

Electoral Competition, Special Interests

and Global Agricultural Distortions

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Objectives

- Theory explicitly linking institutions to agricultural policy.
 - Theory place special interests at the center, in order to explain agricultural distortions
- Testing whether the theory is relevant to agriculture
 - Comparative study across many countries and goods, testing the theory's (tight) predictions

Outline

- Literature Review: Political Economy of agricultural policy is different
- Special interest model (Grossman and Helpman, RE Studies 1996)
- Predictions: Institutions and policy outcomes
- Data
- Results

Literature

Economics

Large literature surveyed in de Gorter and Swinnen (2002).

- Stigler-Olson-Peltzman type collective action models: Lobbying by special interests.
 - Moe (1980), Anderson (1992), Anderson and Hayami (1986), Gardner (1987), Honma (1993), Krueger (1996), Olper (1998). Some contrary findings by Krueger, Schiff, and Valdez (1988), de Gorter and Tsur (1991) and de Gorter and Swinnen (1994).
- Downsian models of politician-citizen interactions: Political Support Function
 - Hillman (1982), Coate and Morris (1995), Besley and Coate (1998), de Gorter Tsur (1991) and Swinnen and de Gorter (1993)
- Stigler-Peltzman type "revealed preference" models with fixed weights given to different interest groups in the government's objective function ("revealed" by the data).
 - Seminal study by Rauser and Freebairn (1974), followed by many other studies attempting to estimate the weights.

Political Science

- Goldstein (1989) [US ag policy excluded from post-Depression era liberalization]
- Park and Jensen (2007) [subsidies determined by institutions]
- Thies and Porche (2007) [political institutional factors: veto players, federalism, party fragmentation explain agricultural producer support in oecd]
- Kasara (2007) [In Africa agricultural taxes outcome of ethnicity and distributive politics: ethnic linkages may actually hurt!]
- Our study more encompassing, theory-based.
- Next generation studies can incorporate more subtleties: Davis (2004)[linking liberalization of manufacturing with agriculture possible. Do other institutions matter?]
- Weakness of this study: Cannot explain export tax and import subsidies satisfactorily

Theory 1

Olson-Peltzman-Stigler Interest Groups

Anderson's (1992) unified framework explain two stylized facts:

- special interests matter
- both developed and developing countries protect their agriculture, but trade barriers are far higher in developed countries

Figure 1.

Lobbying in U.S. Agriculture

Does PAC contributions influence congressional voting and is influencing congressional voting a motivation for PAC spending?

Brooks, Cameron and Carter (1998) estimate a simultaneous model of voting on Sugar legislation (lower the loan rate on sugar) and PAC contributions. (i) Voting responsive to sugar PAC contributions as well as counter lobbying by sweetener user PAC contributions. Voting responsive to value of sugar production in ones constituency. (ii) Sugar lobbying contributions targeted those with a high propensity to be pro sugar.

Van Doren, Hoag and Field (1999) find that committee membership does confer benefits to Senators (1989-94). Membership on the Senate Agriculture committee confers the ability to receive \$13,000 more in agricultural PAC contributions, and membership on the Appropriations Sub-committee confers an advantage of over \$4,000.

Gawande (2005) lobbying data suggests that a similar exercise for House Agriculture committee members would show committee-effects that are not only statistically significant, but also economically large.

Theory

Grossman and Helpman (1996)

Set-up

- Two parties, A and B contest an election.
 - Ideology may distinguish them
 - Each has a policy platform: (vectors) p^A and p^B , that are pliable
- Proportion α of voters are uninformed, and $(1-\alpha)$ informed.
 - Uninformed voters swayed by propoganda
- Consider a single good, say wheat. Single wheat interest group, interested particularistic policy p_w^A and p_w^B .
- Wheat lobby makes campaign contributions to one or both lobbies, $C^A(p_w^A)$ and $C^B(p_w^B)$.

Theory

Grossman and Helpman (1996)

Details: Notation and Payoffs

$$\begin{aligned}
 (1) \quad s &= \text{A's share of votes (=seats in parliament)} \\
 &= \text{share of Informed} + \text{share of Uninformed votes} \\
 &= (1 - \alpha) \left(\frac{1}{n_I} \int_i F[u^i(p_w^A) - u^i(p_w^B)] di \right) \\
 &\quad + \alpha \cdot H(C^A - C^B),
 \end{aligned}$$

where H is linear & $n_I = \#$ uninformed.

