Electoral Competition in a Dual Economy: Effects of Redistributive Politics on Economic Modernization

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30 de Marzo 2012

Outline

1. Motivation: Facts and Related Literature
2. Basic Concepts
3. The Theoretical Exploration
   - The model
   - Equilibrium Analysis
   - Comparative Statics
4. Discussion and Policy Implications

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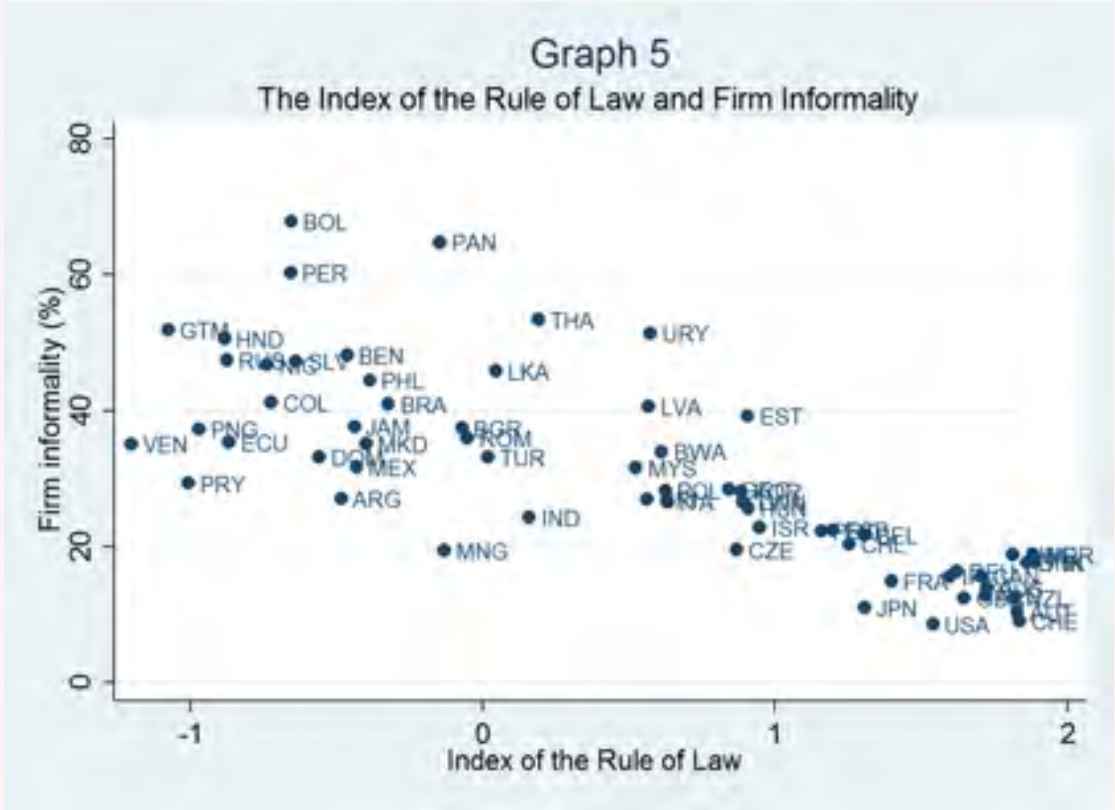
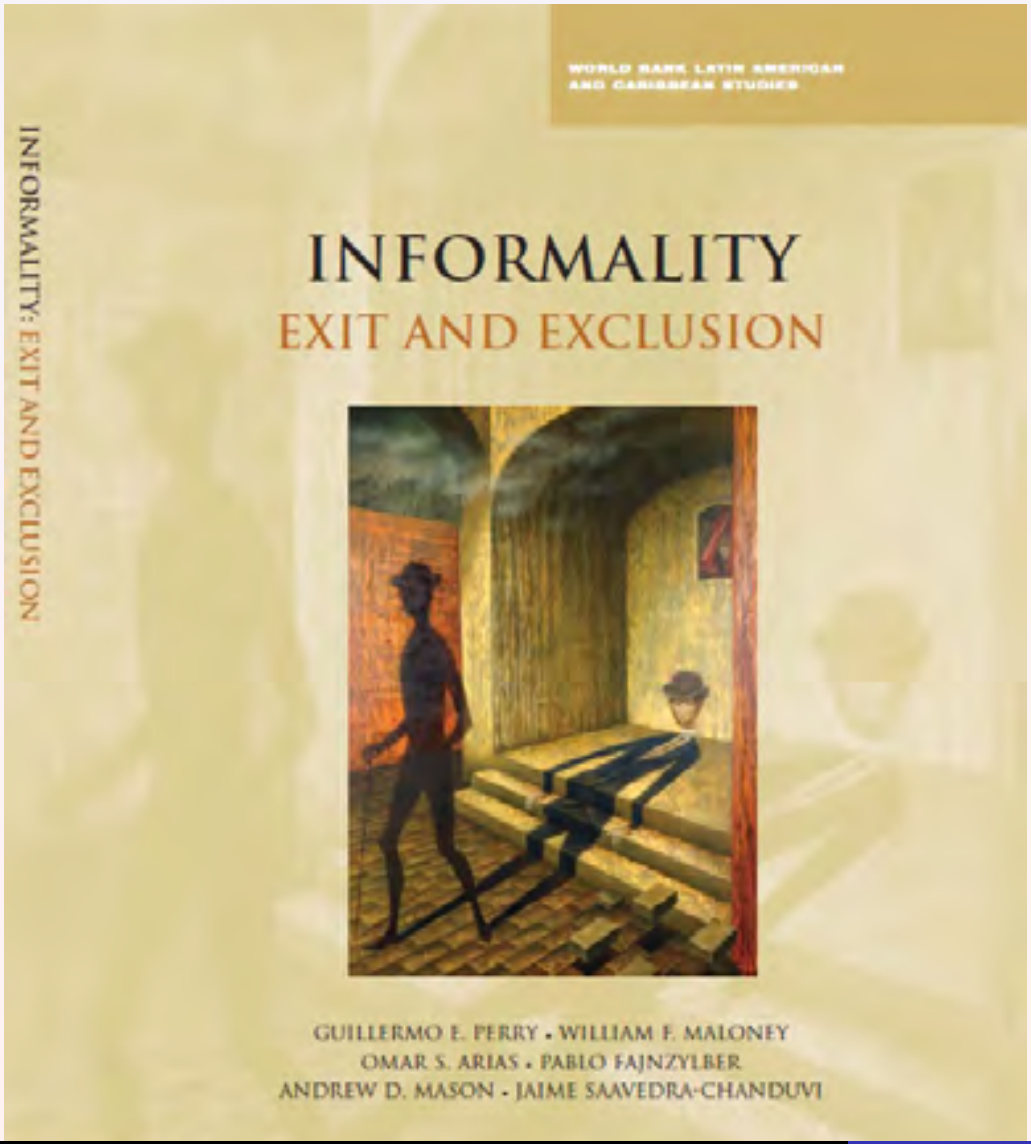
Figures

