Economics 101A
(Lecture 27)

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Outline

1. Example of Walrasian Equilibrium

2. Summary of General Equilibrium

3. Welfare Theorems

4. Empirical Economics

1 Example of Walrasian Equilibrium

- Consumer 1 has Leontieff preferences:

$$u(x_1, x_2) = \min\left(x_1^1, x_2^1\right)$$

- Bundle demanded by consumer 1:

$$
\begin{aligned}
x_1^{1*} &= x_2^{1*} = x^{1*} = \frac{p_1 \omega_1^1 + p_2 \omega_2^1}{p_1 + p_2} = \\
&= \frac{\omega_1^1 + (p_2/p_1)\,\omega_2^1}{1 + (p_2/p_1)}
\end{aligned}
$$

- Graphically

- Comparative statics:

  - increase in ω

  - increase in p_2/p_1:

  $$\frac{dx_1^{1*}}{dp_2/p_1} = \frac{\omega_2^1\left(1+(p_2/p_1)\right) - \left(\omega_1^1 + (p_2/p_1)\,\omega_2^1\right)}{\left(1+(p_2/p_1)\right)^2} = $$
  $$= \frac{\omega_2^1 - \omega_1^1}{\left(1+(p_2/p_1)\right)^2}$$

  - Effect depends on income effect through endowments:

    * A lot of good 2 –> increase in price of good 2 makes richer

    * Little good 2 –> increase in price of good 2 makes poorer

- Notice: Only ratio of prices matters (general feature)

- Consumer 2 has Cobb-Douglas preferences:

$$u(x_{1,}x_2) = \left(x_1^2\right)^{.5} \left(x_2^2\right)^{.5}$$

- Demands of consumer 2:

$$x_1^{2*} = \frac{.5\left(p_1\omega_1^1 + p_2\omega_2^1\right)}{p_1} = .5\left(\omega_1^1 + \frac{p_2}{p_1}\omega_2^1\right)$$

and

$$x_2^{2*} = \frac{.5\left(p_1\omega_1^1 + p_2\omega_2^1\right)}{p_2} = .5\left(\frac{p_1}{p_2}\omega_1^1 + \omega_2^1\right)$$

- Impose Walrasian equilibrium in market 1:

$$x_1^{1*} + x_1^{2*} = \omega_1^1 + \omega_1^2$$

This implies

$$\frac{\omega_1^1 + (p_2/p_1)\,\omega_2^1}{1 + (p_2/p_1)} + .5\left(\omega_1^1 + \frac{p_2}{p_1}\omega_2^1\right) = \omega_1^1 + \omega_1^2$$

or

$$\frac{.5 - .5\,(p_2/p_1)}{1 + (p_2/p_1)}\omega_1^1 + \frac{.5\,(p_2/p_1) + .5\,(p_2/p_1)^2 - 1}{1 + (p_2/p_1)}\omega_2^1 = 0$$

or

$$\left(\omega_1^1 - 2\omega_2^1\right) + \left(\omega_1^1 + \omega_2^1\right)(p_2/p_1) + \omega_2^1\,(p_2/p_1)^2 = 0$$

- Solution for p_2/p_1:

$$\frac{p_2}{p_1} = \frac{-\left(\omega_1^1 - 2\omega_2^1\right) + \sqrt{\left(\omega_1^1 + \omega_2^1\right)^2 - 4\left(\omega_1^1 - 2\omega_2^1\right)\omega_2^1}}{2\left(\omega_1^1 - 2\omega_2^1\right)}$$

- Some complicated solution!

- Problem set has solution that is much easier to compute (thankfully!)

2 Summary of General Equilibrium

- Does Walrasian Equilibrium always exist? In general, yes, as long as preference convex

- Is Walrasian Equilibrium always unique? Not necessarily

- Is Walrasian Equilibrium efficient? Yes.

- **First Fundamental Welfare Theorem.** All Walrasian Equilibria are on Contract Curve (and therefore are Pareto Efficient).

- Smithian Invisible Hand. Market leads to an allocation that is Pareto Efficient.

  - BUT: problems with externalities and public good

  - BUT: what about distribution?

3 Empirical Economics

- So far we have focused on economic theory

- What have we learnt (maybe)?

- Power of models

- **Consumers**. We tried to capture:

  - savings decisions (consumer today/consumer in future)

  - work-leisure trade-off (how much to work?)

