

# Local Ownership of IFI Conditionality Programs: Conceptualization, Measurement, and Validation

**Nikitas Konstantinidis** (IE University)  
**Bernhard Reinsberg** (University of Glasgow)

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*When a country borrows from the IMF, its government agrees to adjust its economic policies to address the macroeconomic imbalances that led it to seek financial aid. These policy adjustments are conditions for IMF loans and serve to ensure that the country will be able to repay the IMF. This system of **conditionality** is designed to promote **national ownership** of strong and effective policies (IMF 2019).*

# Outline of this talk

## 1 Introduction

- Motivation
- Concepts and definitions
- Research question
- Literature review

## 2 Identification

- Conceptualizing ownership
- Identifying ownership

## 3 Operationalization

- Operationalizing ownership
- Robustness and reliability

## 4 Validation

- Indonesia (1997-2003)
- Robustness tests

## 5 Conclusions

## The official IMF view of ownership

Ownership is defined as “a **willing assumption of responsibility** for an agreed program of policies, by officials in a borrowing country who have the responsibility to formulate and carry out those policies, based on an understanding that the program is achievable and is in the country’s own interest” (IMF, 2001: 6).

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It is based on the following set of assumptions:

- i There should be **no conflict of interests** between the IMF and the borrowing government in an environment of common beliefs and shared (*ex ante* and *ex post*) preferences.
- ii The government “**shares with the IMF** both the objectives of the program and an understanding of the appropriate economic model linking those objectives to economic policy” (Khan and Sharma 2003, 235).
- iii The IMF **trusts** in the target government’s willingness and/or ability to comply, reform, and repay its loans.

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This conundrum is due to the presumption of such “loans-for-reforms” contracts as **complete**.



## Conditionality as an incomplete contract

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Conditionality arrangements as **asymmetric incentive schemes** (Dixit, 2000) and **incomplete contracts** (Hart and Holmström, 1987):

- i Observability of reforms at different stages of implementation
- ii Hidden action and moral hazard
- iii Differential monitoring costs
- iv Uncertainty over the effects of country default

## Functions of conditionality

Conditionality as a necessary consequence of the ***ex ante* asymmetry** and **incompleteness** of such contracts:

- i Confidence-building measures (Beazer and Woo, 2016)
- ii Commitment devices (Candel-Sánchez, 2021; Diwan and Rodrik, 1992)
- iii Costly signals (IMF, 2001)
- iv Domestic agenda-setting tools (Drazen, 2002)
- v Expert policy recommendations (Drazen and Isard, 2004)
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Without prior knowledge over which one(s) of the function(s) listed above the design of any conditionality program is supposed to serve, **ownership is not directly observable or measurable** either *ex ante* or *ex post*.

# Our research objectives

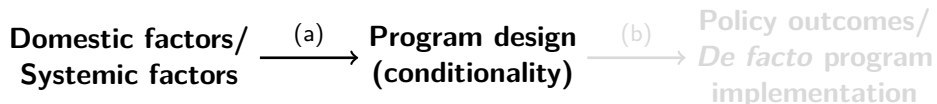
- 1 We first propose a systematic attempt at identifying and operationalizing the concept of ownership.
- 2 We then validate that measure against specific cases and qualitative evidence.

# The political economy of IFI lending



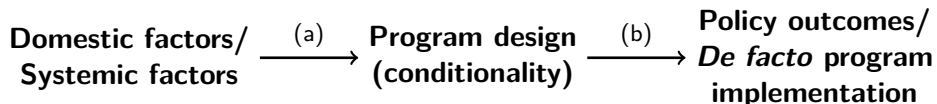
- a Program design influenced by *domestic* (e.g., Nelson, 2014; Rickard and Caraway, 2014) and *systemic* factors (e.g., Copelovitch, 2010; Dreher et al., 2015; Gould, 2003; Stone, 2008)
- b Effects on socioeconomic development (Stiglitz, 2004; Vreeland, 2007), macroeconomic outcomes (Bas and Stone, 2014), and *de facto* compliance (Killick, 1997; Reinsberg et al., 2019)

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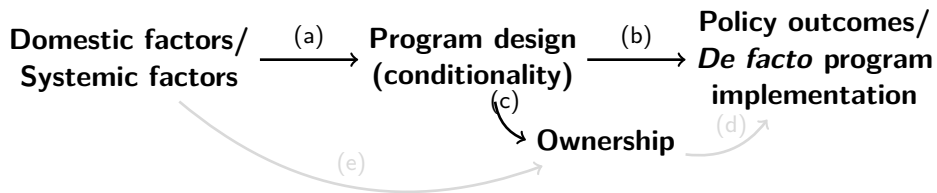
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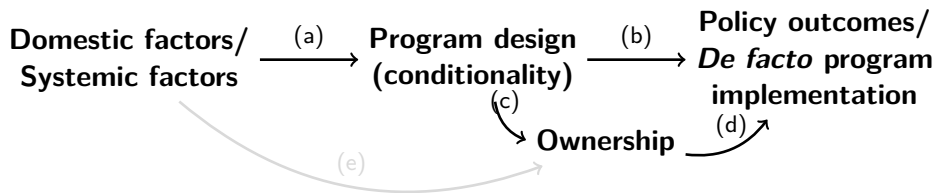


