

# Econ 2230: Public Economics

## Lecture 5: Crowding out

# Empirical Evidence on Crowd-Out

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- ▶ Do government grants to nonprofits organizations displace or 'crowd-out' private contributions to the same organizations?
- ▶ Two strands of empirical literature
  1. Field evidence (naturally occurring data)
  2. Lab experiments
  3. Field experiments



# 1. Field Evidence

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- ▶ Early Crowd-Out Studies:
- ▶ Rely on broad definitions of charity and government support
  - ▶ Charity: broad contributions to social welfare
  - ▶ Government support : an aggregate measure of social welfare funding by state and federal governments.
  - ▶ Roberts, 84; Abrams and Schmitz,78,85; Steinberg,84; Reece, 79; Schiff, 85



# Kingma 1989

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- ▶ Examine contributions to a specific (pure) public good
- ▶ Individual contributions to public radio stations and the level of funds received by public radio from all sources
- ▶ Objective; examine crowd-out to determine which model of giving best approximates behavior (“distinguish between the different models of charity”)
  - ▶ Pure Altruism:  $U(x_i, G)$
  - ▶ Impure Altruism:  $U(x_i, G, g_i)$
  - ▶ Pure Warm-glow:  $U(x_i, g_i)$
  - ▶ [Sources model:  $U(x_i, G_{-i}, g_i, \text{gov. support})$  ]



# Kingma 1989

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- ▶ Data:

- ▶ Cross-sectional survey of individuals who listened to public radio (radio diaries)
- ▶ Match household level contributions data with station level data on revenue
- ▶ 3,500 individuals and 63 different radio stations

- ▶ Characteristics:

- ▶ Data on contributors and non-contributors
- ▶ Of those surveyed 1,800 contribute (wealthier, more educated, listen more than non-contributors)



# Kingma 1989

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- ▶ Want to examine effect of government support on individual contributions

$$D_i = \beta_0 + \beta_1 G_i + \beta_2 R_i + X_i \gamma + e_i$$

- ▶  $D_i$  = individual contribution
- ▶  $G_i$  = government support
- ▶  $R_i$  = giving by others
- ▶  $X_i$  = set of controls: individual income, individual education, age, price
  
- ▶ Complications?



# Kingma 1989

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$$D_i = \beta_0 + \beta_1 G_i + \beta_2 R_i + X_i \gamma + e_i$$

- ▶ Complications?
  - ▶ Price – charitable giving can move you from one tax bracket to another - use tax rate of first dollar
  - ▶ Many don't contribute – estimate using Tobit
  - ▶ Causal effect of  $G_i$  and  $T_i$  on  $D_i$  ?  $T_i$  and  $G_i$  likely correlated with  $e_i$ . OLS will lead to a biased and inconsistent estimate of  $\beta$ 's . Estimate  $\beta$ 's using IV techniques.



# Kingma, 1989

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- ▶ Stage 1:
  - ▶ Estimate  $R_i$  and  $G_i$  controlling for population of each stations listening area and station level averages on household income, price of giving, education, and age.
  - ▶ Valid instruments must affect  $R_i$  and  $G_i$  , but only influence  $D_i$  through  $R_i$  and  $G_i$  . That is valid instruments must be uncorrelated with the error term  $e_i$
  - ▶ Example of a good instrument?
  - ▶ Are Kingma's instruments good?



# Kingma, 1989

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- ▶ Example of a good instrument?
- ▶ Are Kingma's instruments good?
  - ▶ Manzoor and Straub, 2005: four station averages no significant effect on  $R_i$  and  $G_i$  and questions whether they are uncorrelated with  $e_i$ . Estimate of  $\beta$ 's likely biased and inconsistent.



# Kingma Results

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$$D = -65.036 + .539(\text{INCOME}) - .010(R) - .015(G) \\ \quad (3.38) \quad (6.49) \quad (.94) \quad (3.02) \\ - 15.014(\text{PRICE}) + 10.018(\text{EDUCTN}) + .288(\text{AGE}). \\ \quad (.74) \quad (8.01) \quad (3.26)$$



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- Coefficient on G significant – indicating government crowd out. But small a \$10,000 increase in government giving decreases an agents giving by \$0.15. With 9,000 members implies crowd out of \$1,350.
- Evidence of impure altruism: crowd out of 13 cents per dollar



# Hungerman, 2005

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- ▶ Studies crowd out of church-provided welfare (soup kitchens, etc.) by government welfare.
  - ▶ What effect do government welfare expenditures have on donations made to churches?
  - ▶ What effect do government welfare expenditures have on spending decisions made by churches?
- ▶ Faith-based organizations supply social services to 70 million Americans annually. Estimated expenditure \$24 billion. Half of all charitable giving in the US goes to religious organizations



