Pillars of Prosperity
State Capacity in Economic Development

2010 Yrjö Jahnsson Lectures

Lecture 1, June 14

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A. General Introduction

Weak states – Map

Central concept in development policy community

subject of various initiatives

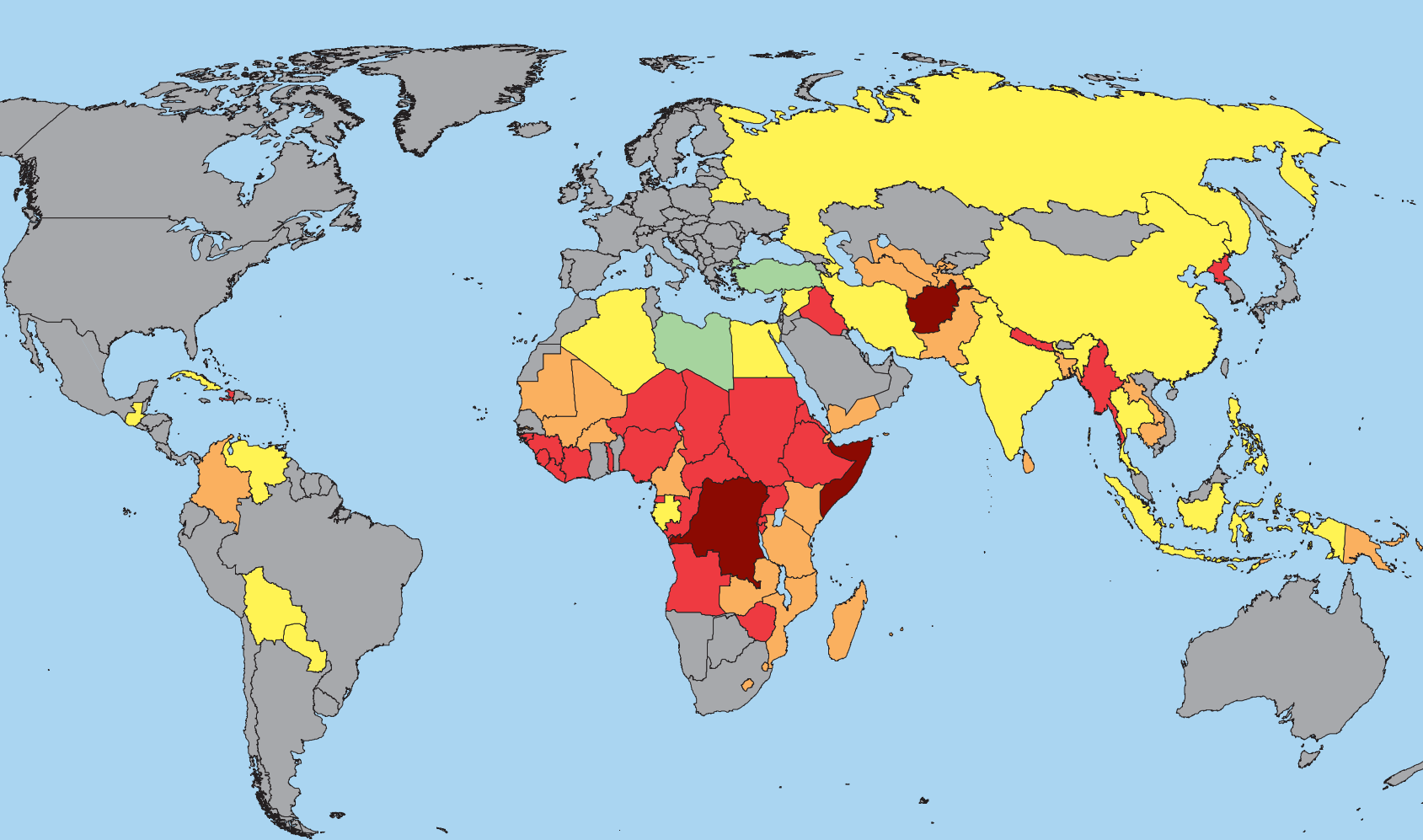
What is a weak (fragile) state?

it can not support basic economic functions, raise any substantial revenues, deliver basic services, keep law and order, ...

Quite frequent phenomenon

perhaps 20-30 states failed or seriously weak
equally many weak, others in risk zone

concentrated in sub-Saharan Africa, south/central Asia



Development clusters

Strong links with *income* (per capita) and *violence*

- weak states in countries with massive poverty
  and societies plagued by internal conflicts
- developed countries: high income, institutions work,
  policies in good order, conflicts resolved peacefully, ...
- strong clustering of state capacity in different dimensions
  few strong economies with weak states

Multidimensional problem – *the* development problem?

- clustering of low income, violence, and a number
  of dysfunctional institutions

Example of clustering – Figures 1 and 2

Two forms of *state capacity*

- extractive capacity: e.g., infrastructure to raise taxes from broad bases, like income or value added
- productive capacity: e.g., infrastructure to enforce contracts or protect property rights

Illustrate with two specific measures

- alternative measures produce similar results
- *fiscal* capacity: total taxes as share of GDP, average from the late 1970s onwards (IMF data)
- *legal* capacity: index of protection of property rights, average over the 1980s and 1990s (ICRG data)
- strongly positively correlated with each other, income per capita, and prevalence of civil war

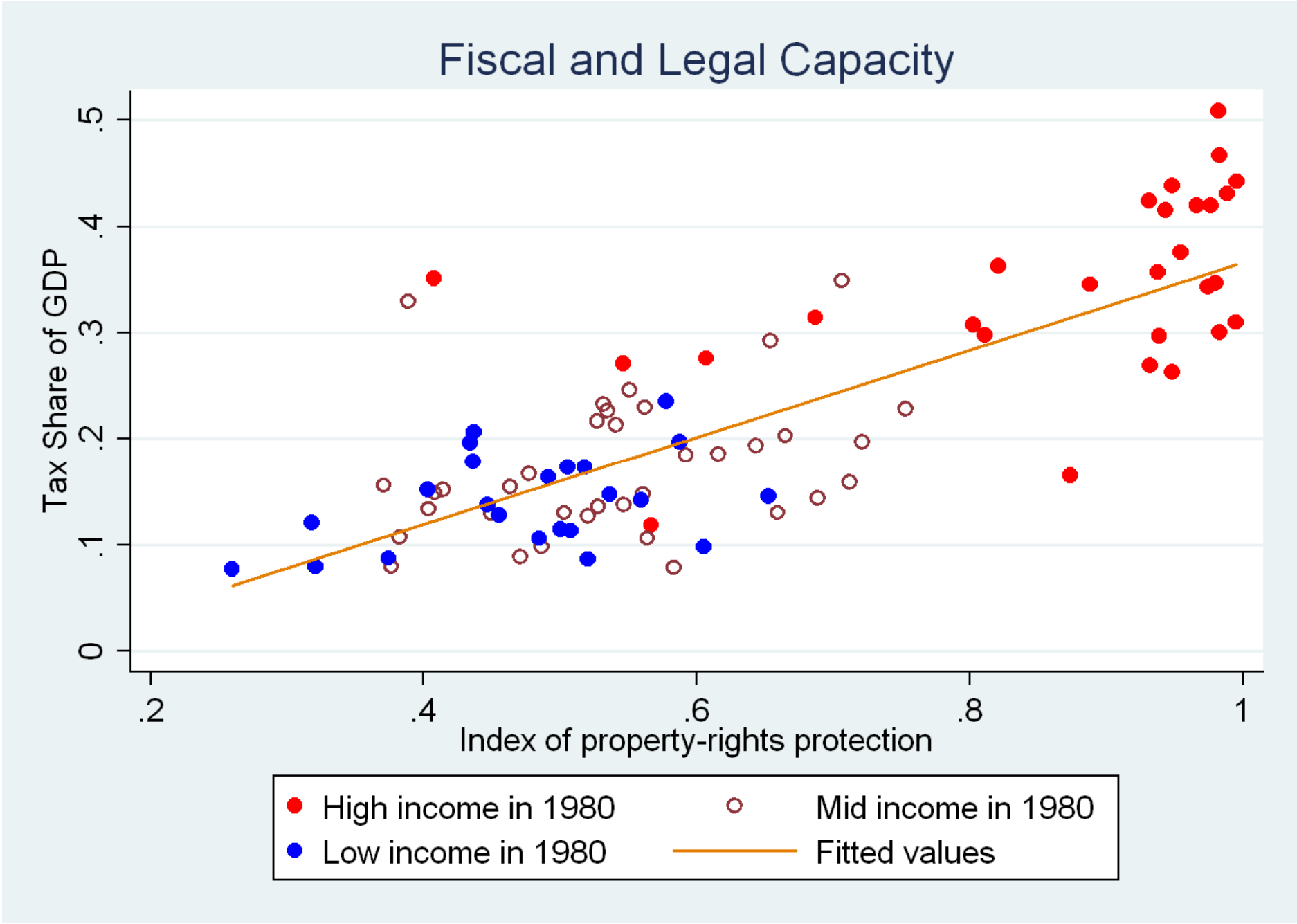


Figure 1 State capacity and income

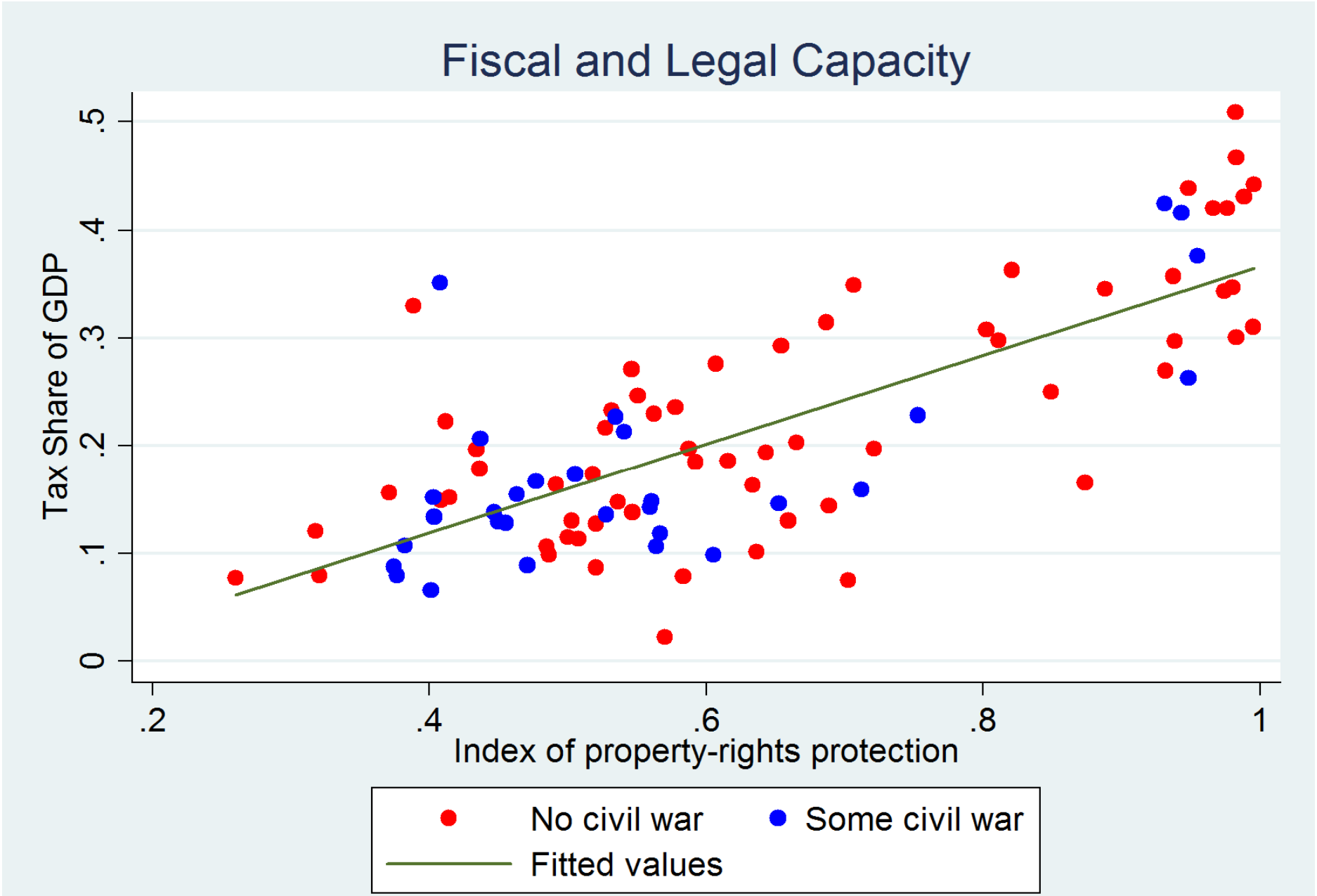


Figure 2 State capacity and civil war

How understand such patterns in the data?

Basically need to pose – and answer – three general questions

(i) what forces drive building of different state capacities, and why do these capacities move together?

(ii) what forces drive different forms of political violence?

(iii) what explains clustering of institutions, income, and violence?

