

Success and Failure of Nations: Modeling Inefficient Institutions

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Introduction

- How does the political control by a group create inefficiencies and retard economic development?
- The main idea: those with political power will use it for their benefit, structuring extractive institutions.
- Depending on the nature of economic relations and the way political power is contested, this will create different types of distortions.
- From less to more malign:
 - **Revenue extraction:** those with political power will use it to extract resources from others, which is often distortionary.
 - **Factor price manipulation:** those with political power will use it to harm competing groups in order to reduce the prices of the factors they employ.
 - **Political consolidation:** those with political power will block economic development and harm competing groups in order to hang on to power.

Factor Price Manipulation: Why Iceland Starved?

- Iceland stagnant or declining from the Viking age until the 19th century.
- Agricultural technology unchanged, and infrastructure deteriorating.
- Famines of increasing frequency.
- Average height of the population declining from about 172 cm in the 16th century to 167 cm in the 18th century.

Why Iceland Starved? (continued)

- Not a natural but a man-made disaster.
- Eggertsson (2005, pp. 102-103)

“The central paradox in Iceland’s economic history is Icelanders’ failure to develop a specialized fishing industry and exploit on a large scale the country’s famous fisheries.... A crucial component [was] laws and regulations that prohibited the development of townships with specialized fisheries. The law restricted labor mobility by requiring all adults, with few exceptions, to live on farmlands as farmers or servants and banned cooperation in the coastal fisheries between Icelanders and foreigners.”

- Moreover, price of fish regulated and kept low (relative to foreign markets) to discourage fisheries.

Why Iceland Starved? (continued)

- Why?
- Eggertsson (2005, pp. 102-103)

“...farm community’s fears of competition in the labor market.”

Why Iceland Starved? (continued)

- During this era, Iceland was first a commonwealth ruled by farming elites, and then a Norwegian and Danish colony, but still with the farming elites strong throughout.
- Eggertsson (2005, p. 110)

“The private sector was dominated by a small number of powerful individuals... 81 individuals owned half of the country’s private land.”

“Landlords...realized that the development of a specialized fishing industry would draw farm workers away, substantially increasing labor costs.” (p. 111)

- And they were sufficiently powerful to stop the development of the fisheries.

Political Consolidation

- **Political losers:** those who fear economic development, technological change or institutional development that will bring development.
- Recall the blocking of industrialization and railways in Austria-Hungary and Russia, because emperors and elites afraid of political change.
- Francis I and Metternich's approach:

"We do not desire at all that the great masses shall become well off and independent ... How could we otherwise rule over them?"

- Nicholas I and Kankrin's approach in Russia:

"Railways do not always result from natural necessity, but are more an object of artificial need or luxury. They encourage unnecessary travel from place to place, which is entirely typical of our time."

Political Consolidation and Economic Backwardness in Iceland

- In fact, the political consolidation motive probably also played a role in Iceland. Eggertsson (2005, p. 108)

“The [Danish] Crown now confronted a dilemma: how to both find cost-effective ways to protect its property rights in peripheral Iceland and provide conditions for a strong economy that would maximize tax revenues. However, the two goals conflicted. The economy was best served by a policy of free trade to allow the Icelanders to cooperate with whatever foreign party had the most to offer”.

- To maintain Danish rule, the solution was viewed as cooperation with the local elite farmers in suppressing the development of fisheries.
- Also, it prevented the development of coastal townships that might have drawn foreigners and made Danish control more difficult.

Factor Price Manipulation and Political Consolidation vs. Taxes

- In fact, this dilemma is quite general.
- Factor price manipulation and political consolidation often go against revenue extraction (and increasing tax revenues).
- This is because they push the elite to destroy other economic interests.

Simple Model of Elite Control

- Consider an infinite horizon economy populated by a continuum $1 + \theta_e + \theta_m$ of risk neutral agents, each with a discount factor equal to $\beta < 1$.
- Unique non-storable final good denoted by y .
- The expected utility of agent j at time 0 is given by:

$$U_0^j = \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t c_t^j, \quad (1)$$

where $c_t^j \in \mathbb{R}$ denotes the consumption of agent j at time t and \mathbb{E}_t is the expectations operator conditional on information available at time t .