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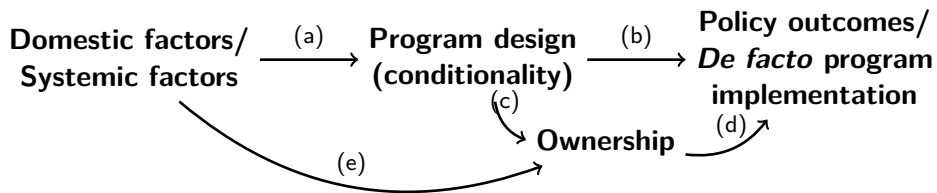
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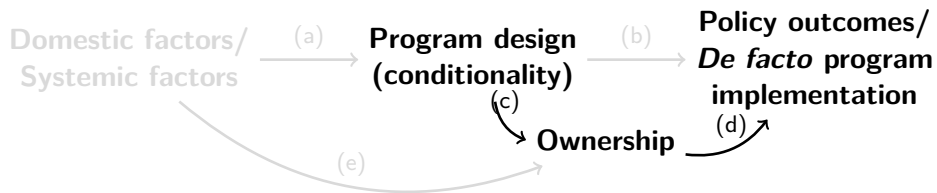
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- An initial IO-sponsored **loan program**  $P_{iT}(L_i; C_{iT})$  of time-length  $T$  for country  $i$  comes into force, i.e.,  $e_{i0} = 1$  at time  $t = 0$ .



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- It comprises a pre-specified schedule of **financial loan tranches and repayments**  $L_i = (l_{i0}, l_{i1}, \dots)$  and a **structural adjustment program**  $C_{iT} = \left[ c_{it}^j \right]_{j=1, \dots, J}^{t=0, \dots, T}$ , where  $c_{it}^j \in \{0, 1\}$  and  $c_{it}^j = 1$  iff  $r_{it}^j \geq r_{i,-1}^j > 0$ .

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- The government is in **compliance** with  $P_{iT}$  at time  $t$ , i.e.,  $m_{it}^j = 1$  if and only if  $\underline{r}_{it}^j \geq \underline{r}_{it}^j$  for all  $j \in \bar{J}_{it}$ .

## Latent government preferences

**Latent government preferences** over (constrained or unconstrained) structural reform packages  $R_{it}$  are modeled through a quasi-concave, continuous, and twice differentiable reduced-form **political support function**  $s_{it}(R_{it}|L_i; D_{it}, S_t)$ , which amounts to a weighted average between general welfare and financial contributions from special interests.

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Political support for reforms at time  $t$  is a function of the **loan structure** of the program ( $L_i$ ) and a host of time-varying (institutional and political) **domestic** ( $D_{it}$ ) and **systemic** ( $S_t$ ) **factors**.

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We adopt a “**revealed-preferences**” **approach** to extrapolate the utility cost of abiding by the structural adjustment program  $C_{iT}$ .

## Local ownership ( $\alpha$ ) as a “shadow price”

Formally, local ownership reflects the **inverse of the “shadow price” (Lagrange multiplier)** of the conditionality constraint on the incumbent’s latent utility (political support) from structural reforms, i.e.,

$$\max_{R_{it} \in \mathbb{R}^{+J}} s_{it}(L_i | P_{it}; D_{it}, S_t) \text{ s.t. } r_{it}^j \geq \underline{r}_{it}^j \text{ for all } j \in \bar{J}_{it} \text{ so that} \quad (\text{CM})$$

$$\alpha_{it} = \left[ \lambda_{it}^j \right]_{j \in \bar{J}_{it}} = \left[ \frac{d s_{it}(R_{it}^* | L_i, C_{it}; D_{it}, S_t)}{d \underline{r}_{it}^j} \right]_{j \in \bar{J}_{it}} < 0. \quad (\text{LM})$$