Large informal sector in developing countries: renewed interest in this phenomenon and in World Bank's agenda since 1990s



In pictures

In Images


WORLD BANK LATIN AMERICAN AND CARIBBEAN STUDIES
INFORMALITY: EXIT AND EXCLUSION
INFORMALITY
EXIT AND EXCLUSION
GUILLERMO E. PERRY • WILLIAM F. MALONEY
OMAR S. ARIAS • PABLO FAJNZYLBER
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In news

Guadalajara, Jalisco
Jueves, 29 de Marzo de 2012
Actualizado: Hoy 19:54 hrs
25°
INFORMADOR.COM.MX

Alarma ganancias millonarias de comercio informal en México

Nota

Economía Mexicana | Canaco | Comercio ambulante

Aspecto de un tianguis en Guadalajara, Jalisco. ARCHIVO

- Acusan que hay empresarios que lo fomentan para evadir el pago de impuestos

Ese sector económico generó en 2009 ingresos de 90 mil millones de dólares libres en el país

MÉRIDA, YUCATÁN (17/OCT/2010).- El presidente de la Cámara Nacional de Comercio (Canaco) local, Jorge Manzanilla Pérez, reveló que según cifras de organismos del comercio formal, la economía informal generó en 2009 ingresos de 90 mil millones de dólares libres en el país.

"Y en este 2010 van a generar mucho más y libre del pago de impuestos a las arcas de la Secretaría de Hacienda y Crédito Público (SHCP)", señaló en entrevista el empresario yucateco.

The literature on Informality

- General equilibrium models aim to explain the level of informality. Two main causes: (1) High entry barriers to formality (taxes, regulation); (2) Poor quality of institutions (corruption, weak legal system)

- Friedman et al. (2000) conclude that poor institutions and a large inofficial economy go hand in hand. However causality is not clearly determined as econometric evidence is inconclusive (sensitiveness to measurement and specification)

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Consequently,

- Informality is seen as a "problem", a "threat" that a country needs to get rid of by the right combination of sticks and carrots
- Strategies to tackle informality are mainly economic and seem to have small impact: i.e. making informal firms formal ones by lowering costs of business registration

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Limitations of this literature are:

- Institutional determinants are econometrically explored but they are based on too broad causal mechanisms
- Politically determined variables like taxes or entry barriers are taken as exogenous. Economic determinants mainly
- De Soto (1989): Agents in the informal sector are politically inactive, and are *dodging the grabbing-hand* of a predatory state

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Suggestive Evidence

- Countries that followed the ISI (Import Substitution Industrialization) strategy before the 1990s exhibit persistent informal sectors in contrast with more export-oriented economies (India and Chile vs. Korea and Mexico)
  - The ISIS was a deal between politicians and businessmen
- Brazil: Tendler (2002) finds that politicians practice clientelism with clusters of infomal firms. In this this deal, politicians exchange electoral support for enforcement
- Mexico: Cross (1998), McTigue (1998) Studies on political attitudes among informal workers in Mexico City, particularly street vendors, document collusion with bureaucrats and political agents to favor their activities

