Ukrainian Corruption:
The Game Between Presidents and Officials

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- February 2014: Viktor Yanukovych removed from power.
  - Forced out of power by the Parliament when corruption evidence came to light (Mezhyhirya Residence).
    - Yanukovych's annual salary as public servant $\approx$ \$24,000
    - Yanukovych's annual salary as President $\approx$ \$100,000
    - Net worth $\approx$ \$12 billion

The Case of Ukraine

- May 2014: Anti-Corruption Initiative was established.
  - After Yanukovych's removal, Ukraine focused on government transparency.
- April 2015: National Anti-Corruption Burea of Ukraine was established to replace the NACC.
  - Created on the request of the IMF.
  - Funding is mandated under American and European Union aid programs.
  - National Agency for Prevention of Corruption: Verifies the accuracy of government officials' asset and income declarations.

- Ukraine has recently implemented a transparency policy.
  - This anti-corruption reform required senior Ukrainian officials to declare their wealth online by October 31, 2016.
- Two factors motivated this policy
  - "The EU included a functioning e-declaration system in a list of conditions for visa-free travel to the EU for Ukrainians" [1]
  - The IMF required it for a bailout of approximately $17 billion.

[1] Carnegie Europe

$\Rightarrow$ Model the game between the officials who must send a message of their incomes and the president who must determine which officials may be kept in office.

Research Question

How do officials change their actions and messages depending on the president's preferences?

$\Rightarrow$ How do the preferences of the President alter the politicians' actions and messages?

- If organizations such as the IMF and the EU require e-declarations as a form of corruption reduction in countries, determining whether they lead to the desired outcome is necessary.

Set-Up of the Game

- Players: Politician, President, (Nature)
- Preferences:
  - Nature determines whether a Politician is not corrupt or corrupt, with probability π and $1 - \pi$, respectively.
  - Politician would prefer to be kept than ousted.
    - Always prefers employment.
    - POL_{NC} prefers not taking bribes
    - POL_C prefers taking bribes
  - President's preferences depend on type:
    - Two Types: Corrupt or not corrupt, $i \in \{C, NC\}$.
    - P_C: Prefers to keep corrupt politicians in office (receives a portion of their bribes).
    - P_{NC}: Prefers to keep not corrupt politicians in office.

Set-Up of the Game

- Actions:
  - $\Rightarrow$ Politician, POL_i:
    - Each Politician decides whether to take a bribe or not, B or NB.
    - Politician determines what level of income to declare:

      Report low amount: L
      Report high amount: H

    where L is the state salary and H is the salary with bribes.
  - $\Rightarrow$ President, P_i:
    - Similar to the true political structure of Ukraine, the President may choose to keep, K, or oust, O, the politician.

Complete One-Shot Game

Not Corrupt President in Power

Taking Bribes (B)

		P_{NC}					P_{NC}	
		K	O				K	O
POL_{NC}	L	-20,-5	-30, 5		POL_C	L	10,-5	-5, 10
	H	-30, 0	-40, 10			H	5, 0	-10, 5

Not Taking Bribes (NB)

		P_{NC}					P_{NC}	
		K	O				K	O
POL_{NC}	L	10, 10	-5,-10		POL_C	L	10, 10	-5,-10
	H	0, 0	-10, 5			H	0, 0	-10, 5

Complete One-Shot Game

Not Corrupt President in Power

Taking Bribes (B)

POL_{NC}

	P_{NC}	
	K	O
L	$\underline{-20},-5$	$\underline{-30}, \underline{5}$
H	$-30, 0$	$-40, \underline{10}$

POL_C

	P_{NC}	
	K	O
L	$\underline{10},-5$	$\underline{-5}, \underline{10}$
H	$5, 0$	$-10, \underline{5}$

Not Taking Bribes (NB)

POL_{NC}

	P_{NC}	
	K	O
L	$\underline{10}, \underline{10}$	$\underline{-5},-10$
H	$0, 0$	$-10, \underline{5}$

