive level.



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Thanks

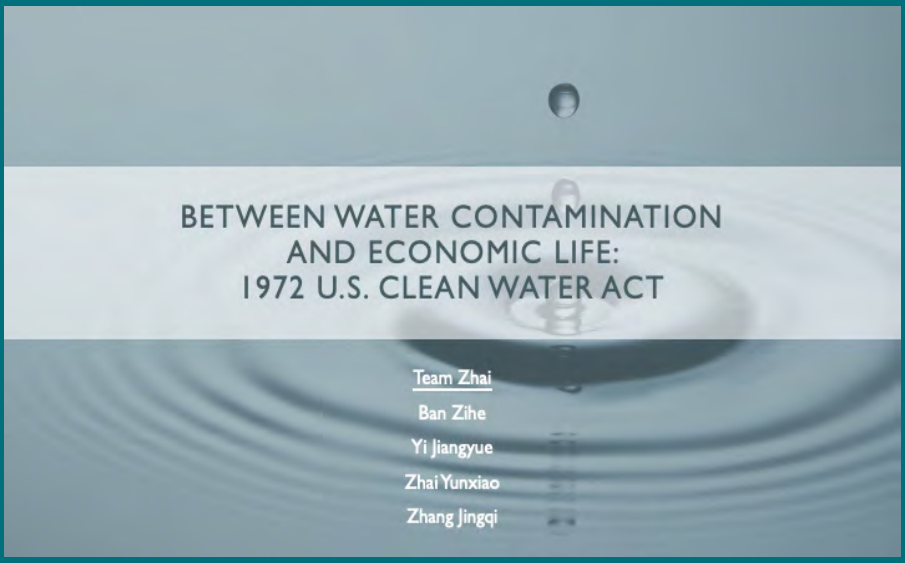
End

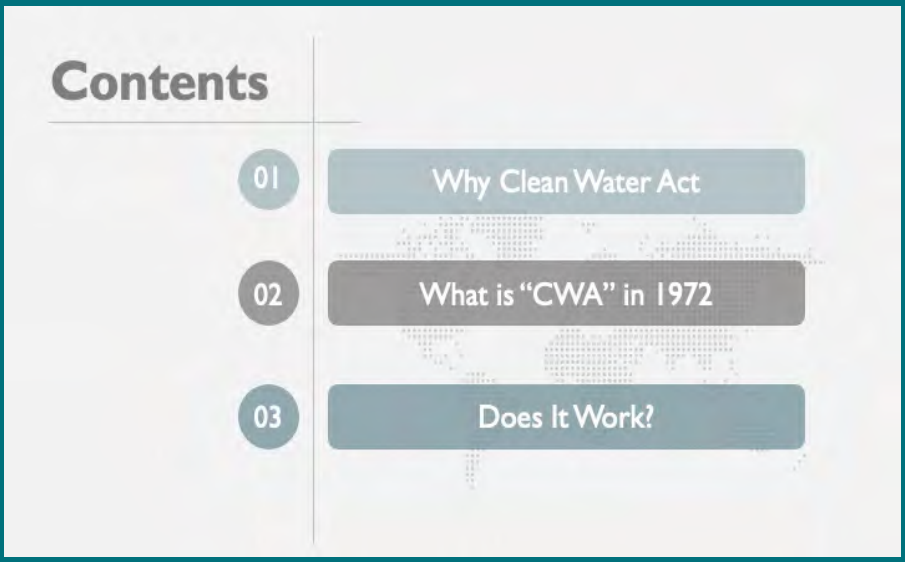
07 Between water contamination and economic life: 1972 U.S. Clean Water Act




BAN Zihe YI Jiangyue ZHAI Yunxiao ZHANG Jingqi

The U.S. Clean Water Act(CWA) was implemented in 1972 to restore and maintain clean and healthy waters. In this paper, We evaluate water pollution control after the enactment of the Clean Water Act. The evaluation is based on water quality indicators, overall trends, and the correlation between grants and pollution levels. A time series plot is used to illustrate the change of log mean home value before and after the enactment of CWA. Most of the percentage increase in mean home value is modest, and the only relatively significant increase takes place 3 years before the enactment. The overall estimation of CWA's influence on social welfare is counter-intuitively modest.


BETWEEN WATER CONTAMINATION
AND ECONOMIC LIFE:
1972 U.S. CLEAN WATER ACT
Team Zhai
Ban Zihe
Yi Jiangyue
Zhai Yunxiao
Zhang Jingqi


Contents
01
Why Clean Water Act
02
What is "CWA" in 1972
03
Does It Work?

Why Clean Water Act

1.1. Water Contamination Before CWA

- Water Contamination Situation
- Public Health Influence
- Economic Influence

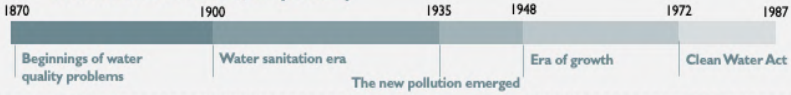
1.2. Legislation and Regulation Before CWA

- National Antipollution Standards
- Catalyst of Legislation

Source:
Griffith, J., Duncan, R. C., Riggan, W. B., & Pellom, A. C. (1989). Cancer mortality in US counties with hazardous waste sites and ground water pollution. Archives of Environmental Health: An International Journal, 44(2), 69-74.
United States. Citizens' Advisory Committee on Environmental Quality. (1971). Annual Report to the President and to the Council on Environmental Quality: 1971-1973. US Government Printing Office.
Boyle, K. J., Kuminoff, N. V., Zhang, C., Devanney, M., & Bell, K. P. (2010). Does a property-specific environmental health risk create a "neighborhood" housing price stigma? Arsenic in private well water. Water resources research, 46(3).

1.1 Water Contamination Before CWA

Timeline Of US Water Quality History



Silent Spring

Rachel Carson

Silent Spring by Rachel Carson, was published in 1962, which chronicled the harmful environmental impacts bringing by the unrestricted application of pesticides. Carson accused the chemical giants of spreading misleading messages, and public officials of accepting the industry's political contributions undoubtably.

Water Contamination Situation

According to *Second Annual Report of the President's Council on Environmental Quality* in 1971:

- The amount of fish death due to pollution increased from 6 million in 1960 to 41 million in 1969; Shrimp capture amount in 1965 shrank to 0.2 percent of its level in 1936;
- Over 90% basins under study considered as contaminated;
- Nitrate and sulfate compound rose in most US waters by the mid-20th century;

Three Main Sources of Pollution Worsening

Internal combustion engines made spills more frequent in rives

As organic dispose rose up, high ammonium plagues prospered

Upper Mississippi River pollution exacerbated by navigational structures

1.1 Water Contamination Before CWA

Public Health Detriments

Case of Chicago:

In Chicago river and linked Lake Michigan (water source of the city), wastewater from City repeatedly caused breakouts of cholera and typhoid, two diseases transmitting through contaminated water.

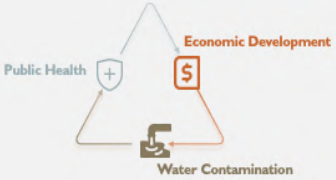
Chemical Influence: Cancer/Chronic Disease

750 Mn tons chemical wastes → poured → 30000-50000 hazardous waste site (HWSs)

In 1989 Griffith et al, committed a study among 593 HWSs nationwide where dependent in only contaminated water source, which revealing a significant change in cancer mortality rates, extracted from US trends among HWSs.

Economic Evaluation: Property Price, GDP, Economic Sustainability

Many studies have revealed the relation between property price and ground water contamination in the venue in different countries (Boyle et al., 2010). The same correspondence also sound in US before CWA (Bin & Czajkowski, 2013).



1.2 Legislation and Regulation Before CWA

Previous National Legislation

- 1948 Water Pollution Control Act
- 1956 Water Pollution Control Act Updates
- 1965 Water Quality Act

National Antipollution Standards

Water pollution control act in 1948, is the first nationwide law focusing on water quality. Between 1902 to 1948, there were 100 bills passed for the same purpose. However, the effects could not be considered as surely satisfactory.

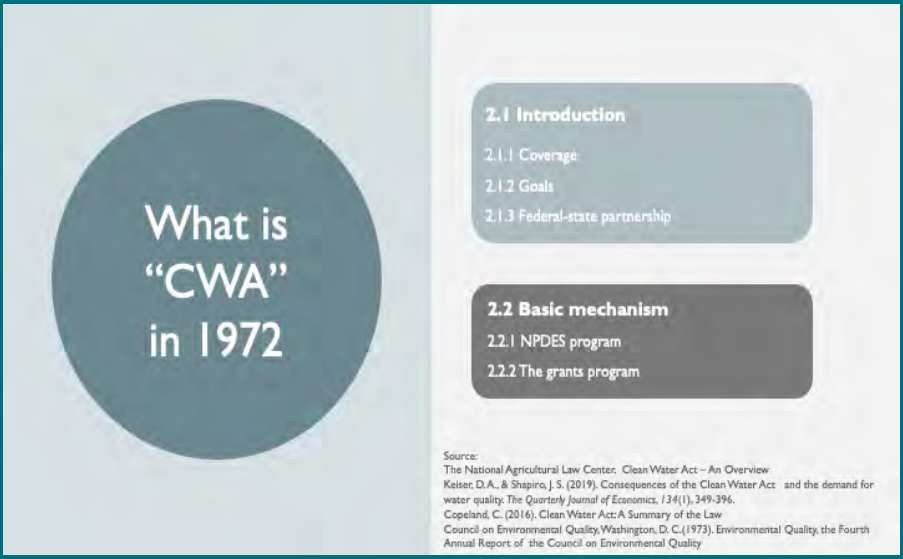
CUYAHOGA River Fire: Catalyst of CWA Legislation

Cuyahoga River Fire Nov.3 1952
Cleveland, Ohio

The Cuyahoga River was once one of the most polluted rivers in the United States as represented by the multitude of times it has caught fire, a recorded number of thirteen starting in 1868. Inspired by the 1969 river fire, Congress was determined to resolve the issue of land pollution, National Environment Policy Act (NEPA) which was signed into law。

Delayed Implementation by WWII

US involvement in World War II outweighed concerns over improving water quality. Institution before EPA, PHS, which standing for Public Health Service, issued guidelines for maximum allowable concentrations of mercury and several other toxic pollutants (Stets, 2015)



2.1 Brief introduction

2.1.1 Coverage

Navigable waters in the United States.

Specifically:

- **Territorial seas, traditional navigable waters**;
- **tributaries** of these waters;
- **lakes, ponds, impoundments and wetlands** of jurisdictional waters.

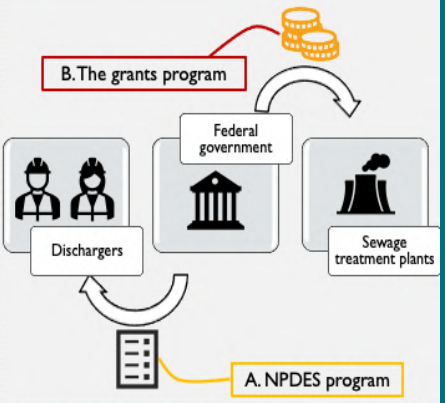
2.1.2 Goals

1. Zero discharge of pollutants by 1985
2. water quality that is both "**fishable**" and "**swimmable**" by mid-1983.

2.1.3 Federal-state partnership

The federal government	National standards and regulations
States	Daily enforcement

2.2 Basic mechanism



1. Regulatory requirements for industrial & municipal dischargers
2. Federal financial assistance to improve sewage treatment

2.2.1 "NPDES" program

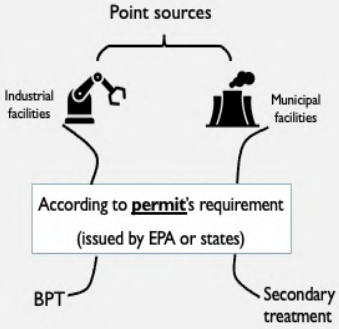
NPDES : the National Pollutant Discharge Elimination System

↓

a permit system
for regulating point sources of pollution

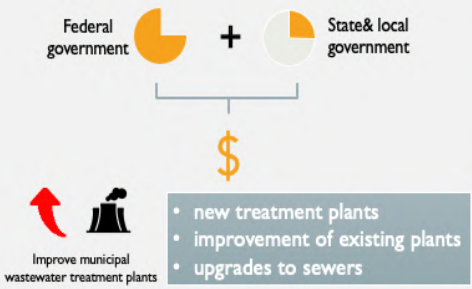
↓

any pollutant discharged from a point source into nation's water is **illegal**; unless it has a **permit**.



