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# Institution Building: Transnational and Transgenerational

- **International Conference on Institution Building in Asia for Peace and Development**, JICA Research Institute and Research Institute of Economy, Trade, and Industry, 28-29 August 2009, Tokyo, Japan
  - **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

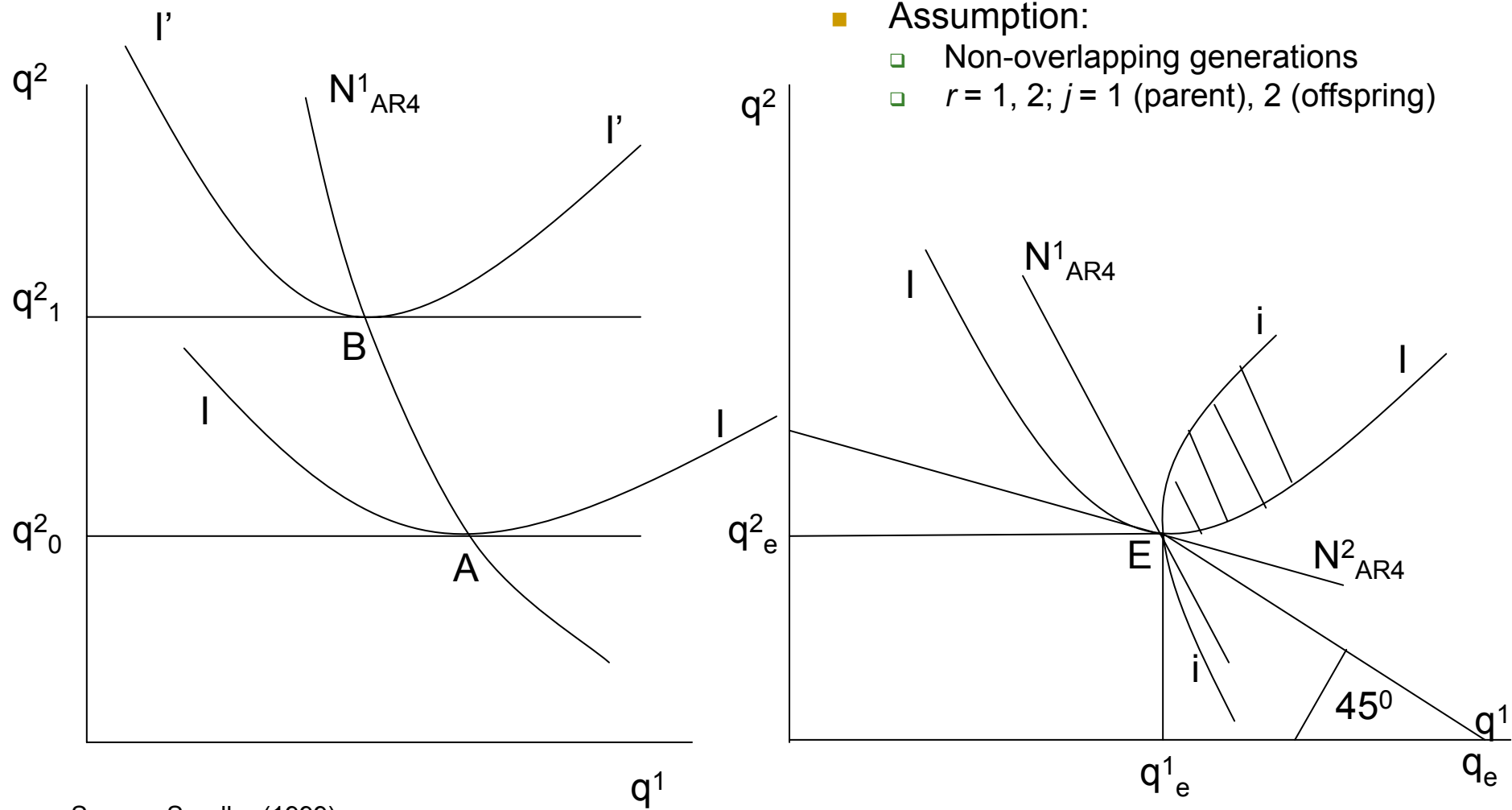
- Context: We are dealing with nonprivate goods, i.e., public goods, club goods, and common-resource pool goods.
- In addition, we are dealing with transnational and transgenerational goods.
- A **transnational pure public good** provides benefits that are nonrival and nonexcludable among states so that **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:  $MC = \sum MB_{jr}$** 
  - **Across all regions and generations (the Buddha rule)**
- **Awareness Rule 2:  $MC = \sum MB_r$** 
  - Across all regions but within a generation
- **Awareness Rule 3:  $MC = \sum MB_j$** 
  - Across all generations within a region
- **Awareness Rule 4:  $MC = \sum MB$** 
  - Only within a region and within a generation (myopic)

