EVALUATING PROPOSALS FOR TAXATION OF SPACE ACTIVITIES FROM THE PERSPECTIVE OF SPACE AS A GLOBAL COMMONS

Dr. Gerard Conway (Brunel Law School) & Prof. Peter Jelfs (Brunel Business School)

Brunel University of London

ABSTRACT - CONFIGURING AN INTERNATIONAL TAX FRAMEWORK FOR EMERGING COMMERCIAL EXPLOITATION OF SPACE

- The **exploitation of space for commercial purposes poses** the issue of 'space taxes'. High-end tourism is now a reality, many commercial satellite launches occur, and the possibility of mining in space is on the horizon.

- The issue of space taxes has only attracted **sporadic attention**. Existing international space treaties prevent countries from claiming sovereignty over areas in space, removing the possibility of taxing profits by their source and leaving the only current option as taxing by residence of the company. This is problematic due to the relative ease with which corporations can, through legal means, move a tax residence into a lower-tax jurisdiction, in a type of tax competition (Calijuri, 2023).

- In this paper, we consider the extent to which international co-operation and sharing of tax revenues through a **supra-national or international tax collection agency may offer the best way forward**. The paper develops this discussion through an evaluation of existing proposals for taxation of space-related (or closely analogous) activities, including Brock & McMaster on global aviation taxes (2018) and Savir's on space-related royalties (2021). It does so particularly through (i) the framework of Elinor Ostrom's design principles for commons governance and (ii) criteria of tax design.

INTRODUCTION

- **Our perspective**:
  - **Interdisciplinary**
    - Theory or philosophy of taxation
    - International law
    - Theory of commons governance
  - **Considering:**
    - (i) the general issue tax governance: **<u>who</u> can tax** …
    - (ii) the specific mechanism of taxes in space: **<u>how</u> to tax** …
- **Our aim** is to:
  - (i) <u>evaluate existing tax proposals</u> with a view to
  - (ii) <u>developing own proposal</u>

THE CHALLENGE OF SPACE TAXES

- The **problem of ownership and sovereignty**:
  - Who does space belong to?
  - Who do space resources (e.g. mined) belong to?
  - International law still developing:
    - Space treaties, but only bind ratifying States unless customary law
      - Some matters not regulated or partly regulated, e.g. ownership of mined resources, tax
    - Customary Common Heritage of Humanity (CHH) principle: scope uncertain

- **Tax nexus/bases – national level**:
  - Source rule
  - Extra-territorial? e.g. nationality, but creation of legal persons – i.e. companies, off-shore – to avoid?

- **Tax basis → International level?** → Our paper, mainly

SPACE AND THE COMMON HERITAGE (CHH) PRINCIPLE

- CHH expressed in **Moon Treaty**, **Antarctic Treaty**

- Status as **customary rule**?

- Outside of **some basic or core points, scope uncertain**

- **Core of CHH**:
  - **Non-appropriation**
  - **Direct implications of this**: e.g. non-destruction, but not access and/or mining

  ► Not a clear a basis for determining limit and scope of individual State sovereignty
  ► Need for global cooperation

THEORY OF COMMONS

- Idea of commons has become widely studied in the past 5 years
- Definition of commons: (i) **rivalrous**, (ii) **non-excludability**
- Usually applied to either:
  - (i) **open-access resources**
  - (ii) **collective ownership** (co-ownership in law) by a defined or limited group
- Debate (confusion?) about the scope of the concept as between (i) and (ii), but most analysis focuses on **empirically-grounded studies of what has worked in practice**

→ <u>inductively generated 'design principles'</u> (Ostrom)

→ <u>middle-ground between market and centralised ownership</u>: avoiding Hardin's tragedy of the commons (Ostrom)

- Most associated with **Elinor Ostrom 1935-2013**, one of winners of 2009 Nobel Memorial Prize in Economic Sciences (with Oliver Williamson)

SPACE AS A COMMONS

- Can space be related to **terrestrial commons**, mainly studied in national contexts?
- Most authors → commons framework **transferrable to global level**, *mutatis mutandis*
- Ostrom emphasised commons analysis must be **context-specific**

► Context of space:

- Problem of <u>exploitation and tragedy</u>
- More <u>global</u>, but defining where it begins?
- More <u>open-access</u>? Practical restrictions
- <u>Horizontal need for cooperation between States</u> → comparable to other commons

OSTROM'S DESIGN PRINCIPLES OF COMMONS GOVERNANCE

- Without making a universal empirical claim, Ostrom & Crawford supposed 8 design principles of robust governance systems of a commons, i.e. by 'robust' meaning long-lasting with operational rules devised and modified over-time by a set of collective-choice rules (taken from Shepsle 1989) – p. 253:

Design principles derived from studies of long-enduring institutions for governing sustainable resources:

1. *Clearly defined boundaries.* The boundaries of the resource system (e.g., irrigation system or fishery) and the individuals or households with rights to harvest resource units are clearly defined.
2. *Proportional equivalence between benefits and costs.* Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labor, materials, and/or money inputs.
3. *Collective-choice arrangements.* Many of the individuals affected by harvesting and protection rules are included in the group who can modify these rules.
4. *Monitoring.* Monitors, who actively audit biophysical conditions and user behavior, are at least partially accountable to the users and/or are the users themselves.
5. *Graduated sanctions.* Users who violate rules-in-use are likely to receive graduated sanctions (depending on the seriousness and context of the offense) from other users, from officials accountable to these users, or from both.
6. *Conflict-resolution mechanisms.* Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.
7. *Minimal recognition of rights to organize.* The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have long-term tenure rights to the resource.

