Public Policy 101
Prof Hilary Hoynes

- Contacting me= hoynes@berkeley.edu
- Course web site = bCourses.berkeley.edu
- My office 345 in this building
- Office hours 3-5 on Tuesday

3 GSIs

Leah Koestner

William Pe

Maura Liévano

2nd year Masters in Public Policy students here at Goldman

The waitlist (70 enrolled, 45 waitlist)

Final enrollment is 95 seats, with priority from the waitlist as follows:

1. Senior PP minors (who have officially declared their minor standing prior to Spring 2015 and have taken at least two PP courses)

2. Junior PP minors (who have officially declared their minor standing prior to Spring 2015 and have taken at least one PP courses)

3. Seniors & Juniors

4. Others

After Wednesday, we will switch the wait list to automatic, which at that point, the wait list is purely processed based on numerical order.

Course requirements

- Two Midterms (each worth 20%)
- Homework (25%)
- Short policy memo (10%)
- Final paper (policy memo) (25%)

Short policy memo – everyone will do the same topic

Final paper – more choice; grade includes in class presentation

# The three main layers of the course

1. Tools of policy analysis (microeconomics, evaluating evidence)

2. What is policy analysis: The Eight Fold Path

3. Applications, case studies, current policy problems in practice

Required texts

1. Krugman and Wells, Microeconomics, Third Edition [Unless strong econ background. Another text could be substituted.]

2. Bardach, "A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving"

3. Readings on bCourses

4. Course Reader, available at Vick Copy, 1879 Euclid

Any edition is acceptable for the texts.

- Krugman and Wells *Microeconomics, third edition*

- Krugman won the Nobel Prize a few years ago! He is also a very widely read NY Times opinion writer
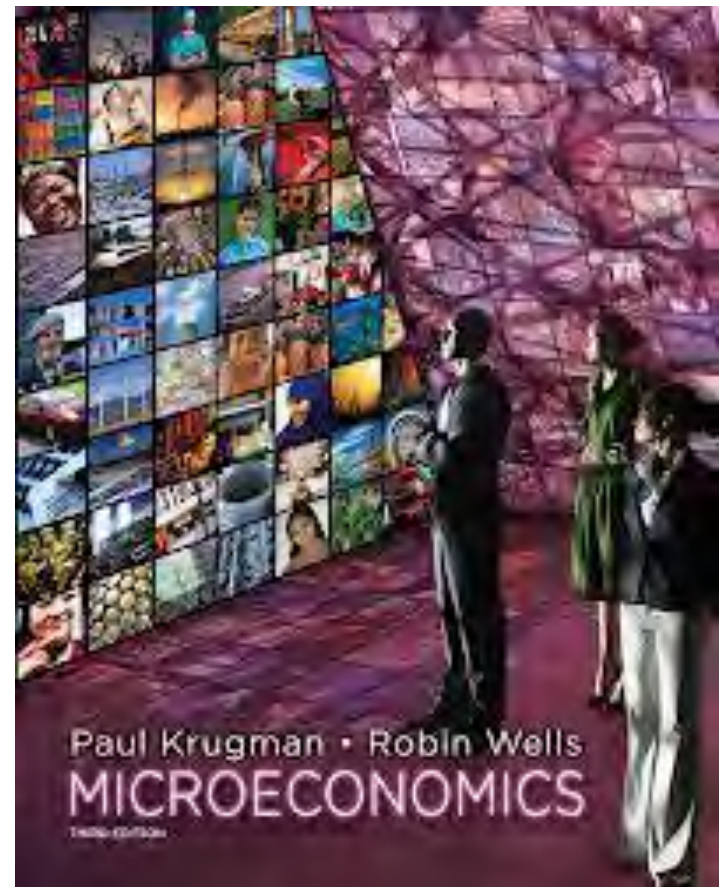
- E. Bardach, <u>A Practical Guide For Policy Analysis: The Eight Fold Path To More Effective Problem Solving</u>

- Bardach is a retired Berkeley Goldman School professor
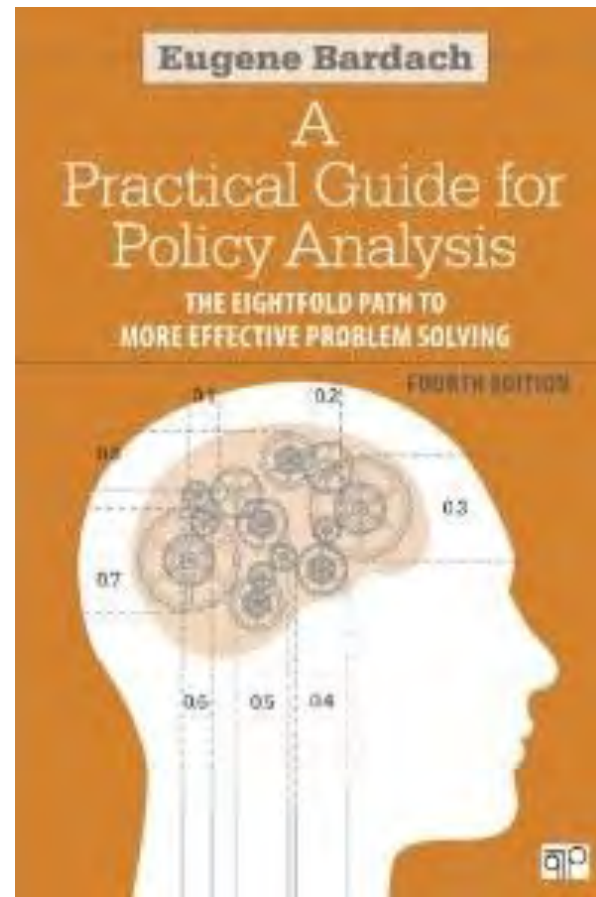
Online course on the Eight Fold Path

- We will also utilize online material for studying 8FP
- We are developing this as a MOOC for the school
- The material is great; it will enhance what I bring to the class; by viewing it before class we will be able to use more class time for discussion and analysis

CURRENT COURSES

UCBerkeley
Course Started - Jul 18, 2014 at 23:00 UTC

A Practical Guide for Policy Analysis

8FP.SPOC Problem Solving in Public Policy: Berkeley's "Eightfold Path" Approach

View Course
Unenroll

edX edge

Homework – two components

- 10% -- check your work assessments on the 8FP online course. Timed to be due 11pm the night before we talk about the material in class.

- 15% -- three assignments turned in; will give you practice with the "tools" we are learning in class and how you will be tested on the midterms.
  - graded √-, √, √+

Course Website: bCourses.berkeley.edu

- Class lecture, reading, and homework schedule (CHECK OFTEN)
- Readings
- Powerpoint (after lecture)

Goldman School of Public Policy
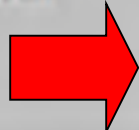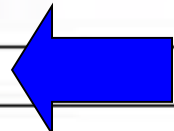University of California, Berkeley

PP101: Introduction to Public Policy Analysis, Spring 2014
Professor Hilary Hoynes, hoynes@berkeley.edu

COURSE SCHEDULE, ASSIGNMENTS AND READINGS
Note: This is subject to change – check schedule often.
Last Updated January 15, 2015

WEEK 1		
1/19	**MONDAY**	
1/20	**TUESDAY**	**LECTURE #1** **Introduction to Public Policy Analysis** [R] Gruber Ch 1 Nate Silver "What is Driving Growth in Government Spending?" New York Times 1/16/13, http://fivethirtyeight.blogs.nytimes.com/2013/01/16/what-is-driving-growth-in-government-spending/?_r=0
1/21	**WEDNESDAY**	
1/22	**THURSDAY**	**LECTURE #2** ** Class meets 1:10-2:00 ** **TOOLS: Challenges for policy evaluation** [R] Gruber Public Finance, Ch 3 [R] Murnane & Willett, Methods Matter, Ch 1 [B] Chetty, "Yes, Economics Is a Science," New York Times 2013

WEEK 3		
2/2	**MONDAY**	
2/3	**TUESDAY**	**LECTURE #5** **Application: Minimum Wages** [R] Card & Krueger, *Myth and Measurement*, Ch. 1 [B] Hamilton Project, "Designing Thoughtful Minimum Wage Policy at the State and Local Levels" [B] Economic Policy Institute "Raising the federal minimum wage to $10.10 would lift wages for millions and provide a modest economic boost," 2013 **In-class DEBATE**
2/4	**WEDNESDAY**	8FP HW due 11pm
2/5	**THURSDAY**	**LECTURE #6 ** Class meets 1:10-2:00 **** **Eight Fold Path: Overview, Problem Statement** Bardach, Introduction and pp. 1-10 [E] Part 1 Introduction // The 8FP: What is it? [E] Part 1 Introduction // Why the 8FP? [E] Part 2 The 8FP // Step 1: Define the Problem [B] "Towards a ceasefire: Experiments in legalization are showing what a post-war approach to drug control could look like," *The Economist*, 2013 **PROBLEM SET #1 DUE TODAY IN CLASS**

WEEK 4

Pause ....

LECTURE #1

Lecture Outline:

- Motivating example
- Overview of public policy
- Ways the government intervenes
- "Justification" for government involvement

Announcements/Assignments:

➢ Get books!

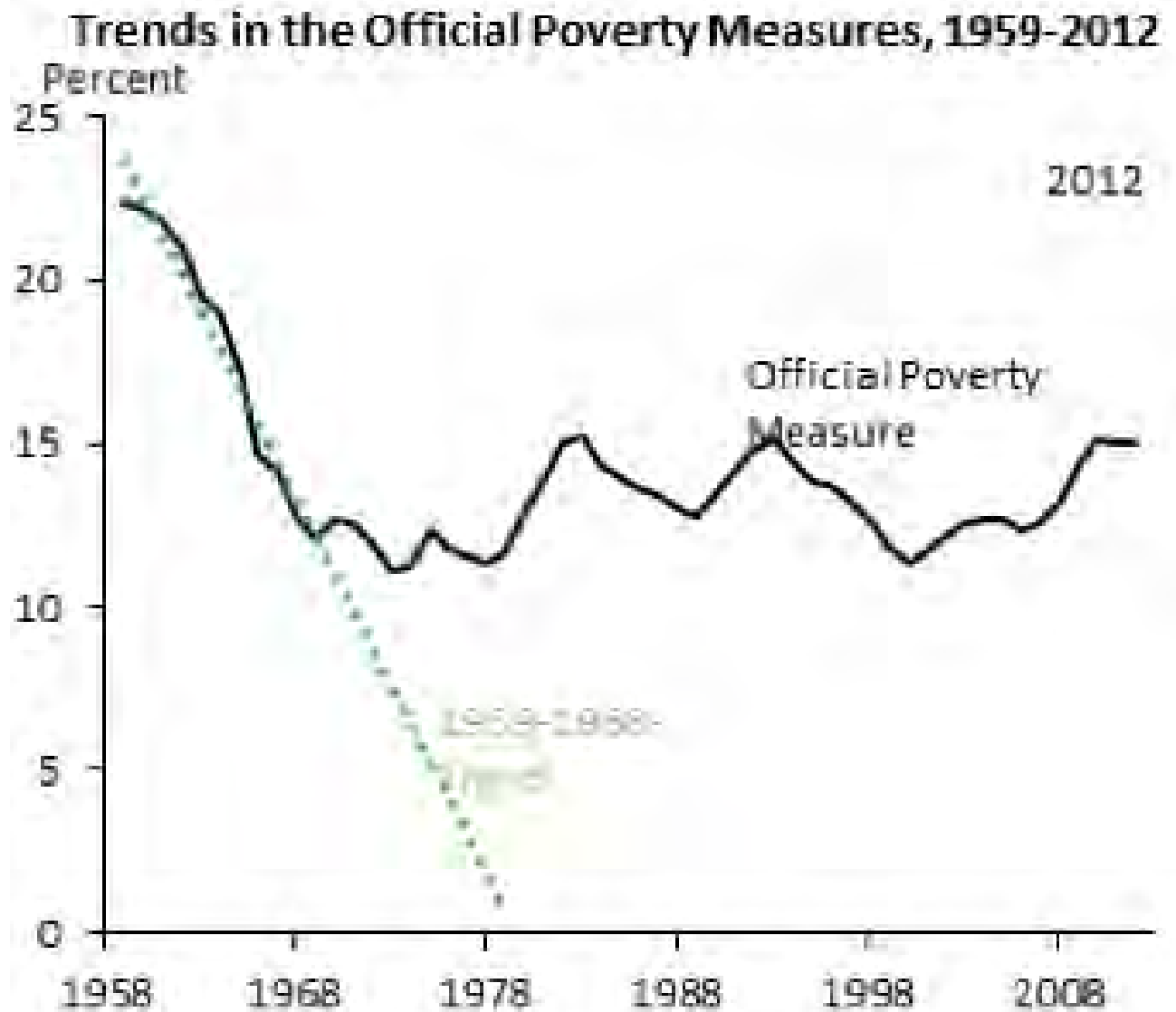➢ Section meetings start this week

➢ Readings this week:

Nate Silver NYT

[R] Gruber Public Finance, Ch 1, 3

[R] Murnane & Willett, Methods Matter, Ch 1

[B] Chetty NYT

Introduction to public policy – an example

Trends in the Official Poverty Measures, 1959-2012

Percent

2012

Official Poverty Measure

1959-1968 trend

1958   1968   1978   1988   1998   2008

Source: U.S. Census Bureau and CEA calculations.

Poverty Rate, By Age
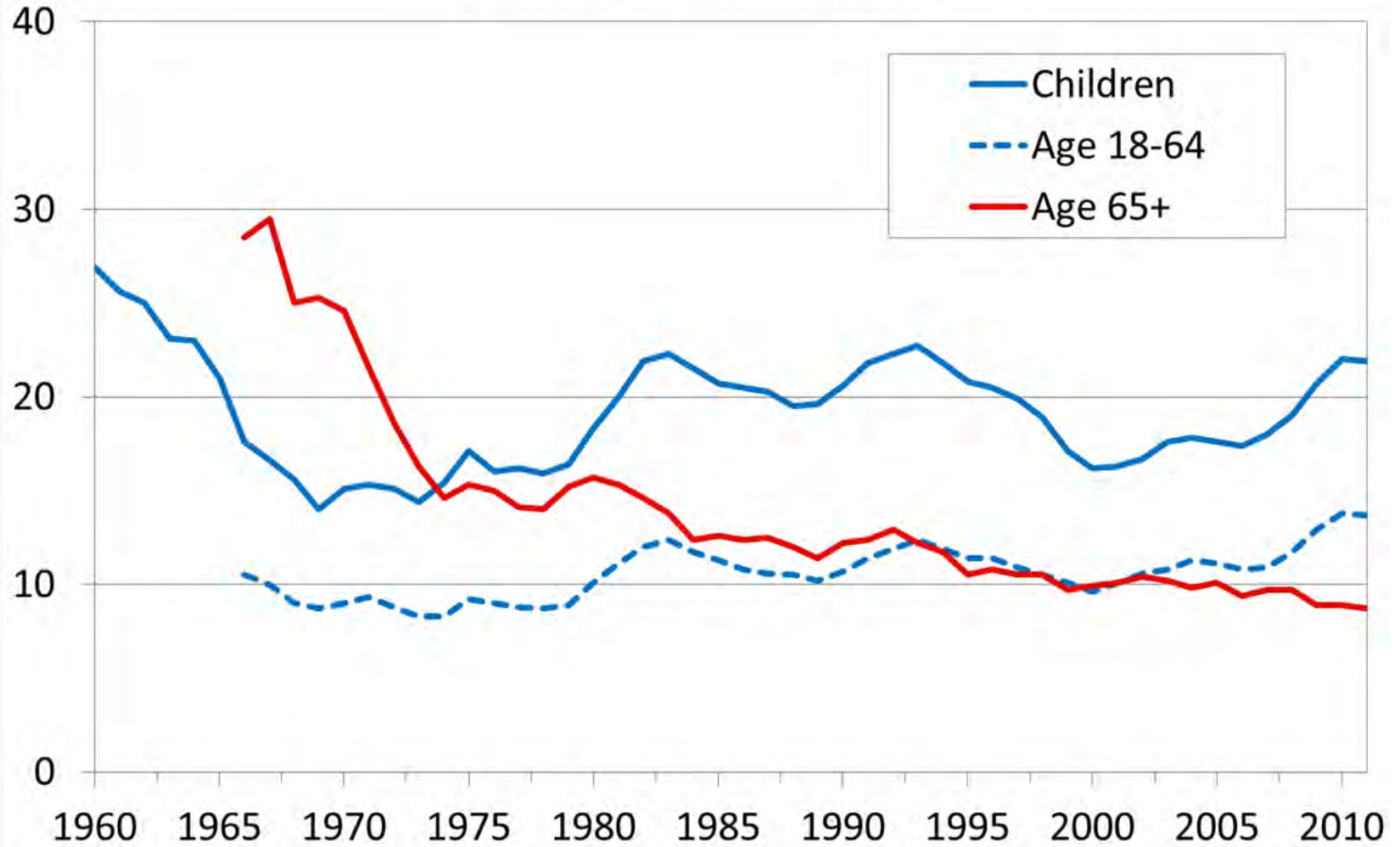
Source: Hoynes, Page and Stevens, Journal of Economic Perspectives

Analyzing this in PP101

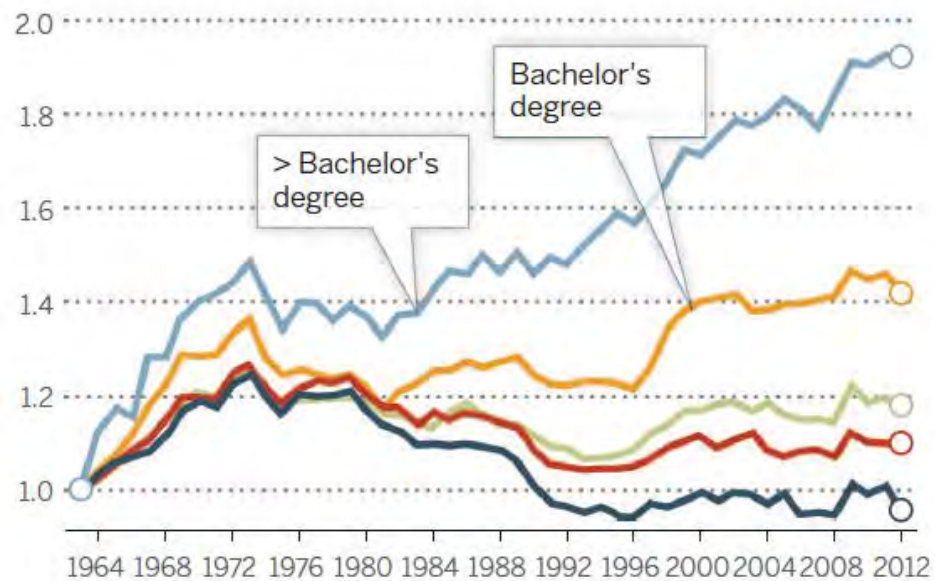- First, <u>DEFINE THE PROBLEM</u>
- What is the issue that comes out of these figures?
- Poverty is high?
- Poverty is rising?
- Poverty is not falling even though GDP is growing?
- Poverty is TOO high?
- What about differentiating between the working poor versus the nonworking poor?

Changes in real wage levels of full-time U.S. workers by sex and education, 1963–2012
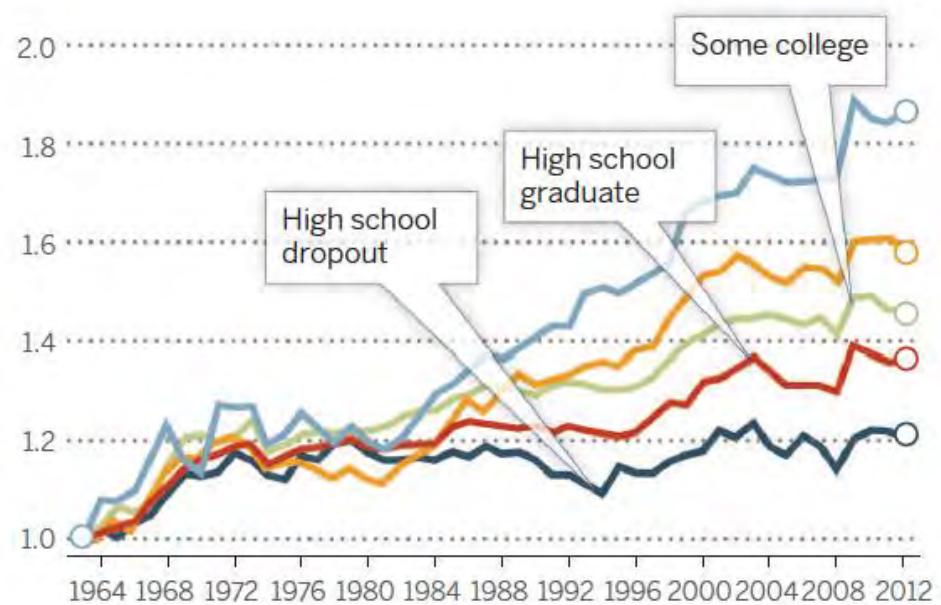
Source: Autor Science 2014.

Decomposing Top 10% into 3 Groups, 1913-2011

Legend:
- Top 1% (incomes above $367,000 in 2011)
- Top 5-1% (incomes between $155,000 and $367,000)
- Top 10-5% (incomes between $111,000 and $155,000)
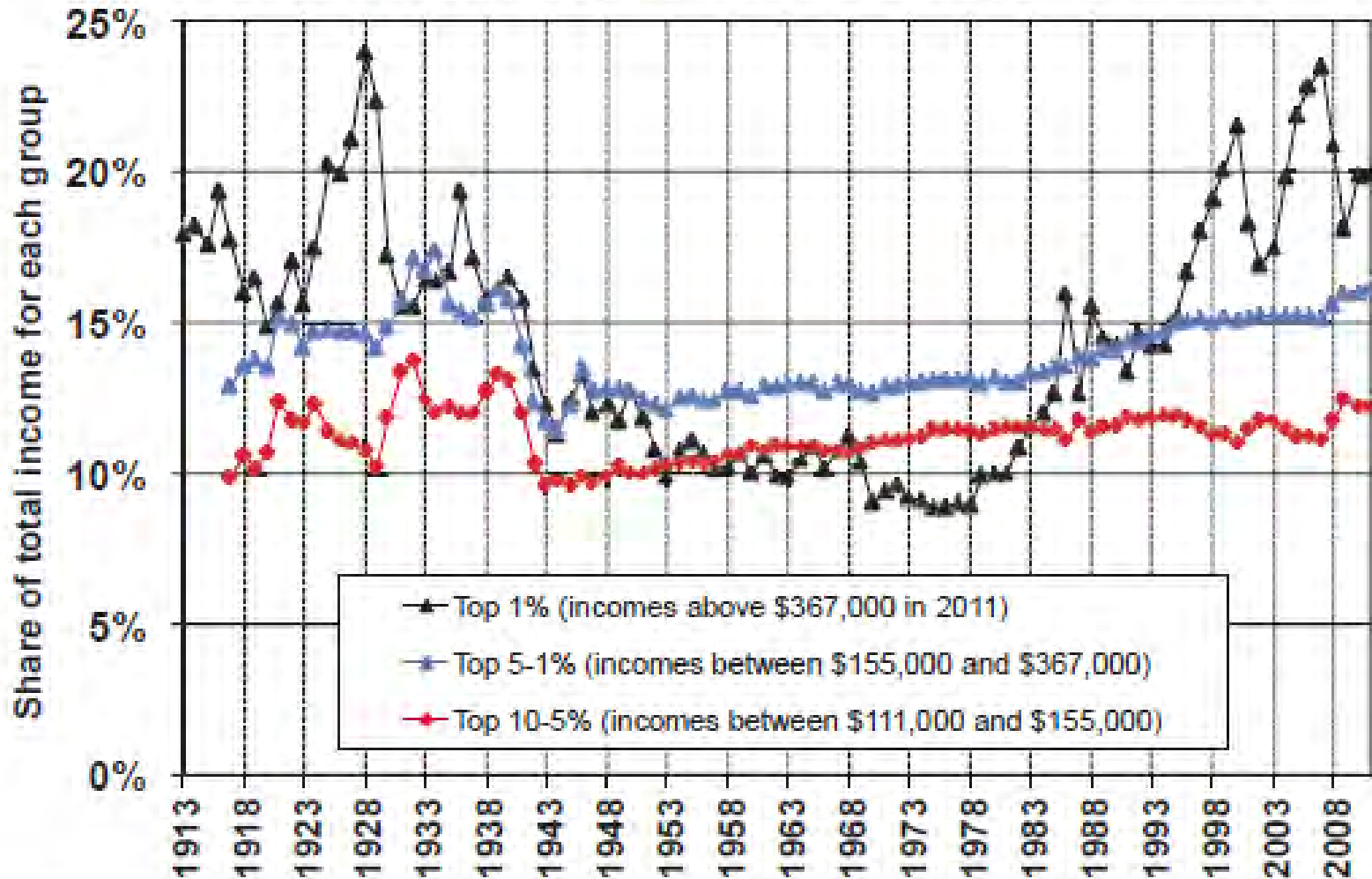
- Second, we will use the tools we learn in class to understand the causes and consequences of poverty and how government policies affect poverty
- Third, we will evaluate policies that affect poverty
  - What public policies are in place and what do they do
  - EX: EITC, welfare, minimum wages, pre-K investments
  - What are the economic arguments for and against these policies? Or for an against intervening at all?
- Fourth, we will (where possible) study current policy reforms
- GOAL: Ability to analyze public debate on economic policies

Ties to current policy debates – taken just from this week!

- OBAMA State of the Union TONIGHT will propose what he is calling "middle class economics"
  - Increase in capital gains tax
  - Making EITC and Child Tax Credits permanent
  - Increasing child care tax credits
  - Secondary earner tax credit

Ties to current policy debates

Inclusive Prosperity Commission

Commissioners

Lawrence H. Summers, Commission Co-Chair, former U.S. Secretary of the Treasury
Ed Balls, Commission Co-Chair, Shadow Chancellor of the Exchequer in the British Parl
E.J. Dionne, Jr., Senior Fellow, The Brookings Institution
Chrystia Freeland, Canadian MP and Vice Chair, Committee on International Trade
Jennifer M. Granholm, former Governor of Michigan
Mary Kay Henry, President, Service Employees International Union
Glenn Hutchins, Co-Founder, Silver Lake
Lawrence Katz, Elisabeth Allison Professor of Economics, Harvard University
Chris Keates, General Secretary, NASUWT – The Teachers' Union
Edward Montgomery, Dean, McCourt School of Public Policy at Georgetown University
Pär Nuder, former Minister of Finance for Sweden
Steven Rattner, Chairman, Willett Advisors LLC
Judith Rodin, President, The Rockefeller Foundation
David Sainsbury, former British Minister of Science and Innovation
Wayne Swan, former Deputy Prime Minister and former Treasurer of Australia
Neera Tanden, President, Center for American Progress
John Van Reenen, Director, Centre of Economic Performance, London School of Econo

Center for American Progress

Report of the Commission on Inclusive Prosperity

Co-Chaired by Lawrence H. Summers and Ed Balls
Convened by the Center for American Progress   January 2015

WWW.AMERICANPROGRESS.ORG

Ties to current policy debates

- Annual DAVOS World Economic Forum – Co-chairman of conference is head of Oxfam who has called on governments to implement the following seven point plan:
    1. Reduce tax advantages for corporations and the rich
    2. Invest in universal, free public services such as health and education
    3. Share the tax burden fairly (use consumption taxes)
    4. Introduce minimum wages and move toward living wages
    5. Introduce equal pay and promote policies to give women a fair deal
    6. Ensure adequate safety nets for the poorest; guarantee a minimum income
    7. Agree to a global goal to tackle inequality

Core elements of the course

1) Tools of public policy analysis

Basic microeconomics

The study of how <u>individuals</u> make decisions; how these decisions interact.

And how these decisions affect <u>market outcomes</u>.

How <u>policies can affect</u> market outcomes

Empirical tools

How do we learn what programs and policies do?

Challenges in policy analysis is KNOWING what they do

2) Public Policy Analysis

- The process by which a society makes and enforces decisions on what behavior is acceptable and what is not

- The Eight Fold Path, provides a way to think through how to DO policy analysis

- Goal: Some coordinated action can improve the welfare of the society

- Although typically not everyone is made better off

3) Applications

Things governments do:

- Tax
- Regulate
- Subsidize
- Transfers to families
- Provide a direct service
- Provide information
- Property rights and a legal structure
- Encourage competition

Things governments do

- Tax   INCOME TAX

- Regulate   ENVIRONMENTAL STANDARDS

- Subsidize   AGRICULTURAL SUBSIDIES

- Redistributing income   FOOD STAMPS

- Provide a direct service PUBLIC SCHOOLS, MILITARY

- Provide information

- Property rights and a legal structure

- Encourage competition ANTI-TRUST RULES
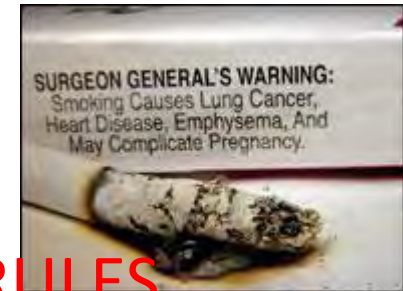
Justifications for government policies

- Correcting a market failure
  - Externalities
  - Public Good ("tragedy of the commons")
  - Incomplete markets (health insurance)
  - Information failure
- Redistribution

Equity versus Efficiency

Normative and positive economics

Goal: increase wellbeing (welfare) of citizens

Putting these government activities into practice

FiveThirtyEight
Nate Silver's Political Calculus

What Is Driving Growth in Government Spending?
By NATE SILVER   JANUARY 16, 2013 1:06 PM   271 Comments

1. Entitlement programs
2. Military spending
3. Interest on the debt
4. Infrastructure and services

Putting these government activities in practice

FiveThirtyEight
Nate Silver's Political Calculus

What Is Driving Growth in Government Spending?
By NATE SILVER   JANUARY 16, 2013 1:06 PM   271 Comments

1. Entitlement programs – social security, Medicare, Medicaid, Food stamps, unemployment

2. Military spending

3. Interest on the debt

4. Infrastructure and services – education, criminal justice, science, technology

Federal Government Spending as Share of GDP

- Entitlement Programs
- Defense
- Infrastructure and Services
- Interest
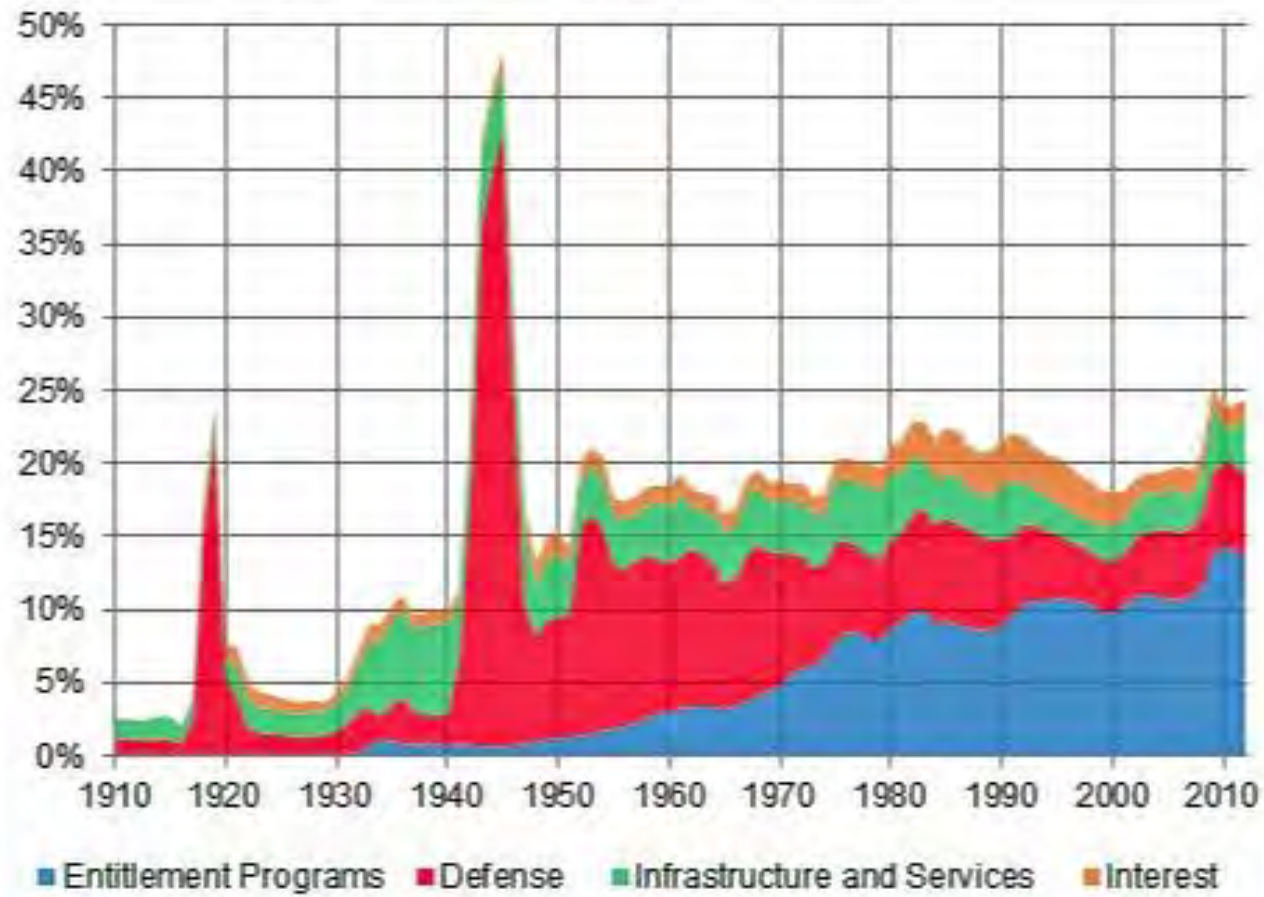
State & Local Government Spending as Share of GDP

Legend: Entitlement Programs · Defense · Infrastructure and Services · Interest

Total Government Spending as Share of GDP

Entitlement Programs ■ Defense ■ Infrastructure and Services ■ Interest
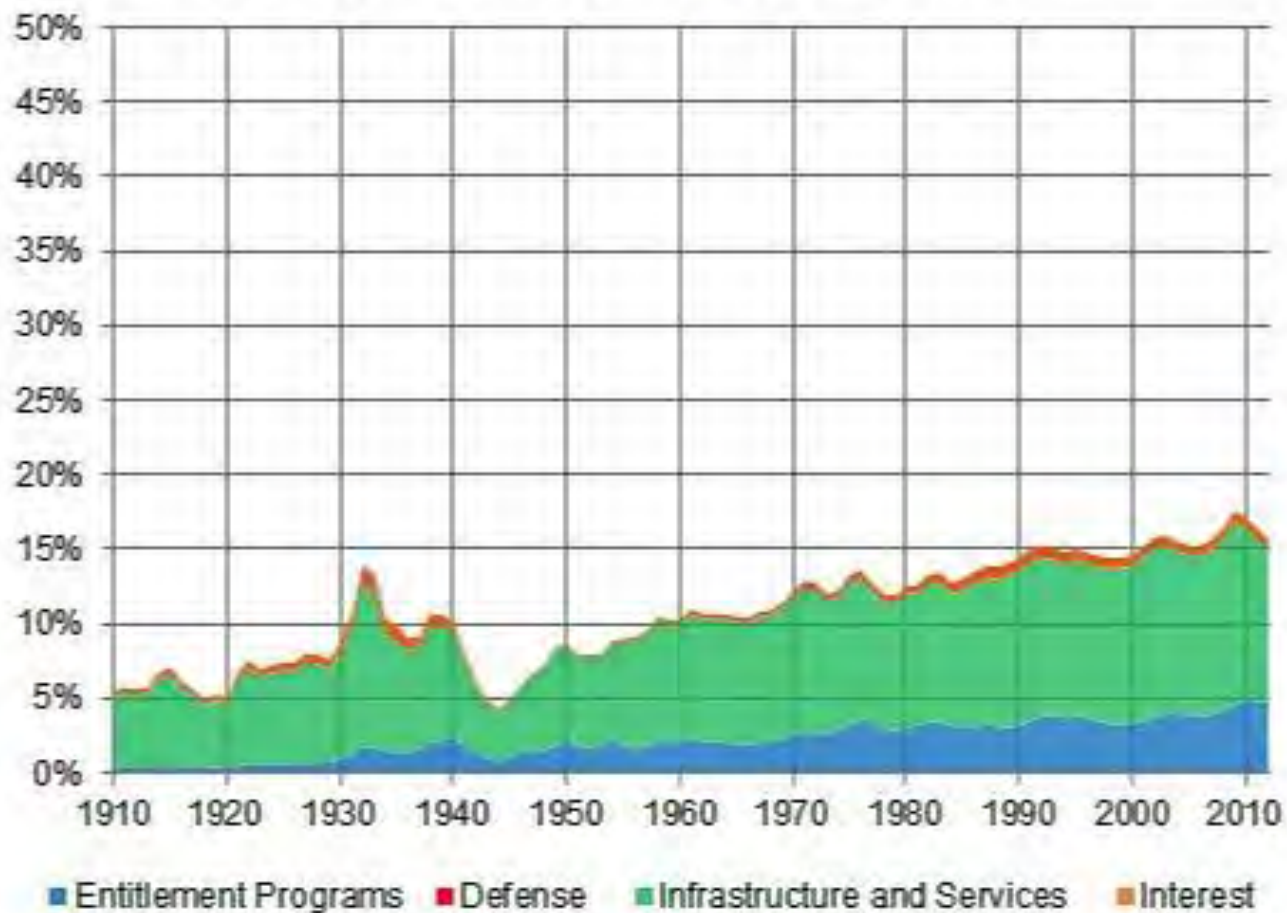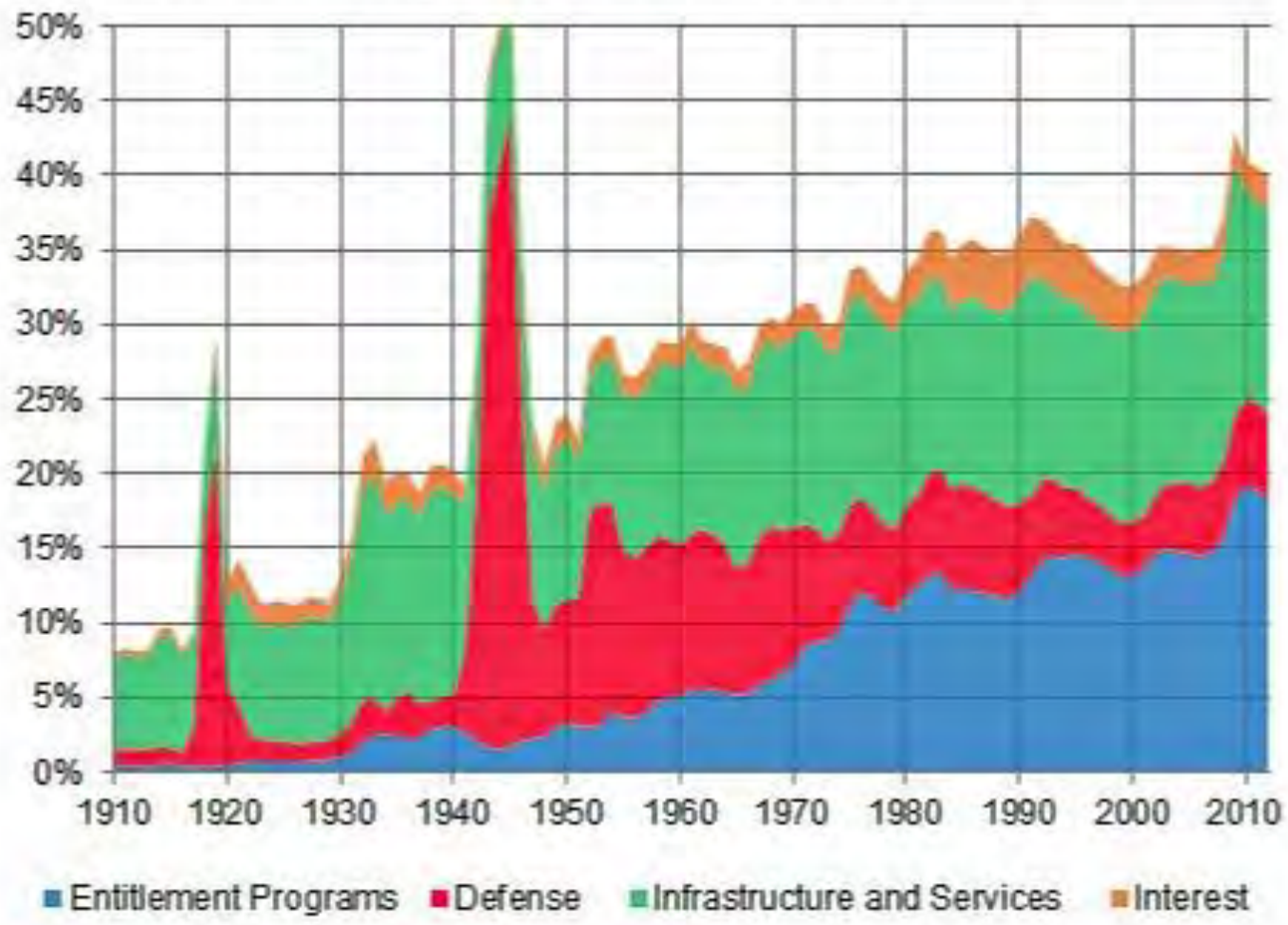
Total Government Spending
Annualized Growth Rate, 1972-2011

Category	Rate
Entitlement Programs	**4.8%**
Pensions and Retirement	4.4%
Health Care	5.7%
Welfare	4.1%
Infrastructure and Services	**2.7%**
Education	2.5%
Protection and Law Enforcement	4.8%
Transportation	2.3%
Science, Technology, Other Infrastructure	2.4%
General Government	2.7%
Defense	**2.0%**
Interest	**3.4%**
Total Government Spending	**3.4%**
Gross Domestic Product	**2.7%**
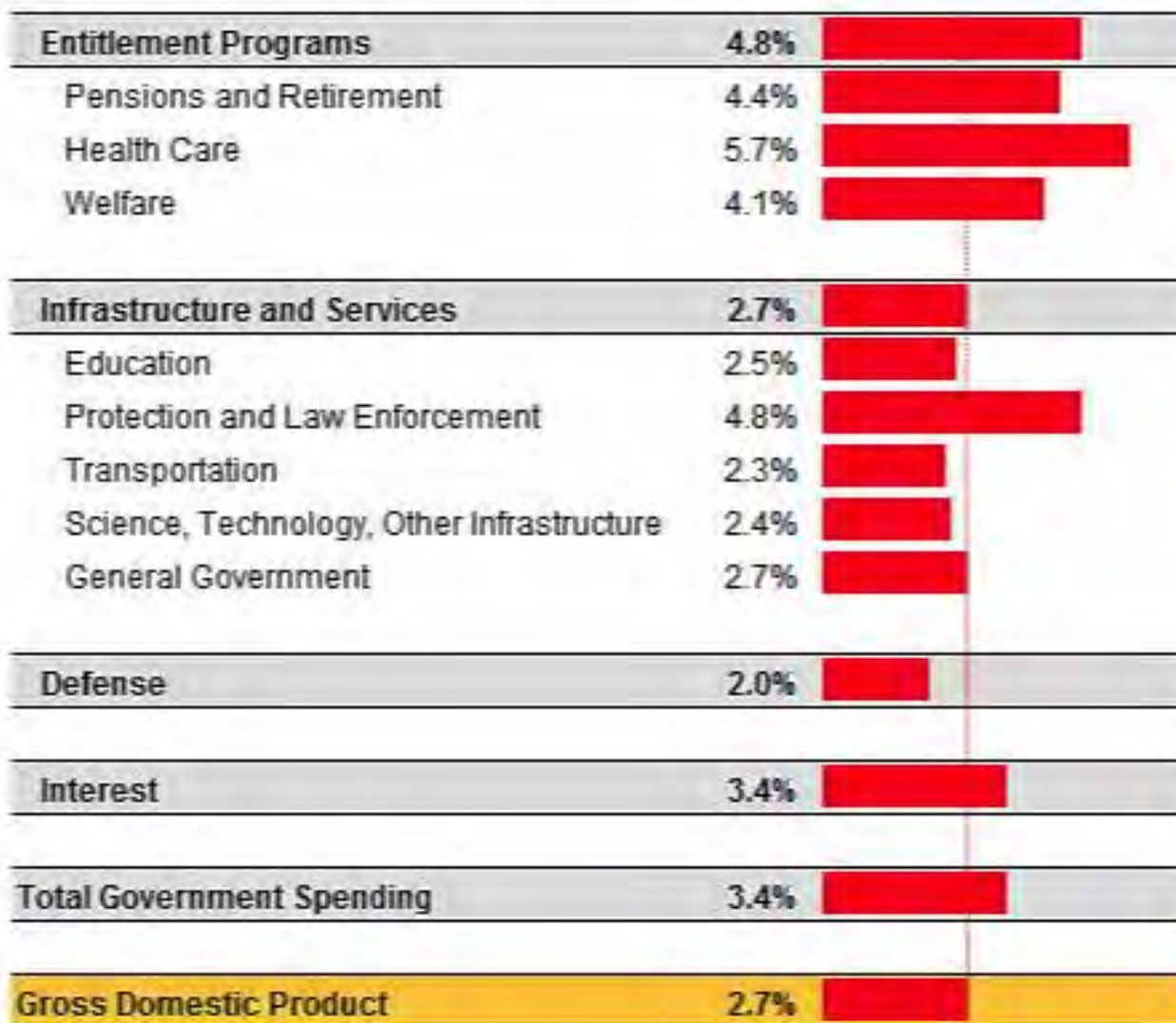
To the syllabus and how we are going to do this

- Build from core tools of public policy analysis; microeconomics
- Provide policy applications all along the way
- Introduce the Eight Fold Path as a way to analyze policies
- "Tool" days, with me lecturing
- "Application" days, based on class discussion
- <u>MUST keep up with reading and online course on 8FP</u>

How to be successful in this class

- Attend lecture
- Attend section (GSIs will talk about points for attendance)
- Come to us with questions; don't wait until the midterm
- Do the readings before class
- Come ready to discuss the readings

LECTURE #2

Lecture Outline:

Empirical evidence for public policy analysis

- Correlation vs causation
- Randomized control trials
- Motivating example
- Observational approaches
- Case study: Murnane

Announcements/Assignments:

➢ Get the books & reader

➢Readings for Tuesday:

Krugman and Wells Ch 3, 4

Empirical Evidence for Policy Analysis

- Economics can give us theoretical predictions which is helpful
- But for more informative policy analysis we need numbers, specifics
  - How does UI affect the length of unemployment?
  - How does SNAP affect nutrition and obesity?
- Empirical policy evaluation: <u>DEF</u> "the use of data and statistical methodologies to measure the impact of government policy on individuals and markets"
- Fundamental challenge: disentangling causality from correlation
  - Correlated: move together
  - Causal: one of the variables causes movement in another

MEET KALE:

YOUR NEW FRIEND WITH BENEFITS

www.farmerspal.com

Suppose we read that:

Kale eaters have lower cholesterol

Kale eaters have a lower risk of diabetes

Correlation?

Causation?

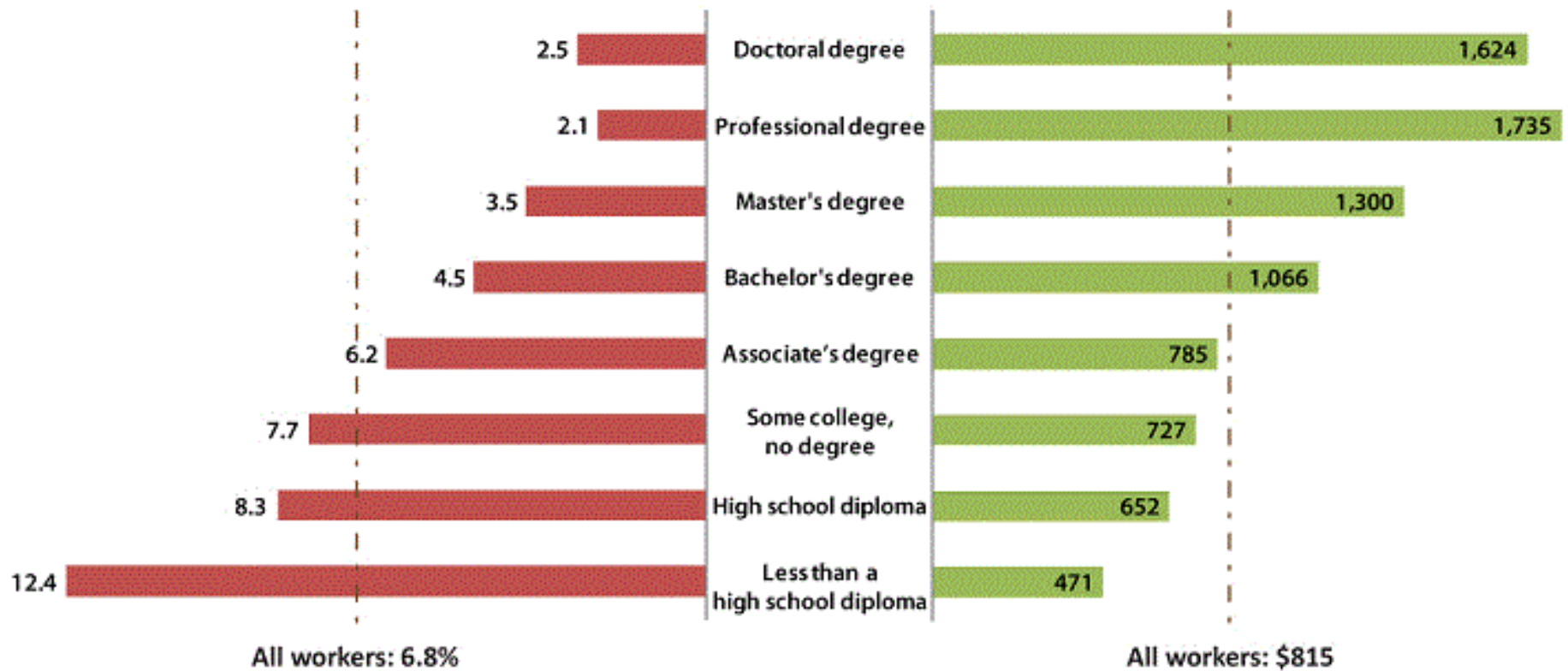How might we test for the difference?

Or, how does schooling affect earnings?

Earnings and unemployment rates by educational attainment

Unemployment rate in 2012 (%) | Median weekly earnings in 2012 ($)

Unemployment rate	Education	Median weekly earnings
2.5	Doctoral degree	1,624
2.1	Professional degree	1,735
3.5	Master's degree	1,300
4.5	Bachelor's degree	1,066
6.2	Associate's degree	785
7.7	Some college, no degree	727
8.3	High school diploma	652
12.4	Less than a high school diploma	471

All workers: 6.8%

All workers: $815

Source: Bureau of Labor Statistics, Current Population Survey

Challenges to causal identification in analyzing education and earnings

- "ability bias" – part of the observed relationship between education and earnings may be due to the fact that those who are more able choose higher education levels

- For policy analysis we want to isolate the causal channel – to answer the question if we encouraged higher education levels (Obama's new policy proposal for making community college free) what would we expect the gains to be?

- Identification problem

- How might we solve this *identification problem*?
- How to obtain the *causal* estimates we want for policy analysis?
- If it is feasible, one might use a randomized control trial RCT
- But we don't always have RCTs to use as evidence
- Observational data. DEF: data from individual behavior observed in the real world (not collected as part of your RCT)
- In addition to RCTs, we need to understand <u>how to get high quality evidence out of observational data</u>

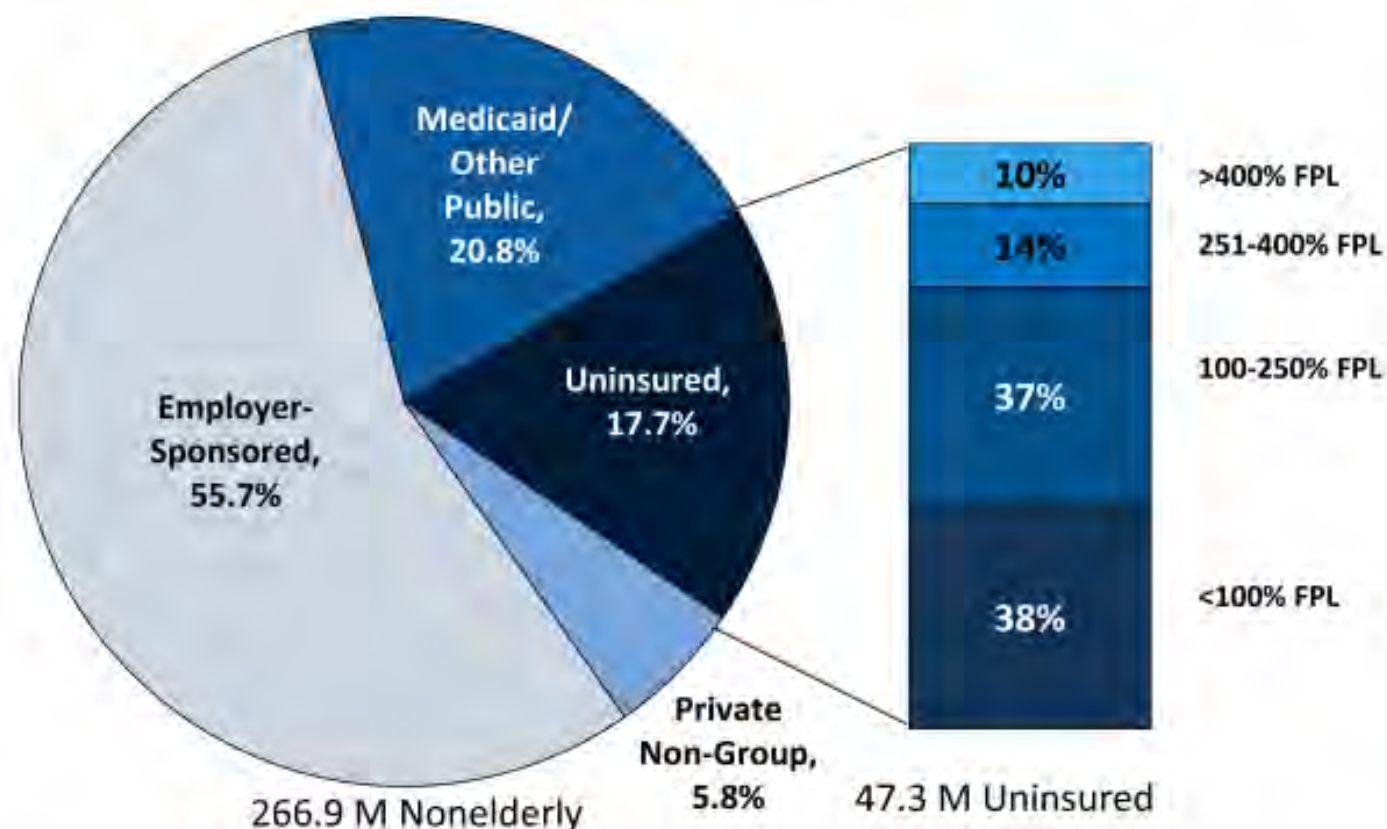# Motivating example

Obamacare

- Or, the Affordable Care Act
- What is the ACA?
  - Personal responsibility: penalties for NOT having health insurance
  - Expanding Medicaid and providing subsidies for private insurance to increase health insurance coverage
  - Requiring private health insurance to cover children through age 26
- Suppose we want to answer the following research question: how does health insurance affect health outcomes?

A naïve estimate of the effect of health insurance

- How about we collect data and compare outcomes of people with health insurance to people without health insurance?

- How might that be biased? Why?

Figure 1

The Uninsured Population—As a Share of the Nonelderly Population and by Poverty Levels, 2012

Medicaid/Other Public, 20.8%

Uninsured, 17.7%

Employer-Sponsored, 55.7%

Private Non-Group, 5.8%

266.9 M Nonelderly

47.3 M Uninsured

10% >400% FPL

14% 251-400% FPL

37% 100-250% FPL

38% <100% FPL

Medicaid and other public coverage includes: CHIP, other state programs, Medicare and military related coverage. The federal poverty level for a family of four in 2012 was $23,050.

SOURCE: KCMU/Urban Institute analysis of the 2013 ASEC supplement to the CPS.

KAISER FAMILY FOUNDATION

Figure 3

Uninsured Rates Among Selected Industry Groups, White vs. Blue Collar Jobs, 2012
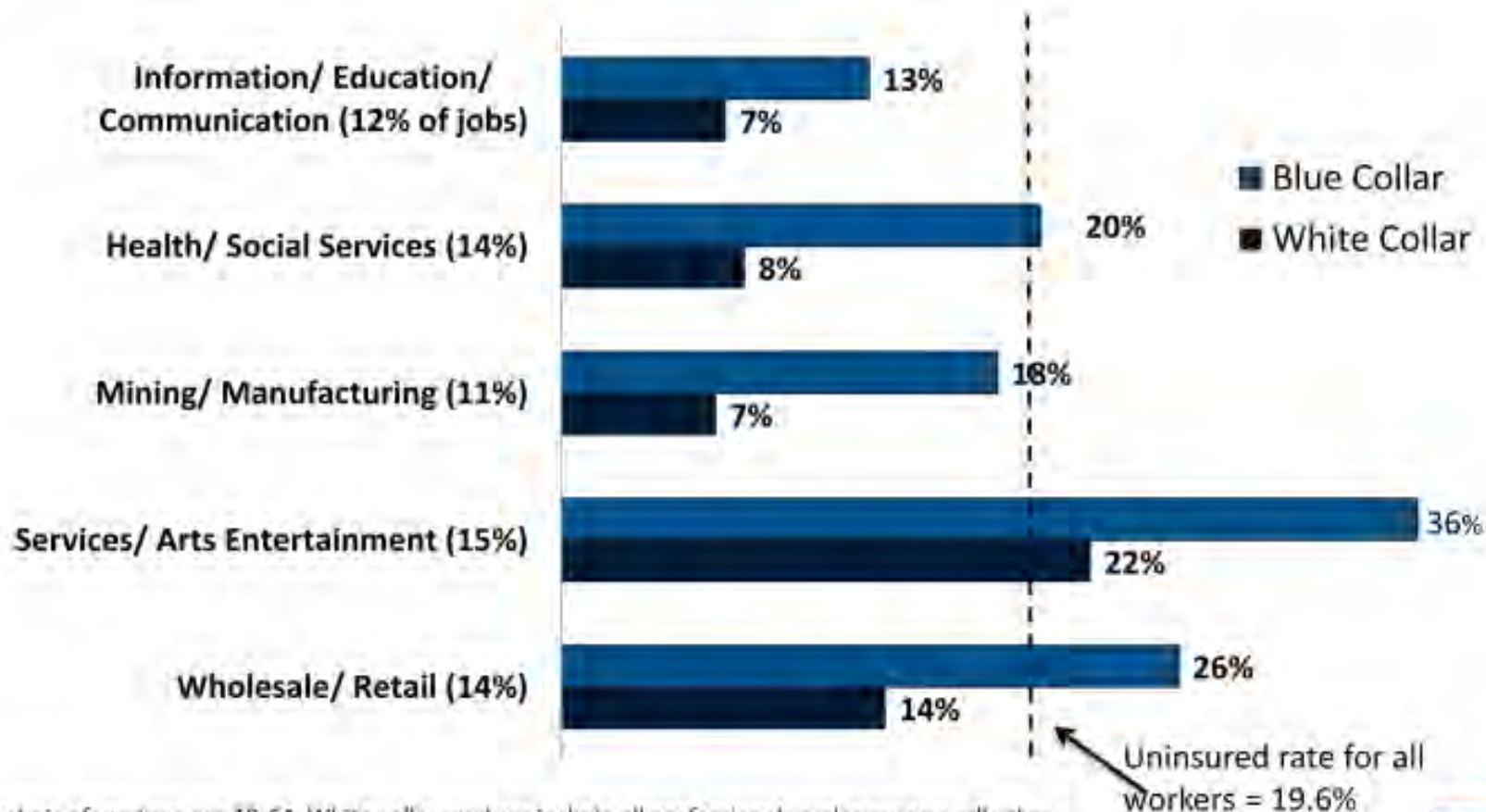
Analysis of workers age 18-64. White collar workers include all professionals and managers; all other workers classified as blue collar.

SOURCE: KCMU/Urban Institute analysis of 2013 ASEC Supplement to the CPS.

EXHIBIT 2

Life Expectancy At Birth, By Years Of Education At Age 25 For White Females, 1990–2008
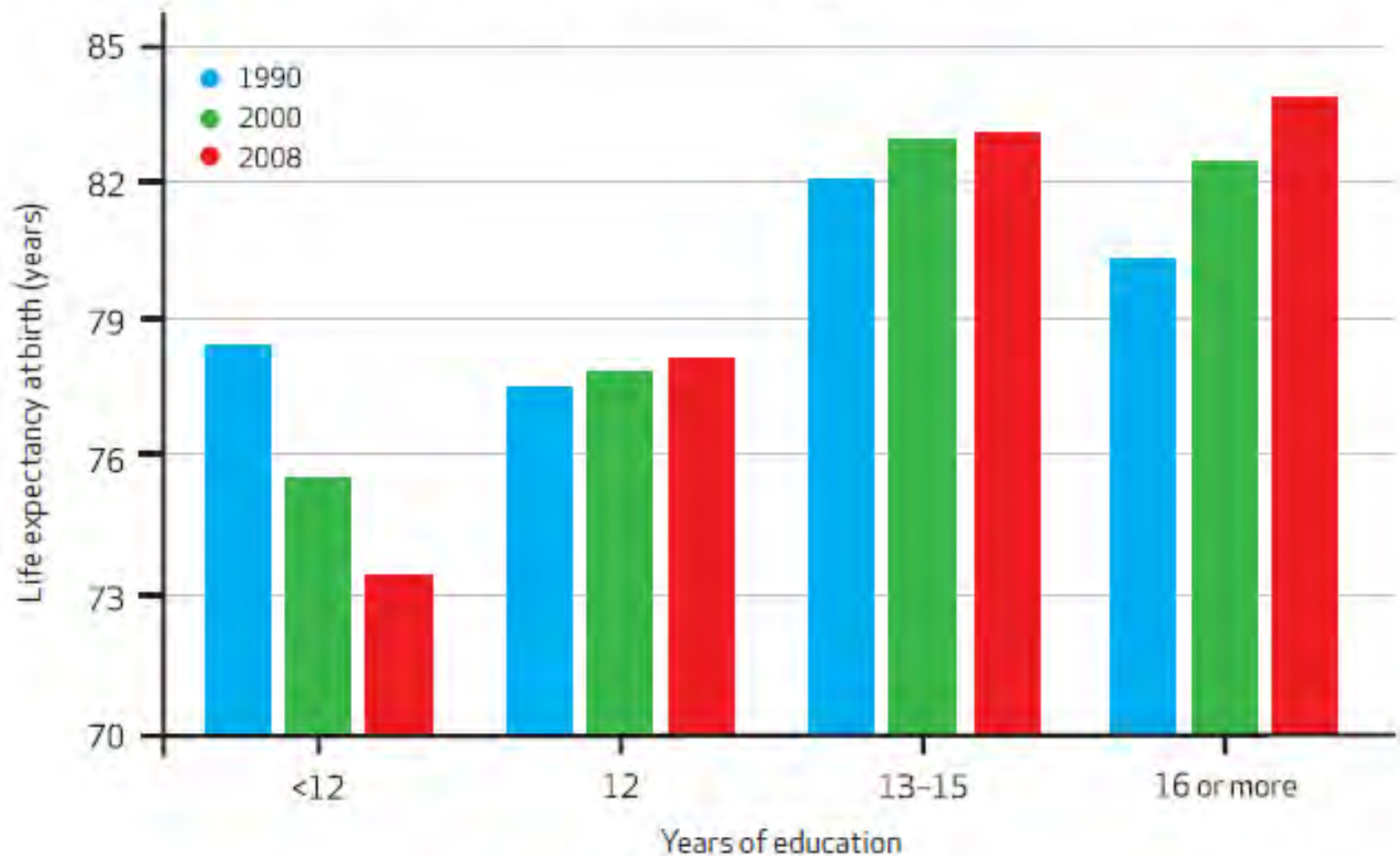
SOURCE Authors' analysis of data from the National Vital Statistics System and the Census Bureau (Notes 24–26 in text).

Empirical Approaches to evaluate the effect of health insurance on health outcomes

1. Compare those with health insurance to those without health insurance. *Cross-Sectional*

2. Compare outcomes before and after the introduction of Medicaid (1970s) *Time-Series*

3. Use the recent variation across states in their expansions of Medicaid for children *Difference in difference*

4. Compare those just eligible and not eligible for Medicaid *Regression Discontinuity*

5. Randomized experiment using "lottery design" *RCT*

The fundamentals of an RCT

- Identify the population of interest, and create your experimental sample drawn from that population
- RANDOMLY select one group to obtain the treatment and the other to not get the treatment
  - Treatment group
  - Control group
- Difference in mean outcomes between treatment and control group = $\overline{Y_1} - \overline{Y_0}$ is the experimental effect of the treatment

Treated	$\overline{Y}_1$		
Control	$\overline{Y}_0$		
Difference	$\overline{Y}_1 - \overline{Y}_0$		

Examples of RCTs in policy analysis

- Lottery designs: used in the evaluation of Charter Schools, Head Start, Moving to Opportunity, Oregon Medicaid Experiment
  - Announce a new program and invite people to "sign up". If the signups exceed the total number of slots then you randomly assign one group to get the program, and one group does not
- Experiments on existing groups: used in welfare reform experiments
  - Randomly assign welfare recipients in several counties into a treatment group (who faces new rules) and a control group (who stays on the old rules)
- Village designs: used in many developing country contexts (e.g. Progressa in Mexico)
  - Identify a set of villages for the treatment, then match to a set of "similar" villages who are the controls.

Empirical Approaches to evaluate the effect of health insurance on health outcomes
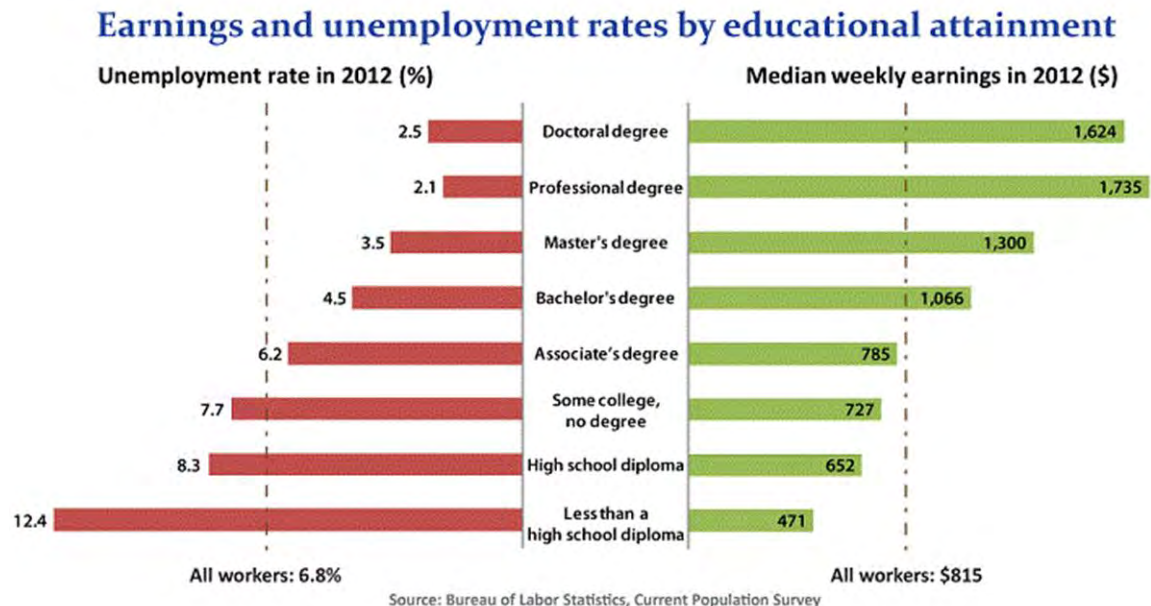
1. Compare those with health insurance to those without health insurance. *Cross-Sectional*

2. Compare outcomes before and after Medicaid is introduced as a new policy (1970s) *Time-Series*

3. Use variation across states in their expansions of Medicaid for children *Difference in difference*

4. Compare those just eligible and not eligible for Medicaid *Regression Discontinuity*

5. Randomized experiment using "lottery design" *RCT*

Cross Sectional Approach

1. Take the most recent data and compare those with health insurance to those without health insurance.

- Using this approach, we would take the difference in health outcomes as the effect of insurance

- What might be wrong with this?

Questions to ask in evaluating the quality of evidence

- Do the "treatment" and "control" groups differ for reasons other than the treatment?

- Bias: any source of difference between the T and C that is <u>correlated with</u> the treatment but is <u>not due to</u> the treatment

Earnings and unemployment rates by educational attainment

Unemployment rate in 2012 (%)		Median weekly earnings in 2012 ($)
2.5	Doctoral degree	1,624
2.1	Professional degree	1,735
3.5	Master's degree	1,300
4.5	Bachelor's degree	1,066
6.2	Associate's degree	785
7.7	Some college, no degree	727
8.3	High school diploma	652
12.4	Less than a high school diploma	471
All workers: 6.8%		All workers: $815

Source: Bureau of Labor Statistics, Current Population Survey

Lesson 1: Concerns about Cross Sectional Analysis

- DEF: comparing across individuals at a point in time

- Compare T and C at a single point in time

- Remember the key question: "Do the "treatment" and "control" groups differ for reasons other than the treatment?"

- There could be a third factor that affects both

- Bias, selection into treatment

Time-Series Approach

2. Compare outcomes before and after Medicaid is introduced as a new policy (1970s)

- Using this approach, we would take the difference in health outcomes as the effect of insurance
- What might be wrong with this?

Lesson 2: Concerns about Time-Series Analysis

- DEF: comparing across different time periods

- Remember the key question: "Do the "treatment" and "control" groups differ for reasons other than the treatment?"

- Here the analog is treatment= after period and control = before period

- There could be a third factor that affects both? Are there other factors leading to changes over time other than the treatment?

- Sharp time changes tend to generate better evidence

Example from Gruber reading:
When Is Time Series Analysis Useful?
Cigarette Prices and Youth Smoking
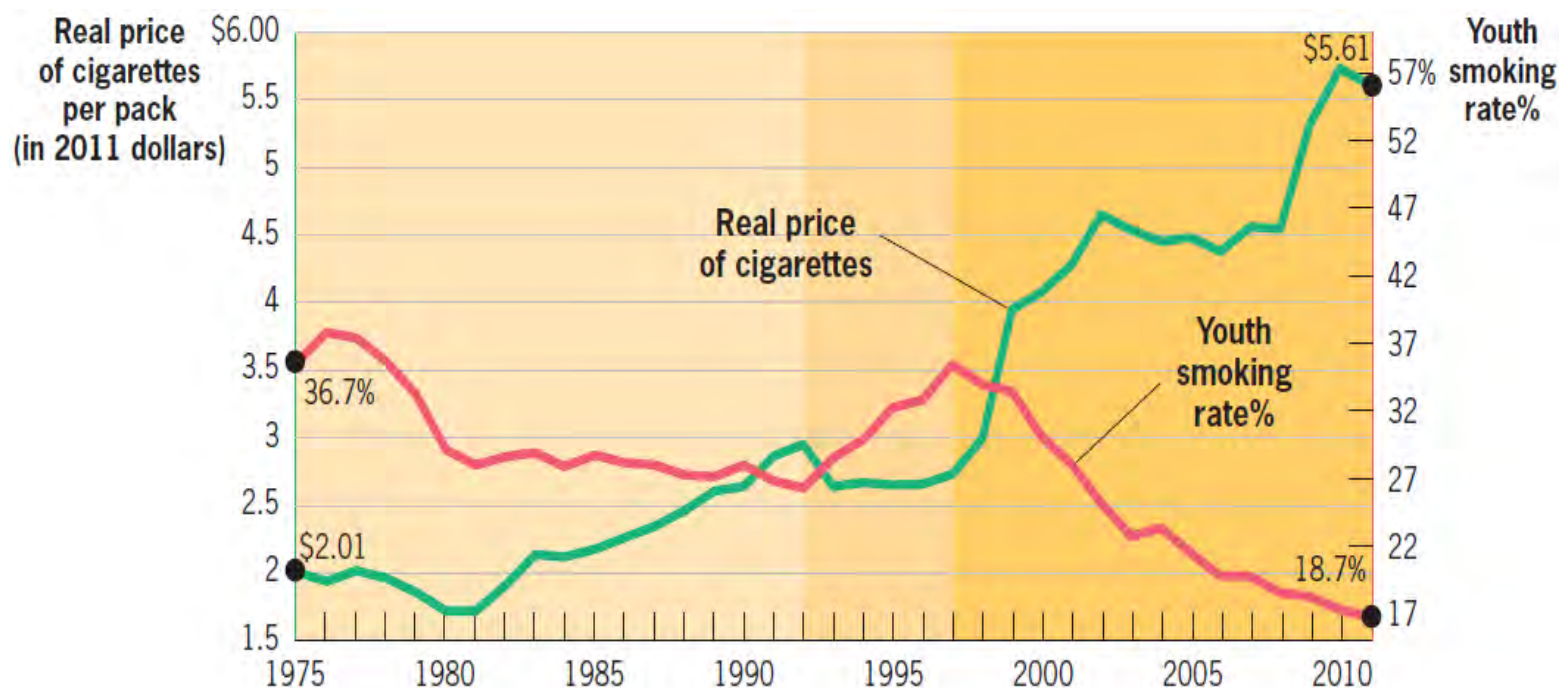
- Sharp, simultaneous changes in prices and smoking rates in 1993 and 1998–onward

- Known causes: price war, tobacco settlements

3. Use variation across states in their expansions of Medicaid for children

Use "the laboratory of the states"

Figure 1

Children's Eligibility for Medicaid/CHIP by Income, January 2014

300% or higher FPL (19 states, including DC)
250 - 299% FPL (10 states)
175% - 250% FPL (22 states)
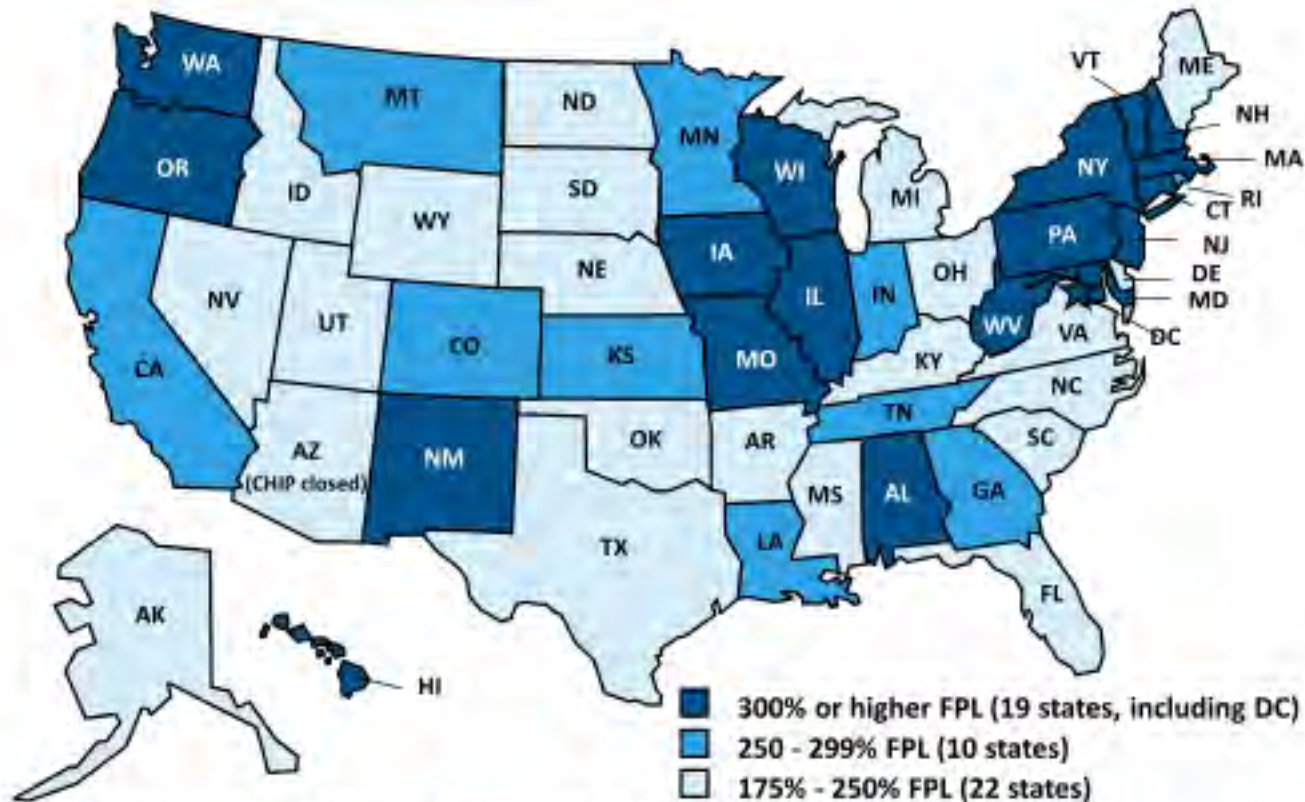
NOTE: Thresholds include the standard 5 percentage point of the FPL disregard.
SOURCE: Based on data from the Centers for Medicare and Medicaid Services, available at
http://medicaid.gov/AffordableCareAct/Medicaid-Moving-Forward-2014/Medicaid-and-CHIP-Eligibility-Levels/medicaid-chip-eligibility-levels.html as of January 1, 2014.

3. Use variation across states in their expansions of Medicaid for children

- We get data at the state level and over time (panel data)
- Relate changes in outcomes across states to the changes in Medicaid and SCHIP that occurred
- What might be wrong here?

Lesson 3: Quasi-experiments or "natural experiments" can be helpful

- DEF: Changes in the economic environment create nearly identical T and C groups.

- Creates *pseudo RCT* setting (hence "natural" experiment)

- Randomization due to external forces

- Example: policy change in one place but not another. Or policy change for one group and not another.

- Typically compare CHANGES over time in a T compared to changes in the C

Lesson 3: Quasi-experiments or "natural experiments" can be helpful (CONT)

- Difference in outcomes for treated area: $\overline{Y_{11}} - \overline{Y_{10}}$
- Difference in outcomes for control area: $\overline{Y_{01}} - \overline{Y_{00}}$
- Difference-in-difference = $(\overline{Y_{11}} - \overline{Y_{10}}) - (\overline{Y_{01}} - \overline{Y_{00}})$
- Better, but only as good as the control is. They are to proxy for what would have happened if there was no treatment.
- Combine ideas in cross-section and time series

5. Regression Discontinuity

- An extreme and sharp application of the difference in difference approach. Here, there is some underlying variable that determines the treatment. There is a sharp discontinuity in the treatment at some point. You then make a T and C groups on either side of the discontinuity.

Treatment

Treatment group

Control group

"Running variable"
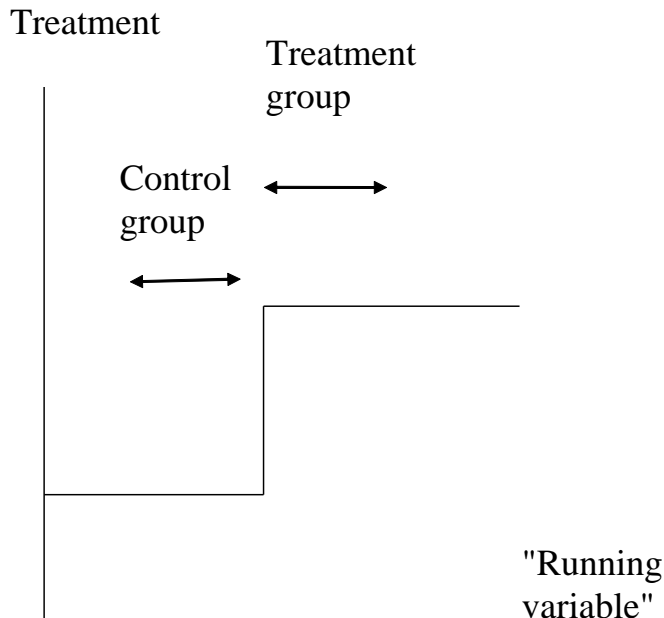
The appeal in this approach is that the comparison groups are "close" to the treatment.

Examples:

Head start and economic outcomes (poverty status of county)

Medicare (age)

Brief case study: Murnane Ch 2

- What is the setting in which they want empirical evidence?

  – Effect of school resources (class size, teacher qualifications, $ per pupil) on student outcomes

- What kind of empirical approach does the Coleman Report take? (1968 report by Sociologist James Coleman)

  – Cross sectional

- What were the findings?

  – School outcomes were worse among black children AND school resources explained none of those differences!

- Why might these findings be biased?

- IES: Goal is to fund high quality RCT in education research

LECTURE #3

Lecture Outline:

Tools: Supply & Demand, Markets, Surplus

Markets

Demand
- -- Demand curve
- -- Shifts in demand

Supply
- -- Supply curve
- -- shifts in supply

Equilibrium

Surplus
- -- Consumer, Producer
- -- Deadweight loss

Announcements/Assignments:

➢ CLASS TIME ON THURSDAY IS NORMAL 12:40-2:00

➢ Readings for this week: Krugman and Wells Ch 3-5

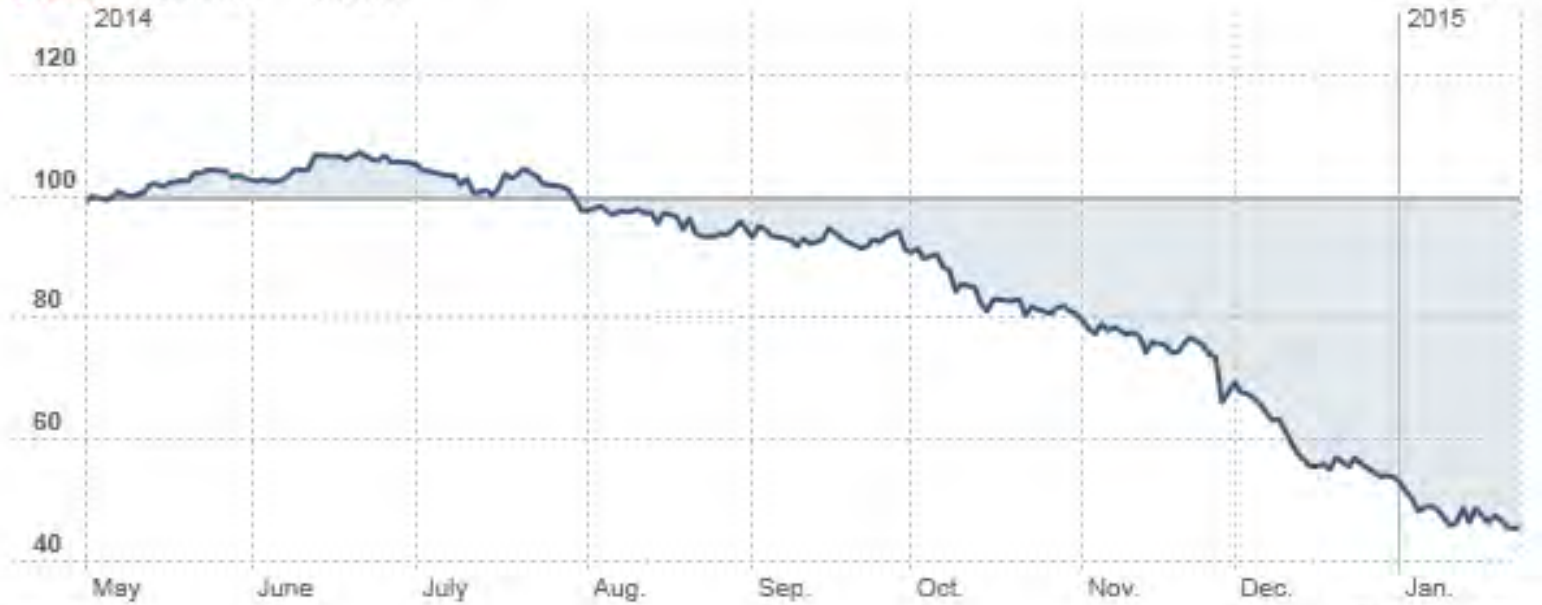➢ PS#1 will be available Thursday.