Source: Sandler (1999)

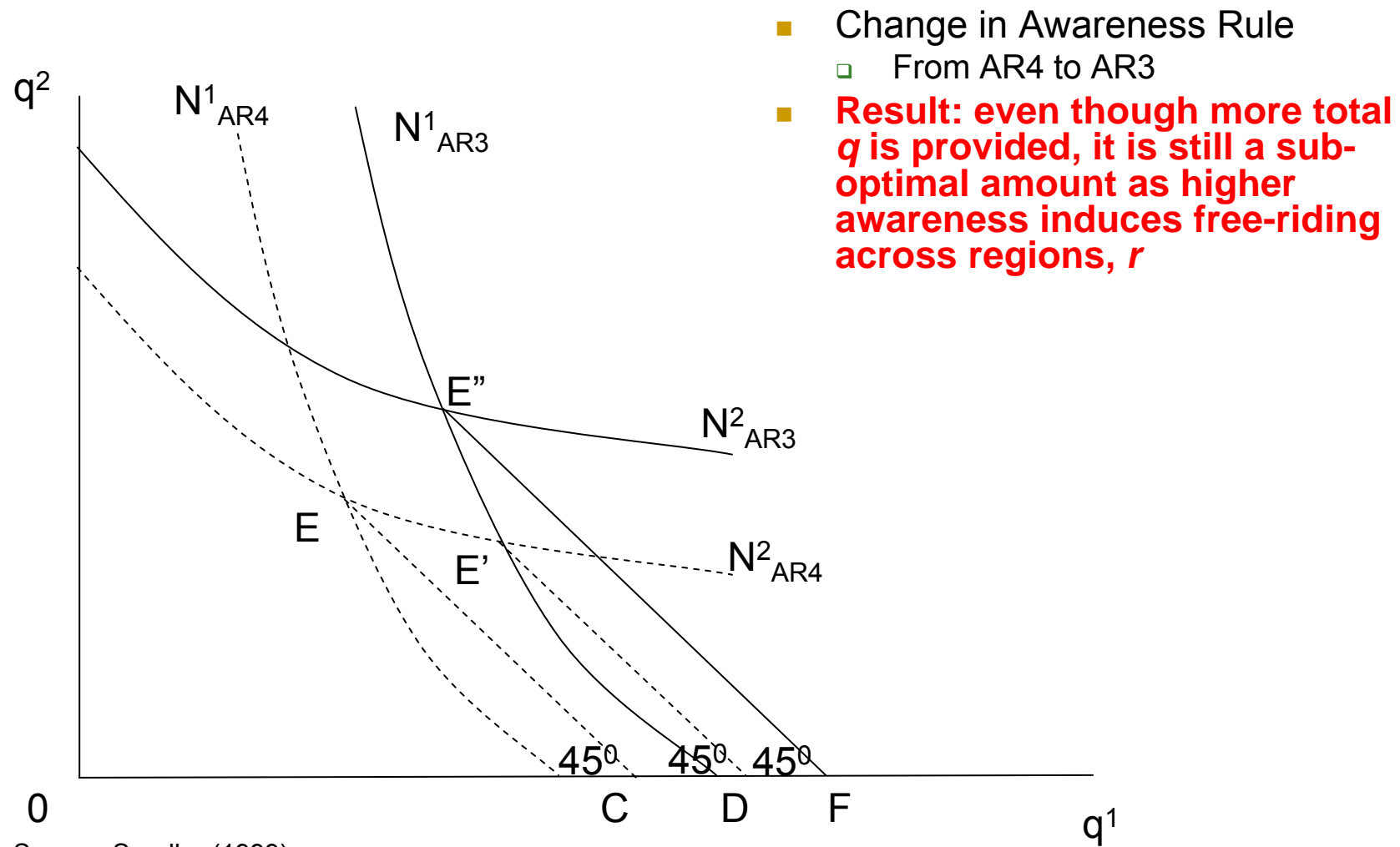
# Transnational and transgenerational goods