NPDES program covers more than **65,000** conventional industrial and municipal dischargers, and over **150,000** industrial and municipal sources of stormwater discharges. ➡ MUST GET PERMITS!

2.2.2 The grants program



Allocation Of the Grants

Across states :

- states population
- forecast population
- needs of wastewater treatment

Within a state: "priority list"

- Severity of the pollution
- Population affected
- Need for high quality water……)

To make one-river mile fishable——**1.5 million** a year

Cost more than **650 billion** from **35,000 grants** in total to improve wastewater treatment plants.

Does it work?

Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics*, *134*(1), 349-396.

3.1 Pollution Control Evaluation

3.1.1 Improved Indicators

3.1.2 Trend Analysis

3.1.3 Effects of Grants on Pollution

3.2 Economic Effects

3.2.1 Home Value & Housing Demand

3.2.2 Cost Effectiveness

3.2.3 People's Value

3.1.1. Improved Indicators

TABLE I

WATER POLLUTION TRENDS, 1962–2001

	Dissolved oxygen deficit	Not fishable	Biochemical oxygen demand	Fecal coliforms	Not swimmable	Total suspended solids
Panel A: Linear trend						
Year	−0.240***	−0.005***	−0.065***	−81.097***	−0.005***	−0.915***
Panel B: 1972 trend break						
Year	−1.027***	−0.015***	−0.124***	−255.462***	−0.018***	−1.113*
1972 to 2001 change	−5.583	−0.118	−1.794	−2,213.510	−0.114	−26.363

	Trend (1)			
Industrial Pollutants		Nutrients	General Water Quality Measures	
1. Lead (μg/L)	-0.099***	4. Ammonia (mg/L)	-0.039*** 18. Temperature (F)	0.024***

Water quality indicators present apparent decline of water pollution:

- Main indicators such as water zone not fishable and not swimmable decline at 0.5% per year and the cumulative declines reach 11% to 12%.
- Other indicators decline by more than 1% per year during 1962-2001.
- Specifically, in 1972, more dramatic decreases occurred to these indictors, demonstrating the effect of CWA.
- Other measure indicators in terms of industrial pollutants, nutrients indeed prove the improved water quality.

Insight: in a series of water pollution acts, 1972 CWA shows a clear influence.

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

3.1.2. Trends Analysis

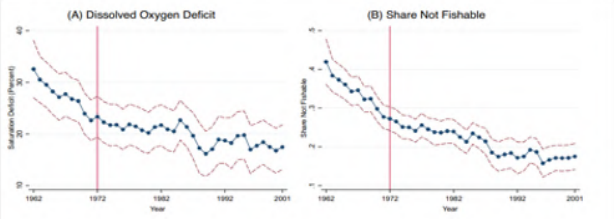


FIGURE II
Water Pollution Trends, 1962–2001

Take Dissolved Oxygen Deficit and Share Not Fishable for examples to evaluate the trend:

- The graphs shows no obvious evidence of a mean shift and break in water pollution in 1972.
- With more data except for DOD & SNF, there were even more rapid decline before 1972 than after this year, which is when the CWA was implemented.

Possible explanation for this trend slowdown:

- The investment in the Act took time to work.
- Exogenous forces drag water quality improvement backward.
- Water quality monitoring system upgrade.
- Lack of non-point pollution regulation.

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

3.1.3. Effects of Grants on Pollution

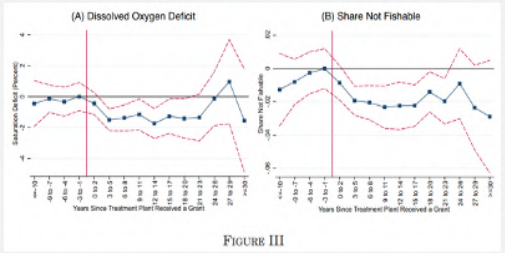


FIGURE III

TABLE II
EFFECTS OF CLEAN WATER ACT GRANTS ON WATER POLLUTION

Dissolved oxygen deficit (1)	Not fishable (2)	Not swimmable (5)
−0.681***	−0.007**	−0.004*

Correlation between CWA Grants and Water Pollution

FIGURE III: before 1972, the coefficient (percentage compare of downstream indicator over upstream) is close to zero, with moderate magnitude. But after 1972, the coefficient becomes -1%~-2%, signifying grants' effect on pollution.

TABLE II: with CWA, each grant can decrease Dissolved oxygen deficit by 0.7 percent or decrease the probability of downstream not fishable and not swimmable by 0.7% and 0.4%.

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

3.2.1. Home Value & Housing Demand

TABLE V

EFFECTS OF CLEAN WATER ACT GRANTS ON HOUSING DEMAND

	(1)	(2)	(3)	(4)
Panel A: Log mean home values				
Cumulative grants	−0.00022	0.00076	0.002486*	0.00024
	(0.002507)	(0.001409)	(0.001271)	(0.000328)
Plant FE, basin-by-year FE	Yes	Yes	Yes	Yes
Dwelling characteristics		Yes	Yes	Yes
Baseline covariates * year		Yes	Yes	Yes
Max distance homes to river (miles)	0.25	0.25	1	25

Data covers decennial census years 1970-2000.

- Response variable: Log mean home values of dwellings within 0.25/1/25 miles from downstream river.
- Explanatory variable: Cumulative grants of all previous years including census years.

Conclusion: The influence of grants on percentage change in mean home values is not significant.

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

3.2.1. Home Value & Housing Demand

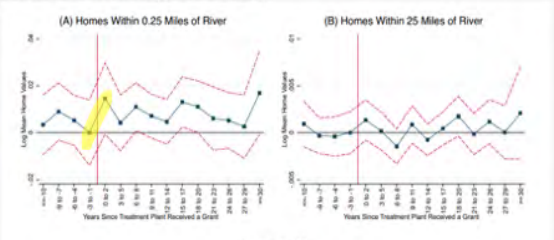


FIGURE IV

Effects of Clean Water Act Grants on Log Mean Home Values: Event Study Graphs

Similar conclusion as Table V:

(A) modest evidence that in the years after a plant receives a grant, the values of homes within 0.25 mile of the downstream river increase.

(B) no evidence that homes within 25 miles of the downstream river increase after a treatment plant receives a grant.

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

3.2.2. Cost Effectiveness

TABLE VI

CLEAN WATER ACT GRANTS: COSTS AND EFFECTS ON HOME VALUES ($2014BN)

	(1)	(2)	(3)	(4)
Ratio: Change in home values/costs	0.06	0.26	0.22	0.24
	(0.03)	(0.36)	(0.36)	(0.41)
p-value: ratio = 0	[0.05]	[0.46]	[0.55]	[0.56]
p-value: ratio = 1	[0.00]	[0.04]	[0.03]	[0.06]
Change in value of housing ($Bn)	15.92	89.25	73.7	91.97
Costs ($Bn)				
Capital: fed.	86.24	102.26	102.26	114.16
Capital: local	35.81	41.81	41.81	48.00
Variable	166.1	197.36	197.36	222.81
Total	288.15	341.44	341.44	384.97
Max distance homes to river (miles)	1	25	25	25
Include rental units			Yes	Yes
Include nonmetro areas				Yes

95% Confidence Interval

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

APPENDIX TABLE VII

HETEROGENEITY OF CLEAN WATER ACT GRANTS ON WATER POLLUTION AND HOME VALUES

	Regressions				Fitted Values		
Dependent Variable	Dissolved Oxygen Deficit (1)	Not Fishable (2)	Log Mean Home Values (3)	Log Mean Rents (4)	Cost Per Unit Dissolved Oxygen (5)	Cost Per River-Mile Fishable (6)	Change in Housing Values / Costs (7)
1. Cumulative Grants	0.129	-0.011	-0.00019	-0.00068	---	---	---
	(0.404)	(0.010)	(0.00081)	(0.00044)	---	---	---
... * Grant Projects Above $1.2 Million	-0.874**	-0.010	0.00052	0.00067	0.74	2.54	0.25
	(0.432)	(0.012)	(0.00082)	(0.00043)	[0.51 , 1.32]	[1.66 , 5.46]	(0.26)
5. Cumulative Grants	-0.441**	-0.018***	0.00016	-0.00005	---	---	---
	(0.185)	(0.006)	(0.00035)	(0.00019)	---	---	---
... * Outdoor Fishing or Swimming is Common	-0.438	-0.003	0.00038	-0.00020	0.42	1.73	0.53
	(0.281)	(0.012)	(0.00063)	(0.00026)	[0.28 , 0.84]	[0.92 , 15.89]	(0.68)
6. Cumulative Grants	-0.632***	-0.012**	0.00015	-0.00016	---	---	---
	(0.166)	(0.005)	(0.00048)	(0.00021)	---	---	---
... * States with Pro-Environmental Views	0.044	-0.017*	0.00026	0.00010	0.53	1.08	0.32
	(0.322)	(0.010)	(0.00062)	(0.00027)	[0.28 , 5.78]	[0.71 , 2.26]	(0.33)

- In areas where a large share of people go fishing or swimming, the ratio of measured benefits to costs here is double the ratio for the mean grant.
- In states with pro-environmental views, they also have a greater benefits to costs ratio than that of the mean grant.
- The regression result accounted for these heterogeneity also presents high significance.

Source: Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics, 134*(1), 349-396.

BIAS ANALYSIS OF MEASURING SOCIAL WELFARE

- Bias1: incomplete information
- Bias2: response without experiencing
- Bias3: consideration over recreational demand or aesthetics when buying a house.
- Bias4: people's expectation
- Bias5: side effects of grants (e.g. increased city taxes)
- Bias6: supply side

Research Topic:

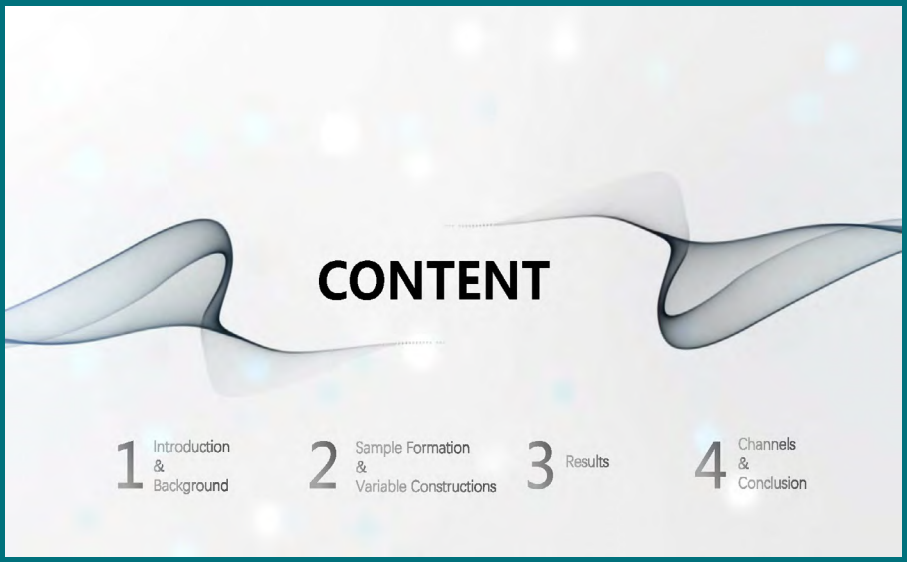
Health

08 The real effect of smoking bans: Evidence from corporate innovation Act

Liuqing Wang Jiangyuan Tian Yifan Jia Yihong Hou

U.S. state governments have banned smoking in workplaces as a means of limiting nonsmokers' exposure to second- hand smoke and to discourage smoking. We present and interpret the research paper which examines the impact of smoke-free laws from the perspective of knowledge creation. It has been found that smoke-free laws aiming at promoting healthier working environments can have real economic consequences in terms of promoting creative and innovative activities. This finding is particularly relevant because of the ongoing debate about whether to ban smoking in workplaces across the United States and the rest of the world.