Where we are going: An example

Crude oil (barrel)

$45.26 -$54.43 −54.60%

The New York Times

Supply, Demand and Equilibrium
(Ch 3, Krugman&Wells)

Markets

- <u>Market:</u> Any arrangement that enables buyers and sellers to get information and do business together.

- Markets vary by:
    - Types of goods bought/sold
    - Type of competition (e.g. perfect competition, monopoly)

We will assume a <u>perfectly competitive market</u>:

1. All goods being offered are the same (homogenous)

2. There are many buyers and sellers (so not a monopoly)

→ No buyer or seller has any impact on prices. They accept market prices as given. They are <u>price takers</u>.
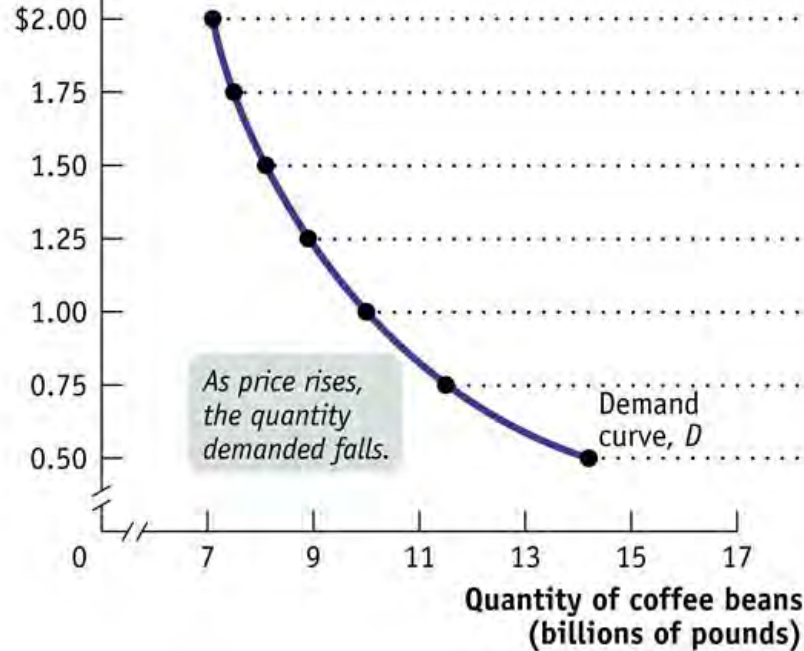
Our plan:

I.   Demand

II. Supply

III. Equilibrium

IV. Shifts in demand and supply and impacts on equilibrium

I. Demand

- Represents the <u>consumer</u> or buyers side of the market

- <u>Demand curve:</u> Shows how much consumers want to buy at different prices.

Demand curve

Demand Schedule for Coffee Beans

Price of coffee beans (per pound)	Quantity of coffee beans demanded (billions of pounds)
$2.00	7.1
1.75	7.5
1.50	8.1
1.25	8.9
1.00	10.0
0.75	11.5
0.50	14.2

- <u>Law of Demand:</u> Other things remaining the same, the higher the price of a good, the smaller the quantity demanded.

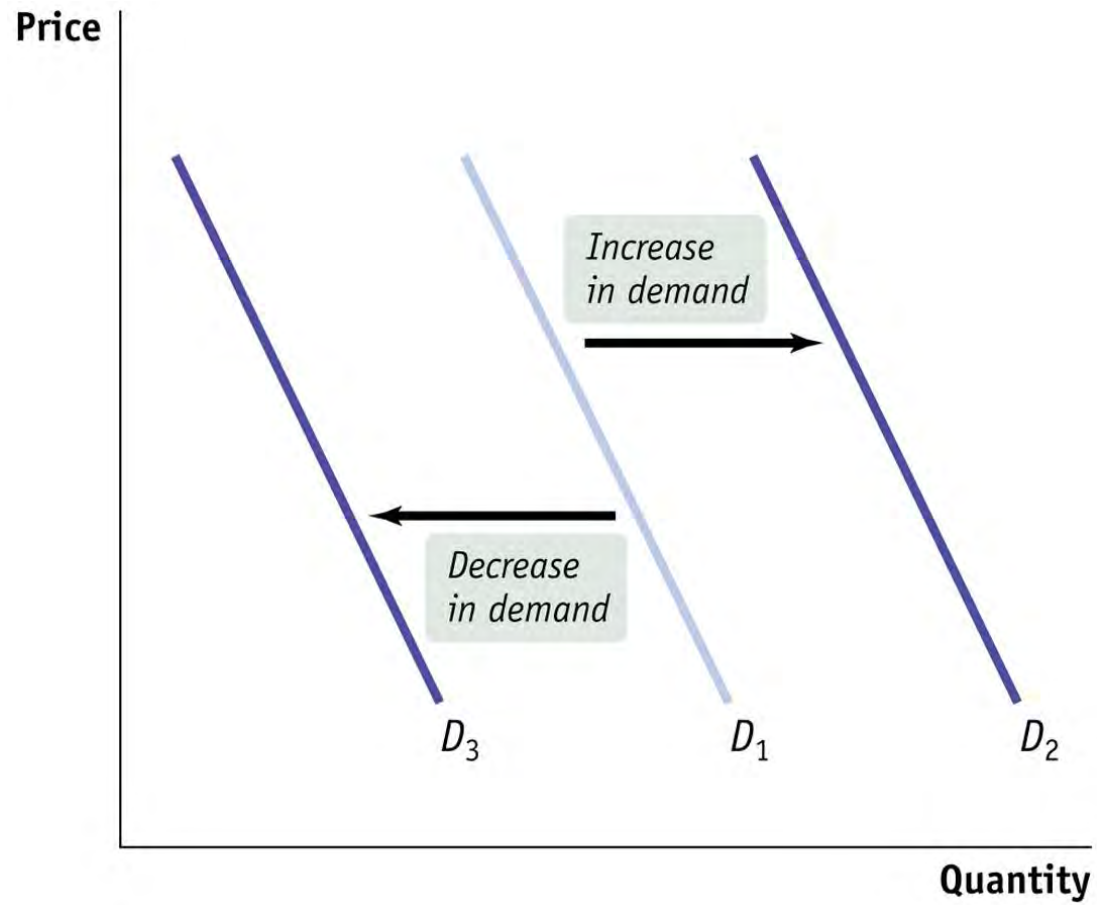   (Downward sloping demand curve)

What causes shifts in demand?

First, what do we mean by a shift in demand?

Economic vocabulary
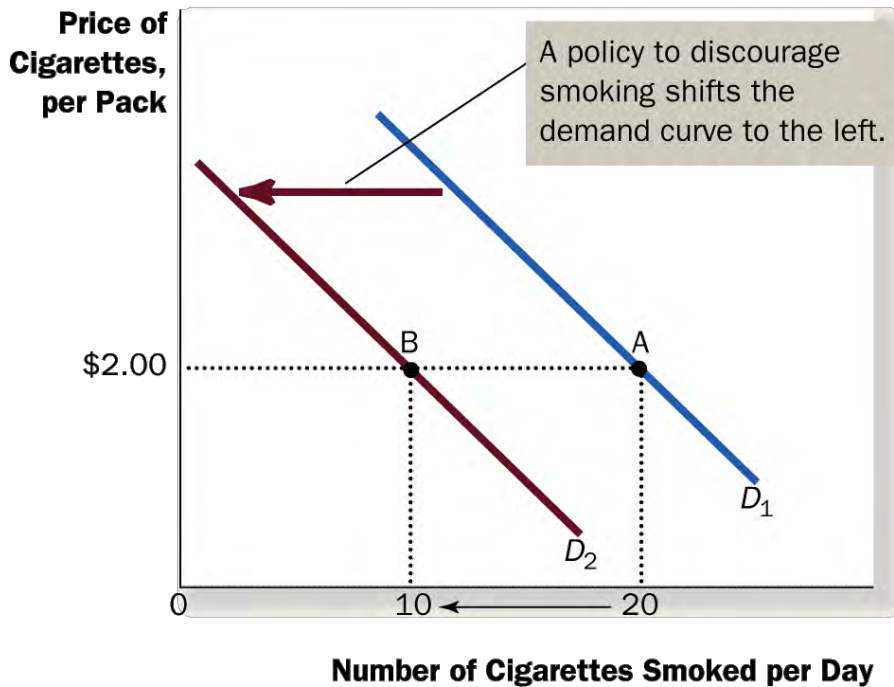
"Shift in demand"

Increase=right

Decrease=left

Price

Increase in demand

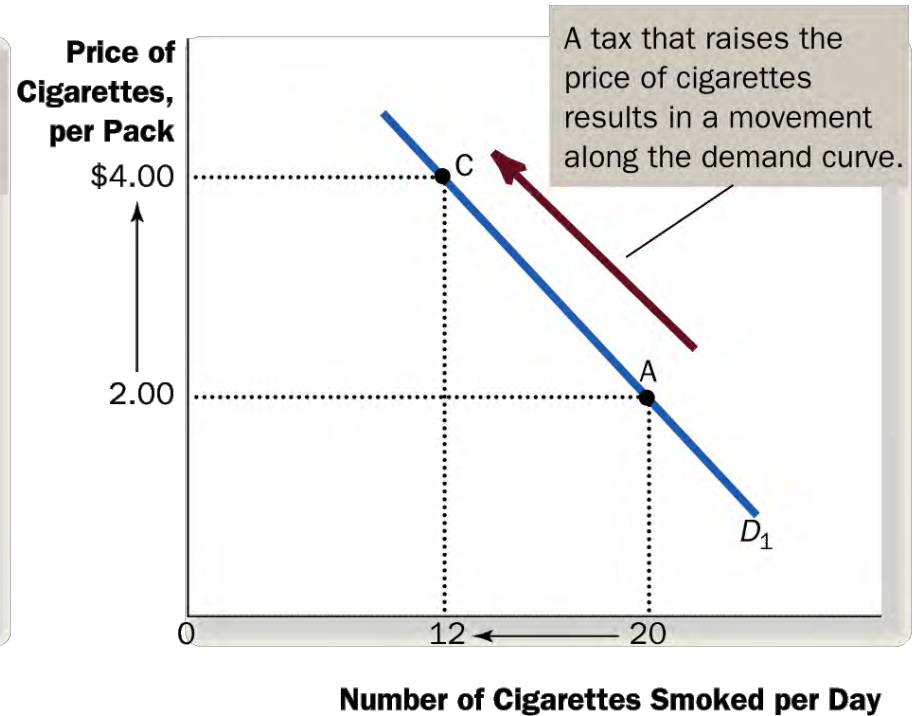Decrease in demand

D_3 D_1 D_2

Quantity

Economic Vocabulary-- Important to understand differences between:

- Movements along curve versus shifts in curve

(a) A Shift in the Demand Curve

Price of Cigarettes, per Pack

A policy to discourage smoking shifts the demand curve to the left.

B
A

$2.00

D_2
D_1

0   10 ←   20

Number of Cigarettes Smoked per Day

(b) A Movement along the Demand Curve

Price of Cigarettes, per Pack

A tax that raises the price of cigarettes results in a movement along the demand curve.

$4.00 C

2.00 .... A

D_1

0   12 ←   20

Number of Cigarettes Smoked per Day

Both will lead to reductions in quantity of cigarettes.

What causes shifts in demand?

1. Changes income
2. Changes in prices of related goods
3. Changes in tastes/preferences
4. Changes in expectations about the future
5. Changes in the size of the market (number of buyers)

1. Changes in income

- <u>Normal good</u> An increase in income leads to an *increase* in demand.

- <u>Inferior good</u> An increase in income leads to a *decrease* in demand.

2. Changes in prices of related goods

- <u>substitute</u> Good that can be used in place of another. Implies:

  Price of substitute ↑ → demand ↑

- <u>complement</u> Good that is used together with another good. Implies:

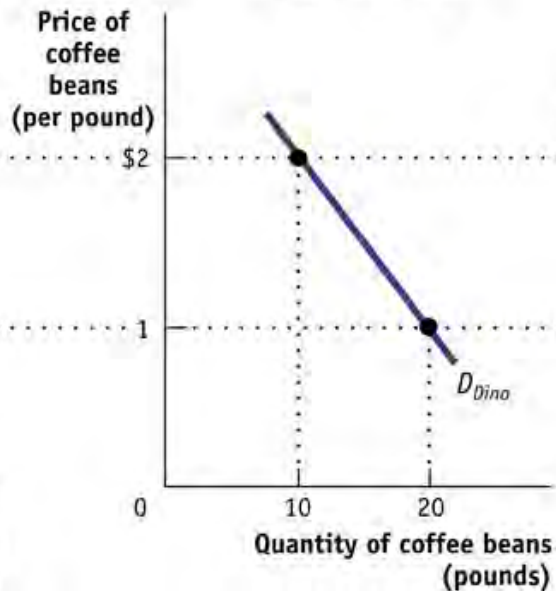 Price of complement ↑ → demand ↓

Different levels for demand

- One person's demand curve
- The entire market demand curve
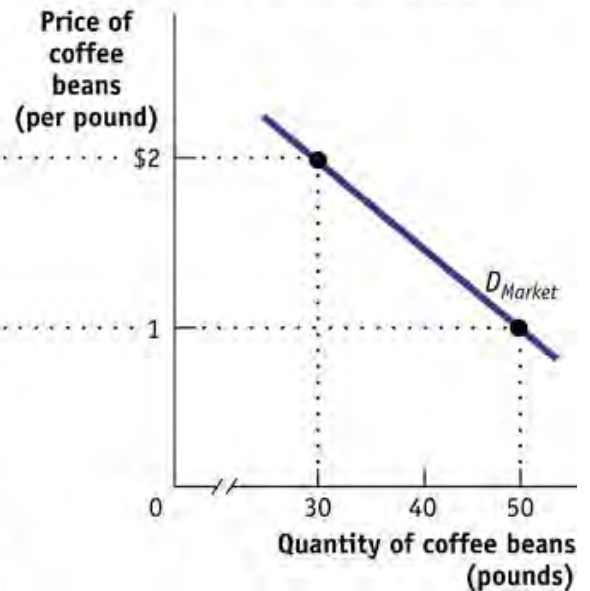 - We get this by "adding up" across people

(a) Darla's Individual Demand Curve
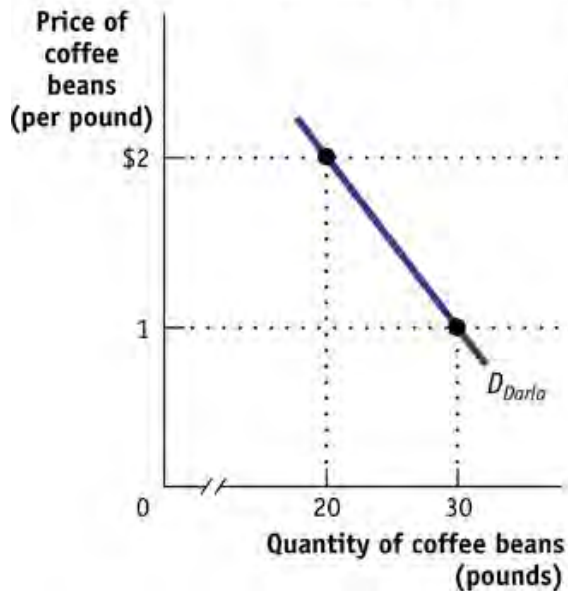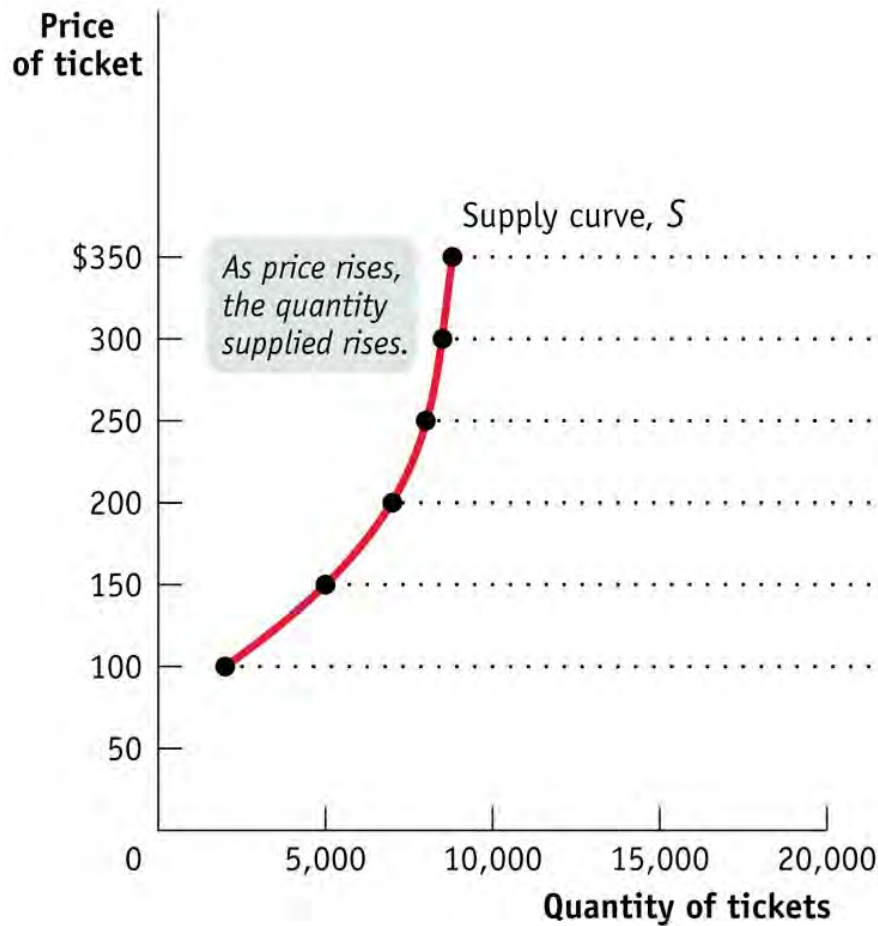
(b) Dino's Individual Demand Curve

(c) Market Demand Curve
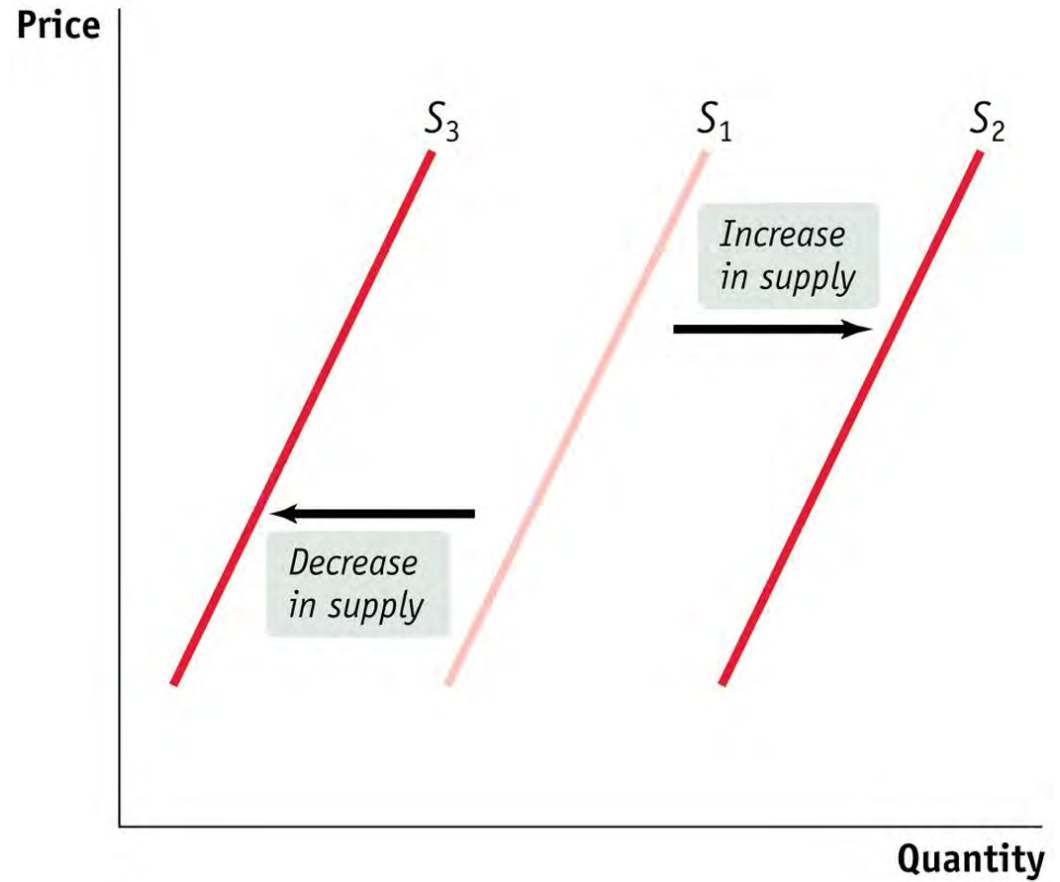
II. Supply

- Represents the producer or seller side of the market

- <u>Supply curve:</u> Shows how much producers plan to sell at different prices.

Supply Schedule for Tickets	
Price of ticket	Quantity of tickets supplied
$350	8,800
300	8,500
250	8,000
200	7,000
150	5,000
100	2,000

- Law of supply: Other things remaining the same, the higher the price of a good, the greater the quantity supplied.
  (Upward sloping)

Economic vocabulary

"Shift in supply"

Increase=right

Decrease=left

What causes shifts in supply?

1. Changes in input prices
2. Changes in prices of related goods
3. Changes in technology
4. Changes in expectations (future prices)
5. Changes in number of sellers
6. Changes in weather (sometimes)

III. Equilibrium

- Generally, an equilibrium is a situation when opposing forces balance each other.

- <u>Equilibrium in supply and demand:</u> Situation when price has reached a level where quantity supplied = quantity demanded.

Market Equilibrium

Market equilibrium occurs at point *E*, where the supply curve and the demand curve intersect.
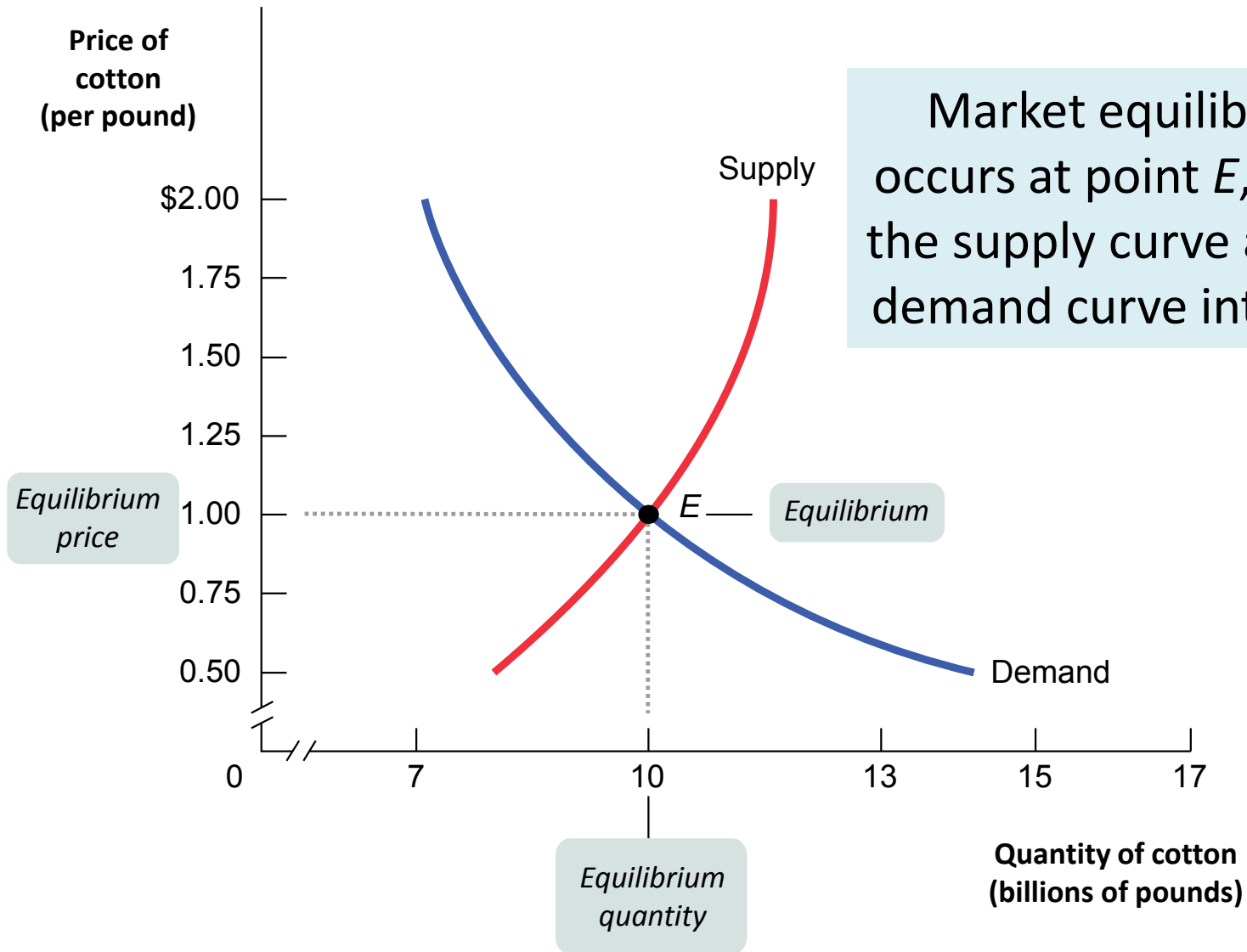
How do we know that the market gets to the equilibrium?

- Key feature of the market:
  - Price regulates buying and selling plans
  - Price adjusts when plans do not match
- Example <u>Case 1:</u> quantity supplied > quantity demanded

  SURPLUS
- Example <u>Case 2:</u> quantity supplied < quantity demanded

  SHORTAGE

Analyzing Impact of Change in Demand or Supply on Equilibrium Prices and Quantity

<u>3 Steps</u>

1. Does change lead to a shift in demand or supply (or both)?

2. How does it shift demand or supply (or both)?

3. How does the shift affect equilibrium price and quantity?

Example: Market for Crude Oil

Use a specific example to illustrate how identify:

- whether it affects supply or demand

- how does it shift demand or supply

Reasons for oil price changes

1. Growth in Chinese manufacturing sector
2. U.S. oil production increases
3. Economic Recession
4. Vehicles become more energy efficient
5. Population increases
6. Bill passed by Congress creates subsidies for oil and gas companies to expand refineries
7. Price of cars increase

What do consumers and producers "gain" from the existence of the market?
(Ch 4, Krugman&Wells)

Why do we want to know?

- Knowing what consumers and producers gain the market helps us to think about: when the market is working well; or not well

- We start by thinking about a best case world where the market works perfectly.

- First we have to define measures of wellbeing

- Here the we move from *positive* into *normative* discussions

I. Consumer well being (consumer surplus)

II. Producer well being (producer surplus)

III. Market efficiency (maximize surplus)

I. Consumer Surplus

- How much do consumers benefit from the market?
- Break this down into two parts:
- How much do they <u>value</u> what they consume
- How much do they <u>pay</u> for what they consume
- Difference is their <u>benefit</u> or <u>surplus</u>

- <u>Willingness-to-pay</u>: Maximum amount buyer will pay for the good.

  - Height of the demand curve is the <u>marginal</u> willingness to pay for the next unit

- Consumer purchase decision: buy item if marginal willingness to pay exceeds price.

- <u>Consumer surplus</u>: Net gain to an individual buyer from the purchase of a good

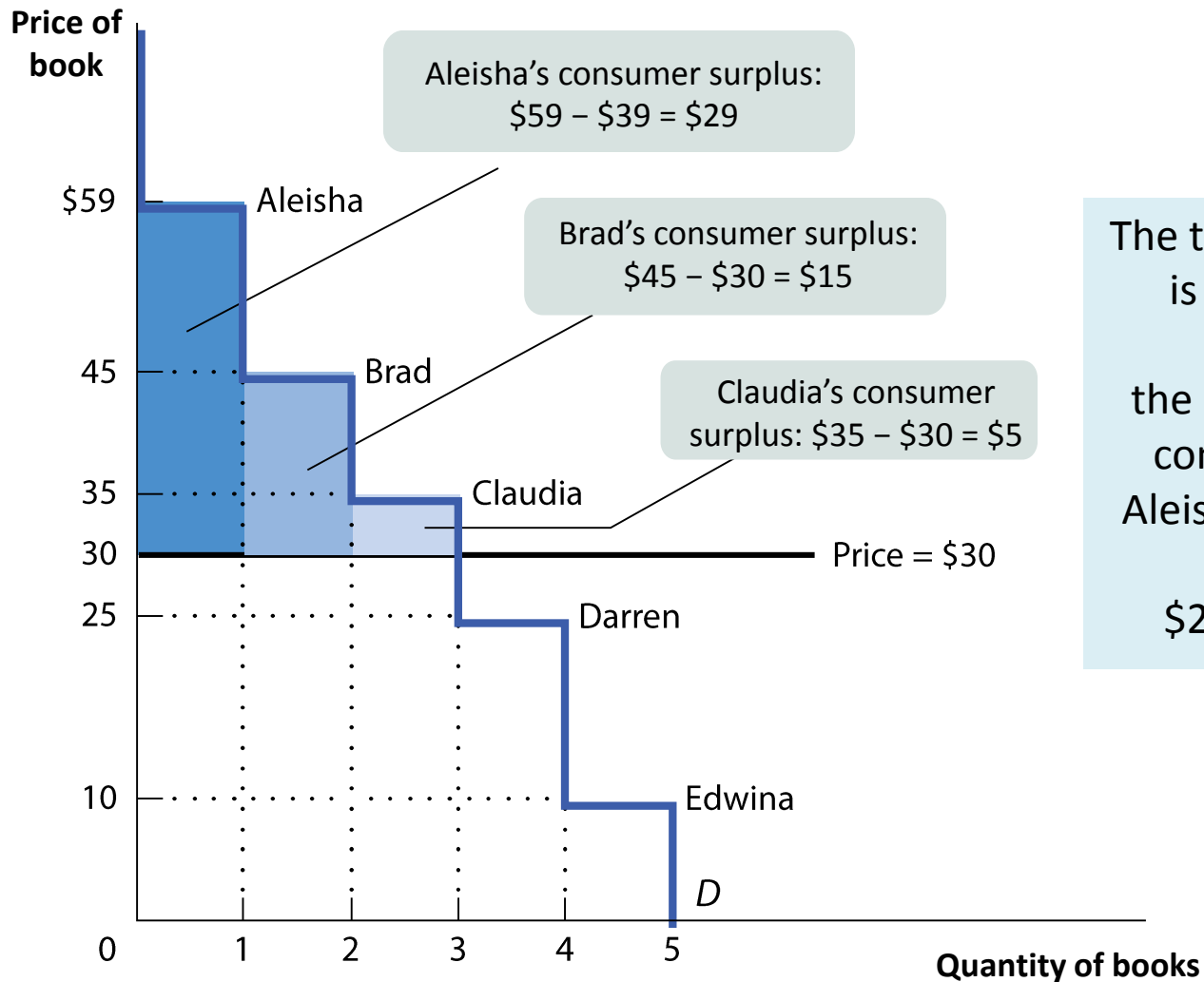 - Consumer surplus = WTP - amount actually paid

The Demand Curve for Used Textbooks
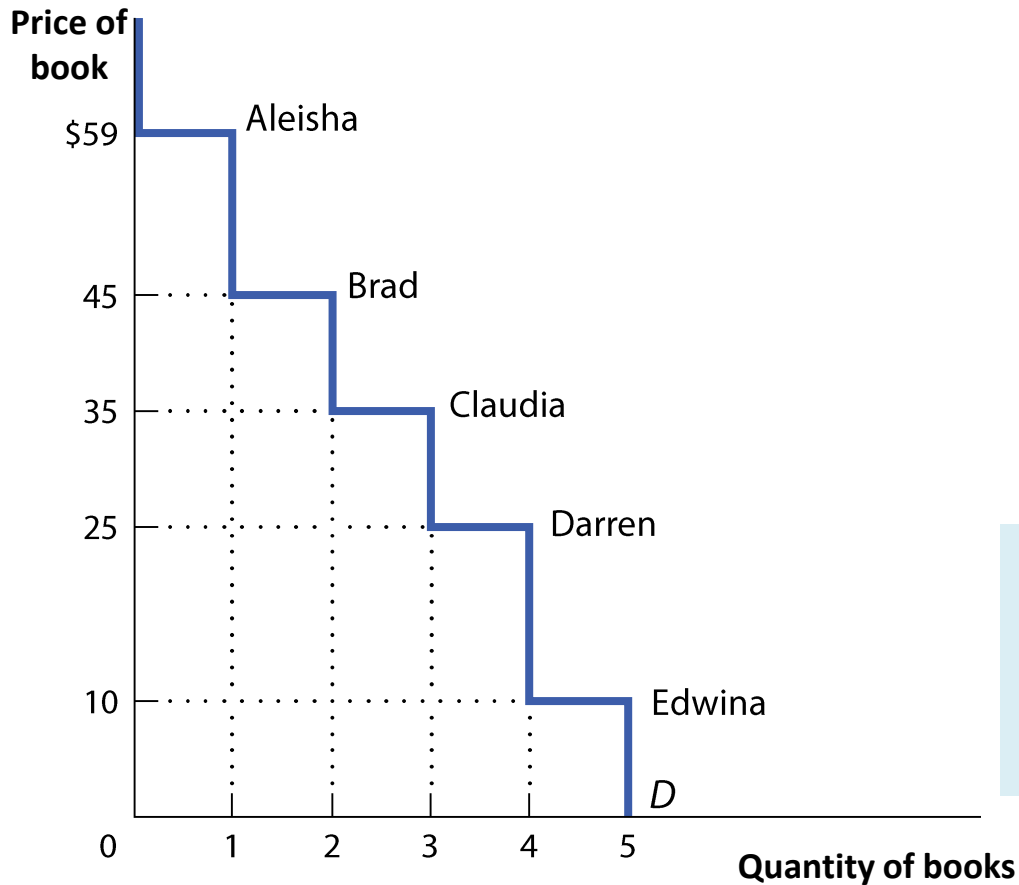
| Potential buyers	Willingness to pay
Aleisha	$59
Brad	45
Claudia	35
Darren	25
Edwina	10

A consumer's willingness to pay for a good is the maximum price at which he or she would buy that good.

Consumer Surplus in this market (suppose price=$30)

Price of book

Aleisha's consumer surplus:
$59 − $39 = $29

Brad's consumer surplus:
$45 − $30 = $15

Claudia's consumer surplus: $35 − $30 = $5

$59 Aleisha

45 Brad

35 Claudia

30 Price = $30

25 Darren

10 Edwina

D

0 1 2 3 4 5

Quantity of books

The total consumer surplus is given by the entire shaded area —
the sum of the individual consumer surpluses of Aleisha, Brad, and Claudia
— equal to
$29 + $15 + $5 = $49.

Measuring Consumer Surplus more generally
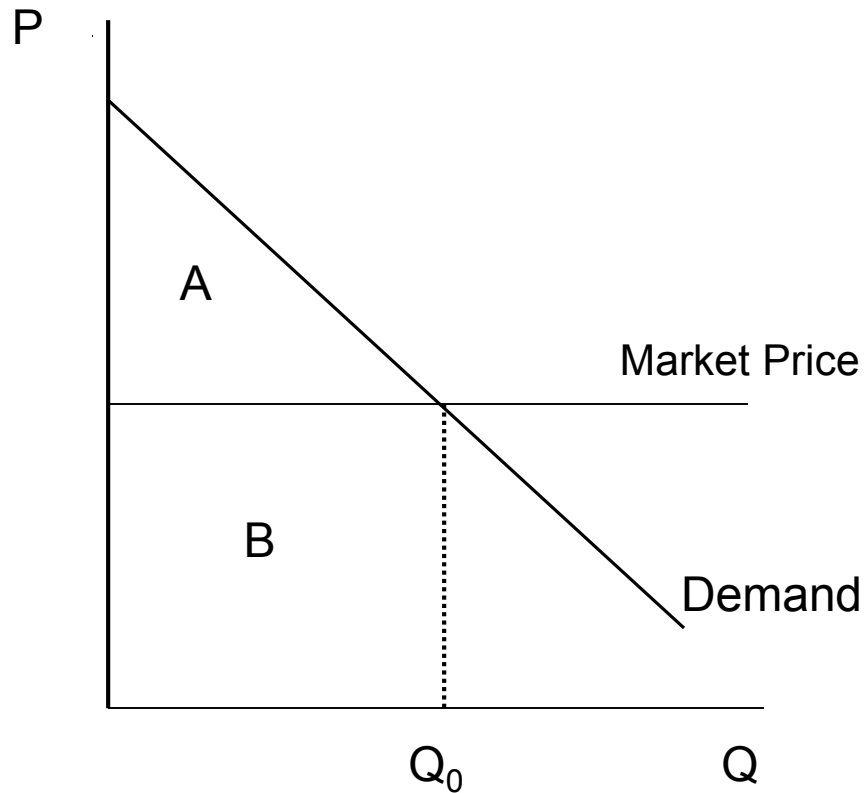
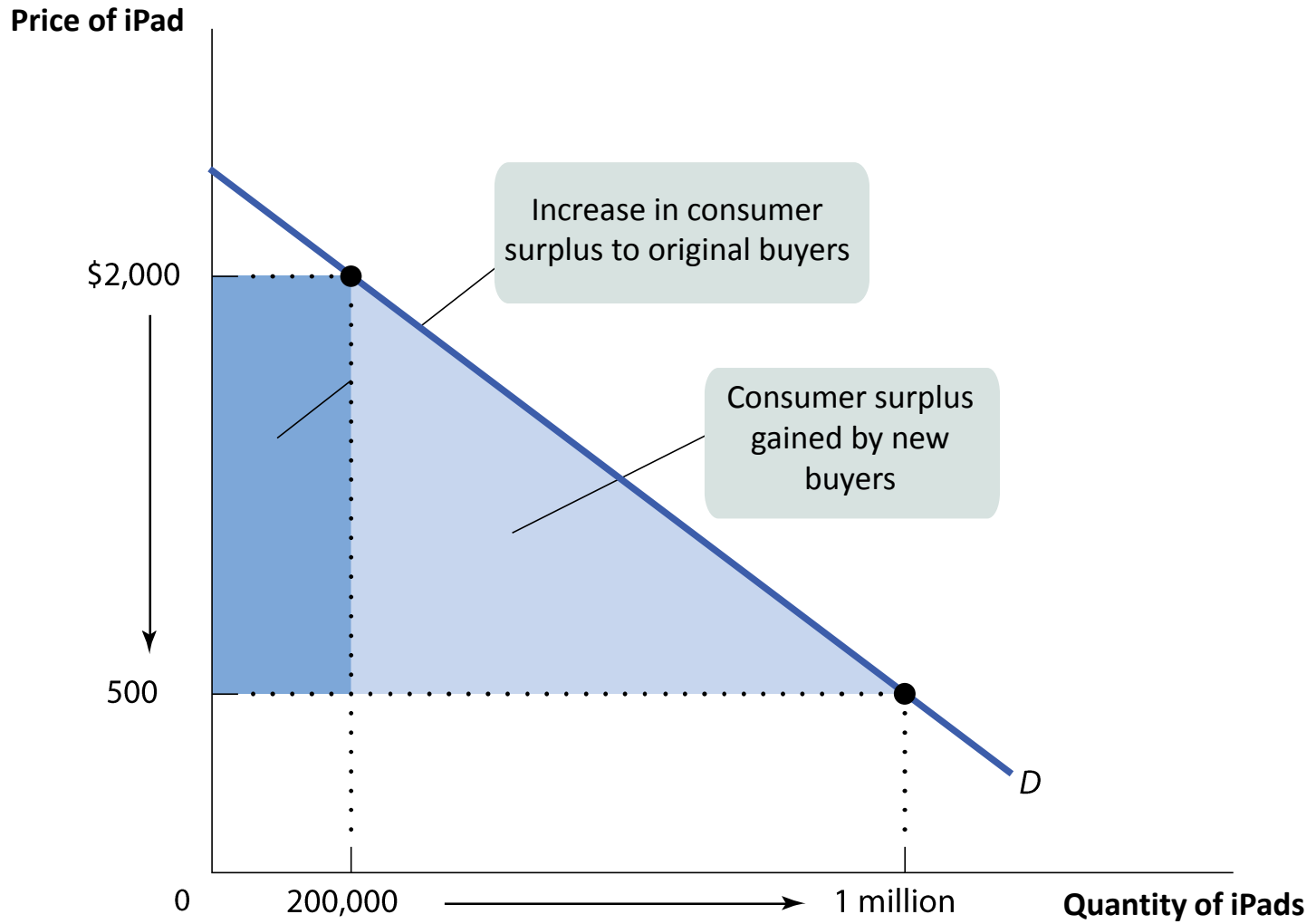Consumer surplus is the area under the demand curve, above the price.

At Q_0:

Total willingness to pay for is A+B

Total amount paid is B

Consumer surplus is A

A Fall in the Market Price Increases Consumer Surplus

Price of iPad

$2,000

500

Increase in consumer surplus to original buyers

Consumer surplus gained by new buyers

D

0   200,000   1 million   **Quantity of iPads**

Changes in price and changes in consumer surplus

- Change in price leads to change in consumer surplus through two channels

- For example, when the price decreases

  – CS increases because quantity increases

 – CS increases because more surplus for each unit consumed

I. Producer Surplus

- How do we measure the benefits to sellers?
- Break this down into two parts:
- How much do they <u>receive</u> for selling the good
- What is the <u>cost</u> of producing the good
- Difference is their <u>surplus </u>or profit

- How much do they <u>receive</u> for selling the good
  - What is this?
  - Price of the good (or total revenue)
- What is the <u>cost</u> of producing the good
  - It turns out that their S curve will give us the marginal cost of producing the good
  - This is the same as their willingness-to-sell
- [Their decision: sell if revenue>cost]
- Difference is their <u>surplus </u>or profit

Measuring Producer Surplus from Supply Curve
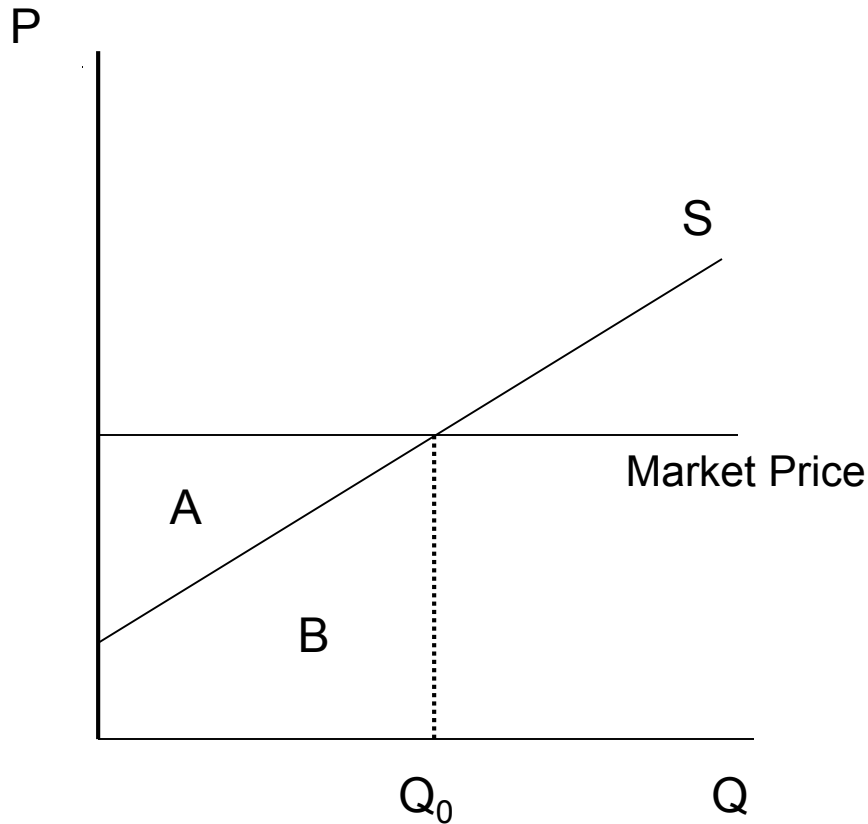
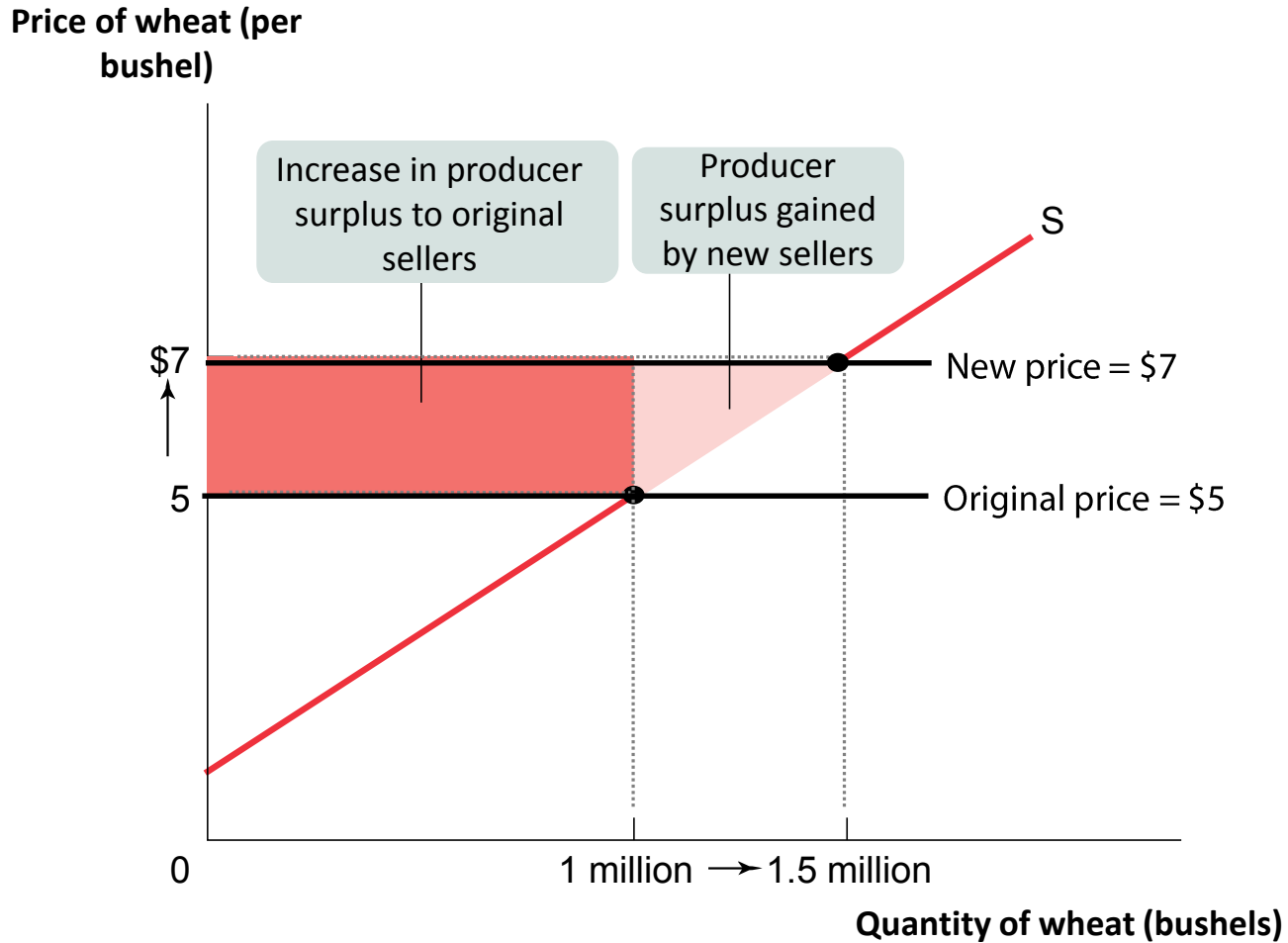Producer surplus is total revenue less the area under the S curve.

At Q_0:

Total revenue is A+B

Total cost is B

Producer surplus is A

A Rise in the Price Increases Producer Surplus

Changes in price and changes in producer surplus

- Change in price leads to change in producer surplus through two channels

- For example, when the price increases

  - PS increases because quantity (sales) increases

  - PS increases because more surplus for each unit sold

Total Surplus (consumer + producer)
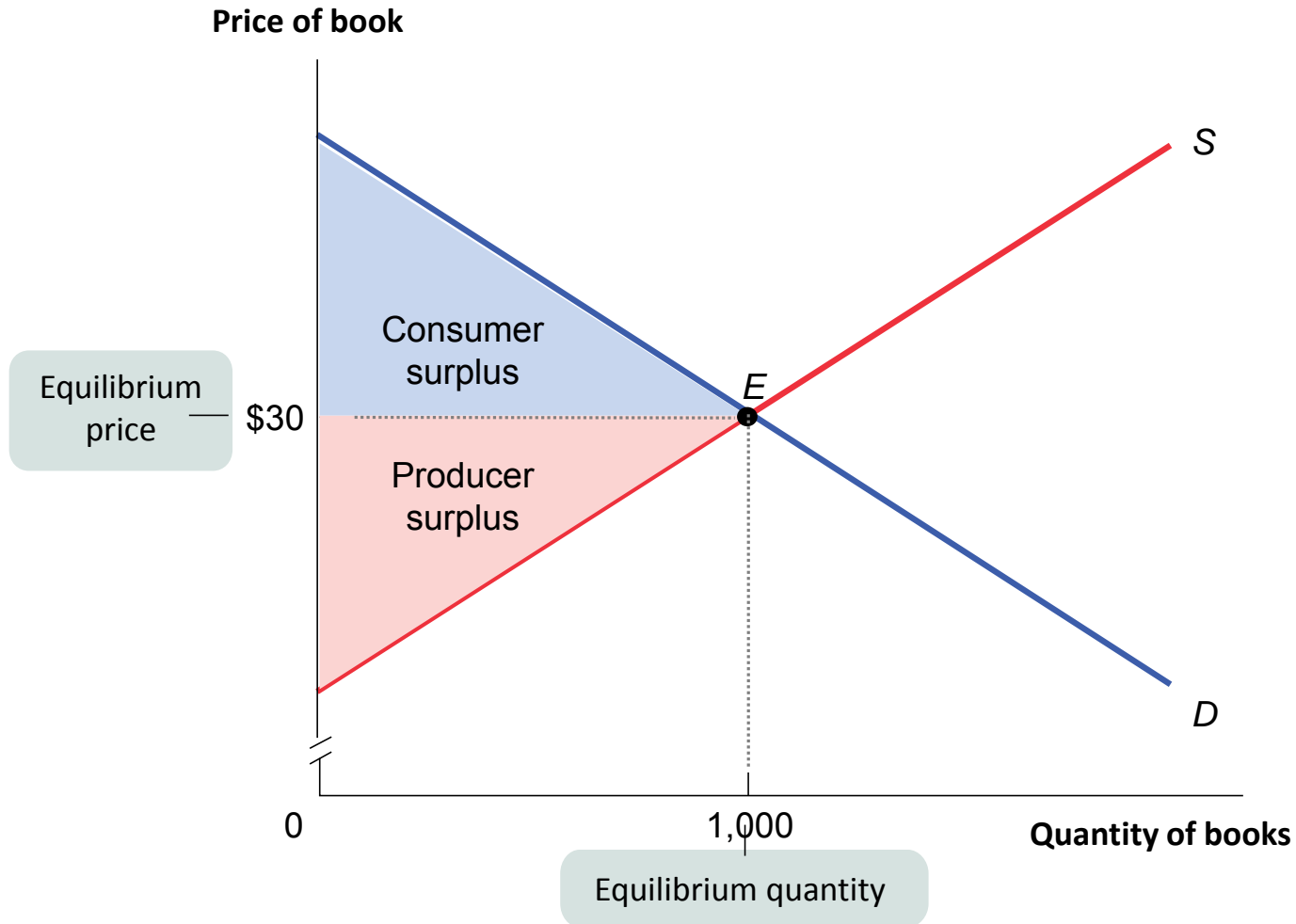
Price of book

Equilibrium price

$30

Consumer surplus

Producer surplus

E

S

D

0

1,000

Equilibrium quantity

Quantity of books

- <u>Total Surplus</u> Economic well-being of the entire society

  = Consumer surplus + Producer surplus

  = Value to Buyers – Costs to Sellers

(Note: will also include government tax revenue if we have a tax in there.)

III. Market Efficiency

- Does market lead to largest surpluses possible?
- <u>Efficiency:</u> A resource allocation is efficient if the total surplus is maximized.
- Economic "Pie" is as large as possible given resources

Three claims about competitive markets and outcomes:

1. At the competitive equilibrium, the total surplus is maximized → efficient!

2. Free markets allocate the supply of goods to buyers who value them most

3. Free markets allocate the demand for goods to sellers who can produce them at least cost

Common cases when competitive market is NOT efficient

- Price ceilings and floors

- Taxes

- Externalities

- Public goods

- Monopolies

When a market is not efficient, we call it a market failure.

One goal of this course is to understand when government policies can help (lead to the efficient market outcome). Or when policies make the outcome inefficient.

- <u>Deadweight Loss</u>: Decrease in total surplus that results from a market distortion.

- This is a loss to society; the total pie is smaller.

Why do we care about DWL?

- This represents part of the COSTS of government activity.

- If we have taxes to pay for government programs (e.g. schools, roads, etc). We have to raise revenue to pay for them.

- The DWL from those revenue raising taxes is part of the cost.

LECTURE #4

<u>Lecture Outline:</u>
EdX overview

<u>Finishing material on Efficiency in Markets (Ch 4)</u>

<u>Effects of price controls on markets (Ch 5)</u>

<u>Announcements/Assignments:</u>

➤ PS#1 Due Thurs 2/5 beginning of class

➤ Sign up for EdX course. Budget time for EdX "readings" and homework.

➤ Readings: Minimum wage readings for Tuesday. In class discussion of pros and cons

		WEEK 3
2/2	MONDAY	
2/3	TUESDAY	LECTURE #5 **Application: Minimum Wages** [R] Card & Krueger, *Myth and Measurement*, Ch. 1 [B] Hamilton Project, "Designing Thoughtful Minimum Wage Policy at the State and Local Levels" [B] Economic Policy Institute "Raising the federal minimum wage to $10.10 would lift wages for millions and provide a modest economic boost," 2013 American Enterprise Institute "Why we shouldn't raise the minimum wage." https://www.aei.org/publication/why-we-shouldnt-raise-the-minimum-wage/ **In-class DEBATE**
2/4	WEDNESDAY	8FP HW due 11pm
2/5	THURSDAY	LECTURE #6 ** Class meets 1:10-2:00 ** **Eight Fold Path: Overview, Problem Statement** Bardach, Introduction and pp. 1-10 [E] Part 1 Introduction // The 8FP: What is it? [E] Part 1 Introduction // Why the 8FP? [E] Part 2 The 8FP // Step 1: Define the Problem [B] "Towards a ceasefire: Experiments in legalization are showing what a post-war approach to drug control could look like," *The Economist*, 2013 **PROBLEM SET #1 DUE TODAY IN CLASS**

Total Surplus (consumer + producer)
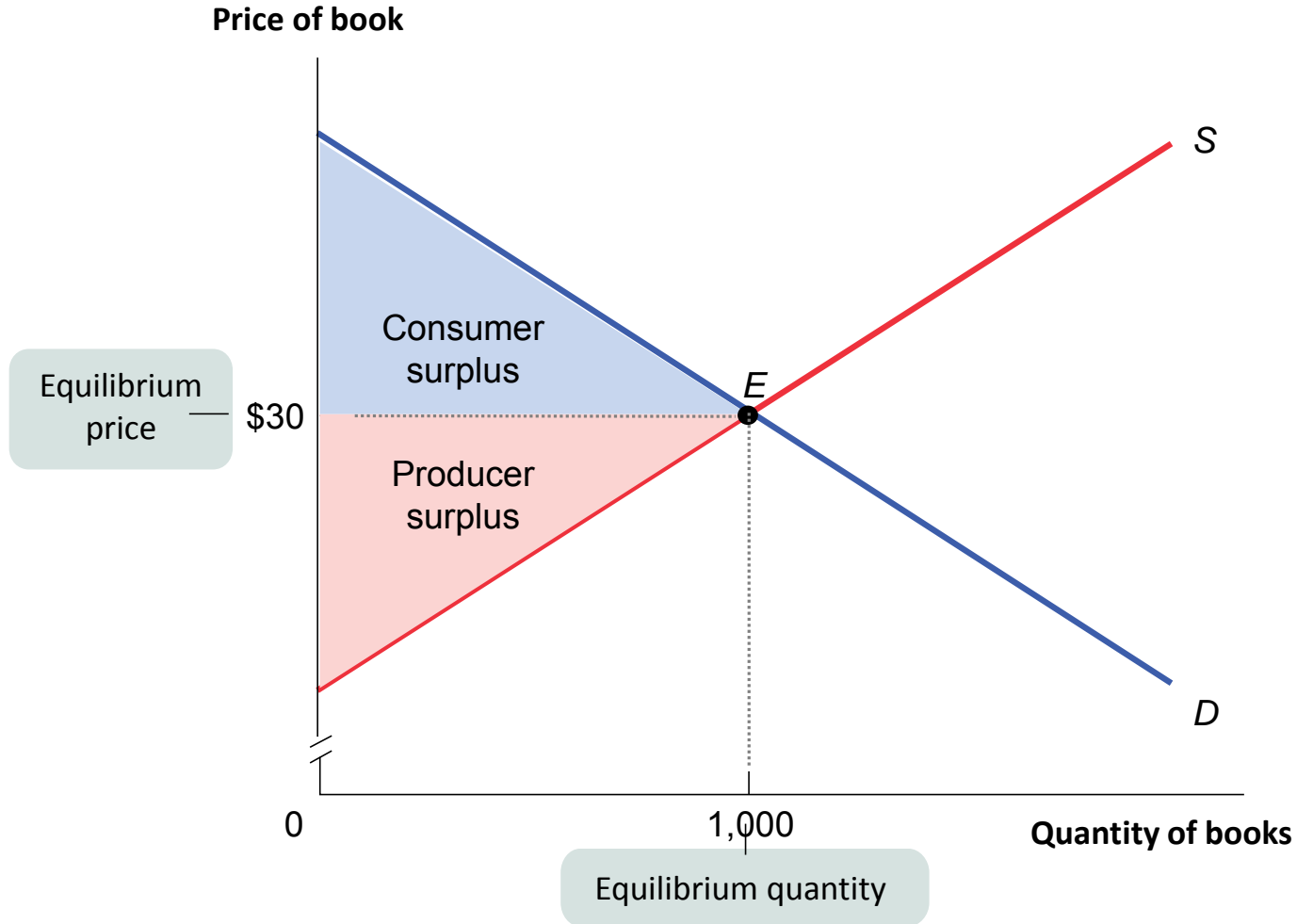
- <u>Total Surplus</u> Economic well-being of the entire society

    = Consumer surplus + Producer surplus

(Note: will also include government tax revenue if we have a tax in there.)

III. Market Efficiency

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- The DWL from those revenue raising taxes is part of the cost.

Price controls (and price quotas)

- OR, what happens when governments "interfere" in the market (with the best intent)
- Can involve "setting prices" (price controls) or "setting quantities" (quotas)
- Example
  - Rent Control
  - Goal: Protect tenants; make housing affordable
  - Result: Shortage of housing!
- Remember, we are still assuming "competitive markets"
- Our focus is going to be on <u>setting prices</u>

Outline for chapter

A. Price Ceiling (e.g., rent control)

B. Price Floor (e.g., minimum wages)

In each case, we will analyze equilibrium before and after the government policy.

Price Controls

<u>Def:</u> Government intervenes to regulate prices

➢ <u>Price ceiling </u>(maximum)

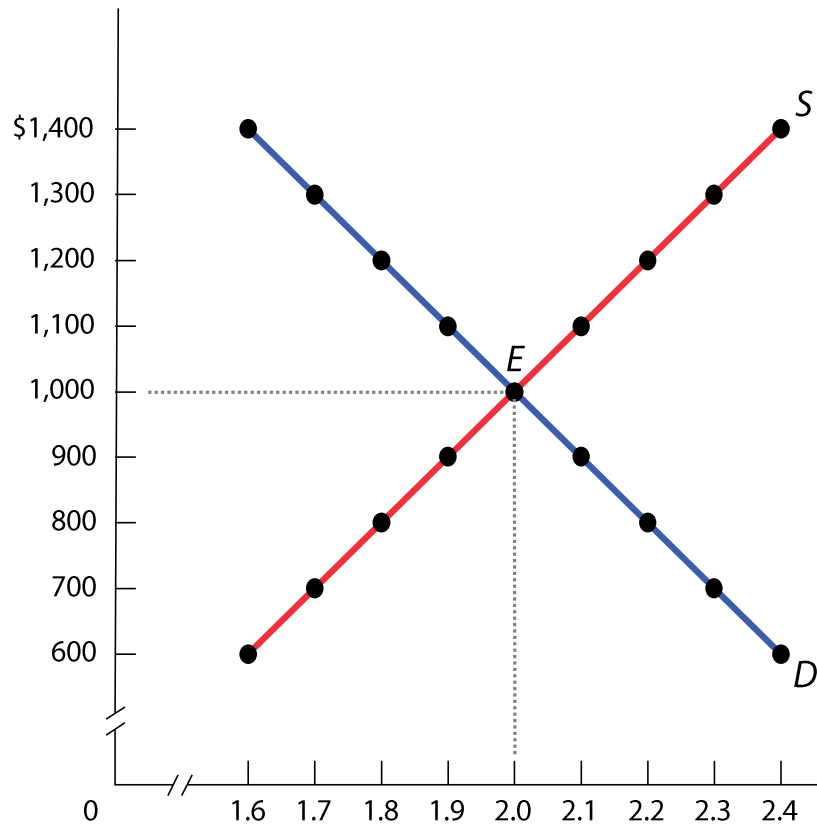➢ <u>Price floor </u>(minimum)

(A) Price Ceilings

- Definition: A price ceiling is a legal maximum on the price at which good can be sold.
- Goal of policy: to protect consumers from high prices
- Example: rent control (ceiling on price of housing)
  – Historically, there are MANY examples of price ceilings (WW2, Oil supply shock)
- Binding price ceiling leads to a SHORTAGE.

- Work through the graphs (market outcome, effects on quantity and price)

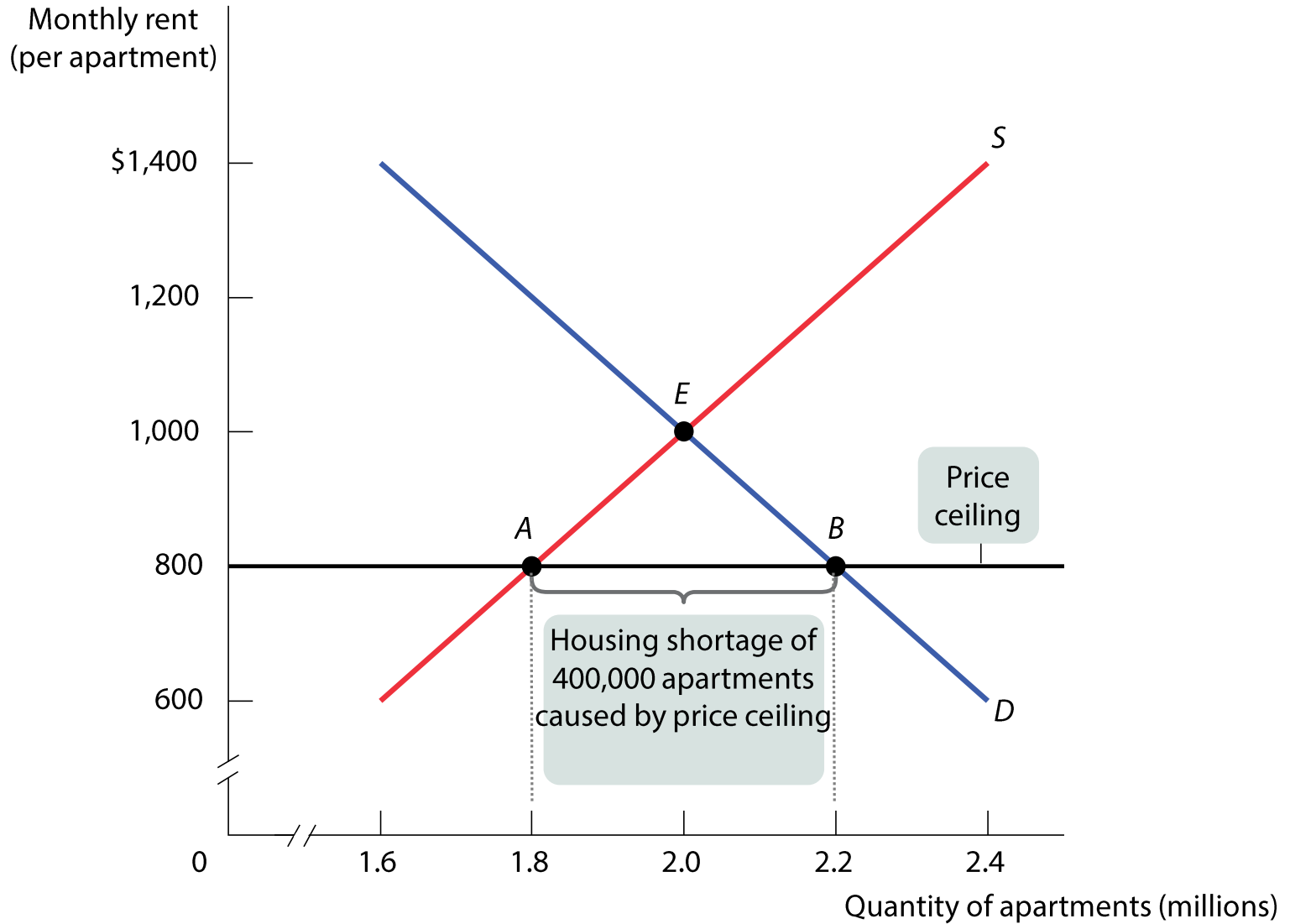# The Market for Apartments in the Absence of Government Controls

| Monthly rent (per apartment)	Quantity of apartments (millions)	
	Quantity demanded	Quantity supplied
$1,400	1.6	2.4
1,300	1.7	2.3
1,200	1.8	2.2
1,100	1.9	2.1
1,000	2.0	2.0
900	2.1	1.9
800	2.2	1.8
700	2.3	1.7
600	2.4	1.6

The Effects of a Price Ceiling

Impacts of binding price ceiling

- Equilibrium price decreases, quantity decreases
- Some buyers are helped by price ceiling (price decreases)
- Other buyers are hurt by the price ceiling (since they can not buy at the market price)
- Overall – reduction in "total surplus", inefficient outcome
- How to ration the scarce goods?

- Work through the graphs (consumer and producer surplus)

Winners and Losers from Rent Control
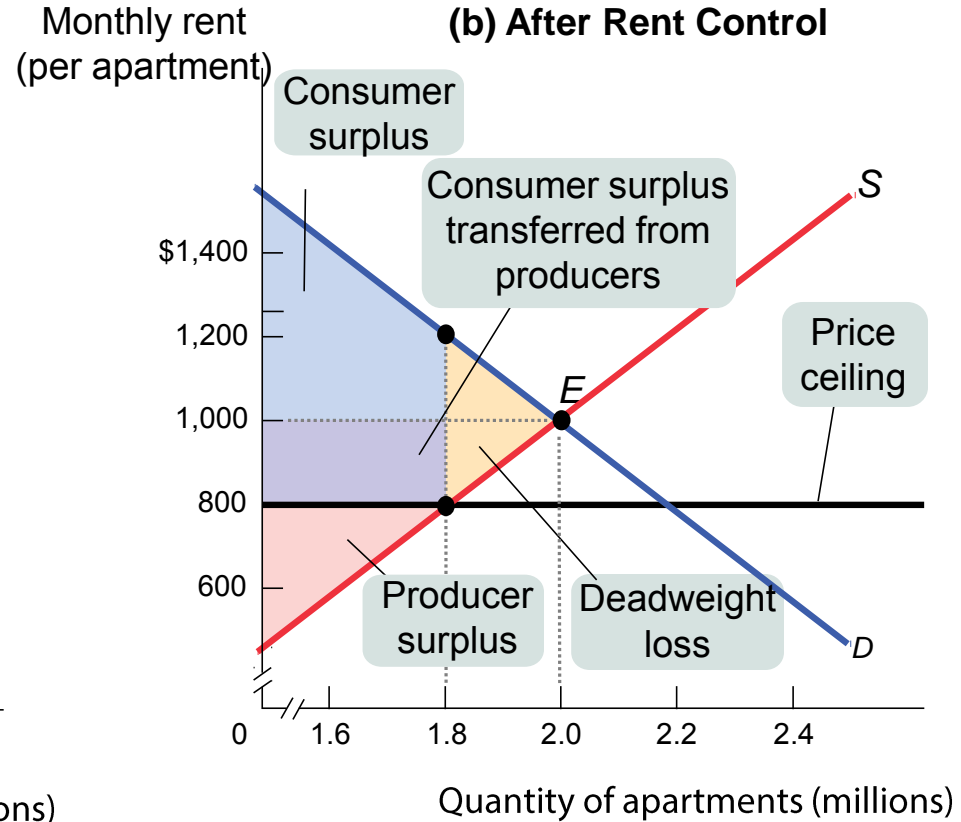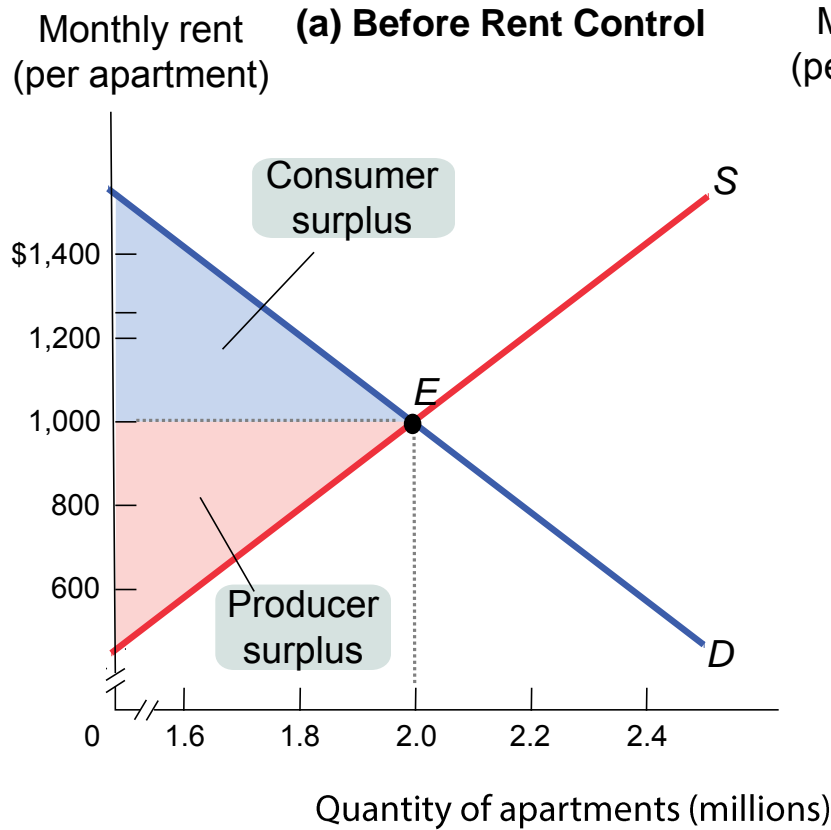
A Price Ceiling Causes Inefficiently Low Quantity
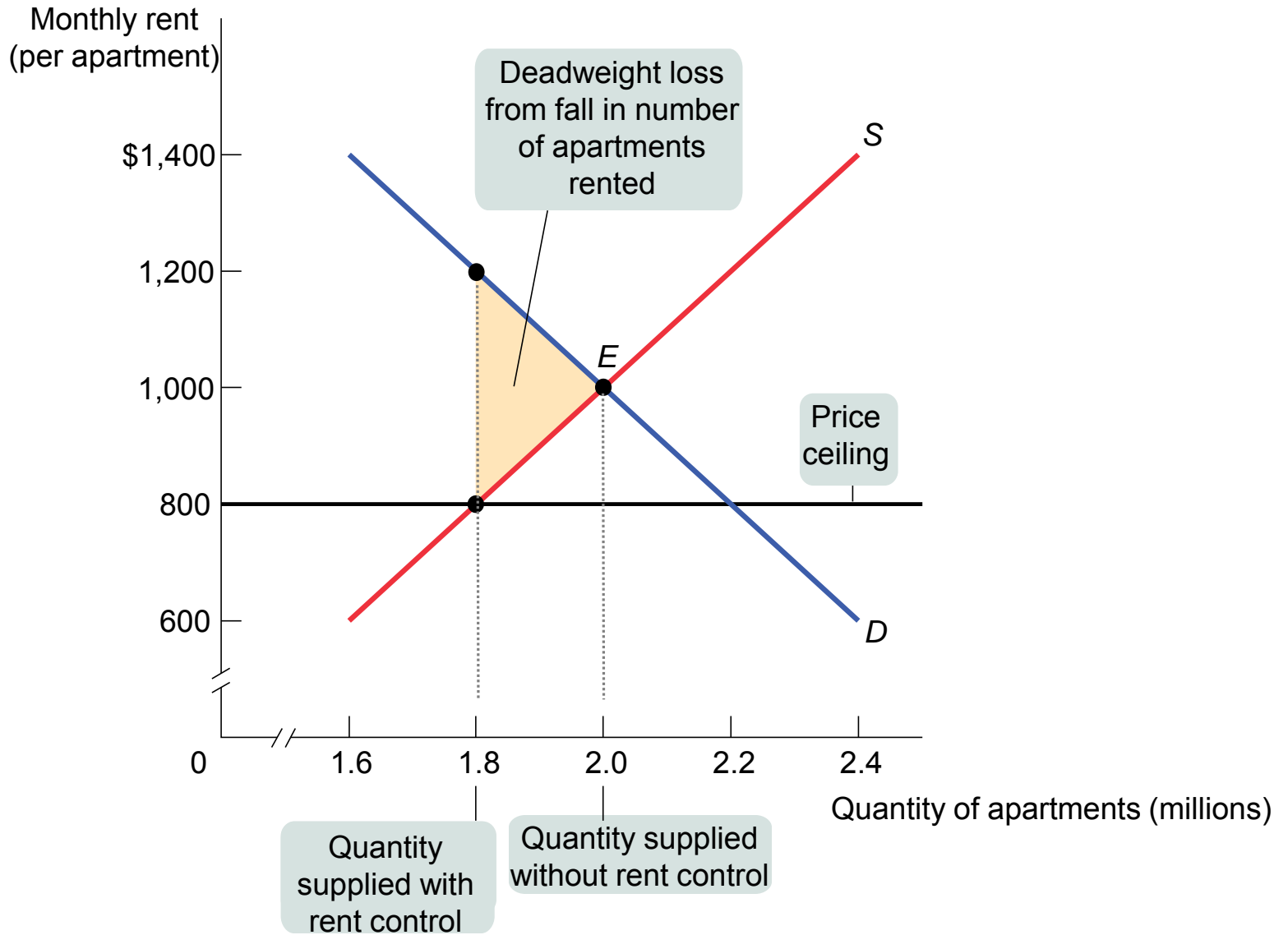
- Deadweight Loss: Decrease in total surplus that results from a market distortion.

- This is a loss to society; the total pie is smaller.

Price Floors

- Definition: A price floor is a legal minimum on the price at which good can be sold.
- Ex: minimum wages (floor on price of labor)
- If price floor is NOT binding (<equilibrium price), it will not affect the equilibrium
- Binding price floors lead to SURPLUS

- Go through analytics of minimum wages …

Impacts of binding price floor

- Equilibrium price (wage) increases
- Equilibrium quantity decreases (fewer jobs then before minimum wage!!)
- Surplus of labor (unemployment)
- Some sellers are helped by price floor (some workers get higher wage)
- Other sellers are hurt by the price floor (since they can not sell at market price, unemployment)
- Inefficient outcome
- Black market?

For next lecture

- Read about the minimum wage and what we know about it's effects

- Have an in class discussion and debate about the merits of this policy

LECTURE #5

Lecture Outline:

Minimum Wages
Effects of minimum wages
    ** Theory
Background on Min Wage
Class discussion of MW from
    readings
Summary of empirical evidence on
    employment effects of MW

Announcements/Assignments:

➢ PS#1 Due Thurs 2/5 beginning of class

➢ Sign up for EdX course. First material and homework due Wed 11pm

➢ Readings for Thursday: Bardach Intro and pp1-10; Economist article

➢*** Lecture on Thursday is 1:10p-2:00p

Impacts of binding price ceiling -- last time

- Equilibrium price decreases, quantity decreases
- Some buyers are helped by price ceiling (price decreases)
- Other buyers are hurt by the price ceiling (since they can not buy at the market price)
- Overall – reduction in "total surplus", inefficient outcome
- How to ration the scarce goods?

Price Floors

- <u>Definition:</u> A price floor is a legal minimum on the price at which good can be sold.

- Minimum wages - wage floor: floor below which hourly wage can not be reduced.

- Federal minimum wage, also states can set higher wage

- Set nominally

Fight Over Minimum Wage Illustrates Web of Industry Ties

By ERIC LIPTON   FEB. 9, 2014

POLITICO

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State of the Union 2014: Obama to raise minimum wage for federal workers

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TRENDING NOW ▲ SHIRLEY TEMPLE | MICHAEL SAM | 'JAMZILLA' | DIAMOND BAR CRASH |

Calif

Ballot measure raising minimum wage to $12 an hour is proposed

Minimum Wage -- Real and Nominal Value, 1938-2013

Statutory minimum wage (nominal $)   Statutory minimum wage (real $)
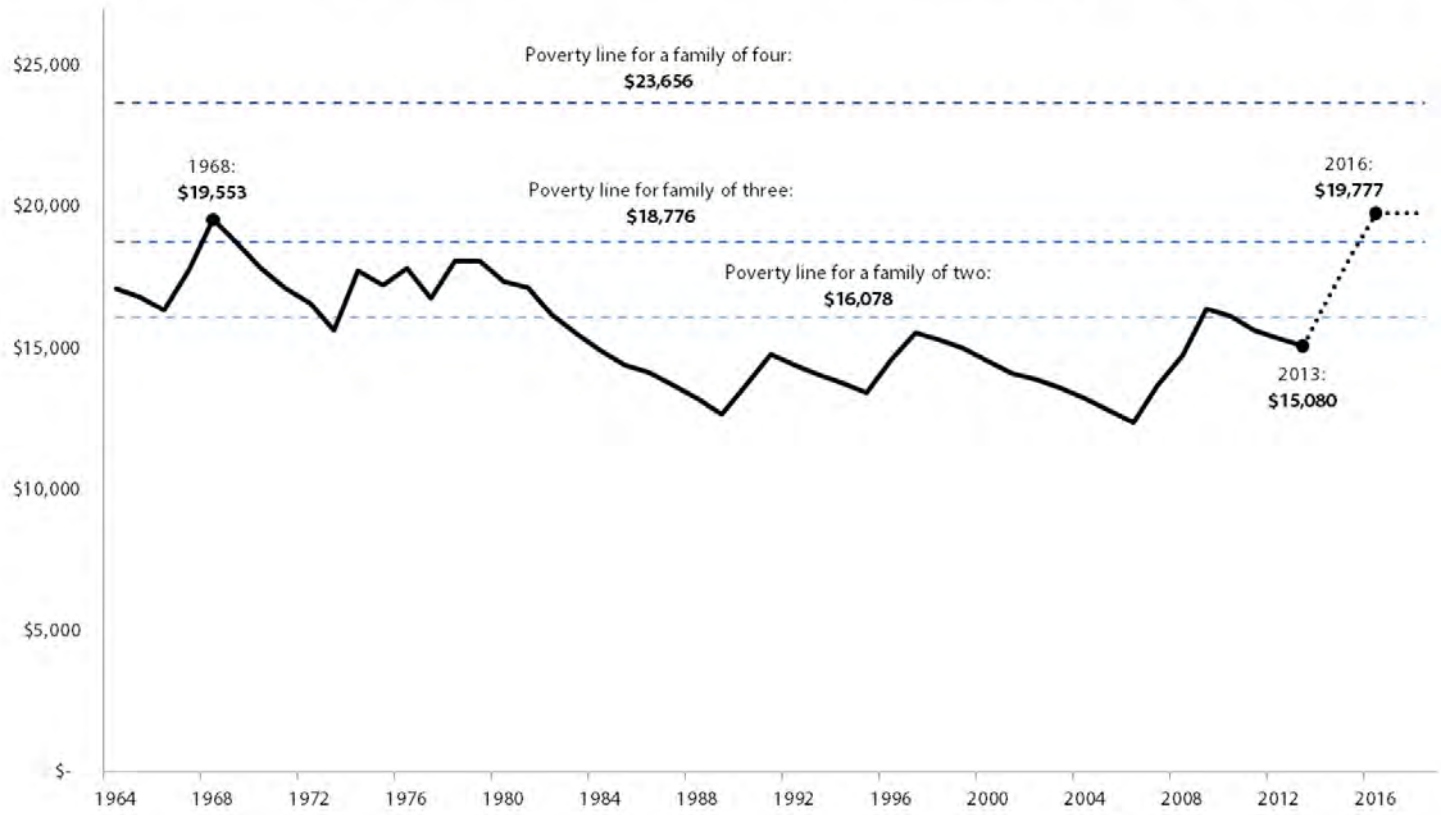
Source: Congressional Research Service, U.S. Department of Labor

GALLUP

Source: EPI "Raising the federal minimum wage…"

FIGURE A

Annual minimum-wage earnings and poverty line for families of two to four, 1964–2013 and projected for 2013–2016 under proposal to raise the federal minimum wage to $10.10 by 2016 (2013 dollars)
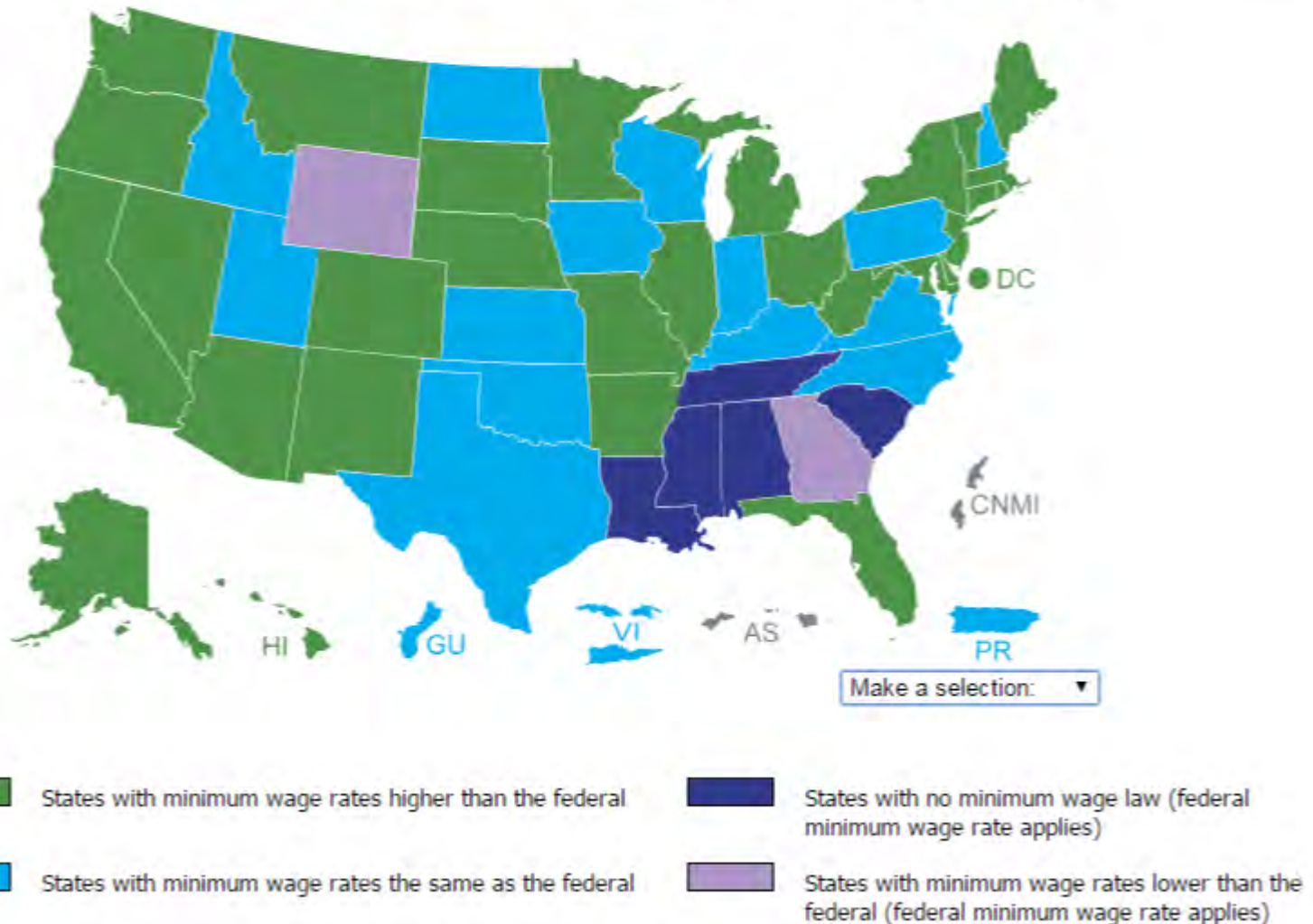

Source: EPI "Raising the federal minimum wage…"

Minimum Wage Laws in the States - January 1, 2015 (en español)

Historical Table

Click on any state or jurisdiction to find out about applicable minimum wage laws.