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

Source: Sandler (1999)

# Transnational and transgenerational goods



Source: Sandler (1999)

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# 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)



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# 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)

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# 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)

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# 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

Source: Brauer (2004)

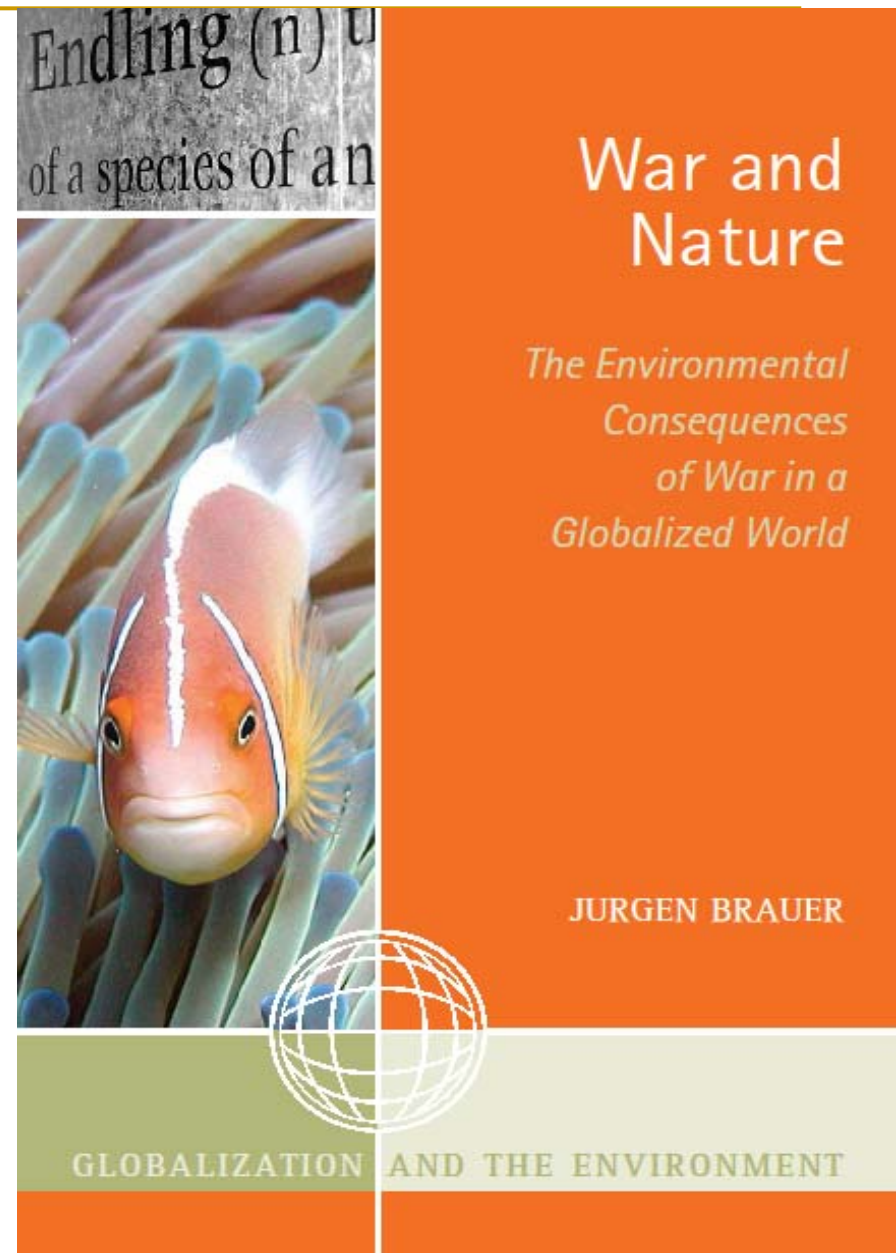
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# Advertisement

