

# Can Environmental Taxation Solve the Plastics Problem?

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# What is Environmental Taxation?

## Taxation

- Imposed by governments for the purpose of raising revenue
- Tax rate x Tax base = Tax revenue
- Rate
  - Percentage of the base
    - 37% x taxable income
  - Unit of currency per unit of base
    - E.g. Tax on motor fuel \$1 per liter
- Base
  - Income
  - Consumption
  - Unit

## Environmental Taxation

- Imposed by governments for purposes of changing behavior
  - But will also potentially raise revenue – how should that revenue be used?
- Tax rate x Tax base
- Tax rate may depend upon the harm caused
  - This can be difficult to determine!
- Tax base is generally units of emissions or some proxy thereof
- May include *subsidies* via the tax system

# Assumptions

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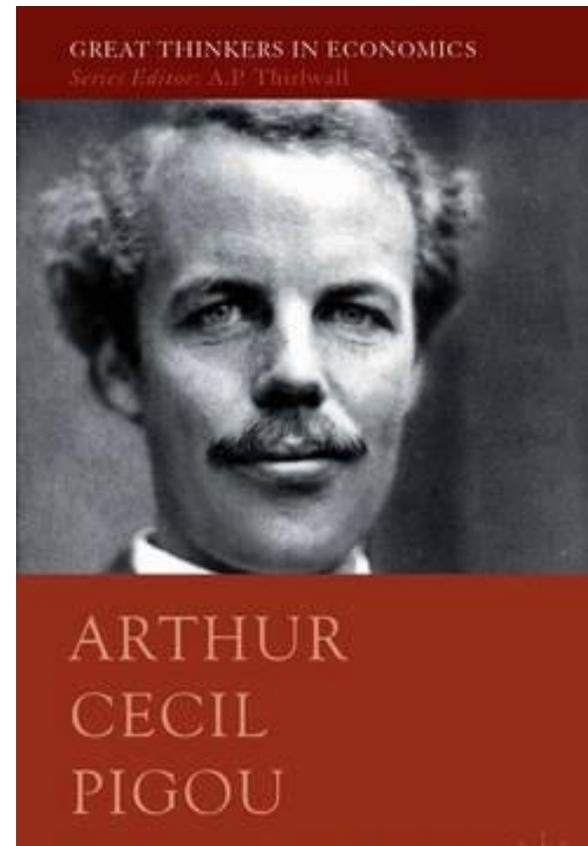
- Pollution is “bad”
- Pollution results in societal costs
- Economic instruments are a good (“business-friendly”) alternative to command-and-control regulations



# History of environmental tax

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- Pigou theorized that taxes could cure market failures
- Externalities – costs not borne by polluters – constitute market failures
- Taxing externalities forces polluters to internalize the costs
- As an alternative, tax rate could be based on level of environmental protection desired (Baumol & Oates 1971)



# Opportunities for environmental tax

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- Curb pollution by making polluters pay
- Raise revenue, enabling cuts to other taxes
- Business has flexibility to determine how to reduce emissions at lowest cost
- Government doesn't pick "winners"



# Contrast with “command-and-control”

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- Incentive to abate beyond “standards”
- Improved competitiveness of low-emission alternatives
- Incentive to innovate
- Transparency and consistency of impact
- Cost certainty