Functional form:

$$\begin{aligned}
 s &= b + 1/2 + (1 - \alpha)f \cdot [W(p_w^A) - W(p_w^B)] \\
 &\quad + \alpha \cdot h \cdot (C^A - C^B) \tag{1}
 \end{aligned}$$

$$\begin{aligned}
 (2) \quad V &= \text{Objective function of wheat interest group} \\
 &= \phi(s)W(p_w^A) + [1 - \phi(s)]W(p_w^B) - C^A - C^B, \\
 &\quad \text{where } \phi(s) = \text{prob of legislating } p_w^A \tag{2}
 \end{aligned}$$

Theory

Grossman and Helpman (1996)

Details: Notation and Payoffs

(1) Participation constraint:

$$C^K \geq \frac{(1 - \alpha) \cdot f}{\alpha \cdot h} [W(p_w^*) - W(p_w^K)], \quad K = A, B$$

where p_w^* is optimal policy for the average
Informed voter

(3)

We will consider only influence-motivated contributions, where party A captures fraction $1/2 + b$ of the vote (b is the incumbency advantage) and B captures the remainder or $1/2 - b$.

Given these vote shares, the lobby choose the two platforms that will maximizes its expected welfare.

To do so, the wheat lobby offers each party exactly what it takes to win its support for the desired platform

Theory

Grossman and Helpman (1996)

Game

- Nash equilibrium of a two-stage, non-cooperative, political game:
 - First stage: interest group announces contribution schedules, one to each of the two parties.
 - Second stage: parties choose their policy platforms.
- After the platforms are set, the contributions are paid and the campaigns are waged.
- Then the election takes place, legislature is proportionally determined, and the legislature meets to implement one of the party's platforms.

Theory

Grossman and Helpman (1996)

Equilibrium

- Equilibrium: policy pair $\{\bar{p}^A, \bar{p}^B\}$ and contribution pair $\{\bar{C}^A(p_w^A), \bar{C}^B(p_w^B)\}$ such that
 - \bar{p}^A maximizes party A's share of votes s , given \bar{p}^B , and $\{\bar{C}^A(p_w^A), \bar{C}^B(p_w^B)\}$,
 - \bar{p}^B maximizes party B's share of votes $1 - s$, given \bar{p}^A , and $\{\bar{C}^A(p_w^A), \bar{C}^B(p_w^B)\}$,
 - no lobbies deviate.

Equilibrium Tariffs

Policy platform is a (per-unit) wheat tariff, t^s , i.e. $p_w^K = t^s$

Joint surplus in the game is [GH96, p. 274], where $W_w(t^s)$ is the (net of contributions) welfare of wheat lobby; $W(t^s)$ is the welfare of the average informed voter:

$$\Omega^K = \phi^K W_w(t^s) + \frac{1-\alpha}{\alpha} \frac{f}{h} W(t^s), \quad K = A, B. \quad (4)$$

Four parameters:

ϕ^K : probability, once party K wins the election, the legislature actually adopts t^s .

α : fraction of voters who are uninformed.

$f > 0$: diversity of views about the two parties among voters (e.g. liberal-conservative). Closer f is to zero, greater is the diversity of views.

$h > 0$: Greater is h , the more productive is a dollar of campaign spending in influencing the uninformed voter.

Derivation of Equilibrium Wheat Tariff

We presume wheat producers are organized but the proportion of voters that are wheat farmers is negligible. Breaking welfare into its component parts (CS, TR, PS),

$$\begin{aligned}
 \Omega^K &= \phi^K \pi(t^s) + \\
 &\quad \frac{1-\alpha}{\alpha} \frac{f}{h} \left[\sum_{i=1}^n \pi(t^s) + \sum_{i=1}^n t^s M(t^s) + \sum_{i=1}^n s(t^s) + l \right] \\
 &= \left[\frac{1-\alpha}{\alpha} \frac{f}{h} + \phi^K \right] \pi(t^s) + \\
 &\quad \frac{1-\alpha}{\alpha} \frac{f}{h} \left[\sum_{i=1}^n t^s M(t^s) + \sum_{i=1}^n s(t^s) + l \right]. \tag{5}
 \end{aligned}$$

The first-order conditions for determining the optimal tariff in sector i is:

$$\left[\frac{1-\alpha}{\alpha} \frac{f}{h} + \phi^K \right] z + \frac{1-\alpha}{\alpha} \frac{f}{h} \left[-z + \frac{t}{1+t} e \right] = 0 \tag{6}$$

which solves for the politically optimal ad valorem tariff platform as:

