POLITICAL ECONOMICS

1 TABLE OF CONTENTS

2 DEMOCRATIZATION PUZZLE

- **Democratization Puzzle**: Why would elites ever want to share power with other social groups by making institutions more inclusive (voting rights, checks and balances, etc.)?
    - In some countries we saw sudden shifts (e.g. France 1848) in others stepwise (e.g. UK)
- Two views to explain this:
    - Pre-emptive democratization: "old elite" is worse off than under status quo but better off than counterfactual (i.e. Acemoglu and Robinson, 2000)
    - Pro-active democratization: "old elite" is better off than under status quo (2 models)

2.1 THREAT OF REVOLUTION THEORY (ACEMOGLU AND ROBINSON, 2000)

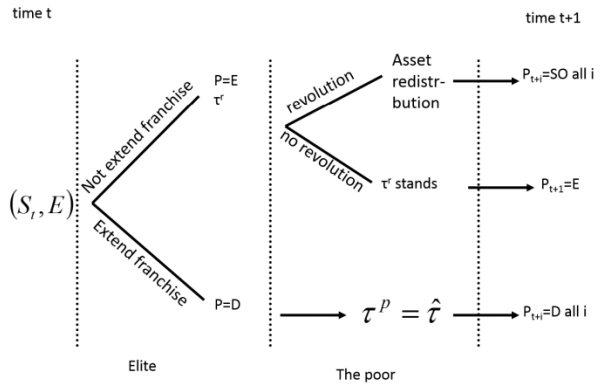
- Democratization is pre-emptive and driven by threat of social unrest, being a commitment devise used as a last resort by elite
- Only responds when threat is credible, with democratic "window of opportunity" often open during recessions. Threat of violent social change is trigger but economic factors (e.g. inequality) decide if society is near trigger point or not

2.1.1 MODEL

Assumptions

- Demography:
    - Two types of individuals $i = p, r$ (poor and rich)
    - Fraction λ of population are p and $1 - \lambda$ are rich. More poor $\lambda > \frac{1}{2}$ reasonable in autocracy
    - Individuals live for ever (or Frideman care about future generations) with discount factor β
    - Individuals are endowed with h^i units of capital; by definitions $h^r > h^p$ and $\frac{h^r}{h^p}$ is inequality
- Economy:
    - Technology is linear in capital $Y = AH$ where $H = \lambda h^p + (1 - \lambda)h^r$
    - Utility is linear in net income $y_t^i = (1 - \tau_t)Ah^i + T_t$
    - As per Meltzer-Richard Model, τ_t is tax on income and $T_t = \tau_t AH$ is per capita transfer
        - $\tau_t \leq \hat{\tau} < 1$ so have some limit on taxation due to deadweight cost tax incurs
        - This is simplifying assumption as irl have poor-specific transfers but key is that this system redistributes from rich to poor: Poor want $\tau_t = \hat{\tau}$ and rich $\tau_t = 0$
    - Or with group specific taxes to set up conflict $0 < \theta < \frac{1}{\eta_p} < \frac{1}{\eta_r}$
    -
- Institutions:
    - Three possible political states P_t
        - Socialism SO: poor in control and follows revolution
        - Democracy D: median voter (i.e. poor) in control and follows franchise extension
        - Autocracy E: rich in control and is status quo. May offer temporary redistribution τ^r
    - Revolution technology is costly to everyone as a fraction of capital $1 - \mu_t$ is lost
    - Two possible social states S_t
        - In state B, $\mu_t = 0$ and revolution is not desirable for poor
        - In state B, $\mu_t = \mu \in (0,1)$ and revolution may be desirable
        - $q = \Pr(S_t = G)$. Can explain this as being determined by collective action (i.e. poor free-riding) and coordination problems
    - Note q controls the opportunites for social unrest and μ controls the cost. Together they control the threat of revolution

- Timing: S_t revealed → Elite decides on P_t → Those in power set tax rate → Poor decide whether to initiate revolution or not [does not apply if D_1] → Those in power set tax rate → Results are realised



Solving for Nash Equilibrium

- Strategy of rich is function of state
- Strategy of poor is function of state and action taken by rich
- NE is strategy combination such that strategies of rich and poor are best responses to each other in all states of nature

Optimal Behaviour in Democracy

- Median voter is poor so $\tau^* = \hat{\tau}$ no matter S_t (as $D > SO$). Political state remains D indefinitely
    - $V^i(D) = \frac{1}{1-\beta}\left[(1-\hat{\tau})Ah^i + \hat{\tau}AH\right] > 0$

Revolution for Socialism

- Suppose elite has not extended franchise. Poor will only start revolution iff $S_t = G$
    - $V^p(SO, G) = \frac{1}{1-\beta}\left[\frac{\mu AH}{\lambda}\right]$ and $V^r(SO, G) = 0$
        - Note rich infinitely want to avoid socialism. Thus will always want to democratize $V^r(D) > V^r(SO) = 0$ or offer temporary redistribution here
    - $V^p(SO, B) = V^r(SO, B) = 0$. Thus not
        - Note it is not optimal for poor to revolt in social state B

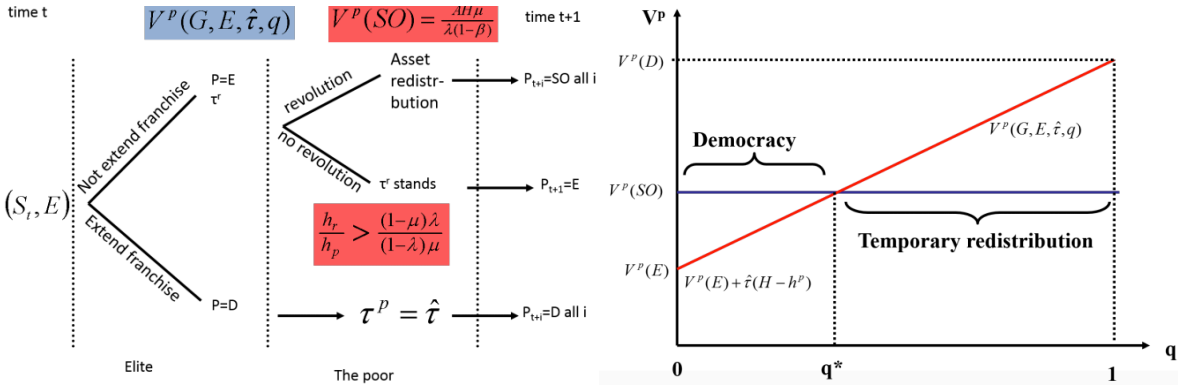
Optimal Behaviour in Autocracy

- Suppose $S_t = B$
    - Rich know that it is never optimal for poor to revolt but it may be in future
    - $V^p(B, E) = Ah^p + \beta[qV^p(G, E) + (1-q)V^p(B, E)]$
- Suppose $S_t = G$
    - A revolution could happen but whether it does or not depends on elite "offer" to poor
    - If nothing offered poor revolt iff $V^p(SO) > \frac{Ah^p}{1-\beta}$ i.e. our revolution constraint $\frac{h^r}{h^p} > \frac{(1-\mu)\lambda}{(1-\lambda)\mu}$
        - For $\mu = 1$ it always holds; for $\mu = 0$ it never holds
        - Inequality needs to be sufficiently large to make revolution a real threat

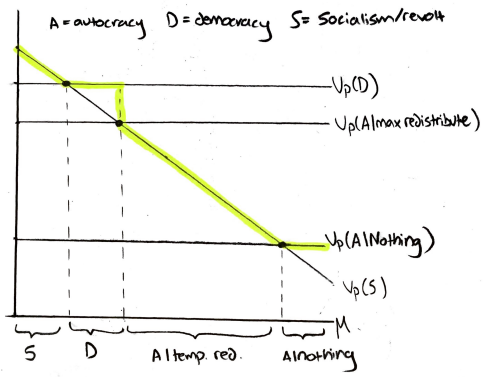
- Instead of democratizing elite could keep power but offer welfare state τ^r. Elite prefer τ^r to D if enough to prevent revolution but…
    - Democracy is permanent, redistribution can be renegaded when revolution not threat
- Credibility problem: elite can only promise to redistribute when threat of revolution is real. Democratization is irrevocable

- Coase theorem need self-reinforcing mechanism. Can always renegade on redistribution

- Note optimum is thus:
  - $V^p(G,E,\tau^r) = (1-\tau^r)Ah^p + \tau^r AH + \beta[qV^p(G,E,\tau^r) + (1-q)V^p(B,E)]$
  - Sub in $V^p(B,E) = Ah^p + \beta[qV^p(G,E,\tau^r) + (1-q)V^p(B,E)]$
  - Solve to get $V^p(G,E,\tau^r) = \frac{[(1-\tau^r)Ah^p + \tau^r AH] - [\beta(1-q)(H-h^p)A\tau^r]}{1-\beta}$
    - First term is payoff p get with τ^r; second term subtracts every time r renegade
  - The most elite can promise is $\tau_t^r = \hat{\tau}$ each time $S_t = G$ i.e. max welfare state = $V^p(G,E,\hat{\tau})$



