

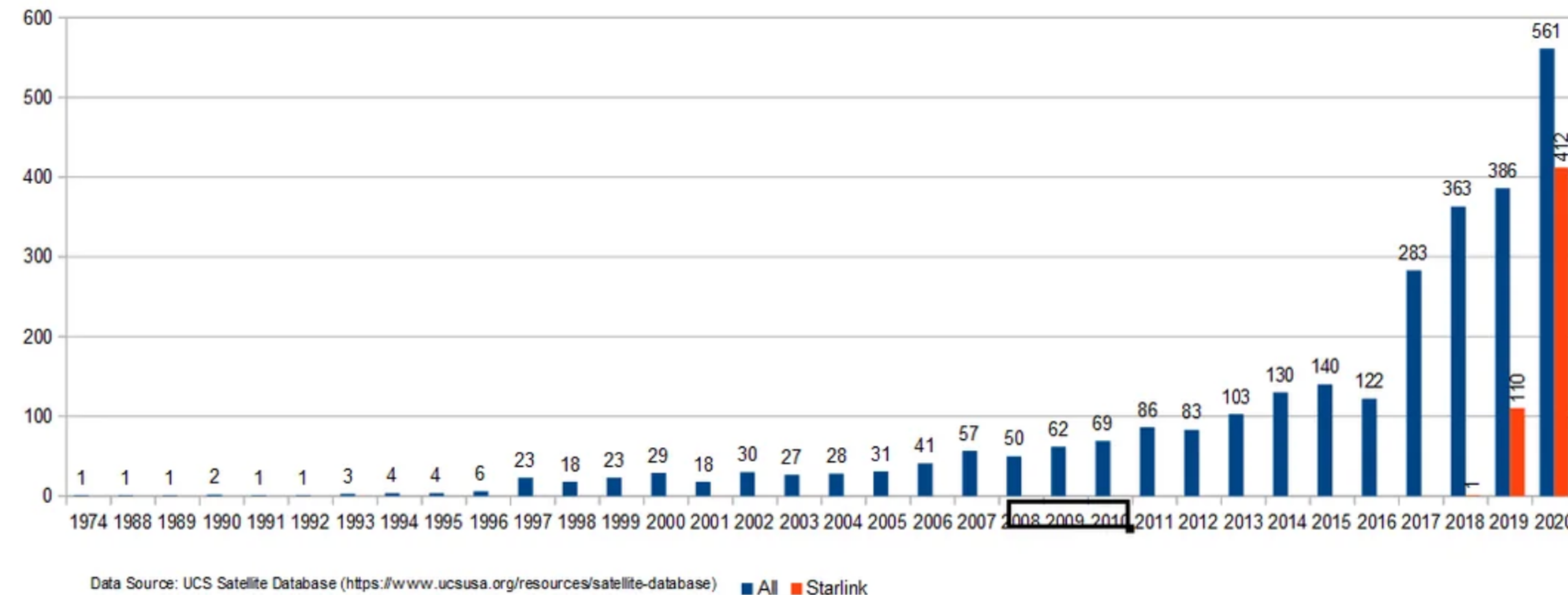
OUTER SPACE ORBITS: A MODEST PROPOSAL?

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THE PROBLEM: SPACE CONGESTION



- How congested is outer space (e.g. Low Earth Orbit or LEO)? As of now (fall 2025), over 7,500 satellites belonging to 86 countries are orbiting Earth, most of which (over 6,700) are in LEO. Most of the satellites currently in LEO were launched in the last few years; about one-fifth of these are Starlink satellites. (Fig. 1). Is this “tragedy of the outer space commons” soluble?

LEGAL FAILURE?

- OUR THESIS: THE EXISTING LEGAL FRAMEWORK IS THE MAIN SOURCE OF THE SPACE CONGESTION PROBLEM.** In the United States, the Federal Aviation Administration (FAA) has regulatory authority over the launching and re-entry of commercial space vehicles, while the Federal Communications Commission (FCC) has jurisdiction over the orbits of communication satellites launched from the U.S. In addition, the International Telecommunication Union (ITU) also plays a pivotal role in outer space governance: once the FCC has parcelled out an orbit for a satellite, it must then submit its proposed orbit and radio-frequency allocations to the ITU in accordance governing the use of radio frequencies, called the Radio Regulations. The ITU not only allocates radio frequencies for every radio-transmitting or radio-receiving satellite in outer space; it also records these allocations in the Master International Frequency Register.
- IN OTHER WORDS, WE ARE GIVING AWAY SCARCE AND VALUABLE ORBITS FOR FREE! WHY NOT ALLOCATE THESE SCARCE AND VALUABLE ORBITS THROUGH MARKETS INSTEAD?**

PREVIOUS LITERATURE

- The literature on space congestion is well-developed, so why hasn’t this problem been solved yet? The most promising solutions call for binding forms of collective action, either through the adoption of a new international space debris mitigation agreement [1, 2] or through amendments to existing outer space agreements [3-5]. Most of these calls for collective action, however, are woefully short of any specifics or fall back on voluntary guidelines. (For references, see handout.)

ADAM SMITH TO THE RESCUE?

- RECAP:** How can we protect our outer space resources and solve the problem of space congestion without jeopardizing the benefits of innovation, new technologies, and space exploration?
- A NEW APPROACH:** What if Congress authorized the FAA and FCC to auction off launch rights or orbits (or both)? That is, instead of putting a pause on rocket launches or imposing costly and burdensome environmental regulations on the space industry, why not use auctions to create a competitive market for access to outer space (“space-access rights”)? Specifically, the rights to orbits in outer space or the right to launch a spacecraft into space, or both (“space access rights”), are scarce and valuable and thus should be allocated through the price mechanism and competition (e.g. bidding) among the firms and governments who want to make use of these rights. A competitive market for space access rights (orbits and launch rights) would not only solve the outer space congestion problem; it would also promote an efficient and sustainable use of our scarce outer space resources because such access rights would gravitate to those outer space users who value them the most!

LIMITATIONS/FUTURE RESEARCH

- Article II of the Outer Space Treaty (OST) states, “Outer space ... is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” [6] Would a market for space-access rights run afoul of the OST?
- Like climate change, the tragedy of the outer space commons is a global problem: 22 space agencies have space launch capabilities, and 77 countries have space programs of their own. [7, 8] Do we need to get all 77 countries--or at least the 22 space agencies with launch capabilities--to participate in our proposed market for space-access rights? (For references, see handout.)