The Real Effect of Smoking Bans:
Evidence from Corporate Innovation
Team Tian
Liuqing Wang | Jiangyuan Tian |Yifan Jia | Yihong Hou


CONTENT
1 Introduction & Background
2 Sample Formation & Variable Constructions
3 Results
4 Channels & Conclusion

1 Article background

1. Smoking is the world's leading preventable cause of death, killing nearly **6 million** people every year. By 2013, nearly 18 of every 100 American adults aged 18 years or older (approximately 42 million adults) smoked cigarettes.
2. The article examines the impact of **smoke-free laws** from the perspective of **knowledge creation** and identifies a **positive causal effect** of smoke-free laws on corporate innovation.
3. The tests exploit the staggered passage of smoke-free laws by various U.S. states since 2002, which ban smoking in workplaces.

Positive effect

1 Law: Background

U.S. state governments have banned smoking in workplaces as a means of limiting nonsmokers' exposure to second- hand smoke and to discourage smoking.

CDC categorizes workplace smoke-free laws into three categories

- **Banned**
- **Separately ventilated areas**
- **designated areas**

The article deems only the laws in the **first category** as effective workplace smoke-free laws because laws that restrict smoking to separately ventilated areas or designated areas cannot eliminate exposure to secondhand smoke

1 **Hypothesis 1:**
Smoke-free laws have a positive effect on corporate innovation.

Negative effects of smoking:

- on the brain
- on cognitive abilities
- inventors' health conditions and working hours and hence hampers corporate innovation
- clustering of nonsmokers attracting more productive inventors.

1 **Hypothesis 1A:**
Smoke-free laws have a negative effect on corporate innovation

Positive effects of smoking:

- nicotine has an immediate positive effect on (some) cognitive performance metrics.
- risk-taking provides another explanation for smoking to enhance innovation.
- the (short-term) positive affective feeling associated with smoking may enhance flexibility in thinking and thus facilitate creativity

2 Sample Formation: Data Set

The Patent 300®, developed by Harrity Patent Analytics, is the intellectual property industry's premier resource for **patent insights** and **competitive intelligence** on the world's leading technology organizations. The **Patent 300®** is an annual compilation of the **top 300 companies, organizations, and universities** in the patent field, based on the quantity of issued U.S. patents each year.

Show 100 entries Search:

RANK	ORGANIZATION	2020 PATENTS	CHANGE FROM 2019
1	INTERNATIONAL BUSINESS MACHINES	9435	0%
2	SAMSUNG ELECTRONICS CO., LTD.	8539	-1%
3	LG CORPORATION	5112	4%
4	CANON K.K.	3689	-9%
5	INTEL CORPORATION	3284	-12%

Sample: all U.S. public with a book value of total assets exceeding $5 million

↓

Characteristics: use historical location and incorporation data

↓

Collect patent and citation information

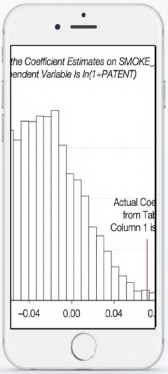
↓

Link each patent and its citations to a firm

2 Variable Constructions: 4 measures on patent count and patent citations

The first is the number of patents applied for (and subsequently awarded) by a firm in a given year.

The second is the sum of forward citation counts received by patents applied for by a firm in a given year.



Determining whether healthy working environments affect employees' productivity in innovative projects

The last 2 measures are the number of patents applied for (and subsequently awarded) and the number of citations per 1,000 employees

2 Variable Constructions: Control Variables

The author controls for **firm characteristics** that may affect corporate innovation, including firm size, cash holdings, R&D expenditures, return on assets (ROA), asset tangibility, leverage, capital expenditures, Tobin's Q, industry concentration (Herfindahl index based on sales), and firm age.

The author also controls for several s**tate-level variables** in our regressions, state gross domestic product (GDP) and population.

Finally, the author controls for **2 important state-level laws**: business combination laws and wrongful discharge laws.

2 Summary Statistics

Summary statistic

Variable	Mean	Std.Dev	P25	Median	P75
Patent	31.21	95.07	2.00	4.00	16.00
Citation	518.03	1484.51	12.38	60.35	274.77
Paten_Per_Employee	18.92	36.67	1.29	5.03	18.35
Citation_Per_Employee	426.46	1164.21	6.92	49.34	267.52
Employee(Thousands)	8.69	22.87	0.21	0.98	5.34
Cash	26.93%	26.26%	5.08%	17.75%	42.66%
Rd	11.68%	19.08%	0.32%	4.53%	14.19%
Rd_Missing	0.20	0.40	0.00	0.00	0.00
Roa	1.11%	33.82%	-3.02%	10.20%	17.85%
Ppe	43.15%	33.58%	17.56%	34.08%	60.19%
Leverage	18.95%	21.33%	0.33%	13.29%	29.97%
Capex	5.34%	6.51%	1.65%	3.32%	6.36%
Tobins_Q	2.40	2.09	1.20	1.69	2.73
H_Index	0.09	0.07	0.05	0.06	0.10
Firm_Age	21.02	15.68	9.00	16.00	29.00
State_Gdp($Trilions)	0.76	0.63	0.26	0.48	1.20
State_Population(Millions)	16.30	12.31	6.12	11.57	26.48
State_Unemployment	5.90%	1.99	4.61	5.41	6.68
State_Rd_Expenditures	2.92%	1.33	1.79	2.60	4.04
Democrat_Governor	0.44	0.50	0.00	0.00	1.00
State_College_Degree	34.57%	5.45%	30.54%	35.10%	39.52%
State_Smoker	18.07%	4.14%	14.67%	18.01%	21.57%
Business_Combination	0.91	0.29	1.00	1.00	1.00
Good_Faith	0.38	0.48	0.00	0.00	1.00

Source: Gao, H., Hsu, P. H., Li, K., & Zhang, J. (2020). The real effect of smoking bans: evidence from corporate innovation. *Journal of Financial and Quantitative Analysis*, *55*(2), 387-427.

3 Results: baseline regression & main results

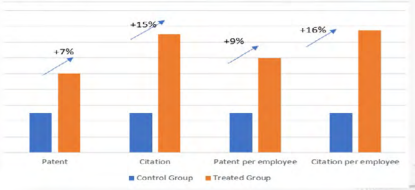
$$INNOVATION_{ist} = \alpha + \beta_1 \textbf{SMOKE FREE}_{st} + \beta_2 FIRM\ CHARACTERISTICS_{ist} + \beta_3 STATE\ CHARACTERISTICS_{st} + FIRM\ FE + REGION\ YEAR\ FE + \varepsilon_{ist}$$

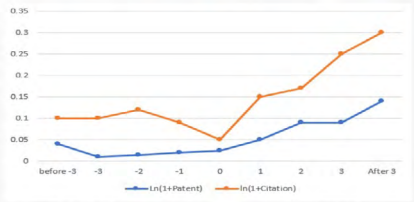
Results: all positive & statistically significant

Variable	ln(1+Patent)	ln(1+Citation)	ln(1+Patent_Per_Employee)	ln(1+Citation_Per_employee)
Smoke_Free	0.071***	0.138**	0.090***	0.148**
	(0.026)	(0.056)	(0.033)	(0.061)

Source: Guo, H., Hsu, P. H., Li, K., & Zhang, J. (2020). The real effect of smoking bans: evidence from corporate innovation. *Journal of Financial and Quantitative Analysis*, *55*(2), 387-427.

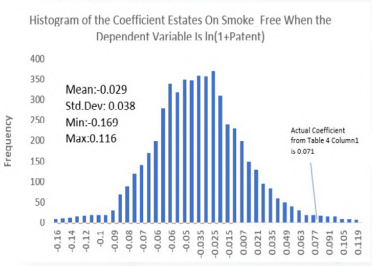
3 Results: sizable





Source: Guo, H., Hsu, P. H., Li, K., & Zhang, J. (2020). The real effect of smoking bans: evidence from corporate innovation. *Journal of Financial and Quantitative Analysis*, *55*(2), 387-427.

3 Results: two critical checks



A. Reverse causality concern

Weibull hazard model: all statistically insignificant

Variable	1	2	3	4
AVG_ln(1+Patent)	0.012 (0.379)			
AVG_ln(1+Citation)		0.115 (0.183)		
AVG_ln(1+Patent_Per_Employee)			0.145 (0.500)	
AVG_ln(1+Citation_Per_employee)				0.172 (0.231)

B. Robustness check

Limited to inventors located in the headquaters state

Variable	ln(1+Patent)	ln(1+Citation)	ln(1+Patent_Per_Employee)	ln(1+Citation_Per_employee)
Smoke_Free	0.043*	0.097*	0.054*	0.111*
	(0.023)	(0.053)	(0.032)	(0.062)

Source: Gao, H., Hou, P. H., Li, K., & Zhang, J. (2020). The real effect of smoking bans: evidence from corporate innovation. *Journal of Financial and Quantitative Analysis*, *55*(2), 387-427.

4 Channels & Conclusion: Channels that influence innovation

1. Improve local inventors' health
   → Improve innovation
2. Improve productivity of inventors who did not relocate
3. Reduce employees' exposure to secondhand smoke
   → Improve environment and health
   → Enhance productivity

4 Channels & Conclusion: Channels that influence innovation

4 Relocate productive inventors
→ Gain more, lose less innovative productivity.

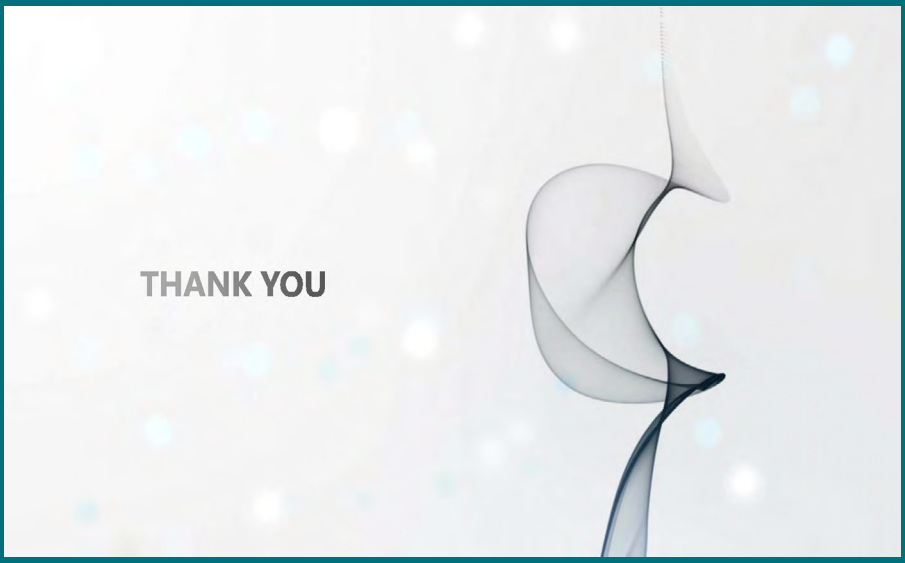
5 Reducing smoking-related expenditures
→ Invest in innovation

6 Reduce resentment caused by smoking
→ Promote innovation cooperation

4 Channels & Conclusion: Conclusion

Free-smoke laws aimed at promoting healthier working environments can have real economic consequences in terms of promoting creative and innovative activities.

It strongly supports the passage of smoke-free laws in other regions.


