

## 14.75: Dictatorships

Ben Olken

- **Good vs. bad dictatorships**
  - **Are some dictators better than others? Is there such a good thing as a good dictator?**
  - **Why?**
  - **Theory & evidence**
- Looking inside dictatorships
  - Revolutions
  - Commitment problems
- Dictatorship vs. democracy
  - Does economic growth lead to democracy?

# Why are some dictators better than others?

- Old ideas about dictatorship vs. democracy
- Aristotle:
  - Posited types of regimes – in order of preference
    - 1 Monarchy
    - 2 Aristocracy
    - 3 Republic
  - But! His view was that the "perversion" of these goes in reverse order
    - 1 Democracy
    - 2 Oligarchy
    - 3 Tyranny

# This idea is modern as well

- In the media

*“One-party autocracy certainly has its drawbacks. But when it is led by a reasonably enlightened group of people, as China is today, it can also have great advantages. That one party can just impose the politically difficult but critically important policies needed to move a society forward in the 21st century. ”*

– Thomas Friedman

## In academia as well... (Becker)

*“Visionary leaders can accomplish more in autocratic than democratic governments because they need not heed legislative, judicial, or media constraints in promoting their agenda. In the late 1970s, Deng Xiaoping made the decision to open communist China to private incentives in agriculture, and in a remarkably short time farm output increased dramatically. Autocratic rulers in Taiwan, South Korea, Singapore, and Chile produced similar quick turnabouts in their economies by making radical changes that usually involved a greater role for the private sector and private business. Of course, the other side of autocratic rule is that badly misguided strong leaders can cause major damage. Visionaries in democracies’ accomplishments are usually constrained by due process that includes legislative, judicial, and interest group constraints....What is clearer is that democracies produce less variable results: not as many great successes, but also fewer prolonged disasters. ”*

## Being more systematic...

- To be more systematic about this, we want to see how much more variance there is among leaders in autocracies than in democracies
- What are some issues with the previous graph?
  - Countries vs. regimes
  - How much is due to leaders
  - Leader changes aren't random

# How much leader variance is there

- The first question you might want to answer is how much of the variance in growth is due to leaders
- You'd estimate the following regression

$$g_{ct} = \alpha_c + \alpha_t + \gamma_l + \varepsilon_{ct}$$

where  $c$  is a country,  $t$  is a year, and  $\gamma_l$  is a leader dummy

- What does this regression estimate?
- How would you use this regression to see whether leaders mattered more in autocracies than in democracies?
  - You'd take the variance of the leader effects  $\gamma_l$  and compare that within autocracies and democracies

# How much leader variance is there

From Easterly 2011: "Benevolent Autocrats"

Image removed due to copyright restrictions. See: Easterly, William. "Benevolent Autocrats." Working paper. August, 2011. Table 5. Multivariate Regressions of Standard Deviation of per Capita Growth 1960-2008 on RHS Variables Shown

# How might we assess the impact of leaders?

- Problem: end-dates of rule usually endogenously determined – President likely to be re-elected when economy is doing well
- Identification strategy in Jones and Olken (2005):
  - Use random deaths of leaders while in office as a source of exogenous variation in the timing of leader transitions
  - Compare  $T$  years before each death with the  $T$  years after each death, excluding transition years
  - Test across set of leader deaths whether changes in growth are unusual given underlying growth processes in their countries

# How to implement this in practice

- Suppose that

$$g_{it} = v_j + \theta l_{it} + \varepsilon_{it}$$

where

$$l_{it} = \begin{cases} l_{it-1} & \text{with } P(\delta_0 g_{it} + \delta_{it-1} + \dots) \\ l' & \text{with } 1 - P(\delta_0 g_{it} + \delta_{it-1} + \dots) \end{cases}$$

where

$$l' \sim N(\mu, \sigma_l^2), \text{Corr}(l, l') = \rho$$

- Null hypothesis:  $\theta = 0$ . Leaders don't effect growth

# How to implement this in practice

- Define:
  - $PRE_z$  to be the mean growth 5 year before leader  $z$ 's death
  - $POST_z$  to be the mean growth 5 year after leader  $z$ 's death
- Over all possible leader deaths,

$$\overline{POST_z - PRE_z} \sim N\left(0, \frac{2\sigma_{ei}^2}{T} + 2\theta^2\sigma_l^2(1-\rho)\right)$$