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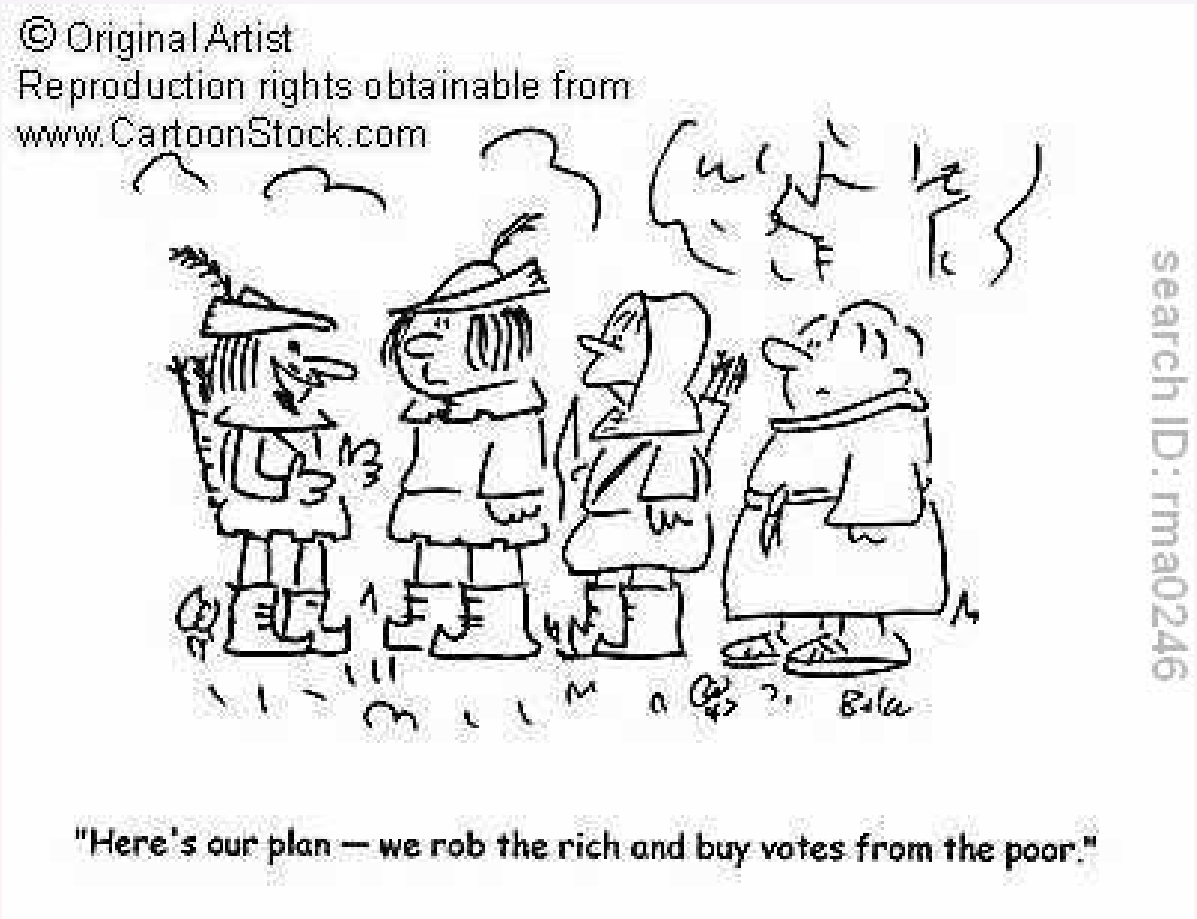

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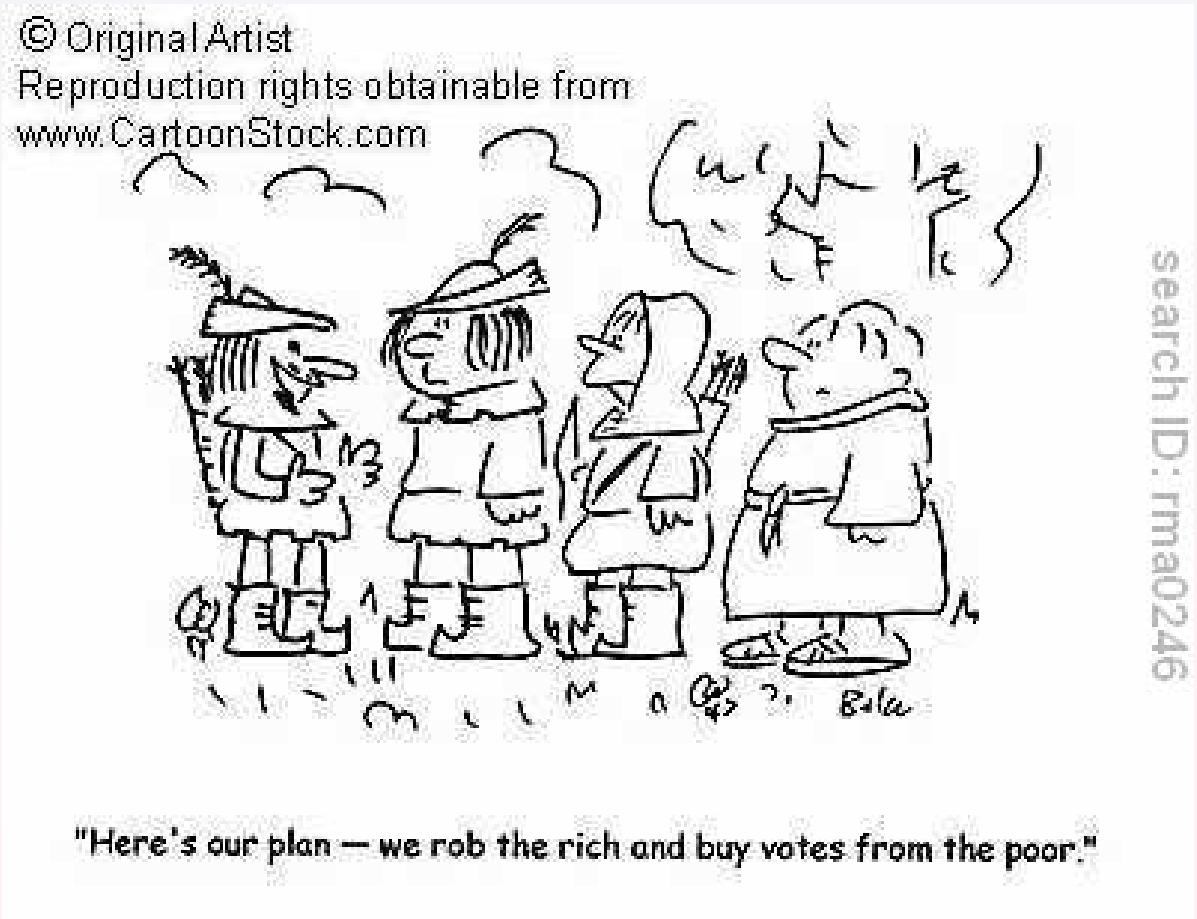