Scope of the lectures

Report on joint research on these questions

- look at the politics and economics of state building and political violence in the process of development
- try to understand the observed development clusters of institutions, income, and violence
- aim at constructing new theory and uncovering new evidence
- hope to bring state capacity into mainstream of economics

Pool together three broad agendas

- study of long-run development and its determinants
- importance of history in explaining today's patterns of development
- interaction of economics–politics in shaping how economies work

Plan for the lectures

Build on many earlier strands of scholarship

spoken lectures will not do justice to these by proper references

Overall plan

Lecture 1: Overview + Basic model

Lecture 2: Fiscal and legal capacity

the evolution of economic institutions, taking political institutions and outcomes as given

Lecture 3: Political violence

endogenizing political outcomes (in the form of violence), but taking political institutions as given

Lecture 4: Putting pieces together + Development assistance

the joint evolution of economic and political institutions

But first an overview

Scope of overview

explain basic ideas of theory and predictions

show some correlations in the data

outline the lectures to follow

Road map of overview

1. **State capacity**
2. Political violence
3. Sum up and plan of campaign

1. State capacity
Existing research

Ignored, or assumed, in mainstream economics

- (macro) development economics sees income per capita, not state institutions, as central outcome
- capacity to raise revenue from certain tax bases basically assumed in development, public finance, political economics, ...
- as is capacity to enforce contracts or to protect investors

Important in political and economic history

- fiscal powers important in themselves, for military success and for state development, more generally
- war major motive to build fiscal capacity
  'war made the state and the state made war' (Tilly, 1990)
- this work ignores building of legal capacity

Theoretical approach – Main building blocks

Distinguish institutions and policy

- incumbent government's choice of taxation and regulation
  - limited by fiscal and legal capacity, and political institutions

Incumbents can invest in fiscal and legal capacity

- purposeful decision: current costs vs. future expected benefits
  - ... with uncertainty about future
- use of revenue: spending on public goods vs. redistribution
- levels of non-tax revenue: resource rents, or (cash) aid
- incumbency: takeover by opposition group

Three kind of states

Common-interest states

- government revenue mainly used for public goods
  - e.g., defense against threat of external conflict
- any incumbent group invests in fiscal capacity

Redistributive states

- government revenue used to redistribute, with incumbent more or less constrained by political institutions
- incumbents invest in fiscal capacity as enough political stability

Weak states

- government revenue used for redistribution, but non-cohesive political institutions and high levels of political instability
- no incumbent invests in fiscal capacity of the state

Complementarities

Investment in one type of state capacity reinforces the other

- if future fiscal capacity higher, additional fiscal benefits of legal capacity, which expands market incomes
- if future legal capacity higher, market incomes and tax bases higher, which raises motive to invest in fiscal capacity

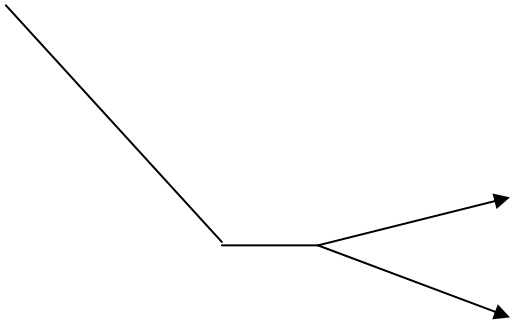
Implications of complementarity

- natural way to think about forces behind observed clustering
- determinants of legal and fiscal capacity should be *common*

Which major determinants does this approach suggest?

State capacity and use of public revenue

Common vs. redistributive interests



Legal capacity

Fiscal capacity

A look at the data: External conflict – Figure 3

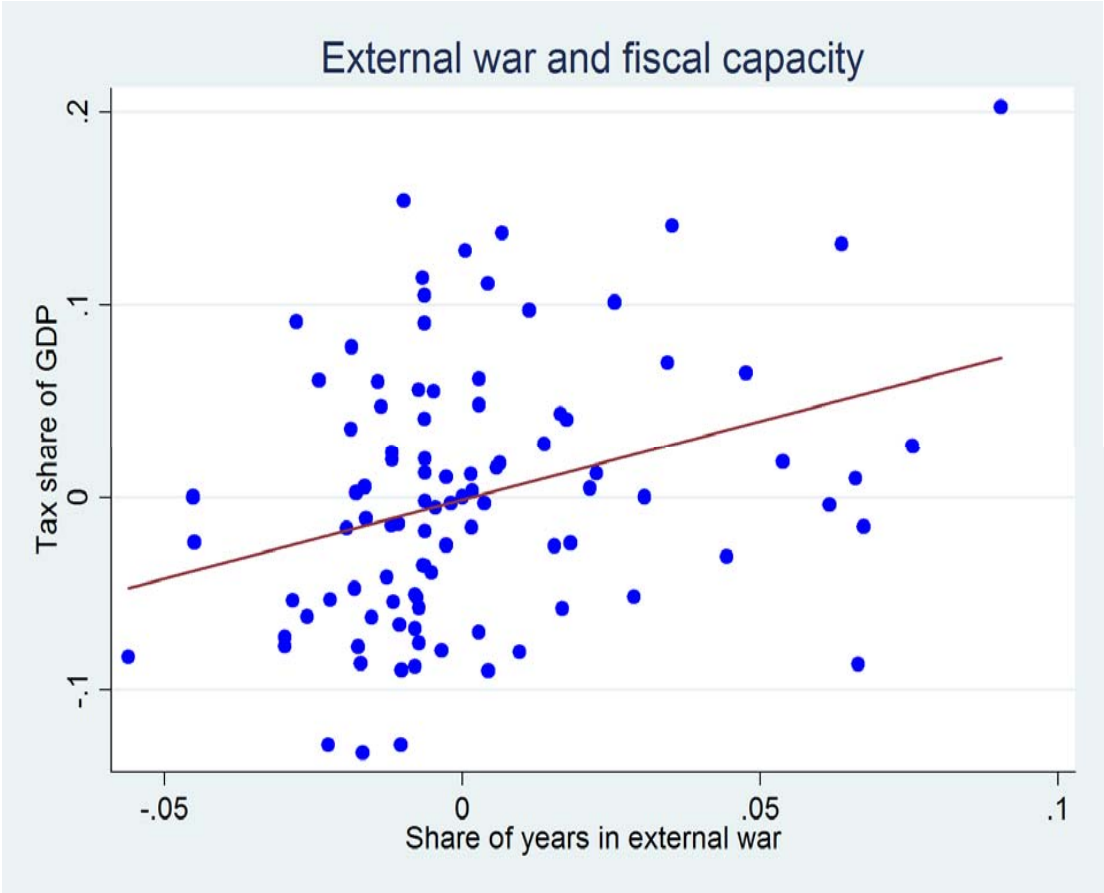
Partial correlations: common-interest spending and state capacity?

Gauge past demand for public goods by prevalence of war

- time in external war 1816/independence – now (COW data)

Illustrate results for tax share and property rights index

- same variables as in Figures 1 and 2
  - (correlations robust also for other proxies)
- hold constant other determinants, such as cohesive
  - political institutions, plus legal origins, and continental location
- data consistent with prediction



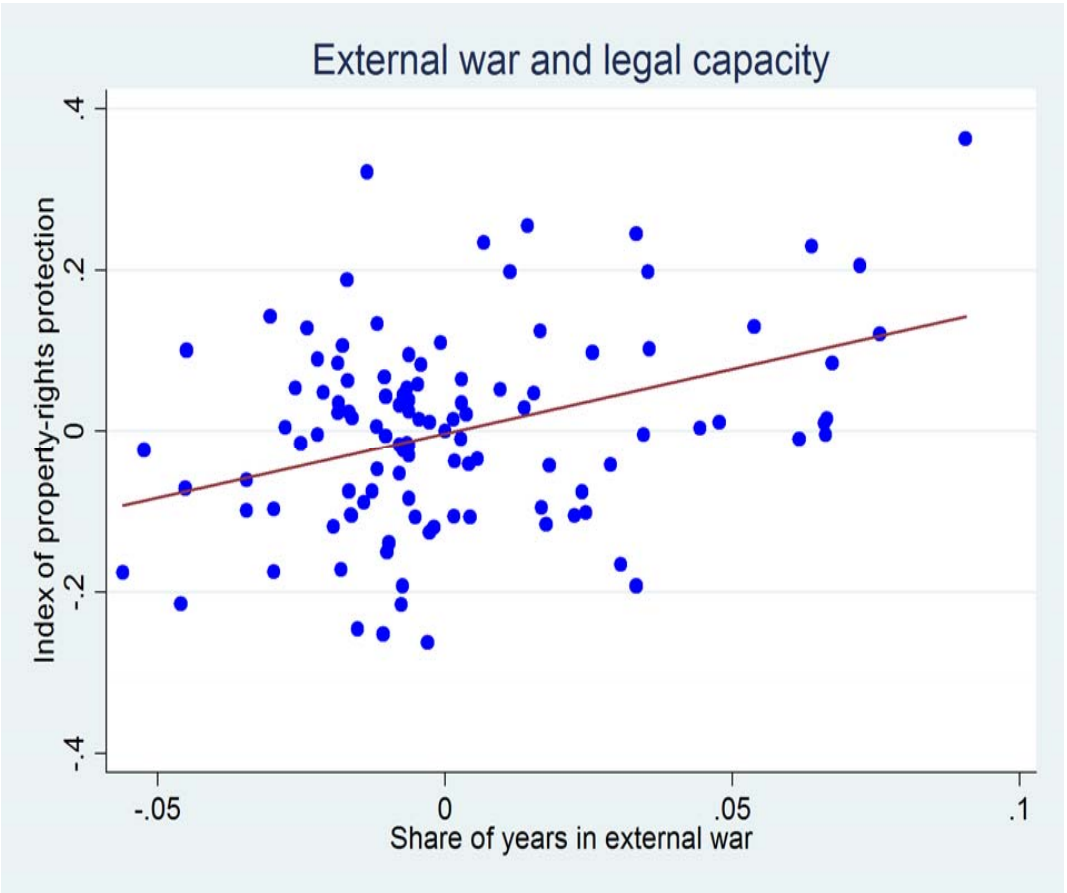
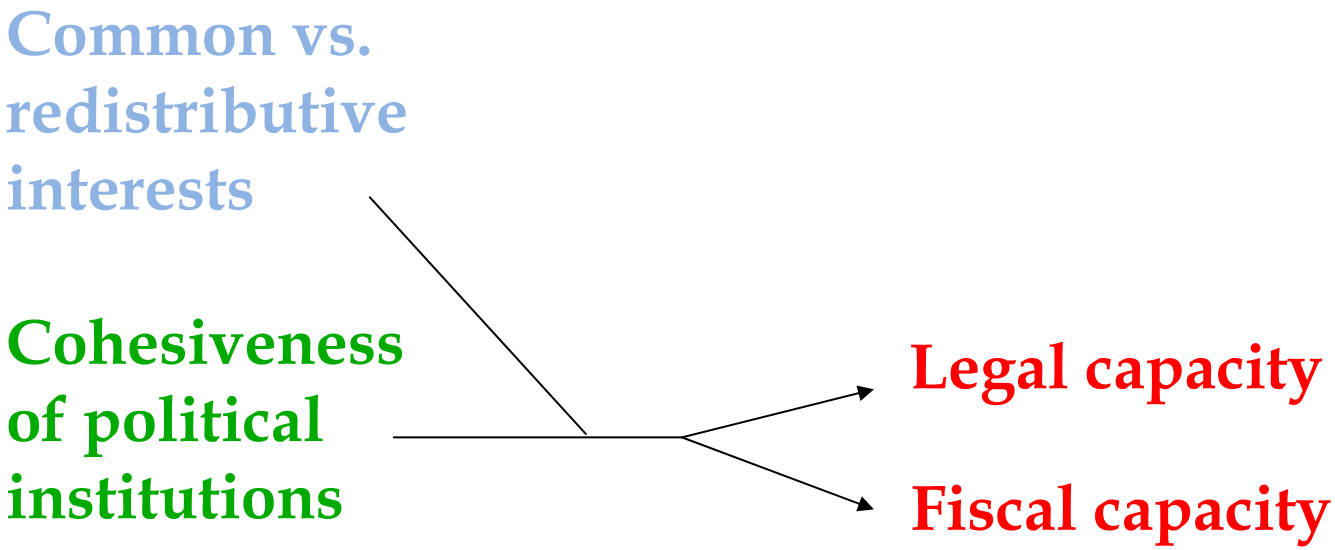


Figure 3 External war and state capacity

State capacity and political institutions

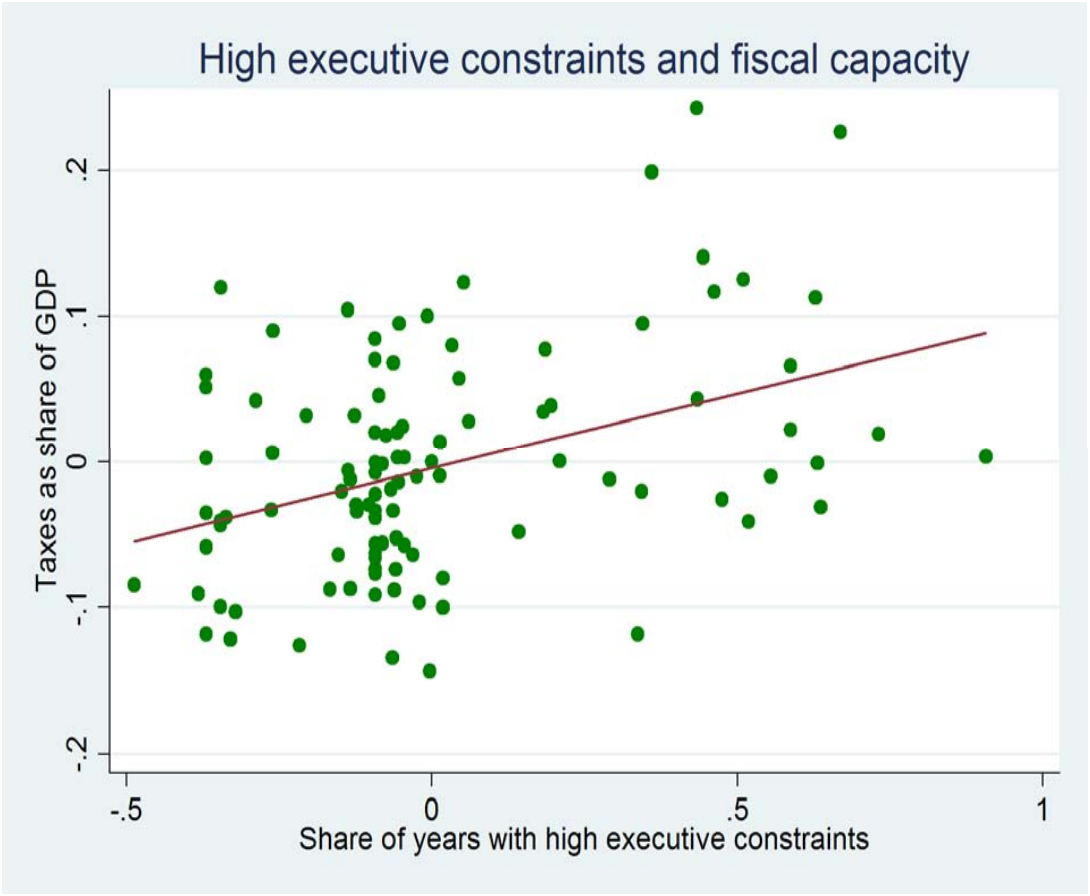


A look at the data: Political institutions – Figure 4

Partial correlations: cohesive institutions and state capacity?