Environment

- Agents are in three groups.
 - workers, mass 1, supplying labor inelastically.
 - elite (denoted by e), total mass θ^e (set S^e); initially hold political power in this society and engage in entrepreneurial activities
 - middle class (denoted by m), total mass θ^m (set S^m); engage in entrepreneurial activities
- Each member of the elite and middle class has access to production opportunities, represented by the production function

$$y_t^j = \frac{1}{1-\alpha} (A_t^j)^\alpha (k_t^j)^{1-\alpha} (l_t^j)^\alpha, \quad (2)$$

where k denotes capital and l labor.

- Capital is assumed to depreciate fully after use.
- Productivity of each elite agent is A^e in each period, and that of each middle class agent is A^m .
- In addition, natural resource rents R at each date.

Policies

- Taxes: activity-specific tax rates on production, $\tau^e \geq 0$ and $\tau^m \geq 0$.
- No other fiscal instruments to raise revenue. (in particular, no lump-sum non-distortionary taxes).
- The proceeds of taxes and revenues from natural resources can be redistributed as nonnegative lump-sum transfers targeted towards each group, $T^w \geq 0$, $T^m \geq 0$ and $T^e \geq 0$.
- $\phi \in [0, 1]$ reduced form measure of “state capacity,”
- Government budget constraint:

$$T_t^w + \theta^m T_t^m + \theta^e T_t^e \leq \phi \int_{j \in S^e US^m} \tau_t^j y_t^j dj + R. \quad (3)$$

Employment

- Maximum scale for each firm, so that

$$l_t^j \leq \lambda \text{ for all } j \text{ and } t.$$

- This prevents the most productive agents in the economy from employing the entire labor force.
- Market clearing:

$$\int_{j \in S^e \cup S^m} l_t^j dj \leq 1. \quad (4)$$

- Since $l_t^j \leq \lambda$, (4) implies that if

$$\theta^e + \theta^m \leq \frac{1}{\lambda}, \quad (\text{ES})$$

there can never be full employment.

- Depending on whether Condition (ES) holds, there will be excess demand or excess supply of labor in this economy. Also assume

$$\theta^e \leq \frac{1}{\lambda} \text{ and } \theta^m \leq \frac{1}{\lambda}.$$

Economic Equilibrium

- An *economic equilibrium* is defined as a sequence of wages $\{w_t\}_{t=0,1,\dots,\infty}$, and investment and employment levels for all producers, $\left\{ \left[k_t^j, l_t^j \right]_{j \in S^e \cup S^m} \right\}_{t=0,1,\dots,\infty}$ such that given $\{\tau_t^e, \tau_t^m\}_{t=0,1,\dots,\infty}$ and $\{w_t\}_{t=0,1,\dots,\infty}$, all producers choose their investment and employment optimally and the labor market clears.
- Each producer takes wages, w_t , as given, and maximizes

$$\max_{k_t^j, l_t^j} \frac{1 - \tau_t^j}{1 - \alpha} (A^j)^\alpha (k_t^j)^{1-\alpha} (l_t^j)^\alpha - w_t l_t^j - k_t^j.$$

- Solution:

$$k_t^j = (1 - \tau_t^j)^{1/\alpha} A^j l_t^j, \text{ and} \quad (5)$$

$$l_t^j \begin{cases} = 0 & \text{if } w_t > \frac{\alpha}{1-\alpha} (1 - \tau_t^j)^{1/\alpha} A^j \\ \in [0, \lambda] & \text{if } w_t = \frac{\alpha}{1-\alpha} (1 - \tau_t^j)^{1/\alpha} A^j \\ = \lambda & \text{if } w_t < \frac{\alpha}{1-\alpha} (1 - \tau_t^j)^{1/\alpha} A^j \end{cases}. \quad (6)$$

Comments

- $\alpha(1 - \tau_t^j)^{1/\alpha} A^j / (1 - \alpha)$ is the net marginal product of a worker employed by a producer of group j .
- If the wage is above this amount, this producer would not employ any workers, and if it is below, he or she would prefer to hire as many workers as possible (i.e., up to the maximum, λ).
- Potential distortion: producers invest in physical capital but only receive a fraction $(1 - \tau_t^j)$ of the revenues.
- Therefore, taxes discourage investments, creating potential “inefficiencies”
- But are these Pareto inefficiencies?