- For all $q \neq q^*$ there exists a unique pure strategy NE such that
  - $q < q^*$ revolution threat will be met by democratization first time $S_t = G$
    - Revolution is inefficient and, as per Coase Theorem, rich and poor can strike a deal that benefits everyone
  - $q > q^*$ revolution threat will be met with temporary redistribution and stay in E forever
    - Coase Theorem is not feasible due to credibility problem. Instead democracy acts as commitment device (preventing elite renegading when revolutionary "window of opportunity" closes)



2.1.2 *Implications*

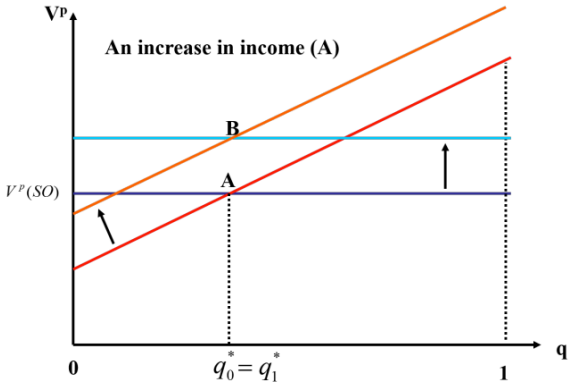
General

- Democracy emerges when revolution is possible but unlikely. The better organized the poor are the more frequently they pose a threat (high q) the more <u>unlikely</u> we have democratization!
- Window of opportunity is often open in recessions because lower opportunity cost of participating in revolt. Expect economically volatile/unstable countries to be less likely to democratize

Wealth

- In model higher income A increases proportionally all incomes. Thus critical value of threat of revolution q remains necessarily the same

- Value of maximal welfare state $V^p(G, E, \hat{\tau})$ and successful revolution $V^p(SO, G)$ both increase proportionally

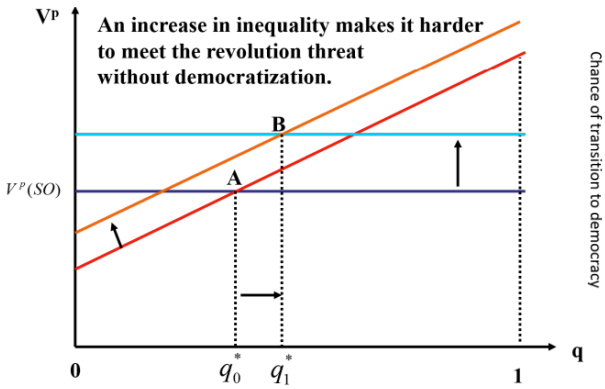


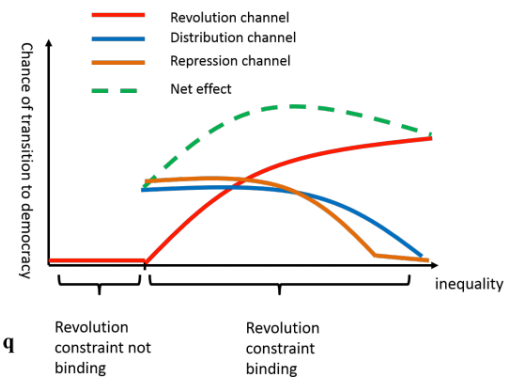
- This goes against Lipset hypothesis: economic development causes democracy by creating necessary preconditions for transition
- Conflicting empirical evidence [expand?]
  - Acemoglu and Robinson present FE, IV, and other evidence that there is no link between income and democratization
  - Gundlach and Paldam present IV evidence that there is long-run causation from income on democracy

Inequality

In A&R Model

- Recall elite only fears revolution if revolution constraint is binding $\frac{h^r}{h^p} > \frac{(1-\mu)\lambda}{(1-\lambda)\mu}$ and thus requires inequality to be "sufficiently" high.
  - Increasing in inequality as more to expropriate
  - Decreasing in how much capital is destroyed as fewer overall gains
  - Decreasing in fraction of poor as capital is split amongst more people
- Inequality has two counteracting effects on likelihood of democratization. Baseline models revolution channel dominates but there is nothing fundamental about this
  - Revolution channel: When inequality is high poor have more to gain from revolution and thus more likely rich need to democratize
  - Distribution channel: When inequality is high rich have more to "offer" poor through temporary transfer τ^r and thus less likely rich need to democratize
- Note empirically inequality only matters if thret of revolution is credible. Thus linked/conditional on "window of opportunity" (see Dorsch and Maarek)





Boix (2003): Theory of Repression Effect

- Stresses alternative to democratization is costly repression not temporary redistribution
    - Democratization decision is governed by the payoff to elite under democracy compared to cost of maintaining autocracy though repression
    - Democracy is not too threatening when inequality is low because distributional demands of poor median voter are modest
- Thus also have repression effect: Democratization becomes less likely as inequality increases
- Combining all three effects notice there is an optimum level (see diagram above)

Ansell & Samuels (2010):

- Model (A&R or Boix) assumes democratization is function of autocratic elites fear of the extent to which future median voter would redistribute i.e. poor threatening elite
- Instead function of politically disenfranchised yet rising economic groups struggle to obtain commitment against expropriation by elite i.e. elite threatening middle class
    - Inspired by 'Leviathan', North (1989), and Olson (1993) state as a 'stationary bandit'
- Democratization thus more likely when middle class increases share of national income and poor left further behind. Inequality linked to democracy positively!

Dorsch and Maarek (2014): Evidence

Context

- Note model hypothesis: transition to democracy is more likely if inequality is <u>conditional</u> on fact we are operating in "window of opportunity"
- Hence test for: positive correlation between probability of democratization and inequality that is conditional on being in a downturn

Methodology

- Look at 90 autocracies (1975-2009) with 57 instances of democratization. Use following terms:
    - $transition_{it} = \begin{cases} 1 \text{ if } DEMO_{it-1} \leq 0.5 \text{ and } DEMO_{it} > 0.5 \\ 0 \text{ if } DEMO_{it-1} \leq 0.5 \text{ and } DEMO_{it} \leq 0.5 \end{cases}$ via Freedom House/POLITY IV
    - $growth_{it} = \begin{cases} 1 \text{ if } growth_{it} \leq 0 \\ 0 \text{ if } growth_{it} > 0 \end{cases}$ that is negative growth in GDP per capita
    - Inequality measured by Gini coefficient using SWIID data (gives pre and post transfer!)
- Very simple test by comparing means (and thus not empirically robust methodology):

Results

- Find difference is statistically significant, confirming A&J
    - No sig. difference in unconditional Gini coefficients between transitioned (47.250) and non-transitioned (46.184) countries
    - Sig. difference between Gini coefficients between transitioned (49.985) and non-transitioned (43.297) countries conditional on downturn (and excluding USSR)
        - Develop further? Lecture mentioned more robust paper!

Overview

- Consider $Democracy_i = \beta_1 y_i + \beta_2 GINI_i + \beta_3 y_i * GINI_i$
    - $\beta_1 = \begin{cases} > 0 & \text{Lipset} \\ = 0 & \text{A\&R, Boix, A\&S} \end{cases}$; $\beta_2 = \begin{cases} = 0 & \text{Lipset, A\&S} \\ > 0 & \text{A\&R } (*) \\ n/a & \text{Boix} \end{cases}$; $\beta_3 = \begin{cases} = 0 & \text{Lipset} \\ < 0 & \text{A\&R } (*) \\ > 0 & \text{Boix, A\&S} \end{cases}$

- (*) depends if make A&R "window of opportunity conditional ($\beta_2 < 0$) or not ($\beta_2 > 0$)
- Note major challenges when testing:
  - Quadratic misspecification (needed for Boix)
  - Reverse causality (using y_{t-1} is imperfect)
    - Pre-transition inequality may trigger transition from autocracy to democracy but post-transition inequality may be consequence of transition itself
  - Country fixed effects when using cross-section
  - Regional inequality is poor IV because diffusion means fails exclusion restriction

2.1.3 EVIDENCE

Challenges

- "Threat of revolution" is not easily quantifiable since abstract concept and based on perception
  - Ignorant elite (e.g. Tsar): no change thus revolt
  - Paranoid elite: change but no counterfactual revolution
- But can assume rational DM who updates beliefs based on measurable observable shocks nearby:

Aidt and Jensen (2014): Proxy

- Examine revolutions in 12-20 European countries from 1820-1938
- Use revolutionary events in neighbours as "observable event" to proxy for threat of revolution
  - Strong:
    - Ideas spread, economic downturns spillover creating "window of opportunity"
    - E.g. Collier (1999): "what perhaps changed most was […] the democratic example of the Russian Revolution"
  - Exogenous: Plausibly exogenous to franchise extension process but… may also spread positive sentiment amongst elite themselves
    - Weight distance by geography and linguistic similarity for 'pure' correlation
    - Control for trade, repression, time fixed effects, country fixed effects etc.
    - Use one year lag to avoid simultaneity
- Use following definitions:
  - Revolutions: a month where, two blocs backed by armed forces with support from population exercised power
  - Suffrage: fraction of men eligible to vote relative to enfranchised age and sex group
- Regress $d_{it} = \beta_{0d_{it-1}} + \beta_1 TR_{it} + X_{it}\gamma + \eta_t + \alpha_i + \epsilon_{it}$
  - X_{it} is vector of controls e.g. development, international trade, repression and transfers
  - η_t is time fixed effects e.g. enlightenment shocks
  - α_i is country fixed effect e.g. culture
  - Identification assumption requires $cov(TR_{it}, \epsilon_{it} | X_{it}, \eta_t, \alpha_i) = 0$
- Find that one extra revolutionary event abroad results in short run 1.86%-points extension of suffrage; long run 26.5%-points extension of suffrage
  - Robust too: selection bias needs to be 2.5-3x stronger to obscure
- Decompose variation further $\overline{TR}_{it}^{geo} = \bar{\beta}_1 \sum_{i \neq j} R_{jt} + \bar{\gamma} \sum_{i \neq j} D_{ij} R_{jt}$ = year effect + distance
  - Find $\bar{\beta}_1 = 3.38$; $\bar{\gamma} = -0.0019$
  - Revolutionary years predict suffrage extensions and effect is smaller further away

Aidt and Franck (2015): IV

- Examine historical micro data on 244 English constituencies

- Use observable shock: Exposure (within 10km) to Swing riots between 1830 and 1831 elections. Riots spread from Sevenoaks through roads via social interaction effects. so use road travel-time
    - Strong: Local riots created perceptions of threat. Elite appease potential leadership by giving power to urban and middle class, breaking coalition with peasants
    - Exogenous: Hence use IV!
- Regress $Whig_{i,1831} = \beta_0 Whig_{i,1830} + \beta_1 Riots_i + X_i\gamma + \alpha + \epsilon_i$
    - X_i control: constituency size, employment, newspaper circulation, type of franchise rule
    - Proxy democratization with change in electoral success of reform-friendly Whig party
    - Identification assumption requires $cov(Riots_i, \epsilon_i) = 0$
- Find results that confirm hypothesis:
    - OLS: 0.47 = 5.2%-points higher in top quartile. From 43 to 48%
    - IV: 2.53 = 28%-points higher in top quartile. From 43 to 71%

Criticisms

- Model predicts we should rarely see revolutions as elite always respond beforehand
- See frequent switches between democracy and dictatorship, which model can't explain
- Does not distinction between unrest from general population and subset of rival elite
- External validity: Evidence from UK 1800s. Unlikely we can apply this to Africa/ME 20th /21st C

2.2 Theories of Voluntary Suffrage Reform

2.2.1 Political Party Advantage Hypothesis (Llavador and Oxoby, 2005)

Overview

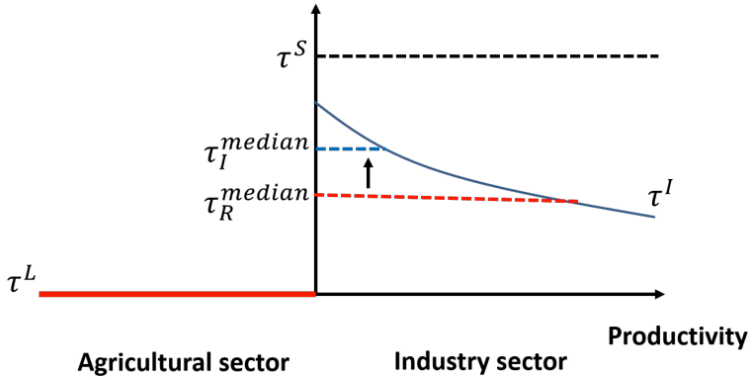
- Incumbent elite (rather than the whole elite) has an incentive to extend suffrage to supporting workers (either fully or partially) iff median voter is unfavourable and they thus 'move it'
    - Context is 19th Century Europe during Industrial Revolution

Model

- Elite is split between land LE and industrial IE. Likewise 'broadly aligned' workers LW and IW
- Decisions determined by median voter of electorate over single-peaked issue (Black, 1957)
- At start only elite have suffrage but incumbent elite decided if to unilaterally include some workers

- Policy instrument 'issue' increases the productivity of I (e.g. R&D) funded through proportional tax on all agents. This has following welfare implications:
    - IE benefit some (and are not homogenous!):
        - Higher productivity raise profits (SR under competition; LR under monopoly)
        - Decreasing in income as per Meltzer-Richard Theorem as richer may more taxes
    - IW benefit most:
        - $w = MPL$ under perfect competition so rise in productivity raises wages.
        - Do so more than IE as per the Meltzer-Richard Theorem: relatively poorer so pay a smaller amount of tax to fund R&D (more net benefit even if gross is same)
    - LW indeterminate:
        - Rise in industrial wages forces land elite to mirror somewhat in order to retain labour, which we assume is <u>imperfect substitute</u>
        - Have to pay higher taxes and we <u>assume that this negative effect dominates</u>
    - LE loses:
        - Have to raise wages and pay taxes but receive no productivity benefit

- Thus groups have following preferences:
  - Both LE and LW want zero tax $\tau^{LE} = \tau^{LW} = 0$. Thus
  - IE wants a positive tax decreasing in productivity: $\tau^{IE} > 0; \frac{d\tau^{IE}}{dA} < 0$
  - IW want a positive tax higher than their elite: $\tau^{IW} > \tau^{IE} > 0$



- Thus see following reforms (not to gain a better chance of winning a future election [MVT means always 0.5] but instead to get a better policy by changing the identity of the median voter)
  - LE opposes reform entirely (if MV favourable) or enfranchises <u>all</u> LW (if not)
  - IE supports limited enfranchisement to IW

Evidence

- Smith (1967): 19th Century Britain was clear split between the Liberal and Conservative party, who represented industrial and land elite respectively fighting over reform
- Przeworksi (2009): women are generally more left-wing we can see the extension of female suffrage in the 20th Century as a move by the incumbent Liberal Party

Criticisms

- If political parties are clearly identifiable with ***IE*** and ***LE*,** then forward-looking median voter will always want to vote for 'their' party, even if both offer same policy
- Macroeconomic implications of this model are not consistent with empirical evidence:
  - Universal suffrage only occurs when landed elite is in power, who oppose growth policies
  - Thus expect negative correlation between universal suffrage and growth
  - But Northern Europe, where Industrial Revolution originated, saw large suffrage extensions

2.2.2 The Political Inefficiency Hypothesis

Overview

- Suffrage extension may be of interest to all elite (i.e. Pareto improvement)
- Parties do not maximize the utility of their supporters but instead their own vote share
- Extending suffrage is constraint the elite places on the risk of being expropriated to 'buy the rest'

Model

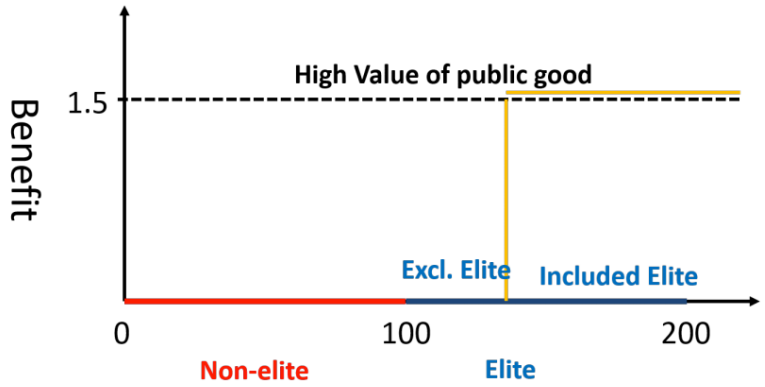
Assumptions

- World: 200 individuals, £100 budget, and two ways money can be spent
- KA1: pure public good, generating utility 1.5 to all, and transfer good, generating utility 1 to some
  - Transfers more likely when the electorate is small: If 100 (200) transfers give voters more utility 2>1.5 (1<1.5)
- KA2: political parties seeks to maximize voter share and do not always behave in the interest of their supporters

- For simplicity assume analyse sequential platform proposal where party 1 offers public goods, creating threshold $1.5 + \delta$ for party 2 to gain votes. Party 2 then maximize votes

Solution

- Compare the outcomes between restricted- and universal suffrage
- Under restricted suffrage (i.e. 100 voters):
  - It can offer 50 voters $2 > 1.5$ or 66 voters $1.5 + \delta$ so it chooses the latter
  - ⅓ of elite get nothing whilst the rest are indifferent between this and the public good
- Under universal suffrage (i.e. 200 voters):
  - Party 2 will lose the election if it offers $1.5 + \delta$ to the 66 voters
  - Instead, Party 2 will also offer public goods and tie election. Everyone gets 1.5
- We can show this graphically:



- Pareto improvement to switch to universal suffrage. Universal suffrage makes it harder for parties to use transfers to max vote share because more voters to split benefits between

Analysis

- Yay: Suffrage reform is response exogenous shifts in valuation of public goods by elite, such as urbanization and tech progress. Indeed Britain's "Age of Reform" was accompanied by public goods
- Nay: Much of Political Economics has shown, resource allocation is frequently a game of competition and it is rare for Pareto improvements to exist. Thus rare to actually apply this