Measure cohesive political institutions by constraints on executive

- time with high(est) score 1800/independence – now (Polity IV data)
  - similar results for prevalence of parliamentary democracy
- control for same variables as earlier
- again, data conform with prediction



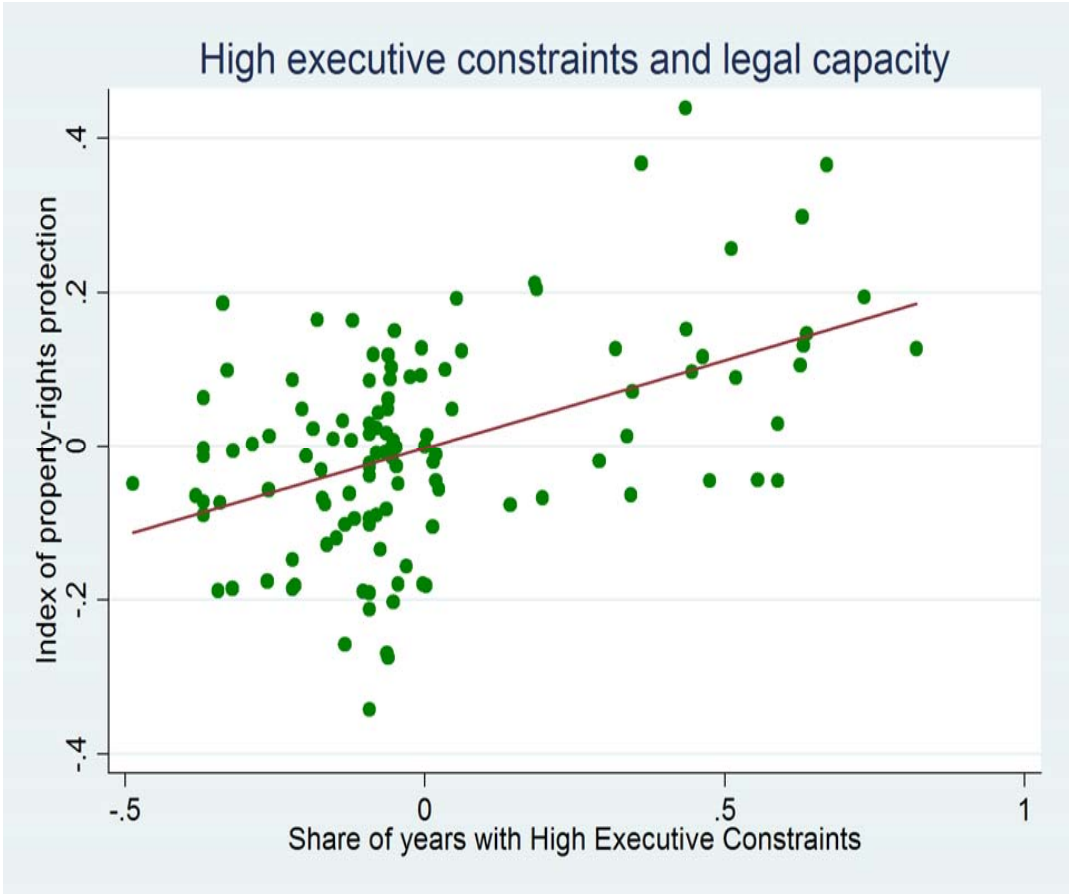
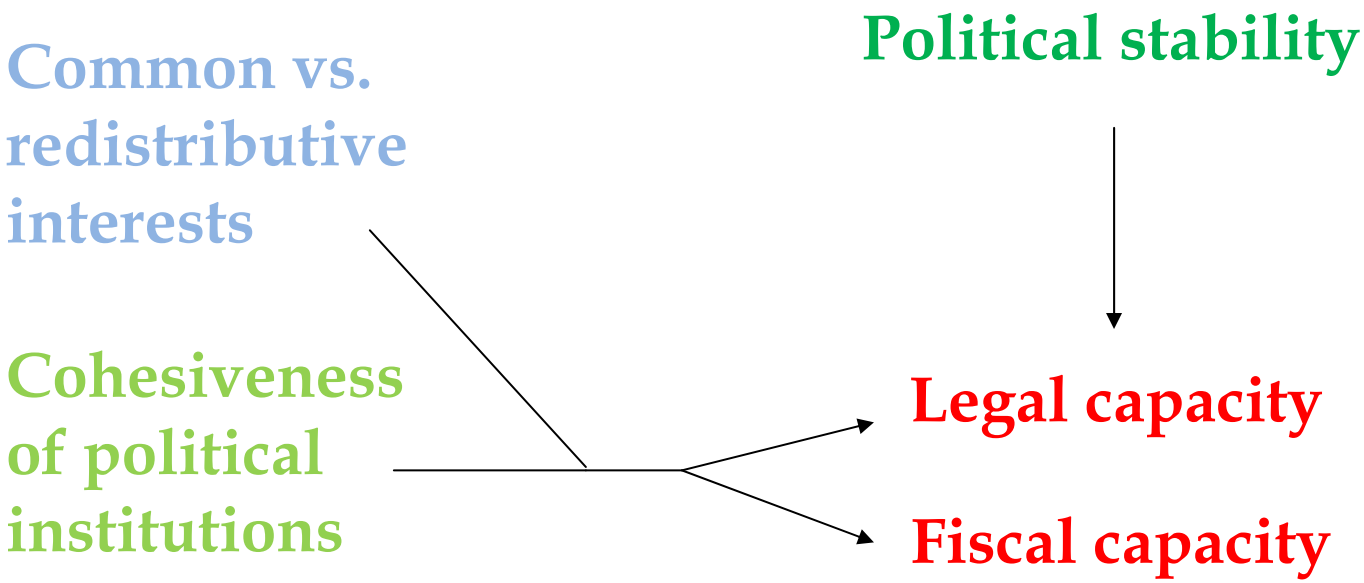
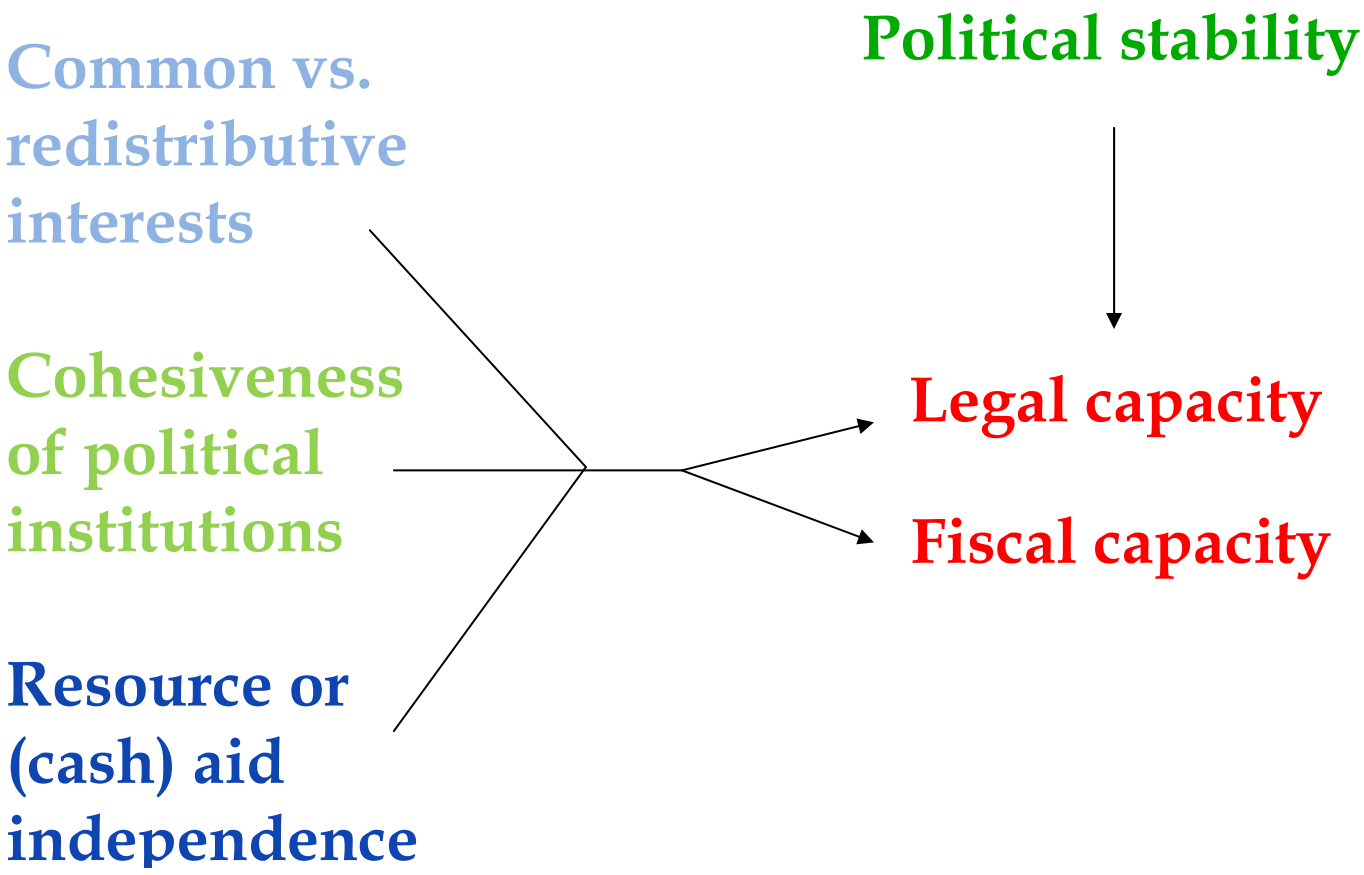


