Persistent Fighting to Forestall Adverse Shifts in the Distribution of Power

(very, very preliminary)

Rationality and Conflict
Yale, January 16-18, 2009

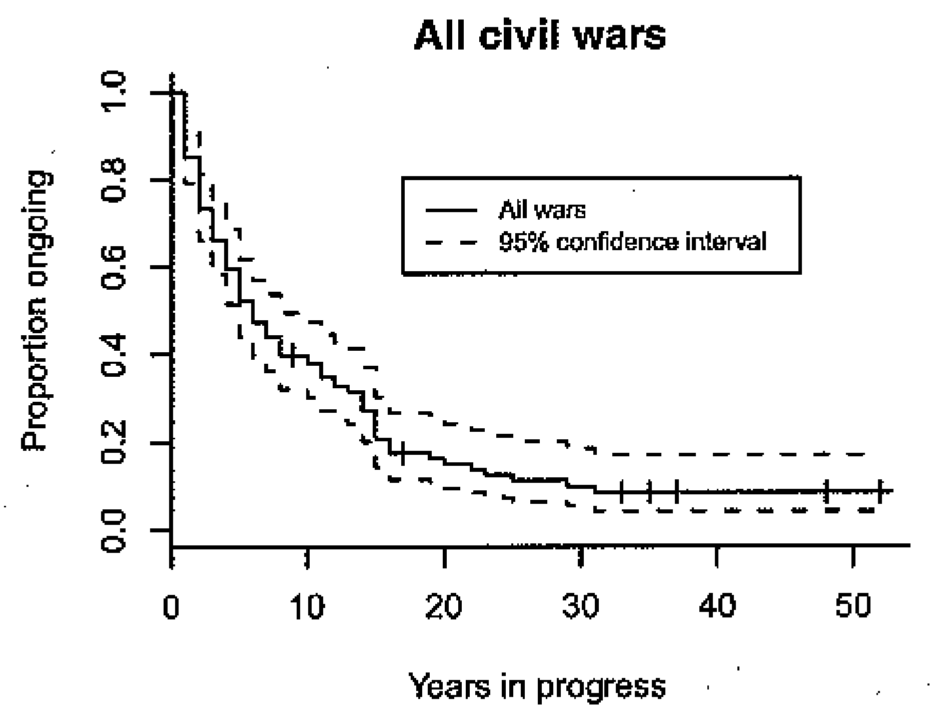
Robert Powell
Travers Department of Political Science
UC Berkeley

Persistent Fighting

- Civil War (128 cases b/w 1945-1999):
  - mean duration 11 years, median duration 7 years
  - 25% last more than 10 years
  - 10% last more than 20 years (Fearon 2004)
  - 41% ended short of a military decision (Hartzell and Hoddie 2007)
- Interstate war (104 cases b/w 1816-1991):
  - mean duration 14 months, median duration 5.6 months
  - about 15% last three or more years
  - about 5% last five or more years
  - 64% ended short of military decision (Slantchev 2004)

Persistent Fighting

Figure 2. Proportion of Civil Wars Ongoing, by Year



Fearon (*JPR* 2004)

What Explains Persistent Fighting?

Few models allow for persistent fighting along the equilibrium path.

- War is often modeled as outside option in a bargaining game, i.e., as a game-ending move with payoffs determined by a costly lottery.
  - Fearon (1995), Powell (1999)
- The incentive to fight arises stochastically and, necessarily, infrequently.
  - Acemoglu and Robinson (2001, 2006)

Note that if the “incentive” to fight persisted, e.g. “times were always going to be bad,” then there would be no fighting and the equilibrium would be efficient.

A Few Models Do Allow for and Exhibit Persistent Fighting Along the Equilibrium Path

- Information Problems:
  - Powell (*AJPS* 2004)
  - Fearon, “Fighting Rather than Bargaining” (2007)
  - Yared, “A Dynamic Theory of Concessions and War” (2008)

- Commitment Problems:
  - Fearon (*JPR* 2004)
  - Leventoglu and Slantchev (*AJPS* 2007)

Goals of the Talk and (virtual) Paper

i. Develop a “natural” model in which fighting arises and persists along the equilibrium path.

ii. Provide a more “complete theory” (Leventoglu and Slantchev 2007), i.e., explain why fighting that arises from a commitment problem may eventually end in a negotiated settlement.

Substantive Points of Departure

- When one faction controls the state, it frequently consolidates its power which gives it an incentive to renegotiate any prior agreements (Fearon 1998).

- Fighting can destabilize a government and may prevent or inhibit state consolidation.

A Simple Model (I)

- A faction in control of the government, *G*, and a rival faction, *R* have to decide how to divide a flow of pies.
- *G* makes a take-it-or-leave-it offer $x_t \in [0,1]$ to *R* at the start of any active period *t.*
- *R* can accept or reject by fighting.
- In the simplest setting, it takes one round of peace for the state to consolidate in which case there is a once and for all shift in the distribution of power in *G*'s favor.