Equilibrium Wages

- Combining (6) with (4), equilibrium wages are obtained as follows:
 - If Condition (ES) holds, there is excess supply of labor and $w_t = 0$.
 - If Condition (ES) does not hold, then there is “excess demand” for labor and the equilibrium wage is

$$w_t = \min \left\langle \frac{\alpha}{1 - \alpha} (1 - \tau_t^e)^{1/\alpha} A^e, \frac{\alpha}{1 - \alpha} (1 - \tau_t^m)^{1/\alpha} A^m \right\rangle. \quad (7)$$

- Note that when Condition (ES) does not hold, the equilibrium wage is equal to the net productivity of one of the two groups of producers, so either the elite or the middle class will make zero profits in equilibrium.

Summary of Economic Equilibrium

- Finally, equilibrium level of aggregate output is

$$\begin{aligned}
 Y_t = & \frac{1}{1-\alpha} (1-\tau_t^e)^{(1-\alpha)/\alpha} A^e \int_{j \in S^e} l_t^j dj \\
 & + \frac{1}{1-\alpha} (1-\tau_t^m)^{(1-\alpha)/\alpha} A^m \int_{j \in S^m} l_t^j dj + R.
 \end{aligned} \tag{8}$$

Proposition: For a given sequence of taxes $\{\tau_t^e, \tau_t^m\}_{t=0,1,\dots,\infty}$, the equilibrium takes the following form: if Condition (ES) holds, then $w_t = 0$, and if Condition (ES) does not hold, then w_t is given by (7). Given the wage sequence, factor demands are given by (5) and (6), and aggregate output is given by (8).

“Inefficient” Policies

- Let us now look at sources of inefficient policies under the dictatorship of the elite.
- Key distortionary policy, tax on the middle class
- Three reasons to use this tax:
 - ① Revenue Extraction—the mechanism that features in most economic models, including models of redistribution of conflict with democratic or non-democratic politics; e.g., Roberts-Romer-Meltzer-Richard model;
 - ② Factor Price Manipulation;
 - ③ Political Consolidation.

Simplifying Assumptions

- Upper bound on taxation, so that

$$\tau_t^m \leq \bar{\tau} \text{ and } \tau_t^e \leq \bar{\tau},$$

where $\bar{\tau} \leq 1$.

- *The timing of events within each period*
 - 1 taxes are set;
 - 2 investments are made.
- This removes an additional source of inefficiency related to the *holdup problem*.
- To start with, equilibrium concept: Markov Perfect Equilibria (MPE)

Revenue Extraction

- To highlight this mechanism, suppose that Condition (ES) holds, so wages are constant at zero.
- This removes any effect of taxation on factor prices.
- In this case, from (6), we also have $l_t^j = \lambda$ for all producers.
- Also assume that $\phi > 0$ (for example, $\phi = 1$).
- Tax revenues to be distributed back to the elite

$$\text{Revenue}_t = \frac{\phi}{1 - \alpha} \tau_t^m (1 - \tau_t^m)^{(1-\alpha)/\alpha} A^m \lambda \theta^m + R. \quad (9)$$

- Clearly this is maximized at

$$\tau_t^m = \tau^{RE} \equiv \min \{ \alpha, \bar{\tau} \}. \quad (10)$$

Revenue Extraction (continued)

- No intertemporal linkages

Proposition: Suppose Condition (ES) holds and $\phi > 0$, then the unique MPE features $\tau_t^m = \tau^{RE} \equiv \min \{ \alpha, \bar{\tau} \}$ for all t .

- Taxing at the top of the Laffer curve
- High taxes distortionary, but fiscal policies are not used to harm the middle class.

Factor Price Manipulation

- To highlight this mechanism in the simplest possible way, let us first assume that $\phi = 0$ so that there are no direct benefits from taxation for the elite.
- There are indirect benefits, because of the effect of taxes on factor prices, which will be present as long as the equilibrium wage is positive.
- Suppose that Condition (ES) does not hold, so that equilibrium wage is given by (7).
- Therefore, choose taxes to minimize equilibrium wages.