Figure 4 Political institutions and state capacity

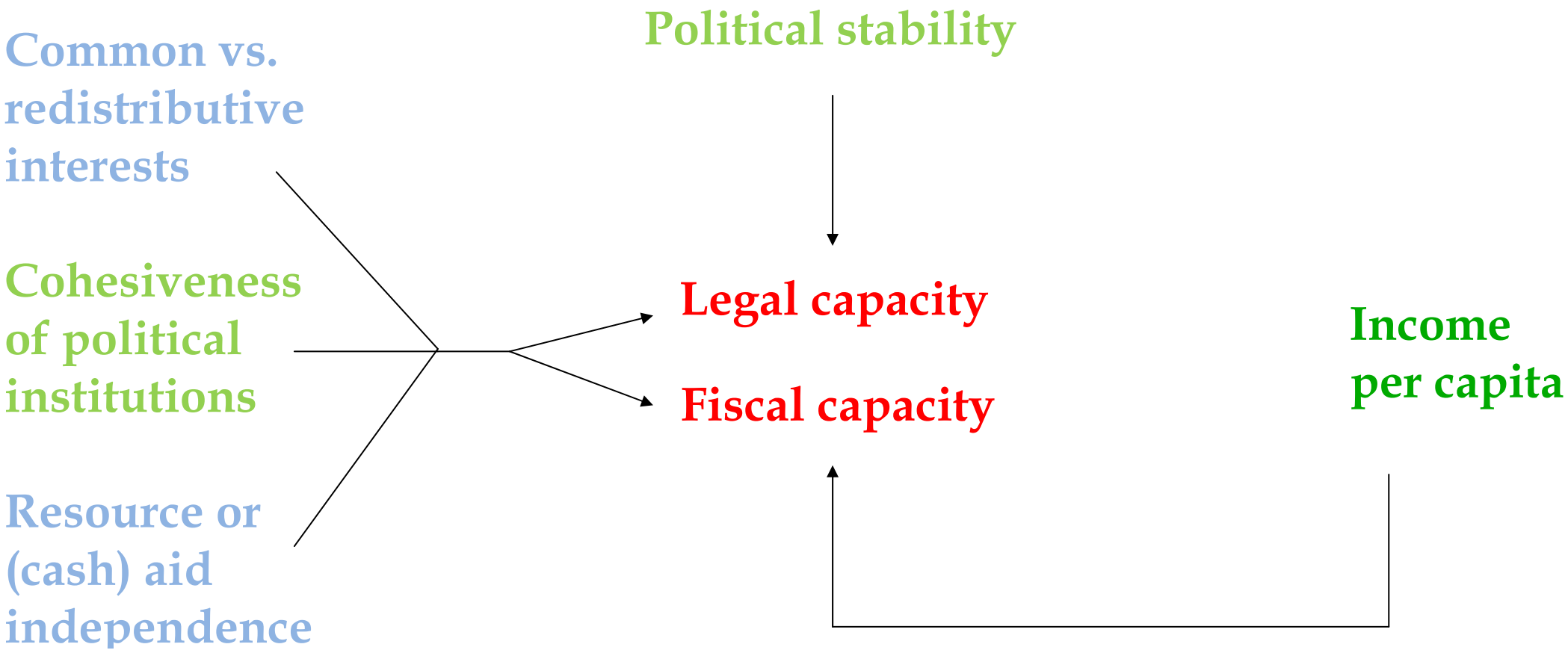
State capacity and political stability



State capacity and economic structure



State capacity and income



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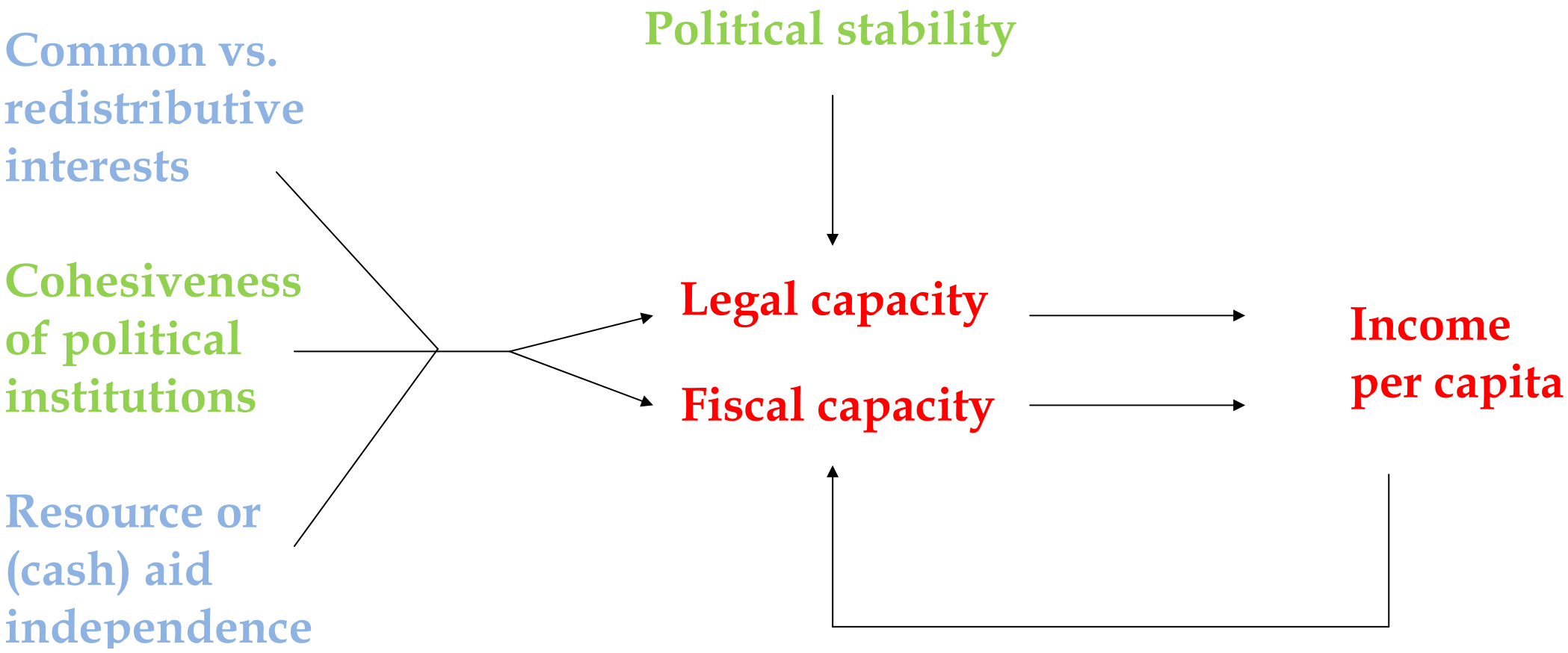


Back to clustering of income and state capacity

Low income can cause weak states

- low prospective market incomes and tax bases reduce motives to invest in legal and fiscal capacity

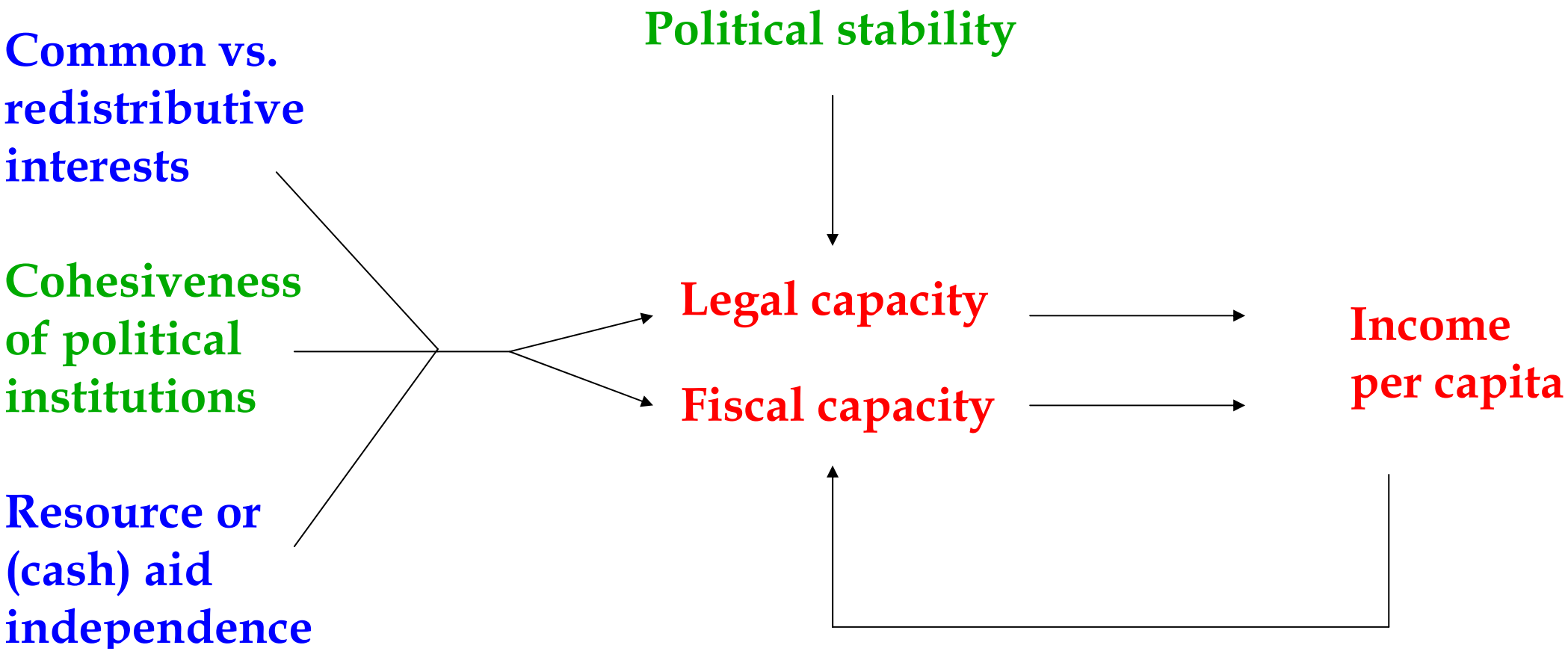
Weak states can cause low income

- low legal capacity makes incumbents unable to support markets
- low fiscal capacity leads to inefficient forms of redistribution
- such feedback makes income only a proximate determinant of state capacity

Virtuous or vicious circles

- can produce clusters of strong state capacities in strong economies or weak state capacities in weak economies

Summary of argument so far



Road map

1. State capacity
2. **Political violence**
3. Sum up and plan of campaign

2. Political violence

Motivation – Conflict and state building

Risk of external violence

- by earlier argument, such conflict can promote state building
- boosts common interest vs. redistributive (group) interest

How about internal political violence – civil war, repression?

- not common interests – rather, extreme redistributive struggle
- may entail radically different incentives to invest in state
- we want to (partly) endogenize political instability
  - i.e., becomes only a proximate determinant of state capacity

Civil war and repression, basic facts – Figure 5

Sadly, widespread phenomena

- civil war, two-sided violence (government and insurgent group), above 10% of all country-years since 1950 (Uppsala/PRIO data)
- repression, one-sided violence by governments (outside civil war) prevalence about 8 % for stark form of purges (Banks data)

Main patterns in the data

- prevalence of both forms of violence vary greatly over time
- both correlate systematically with income, as well as state capacity
- hint of substitutability between them

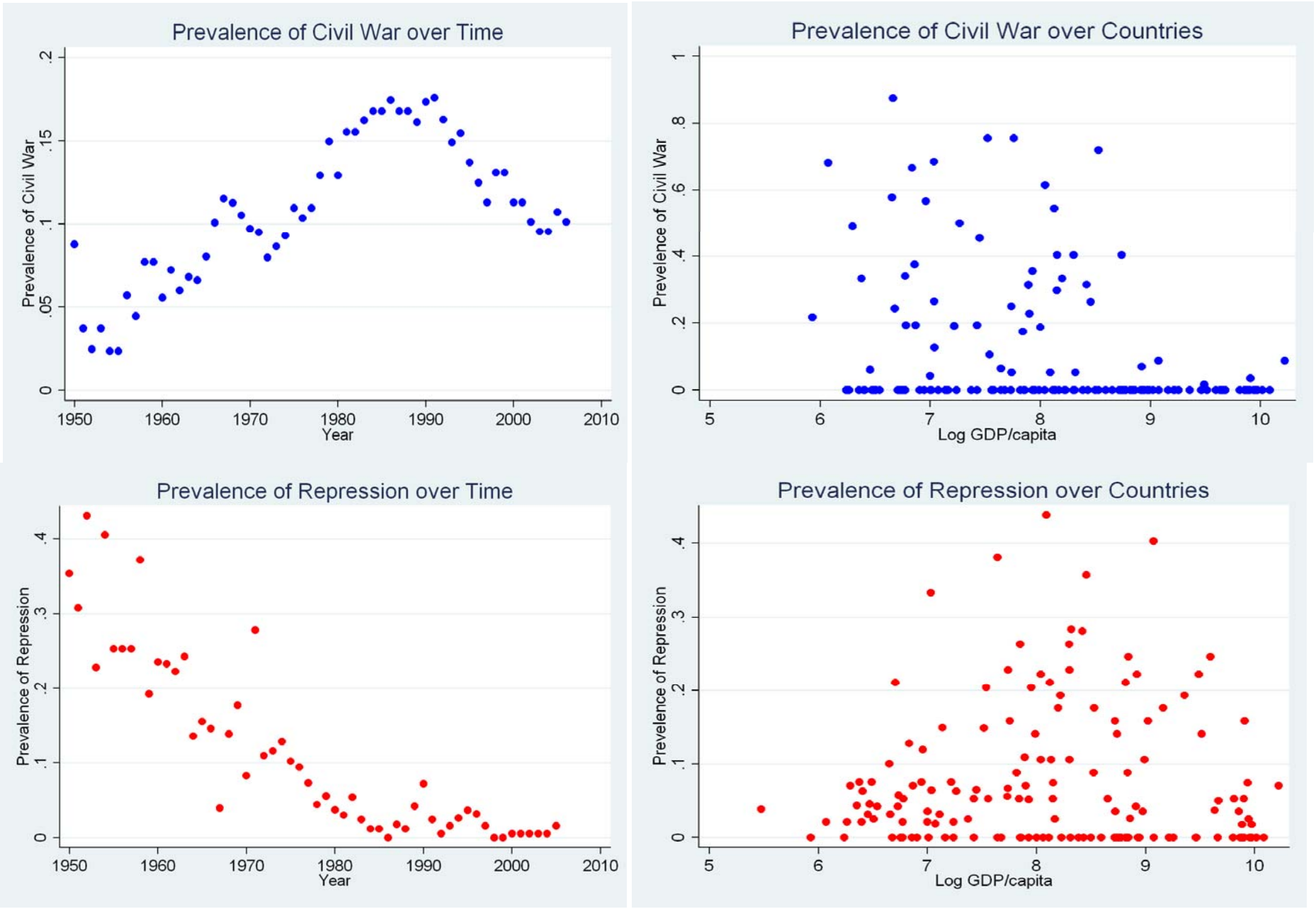


Figure 5 Prevalence of civil war and repression

Existing research

Theory of civil conflict

- little role for institutions, including state capacities

Empirical work on civil war and repression

- weak connections to theory, so difficult to interpret results
- takes income as given, though violence and income likely have similar determinants – e.g., parallel 'resource curse' literatures
- separate literatures on civil war and repression, though both reflect that institutions fail to resolve conflicts of interest

Analytical approach to address these issues

- build framework to analyze political violence, then embed in earlier framework for state capacity

Theoretical approach to political violence

Investments in violence by incumbent and opposition groups

- opposition can mount insurgency to take over, financed inside group
- incumbent can invest to stay in power, financed by public purse
- soldiers hired at market wage

Both groups face a trade-off when investing in violence

- costs vs. higher probability to control policy and redistribute in group's favor

Analyze likelihood of violence

- when do we observe violence, and of what type?
- which economic, political and institutional variables determine one-sided and two-sided violence?
- this way we endogenize political instability

Three alternative, ordered regimes

Crucial latent variable

given "conflict technology", both groups' propensity to invest is increasing in (common) variable $\frac{E[\text{Benefit}]}{\text{Cost}}$

Three possible outcomes

1. Peace – no group invests in violence
   $\frac{E[\text{Benefit}]}{\text{Cost}}$ is too low to warrant investment in violence
2. Repression – incumbent, but not opposition, takes to violence
   $\frac{E[\text{Benefit}]}{\text{Cost}}$ is higher, but incumbent's violence threshold lower than opposition's (because of cost or other advantage)
3. Civil war – both groups take to violence
   $\frac{E[\text{Benefit}]}{\text{Cost}}$ is high enough that both parties choose to fight

Determinants of political violence?