  - attitudes toward risk (insurance, investment)

  - self-control problems (health club, retirement saving)

  - altruism (charitable contribution, volunteer work)

- **Producers.**

- Beauty of competitive markets:

  - price equals marginal costs

  - zero profit with entry into market

  - welfare optimality (no deadweight loss)

- Market power, the realistic scenario:

  - choice of price to maximize profits

  - single price or price discrimination

  - interaction between oligopolists

- But this is only half of economics!

- The other half is empirical economics

- Creative and careful use of data

- Get empirical answers to questions above (and other questions)

- Different methodologies

Methodology I. Consumers choose in a menu of options

- Choice among options reveals preferences

- Ex.: Health club paper (DellaVigna and Malmendier, 2004)

- Ex. Choice of deductibles (Sydnor, 2004)

- Fields:

  * Consumption decisions

  * IO

  * Finance

- **Methodology II.** Differences-in-differences

  - Consider effect of a change in variable x on variable y

  - Ex.: Minimum wage (x) and employment (y) (Card and Krueger, 1991)

  - Ex.: AIDS death of parent (x) and education of child (y) (Evans and Miguel, 2004)

  - Ex.: Fox News Exposure (x) and voting behavior (y) (DellaVigna and Kaplan, 2004)

  - Fields:

    * Labor Economics

    * Health Economics

- Fox News example:

  - Does it matter if media are biased?

  - Fox News is to the right of all other TV news channels (CNN, ABC, CBS, NBC)

  - Does exposure to Fox News before elections change voting behavior in 2000 election?

- Building pieces:

  1. Fast expansion of Fox News in cable markets

     - October 1996: Fox News created

     - June 2000: 17 percent of US population listens regularly to Fox News (Pew)

2. Geographical differentiation in expansion

   – Cable markets: Local monopolies with capacity constraints

   – Town-level variation in exposure to Fox News

   – 9,000 towns with variation even within a county

3. Conservative content

   – Unique right-wing TV channel (Groseclose and Milyo, 2004)