THANK YOU

Research Topic:

Housing Market

09 An analysis of the impact of mainland China's "limited purchasing order" on housing prices




LYU Zuohang XIE Chengxi XIE Lidan YU Shuhui

The real estate industry is both for investment and residence and its overheating will reduce people's living standards and increase systemic economic risks. It is important to identify and analyze policies that can effectively curb rapid housing price growth. This paper is a review paper of QIAO's research in 2012. His research conducts an empirical analysis on the panel data of 70 large and medium-sized Chinese cities from March 2009 to December 2011, calculate the 2011 Limited Purchasing Order effect on Housing price and House Trading Volume, using the Differences-in Differences (DID) method. According to the basic results of BP-LM test: the impact of policy on prices is about 2.5%, which is also significant in the economic sense. In terms of transaction volume, the significance fluctuates between 10% and 1%. The results also show that the policy will restrain the rise of housing prices in the short term. QIAO's research paper breaks out of the limitations of previous studies, not limited to monetary policy and macro policy, the Differences-in-Differences (DID) method is used to intuitively show the impact of the Limited Purchasing Order on commercial houses including first- and second-hand houses in the short term, to better verify the effect of the policy.

An Analysis of the Impact of Mainland China's "Limited Purchasing Order" on Housing Prices

XIE LIDAN. YU SHUHUI. XIE CHENGXI. LYU ZUOHANG.

Introduction

INTRODUCTION

Features of real estate

The real estate industry has two attributes of investment and residence. Overheating of the industry will lead to a decline in people's living standards and increase systemic economic risks.

Policy of Concern

The focus of our attention is China's "Limited Purchasing Order" on housing prices. That is, the Chinese government's policy of limiting the number of homes households can buy.

The papers we chose.

We chose the research of Qiao Kunyuan in 2012 as the basis of our analysis.

BACKGROUND

Before 2008

2009--2010

Investment

Demographic dividend

Per capita income

Urbanization level

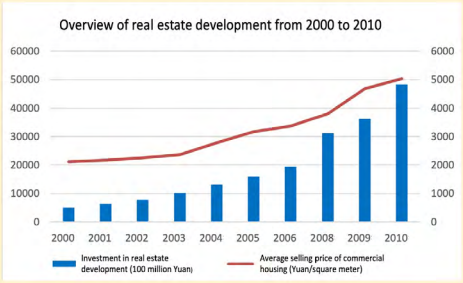
Fundamental-driven growth.

Investment-driven growth.

House prices rose 34 percent in two years, far faster than population growth.

The real estate market remains hot, investment and demand appear abnormally blind.

The rapid accumulation of real estate bubble, the risk gradually increased.



The "High Heat" investment stage

The enforcement of

"Limited Purchasing Order "

The State Council

- Since 2009, the China State Council has begun to reveal its worries about the excessive speculation of real estate.
- In the next two years, it has successively introduced real estate Limited Purchasing Orders and other relevant control policies.
- This wave of policies was marked by the **"New Ten Measures"** issued on April 7, 2010

The enforcement of

"Limited Purchasing Order "

The local government

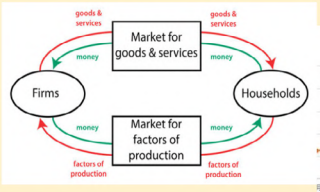
- Most local residents without houses are limited to buying two sets. For local residents who have one house, most of them are restricted to one. For local residents who own two or more homes, most are banned.
- For non-local residents. The purchase restriction is generally limited to one set, and simultaneously exist restrictions on purchasing eligibility.
- There are still some cities where the purchase restriction policy is mainly aimed at non-local residents. Suzhou and Hangzhou have no restrictions on purchases by local residents.

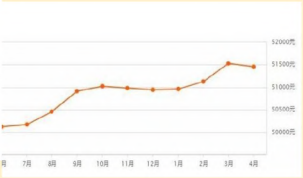
MOEDL & RESULT

2

Literature Review：

late implementation and relatively few researches





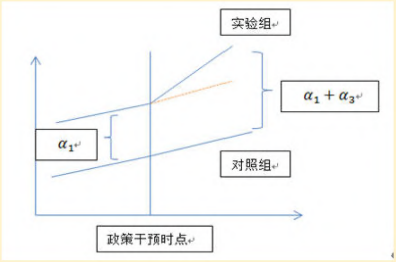
effectiveness of government intervention is increasing year by year

Source: Wang Songtao. Principle and effect evaluation of government intervention in China's housing market [J]. Statistical Research,2011,28(01):27-35.

only have a short-term impact on the housing price but have a weak impact on the real estate market in the long run

Source: Liao Qyun, Yu Jianping, Ding Yifang. Research on the Effectiveness of Real Estate Purchase Restriction Policy Based on Regression Discontinuity Analysis [J]. Construction Economics,2018,39(09):86-91.

MODEL：DID MODEL



What's DID

- mainly used to test the effect of policy implementation
- Divide treatment group and control group
- calculating the difference, the estimator of differential difference, obtain the net effect of the policy.

WHY DID

- distinguish the impact of the "Limited Purchasing Order" from other policies
- distinguish the impact of the "Limited Purchasing Order" from other policies

$$y_{it} = \alpha_0 + \alpha_1 du_{it} + \alpha_2 dt_{it} + \alpha_3 du_{it} * dt_{it} + \varepsilon_{it}$$

According to the Difference Method, two dummy variables are being constructed as followed:

$dt = \begin{cases} 1 \text{ (yes after the policy)} \\ 0 \text{ (no after the policy)} \end{cases}$ $di = \begin{cases} 1 \text{ (for cities have published the policy)} \\ 0 \text{ (for cities haven't published the policy)} \end{cases}$

1. Before the implementation of the policy:

$y_{i0}^1 = \alpha_0 + \alpha_1 + \varepsilon_{it}$

After the policy is implemented:

$y_{i1}^1 = \alpha_0 + \alpha_1 + \alpha_2 + \alpha_3 + \varepsilon_{it}$

Differences between the treatment team before and after the implementation of the policy:

$\Delta y_{it}^1 = \alpha_2 + \alpha_3$

2. Control group before policy implementation:

$y_{i0}^0 = \alpha_0 + \varepsilon_{it}$

After the policy is implemented

$y_{i1}^0 = \alpha_0 + \alpha_2 + \varepsilon_{it}$

Differences between the control group before and after the implementation of the policy

$\Delta y_{it}^0 = \alpha_2$

3. The net benefit of the policy is

$\Delta y_{it}^1 - \Delta y_{it}^0 = \alpha_3$

MODEL

国家统计局
National Bureau of Statistics of China

搜房 SouFun

NATIONAL BUREAU OF STATISTICS
nbs

Data

变量	观测个数	均值	标准差	最小值	最大值
p^n	2380	104.77	5.81	87.3	153.9
p^c	2380	105.34	6.81	87.8	164.8
p^s	2380	103.84	5.47	84.3	150.4
q^n	2380	99.60	0.94	78.9	104.6
q^c	2380	99.55	1.07	77.3	105
q^s	2380	99.69	1.02	77.9	105.9

RESULT

因变量	p^a	p^c	p^y	q^a	q^c	q^y
$d_i \times d_t$	-2.25***	-2.49***	-2.90***	0.11*	0.14*	0.21***
	(0.41)	(0.48)	(0.38)	(0.065)	(0.078)	(0.073)
d_i	1.83***	2.08***	2.04***	-0.11***	-0.14***	-0.086*
	(0.59)	(0.69)	(0.61)	(0.039)	(0.045)	(0.05)
d_t	-4.12***	-5.43***	-2.87***	0.24***	0.27***	-0.15**
	(0.37)	(0.43)	(0.34)	(0.058)	(0.07)	(0.065)
cpi	1.21***	1.42***	0.86***	0.021***	0.026***	0.031***
	(0.045)	(0.053)	(0.043)	(0.0071)	(0.0085)	(0.008)
ind	0.10***	0.12***	0.12***	-0.018***	-0.019***	-0.013***
	(0.017)	(0.02)	(0.016)	(0.0024)	(0.0029)	(0.0028)
fai	-0.40***	-0.36***	-0.38***	0.074***	0.073***	0.098***
	(0.11)	(0.13)	(0.11)	(0.015)	(0.017)	(0.018)
LM p 值	0.0000	0.0000	0.0000	0.0134	0.0208	0.0000
R^2	0.30	0.30	0.24	0.11	0.10	0.10
观测数量	2380	2380	2380	2380	2380	2380

注：括号上方为估计值，括号内为标准误。*** 为1%显著性水平，** 为5%显著性水平，* 为10%显著性水平。下表同。

Conclusion & Analysis

3

Advantages

Distinguish the impact

Through the Differences-in-Differences (DID)model, it clearly shows the price changes of the real estate market in mainland China before and after the implementation of the Limited Purchasing Order and tells the different effects of the policy on first-hand housing and second-hand housing.

Persuasive data

This article uses the relevant data of first-hand commercial housing and second-hand housing in 70 large and medium-sized cities in mainland China from March 2009 to December 2011 to compare the impact of the first round of the Limited Purchasing Order in mainland China on housing prices. The data selected in this article are relatively accurate, covering the current representative first-, second-, and third-tier cities in mainland China.

Disadvantage 1

This article assumes the cities that have implemented Limited Purchasing Order as a whole, but there are many differences among different cities and the regions of one city.

东莞	首次购买普通住房（指从未购置过住房），最低首付款比例不低于30%	无房（有购房贷款记录），有1套房（贷款已还清或无购房贷款记录），最低首付款比例不低于30%	拥有1套住房（贷款未结清），最低首付款比例不低于40%
珠海	首次购买普通住房（指从未购置过住房），最低首付款比例不低于30%	无房（有购房贷款记录），有1套房（贷款已还清或无购房贷款记录），最低首付款比例不低于30%	拥有1套住房（贷款未结清），最低首付款比例不低于40%
厦门	首次购买普通住房（指从未购置过住房），最低首付款比例不低于30%	有1套房（贷款未结清），再次购买普通住宅，最低首付款比例不低于60%	有1套房（贷款未结清），再次购买非普通住宅，最低首付款比例不低于70%
武汉	无住房的居民家庭，最低首付比例25%	已有1套房的本市户籍家庭，最低首付款比例为50%	已有1套房的非本市户籍家庭，暂停发放个人住房贷款

Different cities have different polices.

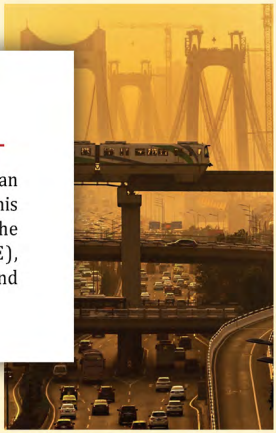
Different regions of one city have different polices.

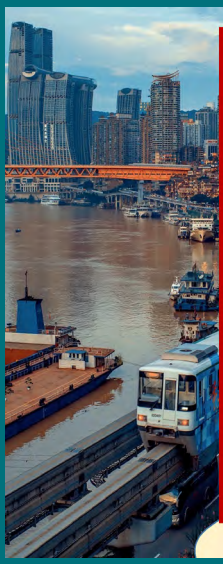
Disadvantage 2

Mainland China has implemented two rounds of Limited Purchasing Order so far. This article only studies the implementation of the first round of the Limited Purchasing Order.

Disadvantage 3

Consumers' own behavior may have an impact on housing prices. However, this paper does not specifically study the consumer expectation index (CE), consumer confidence index (CC), and consumer satisfaction index (CS).





Conclusion:

The influence for new-built housing price is -2.25%, -2.49% for commodity housing and -2.9% for second-hand housing and overall, the influence is above 1% significant level. To some extent, the Limited Purchasing Order has a positive effect to slow down the speed of the increase of housing prices in mainland China in the short run.

However, according to many papers that have shown, the most fundamental problems that cause the insane increase of housing prices in mainland China are institutional issues. Policymakers may need manpower from the perspective of China's current political systems including fiscal and taxation system and the relationship between the real estate market and the government to fundamentally alleviate the problem of residential housing.