Which roots of repression and civil war?

as both outcomes related to $\frac{E[\text{Benefit}]}{\text{Cost}}$

determinants should be *common* – confirmed in empirical work

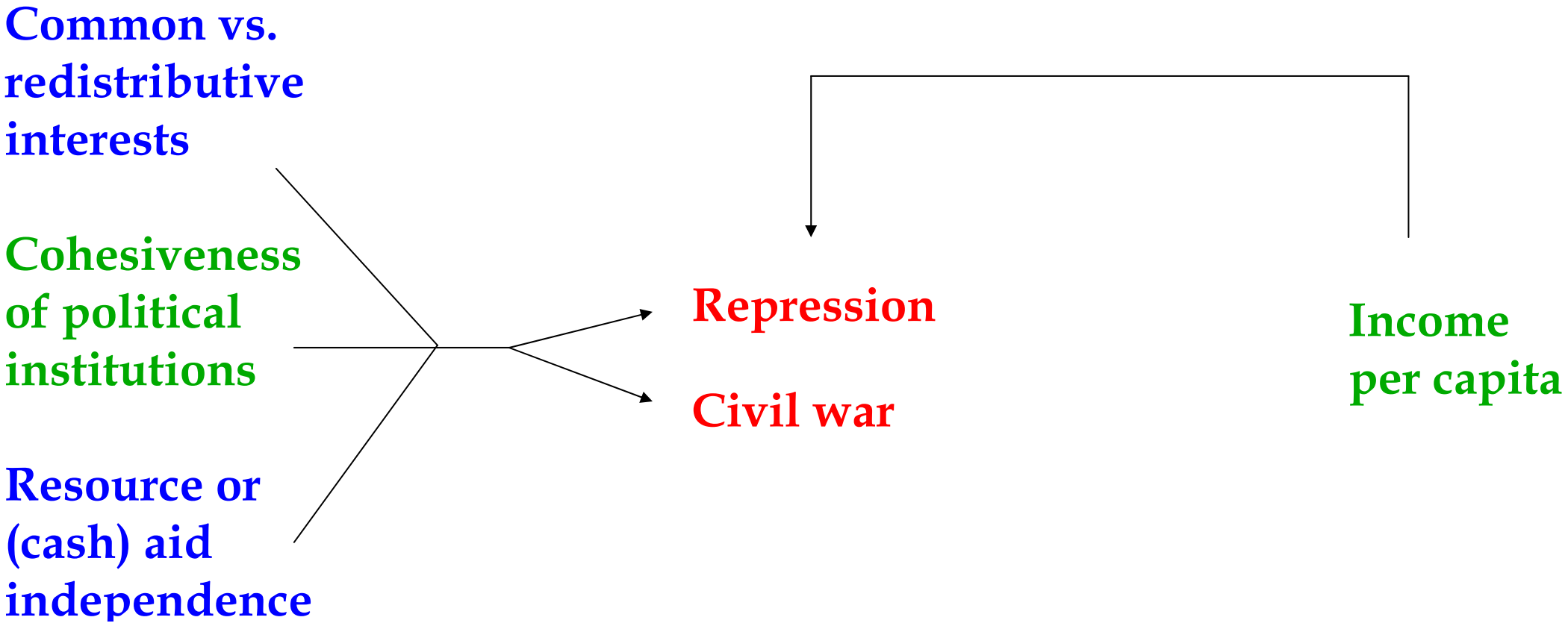
How related to determinants of legal and fiscal capacity?

$$\frac{E[\text{Benefit}]}{\text{Cost}} = \frac{E[\text{Winner's share of revenue less cost of public goods}]}{\text{Real wage}}$$

therefore, factors that diminish motives to invest in state

raise motives to invest in violence – see analogous graph

Determinants of political violence



Revisit investments in state capacity – Figure 6

Should see negative correlation state capacities – political violence

(i) these outcomes have similar roots with effects in opposite directions

(ii) magnification effect: higher risk of internal conflict raises political instability for incumbent, further diminish motives to build strong institutions, in redistributive or weak states

(iii) feedback effect: investments in state capacity also alter the likelihood of conflict – can go in different directions

patterns in data consistent with these ideas

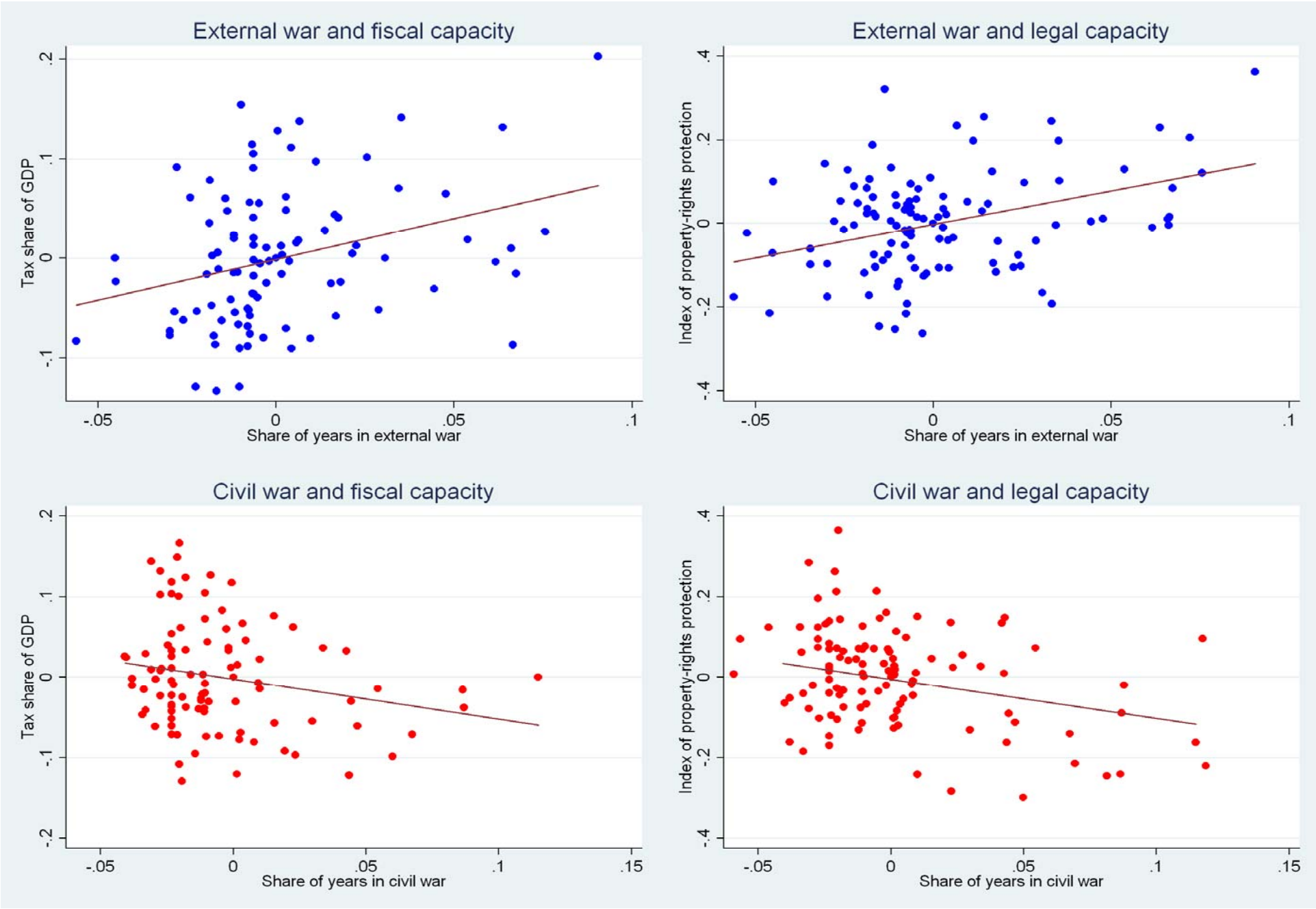


Figure 6 Different types of war and state capacity

Road map

1. State capacity
2. Political violence
3. **Sum up and plan of campaign**

3. Sum up and plan of campaign

Hint at answers to three basic questions?

(i) What forces drive building of different state capacities, and why do these capacities move together?

have suggested some "proximate" and "ultimate" determinants of investments in the state, which become complements

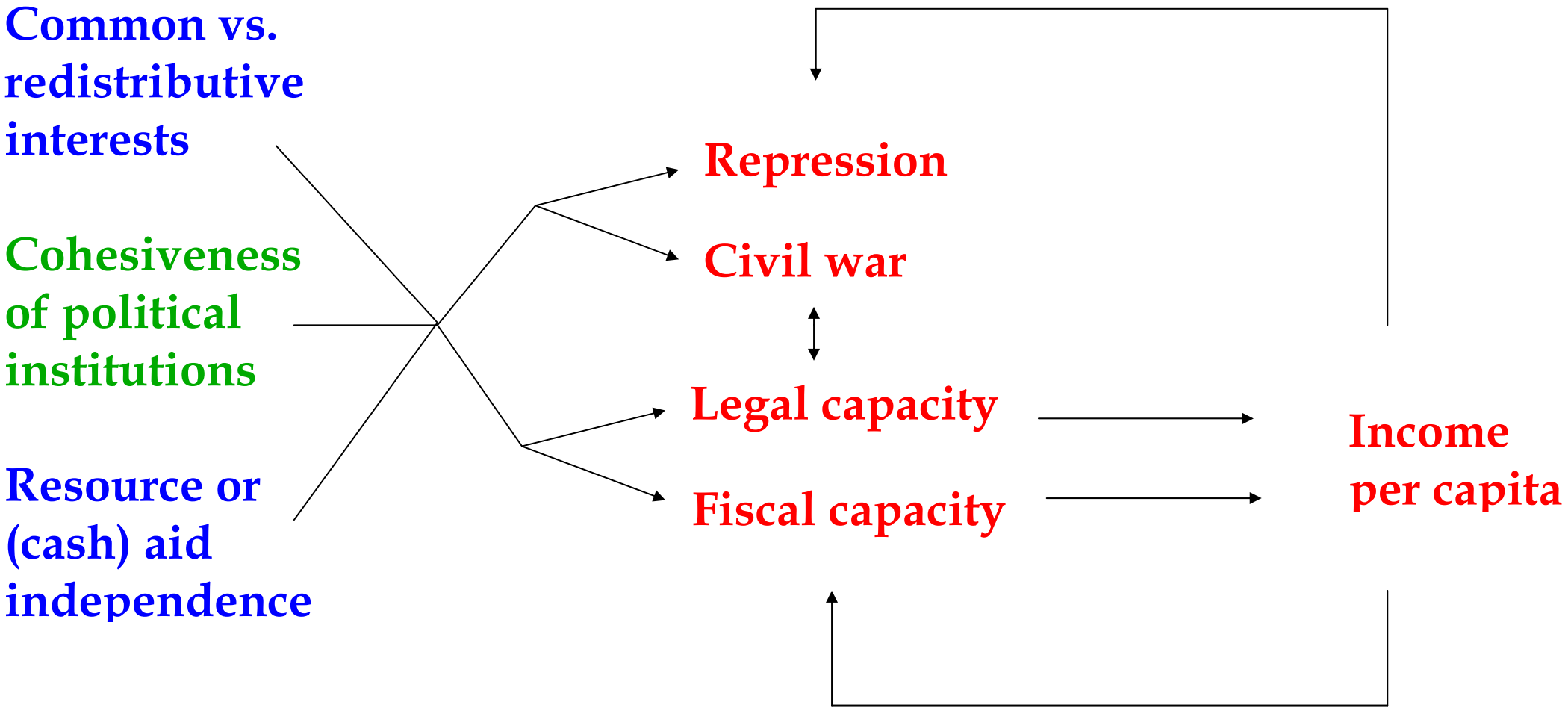
(ii) What forces drive different forms of political violence?

same variables that determine state capacity, including income

(iii) What explains clustering of institutions, income, and violence?

common determinants, plus two-way feedbacks between income and state capacity, and between income and political violence

Putting the pieces together



Application – Why weak states in sub-Saharan Africa?

Several factors contribute directly to weak states

- dependence on resource rents and aid, low threat of external conflict, and non-cohesive political institutions

Same factors raise risk of internal conflict

- societies become plagued by political violence; instability further weakens motives to build state capacities
- invest in violence rather than in strong state

Weak states hamper development

- cannot support markets due to low legal (productive) capacity
- pursue inefficient policies due to low fiscal (extractive) capacity

Feedbacks from low income

- foster conflict and weak incentives to build the state

Plan for remaining lectures

Make ideas in this overview more precise

- theory: modeling of investments in state capacity and violence
- empirics: closer attention to a wider set of data

Follow sequential approach

- start very simply, gradually add in more complexity

Consider additional issues

- introduce endogenous political reform
- consider various forms of development assistance

