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Trade in the Shadow of Power

Stergios Skaperdas

Selected Paper prepared for presentation at the International Agricultural Trade Research Consortium's (IATRC's) 2014 Annual Meeting: Food, Resources and Conflict, December 7-9, 2014, San Diego, CA.

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TRADE IN THE SHADOW OF POWER

Stergios Skaperdas (University of California, Irvine)
(Draws on joint work with M.Garfinkel and C.Syropoulos)

International Agricultural Trade Research Consortium Annual Meeting

December 7, 2014

"We cannot make war without trade nor trade without war"

(Governor-General of the Dutch East India Company to the directors of his company upon taking office.)

"If no Naval Force, no Trade"

(British Governor of Bombay Charles Boone in 18th century.)

A country of our size, with its focus on exports and thus reliance on foreign trade, must be aware that military deployments are necessary in an emergency to protect our interests, for example, when it comes to trade routes, for example, when it comes to preventing regional instabilities that could negatively influence our trade, jobs and incomes.

Horst Köhler, former President of Germany (NY Times, May 31, 2010)

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- Costs of power-seeking/conflict vs. gains from trade
- *Distortions* of allocations under conflict?

- Trade openness and Domestic Conflict

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- Distortions of comparative advantage
- The importance of governance: Domestic state capacity;
International organizations, institutions, and norms

- Skaperdas (AER, 1992)
- Skaperdas and Syropoulos (AER P&P, 2001)
- Garfinkel, Skaperdas, and Syropoulos (JIE, 2008)
- McBride, Milante, and Skaperdas (JCR, 2011)
- Garfinkel, Skaperdas, and Syropoulos (Oxford Handbook, 2012)
- Garfinkel, Skaperdas, and Syropoulos (JIE, forthcoming)
- Sambanis, Skaperdas, and Wohlforth (APSR, forthcoming)

- Empirical relevance of conflict
- Trade openness and domestic conflict
- International Trade and International Conflict over a resource
- Insecure International Trade
- On the role of governance

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- Distributional and Social conflict (strikes and lockouts, protests, military coups, ethnic, religious, or class rivalries, terrorism)
- Civil wars (since WWII, in more than 73 countries with 20 million deaths and large other direct economic costs – arming, destruction, underutilization of resources; Collier et. al., World Bank, 2003)

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- Great power rivalries – future "peer competitors" in multipolar world?
- Conflict and power-seeking costs vs deadweight costs of taxation or trade protection.

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- (based on Garfinkel, Skaperdas, and Syropoulos, JIE, 2008)

Trade openness and domestic conflict (continued)

Timing:

- 1 Arming (g_C and g_D) and butter production ($B_i = L_i - g_i$) determined.
- 2 Contested land distributed. Endowments of land or oil:
($T(\frac{\sigma}{2} + q_C(1 - \sigma))$, $T(\frac{\sigma}{2} + q_D(1 - \sigma))$).
- 3 Butter and oil traded competitively either
 - (i) domestically within the country under autarky or
 - (ii) internationally with country taking world prices as given.

No international trade: Price determined domestically

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$$p^A = \frac{\alpha}{1-\alpha} \frac{2L}{T} \left[\frac{2(1-\alpha)}{2(1-\alpha)+\alpha(1-\sigma)} \right]$$

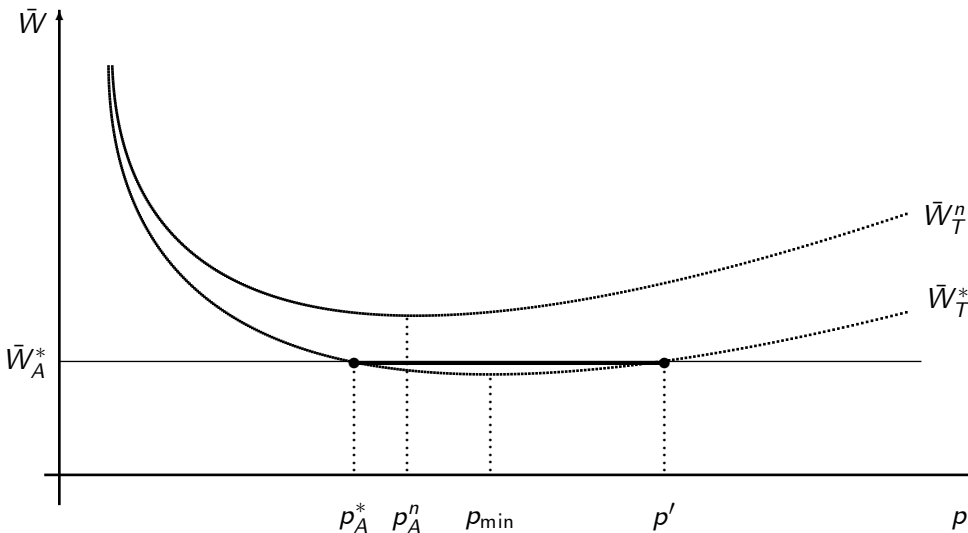
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- Welfare: $V_i^A = V^A = \left[\frac{2(1-\alpha)}{2(1-\alpha)+\alpha(1-\sigma)} \right]^{1-\alpha} (T/2)^\alpha L^{1-\alpha}$