Factor Price Manipulation (continued)

Proposition: Suppose Condition (ES) does not hold, and $\phi = 0$, then the unique MPE features $\tau_t^m = \tau^{FPM} \equiv \bar{\tau}$ for all t .

- Higher taxes in order to harm the middle class
- Because of competition in the labor market.
- *Implication:* factor price manipulation much more damaging to output.
- Naturally, $\phi = 0$ important

Combined Effects

- Now let us combine the two effects.
- Main results: the factor price manipulation effect will push the economy *beyond the peak* of the Laffer curve
- The elite's problem can be written as

$$\max_{\tau_t^m} \left[\frac{\alpha}{1-\alpha} A^e - w_t \right] l_t^e + \frac{1}{\theta^e} \left[\frac{\phi}{1-\alpha} \tau_t^m (1-\tau_t^m)^{(1-\alpha)/\alpha} A^m l_t^m \theta^m + R \right], \quad (11)$$

subject to (7) and

$$\theta^e l_t^e + \theta^m l_t^m = 1, \text{ and} \quad (12)$$

$$l_t^m = \lambda \text{ if } (1-\tau_t^m)^{1/\alpha} A^m \geq A^e. \quad (13)$$

- Assume

$$A^e \geq \phi (1-\alpha)^{(1-\alpha)/\alpha} A^m \frac{\theta^m}{\theta^e}$$

so that the elite do not wish to stop producing altogether.

Combined Effects (continued)

- Then the equilibrium will be $w_t = \alpha(1 - \tau_t^m)^{1/\alpha} A^m \tau_t^m / (1 - \alpha)$, and the elite's problem simply boils down to choosing τ_t^m to maximize

$$\frac{1}{\theta^e} \left[\frac{\phi}{1 - \alpha} \tau_t^m (1 - \tau_t^m)^{(1-\alpha)/\alpha} A^m l^m \theta^m + R \right] - \frac{\alpha}{1 - \alpha} (1 - \tau_t^m)^{1/\alpha} A^m \lambda, \quad (14)$$

where we have used the fact that all elite producers will employ λ employees, and from (12), $l_m = (1 - \lambda\theta^e) / \theta^m$.

- The maximization of (14) gives

$$\frac{\tau_t^m}{1 - \tau_t^m} = \kappa(\lambda, \theta^e, \alpha, \phi) \equiv \frac{\alpha}{1 - \alpha} \left(1 + \frac{\lambda\theta^e}{(1 - \lambda\theta^e)\phi} \right).$$

- τ_t^m is always less than 1, which is the desired tax rate in the case of pure factor price manipulation.
- But $\kappa(\lambda, \theta^e, \alpha, \phi)$ is also strictly greater than $\alpha / (1 - \alpha)$, so that τ_t^m is always greater than α , the desired tax rate with pure revenue extraction.

Combined Effects (continued)

- In summary, combined effects lead to desired tax rate:

$$\tau_t^m = \tau^{COM} \equiv \min \left\{ \frac{\kappa(\lambda, \theta^e, \alpha, \phi)}{1 + \kappa(\lambda, \theta^e, \alpha, \phi)}, \bar{\tau} \right\}. \quad (15)$$

- *Comparative Statics:*

- 1 ϕ reduces τ^{COM} because increased state capacity makes revenue extraction more important.
- 2 θ^e increases τ^{COM} because revenue extraction becomes less important and factor price manipulation becomes more important.
- 3 α increases taxes.

Proposition: Suppose Condition (ES) does not hold, and $\phi > 0$. Then the unique MPE features $\tau_t^m = \tau^{COM}$ as given by (15) for all t . Equilibrium taxes are increasing in θ^e and α and decreasing in ϕ .

Political Consolidation

- Same results if competition for political power other than in the labor market.
- Imagine that if the middle class become richer, then they are more likely to gain political power.
- Then:

Proposition: Consider the economy with political replacement. Suppose Condition (ES) holds and $\phi > 0$, then the unique MPE features $\tau_t^m = \tau^{PC} > \tau^{RE}$ for all t . This tax rate is increasing in R and ϕ .

