

How to Build a Political Economy Model

From Empirical Facts to Economic Mechanisms

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IGC-BREAD lecture

What I want to do in this hour

I'm not going to provide a survey of political economy models.

I want instead to give you a feel for:

- what models are for;
- how applied modelling begins;
- how a canonical model becomes a workhorse;
- how a model adds value to data;
- and where judgment enters.

The aim is to start seeing economic data and problems in model form.

Think back to undergraduate economics

We first start with markets, and the actual observables we have there are quantities and prices.

Yet, the first thing we do is make up all these fictions which, when you think about them, are extraordinarily abstract.

Supply and demand.

Consumer choice.

The firm.

Monopoly.

Externalities.

Almost nobody researches those objects in their literal textbook form.

Yet they structure how we as economists think for the rest of their careers.

What do simple models actually teach us?

They teach us to ask structured questions.

In a market:

- What shifted demand?
- What shifted supply?
- Which margin moved?
- What is the equilibrium response?
- What happens under a policy intervention?

The model becomes a language for organizing causal reasoning.

Political economy needs the same kind of language

A small number of strategic problems recur again and again:

- politicians competing for voters;
- voters disciplining politicians;
- citizens deciding whether to enter politics;
- politicians bargaining over power;
- groups expending resources to win;
- promises that cannot be made credible;
- citizens trying to coordinate punishment;
- informed actors communicating strategically.

These are the political-economy equivalents of supply and demand.

The canonical starting model

<i>Strategic problem</i>	<i>Canonical starting point</i>
Politicians competing for voters	Downs (1957); Lindbeck–Weibull (1987)
Voters disciplining politicians	Ferejohn (1986); Fearon (1999)
Citizens deciding whether to enter	Osborne–Slivinski (1996); Besley–Coate (1997)
Politicians bargaining over power	Baron–Ferejohn (1989)
Groups expending resources to win	Tullock (1980)
Promises that cannot be made credible	Acemoglu–Robinson (2001)
Citizens coordinating punishment	Weingast (1997)
Informed actors communicating strategically	Crawford–Sobel (1982)

These models have reusable pieces of strategic reasoning.

The point of reading canonical models

These are not famous papers you should remember.

They are useful to be familiar with because they are:

“Recurring strategic architectures. When you learn to recognize them, you can think of model structures to apply.”

Once you recognize the architecture, you have somewhere to start.

Applied modelling usually starts with data

Suppose you have built a dataset from:

- an RCT;
- administrative data;
- archives;
- surveys;
- census data;
- web scraping;
- or ordinary observational data.

You do the empirical work carefully.

You find something interesting.

A stylized empirical result

Suppose the data tell you:

$$X \uparrow \implies Y \uparrow .$$

Perhaps you have even established that the effect is causal.

The modelling question is different. It is:

Why?

The applied-modelling sequence

Data → Empirical fact → Mechanism → Model

→ New prediction → New evidence.

The model sits inside the empirical research process.

Step 1 is modest

A model should first explain the empirical facts that motivated it.

If the data say:

$$A \uparrow \Rightarrow B \uparrow, \quad C = 1 \Rightarrow B \downarrow,$$

then your mechanism should be capable of generating both.

If it cannot explain the facts, it has failed at Step 1.

But rationalization is cheap

With enough assumptions, almost any empirical result can be rationalized.

So reproducing the original correlation is not enough.

The important question is:

What discipline does the model impose?

A useful model should tell you when the result holds

Perhaps:

$$X \uparrow \Rightarrow Y \uparrow$$

only if

$$\alpha > \bar{\alpha}.$$

Then the model gives you a new empirical question:

Where in the data should this condition hold?

A useful model should generate heterogeneity

Suppose:

$$\frac{\partial Y}{\partial X} > 0$$

but also

$$\frac{\partial^2 Y}{\partial X \partial Z} > 0.$$

Then the model says:

The effect should be stronger where Z is high.

Perhaps nobody looked at that before the model existed.

A useful model should generate auxiliary predictions

The motivating fact is:

$$X \uparrow \Rightarrow Y \uparrow .$$

But the mechanism also implies:

$$X \uparrow \Rightarrow W \downarrow .$$

If W was not used to construct the model:

that prediction is especially informative.

Sometimes the model tells you what data to collect

The model may point toward:

- another administrative variable;
- a new survey question;
- beliefs;
- information;
- another experimental treatment;
- another characteristic of the institutional environment.

data $\rightarrow$ model $\rightarrow$ new data.