Note: Where federal and state law have different minimum wage rates, the higher standard applies.

States with minimum wage rates higher than the federal

States with minimum wage rates the same as the federal

States with no minimum wage law (federal minimum wage rate applies)

States with minimum wage rates lower than the federal (federal minimum wage rate applies)

Source: US DOL, http://www.dol.gov/whd/minwage/america.htm

Federal $7.25

California $9.00

The City Movement

San Francisco $10.74 (to $15 by 7/1/18)

Berkeley $12.53 by 10/2016

Oakland $12.25 by 3/2/15

Seattle $15 by 2017

Chicago $13.00 by 2019

Washington DC $11.50 by 2016

Also San Diego, San Jose, …

- Go through analytics of minimum wages …

Summary: Impacts of binding price floor

- Equilibrium price (wage) increases
- Equilibrium quantity (employment) decreases
- Surplus of labor (unemployment)
- Some sellers are helped by price floor (some workers get higher wage)
- Other sellers are hurt by the price floor (since they can not sell at market price, unemployment)
- Inefficient outcome (economy wide surplus declines)
- Black market?

- Then why have a minimum wage policy?

MINIMUM WAGE DEBATE

SPLIT UP ROOM

TALK WITH YOUR NEIGHBOR ABOUT PRO (OR CON) ARGUMENTS FOR THE MINIMUM WAGE

Issues relevant to PRO/CON discussion

1. Who gets the minimum wage?
2. Is the MW an effective policy to increase incomes among the poor?
3. What is the intent of minimum wages; what problem is it supposed to address?
4. How would an increase in the minimum wage effect employment (Card and Krueger)?
5. How might this affect the federal budget?
6. What is public opinion on the minimum wage?

1. Who gets the minimum wage?

- Women more than men
- By age – this is changing a lot over time:
  - " a shrinking share of low-wage workers is comprised of teenagers. His work shows that among those earning no more than the federal minimum wage of $7.25 in 2011, fewer than a quarter were teenagers. Among those earning less than $10 an hour, <u>only 12 percent were teenagers, as compared to 26 percent in 1979.</u>"

Gender distribution of workers affected by raising the federal minimum wage to $10.10 by July 2016, and of total employment
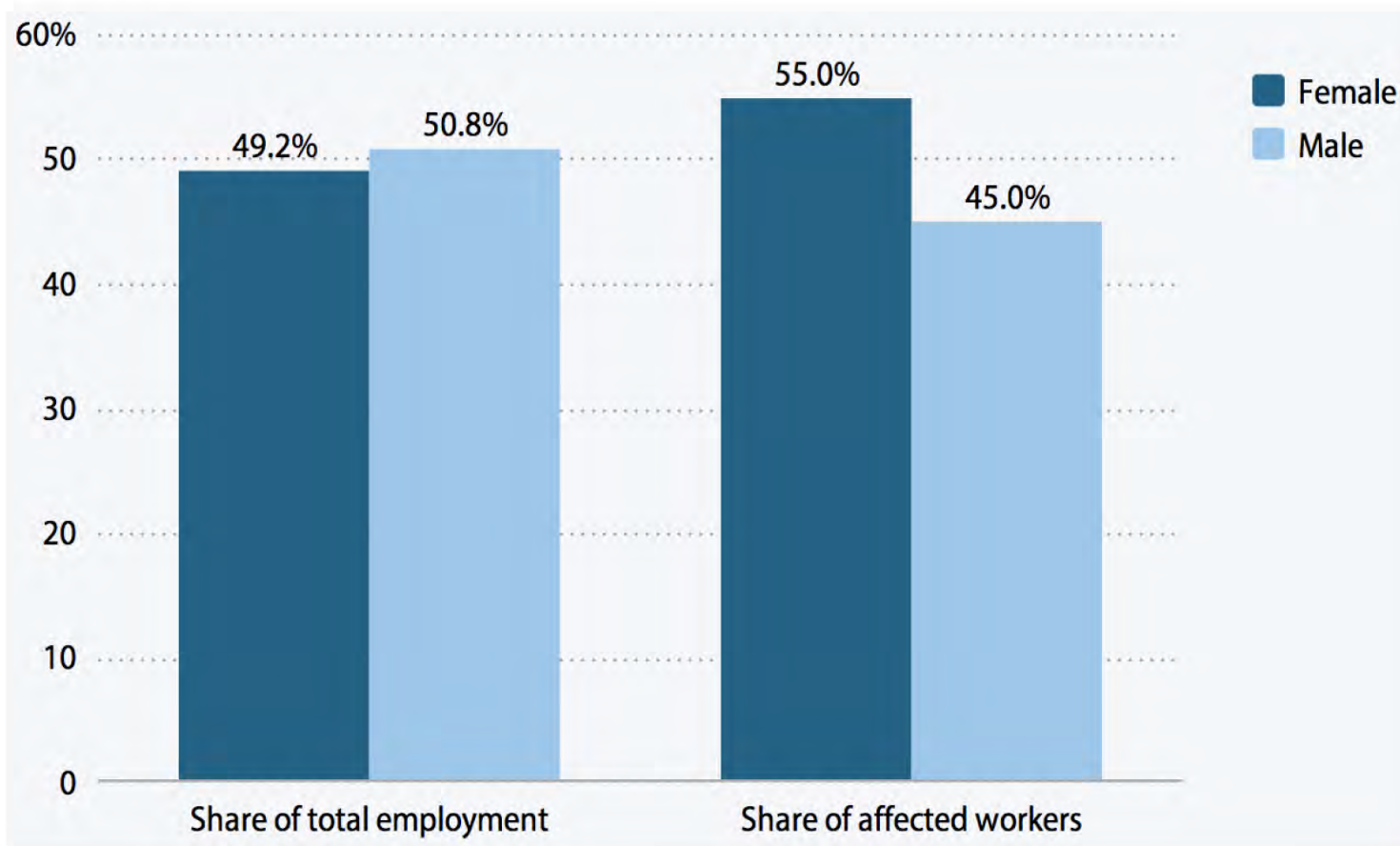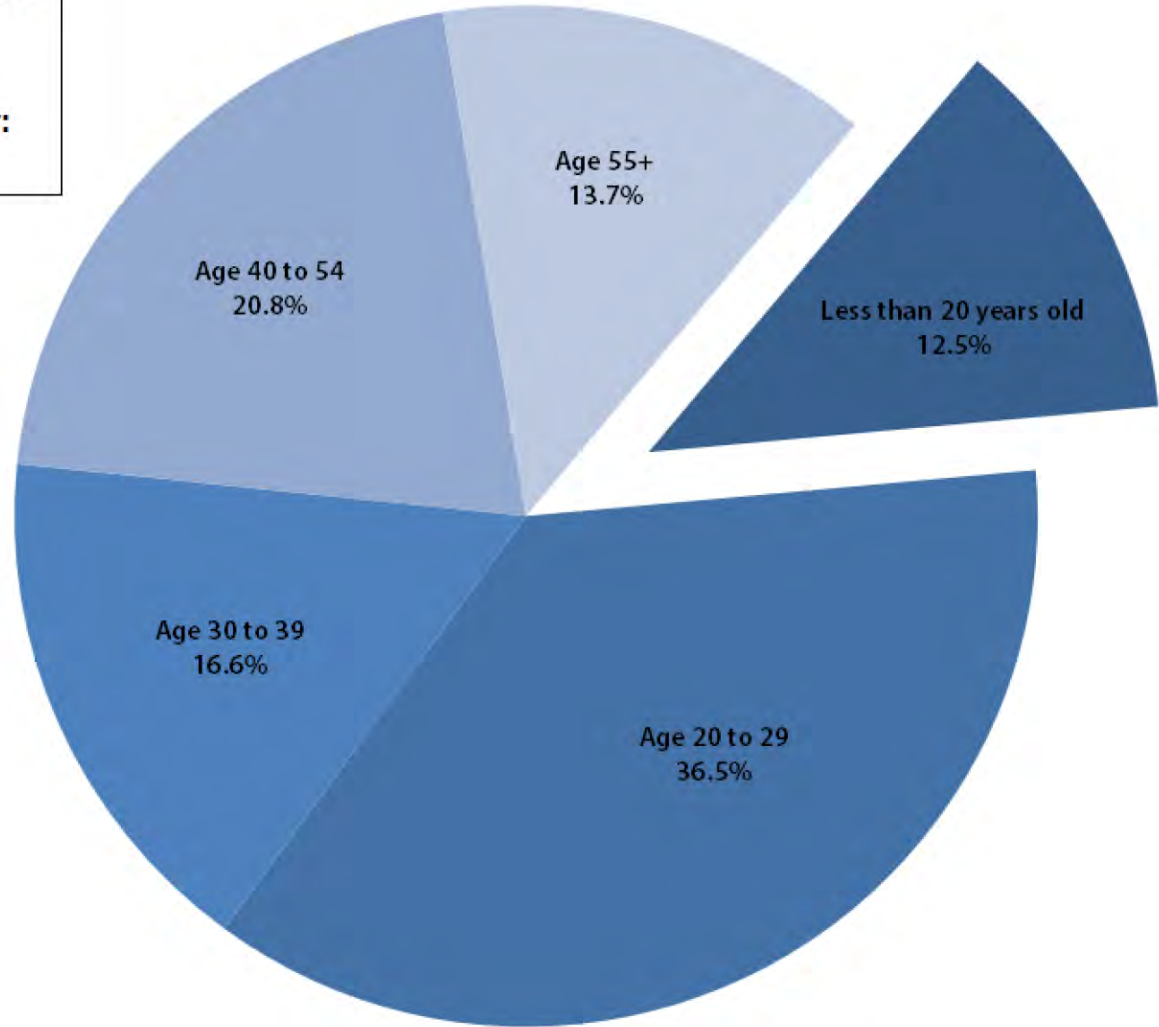
Age of workers affected by raising the federal minimum wage to $10.10 by July 2016

Average age of affected workers:
35 years old

Share 20 and older:
87.5%

Age 55+
13.7%

Age 40 to 54
20.8%

Less than 20 years old
12.5%

Age 30 to 39
16.6%

Age 20 to 29
36.5%

Source: Author's analysis of Harkin-Miller proposal using Current Population Survey Outgoing Rotation Group microdata

FIGURE 1
Low-wage Workers, By Age Group, 1979 and 2011
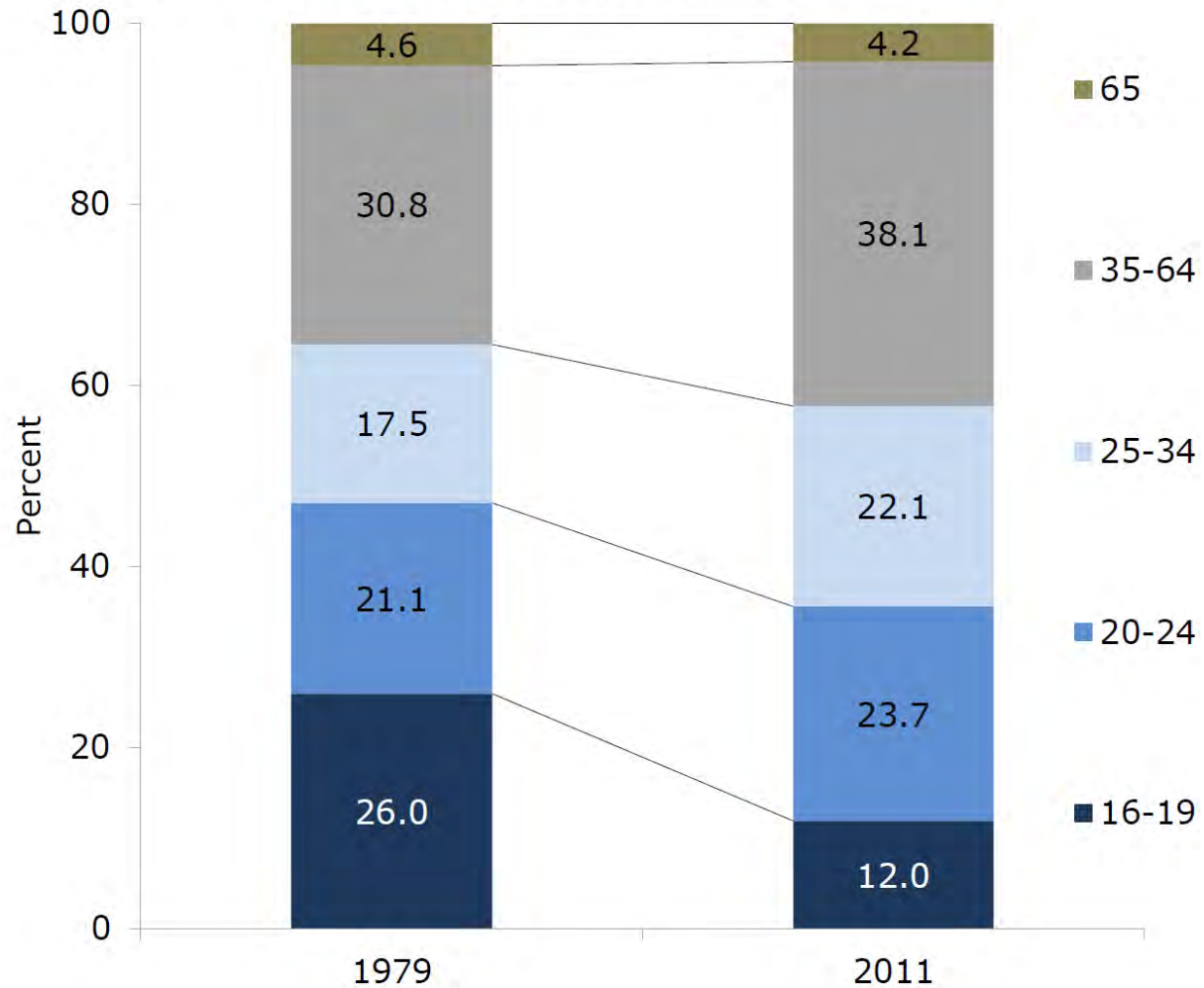
Source: CEPR "Low Wage Workers are Older and Better Educated than Ever"

Share of children with at least one parent affected by raising the federal minimum wage to $10.10 by July 2016, by state

18.7%

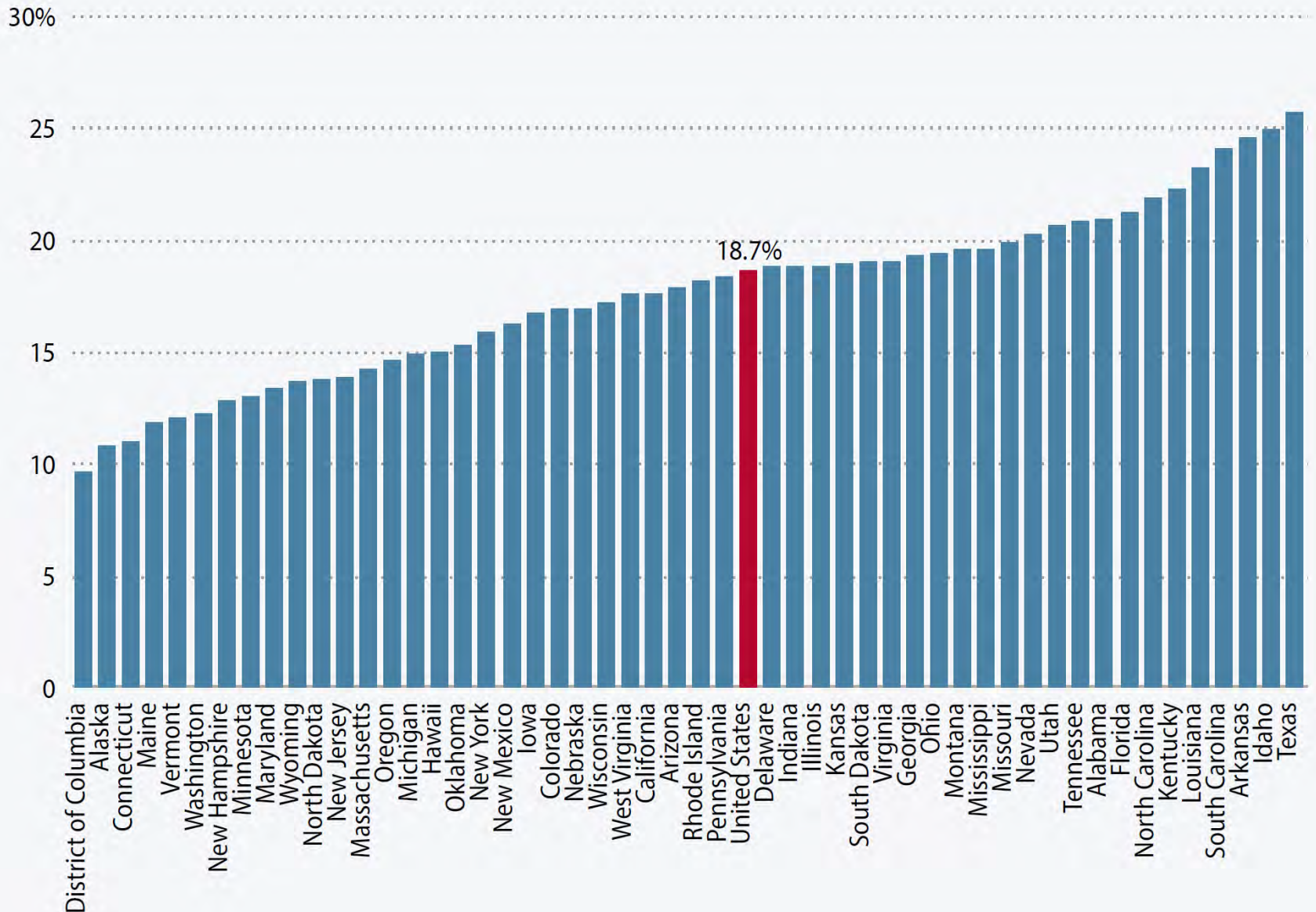# Figure 1.

Percent of Workers Earning At or Below 150 Percent of the Minimum Wage by State in 2012

States without an indicated minimum wage were subject to the federal minimum wage of $7.25.
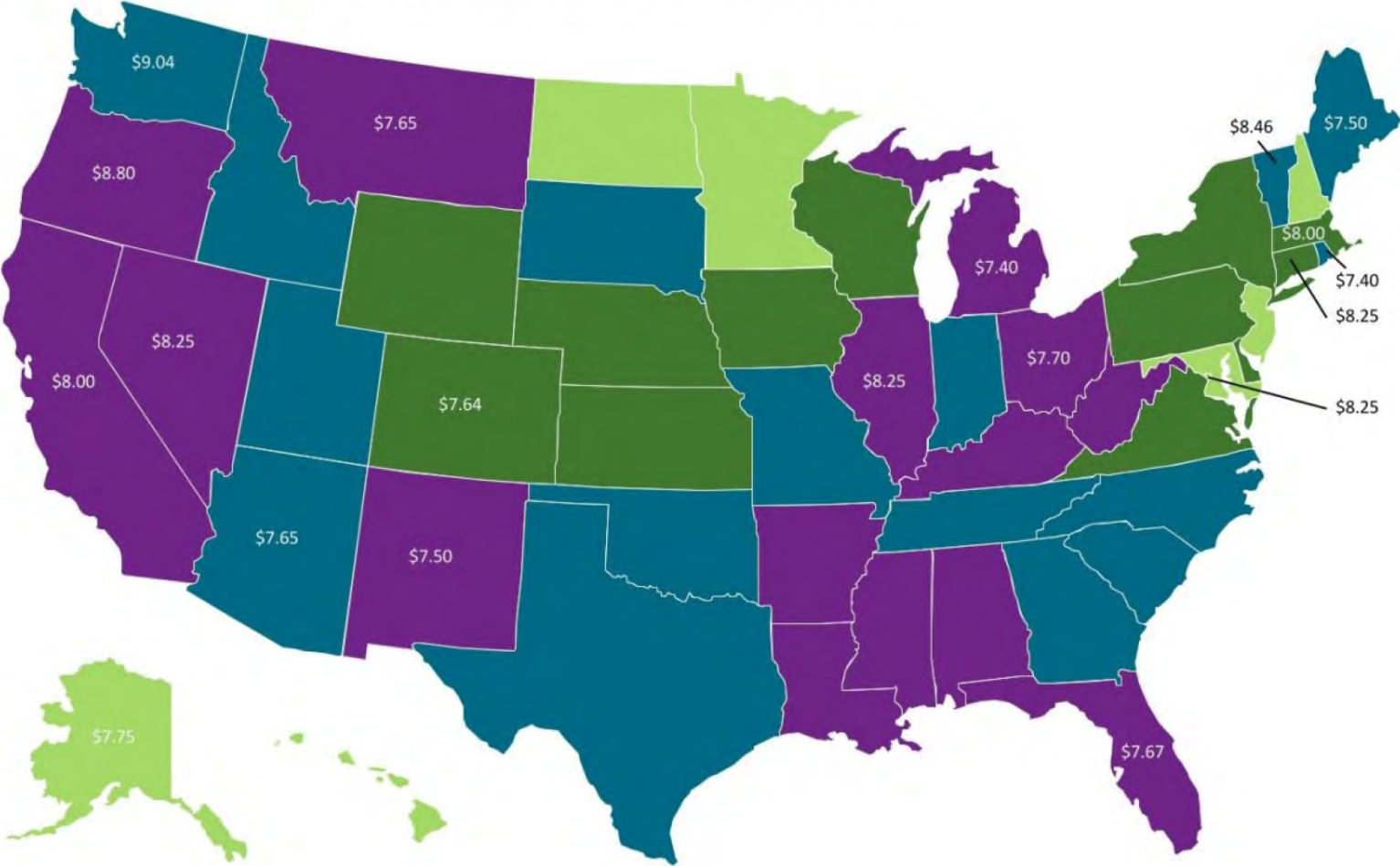
Legend:
- 22.0% and below
- 22.1% to 27.0%
- 27.1% to 32.0%
- 32.1% and above

Map labels:
- $9.04
- $7.65
- $8.80
- $8.46
- $7.50
- $8.00
- $8.25
- $8.00
- $7.40
- $7.40
- $8.25
- $8.25
- $7.64
- $7.70
- $7.65
- $7.50
- $7.75
- $7.67

THE HAMILTON PROJECT

BROOKINGS

2. Is the MW an effective policy to increase incomes among the poor?

- Is it targeted?
- Card and Krueger--it is blunt instrument for reducing poverty, many MW workers are not poor and many poor are not workers
- WHO do we want to target?
- This gets to the EQUITY question (compared to the EFFICIENCY) question
- What is an alternative way to target this group?

Family income of workers affected by raising the federal minimum wage to $10.10 by July 2016
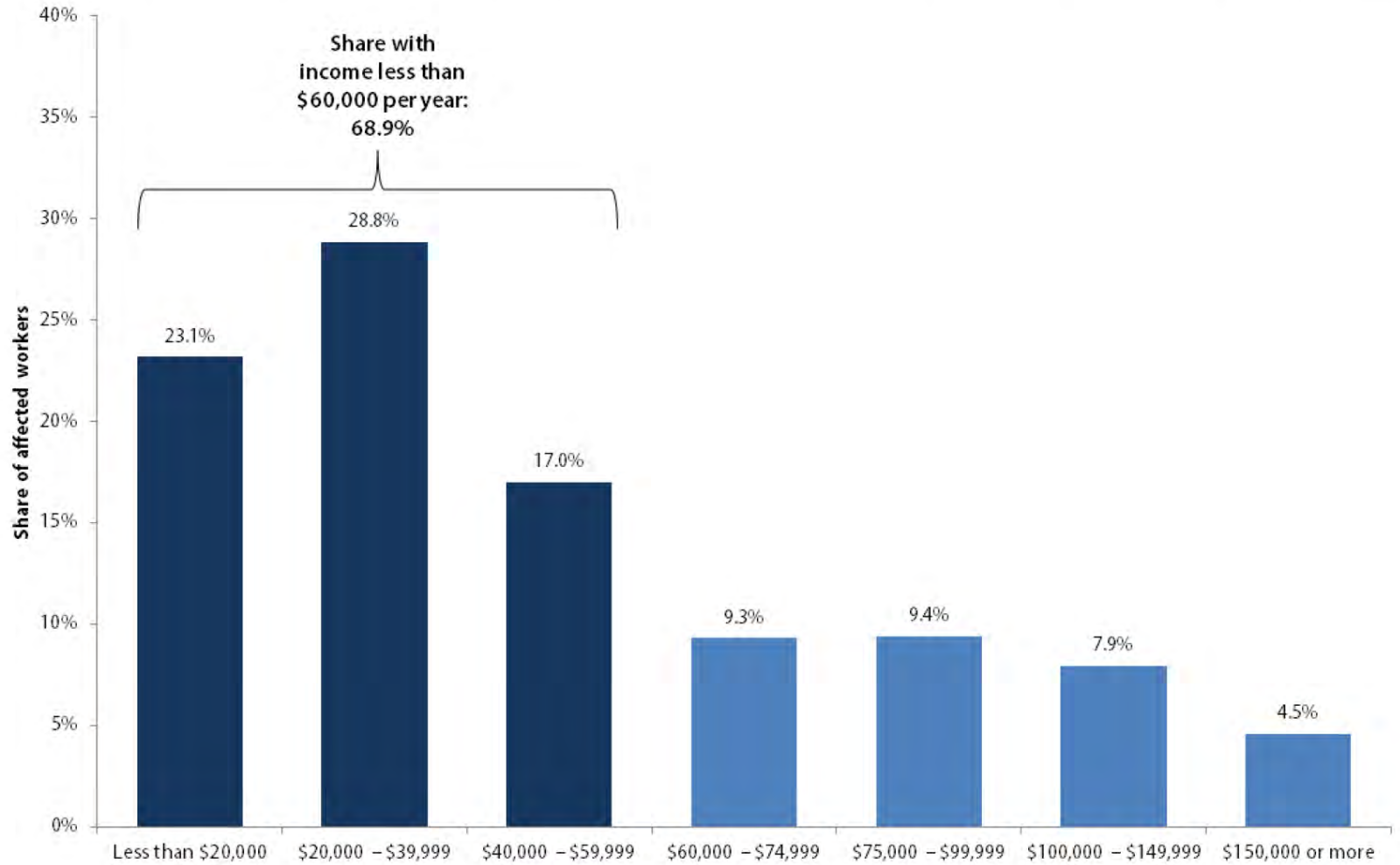
Source: Author's analysis of Harkin-Miller proposal using Current Population Survey Outgoing Rotation Group microdata

4. Minimum wage and employment (Card and Krueger)?

- Not much evidence that the minimum wage leads to a reduction in employment
  - Replicated in many studies

Card and Krueger's PA/NJ Study

- NJ increased its MW
- Nearby PA did not
- Difference-in-difference analysis uses PA to help identify the "counterfactual" (control state)
- They surveyed 400 restaurants in NJ Eastern PA

- Similar study in Texas, California, and you can expand this idea to examining all states (one paper compares counties straddling state lines!)
- Little evidence that employment declines
- Congressional Budget Office: Increasing federal minimum to $10.10 would lead to a reduction in 500,000 workers –this is about 1.5 percent of the 33 million workers who could be impacted

Is our model wrong? Why no (measurable) fall in employment?

- Prediction of neoclassical model is that employers can hire all the labor they want at the prevailing wage (price takers)

- Higher wages may lead to
  - Quicker pace of hiring workers
  - Higher productivity
  - Lower turnover

- Generally, a monopsony model (one where workers have some market power) comes from the reality of the issues above and "search theory" whereby there are costs of moving from one job to another.

5. Impacts on Federal Budget

- Increases in spending due to:
  - Pay higher wages to low wage federal employees
  - Pay more for goods and services that the government has to buy (if prices for those goods increase)
- Increases in revenue due to:
  - Increased earnings (less revenue for those who lose their job)
- Overall, not a big factor

6. Public Opinion

Raising the Mimimum Wage

Next, suppose that on Election Day you could vote on key issues as well as candidates. Would you vote for or against a law that would raise the federal minimum wage to $9 an hour?

	Vote for	Vote against	No opinion
	%	%	%
Nov 5-6, 2013	76	22	3
Mar 2-3, 2013	71	27	2

GALLUP*

Support for Minimum-Wage Proposals, by Party ID

	Republicans	Independents	Democrats
	%	%	%
RAISING MINIMUM WAGE TO $9/HOUR			
Vote in favor	58	76	91
Vote against	39	22	7

# How does the minimum wage compare to prevailing wages in the economy?

- Falling relative to average wages

- Contributes to "lower tail" inequality

- Fallen relative to productivity

Federal minimum wage as a percentage of the average U.S. wage of production/nonsupervisory workers, 1964–2013 and projected for 2013–2016 under proposal to raise the federal minimum wage to $10.10 by July 2016
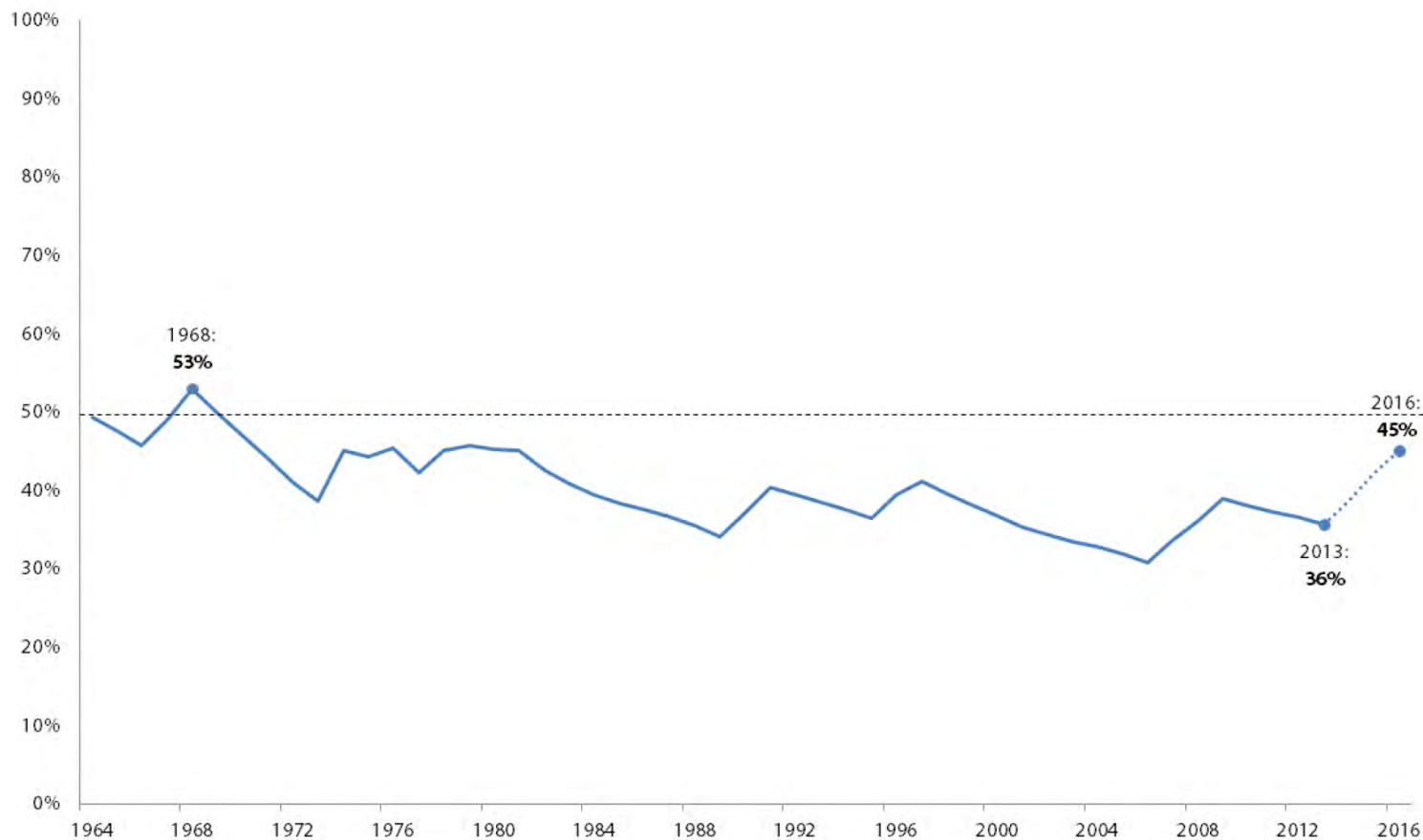
FIGURE C

Real value of the federal minimum wage, 1968–2013 and 2013–2016 under proposed increase to $10.10 by 2016, compared with its value had it grown at the rate of productivity or average worker wages (2013 dollars)

At the growth rate of:

U.S. productivity

2016: $18.96*
2013: $18.30

Real U.S. average wages of production, non-supervisory workers

$10.65 $10.89*

1968: $9.40

Real minimum wage

$7.25

$9.51 (under Harkin-Miller)
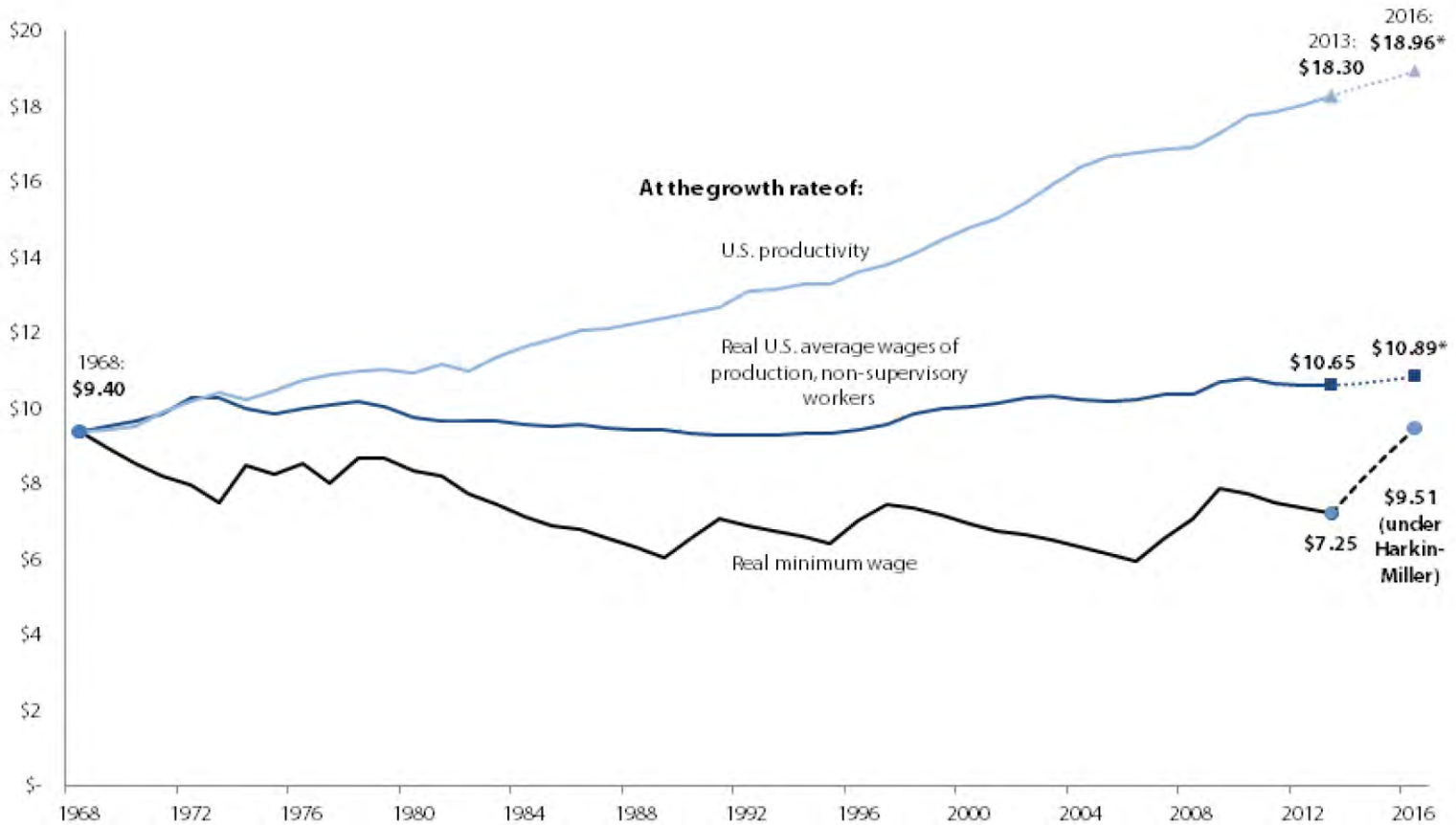
* Productivity and average wage projections from 2013 to 2016 do not include the Harkin-Miller proposal.

Share of workers earning poverty-level wages, by gender, 1979–2013

Legend: Women, All, Men

Data points labeled on chart:
- 42.1% (Women, ~1979)
- 27.1% (All, ~1979)
- 15.7% (Men, ~1979)
- 31.5% (Women, 2013)
- 27.5% (All, 2013)
- 23.7% (Men, 2013)

Y-axis: 10, 20, 30, 40, 50%
X-axis: 1980, 1985, 1990, 1995, 2000, 2005, 2010
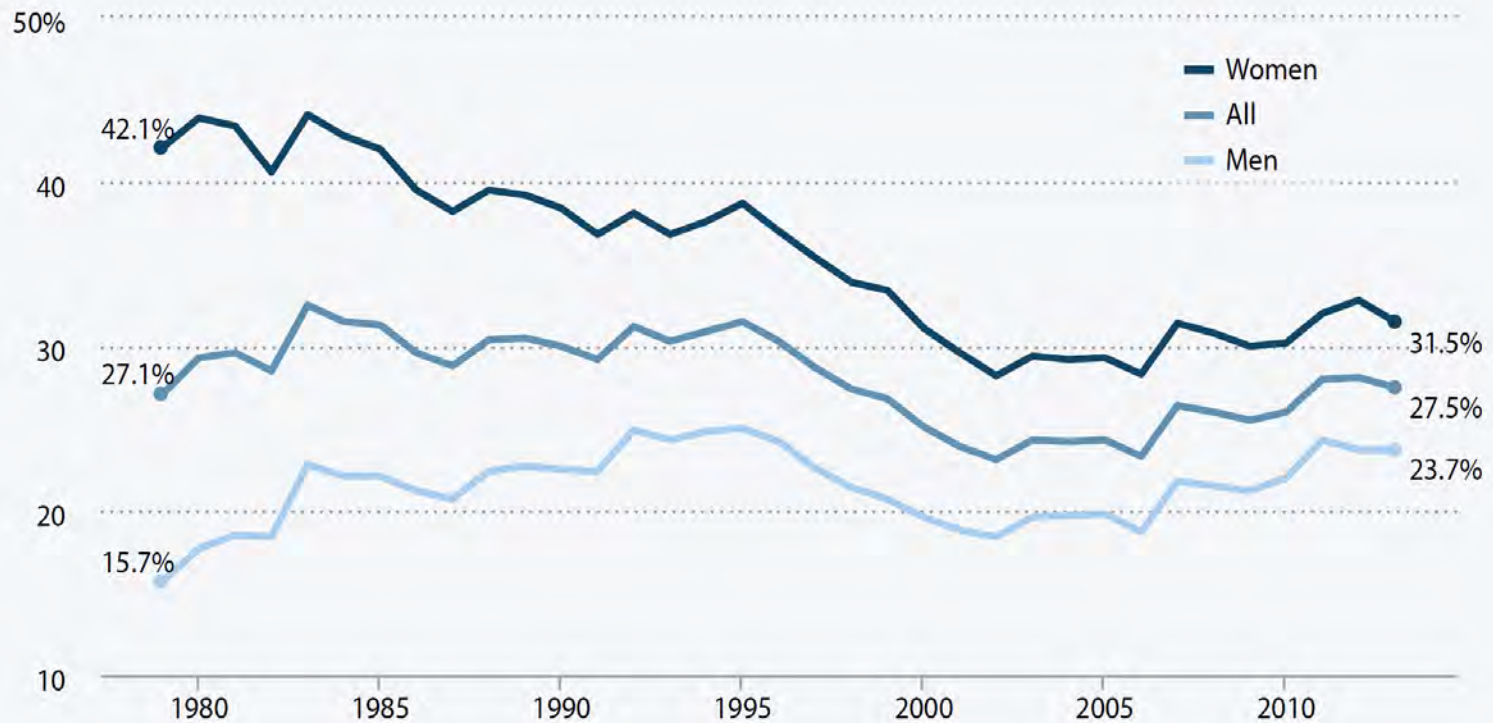
Note: The poverty-level wage in 2013 was $11.45.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

UPDATED FROM: Figure 4E in *The State of Working America, 12th Edition*, an Economic Policy Institute book published by Cornell University Press in 2012

ECONOMIC POLICY INSTITUTE

EPI, State of Working America. Share of workers who earn less than poverty wage (FTFY supporting family of 4)

Figure 4C Cumulative change in real hourly wages of men, by wage percentile, 1979–2011

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

EPI, State of Working America.

Figure 4D Cumulative change in real hourly wages of women, by wage percentile, 1979–2011
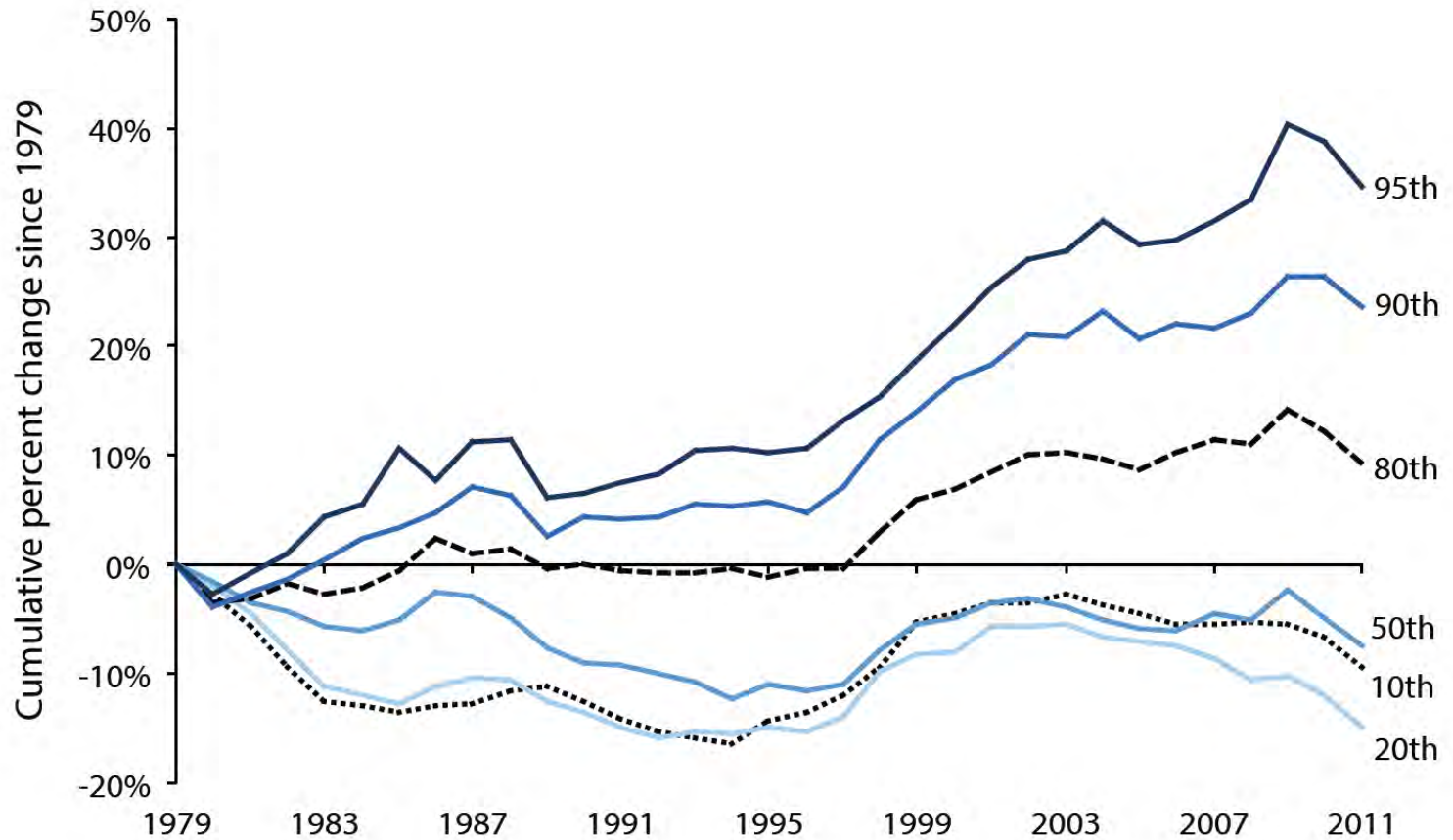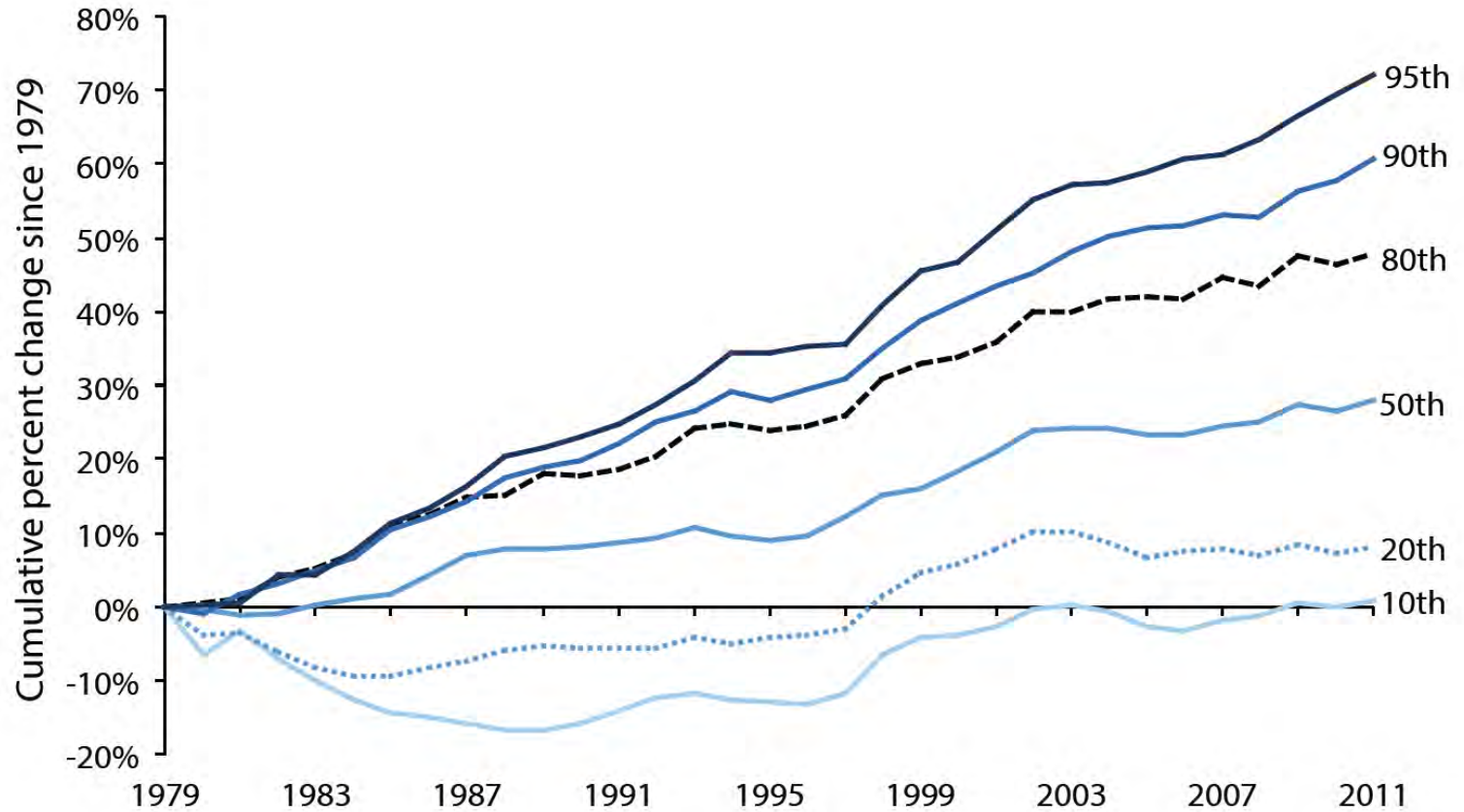
Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

EPI, State of Working America.

FOR THURSDAY – Eight Fold Path

- First Step: Define the problem
- We will discuss this, through the interviews and material on the web course
- Then we will apply this step to two readings:
  - Towards a ceasefire: Experiments in legalization are showing what a post-war approach to drug control could look like," The Economist
  - [From today] Hamilton Project, "Designing Thoughtful Minimum Wage Policy at the State and Local Levels" – INTRO and CHALLENGE

LECTURE #6

Lecture Outline:

- The Eight Fold Path
  (Bardach)
-- Outlining the main steps
-- Define the problem
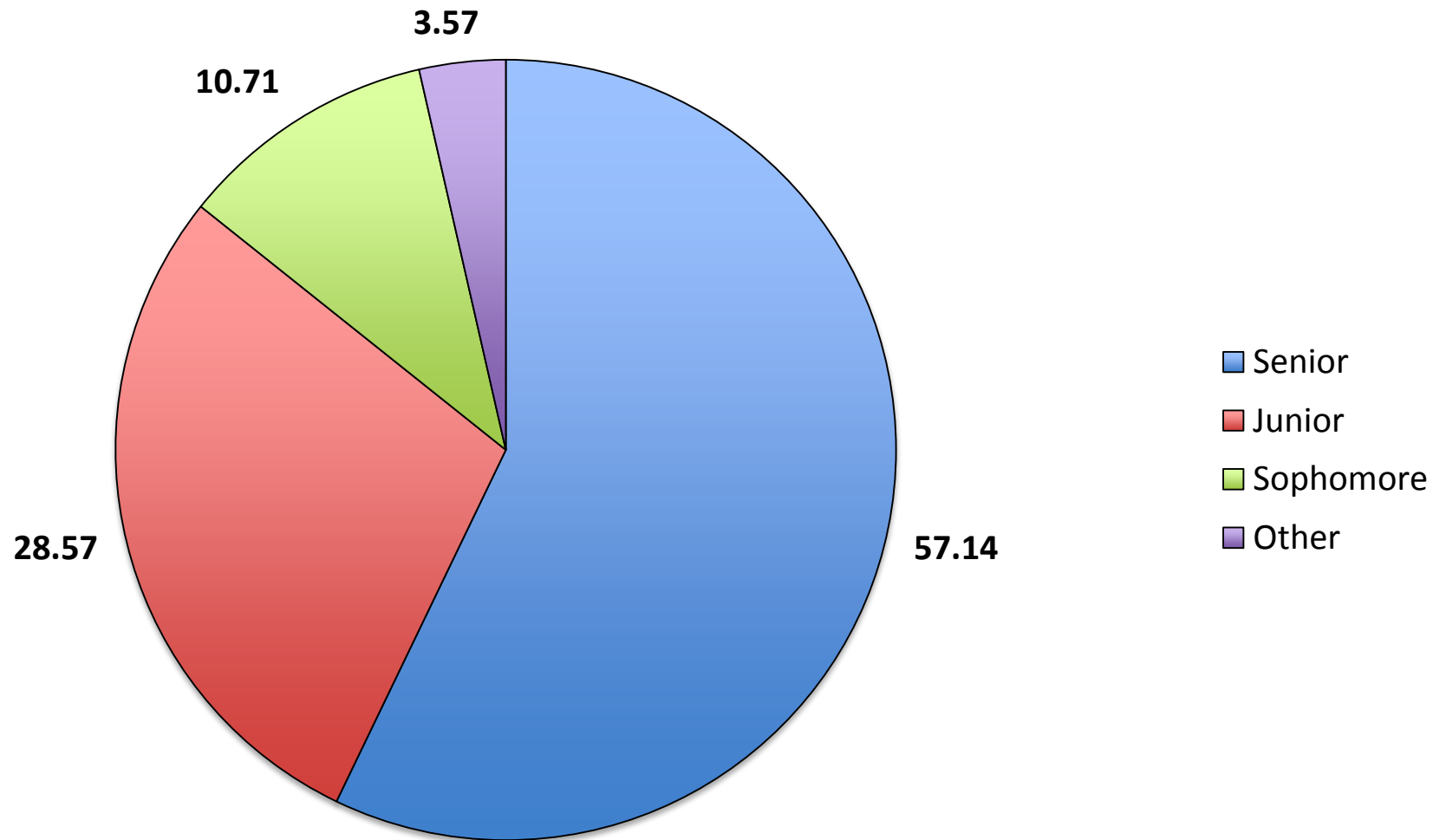-- Three examples

Announcements/Assignments:

➢ PS#1 Due NOW

➢ Readings for Tuesday: Krugman and Wells Ch 7 (also read Ch 6 on your own)

- But first, a little about our class.
- William's survey (thank you for responding)
- N=84. Not bad.

What is your major?

Major	Count
Political Science	15
Economics	12
Double	9
Public Health	7
Social Welfare	6
Legal Studies	4
Business Administration	3
Engineering	3
Rhetoric	3
Ethnic Studies	2
Political Economy	2
Sociology	2
American Studies	1
Anthropology	1
Chinese	1
English	1
Env. Economics & Policy	1
Environmental Earth Science	1
Environmental Science	1
History	1
Integrative Biology	1
Interdisciplinary Studies	1
Linguistics	1
Media Studies	1
Molecular & Envtl Biology	1
Peace and Conflict Studies	1
Society & Environment	1
Other	1
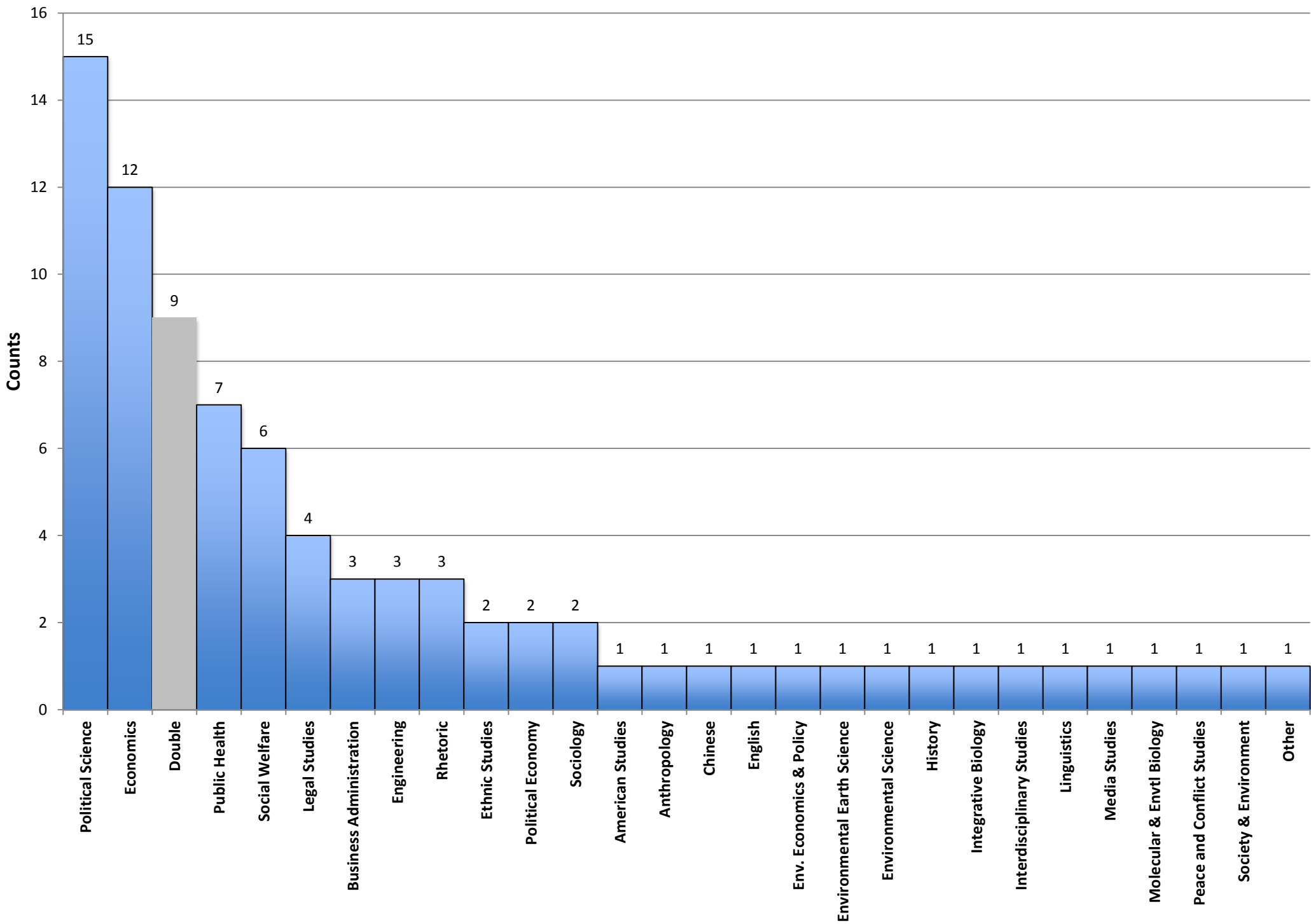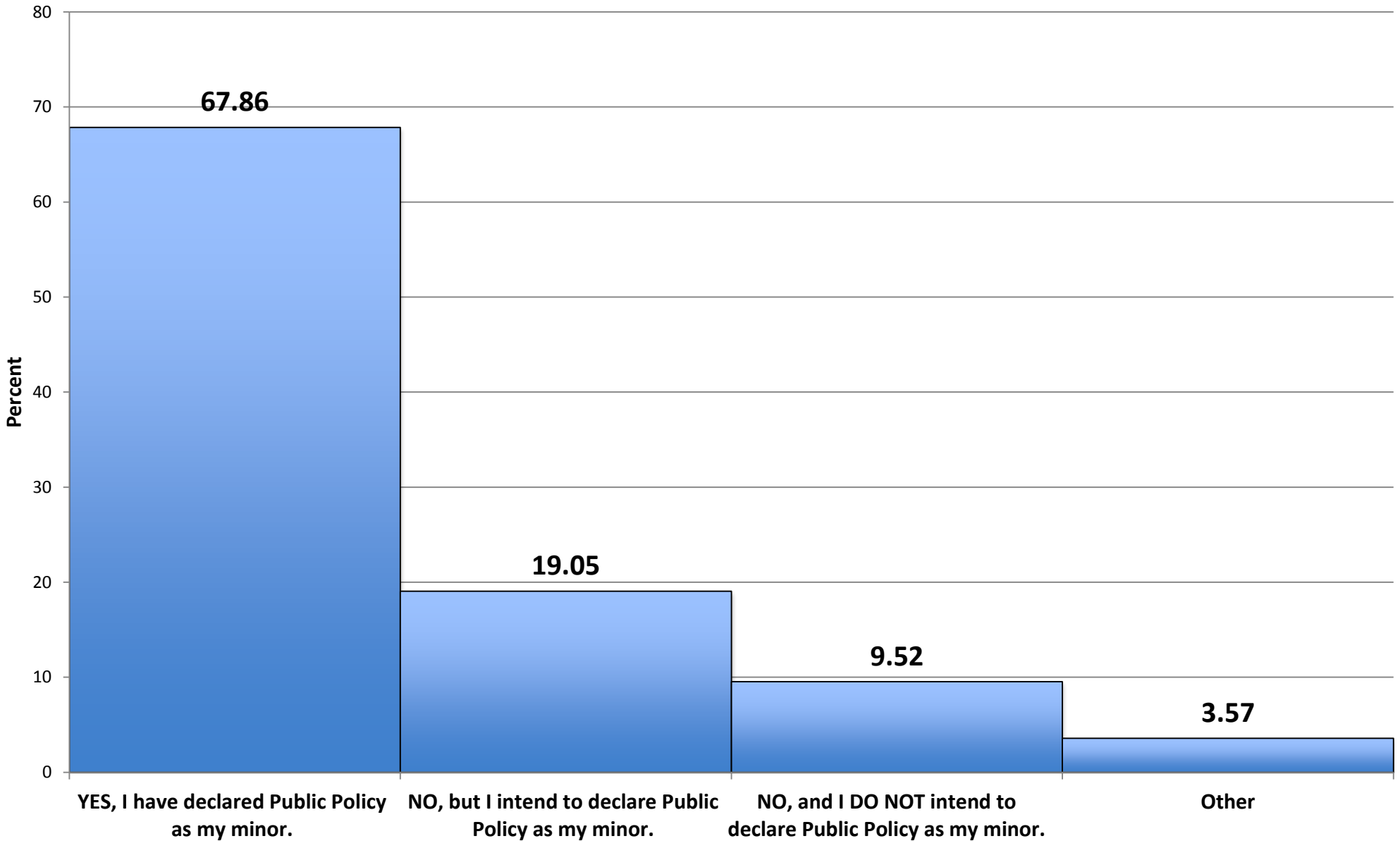
Have you completed coursework in (intermediate) microeconomic principles prior to this term?
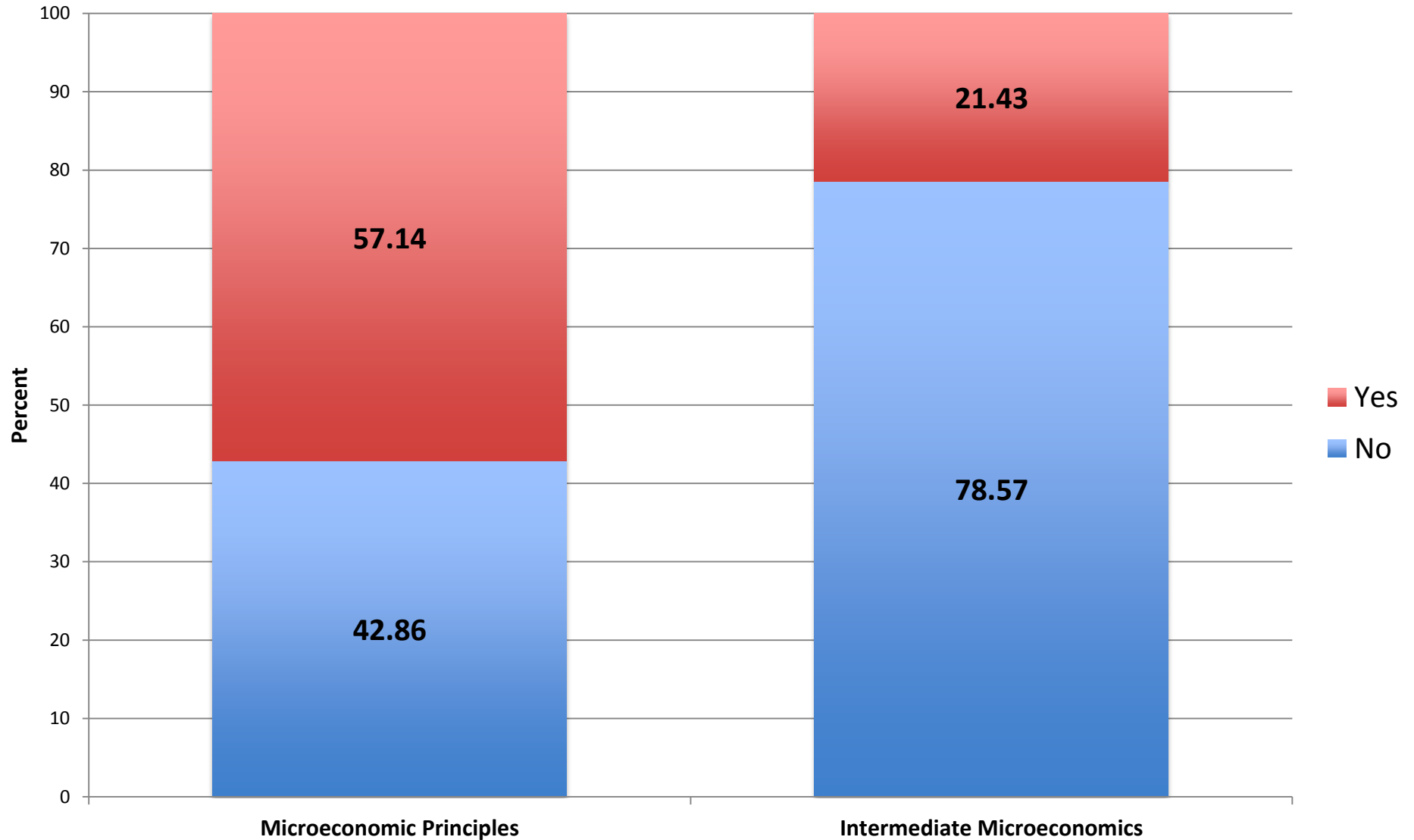
What is the highest level of microeconomic coursework that you have completed?

Pie chart segments:
- 19.05 — Intermediate (upper-division)
- 45.24 — Introductory (lower-division)
- 35.71 — None
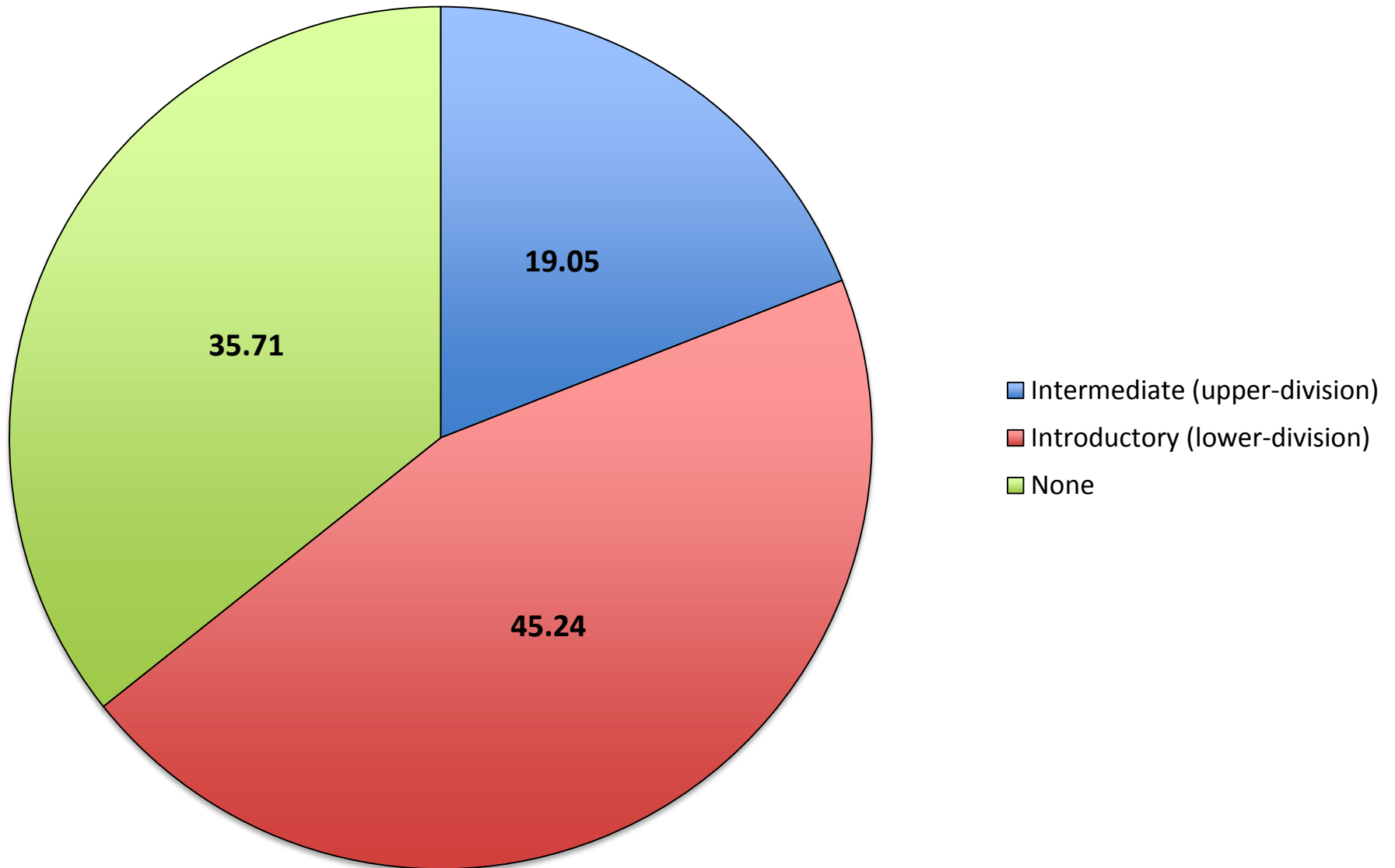
Have you completed coursework in statistics prior to this term?

No
Yes

29.76
70.24
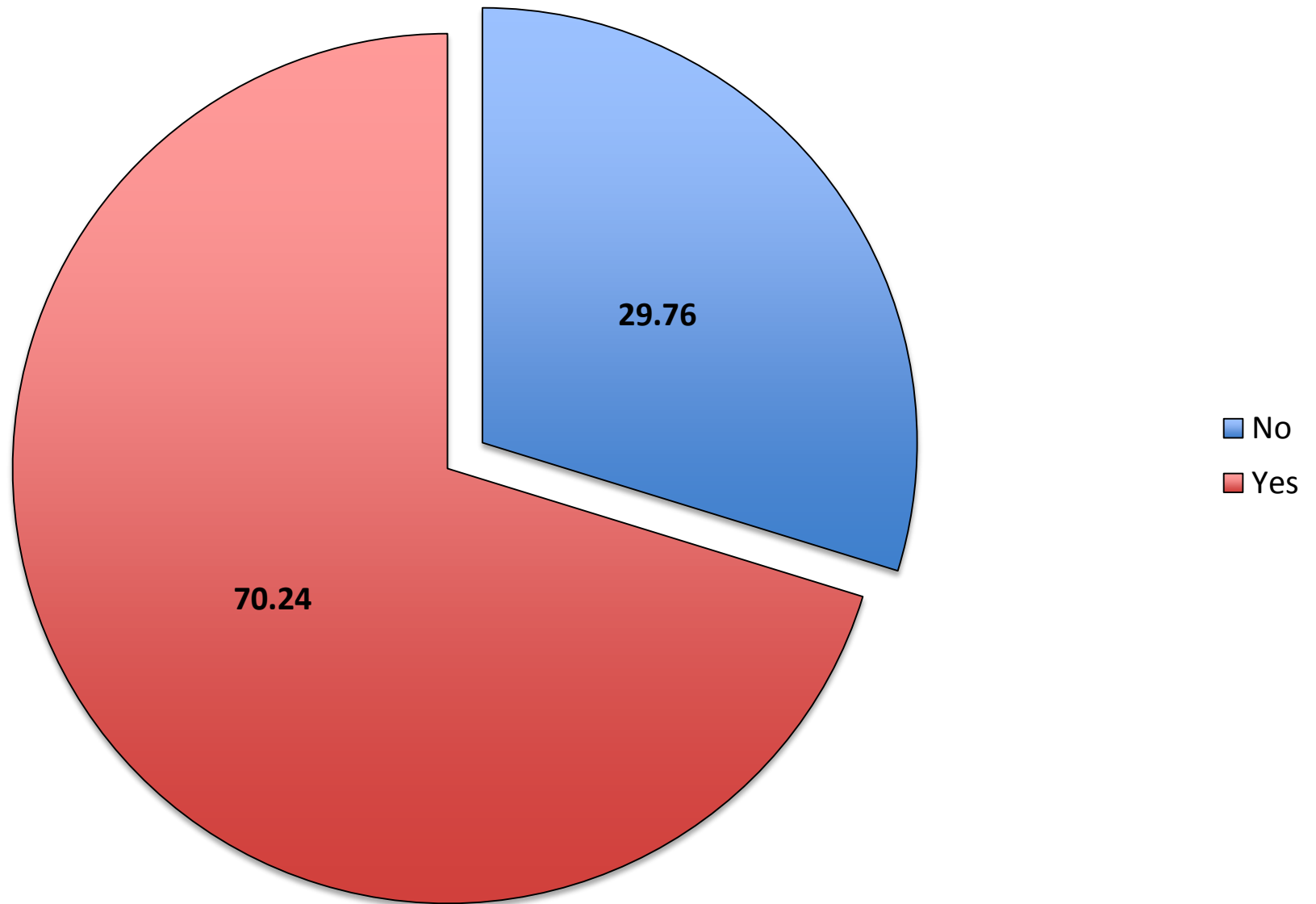
Bardach's "Eightfold" Path

System for thinking about problem solving.
Consists of:

- Scope of the problem

- Creative / Ideative

- Analytic

- Reporting
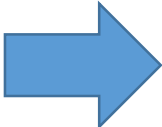
Complex problems become manageable

Bardach's "Eightfold" Path

1. Define the Problem
2. Assemble some Evidence
3. Construct the Alternatives
4. Select the Criteria
5. Project the Outcomes
6. Construct the Tradeoffs
7. Decide!
8. Tell your story

Bardach's "Eightfold" Path [really 6 folds for us]

1. Problem
2. Evidence
3. Alternatives
4. Criteria
5. Outcomes
6. Tradeoffs
7. Decide!
8. "Storytelling"

→

1. Problem
2. Evidence
3. Alternatives
4. Criteria
5. Outcomes
6. Tradeoffs

- Don't feel you need to stick to this too closely, or think that the ordering has to be so structured
- We will use this framework for your final paper and parts of it for your first memo
- Learning by doing – we will go through three examples to think through the issues around defining the problem

Example 1

What happened?

- "Effective January 1, 2014, UC joins more than 1,100 colleges and universities nationwide by implementing a system wide smoke & tobacco-free policy" UCOP website

- "This policy is being adopted by all UC campuses, labs and centers to improve the health and safety of all students, staff, faculty, patients and visitors. The policy prohibits the use of cigarettes, e-cigarettes, cigars, snuff, snus, water pipes, pipes, hookahs, chew, and any other non-combustible tobacco product."

STEP 1: DEFINE THE PROBLEM

Do

- Translate Headlines Into Specifics
- Deficits & Excesses
- Identify Public Element of Private Troubles
- Quantify
- Diagnose conditions that cause problems
- Think Of Opportunities (Not Just Threats)

Don't

- Try To Complete Whole Analysis With Problem Definition
- Embed Solutions
- Hamstring Analysis With "Value" Conceptions (Leave For Criteria)
- Expand Or Confine Scope Excessively

Problem Definition:

Do	Examples
• Deficits & Excesses	• "Smoking rates are too high in California"

Problem Definition:

Do

- Identify public element (why should we be intervening here?)
  - Market failure?
  - Redistribution?

Examples

- "This policy is being adopted … <u>to improve the health and safety of all students, staff, faculty, patients and visitors…</u>"
- "While the use of tobacco is a personal choice, the health hazards related to smoking and exposure to second- and third-hand smoke are well-documented. <u>These hazards can affect not only the smoker, but also the nonsmoker who is exposed to the smoke.</u>"

Problem Definition:

Do

- Quantify the problem

Examples

SMOKING RATES AMONG U.S. HIGH SCHOOL STUDENTS, ADULTS 1965-2011

* Percentage of high school students who smoked cigarettes on 1 or more of the 30 days preceding the survey (Youth Risk Behavior Survey, 1991-2011).
** Percentage of adults who are current cigarette smokers (National Health Interview Survey, 1965-2011).
Source: Centers for Disease Control and Prevention.
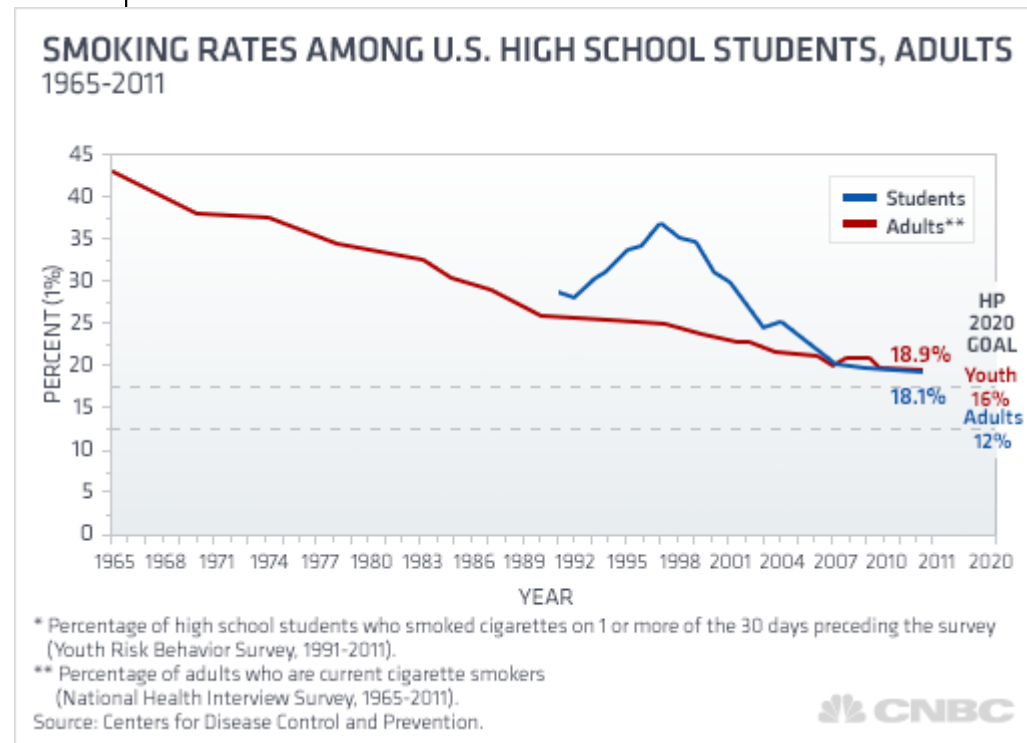
Problem Definition:

Do

- Diagnose conditions that cause problems

Examples

- "While the use of tobacco is a personal choice, <u>the health hazards related to smoking and exposure to second- and third-hand smoke are well-documented.</u> These hazards can affect not only the smoker, but also the nonsmoker who is exposed to the smoke."

Policy Context
Your "Problem's" Galaxy
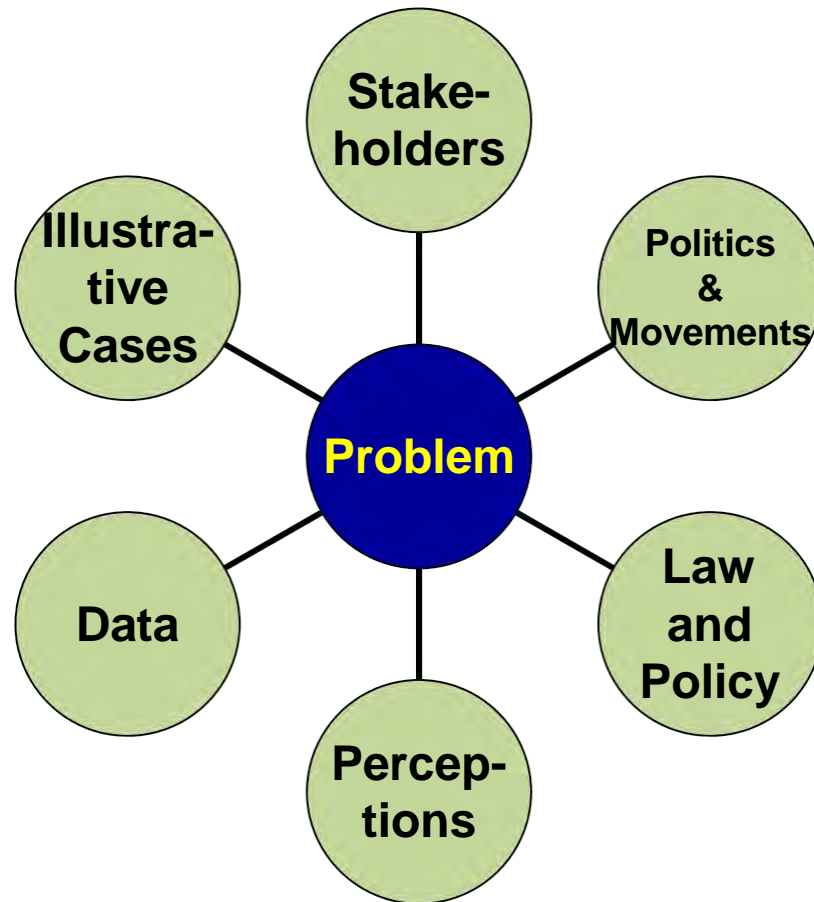
Example 2: Economist Article on the War on Drugs

The Economist

Winding down the war on drugs

Towards a ceasefire

Change is coming because the "war on drugs" is being convincingly won by drugs, and the powerful criminal gangs who deal in them. Since 1998, when the UN held an event entitled "A drug-free world: we can do it", consumption of cannabis (marijuana) and cocaine has risen by about 50%; for opiates, it has more than trebled. And a swelling pharmacopoeia of synthetic highs is spinning heads in dizzying new ways. The UN reckons that 230m people used illegal drugs in 2010. They and their suppliers (usually the humblest ones) fill prisons in rich and poor countries alike. Drug convictions account for almost half of American prisoners in federal jails.

If efforts to stem demand have been futile, trying to control supply has been disastrous. The illegal-drug industry's revenues are some $300 billion a year, according to the very roughest of guesses by the UN, and flow untaxed into criminal hands. Drug-running mafias corrupt and destroy the places where they operate. Of the world's eight most murderous countries, seven lie on the cocaine-trafficking route from the Andes to the United States and Europe. Only war zones are more violent than Honduras. More than 7,000 of its 8m citizens are murdered each year. In the European Union, with a 500m population, the figure is under 6,000.

STEP 1, Problem?

Failed policy: "war on drugs is being won by drugs and the powerful criminal gangs who deal in them"

Sub-problem: users and suppliers of illegal drugs are "filling prisons in rich and poor countries alike"

Sub-problem: "efforts to stem demand have been futile" and "since 1998 ... cannabis consumption has increased by 50%"

Sub-problem: "trying to control supply has been disastrous"

Sub-problem: "drug-running mafias corrupt and destroy the places where they operate."

"Serious evil of addiction": not really the problem here. It's a consequence we must consider.

Step 1 Problem: <u>Some of Bardach's tips:</u>

- State problems in terms of deficits and excess (use the word "too").
  - *Doesn't really do this.*
- Try to avoid using the raw material of issue rhetoric. *Uses "war on drugs", kind of rhetoric.*
- Quantify if possible, using both range and point estimate.
  - *Does okay on that (50% increase)*
- Here, is the problem something that is the cause of trouble?
  - *Yes, it's a set of policies that have failed.*

Example 3: Minimum Wages

IMPROVING SAFETY NET AND WORK SUPPORT

THE HAMILTON PROJECT

Proposal 13: Designing Thoughtful Minimum Wage Policy at the State and Local Levels

Introduction

Rising wage inequality and stagnant real wages have contributed to inequality in family incomes during the past three decades. While the expansion of the Earned Income Tax Credit (EITC) and the Supplemental Nutrition Assistance Program (SNAP) have helped mitigate the impact on low-income families (Bitler and Hoynes 2010), federal minimum wage policy has not contributed to the solution. The federal minimum wage has failed to keep pace with both the cost of living and the median wage in the labor market. As a consequence, working full-time at the minimum wage does not allow many families to escape poverty, or to attain economic self-sufficiency.

The Challenge

RISING INEQUALITY AND STAGNANT WAGES

For much of the past three decades, the wages of those at the bottom of the wage distribution have failed to keep up with overall economic gains. Most of the wage increase has occurred among the top half of the wage distribution, especially since the 1990s. Wages in the lower half rose only during the period of low unemployment in the late 1990s. As a result, the 90th percentile real wage grew by over 30 percent between 1973 and 2011, while the median and 10th percentile real wages grew by less than 5 percent over the same period.