- New result: tax rate is increasing in R and ϕ .
- This is because political stakes are higher.
- The “dark side” of state capacity.

Subgame Versus Markov Perfect Equilibria

- What happens if you look at subgame perfect equilibria?

Proposition: The MPEs characterized above are the unique SPEs.

- Why? Because unique best responses within each period, and no intertemporal linkages.
- More interestingly, this is because there is no “political failure”.
- All of the equilibria above (with the exception of political consolidation effect depending on details) are *Pareto optimal*.

Holdup

- Political failures are introduced if investments are “long term” so that tax decisions are made partly after investments are sunk.
- Change the timing of events such that:
 - 1 individual producers undertake their investments;
 - 2 the elite set taxes.
- The elite will no longer take the discourage of taxes on investment into account in the MPE.
- Therefore

Proposition: With holdup, there is a unique MPE with $\tau_t^m = \tau^{HP} \equiv \bar{\tau}$ for all t .

- Now greater distortions and potential Pareto inefficiencies.

Subgame Perfect Equilibria

- Now imagine trigger-strategy equilibria.
- Suppose that Condition (ES) holds and $\phi > 0$, so that most preferred tax rate for the elite is $\tau^m = \alpha$.
- Suppose also that $\bar{\tau} = 1$.
- Consider the strategy profile where the elite set $\tau^m = \alpha$ at each date and the middle class choose investment levels according to this tax rate.
- If the elite ever set a higher tax rate, then the middle class expect $\tau^m = 1$ in all future dates, and choose zero production.

Subgame Perfect Equilibria (continued)

- With this strategy profile, the elite will raise

$$\frac{\phi}{(1-\beta)(1-\alpha)} \alpha (1-\alpha)^{(1-\alpha)/\alpha} A^m \lambda \theta^m \quad (16)$$

if they set α at the state.

- If, in contrast, they deviate at any point, the most profitable deviation for them is to set $\tau^m = 1$, and they will raise

$$\frac{\phi}{1-\alpha} (1-\alpha)^{(1-\alpha)/\alpha} A^m \lambda \theta^m. \quad (17)$$

- The trigger-strategy profile will be an equilibrium as long as (16) is greater than or equal to (17), which requires $\beta \geq 1 - \alpha$. Therefore:

Proposition: Consider the holdup game, and suppose that Conditions (ES) hold and $\bar{\tau} = 1$. Then for $\beta \geq 1 - \alpha$, there exists a subgame perfect equilibrium where $\tau_t^m = \alpha$ for all t .

Technology Adoption and Holdup

- Suppose now that taxes are set before investments, so the source of holdup above is absent.
- Instead, suppose that at time $t = 0$ before any economic decisions or policy choices are made, middle class agents can invest to increase their productivity.
- There is a cost $\Gamma(A^m)$ of investing in productivity A^m .
- Once investments in technology are made, the game proceeds as before.
- Since investments in technology are sunk after date $t = 0$, the equilibrium allocations are the same as in the results presented above.
- *Question:* if they could, the elite would prefer to commit to a tax rate sequence at time $t = 0$.

Technology Adoption: Factor Price Manipulation

Proposition: Consider the game with technology adoption and suppose that Condition (ES) does not hold, and $\phi = 0$, then the unique MPE and unique SPE feature $\tau_t^m = \tau^{FPM} \equiv \bar{\tau}$ for all t . Moreover, if the elite could commit to a tax sequence at time $t = 0$, then they would still choose $\tau_t^m = \tau^{FPM} \equiv \bar{\tau}$.

- Intuition: this is the case of pure factor price manipulation, so the only objective of the elite is to reduce the middle class' labor demand.
- Therefore, they have no interest in increasing the productivity of middle class producers.