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Research questions

Is there a causal link between informality and machine politics?

If so, what are the underlying mechanisms?

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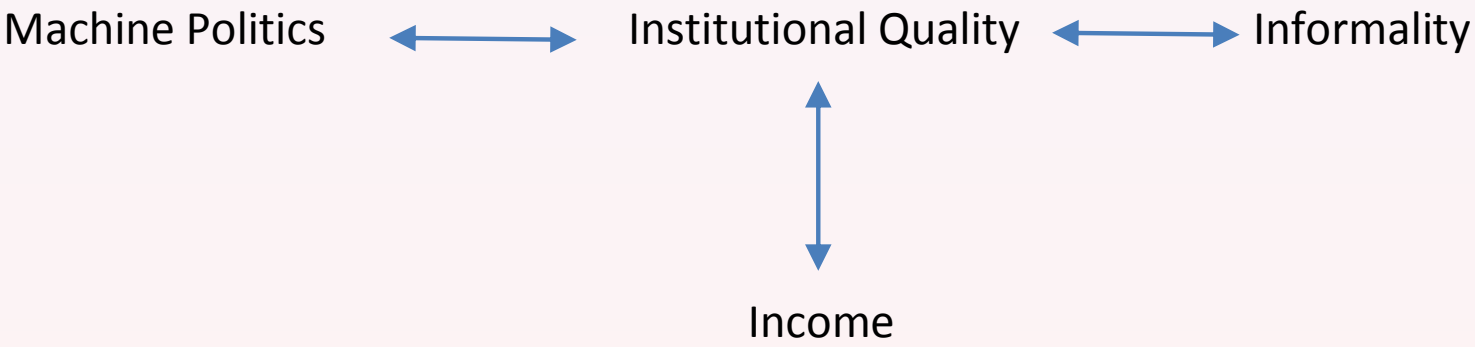
Conceptualization: Relationships

Diagram 1. Conceptual Relationships



Related Literature on Political Economics

- Study cases on corrupt redistributive politics and market development
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Informality

Economic activity that produces legal output but does not comply with tax and business regulation

- Firm informality: (1) Based on small scale where the incidence is higher (easy to evade); (2) based on differences between estimated and reported ouput (electricity demand) (Schneider, 2008)

Examples: small firms (commerce, manufacture) with less than 10 workers, self-employed workers

- Labor informality: Workers with no social secury (Perry et al., 2007)

Examples: Workers without contract (street vendors, household and family workers)

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Two dimensions of Informality:

(1). **Economic Dualism**: Two economic sectors with different levels of productivity

(2). **Enforcement**: non-compliance with business regulation and law

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Informality: On Enforcement

Economic modernization

Process of economic development: Reallocation of production factors from the traditional to the modern sector (Lewis 1960s)

1. ***Traditional: low productivity, old-technology, labor intensive (unskilled)***
2. ***Modern: high productivity, advanced technology, capital intensive, skilled labor***

Machine Politics

Two dimensions of machine politics (two rules of behavior in political agents):

(1) **Targeted redistribution**: resources are allocated or redistributed to interest-groups or narrow constituencies rather than the broad electorate

- In opposition: programmatic redistribution that is the provision of public goods; e.g. universal education and social services, national security, justice, etc.