Lecture 1

Political stability

Common vs. redistributive interests

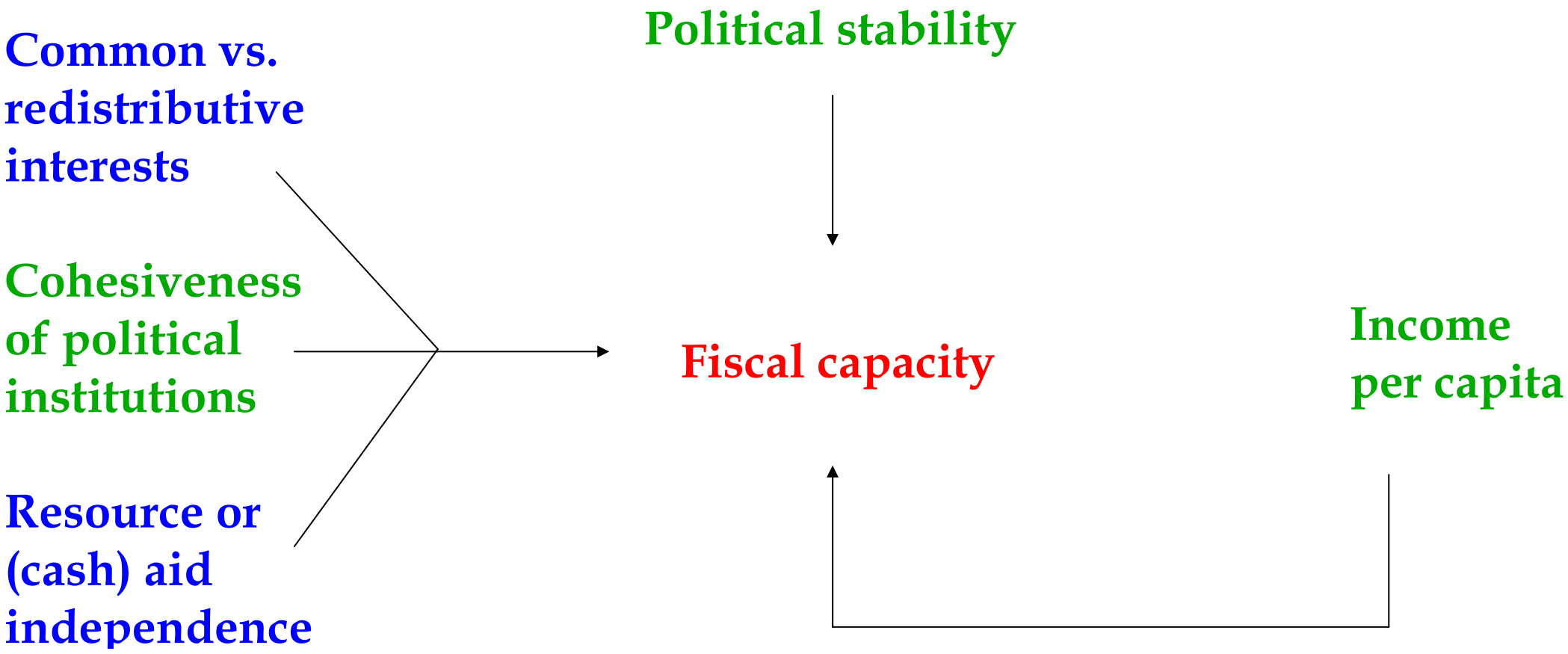
Cohesiveness of political institutions

Fiscal capacity

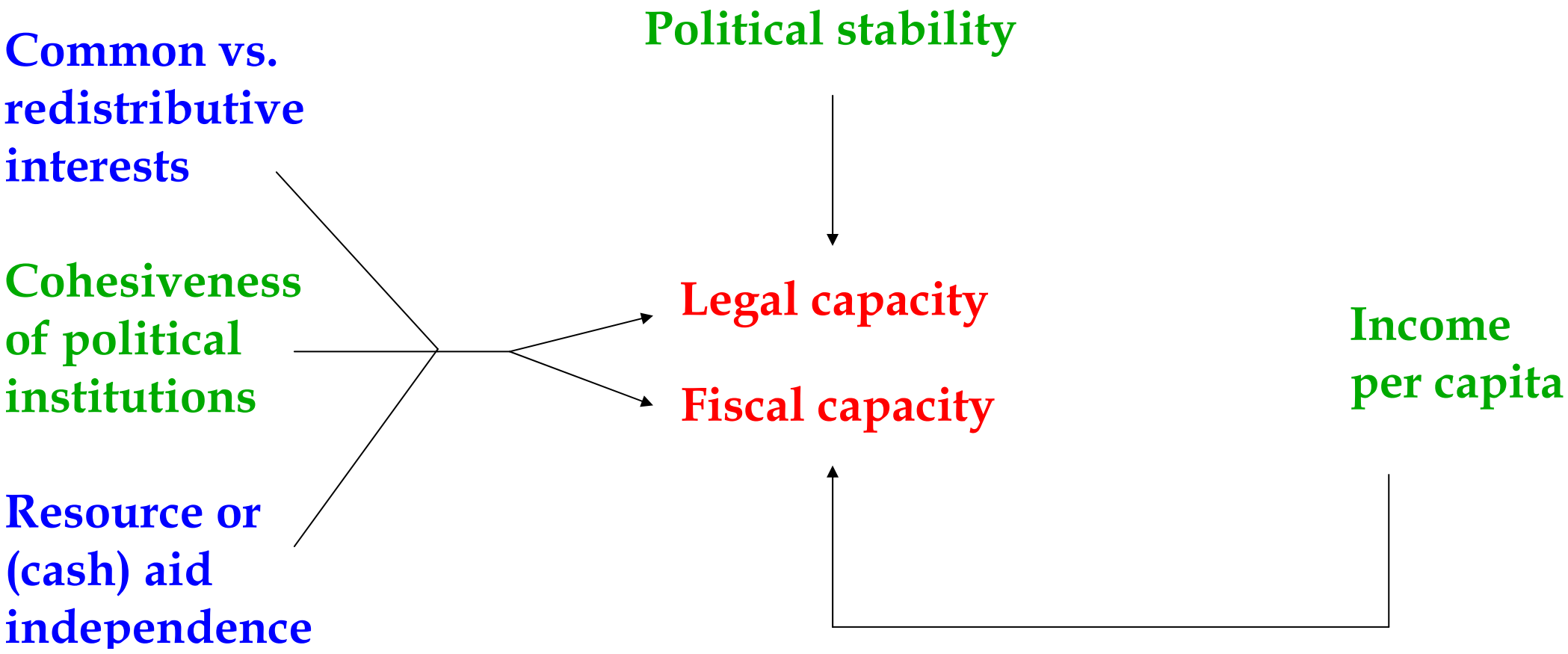
Income per capita

Resource or (cash) aid independence

Lecture 2


Political stability
Common vs. redistributive interests
Cohesiveness of political institutions
Resource or (cash) aid independence
Fiscal capacity
Income per capita

Lecture 2


Political stability
Common vs. redistributive interests
Cohesiveness of political institutions
Resource or (cash) aid independence
Legal capacity
Fiscal capacity
Income per capita

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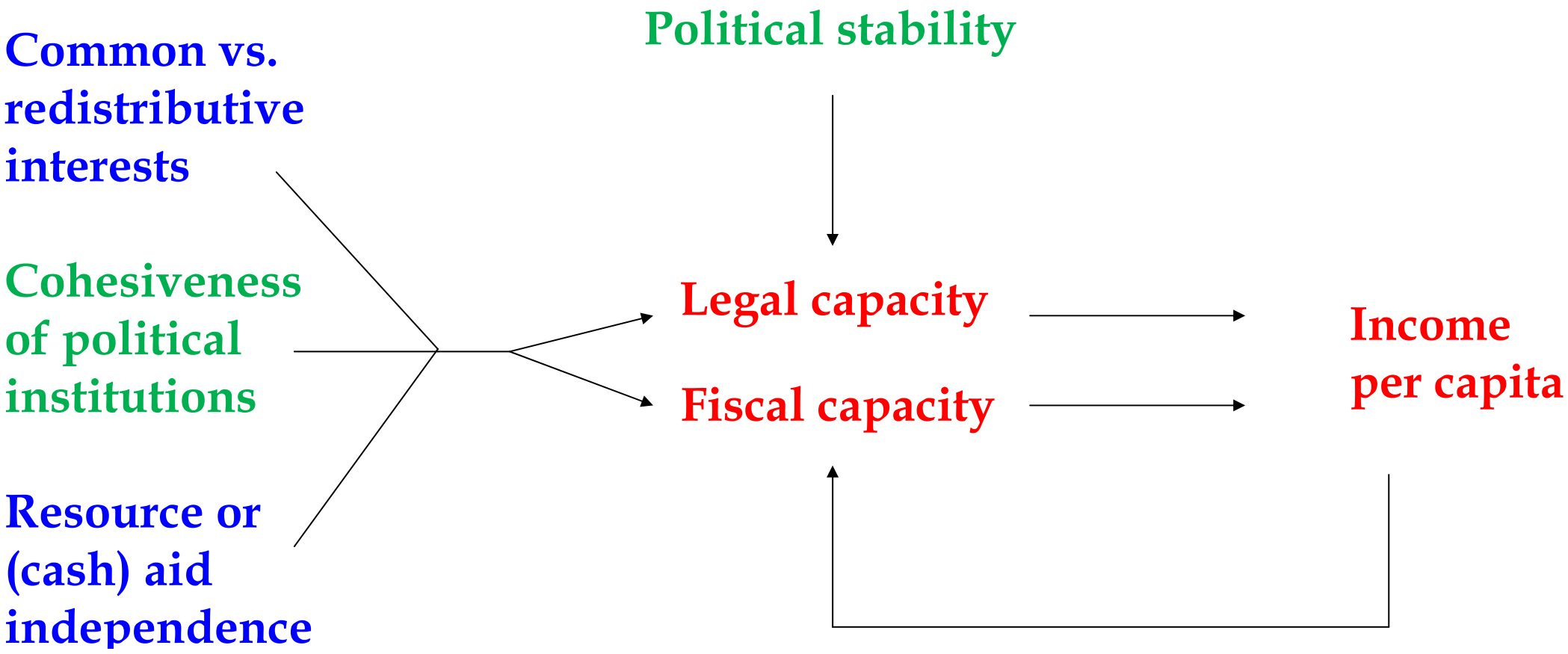
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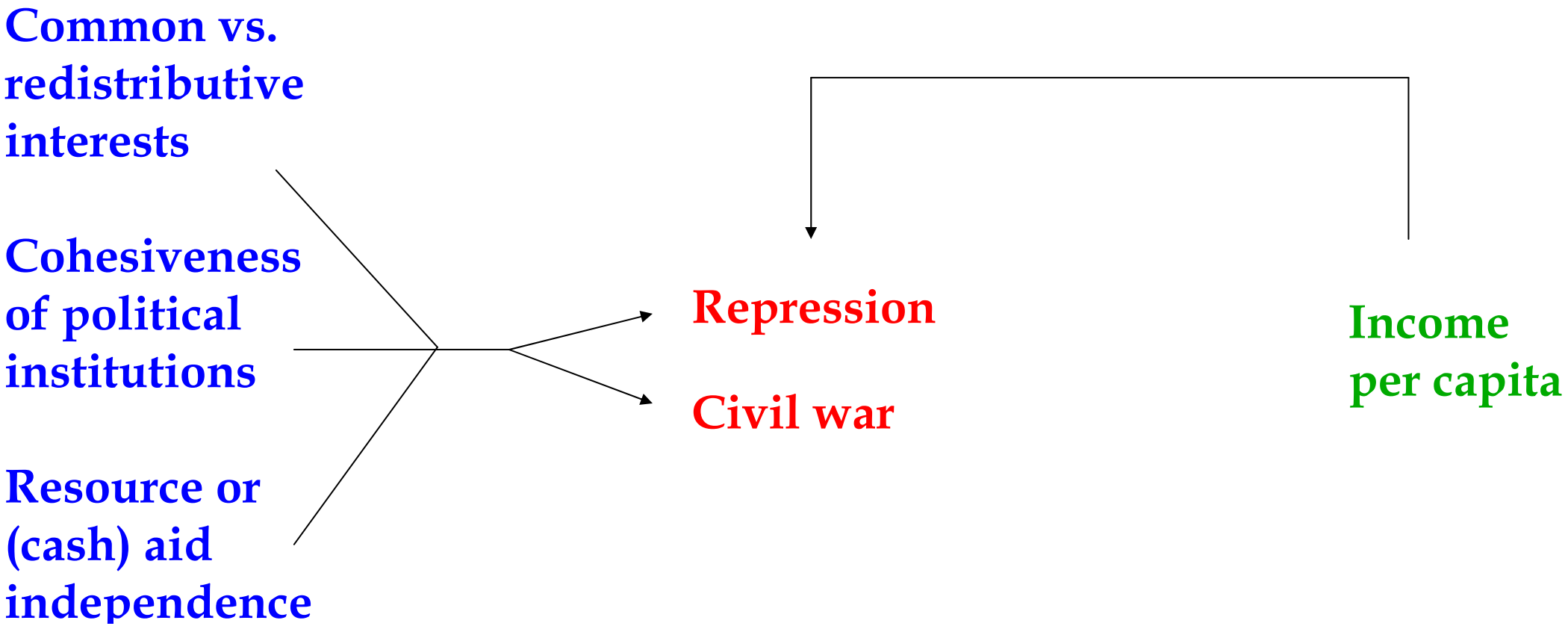
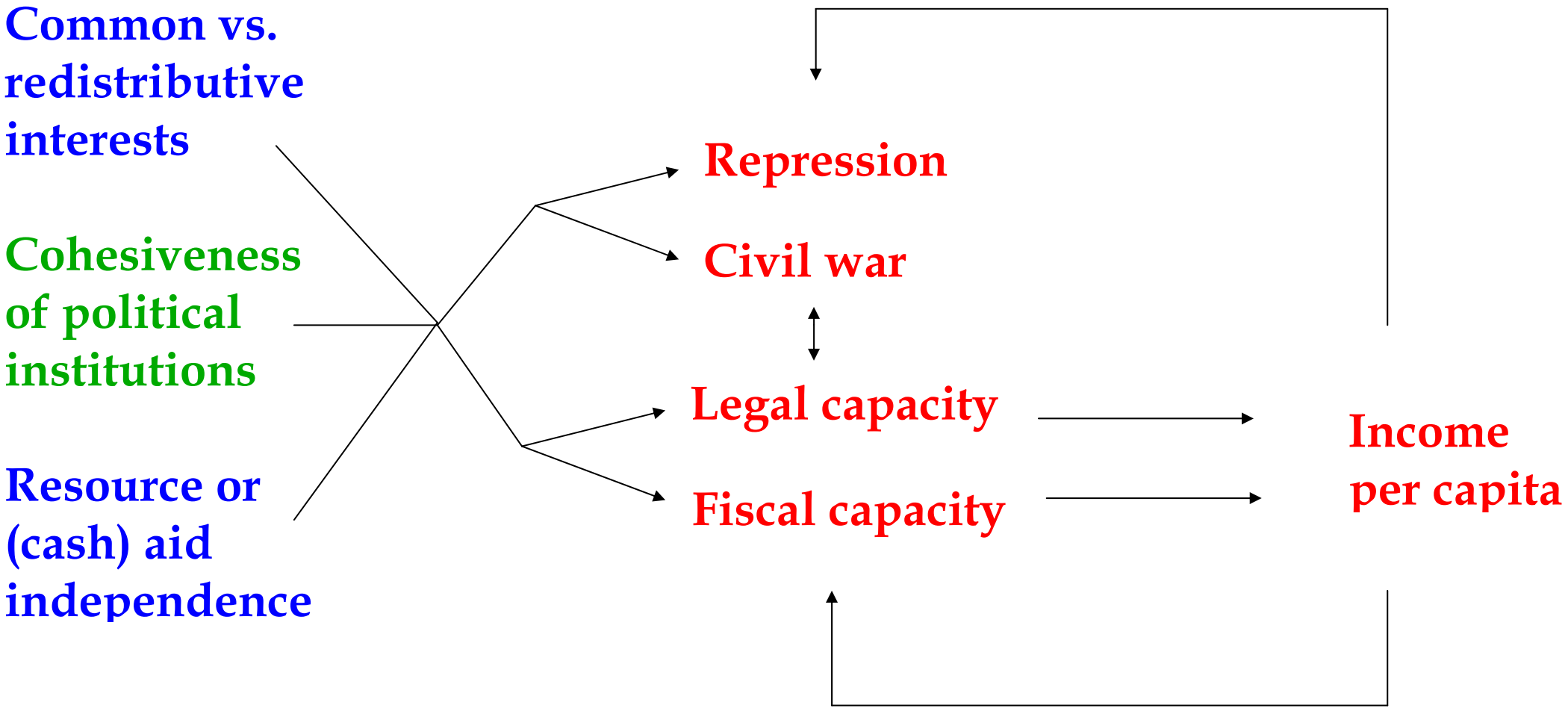
Lecture 3