3 State Capacity

- Types of capacity:
  - Fiscal capacity: infrastructure that allows a state to extract resources through taxation
  - Legal capacity: infrastructure that allows a state to provide regulations and legal services to protect property rights and enforce contracts

3.1 Besley-Persson model

3.1.1 Assumptions

Basics

- Two groups of equal size and income w: $J = I$ncumbent, Opposition
  - Time-Line:
    - Period 1: I selects policy $\{t_1, r_1^I, r_1^O, g_1\}$ and state capacity investment m_1 (i.e. τ_2) then election
    - Period 2: Ior$O$ observes external threat α_i then selects policy $\{t_2, r_2^I, r_2^O, g_2\}$

Policy

- Two periods s where I sets policy $\{t_s, r_s^I, r_s^O, g_s\}$
  - Pure public good (e.g. defence) g_s
  - Group specific transfers r_s^J
  - Proportional income tax t_s
  - (No discounting and private saving)
- Individuals have utility $u_s^J = (1 - t_s)w + r_s^J + \alpha_s g_s$
- Government faces budget constraint:
  - Period 1: $t_1 w = \frac{r_1^I + r_1^O}{2} + g_1 + m_1$ | Period 2: $t_2 w = \frac{r_2^I + r_2^O}{2} + g_2$
  - Taxes limited by fiscal capacity: $t_s \leq \tau_s$
  - Incumbent government in Period 1 inherits τ_1 but can invest in more
  - The cost of this is increasing and convex: $m_1 = \begin{cases} \frac{1}{2}\tau_2^2 \text{ for } \tau_2 > \tau_1 \\ 0 \text{ for } \tau_2 = \tau_1 \end{cases}$

Institutions

- Common interest: External threat of war, and thus value of g_s, depends
  - $\alpha_1 = 0$
  - $\alpha_2 = \{\alpha_H, \alpha_L\}$ with probability $\{\phi, (1 - \phi)\}$
  - Assume that $\alpha_H > 2 > \alpha_L > 1$ thus $\phi\alpha_H + (1 - \phi)\alpha_L > 1$
- Stability: I in Period 1 either re-elected with γ probability or lose to O with probability $1 - \gamma$
- Cohesiveness: checks and balances limiting what I can do to O
  - If I wants to transfer to itself it must offer fraction $\sigma \geq 0$ to opposition: $r_s^O = \sigma r_s^I$
  - Cohesion measured as $\theta = \frac{\sigma}{1+\sigma}$ (i.e. $\theta = 0$ tyranny of majority; $\theta = \frac{1}{2}$ equality)

3.1.2 SOLVING

Want to solve fiscal policy: scale (set tax rate t_s), composition (r_s^I, r_s^O vs. g_s), and investment (τ_2)

Scale: Will always tax max

- I can always spend revenue on transfers that is at least as good as private income w and strictly better if $\sigma < 1$.
- Fiscal capacity constraint binds: optimal tax $t_s = \tau_s$; budget constraint $\frac{(1+\sigma)r_s^I}{2} = \tau_s w - g_s - m_s$

Composition

- Rearrange budget constraint for both agents. Cohesiveness θ determines how 'left-over' tax is divided between the groups
  - $r_s^I = 2(1 - \theta)(\tau_s w - g_s - m_s)$
  - $r_s^O = 2\theta(\tau_s w - g_s - m_s)$
- Incumbent either spends $\tau_s w - m_s$ on defence or transfers depending if threat of a war is large:
  - $\alpha_s \begin{cases} < \\ \geq \end{cases} 2(1 - \theta) \begin{cases} g_s = 0 \\ g_s = \tau_s w - m_s \end{cases}$
- In Period 1 no threat of war so $r_1^I = 2(1 - \theta)(\tau_1 w - m_1)$ and $r_1^O = 2\theta(\tau_1 w - m_1)$
  - Opportunity cost if investing in state capacity is $2(1 - \theta)$, decreasing in θ!
- In Period 2 either have high or low threat:
  - High: $\alpha_H > 2 \geq 2(1 - \theta)$ so will spend all on defence $g_2(\alpha_H) = \tau_2 w$; $r_s^J(\alpha_H) = 0$

- Low: depends $r_2^J(\alpha_L) = \begin{cases} 0, \text{ if } \alpha_L \geq 2(1-\theta) \\ \beta^J \tau_2 w, \text{ otherwise} \end{cases}$ where $\beta^I = 2(1-\theta)$, $\beta^O = 2\theta$

  $g_2(\alpha_L) = \begin{cases} \tau_2 w, \text{ if } \alpha_L \geq 2(1-\theta) \\ 0, \text{ otherwise} \end{cases}$

Investment

- $W(\alpha_s, \tau_s, m_s, \beta^J) = (1-\tau_s)w + \alpha_s g_s + \beta^J(\tau_s - g_s - m_s)$
  - Where $\beta^I = 2(1-\theta)$ and $\beta^O = 2\theta$

- In Period 1 I is uncertain about (1) if they are in power [γ] and (2) what spending there will be depending on threat of war [ϕ]
- Investment problem is to select τ_2 to maximize expected payoff given all four possible outcomes:
  - $E[W_1^I] = W\big(\alpha_1, \tau_1, m_1, 2(1-\theta)\big) + \gamma U^O(\tau_2) + (1-\gamma)U^I(\tau_2)$ [i.e. (1)]
  - Where $U^I(\tau_2) = \phi W\big(\alpha_H, \tau_2, 0, 2(1-\theta)\big) + (1-\phi)W\big(\alpha_L, \tau_2, 0, 2(1-\theta)\big)$ and $U^O(\tau_2) = \phi W(\alpha_H, \tau_2, 0, 2\theta) + (1-\phi)W(\alpha_L, \tau_2, 0, 2\theta)$ [i.e. (2)]
    - In α_H cases all is spent on public goods, in α_L it depends
- Gives FOC: $\frac{dE[W_1^I]}{d\tau_2} = \left[\frac{dW}{d\tau_2}\right] + \left[\gamma \frac{dU^O}{d\tau_2} + (1-\gamma)\frac{dU^I}{d\tau_2}\right] \leq 0$
  - First term is MC in period 1 as have to forgo some transfers: $\frac{dW}{d\tau_2} = -2(1-\theta)\tau_2$
  - Second term is MB in period 2. Depends on who is in power and threat of war…

3.1.3 ANALYSIS

- Common interest state: All groups share a strong interest in defence
  - Cohesive
  - Does not matter who is in power: any government will provide public good exclusively
- Redistributive state: All groups agree defence is needed if threat of war is high. Else redistribute
  - Not cohesive; stable
  - Matters who is in power in the future; incentive to invest in state capacity because turnover risk is sufficiently low
- Weak state: Defenced is needed if threat of war is high. . But if not they will redistribute
  - Not cohesive; not stable
  - Matters who is in power in the future; no incentive to invest in state capacity

- Cohesiveness condition: $\alpha_L \geq 2(1-\theta)$ means optimal $g_2(\alpha_L) = g_2(\alpha_H) = \tau_2 w$ and not redistribute
  - Period 1 gov invests in fiscal capacity so $2(1-\theta)\tau_2 = w\big((\phi\alpha_H + (1-\phi)\alpha_L) - 1\big) > 0$
    - I.e. MC of investment = MB from defence (convex combination) – MC of tax
  - More cohesive ↑ θ and the more threatened ↑ α_L the state is the more likely this will emerge
- Stability condition: $\phi\alpha_H + (1-\phi)[(1-\gamma)2(1-\theta) + \gamma 2\theta] > 1$
  - Suppose cohesiveness fails. Period 1 gov. knows that if it loses power the opposition will use state capacity to redistribute if threat of war is low. Thus invests according to expectations
  - Period 1 gov invests so $2(1-\theta)\tau_2 = w[(\phi\alpha_H + (1-\phi)[(1-\gamma)2(1-\theta) + \gamma 2\theta]\,) - 1]$
    - MC of investment = expected MB from extra unit of revenue at s=2 – MC of tax
  - More likely to hold with high threat of war ↑ ϕ and low government turnover ↓ γ

- Investment is higher in a redistribute state when $\downarrow \gamma, \uparrow \phi, \uparrow w$ (expands tax base in period-2 and thus increases reward to investment in fiscal capacity)

- Cohesion has an ambiguous effect
  - When turnover risk is low $\gamma < \gamma^*$ an increase in cohesion reduces investment because government is likely to hold on to power and it does not benefit from cohesion
  - When turnover risk is high $\gamma > \gamma^*$ an increase in cohesion increases investment because government is unlikely to hold on to power and it does benefit from cohesion

3.1.4 EVIDENCE

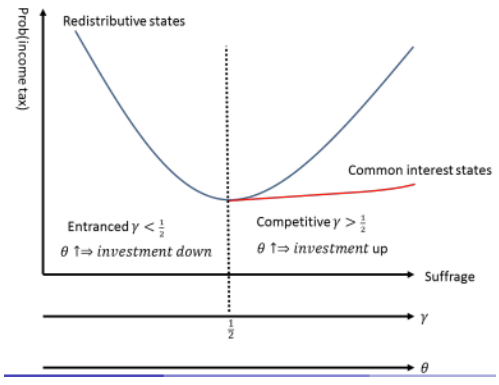
- No clear macro prediction: Fiscal capacity should have positive effect (spending on productive public goods increases productivity) and negative effect (spending on redistribution and incentive effect of distortionary taxation may reduce productivity)