# Environmental tax design principles

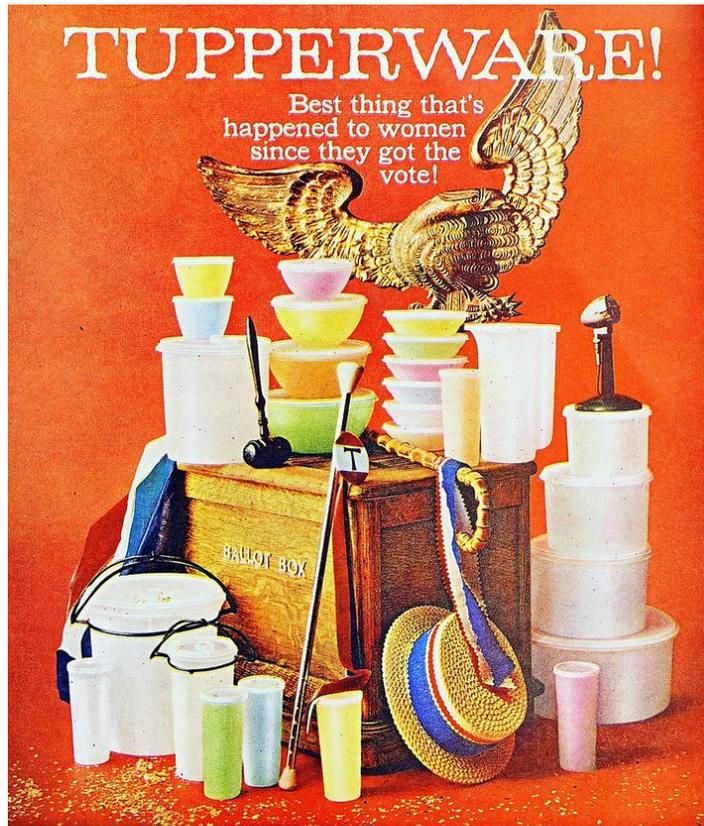
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- Target the pollutant
- Scope should be as broad as the damage
- Tax rate should be commensurate with environmental damage\*
- Tax rate should be predictable with minimal exceptions



# Consider plastic

## Pros



Less work—more leisure! That's what Tupperware stands for! These light, bright modern plastic containers go all out to give women new kitchen freedom. With Tupperware you can fix food 'way in advance—even days ahead—and it'll stay fresh till you're ready to serve.

What's the secret? The exclusive, patented Tupperware Seal. It locks out air . . . locks in freshness, flavor, purity. And this seal fits so tightly, you can store Tupperware any which way—even upside down. The happy result: you save space in your refrigerator, freezer and cupboard.

[vintage123.com](http://vintage123.com)

No wonder Tupperware's a woman's choice—a woman's right to own. These work-saving, food-saving, space-saving features are tops on its party platform!

And speaking of parties . . . that's where you buy Tupperware. At a famous fun-to-go-to, fun-to-give Tupperware Home Party. Call a Tupperware distributor today for your nearest dealer's name. Look in the Yellow Pages. Or write directly to Dept. G-11, Tupperware Home Parties Inc., Orlando, Fla.



## Cons



# Externalities from Plastics

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- Degradation of natural systems as a result of leakage
- Greenhouse gas emissions resulting from production and after-use incineration
- Health and environmental impacts from substances of concern
  - E.g., phthalates and other endocrine disruptors



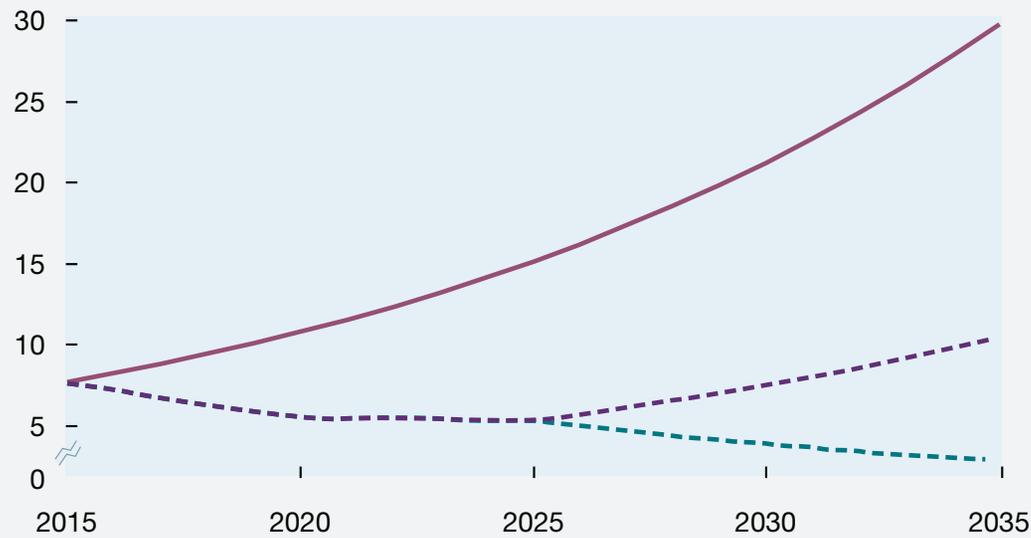
# Consequences from business as usual?

