New Equilibrium Construction

From "to_do_list.tex":

Take out renegotiation

- Add more basic tradeoff
- (??) Draw inverted U for lobby
- Now my short punishments don't rest on renegotiation
  - So now, for main analysis, must assume that we're constraining attention to a certain class of punishments: symmetric, and "Punish for T periods then go back to cooperation"
    - Go back to start if deviate should work for governments, but I think I need something else for lobbies since they would like that
  - Can I show that mine are optimal in this class?

January 17, 2015

- Must show players are best responding in every subgame, on and off the eqm path
- I'm going to try to use reversion to the static nash, but this is not necessarily subgame perfect (deviations can trigger changes in future periods)
  - Basic intuition: lobby wants punishment to go longer, leg wants it to go shorter
  - Ideally, want each to choose static BR in each period of punishment: in non-cooperative state, you can pick whatever you want, but the other guy is doing whatever he wants; τ^{tw} is independent of what he does
    - BUT it's not independent of lobby's effort

Equilibrium: Executives set trade agreement at $t = 0$. At $t \geq 1$, lobbies choose e, leg chooses applied τ

- $\forall\ t \geq 1$, leg applies τ^A if
  1. $\tau \leq \tau^A$ was applied last period

2. There have been T periods of punishment: I think $\tau \geq \tau^N$ and $e \leq e^N$

- Not sure how to specify lobby in these cooperation periods: $e = 0$ if $\tau \geq \tau^A$ (in any period? how are they involved in punishment? they're not really)
- if $\tau > \tau^A$ within the last T periods, leg applies $\tau^N(e^N)$

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- Think of punishment scheme being designed either by execs or by supranational body like WTO
- Then want to know whether it's an eqm for leg and lobbies to follow the rules

Classes of subgames

1. $\tau \leq \tau^A$ and $e = 0$ last period; if there had ever been a violation, it was at least T periods previous.
2. Conditions in (1) held in period $t-2$, but there was a violation in period $t-1$
   - Play static Nash this period and for $T-1$ more periods before switching back to (1); more precisely, $\tau^D \geq \tau^N$ and $e^D \geq e^N$.
3. Static Nash punishment was initiated $i < T$ periods ago, and punishment has been followed since then
   - Punish this period and $T-i-1$ more periods before switching back to (1)
4. In any punishment period, legislature does not follow punishment: i.e. $\tau^D < \tau^N$
   - Restart punishment at (2)
5. In any punishment period, lobby does not follow punishment: $e^D < e^N$
   - Legislature chooses (??) BR to e^D, then restart at (1)

From old construction, need to be rechecked:

- I've shown condition for lobby is constant through time except in last period, where they'll never pay
- Need to pay special attention to leg's condition in this last period