Common vs. redistributive interests
Cohesiveness of political institutions
Resource or (cash) aid independence
Repression
Civil war
Income per capita

Lecture 4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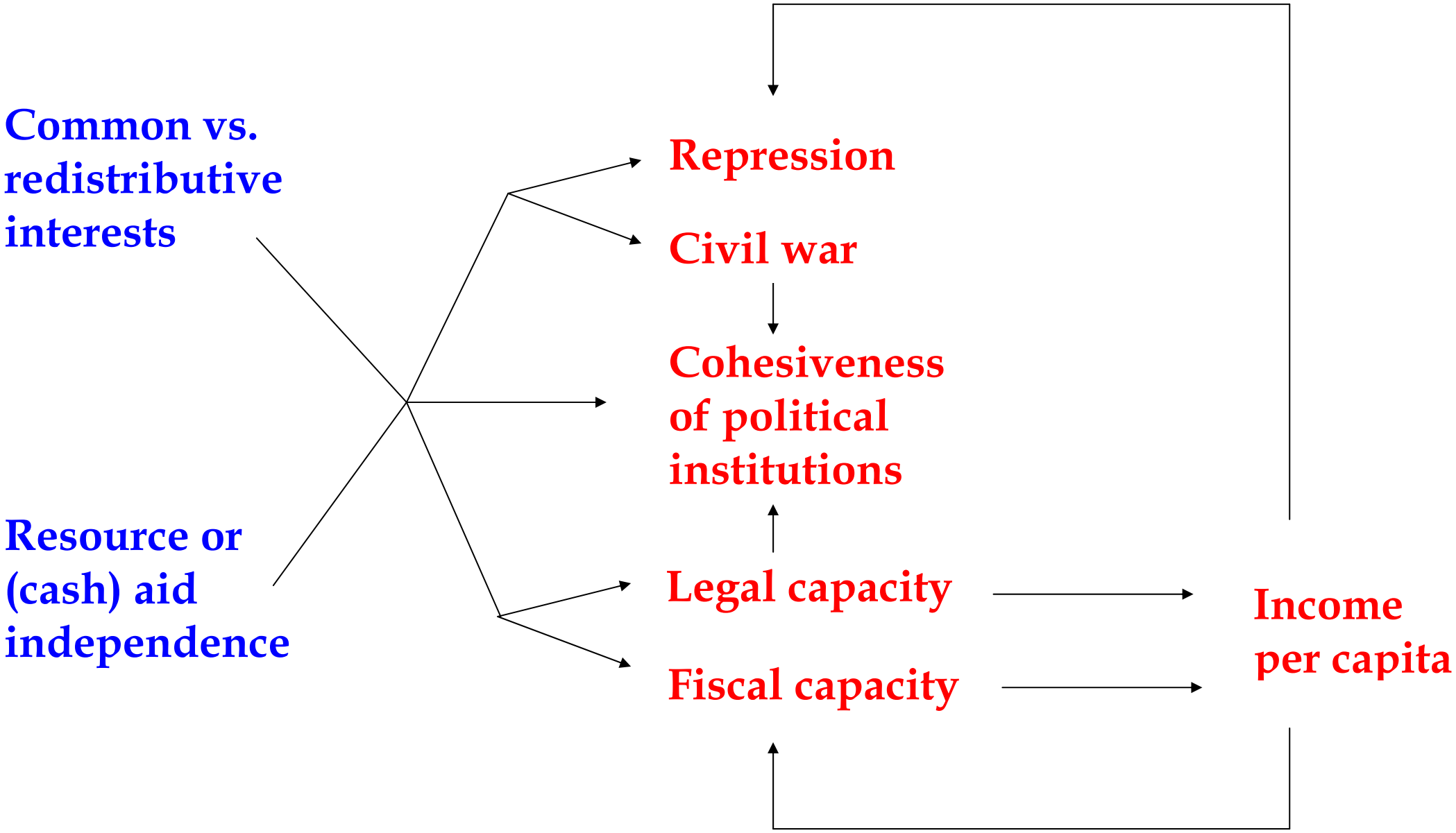
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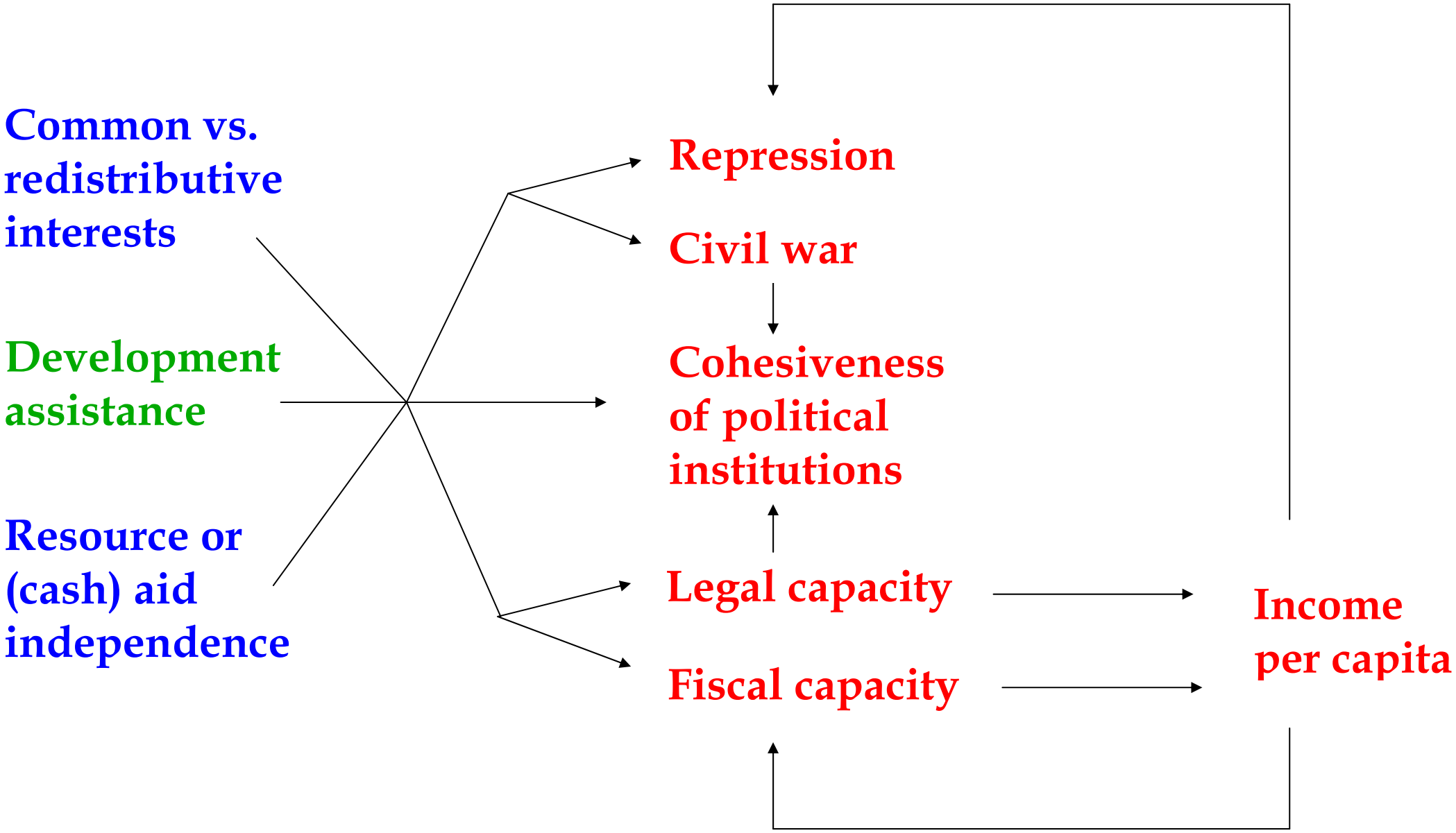

Common vs. redistributive interests
Development assistance
Resource or (cash) aid independence
Repression
Civil war
Cohesiveness of political institutions
Legal capacity
Fiscal capacity
Income per capita

B. Fiscal capacity investments

Study a basic policy/investment problem

- introduce a simple framework to identify a set of economic and political determinants of one aspect of state capacity
- discuss how basic framework can be extended
- motivated by the model's implications – look at some correlations in the data

Road map for part B

1. **Some further motivation**
2. A simple two-period model
3. Equilibrium policy and investment in fiscal capacity
4. Some extensions
5. Implications and data

1. Some further motivation

Expansion of taxation in rich countries – Figure 7

Last century – vast expansion of government size

- 1910: total taxes around 10% of GDP in Europe and US, while today's figures are 30-50%
- number of innovations and expansions of infrastructure underpin the capacity to raise so much revenue

Investments in fiscal capacity over time in 37 rich countries

- dating of reforms: introduction of income tax 1840s-1970s (income-tax withholding later), VAT still not complete

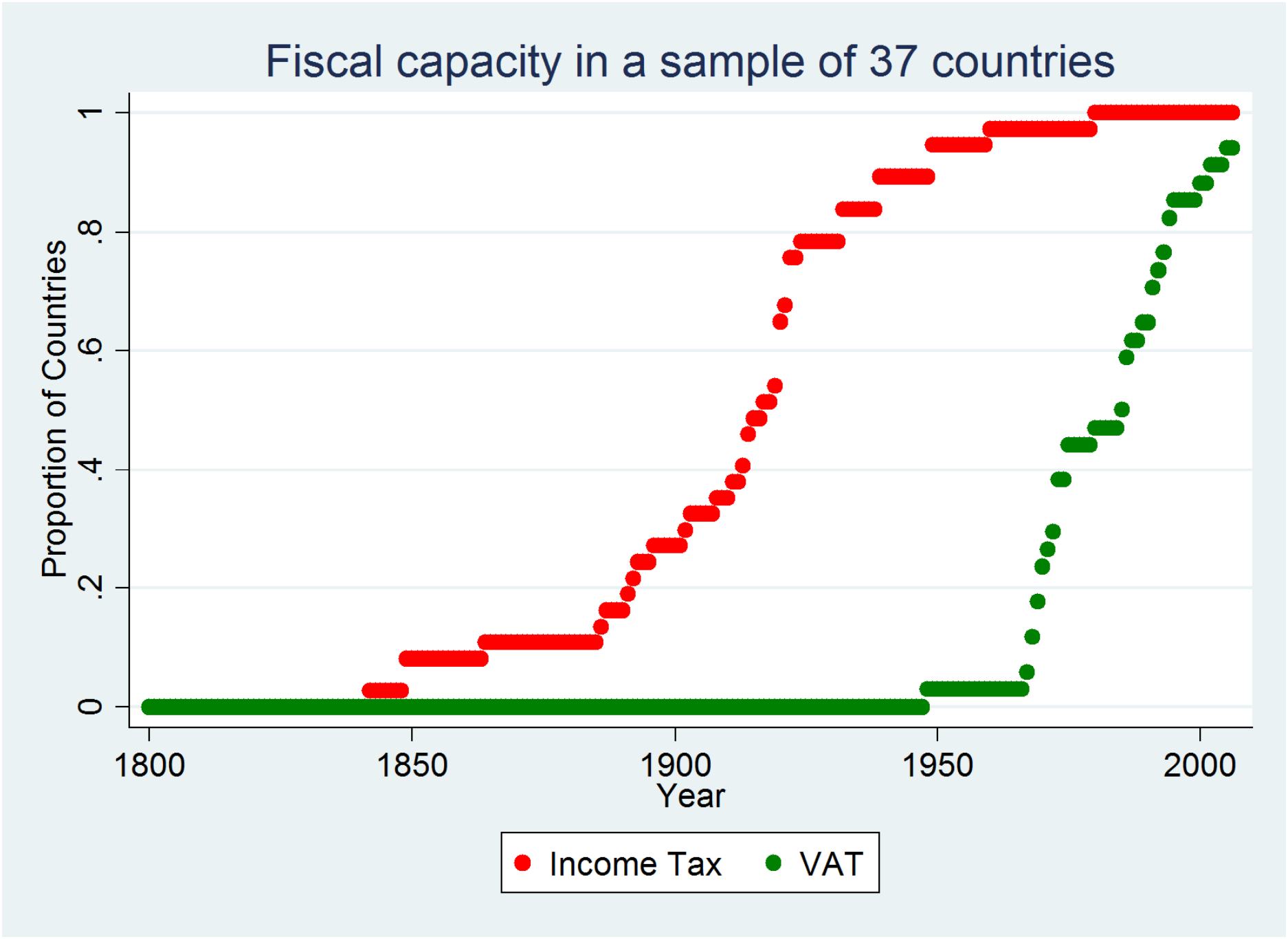


Figure 7 Fiscal capacity in a sample of rich countries

But weak states in poor countries – Figures 8 and 9

Tax take today

- poor countries raise much less revenue than rich countries
- rely on primitive tax bases, such as trade, to much greater extent

Illustration of these stylized facts

- shares of total revenue raised from income and trade taxes
  (other sources of income: sales, property, royalties,... omitted)
- tilted towards income in *rich* countries and *high-tax* countries