Dincecco and Prado (2012)

- Examine 96 countries and how pre-modern wars (1816-1913) relate to growth today (1990s)
- IV: First Stage $F_i = \gamma_0 + \gamma_1 WAR_i + \gamma_2 X_i + \epsilon_i$; Second Stage $\log(Y_i/L_i) = \beta_0 + \beta_1 F_i + \beta_2 X_i + \mu_i$
  - F_i is share of direct taxes in total revenues in 1990s (harder to collect than indirect taxes)
  - WAR_i is total war causalties normalized by country area 1816-1913 (pre-modern)
- Questionable if IV is valid
  - Strong: Fiscal capacity has a strong positive effect on income per capita (F-test 11.12)
  - Exclusion: Unlikely! War affects women's labour affecting income per capita today
- If a country were to move from 0.3 (25th percentile) to average 0.47 then its income per capita should increase by 101%
  - OLS 3.04 and IV 4.12. Not what we expect but can be explained by measurement error

Aidt & Jensen (2009)

- Context: First major breakthrough in tax capacity was introducing income tax. Developed world adopted this between 1842-1939
- Model conditional probability that country has not yet adopted in given year
  - $\Pr(y_{it} = 1 \mid x_{it}, y_{it-1} = 0) = \frac{1}{1+\exp[-(x_{it}\beta + H(t))]}$
  - x_{it} is vector of determinants $H(t)$ a flexible way to allow hazard rate to vary over time
- Probability follows U-shaped relationship: falling in suffrage initially then increasing
  - Aidt & Jensen: when few can vote they are the prime target for income taxation
  - Besley-Personn: suffrage picks up two effects: cohesiveness (as suffrage extends new checks and balances put in place) and turnover (as suffrage extended incumbent less entrenched)



where $\gamma^* = \frac{1}{2}$

4 RIOTS AND REVOLUTIONS

- Revolution: A fundamental change in social order in short time window with massive shift in public expression of political views. Can be violent (Iran 1979) or not (East Germany 1989)
- Riots: Violent disturbance of peace by a crowd (London 2011; LA 1996; Swing Riots 1830-31)
- Theory we explore is altruistic revolution. But there are others…
    - Relative Deprivation Theory: Gap between outcomes and expectations creates frustration
        - Hirshman & Rothschild (1973): If peers improve then this first brighter prospect but if persists results in violence (e.g. Tlatelolco massacre in Mexico)
    - Marxist Theory: Changes in production methods and forms of exchange generate discontent

4.1 TULLOCK (1971): "REVOLUTIONARY GLORIA FOR ALL THE PEOPLE" IS NOT MOTIVATOR

Assumptions

- Benefit of transition to "good" is P_g and we assume this is public
- Many individuals i decide whether to be active or passive in revolution
- If do not participate, baseline probability of success is L_v

Solving

- *Not participating*: $P_{in} = L_v P_g$
- *Benefits of revolutionary*: $(L_v + L_i)P_g + (L_v + L_i)R_i$ as increase probability of success (L_i) and get some private benefits (R_i) if successful
- *Costs of revolutionary*: $(1 - L_v + L_i)P_i + L_w I_r$ as will be punished if fail (P_i) or get injured generally during $(L_w I_r)$
- $EU(\text{active}) - EU(\text{passive}) = P_r = (L_v + L_i)P_g + (L_v + L_i)R_i - (1 - L_v + L_i)P_i - L_w I_r - L_v P_g$
    - Key assumption 2: each individual has little impact $L_i = 0$
    - Thus $L_v R_i - (1 - L_v)P_i - L_w I_r$

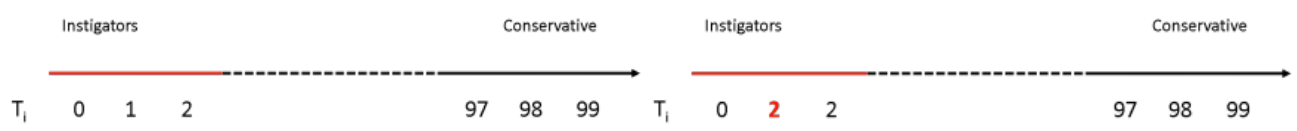
Evaluation

- Rejects Common Good Theory (revolutionaries motivated by prospect of creating better society) as collective benefit does not play a role
- Only thing that matter is private incentive versus risk of injury. Follows Olson's Logic of Collective Action: Leadership of revolution must provide private benefits / selective incentives to participants
- For most we expect this to be modest but risk of injury is high. Thus strong incentive to free ride

4.2 GRANOVETTER: COMPLEMENTARITIES GENERATE SELF-REINFORCING SOCIAL DYNAMICS

Theory: Granovetter Model

- Individual's cost and benefits depend on how many others participate
    - Riots: probability of being caught falls in larger crowds
    - Revolution: probability of injury falls and probability of success rises
- Threshold assumption: Each individual has threshold T_i of others already participating before join
- Consider 100 individuals where instigator $i = 1$ shouts "death to the king"
    - Triggers can thus cascade: Thus $i = 2$ joins, $i = 3$ joins, $i = 4$ joins etc.
    - Or prevents cascade: Thus $i = 2$ does not join, $i = 3$ does not join etc.



- Complementarity: Aggregate participation feeds back into individual decisions and create potential for self-reinforcing dynamics
- Instigators are willing to take personal risk as they draw in some "respectable citizens"

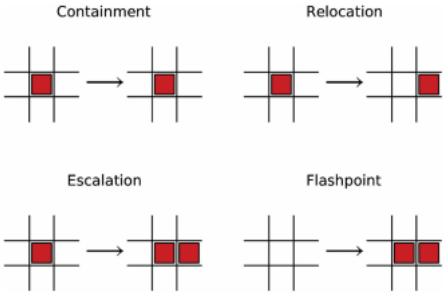
Evidence: Baudains et al (2013) using London Riots

Context

- 5 Days, £200m damage, 200 injuries of police and 2 deaths
- Wants to answer why [1] many "respectable citizens participated" and [2] spatial heterogeneity appears to exist with concentration near transport hubs

Methodology

- Dynamic grid where unit of analysis is cell (400m) at point in time (hour) filled in if has riot
- Identify different types of diffusion process



- Construct counterfactual spatial temporal distribution that matches aggregate properties of riots but assumes no spatial/temporal interdependencies. Compare real to this counterfactual

Results

- Find that get a lot of escalation and less reallocation than random. Fits theory
- [See Cass Sunstein for more]

4.3 KURAN: PREFERENCE FALSIFICATION CAN MAKE REVOLUTIONS UNPREDICTABLE

Assumptions

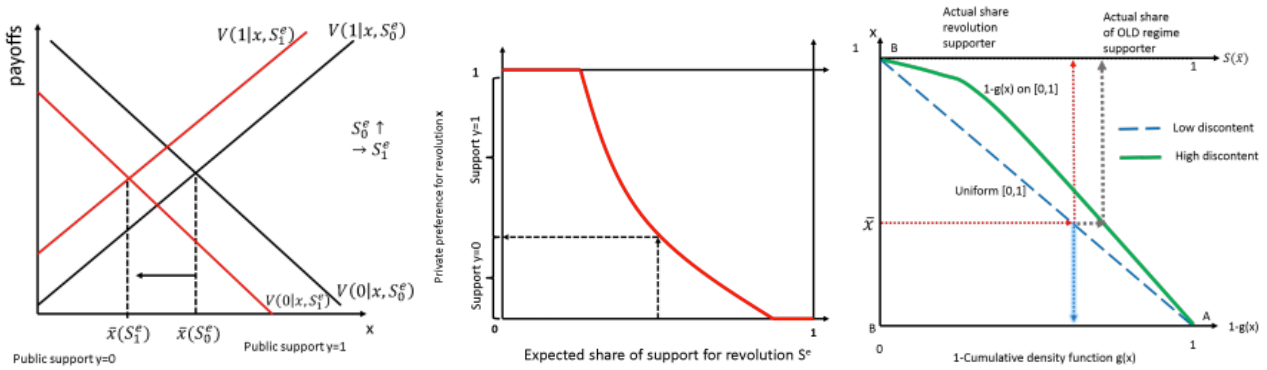
- Two political regimes located on opposite ends of the unit line [0,1] and N individuals
- Public preferences $y_i \in [0,1]$ and observed by all
  - Define public sentiment as $\bar{y} = \sum_{i=1} \frac{y_i}{N}$ and expectation of this as S^e
  - Probability that revolution happens is linked to public sentiment $p = \bar{y}$
- Private preferences $x_i \in [0,1]$ distributed via CDF $g(\ \ )$ where most are "somewhere in between"
- Individuals choose public preferences that maximizes utility:
  - $V^i(0|x_i) = \alpha\sqrt{1-S^e} + 1 - x_i$ versus $V^i(1|x_i) = \alpha\sqrt{S^e} + x_i$
  - First term is conformity preference (reputation): Want to express public preference that is aligned with the share of the population
  - Second term is preference falsification cost (integrity): Want to align public with private preferences
  - These two create a fundamental trade-off