Technology Adoption: Revenue Extraction

- Let us next consider the pure revenue extraction case with Condition (ES) satisfied.
- Once again, the MPE is identical to before with $\tau^m = \tau^{RE} \equiv \min \{ \alpha, \bar{\tau} \}$.
- As a result, the first-order condition for an interior solution to the middle class producers' technology choice is:

$$\Gamma'(A^m) = \frac{1}{1-\beta} \frac{\alpha}{1-\alpha} (1-\tau^m)^{1/\alpha}. \quad (18)$$

- This is also the unique SPE, since no punishments are possible.
- But, if the elite could commit to a tax rate sequence at time $t = 0$, they would choose lower taxes in order to increase investment by the middle class and thus tax revenues.

Technology Adoption: Revenue Extraction (continued)

- To illustrate this, suppose that the elite can commit to a constant tax rate.
- Then, the optimization problem of the elite is to maximize tax revenues taking the relationship between taxes and technology as in (18) as given. In other words, they will solve:

$$\max \phi \tau^m (1 - \tau^m)^{(1-\alpha)/\alpha} A^m \lambda \theta^m / (1 - \alpha)$$

subject to (18).

- The first-order condition for an interior solution can be expressed as

$$A^m - \frac{1 - \alpha}{\alpha} \frac{\tau^m}{1 - \tau^m} A^m + \tau^m \frac{dA^m}{d\tau^m} = 0$$

where

$$\frac{dA^m}{d\tau^m} = - \frac{1}{1 - \beta} \frac{1}{1 - \alpha} \frac{(1 - \tau^m)^{(1-\alpha)/\alpha}}{\Gamma''(A^m)} < 0$$

takes into account the effect of future taxes on technology choice at time $t = 0$.

Technology Adoption: Revenue Extraction (continued)

Proposition: Consider the game with technology adoption, and suppose that Condition (ES) holds and $\phi > 0$, then the unique political equilibrium features $\tau_t^m = \tau^{RE} \equiv \min \{\alpha, \bar{\tau}\}$ for all t . If the elite could commit to a tax policy at time $t = 0$, they would prefer to commit to $\tau^{TA} < \tau^{RE}$.

- Therefore, in contrast to the pure holdup problem where SPE could prevent the additional inefficiency (when $\beta \geq 1 - \alpha$), with the technology adoption game, the inefficiency survives the SPE.
- The reason is that, since middle class producers invest only once at the beginning, there is no possibility of using history-dependent punishment strategies.
- This illustrates the limits of implicit agreements to keep tax rates low.
- Such agreements not only require a high discount factor ($\beta \geq 1 - \alpha$), but also frequent investments by the middle class, so that there is a credible threat against the elite if they deviate from the promised policies.

Inefficient Economic Institutions?

- Can we use this framework to derive some implications about “reduced-form” economic institutions?
- Focus on
 - ① *Security of property rights*; there may be constitutional or other limits on the extent of redistributive taxation and/or other policies that reduce profitability of producers’ investments. In terms of the model above, we can think of this as determining the level of $\bar{\tau}$.
 - ② *Regulation of technology*: direct or indirect factors affecting the productivity of producers, in particular middle class producers.

Security of Property Rights

- The environment is the same as above, with the only difference that at time $t = 0$, before any decisions are taken, the elite can reduce $\bar{\tau}$, say from $\bar{\tau}^H$ to some level in the interval $[0, \bar{\tau}^H]$, thus creating an upper bound on taxes and providing greater security of property rights to the middle class.
- How such “upper bounds” are made credible is not search here.
[Later]
- The key question is whether the elite would like to do so, i.e., whether they prefer $\bar{\tau} = \bar{\tau}^H$ or $\bar{\tau} < \bar{\tau}^H$

Security of Property Rights: Main Results

Proposition: Without holdup and technology adoption, the elite prefer $\bar{\tau} = \bar{\tau}^H$.

- No reason to tie their hands.

Proposition: Consider the game with holdup and suppose Condition (ES) does not hold, and $\phi > 0$, then as long as τ^{COM} given by (15) is less than $\bar{\tau}^H$, the elite prefer $\bar{\tau} = \tau^{COM}$.

Proposition: Consider the game with holdup and technology adoption, and suppose Condition (ES) holds and $\phi > 0$, then as long as $\tau^{TA} < \bar{\tau}^H$, the elite prefer $\bar{\tau} = \tau^{TA}$.

- Committing to maximal tax rates as a way of solving the holdup problem.
- Is this realistic?

