Econ 435/835: Development Economics

Assignment 3

Due Date: Monday, 18th November 2013.

1. Let us consider the Acemoglu and Robinson (2007) paper "De Facto Political Power and Institutional Persistence", which we discussed in class. In this paper, there are two groups, the elite E and the masses. If the elites are in power, they set low wages and earn profits R, while if the masses are in power, they set high wages and the elites make zero profits.

The political power of the elites (there are n_E of them) is given by their total contributions $P^E = \phi \sum_{i=1}^{n_E} \theta^i$, while that of the citizens is given by $P^C = w$ in a non-democracy and by $P^C = w + \eta$ in a democracy, where w is a random variable. Let us assume that this random variable is distributed over the interval $[a, b]$ according to the distribution function $F(w) = \frac{\ln(w) - \ln(a)}{\ln(b) - \ln(a)}$, where $1 < a < b$. Note that the density is given by: $f(w) = \frac{1}{w[\ln(b) - \ln(a)]}$.

If $P^E \geq P^C$, then the elites are in power (and get to set the wages); otherwise, the masses are in power.

(a) Given this particular distribution function, verify that the main result of the paper holds i.e. that the probability of the elite maintaining overall political power is the same in a democracy as in a non-democracy. What is this probability and what is the elites' expected payoff?

(b) What is the equilibrium probability of the elite maintaining overall political power in a democracy, and what is their expected payoff? How is this payoff affected by η?

(c) [*For MA students only.*] Let us check if the result relies on the linearity of the elites' power function. To this end, let us investigate two alternate formulations of P^E :

(i) $P^E = \sqrt{\phi \sum_{i=1}^{n_E} \theta^i}$, and (ii) $P^E = \phi \sum_{i=1}^{n_E} \sqrt{\theta^i}$.

Check if the above result holds under these two alternate formulations of the power function.

2. Consider the contest model for conflict done in class: two parties, A and B, compete over a prize V. If party i invests time e_i into conflict, then the probability of its winning the contest is $\frac{e_i}{e_i + e_j}$. Whoever wins the contest gets access to the entire prize V. If none of them engage in conflict (i.e. $e_A = e_B = 0$), then peace reigns, and A gets a share s of the prize while B gets share $1 - s$ of the prize.

Both parties possess 1 unit of time each, which they can split between fighting and working in the market. The latter activity earns a wage w per unit of time worked.

(a) In class, we focussed on a one-shot interaction between the two parties and saw that "peace" is never an equilibrium of the one-shot game. Suppose the interaction between the two parties is infinitely repeated. Each party discounts future payoffs at the rate $\delta \in (0, 1)$. Can "peace" be an equilibrium of this infinitely repeated game? If so, characterize the conditions that s must satisfy for this equilibrium. Give the intuition behind these conditions.

[*In characterizing equilibria for the infinitely repeated game, be sure to specify what exactly are the strategies for the two parties.*]

(b) Suppose the market wage rates for the two groups were different. Say that for group A is w_A while that for group B is w_B, with $w_A < w_B$. Now, determine the conditions for "peace" to be an equilibrium of the infinitely repeated game between the two groups.

Suppose $s = \frac{1}{2}$. Then which group is more likely to deviate from the "peace" equilibrium?

(c) [*For MA students only.*] So far we have assumed that each group consists of one individual. However, there maybe free-riding problems within the groups in organizing themselves for conflict. Suppose group A consists of n_A individuals who each make their own decision of how much time to contribute to the groups fighting capability. Adding up the individual time contributions of all the members in its group constitutes e_A for group A. Similarly group B consists of n_B individuals.

Denote the relative sizes of the two groups as $r = \frac{n_A}{n_B}$. Thus, $n_A = rn_B$.

Consider a one-shot interaction between the two groups, in which all individuals face the same market wage w. Solve for the equilibrium of this game.

Holding all other parameters constant, suppose r increases i.e. group A becomes bigger relative to group B. Does this lead to an increase or decrease in total conflict? What if holding r constant, the total size of the two groups increases i.e. n_B increases (and since $n_A = rn_B$, group A also increases)?

3. Miguel, Saiegh and Satyanath's (2009) paper "National Cultural Norms and Soccer Violence" is a very interesting paper trying to address the question whether some acts of violence can be the result of the cultural norms of a society where one grows up. It can be found at

http://www.econ.berkeley.edu/~emiguel/pdfs/miguel_soccer.pdf

(a) Summarize the paper under the following heads: (i) What is the question(s) they are trying to address? (ii) What data and methodology are they using? (iii) What are their main results?

(b) Can you think of any other issues that can be studied using a similar approach? State clearly the issue(s) and the data that you would be needing. Do not limit yourself to only thinking about sports data, but do restrict yourself to data that would be plausible to find.