   – Clear differentiation of content

   – Substantial effect on average information exposure

Figure 1. Fox News Availability by County, 2000.
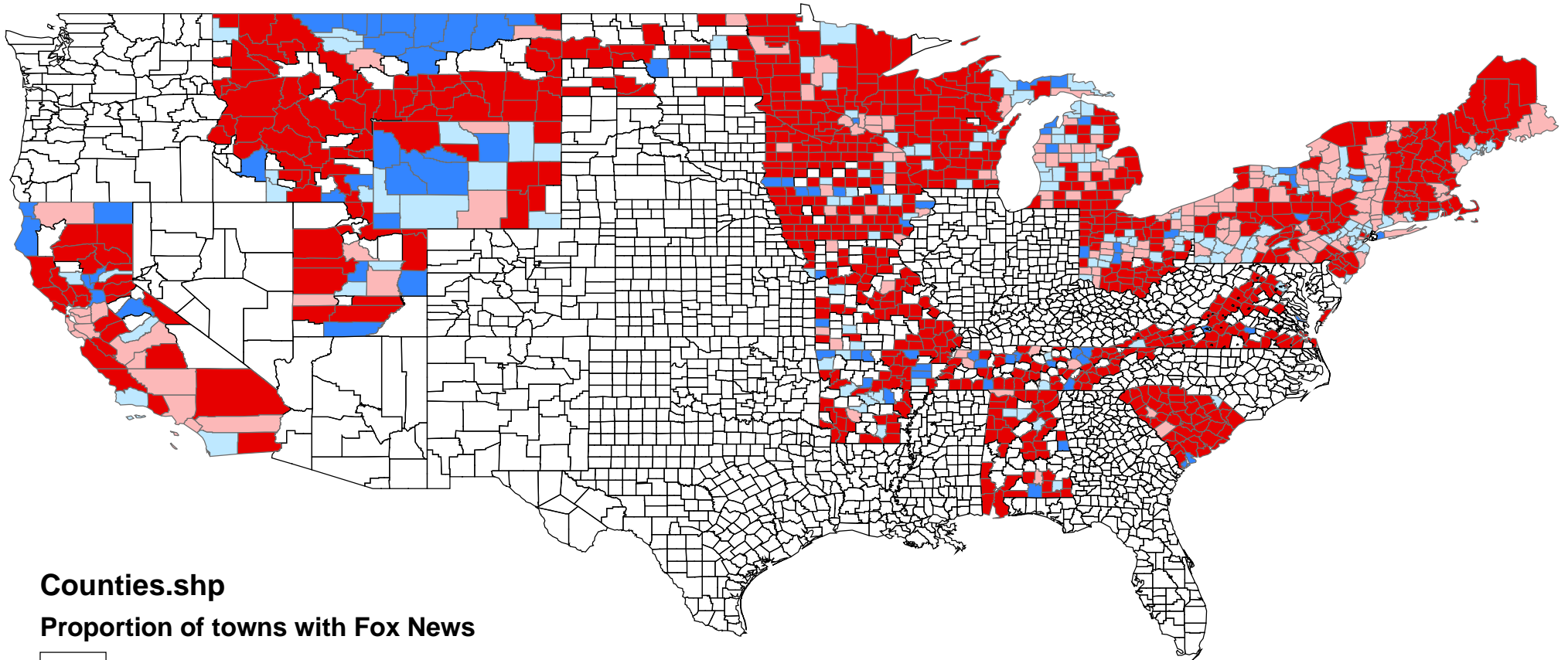
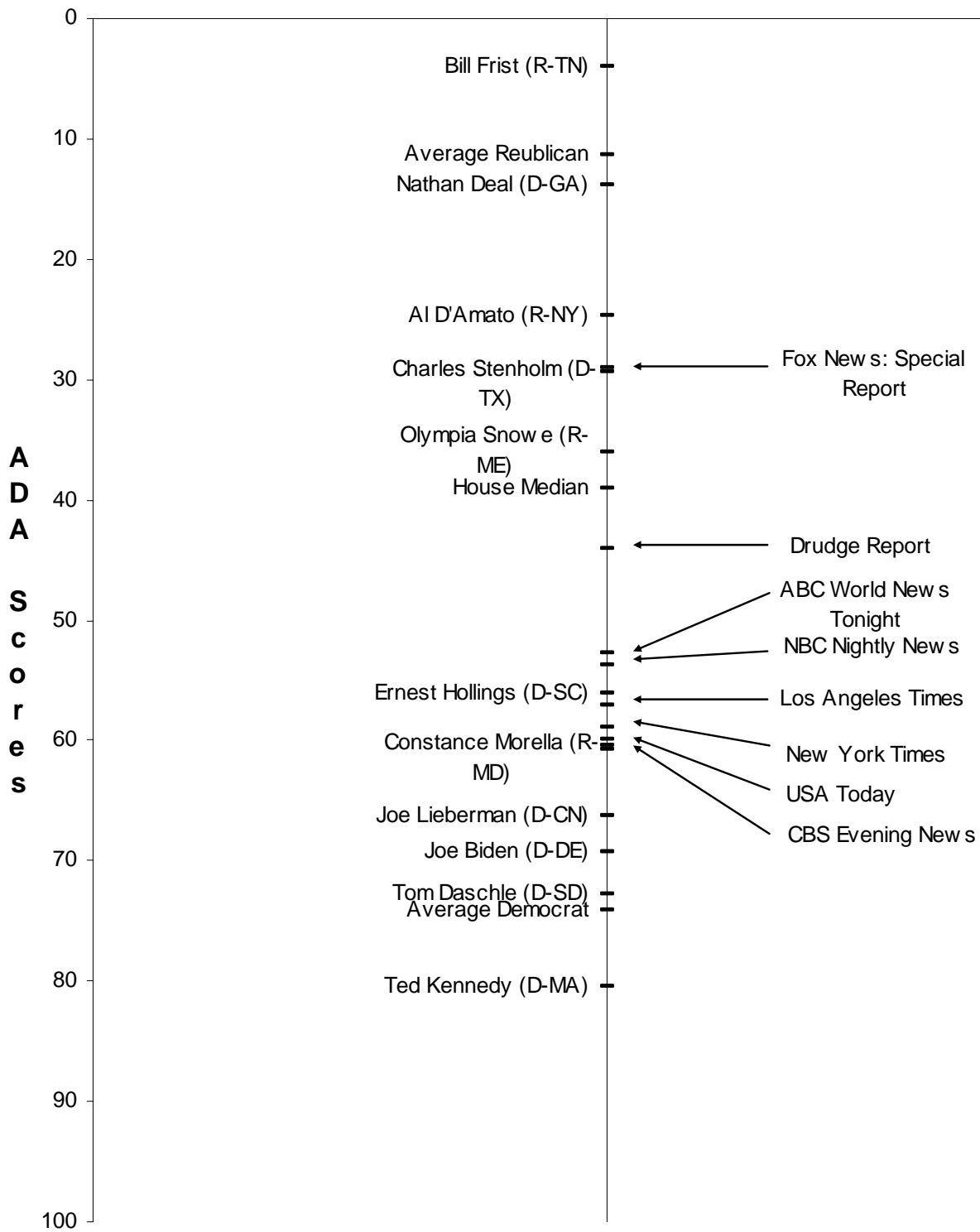**Counties.shp**