POL_C

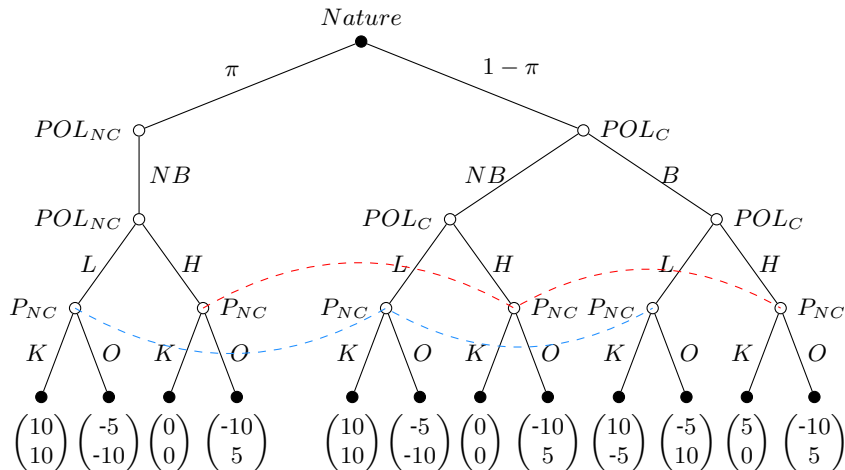|	P_{NC}	
	K	O
L	$\underline{10}, \underline{10}$	$\underline{-5},-10$
H	$0, 0$	$-10, \underline{5}$

Complete One-Shot Game
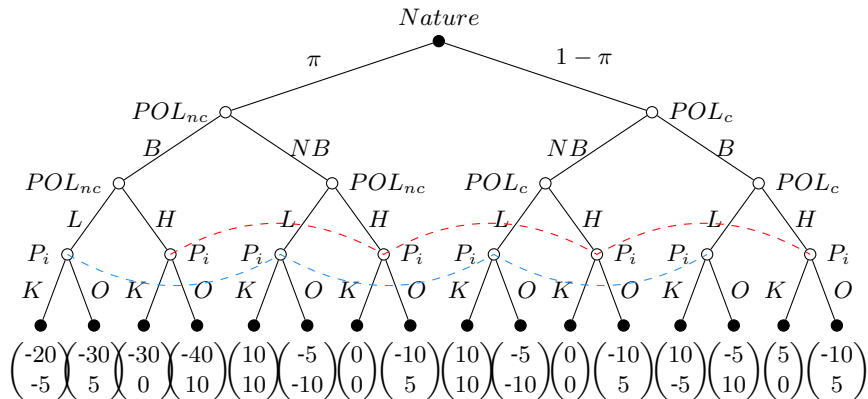
Complete One-Shot Game

Pol_{NC} would never rationally choose B.

Simplified One-Shot Game
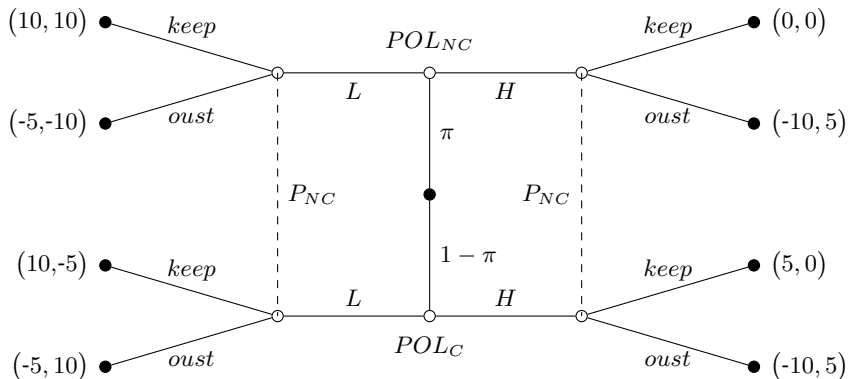
Corrupt President in Power