Regulation of Technology

- Consider the baseline model.
- Suppose that there exists a government policy $g \in \{0, 1\}$, which influences only the productivity of middle class producers, i.e., $A^m = A^m(g)$, with $A^m(1) > A^m(0)$.
- Assume that the choice of g is made at $t = 0$ before any other decisions, and has no other influence on payoffs (and in particular, it imposes no costs on the elite).
- Will the elite always choose $g = 1$, increasing the middle class producers' productivity, or will they try to block technology adoption by the middle class?

Regulation of Technology: Main Results

Proposition: Suppose Condition (ES) holds and $\phi > 0$, then $w = 0$ and the elite always choose $g = 1$.

- In this case, interests are aligned.

Proposition: Suppose Condition (ES) does not hold, $\phi = 0$, and $\bar{\tau} < 1$, then the elite choose $g = 0$.

- In this case, the elite would like to impoverish the middle class, because they are competing against them.
- The same result applies when there is political competition:

Proposition: Consider the economy with political replacement. Suppose Condition (ES) holds and $\phi = 0$, then the elite prefer $g = 0$.

A First Look at the Effects of Political Power

- What happens if the elite do not hold power?
- The answer depends on what the realistic options are.
- For example, majoritarian voting may lead to “the dictatorship of the workers”
- Or, the middle class may become influential and we may end up with “the dictatorship of the middle class”
- Suppose throughout

$$\theta^m = \theta^e < \frac{1}{2}.$$

Dictatorship of the Middle Class

- With the same analysis, now applied to the middle class, the equilibrium tax rate will be

$$\tau_t^e = \tilde{\tau}^{COM} \equiv \min \left\{ \frac{\kappa(\lambda, \theta^m, \alpha, \phi)}{1 + \kappa(\lambda, \theta^m, \alpha, \phi)}, \bar{\tau} \right\}. \quad (19)$$

Proposition: Suppose Condition (ES) does not hold, and $\phi > 0$, then the unique political equilibrium with middle class control features $\tau_t^e = \tilde{\tau}^{COM}$ as given by (19) for all t .

Proposition: Aggregate output is higher with the dictatorship of the elite than the dictatorship of the middle class if $A^e > A^m$ and it is higher under the dictatorship of the middle class if $A^m > A^e$.

- Intuitively, the group in power imposes taxes on the other group (and since $\theta^m = \theta^e$, these taxes are equal) and not on themselves, so aggregate output is higher when the group with greater productivity is in power and is spared from distortionary taxation.

Dictatorship of the Working Class

- Is “majoritarian democracy” better here?
- It to prevent the factor price manipulation affect, but revenue extraction might get worse—depending on whether there is excess supply are not.

Proposition: Suppose Condition (ES) holds and $\phi > 0$, then the unique political equilibrium with democracy features

$$\tau_t^m = \tau_t^e = \tau^{RE} \equiv \min \{ \alpha, \bar{\tau} \}.$$

- In this case democracy is more inefficient than both middle class and elite control, since it imposes taxes on both groups.

Dictatorship of the Working Class (continued)

- However:

Proposition: Suppose Condition (ES) does not hold. Then in the unique political equilibrium with democracy, if $A^m > A^e$, we will have $\tau_t^e = 0$, and $\tau_t^m = \tau^{Dm}$ will be such that $(1 - \tau^{Dm})^{1/\alpha} A^m = A^e$ or $\tau^{Dm} = \alpha$ and $(1 - \alpha)^{1/\alpha} A^m \geq A^e$. If $A^m < A^e$, we will have $\tau_t^m = 0$, and $\tau_t^e = \tau^{De}$ will be such that $(1 - \tau^{De})^{1/\alpha} A^e = A^m$ or $\tau^{De} = \alpha$ and $(1 - \alpha)^{1/\alpha} A^e \geq A^e$.

- Now less distortionary than elite or middle class control because the workers realize that higher taxes mean lower wages.

Interpreting the Economic History of South Africa and Rhodesia

- South Africa and Rhodesia throughout the 20th century have looked like “dual economies”
 - Modern European sector based on mining, commercial agriculture and industry.
 - Traditional (black) African sector associated with agriculture based on “backward” technologies, communal ownership of land, absence of private property rights on land, and low productivity.
- Consistent with the classic view of economic development associated with Arthur Lewis, still prevalent today.