New book

*War and Nature: The Environmental Consequences of War in a Globalized World*

(September 2009)

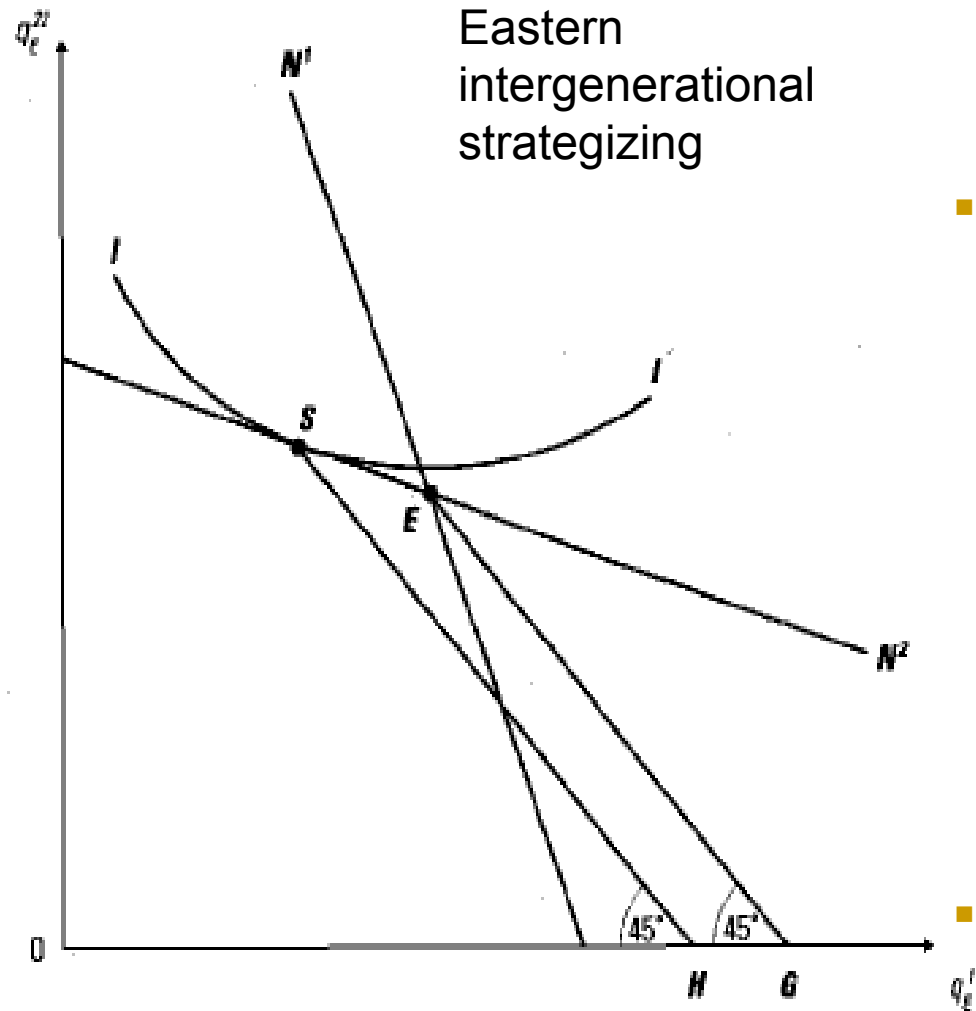


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# Selected literature

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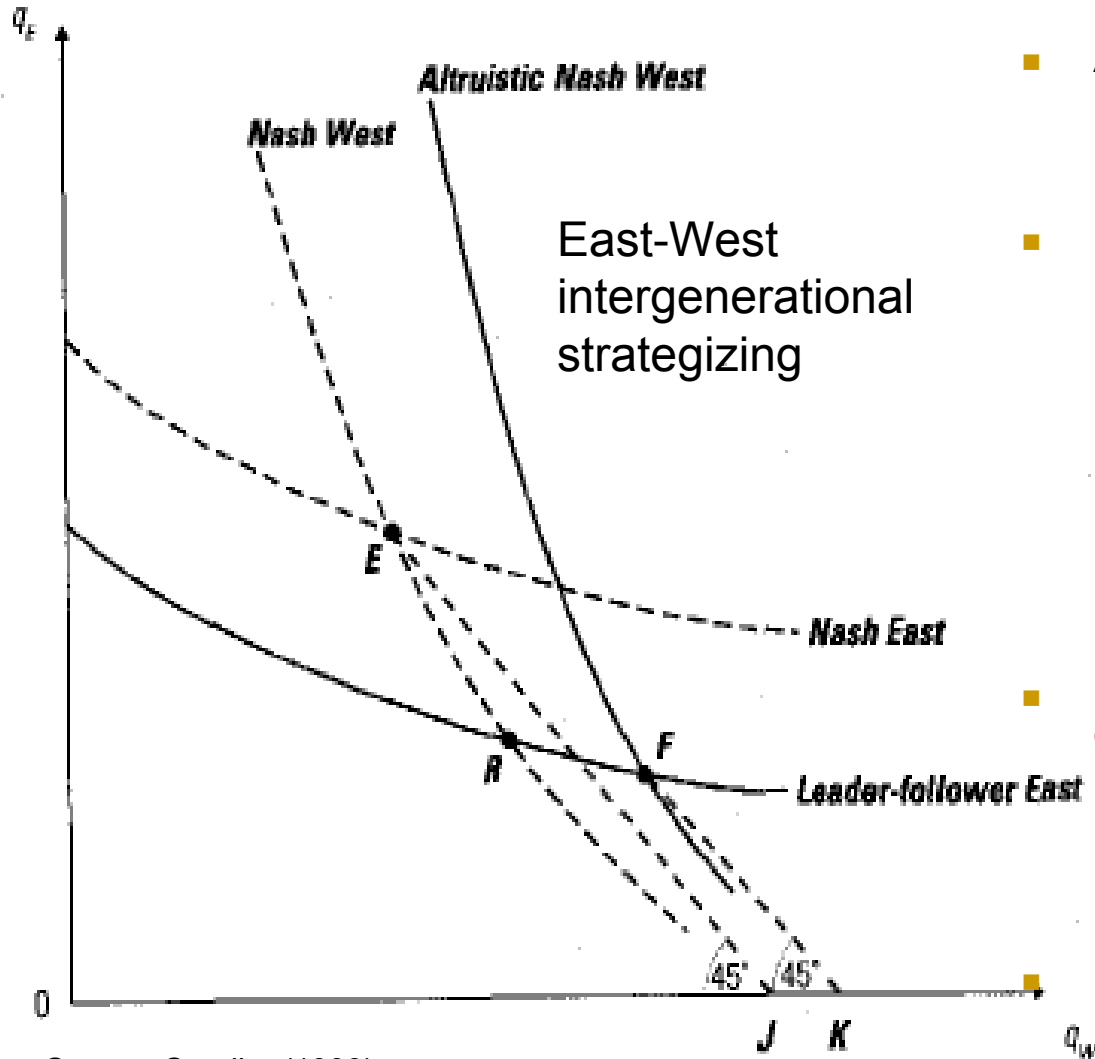
# Appendix:



Source: Sandler (1999)

- Assumptions:
  - $r = 1, 2 \mid j_{parent} = 1, 2 \mid j_{offspring} = 2$
  - [overlapping generations model]
  - Hold Western ( $r=2$ ) public good constant
- Logic of the argument:
  - $q_E^{11}$  is East generation's 1 provision of a public good in period 1
  - $q_E^{22}$  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  $q$**

# Appendix:



Source: Sandler (1999)

- Assumptions:
  - $r = 1, 2 \mid j_{parent} = 1, 2 \mid j_{offspring} = 2$
  - [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**