P_C

POL_{NC}		K	O
	L	$10, 5$	$-5, 0$
	H	$0, -5$	$-5, 10$

P_C

POL_C		K	O
	L	$5, 5$	$-5, -5$
	H	$10, 10$	$-5, 0$

Not Corrupt President in Power

P_{NC}

POL_{NC}		K	O
	L	$10, 10$	$-5, -10$
	H	$0, 0$	$-10, 5$

P_{NC}

POL_C		K	O
	L	$10, -5$	$-5, 10$
	H	$5, 0$	$-10, 5$

Simplified One-Shot Game

Not Corrupt President in Power

$(10, 10)$ — keep — POL_{NC} — keep — $(0, 0)$

$(-5,-10)$ — oust — L — H — oust — $(-10, 5)$

P_{NC} — π — P_{NC}

$1 - \pi$

$(10,-5)$ — keep — L — H — keep — $(5, 0)$

$(-5, 10)$ — oust — POL_C — oust — $(-10, 5)$

Simplified One-Shot Game

Not Corrupt President in Power

$(10, 10)$ — *keep* — POL_{NC} — *keep* — $(0, 0)$

$(-5, -10)$ — *oust* — L — H — *oust* — $(-10, 5)$

P_{NC} — $\frac{1}{2}$ — P_{NC}

$(10, -5)$ — *keep* — $\frac{1}{2}$ — *keep* — $(5, 0)$

$(-5, 10)$ — *oust* — L — H — *oust* — $(-10, 5)$

POL_C

Simplified One-Shot Game

Corrupt President in Power

$(10,5)$ *keep* POL_{NC} *keep* $(0,-5)$

L H

$(-5,0)$ *oust* $\frac{1}{2}$ *oust* $(-5,10)$

P_C P_C

$\frac{1}{2}$

$(5,5)$ *keep* L H *keep* $(10,10)$

$(-5,-5)$ *oust* POL_C *oust* $(-5,0)$
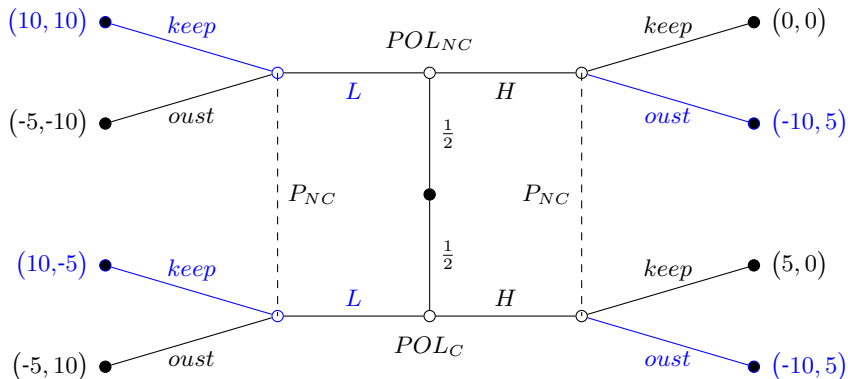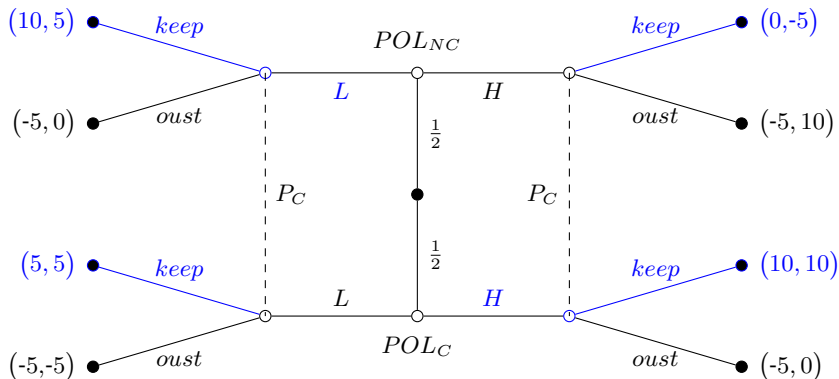
Introducing Uncertainty

- Suppose that with probability α the President is not corrupt and with probability $1 - \alpha$ the President is corrupt.
- I try to find the level of α such that POL_C would be indifferent between L and H.

	Values of α				
	0	0.25	0.5	0.75	1
$\mathbb{E}[U_{POL_C}(L)]$	0	2.5	5	7.5	10
$\mathbb{E}[U_{POL_C}(H)]$	15	8.75	2.5	-3.75	-10
Choice	H	H	L	L	L

- Threshold ≈ 0.45
  (based on the values of payoffs I've chosen)
  $\Rightarrow$ Can compute a more general solution with more time.

✓ I will need to complete the math-side of this model

✓ Consider the case of changing the parameters
  ($\pi > \frac{1}{2}$, $\pi < \frac{1}{2}$)

✓ Regime Switching
  Now we will consider a two period model, where with some
  probability, γ, the "goal" of the President switches.

  • For simplicity, let's assume the switch comes from an
    exogenous shock.

Questions?