- Falling Wages
- Framed around work and poverty of workers (as opposed to low incomes overall)

LECTURE #7

Lecture Outline:

Adding Taxes to Demand and
    Supply
Tax Incidence
Efficiency of Taxation
Elasticities and incidence and
    efficiency

Announcements/Assignments:

➢ Readings: KW Ch 7 (and 6)

➢ 8FP: "Step 2": read Bardach, review videos on EdX, do EdX homework

➢ Thursday: Class discussion on soda taxes

    ➢ Bittman NY Times (2 articles)

    ➢ McGranahan & Schanzenbach

Why we discuss taxes

1. We need to raise revenue to fund many of the policies we are talking about this semester.

   – As with minimum wages, here we are concerned about thinking through the implications of this government policy on consumers and producers

2. We may use taxes to influence behavior ("tax bad things, subside good ones"). [Later we will see how we use taxes to "correct externalities]

How are you taxed in every day life?

- In buying goods: Sales taxes
- In buying goods: excise taxes "sin taxes" (cigarettes, alcohol, gasoline)
- On your earned income: payroll taxes, federal income taxes, state income taxes
- Property taxes

18.1

Tax Revenue by Type of Tax in the United States (2010, % of Total Tax Revenue)

	Federal	State and Local	Total
Individual income taxes	42%	20%	34%
Social insurance contributions (payroll tax)	35	0	24
Corporate taxes	13	4	10
Consumption tax	3	34	14
Property tax	0	33	11
Other	7	9	7

18.1

Taxation Around the World

	Norway	Denmark	OECD Average
Individual income taxes	24%	55%	25%
Social insurance contributions (payroll tax)	23	2	27
Corporate taxes	22	5	8
Consumption tax	26	30	31
Property tax	3	4	5
Other	2	4	4

Figure 10: State Cigarette Excise Tax Rates by Pack in 2010
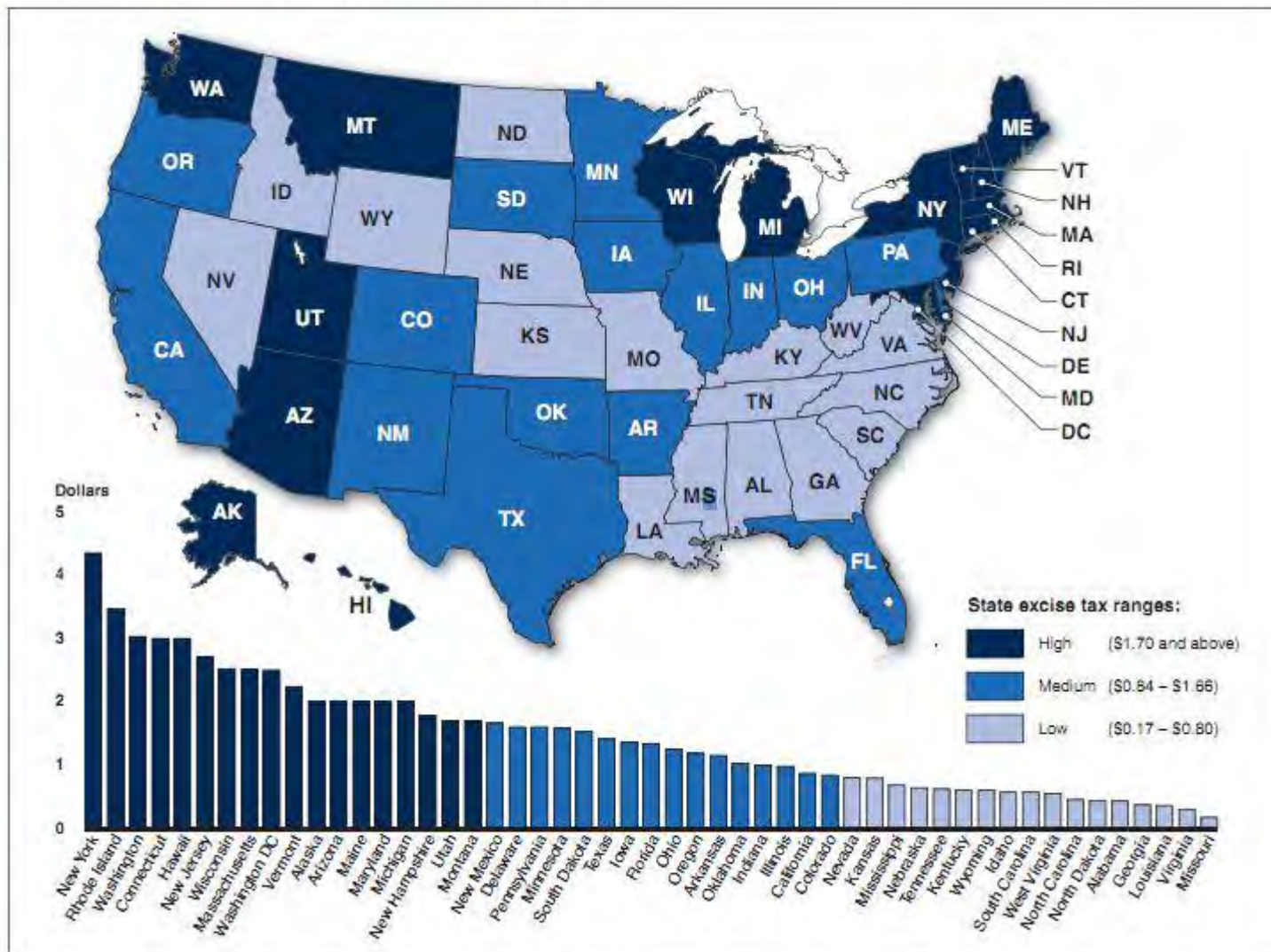
Sources: GAO analysis of Campaign for Tobacco-Free Kids data and Map Resources (map).

Outline of our discussion of taxes

➢ Mechanics of adding taxes to S and D model

➢ Effects of taxes on prices (called "tax incidence")

➢ Effects of taxes on amount bought (and sold)

➢ Effects of taxes on DWL

➢ Elasticities: how do D and S elasticities affect incidence and efficiency

For our analytics, we will use EXCISE TAXES

- Excise taxes: Fixed per unit of quantity
  - EX: gas, cigarettes, alcohol
- This is in contrast to sales taxes which are applied to each dollar spent or income taxes which are applied to each dollar earned
- The results we generate hold more generally for all taxes on goods (and labor)
- Mechanics of analyzing the economics in our D & S diagram are easiest with excise taxes.

Our 3 Steps

- Does is affect S or D?

- Which way does the curve shift?

- Impact on equilibrium outcomes?

Suppose the tax is on the buyer
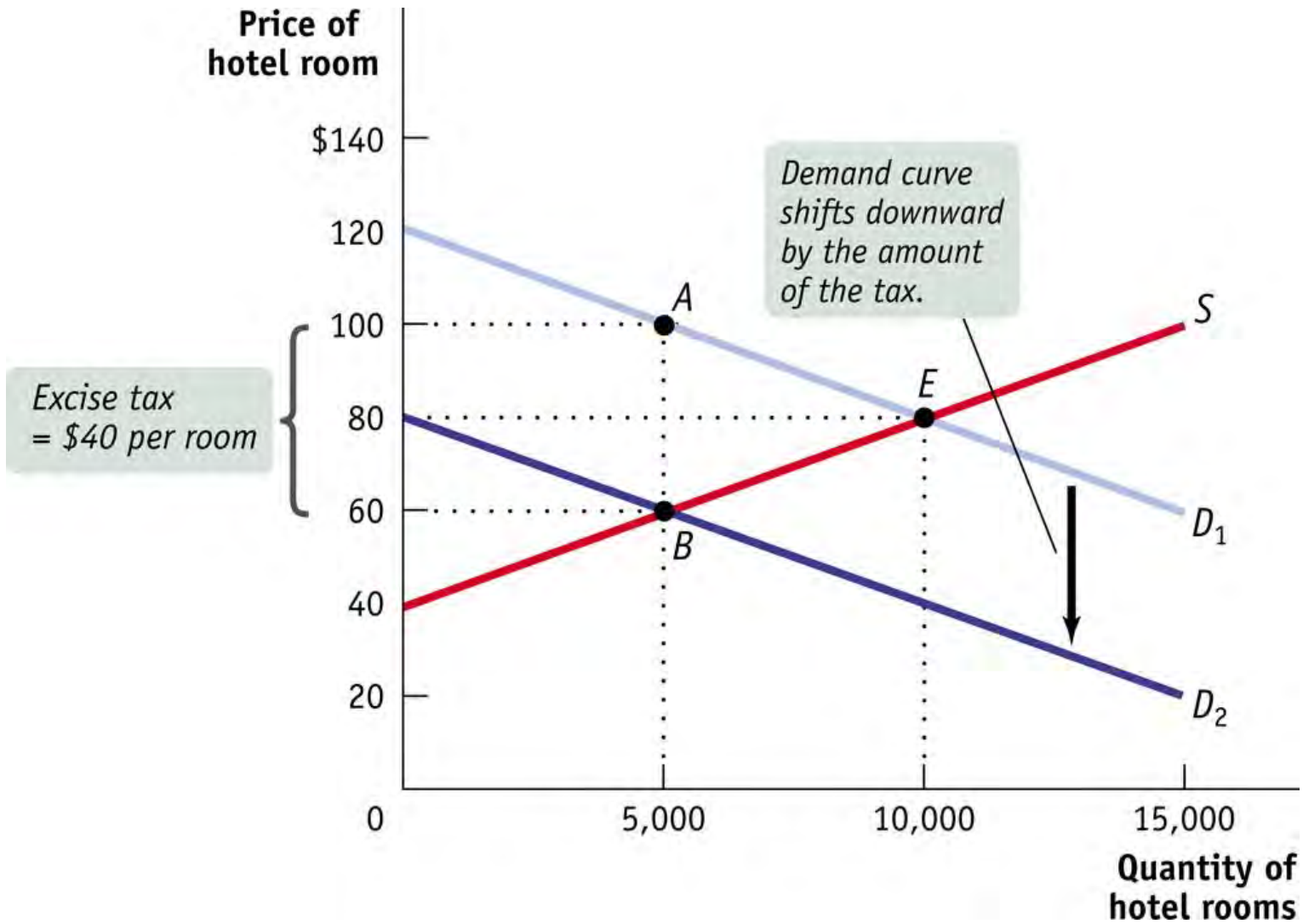
- Example: $1.00 tax per gallon of gasoline
- Important distinction: <u>statutory</u> incidence of the tax versus <u>economic</u> incidence
  - Statutory: who by law has to remit the tax to govt
  - Economic: how does the tax affect prices
- Do mechanics of taxes on the board

Results for tax on buyer

- Demand curve shifts down by amount of tax (reflecting the wedge and the need to distinguish between P_B and P_S)

- Equilibrium quantity declines

- How do we think about this in motivation of "tax bad things, subsidize good things"

- How do we think about the criticism that "taxes decrease economic activity"

Results for tax on buyer (cont)

- Price paid by buyer increases

- Price received by seller decreases

- Tax incidence (DEF): analysis of how taxes affect the prices paid for goods

- Here, the incidence of the tax is that both parties are worse off

Price of
hotel room

$140

120

Demand curve
shifts downward
by the amount
of the tax.

A

100

S

E

Excise tax
= $40 per room

80

60

B

D₁

40

D₂

20

0

5,000

10,000

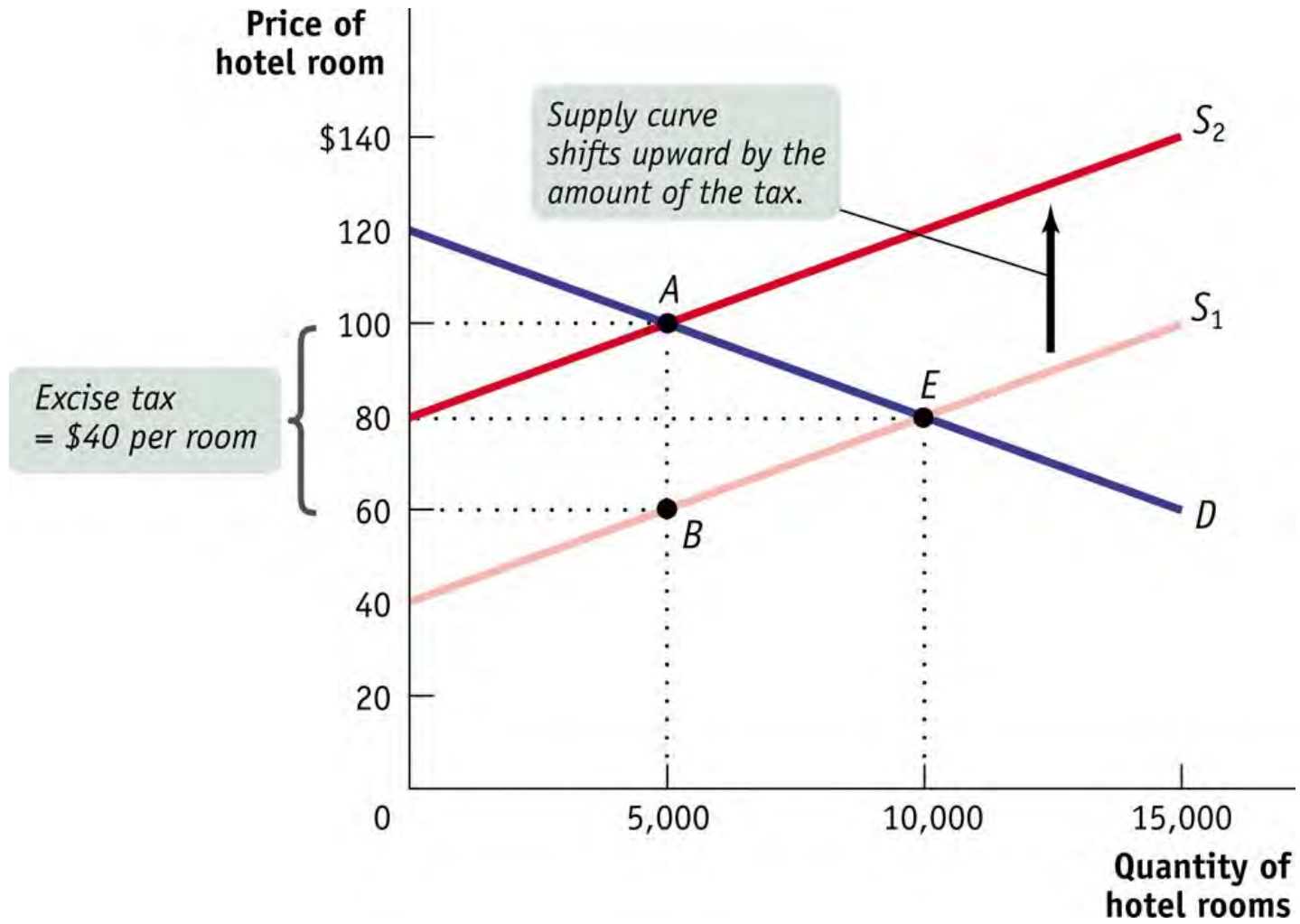15,000

Quantity of
hotel rooms

What will determine if the change in Q is big or small?

- The amount of the tax
- If demand (or supply) is elastic → larger changes in Q

Tax on sellers

- Suppose instead that the statutory burden of the tax is on sellers
- IDENTICAL RESULT

Price of hotel room

Supply curve shifts upward by the amount of the tax.

S_2

S_1

Excise tax = $40 per room

$140

120

100

80

60

40

20

0

A

E

B

D

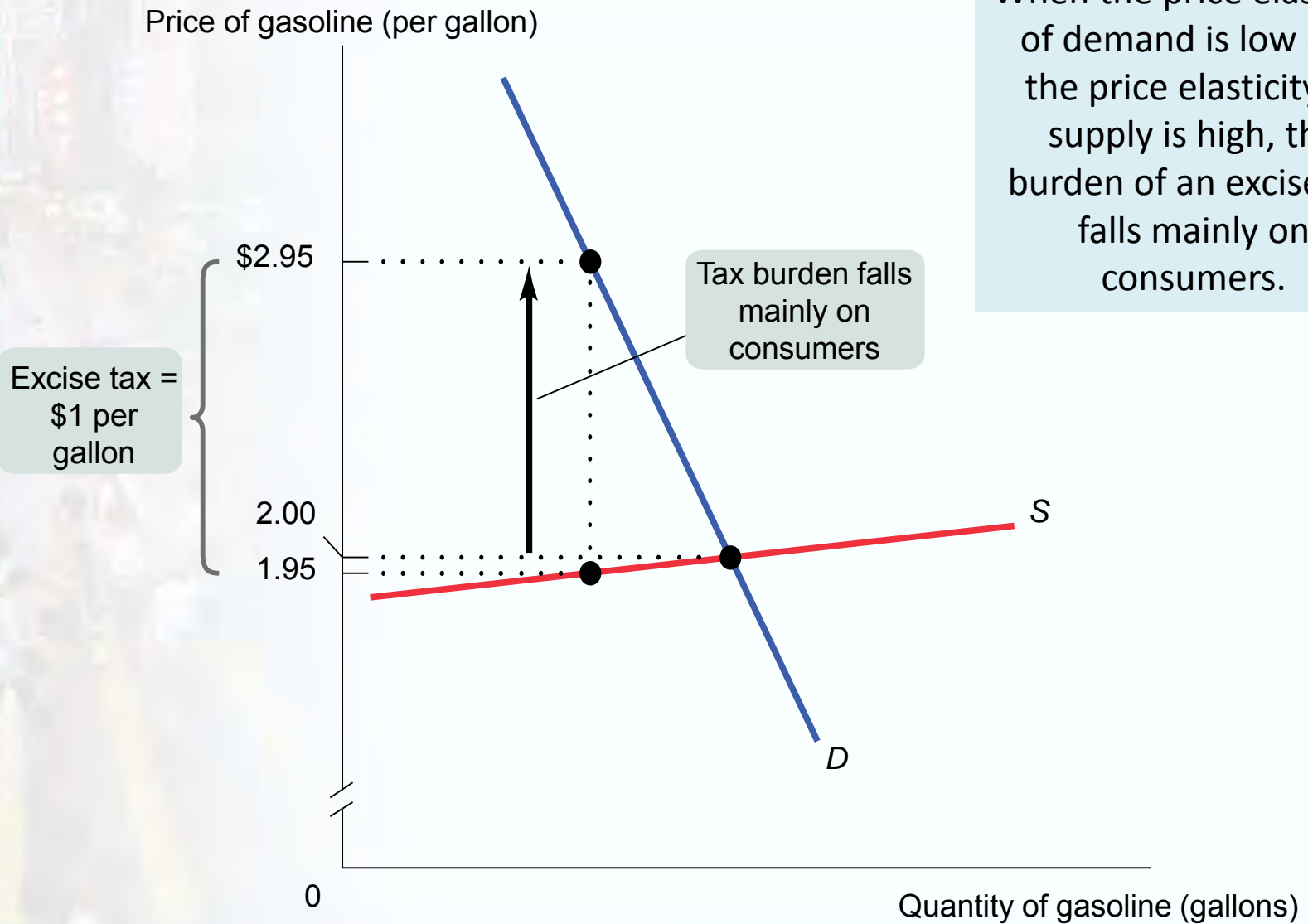5,000   10,000   15,000

Quantity of hotel rooms

Lessons so far

1. Taxes discourage economic activity
2. Statutory incidence does not tell you about economic incidence

- What will determine the relative burden of the incidence of the tax? Does consumer price go up a lot or does producer price go down?
- It is not the statutory incidence

Tax Incidence and Elasticities: INELAS DEMAND

Price of gasoline (per gallon)

When the price elasticity of demand is low and the price elasticity of supply is high, the burden of an excise tax falls mainly on consumers.

$2.95

Tax burden falls mainly on consumers

Excise tax = $1 per gallon

2.00

1.95

S

D

0

Quantity of gasoline (gallons)

Tax Incidence and Elasticities: INELAS SUPPLY

- Larger burden goes to more inelastic side of market.
- Extreme cases
  - Demand perfectly inelastic → consumers bear the entire burden of the tax
  - Supply perfectly inelastic→ sellers bear the entire burden of the tax

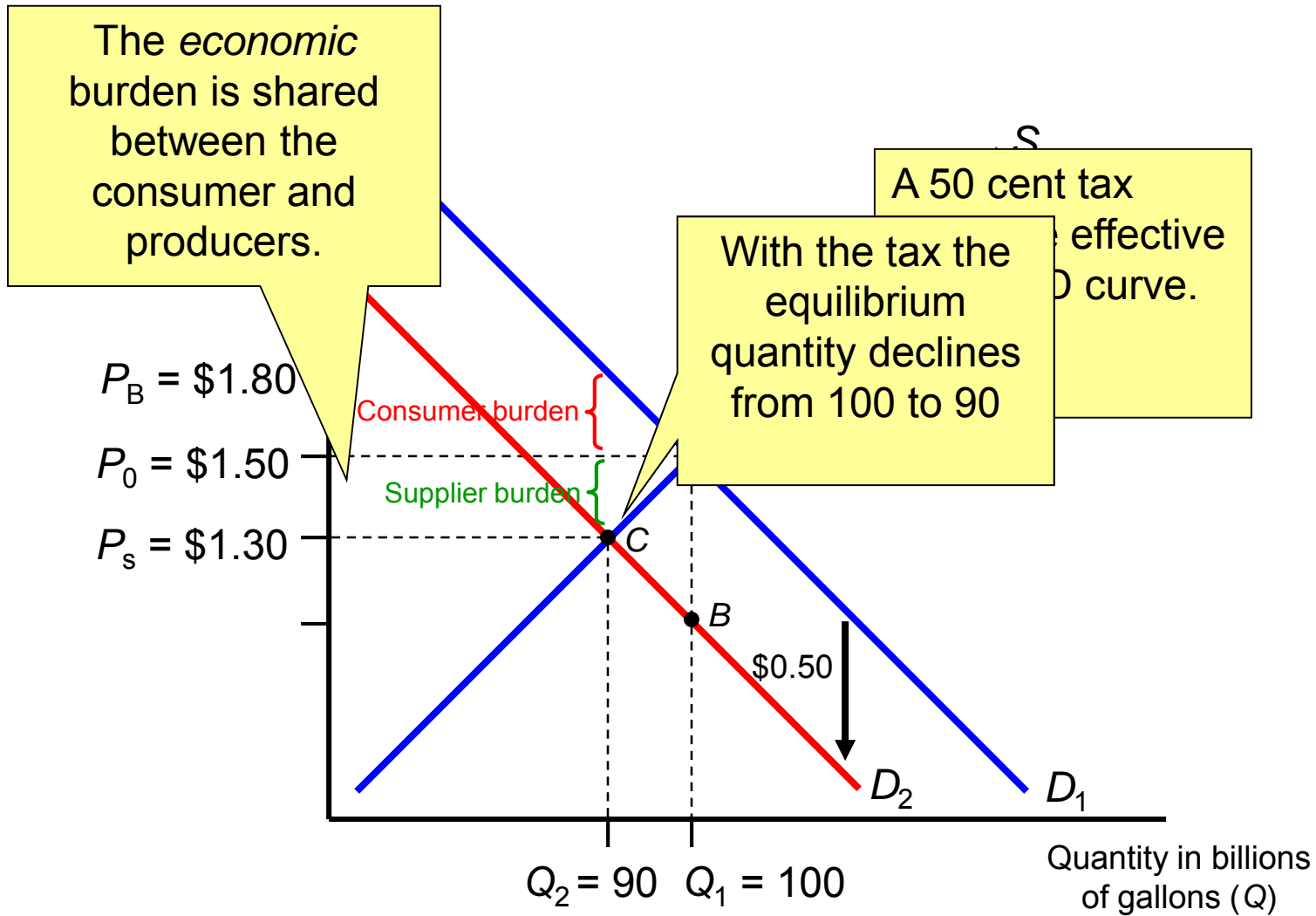# START HERE ON THURSDAY

Lessons: Taxes and Market Outcomes

(1) Taxes discourage market activity

(2) Statutory incidence of the tax does not tell you about ultimate economic incidence

(3) The more inelastic (less elastic) side of the market bears the greater burden of the tax.

- The way to avoid a tax is to change your desired quantity so inelastic bears the burden of the tax.

The *economic* burden is shared between the consumer and producers.

A 50 cent tax effective D curve.

With the tax the equilibrium quantity declines from 100 to 90

$P_B = \$1.80$

Consumer burden

$P_0 = \$1.50$

Supplier burden

$P_s = \$1.30$

C

B

$0.50

D_2 D_1

$Q_2 = 90$ $Q_1 = 100$

Quantity in billions of gallons (Q)

Costs of Taxation: Efficiency

- Need to modify definition of surplus:

Total surplus =   Consumer Surplus

+ Producer Surplus

+ Government Revenue

- Do on the board

Taxes and Efficiency

- Result: taxes reduce total surplus, create DWL
  - Government gains revenue
  - Consumers and producers lose surplus
- Why do taxes impose a DWL?
  - Taxes change prices faced by buyers and sellers relative to the competitive equilibrium
  - Buyers face a higher price → consume less
  - Producers get a lower price → produce less
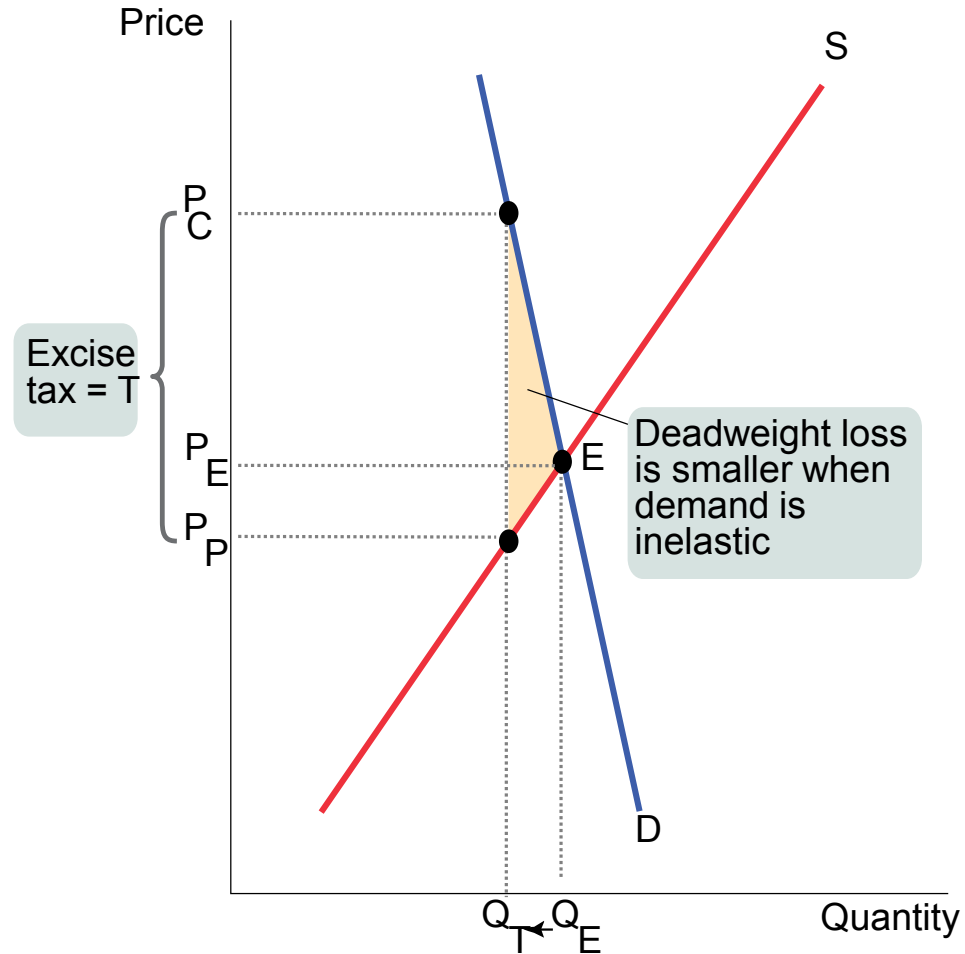 - Responding to these incentives <u>shrinks the market</u>. This is what creates the DWL.

- So, the more buyers and sellers respond to these price changes, then the more the market shrinks, then the larger the DWL.
- What parameter is going to determine the magnitude of these responses?
- Price elasticities of demand and supply.

- The magnitude of the DWL depends on elasticities and the size of the tax

Deadweight Loss and Elasticities

(a) **Elastic Demand**

Price

S

Deadweight loss is larger when demand is elastic

P_C

P_E

E

Excise tax = T

D

P_P

Q_T ← Q_E

Quantity

(b) **Inelastic Demand**

Price

S

P_C

Excise tax = T

P_E

E

Deadweight loss is smaller when demand is inelastic

P_P

D

Q_T←Q_E

Quantity
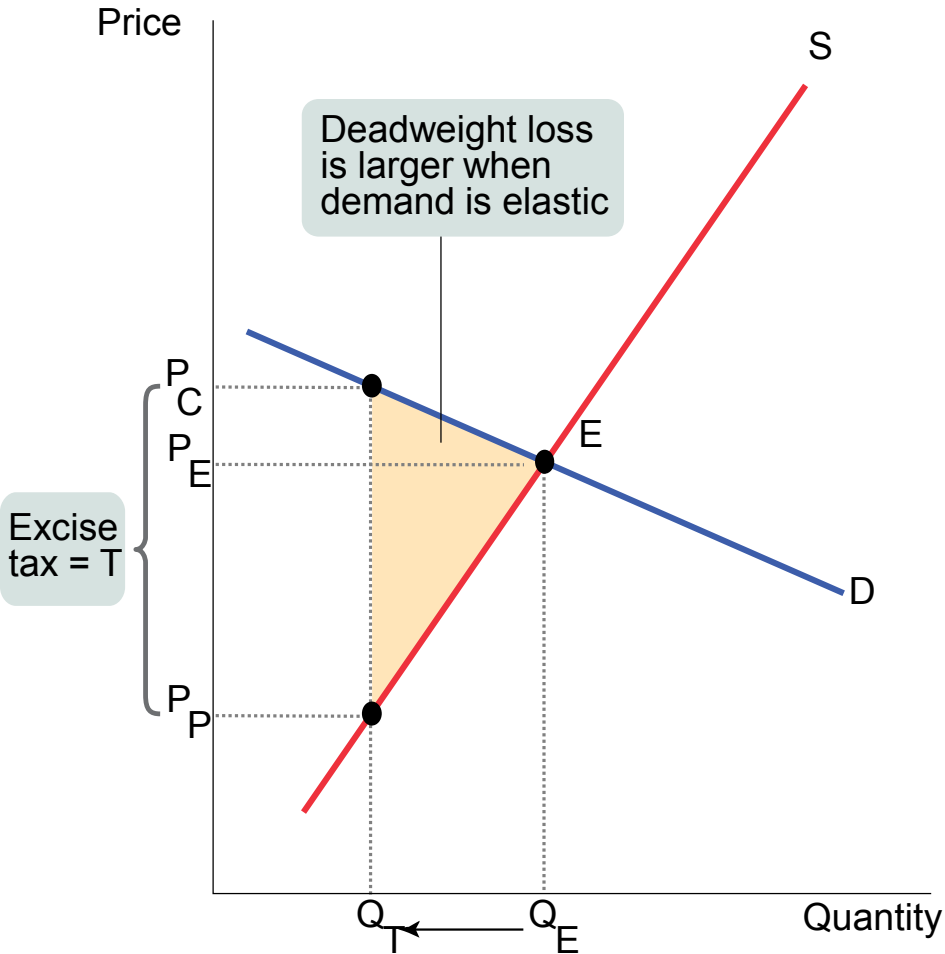
Deadweight Loss and Elasticities

(c) **Elastic Supply**

Price

Deadweight loss is larger when supply is elastic

Excise tax = T

P_C

P_E

P_P

S

E

D

Q_T ← Q_E

Quantity

(d) **Inelastic Supply**

Price

S

P_C

P_E

P_P

Excise tax = T

Deadweight loss is smaller when supply is inelastic

E

D

Q_T ← Q_E
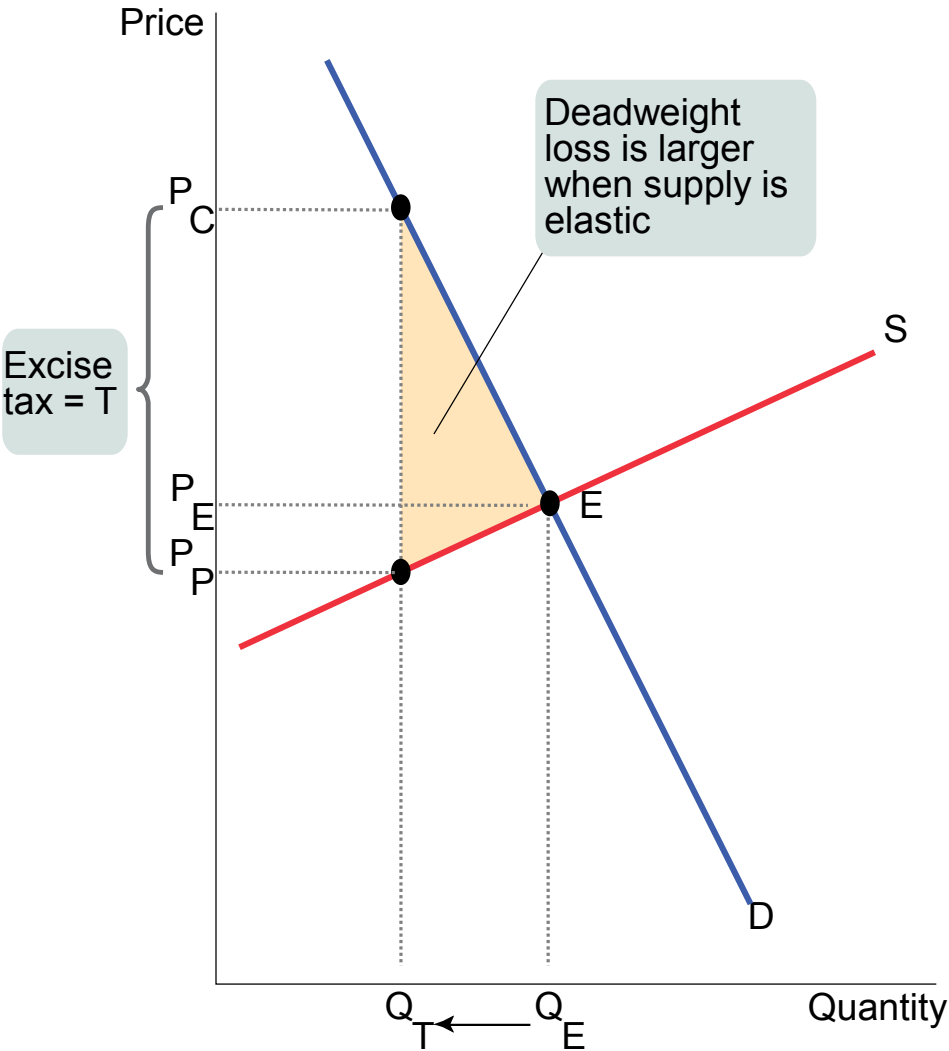
Quantity
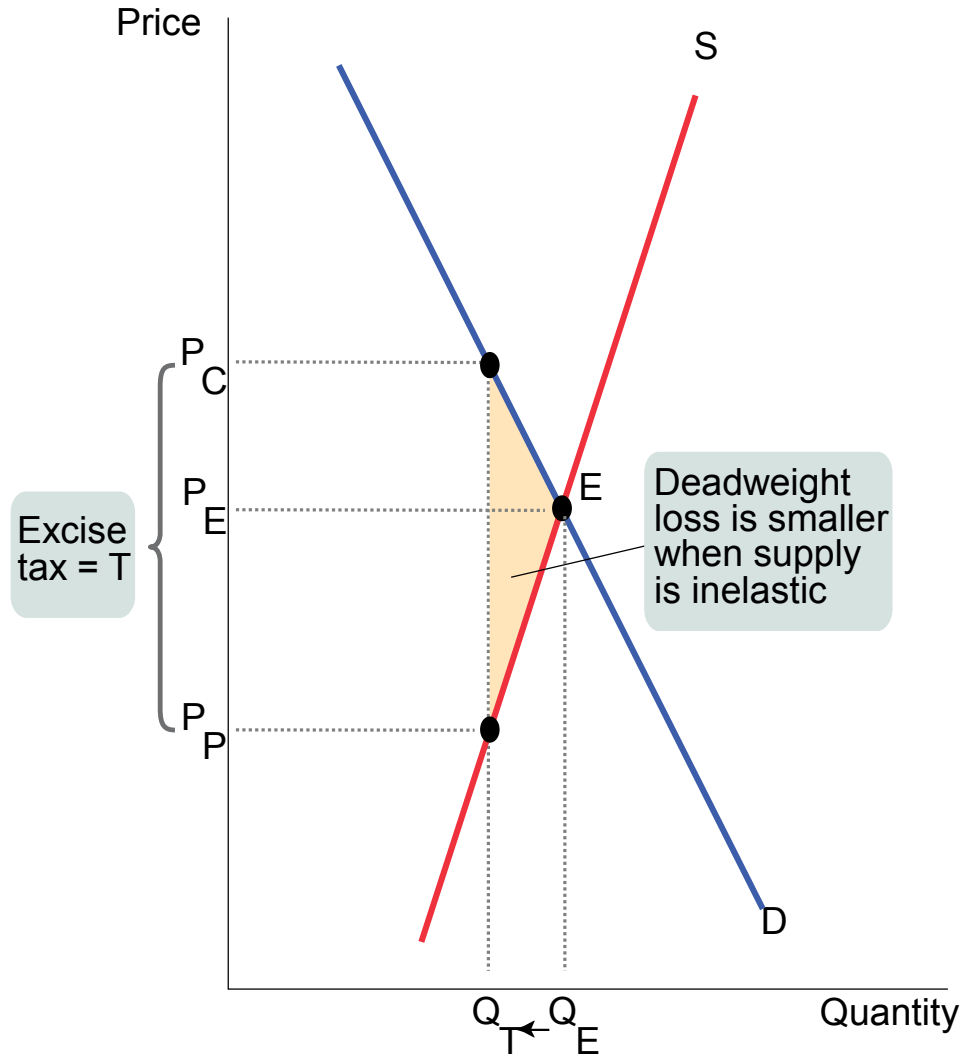
- Extreme case, inelastic S or D → NO DWL

Why do we care about DWL?

- This represents part of the COSTS of government activity.

- If we have taxes to pay for government programs (e.g. schools, roads, etc). We have to raise revenue to pay for them.

- The DWL from those revenue raising taxes is part of the cost.

Lessons: Taxes and Market Outcomes

(1)   Taxes discourage market activity

(2)   Statutory incidence of the tax does not tell you about ultimate economic incidence

(3)   The more inelastic (less elastic) side of the market bears the greater burden of the tax.

- The way to avoid a tax is to change your desired quantity so inelastic bears the burden of the tax.

(4)   Taxes reduce economic efficiency, create DWL

- The DWL grows with elasticities and the size of the tax

"Optimal" Tax Problem

- <u>Other things equal</u>, a tax system should be designed to minimize the total inefficiency it imposes on society = minimizing DWL

Deadweight Loss and Elasticities

- If governments ONLY cared about efficiency what would they do?

- Set taxes to minimize DWL

- <u>Lower</u> taxes on <u>elastic</u> goods

- <u>Higher</u> taxes on <u>inelastic</u> goods

- But what types of goods inelastic?

Deadweight Loss and Elasticities

- If governments ONLY cared about efficiency what would they do?
- Set taxes to minimize DWL
- <u>Lower</u> taxes on <u>elastic</u> goods
- <u>Higher</u> taxes on <u>inelastic</u> goods
- But what types of goods inelastic?

TABLE 6-1

Some Estimated Price Elasticities of Demand

Good	Price elasticity of demand
Inelastic demand	
Eggs	0.1
Beef	0.4
Stationery	0.5
Gasoline	0.5
Elastic demand	
Housing	1.2
Restaurant meals	2.3
Airline travel	2.4
Foreign travel	4.1

Please find source information on the copyright page.

Challenge in Tax Policy

- Taxes that tend to be efficient tend to be inequitable
    - Ex: taxing inelastic goods like gas
- Taxes that tend to be equitable tend to be inefficient
- Can't get both: have to decide how to balance
- Known as: EQUITY EFFICIENCY TRADEOFF

LECTURE #8

Lecture Outline:

Adding Taxes to Demand and
   Supply
Finish up our analysis of taxes

Application: Soda taxes

8FP: Step 2 Assemble some
   evidence

Announcements/Assignments:

➢ Readings: KW Ch 7 (and 6)

➢ 8FP: "Step 2": read Bardach, review
videos on EdX, do EdX homework

➢ Thursday: Class discussion on
soda taxes

   ➢ Bittman NY Times (2 articles)

   ➢ McGranahan & Schanzenbach

Why we discuss taxes

1. We need to raise revenue to fund many of the policies we are talking about this semester.

   – As with minimum wages, here we are concerned about thinking through the implications of this government policy on consumers and producers

2. We may use taxes to influence behavior ("tax bad things, subside good ones"). [Later we will see how we use taxes to "correct externalities]

Soda taxes fit into second category.

SODA TAX

What did Berkeley pass?

- Tax on distribution companies, the 15-20 companies that contract with beverage makers to distribute their products in Berkeley.

- The tax is added to the distributors' business license fee.

- The tax rate is a penny per fluid ounce.

- Measure D focuses on the distribution of sugary soda, energy drinks, juice with added sugar, and syrups that go into sugary drinks at cafes like Starbucks (like Frappuccinos).

In-class debate on the soda tax: Issues to consider

1. Why a soda tax?
2. Who will be affected by a soda tax?
3. What will determine if the tax is successful (e.g. reduce consumption)?
4. Is there a public argument for the tax EVEN in light of the fact that our calculation shows that it reduces the total surplus?
5. Do we have any evidence from a real world policy that tells us whether this will work?
6. Why did SF's proposition require a 2/3 majority while Berkeley's only 50%?

1. Spending on SSBs consumed at home

	Annual spending ($)	Share of total spending	Share of food spending	Share of at-home food spending
		(--------------- percent ---------------)		
All	142.31	0.33	2.37	4.18
By race/ethnicity				
Black	111.47	0.35	2.51	4.11
White	146.51	0.32	2.36	4.23
Hispanic	155.66	0.41	2.57	4.32
By educational attainment				
Less than high school	130.96	0.53	3.22	4.74
High school	141.79	0.42	2.89	4.61
Some college	147.02	0.37	2.55	4.46
College graduate	141.71	0.25	1.90	3.64
By poverty status				
Below poverty line	117.83	0.50	2.97	4.42

SOURCE: Authors' calculations based on data from the Bureau of Labor Statistics' *2008 Consumer Expenditure Survey*.

Why? [from Prop D website]

- Soda and other sugary drinks are the number one source of added sugar in the American diet, and are linked to increased risk of diabetes, heart and liver disease, obesity, and tooth decay.

- A 20 ounce bottle of soda is equivalent to 22 packets of sugar.

- 2 in 3 California teenagers drink at least one soda or other sugary drink each day.

- Liquid sugar affects the body in a unique way that increases the risk for diabetes more than sugar in food.

- Beverage companies spend hundreds of millions annually marketing directly to youth, bypassing parents, and market more heavily to youth of color.

- 40% of all children will develop Type 2 diabetes in their lifetimes. The prediction is worse for African American and Latino children - it's 1 in 2.

- 40% of Berkeley's 9th graders are overweight or obese.

What are the expected effects of a soda tax?

- If the goal is to reduce consumption, what are the factors that will affect its success?
- DO ON BOARD.

Bardach's "Eightfold" Path

1. Define the Problem
2. Assemble some Evidence
3. Construct the Alternatives
4. Select the Criteria
5. Project the Outcomes
6. Construct the Tradeoffs

7. Decide!
8. Tell your story

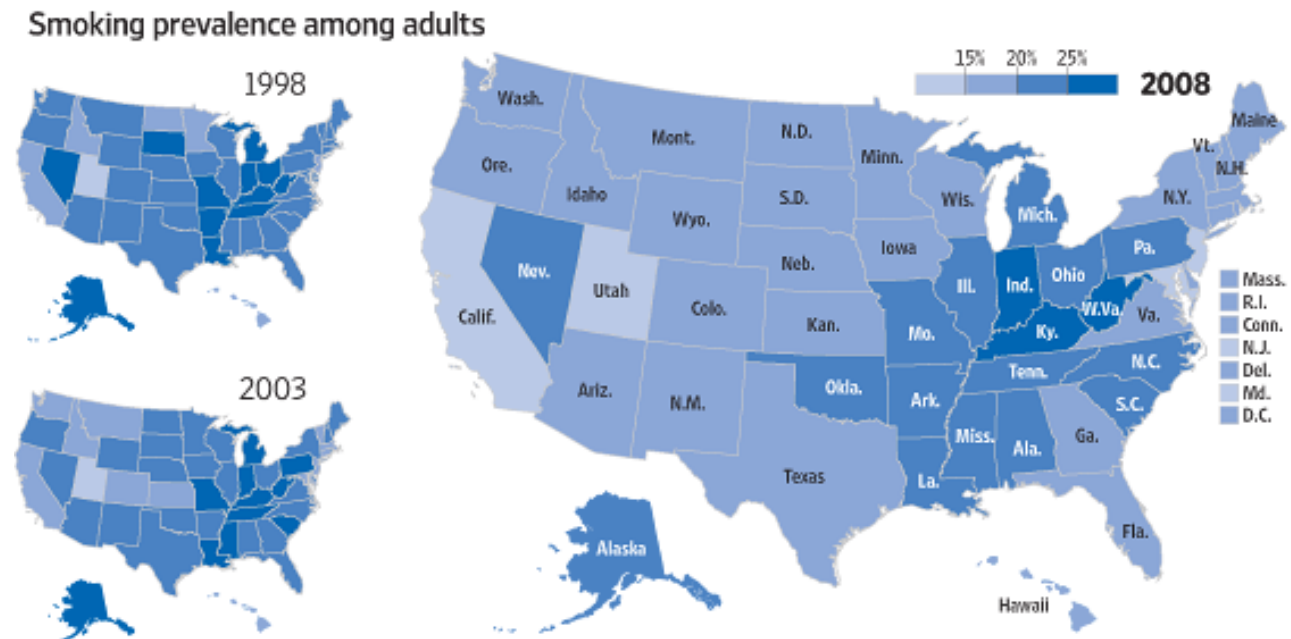# STEP 2: Assembling Evidence

- In support of the problem definition

Data, Information, Evidence

- "Data" - Collected According To Statistic Protocols; Regularized Surveys;

- "Information" - Data that is arranged to make some point

- "Evidence" – is information that affects existing beliefs about significant features of the problem and how it might be solved

Example:

- Data: smoking rates by state
- Information: Rates are low in California

Smoking prevalence among adults

Note: Data based on people who have smoked 100 cigarettes or more during their lifetime and currently smoke every day or some days
Source: Centers for Disease Control and Prevention

Evidence – Some Quick Pointers

- Keep List of Evolving Questions

- Track Your "Journey"

- Beware Bottomless Pits

- Exploit Prior Analysts' Efforts

- Key Finding Tool:
  People Who Know Things

Evidence: The Analyst's Key Motivations

1. <u>Assessment</u>: After "Defining" Problem, Ascertain Its Nature and Extent

   - [Just How Much Of A "Problem" Is It ?]

2. <u>Context</u>: What Are Key Facts Relating To Occurrence And Incidence?

3. <u>Policy Environment:</u> Sketching In The History Of Public Involvement

Example 1: Soda (SSB) tax

- Step 1: Define the problem
- Step 2: Assemble some evidence

Example 2: UC Smoking Ban

- Step 1: Define the problem
- Step 2: Assemble some evidence

SMOKE&
TOBACCO
FREE
UNIVERSITY OF CALIFORNIA

Example 3: Yahoo article on EdX

- Step 1: Define the problem
- Step 2: Assemble some evidence

The 74 school shootings since Sandy Hook

'The country has to do some soul searching about this,' President Obama says

By **Dylan Stableford**
June 11, 2014 9:40 AM
Yahoo News

Example 3: Economist Article on the War on Drugs

1. In supporting the problem definition of war on drugs being won by drugs, in particular that efforts to stem demand have been futile
2. In support of problem of prison overcrowding because of drug use
3. In support of problem of trying to control supply has been disastrous
4. In support of drug-running mafias corrupt and destroy places where they operate

In supporting the problem <u>definition of war on drugs being won by drugs, in particular that efforts to stem demand have been futile</u>:
- Consumption of marijuana and cocaine has increased by 50% since 1998
- Consumption of opiates has more than tripled since 1998
- There are lots of new synthetic drugs too

In support of problem of <u>prison overcrowding because of drug use</u>:
- Drug convictions account for almost half of American prisoners in federal jails

In support of problem of <u>trying to control supply has been disastrous:</u>
- Revenues of illegal drug industry are $300 million / year (rough guesses by UN)

In support of <u>drug-running mafias corrupt and destroy places where they operate</u>:
- Of 8 most murderous countries, 7 like on cocaine trafficking route.
- Only war zones more violent than Honduras: 7000 of its 8 million citizens murdered each year.
- Compared to Europe, that's huge: it has 500 million people, and fewer than 6000 murdered each year.

Step 2 Evidence: <u>Some of Bardach's tips:</u>

- Only gather data and information that can be used as evidence. Data are facts. Information are facts that have meaning in that they help you sort the world into categories. Evidence is information that affects people's beliefs or understanding.

- Three ways in which evidence is used: (1) defining the problem, (2) assess the features of the policy problem you're examining, and (3) evaluating alternatives. This step is taken more than once.

- Think before you collect.

- Do you think these people contacted people with which they disagree? Do they present the main parts of the problem?

LECTURE #9

Lecture Outline:

Externalities
D & S as MB & MC
Descriptions of externalities
Economics of Negative
   externalities
Taxes as solution to market failure

Announcements/Assignments:

➢ 1st midterm is 2/27

➢ PS2 due 2/25 in class (keep a copy to help in studying for the midterm)

➢ 8FP: "Step 3": read Bardach, review videos on EdX, do EdX homework

➢ Thursday: Application: Policy solutions for congestion (do readings, updated)

➢Updated schedule w/ readings

➢My office hours this week are Wed 2-4

Efficiency and market outcomes

- Earlier in the course we discussed how the free market will reach the <u>efficient outcome</u> (maximize surplus)

- Sometimes markets do not reach the desired outcome

- These are four common cases:

1. Externalities (KW Ch 16)
2. Public Goods
3. Poverty and redistribution (KW Ch 18)
4. Monopolies

In PP101 we will look at two of these – externalities and redistribution. We will see how government policy can help us to get to the efficient outcome!

(as opposed to taxes that move us away from the efficient outcome!)

Externalities

- Some actions create "side effects" that hurt or help others. If you <u>do not </u>have an incentive to take these into account then there is an <u>externality</u>

- With externalities (and public goods), there is a "market failure"

- <u>Market Failure:</u> A situation in which a market left on its own fails to allocate resources efficiently.

- We will examine this and see how governments can help

Strategy for this unit

- Understand externalities

- Examine impacts on market outcomes

- Analyze how governments can affect outcomes

Upcoming lectures, current important policy issues:

- THUR: Congestion fees

- After midterm: Cap and trade, Carbon Tax

- We will see why these can be welfare improving!

Slight detour before externalities

- Re-posing the D and S setting in terms of marginal benefits and marginal costs
- D = marginal benefits = marginal willingness to pay
- S = marginal cost
- Optimal decision is to choose Q such that MB = MC
- Some more vocabulary:
  - <u>Total</u> = value or cost of entire quantity
  - <u>Marginal</u> = change in total value or cost of ONE more unit
  - <u>Average</u> = total value or cost averaged over entire quantity

Total and Marginal Cost
Example: Market for harvested trees

Trees Harvested (Millions)	Total Cost	Marginal Cost
0	$0	
1	$1600	?
2	$3400	?
3	$5400	?
4	$7600	?

Trees Harvested (Millions)	Total Cost	Marginal Cost	
0	0		
1	$1600	$1600	[1600-0]
2	$3400	$1800	[3400-1600]
3	$5400	$2000	[5400-3400]
4	$7600	$2200	[7600-5400]

MC Curve

- In this example, the MC <u>rises with quantity</u>
  - Why? Resources used to make product are getting more scarce.
- It is possible that MC is constant
- [It is also possible that for low levels of Q, MC may fall]
- It turns out that the S = MC

Marginal Benefits

- <u>Preferences</u>: Description of a persons likes and dislikes.

- <u>Marginal Benefit</u>:

  - Additional benefit from consuming one more unit of a good or service.

  - Maximum willingness to pay for next unit of it ($\rightarrow$ marginal willingness to pay)

- Turns out that D=MB

Ex: Total and Marginal Benefits

Pizzas Per Week	Total Benefit	Marginal Benefit
0	$0	
1	$20	?
2	$35	?
3	$45	?
4	$50	?

Ex: Total and Marginal Benefits (cont)

Pizzas Per Week	Total Benefit	Marginal Benefit
0	$0	
1	$20	$20 [$20-$0]
2	$35	$15 [$35-$20]
3	$45	$10 [$45-$35]
4	$50	$5 [$50-$45]

- It turns out that the MB = marginal willingness to pay for next unit of it = Demand curve

Using MB and MC to make decisions

- When MB = MC, resources are being allocated efficiently.
- Optimal quantity is where total net gain is maximized
- If we consume where Q<Q* then we pass up positive net gains
- If we consume where Q>Q* then we incur net losses
- This is the same as what we did before with D and S
- SHOW ON BOARD WITH MC AND MB

Understanding externalities

- <u>Definition:</u> An activity of one person or firm affects the well-being of another in a way that is <u>outside the market</u>.

Externalities can be negative or positive

Examples of negative externality:

- Pollution
- Load neighbor

Examples of positive externality:

- Research and development

And they can be generated by consumers or producers!

Analyzing Externalities

- KEY: Firms and consumer make their decisions by considering the costs and benefits TO THEM

- But with externalities, <u>there are costs and/or benefits to others</u> (that matter from society's standpoint). And these costs/benefits are not reflected in market.

- Result: Firm/consumers will not make the best decision <u>for society</u> (they will make the best decision for themselves)

- Government policy can help us get to best outcome for society.

Economics of Negative Externalities

FRACKING

trucks of water for each well 200

HYDRAULIC FRACTURING

Fracturing fluid (a mix of water, sand, and chemicals) is pumped into the well

The pressure causes the rock surrounding the pipe to crack

The proppants hold open these cracks to allow the trapped natural gas to escape

Gas flows up the well to be collected

POTENTIAL RISKS
groundwater contamination
air quality degradation

WATER SAND CHEMICALS

70 to 140 billion
GALLONS of water used to fracture 35,000 wells in the U.S. each year

equals approximately the **ANNUAL WATER CONSUMPTION** of 40 to 80 cities with population 50,000

(sand or ceramic beads) **300,000 to 4 million** pounds of proppants used per well

various chemicals make up
0.5% to 2.0% up to **= 330 TONS**
total volume of fracturing fluid

NATURAL GAS

Information courtesy of Earthworksaction.org, design by Hannah Otto, March 2013

WHAT IS FRACKING?

Hydraulic fracturing, AKA "Fracking", is a new method of extracting gas and oil from rocks at a depth of 2,000 to 10,000 feet down into the shale (soft, sedimentary rock formed from consolidated mud or clay) where one finds natural gas.

Negative externalities and costs

- MC = (private) marginal cost
  - Costs to decision maker
- MEC = marginal external cost [or marginal damage, MD]
  - Costs to outside group (e.g. externality)
- MSC = marginal social cost
  - These are the costs that <u>matter to society</u>
  - MSC = MC + MEC

  <u>Marginal social cost:</u> Additional cost imposed on society as a whole by an additional unit of the good or service.

Negative externalities: Market Outcome

- Private market outcome: Firm will locate where MC = MB$\rightarrow$ Q_{market}

- Socially efficient outcome: Produce where MSC = MB $\rightarrow$ Q*

- Total surplus of society is maximized at Q* (not Q_{market})

- Firm will <u>overproduce</u> in the private market outcome

Price of steel

Social marginal cost, $SMC = PMC + MD$

S = Private marginal cost, PMC

Deadweight loss

B

C

$100 = Marginal damage, MD

P_1

A

D = Private marginal benefit, PMB = Social marginal benefit, SMB

Q_2 Q_1

Overproduction

Quantity of steel
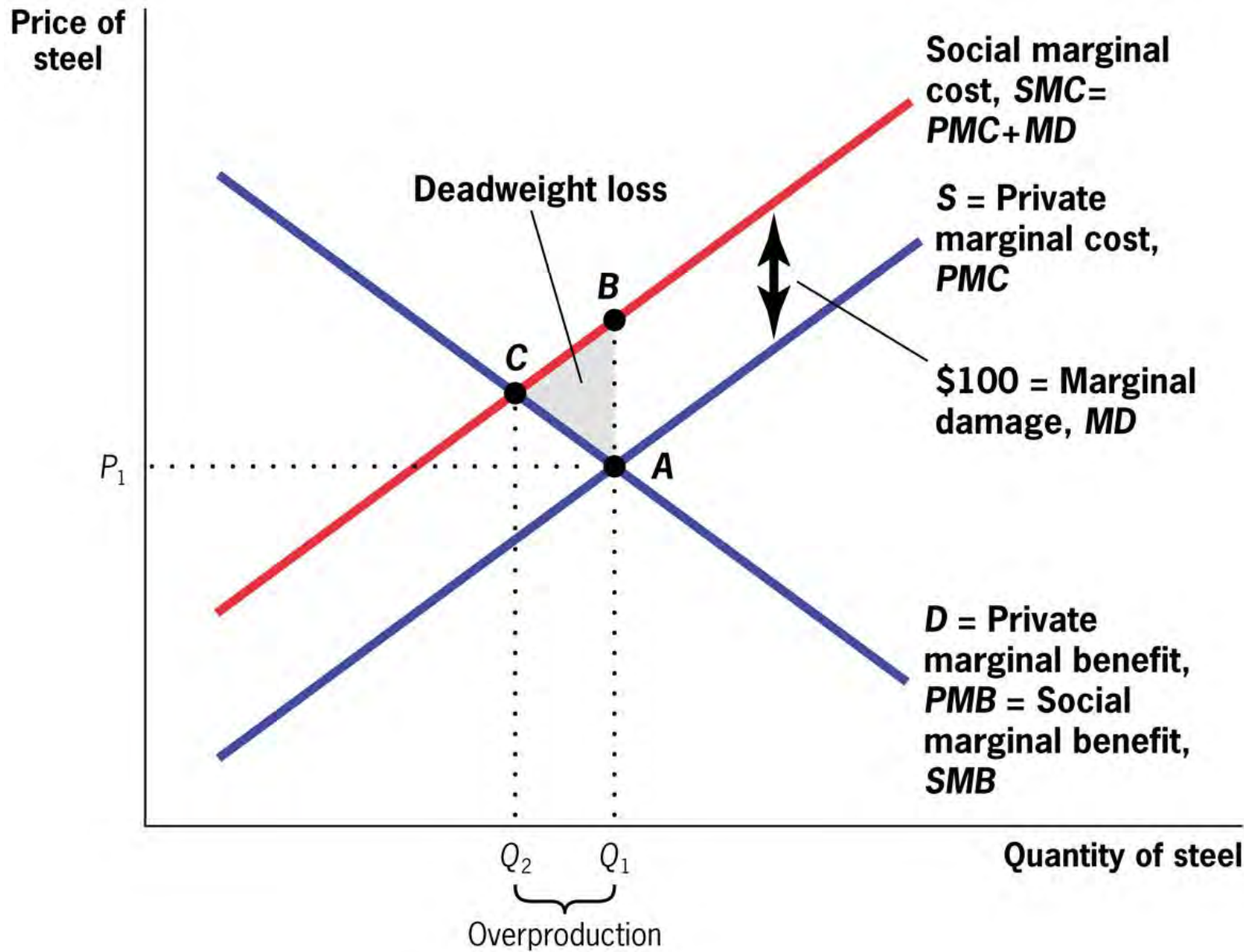
Demonstrating that market solution with externalities is inefficient (assume price stays at P$_{mkt}$)

	At Qmarket	At Q*	Change (Qmarket to Q*)
Buyers	A+B+E+F	A+B+E	-F
Sellers	C+D+G	C+D	-G
Those hurt by externality	-(D+E+F+G+H)	-(D+E)	+(F+G+H)
Total surplus			+H

Deadweight loss

Summary: Negative externalities

- Market failure

- Private market will lead to OVERPRODUCTION $(Q^*<Q_{market})$

- Market outcome is inefficient (generates DWL)

- Some pollution is optimal (typically)!!!

Public Policy Remedies For Externalities

- Public policy makes use of three types of remedies to address negative externalities:

    – Corrective taxation

    – Subsidies

    – Regulation

Using taxes to correct market failure

- Use tax to create incentive for firms to face the external costs.
- By "internalizing" the costs they will (on their own) choose Q*
- Consider a constant per unit tax
- "Optimal tax" (Pigovian tax) is set at MEC at Q*
- Gets rid of DWL!
- Winners: People with external costs; Government Rev.
- Losers: Firm (lower profit); consumers who buy product (lower consumer surplus)
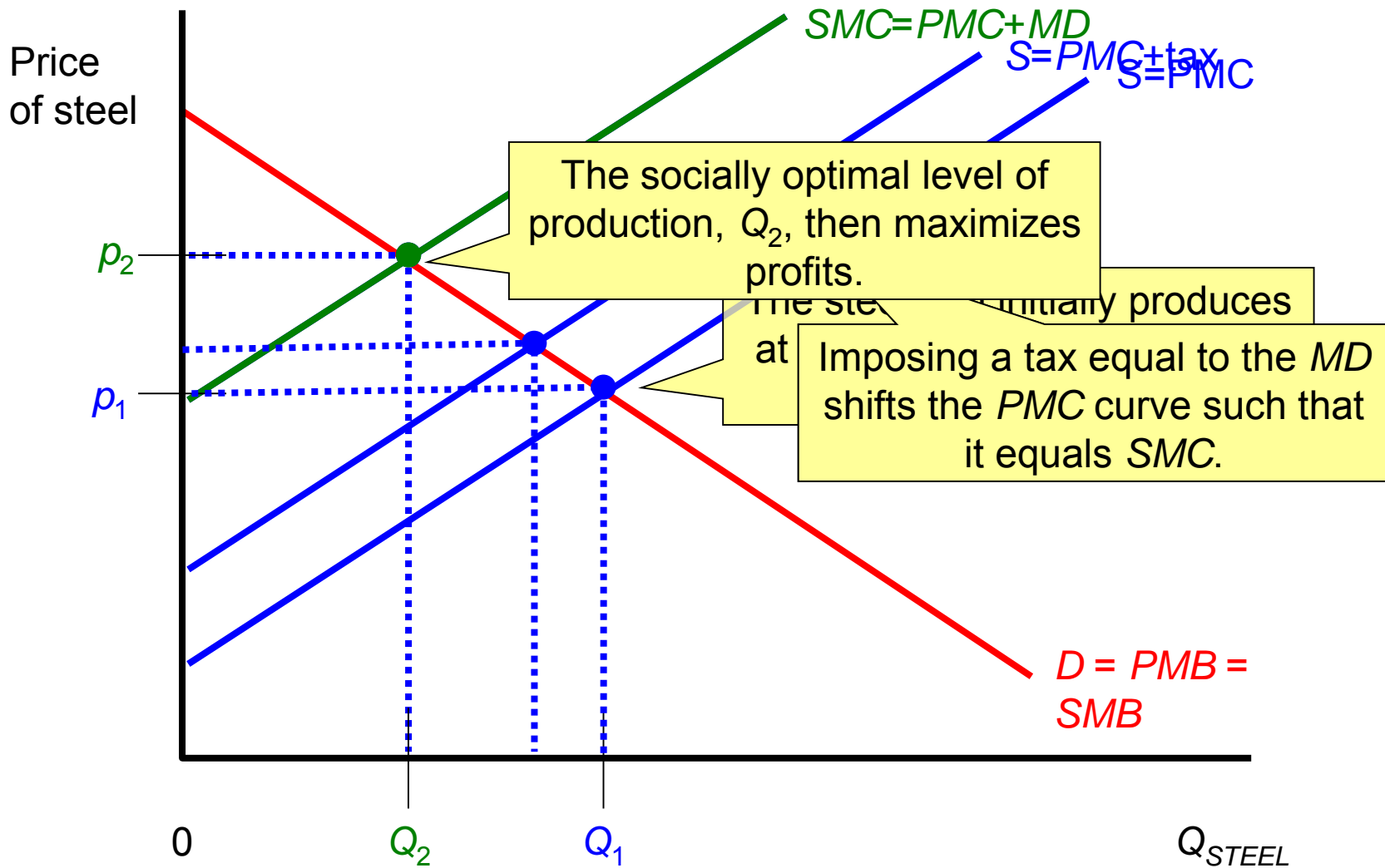
Figure 7 **Pigouvian Tax**

Economics of Positive externalities

- Private MB, MC
- MEB = marginal external benefits
- MSB = marginal social benefits = MB + MEB

Summary: Positive externalities

- Market failure

- Private market will lead to UNDERPRODUCTION $(Q^*>Q_{market})$

- Market outcome is inefficient (generates DWL)

5.1

Externality Theory

Positive Externalities

■ FIGURE 5-4
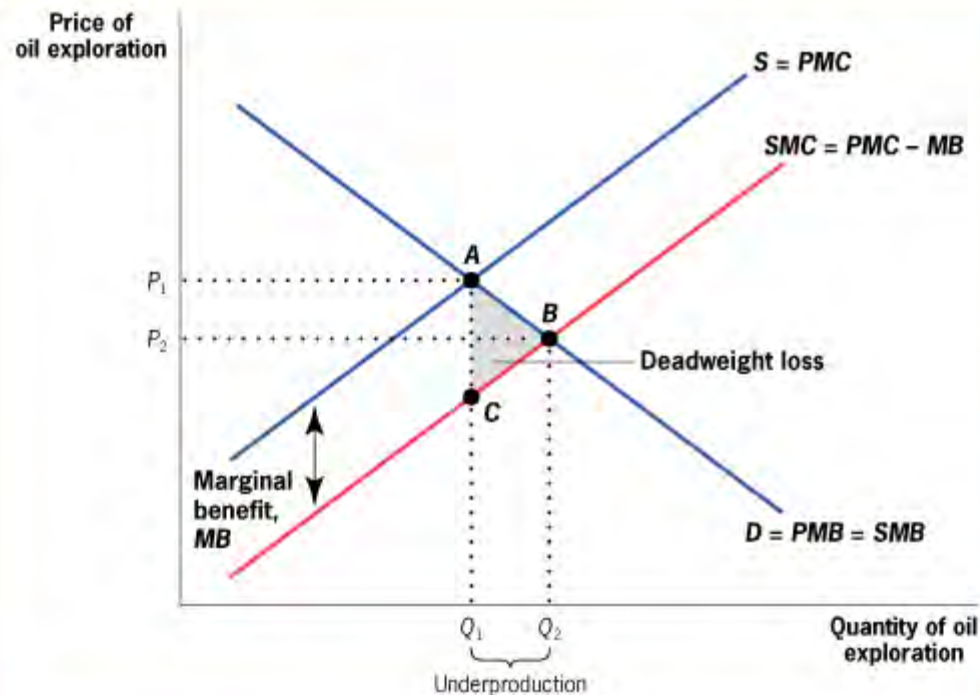
Market Failure Due to Positive Production Externality in the Oil Exploration Market • Expenditures on oil exploration by any company have a positive externality because they offer more profitable opportunities for other companies. This leads to a social marginal cost that is below the private marginal cost, and a social optimum quantity (Q_2) that is greater than the competitive market equilibrium quantity (Q_1). There is underproduction of $Q_2 - Q_1$, with an associated deadweight loss of area ABC.

LECTURE #10

Lecture Outline:

Application: Congestion
Congestion as externality

Announcements/Assignments:

➢ PS#2 due 2/24 in class (no late homeworks)

➢ Practice midterm on bCourses

➢ Midterm a week from today

➢ Two policy applications and more discussion of the 8FP on Tuesday.

Congestion as externality

- DOT reading had good example of Eight Fold Path

  1. Problem
  2. Evidence
  3. Alternatives
  4. Criteria
  5. Outcomes
  6. Tradeoffs

Congestion as externality

- What is the problem?

- Wasted time 4.2 B hours, 38 hours/year for peak traveler → $78 Billion (2005)

- Wasted fuel 2.9 B gal wasted fuel, 26 gal/yr for peak traveler

- Pollution

- How do we value the time lost?

- Hourly wage (or less if unemployed)

- <u>Opportunity cost</u>

Congestion as externality

- ## What are the alternatives?

  1. Problem
  2. Evidence
  3. Alternatives
  4. Criteria
  5. Outcomes
  6. Tradeoffs

- ## Build more lanes

- ## Expand mass transit

- ## Congestion pricing (will get to this)

- ## Stick with status quo (always a choice)

Why isn't expanding freeways & roads an effective solution?

- Expensive $10-15 million per lane per mile (!!)
- Latent demand – expansion leads to more congestion
- Examples of driver adjustments that affects ultimate flow (and latent demand):
- ✓ Change work hours, avoid peak travel
- ✓ Ride sharing, use mass transit
- ✓ Use different route, fewer trips

Economics of congestion

Who has the worst commute?

A study conducted by UC Berkeley and MIT found that people in certain areas tend to commute in the same direction, increasing the traffic congestion they face. The dark blues on the map show the neighborhoods whose residents spend the most time stuck in traffic.

San Rafael

Byron

Oakland

San Francisco

CONTRA COSTA COUNTY

San Ramon

Castro Valley

Hayward

Livermore

San Mateo

Fremont

ALAMEDA COUNTY
SANTA CLARA COUNTY

Palo Alto

Neighborhoods whose residents spend the most additional time commuting

Most additional time

San Jose

SAN MATEO COUNTY

SANTA CRUZ COUNTY

Gilroy

Source: "Understanding Road Usage Patterns in Urban Areas," a study conducted by MIT and UC Berkeley researchers

PAI/BAY AREA NEWS GROUP

Mean Commute Time for Major US Cities

Cities (top to bottom): Chicago, New Orleans, Milwaukee, Sacramento, Cleveland, New York, Cincinnati, Portland, Buffalo, Salt Lake City, Philadelphia, Miami, Pittsburgh, San Francisco, Virginia Beach, Denver, Las Vegas, Phoenix, Seattle, San Diego, Hartford, Columbus, Tampa, Charlotte, Minneapolis, San Antonio, Boston, Jacksonville, Los Angeles, Dallas, Atlanta, Washington, Indianapolis, Houston, Saint Louis, Louisville, Kansas City, Orlando, Detroit, Memphis, Raleigh, Richmond, Birmingham, Oklahoma City, Nashville

City

Median Delay   Me

Cumulative Commute Time (hours pe

0   50   100   150   200

■ Due to Congestion   ■ Total

Data Source: 2010 CEOsForCities.org

San Francisco ①

Los Angeles

Top 3 - Increasing congestion

	Previous Congestion	Increase in congestion 0 4 8 12 16	Current
Houston	18%	3	21%
San Francisco	26%	3	29%
Minneapolis	15%	2	17%
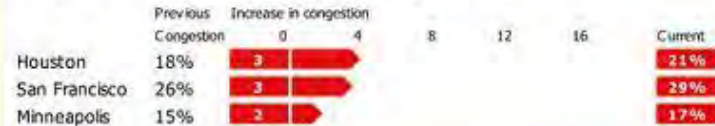
Top 3 - Decreasing congestion

	Previous Congestion	Decrease in congestion 0 4 8 12
Edmonton	21%	7
Ottawa	25%	3
Washington	28%	2
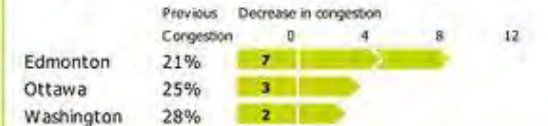
Top 10 cities

Rank	City	Country	Congestion	Morning peak	Evening peak	Highways	No
1	Los Angeles	United States	34%	55%	74%	30%	39%
2	Vancouver	Canada	33%	54%	69%	20%	37%
3	San Francisco	United States	29%	49%	68%	25%	37%
4	Montreal	Canada	28%	57%	76%	26%	31%
5	Toronto	Canada	27%	53%	70%	22%	33%
6	Washington	United States	26%	44%	62%	20%	33%

From last time: Externalities
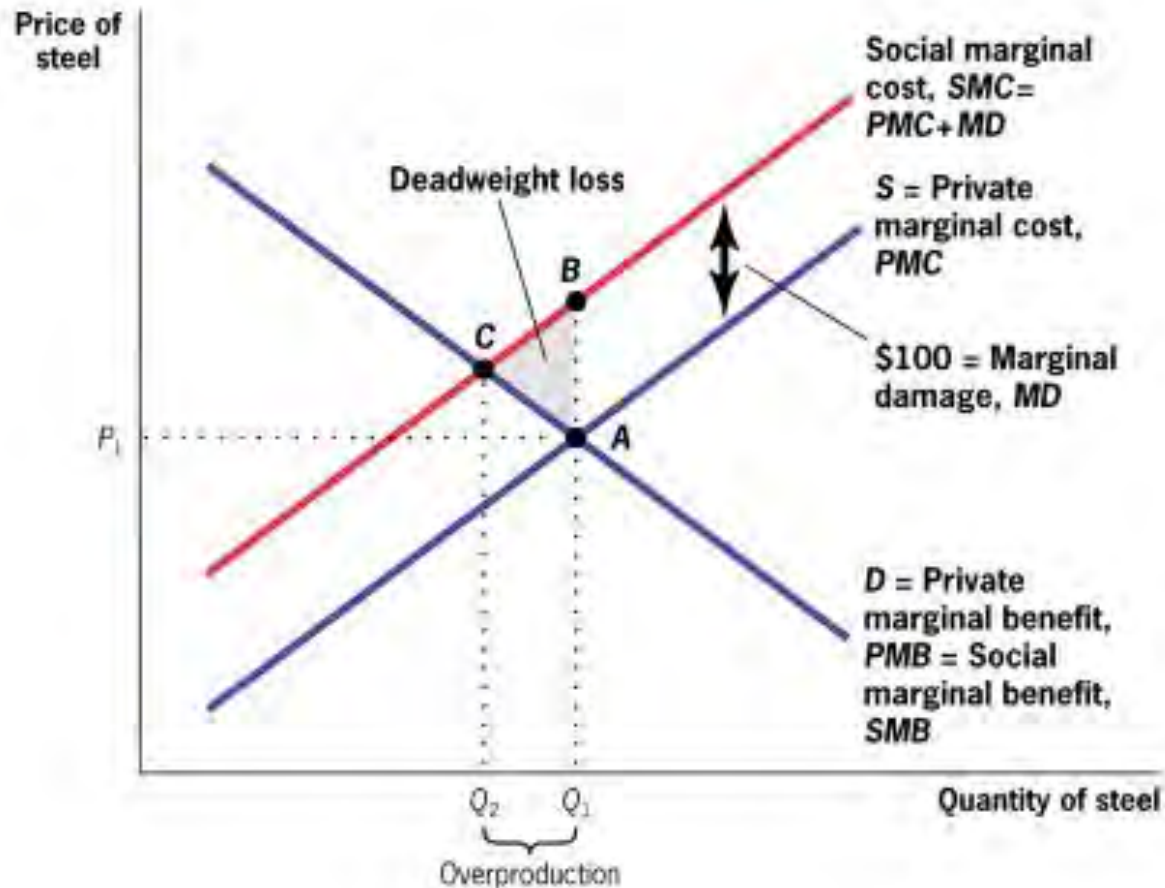
An activity of one person or firm affects the well-being of another in a way that is <u>outside the market</u>

Let's break this problem down and apply it to driving and congestion

- The "good" is driving, commuting trips. This has benefits and costs to the driver

- The byproduct of driving is congestion; if I enter the road I (slightly) slow down the travel time for others (as long as above some critical congestion threshold) → impose (time) costs on others

- Benefits of travel

- Costs of travel = monetary (gas, tolls) and time (opportunity cost)

Numerical example from the lecture notes

- Opportunity cost = $6 per hour → $0.10 per minute

- Monetary cost = $0.20 per mile

- 10 mile commute (standardized)

- Can drive 60 miles/hour if no congestion

- If no traffic → marginal cost is fixed at $3
  - $0.20 X 10 mile = $2 in monetary cost
  - $0.10 X 10 minutes = $1 in time cost

- Assume there is a fixed size of freeway capacity and above a capacity of 400 cars, congestion occurs and travel time increases

- Assume no pollution

DO GRAPH

- Congestion occurs above 400 and the travel time slows not linearly (this is a physics rule not economics)

- Private MC increases above 400 (if you enter the freeway when it is congested it will take you longer to get to work → higher cost)

- Private market outcome: set MPC=MB → Qmkt

- With increased volume, each car that enters imposes slow down (time costs) on the entire commute → MEC is congestion externality

- Social optimum is where MB= MSC → Q*

- Q*<Qmkt so private market creates TOO MUCH congestion

- MEC = cost the driver imposes on other drivers by slowing them down
- Result = flow is higher than social efficient solution
- "Because drivers do not pay for the time loss they impose on others, they make socially inefficient choices concerning how much to travel, when to travel, where to travel and what route to take."
- Price too low → congestion, too much flow
- Market failure
- What public policy could get us to the social optimum (less congestion)?
- (Congestion) tax
- Optimal tax is MEC at Q*

Congestion pricing

- Charging to internalize the externality

Congestion pricing

- In the real world, we see dynamic (adjust to prevailing conditions) congestion pricing

- How do we justify this in our model? (DO GRAPH)

- Real world examples of dynamic pricing

1. Tolls varying by time of day (peak and off peak)

2. Zone based, charge to enter zone

3. Separate lanes with toll

- This sort of pricing also used in other settings, e.g. electricity pricing higher during peak hours (have to bring more polluting plants on to meet peak demand so MEC higher)

- There are other taxes and fees that drivers pay: gas tax, sales tax, vehicle license fee
- Why are these NOT examples of congestion pricing? Why are they less effective at reducing congestion?
- Not tied to congestion!

Implementation

- These ideas (dynamic congestion pricing) have been around for a long time, but with technological change they are now feasible

- How might we do this?

  - EZ pass

  - Cameras (e.g., London congestion fee)

  - Berkeley parking meters, use time of day pricing (to induce turnover during peak times)

Mechanisms, Behavior

- If consumers are "discouraged" from using the freeway in the presence of the peak time congestion fees, what happens? How is their travel changed?
  - Move to mass transit
  - Work from home
  - Modify work hours
  - Drive on city streets
  - (Over time) make different residential choices

Real world examples of congestion pricing

Stockholm

Prices to enter city center vary with time of day.

6:30–6:59 a.m.	$1.38
7:00–7:29	$2.07
7:30–8:29 8:30–8:59	$2.76
9:00 a.m.–3:29 p.m.	$1.38
3:30–3:59	$2.07
4:00–5:29 5:30–5:59	$2.76
6:00–6:29	$2.07
6:30 p.m.–6:29 a.m.	**FREE**
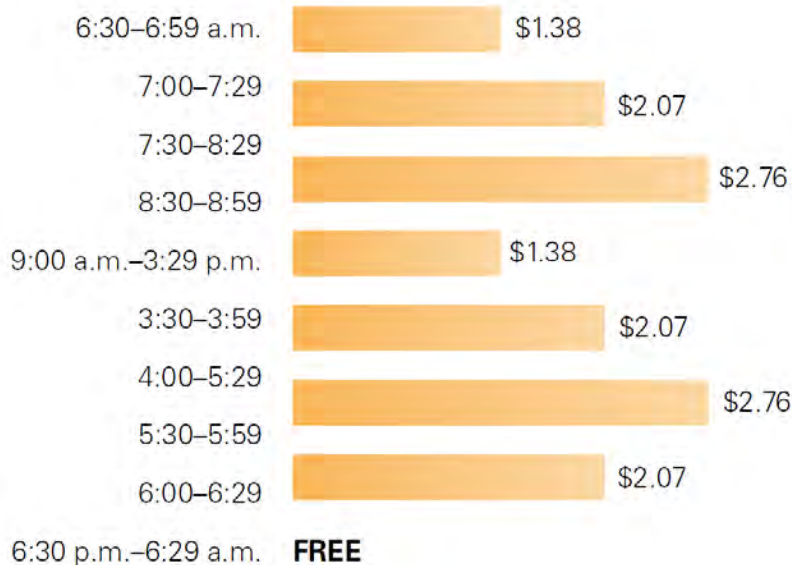
Fees for travel within Stockholm vary according to time of day, with higher fees during rush hours (dollar rates converted from Swedish krona at current rates).

Source: Stockholm Trial Expert Group

Maximum
Toll Rates   Evening Period (Northbound)

Maximum Toll Rates	3:00–3:30	3:30–4:00	4:00–4:30	4:30–5:00	5:00–5:30	5:30–6:00	6:00–6:30	6:30–7:00
$4.00				X	X			
$3.00								
$2.50								
$2.00		X	X			X		
$1.50								
$1.00							X	
$0.75	X							X
$0.50								

Maximum toll schedule for I-15 HOT lanes, San Diego, California.

State-Route-91–priced lanes in Orange County,

Traffic speeds on SR 91 during rush hours.