# Hungerman, 2005

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- ▶ Data

- ▶ Panel data set of Presbyterian Church congregations (11,000 congregations, 2.5 million members, 78,000 church/year observations in the data set)
- ▶ Regress church member donations and a church's community spending on government welfare expenditures
- ▶ Using IV technique



# Hungerman, 2005

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- ▶ Instrument:

- ▶ Uses 1996 Clinton welfare reform act as an instrument for welfare spending. One aspect of reform: changed eligibility criteria for welfare services from legal residency to citizenship. Reduced welfare for green card holders, e.g., eligibility for food stamps eliminated.
- ▶ Indicator variable that equals unity if welfare law in effect (after 97) interacted with the percent of non-citizens living in the community.
- ▶ Estimation technique similar to the diff in diff approach: if churches with many non-citizens altered behavior relative to other churches after the welfare law was passed. Then change attributed to welfare law



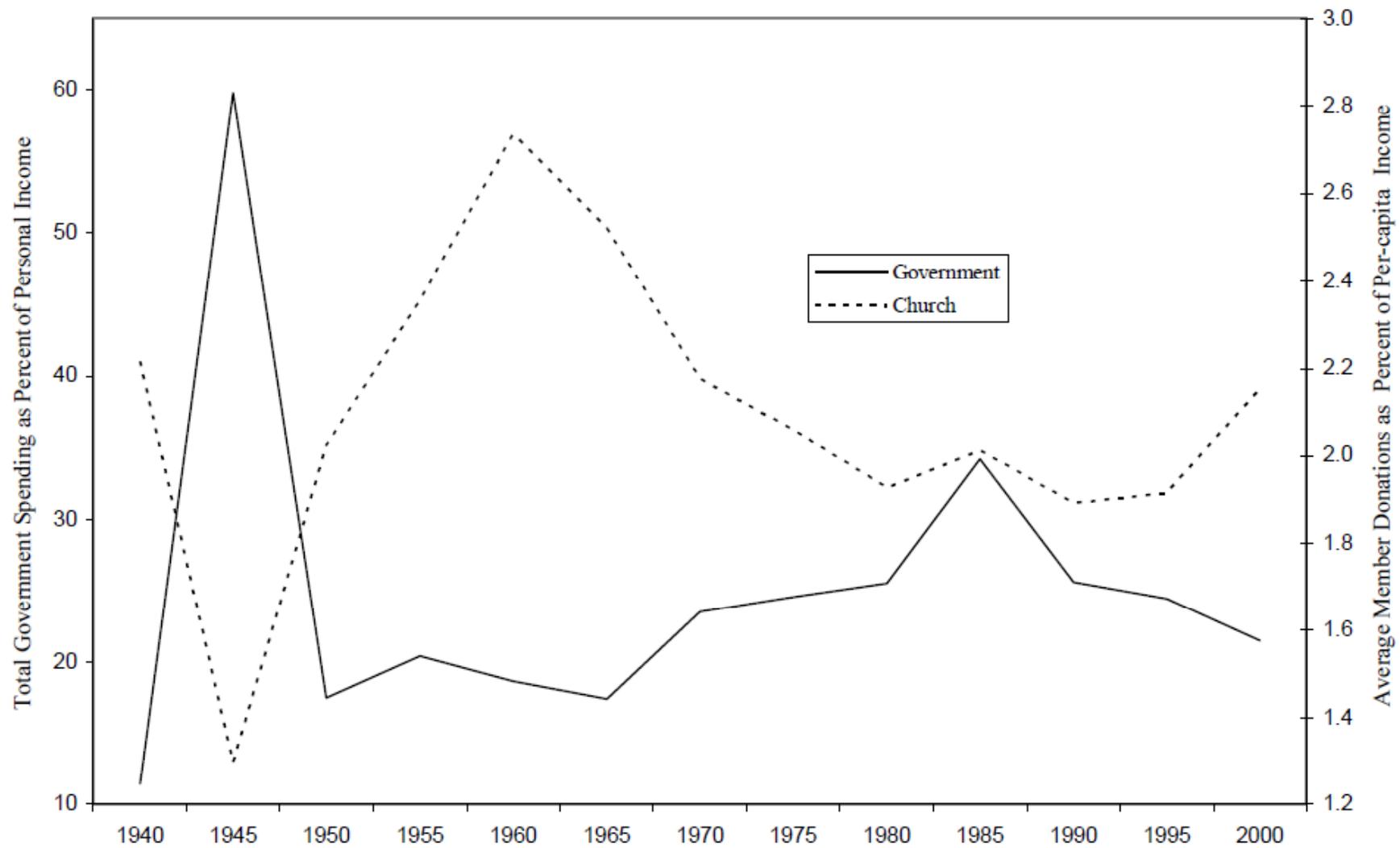


Figure I  
Government Spending and Church Giving



# Hungerman, 2005

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- ▶ Want to estimate

$$D_{ikt} = \beta_0 + T_{kt} \beta_1 + X_{ikt} \gamma + e_{ikt}$$

- ▶  $i$  = individual
- ▶  $k$  = county
- ▶  $t$  = year
- ▶  $D_{ikt}$  = per member donation to the church
- ▶  $T_{kt}$  = count per-capita government welfare spending (AFDC/TANF, Food stamps, medicaid, Supplemental Security Income (SSI))
- ▶  $X_i$  = vector of congregational and community characteristics



# Hungerman, 2005

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- ▶ Instrument?
  - ▶ Careful justification
  - ▶ Eligibility affected
  - ▶ State response to law
  - ▶ Response by legal aliens – apply for citizenship or move
  - ▶ Significant impact on welfare services to non-citizens relative to citizens
  - ▶ Were churches aware of law?