THANKS

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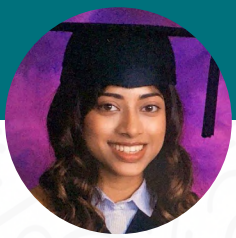
10 Effect of the non-resident speculation tax in the real estate market in Toronto



Amerie DESOUZA HE Minting HE Wanlin

The housing prices in the Greater Toronto Area have increased by approximately 128% in the last decade. In order to control the exponential rise in housing prices, the Ontario government announced the Non-Resident Speculation Tax (NRST) in the real estate market to ease the implied effects of surging housing prices from the demand of foreign buyers. It has been found that while the NRST helps to moderate housing prices in the short run by reducing demand from foreign investments, it remains uncertain whether it will affect the housing market in the long term. Because foreign investment is not the only factor that affects housing prices, domestic market conditions play a role as well.

Effect of the Non-Resident Speculation Tax in the Real Estate Market in Toronto

Amerie Desouza

Minting He

Wanlin He

Wilfrid Laurier University

1

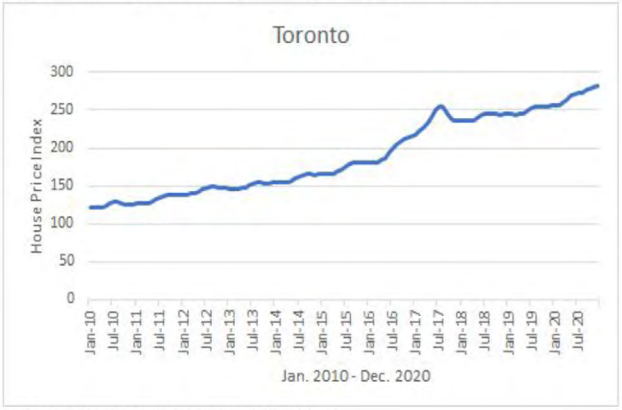
Agenda

1. Why the NRST announced?
2. What is the NRST?
3. Does the NRST work?

2

Why the NRST Announced

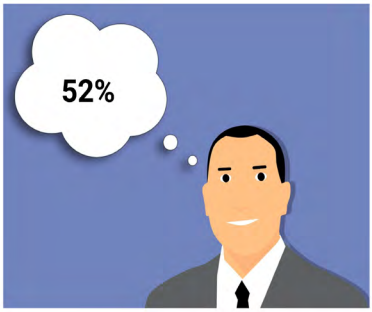
- Approximately 128% in Toronto in the last decade



Teranet and the National Bank of Canada

3

Why the NRST Announced



Traditional Factors

4

What is the NRST - Introduction of NRST

What: 15 % Non-Resident Speculation Tax

When: Came effect from April 21st, 2017

Who: Non citizens or Permanent residents, Foreign corporations and Taxable Trustees

Where: Toronto and Surrounding Cities, Ontario, Canada

How: A Permanent Policy and Modified Tool

5

Similar Policies

HongKong SAR, China

Singapore

Australia

New Zealand

6

Rationale of the NRST

Housing Market Inflation

- Foreign Buyers
- The Local Market

7

Rationale of the NRST

Foreign Buyers Point of Views

- Cost of Purchasing Property ↑
- Demand of the house ↓

The Local Market

- Oversupply
- Selling Price ↓

Other Effect in the 'Balance of Payments':

Financial Account

8

Title of the Research

- Real Estate Transaction Taxes on Foreign Buyers in Greater Vancouver and Toronto and Their Effect on the Housing Market
- *By* Zachary Thurston
- Department of Economics of University of Ottawa

9

How Effective is this Policy

Housing Prices and Monthly Transactions

3.94%

38%

10

Does the NRST Works?

Long-Run

1) Avoiding Tax
2) Economic Growth & Rising Income
3) Inflation

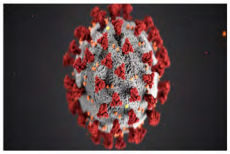
11

Does the NRST Works?

Other Reasons

Nature Disaster (Pandemics)

Urban Planning Regulation



12

Conclusion

Housing Market prices can be attributed to many reasons. NRST helps to moderate housing prices in the short run, but the long run effects are undetermined and depend on domestic market conditions as well.

13

Thank You

14

References

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Research Topic:

Policy Opinions

11

An exploration of the "two-child" policy in China

HUANG Meici

XU Jinqing

Under the pressure of population aging, the Chinese government has started to relax the restrictions on family planning policies, where the "Two-child Policy" has been launched in 2011. Our report will give a detailed analysis of the article "Chinese online public opinions on the Two-child Policy" written by Shixiong Wang and Yu Song as well as put forward corresponding suggestions. The author concludes that although the "Selective Two-Child policy" and "Universal Two-Child policy" have received widespread attention, the actual fertility rate has not increased actually. This shows that, on the one hand, the number of women of childbearing age in China is decreasing. On the other hand, since there are still some problems that exist in this policy and it may not be a good choice for some people.

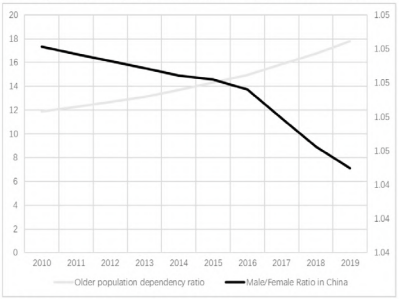
An Exploration of "Two-Child" Policy in China

Team name: Team Huang MC

Team member: Huang Meici
Xu Jinqing
Bai Zhongqi
Lu Tianzong

Why China needs the "Two-Child" policy?

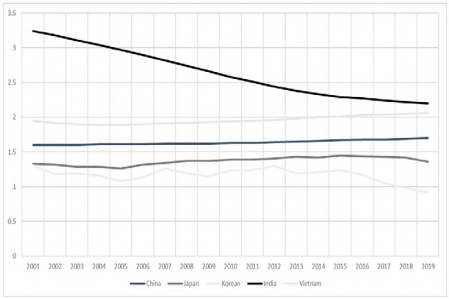
Older population dependency ration and Male/ Female ration in China



Source: National Bureau of Statistics of China

- Demographic aging
- Labor shortage

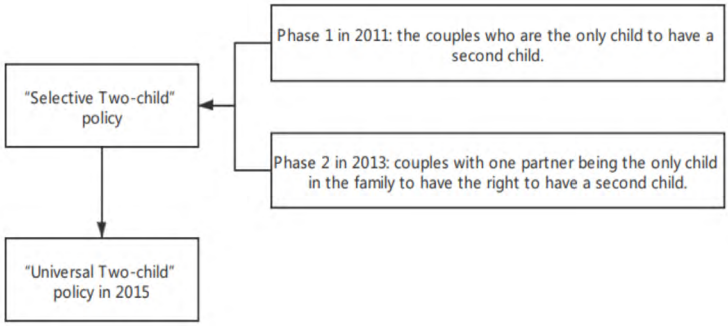
Total fertility rate of 3 developing countries and 2 developed counties in Asian



Source: National Bureau of Statistics of China

- No demographic advantage
- Sex imbalance

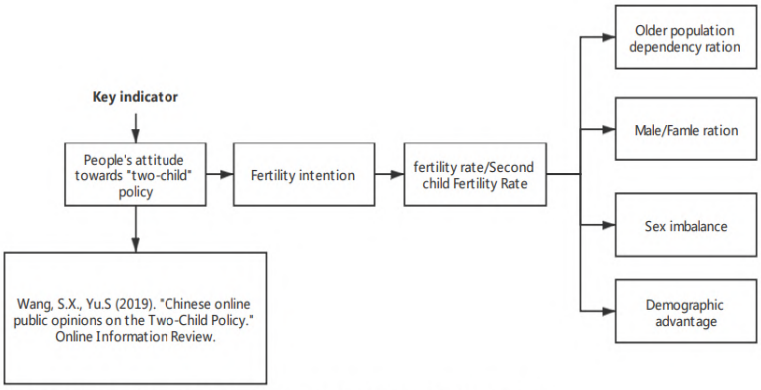
What is the "Two-Child" policy? (1)



What is the "Two-Child" policy? (2)

Province/city	Additional measures
Anhui	1) Elimination of late marriage leave (previously 20 days) 2) Unauthorized birth of a 3rd child subject to fine
Beijing	1) Elimination of late marriage leave (previously 7 days) 2) Marriage leave of 10 days 3) Maternity leave of 128 days to 7 months
Jiangsu	1) Marriage leave of 10 days 2) Possibility of a 3rd child in case of remarriage or if one of the first 3) two children is disable or died
Sichuan	1) Elimination of late marriage leave (previously 20 days) 2) Maternity leave of 158 days; 188 days when breastfeeding 3) Paternity leave of 20 days 4) Unauthorized birth of a 3rd child subject to fine

Why did we choose this paper?



Source: Wang, S.X., Yu.S., 2019. "Chinese online public opinions on the Two-Child Policy," Online Information Review

Data and Methodology (1)

- Resource: Weibo
- Tool: Crawler Program
- Key words: "Selective Two-Child" Policy and "Universal Two-Child" Policy
- Data structure: Weibo address/URL, Weibo texts, posting time, user's ID, user's name, user's sex, and user's geographical location.
- Valid data: 52,654 entries relate to the Selective Two-Child Policy and 11,548 entries about the Universal Two Child Policy.

Data Format

	Sample 1
Weibo address/URL	weibo.com/87654321
Weibo texts	dislike, etc.
Posting time	20131031 14:31
User's ID	87654321
User's name	User87654321
User's sex	Male
User's geographical location	Beijing

Source: Wang, S.X., Yu.S., 2019. "Chinese online public opinions on the Two-Child Policy," Online Information Review

Data and Methodology (2) : Weights of Emotional Vocabulary

Weight list of the Emoticon

Polarity	Emoticon						Weight	Number
Positive						…	10	32
Positive						…	5	42
Neutral						…	0	77
Negative						…	−5	33
Negative						…	−10	32

Note: $n = 216$

Weight list of the emotional vocabulary

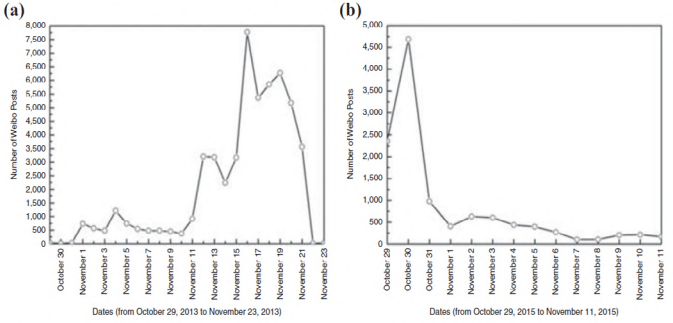
Polarity	Word	Weight	Number
Positive	Perfect, really good, wonderful, praise, applause, congratulate, super excited, popular, unprecedented, etc.	10	8591
Positive	Thanks, right, good, beneficial, useful, effective, valid, approve, excited, energetic, progressive, etc.	5	2638
Neutral	hehe, hoho, reprove, normal, general, matter, silence, casual, hope, think, natural, etc.	0	5375
Negative	dislike, disagree, bad, defect, loser, damn, disgusting, insignificant, indifferent, meaningless, etc.	-5	1779
Negative	Rubbish, shameless, too bad, fatal, outrageous, trouble, awful, terrible, fuck, strongly disagree, etc.	-10	9093

Note: n=27476

Source: Wang, S.X., Yu.S., 2019. "Chinese online public opinions on the Two-Child Policy," Online Information Review

Online opinions on the Two-Child Policy: Attention intensity

Number of Weibo Posts on the two sets of Two-Child Policy

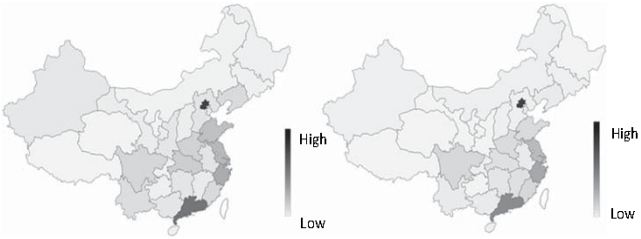


- "Selective Two-Child" Policy:
  a slow development→quick recession
- "Universal Two-Child" Policy:
  a sudden outbreak→slow recession→sudden silence