- Under the null that leaders don't matter,

$$\overline{POST_z - PRE_z} \sim N\left(0, \frac{2\sigma_{ei}^2}{T}\right)$$

- The test for whether leader matter is thus a test for excess variance surrounding the leader deaths

# What this may mean

- Note that there are several reasons we may fail to reject the null:
  - Leaders don't matter ( $\theta = 0$ )
  - Leaders matter, but successive leaders are very similar in their impact ( $\rho = 1$ )
  - Leaders matter, but not to a sufficient extent that we can detect their influence given other average growth events in their countries ( $\sigma_\varepsilon^2 > \sigma_l^2$ )
- Empirical tests for excess variance is a Wald Test for whether  $\overline{POST_z - PRE_z}$  has expected distribution or has excess variance given underlying growth process.
- Can also do the test non-parametrically

# Results

## All leaders

Images removed due to copyright restrictions. See: Jones, Benjamin F., and Benjamin A. Olken. "Do Leaders Matter? National Leadership and Growth Since World War II." *Economic Journal* 115, no. 3 (2005).

8c@UXYfg'A UHYf3

HUV'Y'J '-bhYfUW]cbg k ]h' HmdY' cZDc' ]hW' 'FY[ ]a Y' ]b' M'Uf' Df]cf' hc' 8YUH

# Why are some dictators better than others?

Olson 1993: "Dictatorship, Democracy, and Development"

- What is a "stationary bandit"?
- What is a "roving bandit"?
- Why might a "stationary bandit" be better than a "roving bandit"?

# A simple two-period model

- Suppose we have a simple aggregate production function that just depends on capital

$$y = k$$

- Taxes are  $\tau$ . So after-tax income is

$$k(1 - \tau)$$

- Each year, society takes its after tax-income and invests a fixed share  $\alpha$  of it and consumes the rest.
- So, investment is

$$i = \alpha k_t (1 - \tau)$$

- What is investment? Investment just grows the capital stock  $k$  in the future. So

$$\begin{aligned} k_{t+1} &= k_t + \alpha k_t (1 - \tau) \\ &= k_t (1 + \alpha (1 - \tau)) \end{aligned}$$

- Suppose there are two periods, 1 and 2. The dictator survives to period 2 with probability  $p$ .
- The dictator is only interested in tax revenue, and sets a constant tax rate  $\tau$ . So the dictator solves

$$\max_{\tau} \tau k_1 + p\tau k_1 (1 + \alpha (1 - \tau))$$

- FOC

$$k_1 + pk_1 (1 + \alpha (1 - \tau)) - p\tau k_1 \alpha = 0$$

$$1 + p(1 + \alpha (1 - \tau)) - p\tau \alpha = 0$$

- Solving for  $\tau$  :

$$\begin{aligned} \tau &= \frac{p + p\alpha + 1}{2p\alpha} \\ &= \frac{1 + \alpha + \frac{1}{p}}{2\alpha} \end{aligned}$$

$$\tau = \frac{1 + \alpha + \frac{1}{\rho}}{2\alpha}$$

- What is the impact of a longer life expectancy? This is an increase in  $\rho$ . Clearly it's negative.
  - Why? How does this map to the Olson example?
- What is the relationship of  $\tau$  and  $\alpha$ ? Negative. Why? Future growth higher.