Proportion of towns with Fox News

- No Data
- proportion = 0
- 0 < proportion < 0.5
- 0.5 <= proportion < 1
- proportion = 1

Note: Proportion for each county is calculated as the ratio of number of towns with Fox News available via cable to total number of towns in the county. Alaska and Hawaii are also in the data set, but are not included on the map due to space constraints.

Figure 2. Adjusted ADA Scores of Politicians and Media Outlets, Sentences as Observations

ADA Scores (y-axis: 0 to 100)

- 0
- Bill Frist (R-TN)
- 10
- Average Reublican
- Nathan Deal (D-GA)
- 20
- Al D'Amato (R-NY)
- Charles Stenholm (D-TX) ← Fox News: Special Report
- 30
- Olympia Snowe (R-ME)
- House Median
- 40
- ← Drudge Report
- ABC World News Tonight
- 50
- NBC Nightly News
- Ernest Hollings (D-SC) ← Los Angeles Times
- New York Times
- Constance Morella (R-MD)
- USA Today
- 60
- CBS Evening News
- Joe Lieberman (D-CN)
- Joe Biden (D-DE)
- 70
- Tom Daschle (D-SD)
- Average Democrat
- 80
- Ted Kennedy (D-MA)
- 90
- 100

- Strategy:

  - Data town-by-town

  - Compare:

    * Town F that offers Fox News in 2000

    * Town N that does not offers Fox News in 2000

  - Analyze effect on Republican vote share in 2000 v_j^{2000}

- Simple one-difference regression:

$$v_j^{2000} = \alpha + \beta d_F + \varepsilon$$

- $d_F = 1$ if town offers Fox News

- Problem:

  - F towns may differ from N towns (may be more Republican to start with)

  - Consider different objective variable: change in vote share $v_j^{2000} - v_j^{1996}$

  - Simple difference-in-difference regression:

  $$v_j^{2000} - v_j^{1996} = \alpha + \beta d_F + \varepsilon$$

- Difference in difference because:

  1. Difference over location

  2. Difference over time

Table 4. Fox News and 2000-1996 Presidential Vote Share Change

	Dep. Var.: Rep. Vote Share Change between 2000 & 1996 Pres. Elect.					
	Two-Party Vote Share					
	(1)	(2)	(3)	(4)	(5)	(6)
Fox News 2000	0.0024	0.0076	0.004	0.0066	0.0034	0.0039
	(0.0023)	(0.0025)***	(0.0015)***	(0.0014)***	(0.0021)	(0.0018)**
Pres. Vote Chg. (92-88)					0.0088	0.0369
					(0.0205)	(0.0207)*
Control Variables:						
Census 2000 and 1990	X	X	X	X	X	X
Control for Cable Features		X	X	X	X	X
US House District Fixed Effects			X		X	
County Fixed Effects				X		X
R^2	0.5465	0.5772	0.7579	0.8155	0.7661	0.8336
N	N = 9256	N = 9256	N = 9256	N = 9256	N = 3722	N = 3722

Notes: An observation in the OLS regression is a town in one of the 28 US States in the sample. The dependent variable is the two-party republican vote share for the 2000 presidential election minus the two-party republican vote share for the 1996 presidential election. Fox News 2000 is a binary variables that equal one if Fox News was part of the town's local cable package in 2000. Robust standard errors clustered by local cable company in parentheses. The observation are weighted by total votes cast in the 1996 presidential elections.

* significant at 10%; ** significant at 5%; *** significant at 1%

- Results:

  - Half a percentage point effect of Fox News on Presidential voting

  - Effect also on Senatorial elections (so it's ideology)

  - Fox News convinced somewhere between 3 and 8% of its audience to switch to voting Republican

- Media matters!

- Other media effects. Example: Do violent movies trigger violent crimes?

- BUT: Is this economics?

- Empirical economics these days is precisely-measured social science

4 Advice

1. Listen to your heart

2. Trust yourself

3. Take 'good' risks:

   (a) hard courses

   (b) internship opportunities

   (c) (graduate classes?)

4. Learn to be curious, critical, and frank

5. Be nice to others! (nothing in economics tells you otherwise)