Solving

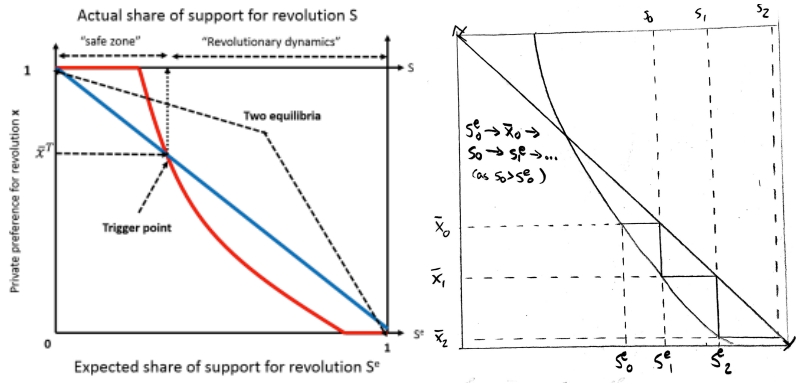
- Derive threshold of private preference for which individual is indifferent between supporting the "old" or "new" regime, allowing us to split population into two: $V^i\left(0\middle|\bar{x}(S^e)\right) = V^i\left(1\middle|\bar{x}(S^e)\right)$

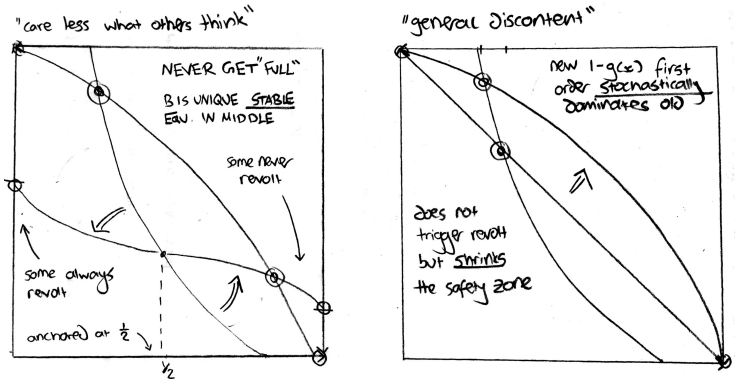
- $\bar{x}$ is decreasing in S^e: If more people are expected to oppose "old" they will expect more utility from supporting "new", requiring lower private preference for threshold

- Use this to generate threshold function and map expected support to a threshold private preference
  - Decreasing in S^e so negative slop. All $x_i > \bar{x}$ support and $x_i < \bar{x}$ oppose revolution
    - Bits where curve is flat show people who will never change their mind
  - Exhibits complementarity: Increase in expected support for "new", decrease in threshold $\bar{x}$, increase in actual $\bar{y}$, collective sentiment shifts (see transition fig!)
- How threshold $\bar{x}$ leads to $\bar{y}$ depends on CDF given by $S = P(x \geq \bar{x}) = 1 - g(x)$



- Equilibrium where $S^e = S$ and adjust to this via adaptive learning or rational expectations. Note this gives us three equilibria:
  - B: Unstable or "trigger point". Small increase in the expected share S^e results in a decrease in threshold $\bar{x}$, increasing actual S. As actual S has increased, people expect further increase S^e so get feedback loop until we reach C.
  - A or C: Stable. Small increase in the expected share S^e does not (or only slightly) changes threshold $\bar{x}$ and by extension actual S. Increase is less than expected so revise down S^e and we return to A





Analysis

- Model dictator ($\gamma = 0;\ \theta = 0$), populist demos ($\gamma = 0.5;\ \theta = 0$), liberal demos ($\gamma = [0.5,1];\ \theta = 0$)
- Solve as follows:
    - Calc regime's MC of state capacity i.e. sacrificing redistribution today
    - Calc regime's MB of state capacity i.e. high threat of war + distribute to yourself – tax cost
- Some general principles:
    - Dictator never will be expropriated, hence lower MC and higher MB than rest
    - Liberal democracy lower MC (as opposition must redistribute some, so lose less)

5 CORRUPTION

5.1 CAN CORRUPTION BE GOOD?

5.1.1 INTRODUCTION

- Corruption defined as "abuse of public power for private benefit" (World Bank). Although has same outcome as rent-seeking the process of miss-allocation itself is not a social loss.
- Two different interpretations:
    - Grabbing hand: non-benevolent government officials introduce inefficient policies in order to extract rents. Level of corruption depends on incentives embodied in existing institutions
    - Helping hand: benevolent principal delegates DM power to non-benevolent agent. Level of corruption depends on costs/benefits of designing optimal solutions [second best world]
- Theory of helping hand fails to recognise that inefficient policy corruption supposedly addresses is a product of corruption in the first place. Moreover, evidence distinctly supports grabbing hand.

5.1.2 HELPING HAND: PRINCIPAL-AGENT

Theory

- Views corruption as the optimal solution to a second-best world where a benevolent government (principal) has to delegate decision-making power to a selfish bureaucracy (agent)

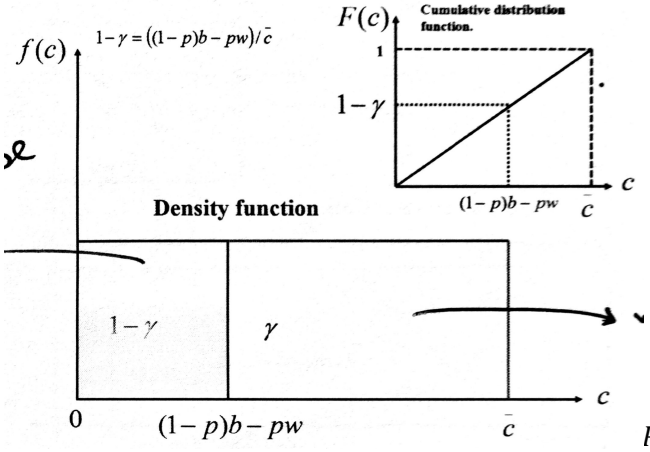
Set Up

- Government delegates power to tax-collector: Tax entire profits if $\pi > 0$ or zero if $\pi = 0$
- Firm might bribe tax collector to pretend $\pi = 0$; tax collector might accept; gov. might discover
- Consider the agent's (i.e. tax collector's) incentives:
    - Bribe: has all bargaining power so gets π but probability p will be caught and fired
    - Wage: gets w if retain job
    - Moral cost: incurs $c \geq 0$ if take bribe, drawn from uniform distribution $[0, \bar{c}]$

Agent

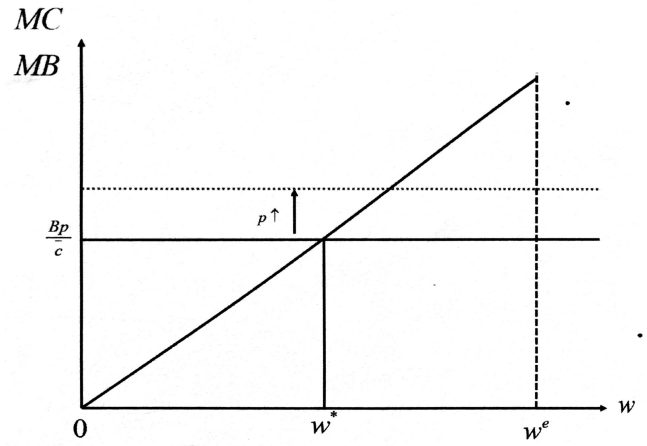
- Agent has two options:

- If ask for bribe: $E[U] = \text{not discovered } + \text{ discovered} = (1-p)(w+b) + p0 - c$
- If do not ask for bribe not: $E[U] = w$
- Thus get Incentive Compatibility Constraint: $(1-p)b - pw \leq c$
- Thus proportion of corrupt is $(1-\gamma) = F\big((1-p)b - pw\big) = \frac{(1-p)b-pw}{\bar{c}}$



Principal

- We can combat corruption by paying efficiency wages:
  - Better pay reduces corruption by "imposing a cost of dismissal" that "more than offsets the gain from malfeasance" (Becker & Stigler, 1974)
  - This accountability mechanism is similar retrospective voting models
  - Corruption is hence function of wage: $\gamma(w) = \frac{\bar{c}-(1-p)b+pw}{\bar{c}}$
  - To keep everyone honest need to pay $w^e = \frac{1-p}{p}\pi$; this needs to be paid to everyone
- But… it is in fact optimal to allow for a residual amount of corruption
  - Higher wage has benefit $B\gamma(w)$ where B is MB of more honest collectors
  - Higher wage also has cost $C(w) = \mu\frac{1}{2}w^2$ where μ is MC of public funds
  - Optimal trade-off given by $\max_w B\gamma(w) - \mu\frac{1}{2}w^2$ where FOC gives $w^* = \frac{Bp}{\bar{c}\mu}$
  - By definition $w^* < w^e$!