Source: Wang, S.X., Yu.S., 2019. "Chinese online public opinions on the Two-Child Policy," Online Information Review

Regional difference in attention intensity (1)

Figure 4: Number of Weibo posts on the Selective Two-Child Policy (Phase 2) and the Universal Two-Child Policy



- Selective Two-Child Policy
- Universal Two-Child Policy

Source: Wang, S.X., Yu.S., 2019. `Chinese online public opinions on the Two-Child Policy.` Online Information Review

Regional difference in attention intensity (2)

Regional difference in attention intensity by MAU (monthly active users), population and per-capita GDP in 2013 ("selective two-child)

The Selective Two-child Policy (Phase 2)

National ranking of number of posts	Region	National ranking of Weibo MAU in 2013 Q4	Posts/MAU ratio ranking	Population in 2013 (10,000 persons)	Population in 2013 National ranking	Per-capita GDP in 2013 (RMB)	Per-capita GDP in 2013 National ranking
1	Beijing	2	3	2,115	26	94,648	2
2	Guangdong	1	8	10,644	1	58,833	8
3	Zhejiang	5	1	5,498	10	68,805	5
4	Shanghai	3	5	2,415	24	90,993	3
5	Jiangsu	4	4	7,939	5	75,354	4
6	Shandong	6	2	9,733	2	56,885	10
7	Hubei	9	6	5,799	9	42,826	14
8	Henan	10	7	9,413	3	34,211	23
9	Sichuan	7	9	8,107	4	32,617	24
10	Fujian	8	10	3,774	16	58,145	9

Note: 2013 Q4 is the period under examination for our research
Sources: 2014 Sina Weibo Users Development Report; statistic yearbooks of the above regions

Regional difference in attention intensity by MAU (monthly active users), population and per-capita GDP in 2015 ("universal two-child)

The Universal Two-child Policy

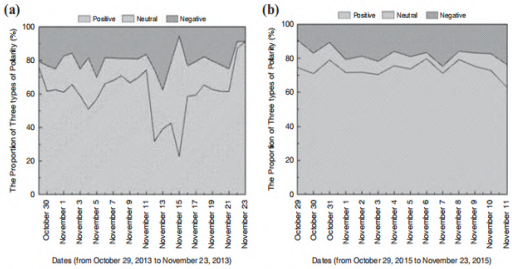
National ranking of number of posts	Region	National ranking of Weibo MAU in 2015 Q4	Posts/MAU ratio ranking	Population in 2015 (10,000 persons)	Population in 2015 National ranking	Per-capita GDP in 2015 (RMB)	Per-capita GDP in 2015 National ranking
1	Beijing	2	1	2,171	26	106,497	2
2	Guangdong	1	4	10,849	1	67,503	8
3	Shanghai	5	3	2,415	24	103,796	3
4	Jiangsu	3	7	7,976	5	87,995	4
5	Shandong	9	2	9,847	2	64,168	10
6	Zhejiang	4	10	5,539	10	77,644	5
7	Sichuan	6	8	8,204	4	36,775	24
8	Henan	8	6	9,480	3	39,123	23
9	Fujian	10	5	3,839	15	67,966	9
10	Hubei	7	9	5,852	9	50,654	14

Note: 2015 Q4 is the period under examination for our research
Sources: 2016 Sina Weibo Users Development Report; statistic yearbooks of the above regions

- Overlapped data: ranking& top three respectively
- Economically developed areas and areas with large populations.

Distribution of sentiment tendency

The proportion of three types of polarity on the two sets of Two-Child Policy



Notes: (a) Post on the Selective Two-Child Policy (Phase 2); (b) posts on the Universal Two-Child Policy

- "Selective Two-Child" Policy: FLUCTUATE
- "Universal Two-Child" Policy: STABLE & RATIONAL

Source: Wang, S.X., Yu.S., 2019. "Chinese online public opinions on the Two-Child Policy," Online Information Review

Birth Behaviors after the "Two-Child" Policy (1)

CBR (Crude Birth Rate): the number of births per 1000 persons in a population over a given period.

- The growth rate of CBR in 2014 is 0.29 per million.
- The national CBR in 2015 is reduced to 12.07 per million.
- In 2014, Shandong, Fujian and Jiangxi rank the top 3 of CBR growth rate.
- The national CBR has increased in 2015 after the "universal two-child" policy was implemented.

Regional difference in CBR between 2003 and 2016

Region	Average CBR (‰) between 2003 and 2012	CBR (‰) in 2013	CBR (‰) in 2014	CBR (‰) in 2015	CBR (‰) in 2016
National total	12.15	12.08	12.37	12.07	12.95
Beijing	7.31	8.93	9.75	7.96	9.32
Tianjin	7.94	8.28	8.19	5.84	7.37
Hebei	12.75	13.04	13.18	11.35	12.42
Shanxi	11.35	10.81	10.92	9.98	10.29
Inner Mongolia	9.57	8.98	9.31	7.72	9.03
Liaoning	6.46	6.09	6.49	6.17	6.60
Jilin	7.13	5.36	6.62	5.87	5.55
Heilongjiang	7.51	6.86	7.37	6.00	6.12
Shanghai	7.55	8.18	8.35	7.52	9.00
Jiangsu	9.41	9.44	9.45	9.05	9.76
Zhejiang	10.24	10.01	10.51	10.52	11.22
Anhui	12.46	12.88	12.86	12.92	13.02
Fujian	11.83	12.20	13.70	13.90	14.50
Jiangxi	13.76	13.19	13.24	13.20	13.45
Shandong	11.68	11.41	14.23	12.55	17.89
Henan	11.60	12.27	12.80	12.70	13.26
Hubei	9.41	11.08	11.86	10.74	12.04
Hunan	12.53	13.50	13.32	13.58	13.57
Guangdong	11.90	10.71	10.80	11.12	11.85
Guangxi	14.07	14.28	14.07	14.05	13.82
Hainan	14.68	14.59	14.56	14.57	14.57
Chongqing	9.87	10.37	10.67	11.05	11.77
Sichuan	9.36	9.90	10.22	10.20	10.48
Guizhou	14.05	13.05	12.98	13.00	13.43
Yunnan	13.72	12.60	12.65	12.88	13.16
Tibet	16.40	15.77	15.76	15.75	15.79
Shaanxi	10.18	10.01	10.13	10.10	10.64
Gansu	12.64	12.16	12.21	12.36	12.18
Qinghai	15.18	14.16	14.67	14.72	14.70
Ningxia	14.77	13.12	13.10	12.62	13.69
Xinjiang	15.94	15.84	16.44	15.59	15.34

Sources: China Statistic Yearbooks for 2013, 2014, 2015 and 2016

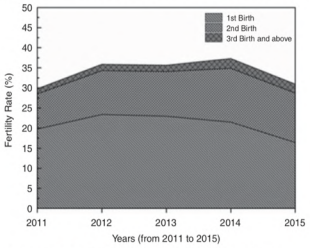
Birth Behaviors after the "Two-Child" Policy (2)

- The fertility rate has not changed a lot over 5 years.
- There is a significant increase in the second-child fertility rate in 2014.

Possible reason: the women who are affected by the "Two-Child" policy are still at the age which is suitable for childbearing.

Fertility rate: Average number of childbearing women / Births (Unit: person)

The fertility rate changes between 2011 and 2015



Sources: China Statistic Yearbooks for 2011, 2012, 2013, 2014 and 2015

Conclusion and Recommendation (1)

Conclusion

- Both "Selective Two-Child" policy and "Universal Two-Child" policy have received many attention.
- Chinese netizens have a positive attitude toward the "Two-Child" policy and the "Universal Two-Child" policy is more popular.
- The actual fertility rate has nor increased over these years.
- The number of women in childbearing age is decreasing and the social welfare is imperfect.

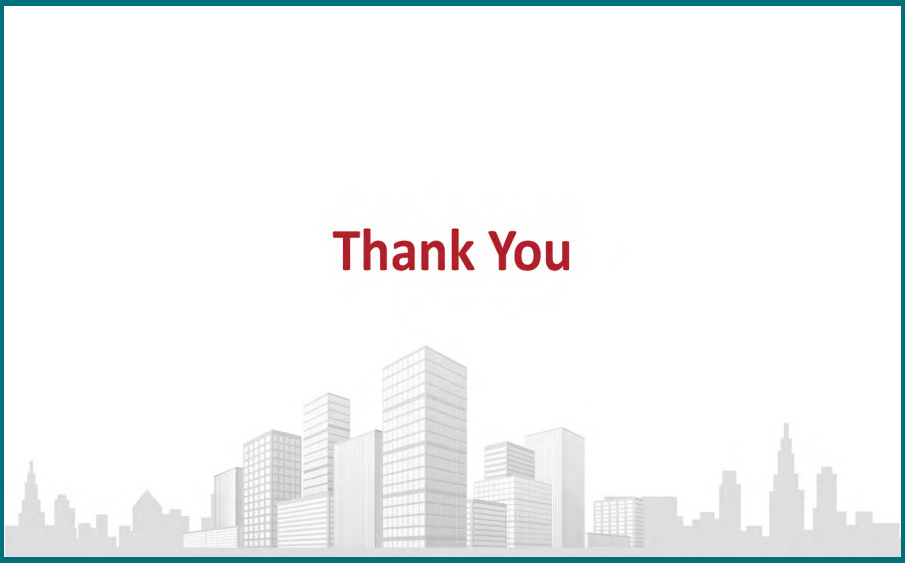
Conclusion and Recommendation (2)

Recommendation

- ***To further strengthen positive publicity and guidance***: Usage of public propaganda and modern media.
- ***To further follow up and improve the social welfare***: to increase education subsidies, to rationally allocate social resource, to reduce parenting cost.
- ***To further enhance the maternity and child security system***: medical system and public facilities.

Limitation

- ***Comprehensiveness:*** The source of the data collected in the reference paper is limited to the posts of users who use the online Weibo platform which makes its results not convince enough to reflect the general attitude of the public.
- ***Authenticity:*** Online postings do not necessarily represent real behavioral choices and there may be random and impulsive postings.
- ***Standardization:*** The article adopt the method of collecting network data as the experimental method. Non-standard methods may cause errors in the experimental results. **(To use standardized questionnaires)**


Thank You

Research Topic:

Social Security

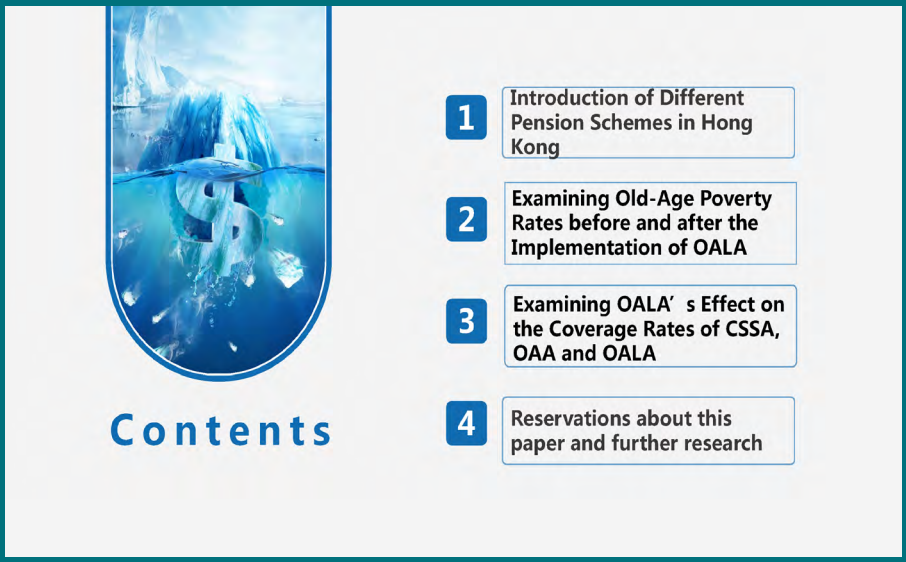
12 Poverty alleviation, coverage and fiscal sustainability: Investigating the effect of a new social pension in Hong Kong



CAO Jiarui HOU Tianqi TIAN Zongyue

The Old Age Living Allowance (OALA)was introduced in Hong Kong to cater for the poor in need who are not eligible for the Comprehensive Social Security Assistance (CSSA) Scheme. We present and interpret research findings to examine the old-age poverty rates before and after the implementation of OALA and OALA's Effect on the coverage rates of the CSSA, Old Age Allowance and OALA. It has been found that the effectiveness of OALA in reducing relative old-age poverty was limited. However, Since the author used the changes in the poverty rate and the coverage rate as the key indicator of the policy effectiveness, the definition of "poverty" is doubtable. Besides, the welfare of the elderly is still ambiguous as the paper only presents average household income.