(2) **Rent-extraction**: It is "the misuse of entrusted power for private gain" (Thomas&Meager, 2004)

- misuse means a violation of the law commited by a public or a private agent →corruption (lack of transparency)

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Targeted Redistribution

Strategy by which resources are allocated or redistributed to interest-groups. These goods are of medium to high excludability

Targeted Redistribution

From Kitschelt (2010), these can be:

- Outright gifts: goodies valuable to voters like food, clothes, building materials
- Preferential access to material advantages in public social policy schemes: e.g. social programs in which administrators enjoy great discretion over eligibility

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Institutional Quality

- Institutional quality denotes the broader set of rules, *de-facto* and *de-jure*, in which a society is embedded
- A market economy has good or strong institutions when these rules encourage investment and accumulation in physical and human capital, as well as the development and adoption of better technologies (Acemoglu, 2009)
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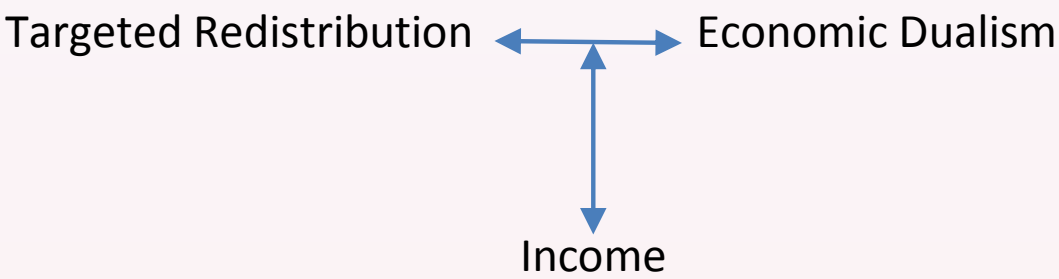
Re-conceptualization

Diagram 2. A Simplified Scenario



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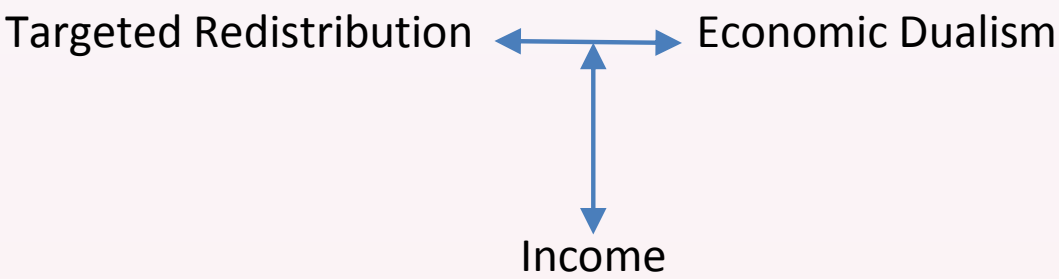

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The Economic Side

- Individuals are consumer-producers. Continum over $(0,1]$, population size $L = 1$, perfect foresight
- No credit markets: Individuals are constrained by their endowment
- k: endowment is a random variable. Each individual i has a distribution $H(k_i)$, each $H(k_i)$ is iid

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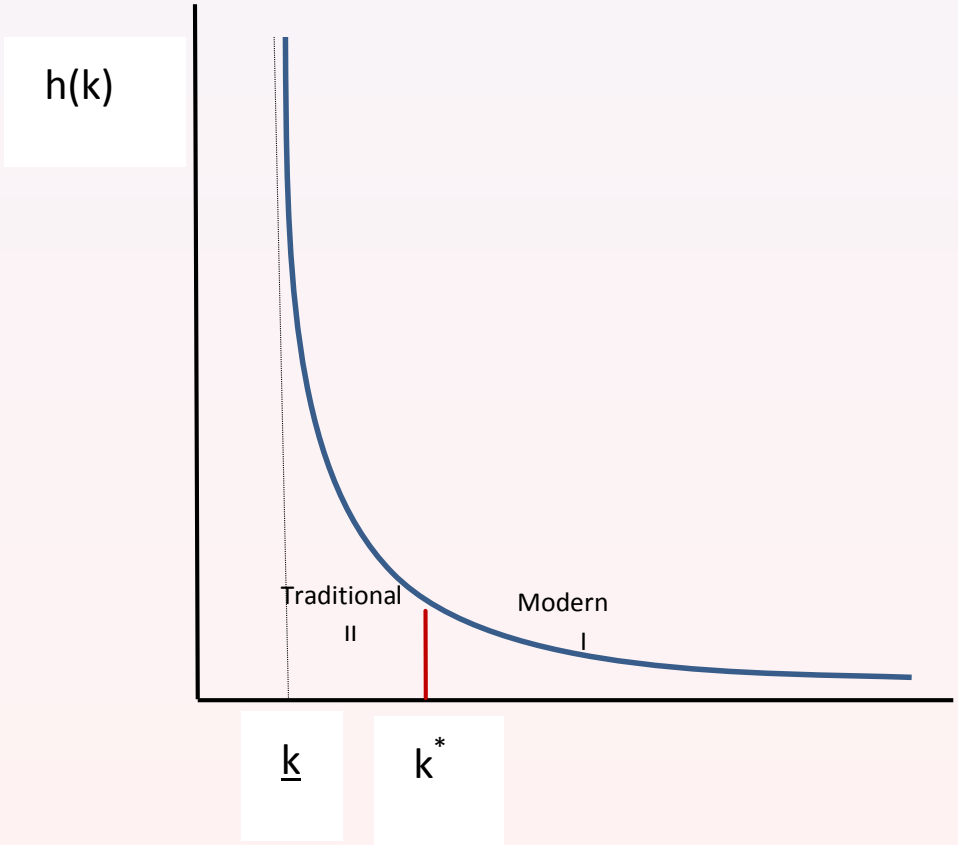
Graph 3
Probability density function of capital endowment