## How would you think about this empirically?

- What are the empirical predictions you'd want to test?
- What regressions might you run?
- Suppose you regressed economic growth on a leader's tenure in office.
- What's the problem with this approach?

# Testing the stationary bandit idea

- What we need is an instrument for a leader's expected time in office that is uncorrelated with economic performance?
- Any ideas?
- Popa (2012) suggests an instrument: leader's age when taking power
  - Idea is that leaders who are younger when they come to power will live longer
- Thoughts?

# First stage

---

## First stage results

log(tenure)

---

log(Age 0)	-.8985 (.000)	-7.6935 (.009)	-7.6665 (.014)	-7.5473 (.009)
$[\log(\text{Age } 0)]^2$		.8801 (.019)	.8791 (.006)	.8683 (.018)
Polity score				.0110 (.249)
log(GDP/cap)			.2483 (.034)	.2810 (.023)
log(life exp)				
Education				

# Results

---

log(growth+1)	Model 6	Model 7	Model 8
log(tenure)	.4765 (.089)	.5322 (0.037)	.5266 (0.040)
Polity score			
log(GDP/cap)			.1375 (.466)
log(life exp)			
Education			

---

- Good vs. bad dictatorships
  - Are some dictators better than others? Is there such a good thing as a good dictator?
  - Why?
  - Theory & evidence
- **Looking inside dictatorships**
  - **Revolutions**
  - **Commitment problems**
  - **How dictators get information**
- Dictatorship vs. democracy
  - Does economic growth lead to democracy?

# Looking inside dictatorships

From Acemoglu and Robinson, "Economic Origins of Dictatorship and Democracy", Chapter 2

- Suppose there are two groups, rich and poor. Fraction  $\delta < \frac{1}{2}$  of the population is rich and  $1 - \delta > \frac{1}{2}$  is poor.
- Suppose that share  $\theta$  of society's income goes to the rich. Average income is  $\bar{y}$ . This implies that the income of a given rich / poor person is

$$y^R = \frac{\theta}{\delta} \bar{y}$$
$$y^P = \frac{(1 - \theta)}{1 - \delta} \bar{y}$$

- What is the implication of increasing  $\theta$ ? More inequality. Poor's income goes down.

# Revolutions

- Suppose after a revolution, we lose fraction  $\mu$  of society's resources. Rest of resources divided equally among the poor (so that  $\theta = 0$  and you get the equation below).
- So after a revolution a poor person gets

$$V(R, \mu) = \frac{(1 - \mu) \bar{y}}{1 - \delta}$$

- Suppose all taxes are rebated lump-sum equally to everyone (as in Meltzer-Richards median voter model), so post-tax income is

$$y' = y_i (1 - \tau) + \tau \bar{y}$$

- Suppose that in a non-democracy, the elite, who are all rich, choose the tax rate. What will they pick? They'll choose  $\tau^N = 0$ . Why?

- When will the poor have a revolution? They will have a revolution if

$$V(R, \mu) = \frac{(1 - \mu) \bar{y}}{1 - \delta} > y^{PI}$$

- When will this hold? This will hold if

$$\begin{aligned} \frac{(1 - \mu) \bar{y}}{1 - \delta} &> \frac{(1 - \theta) \bar{y}}{1 - \delta} \\ (1 - \mu) &> (1 - \theta) \\ \theta &> \mu \end{aligned}$$

- What is the interpretation of this condition?
- The interpretation is that if inequality is greater than the losses from revolution, they will have a revolution, since they will be better off after.

# The revolution constraint

- Now, knowing that if  $\theta > \mu$  the poor will have a revolution, what will the elite do?
- They will put in just enough redistribution (payoffs to the poor) to prevent a revolution.

