Institution Building: Transnational and Transgenerational

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- **Workshop**: Global Economic Crisis and Institution Building in East Asia for Peace and Development
- **Panel 4**: Institution Building for Environment and Resource Governance

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No answers, noneconomic answers, and economic answers

- Prof. Wang’s paper is mainly an institutional history at the global level and concludes that “[t]he major issue is failure in implementation,” but we do not learn us why implementation fails and what, if anything, can be done about it.

- Prof. Sato’s paper likewise is a history, at the regional and state (country) level, arguing that “power relations beyond rules, regulations and techniques are central to the analysis of resource governance.”

- In the few minutes I have, I’d like to call attention to Prof. Todd Sandler’s economic work (Sandler, 1999) and conclude with general rules on the economics of institution building (Brauer, 2004).
Transnational and transgenerational goods

- Context: We are dealing with nonprivate goods, i.e., public goods, club goods, and common-resource pool goods.
- In addition, we are dealing with transnational and transgenerational goods.
- A **transnational pure public good** provides benefits that are nonrival and nonexcludable among states so that states free-ride on each other.
- A **transgenerational pure public good** provides benefits that are nonrival and nonexcludable among generations so that generations free-ride on each other.
- So long as these goods are and remain **pure public goods**, there will be **attempts at burden-shifting** between nations and between generations and **the desired good will be undersupplied**.
- It follows that an attempt must be made to create **impure public goods**, e.g., such that either benefit exclusion becomes possible (**club goods**) or that, despite spill-over benefits that can be captured by free-riders, a sufficiently large part of the benefit is captured by the payor/s (**joint product goods**).
Transnational and transgenerational goods

- Optimality requires equating marginal costs of provision with marginal benefits across all regions $r$ (space) and all generations $j$ (time)
- Awareness Rule 1: $MC = \Sigma MB_{jr}$
  - Across all regions and generations (the Buddha rule)
- Awareness Rule 2: $MC = \Sigma MB_r$
  - Across all regions but within a generation
- Awareness Rule 3: $MC = \Sigma MB_j$
  - Across all generations within a region
- Awareness Rule 4: $MC = \Sigma MB$
  - Only within a region and within a generation (myopic)

Source: Sandler (1999)
Transnational and transgenerational goods

Assumption:
- Non-overlapping generations
- \( r = 1, 2; j = 1 \) (parent), 2 (offspring)

Source: Sandler (1999)
Transnational and transgenerational goods

- **Change in Awareness Rule**
  - From AR4 to AR3
- **Result:** even though more total $q$ is provided, it is still a sub-optimal amount as higher awareness induces free-riding across regions, $r$

Source: Sandler (1999)
Transnational and transgenerational goods

A similar argument can be made with an overlapping-generations model (see appendix).

- Result #1: transgenerational free-riding within a region $r$ leads to underprovision of the global public good, $q$.
- Result #2: transgenerational free-riding in one region leads to transregional free-riding.
Joint products

- A public good, $q$, yields private (national, current generation) benefits, $x$, and public (regional/global and intergenerational) benefits, $z$.
- The decisionmakers are assumed to concentrate on benefits to the current generation in their own region, i.e., they follow AR4 (myopic).
- The current generation/region produces a good with positive externalities and fails to account for the positive effects generated for other regions and/or future generations.
- Consequently, the good is undersupplied.
- There are two sources of suboptimality: (1) transgenerational undersupply; (2) transregional/global undersupply.
- In principle, this can be measured as the share of benefits received by the current generation in a region relative to the total benefits to all generations in all regions.
- The greater this share (in the extreme, $1/1=1$), the more likely it is that the good will be provided.
- One consequence: if current generations create transnational institutions to provide transregional public goods with future negative externalities (e.g., nuclear energy and nuclear waste), resource allocation will become worse as more of a problem is imposed on future generations.
- So when external effects concern joint products, regions, and generations (3 aspects) addressing just 1 or 2 of these may worsen resource allocation relative to no agreement whatsoever.

Source: Sandler (1999)
Transgenerational clubs

- One approach to deal with the problems is to form transgenerational clubs where one generation’s assets are “sold” to the next generation to generate “pension benefits” for the current generation.
- This will induce the current generation to properly look after public goods assets.
- But this relies on a feasible exclusion mechanism.

Source: Sandler (1999)
Institutional design considerations

- (1) Institutions need to include overlapping generations among the decisionmakers; thus, no generation can make deals at the expense of other generations (eliminates current generations’ first-mover advantage).
- (2) Institutions need to be long-lived to help maintain an transgenerational perspective.
- (3) Institutions must supply the current generation with sufficient benefits to motivate it to act.
- (4) The more benefits spill over to the current generation (e.g., from research and education), the less need there is to formalize the institutional arrangements.
- (5) “Loosely” structured institutions are preferred as they economize on transaction costs relative to benefits.
  - “Loose”: no need for enforcement apparatus, decisions are unanimous, meetings infrequent, and autonomy is preserved.

Source: Sandler (1999)
Institutional design considerations

- The principle of changing payoffs
- The principles of creating vested interests and leadership
- The principle of graduated reciprocity and clarity
- The principle of engaging in repeated small steps
- The principle of value-formation
- The principle of authentic authority
- The principle of subsidiarity
- The principles of conflict resolution mechanisms
- The principle of information and monitoring
- The principle of accountability
- The principle of self-policing enforcement
- The principle of nesting

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New book

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(September 2009)
Selected literature


Appendix:

Eastern intergenerational strategizing

- **Assumptions:**
  - $r = 1, 2 \mid J_{\text{parent}} = 1, 2 \mid J_{\text{offspring}} = 2$
  - [overlapping generations model]
  - Hold Western ($r=2$) public good constant

- **Logic of the argument:**
  - $q_{E11}$ is East generation’s 1 provision of a public good in period 1
  - $q_{E22}$ is East generation’s 2 provision of a public good in period 2
  - $N^1$ are the tangency points to iso-welfare curves for generation 1, given generation 2’s provision
  - $N^2$ are the tangency points to iso-welfare curves for generation 2, given generation 1’s provision
  - So that equilibrium should occur at $E$ with quantity OG provided
  - However, 1 knows that 2 reacts to (follows) 1. Thus, 1 will choose (lead) a different point, $S$, that maximizes its own intergenerational welfare, with only quantity OH provided.

- **Result:** free-riding across generations within a region $r$ and underprovision of $q$

Source: Sandler (1999)
Appendix:

- Assumptions:
  - \( r = 1, 2 \ | j_{\text{parent}} = 1, 2 \ | j_{\text{offspring}} = 2 \)
  - [overlapping generations model]

- Logic of the argument:
  - \( q_W \) is Western provision (on the horizontal axis)
  - \( q_E \) is Eastern provision (on the vertical axis)
  - Nash West and Nash East are the regions’ intergenerational response-paths, with \( E \) at \( OJ \) the initial outcome
  - But from the Eastern intergenerational strategizing model, we know that East’s provision is smaller than optimal (Leader-Follower East), resulting in \( R \)

- Result: intergenerational free-riding in one region leads to cross-regional free-riding
  - if West is forward-looking (Altruistic Nash West), then \( F \) results with provision of \( OK \)

- Result: even more free/easy-riding

Source: Sandler (1999)