Investigating the Effect of Hong Kong's Old Age Living Allowance on Social Welfare
Speaker
CAO Jiarui
HOU Tianqi
TIAN Zongyue
WANG Xiaoran


Contents
1 Introduction of Different Pension Schemes in Hong Kong
2 Examining Old-Age Poverty Rates before and after the Implementation of OALA
3 Examining OALA's Effect on the Coverage Rates of CSSA, OAA and OALA
4 Reservations about this paper and further research

Introduction of Different Pension Schemes in Hong Kong

Part 1

Hong Kong Pension System Overview

5 Pillars of retirement security

CSSA	OAA	OALA	MPF	Other 2 Pillars
1971	1973	2013	1995	Voluntary deposits
$3815	$1,475	$2,845 and $3,815	5%+5% of income	Eg: Annuity
Impair the dignity of the elderly	Not for supporting life but for respecting	Diminishing marginal effect with time	Useless for low-income people	Social service
				Eg: Public health

Introduction for Old Age Living Allowance

Long term sustainability in the context of an ageing population

18.2 %	35.0 %
2020	2036

The proportion of the population aged 65+

For poverty alleviation

A new form of financial support measure under Social Security Allowance Scheme for needy Hong Kong elders aged 65 or above.

- Be not in legal or penal institution
- HK resident for at least 7 years
- Aged 65 or above
- Be not in receipt of OAA, CSSA and DA
- Meet income and asset requirements

		Single person	Married couple	Monthly payment rate
Normal OALA	Total income per month	$10,330	$15,620	$2,845
	Total asset value	$365,000	$554,000	
Higher OALA	Total income per month	$10,330	$15,620	$3,815
	Total asset value	$159,000	$241,000	

Part 2

Examining Old-Age Poverty Rates before and after the Implementation of OALA

Monthly Household Income Data

Data Source :

Quarterly General Household Survey conducted by HK' s Department of Census and Statistics

Sample Size:

79,246 households before and **77,751** households after the implementation of the OALA

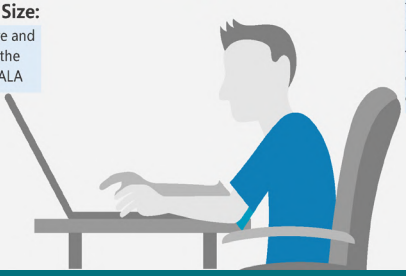
Time Range:

OALA was introduced in March **2013**

Samples consist of two parts.

The first part of the samples is from the second quarter of 2012 to the first quarter of 2013.

The second part is from the first quarter of 2014 to the fourth quarter of 2014.



The Calculation of Old-Age Poverty rates

Old-age poverty rate was a kind of relative poverty rate defined as the number of old people with household income below a certain poverty threshold divided by the total number of old people in the samples.

When calculating the old-age poverty rates after OALA, the authors used both the poverty thresholds generated from the samples before OALA and those after OALA

Two methods of determining the poverty threshold:

Hong Kong government' s method:

- Define poverty lines separately by household size (1, 2, 3, 4, 5 and 6+ people).
- The poverty threshold for each household size is half of its median household income

Authors' own method:

- Standardize household income by dividing the total household income by the square root of household size
- Take the half of the median household income as one single poverty threshold

Results: Change in Median Household Income

i. HK government's method:

Median Monthly Household Income (HKD)				
Household Size	Before OALA	After OALA	Total Change	Change Per Person
1	7,000	8,390	1,390	1,390
2	17,500	17,500	0	0
3	22,500	27,500	5,000	1,667
4	27,520	35,000	7,480	1,870
5	35,000	35,000	0	0
6+	35,000	35,000	0	0

ii. Authors' own method:
Median household income changed from HKD12,500 to HKD13,750.

Results: Change in Old-age Poverty Rate

Old-Age Poverty Rate		
	Using the poverty threshold before OALA	Using the poverty threshold after OALA
	Hong Kong Government's Method	
2012Q2-2013Q1	32.47%	
2014Q1-2014Q4	27.14%	30.67%
	Authors' Method	
2012Q2-2013Q1	36.20%	
2014Q1-2014Q4	31.57%	36.77%
Note: The number of people age 65+ is 917,006 during 2012Q2-2013Q1 and 994,624 during 2014Q1-2014Q4		

Conclusion: The effectiveness of OALA in reducing relative old-age poverty was limited.

Examining OALA's Effect on the Coverage Rates of CSSA, OAA and OALA

Part 3

OALA's Effect on the Coverage Rates

- **Coverage rate:**
  Number of people in receipt of a scheme divided by total number of people eligible for that scheme
- **Data:** Population data and number of recipients for each pension scheme
- **Data source:**
  Statistics on CSSA, OAA and OALA from Hong Kong's Labor and Welfare Bureau
- **Time Range:** 2011, 2012 and 2014, 2015
- **Result:**

	CSSA Coverage (60+)	OAA Coverage (65+ then 70+)	OALA Coverage (65+)	Collective Coverage (60+)	Number of People Aged 60+
2011	14%	31%	None	53%	1,329,071
2012	13%	32%	None	52%	1,410,169
2014	11%	29%	39%	52%	1,589,009
2015	11%	30%	39%	52%	1,553,764

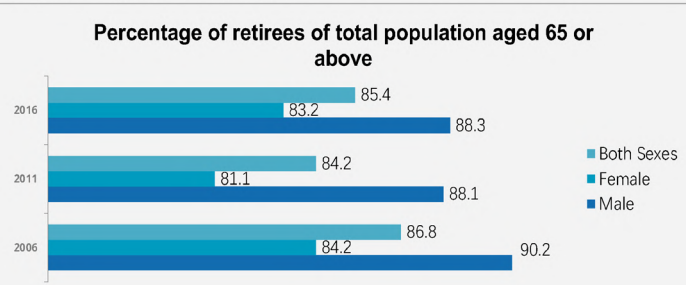
Part 4

Reservations about This Paper and Further Research

Income Based Poverty

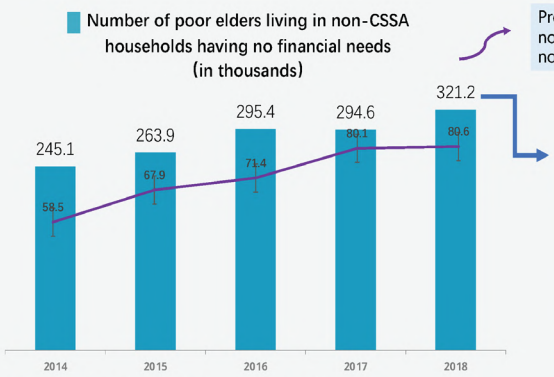
Income based poverty definition:

- In this paper, monthly household income was computed as the **sum** of cash incomes received collectively by all household members.
- Average retirement age for males and females in Hong Kong: **63.4 and 61.7** respectively!
- When the elderly are eligible to apply for OALA (aged 65+): cash income is no longer an important income source.



Difficulty in Measuring Income:

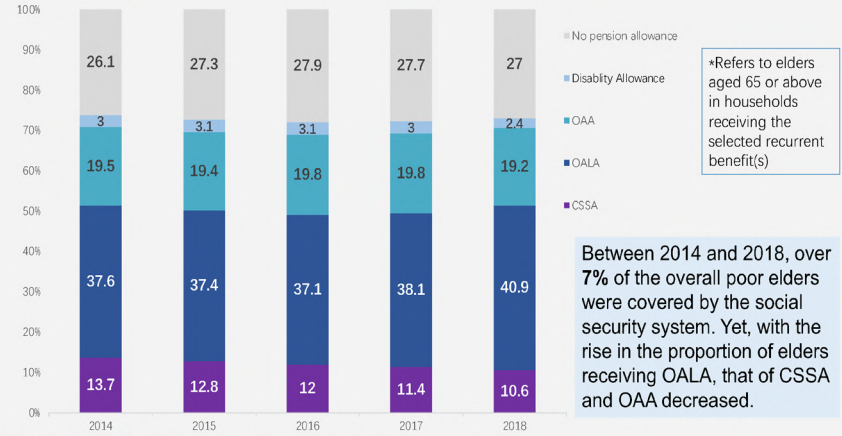
- **Asset-rich, income-poor people** (such as retired elders with a considerable amount of savings, stocks or holding properties) may be classified as poor.



"Income poor, owning property of certain value" : **106,400** persons (33.1%)

Source: General Household Survey, Census and Statistics Department.

Further Research: Coverage Rate of All Zero-pillar Pension Funds



*Refers to elders aged 65 or above in households receiving the selected recurrent benefit(s)

Between 2014 and 2018, over **7%** of the overall poor elders were covered by the social security system. Yet, with the rise in the proportion of elders receiving OALA, that of CSSA and OAA decreased.

Sources : Social Welfare Department; Demographic Statistics Section, Census and Statistics Department.

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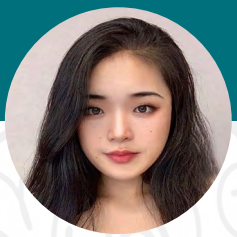
LOGO

THANKS

Research Topic:

Tax on Consumer

13 Does tax salience affect consumer behavior?



PENG Ziyan Cai Xinni

Tax salience refers to how people's behaviour is affected by a change in the way in which taxes are displayed. It is argued that if tax is displayed more directly and therefore becomes more salient, it is possible that consumers can better perceive the tax amount and therefore improve their decision-making. We focus on how tax salience affects consumers' purchasing behaviour and it has been found that tax salience negatively affects consumer demand.

Does Tax Salience Affect Consumer Behavior?

CAI Xinni
PENG Ziyan

Imagining walking into a store to buy grocery....

But when you're about to pay....

Item	Qty	Price	Amount
KARLA			
098687062909	1	$89.00	$89.00
DARCI			
098687069830	1	$139.00	$41.70
70% OFF			($97.30)
BITSY			
098687069373	1	$79.00	$23.70
70% OFF			($55.30)
		Subtotal	$154.40
		Tax	$15.06
		Total USD	$169.46
USD Cash			$200.46
Change			
USD Cash			($31.00)

Sales Tax is usually shown on receipt, not on price tag

Why?

Tax Salience

Why?

Accumulating evidence suggests **individuals are inattentive to some incentives**

[shipping fees (Tanjim Hossain and John Morgan 2006)]

Full Optimization may not be valid

Why?

less tax salience → misconception → not optimal decisions

Can consumers make **better decisions** with a more **salient tax**?

What?

Policy: Allow price tags to include tax as long as clearly stated
(460.0000 REIMBURSEMENT FOR SALES TAX—Regulation 1700 Annotation 460.0149)

Where: California

When: Starting from July 2, 1987

Who: Consumers and merchants

What?

Rationale: tax-included tags are indeed helpful as a survey has shown

when asked to tax-included prices sum of two products if shown **pre-tax** price tags:
18% get the approximate number correct

if shown **tax-included** price tags:
75% get the approximate number correct

Does it work?