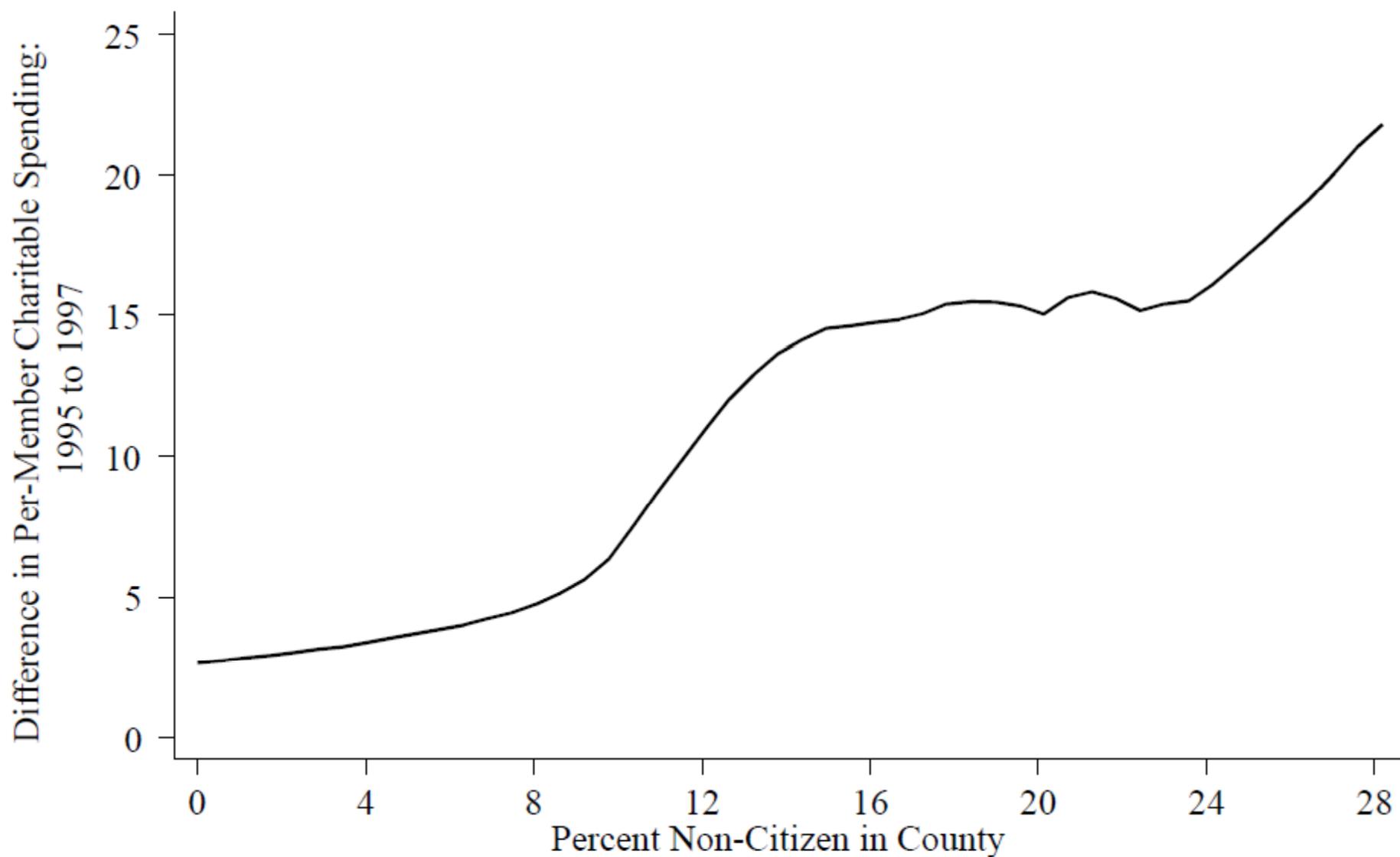


Table I  
Benefit Eligibility of Non-Citizens

Arrival	Type of Non-Citizen	Food Stamps Eligibility	SSI Eligibility	TANF Eligibility	Medicaid Eligibility
On or Before 8/22/1996	Legal Permanent Residents	If over age 64 on or before 8/22/1996 If under age 18 If disabled or blind	If receiving SSI on 8/22/1996 If disabled since	State option <sup>a</sup>	State option <sup>b</sup>
	Refugees/Asylees	Eligible for 7 years	Eligible for 7 years	Eligible for 5 years	Eligible for 7 years
	Unqualified Immigrants	Ineligible <sup>c</sup>	Ineligible <sup>c</sup>	Ineligible	Eligible for emergency services only
After 8/22/1996	Legal Permanent Residents	Ineligible	Ineligible	Ineligible for first 5 years, state option after	Ineligible for first 5 years, state option after
	Refugees/Asylees	Eligible for 7 years	Eligible for 7 years	Eligible for 5 years	Eligible for 7 years
	Unqualified Immigrants	Ineligible <sup>c</sup>	Ineligible <sup>c</sup>	Ineligible	Eligible for emergency services only <sup>d</sup>



Figure III: Per-Member Church Activity Before and After the Welfare Law  
By Percent Non-Citizen in Community



The figure is an Epanechnikov kernel estimate of the level growth in per-member charitable church spending between 1995 and 1997 as a function of percent non-citizen in the county in 1994.

## First-Stage Regression Results

	Per-Capita Welfare Spending
Post-96 Dummy times Percent Non-Citizen	-3.114 [0.940]
Unemployment	7.03 [1.76]
Percent under Age 18	6.18 [6.71]
Percent Ages 50-64	-18.02 [7.56]
Percent Ages 65-84	2.48 [8.53]
Percent over Age 84	184.49 [33.89]
Percent Black	-6.13 [5.45]
Percent Hispanic	2.23 [5.98]
Percent Single Female-Headed Households	0.85 [15.87]
Percent Non-Citizen	1.57 [1.91]