Trade openness and domestic conflict: Free Trade

- Price of land and oil determined in international markets: p
- Arming: $g^F = \frac{1}{4}p(1 - \sigma)T$
- Welfare: $V_i^F(p) = V^F(p) = \gamma p^{-\alpha} \left(\frac{1}{4}pT(1 + \sigma) + L \right)$
- Welfare minimized at $p^{\min} = \frac{\alpha}{1-\alpha} \frac{2L}{T} \frac{2}{1+\sigma}$ (usually autarkic price, but not here)

Comparing Autarky to Free Trade



Summary of Trade openness under Domestic Conflict

- Insecurity shifts welfare down.
- Costs of conflict vs gains from trade + other distortions
- Countries importing oil gain unambiguously.
- Exporters of oil lose as long as its price is not too high.
- Tendency to over-export oil

[Reversal of comparative advantage relative to the absence of conflict (over a certain price range)]

- Price range over which increasing international price of oil associated with reduction in welfare (natural resource curse)

Trade and international conflict (over a resource)

- (Garfinkel, Skaperdas, and Syropoulos, JIE, forthcoming; Skaperdas and Syropoulos, AER P&P, 2001)

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- Distortion of comparative advantage over a range of prices.

An example with Insecure International Trade

- Two countries: E (England) and S (Spain); initial resources, R_E and R_S

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- $\sigma \in [0, 1]$: fraction of each country output that is secure
- Share of both insecure goods captured: $q_i = \frac{g_i}{g_E + g_S}$

Timing:

- 1 Arming (g_E and g_S), cloth and wine production take place.
- 2 Arming determines how the insecure outputs are divided. E keeps a $\sigma + (1 - \sigma)q(g_E, g_S)$ share of c and obtains a $(1 - \sigma)q(g_E, g_S)$ share of w ; S obtains a $(1 - \sigma)[1 - q(g_E, g_S)]$ share of c and keeps a $\sigma + (1 - \sigma)[1 - q(g_E, g_S)]$ share of w .
- 3 c and w are traded competitively.

Trade and naval warfare between the 16th and 18th centuries.

Insecure Trade

- Price, given endowments in stage 2: $p^* = \frac{\alpha}{1-\alpha} \frac{w}{c} = \frac{\alpha}{1-\alpha} \frac{R_S - g_S}{R_E - g_E}$
- *Effective* price (after stage 1): $\bar{p} = \frac{\sigma\alpha + (1-\sigma)q(g_E, g_S)}{\sigma(1-\alpha) + (1-\sigma)(1-q(g_E, g_S))} \frac{R_S - g_S}{R_E - g_E}$
- Payoff functions:

$$V_E(g_E, g_S) = [\sigma\alpha + (1-\sigma)q(g_E, g_S)](R_E - g_E)^\alpha (R_S - g_S)^{1-\alpha}$$

$$V_S(g_E, g_S) = [\sigma(1-\alpha) + (1-\sigma)(1-q(g_E, g_S))](R_E - g_E)^\alpha (R_S - g_S)^{1-\alpha}$$

- Perfect security ($\sigma = 1$): Ordinary competitive model
- For example, if $\alpha < 1/2$ (Cloth less valuable than wine), other things being equal, England enjoys lower welfare than Spain (because England produces the less valuable good).

$(\sigma = 0)$

- Let $R_E = R_S$. Then, the following conditions are equivalent:
 - (a) $\alpha < 1/2$ (Cloth less valuable than wine);
 - (b) $g_E^* > g_S^*$ (England arming more than Spain); and,
 - (c) $q_E^* > 1/2$ (England getting a bigger share of the insecure output)
 - (d) England will have higher Welfare than Spain.

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 - (c) $q_E^* > 1/2$ (England getting a bigger share of the insecure output)
 - (d) England will have higher Welfare than Spain.
- For any combination of R_E and R_S , an increase in α induces a reduction in g_E^* relative to g_S^* and therefore a reduction in q_E^* .

Imperfect Security

$(\sigma \in (0, 1))$

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- For any combination of R_E and R_S , E (S) will prefer some conflict to none if α is sufficiently small (large);
- For any combination of R_E and R_S , if α is sufficiently small (large) then the welfare of E (S) need not be monotonically increasing in the degree of security σ .

On the role of Governance

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- International organizations, laws, institutions, and norms limit the worst effects of anarchy
- Economic globalization without political harmonization difficult to sustain without problems (WWI)

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- Distortion of comparative advantage.

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