Several mechanisms may fit the same fact

Suppose:

$$M_A, \quad M_B, \quad M_C$$

all imply:

$$X \uparrow \Rightarrow Y \uparrow .$$

That is normal.

The real modelling question becomes:

Where do their predictions diverge?

The model becomes an empirical-design machine

Ask:

- Which comparative static differs?
- Which subgroup differs?
- Which treatment distinguishes the mechanisms?
- Which observable moves in opposite directions?
- What new variable should we collect?

Theory can tell the empiricist what to do next.

One model as illustration: the Politics of Fear

Why do citizens continue to support a leader who is extracting from them or governing badly?

A tempting explanation is a taste for one's own group:

$$U_i = \dots + \beta \mathbf{1}\{\text{own-group leader}\}.$$

But Padró i Miquel asks whether the loyalty can instead *emerge*.

The core mechanism of that paper

Suppose keeping the incumbent raises the probability that my group retains power:

$$\bar{\gamma}^A > \underline{\gamma}^A.$$

And suppose I value my group holding power:

$$V^A(A) > V^A(B).$$

Then supporters may accept a current loss as large as

$$\underbrace{\delta(\bar{\gamma}^A - \underline{\gamma}^A)[V^A(A) - V^A(B)]}_{\text{political slack enjoyed by the incumbent}}.$$

The more I fear the other group taking power, the more badly my own leader can treat me without losing my support.

Nice model: makes potentially complicated dynamic problem simple

The incumbent's power comes from a consequence that occurs *after* today's support decision:

support today $\rightarrow$ Pr(group controls office tomorrow).

So write continuation values recursively:

$$V^j(S) = \text{current payoff} + \delta \mathbb{E}[V^j(S') \mid S, \text{actions}].$$

A small Markov state—who currently controls power—summarizes the relevant history.

The Bellman equation turns a long political relationship into a tractable current outside-option comparison.

Now a new empirical fact

Consider political reservations for village presidents in Maharashtra.

The empirical pattern is unusual:

- caste reservation can improve broad measures of village governance;
- the effect is concentrated among OBC groups that are politically substantial, but not dominant;
- observed characteristics of the Pradhan do little to account for the pattern.

Normally we might have expected:

restrict who can stand $\rightarrow$ less competition $\rightarrow$ worse governance.

The strategic margin changed by reservations is related to the mechanism of leader exploitation in the PoF model

Cannibalize the Padró model

The original model contains machinery for:

activity-specific taxation, economic specialization, patronage.

None of that is essential for the village-reservation question.

Keep:

value of group control + leader-specific advantage in retaining it.

Add what the institution makes central:

entry and competition for leadership *within* the group.

Canonical models are spare parts to cannibalize, not templates.

Why the extension is necessary

In the original Politics of Fear model, replacing the incumbent from within the ruling group is largely off the equilibrium path.

But a reservation works precisely by changing that replacement possibility.

reservation for group $A \Rightarrow$ an A challenger can replace an A incumbent

without handing the office to group B .

So the extension must model challenger entry and the governance offer that a challenger makes.

Modelling the context requires taking an off-path object in the parent model and making it the centre of the new model.

The stripped-down extension

Two politically coherent jatis, A and B .

A leader obtains per-period office rents π .

Citizens value:

$$\eta > 0$$

when their own jati holds the presidency.

The leader chooses governance effort:

$$G \geq 0,$$

which benefits citizens broadly and is costly to the leader.

Potential challengers can enter and promise a governance level of their own.

This is much simpler than the original tax-and-patronage model.

The institution changes the transition technology

Without a reservation, if an A incumbent is supported:

$$\Pr(A \text{ holds office next period}) = \gamma^A.$$

If supporters replace him with an A challenger:

$$\Pr(A \text{ holds office next period}) = \gamma^a, \quad \gamma^a \leq \gamma^A.$$

So removing the incumbent risks losing group control.

Under a binding reservation for A :

$$T(1, A, 1) = T(0, A, 1) = 1.$$

Reservation changes the law of motion of political power.

Now entry does the disciplining

A challenger must offer enough governance to make citizens willing to replace the incumbent.
But the challenger must also prefer entering office to remaining an ordinary citizen.

With free entry, these two conditions pin down the challenger's offer.
The incumbent then chooses just enough governance to defeat the best credible challenge.

Without reservation:

challenger governance advantage must compensate citizens for the risk of losing group power.

The incumbent's electoral advantage becomes an equilibrium rent that he can consume as lower governance.