- During rush hour, traffic moves at over 60 mph; compared to 15 mph or less in the regular lane
- Savings amounts to a half an hour each way on the 10-mile trip

London Congestion Charge

- Prominent use of this sort of policy
- Fixed 8 pound cost to enter city (now 11.50£)
- Operates 7am-600p M-F
- Discussion of why fixed rate was chosen:
  - Feasibility (political support)
  - Maybe efficient since peak and off peak traffic was (surprisingly) similar
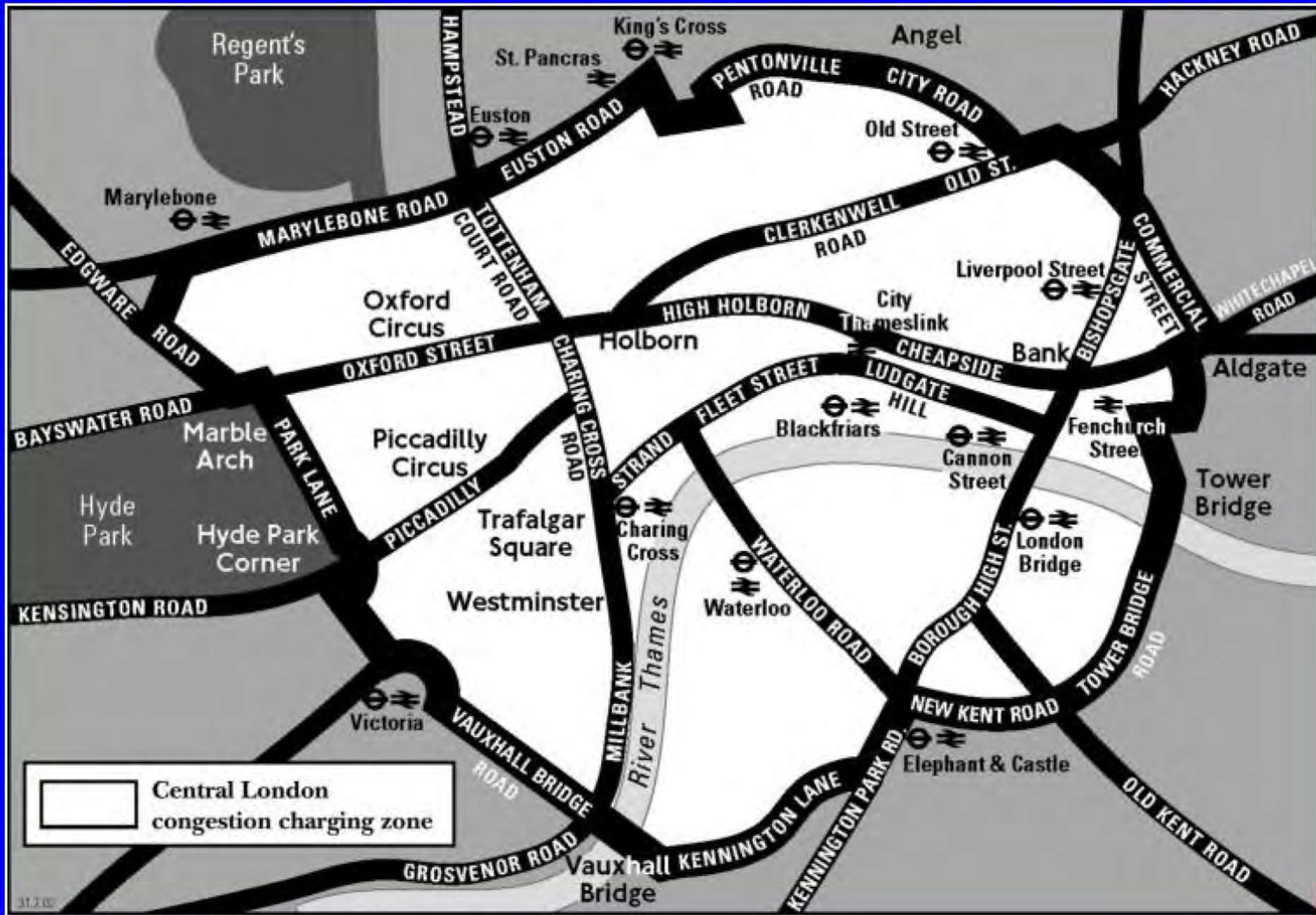
Central London congestion charging zone

Table 1

Impact of the Congestion Charge on Traffic in the Congestion Charging Zone

(in thousands of vehicle-kilometers and percent)

	2002		2003		Percentage change
Cars	771	(47%)	507	(35%)	−34%
Vans	287	(18%)	273	(19%)	−5%
Trucks	73	(4%)	68	(5%)	−7%
Taxis	256	(16%)	312	(21%)	22%
Buses	54	(3%)	65	(5%)	21%
Motorcycles	129	(8%)	137	(9%)	6%
Bicycles	69	(4%)	89	(6%)	28%
All vehicles	1,640	(100%)	1,451	(100%)	−12%

Reduction in cars:

½ transferred to some form of public transport (and travel time on buses reduced substantially)

¼ divert around the charging zone

10 percent shifted to other forms of private transport (taxi, bicycle)

10 percent either stopped traveling or shifted their trips to outside charging hours

Figure 2

Impact of the Congestion Charge on Time Spent Traveling at Different Speeds in the Charging Zone during Charging Hours
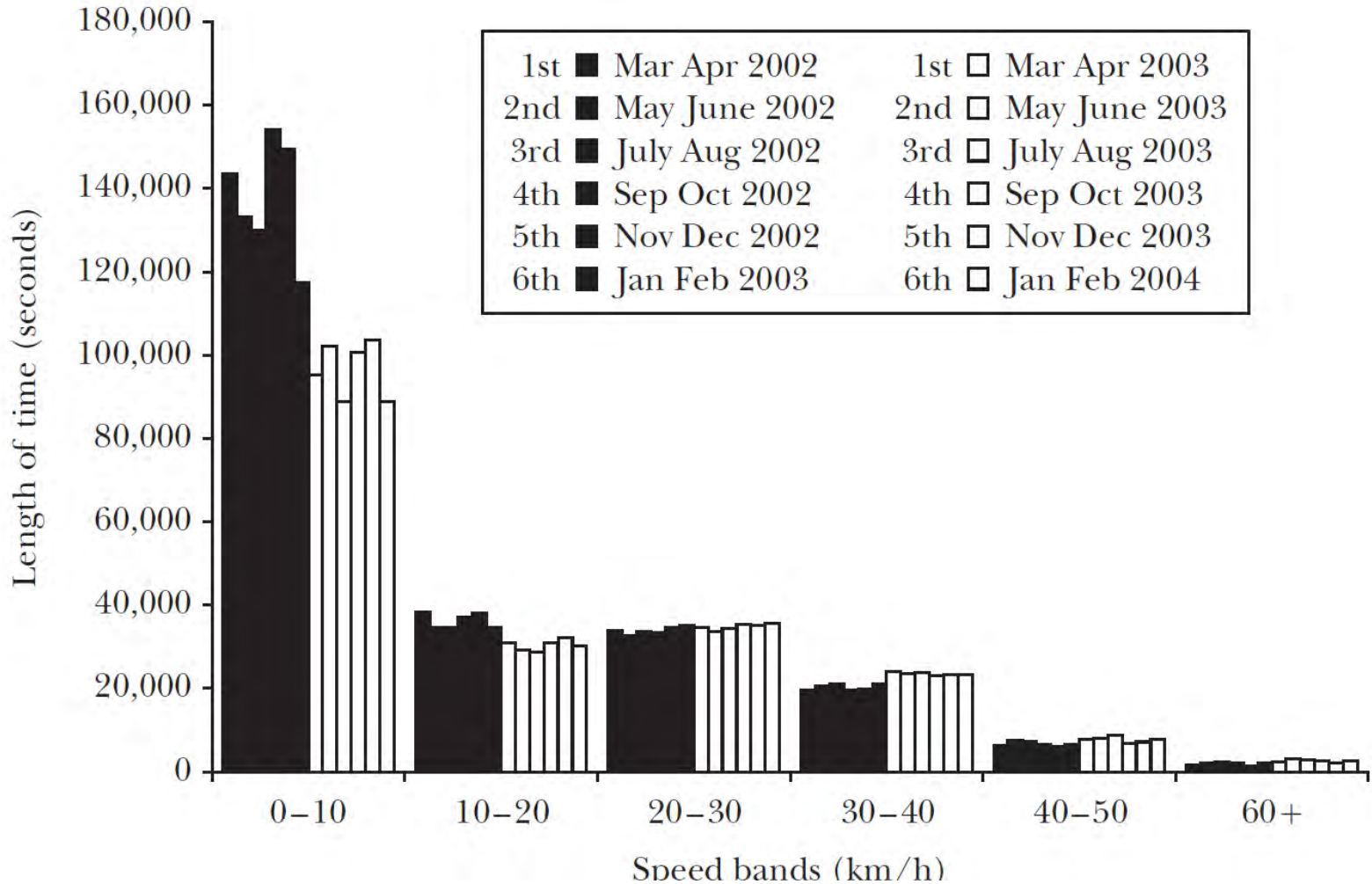
Winners and Losers

- Winners – those harmed by congestion
- Revenue collected – Used for:
  - Running system, expand public transportation, fix road
  - Rebate to low income (equity concerns)
  - Reduce other taxes?
- Consumer surplus falls (taxes paid and less Q)
- Overall good for society, DWL gone!

Equity – should we worry about impacts for low income drivers?

- DOT paper cites statistics on support for dynamic pricing among all income groups

- Most equitable when revenues from pricing are put toward expanding (and subsidizing?) public transport options

- With this technology, the pricing can build in different rates for different groups (if desired)

LECTURE #11

<u>Lecture Outline:</u>

<u>Eight fold path (steps 1-3)</u>
And applications

<u>Announcements/Assignments:</u>

➤ P2#2 due now!

➤ PS#2 solution posted later today

➤ Thursday - midterm

➤ Writing workshop next week (stay tuned for readings)

➤ Policy memo assignment will be distributed

The midterm

- No blue books – you will write directly on the test
- No calculators needed (phones away)
- 12:40-2:00, 80 minute exam
- Exam requires graphs and analytic discussion; builds on textbook, outside readings and my lecture notes
- Answers require discussion (as well as, in some questions, graphs)

Bardach's "Eightfold" Path

1. Define the Problem
2. Assemble some Evidence
3. Construct the Alternatives
4. Select the Criteria
5. Project the Outcomes
6. Construct the Tradeoffs

7. Decide!
8. Tell your story

Step 1: Define the Problem

Problem Definition: Dos & Don'ts

Do

- Translate Headlines Into Specifics
- Deficits & Excesses
- Identify Public Element of Private Troubles
- Quantify
- Diagnose conditions that cause problems
- Think Of Opportunities (Not Just Threats)

Don't

- Try To Complete Whole Analysis With Problem Definition
- Embed Solutions
- Hamstring Analysis With "Value" Conceptions (Leave For Criteria)
- Expand Or Confine Scope Excessively

Step 2. Assemble the evidence

Evidence: The Analyst's Key Motivations

1. <u>Assessment</u>: After "Defining" Problem, Ascertain Its Nature and Extent

   - [Just How Much Of A "Problem" Is It ?]

2. <u>Context</u>: What Are Key Facts Relating To Occurrence And Incidence?

3. <u>Policy Environment:</u> Sketching In The History Of Public Involvement

Step 3. Construct the alternatives

- Policy options
- Alternative courses of action
- Alternative strategies to solve or mitigate the problem

Constructing Alternatives: Dos & Don'ts

Do

- Start With "Too Many" Options (start comprehensive, end focused)
- Always Include "Do Nothing" ("Present Trends Continue")
- Look around for others working on the problem
- A good causal model can help identify point of intervention [borrow from research]
- Bardach App B "Things Govts Do"

Don't

- Ignore Interactions Between Strategies (Question of "Mutually Exclusive")
- Be Blinded By Prior Conceptions
- Omit Scoping Decisions Made In Problem Definition
- Forget Inconvenient Facts
- Be Too Quick To Dispense With Options Deemed "Too Expensive" Or "Inconvenient"

Constructing Alternatives: Dos

Do

- Always Include "Do Nothing" ("Present Trends Continue")

Why?

- Establish the counterfactual
- Preexisting trends, behavior, politics, policies will affect future outcomes
- That is what we are addressing

Example 1

PROMOTING EARLY CHILDHOOD DEVELOPMENT

THE HAMILTON PROJECT

Proposal 1: Expanding Preschool Access for Disadvantaged Children

Elizabeth U. Cascio

Dartmouth College

Diane Whitmore Schanzenbach

Northwestern University

Define the problem

Introduction

Poverty has little association with the cognitive abilities of nine-month-old children (Fryer and Levitt 2013).[1] By the start of kindergarten, however, not only do poor children perform significantly worse on tests of cognitive ability than children from higher-income families, but teachers also report that these children have much more difficulty paying attention and exhibit more behavioral problems (Duncan and Magnuson 2011).[2] The poverty gap in school readiness appears to be growing as income inequality widens (Reardon 2011).

of five. Stark gaps in preschool participation by family socioeconomic status mirror the achievement gaps described above. The most recent data available show that only about 50 percent of four-year-old children in families in the lowest income quintile are enrolled in preschool. Among families in the top income quintile, on the other hand, the preschool enrollment rate of four-year-olds is considerably higher, at 76 percent. Nearly all (88 percent) of preschool participants in the lowest-income families are enrolled in public programs.[3]

- "Many states programs have weak standards"

Assemble some evidence

Assemble some evidence

- "The research on early education has shown it improves participants' outcomes across a variety of dimensions: higher school attendance rates, fewer failing grades, less grade retention, a higher likelihood of graduating from high school, and less involvement in criminal activity."

Why you should care: SES disparities are large

FIGURE 3.2   *Math Gaps in Kindergarten and Fifth Grade*
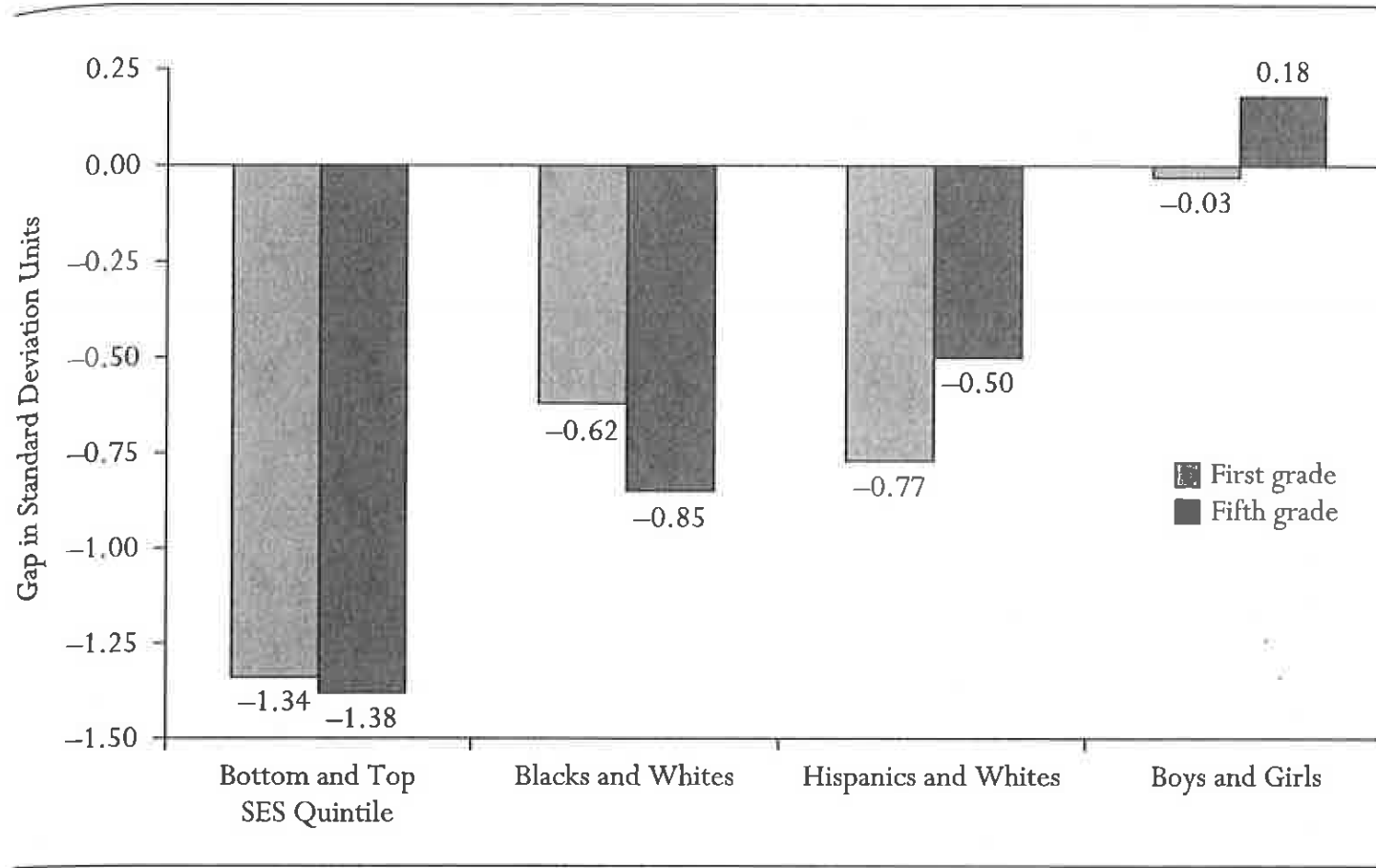
Source: Authors' calculations based on Early Childhood Longitudinal Study, Kindergarten Cohort (National Center for Education Statistics n.d.).

Source: Greg Duncan and Katherine Magnuson "The Nature and Impact of Early Achievement Skills, Attention and Behavior Problems," in *Whither Opportunity*, Duncan and Murnane, 2011.

Racial inequalities are decreasing while income inequalities are increasing (in education)

Trends in Income and Black-White Gaps in Reading, 1943-2001 Cohorts
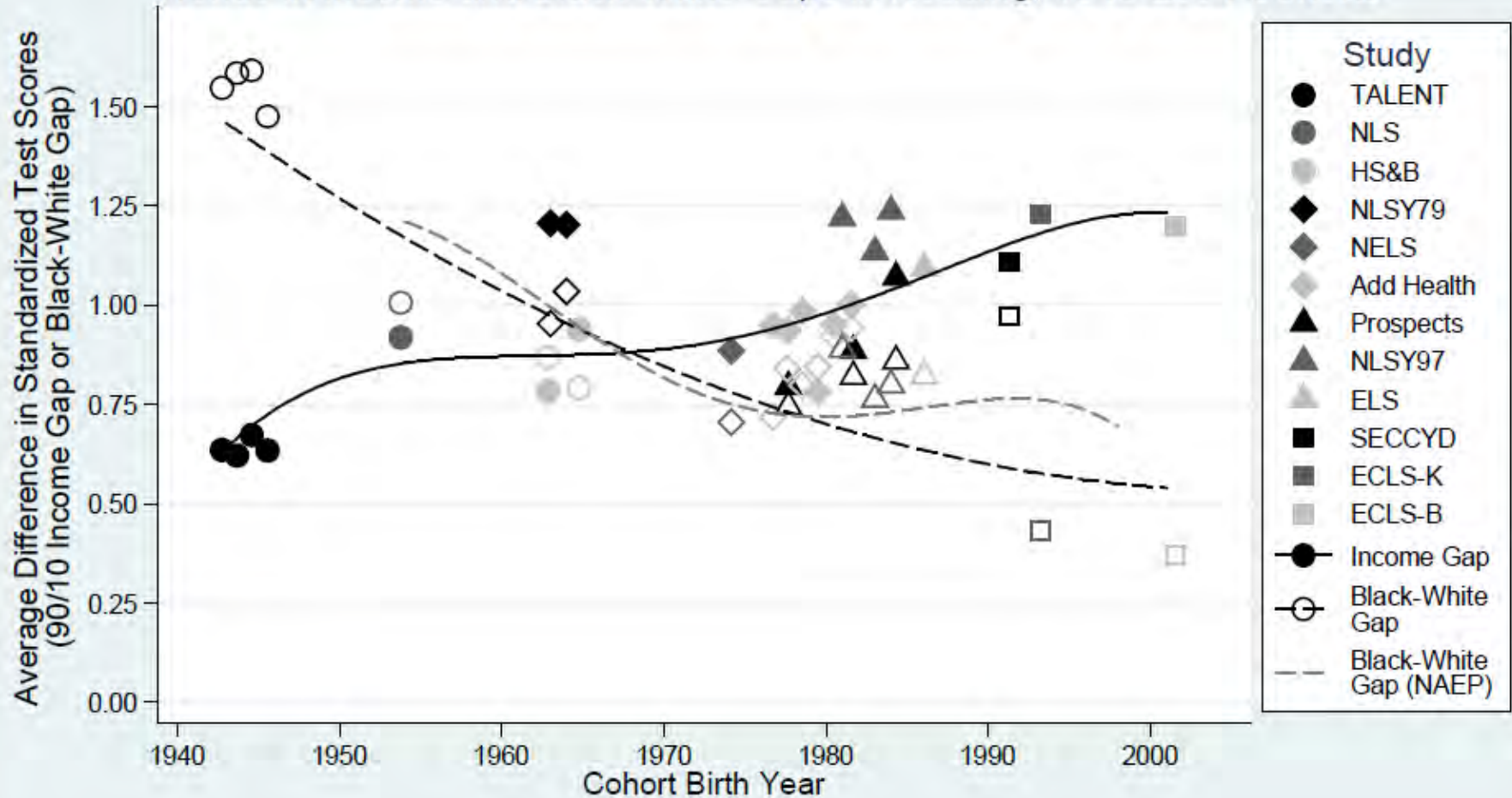
Source: Sean Reardon (Stanford) "The Widening Academic Achievement Gap Between the Rich and the Poor: New Evidence and Possible Explanations" 2011

18

Significant differences in early childhood education across the income distribution

	All Kids	Income in Bottom 20%	Income in Top 20%
3-year olds			
Head Start	8	20	1
Special Education	4	1	10
Private	36	22	68
Other Public	3	3	3
Any Preschool	51	45	82
4-year olds			
Head Start	13	29	0
Special Education	6	2	4
Private	42	22	75
Other Public	13	11	12
Any Preschool	74	64	90

Source: Haskins and Barnett (2010), from 2005 NHES.

Why you should care: Disparities in preschool enrollment

Percent of Three- and Four-year-olds Enrolled in Preschool by Family Income Quartile
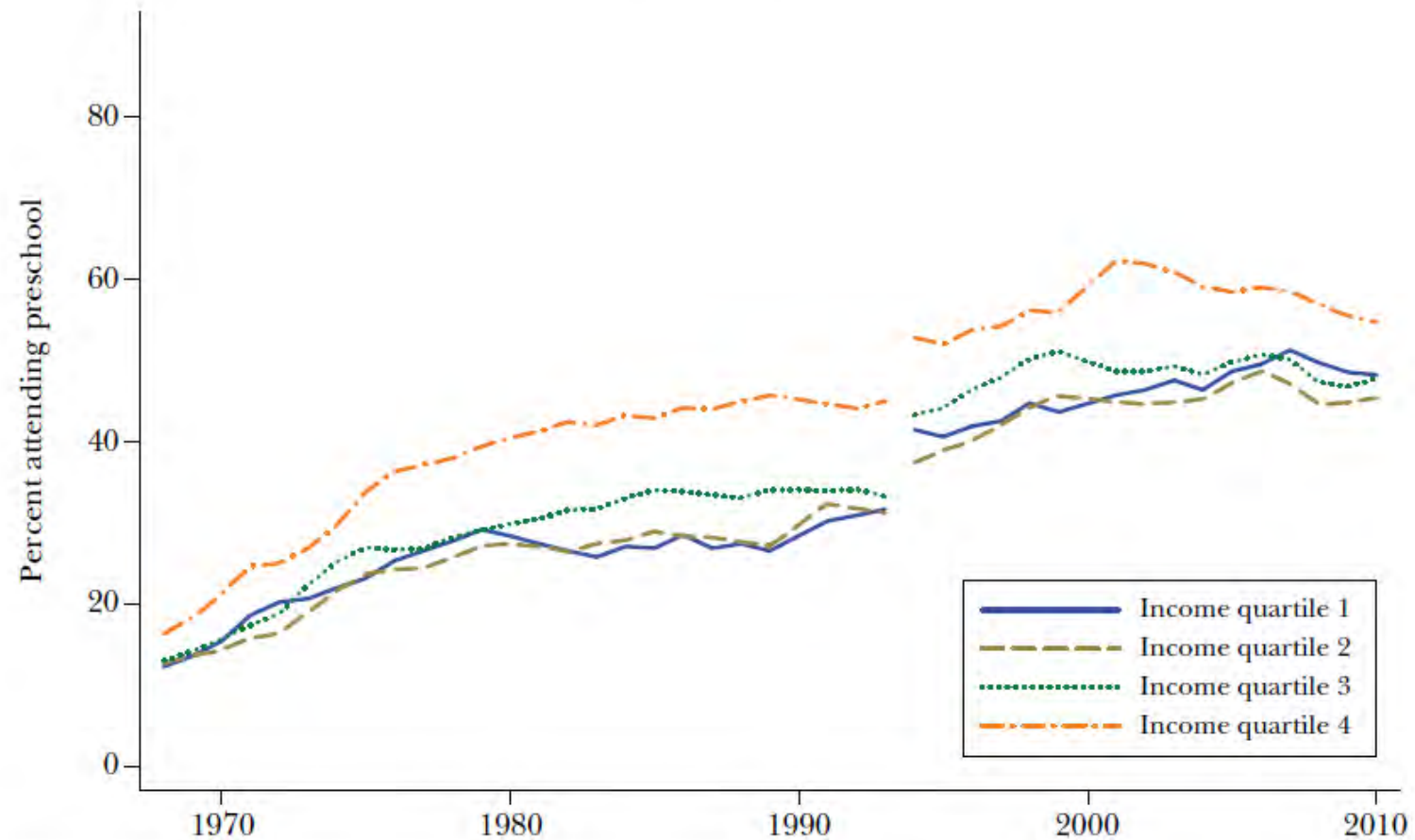
Source: Authors using data from the October Current Population Survey.

Source: Greg Duncan and Katherine Magnuson "Investing in Preschool Programs," *Journal of Economic Perspectives*, 2013.

What is the argument in favor of <u>public</u> involvement?

- Why government?

Define the alternatives

1. "One popular proposal to narrow this gap is to expand formal educational opportunities to poor children under the age of five."

2. "In this context, President Obama proposed to expand access to preschool education while simultaneously leveling up preschool quality nationwide (Office of the Press Secretary 2013). The White House proposal would provide block grants to states to offer free preschool education to four-year-old children from low- and moderate-income families, provided that these preschool programs score highly on the quality standards checklist"

FIGURE 1-1.

Percent of Four-Year-Olds Enrolled in Public Preschool Programs and Number of States Funding Preschool Programs, 1965–2011

Legend:
— Public preschool enrollment rate
— Head Start enrollment rate
— Number of states funding preschool
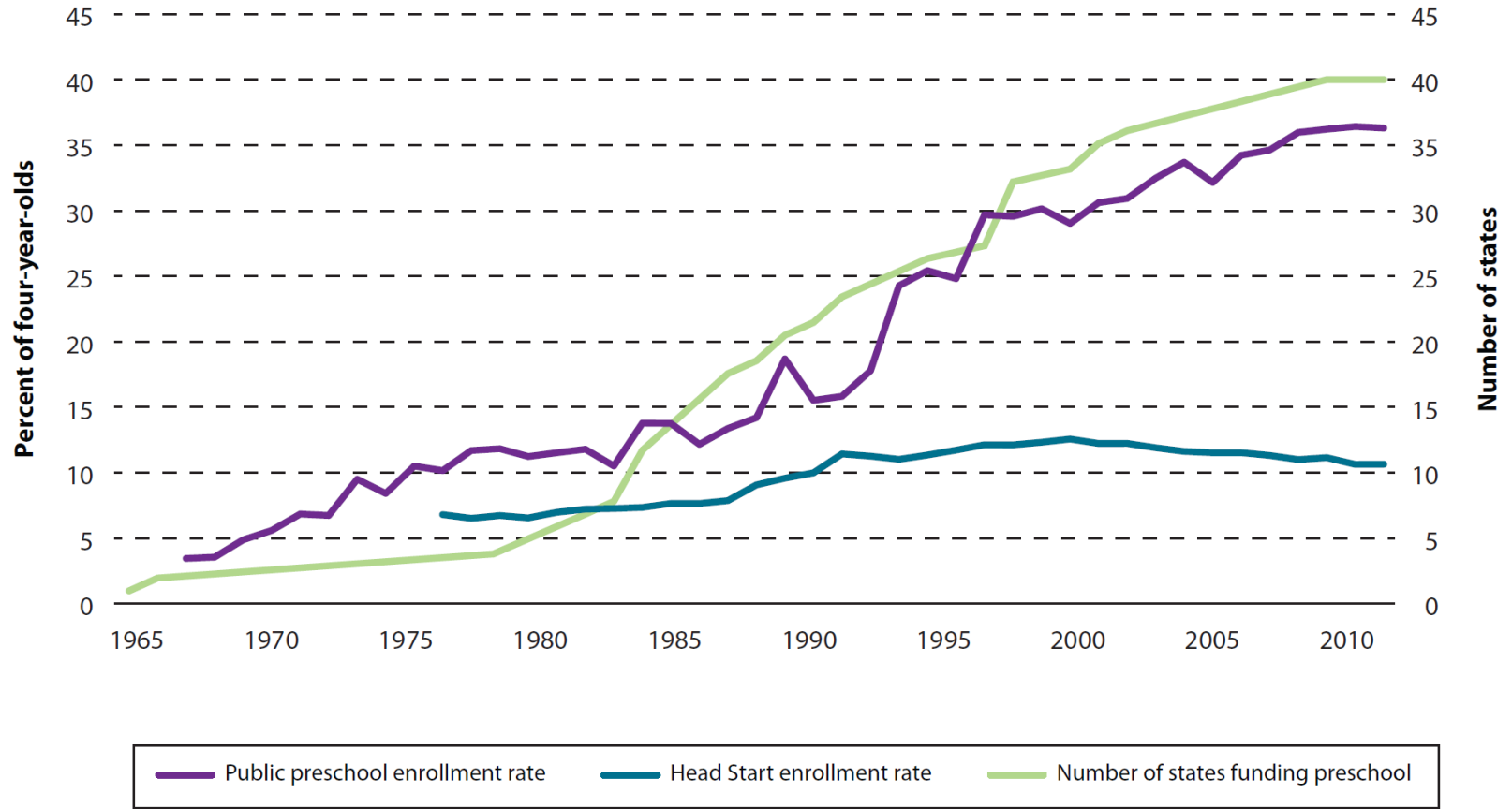
- The focus in this policy memo is how to most cost effectively design the pre-K program
- "Given that there are several ways to expand preschool access, the policy challenge is to design an expansion program that is cost-effective. Cost-effectiveness requires that policymakers consider the likely benefits of a particular intervention in a given setting."

FIGURE 1-4.
Framework for Considering the Impact of Preschool, Current Policy Context
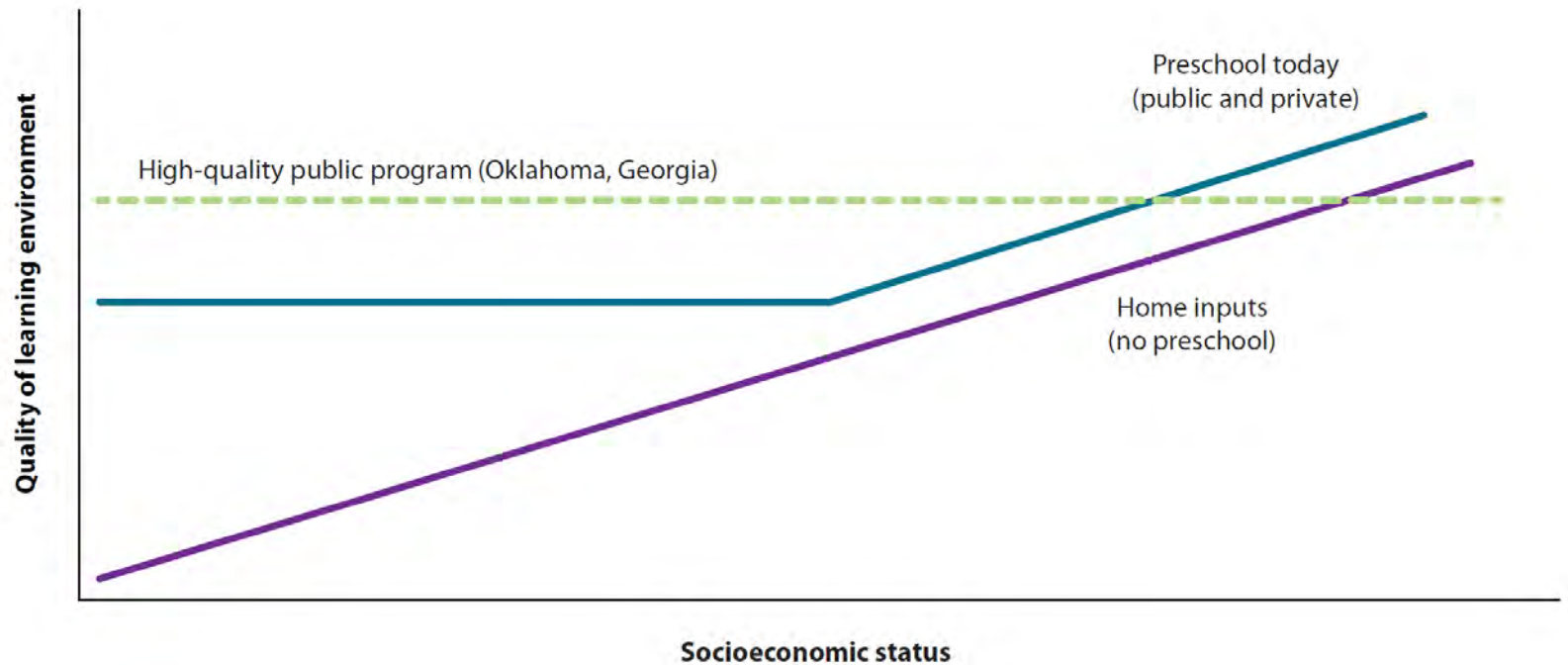
"Crowdout" – some would be enrolled already before public program (extra costs)

Universal or targeted?

- In the end their proposal is pitched to states with different policy baselines (status quo!)
- NO PROGRAM: START A HIGH-QUALITY, TARGETED PROGRAM
- EXISTING LOWER-QUALITY PROGRAM: IMPROVE QUALITY
- EXISTING HIGHER-QUALITY PROGRAM: EXPAND ACCESS

Example 2

The U.S. Immigration System:
Potential Benefits of Reform

Define the problem

Even as immigration to the United States continues to rise after a midcentury dip (see Figure 1), most agree that America's immigration policy has failed to keep up with changing circumstances. The current system does not meet U.S. economic needs, no longer reflects the historic humanitarian goal of reuniting families set out in the landmark 1965 Immigration and Nationality Act, undermines the confidence of Americans in the rule of law, and has produced divisive and fragmented policy responses at the state level.

a coherent immigration system designed to serve the needs of American families, workers, and businesses.

But the current system prevents us from achieving those gains for a variety of reasons. One challenge is pragmatic: the current system is complicated, onerous, and unfair. Dozens of visa types clutter the system, meaning that there is no one clear path to entry. Quotas and other rules create bottlenecks for certain types of immigrants, which can lead to decades-long waits for visas.

Assemble some evidence

from a twenty-first-century immigration policy. While there are many ways in which both immigrants and U.S.-born citizens benefit from immigration, few are as stark as the fact that when a non-European college-educated immigrant moves from her native country to the United States, her annual productivity and compensation leaps by $57,000 (Peri 2012). This gain accrues not only to the immigrant and her family, but also to the businesses that hire her, to local businesses where she spends her money, to consumers who purchase her goods and services, and to taxpayers who will face lower costs over time. The economic

Illustrating the complexity of the immigration system

FIGURE 2.

Average Annual Total Permanent Residence and Temporary Visas, 2006–10
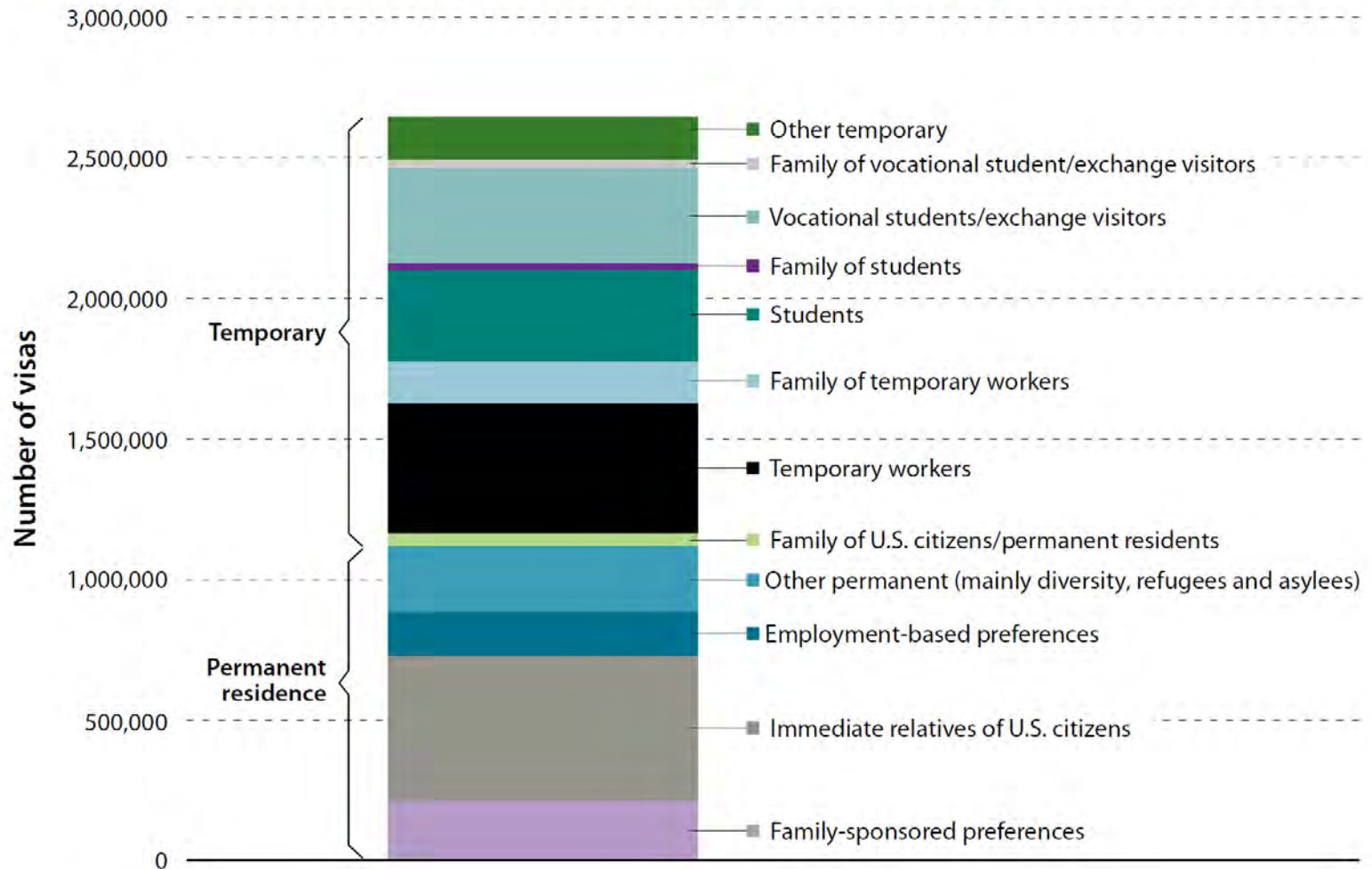
Source: DHS 2006, Table 4; DHS 2012b; State Department n.d.

Note: Excludes travel, transit, and crew visas.

FIGURE 3.

Visa Wait Times for Family Members of U.S. Citizens, in Years

Country of Origin

- Unmarried adult sons and daughters of U.S. citizens
- Married sons and daughters of U.S. citizens
- Brothers and sisters of adult U.S. citizens
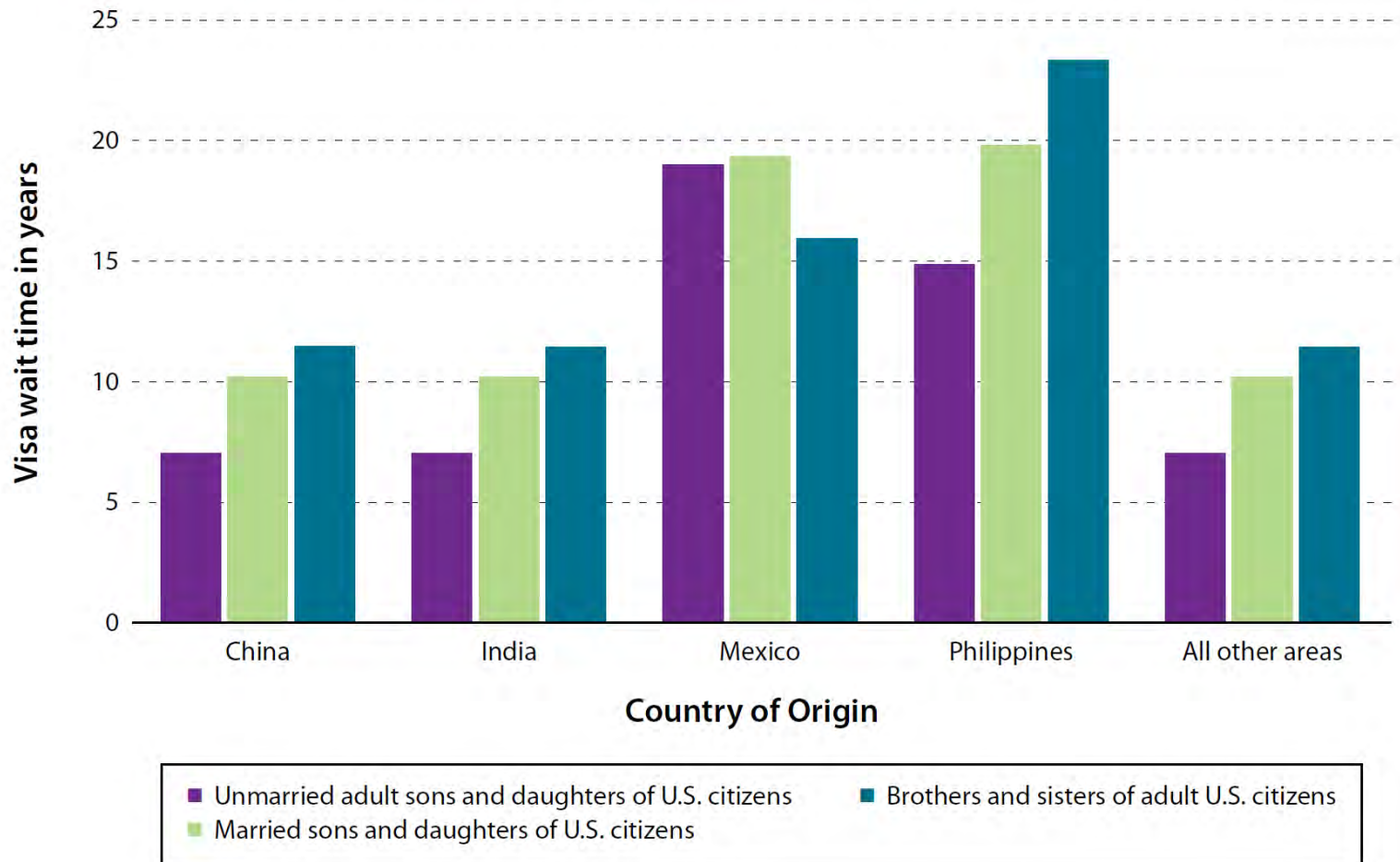
LECTURE #15

Lecture Outline:

Conversation with Mark
   Bittman!

Announcements/Assignments:

➢ Turn in your policy memo now

➢ WED 3/11: EdX homework for Step 4 & Step 5 due 11pm

THE NEW YORK TIMES BESTSELLER

Mark Bittman

FOOD
MATTERS

A Guide to Conscious Eating*

MORE THAN 75 RECIPES

How to Cook
Everything
Vegetarian

Simple Meatless Recipes for Great Food

Mark Bittman

THE MAN WHO
ATE REAL FOOD

Mark Bittman guides home cooks
to healthier eating and improving
the planet on the way.

VB6

EAT
VEGAN
BEFORE
6:00

TO LOSE WEIGHT
AND
RESTORE YOUR
HEALTH...
FOR GOOD

Mark
Bittman

FROM THE NEW YORK TIMES BESTSELLING AUTHOR

THE BEST
RECIPES
—in the—
WORLD

MORE THAN 1,000 INTERNATIONAL DISHES TO COOK AT HOME

MARK
BITTMAN

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How to Cook
Everything
fast

A BETTER WAY TO COOK GREAT FOOD

Mark Bittman

Completely Revised Tenth Anniversary Edition

How to
Cook
Everything

2,000 Simple Recipes for Great Food

Mark Bittman

How a national food policy could save millions of American lives

A national food policy would do that, by investing resources to guarantee that:

1. All Americans have access to healthful food;

2. Farm policies are designed to support our public health and environmental objectives;

3. Our food supply is free of toxic bacteria, chemicals and drugs;

4. Production and marketing of our food are done transparently;

5. The food industry pays a fair wage to those it employs;

6. Food marketing sets children up for healthful lives by instilling in them a habit of eating real food;

7. Animals are treated with compassion and attention to their well-being;

8. The food system's carbon footprint is reduced, and the amount of carbon sequestered on farmland is increased;

9. The food system is sufficiently resilient to withstand the effects of climate change.

Problems

- This generation of children may life shorter lives than their parents

- "Our food system is largely a product of agricultural policies that made sense when the most important public health problem concerning food was the lack of it…"

- "We find ourselves in this situation because government policy in these areas is made <u>piecemeal</u>. … they are overseen by <u>eight federal agencies</u>. Amid this incoherence, special interests thrive and the public good suffers."

- "… <u>contradictions of our government's policies around food</u> … … MyPlate recommends a diet of 50 percent vegetables and fruits … less than 1 percent of farm subsidies to support the research, production and marketing of those foods."

- Agricultural policy ≠ Food policy

Potential solutions

- Establish National Policy for Food, Health and Well-being; white house council to coordinate across agencizes
- Change farm subsidies
- Next steps for soda taxes? Expand to junk food
- Food charters?

What can we learn from others?

- Brazil's national food policy
- Mexico's soda tax and junk food tax

Let's Address the State of Food

JAN. 19, 2015

- SNAP – our topic for class next week!
- "...we need Obama to show that ... resolve in defending SNAP, because as usual the program is under siege..."
- "While raising the minimum wage and addressing income inequality are huge issues, <u>protecting existing programs for the less well off </u>is the most important battle right now."
- Proposals:
  - Get antibiotics out of the food supply
  - Tie reducing greenhouse gas emissions to reining in the industrial production of animals
  - Support the strongest front-of-package food labeling that the FDA can possibly develop
  - Defend the menu-labeling program that's mandated under the ACA

Good Riddance to the Foam Take-Out Carton

JAN. 28, 2015

- Or .. The importance of <u>nudges</u> and <u>changing culture</u> …

- Banning plastic bags AND/OR taxes on one-use bags

- Behavioral economics – results based on bag taxes were unexpected
  - ".. in 2002, Ireland instituted a <u>15-euro cent tax per bag</u> (it's now 22 euro cents), which helped <u>reduce usage by 95 percent</u> while raising money for recycling and waste reduction initiatives"

- Tell your <u>Monterey Market story</u> …

Thurs March 12: Eight Fold Path Steps 4 and 5

➢ HW on Steps 4 & 5 due 11pm on 3/11

➢ Come prepared to class, Larry Rosenthal will lecture on these steps

➢ <u>Essential</u> for doing well on your term project policy memo.

3/11	WEDNESDAY	8FP HW due 11pm (due today for both Step 4 & Step 5)
3/12	THURSDAY	LECTURE #16 **Eight Fold Path: Step 4 Select the Criteria** Bardach, pp. 31-47 [E] Part 2 The 8FP // Step 4 Select the Criteria **Eight Fold Path: Step 5 Project the Outcomes** Bardach, pp. 47-63 [E] Part 2 The 8FP // Step 5 Project the Outcomes **Applications:** [B] Dynarski and Kreisman "Loans for Educational Opportunity: Making Borrowing Work for Today's Students," The Hamilton Project <u>PRIOR READINGS THAT MIGHT BE INTEGRATED INTO LECTURE AS EXAMPLES:</u> [B] U.S. Dept. of Transportation, "Congestion Pricing A Primer", 2013 [B] Cascio and Schanzenbach, "Expanding Preschool Access for Disadvantaged Children," The Hamilton Project

Final Policy Memo

- You will rank 8 choices for final paper topics
- Expect an email from William; provide the ranking ASAP
- Lottery
- Goal: 4 students on each topic per section
- Write your own memo; joint presentation among your group

1. Alleviating Freeway Congestion

Analyze a range of policy solutions to the congestion of California freeways including (a) expanding the roadway, (b) changing HOV lane to HOT lane, (c) full dynamic congestion pricing, or (d) status quo. You can apply this to your own favorite California freeway. You can also come up with your own policy alternatives. You can choose for whom you are writing this memo.

2. Effects of Public Safety Realignment in California

You are hired as an advisor for Kamala Harris, Attorney General of California since 2011. She wants to know if the AB-109 Public Safety Realignment Act, approved in 2011, has reduced prison overcrowding in the State and if she should continue advocating the program or make some reforms. Ms. Harris asked you to write a memo explaining the effects of realignment in California and provide recommendations on this policy. Make sure you at least 3 alternatives (2 plus status quo).

3. Immigrant Labor Supply in the United States

You are working as a recently hired assistant to Secretary of Labor Thomas Perez, who is meeting with President Obama to discuss the approval of an agreement with the Mexican government to import temporary manual workers to assist American farmers during harvest. President Obama has asked Secretary Perez if the US government should sign such an agreement or not. Also, he has requested recommendations about the characteristics that this arrangement should have, since during the 50's and 60's, there was a similar treaty – Programa Bracero - that faced criticism from both countries. Secretary Perez does not really know what to recommend to President Obama and has asked you to prepare a policy memo for his meeting.

4. Reducing the incidence of the "unbanked"

A large number of Americans are "unbanked" – they have no formal ties to the banking or financial system. This group frequents check cashing establishments which have much higher fees than traditional banks. What options should the state consider to improve access to financial resources and services for the unbanked and under-banked populations? Of these options, which do you recommend?

5. Summer Learning Slide

The disproportionate effects of the 'summer learning slide' are well documented especially for students from low-income backgrounds. You are hired by Los Angeles Mayor Eric Garcetti to discuss what options Los Angeles (and LA Unified) can implement to stave off summer learning loss. What course of action should they pursue?

6. The 30 Million Word Gap

Two University of Kansas researchers generated a path-breaking study that documented that children living in poverty hear fewer than a third of the words heard by children from higher-income families. When extrapolated to the words heard by a child within the first four years of their life these results reveal a 30 million word difference. You are hired by the Major of San Francisco to analyze alternative policies to remedy this word gap including expanding early Head Start and introducing a home visiting program.

7. Expanding Educational Opportunities

You are a higher education analyst for Arne Duncan, Secretary of the U.S. Department of Education. He is very concerned about the falling behind of the United States with respect to educational attainment. As discussed in class, one source of the growing U.S. inequality is a shortage of skilled workers. You are to write a policy memo analyzing alternatives to increase educational attainment, particularly for children in lower-income families. One option was introduced by President Obama in his State of the Union Address (Tuition-Free Community College for Responsible Students -- The President's America's College Promise proposal creates new federal-state partnerships to provide two years of free community college to responsible students, while promoting key reforms to improve the quality of community college offerings to ensure that they are a gateway to a career or four-year degree). Introduce a second option (plus the status quo), discuss the tradeoffs, and make a recommendation.

8. Expand the Berkeley Soda Tax

As we discussed in class, Berkeley became the first city in the U.S. to implement a soda tax. You are hired by Berkeley Mayor Tom Bates to analyze options for expanding the soda tax with a goal of improving health and reducing obesity in Berkeley. One possibility is to introduce a "junk food tax". Another possibility is to expand physical education opportunities in in K-12 schools. Discuss the policy options (including the status quo), discuss the tradeoffs, and make a recommendation.

PP101 Spr'15

Larry Rosenthal, Guest Lecturer

March 12, 2015

Plan for Today

- **8FP Online: How's It Going?**

  -Your comments and questions

- **Topics
  [drawn from my online remarks; more to say!]**
  - Criteria
  - Outcomes
  - Outcomes Matrix Method

- **Add'l Cases We Can Reflect Upon**:
  - Student Loans (Dynarski, Kreisman)
  - Congestion Pricing (US DOT)
  - Preschool (Cascio, Schanzenbach)

- **Humility:**
  y'all need to help me catch up with where you are!

8FP ONLINE: HOW'S IT GOING?

Bardach's "Eightfold" Path

Fold	→	What You Do
1. Problem		*Mark Your Territory*
2. Evidence		*Get Smart*
3. Alternatives		*Set The Table*
4. Criteria		*Identify What Matters*
5. Outcomes		*Prognosticate*
6. Tradeoffs		*(The Hard Part)*
7. Decide!		*Lead The Way*
8. "Storytelling"		*Win*

SELECT THE CRITERIA

Criteria Quiz

<u>What is the most important criterion in any policy analysis?</u>

*The most important criterion in any policy analysis is **efficacy**; my alternatives have to have a reasonable chance of successfully reducing my "problem." Otherwise, they don't belong on the table.*

<u>Does Bardach ask you to apply your criteria to your alternatives?</u>

No. Criteria are applied to outcomes, he says. What's the difference between the two?

<u>What does the criterion of "efficiency" mean, and why is it so important for policy analysis?</u>

Economic efficiency concentrates on (a) most productive allocation of resources (eliminate waste), (b) least cost production, (c) maximal benefit for least cost, and (d) maximal gains in "social welfare."
<u>*Compare to "equity."*</u>

SELECT THE CRITERIA – TIPS (1)

Some Observations

- **Criteria usually are either <u>objectives</u> or <u>standards</u>:**

  - **-What objective(s) should each alternative attempt to achieve? (i.e., goals)**

  - **-How should each alternative's success be measured? (i.e., performance standards)**

- **Overarching question the selected criteria will help you answer:**

  > *HOW SHOULD EACH ALTERNATIVE BEST ACCOMPLISH SOCIAL PROGRESS?*

- **Criteria are the *public values* you will bring to bear in the analysis**

SELECT THE CRITERIA – TIPS (2)

A Stylized Example: Congestion at the Airport

- Consider this problem definition:
  Too few takeoffs and landings at our city airport occur on time.

- Assume 1) the main cause is congestion, and 2) there are many alternatives (e.g., reduce number of flights, add runways, upgrade control-tower workforce & technology).

- Selecting the criteria means naming all the goals and performance standards we wish to analyze (e.g., reduce delays, maintain safety, limit added cost, honor union rules for workers).

SELECT THE CRITERIA – TIPS (3)

Some Key Criteria To Consider

- **Efficacy**

  the alternative will reduce the severity of the problem

- **Efficiency**

  a_1) the alternative will add more benefit than cost
  a_2) the alternative will add benefit at minimum added cost
  b) the alternative will minimize waste of resources
  c) the alternative will improve the allocation of benefits and burdens economically

- **Feasibility**

  implementing the alternative can be achieved

- **Legality**

  the alternative will be permissible and within policy actors' existing authority

- **Political Acceptability**

  the alternative will garner necessary support among elected officials, voters, etc.

- **Equity (Fairness, Justice)**

  a) the alternative will treat those affected evenhandedly
  b) the alternative will take into account social disadvantage
  c) the alternative will redistribute in a way which advances equality

- **Freedom**

  the alternative will not unduly burden the free choice of producers, consumers, and citizens generally

SELECT THE CRITERIA – TIPS (4)

A Few Practical Considerations

- **Most analyses will have case-specific criteria (e.g., "flight delay" problem → "reduce delay")**

- **Criteria will be applied to projected outcomes of alternatives as implemented**

- **The more quantifiable your criteria are, the stronger your analysis will be (e.g., try to translate "fairness" into practical, measurable impacts)**

- **"Avoid big mistakes" is always an important standard for public policymaking**

PROJECT THE OUTCOMES

PROJECT THE OUTCOMES – TIPS (4)

What Students Find Difficult

- **Excessive Optimism About Alternatives**

- **Apprehension; Risk of Being Wrong**

- **Discomfort with Uncertainty**

- **Respect for the Unknown**

- **Challenging Political Environments (Scarce Credibility)**

- **New, Complex Techniques**

> *Remember:*
> *A Thoughtful & Well Informed Guess About The Future Is An Important Contribution*

PROJECT THE OUTCOMES – TIPS (1)

What's Involved

- **Thus far in the Eightfold Path, the problem and the analysis have been framed (via alternatives & criteria)**

- **"Project the outcomes" involves hard thinking about how the alternatives will work in practice**

- **Once we predict outcomes in a careful and hopefully accurate way, we can evaluate those outcomes in terms of our selected criteria**

- **Important: "Projecting" involves educated guesswork, informed prediction, and <u>estimates</u>**

- **The goal is a set of reasoned, thoughtful conjectures:**

> *What Will Happen If The Alternative Is Implemented As Public Policy?*

PROJECT THE OUTCOMES – TIPS (2)

Questions to Bear in Mind

- **What specific change(s) will the alternative introduce?**

- **What people and organizations will be most directly affected by these changes?**

- **How are those people and organizations likely to react?**

- **Are there analogous situations from which we can draw inferences about the outcomes?**

- **What more would you need to know, for you to find your own expectations about outcomes *credible*?**

- **Which of your beliefs about outcomes seem most likely to be true, and which will require you to be more guarded in your projections?**

PROJECT THE OUTCOMES – TIPS (3)

Important Steps

- **Revisit Selected Criteria** to identify the measures you should use to translate outcomes into goal-specific consequences

- **Construct Outcomes Matrix** to help you address the specifics of the projection and keep your work organized

- **Speak to Stakeholders** to learn more about the behavioral responses you should expect for each alternative

- **Review Your Assumptions** in order to insure the proposed alternative will likely have its intended effect

- **Be Realistic,** because doing so is the fundamental contribution public policy analysis can make

PROJECT THE OUTCOMES – TIPS (5)

Two Examples of Outcome Inquiries

- **A) Problem: Too Much Childhood Obesity**
  Alternative: 3% Sales Tax on Sugar-Sweetened Beverages
  Criterion: Effectiveness (Reduced Consumption)

  Outcome Question: How big a drop in consumption can be expected, if we increase the purchase price by 3%?

- **B) Problem: Too Many High-Speed Accidents on Highway 12**
  Alternative: Reduce Speed Limit To 35 MPH
  Criteria: Maximize Traffic Safety; Least Cost

  Outcome Questions:
  1) How much loss due to accidents (lives, injuries, property) will be avoided by enforcing the lower speed limit?
  2) What will enforcement cost? How much revenue will speeding tickets generate?

Building An Outcomes Matrix (3)

- **Start With Stylized Problem Statement:**
  "Too Much Crime in Town Park"

- **Assume Some Evidence Has Been Assembled**

- **<u>Alternatives</u> in Matrix Rows (Step 3)**

- **<u>Criteria</u> in Matrix Columns (Step 4)**

- **<u>Outcomes</u> in Matrix Cells (Step 5)**

- **Using Matrix for Confronting <u>Tradeoffs</u> (Step 6)**

Problem: Too Much Crime In Town Park (3) [outcomes]

Criteria▶ Alternatives ▼			

Problem: Too Much Crime In Town Park (3) [outcomes]

Criteria ▶ Alternatives ▼	Minimize Negative Impacts On Kids	Minimize Administrative Cost	Maximize Safety Improvement
Curfew 8pm – 10am	Data: Outcomes: (initial guesses)		
Full-Time Security Guard			
Close Bathrooms			

Problem: Too Much Crime In Town Park (3) [outcomes]

Criteria ► *Alternatives* ▼	Minimize Negative Impacts On Kids	Minimize Administrative Cost	Maximize Safety Improvement
Curfew 8pm – 10am	Data: # of kids visiting during curfew hours; times of reported crimes; seasonal numbers (dusk-adjusted); presence of supervision Outcomes: curfew violation; more crime elsewhere; seasonal; inconvenience	Data: signage; information campaign; enforcement Outcomes: some additional cost for police "rounds" and other program expense	Data: change in reported crimes by category; change in victim loss/injuries Outcomes: fewer opportunists targeting night visitors; predict 75% drop in muggings
Full-Time Security Guard	Data: special training needs for park/rec security with kid's programs Outcomes: increase kids' exposure to guarded spaces	Data: sq.foot coverage/$-worker; cost of second-worker during meal breaks; agency costs Outcomes: substantial expense over current	Data: firms' success rate; nature of service; failure rate; other places Outcomes: lower crime; criminals will adjust to guard movements?
Close Bathrooms	Data: Frequency of children's bathroom use Outcomes: Inconvenience to some kids and families	Data: Usage rates, deflection of demand; saved water and cleaning Outcomes: Sanitary issues; neighboring business impacts	Data: Frequency, severity of crime inside vs. outside Outcomes: Targeted reduction of lying-in-wait crimes (e.g., muggings)

OUTCOMES DRILL!

PRESCHOOL

STUDENT LOANS

Relationship between Quality and Access in State-Funded Preschool Programs, 2011–12 School Year

Score on quality standards checklist (y-axis: 0, 2, 4, 6, 8, 10, 12)

Percent of four-year-olds in state-funded preschool (x-axis: 0, 20, 40, 60, 80, 100)
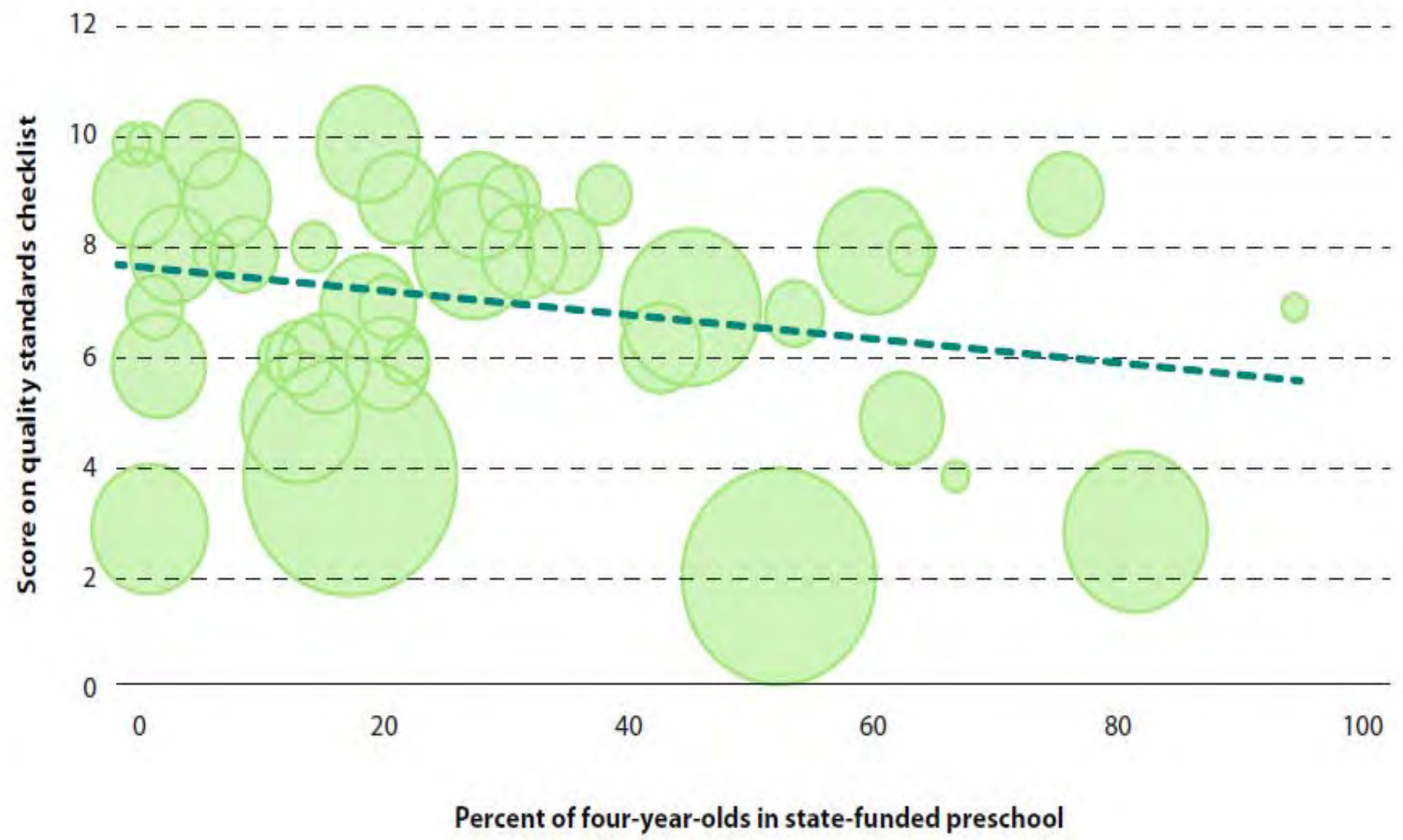
Key Parameters for Loans for Educational Opportunity

- Contribution rate. A higher rate
  - decreases the likelihood a borrower will have a balance to be forgiven at the end of the repayment period;
  - decreases the repayment period;
  - decreases interest paid by the borrower;
  - increases distortions to labor supply;
  - decreases the risk of negative amortization;
  - reduces the smoothing of loan payments, and therefore of consumption, across the life cycle;
  - decreases the repayment period for borrowers with higher incomes; and
  - increases financial pressures on low-income workers.

- Repayment period. A longer period
  - increases the smoothing of loan payments, and therefore of consumption, across the life cycle;
  - increases the share of borrowers who pay off their balances;
  - decreases the share of borrowers whose balances are forgiven;
  - increases interest paid by the borrower; and
  - allows for a lower contribution rate while maintaining program solvency.

- Interest rate. A higher rate
  - does not affect the payments made by a borrower;
  - lengthens the repayment period;
  - increases the risk of negative amortization, where borrowers' balances rise because interest exceeds their payments; and
  - decreases costs for government and increases costs for borrowers.

Avery: College Graduate with Typical Earnings

Four-year Bachelor's degree

Student-loan debt: $25,000

Starting income at age 25: $23,000

Income at age 35: $35,000

Low earnings of $20,000 due to reduced hours

Monthly payment under current system	Monthly payment under proposed system
$241 at age 25 (13 percent of income)	$100 at age 25 (5 percent of income)
$241 at age 35 (8 percent of income)	$196 at age 35 (7 percent of income)
$241 during low earnings (15 percent of income)	$82 during low earning (5 percent of income)
Total repayment of $25,000 of principal, plus $3,968 in interest over 10 years	Total repayment of $25,000 of principal, plus $6,795 in interest over 13 years

THANK YOU!

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LECTURE #18

Lecture Outline:

Application: Inkind vs Cash
    Transfers, SNAP
Background on FSP (SNAP)
Consumer choice and inkind vs
    cash programs
Hamilton Project Policy proposal –
    Eight fold path

Announcements/Assignments:

➢ Next week SPRING BREAK

➢ Tuesday after break

8FP Steps 6 (7&8)

Homework due MONDAY 3/30 at
11pm

1. Background on Food Stamps and Context for Current Policy Interest (SNAP)

What are Food Stamps?

- Vouchers that can be used at grocery stores (including "junkfood")
- Now distributed through debit cards
- Used to purchase most food items available in the market
  - Exceptions include ready to eat foods, alcohol
- Means tested: eligibility based on income and asset tests
- Benefits phased out as income increases
- Federal program

EBT images

History of FSP

- "To strengthen the agricultural economy; to help to achieve a fuller and more effective use of food abundances; to provide for improved levels of nutrition among low-income households through a cooperative Federal-State program of food assistance to be operated through the normal channels of trade; and for other purposes."

  - Food Stamp Act of 1977

- LBJ: "As a permanent program, the food stamp plan will be one of our most valuable weapons for the war on poverty."

Historic Points

- 1961 President Kennedy Executive order; established pilot programs; 1962-1963 expanded to 43 counties
- Food Stamp Act of 1964: Federally funded with voluntary adoption by counties
- 1973 amendments to Food stamp act: mandated that all counties offer FSP by 1975
- 1990s: switch to EBT
- 2008: rename to SNAP

Food Stamps Today

- Food stamp program (FSP) is closest thing the U.S. has to a universal safety net program (for non-elderly)
- Record high participation in the Great Recession 46.6 million, 14.8 percent (just over 1 in 7)
- Caseload: 47% children, 8% elderly
- The average SNAP recipient received about $133 per person per month (or about $4.45 per person per day)
- Benefit decreases as available income increases

What are some benefits of SNAP that were mentioned in the two readings?

- Automatic stabilizer, kicks in with economic downturns
- Reduces poverty
- Reduces food insecurity
- Leads to better health in the short and long term

Food Stamps provided important cyclical "automatic stabilizer" in the Great Recession

- 1 percentage point increase in UR leads to a:
  - 8.6% increase in unemployment insurance
  - 2.8% increase in food stamps benefits
  - 0.9% increase in EITC
  - 0.8% increase in cash welfare payments (TANF)
- Important source of income in bad economic times
- Source: Bitler and Hoynes (2013)

Figure 2.1 Real per capita expenditures for SNAP, 1980-2014 (Real 2014 dollars), with U.S. Unemployment Rate

Annual SNAP Expenditure Per Capita (real $2014) with U.S. Unemployment Rate
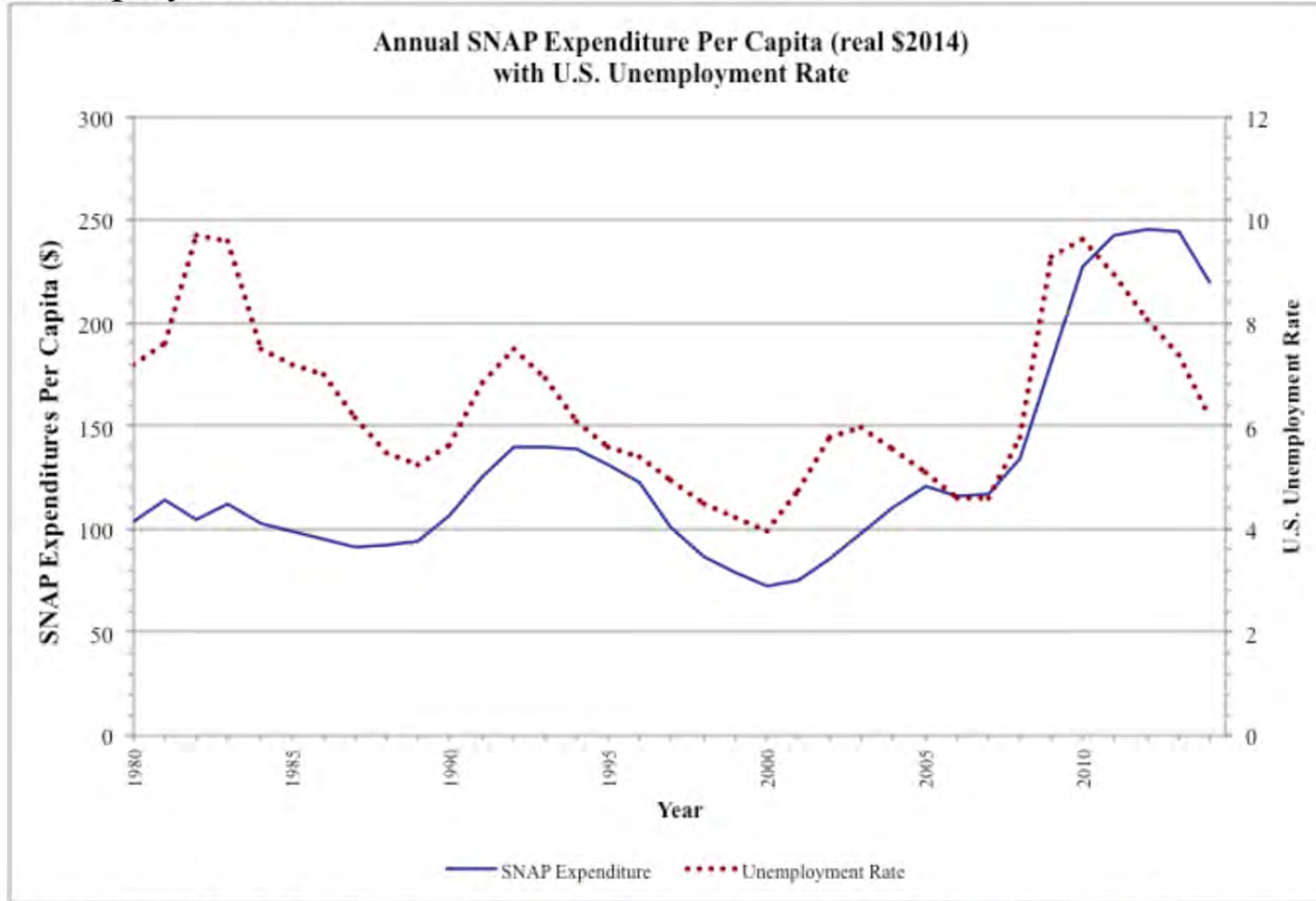
Source: USDA SNAP Program Data, http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap. Unemployment rates from http://data.bls.gov/pdq/SurveyOutputServlet. For definitions of recessionary periods see Bitler and Hoynes 2014.

SNAP Participation Rates by State

2013 SNAP Recipients/Population

Recipients/Population
0.784 — 2.690
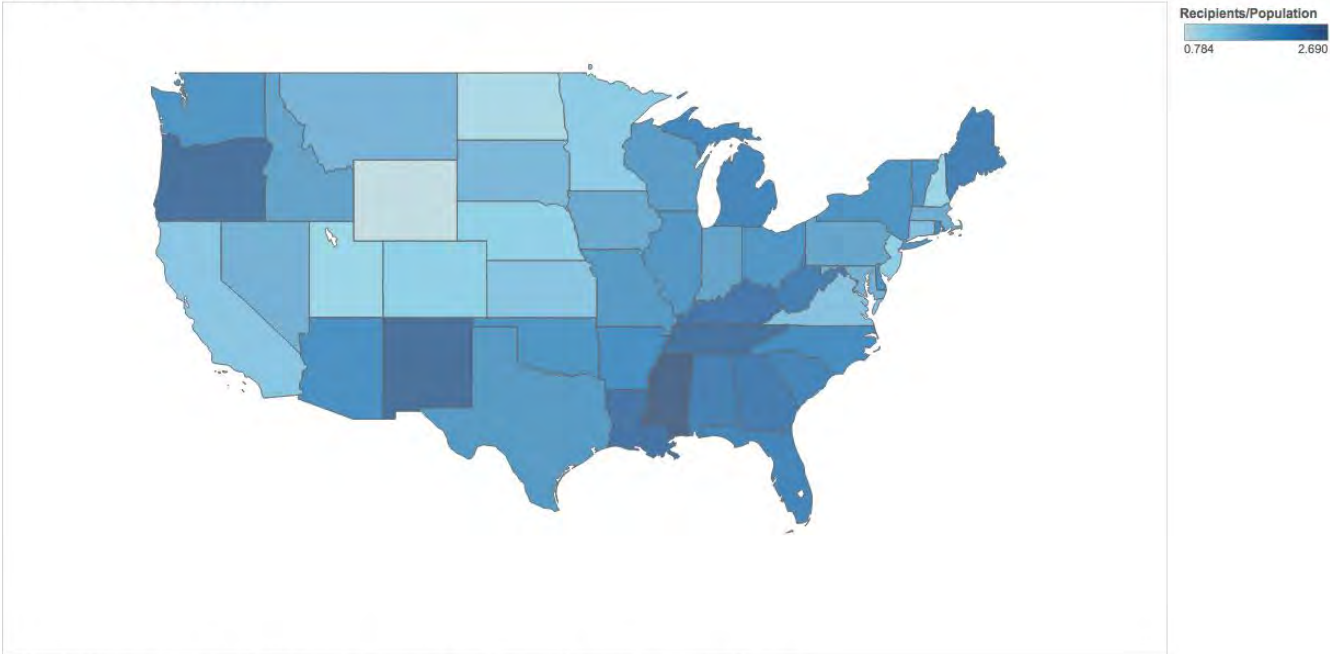
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Recipients/Population. Details are shown for Region.

2. Consumer choice and FSP

How does FSP change the budget constraint?

- Go back to our "two good" diagram from last time. Two goods here are "food" and "other goods"
- FSP leads to shift out in budget set due to additional resources coming from government transfer

Review: how does budget constraint change when you increase income?
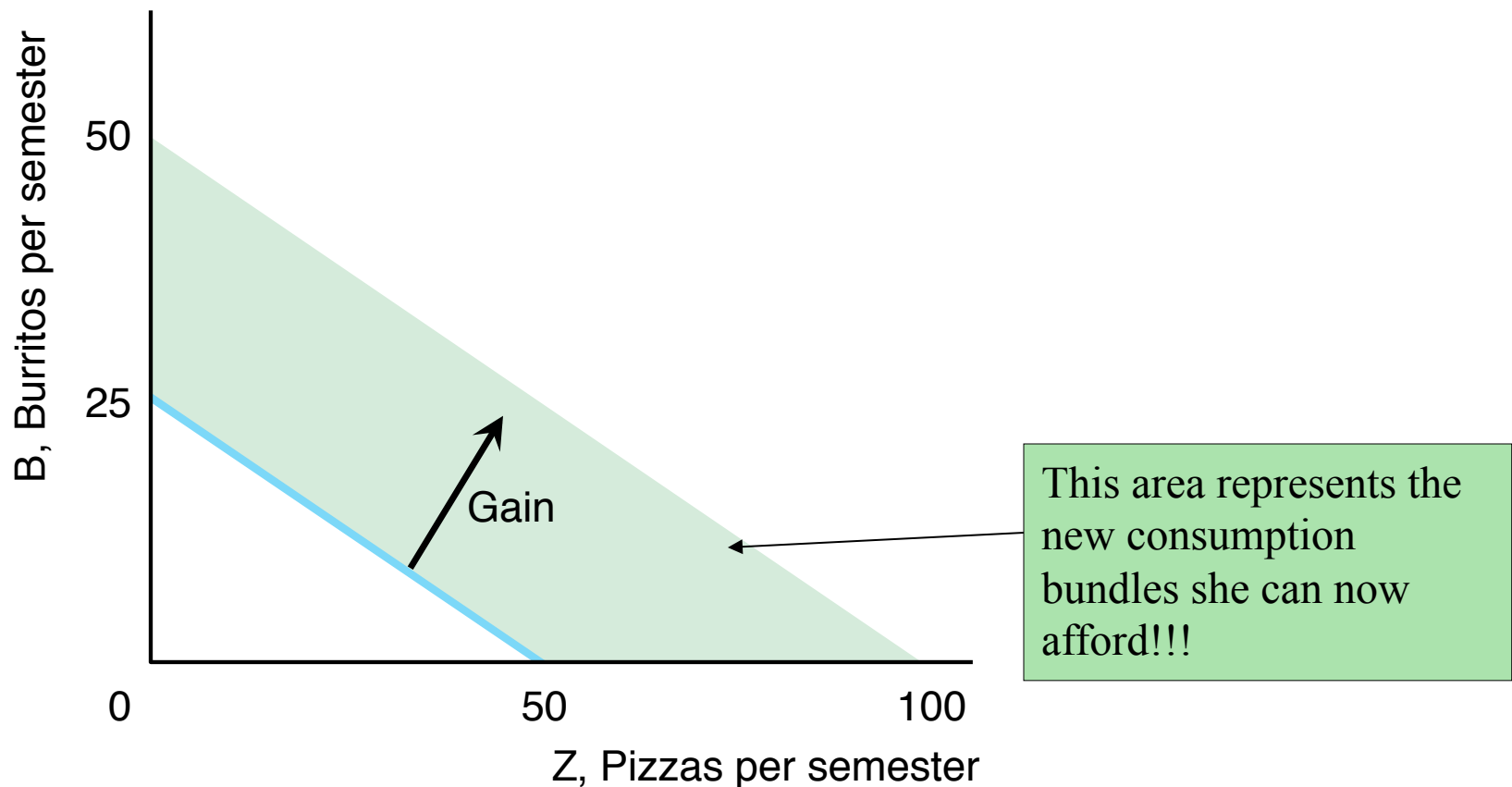
Economic Model of Food Stamps
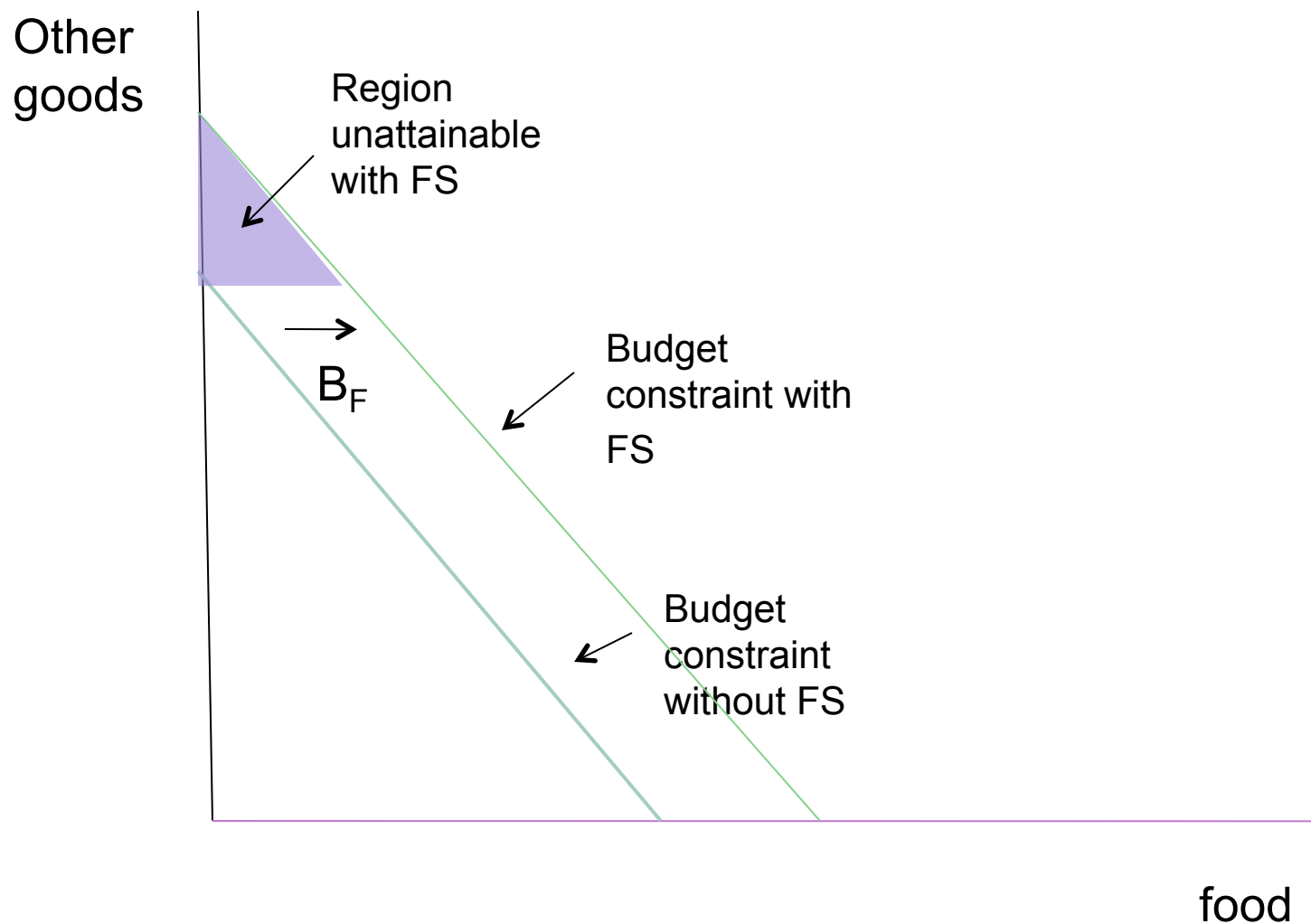
FSP and Consumption: Inframarginal Case

Other goods

B_F

C_1^*

C_0^*

F_2

F_0 F_1
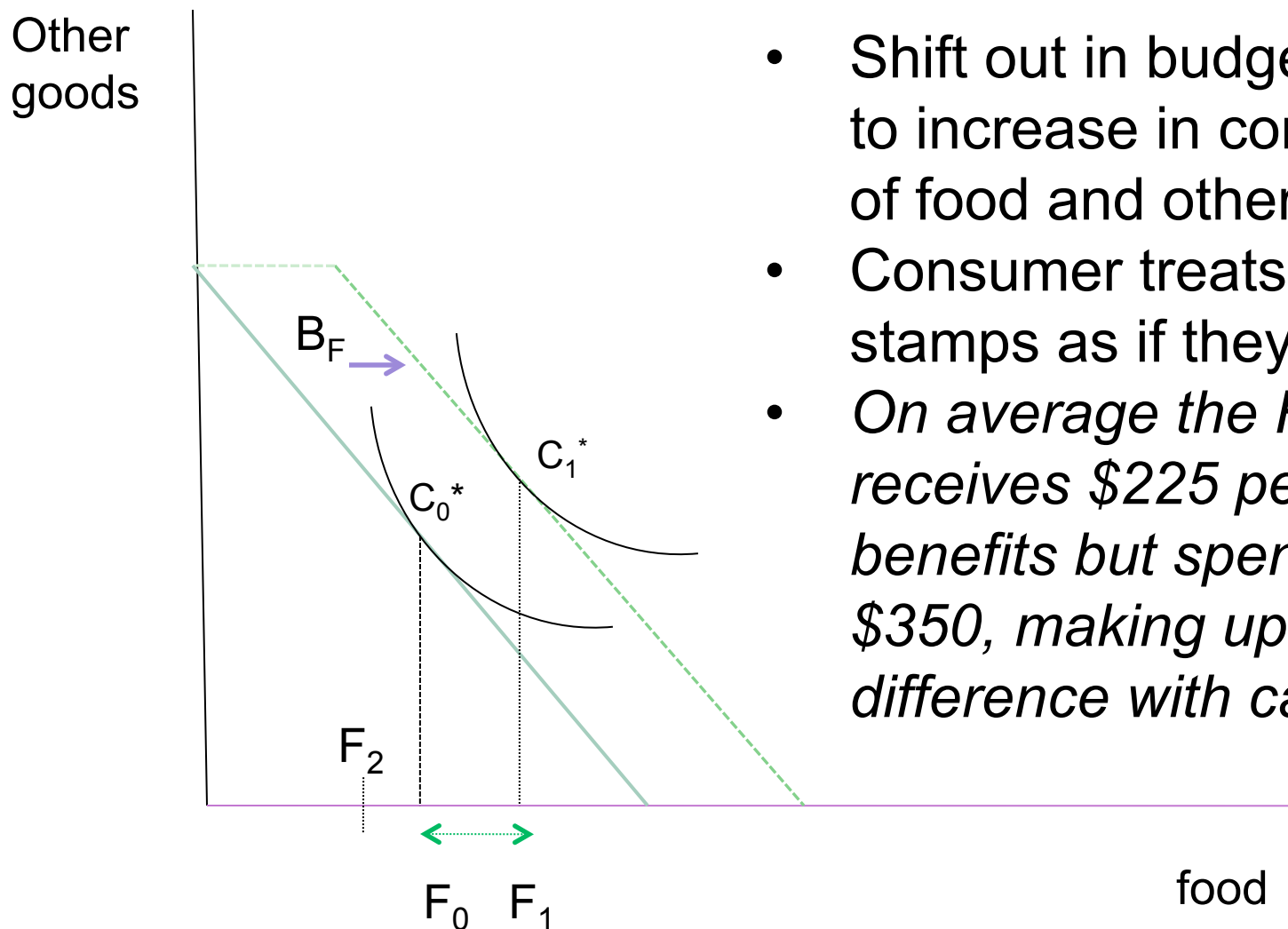
food

- Shift out in budget set leads to increase in consumption of food and other goods
- Consumer treats food stamps as if they are cash
- *On average the FSP recip. receives $225 per month in benefits but spends a total of $350, making up the difference with cash.*

FSP and Consumption: "Constrained" Case

Other goods

C_1^*

C_0^*
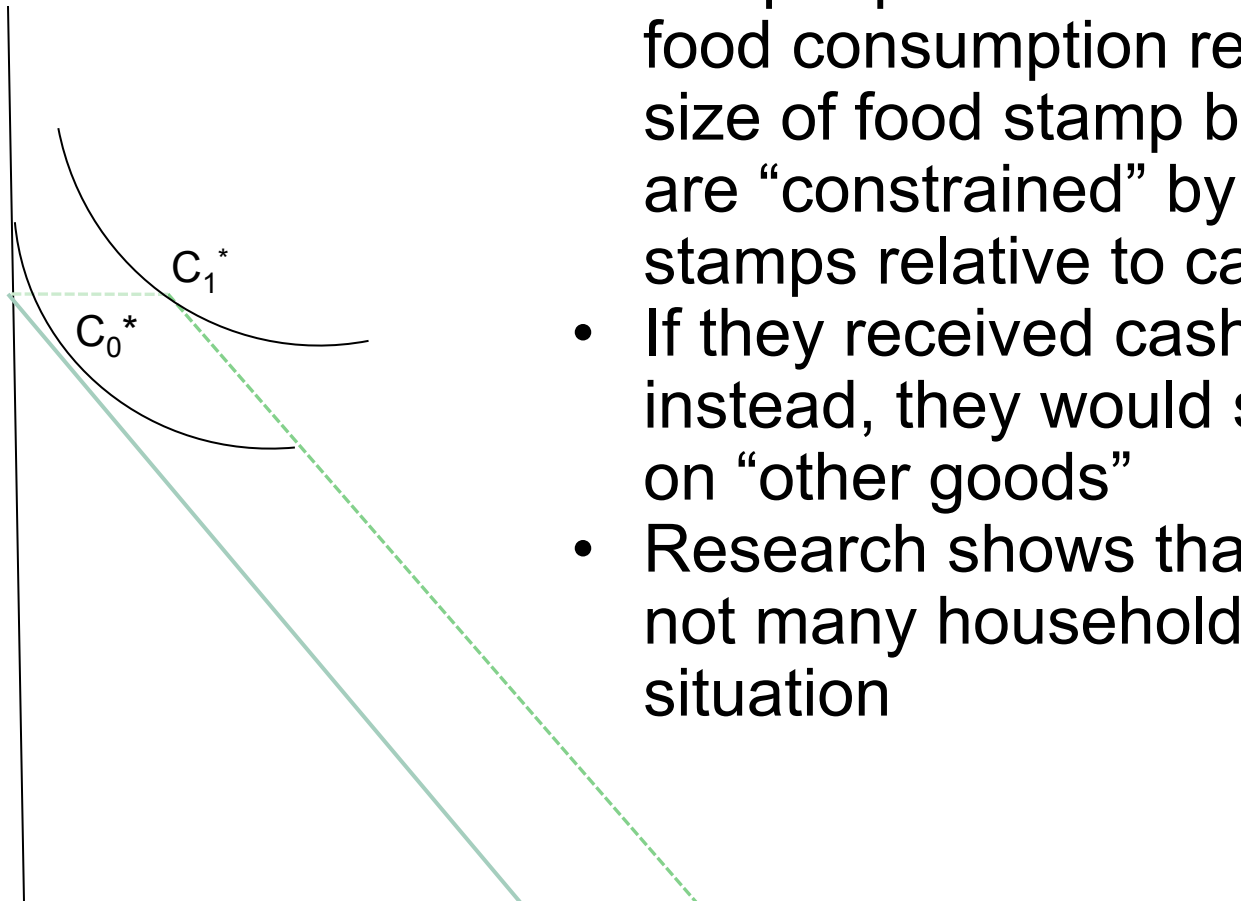
food

- For people with low desired food consumption relative to size of food stamp benefit, they are "constrained" by food stamps relative to cash transfer
- If they received cash transfer instead, they would spend more on "other goods"
- Research shows that there are not many households in this situation

Lessons from this analysis

- In general, "in-kind" benefits lead to larger increases in family utility than constrained (e.g. food stamps)

- This will be important as we think about further restrictions on food stamps (limits to "healthy food')

In-kind vs. cash transfers

In-Kind

- We love paternalism!
  - We know what is good for you!
- I like my tax $$ spent on stuff I like!