Income, per capita (1000s)	-16.44 [9.51]
Total Observations	66,899
Year Dummies	Yes
Church Dummies	Yes

## Estimations of Church Activity

	Charitable Church Spending		Member Donations		
	OLS	2SLS	OLS	2SLS	
----- Welfare Spending <sup>†</sup>	-0.009 [0.007]	-0.401 [0.140]	-0.010 [0.018]	-0.061 [0.192]	---
Unemployment	-0.56 [0.59]	2.56 [1.31]	0.75 [1.53]	1.15 [2.05]	
Percent under Age 18	4.51 [2.28]	5.06 [3.50]	7.12 [5.21]	7.26 [5.23]	
Percent Ages 50-64	-2.12 [1.81]	-9.15 [4.57]	27.01 [6.18]	26.22 [7.37]	
Percent Ages 65-84	3.88 [2.39]	4.29 [4.22]	2.3 [7.24]	2.39 [7.20]	
Percent over Age 84	-10.62 [8.71]	63.63 [30.29]	-55.24 [27.72]	-45.21 [47.53]	
Percent Black	0.6 [1.24]	-1.52 [2.56]	4.46 [4.04]	4.24 [4.17]	
Percent Hispanic	1.26 [2.33]	-1.07 [3.01]	-4.12 [5.28]	-4.38 [5.77]	
Percent Single Female- Headed Households	-5.52 [3.51]	-5.6 [7.09]	12.57 [9.99]	12.37 [10.18]	
Income, per capita (1000s)	0.58 [0.47]	0.69 [0.85]	2.85 [1.86]	2.87 [1.85]	
Percent Non-Citizen	-1.37 [3.65]	-6.7 [5.55]	22.34 [6.86]	21.64 [6.56]	---
▶ Mortality	0.74 [0.281]	0.7 [0.281]	5.52 [1.751]	5.52 [1.751]	

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- ▶ Church activities substitute for government activities
- ▶ Extrapolating findings to all denominations, the estimated 'crowd-out' effect lies between 20 and 38 cents on the dollar
  
- ▶ What can we infer on motives for giving?



# Hungerman, 2005

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- ▶ Church activities substitute for government activities
- ▶ Extrapolating findings to all denominations, the estimated 'crowd-out' effect lies between 20 and 38 cents on the dollar
  
- ▶ What can we infer on motives for giving?
  - ▶ Information? (lab)
  - ▶ Agency response?