The equilibrium result

The model delivers, for an unreserved village with an incumbent from A ,

$$G^{A*} = \frac{\pi}{2} - (\gamma^A - \gamma^a)\eta\Phi, \quad \Phi > 0.$$

Under reservation:

$$G^{R*} - G^{A*} = (\gamma^A - \gamma^a)\eta\Theta\Phi, \quad \Theta, \Phi > 0.$$

So the treatment effect is larger when:

the incumbent matters more for retaining group power

and when

group control is more valuable.

The dynamic intuition

In an unreserved village, an incumbent already possesses the political advantage:

$$\gamma^A - \gamma^a > 0.$$

He can consume some of that advantage today as low governance.

Under reservation, a challenger can replace him without jeopardizing group control.
The challenger provide good governance today because winning creates future incumbency rents.

The challenger “pays” today for the valuable incumbency position he expects to hold tomorrow.

Now the model gives a non-obvious prediction

The effect of reservation is governed by:

$$\gamma^A - \gamma^a.$$

For a very weak group:

$$\gamma^A \approx \gamma^a \approx 0 \quad \Rightarrow \quad \text{little effect.}$$

For a very strong group:

$$\gamma^A \approx \gamma^a \approx 1 \quad \Rightarrow \quad \text{little effect.}$$

For a group strong enough to compete but not strong enough to be secure:

$$\gamma^A - \gamma^a > 0 \quad \Rightarrow \quad \text{large effect.}$$

Reservation should matter most for politically intermediate groups.

The theory tells us how to cut the data

The key theoretical object, $\gamma^A - \gamma^a$, is not directly observed.
But group size predicts whether a jati can plausibly win the presidency.

In unreserved villages in the sample:

- jatis below 25% of village population almost never provide the Pradhan;
- jatis between 25–50% sometimes do;
- jatis above 50% are much more likely to do so.

So classify:

weak | contesting | strong.

Theory converts an observed demographic variable into a proxy for a latent strategic object.

And the heterogeneity is in the predicted place

Compare reserved with unreserved villages.

For Pradhan jatis between 25–50% of village population, reservation is associated with:

Outcome	Reservation effect
Number of government programs	+2.01
BPL programs	+0.81
Revenue per capita	+793.9
Number of committees	+1.56

For jatis outside the contesting range, the corresponding effects are small or absent in the baseline specification.

The model predicted the heterogeneity before the empirical split was the object of interest.

Then push the model one step further

The model also predicts that, where reservation matters, its effect rises with:

η = the value to the jati of controlling the presidency.

But η is not observed.

Ask what in the institutional setting should make group control especially valuable.

If a jati is geographically concentrated, benefits can be targeted to it more easily.

So construct a concentration index H :

$$H \uparrow \Rightarrow \text{targetability} \uparrow \Rightarrow \eta \uparrow .$$

The model has now told us to construct a variable that was not part of the original empirical exercise.

A genuinely new test

Among politically contesting jatis, estimate:

$$Y_k = \beta_0 + \beta_1 RES_k + \beta_2 (RES_k \times H_k) + \beta_3 H_k + \dots$$

The model predicts:

$$\beta_2 > 0.$$

Selected estimates for the interaction $RES \times H$:

Outcome	$\hat{\beta}_2$
Government programs	+3.3
BPL programs	+1.2
Revenue per capita	+826.4

Data → model → a new variable → a new empirical test.

What did the modelling actually add?

The starting fact was just this:

reservation can improve governance.

The model added:

1. an explanation based on the incumbent's outside-option power;
2. the need to model challenger entry, absent from the parent model;
3. a non-monotonic prediction by political strength;
4. a second comparative static in the value of group control, η ;
5. a new empirical variable—jati concentration—with which to test it.

The model first formalizes the story then makes predictions about things we did not already know.

The modelling move, now in full

empirical puzzle → borrow a mechanism → discard irrelevant machinery

→ endogenize the margin changed by the institution → solve

→ derive conditions and heterogeneity → construct new data → test again.

That is what I mean by applied political-economy modelling.

What is a 'toolkit' here

Once you have seen one example, the canonical models become easier to apply.

Again they are not a list of papers to memorize. But familiarity with them allows you to map from recurring political economy problems to useful modelling machinery.

A small toolkit of strategic architectures

<i>Strategic problem</i>	<i>Useful starting point</i>
Parties compete for voters	Downs / probabilistic voting
Voters discipline incumbents	Ferejohn
Voters select politician types	Fearon
Citizens decide whether to run	Osborne–Slivinski / Besley–Coate
Politicians divide a surplus	Baron–Ferejohn
Actors spend resources to win	Tullock contest
Today's promise is not credible tomorrow	Acemoglu–Robinson
Citizens must coordinate punishment	Weingast / Fearon
Informed actors communicate strategically	Crawford–Sobel

You do not need all of these for every problem. You need to recognize when one is useful.