The Economic Side

- Sector size is given by: $n^{II} = L * H(k^*)$ and $n^{I} = L * (1 - H(k^*))$.
- Incomes in the modern and traditional sectors are:
  - $y^{I} = ln\left(\alpha \overline{g}^2 k(1-\delta^{I})\right)$
  - $y^{II} = ln\left(\beta \overline{g} k(1-\delta^{II})\right)$
- Key feature: modern producers benefit much more from public goods ($\overline{g}$) than traditional producers and have better technologies as $0 < \beta < \alpha$
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The Political Side

- Electoral competition draws upon Dixit & Londegran(1996)'s model of targeted redistribution
- Two symmetric office-seeking candidates $\ell = (A, B)$ with perfect foresight
- Candidates: Constrained to provide a fixed amount of public goods $\overline{g}$ but with certain degree of targeted redistribution via tax rates. Allocate tax burden between groups
- The electorate is divided along the lines of economic sectors. Voters' identity coincides with producers' identity: rich and poor but qualified by productive characteristics

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- A candidate's problem is,

$$Max^{j}_{\delta} V_A = n^{I}\Phi^{I}(X^{I}) + n^{II}\Phi^{II}(X^{II}) \text{ s.t.}$$
$$\overline{g} = \delta^{I}_{A}\int_{k^*}^{\infty} kh(k)dk + \delta^{II}_{A}\int_{\underline{k}}^{k^*} kh(k)dk$$

- X^{j}_{i}: ideological preference of voter i at sector j with cdf:
- $\Phi^{j}(X^{j}_{i}) = \phi^{j}(X^{j}_{i} + \frac{1}{2\phi^{j}})$ when $X^{j}_{i}\varepsilon[-\frac{1}{2\phi^{j}}, \frac{1}{2\phi^{j}}]$
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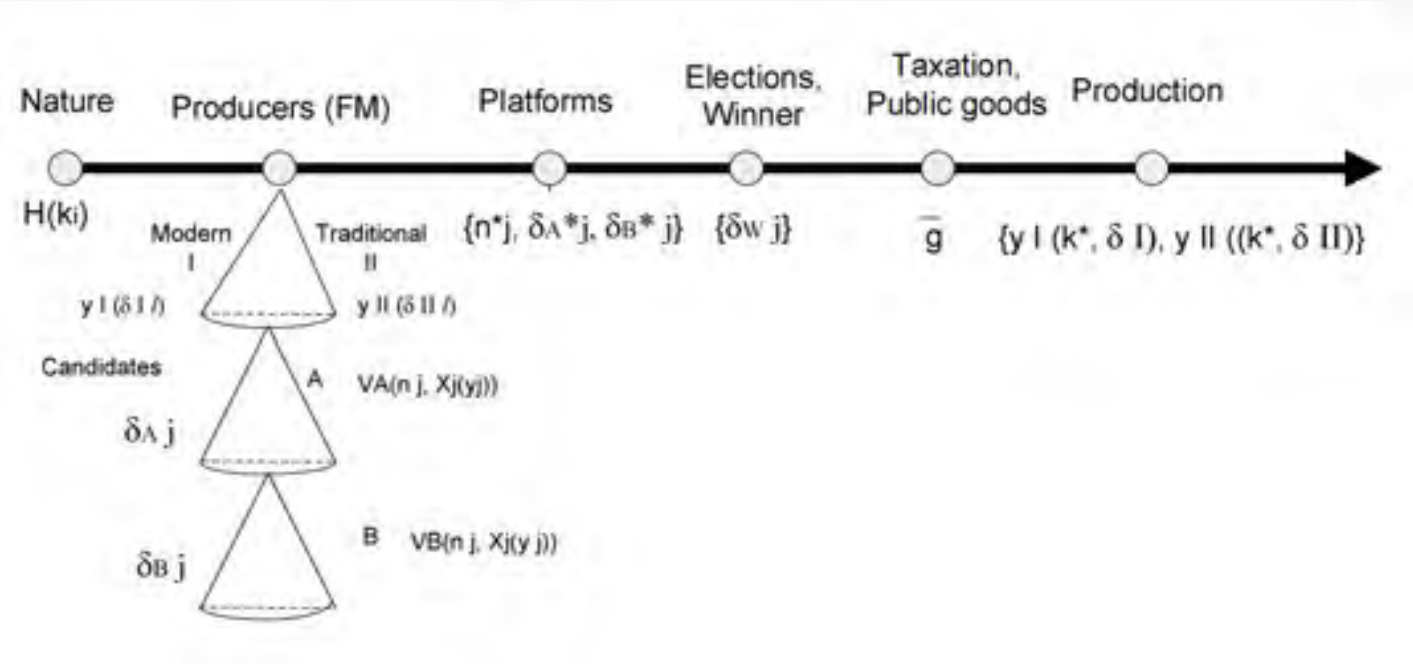
- Ideological density $\phi^j > 0$. High ϕ^j signals more swing voters, high responsiveness to slight changes in political flatforms