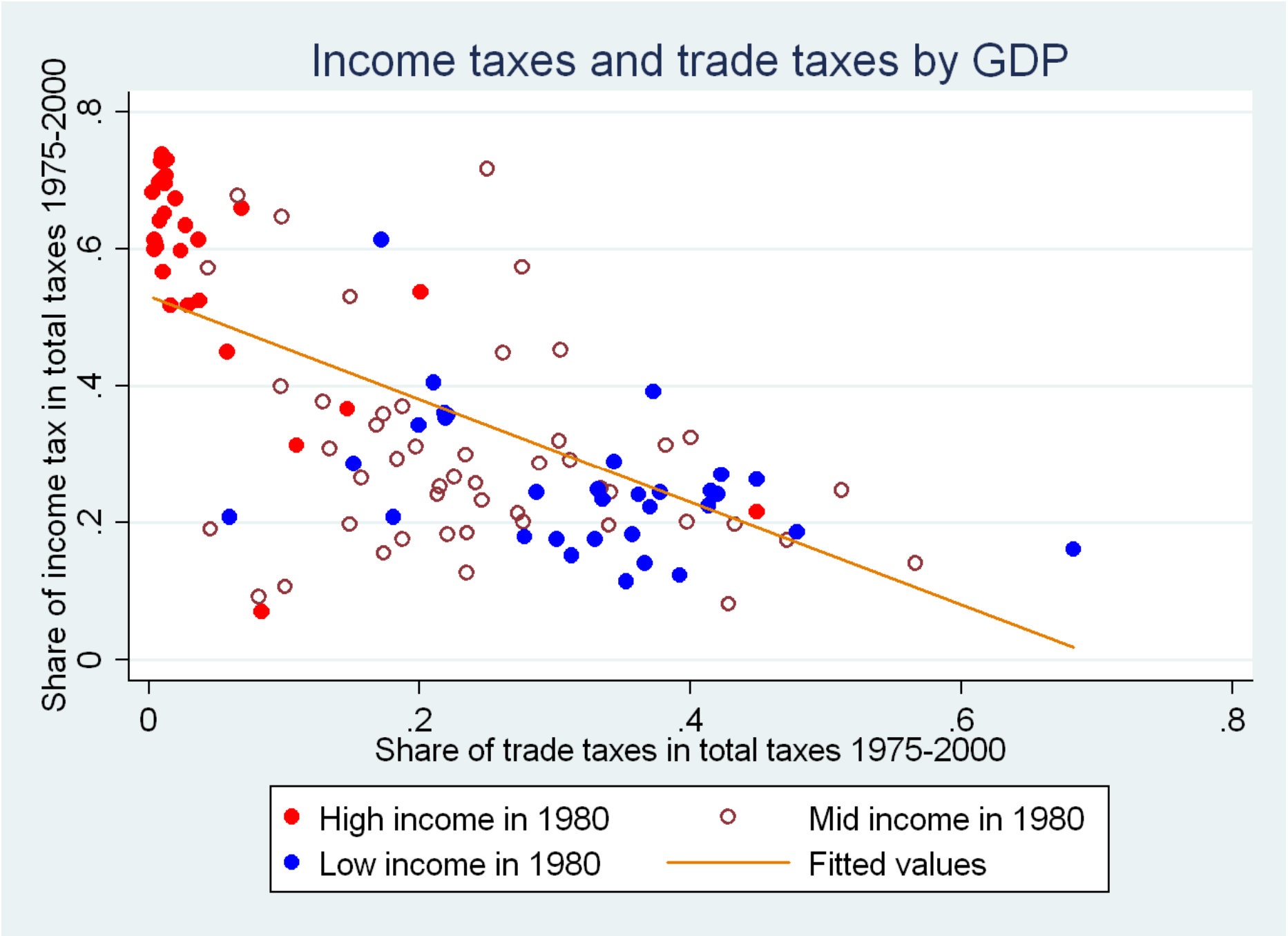
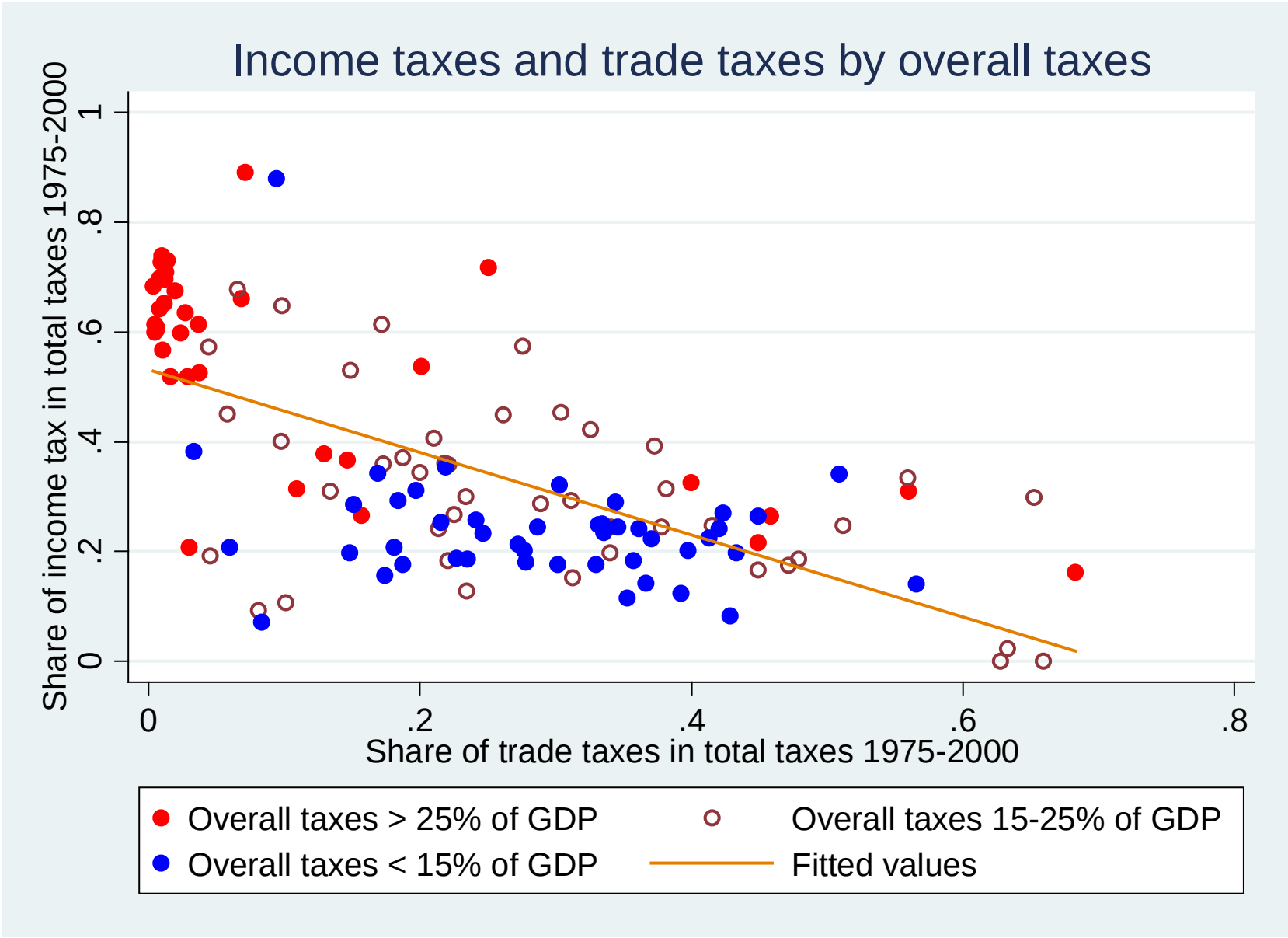


Figure 8 Tax mix and income


Income taxes and trade taxes by overall taxes
Share of income tax in total taxes 1975-2000
0
.2
.4
.6
.8
1
0
.2
.4
.6
.8
Share of trade taxes in total taxes 1975-2000
Overall taxes > 25% of GDP
Overall taxes 15-25% of GDP
Overall taxes < 15% of GDP
Fitted values

Road map

1. Some further motivation
2. **A simple two-period model**
3. Equilibrium policy and investment in fiscal capacity
4. Some extensions
5. Implications and data

2. A simple two-period model

Basic structure

Two time periods, $s = 1, 2$

Two groups of individuals, A, B

- each has share $\frac{1}{2}$ of population
- total population size normalized to 1
- every individual has income ω, no savings

Incumbents and opponents

- at beginning of $s = 1$, one group holds power
  - we call this group the incumbent $I_1 \in \{A, B\}$
- the other group is the opponent $O_1 \in \{A, B\}$
- with exogenous probability γ peaceful transition of power
  - until $s = 2$,
- thus γ measures political instability

Private utility functions

Linear utility functions

(quasi-) linear utility buys us risk neutrality

and a model that is *recursive* in policy and investments

$$u_s^J = c_s^J + \alpha_s V(g_s)$$

c_s^J private consumption of group-J member at s

$V(g_s)$ utility from consumption of public goods, α_s their value;
think about as "defense", and "threat of external conflict"

Value of public goods

Value of public goods stochastic

α_s has two-point distribution $\alpha_s \in \{\alpha_L, \alpha_H\}$,
where $\alpha_H > 2 > \alpha_L > 1$, and $\text{Prob}[\alpha_s = \alpha_H] = \phi$

shocks to α iid over time

realization of α_s known when policy set

Convenient special cases, to get specific results

(i) linear case: $V(g_s) = g_s$

(ii) non-stochastic case: $V(\cdot)$ is increasing and concave,
satisfying Inada condition, and $\phi = 1$ with $\alpha_H = \alpha$

Taxation and fiscal capacity

Government has discretion over current taxation

- government taxes income at rate t_s
  - constrained by existing fiscal capacity, i.e., $t_s \leq \tau_s$
- microfoundations: an individual can earn a share
  - $(1 - \tau_s)$ of her income in the informal sector

Investment in fiscal capacity

- tax authority, compliance structures, infrastructure to
  - enforce income tax (or impose a value added tax)
- initial stock is given, but can be augmented
- to achieve fiscal capacity τ_s requires non-negative investment
  - $\tau_s - \tau_{s-1}(1 - \delta)$ at $s - 1$, where $\delta \in [0, 1]$ is depreciation rate
- (convex) cost $F(\tau_s - \tau_{s-1}(1 - \delta))$,
  - where $F_\tau(0) = 0$

Government budget

Budget items at s

$g_s, t_s, \{r_s^J\}_{J=I,O}, m_s$ where

$$m_s = \begin{cases} F(\tau_2 - (1-\delta)\tau_1) & \text{if } s = 1 \\ 0 & \text{if } s = 2 \end{cases}$$

budget constraint is

$$R_s + t_s\omega = g_s + m_s + \frac{r_s^I + r_s^O}{2}$$

where r_s^J is a non-negative targeted transfer to group J,
and R_s an additional revenue source accruing only to government
interpret as natural resource rents, or foreign (cash) aid

Political institutions

Model as constraint on incumbent

incumbents must give fixed share σ to opposition
of any given unit of transfers to its own group

by the budget constraint

$$r_s^J = \beta^J [R_s + t_s\omega - g_s + m_s]$$

where $\beta^I = 2(1-\theta)$ and $\beta^O = 2\theta$ and where O 's share
$\theta = \frac{\sigma}{1+\sigma} \in [0, \frac{1}{2}]$ represents more "cohesive" institutions
the closer is θ to its maximum of $\frac{1}{2}$

interpret as more checks and balances on executive
or better representation of opposition

Timing in period s

1. Start with state capacity τ_s and incumbent group I_{s-1}
2. Nature determines α_s and whether group I_{s-1} remains in power with probability $1-\gamma$
3. New incumbent I_s chooses current policy $\{r_s^I, r_s^O, t_s, g_s\}$ and invests in fiscal capacity (only at $s=1$)
4. Payoffs are realized and agents consume

look for subgame perfect equilibrium in policy and fiscal capacity investments

Road map

1. Some further motivation
2. A simple two-period model
3. **Equilibrium policy and investment in fiscal capacity**
4. Some extensions
5. Implications and data

3. Equilibrium policy and investment in state capacity

Policymaking in period s

Policy objective

whoever holds power, chooses $\left\{g_s, t_s, r_s^I, r_s^O\right\}$ to maximize

$$\alpha_s V\left(g_s\right) + \left(1 - t_s\right)\omega + r_s^I$$

subject to

$$t_s \leq \tau_s, \;\; r_s^O \geq \sigma r_s^I$$

and the government budget constraint

Optimal policy ?

can be described by three observations

Observation 1 – transfers

Equilibrium transfers to incumbent group

follow from

$$r_s^I = 2\,(1-\theta)\,[t_s\omega - g_s - m_s]$$

Interpretation

higher value of the opposition's share, θ, reflects more cohesive political institutions

real-world counterparts may be more minority protection by constitutional checks and balances, or more representation through PR elections or parliamentary form of government

if $\theta = 1/2$, transfers shared equally across the two groups.

Observation 2 – taxes

Equilibrium tax rate

$$t_s = \tau_s$$

Interpretation

always worthwhile to fully utilize all fiscal capacity
gain from higher tax rate is $2(1-\theta)\omega$ and loss is ω

Observation 3 – public goods

Equilibrium public-good provision

define $\alpha V_g\left(\hat{g}\left(\alpha, x\right)\right) = x$, where $\hat{g}$ is increasing in α and decreasing in x

the level of public goods provided is

$$G\left(\alpha, \tau_s\right) = \begin{cases} \tau_s\omega - m_s & \text{if } \alpha V_g\left(\tau_s\omega - m_s\right) \geq 2\left(1-\theta\right) \\ 0 & \text{if } \alpha V_g\left(0\right) < 2\left(1-\theta\right) \\ \hat{g}\left(\alpha, 2\left(1-\theta\right)\right) & \text{otherwise} \end{cases}$$

in linear model $V_g = 1$ – we have a "bang-bang", corner solution and outcome given by either first or second row

Where next?

Equilibrium fiscal capacity

- show how first-period incumbent choose investments
  - so as to augment second-period fiscal capacity
  - and how these choices depend on parameters of model

Introduce legal capacity

- will highlight productive role of the state
- will be able to illustrate basic complementarity between different forms of state capacity
- will allow us to endogenize income