The Model (II)

- If *R* accepts x_t and the state has *not yet* consolidated:
  - *R* and *G* get x_t and $1 - x_t$, respectively
  - the state “consolidates,” i.e., the distribution of power shifts in *G*’s favor
  - the round ends and the next begins with a new offer from *G*
- If *R* accepts x_t and the state *has* consolidated:
  - *R* and *G* get x_t and $1 - x_t$, respectively
  - the round ends and the next begins with a new offer from *G*

The Model (III)

If *R* rejects, *R* and *G* get flow payoffs f_R and f_G from fighting with $f_R + f_G < 1$ and the round can end in one of three ways:

- a decisive outcome in favor of *G*
- a decisive outcome in favor of *R*
- a stalemate in which we move on to the next round

d is the probability of a decisive outcome if the state is unconsolidated and *p* is the conditional probability that *R* prevails given a decisive outcome.

d' and *p'* are the analogous probabilities when the state is consolidated

State Consolidation and the Payoff to Fighting to the Finish

$$F_R = f_R + \beta\left[d\frac{p}{1-\beta} + (1-d)F_R\right]$$

$$= \frac{(1-\beta)f_R + \beta pd}{(1-\beta)[1-\beta(1-d)]}$$

State consolidation: $F_R > F_R'$

Aside: When d = 1, we have the costly-lottery formulation. When $d \to 0$, we have bargaining with endogenous inside option values.

The MPE

In the consolidated state, *G* offers *z'* which is just enough to buy *R* off and *R* accepts:

$$z' = (1-\beta)F_R'$$

In the unconsolidated state, *R* is sure to prefer to fight if

$$F_R > \underbrace{1}_{\text{upper bound on today's offer}} + \beta F_R'$$

$$F_R - F_R' > 1 - (1-\beta)F_R' \equiv \Phi$$

Sure to hold if *p'* > *p* and β is large enough.

The Prospect of Preventing State Consolidation Matters

Suppose that the state will consolidate even if *R* fights. Then *R* is sure to fight if:

$$f_R + \beta\left[\frac{pd}{1-\beta} + (1-d)F_R'\right] > 1 + \beta F_R'$$

$$F_R - F_R' > \frac{1-(1-\beta)F_R'}{1-\beta(1-d)} \equiv \Lambda$$

$$\Phi = \left[1-\beta(1-d)\right]\Lambda$$

$$\therefore \Phi < \Lambda$$

Two Useful Observations

Suppose consolidation means that fighting becomes more decisive: $p' = p$ and $d' = d + \Delta$ with $p < f_R$ (which ensures $F_R > F'_R$)

Solving $F_R > 1 + \beta F'_R$ for Δ gives:

$$\Delta > \frac{(1-\beta)[1-\beta(1-d)]}{\beta}\left[\frac{1-F_R/V}{\beta(1-p)-(1-F_R/V)}\right] \equiv \Delta^*$$

where $V = 1/(1 - \beta)$

- Note as fighting becomes more decisive, the threshold needed to rationalize fighting increases: $\partial\Delta^* / \partial d > 0$
- $\Delta^* \to 0$ as $\beta \to 0$ and $d \to 1$ and keeping F_R / V constant

Two Generalizations

- Consolidation takes more than 1 period.
  - Consolidation takes *T* periods with

$$d_{k+1} = d_k + \Delta = d_0 + k\Delta \quad \text{for} \quad 0 \le k \le T - 1$$

- Fighting only impedes state consolidation but does not prevent it.
  - Formally, if *R* fights the probability of further consolidation is $\varepsilon > 0$

The Payoff to Fighting to the Finish

$$F_R^T = \frac{(1-\beta)f_R + \beta p d_T}{(1-\beta)[1-\beta(1-d_T)]}$$

$$F_R^{k-1} = f_R + \beta\left[\frac{p d_{k-1}}{1-\beta} + (1-d_{k-1})(1-\varepsilon)F_R^{k-1} + \varepsilon(1-d_{k-1})F_R^k\right]$$

$$= \frac{(1-\beta)\left[f_R - \beta\varepsilon(1-d_{k-1})F_R^k\right] + \beta p d_{k-1}}{(1-\beta)[1-\beta(1-d_{k-1})(1-\varepsilon)]}$$

$$F_R^0 > F_R^1 > \cdots > F_R^T$$

Some Conjectures

i. *R* is sure to prefer fighting in state *k* when:

$$F_R^{k-1} > 1 + \beta F_R^k$$

ii. Since $\partial\Delta^*/\partial d > 0$, the thresholds needed to rationalize fighting in state *k* are increasing:

$$\Delta_0^* < \Delta_1^* < \cdots < \Delta_{T-1}^*$$

Some Conjectures (cont.)

iii. Peaceful consolidation occurs when the shift in power is sufficiently slow:

$$\Delta < \Delta_0^* < \Delta_1^* < \cdots < \Delta_{T-1}^*$$

iv. Fighting with a potentially negotiated settlement when:

$$\underbrace{\Delta_0^* < \Delta_1^* < \cdots < \Delta_b^*}_{\text{periods of fighting}} < \Delta < \underbrace{\Delta_{b+1}^* < \cdots < \Delta_{T-1}^*}_{\text{periods of peacful conslidation}}$$