- We note that monitoring is still important:
  - If $p = 1$ no one will be corrupt, although this may be costly irl
  - Complementarity between control instruments: If monitoring system is good, it is cheaper to pay higher wages

5.1.3 Helping Hand: Correct pre-existing government failures [Macro]

For

- Not a universal case for corruption, but for specific cases where other aspects of governance are deficient and/or economic policy is inefficient. Some anecdotal evidence for this:

- Leff (1964): In Chile, honest agency enforced price freeze and production stagnated. In Brazil, a corrupt agency effectively sabotaged policy, helping consumers
- Levy (2007): Illegal markets, supported by a chain of bribe payments, emerged during the Soviet era in the Republic of Georgia. This boosted output and allocation efficiency

- Relationship between growth and corruption should be non-monotonic with positive growth effects at low levels of corruption only. Hence have three testable macro hypothesis:
  1. *Marginal* effect of corruption on growth is positive in countries with *deficient political institutions* and negative elsewhere
  2. At *low* levels of corruption the beneficial effects of corruption dominate detrimental effects
  3. In *good governance* countries the effect of corruption on growth is negative, while in countries with poor governance, the effect is positive (or less negative)

Against

- But… Aidt (2009) notes that the empirical evidence refutes this using sample of 60 countries between 1970-2000
  - Corruption has positive impact on growth and effect is reduced with better institutions but… not robust to using different indicators of governance or instrumentation
    - Méon and Sekkat (2005) use larger sample and different specification. Find systematic evidence against hypothesis
  - No overall growth-maximizing level of corruption. In fact only significant sub-sample are countries with political freedom and already low levels of corruption (e.g. Denmark)
  - Corruption only has a negative impact on good governance countries, else insignificant but… also explained by Aidt et al. (2008) hypothesis that corruption has less of an impact in poor governance countries simply because things cannot get much worse

5.1.4 HELPING HAND: "GREASING THE WHEELS" [MICRO]

For

- de Soto (1990) investigates Kafkaesque bureaucratic hurdles to legally set up small two-sewing-machine garment factory in a Lima shanty town: took 300 days or 32x monthly minimum wage
- In such a scenario, being able to pay "speed money" may help with allocative efficiency where firms who really value license can acquire it
- Egger & Winner (2005) use 73 cross-county study that corruption is a stimulus for FDI

Against

- But… Mauro (1995) notes what is beneficial for individual may be detrimental for society: "when individuals offer speed money to officials, they contribute to establishing a [harmful] custom"
- Economic policies are often put in place to create corruption opportunities. Inefficient policy and corruption are driven by same underlying force
  - See Grabbing Hand model
  - Djankov et al. (2002) sample of 85 countries finds strong correlation between hurdles to set up small start-up firm and (perceived) corruption levels
- Fisman & Svensson (2007) note may not even be beneficial for individual: Survey of Ugandan firms shows 1%-point increase in the bribery rate is associated with 3%-point reduction in firm growth

5.1.5 GRABBING HAND

Theory

Set Up (Aidt, 2003)

- Two types of occupations:
  - Workers earn wage income $w(n)$
  - Entrepreneurs earn profit income $\pi(n)$
- Individual

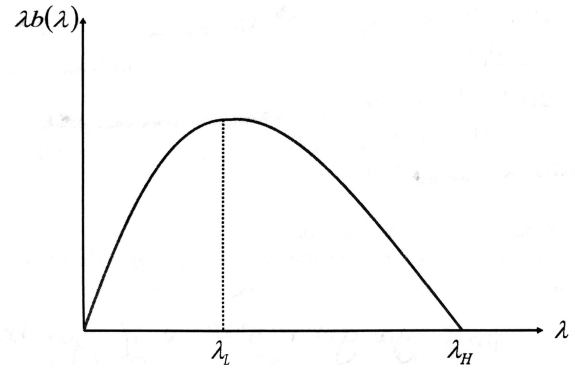
- n is fraction of entrepreneurs where $\frac{dw}{dn} > 0$ and $\frac{d\pi}{dn} < 0$
- Individual will be entrepreneur iff $b(n) = \pi(n) - w(n) > 0$ where $\frac{db}{dn} < 0$
- Hence, under free market, would allocate such that $\pi(\lambda_H) - w(\lambda_H) = 0$

- Government
  - Issues industrial licenses λ required to be entrepreneur (with no social justification)
  - Does so in order to extract rents $\lambda p(\lambda)$

Solving

- Government solves: max $\lambda p(\lambda)$ s.t. $p(\lambda) \leq b(\lambda)$
  - Intuitively know constraint is binding so max at $p(\lambda) = b(\lambda)$
  - Get FOC: $\lambda_L \frac{db}{d\lambda}(\lambda_L) + b(\lambda_L) = 0$
  - Rearrange to: $\lambda_L = -\frac{b(\lambda_L)}{\frac{db}{d\lambda}(\lambda_L)}$
- Can show this figuratively as Laffer curve

$\lambda_L > 0$ and $\lambda_L < \lambda_H$



- Intuitively, to extract rent the government must create rents. Done by an inefficient license system that creates artificial scarcity. This is the fallacy of efficient corruption

Evidence

- Corruption has many negative effects for business and government:
  - Mauro (1995): Perceived corruption is negatively related to investment
  - Baldacci et al (2004): Corruption creates inefficiently large public sectors where resources that should have been used productively are wasted through rent seeking
  - Mauro (1998): Distorts public spending towards less productive activities e.g. defence
- Olken (2006): Study of an Indonesian anti-poverty programme that was aimed at distributing rice at a subsidized price to poor households 18% of rice disappeared
  For reasonable estimates of marginal cost of public funds, corruption turned a programme that would have been welfare improving into one that reduced social welfare

- We can also see this more generally…
- Aidt (2009) examines relationship between corruption and genuine-wealth/capita to find strong negative correlation that is robust
  - Notes GDP/capita may be poor proxy for development. Instead use Dasgupta's (2001) measure of genuine-wealth/capita to include human- and natural capital, institutions etc.
  - If India were to 'adopt' (perceived) corruption level of UK would grow 3.4%pa not 1%pa.
  - Robust to using perceived corruption and managers' actual experience (important since perception may be coloured by econ performance leading to spurious correlation)
  - Robust to use of IVs, such as ethnic-linguistic fragmentation (although Easterly & Levine, 1997 imply it does not satisfy 'exclusion' as it affects social capital in Africa study)
- Andvig & Moene (1990): Identify as key factor for poverty traps in low income countries

5.1.6 ACCOUNTABILITY MECHANISM AS A SOLUTION

- For corruption to occur we require three conditions:
  - Discretionary power: Officials has discretion to design or administer regulation
  - Economic rents: Officials have incentive as to exploit their discretionary power
  - Weak control system: Officials find it optimal to exploit discretionary power
- Thus stronger accountability mechanism should reduce corruption!

Theory

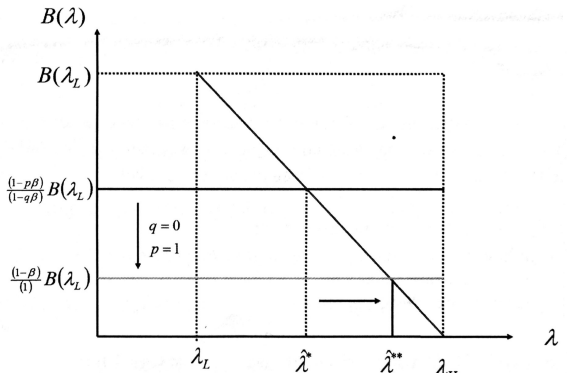
Set Up

- Consider accountability mechanism whereby in a multi-period ($t = 1, \dots, \infty$) model where at the end of each period citizens can replace incumbents
- Government:
  - Obtains utility V_t from holding office and corruption ($B(\lambda) = \max\{\lambda b(\lambda), 0\}$)
  - Discounts future utility with β
- Citizens:
  - Announce performance standard so only re-elected/don't-revolt if $\lambda_t \geq \hat{\lambda}$
  - But imperfect monitoring
    - Reappointment reward with probability p
    - Dismissal threat succeeds with probability $1 - q$
  - Can consider different regimes:
    - Democracy: $p = 1$ and $q = 0$
    - Controlled democracy/autocracy: $p < 1$ and $q > 0$ but $p > q$
    - Uncontrolled democracy/autocracy: $p < 1$ and $q > 0$ but $p \leq q$