## Exhibit

Without sustained action, the amount of plastic leaking into the ocean will increase dramatically.

Annual plastic-waste leakage into the ocean,  
millions of tons

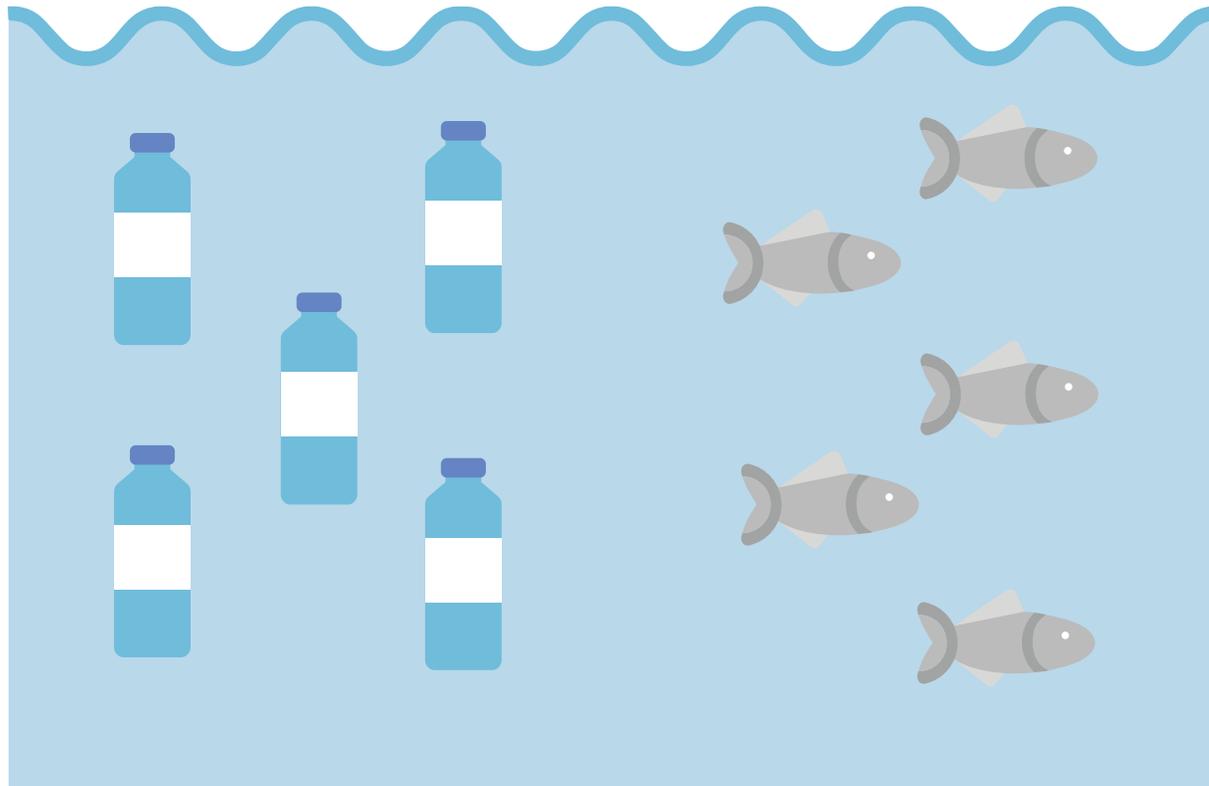
- Business as usual
- - Unsustained intervention
- - Sustained intervention



