PSC 102: Intro to International Politics

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Trust and Exploitation

Introduction

- Two goals for this lecture
  - Prove that fear of a collaboration problem can prevent cooperation even in absence of actual problem
  - Demonstrate empirically that real world patterns of trade match our expectations

A Model of Trust and Exploitation

	allow	block
allow	$\beta,\ \beta$	$\beta e_1,\ \beta^{\tau_2}$
block	$\beta^{\tau_1},\ \beta e_2$	0, 0

- Player i knows
  - The value of β, e_i, e_j, and τ_i
  - That $\beta > 0$, $e_i, e_j \in [-1, 1)$
  - $pr(\tau_j = \underline{\tau}_j) = \phi_j$
  - $pr(\tau_j = \overline{\tau}_j) = 1 - \phi_j$
  - and $0 < \underline{\tau}_j < \overline{\tau}_j$

Trivial Equilibria

- There exists an equilibrium where pr(coop)$= 0$
  - Only equilibrium when $\underline{\tau}_1, \underline{\tau}_2 > 1$,
  - Everyone knows there is a collaboration problem

- There exists an equilibrium where pr(coop)$= 1$
  - Only equilibrium when $\overline{\tau}_1, \overline{\tau}_2 < 1$, $e_1, e_2 > 0$
  - Everyone knows there is not a collaboration problem

Conditionally Cooperative Equilibrium

- In the most interesting equilibrium
  - Each state allows imports iff they are the blue type
  - Cooperation fails if either state is red
  - Or if either does not trust the other
  - Pr(cooperation) is therefore $\phi_1\phi_2$
  - With pr $\phi_1(1-\phi_2)$, 1 is exploited by 2
  - With pr $(1-\phi_1)\phi_2$, 2 is exploited by 1
  - With pr $(1-\phi_1)(1-\phi_2)$, neither allows imports

Key Condition

- i allows iff $E(u_i(a)) \geq E(u_i(b))$
- $\Rightarrow \phi_j(\beta) + (1 - \phi_j)(\beta e_i) \geq \phi_j(\beta^{\tau_i}) + (1 - \phi_j)(0)$
- $\Rightarrow \phi_j \beta + \beta e_i - \phi_j \beta e_i \geq \phi_j \beta^{\tau_i}$
- $\Rightarrow \beta e_i \geq \phi_j \beta^{\tau_i} - \phi_j \beta + \phi_j \beta e_i$
- $\Rightarrow \beta e_i \geq \phi_j(\beta^{\tau_i} - \beta + \beta e_i)$
- Or $\phi_j \leq \hat{\phi}_j$ if $\beta^{\tau_i} - \beta + \beta e_i > 0$ and $\phi_j \geq \hat{\phi}_j$ if < 0
- Where $\hat{\phi}_j \equiv \frac{\beta e_i}{\beta^{\tau_i} - \beta + \beta e_i}$

- CCE holds when the relevant inequalities are satisfied for the blue type of each side, but not for the red types

Implications

- Trust only sometimes promotes cooperation
- Less likely to do so if stakes high
- Cooperation more likely when relations harmonious

Data

- Observations: all dyad-years from 1870 to 1913, 1950 to 2005
- Dependent variable: cooperative trade relations
  - Equals 1 iff 3 conditions met ($\approx$ 35% of cases)
  - 1: Imports from 1 to 2 $>$ 10 mil current US $
  - 2: Imports from 2 to 1 $>$ 10 mil current US $
  - 3: Larger flow $<$ 75% of bilateral trade volume
- Independent variables: trust (ϕ), harmonious (e), stakes (β)
  - Trust equals 1 iff 1 has embassy in 2 and 2 in 1
  - Harmonious equals $\frac{energyconsump_L}{energyeconsump_L + energyconsump_H}$
  - Stakes equals $\frac{population_1 \times population_2}{ln(distance)}$

Ex: USA and Canada

Data Editor (Browse) - [trade]