# The revolution constraint

- That is, if  $\theta > \mu$ , they will set

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = y^P (1 - \tau) + \tau \bar{y}$$

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = \frac{(1 - \theta)}{1 - \delta} \bar{y} (1 - \tau) + \tau \bar{y}$$

$$\frac{(\theta - \mu) \bar{y}}{1 - \delta} = \tau \left( \bar{y} - \frac{(1 - \theta)}{1 - \delta} \bar{y} \right)$$

$$\tau = \frac{\frac{\theta - \mu}{1 - \delta}}{\left( 1 - \frac{(1 - \theta)}{1 - \delta} \right)}$$

$$\tau = \frac{\theta - \mu}{(1 - \delta) - (1 - \theta)}$$

$$\tau = \frac{\theta - \mu}{\theta - \delta}$$

# Interpreting the revolution constraint

$$\tau = \frac{\theta - \mu}{\theta - \delta}$$

- What happens if revolution becomes less costly?  $\mu$  goes down? Why?
- What happens if inequality increases ( $\theta$  increases or  $\delta$  decreases)? Why?
- What are some recent current events that show this happening?

For a recent example of what happens when  $\mu$   
(cost of revolution) declines see:

Laessing, Ulf. "Saudi Launches \$37 Billion Benefits Plan."  
Thomas Reuters Foundation, March 1, 2011.

# Commitment issues

- The game we just analyzed had the following timing:
  - ① Elites choose the tax rate
  - ② Observing the tax rate, the poor decide whether to have a revolution or not

# Commitment issues

- Now let's change the timing slightly.
- Suppose instead we reverse the timing:
  - 1 The poor decide whether to have a revolution or not
  - 2 If the elites are still in power, then elites choose the tax rate

# Commitment issues

- So we have two versions of the game:
- Old version:
  - 1 Elites choose the tax rate
  - 2 Observing the tax rate, the poor decide whether to have a revolution or not
- New version:
  - 1 The poor decide whether to have a revolution or not
  - 2 If the elites are still in power, then elites choose the tax rate
- Question: Are these games going to be meaningfully different?

# Commitment problems

- The two games are very different
- In the new game, the elites cannot credibly promise redistribution.
- Why not?
- Once the poor decide on no revolution, they no longer have a threat.
- So instead of setting redistribution just high enough to prevent revolution, i.e.

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = y^P (1 - \tau) + \tau \bar{y}$$

instead once they decide not to have a revolution the rich can just set  $\tau = 0$

- Anticipating this, if  $\theta > \mu$  there will be a revolution in the first period, and if not, then there will be no revolution and  $\tau = 0$ . The key difference is that if  $\theta > \mu$  there is nothing now the elites can do to prevent revolution.

# Parameterizing Commitment

- Now, suppose the game is the following.
  - 1 Elites set a tax rate  $\hat{\tau}$ .
  - 2 Poor see  $\hat{\tau}$  and decide whether to have a revolution or not. After this, you can no longer have a revolution.
  - 3 With probability  $p$  the tax rate sticks and elites can't reset it. But with probability  $(1 - p)$ , the elites get an opportunity to choose a new tax rate.
- What happens when  $p = 0$ ? This is just the same as the first game
- What happens when  $p = 1$ ? This is just the same as the second game
- So  $p$  parameterizes commitment.
- What happens for intermediate values of  $p$ ?

# The new revolution constraint

- Elites would like to prevent revolution if they can. The poor will be indifferent between having a revolution or not if the gain from having the revolution is equal to what they get without the revolution

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = \left( y^P (1 - \tau) + \tau \bar{y} \right) (p) + (1 - p) y^P$$

- That is, with probability  $p$  the tax is enforced, but with probability  $(1 - p)$  the elites renege and implement  $\tau = 0$ .
- This implies that you have to promise a higher tax rate in the states when you keep your promise to compensate for the states where you will renege

# The new revolution constraint

- So the tax rate you need is

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = \left( y^P (1 - \tau) + \tau \bar{y} \right) (\rho) + (1 - \rho) y^P$$

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = \rho y^P - \tau \rho y^P + \tau \bar{y} \rho + y^P - \rho y^P$$