Canonical models are more like useful spare parts not templates

As a model builder you don't want to copy the structure of a paper

You want:

"The piece of machinery that helps me explain the fact I actually have?"

And sometimes also:

"What other pieces of machinery I can combine it with to explain more?"

You are allowed to cannibalize models

For example:

Baron–Ferejohn bargaining + contest technology



a model of power sharing.

Or:

citizen-candidate entry + village institutions



a model of local political entry.

Models can depart far from their original intention

A model need not come from political economy.

Crawford–Sobel pitched as a sender–receiver model:

private information + preference misalignment + strategic communication.

That same architecture can be repurposed for:

- parties and voters;
- bureaucrats and politicians;
- experts and citizens;
- lobbyists and policymakers.

How much model do you need?

Sometimes the model already:

- explains the mechanism;
- generates discriminating predictions;
- tells you what additional evidence to collect.

Then perhaps:

stop.

Parsimony means the least structure needed to answer the question convincingly.

The standards used to judge a good applied theory model are NOT the same as those used to judge good theory papers.

When do you need more structure?

Suppose you want to ask:

- What happens under another voting rule?
- What happens under a term limit?
- What happens if candidate eligibility changes?
- What happens under an institution never observed in the data?

Now the observed reduced-form relationship may not be invariant to the changes that are interesting to explore.

That is when structural modelling may become worth the cost.

Structural modelling adds a stronger claim

A structural model tries to specify:

preferences + technology + information + institutions + shocks



equilibrium $\rightarrow$ observed data.

The key claim is that some primitives can be held fixed under the counterfactual.

But structure should buy something

I have certainly met people whose preferences drive the modeling they do. You hear both:

- 'Structural models are better, more rigorous, take theory seriously....'
- 'Structural models are never believable'

This is the wrong way to proceed. Instead you should ask:

"What question can I answer with the additional structure that I cannot answer without it?"

If the answer is "none," you probably do not need the extra structure.

LLMs have changed the technology of model building

LLMs make many things cheap:

- algebra;
- derivations;
- comparative statics;
- trying alternative functional forms;
- checking candidate models;
- generating several modelling approaches quickly.

This is an enormous improvement in research technology.

So what becomes scarce?

If an LLM can generate:

$$M_1, M_2, M_3, \dots, M_{10},$$

then the scarce input is:

thinking as evidenced by good judgment.

Which model is:

- intuitive?
- parsimonious?
- economically real?
- illuminating?
- defensible?

The modelling frontier has shifted

We used to be much more impressed by peoples' mathematical capacities.

Not any more. Now we increasingly ask:

Why are things so complicated? Why is all this algebra worth doing? Why couldn't things just be simpler?

And:

What model do you actually believe?

Model ownership

You SHOULD use LLMs to help you build models.

If an LLM helps you build the model then by the time you present it:

it has to be your model.

You should know:

- why every important assumption is there;
- which result depends on it;
- what happens if it is removed;
- why you rejected plausible alternatives.

It should become something like a good friend. You know how they will react even in situations you haven't seen them in.

The real test is when you present

Someone asks:

- Why do you need this assumption?
- Why is that information private?
- Why this order of moves?
- Couldn't another mechanism generate the same fact?
- What happens if I remove this restriction?
- Is the behaviour actually generated, or have you assumed it?

The intuition has to reside in your understanding, not in the appendix.

NB: LLMs do not attribute clearly. You have to push them to do so. And if you don't. And you inadvertently use someone else's work without correct attribution. **You could have a very short career.**

Five questions to ask when you have a new empirical result

1. What is the simplest economic environment that could generate this fact?
2. What part of the behaviour should be primitive, and what should emerge?
3. What else must be true if this mechanism is correct?

Five questions to ask when you have a new empirical result

4. What competing mechanism could explain the same fact, and what data would distinguish them?
5. Do I already have enough model, or is there a counterfactual important enough to justify more structure?

That is most of applied model building.

What I would like you to leave with

When you see an empirical pattern, do not think first:

“Which regression should I run next?”

Also ask:

“What strategic environment could generate this?”

Then:

“What else would that environment predict?”

The objective

The aim is to move from:

an empirical fact

to

an economic mechanism

to

a model you own

to

new things to look for in the world.

That is what political economy modelling is for.

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