Research:

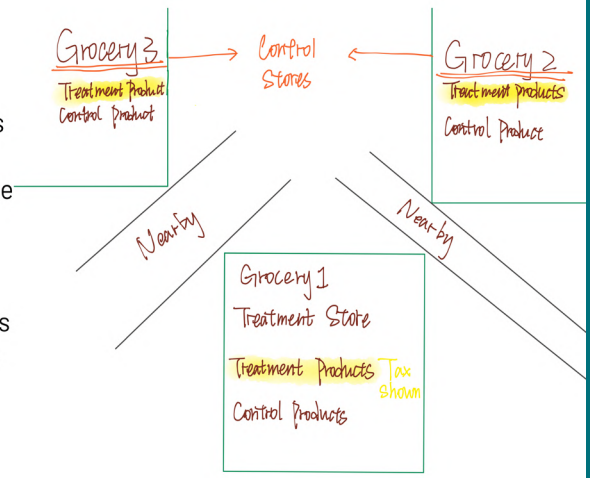
Chetty, Raj, et al. "Salience and Taxation: Theory and Evidence." American Economic Review, vol. 99, no.4, 2009, pp. 1145-77. doi: 10.1257/aer.99.4.1145. Accessed 25 June 2021.

EXHIBIT 1. TAX-INCLUSIVE PRICE TAGS
Photo: Raj Chetty

Does it work?

Does it work?

- Control group: products without tax-inclusive price tags from the store and two other chain stores
- Treated group: products with tax-inclusive price tags



Does it work?

Results:

- Weekly sales of treatment products on category level 1-4%
- Weekly sales of treatment products on product level 1-2%
- Total revenue and sale in treated group 8%

Does it work?

Does it work?

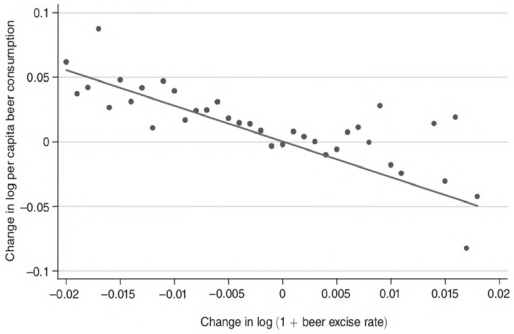
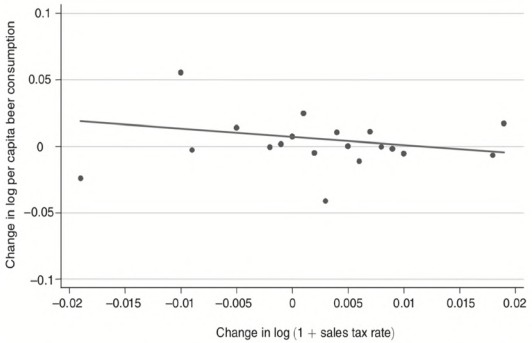


FIGURE 2A. PER CAPITA BEER CONSUMPTION AND STATE BEER EXCISE TAXES

Source: Chetty, Raj, et al. "Salience and Taxation: Theory and Evidence." *American Economic Review*, vol. 99, no.4, 2009, pp. 1145-77

- **Excise-tax** rate ↑ 1%
- Beer consumption by ↓ 0.88 %

Does it work?



- **Sale-tax** rate 1%
- Beer consumption by 0.5%

Source: Chetty, Raj, et al. "Salience and Taxation: Theory and Evidence." *American Economic Review*, vol. 99, no.4, 2009, pp. 1145-77

Does it work?

excise tax rate increase leading **even lower** consumption than sales tax

is due to that

excise tax is more salient

Does Tax Salience Affect Consumer Behavior?

Conclusion

Tax salience **does** negatively affect consumer demand

Reference

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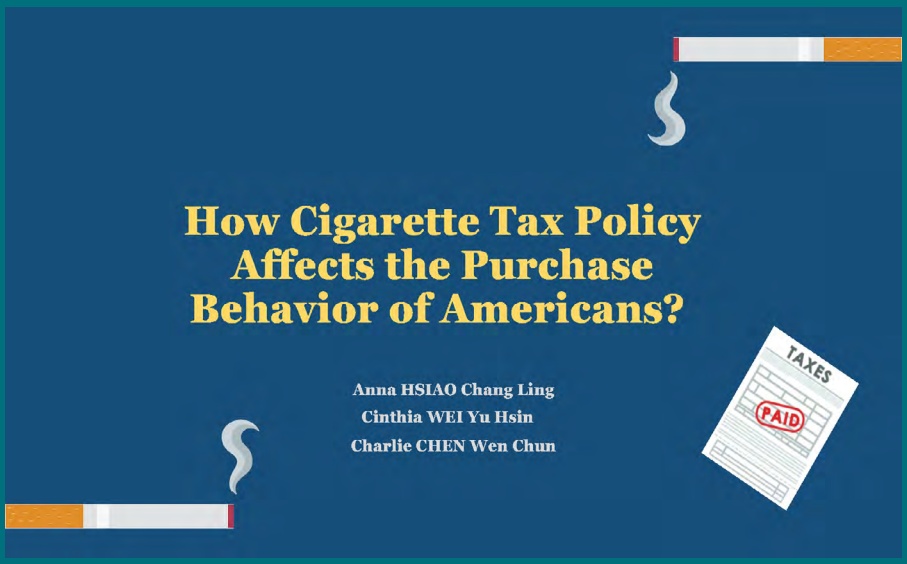
14 How cigarette tax policy affects the purchase behavior of americans?



HSIAO Chang ling Anna CHEN Wen Chun WEI Yu Hsin Cinthia

U.S. government tax policy toward cigarettes could serve at least three objectives: deterrence, revenue, and efficiency. Our team studies the cigarette tax policy in the U.S. based on The Effects of Tobacco Control Policies on Tobacco Products, Tar, and Nicotine Purchases among Adults: Evidence from Household Panel Data by Chad Cotti, Erik Nesson, and Nathan Tefft. We have found that cigarette tax policies have achieved the objective of discouraging smoking, with decreased cigarette and nicotine consumption per household, without major negative impact. It is suggested that further studies could examine and compare the impacts of different types or scopes of cigarette tax policies on smoking behaviour.



Tobacco control policies intend to achieve three main goals

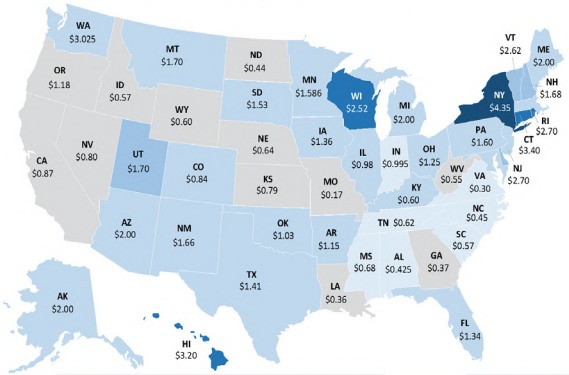
Main Objectives	Reasons	Supporting Evidence and Examples
Deterrence	Cigarette smoking leads to many adverse health outcomes	> 16M Americans are living with a disease caused by smoking > 41K Deaths among nonsmokers from secondhand smoke exposure
Revenue	Increase government revenue to fund public healthcare program	> 16B Revenues that government received from cigarette taxes in 2012 ~ 1B Tax Revenues are spent on tobacco use control related programs
Efficiency	Raise cigarette price to a level that fully reflects the social cost	> 64B Federal and state government smoking-caused Medicaid payments ~ 7B Annual healthcare expenditure from secondhand smoke exposure

2

Background | Study Design | Findings and Conclusion | Implication

Cigarette excise taxes vary among different states

State cigarette tax policy changes from 2004 to 2012



Tax Changes	# of States
$0	12
$0 - $0.5	7
$0.5 - $1	22
$1 - $1.5	5
$1.5 - $2	4
> $2	1

The average cigarette tax among states is **$1.53** per pack

Average cigarette retail price among states is **$6.03** per pack

3

Background | Study Design | Findings | Conclusion and Implication

Four major aspects are investigated in the research

Cigarette consumption

Smoking cessation product consumption

Content of cigarettes

Light vs. heavy smokers

4

Background | Study Design | Findings and Conclusion | Implication

Tobacco control policies and household characteristics are included

Tobacco control policies

Household demographic characteristics

Household fixed effects

State-specific linear time trends

Probability

(1) $P(T_{hsym} > 0) = \beta_0 + \underbrace{Z_{sym}}_{\text{Policies (Focus on Cigarette Tax)}}\beta_Z + \underbrace{X_{hsym}}_{\text{Demographic Characteristics}}\beta_X + \underbrace{\delta_h + \tau_y + \mu_m}_{\text{Household Fixed Effects}} + \underbrace{\gamma_{sym}}_{\text{State-Specific Linear Time Trends}} + \varepsilon_{hsym}$

(2) T_{hsym} Amount

Source: Cotti, C., Nesson, E., & Tefft, N. (2016). The Effects of Tobacco Control Policies on Tobacco Products, Tar, and Nicotine Purchases among Adults: Evidence from Household Panel Data. *American Economic Journal: Economic Policy*, 8(4), 103–123

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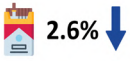
Background | Study Design | Findings and Conclusion | Implication

Increase in cigarette taxes reduces cigarette purchases

Cigarette consumption



2.6%

A $1 increase in cigarette taxes reduces the probability of a household purchasing cigarettes in a month by **2.6%**

24

A $1 increase in cigarette taxes reduces the quantity of cigarettes consumed by ever-purchased family by roughly **24** cigarettes a month

6

Background | Study Design | Findings and Conclusion | Implication

Increase in taxes leads to higher demand for smoking cessation products

Smoking cessation product consumption

A $1 increase in cigarette taxes causes **1.4** additional smoking cessation products purchased per month

Cigarettes and smoking cessation products are substitutes

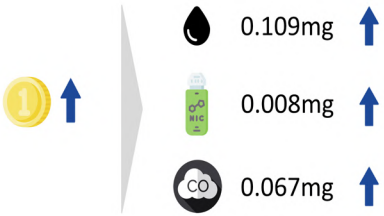
7

Background | Study Design | Findings and Conclusion | Implication

Consumers shift to cigarettes with higher content of noxious substance

Content of cigarettes

Problem: consumers would shift to cigarettes with higher content of nicotine, tar, and CO



However, the results are NOT economically significant

8

Background | Study Design | Findings and Conclusion | Implication

Light smokers respond more strongly to the cigarette tax policy

Light vs. heavy smokers

300 cigarettes per month or less

600 cigarettes per month or more

- Heavy smokers are more responsive in terms of the numbers of cigarettes
- Light smokers respond much more strongly in terms of the tax elasticities

Light smokers are more responsive to this policy

9

Background | Study Design | Findings and Conclusion | Implication

This research draws in more accurate results relative to past studies

Prevention of Type II Error

- Contained 1,307,350 observations from 30,476 households
- Spanned across 2004 to 2012

Improved Data Accuracy

- Based on UPC (Universal Product Code) scanning instead of self-reporting

Suitable Data Type

- Applied panel data instead of repeated cross-sectional data

10

Background | Study Design | Findings | Conclusion and Implication

Cigarette tax polices are overall effective and positive

Effectiveness

- Probability of cigarette purchase
- Cigarette consumption per household
- Nicotine consumption per household
- Nicotine content per cigarette

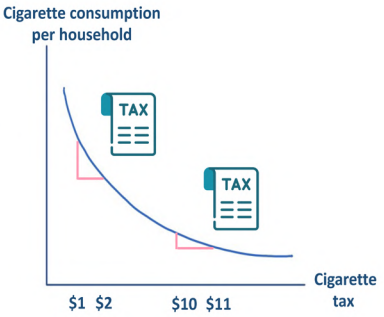
Other Consequences

- Consumption of cessation products

11

How cigarette tax policies can be examined in future studies?

- If tax elasticity decreases as cigarette tax increases
- If smokers react differently on cigarette excise or cigarette sales tax



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