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} = -\tau \rho y^P + \tau \bar{y} \rho + y^P$$

$$\frac{(1 - \mu) \bar{y}}{1 - \delta} - y^P = \tau \rho (\bar{y} - y^P)$$

# The new revolution constraint

- Substituting in that  $y^P = \frac{(1-\theta)}{1-\delta} \bar{y}$  yields

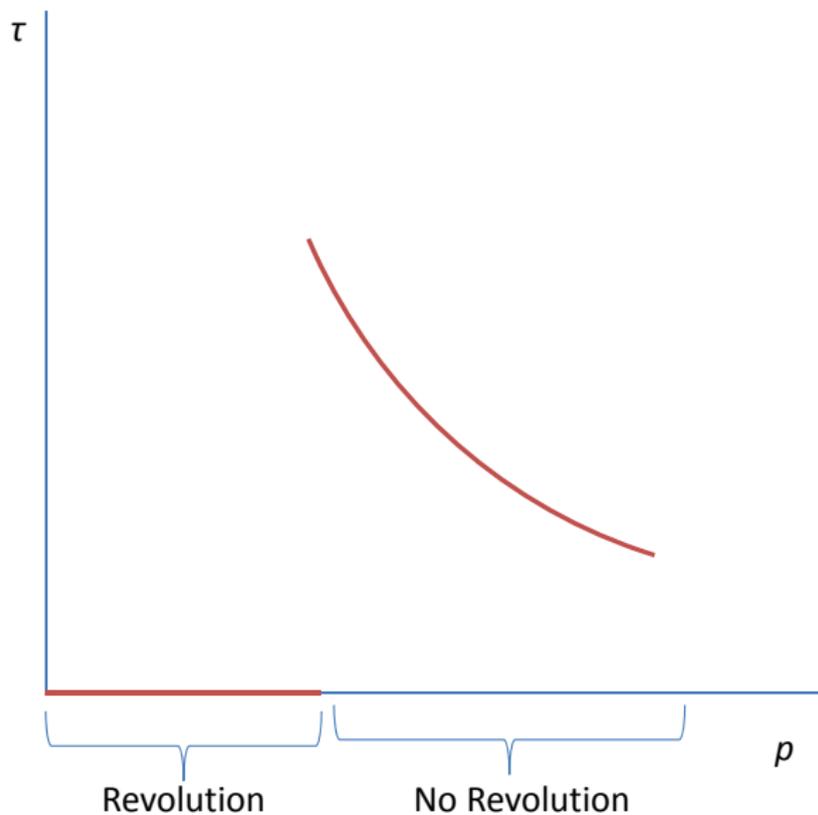
$$\begin{aligned}\frac{(1-\mu)\bar{y}}{1-\delta} - y^P &= \tau p (\bar{y} - y^P) \\ \frac{(1-\mu)\bar{y}}{1-\delta} - \frac{(1-\theta)}{1-\delta} \bar{y} &= \tau p \left( \bar{y} - \frac{(1-\theta)}{1-\delta} \bar{y} \right) \\ (1-\mu) - (1-\theta) &= \tau p (1-\delta - (1-\theta)) \\ (\theta - \mu) &= \tau p (\theta - \delta) \\ \frac{1}{p} \frac{(\theta - \mu)}{(\theta - \delta)} &= \tau\end{aligned}$$

- So this is the same expression we had before, except that it is inflated by  $\frac{1}{p}$
- Why? Because  $\tau$  is only implemented with probability  $p$ .
- So as  $p$  goes down – likelihood of promises being kept declines –  $\tau$  increases.

# Limits to redistribution

- Are there limits to  $\tau$ ?
- Note that  $\tau$  can't be greater than 1.
- So if  $p$  is sufficiently small there is nothing you can do to prevent a revolution
- What does the equilibrium tax rate look like as a function of  $\tau$ ?