Cash

- Largest benefits to families
- Minimize DWL
- Less stigma
- Administrative costs lower

3. What does the research show about the benefits of Food Stamps?

- Increases food consumption, similar to cash income (Hoynes & Schanzenbach 2009)

- Reduces food insecurity (Depolt et al. 2009; Mykerezi & Mills 2010; Ratcliffe et al. 2011; Schmidt et al. 2013; Shaefer & Gutierrez 2013; Yen et al. 2008)

- Reduces LFP and hours among single mothers (Hoynes & Schanzenbach 2012)

Results: SNAP and Health

- Child health: birth weight improved (Almond et al. 2011); obesity may decline (Kreider et al. 2012; Schmeiser 2012)

- Adult health: obesity results mixed (Vartanian & Houser 2012; Fan 2010; Gibson 2003; Hoynes et al. 2013; Kaushal 2007)

4. My recent work on food stamps

FSP Exposure in Childhood and Impacts in Adulthood

"Long Run Impacts of Childhood Access to the Safety Net"
Hilary Hoynes, Diane Schanzenbach and Douglas Almond

- Does access to the safety net *in early life* lead to changes in adult outcomes?
- We examine effects on health and economic outcomes
- County rollout of FSP leads to variation in timing and extent of exposure to the program during childhood
- Event study model (difference-in-difference)
- The design allows us to explore *when treatment matters*

FSP Start Date, by County (darker = later)

Percent of US population covered by FSP

How may FSP affect adult outcomes?

- FSP leads to increases in income and nutrition. Additionally, we build on the extensive literature linking early life influences to later life economic and health outcomes

- Economic outcomes: Heckman and others argue that investment in early childhood leads to higher returns to human capital than investments later in life

- Health outcomes: "Fetal origins" hypothesis, from developmental biology and Barker (1990) argues that there is a connection between fetal development and early "critical" periods (nutrition in particular) and chronic conditions in adulthood.

Fetal Origins Hypothesis; Nutrition

- Events in *early life* "program" body for the type of environment likely to face

- Example: Limited nutrition pre/post natal → expect future to be nutrition-deprived → body invokes (irreversible) biological mechanisms to adapt to predicted poor postnatal environment

- If future world is *not* nutrient-deficient, it is maladapted to environment

- Adverse effects for "metabolic syndrome": Obesity, cardiovascular disease, high blood pressure, type 2 diabetes

- Negative consequences latent, show up later in life

- Unclear when "critical" period ends (post-natal exposure may matter too)

What does this theory predict for FSP introduction?

- <u>Health:</u> FSP leads to better nutrition in childhood → lower metabolic syndrome in adulthood
  - Expect lower incidence of obesity, cardiovascular disease, high blood pressure, type 2 diabetes
  - Both pre- and post-natal nutrition may matter
- <u>Economic outcomes:</u> increase in human capital (education, earnings)

Stress as alternative pathway

- Chronic stress leads to adverse health outcomes
- Recent work using credible designs shows that the SES/cortisol correlations may be causal and manipulated by policy
  - Expansion of the EITC lowered risky biomarkers for mothers (Evans and Garthwaite 2011)
  - Conditional cash transfers (Oportunidades) lead to reduction in cortisol among children 2-6 (Fernald and Gunnar 2009)
  - Negative shocks to rainfall lead to higher cortisol in Kenya (Haushofer et al 2012)
  - Prenatal maternal cortisol negatively affects health, cognition, and education of children (Aizer, Stroud and Buka 2009)

Our variables of interest

- We create standardized indices that aggregate information over multiple outcomes.

- We use two indices: *metabolic syndrome* and *economic self sufficiency*

- Each are an equal weighted average of the z-score of each component

- We use the mean and SD to create a z-score (standardized) and averaged across outcomes:

$$y_i = \frac{1}{J} \sum_j \frac{y_{ij} - \mu_j}{\sigma_j}$$

Metabolic Syndrome
- Obese (=1)
- High blood pressure (=1)
- Diabetes (=1)
- Heart disease (=1)
- Heart attack (=1)

Economic self-sufficiency
- High school graduate (=1)
- Employed (=1)
- Not poor (=1)
- Not on TANF (=1)
- Not on food stamps (=1)
- Earnings
- Family income

Metabolic Syndrome for High Impact Sample

	Metabolic syndrome (index)
FS share IU-5	-0.294***
	(0.107)
Mean of dep va	0.01
Observations	8,246
R-squared	0.26

Change from no exposure to full exposure (in utero to age 5) reduces metabolic syndrome by 0.3 standard deviations; significant at 1%

Main Results for High Impact Sample, by Gender

	Women			Men		
	Metabolic syndrome (index)	Good Health	Economic self sufficiency (index)	Metabolic syndrome (index)	Good Health	Economic self sufficiency (index)
FS Share IU-5	-0.312**	0.336***	0.306*	-0.526**	-0.077	0.005
	(0.130)	(0.100)	(0.164)	(0.251)	(0.112)	(0.168)
Mean of Dependent V	0.03	0.53	-0.37	-0.01	0.66	-0.11
Observations	5,062	15,702	12,208	3,184	10,036	7,907
R-squared	0.37	0.22	0.43	0.32	0.18	0.46

Economic impacts strong for women, nonexistent for men. Consistent with other studies finding stronger impacts for girls (Anderson 2008, Bleakley 2007, Dahl/Lochner 201, Milligan/Stabile 2009, MTO; less evidence from fetal origins/nutritional studies)

Exploring the timing of treatment

- Event study approach
- Traces out the treatment effect for years prior to and after the treatment
- Advantages: (1) can test for absence of pre-treatment trends, and (2) can examine impacts of treatment over time, and (3) can explore when in childhood the treatment matters
- The tricky thing about our treatment is that:
  - We do not have a strong prior about *when* treatment matters (and hence when to assign someone as treated)
  - Treatment turns on, and then never turns off
- Solution: make event time = age when food stamps introduced in your county

Event study: by age when FSP introduced, high impact group

Outcome = Metabolic Syndrome (Index)

Fully Treated, FSP in place prior to birth

Birth year

Partially treated, FSP implemented in early childhood

Untreated in early childhood

Age at FSP Introduction in County

Event Study: by age when FSP introduced, high impact group

Outcome = Metabolic Syndrome (Index)

Improving nutrition through age 5 generates the long run health improvements.

Birth year

Fully Treated, FSP in place prior to birth

Partially treated, FSP implemented in early childhood

Untreated in early childhood

Age at FSP Introduction in County

5. Analyze Hamilton Project Proposal for Food Stamps within Eight Fold Path

1. Define the problem

- High obesity rates and poor nutrition: in 2009–2010 more than one-third of adults and almost 17 percent of youth were obese.
  - *Sub-problem:* This epidemic may be driven in part by the relative price increase of healthy foods, such as fresh fruits and vegetables, compared to unhealthy foods, such as cakes and cookies.
- Benefit formula provides disincentive to work
- Benefit formula insufficient: Basic benefit amount based on assumption of cooking meals from scratch
- Shelter deduction insufficient
- Limitations for childless limit benefits from important benefit

2. Evidence

Price Levels by Food Category, 1980–2012

Consumer price index (base year 1982–84 =100)

Legend:
- Fresh fruits
- Cakes, cupcakes, and cookies
- Fresh vegetables
- Sugar and sweets
- Alcoholic beverages

- The benefit formula "implicitly assumes that households have unlimited time to prepare food (Davis and You 2010), and therefore are able to cook meals primarily from scratch instead of using prepared ingredients. Since householders add value to raw ingredients through their own cooking labor, scratch cooking is generally less expensive in terms of cash outlays. Davis and You (2011) estimate <u>the amount of weekly labor assumed in TFP calculations to be thirteen hours of food preparation per week, almost twice the time it takes at the 95th percentile of time spent in food preparation among working single mothers.</u> "

3. Alternatives

Five reforms

1. [To improve nutritional choices] A financial incentive to increase consumption of fruits and vegetables.
2. [To improve program's design] establish of a more realistic spending target floor
3. [To improve program's design] increase the deduction for earnings—which helps families offset the costs of working—to aggressively limit penalties for work.
4. [To improve program's design] increase the maximum deduction for shelter costs to better assist recipients living in areas of high cost housing.
5. Preserve current safeguards and to relax time limits on benefits for able-bodied childless adults

4. Criteria

- Schanzenbach proposes proposes "five reforms to SNAP that serve to <u>improve its effectiveness</u> and <u>address criticisms</u> of the existing program."

- Cost / Benefit calculation

- Costs: program outlays

- Benefits: higher benefits to recipients, improved nutritional intake, food insecurity, improved work incentives

Evidence on alternatives: 1. Incentives to increase healthy foods

- Healthy Incentives Pilot (HIP) program in Massachusetts, in which SNAP recipients were given a $0.30 rebate for every $1.00 they spent on a narrowly defined group of fruits and vegetables. In response, consumption of the targeted goods increased by 25 percent.

6. Tradeoffs

- Not too much on this.

Current Food Stamp debates

- Take the "food stamp challenge"
  - Can you survive on $4.45 per day?
- Ban sugar sweetened beverages (SSB)
  - Under what conditions does this change behavior?
- "Food Stamp nation"
  - Too much?

LECTURE #19

Lecture Outline:
Eight Fold Path:
Step 6 Confront the Tradeoffs,
Steps 7 & 8

Economic Principles: Labor Supply
Check in--why do we need to study
    labor supply?
Back to the constrained choice
    problem we studied earlier
Budget Constraint
How income and wages change
    the budget constraint

Bardach's "Eightfold" Path

1. Define the Problem
2. Assemble some Evidence
3. Construct the Alternatives
4. Select the Criteria
5. Project the Outcomes
6. Confront the Tradeoffs
7. Decide!
8. Tell your Story

How Step 6 fits in with where we have been

- OUTCOMES MATRIX
  - Rows = *Alternatives* [Step 3]
  - Columns = *Criteria* [Step 4]
- [Step 5] *Projecting outcomes*: use theory, evidence, and analytics to predict how the alternatives will work. Think about this prediction in terms of the criteria [ONE AT A TIME]
- [Step 6] *Confronting Tradeoffs*: think about the alternatives relative to each other

Step 6. Confront the tradeoffs

- Start by reviewing each alternative's advantages and disadvantages
- Clarify the tradeoffs between <u>outcomes</u> associated with the different alternatives
- Rarely does one alternative dominate
- So, we may have to think about how to "weigh" the different outcomes
- Most common tradeoff – between cost and services rendered
- Monetizing the projected outcomes helps to facilitate the comparisons
  - Costs per life saved?

Simple example from EdX

- Congested Bridge. Two policy alternatives?
    1. Adding a lane to the bridge
    2. Adding metering
- What are the criteria in the example?
    1. Cost
    2. Time saved
- Build and outcomes matrix

	Cost	Vehicle Delay Change
Lane	$50 million	Save 20 minutes/vehicle
Metering	$5 million	Save 10 minutes/vehicle

- Illustrate common tradeoff
  - Lane costs more, but generates more outcome
  - Metering costs less but generates less
- In this case we can combine (since time=money) or translate
  - Lane = $2.5 million per minute saved ($50/20min)
  - Metering = $0.5 per minute saved ($5m/10min)

- Can not always convert in this way

- Even so, perhaps we care sufficiently about reducing the wait and are less concerned about the $$ that we choose expanding the lane in any case

- How can we persuade ourselves and others that our intuitions regarding "which alternative wins" are actually <u>correct</u>?

- This is where the analysis gets more focused, narrow, deepen

Step 7 & 8 Decide, Tell Story

- Choosing the best alternative
- Persuading others it's the right choice [we will spend less time on this]
- Also, note that often the policy analyst is NOT the "decider"
- In your policy memos, we do what you to decide!

Some closing thoughts

- Don't stick to this too closely, or think that the ordering has to be so structured – steps are for thinking not writing.

- Practice this for the final paper

- Learning by doing

Why study labor supply

- Our decisions about work (schooling, career, employment, hours of work, retirement) are central to individual decision making

- Knowing how government policies affect work decisions is a <u>central piece</u> of policy analysis

Per capita real expenditures (2011 $)
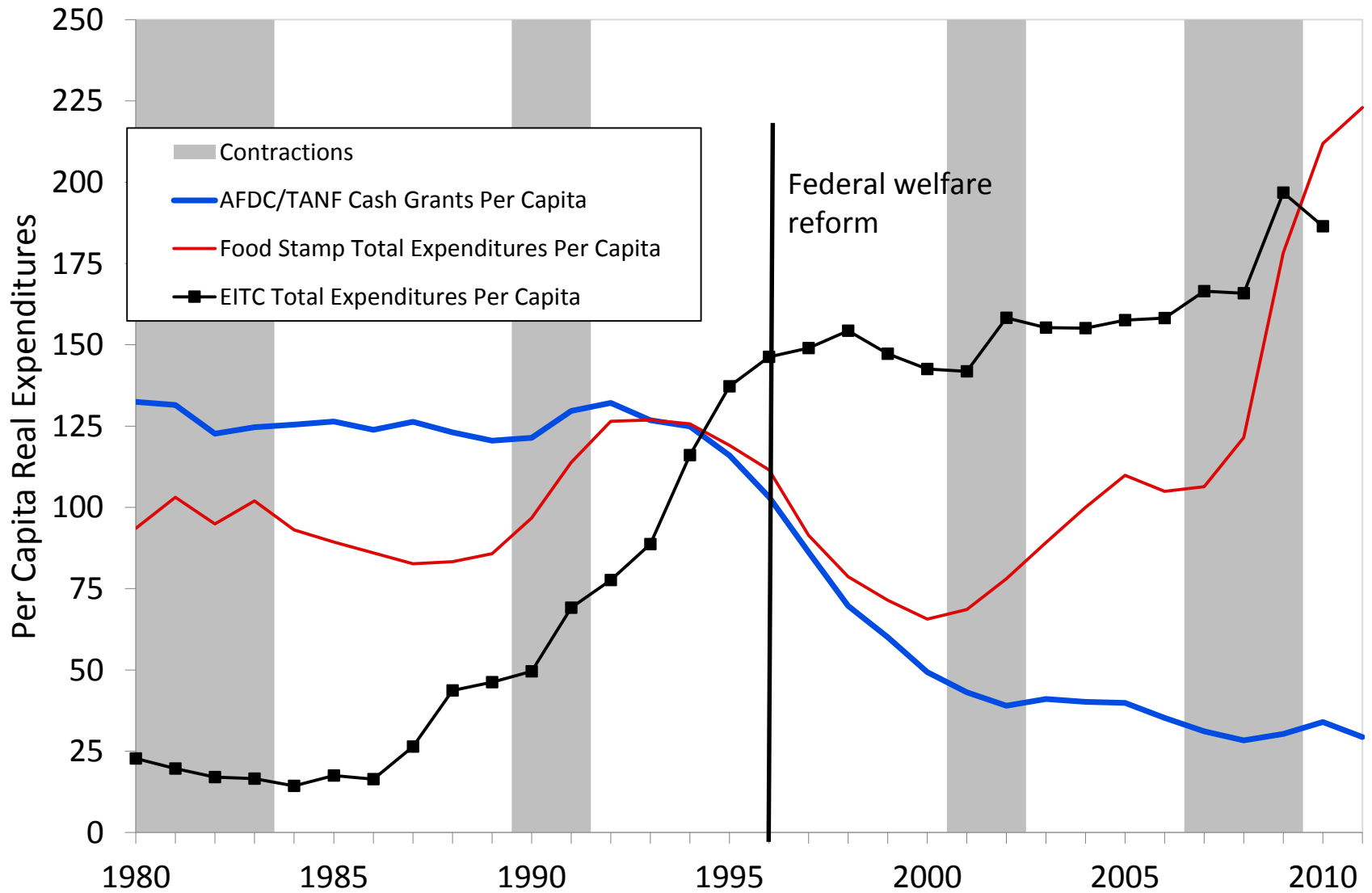
Source: Bitler and Hoynes (2010).

Children Kept out of Poverty (2012, In Millions)

Category	Value
EITC & credits	5.0
SNAP	2.2
Social Sec & DI	1.5
Housing Subsidy	1.0
School Lunch	0.7
SSI	0.7
UI	0.6
TANF & GA	0.4
WIC	0.2
LIHEAP	0.1
Workers Comp.	0.1
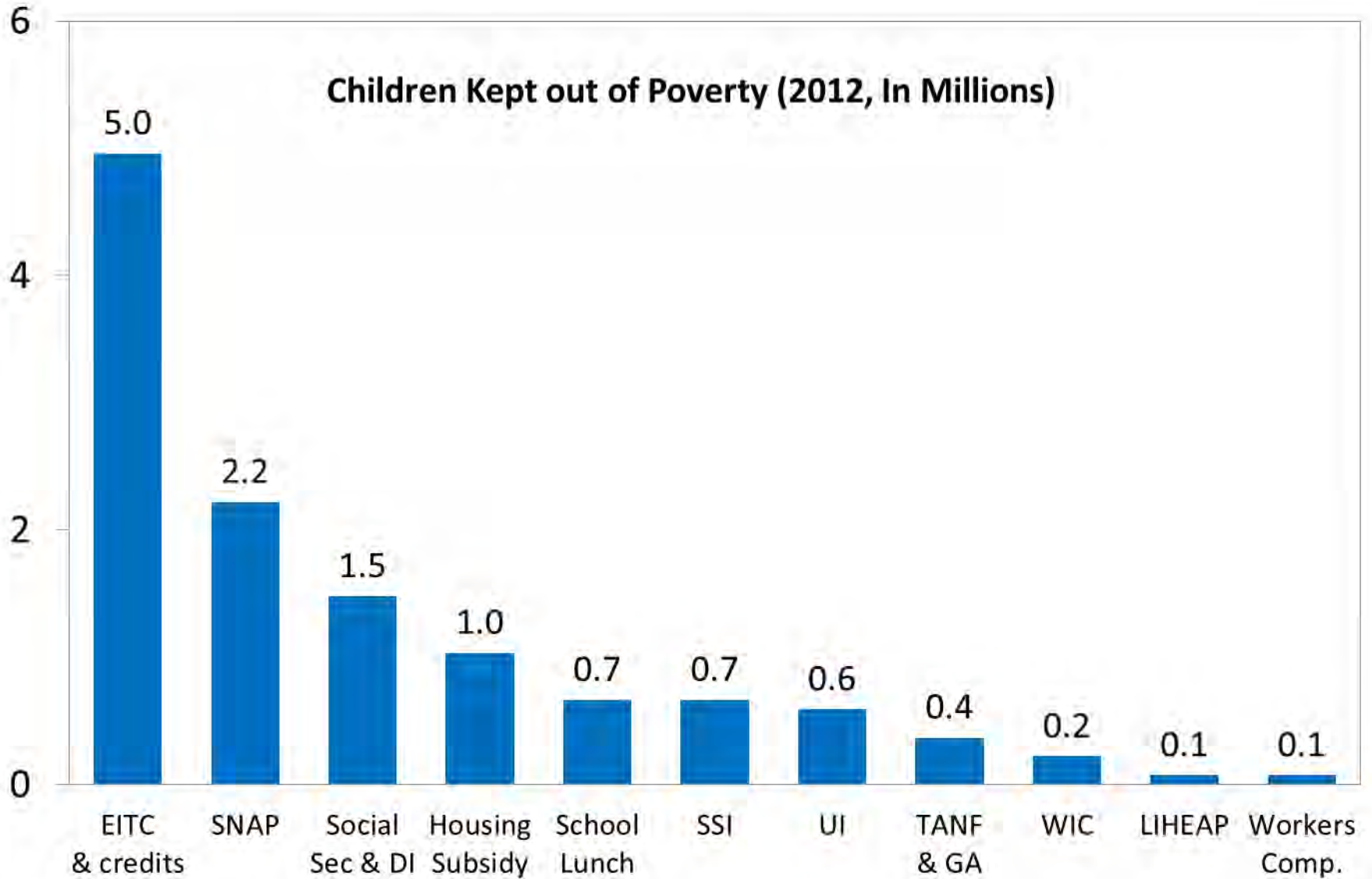
Labor supply

- A decision about labor supply is a decision about time allocation: how many hours to spend on different activities
- Working → earn \$ → buy goods → utility
- Leisure → utility
- Tradeoff therefore is more leisure VS more goods
- Constraint is TIME and INCOME

A cool diversion – TIME ALLOCATION

- http://www.nytimes.com/interactive/2009/07/31/business/20080801-metrics-graphic.html

A brief review of what we already did

Consumer Choice

- The budget constraint shows the feasible choices of the two goods, given prices of the two goods and your income

- Here we did not model income, and just took it as given

- The indifference curves mapped the preferences between the two goods

- We argued that the best the consumer could do was to choose a bundle on their budget line that was tangent to their indifference curve

B, Burritos per semester

25

e

I^2

0

50

Z, Pizzas per semester
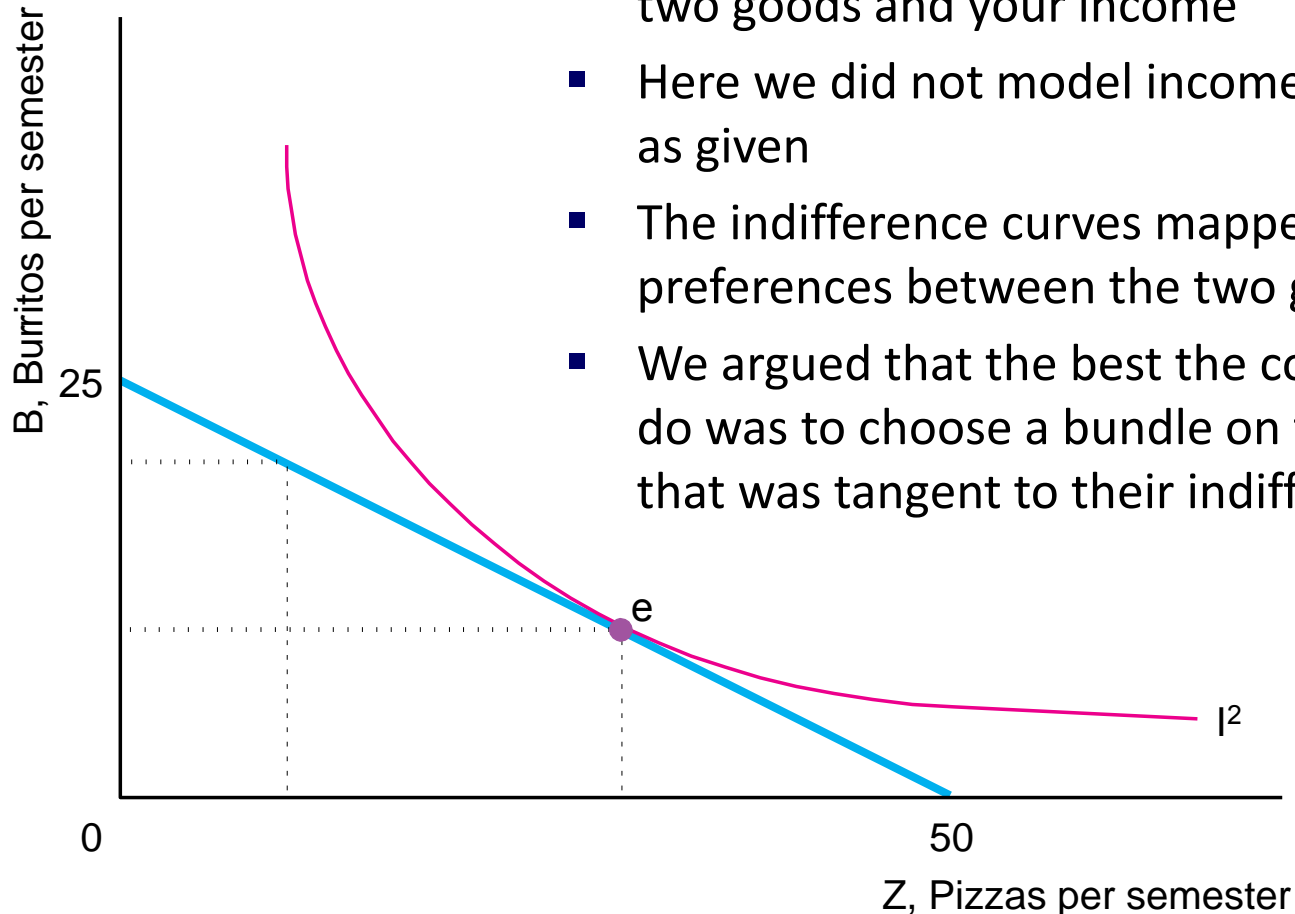
- With labor supply theory we model WHERE income comes from
- What is taken as given:
  - your wage rate (pay per hour)
  - nonearned income (if you have any)
- Consumption leisure tradeoff

Application to Labor Supply

- Labor isn't "normal" good (leisure is the good)
- But leisure is time less work, "leisure" = 16 – labor
- Two goods: leisure, everything else
- Indifference curves just like usual case
- Now budget constraint dependent on leisure & consumption
- Mathematically: $p*c = w(16-L) + N$
  - P = price of aggregate consumption good
  - C = quantity consumed
  - W = wage rate (hour)
  - 16 = hours in the day (after sleeping)
  - L = leisure consumed ($\rightarrow$ work hours = 16 – L)
  - N = nonlabor income

Labor supply budget constraint

- Now calculate slope and y-intercept of budget constraint

    p*c = (16w + N – w*L)

- Implies that slope is –w
    - A 1-unit increase in leisure costs –w in consumption goods
- y intercept = (16w + N)
    - i.e. consumption good attained if consume zero leisure
- Wage is the opportunity cost of leisure

Indifference curves and budget constraint (N=0)
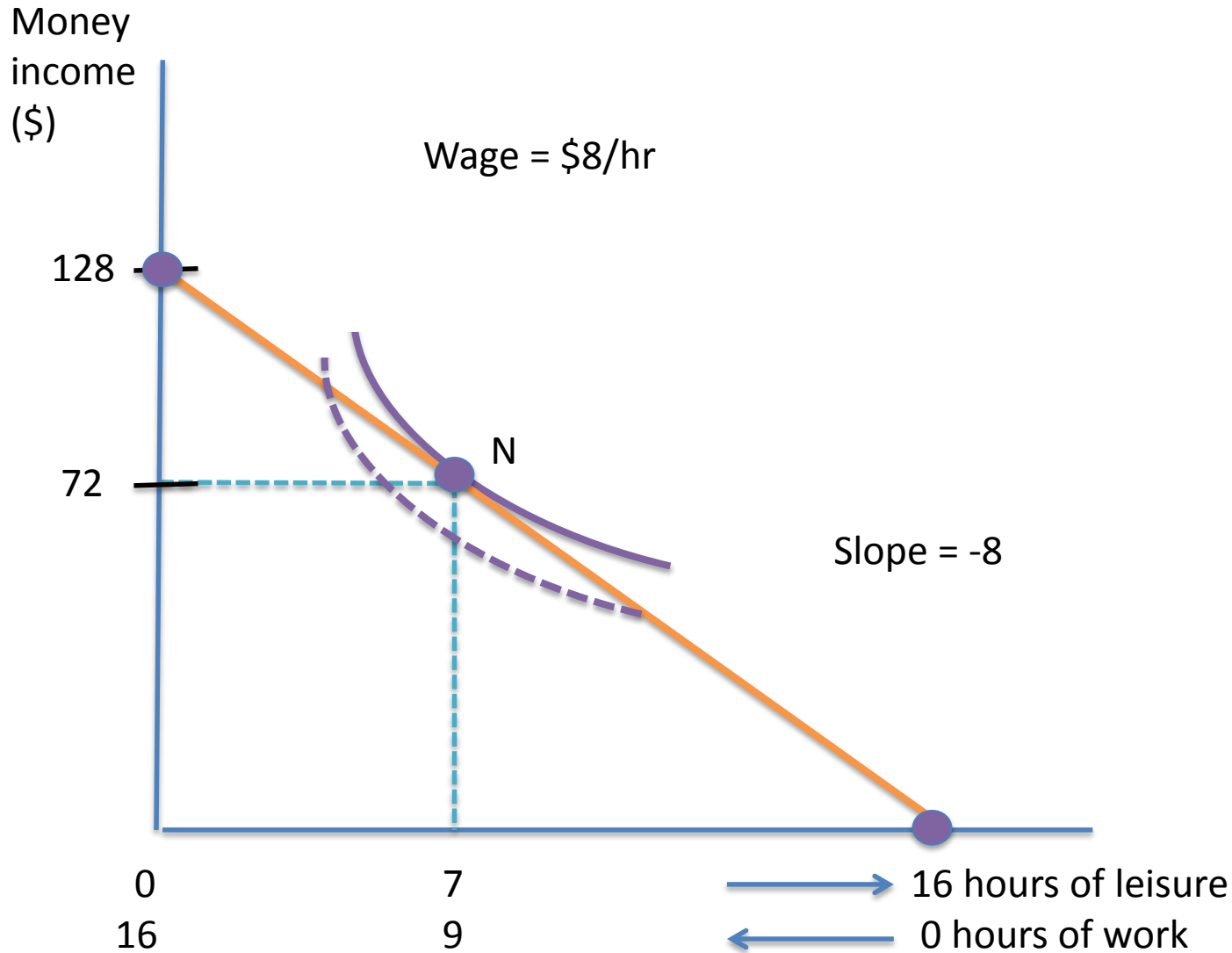
Money income ($)

Wage = $8/hr

128

72

N

Slope = -8

0
16

7
9

16 hours of leisure

0 hours of work

Changes to the budget constraint

- Add nonlabor income N
  - Shifts out budget set by constant amount
  - PREDICTION: employment will decrease
- Increase hourly wage (e.g. minimum wage increase; skill upgrade)
  - Rotates out the budget line (slope increases)
  - PREDICTION: employment will increase
- Add in taxes (e.g. flat tax)
  - Just like a wage <u>decrease</u>
  - PREDICTION: employment will decrease

LECTURE #20

<u>Lecture Outline:</u>

<u>Applying labor supply to EITC vs welfare</u>
Review: labor supply from last time
Social programs and poverty
EITC and labor supply
Welfare and labor supply
What is welfare reform? Why did it happen?

REMEMBER TO DO THE READINGS BEFORE CLASS.

<u>Announcements/Assignments:</u>

➢Tuesday:

More on welfare reform and the rise of the EITC (following up on today's readings)

8FP: Putting it all together using the LAO report on CA EITC

Class debate on minimum wages vs welfare vs EITC

From last time

- Basics of labor supply
- Tradeoff between leisure (non-market time) and income/consumption
- Taken as given: nonlabor income (N), your hourly wage (w), time endowment

The Budget Constraint – for labor supply

Consumption ($)

$wT+N$

Budget Line,
slope = -w

N

Hours of Leisure

0

T
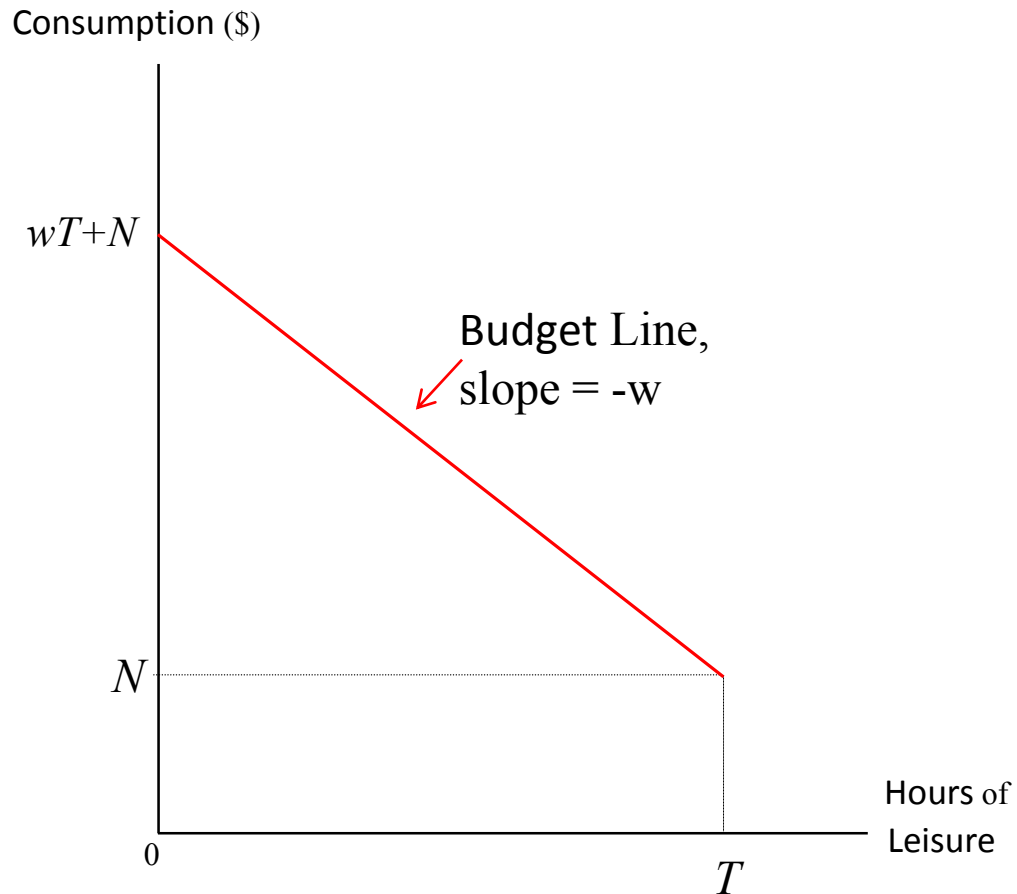
What individual's choose

- Maximize utility by choosing a labor supply decision
- We consider two "margins" of choice:
  - Extensive margin: whether to work
  - Intensive margin: how much to work
- We will focus only on the extensive margin (it is easier and can capture much of the objects of interest)

A concrete example

Time budget = 110 hours per week
Nonlabor income = $100
Hourly wage = $10/hour
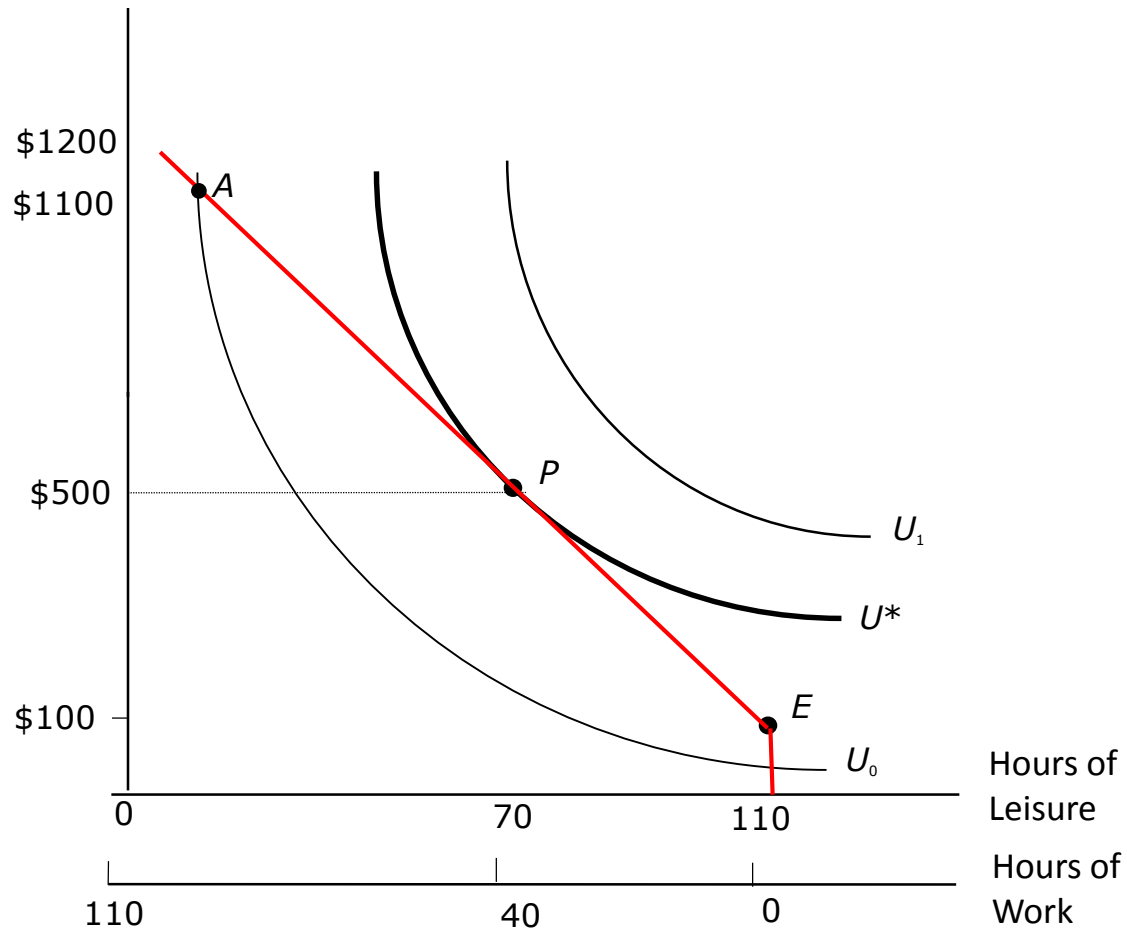
The Effect of a Increase in Nonlabor Income ($100 to $200)
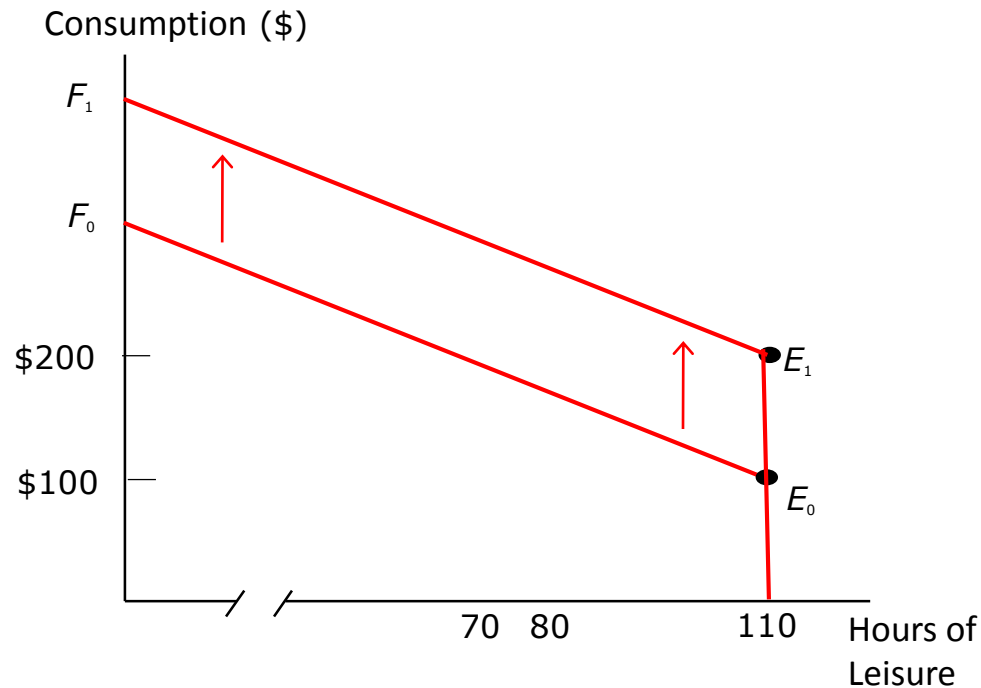
An increase in nonlabor income leads to a parallel, upward shift in the budget line

The Effect of a Increase in Nonlabor Income
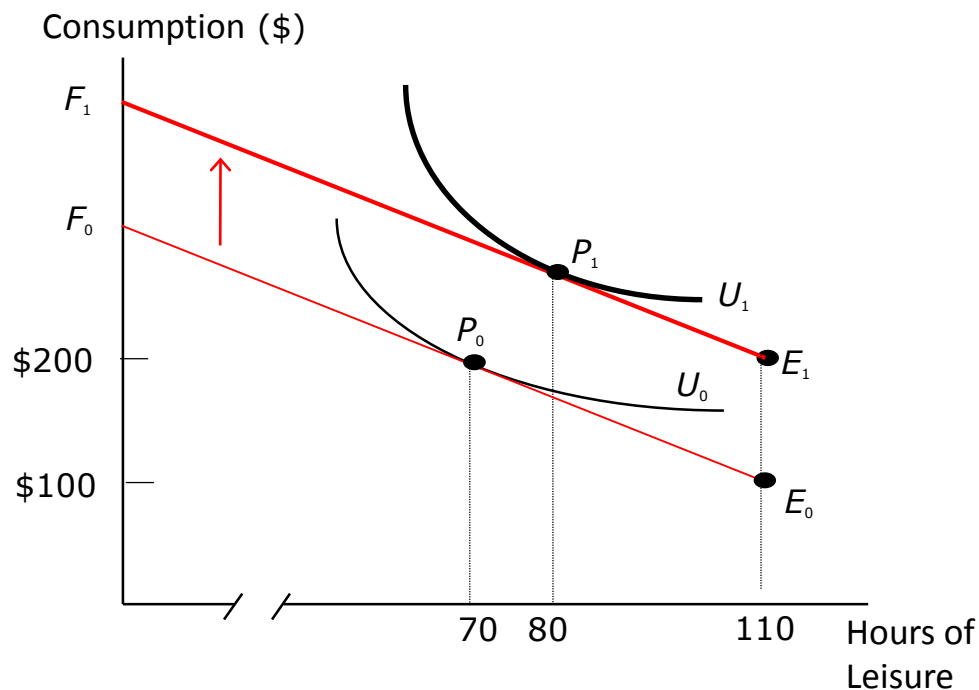
WHAT HAPPENS TO LABOR SUPPLY:

Employment decreases

[Hours of work decrease (leisure is a normal good!)]

The Effect of a Increase in hourly wage
rotate up the budget line (slope increases)
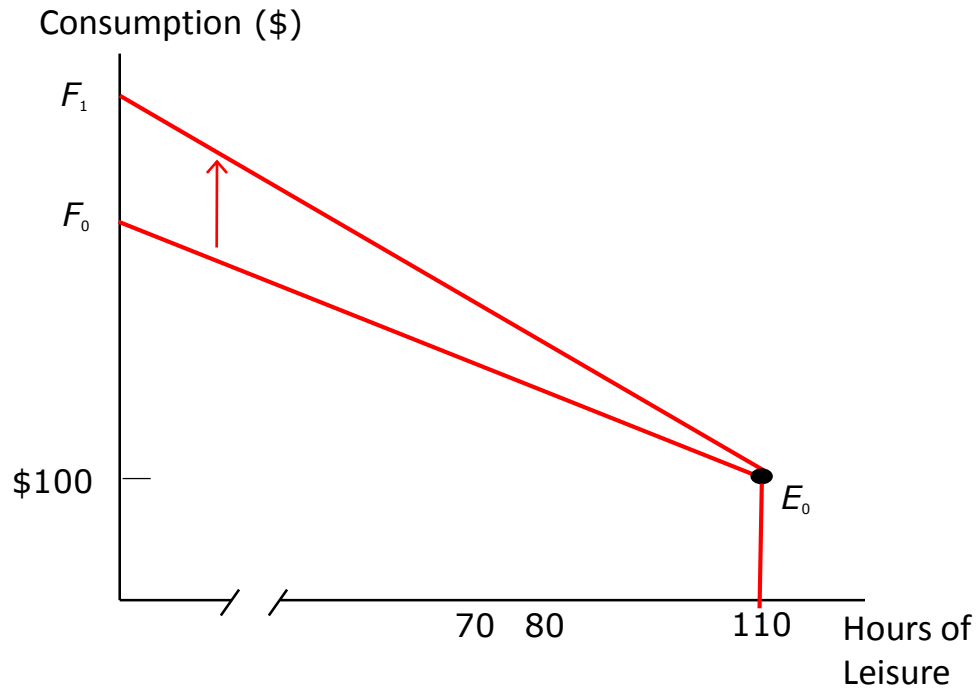
An increase in nonlabor income leads to a parallel, upward shift in the budget line

The Effect of a Increase in hourly wage
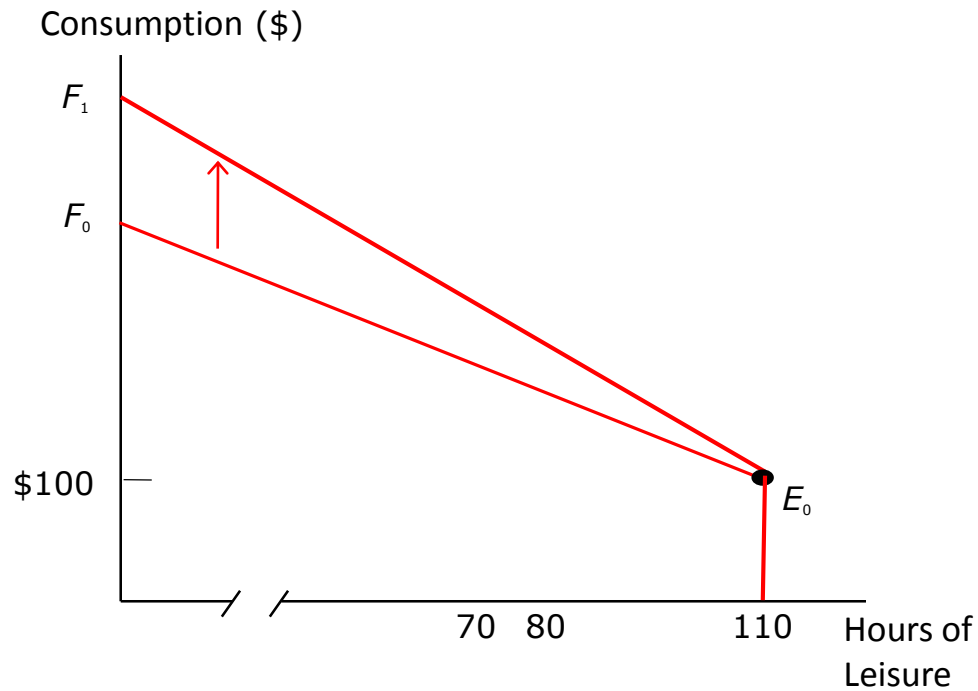
WHAT HAPPENS TO LABOR SUPPLY:
Employment increases
[ambiguous effect on hours worked]

Summary: changes to the budget constraint

- Add nonlabor income N
  - Shifts out budget set by constant amount
  - PREDICTION: employment will decrease
- Increase hourly wage (e.g. minimum wage increase; skill upgrade)
  - Rotates out the budget line (slope increases)
  - PREDICTION: employment will increase

Using the labor supply model to study EITC versus welfare programs

How do the EITC and welfare affect poverty?

- Why so little anti-poverty effects for welfare?

Children Kept out of Poverty (2012, In Millions)

EITC & credits	5.0
SNAP	2.2
Social Sec & DI	1.5
Housing Subsidy	1.0
School Lunch	0.7
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TANF & GA	0.4
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LIHEAP	0.1
Workers Comp.	0.1
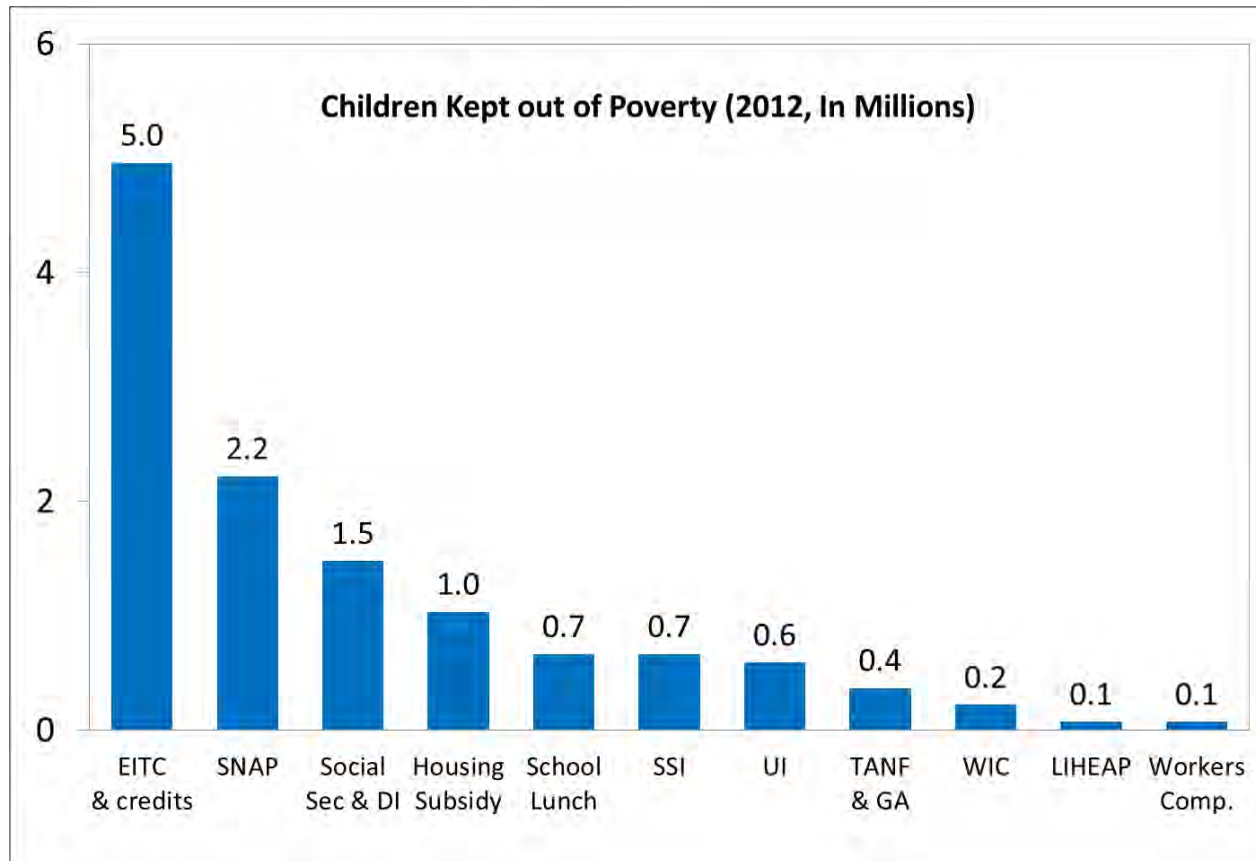
Evolution of Antipoverty programs in the U.S.

1930s
Social Security
AFDC
Unemployment
Insurance

**Great Society
1960s-1970s**
Food Stamps
Medicare
Medicaid
Disability
Civil Rights
Act

1990s
Welfare Reform
Rise of the EITC

2010
Obamacare

"Traditional Welfare Programs"

1930s
Social Security
AFDC
Unemployment
Insurance

**Great Society
1960s-1970s**
Food Stamps
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"In Work Assistance Programs"

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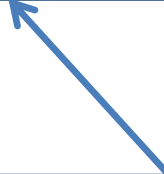
2010
Obamacare

The Earned Income Tax Credit

- Refundable tax credit for working, low income families

- Must have earned income to be eligible

- Credit varies by number of children (small credit for childless), earnings (and AGI)

- Expansions due to tax acts in 1986, 1990, and 1993 (and smaller expansions in 2001, 2009)

- About 60% of EITC filers are single with children, 20% married with children, and 20% childless [but only 2% of $ go to childless]

The Earned Income Tax Credit

- Refundable tax credit for *working*, low-income taxpayers with children (single and married)

Tax credits directly offset taxes; refundable means taxes can be reduced to zero (and can receive a refund)

How the EITC reduces poverty

- Key design feature of EITC (and what distinguishes it from traditional income support programs) is that eligibility requires earned income.

  - The EITC transfers income to low income families with children WHILE encouraging work

- Effects on income / poverty

  - Direct effect (tax refund)

  - Indirect effect (increasing earnings)

EITC Schedule, 2014 Tax year
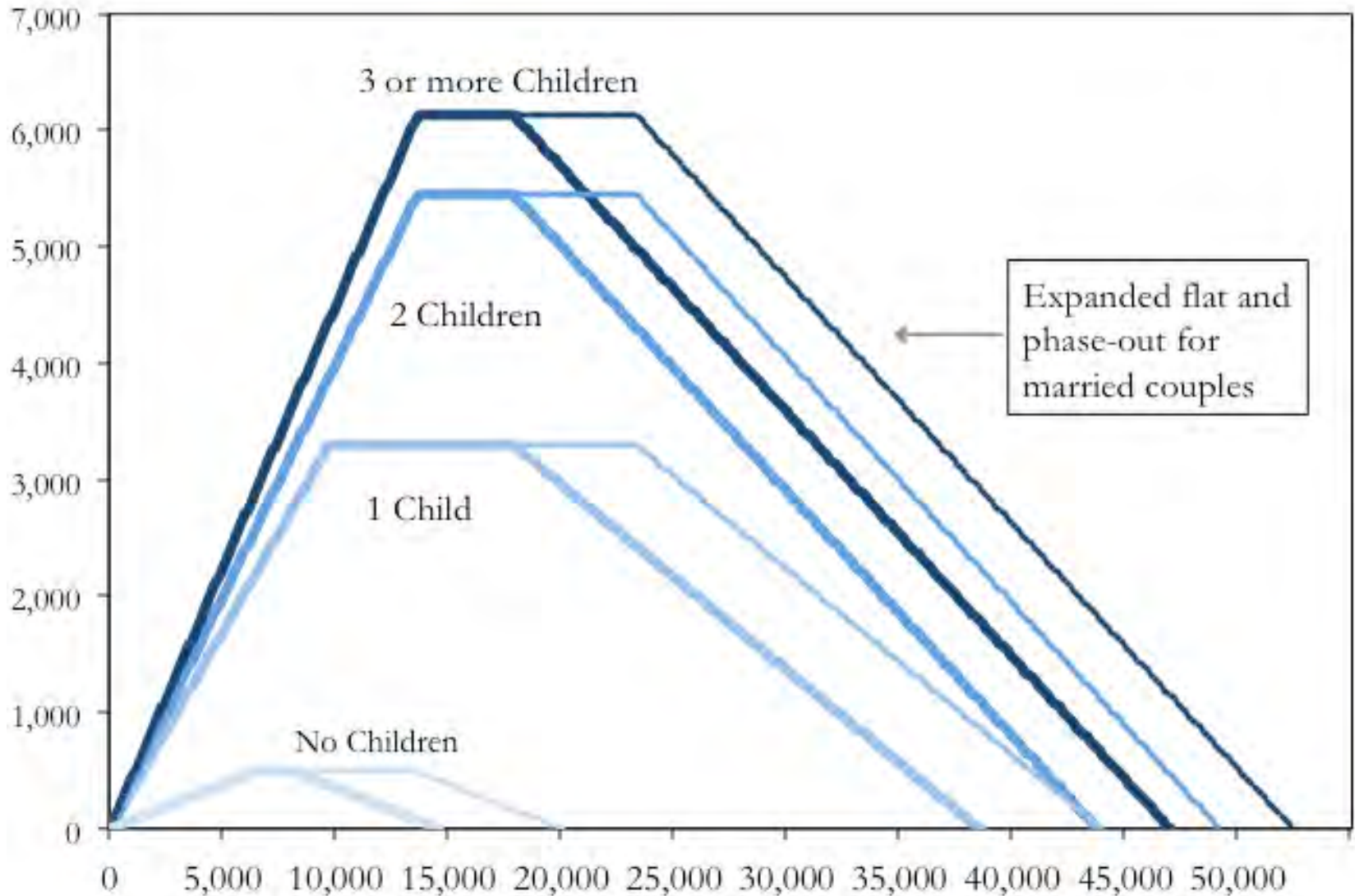
Source: Tax Policy Center, Historical EITC parameters

Maximum benefits by number of children (2012 $)
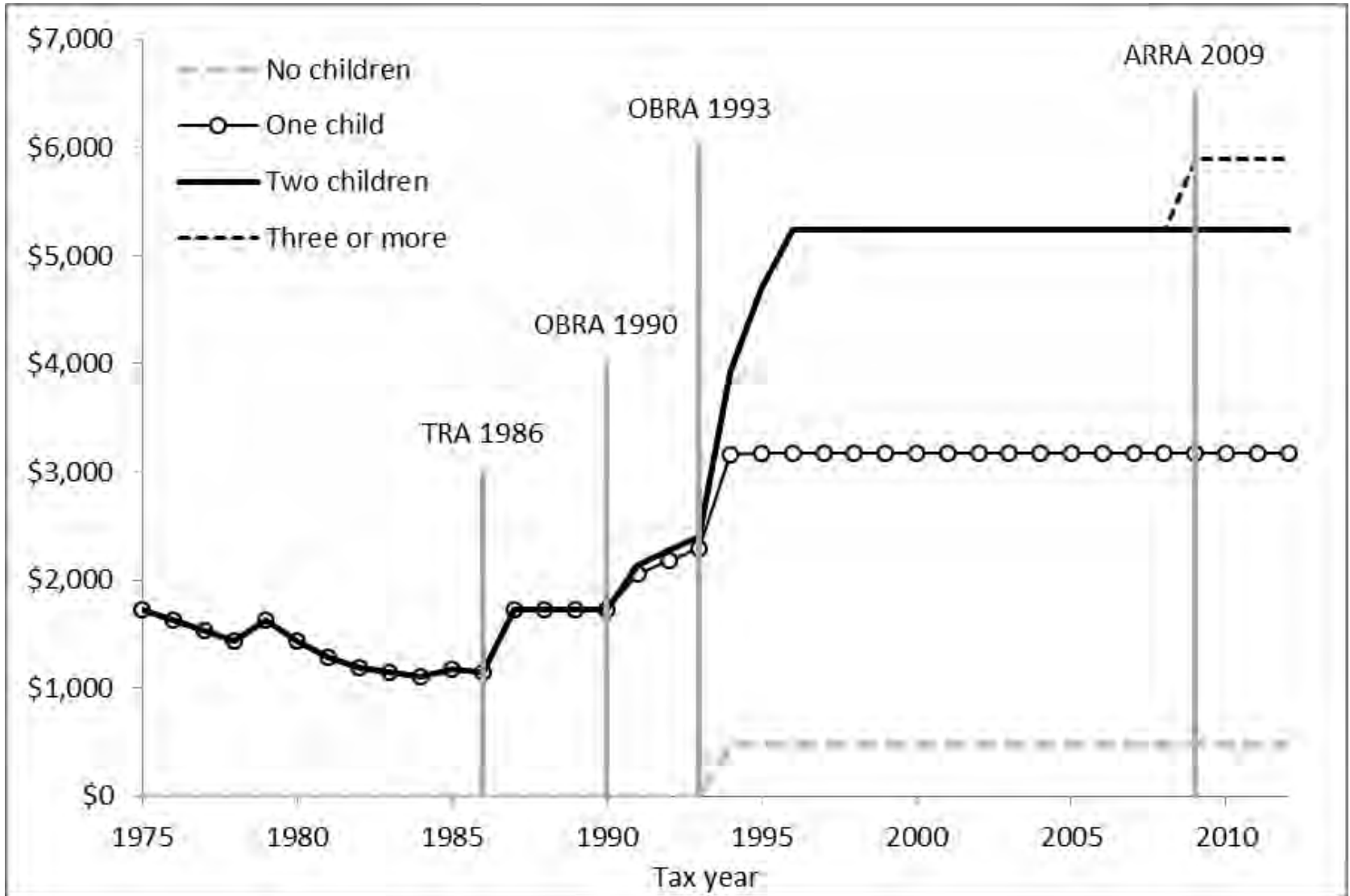
EITC, Billions of 2012 Dollars
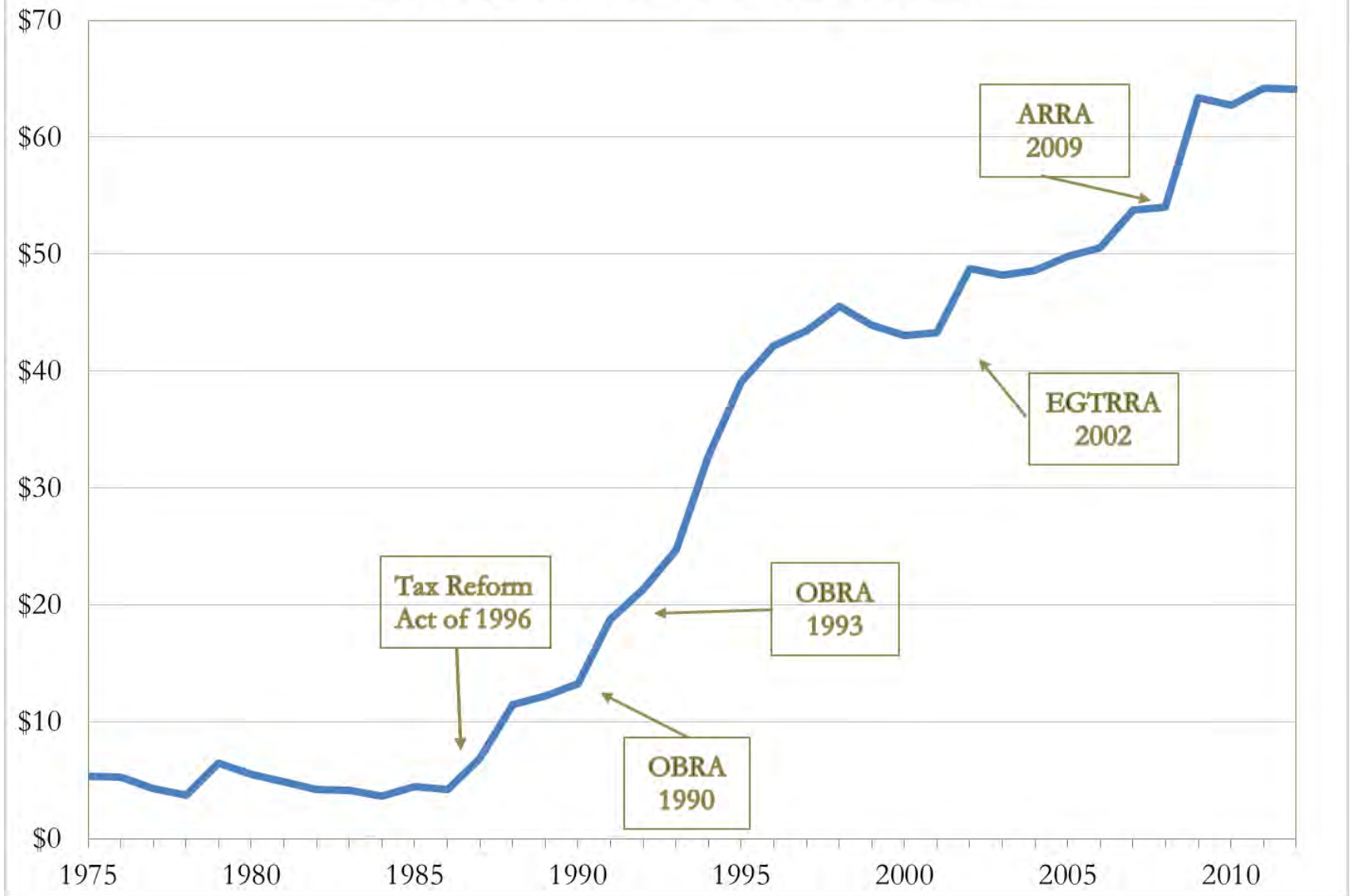
Source: U.S. Department of Health and Human Services *Indicators of Welfare Dependence.*
2013

- On the board → add EITC to budget constraint
- Predictions for labor supply:
  - Employment increases
  - Hours ambiguous for those already in the labor market

After Tax and
Transfer
Income

D

Phase-out Region
Slope = $w(1-\tau_p)$

C

Flat Region
Slope = w

B

Slope = w

Phase-in Region
Slope = $w(1+\tau_s)$

A

0

Tabulations of Tax Filers (a lot of filers in this range)

(c) Single, One Child

Notes: Share (E<=0) = .024, Share (E>60K) = .092

(d) Married, One Child

Notes: Share (E<=0) = .021, Share (E>60K) = .533

(e) Single Two+ Children

Notes: Share (E<=0) = .011, Share (E>60K) = .059

(f) Married, Two+ Children

Notes: Share (E<=0) = .011, Share (E>60K) = .552

Tabulations of Tax Filers (a lot of filers in this range)

(c) Single, One Child

(d) Married, One Child

Poverty line:
About $20,000 for single parent, two children
About $24,000 for two parents, two children

So the EITC is subsidizing work in that range
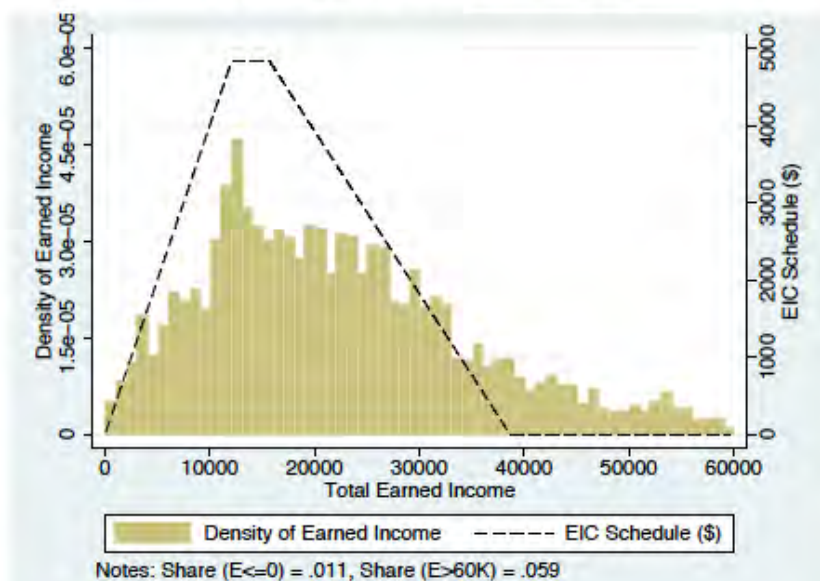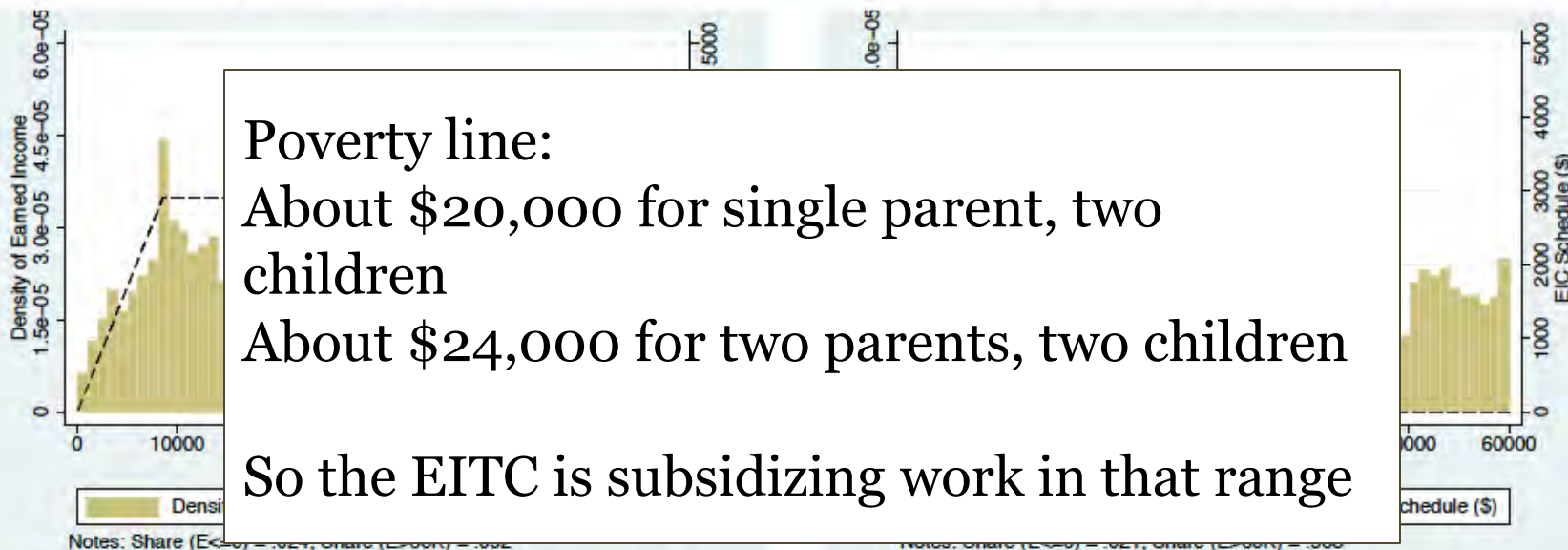
(e) Single Two+ Children

(f) Married, Two+ Children

Notes: Share (E<=0) = .011, Share (E>60K) = .059

Notes: Share (E<=0) = .011, Share (E>60K) = .552

Density of Earned Income — — — — EIC Schedule ($)

Total Earned Income

Density of Earned Income

EIC Schedule ($)

- So, the EITC has the potential to increase incomes and reduce poverty through two channels:
    - The EITC represents an increase in income for the family
    - The EITC provides incentives to enter work, and thus increase earnings which increases family income.

Out-of-work cash assistance: welfare programs

- Design to create income FLOOR
- Largest benefit to those with no income
- Benefit phased out as income increases
- B = G – tE
  - B = benefit
  - G = "guaranteed income"
  - t = phase out rate, benefit reduction rate
  - E = earnings

- Real world examples of these types of programs
- SNAP (CalFresh)
- TANF (CalWorks) [used to be AFDC]
- Disability programs

- *Most countries have a program like this in place. Fundamental safety nets*

- On the board → add welfare to budget constraint
- Predictions for labor supply:
  - Employment decreases
  - [Hours decrease]
- The higher the benefit reduction rate → the greater the disincentive to work
- The more protection (higher the income floor) the greater the disincentive to work
- Pre welfare reform = tax rate 100%
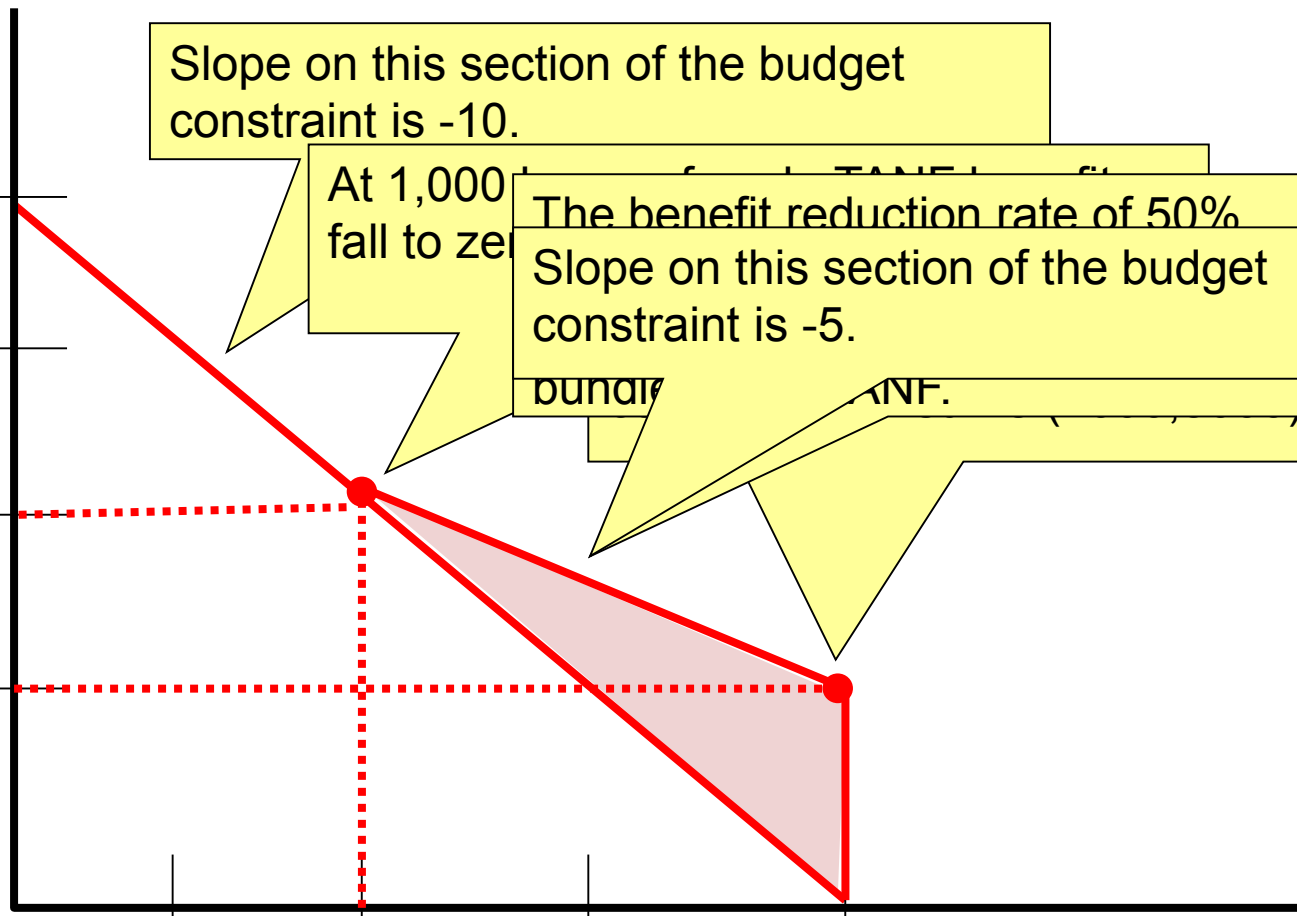
EXAMPLE WELFARE PROGRAM:
$5,000 as a guarantee (per year)
50% tax rate
$10 hourly wage

The Iron Rule of Welfare

- Suppose you want to:
  - Provide a generous income floor
  - Provide work incentives
  - Keep costs down by targeting program on lower income groups

Cash Welfare Programs (TANF)

Income support (welfare) programs are unlikely to affect poverty rates for two reasons:

1. Benefit levels are low, unlikely to increase a household's income <u>over the poverty line</u>.

2. Benefits are targeted on those out of work; thereby discouraging work rather than encouraging it.

[This does not mean the program is not important or useful. Rather that it simply should not affect poverty rates. Should affect "extreme poverty."]

Illustrating why TANF is unlikely to affect poverty

33
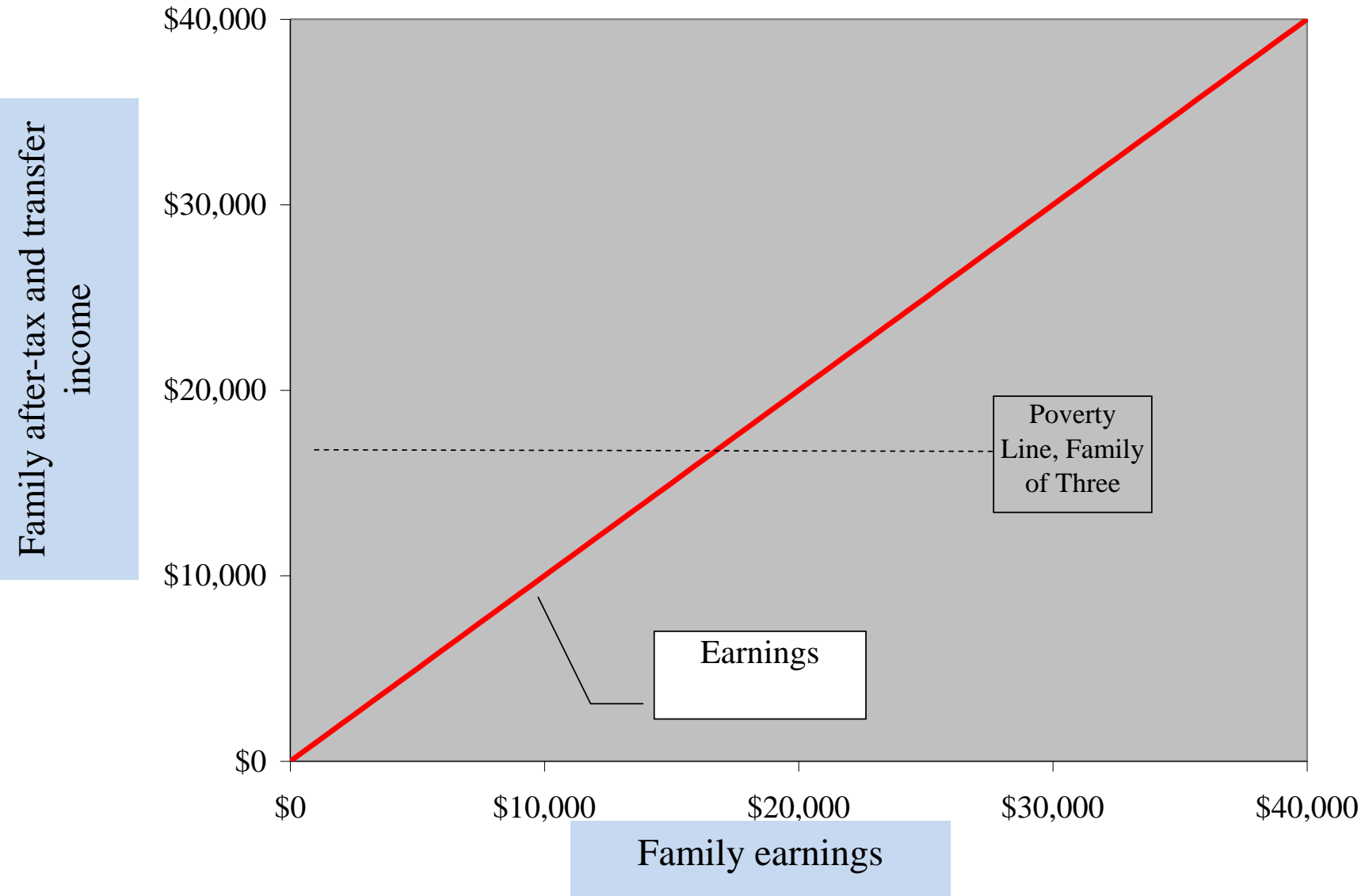
Illustrating why TANF is unlikely to affect poverty
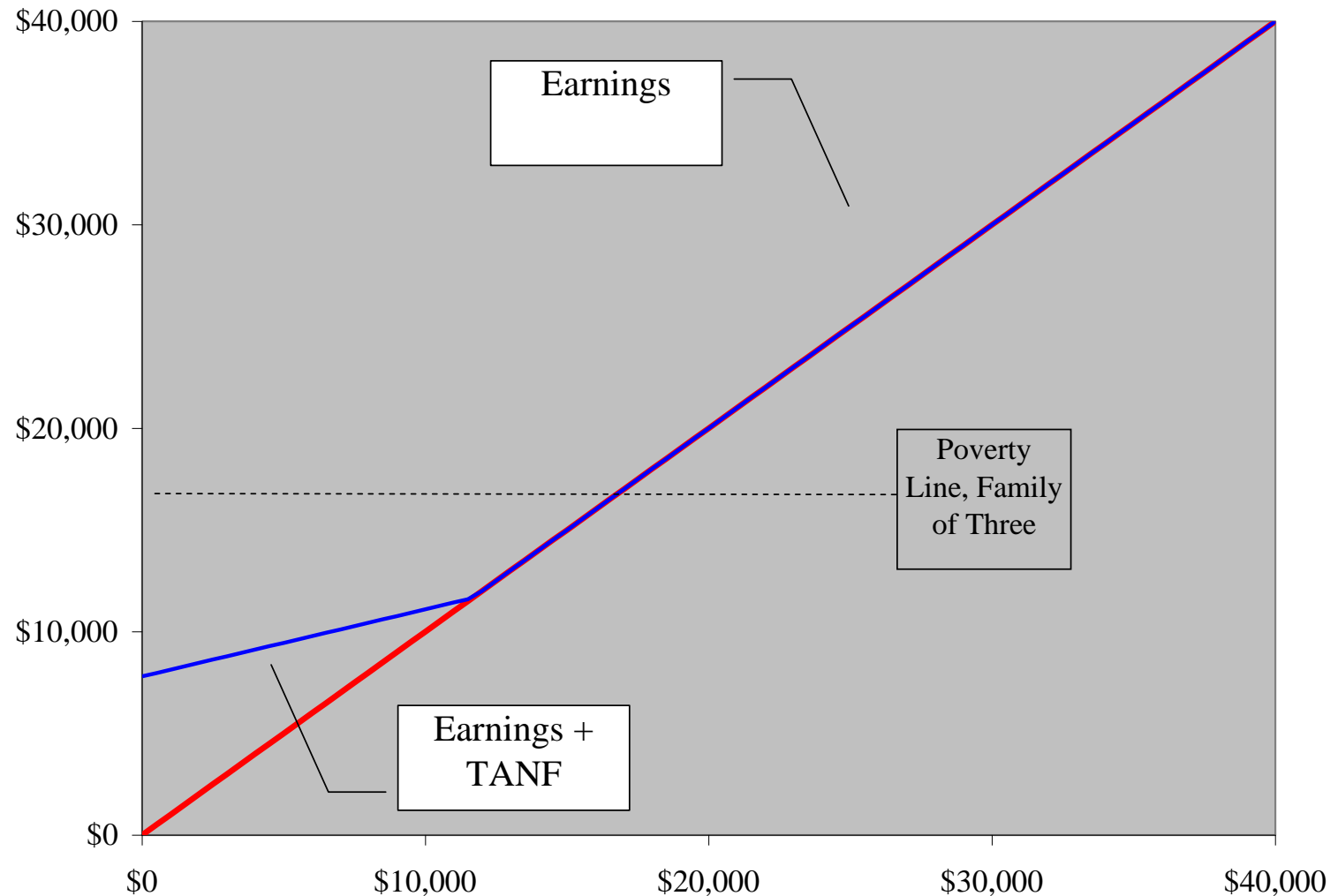
One *could* use TANF to reduce poverty, but funding would have to be about four times the current funding
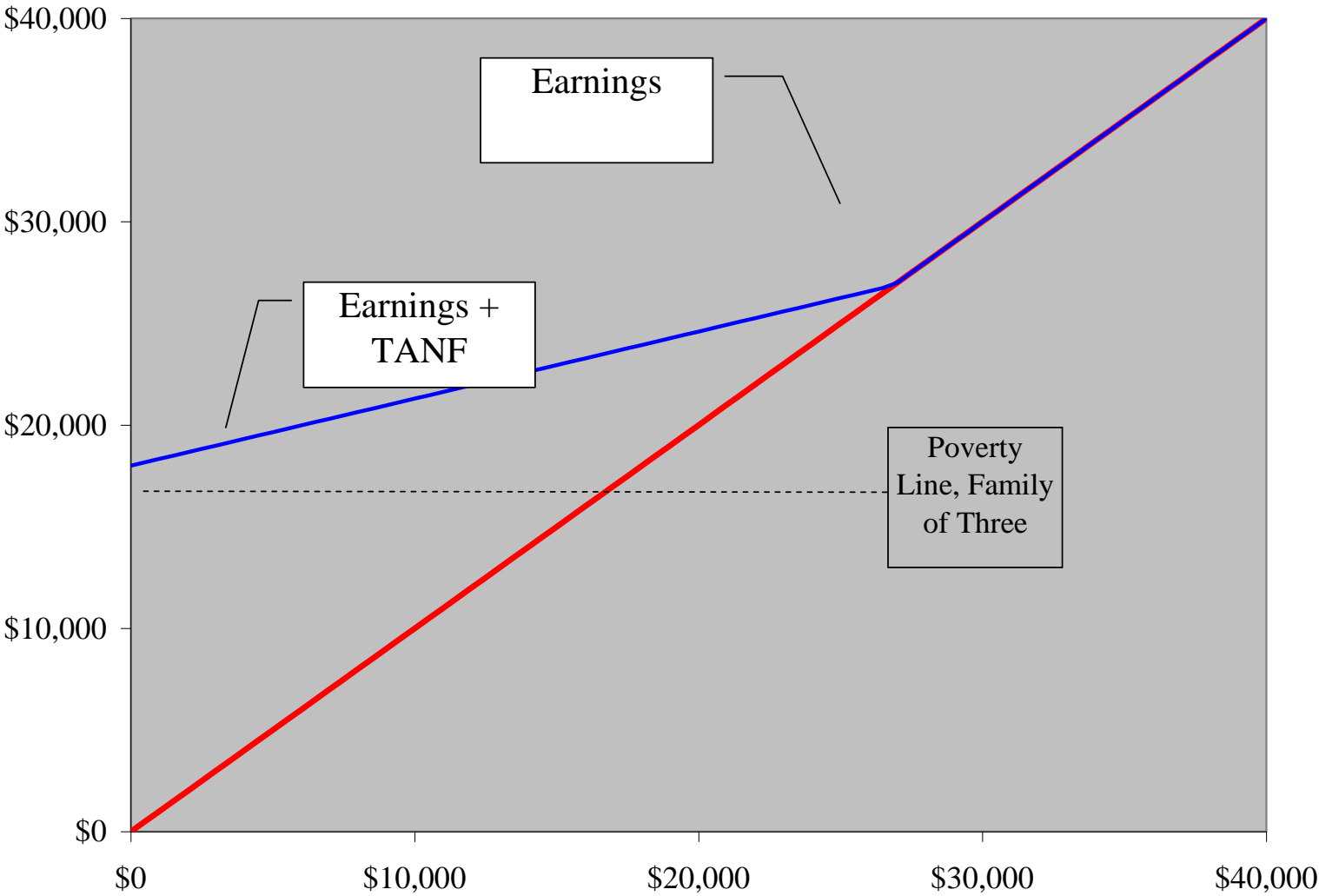
So what is the benefit reduction rate?