Equilibrium Wheat Tariff

The politically optimal ad valorem tariff platform is a function:

$$\frac{t}{1+t} = \frac{\phi^K}{\left(\frac{1-\alpha}{\alpha}\right) \frac{f}{h}} \left[\frac{z}{e} \right]. \quad (7)$$

$z = X/M$ is the inverse import-output ratio

e is the elasticity of import demand if wheat is imported, and export supply elasticity if it is exported

Equilibrium Wheat Tariff

Letting y denote the transformed left-hand-side variable,

$$y = \frac{t}{1+t} \cdot \left[\frac{e}{z} \right], \quad (8)$$

and a denote

$$a = \left(\frac{1-\alpha}{\alpha} \right) \frac{f}{h}, \quad (9)$$

we can write

$$y = \frac{\phi^K}{\left(\frac{1-\alpha}{\alpha} \right) \frac{f}{h}} = \frac{\phi^K}{a}. \quad (10)$$

Generalizing to many sectors, where I_i indicates whether sector i has a lobby, this becomes

$$y_i = \frac{\phi^K}{\left(\frac{1-\alpha}{\alpha} \right) \frac{f}{h}} \cdot I_i = \frac{\phi^K}{a} \cdot I_i \quad (11)$$

Hypotheses

1. Probability of legislating party K 's proposed tariff, ϕ^K :

$$\begin{aligned} \frac{\partial y_i}{\partial \phi^K} &= 1/a > 0 && \text{if } I_i = 1, && \text{and} \\ \frac{\partial y_i}{\partial \phi^K} &= 0 && \text{if } I_i = 0. \end{aligned} \quad (12)$$

The null and alternative hypotheses may thus be stated as:

$$\begin{aligned} H_N &: \frac{\partial y_i}{\partial \phi^K} \geq 0 \\ H_A &: \frac{\partial y_i}{\partial \phi^K} < 0. \end{aligned} \quad (13)$$

2. Fraction α of uninformed voters:

$$\begin{aligned} \frac{\partial y_i}{\partial \alpha} &= \frac{-\phi^K \cdot \frac{f}{h} \cdot \left(\frac{-1}{\alpha^2}\right)}{\alpha^2} > 0 && \text{if } I_i = 1, \text{ and} \\ \frac{\partial y_i}{\partial \alpha} &= 0 && \text{if } I_i = 0. \end{aligned} \quad (14)$$

The null and alternative hypotheses may thus be stated as:

$$\begin{aligned} H_N &: \frac{\partial y_i}{\partial \alpha} \geq 0 \\ H_A &: \frac{\partial y_i}{\partial \alpha} < 0. \end{aligned} \quad (15)$$

Hypotheses

3. Party diversity f (Closer f is to zero, the greater is diversity)

$$\begin{aligned}\frac{\partial y_i}{\partial f} &= \frac{-\phi^K}{a.f} < 0 & \text{if } I_i = 1, \text{ and} \\ \frac{\partial y_i}{\partial f} &= 0 & \text{if } I_i = 0.\end{aligned}\quad (16)$$

The null and alternative hypotheses may thus be stated as:

$$\begin{aligned}H_N &: \frac{\partial y_i}{\partial f} \leq 0 \\ H_A &: \frac{\partial y_i}{\partial f} > 0.\end{aligned}\quad (17)$$

4. Productivity of campaign spending parameter h .

$$\begin{aligned}\frac{\partial y_i}{\partial h} &= \frac{\phi^K}{a.h} > 0 & \text{if } I_i = 1, \text{ and} \\ \frac{\partial y_i}{\partial h} &= 0 & \text{if } I_i = 0.\end{aligned}\quad (18)$$

The null and alternative hypotheses may thus be stated as:

$$\begin{aligned}H_N &: \frac{\partial y_i}{\partial h} \geq 0 \\ H_A &: \frac{\partial y_i}{\partial h} < 0.\end{aligned}\quad (19)$$

Data

Dependent Variable

Anderson et al (2008)

– The trade distortions database distills multiple instruments into an ad valorem measure of distortions – the nominal rate of assistance (or NRA).

– NRA to agricultural good i , NRA_i , is the tax equivalent of border and domestic measures used by the government (e.g. trade taxes and subsidies, quantitative restriction, domestic taxes or subsidies for farm output and inputs). It may be used analogously to t_i in (xx).

- 64 developing and developed countries, across detailed farm products 1961-2004 (incompletely).

- Nominal rate of assistance (NRA) , Imports (m), and Value added (x)

– Trade distortions imposed unilaterally, not negotiated multilaterally.

Results

1. Hypothesis Tests

TABLES 3, 4