# Illustration



# What does this mean in practice

- In practice, commitment problems are likely to be for autocrats
- Why?
- One reason is collective action problems (which I'll come to in a few lectures)
- It is hard to organize protests in Tahir Square in Egypt. Why?
- Suppose a few protesters go to the square. What will happen?
- Suppose a million protesters go to the square. What will happen now?
- Coordinating everyone at the same time is very hard

# Tahrir Square, Egypt

Empty



Photo courtesy of [DowntownTraveler](#) on Flickr. CC-BY-NC-SA.

# Tahrir Square, Egypt

Full



Photo courtesy of [elhamalawy](#) on Flickr. CC-BY-NC-SA.

# Starting a revolution

- Suppose that if there is a protest, the dictator's thugs will beat you up with probability  $\max(\frac{100}{\sqrt{N}}, 1)$  where  $N$  is the number of protesters. Getting beaten up costs you  $c$ .
- Suppose the per-person benefit from overthrowing the autocrat is  $b$ . Suppose that the probability of overthrowing the dictator is increasing in the number of people who show up at the square. Suppose it's  $\frac{N}{1000}$ .
- Suppose everyone needs to decide simultaneously whether to protest or not. How do you decide?
- It depends on what everyone else will do. Why?

# Starting a revolution

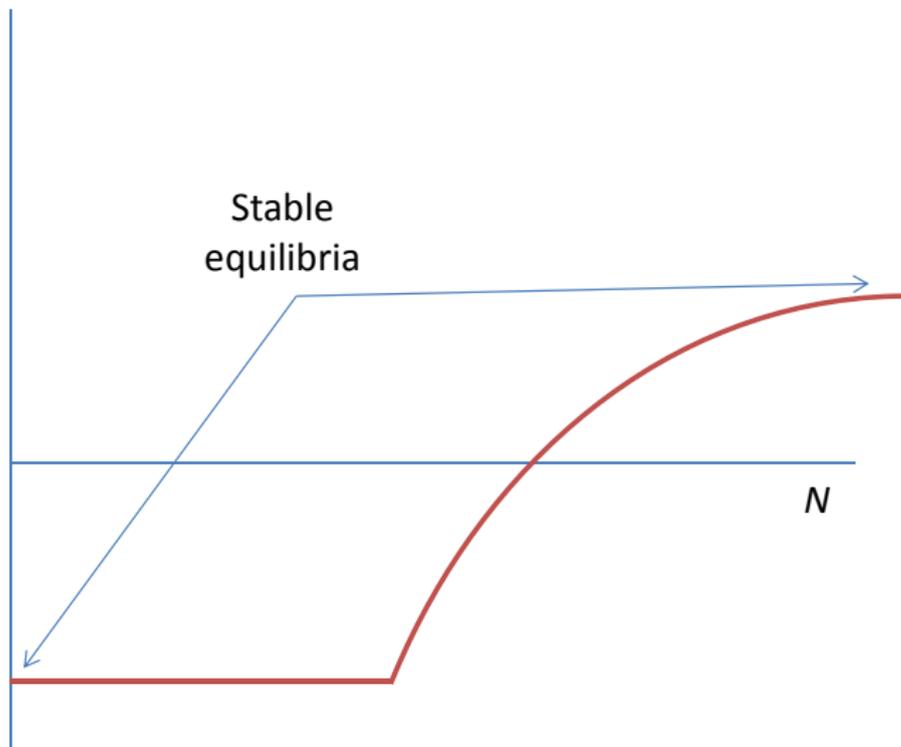
- Suppose you think that  $N$  people are going to show up anyway. What's your decision?
- If you don't go, you get  $b$  with probability  $\frac{N}{1000}$  and pay no costs. So your utility is  $\frac{N}{1000+N}$ .
- If you do go, you get  $b$  with probability  $\frac{N+1}{1000}$  and pay cost  $\max(\frac{100}{\sqrt{N+1}}, 1)b$ .
- So your change in utility from going is

$$\frac{1}{1000} - \max\left(\frac{100}{\sqrt{N+1}}, 1\right)b$$

- Your utility from going is increasing in what other people do, since the more people who go, the safer it is. So we can potentially have multiple equilibria.