- AFDC: for much of the program's history the BRR was 100%. At it's lowest 66%.

- No marginal tax rate is even half that high.

- Reducing the BRR may increase work for some, but it may reduce work for others (show on board) AND it raises program costs

- Why structure welfare with such a high benefit reduction rate? If we know it may have adverse effects on work why did we do this in the first place?

Illustrating how EITC encourages work and reduces poverty
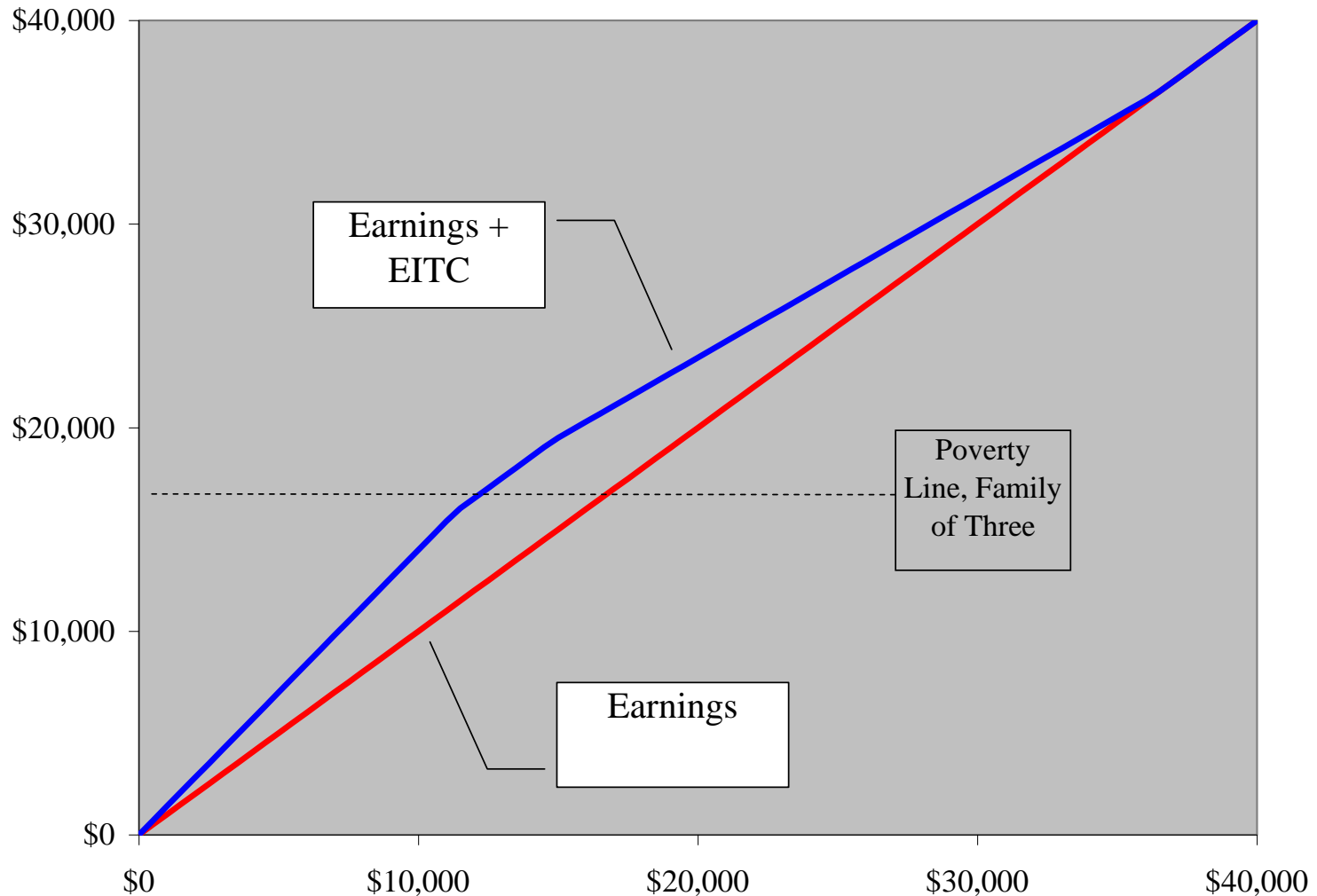
The 1990s Reform Period

Decline in out-of work assistance → Welfare reform

Rise of in-work assistance → EITC expansion

Why welfare reform?

- Concerns about persistent poverty, low work incentives and low incentives to form and maintain two parent families

Federal Welfare Reform: PRWORA
Personal Responsibility and Work Opportunity Act

August
1996

STATEMENT OF GOALS OF PRWORA

The Temporary Assistance for Needy Families (TANF) program was established with the passage of the PRWORA

TANF has four main goals:

1. to provide assistance to needy families so that children may be cared for in their own homes or in the homes of relatives;

2. to end the dependency of needy parents on government benefits by promoting job preparation, work, and marriage;

3. to prevent and reduce the incidence of out-of-wedlock pregnancies and establish annual numerical goals for preventing and reducing the incidence of these pregnancies; and

4. to encourage the formation and maintenance of two-parent families.

Percent of Women Working
(by Marital Status and Children)

On the eve of welfare reform and EITC increases, much attention is given to the low employment rates of single mothers.

Figure CH-1
Living arrangements of children: 1960 to present

Note: Direct identification of both parents began in 2007, resulting in the ability to identify children living with two unmarried parents.

United States Census Bureau

Figure CH-2.3.4
Children under 18 living with their mother only

Notes: Direct identification of both parents began in 2007, resulting in the ability to identify children living with two unmarried parents. The collection of race and Hispanic origin has changed over time. Before 2003 respondents had to select a single race. People of Hispanic origin may be of any race.

United States
Census
Bureau

What is welfare reform?

FEDERAL REFORM, PRWORA 1996

- Replaces AFDC with TANF (Temporary Assistance for Needy Families)
- TANF features:
  - More state control for program design
  - Time limit (lifetime limit of 5 years– states can make shorter)
  - Strengthen work requirements
  - Financial sanctions
  - Convert federal funding from matching program to block grant (entitlement aspect of AFDC gone)

	Welfare Tightening	Welfare Loosening
General Reforms	• Work requirements • Financial sanctions • Time limits	• Liberalize earnings disregards • Liberalized asset test
Family Structure Specific Reforms	• Family Cap • Residency Requirement for Unmarried Teens	• Expand eligibility for two-parent families

Stated policy objectives of reform:
❖increase in work
❖increase in children living with two parents

Poverty? Could increase or decrease
Family changes? Little effect of policy

Welfare reform passed in the middle of the biggest expansion in the past few decades

Unemployment Rate

Sources: Bureau of Labor Statistics and National Bureau of Economic Research

WHAT HAPPENED? CASELOADS DECLINED

Figure TANF 1. AFDC/TANF Families Receiving Income Assistance

Source: Indicators of Welfare Dependence 2014

WHAT HAPPENED? Employment Increased

Figure 6. Female Employment Rate by Marital Status and Presence of Children, 1980–2009[a]

Source: Authors' calculations from 1981–2010 March CPS data.
a. Employment is measured annually and defined as having worked any weeks during the calendar year before the survey year. The sample includes women aged 20–58.

What else happened during this period

- 1996: Welfare reform
- 1994-1996: major expansion of the EITC
- Late 1990s strongest labor market for less skilled workers since the 1960s
- All three changes push towards more work, lower poverty

LECTURE #21

Lecture Outline:

<u>Welfare Reform, EITC</u>

Review: EITC, welfare

Welfare reform

What the EITC does

8FP: Putting it all together using the LAO report on CA EITC

Debate: minimum wages vs welfare vs EITC

Announcements/Assignments:

➢Thursday: PS#3 due

➢Policy memos: information on BCourses

➢Grading EdX (dropping lowest 2)

➢Reading for Thursday:

[B] Hamilton Project, "A Dozen Facts about America's Struggling Lower-Middle Class," 2013

[B] Alvaredo et al "The Top 1 Percent in International and Historical Perspective," JEP 2013.

[B] Saez, slides, Neubauer Lecture, 2014

From last time

- Apply our labor supply model to:

- Welfare programs (out of work assistance)

- EITC (in work assistance)

- How they change the budget set

- Implications for labor supply (work decision)

EITC

After Tax and
Transfer
Income

D

Phase-out Region
Slope = $w(1-\tau_p)$

C

Flat Region
Slope = w

Slope = w

B

Phase-in Region
Slope = $w(1+\tau_s)$

A

0
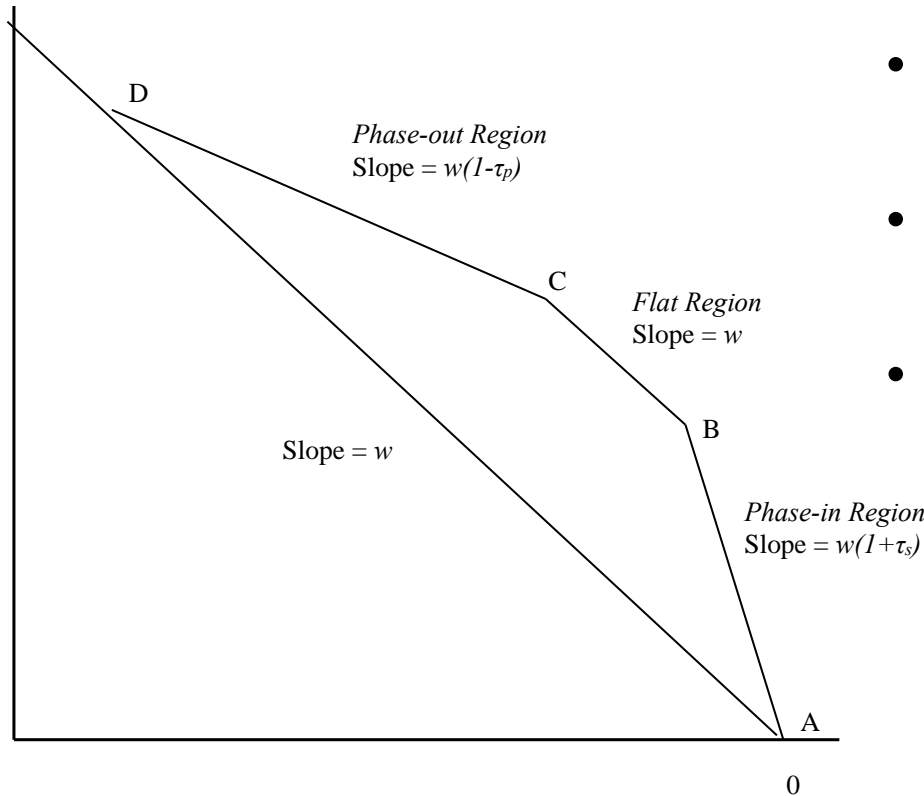
- Expands income possibilities if you work
- Prediction: EITC leads to higher employment
- Lowers poverty due to tax refund plus increased earnings

EITC, Billions of 2012 Dollars

ARRA
2009

EGTRRA
2002

Tax Reform
Act of 1996

OBRA
1993

OBRA
1990
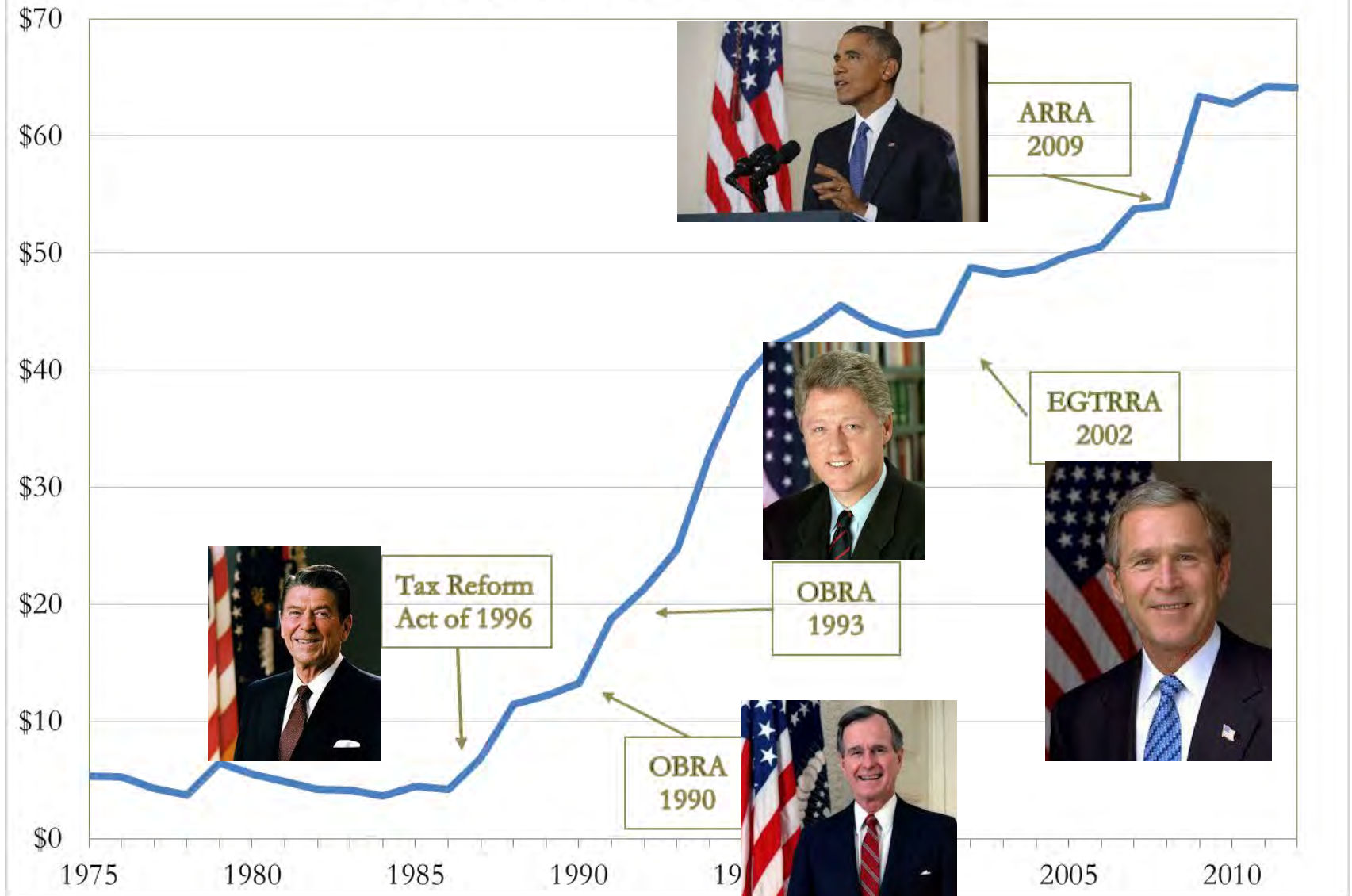
Source: U.S. Department of Health and Human Services *Indic____ _____ __ ____ Dependence.*
2013

Tabulations of Tax Filers (a lot of filers in this range)
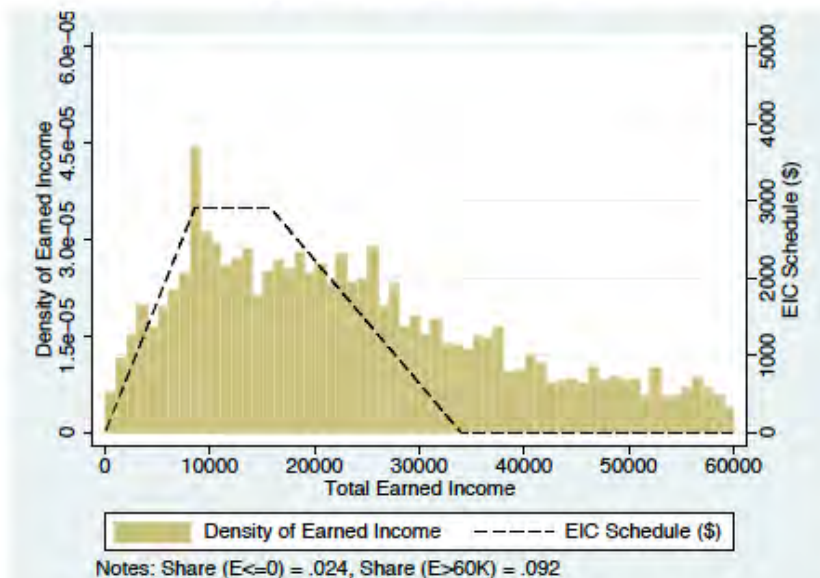
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(e) Single Two+ Children

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Tabulations of Tax Filers (a lot of filers in this range)

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Poverty line:
About $20,000 for single parent, two children
About $24,000 for two parents, two children

So the EITC is subsidizing work in that range

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(e) Single Two+ Children

Density of Earned Income ▭ ----- EIC Schedule ($)

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Density of Earned Income ▭ ----- EIC Schedule ($)

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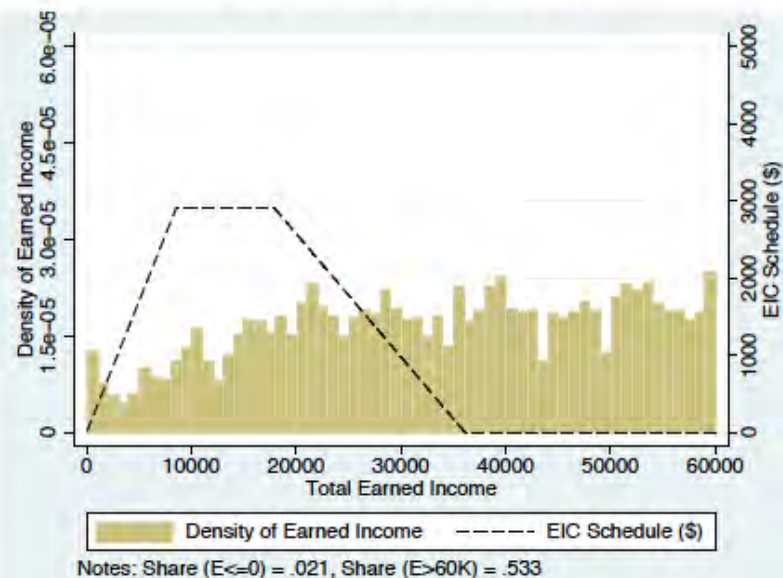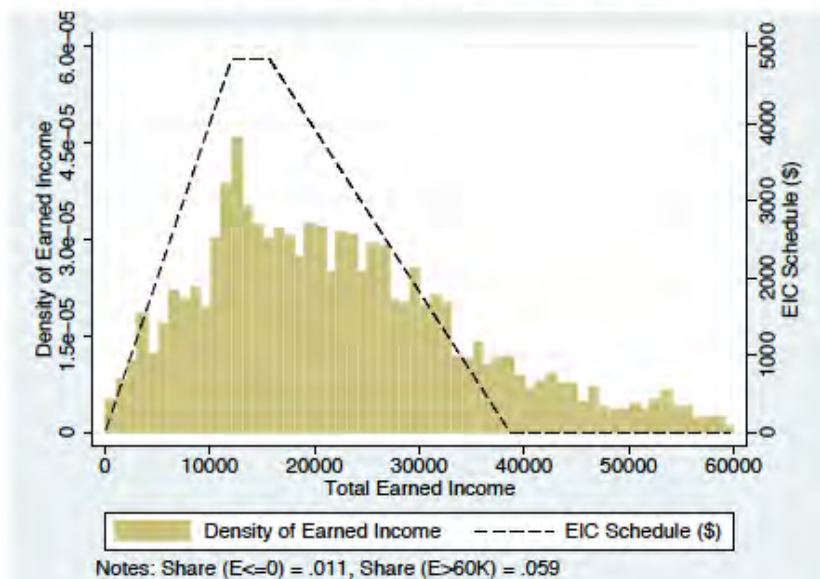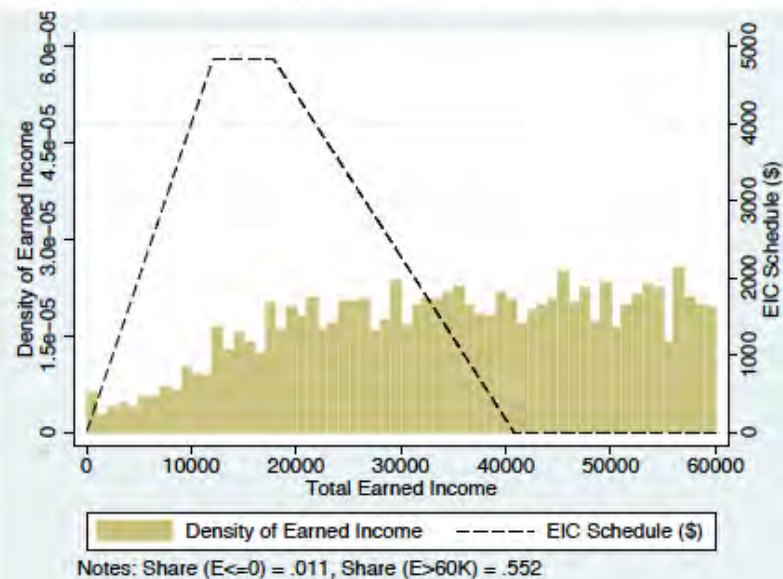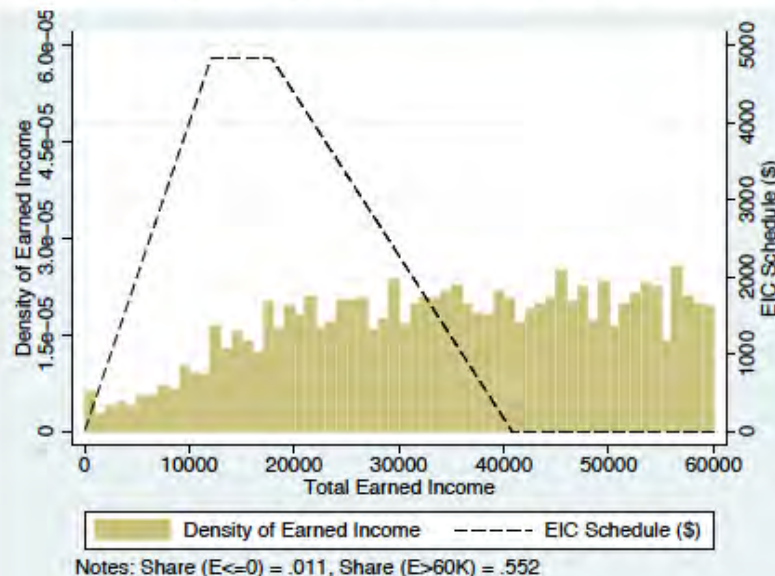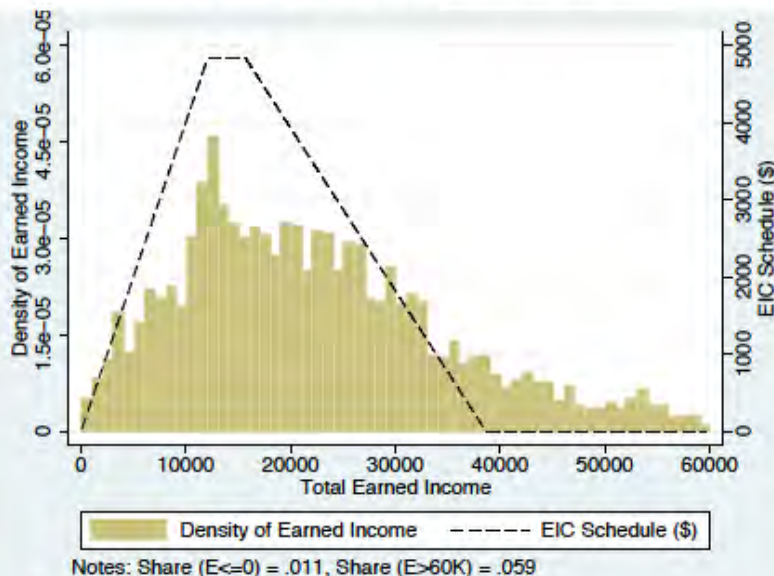
Welfare (out of work assistance)

- U.S. examples of this type of programs
- SNAP (CalFresh)
- TANF (CalWorks) [used to be AFDC]
- Disability programs

- *Most countries have a program like this in place. Fundamental safety nets*

Consumption

20,000

15,000

10,000

5,000

Slope on this section of the budget constraint is -10.

At 1,000 [hours of work,] TANF [benefits] fall to ze[ro]

The benefit reduction rate of 50%

Slope on this section of the budget constraint is -5.

bundle [of] [TA]NF.

0   500   1,000   1,500   2,000   Leisure (hours)
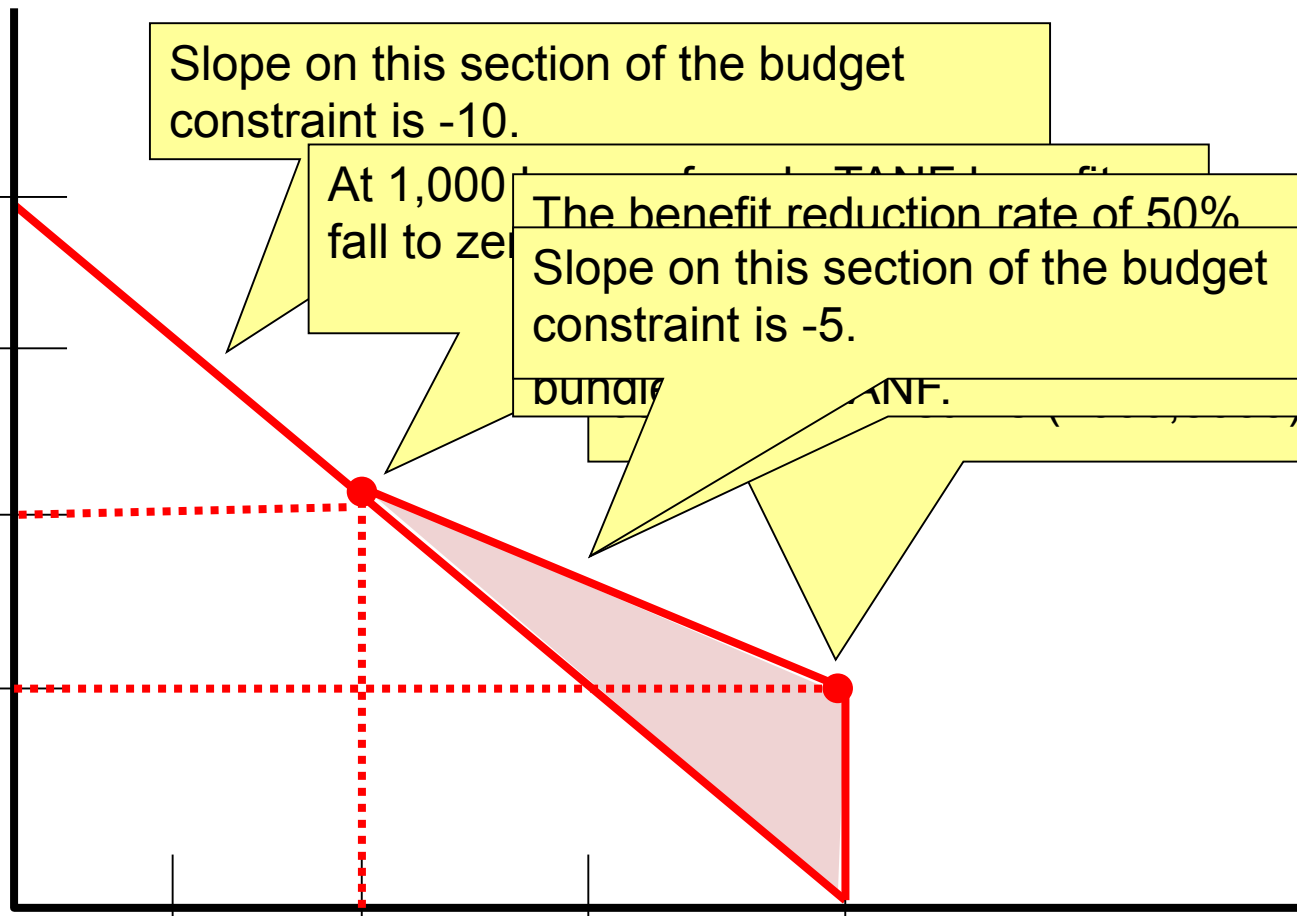
EXAMPLE WELFARE PROGRAM:
$5,000 as a guarantee (per year)
50% tax rate
$10 hourly wage

After Tax and Transfer Income

During much of the history of AFDC the phase-out rate was 100% Net wage = w (1-t) = 0
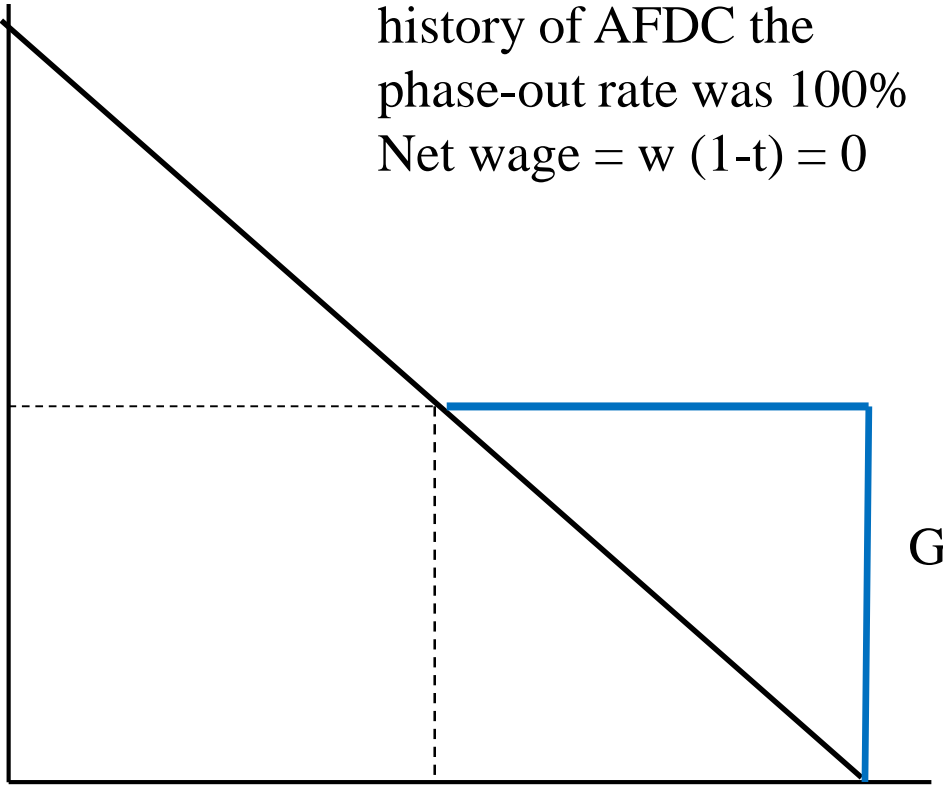
G

Leisure (Hours)

After Tax and Transfer Income

During much of the history of AFDC the phase-out rate was 100%
Net wage = $w(1-t) = 0$

G

Leisure (Hours)
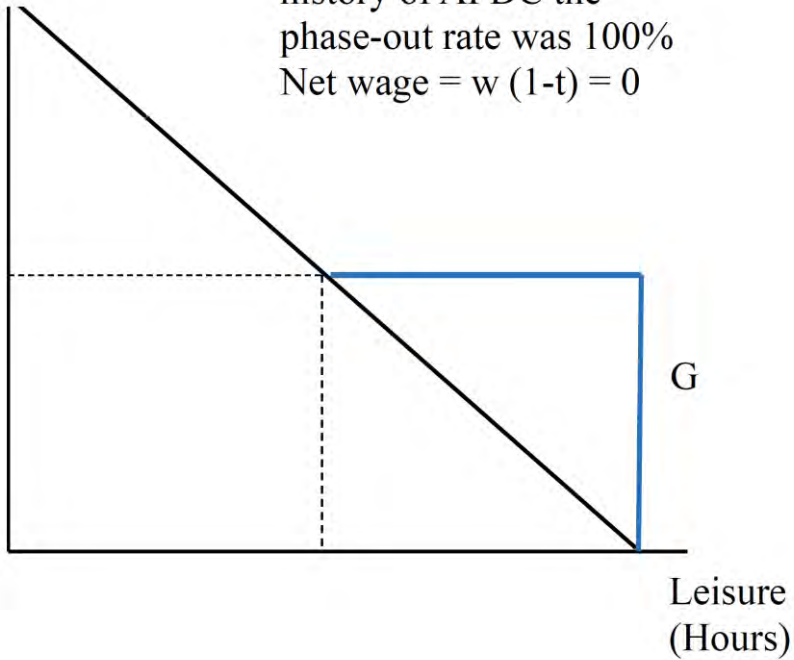
- Predictions for labor supply:
  - Employment decreases
  - [Hours decrease]
- The higher the benefit reduction rate → the greater the disincentive to work

Effects of AFDC (TANF) on poverty

In the U.S., AFDC (or TANF) is unlikely to affect poverty rates for two reasons:

1. Benefit levels are low, unlikely to increase a household's income <u>above the poverty line</u>.

2. Benefits are targeted on those out of work; thereby discouraging work rather than encouraging it.

[This does not mean the program is not important or useful. Rather that it simply should not affect poverty rates. Should affect "extreme poverty."]

- AFDC (TANF) COULD reduce poverty. How?
- Set G equal to the poverty line
- It would have to be scaled up by 4 times or more to get to this level!

The Iron Rule of Welfare

- Suppose you want to:
  - Provide a generous income floor
  - Provide work incentives
  - Keep costs down

Can not achieve all simultaneously, <u>tradeoffs</u>

The 1990s Reform Period

Decline in out-of work assistance → Welfare reform
Rise of in-work assistance → EITC expansion

Why welfare reform?

- Concerns about persistent poverty, low work incentives and low incentives to form and maintain two parent families

Federal Welfare Reform: PRWORA
Personal Responsibility and Work Opportunity Act

August 1996

A New Beginning
Welfare to Work

STATEMENT OF GOALS OF PRWORA

The Temporary Assistance for Needy Families (TANF) program was established with the passage of the PRWORA

TANF has four main goals:

1. to provide assistance to needy families so that children may be cared for in their own homes or in the homes of relatives;
2. to end the dependency of needy parents on government benefits by promoting job preparation, work, and marriage;
3. to prevent and reduce the incidence of out-of-wedlock pregnancies and establish annual numerical goals for preventing and reducing the incidence of these pregnancies; and
4. to encourage the formation and maintenance of two-parent families.

Percent of Women Working
(by Marital Status and Children)

On the eve of welfare reform and EITC increases, much attention is given to the low employment rates of single mothers (though note same as married mothers)

Figure CH-1
Living arrangements of children: 1960 to present

Note: Direct identification of both parents began in 2007, resulting in the ability to identify children living with two unmarried parents.

United States **Census** Bureau

Figure CH-2.3.4
Children under 18 living with their mother only

Black alone children

Hispanic children

White alone children

Notes: Direct identification of both parents began in 2007, resulting in the ability to identify children living with two unmarried parents. The collection of race and Hispanic origin has changed over time. Before 2003 respondents had to select a single race. People of Hispanic origin may be of any race.

United States
Census
Bureau

What is welfare reform?

FEDERAL REFORM, PRWORA 1996

- Replaces AFDC with TANF (Temporary Assistance for Needy Families)
- TANF features:
  - More state control for program design
  - Time limit (<u>lifetime limit of 5 years</u>– states can make shorter)
  - Strengthen work requirements
  - Financial sanctions
  - Convert federal funding from matching program to <u>block grant </u>(entitlement aspect of AFDC gone)

	Welfare Tightening	Welfare Loosening
General Reforms	• Work requirements • Financial sanctions • Time limits	• Liberalize earnings disregards • Liberalized asset test
Family Structure Specific Reforms	• Family Cap • Residency Requirement for Unmarried Teens	• Expand eligibility for two-parent families

Stated policy objectives of reform:
❖ increase in work
❖ increase in children living with two parents

Poverty? Could increase or decrease
Family changes? Little effect of policy

Welfare reform passed in the middle of the biggest expansion in the past few decades

Unemployment Rate

Sources: Bureau of Labor Statistics and National Bureau of Economic Research

WHAT HAPPENED? TIME LIMITS

Table 6. State Time Limits, July 2012

States		Time Limits
34:	AK[1], AL, CO, HI, IA[6], IL[1], KY, LA, MD, ME, MN, MO, MS, MT, NC[8], ND, NE, NH, NJ, NM, NV, OH[9], OK, OR[10]*, PA, SC, SD, TN, TX, VA, WA[12], WI, WV, WY	60 months
6:	CA[2]*, FL, GA, KS, MI, RI	48 months
2:	DE[4], UT	36 months
4:	AR, AZ, ID, IN*	24 months
1:	MA	24 months of assistance per 60-month period
1:	CT[3]	21 months
2:	NY[7], VT[11]	Unlimited; state-sponsored after 60 months
1:	DC[5]	After 60 months, eligibility is determined at a reduced level where benefits are paid at 80 percent of payment level for unit size.

Source: Welfare Rules Databook: State TANF Policies as of July 2012, OPRE Report 2013-27, published November 2013 (Urban Institute), Table IV.C.1 State Lifetime Time Limit Policies, July 2012.

Source: Ziliak MTTP2

WHAT HAPPENED? CASELOADS DECLINED

Figure TANF 1. AFDC/TANF Families Receiving Income Assistance

Source: Indicators of Welfare Dependence 2014

WHAT HAPPENED? Employment Increased

Figure 6. Female Employment Rate by Marital Status and Presence of Children, 1980–2009[a]
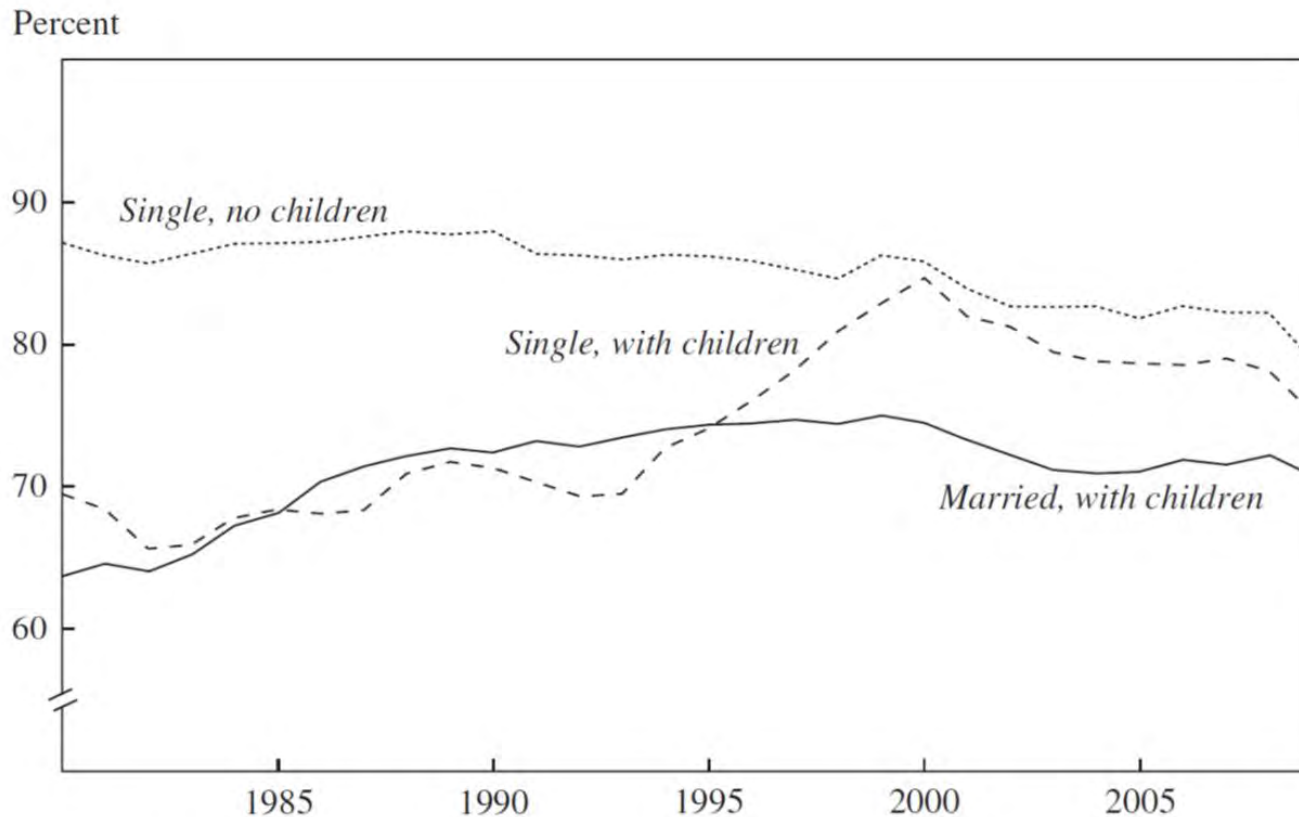
Source: Authors' calculations from 1981–2010 March CPS data.

a. Employment is measured annually and defined as having worked any weeks during the calendar year before the survey year. The sample includes women aged 20–58.

Factors affecting these employment trends

- 1996: Welfare reform
- 1994-1996: major expansion of the EITC
- Late 1990s: strongest labor market for less skilled workers since the 1960s
- All three changes push towards more work, lower poverty
- Research shows that all three policies were important in increasing work and reducing poverty

Other findings from welfare reform

- Income: Does "work pay" would we expect income to increase?
  - For this primarily low skilled population, the loss in transfer income about offsets the gain in earnings
- Family structure – marriage, fertility, living arrangements
  - Very small changes, not all consistent with goals of reform
  - Generally hard for social policy to affect outcomes such as teen births. Paper on MTV's "16 and Pregnant"
- Child outcomes
  - Some evidence that younger children are doing better (or at least not worse) yet adolescent children are doing worse (no monitoring? Caretaking?)

Findings from the EITC

- Labor supply and earnings: Robust finding that EITC leads to increases in employment for single parents (perhaps a small decrease for married women)

Event Study Estimates of the Effects of OBRA1993
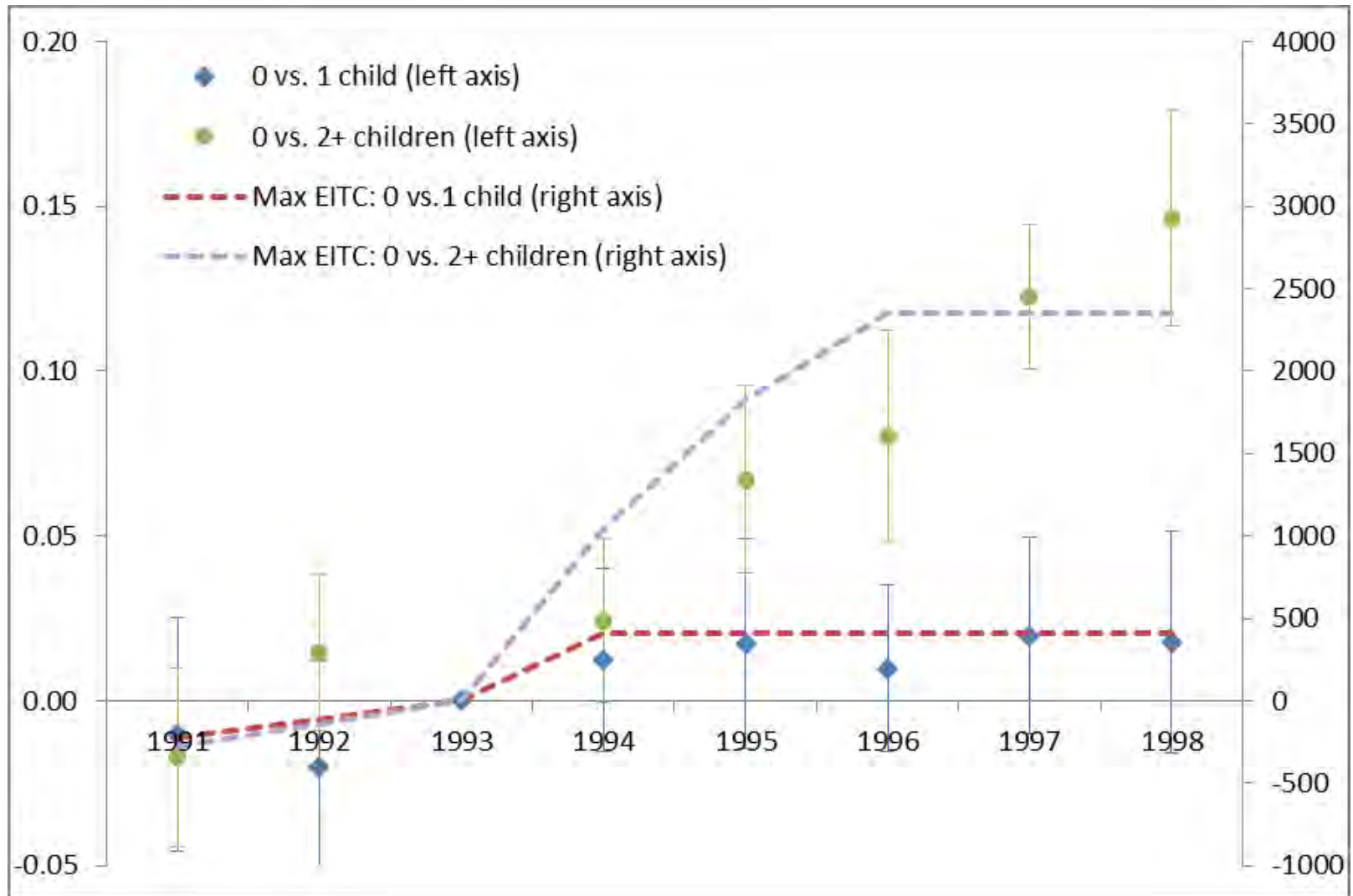
Source: Hoynes and Patel "The Earned Income Tax Credit and the Distribution of Income"

Effect of the EITC on child and family well being

- EITC leads to an increase in test scores (Dahl and Lochner, 2012)

- Hoynes, Miller and Simon (2014) find that EITC expansions lead to reductions in low birth weight births (some evidence that this may operate through reductions in smoking and increases in prenatal care)

- Expansion of the EITC is associated with a reduction in risky biomarkers in mothers (Evans and Garthwaite 2011).
  – This suggests that increases in income can reduce cortisol.
  – Chronic elevations of cortisol can lead to dysfunction in metabolic and immune systems

California LAO Report on State EITC

Most states have refundable tax credits, simple % of federal credit

Twenty-five States and D.C. Have Enacted EITCs, 2015

Source: CBPP analysis.

CENTER ON BUDGET AND POLICY PRIORITIES | CBPP.ORG
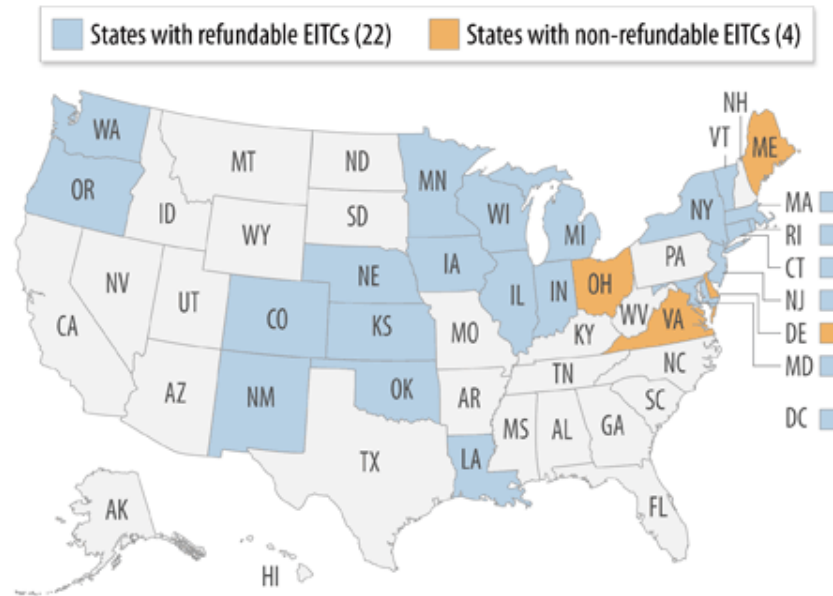
Figure 6
State EITCs in 2014

State	State EITC as Percent of Federal EITC	Refundable?
District of Columbia	40.00%	Yes
Vermont	32.00	Yes
New York	30.00	Yes
Connecticut	30.00	Yes
Maryland	25.00	Yes[a]
Delaware	20.00	No
New Jersey	20.00	Yes
Virginia	20.00	No
Kansas	17.00	Yes
Massachusetts	15.00	Yes
Iowa	14.00	Yes
Illinois	10.00	Yes
Nebraska	10.00	Yes
New Mexico	10.00	Yes
Ohio	10.00	No
Indiana	9.00	Yes
Oregon	8.00	Yes
Michigan	6.00	Yes
Maine	5.00	No
Oklahoma	5.00	Yes
Rhode Island	3.75	Yes[b]
Louisiana	3.50	Yes

Types of Policy Writing – what kind is the LAO report?

- The Lit Review

- The Backgrounder

- The Leg History

- The White Paper/Option Paper

- The "One Pager"

- Talking Points

- The Op-Ed

Where do you see the 8FP in this report?

1. Define the Problem
2. Assemble some Evidence
3. Construct the Alternatives
4. Select the Criteria
5. Project the Outcomes
6. Confront the Tradeoffs
7. Decide!
8. Tell your Story

Outline of the report

- Executive Summary
- Introduction
- Background on the Federal EITC
- State-Level EITCs
- Options for a California EITC
- Potential Implementation Issues
- Conclusion

- Where is construct the alternatives?
- Where is select the criteria?

OPTIONS FOR A CALIFORNIA EITC

Were the state to enact an EITC, its design would depend on the state's overarching policy goals for the credit. Below, we outline some possible policy goals for the Legislature's consideration and describe the key decision points in designing a state EITC to meet one or another policy goal.

Possible Policy Goals

The goals of a potential state EITC would presumably align with the federal program's goals of alleviating poverty and encouraging work. The state could also consider additional policy objectives. Below, we describe three possible policy objectives.

- *Encourage Work.* As mentioned earlier, the federal EITC appears to noticeably increase participation in paid work among single mothers. There is an argument that encouraging work is a legitimate policy goal in its own right. Work experience enables people to develop the skills, habits, and connections that can help them eventually move into higher-paying jobs, and this is especially valuable for EITC recipients who tend to be young.

- *Supplement Resources of Working Families at Specific Income Levels.* The federal EITC is widely understood as an antipoverty program, and as mentioned

LAO OPTIONS FOR LEGISLATIVE CONSIDERATION

The decision points discussed above could lead to many different possible structures for a state EITC, and its eventual form would depend on the Legislature's priorities and objectives. To facilitate the Legislature's consideration of priorities, we provide three potential state EITC options that are tied to different broad policy goals as described above.

Comparison Criteria. To illustrate the benefits, costs, and trade-offs of these different options, we compare the options using the following criteria:

- **What Is the Potential for Direct Poverty Reduction?** We provide estimates of the number of individuals that would be removed from poverty by each of the options. These estimates, as noted week.

- **What Is the Potential Administrative Burden?** We describe, at a high level, how the different options compare in terms of complexity and administrative burden both for the state and for eligible tax filers. We also provide estimates of total administrative costs developed by the Franchise Tax Board (FTB). We note that in preparing these estimates FTB has assumed that it would be required to perform robust fraud and error prevention, outreach, and education activities for each option. Estimates provided by FTB appear reasonable and consistent with activities in other states, but the amount of focus FTB assumes for these activities may differ from the Legislature's priorities.

Possible policy goals (CRITERIA)

- Encourage work

- Reduce poverty

- Fill In Gaps in the Federal EITC (e.g. childless adults)

- Administrative burden (complexity)

- Revenue loss (Cost)

Alternatives

1. Piggyback on federal credit: 15% refundable

2. Focus on Working Families With Lowest Incomes (more targeted / big phase in and big phaseout)

3. Supplement Federal Credit for Childless Adults

Figure 8

Option 1: Piggyback on Federal Credit

State Credit Amount for Single Filers, 2014 Tax Year
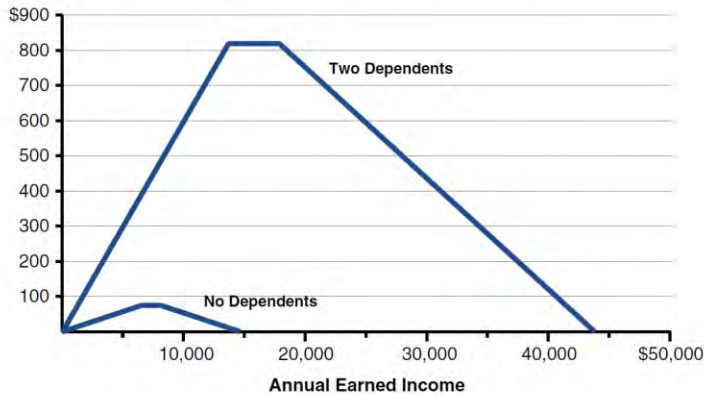
Combined State and Federal Credit Amount for Single Filers, 2014 Tax Year
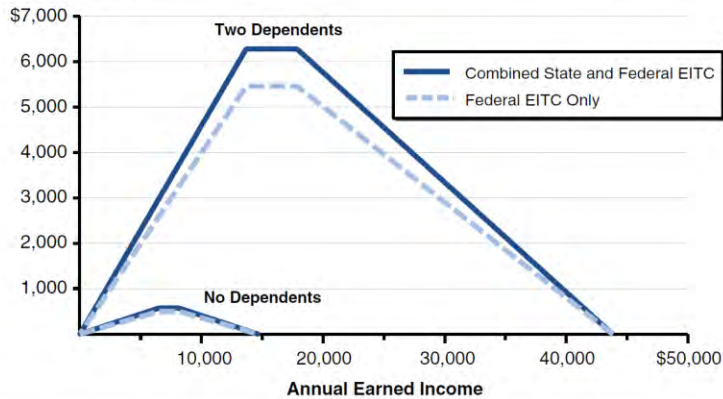
Figure 11

Option 2: Focus on Working Families With Lowest Incomes

State Credit Amount for Single Filers, 2014 Tax Year
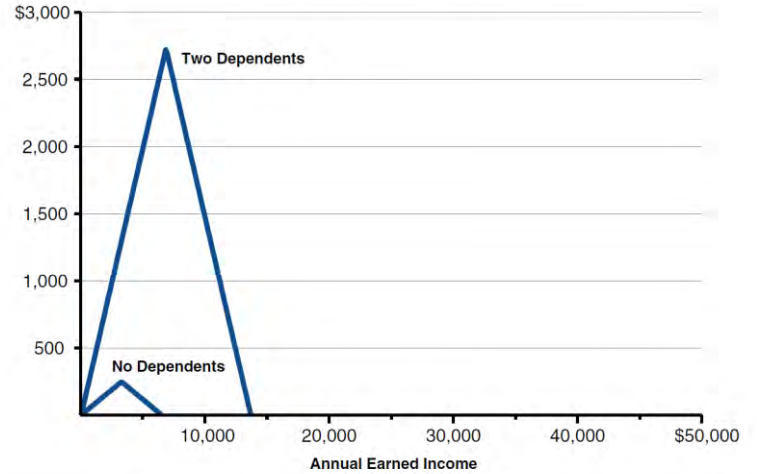
Combined State and Federal Credit Amount for Single Filers, 2014 Tax Year
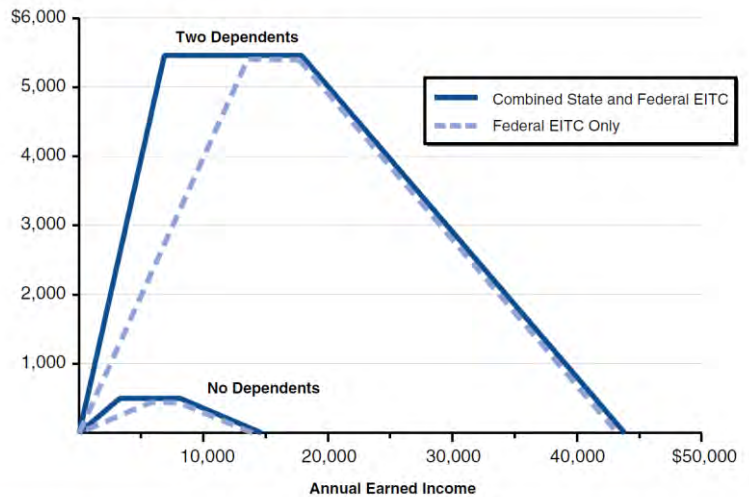
Figure 14

Option 3: Supplement Federal Credit for Childless Adults

State Credit Amount for Single Filers, 2014 Tax Year
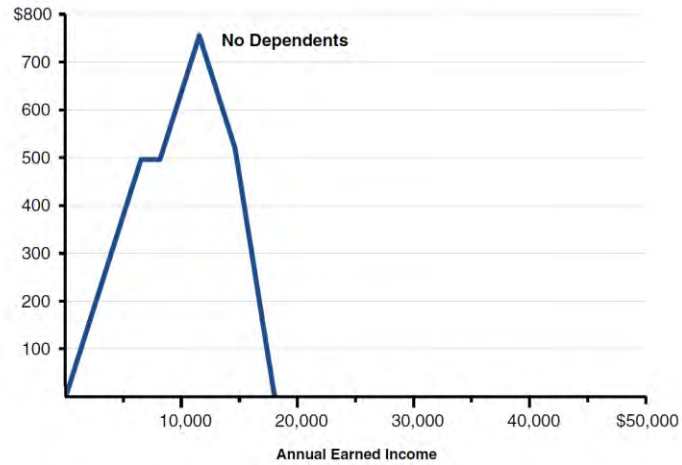
Combined State and Federal Credit Amount for Single Filers, 2014 Tax Year
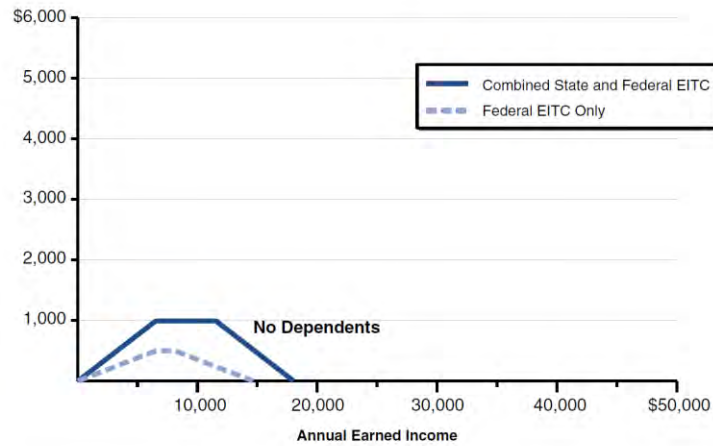
	Work	Poverty	Fill in gaps	Administrative Burden	Cost
15% Federal					
Low earners					
Childless					

	Work	Poverty	Fill in gaps (more to childless or more to low earners)	Administrative Burden	Cost
15% Federal	🟡	🟩	🟥	🟩	
Low earners		🟡	🟩	🟥	
Childless		🟡	🟩	🟥	

LECTURE #22

Lecture Outline:

Application: Poverty, Inequality,
    Causes and Consequences

Announcements/Assignments:

➢ PS#3 due 4/14

➢ Next week: health policy

[B] Krugman, "Health Care 101," New York Times, 2005

[R] Gruber, Public Finance, Ch 15.

[B] Kaiser Family Foundation, "The Uninsured A Primer," 2014

LECTURE ON 4/14 STARTS AT 1:00

Before getting to that

- Budget constraints with equations
- CASE 1: no government program
- $C = wH+N$
- C = consumption (or income)
- W=hourly wage
- H=hours worked
- N=nonlabor income

- Budget constraints with equations
- <u>CASE 2: Add welfare (ignore N)</u>
- C = wH+welfare benefit
- B = G – t(wH)
- C = wH+G-twH
- C = G+w(1-t)H
- "after policy wage" decreases to w(1-t)
- G (the guarantee) becomes the "N" (nonlabor income)
- If t=100% $\rightarrow$ w(1-t)=0, increase earnings by a $1 and B reduced by $1, no net change in income

Overview

- Since the 1980s we have seen little improvement in poverty despite steady economic growth

- At the same time, inequality is increasing, with more resources for skilled and high income groups

- We will examine these trends and investigate the causes of poverty and inequality

- With particular attention to the labor market causes, examining the role of "employment polarization"

Roadmap

1. Facts on poverty and inequality in the U.S.
2. Linking the trends in poverty and inequality to trends in the labor market
3. Identifying the driving forces of these trends in the labor market
4. Policy solutions

Trends in Official Poverty
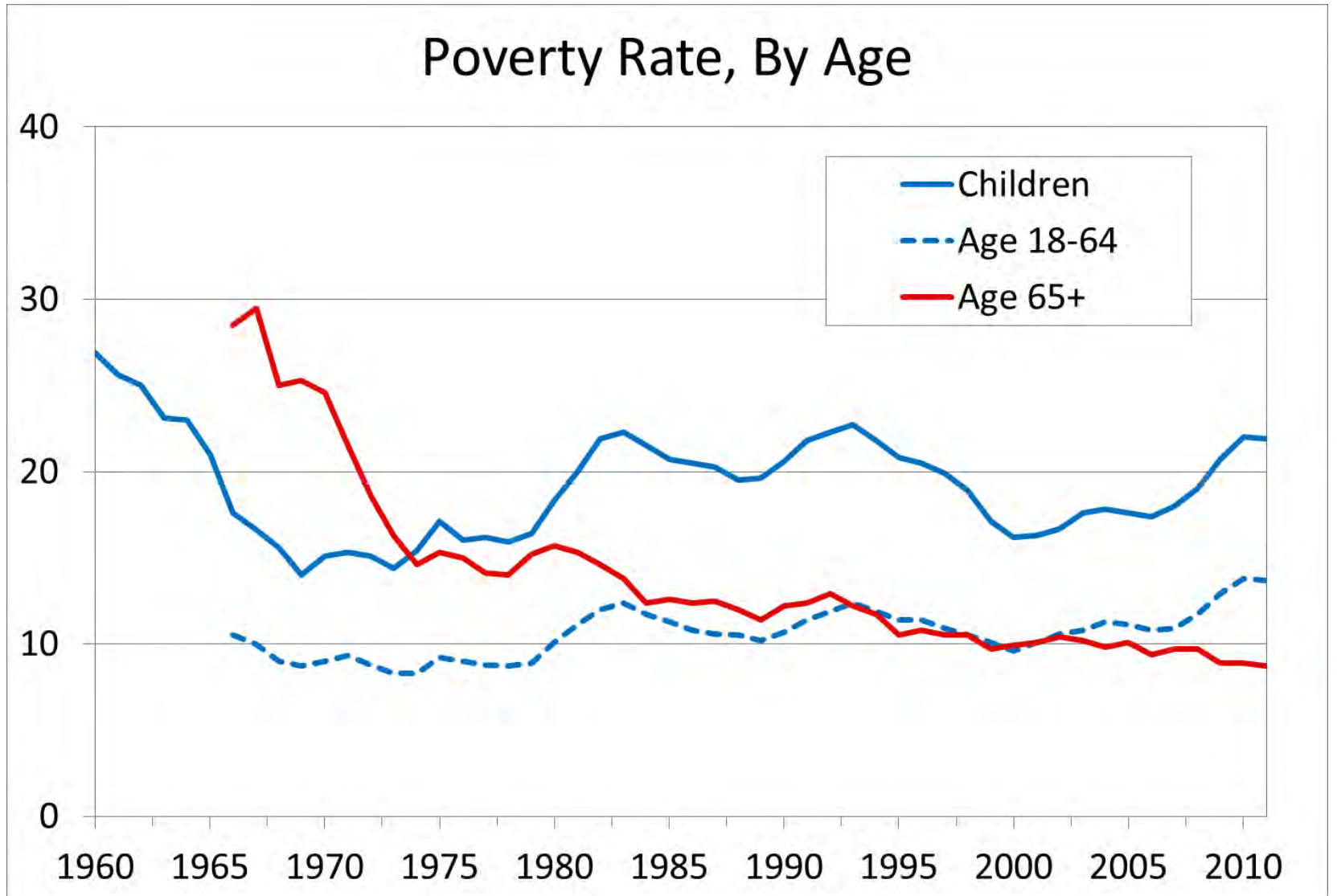
History of poverty measurement in the U.S.

- Released by the U.S. annually since 1969
- Measured in different ways by different countries
- "those whose basic needs exceed their means to satisfy them"
- Molly Orshansky an economist in the Social Security Administration developed the measure in 1963-64
- She took data from a 1955 USDA survey which measured a "food plan" deemed adequate for "temporary or emergency use when funds are low"
- At that time households spent 1/3 of their income on food
- → Poverty threshold was set at 3 times the dollar cost of the "economy food plan" (adjusted for family size)

What is the Official Poverty Measure?

- A family is poor if their <u>cash family income</u> is less than the federal poverty threshold
  - Poverty lines vary by family size and are adjusted for changes in prices each year
  - Based on the cost of food in the 1960s (multiplied by 3)

- Poverty is a *family* concept—all persons in the same family have the same poverty status

- Other than updating for changes in prices each year, <u>the official poverty definition has not changed since 1964</u>!

Poverty Thresholds by Family Type, 2014	
1 parent, 1 child	$16,317
1 parent, 2 children	$19,073
2 parents, 2 children	$24,008

By comparison, median family income was $51,939.

POVERTY RATE 1959

Category	Rate
65 and over	35.2
18-64	17.0
Under 18	26.9
All	27.3
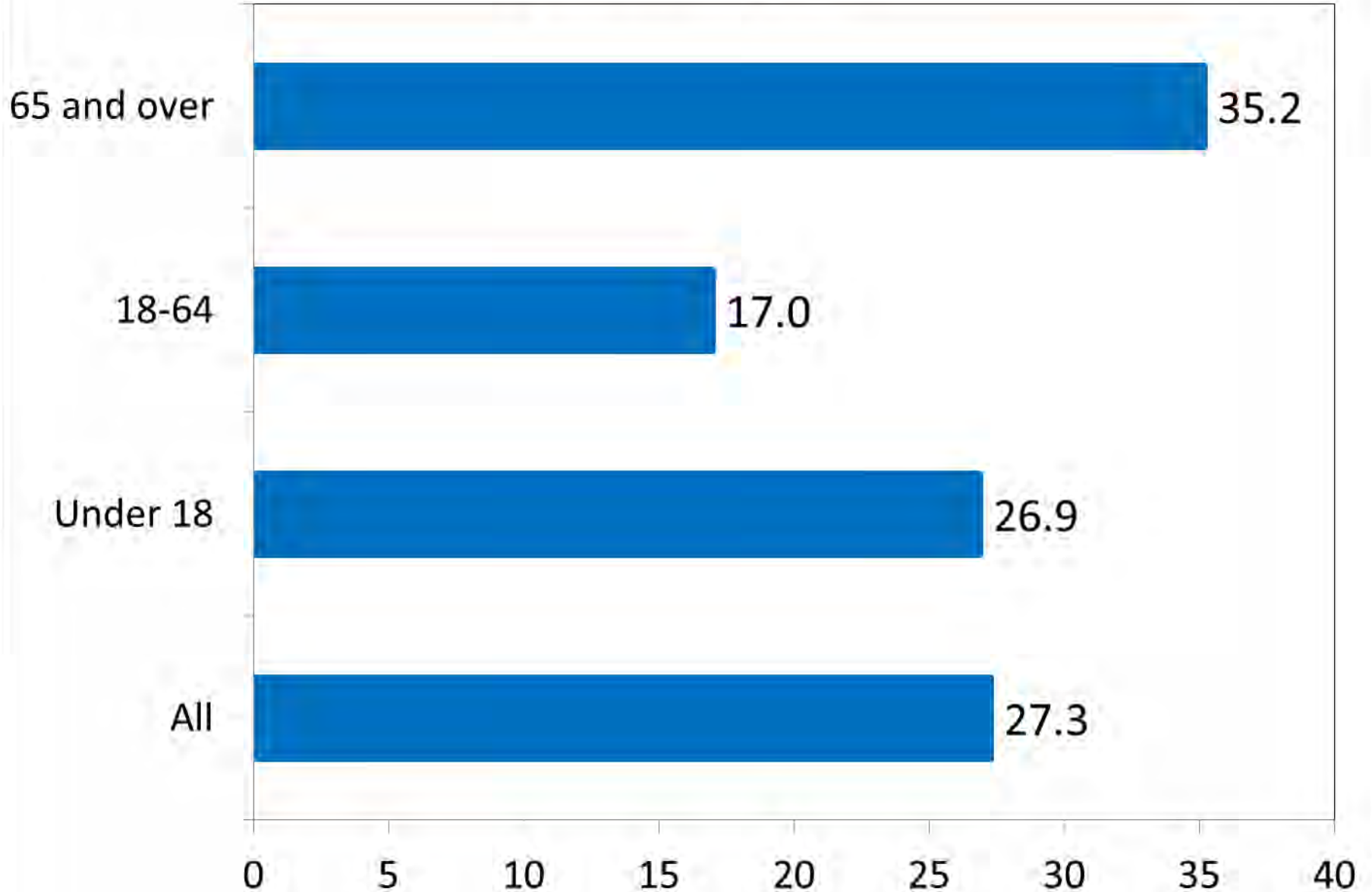
Today, children have the highest poverty rates
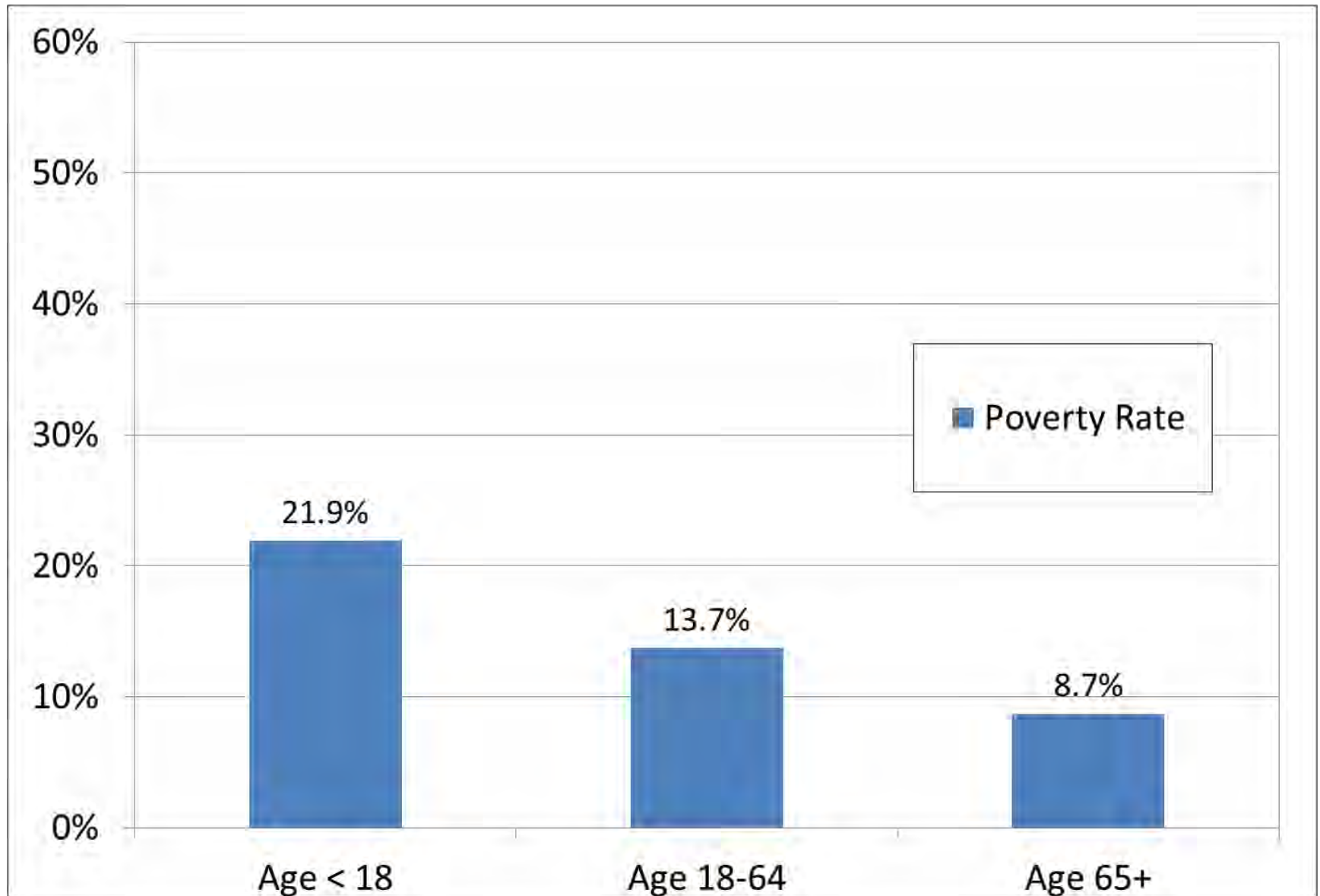
Why do we measure poverty?

- Poverty is measured and watched by virtually all developed countries.

- It is an important indicator of economic well-being

- In the U.S., poverty is associated with many adverse outcomes

Risk of adverse outcome for poor / nonpoor children

- Low Birth weight: 1.7
- Deaths durnig childhood: 1.5
- Developmental delay: 1.3
- Grade repetition: 2.0
- High school dropout: 2.2
- Fair/Poor Health: 1.8
- Teen birth (girls): 3.1
- Experienced violent crime: 2.1

Equal risk for poor and nonpoor
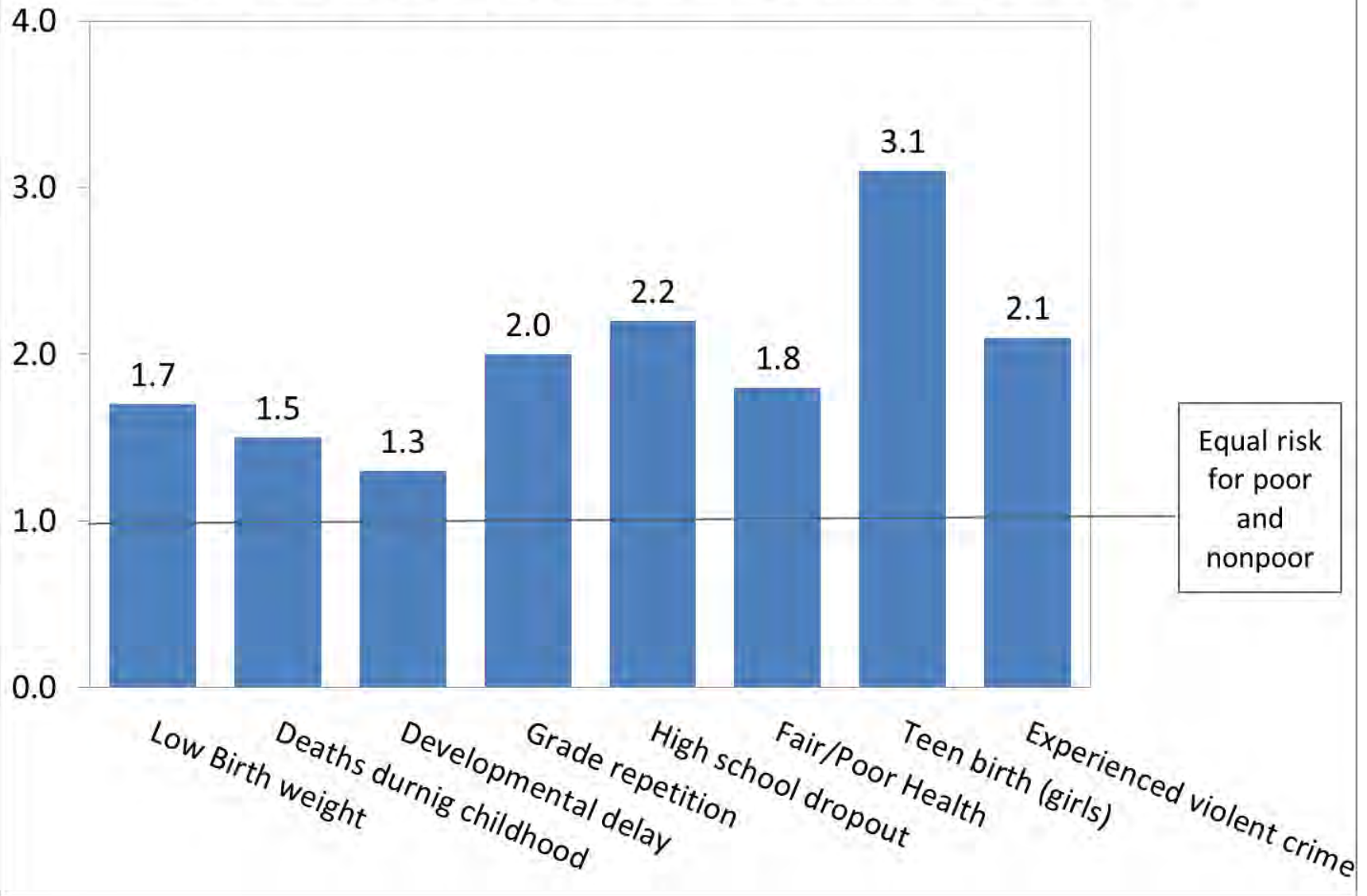
Source: Greg Duncan and Katherine Magnuson "The Effects of Poverty on Children," The Future of Children, 1997.

FIGURE 6.

Child Food Insecurity and Obesity Rates, by Income Relative to the Federal Poverty Level (FPL)

Children in families living below 250 percent of the FPL are much more likely to struggle with food insecurity and obesity than are their higher-income peers.
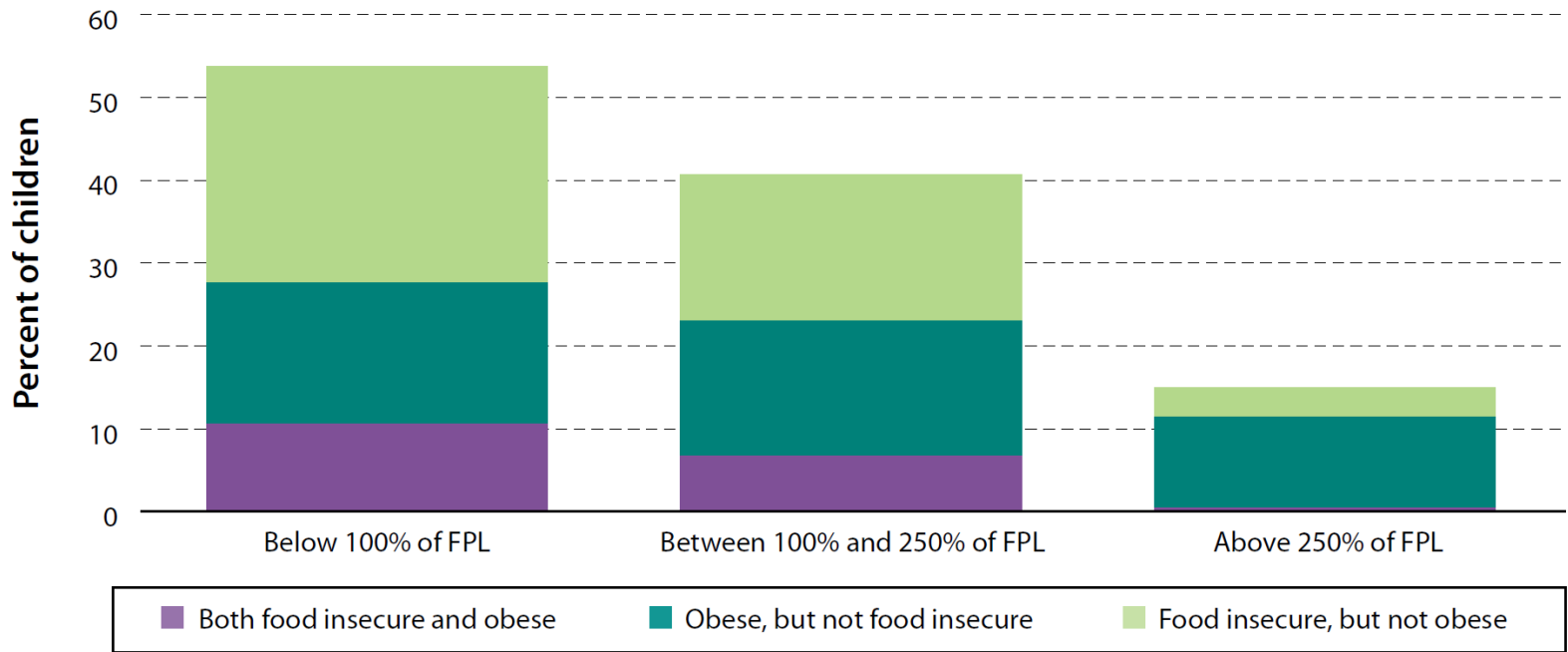
Racial inequalities are decreasing while income inequalities are increasing
(in education and health)

What provides protections against poverty risk?