South Africa and Rhodesia (continued)

- But Lewis himself saw that there was more to it (1954):

The fact that the wage level in the capitalist sector depends upon earnings in the subsistence sector is sometimes of immense political importance, since its effect is that capitalists have a direct interest in holding down the productivity of subsistence workers.... The record of every imperial power in Africa in modern times is one of impoverishing the subsistence economy, either by taking away the people's land, or by demanding forced labor in the capitalist sector, or by imposing taxes to drive people to work for capitalist employers.

- See also work by Leopoldo Fergusson (2011) applying an extended version of this framework to Rhodesia.

South Africa and Rhodesia (continued)

- The 1897 testimony of George Albu, the chairman of the Association of Mines in South Africa, given to a Commission of Inquiry describes the logic of impoverishing Africans.
- His testimony goes as follows:

South Africa and Rhodesia (continued)

Albu: ... cheapen labor by simply telling the boys that their wages are reduced.

Commission: Suppose the kaffirs [black Africans] retire back to their kraal [cattle pen]? Would you be in favor of asking the Government to enforce labour?

Albu: Certainly ... I would make it compulsory .. Why should a nigger be allowed to do nothing? I think a kaffir should be compelled to work in order to earn his living.

Commission: If a man can live without work, how can you force him to work?

Albu: Tax him, then ...

Commission: Then you would not allow the kaffir to hold land in the country, but he must work for the white man to enrich him?

Albu: He must do his part of the work of helping his neighbours.

South Africa and Rhodesia (continued)

- This was more comprehensively achieved by the Native Land Acts of 1913 and 1936 in South Africa and by similar apportionments of land in Rhodesia.
- In South Africa, 87% of all land went to Europeans, making up less than 20% of the population. In Rhodesia, similar inequity.
- Moreover, the land reserves given to Africans were on the communal property rights systems, reducing their productivity. The state also took explicit measures to

“eliminate commercial production of Africans and encouraged that of settlers.” (Duggan, 1980, p. 237).

South Africa and Rhodesia (continued)

- In South Africa, the 1913 legislation also included provisions intended to stop black sharecroppers and squatters from farming on white-owned land in any capacity other than as labor tenants and stated:

“The effect of the act is to put a stop, for the future, to all transactions involving anything in the nature of partnership between Europeans and natives in respect of land or the fruits of land . . . All new contracts with natives must be contracts of service. Provided there is a bona fide contract of this nature there is nothing to prevent an employer from paying a native in kind, or by the privilege of cultivating a defined piece of ground.”

- In fact, in Rhodesia, the communal property system also designed to discourage migration, creating a cheap labor reserve in rural areas—especially helping the political powerful white landowners.

South Africa and Rhodesia (continued)

- The Apartheid regime also ensured that Africans would not obtain education (by not making it available to them) and banned them from almost all skilled occupations explicitly, thus reducing competition for African labor.
- In particular, from early 1900s, mining jobs were reserved for Europeans, and Africans were barred by the “Colour Bar” from any skilled or semi-skilled job.
- Hendrik Verwoerd, one of the architects but of the Apartheid regime, explained it as follows:

“The Bantu must be guided to serve his own community in all respects. There is no place for him in the European community above the level of certain forms of labour ... For that reason it is to no avail to him to receive a training which has as its aim absorption in the European community while he cannot and will not be absorbed there.”

South Africa and Rhodesia (continued)

- The implication was that African wages fell by as much as 30% after 1913 and the Natives Land Acts, and then for the next five decades they essentially stagnated, despite growth in the South African economy.
- But unsurprisingly, this type of growth was not sustained or very strong.
 - It relied on mining and run out of steam quickly.

Conclusion

- Factor price manipulation and political consolidation motives encourage regulation and policies to retard growth by competing groups.
- Much more detrimental to growth and efficiency than taxation for the purpose of revenue extraction.
- But nonetheless very common.
- Strong parallels between factor price manipulation and labor coercion—both ways of keeping wages low through inefficient and extractive means