Timeline

Perfect Information Game



Solution: Subgame perfect Equilibrium → Backward induction

Stage 2: Optimal Electoral Platforms

- A candidate takes their opponent's strategy as given and equalize the marginal electoral returns between sectors
- a Nash equilibrium exists, guaranteed by the quasiconcavity of candidates' lagrangean function
- Convengerce of platforms (competition a la Hotelling). $\delta_\ell^{j*} = \delta^{j*}$ for all ℓ

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Optimal taxes

- $\delta^{I*} = \frac{\Omega}{1+\Omega}\left[\overline{g}\frac{(1-\theta)}{\theta \underline{k}^{\theta} a^{I}} - \frac{a^{II}}{a^{I}} + \frac{1}{\Omega}\right]$
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Stage 2: Optimal Sector Choice

- Agents move across sectors according to k, δ^j and $\overline{g}$
- A producer will operate in the modern sector iff $y^I \geq y^{II}$.
- When $y^I = y^{II}$, the producer is indifferent
- The endowment that makes the producer indifferent is k^*. Pivotal value to set sector size
- From $y^I = y^{II}$ it is obtained the equilibrium condition for producers, given by:
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- Producers anticipate candidates, therefore,
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- Substituting optimal taxes, and rearranging terms, the following function is obtained,

$$f(k^*) = \frac{H(k^*)}{[1-H(k^*)]^{\frac{1}{\theta}} + H(k^*) - 1} = c$$

- Where $c = \overline{g}\frac{\alpha\phi^I}{\beta\phi^{II}}$ can be seen as the "sectoral advantage-weighted" value of public goods

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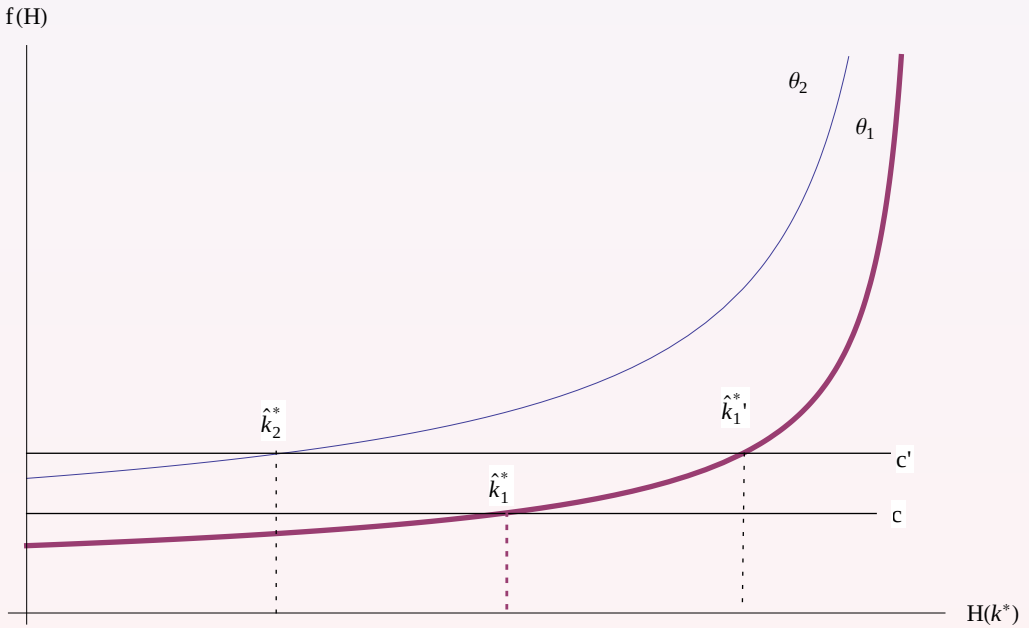
Sub-game Perfect Equilibrium

Proposition 1: The function $f(k^*)$ has a trivial root when $\widehat{k}^* = \underline{k}$ or when $c = 1$, implying $H(k^*) = 0$. In this case, $n^I = 1$ and the modern sector includes all producers. A unique nontrivial solution exists whenever $c \geq \frac{\theta}{(\theta-1)}$, which implies that $0 < H(\widehat{k}^*)$ and $\widehat{n}^I < 1$.