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Moreover, we posit that the optimal level of **de facto reforms**  $Y_{it} = \left[ y_{it}^j \right]_{j=1}^J \in \mathbb{R}^{+J}$  will be a function of local ownership insofar as

$$\frac{d y_{it}^{j*}}{d \alpha_{it}} < 0 \text{ for all } j \in \bar{J}_{it}.$$

## Identifying ownership

Assuming that country  $i$  has selected into ( $e_{it} = 1$ ) and complied with ( $m_{it}^j = 1$ ) a binary treatment of sector-specific conditionality at time  $t = 0$ , we identify government  $i$ 's ownership over the conditional adjustment program in sector  $j$  and  $t$  periods as a function of a time-varying “**treatment effect on treated compliers**” (TETC), i.e.,

$$r_{it}^{j1*} \left( L_i, \left( C_i^{-j}, 1 \right); D_{it}, S_t \right) - r_{it}^{j0*} \left( L_i, \left( C_i^{-j}, 0 \right); D_{it}, S_t \right) \mid m_{it}^j = e_{it} = 1, \quad (\text{TETC})$$



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Here,  $r_{it}^{j1*} \in \operatorname{argmax}_{r_{it}} s_{it}(R_{it}; D_{it}, S_t)$  s.t.  $P_{it}^{j1} = (L_i, (C_i^{-j}, 1))$  reflects the **(observed) actual support-maximizing policy output** of *de jure* reforms in sector  $j$ , and  $r_{it}^{j0*} \in \operatorname{argmax}_{r_{it}} s_{it}(R_{it}; D_{it}, S_t)$  s.t.  $P_{it}^{j0} = (L_i, (C_i^{-j}, 0))$  captures the **(unobserved) counterfactual support-maximizing policy output** for the same unit in the absence of the sector-specific conditionality treatment.

## The synthetic control method (SCM)

The **synthetic control method (SCM)** (Abadie and Gardeazabal, 2003; Abadie et al., 2010, 2015) estimates the effect of an intervention (treatment) at time  $t = 0$  by comparing the evolution of an aggregate outcome for a unit affected by the intervention to the evolution of the same aggregate outcome for a synthetic control group.

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$$r_{it}^{j0*} | e_{it}^j = m_{it}^j = 1.$$

In other words, SCM allows us to determine whether the actual rate of reforms would indeed be **incentive-compatible**.

## Measures of ownership

(i) A target government's  $i \in I$  yearly level of ownership of an IO-mandated **level** of sector-specific liberalization is captured by the following year-level measure:

$$\hat{\alpha}_{it}^j = - \frac{\left| r_{it}^j - \sum_{k \in K} w_k^* r_{kt}^j \right|}{\sum_{k \in K} w_k^* r_{kt}^j}.$$

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(ii) Our *second* measure is estimated with respect to the post-treatment goodness of fit between *actual* and *counterfactual de jure* policy outcomes. A target government  $i$ 's ownership over the **timing** and **sequencing** of conditional reforms at time  $t = 0$  is directly proportional to minus the **root mean square prediction error (RMSPE)**, i.e.,

$$\hat{\rho}_i^j = - \frac{1}{T} \left( \sum_{t=1}^T \left( \hat{\alpha}_{it}^j \right)^2 \right)^{1/2} = - \frac{1}{T} \left( \sum_{t=1}^T \left( \frac{r_{it}^j - \sum_{k \in K} w_k^* r_{kt}^j}{\sum_{k \in K} w_k^* r_{kt}^j} \right)^2 \right)^{1/2}.$$

## External- and financial-sector conditionality

We apply SCM to all **uninterrupted** IMF arrangements (1980-2014) with at least one **external-** (current and capital account liberalization) or **financial-sector** (banking reform, regulatory oversight) condition:



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- Outcome variable  $r_{it}^j$ : KOF index of *de jure* economic globalization (Dreher, 2006; Gygli et al., 2019)
- Policy intervention: EXT or FIN structural conditions ( $\#SPCs + \#PAs > 0$ ) signed at time  $t = 0$  and enforced throughout  $T = 4$
- Pool of treated countries ( $I$ ): all uninterrupted programs that received IMF conditions in either sector with a gap of at least five years from the last active program (32 cases)
- Donor pool of control units ( $K$ ): all IMF arrangements beginning in any year but without the respective structural conditionality
- Predictors ( $X_i$ ): pre-treatment outcomes and *domestic/systemic* macroeconomic, political, and security variables

## Robustness of our measures

### Alternative **donor-pool specifications**:

- 1 All IMF programs without the same sectoral conditionality starting in the same year as the treated unit
- 2 All untreated observations not under an IMF program matching on the propensity score of being under an IMF program
- 3 All untreated observations matching on the propensity score of receiving the treatment through a selection model for IMF programs
- 4 All IMF programs without the same sectoral conditionality excluding countries from the same region

## Reliability of our measures

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For a total of  $B$  bootstrap iteration, we perform the SCM approach using a (smaller) subsample of potential control cases obtained through **resampling with replacement** from the entire donor pool.