McKinsey&Company



By 2050, more plastic than fish



>1:1

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# Carbon emissions from plastic on the rise

PLASTICS' SHARE  
OF GLOBAL OIL  
CONSUMPTION<sup>2</sup>

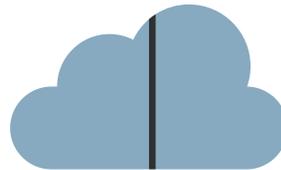


6%



20%

PLASTICS' SHARE  
OF CARBON BUDGET<sup>3</sup>



1%



15%

2014

2050



# Practical considerations

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- Incidence of tax
  - Impose upstream
  - Impose downstream
- Burden of tax
  - Is it high enough to change behavior?
  - Will it hurt vulnerable populations?
- Level of government
  - National
  - Subnational
    - State/Province
    - Local/Municipality
  - Regional
- Multi-national?



# The carrot – environmental tax subsidies

## Pros

- Reduces cost of environmentally friendly products
- Helps new technologies gain market share
- Mitigates environmentally damaging subsidies
- Politically acceptable and/or expedient (maybe)

## Cons

- Inefficient
- Government, not market, picks winners
- Potentially unlimited budget impact
- WTO challenges as “subsidies”

# Research

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- 2013 Princeton study
  - \$0.05 cent plastic bag tax substantially reduced customers' use of disposable bags
  - \$0.05 bonus for bringing reusable bag had no effect



# Existing U.S. tax provisions

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- Federal:

- Incentives for oil and gas production
- R&D tax credit may apply to recycling
  - Software applications
  - RFID tracking
  - New technology
- Pass-through business tax deduction

- State:

- NY qualified emerging technology credit
- CO plastic recycling investment tax credit
- LA qualified new recycling manufacturing or process equipment credit
- KY recycling or composting equipment credit
- MT recycling credit
- VA recyclable materials processing equipment and alternative recycling credit



# More Statewide legislation

## Oregon Governor signs laws banning plastic bags, straws



## Other States

- Connecticut, Maine, and New York
  - Statewide plastic bag restrictions
- California
  - Also regulates plastic straws
- Vermont
  - Also bans plastic stirrers and expanded polystyrene foam containers
  - Environmental gold standard



# Federal proposals

## **Udall Outline**

- Obligations for producers
  - End of life management
- Container deposit requirements
- Carryout bag fee
- Ban on use of expanded polystyrene in food-ware, disposable coolers and shipping packaging
- Labelling requirement
- Federal fund created

## **S. 1982 Save our Seas 2.0 Act**

- Creates Marine Debris Response Trust Fund
- Funded from general revenues
- And legal judgments and settlements from marine polluters
- Contemplates catastrophic events rather than routine trash

# “Swimming” against the tide

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- US tariffs on imported steel and other products prompted China’s trash import ban
- China is the largest contributor to ocean plastic (much of it from U.S. imports)
- Only 9 percent of plastics have been recycled since 1950
- Plastic can take up to 400 years to degrade



# Adding to confusion



## What Can I Recycle?



No need to separate your items, they can all go into the same container!

### Yes please!



Aluminum & Steel Cans



Newspapers & Magazines

Office Paper



Glass bottles & Jars



Plastic Bottles, Cups & Jugs



Envelopes & Junk Mail

\*including the ones with clear windows!



Cardboard

### No thanks!



Styrofoam



Plastic Bags



Candy Wrappers



Juice & Milk Cartons



Medical Sharps



Lightbulbs & Electronics

\*note: recycle at Leon County Household Hazardous Waste!



Leon County Office of Resource Stewardship

(850) 606-1800

[www.LeonCountyFL.gov/Recycling](http://www.LeonCountyFL.gov/Recycling)



# Potential tax solutions

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- Carbon tax
- Plastic taxes
  - Straws
  - Bags
- Landfill tax
- Border tax adjustment for imported plastics
- Targeted tax incentives for domestic recycling industry



Any tool can be the right tool

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Questions, comments, discussion?

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