Sub-game Perfect Equilibrium

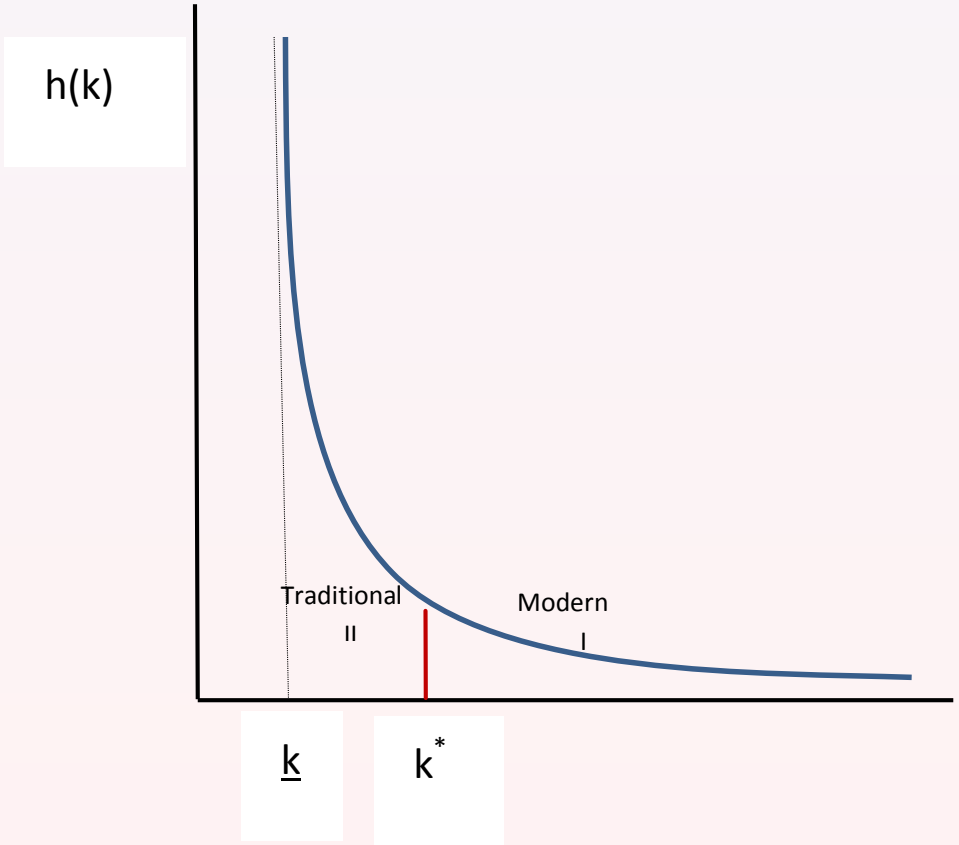
Graph A1. Equilibrium of the Endowment Threshold



$c = \overline{g}\frac{\alpha}{\beta}\frac{\phi^I}{\phi^{II}}$; it signals the asymmetry between sectors

Recall The PDF of K

Graph 3
Probability density function of capital endowment



Sub-game Perfect Equilibrium

Lemma 2: The equilibrium threshold increases whenever Parameter c increases. Since $c = \overline{g}\frac{\alpha}{\beta}\frac{\phi^{I}}{\phi^{II}}$, then $d\widehat{k}^{*}/d\overline{g} > 0$, $d\widehat{k}^{*}/d\alpha > 0$, $d\widehat{k}^{*}/d\phi^{I} > 0$ and $d\widehat{k}^{*}/d\beta < 0$, $d\widehat{k}^{*}/d\phi^{II} < 0$.

Sub-game Perfect Equilibrium

Proposition 2: Let $1 < \overline{g} = \sum_j \delta^j E(k^j) = \delta E(k)$, where δ is an exogenous aggregate tax such that $0 < \delta < 1$, and $E(k)$ is the total endowment in the economy. Hence, sub-game perfect taxes are always of the form $\widehat{\delta}^{II*} < \widehat{\delta}^{I*}$. The tax rate of the modern sector is always positive $0 < \widehat{\delta}^{I*}$, whereas the traditional sector could receive transfers or pay taxes. The traditional sector receives a transfer if and only if $\left(\delta(\widehat{k}^*/\underline{k})^{\theta-1} + \frac{\beta}{\alpha\delta E(k)} \right) < 1$. Otherwise, $0 \leq \widehat{\delta}^{II*}$.

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Public Goods $\Delta\overline{g} > 0$

The modern sector shrinks, $\Delta n^I < 0$, when public goods provision increases

- It implies more taxation to both sectors but taxes increase more for modern producers thus raising entry costs to the modern sector

Relative Technology $\Delta \frac{\alpha}{\beta} > 0$

The modern sector shrinks, $\Delta n^I < 0$, when the modern sector experience a relative enhancement in technology

- Higher productivity signals candidates that there is more room to tax modern producers raising the entry costs

Relative Ideological Densities $\Delta\phi^I/\phi^{II} > 0$

The modern sector shrinks, $\Delta n^I < 0$, when the modern sector has more swing voters

- Candidates focus in capturing modern producers, who demand and benefit much more from public goods than traditional producers. Higher taxes follow, raising entry costs

Allocation Effects

Total equilibrium output can be expressed as:
$\widehat{Y} = E(\widehat{y}) = ln(\alpha \overline{g}^2 (1 - \widehat{\delta}^{I*})) + \frac{1}{\theta} + ln(\underline{k})$

- Increases in α/β or $\overline{g}$ have two effects: an upward effect via productivity and a downward effect via taxation. Only when gains in productivity outweigh losses via taxation, total output grows.

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Overview of Effects

Sector size: Unambiguous effect on sector size; thus a larger provision of public goods and/or a higher asymmetry (technological and/or electoral) in favor of modern producers expand the traditional sector.

Allocation effect (1): Ambiguous effect on total output from an increase in public goods and/or relative technology.

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  - capture of politicians by modern producers to obtain market power and artificial rents with no productivity contribution (i.e. trade protection, monopoly rights, exchange rate controls, etc.)
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Differences in Technology

- Example: Bolivia vs México. More organized political action and gains in productivity in the latter than in the former (Perry et. al. 2007)

Policy Implications

- **Social inclusion** → strengthen traditional producers (politically and/or technologically) → reduce the size of the traditional sector
- **Efficiency (output growth)** → favor the modern sector if technologically advantaged→ (La Porta&Shleifer, 2008)

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