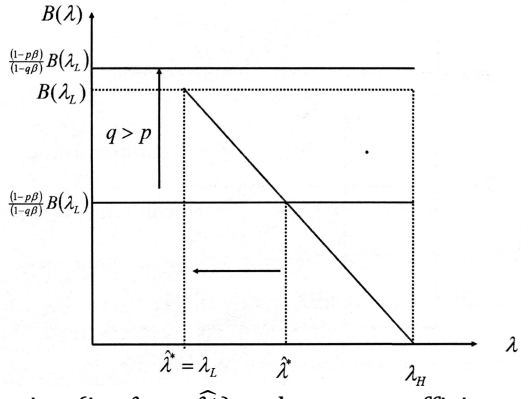
Solving

- Let us consider Incentive Compatibility Constraint:
  - If government decides to meet standard: $V_t^C = B(\hat{\lambda}) + p\beta V_{t+1}$ so $V_t^C = \frac{B(\hat{\lambda})}{1-p\beta}$
  - If government decides to fail standard: $V_t^D = B(\lambda_L) + q\beta V_{t+1}$ so $V_t^D = \frac{B(\lambda_L)}{1-q\beta}$
  - Hence will only comply if $V_t^C > V_t^D$ so $B(\hat{\lambda}) \geq \frac{1-p\beta}{1-q\beta} B(\lambda_L)$

Democracy: $p = 1$ and $q = 0$



Total institutional failure



- Note that strong institutions (i.e. $p > q$) reduce corruption (i.e. $\lambda_L < \widehat{\lambda^*}$) and promote efficiency ($\frac{d\widehat{\lambda^*}}{dp} \geq 0$; $\frac{d\widehat{\lambda^*}}{dq} \leq 0$)
- Intuitively, economic outcomes and corruption are jointly determined. Institutions where citizens can replace governments provide incentives for better behaviour (akin to retrospective voting)

Evidence

- Consider Reinikka & Svensson (2004)

- Measured 'capture of public funds' in Uganda: Sample of 250 schools 1991-95 showed only 13% of capitation grants reached students. Rest was captured by District Administrations and Ministry of Local Government
- Followed up by information campaign, outlining what the capitation grants were and forced schools to public amounts received. This directly improved accountability mechanism
- Resulted in rise to 90% of funds making it through, as parents and teachers felt empowered and could monitor funds

- Olken (2007)
  - Measure corruption of government funds intended for road buildings in 548 Indonesian (where corruption measured as: reported expenditures on roads – estimated actual cost)
  - RCT whereby some villages where 'treated' and audits increased from 4% to 100%
  - Finds "audit treatment effect" as a 8.5% reduction in missing funds
  - By contrast, increasing grassroots participation in monitoring had little average impact, reducing missing expenditures only in situations with limited free-rider problems and limited elite capture. Suggests traditional top-down monitoring can play an important role

5.2 CULTURE OF CORRUPTION

Theory

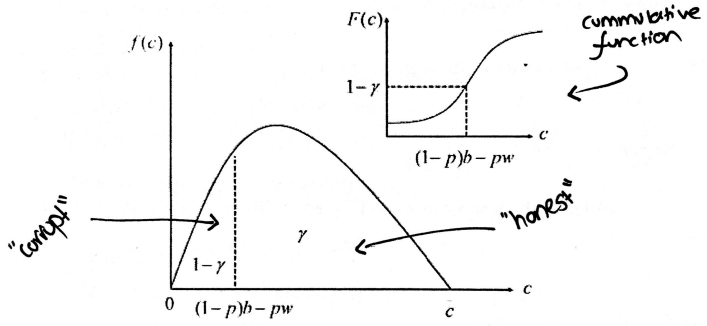
- There are many channels through which a "culture of corruption" may emerge:
  - Self-reinforcing corruption: Rewards to corruption depends on incidence of corruption due to strategic complementarity. The level of corruption depends on culture and history.
    - E.g. Relative returns (as per Acemoglu): Return to entrepreneurship relative to rent seeking may depends on the proportion of rent seekers in the population
  - Quis custodiet ipsos custodes?: Detection probability depends on what others do because it is harder to audit corrupt officials in corrupt societies
  - Social norms: The moral cost of being corrupt may depend on what others do since it is deviating from these norms that is costly

Set Up

- Return to Helping Hand model
- Now tax collectors get audited by auditors who may also be corrupt. Hence, if audited by corrupt auditor, only needs to pass on bribe to keep job
- Now assume bell-curve (rather than uniform) distribution of moral costs for tax collectors

The distribution of moral costs: The Bell curve

$$1-\gamma = F((1-p)b - p(w))$$



Tax Collector

- Agent has two options:

    - If ask for bribe: $E[U]$ = not discovered + discovered $= (1-p)(w+b) + p0 - c$
    - If do not ask for bribe: Gets salary for sure w
    - Thus get Incentive Compatibility Constraint: $(1-p)b - p(w) \leq c$
- Proportion of tax collectors who asks for bribe is $1-\gamma = F\big((1-p)b - p(w)\big)$

Self-Reinforcing Loop I

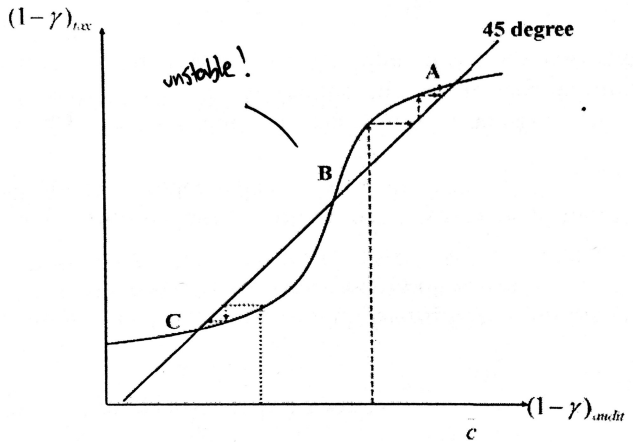
- Assume no monitoring of auditors but they have moral cost distributed according so some density function. Hence auditor will accept a bribe iff $b \geq c_{\text{auditor}}$
- If distribution of moral costs for auditors shifts 'left' there are more corrupt tax collectors because being corrupt becomes a social norm in the group
- Creates positive feedback loop: Larger fraction of corrupt tax collectors incentivises individual auditors to accept bribes creating larger fraction of auditors who are corrupt
- Hence proportion of corrupt auditors is an increasing function of the proportion of corrupt tax collectors $(1-\gamma)$
    - Simplifies to $(1-\gamma)_{\text{audit}} = (1-\gamma)_{\text{tax}}$

Self-Reinforcing Loop II

- Tax collector takes bribe iff $E[U]$ of asking bribe $> E[U]$ of not asking bribe
    - $(1-p)(w+b) + p(1-\gamma)_{\text{audit}}(w+b-b) - c \geq w$
    - Note benefit of taking bribe for particular tax collector is *increasing* function of fraction of corrupt auditors
- Taking equation for any given tax collector into population distribution of moral costs
    - [*] $(1-\gamma)_{\text{tax}} = F\big((1-p)b - pw + p(1-\gamma)_{\text{audit}}w\big)$
    - Note RHS is *increasing* in fraction of corrupt auditors: more corrupt auditors – [unlikely to be punished] -> more corrupt tax collectors – [norms enhanced] -> more corrupt auditors

Equilibrium

- Putting together, equilibrium is given by $(1-\gamma)_{\text{tax}} = (1-\gamma)_{\text{audit}}$ such that equ. [*] holds
- Because of "bell curve" distribution now have three equilibria:
    - A: Stable high corruption equilibrium: Most other bureaucrats are corrupt justifying why each bureaucrat wants to corrupt
    - C: Stable low corruption equilibrium: few other bureaucrats are corrupt justifying why each bureaucrat wants to honest
    - B: Unstable intermediate corruption equilibrium: small deviations from this will move the organization to one of the stable equilibria



Implication

- Note that only big push strategies (in public sector wages or monitoring) work. That is government needs to "break" culture of corruption to improve things
- Big push shifts RHS of [*] sufficiently below the 45-degree-line so dynamics go from high to low equ.

Evidence

- Fishman and Miguel (2007) find that culture does matter:
    - Analyse parking tickets of UN diplomats from 149 countries 1997-2002. Before November 2002 they diplomatic immunity from NYPD parking violation and hence ability to be corrupt
    - Hypothesis 1 (Culture): UN diplomats from countries with high levels of corruption (as measured by Corruption Perception Index) accumulated more tickets
        - If Nigerian Diplomat had Norwegian culture, unpaid tickets fall 80%
    - Hypothesis 2 (Enforcement): UN diplomats from all countries accumulate less parking violations in NY after increased its enforcement
        - 98% drop in unpaid parking tickets after increase in enforcement

- Skidmore (1996)
    - Qualitative investigation into the "culture" break in Hong Kong
    - Culture of corruption was ingrained by 1960s: "where gift-giving to officials was not seen as corruption but a "cementing of the hierarchy to which both parties belong."
    - Big Push - enforcement: In 1971 sever break caused by Prevention of Bribery Ordinance, which it an offense for a crown servants to possess assets greater than income would justify unless excess could be explained (i.e. became guilty until proven innocent)
    - Big Push – culture change: Devoted enormous resources to changing attitudes and practices, via three departments: Operations, Corruption Prevention, and Community Relations
    - But… at risk of enabling authoritarian rule. Especially concerning since any power that ICAC possesses is enhanced considerably by the lack of real definition of "corruption."
        - Public Order Ordinance allows police commissioner to prohibit any public gathering
        - Warrantless searches of premises
        - So called 1987 'Press Gag' Ordinance made it an offense for newspapers to publish "false news" with reversal of presumption-of-innocence rule