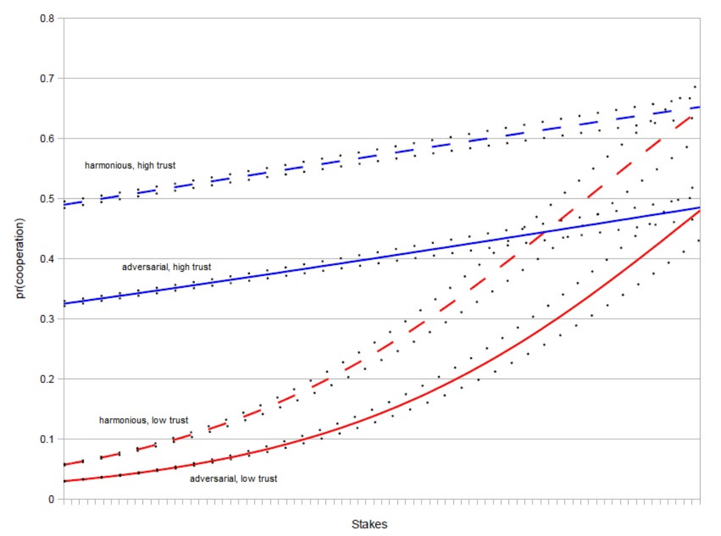
File Edit Data Tools

ccode1[1] 2

	ccode1	ccode2	year	distance	flow1	flow2	trust	consump1	consump2	harmon	coop	stakes	pop1	pop2
22	2	20	1971	455	13467.8	11935.5	1	12.03	11.25	.9664948	1	779.0981	207661	22962
23	2	20	1972	455	15809.9	14361.1	1	12.28	13.19	.9642718	1	762.0364	209896	22220
24	2	20	1973	455	18762.8	18163.1	1	12.61	13.96	.9491909	1	778.8316	211909	22494
25	2	20	1974	455	23775.6	23814	1	12.26	14.08	.9309036	1	796.9518	213854	22808
26	2	20	1975	455	22754.1	25381.2	1	11.9	13.7	.9296875	1	816.6347	215973	23142
27	2	20	1976	455	27567	28739.7	1	12.46	13.64	.9547893	1	835.404	218035	23450
28	2	20	1977	455	30868.9	30819.8	1	12.74	13.91	.9560976	1	853.7805	220239	23726
29	2	20	1978	455	34646.9	33984.7	1	12.66	14.03	.9486699	1	871.5307	222585	23964
30	2	20	1979	455	38970.4	42467.7	1	12.74	14.71	.9282331	1	889.9537	225055	24202
31	2	20	1980	455	41998.6	45321.4	1	12.29	14.61	.9137547	1	912.1992	227726	24516
32	2	20	1981	455	46826.5	49746.9	1	11.8	14.12	.9104939	1	932.5945	229966	24820
33	2	20	1982	455	46791.7	42371.7	1	11.17	13.23	.9155738	1	952.873	232188	25117
34	2	20	1983	455	52545.9	48627.1	1	11.08	13.32	.9081967	1	971.14	234307	25367
35	2	20	1984	455	66911.1	57898.3	1	13.44	16.34	.9026191	1	988.9061	236348	25608
36	2	20	1985	455	69427.4	59464.9	1	13.26	16.21	.8998983	1	1006.924	238466	25843
37	2	20	1986	455	68662.4	61223.9	1	13.65	16.33	.9106071	1	1026.295	240651	26101
38	2	20	1987	455	71510.3	65590.8	1	14.13	17.04	.906641	1	1049.323	242804	26450
39	2	20	1988	455	81430	77495.4	1	15.2	18	.9156626	1	1072.836	245021	26798
40	2	20	1989	455	89550.2	82004.4	1	15.54	17.84	.9310964	1	1102.72	247342	27286
41	2	20	1990	455	93780.4	82777.6	1	15.75	17.99	.93361	1	1131.101	249907	27701
42	2	20	1991	455	93736.1	82527.6	1	16	17.87	.9447889	1	1156.992	252618	28031
43	2	20	1992	455	101292	87223.5	1	16.27	17.57	.961584	1	1184.13	255391	28377
44	2	20	1993	455	113617	96534.8	1	17.16	18.02	.9755542	1	1210.589	258132	28703
45	2	20	1994	455	131956	109591	1	17.1	17.7	.9827585	1	1236.352	260602	29036
46	2	20	1995	455	148304	119886	1	17.81	17.63	.994921	1	1260.218	262755	29354
47	2	20	1996	455	159746	126088	1	17.91	18.49	.984066	1	1286.131	265284	29672
48	2	20	1997	455	171440	145143	1	18.37	19.23	.9771277	1	1313.351	267901	30004
49	2	20	1998	455	178048	149054	1	18.16	19.41	.9667287	1	1368.417	274028	30563
50	2	20	1999	455	198829	157847	1	18.26	19.27	.9730883	1	1392.622	276218	30857
51	2	20	2000	455	229191	169068	1	18.91	20.64	.9562579	1	1416.595	278357	31147
52	2	20	2001	455	220138	155205	1	18.32	21.24	.926188	1	1445.103	285112	31021
53	2	20	2002	455	213954	152969	1	18.33	21.12	.9292775	1	1475.731	287888	31373
54	2	20	2003	455	227652	159630	1	18.57	21.69	.9225037	1	1503.233	290448	31676
55	2	20	2004	455	259807	176258	1	18.85	21.87	.9258349	1	1532.716	293192	31995
56	2	20	2005	455	291944	195151	1	18.69	21.61	.9275434	1	1562.178	295896	32312

Ready

Results


0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
pr(cooperation)
harmonious, high trust
adversarial, high trust
harmonious, low trust
adversarial, low trust
Stakes