# Illustration

*Change in utility from protesting*



# Starting a revolution

- What does this imply?
- Revolution requires coordination – we all need to go to the square on the same day. This is a reason why dictators try to suppress coordinating devices (Facebook, radio).
- Dictators also try to squash protests early. Why? Imagine there are some people there today. That makes it more likely that others will want to come tomorrow and the protest will grow.

# Starting a revolution and the promise constraint

- The fact that revolutions have this coordination feature – you need to get everyone in the square at the same time – means that it is likely that most of the time revolutions are hard
- Going back to the previous model, usually we can think that  $\mu$  is high
- But occasionally, a revolution will be possible, and  $\mu$  will fall.
- What happens then? If  $\mu$  falls temporarily, people have a once-in-a-lifetime chance for revolution
- But they know that if they don't have the revolution,  $\mu$  will go back up. This is equivalent to our previous model that the ability to keep promises  $p$  is low.
- So, when  $\mu$  is temporarily low, the regime may need to find more credible ways of making promises.

# Democratizations

- How can the regime make more credible promises?
- One way they can do that is with controlled democratizations
  - Idea is if I can credibly promise to democratize, then that's a way of increasing my ability to keep promises in the future
  - And the dictator may be better off than if he hadn't made the promises and lost everything in the revolution
- This may explain why democratizations occur

- Good vs. bad dictatorships
  - Are some dictators better than others? Is there such a good thing as a good dictator?
  - Why?
  - Theory & evidence
- Looking inside dictatorships
  - Revolutions
  - Commitment problems
- **Dictatorship vs. democracy**
  - **Does economic growth lead to democracy?**

# When does democratization happen?

- An empirical question is when democratizations are more likely
- In particular, the cross-section shows that richer countries tend to be democracies

# Cross-sectional relationship between real GDP per capita and democracy

Image removed due to copyright restrictions. Please see: Acemoglu, Daron, Simon Johnson, et al. "Democracy and Income." *American Economic Review* 98 no. 3 (2008): 808-42.  
Figure 1. Democracy and Income, 1990s

# Is this causal

- Why might this be?
  - Suppose in the context of the previous model that  $\mu$  (amount due to revolution) is a fixed cost in dollars, not a share of income. Then as income grows,  $\mu$  decreases, so transfers are more likely.
- How can we test this?

# Income and democracy

Acemoglu, Johnson, Robinson, and Yared (2008): "Income and Democracy"

- This paper asks if countries that become richer are more likely to become democratic
- How is this different?
- Uses changes in income and changes in democracy, i.e.

$$DEMOC_{it} = \alpha_i + \alpha_t + \beta y_{it-t} + \varepsilon_{it}$$

- How is this different?
- Also control for lagged democracy. Why?

$$DEMOC_{it} = \alpha_i + \alpha_t + \beta y_{it-t} + \gamma DEMOC_{it-1} + \varepsilon_{it}$$

Image removed due to copyright restrictions. Please see: Acemoglu, Daron, Simon Johnson, et al. "Democracy and Income." *American Economic Review* 98 no. 3 (2008): 808-42.  
Figure 2. Change in Democracy and Income, 1970-1995  
Figure 4. Change in Democracy and Income, 1900-2000

# Conclusions...

- What have we learned thus far?
  - Are dictatorships always bad?
  - Why and why not?
  - What puts constraints on dictatorships?
  - And when do they become democracies?
- Other questions you might want to answer?

MIT OpenCourseWare  
<http://ocw.mit.edu>

## 14.75 Political Economy and Economic Development

Fall 2012

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.