- Education
- Two potential earners
- Employment
- Social insurance and the safety net

FIGURE 4.

Highest Educational Attainment of Family Head, by Income Relative to the Federal Poverty Level (FPL)

Nearly one out of two family heads in the struggling lower-middle class has attended college; approximately one out of eight family heads has a bachelor's degree or more.

Percent of family heads

Legend:
- Less than high school
- High school diploma
- Some college
- Bachelor's degree
- More than college
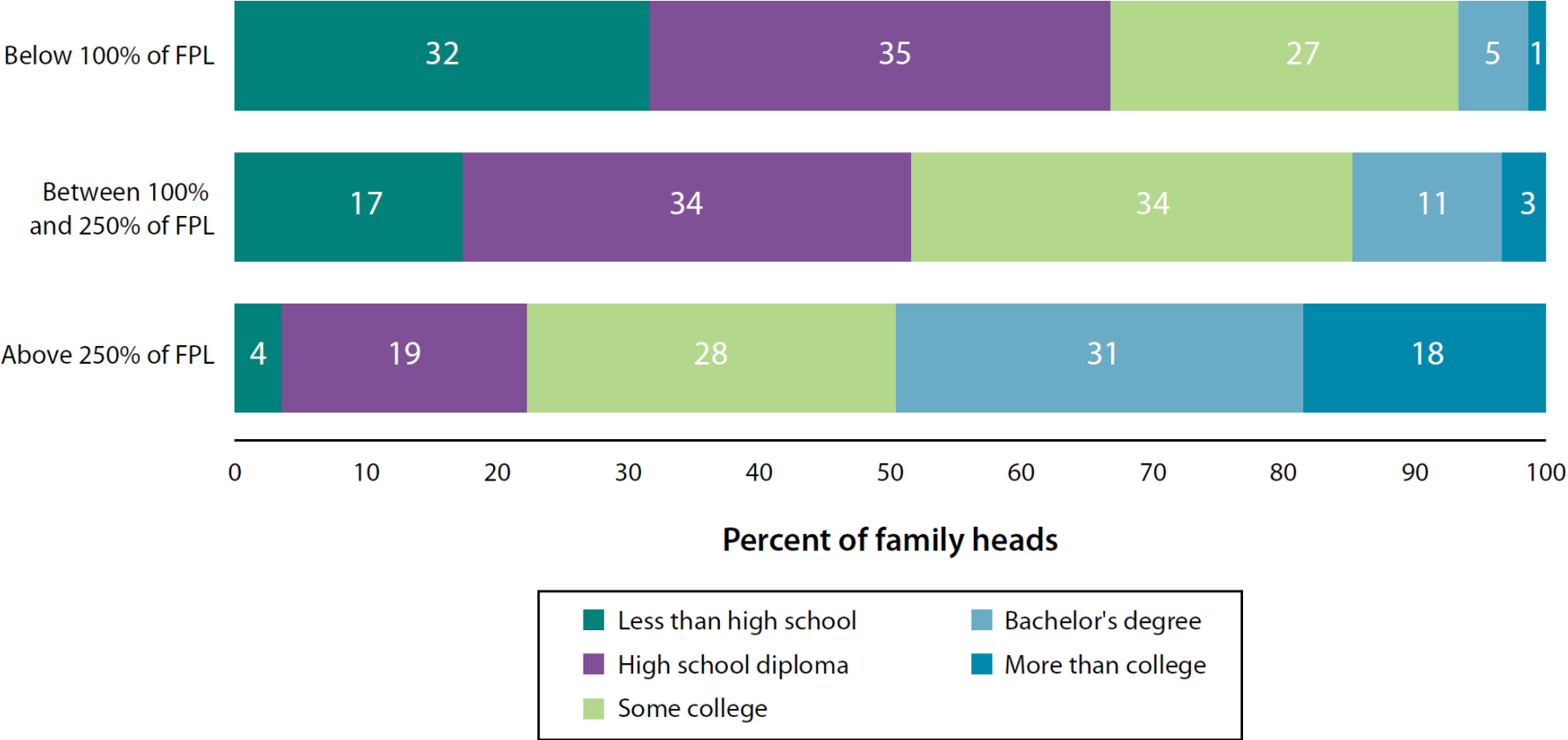
Other important differences across groups
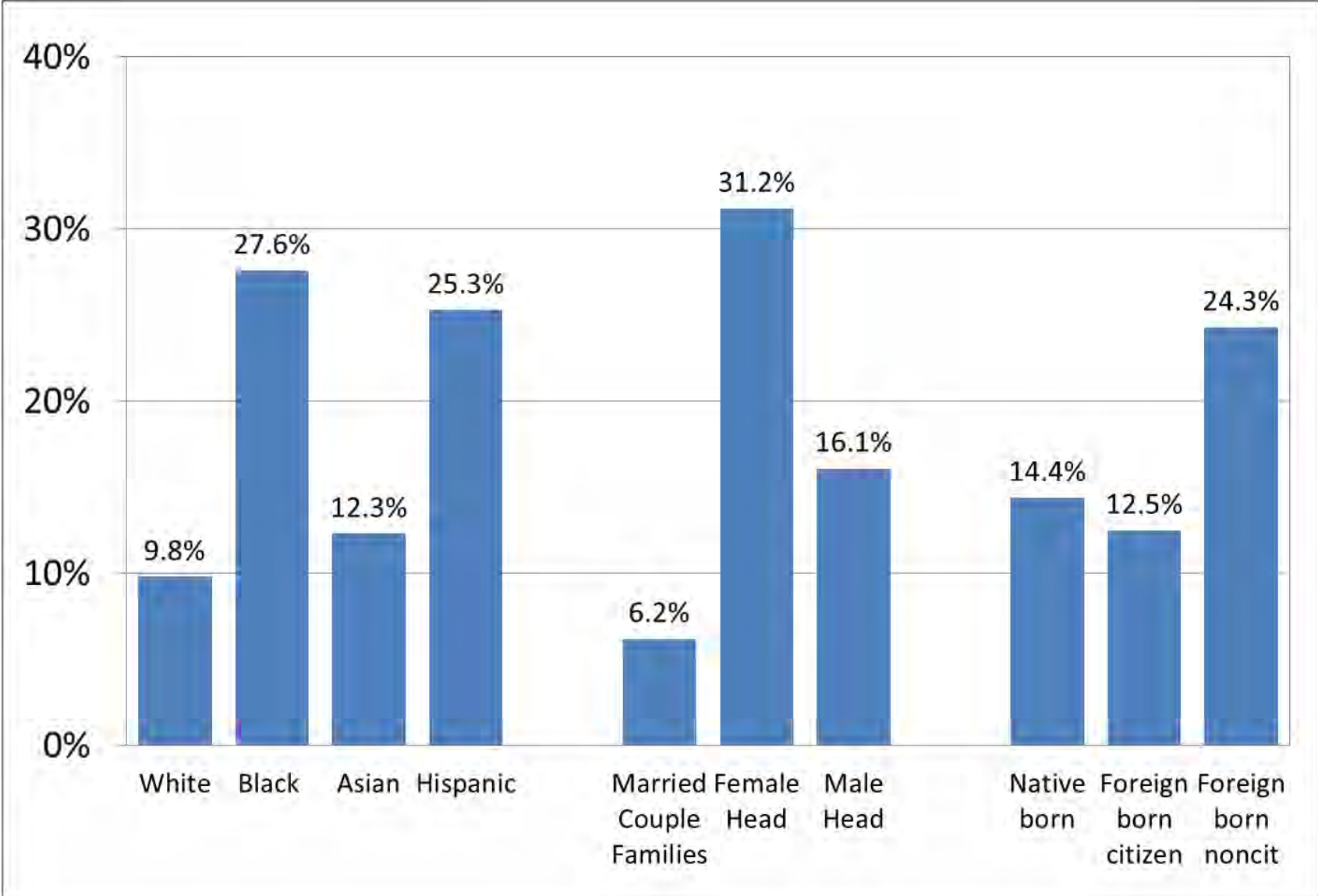
Limitations of official poverty measure

- Income measure is *pre-tax family income*; includes only cash income
  - Does not include Food Stamps (SNAP) or Earned Income Tax Credit (the most important government benefits for low income families!)
  - Not adjusted for work-related expenses
- Not adjusted for regional variation in costs of living (e.g., housing)
- Definition of poverty has not changed since measure developed in early 1960s
- Recent Supplemental Poverty Measure released by Census; addresses these concerns

Figure 6-4
Official vs Anchored Supplemental Poverty Rates, 1967–2012

Percent

Supplemental Poverty Measure (Anchored 2012)

Official Poverty Measure

New poverty measure shows more improvement, yet poverty remains very high and in recent period only fell during strong labor market of late 1990s
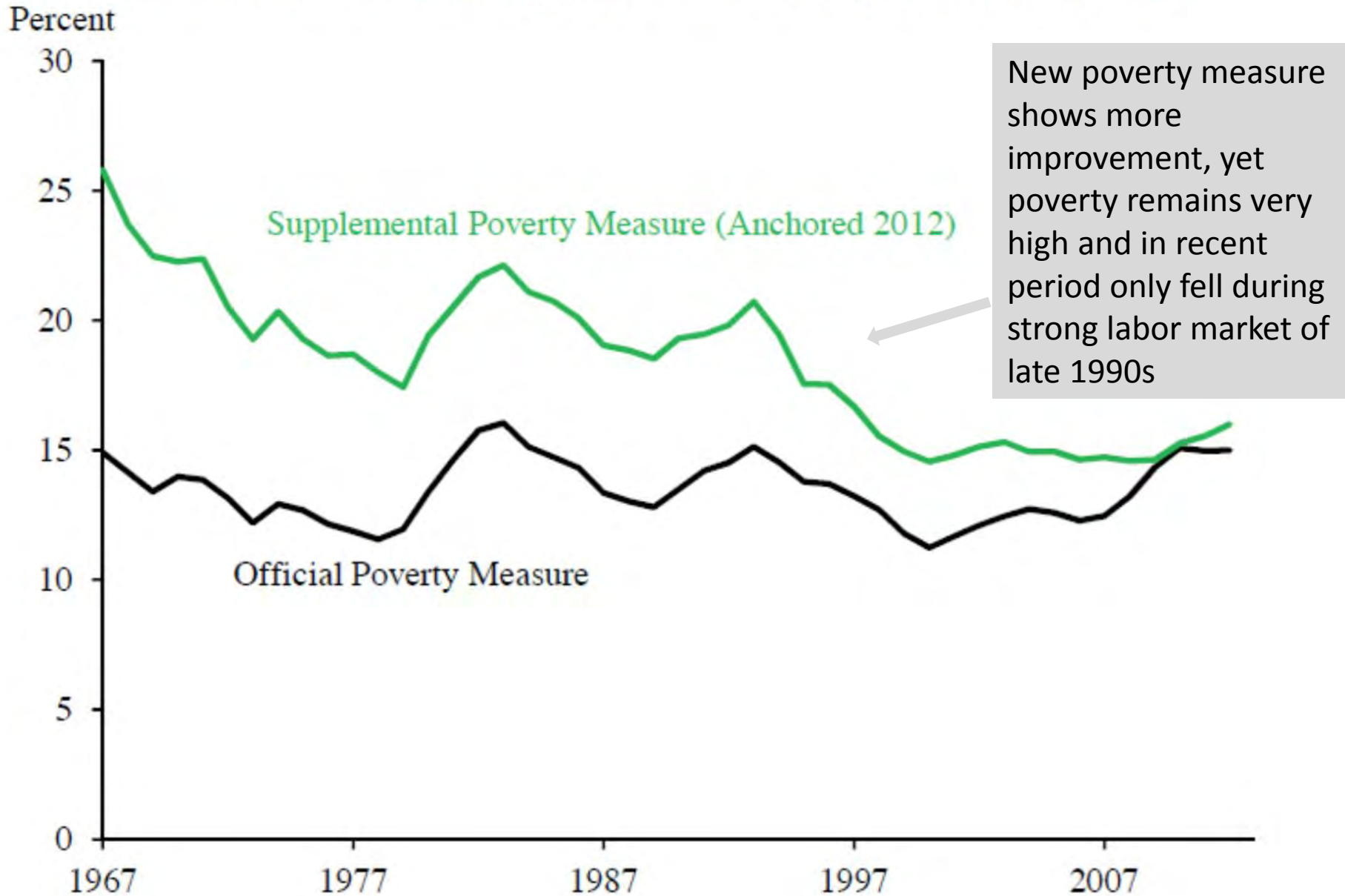
SPM causes geographic shift in poverty (increases in high cost of living states)

Figure 4.
**Difference in Poverty Rates by State Using the Official Measure and the SPM: Three-Year Average 2009–2011**

Legend:
- Not statistically different
- SPM lower than official
- SPM higher than official
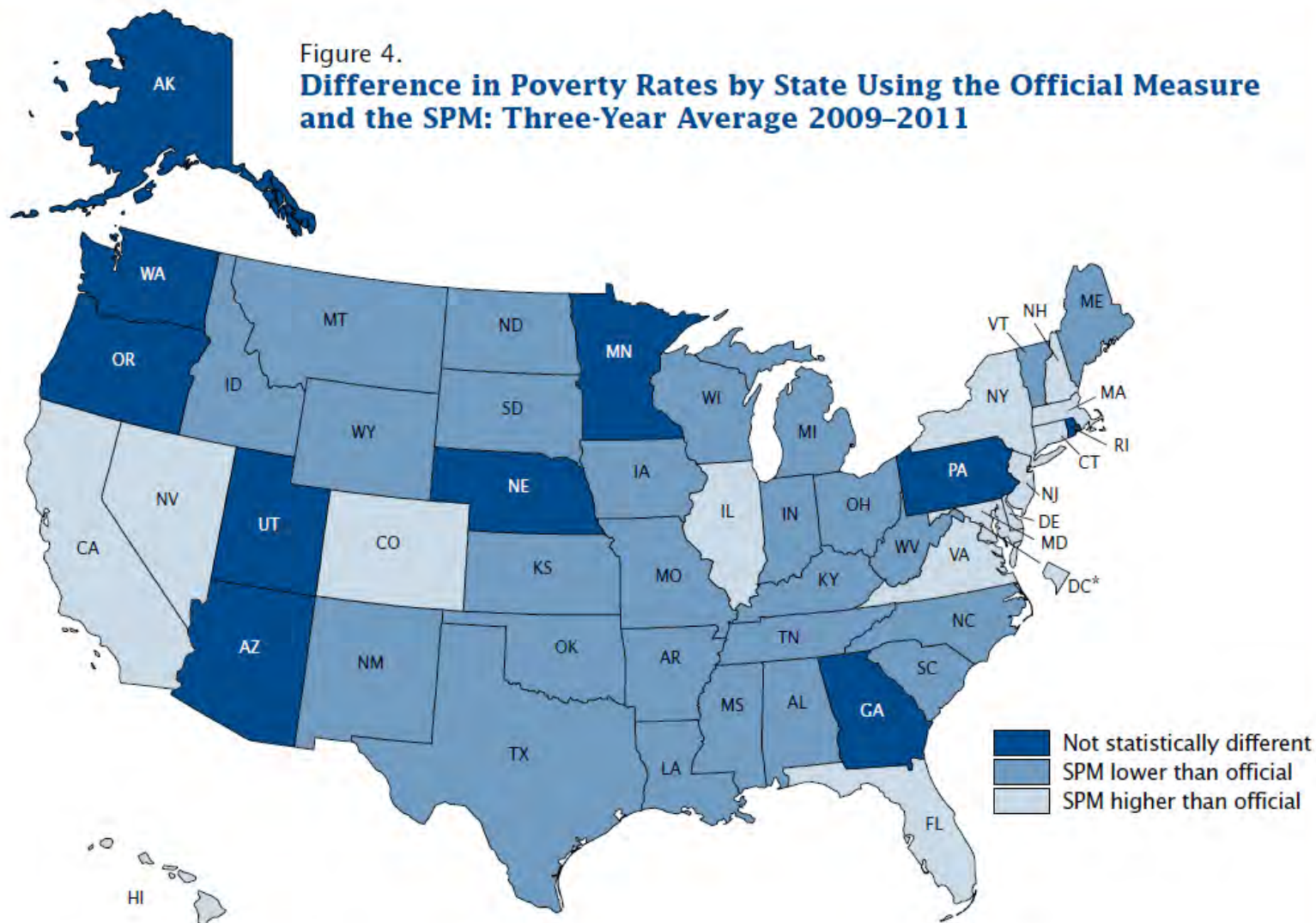
Source: U.S. Census Bureau, Current Population Survey, 2010–2012 Annual Social and Economic Supplements.

Antipoverty Effects of Govt Programs

- Using the SPM we can calculate by how much poverty would increase if a given program was eliminated

Persons Kept Above Poverty (2012, In Millions)

Children Kept out of Poverty (2012, In Millions)
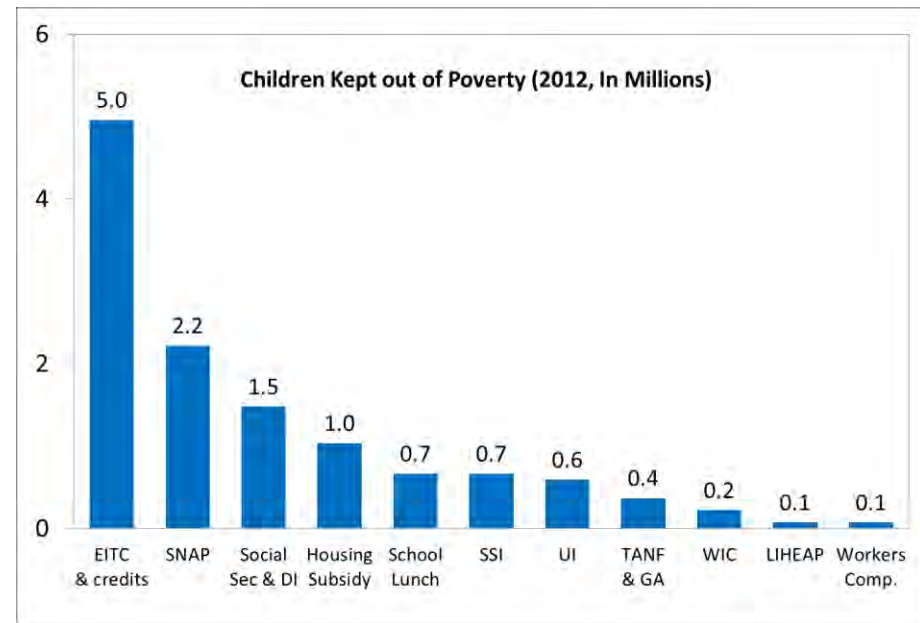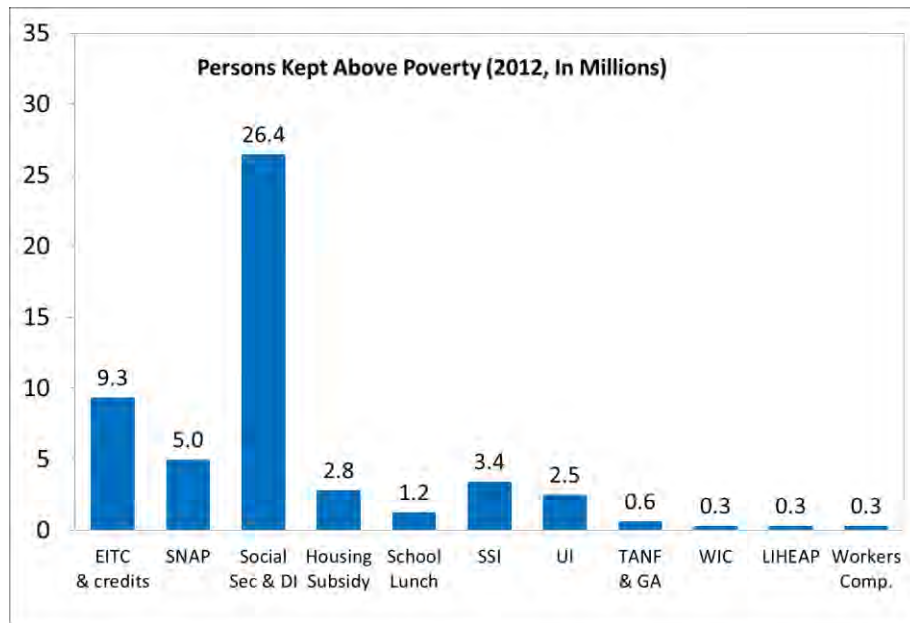
Trends in Inequality

- Piketty and Saez have developed a world database for measuring inequality

- Getting data to measure the level and trend in incomes at the very top of the distribution is hard. Standard survey data does not have enough observations for these high income earners. And, surveys usually "topcode" income to protect anonymity

- Piketty and Saez came up with the novel idea of using data from income tax returns to estimate trends in top incomes. This is high quality data that is provided by most countries.

THE WORLD TOP INCOMES DATABASE
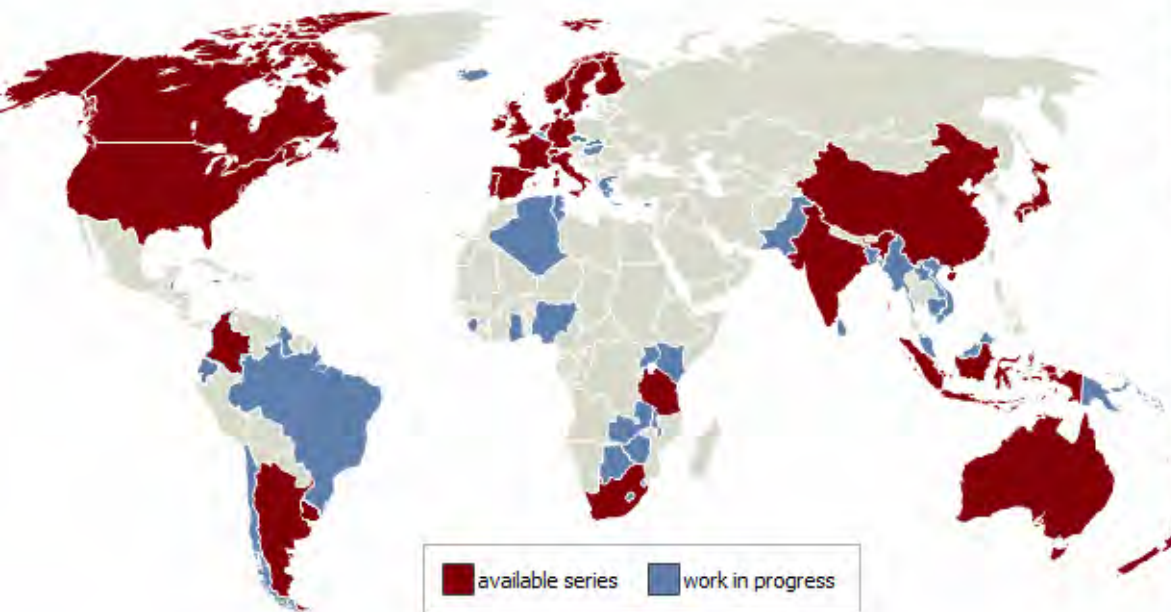
available series   work in progress

Institute for New Economic Thinking

PARIS SCHOOL OF ECONOMICS

CENTER FOR EQUITABLE GROWTH
UNIVERSITY OF CALIFORNIA BERKELEY

E·S·R·C
ECONOMIC
& SOCIAL
RESEARCH
COUNCIL

Inequality: The facts for the U.S.

Decomposing Top 10% into 3 Groups, 1913-2011

Legend:
- Top 1% (incomes above $367,000 in 2011)
- Top 5-1% (incomes between $155,000 and $367,000)
- Top 10-5% (incomes between $111,000 and $155,000)

Y-axis: Share of total income for each group (0% to 25%)

X-axis: years 1913, 1918, 1923, 1928, 1933, 1938, 1943, 1948, 1953, 1958, 1963, 1968, 1973, 1978, 1983, 1988, 1993, 1998, 2003, 2008
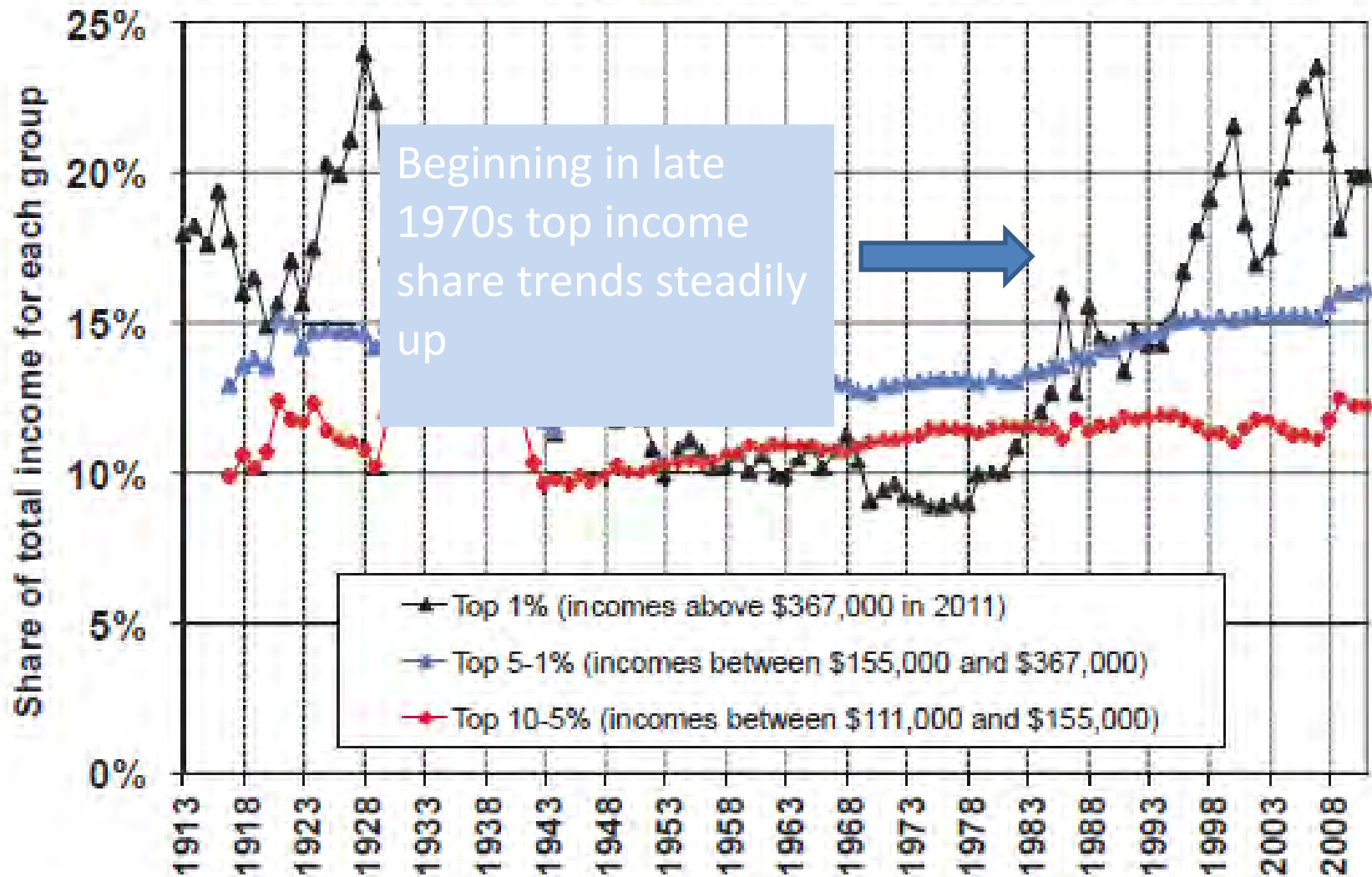
Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Decomposing Top 10% into 3 Groups, 1913-2011

Decline in top income shares between pre-WWI and post-WW2 "The great compression" period = growth of the middle class

Top 1% (incomes a...)

Top 5-1% (incomes between $155,000 and $367,000)

Top 10-5% (incomes between $111,000 and $155,000)

Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Decomposing Top 10% into 3 Groups, 1913-2011

Post-WW2 and through the 1970s, top income remained low

Top 1% (incomes above $367,000 in 2011)
Top 5-1% (incomes between $155,000 and $367,000)
Top 10-5% (incomes between $111,000 and $155,000)

Share of total income for each group

Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

Decomposing Top 10% into 3 Groups, 1913-2011

Beginning in late 1970s top income share trends steadily up

Top 1% (incomes above $367,000 in 2011)
Top 5-1% (incomes between $155,000 and $367,000)
Top 10-5% (incomes between $111,000 and $155,000)

Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

- To explore the reasons for the current upward trend in top income shares it is instructive to compare the U.S. to other countries

Top 1% share: English Speaking countries (U-shaped)
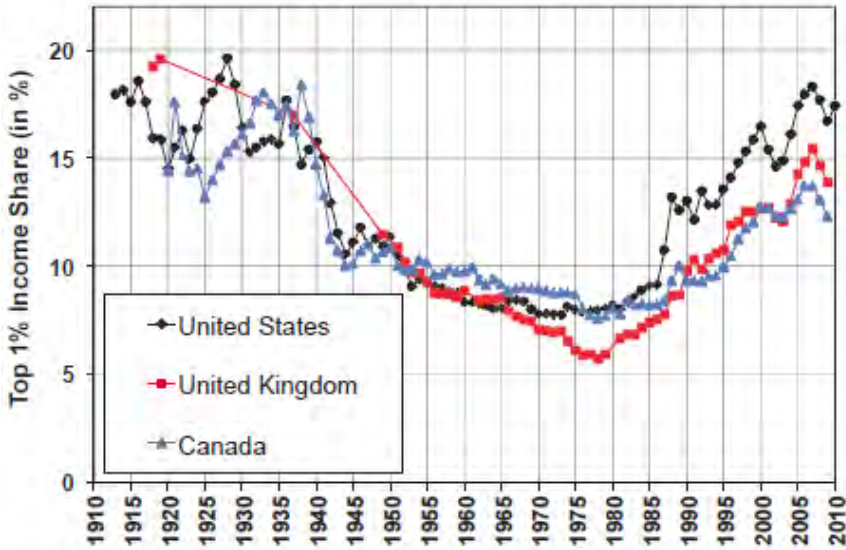
Top 1% share: Continenal Europe and Japan (L-shaped)
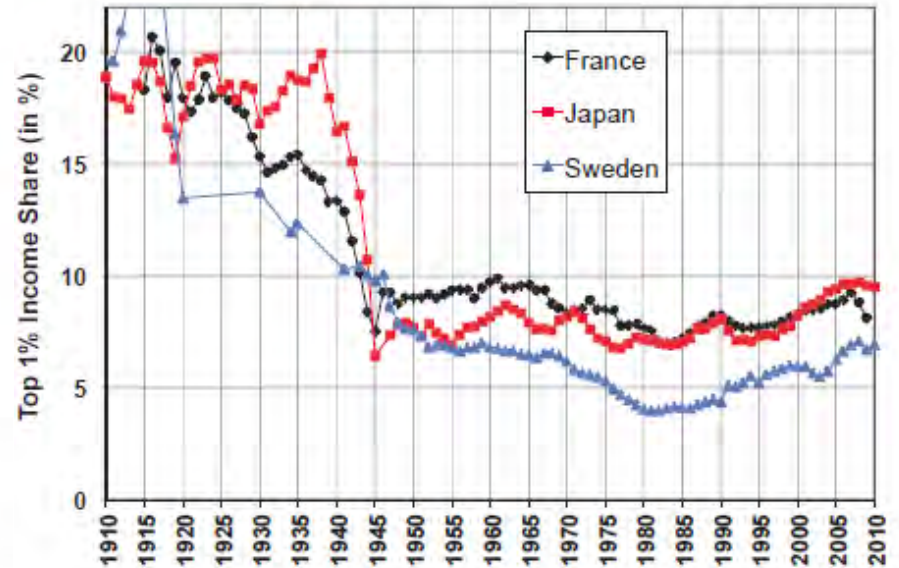
- The period through the 1970s was similar in the U.S. compared to other countries → suggesting that global factors were responsible

- The upward trend beginning in the late 1970s IS NOT experienced by all countries → suggesting that global factors CAN NOT explain the trend

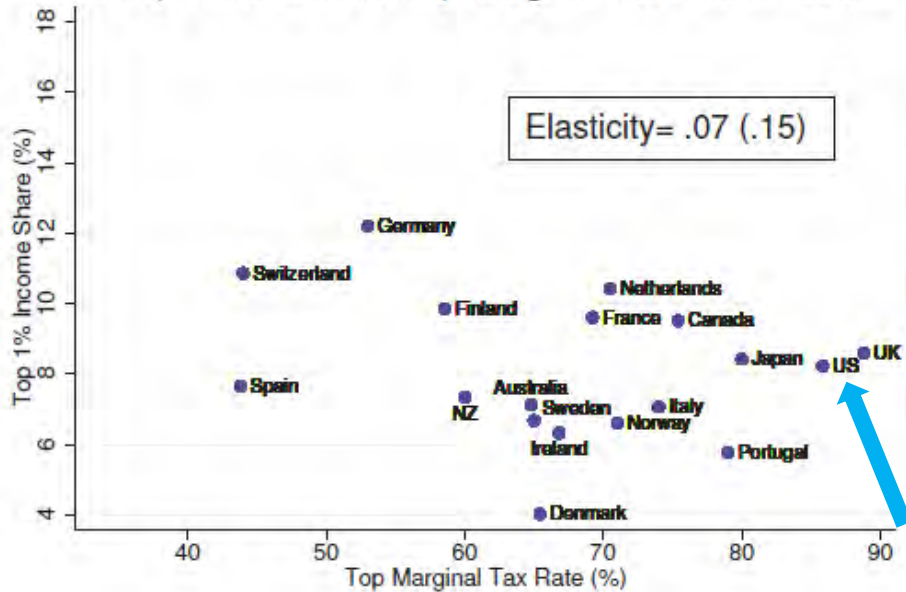# Greater progressive taxation (higher top MTR) is associated with LESS inequality

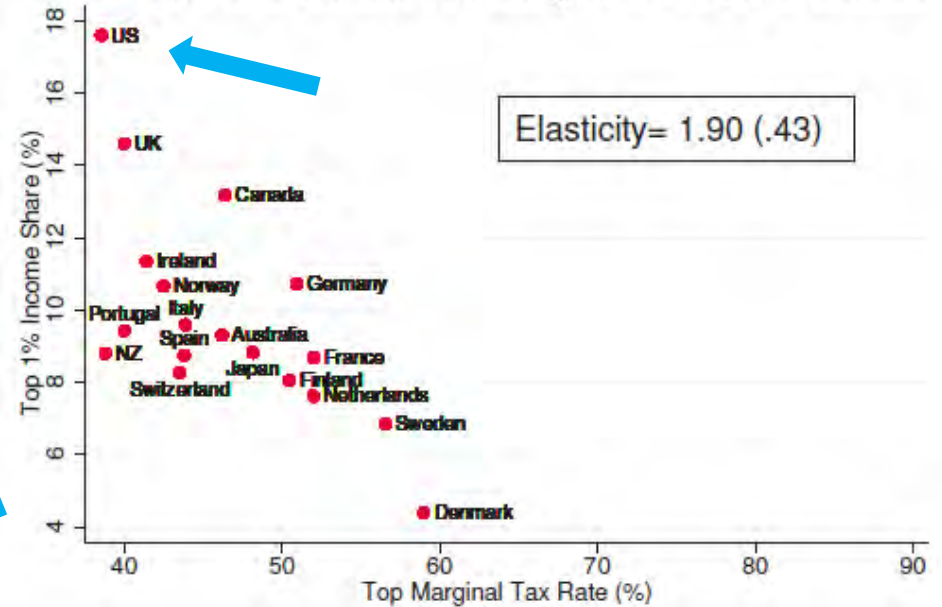Top 1% Income Share (pre–tax) and Top Marginal Tax Rate
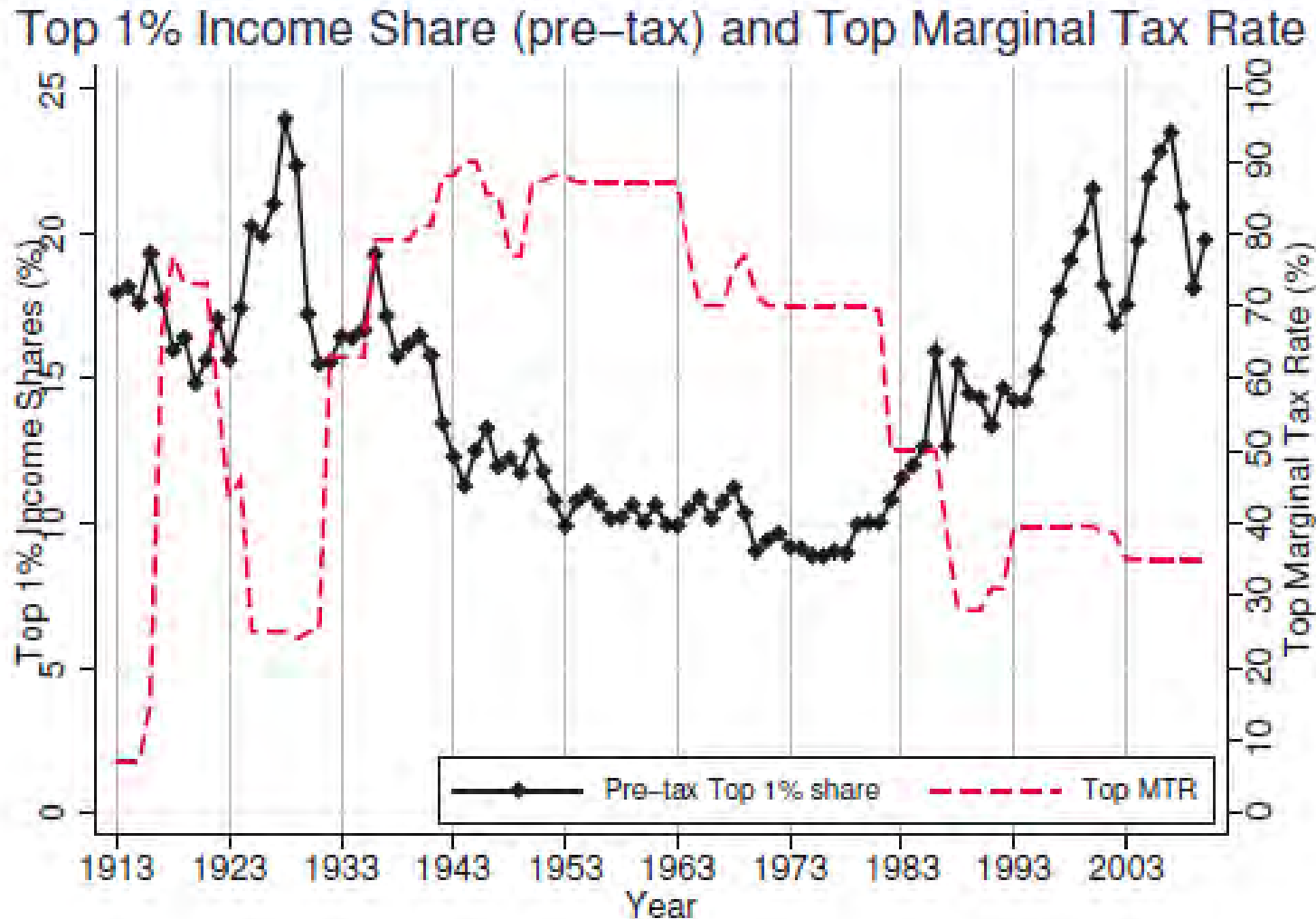
Top 1% Income Share (pre-tax) and Top Marginal Tax Rate
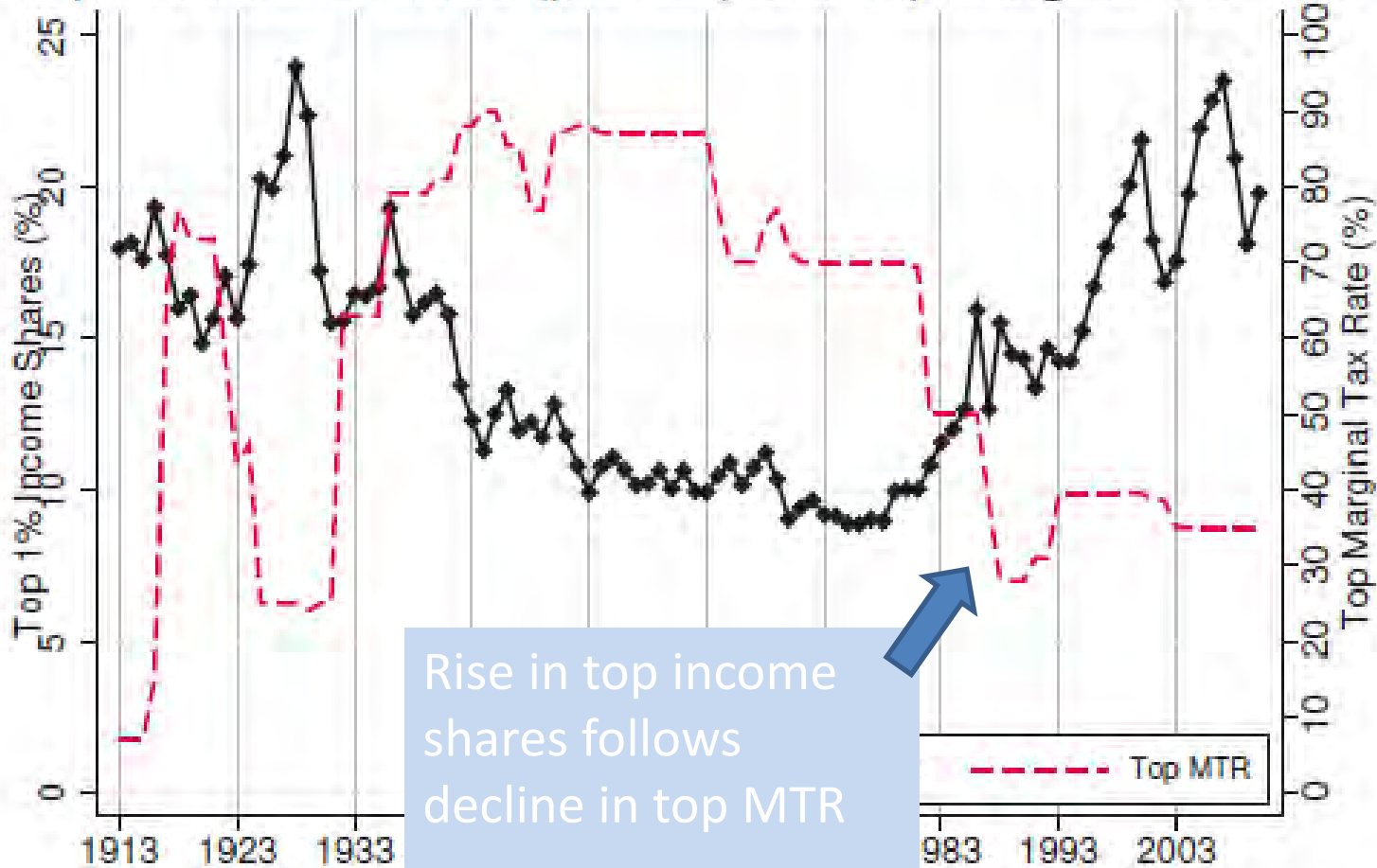
Rise in top income shares follows decline in top MTR

Top MTR
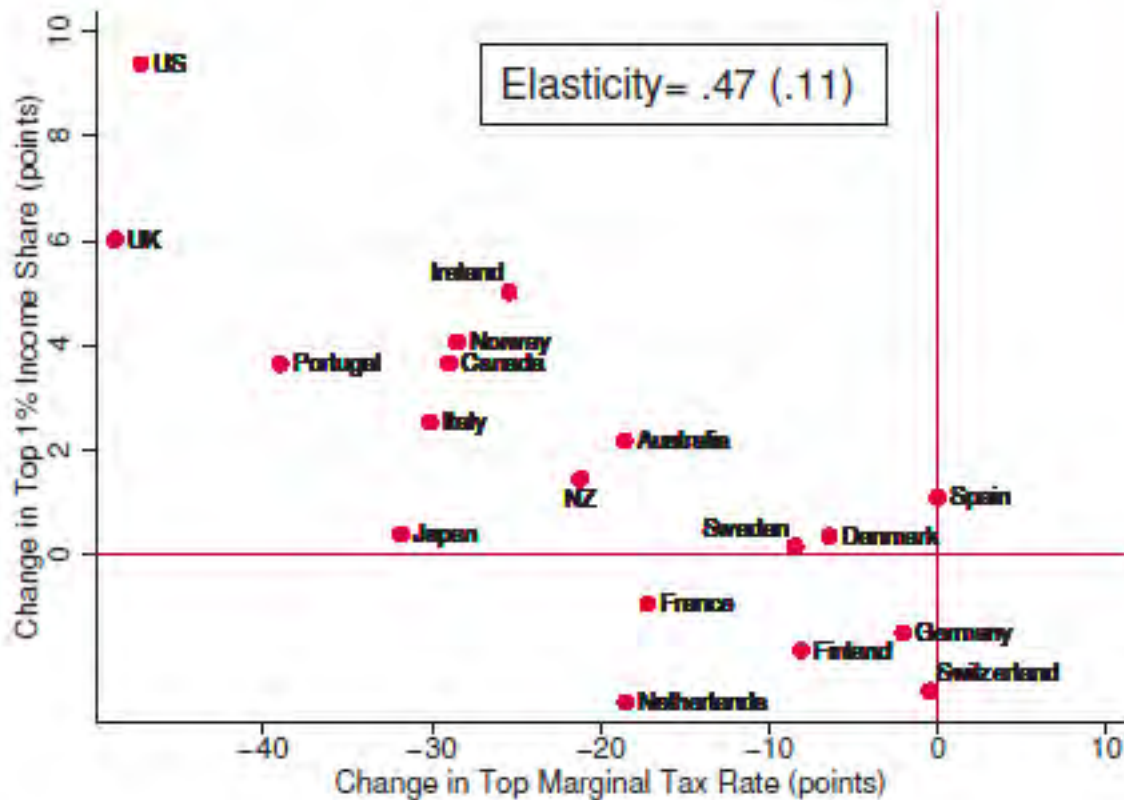
A. Top 1% Share and Top Marginal Tax Rate in 1960-4

B. Top 1% Share and Top Marginal Tax Rate in 2005-9

Comparisons across countries shows that:

- Back in the early 1960s the US was on the HIGH end of progressivity of the income tax (and the middle of the pack in inequality)

- Today we have the highest inequality and very low progressivity

Change in Top Tax Rate and Top 1% Share, 1960-4 to 2005-9

- The difference-in-difference estimates show a very similar pattern
- Best available evidence suggests that the recent trend of increased inequality is driven in part by the lack of progressivity in the U.S. tax code
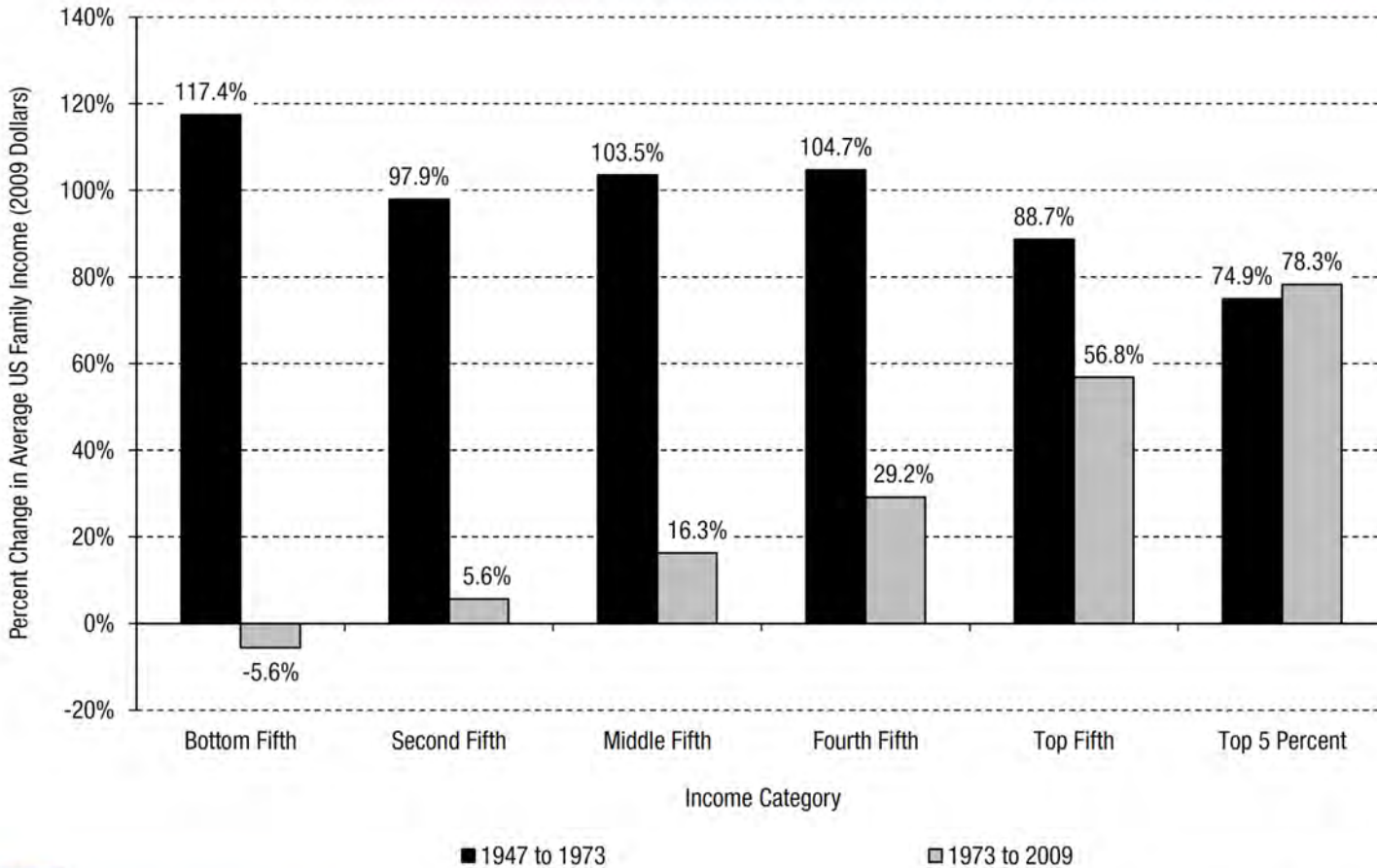
Roadmap

1. Facts on poverty and inequality in the U.S.

2. Linking the trends in poverty and inequality to trends in the labor market

3. Identifying the driving forces of these trends in the labor market

4. Policy solutions

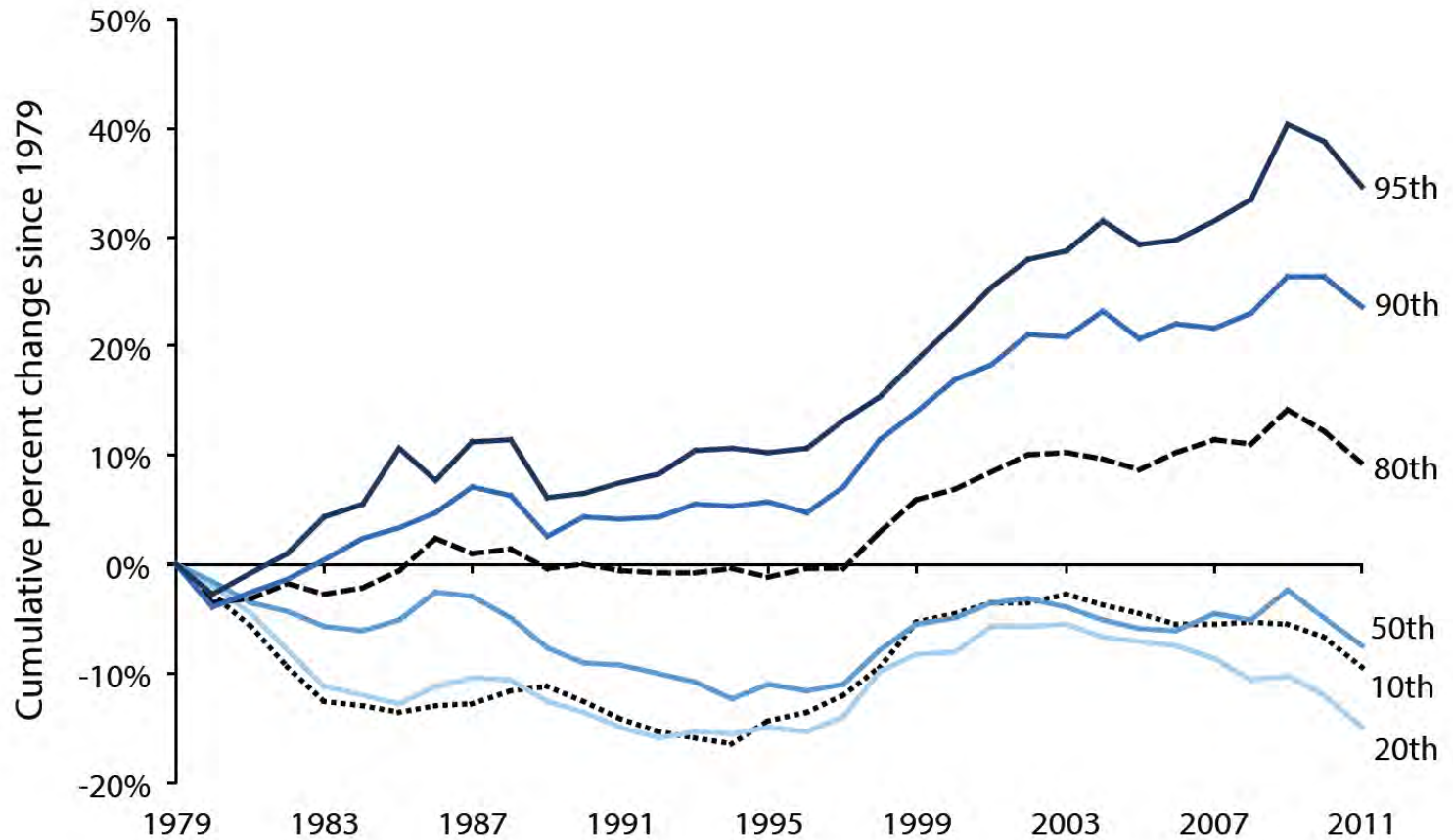# Facts on the labor market and earnings

- Post WWII → early 1970s:
  - gains in earnings occurred across the distribution; "growing together"
  - Growth in educational attainment
- Mid 1970s → present:
  - widening wage structure
  - Rate of education growth slowed
- The growth of real wages and the distribution among workers is a crucial factor for determining trends in poverty.

Broadly Shared Prosperity Ended in the Early 1970s, and a Generation of Widening Inequality Began

Percent Change in Average US Family Income (2009 Dollars)

Bottom Fifth: 117.4%, -5.6%
Second Fifth: 97.9%, 5.6%
Middle Fifth: 103.5%, 16.3%
Fourth Fifth: 104.7%, 29.2%
Top Fifth: 88.7%, 56.8%
Top 5 Percent: 74.9%, 78.3%

Income Category

■ 1947 to 1973   □ 1973 to 2009

Source: Economic Policy Institute

Figure 4C Cumulative change in real hourly wages of men, by wage percentile, 1979–2011

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

EPI, State of Working America.

- In a basic sense, these changes in wage and income distribution contribute fundamentally to trends in poverty

- This factor would be putting upward pressure on poverty rates over time; thus the observed trends should be interpreted against this finding.

- But taking a step back, what do we know about why these labor market trends are occurring?

Roadmap

1. Facts on poverty and inequality in the U.S.

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"Returns to Skill" – earnings gap between college and high school degrees

- Rising steadily; doubled between 1979 and 2012

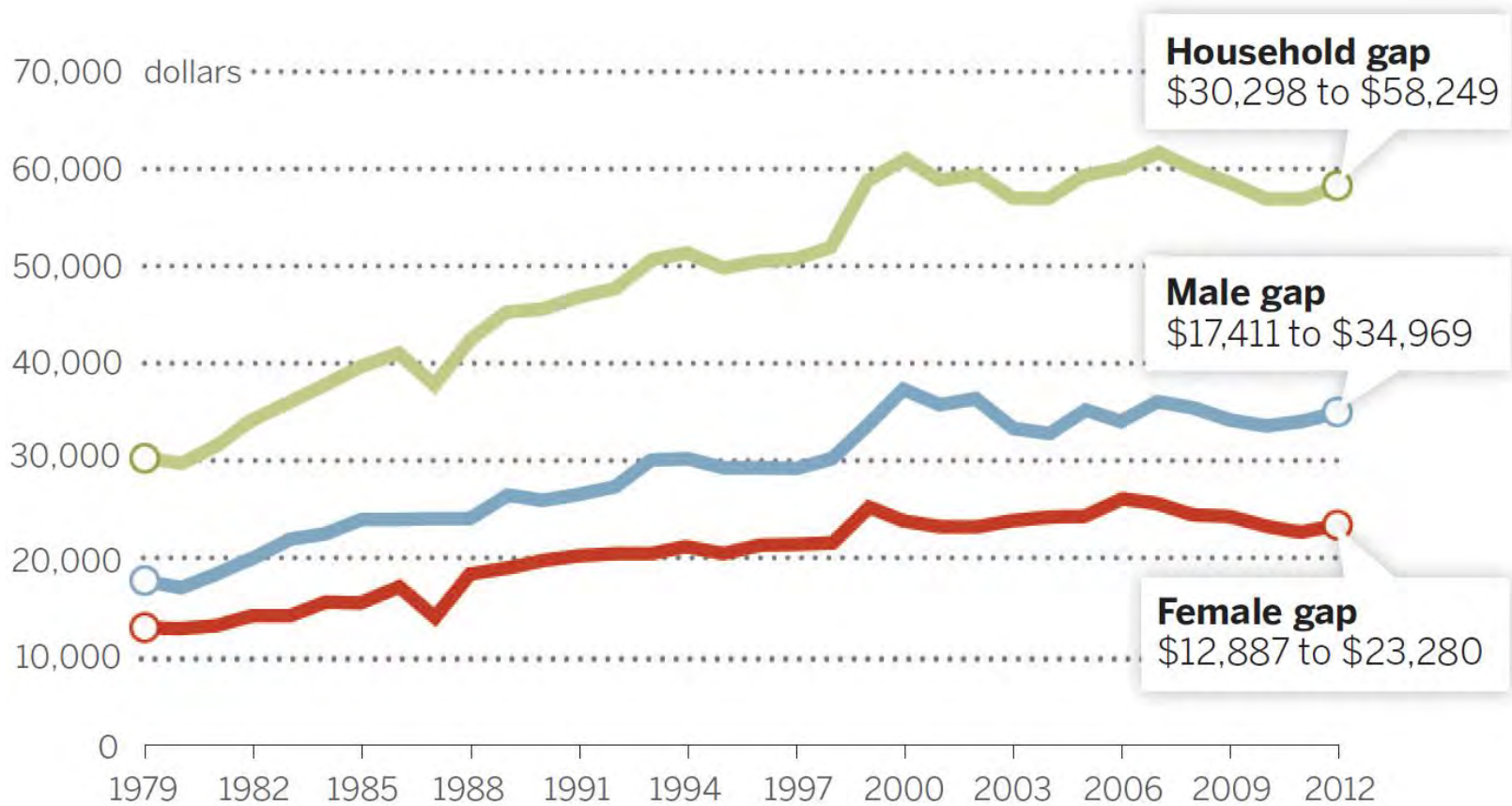- This trend is also experienced by other countries

FIGURE 10

College degree vs. high school diploma weekly wage ratio, 1963–2008
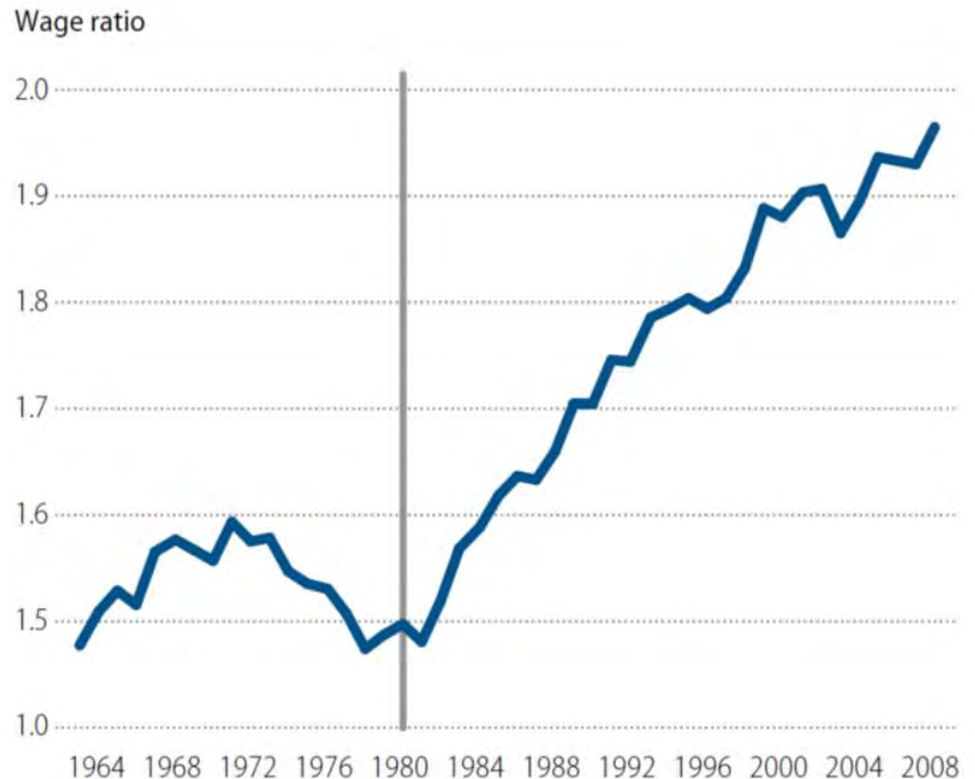
Autor, The Hamilton Project.

College/high school median annual earnings gap, 1979–2012

In constant 2012 dollars

Household gap
$30,298 to $58,249

Male gap
$17,411 to $34,969

Female gap
$12,887 to $23,280

Autor, Science.

Rising Skill Premium is explained by demand and supply factors

- DEMAND
  - Over last 100 years innovation has led to reduction in demand for physical labor (technological change)
  - In recent decades the process of machine substitution for routine human tasks has reduced demand for those doing routine tasks (where workers are <u>substitutes</u>) and increased the demand for those who excel in more abstract tasks (where workers are <u>complements</u>)
- SUPPLY
  - Educational attainment increases <u>slowed</u> beginning in 1980s
- Overall →if demand for skilled labor keeps increasing AND the supply of skilled labor does not keep up, then the wages of skilled labor increase.

Trends in education

- 1960s/1970s: supply of young college educated increased rapidly relative to high school educated

- Since then educational attainment slowed (though still increasing) especially for men.

- Research by Goldin and Katz (2008) and others shows that more than half of the increase in wage inequality is due to the rising premium to skill (and thus the slowdown in educational attainment)

Trends particularly compelling when you look at new labor market entrants

FIGURE 9

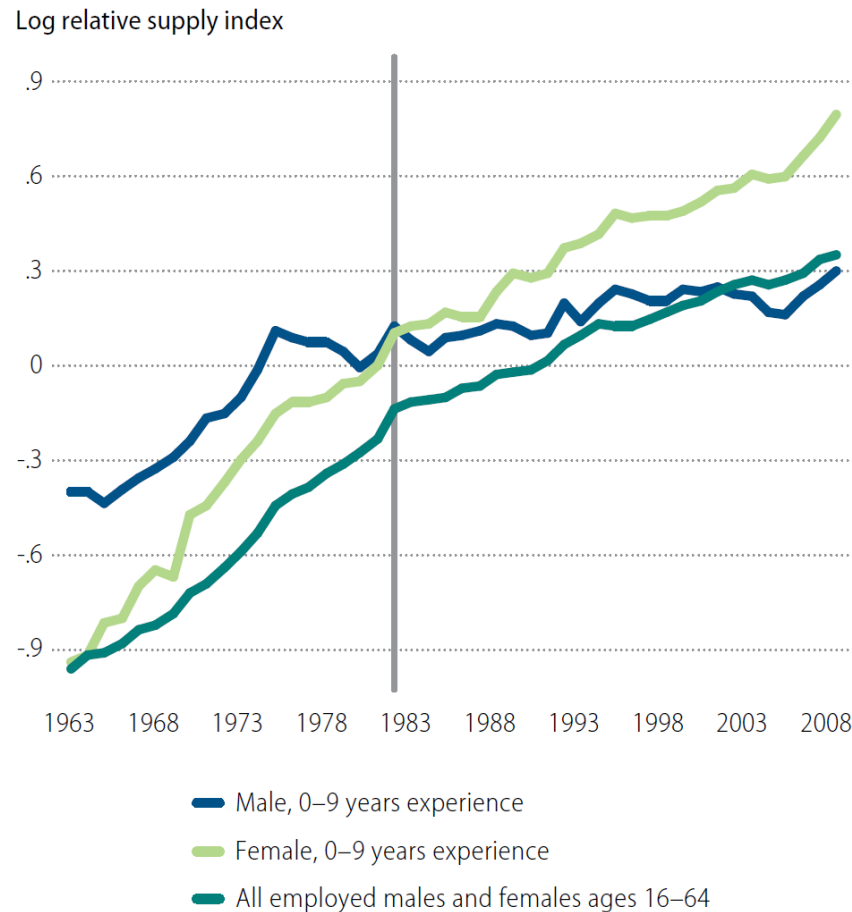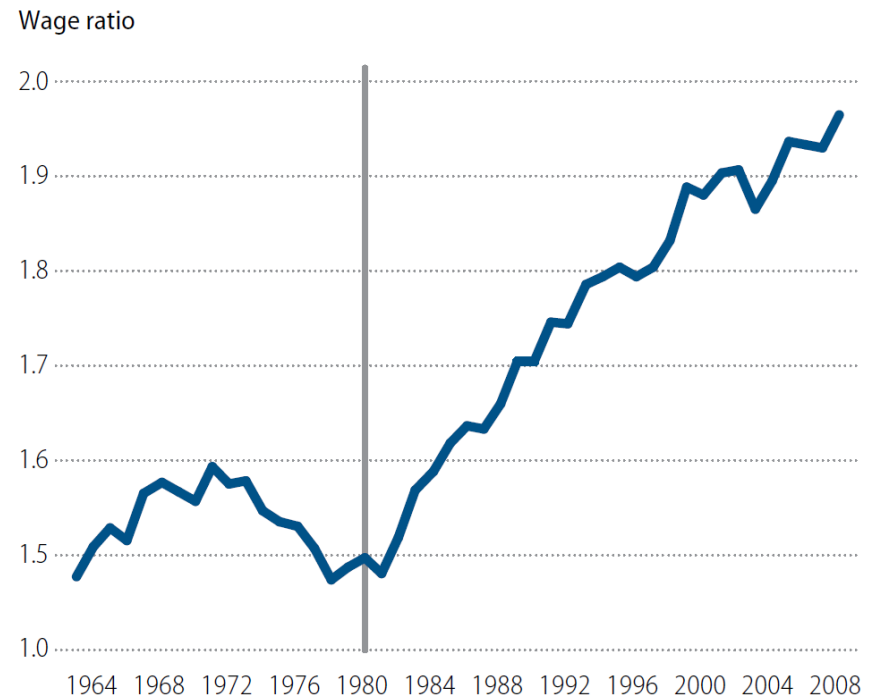College degree vs. high school diploma log relative supply, 1963–2008

Log relative supply index

Legend:
— Male, 0–9 years experience
— Female, 0–9 years experience
— All employed males and females ages 16–64

FIGURE 10

College degree vs. high school diploma weekly wage ratio, 1963–2008

Wage ratio

Source: March CPS data for earnings years 1963-2008. Log weekly wages for full-time, full-year workers are regressed in each year on four education dummies (high school dropout, some college, college graduate, greater than college), a quartic in experience, interactions of the education dummies and experience quartic, and two race categories (black, nonwhite other). The composition-adjusted mean log wage is the predicted log wage evaluated for whites at the relevant experience level (5, 15, 25, 35, 45 years) and relevant education level (high school dropout, high school graduate, some college, college graduate, greater than college). The mean log wage for college and high school is the weighted average

Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

In addition to trends in relative wages, non-college workers are experiencing <u>absolute</u> <u>reductions</u> in real wage levels

- What is leading to reductions in real wages for less skilled workers?
  - Technological change (as above)
  - Globalization: Chinese manufacturing gains led to reduction in manufacturing in the US and thus declines in wages in those industries
  - Fall of unions
  - Fall in real value of minimum wages
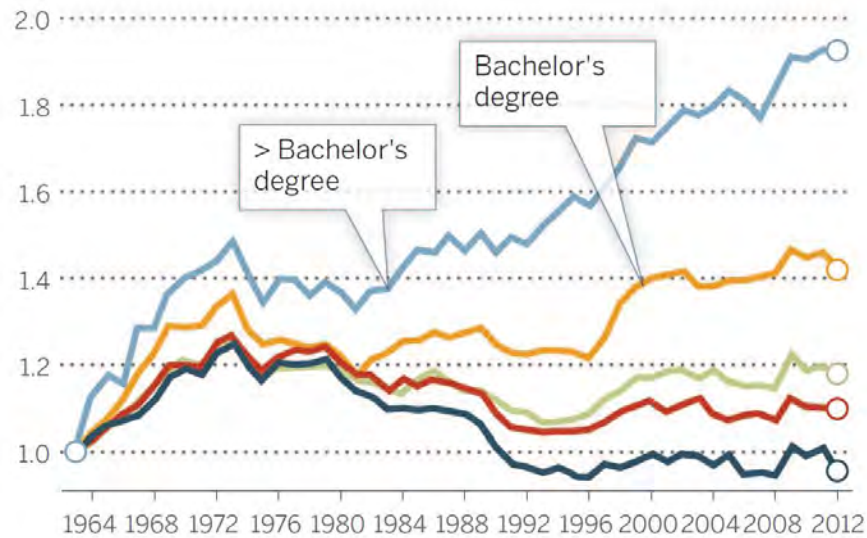
Fig. 6. Change in real wage levels of full-time workers by education, 1963–2012. (A) Male workers, (B) female workers. Data and sample construction are as in Fig. 3.
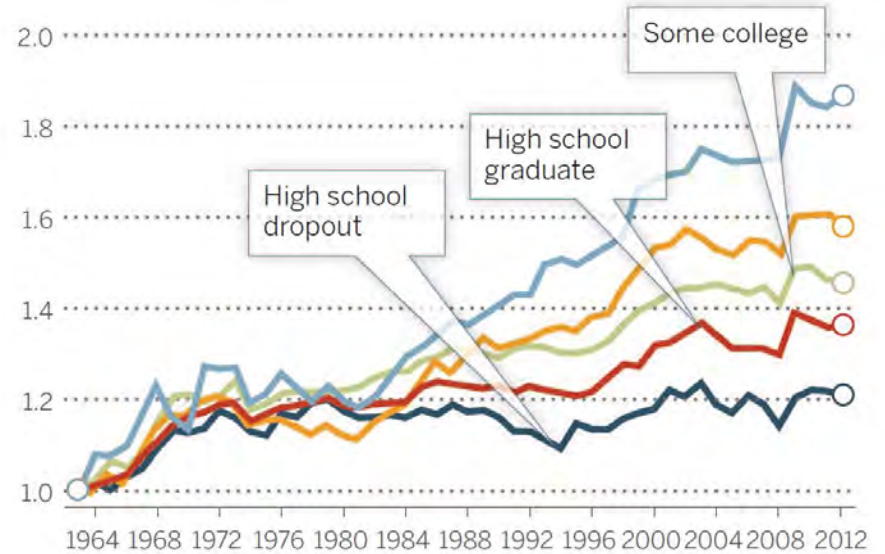
Autor, Science.

The result

- Employment growth is "polarizing" into relatively high-skill, high-wage jobs and low-skill, low-wage jobs [at the expense of middle skill jobs]

FIGURE 1

Smoothed changes in employment by occupational skill percentile, 1979–2007
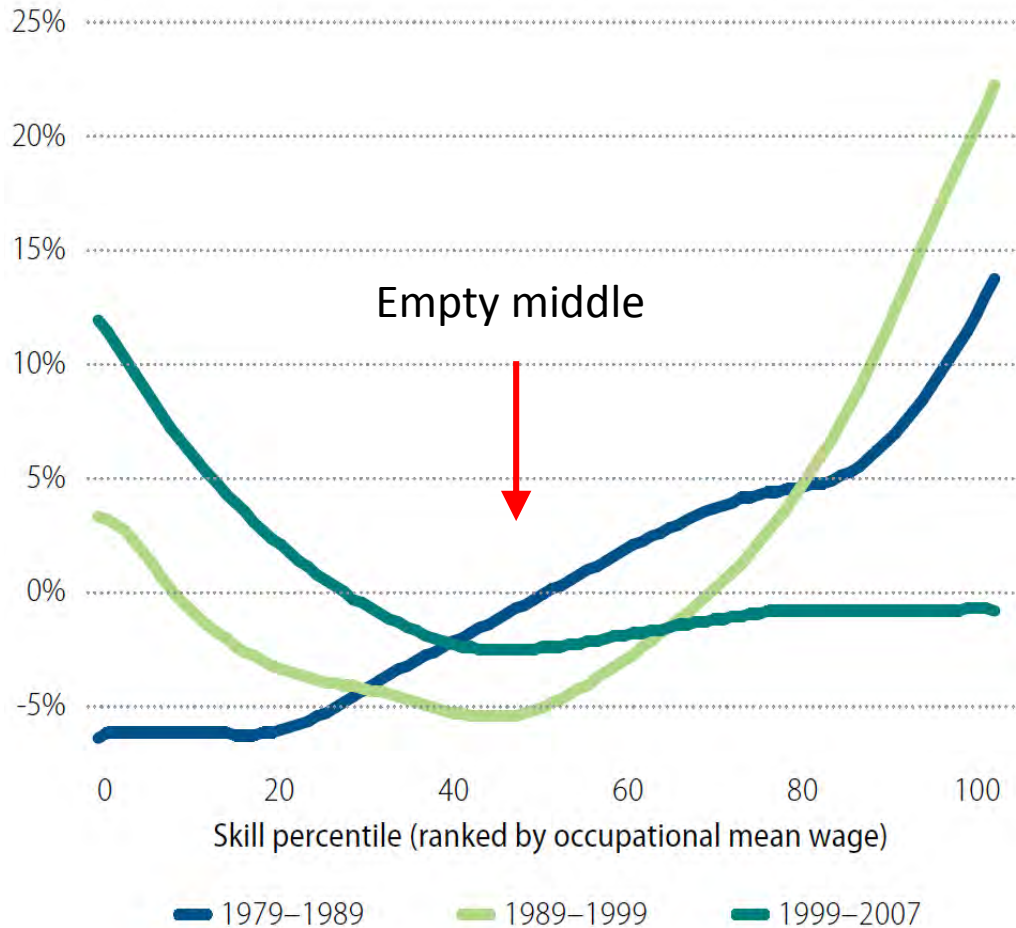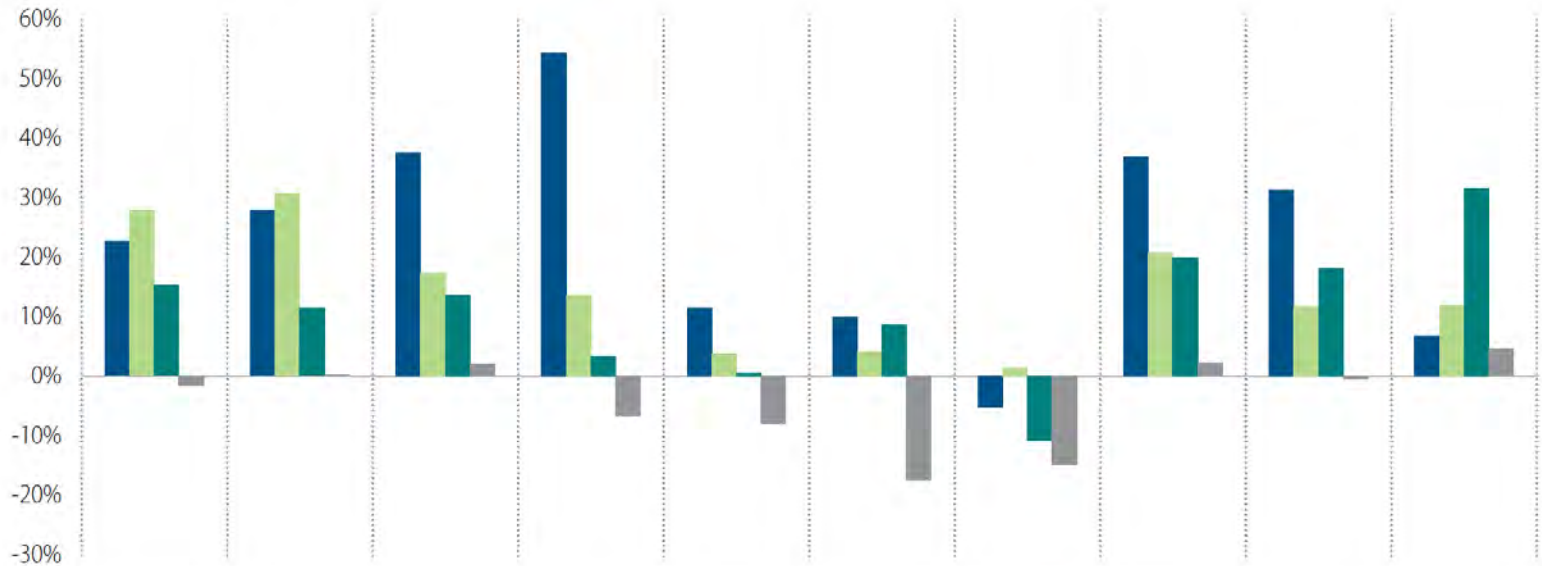
Change in employment share

Empty middle

Skill percentile (ranked by occupational mean wage)

1979–1989   1989–1999   1999–2007

Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

FIGURE 3

Percentage point change in employment by occupation, 1979–2009

Percentage change in employment

	Managers	Professionals	Technicians	Sales	Office and admin	Production, craft, and repair	Operators, fabricators, and laborers	Protective services	Food prep, building and grounds cleaning	Personal care and personal services
1979–1989	22%	28%	37%	54%	11%	10%	-5%	36%	31%	7%
1989–1999	27%	30%	17%	14%	3%	4%	1%	20%	11%	12%
1999–2007	15%	11%	14%	4%	1%	8%	-11%	20%	18%	31%
2007–2009	-1%	0%	2%	-7%	-8%	-17%	-15%	2%	0%	5%

Growth at high and low skills but not in middle skills. These patterns are worse for men, and not quite as bad for women

Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

FIGURE 6

Change in employment shares by occupation in 16 European countries
Occupations grouped by wage tercile: Low, middle, high, 1993–2006
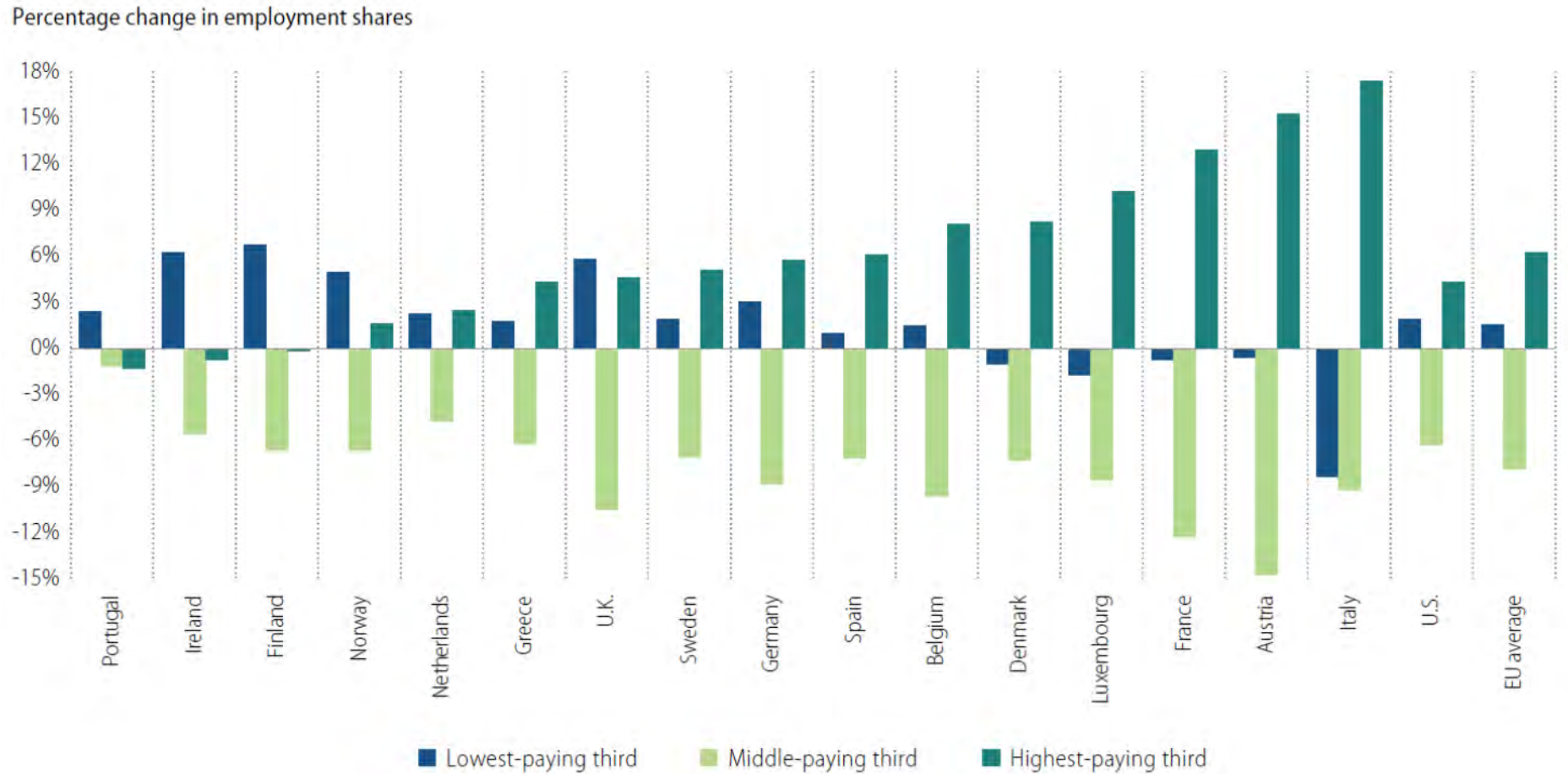
Percentage change in employment shares

Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

"Polarization" – Key forces

1. The slowing rate of four-year college degree attainment among young adults, particularly males

2. Changes in technology, international trade, and the international offshoring of jobs, which affect job opportunities and skill demands

3. Changes in U.S. labor market institutions affecting wage setting, including labor unions and minimum wage legislation

Policy Solutions

- Minimum wages

- Promote unionization

- Promote skills: Pre-K, K-12

- Increase college access

- Funded perhaps with higher MTR