For resources that are parts of larger systems:

8. *Nestled enterprises.* Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises (based on E. Ostrom 1990, 90).

TAX DESIGN PRINCIPLES

- **Brock & McMaster on normative criteria**:

(N1) the tax complements or promotes important social, political, economic (and the like) objectives (O)

(N2) it is compassionate (i.e. it is not repressive) (O)

(N3) it is competitive (appropriate, fair, and non-destructive competition) (O?)

(N4) is one that is competently collected, administered, and disbursed (O)

- **Brock & McMaster on feasibility (O)**:

(F1) Support (most important)

(F2) Administrative ease

(F3) Precedent

(F4) Institutional assistance

Compare Savir (2021):

- Stability, predictability, transparency
- Administrative simplicity, enforceability and simplicity
- Equitability
- Recognition of the non-monetary benefits of industry
- Acknowledgment of the unique profile of an emerging mining industry

O = compatible with Ostrom

BROCK & MCMASTER ON GLOBAL AVIATION TAXES (2018) → U.N.I.T.A.I.D.

- UNITAID **most successful global tax to date**
- Each participating State **decides own form of tax and level** of contribution
- **France is leading member**, imposes small tax on each airline ticket: around $90-100 million dollars a year
- **President Jacques Chirac** was one of main early backers
- **Other participating States**: founded by Brazil, Chile, France, Norway and the United Kingdom, but other countries now participate, including Canada, Japan, Korea, Portugal and Spain
- UNITAID as a **model for global governance and distribution of a tax**:
  - WHO hosted organisation/entity
  - Board decides on distribution
  - Link: Homepage - Unitaid

SPACE TAX PROPOSALS

- **Rao et al on Orbital Tax (2020):**
  - orbital tax on satellite operators to address space congestion
  - Orbital Use Fee (OUF) could incentivise satellite launchers to consider more the external effects of satellite launches through collision risks
  - Standard rate, collected nationally

- **Savir's proposal regarding space-related royalties (2021):**
  - Savir has proposes a royalty system for minerals mined in space by analogy with the royalty system envisaged under UNLCOS
  - UNCLOS provides for relatively modest royalties from Deep Sea Mining to begin five years after the start of the mining activity, based on value or volume
  - Revenues administered by the International Seabed Authority (ISA)

- **Semerád on an Asteroid Tax (2023):**
  - taxing mining activities on asteroids in space (which could also include the Moon)
  - tax base relative to average price on earth of the extracted commodity related to the volume minus investment and other costs
  - 10% tax rate on the normal price of the mineral on earth, base on historical mining taxes on earth

	Unitaid model (2006)	Rao et al (2020)	Semerád (2023)	Savir (2023)
Form or type of tax	Mixture, but mainly small fee on consumer-based satellite use	Increasing tax per satellite orbit (up to $245,000)	Tax on price or income	Volume- or value-based royalties tax on mining
Rate of tax	Small fee on frequent consumer transaction	More substantial or high rate	Tax of 10%	No, but suggests analogy with UNCLOS (thus modest in scope as per Art. 82 UNCLOS)
Institutional form	- Each State to decide own contribution, e.g. France decided on airline ticket tax - WHO hosted organization: administrative or derivative rather than direct treaty basis …	Harmonised rate or magnitude of tax: indicates international agreement (not specified if treaty), while suggesting national administration as recognised under Art. VI OST	- UNOOSA monitoring, does not specify overall governance infrastructure - Does not specific legal instrument, e.g. treaty	UNLCOS model: State parties to establish an ISA-type authority through a treaty?
Distribution mechanism	International board to decide by consensus, under UN aegis for an equivalent space tax	National competence	Proportionate, residency-base d principle of global distribution, does not specify institutional mechanism	UNCLOS model
Meets tax criteria?	Yes	Yes	Yes, though governance or administration aspects only partially considered	Yes, except partly limited precedent given limited practice of ISA to date
Meets Ostrom's design principles?	Yes, especially DP2 and DP3, and except to some extent DP6 on conflict resolution	Yes	Yes, based on alignment with Savir's model	Depending on model, variance in DP2 and DP3

FUTURE RESEARCH

- **Two main aspects**:
  - Institutional form: UNIATID most promising model to begin with?
  - Tax form and rates

- **Historical and contemporary examples** of taxes/financing of commons

- Can there be an **internationally imposed tax framework**?
  - Compare: Westphalian individual State sovereignty
  - Contrast: Humanity as a subject of international law so a majority can bind non-participating States?
  - Question of distribution of proceeds of tax

- **UNCLOS** and **BBJ Treaty** precedent