The 90th-percentile **upper confidence band** based on the standard error of the empirical distribution of point estimates is

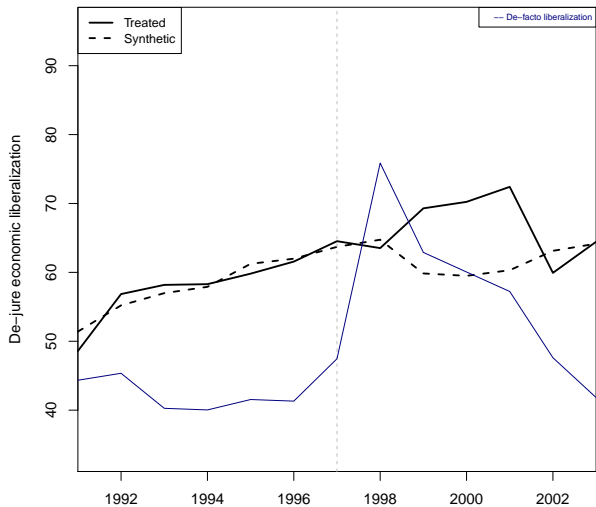
$$\bar{r}_{kt}^j + 1.645 \sqrt{\frac{1}{B} \sum_{b=1}^B \left( \hat{r}_{bt}^j - \bar{r}_{kt}^j \right)^2}, \quad (1)$$

where  $\bar{r}_{kt}^j$  is the mean policy outcome estimate.

## The case of Indonesia (1997-2003)



# Year-level ownership and *de facto* policy implementation

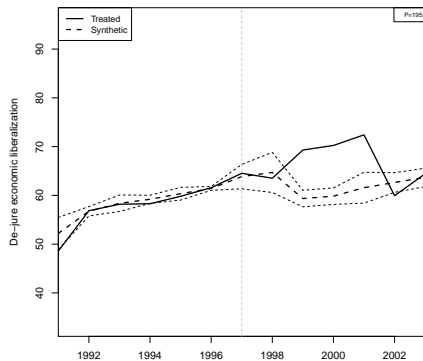


## Covariate weights

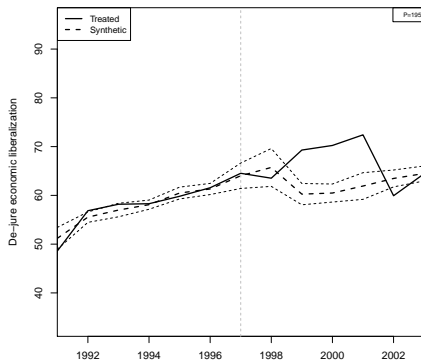
Covariates	Weight
GDP per capita	0.009
Population	0.021
State capacity	0.006
Political globalization	0.000
GDP growth	0.000
Reserves	0.005
Current account	0.010
Debt service	0.047
Fuel exports	0.016
Veto player index	0.011
Past conflict	0.071
Military expenditure	0.001
Total conditions	0.000
Scope of conditionality	0.058
Pre-treatment outcome (t-1)	0.400
Pre-treatment outcome (t-5)	0.328
Trade openness (t-1)	0.013
Countries under programs (t-1)	0.002



# Inclusion of additional control variables



(a) Political (in)stability controls.



(b) Business cycle controls.

**Figure:** Paths of *de jure* economic globalization in actual and synthetic Indonesia (1997) for additional controls.

# Placebo test for Indonesia (1997-2003)

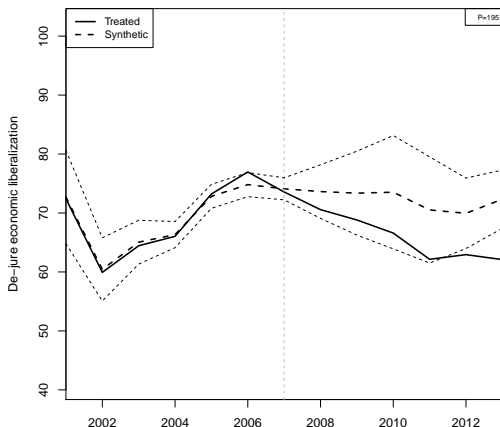


Figure: Placebo test “pretending” the treatment kicked in 10 years later.

## Summary and future work

### What we have done:

- We propose counterfactual-based measures of local ownership as a latent mediating variable between program design and policy implementation.
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### What we intend to do:

- Collect and operationalize more sector-specific compliance data.
- Perform instrumental variable analysis and causal mediation analysis controlling for two-sided imperfect compliance.
- Develop a full principal-agent model to account for multiple tasks and multidimensional reform packages.

Thank you for your attention!