

BOOK REVIEW: *THE PRIVATIZATION OF SPACE
EXPLORATION: BUSINESS, TECHNOLOGY, LAW, AND
POLICY*

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Lewis D. Solomon: *The Privatization of Space Exploration: Business, Technology, Law, and Policy*. New Brunswick, NJ: Transaction Publishers, 2008, ISBN: 978-1-4128-0759-3, 128 pages.

LEWIS D. SOLOMON'S BOOK *The Privatization of Space Exploration*, now available in a 2012 softcover printing, is an effort to survey the rapidly changing industry of private space flight and suggest ways to encourage it. It should be noted that the title is really a misnomer, as many of the functions handled by the private firms covered in this book are not exploration *per se*, but rather involve satellite launch equipment and services. The author envisions resource extraction and extensive manufacturing processes to be carried out in space in the future.

The author's intention to promote private enterprise in space, as opposed to the dominant government-run space programs, is appreciated. There are some inspiring stories of a few of the path-breaking entrepreneurial endeavors in the space industry, and the author is critical of NASA, the

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International Space Station, and some other expensive, government-run space efforts. However, the book falls short in a few places.

First, when listing his justifications for space exploration, he makes a problematic economic argument. “[N]ew spacecraft enterprises, new spaceports, and related businesses offer jobs for skilled workers,” Solomon writes. Furthermore, “Space activity also generates economic growth and tax receipts” (p. 8). These supporting arguments ignore the important fact that *jobs* are not the goal of the economy. We want the output from jobs, not the jobs themselves. This distinction is important, because any policy that subsidizes an industry in the effort to make sure that the industry hires workers is inevitably promoting a misallocation of those workers’ skills. Superseding market prices for labor means that the other industries that had a more productive use for those workers (maybe in space flight, maybe not) must forego those workers. This reduces economic growth. The tax revenue argument has more serious problems. Taxes simply extract value from individuals and transfer that value to a government-determined purpose. Solomon has not shown how the government’s ability to tax space activity indicates anything about the relative usefulness of space activity as opposed to other kinds of human productivity. This comment is not central to the book, but may help explain Solomon’s acceptance of certain limited government interventions on behalf of the industry.

Second, the author evidently has some lingering ideas about the role of government in establishing national goals that place this book outside a fairly broad concept of libertarianism. Solomon evidently would go beyond even the classical liberal conception of government as a referee of market disputes, or a source of collective defense against aggression. Government becomes the director of national goals: “Although the public outcry in the spring of 1961 was not as strident as it had been after the launch of Sputnik,” Solomon argues, “something had to be done to recommit the nation to success in the space race” (p. 16). Why? Kennedy, and the author, apparently, saw the achievement of milestones in space exploration as a demonstration of the superiority of American society over that of the Soviets.

This is not to say that the book does not have great merit. Much of the book consists of a useful history of government and private space exploration and technological development. Solomon seems to favor prize-motivated innovation, and mentions some of the history of privately funded prizes. NASA’s objections to privatizing space travel are evident in several places, including its opposition to the first civilian “space tourist,” Dennis Tito, in 2001. Solomon is rightly critical of this, and of NASA’s general approach to space exploration. The personal histories of some of the entrepreneurs involved in the private space launch industry are also

interesting. There is, however, little real analysis in most of the book. Solomon sometimes resorts to press releases by the companies involved, which produces the tone of an over-effusive encomium rather than an objective history or evaluation of the industry. Some of these firms are given to over-optimistic timelines and some bombast, intended to attract venture capital. Furthermore, some of the firms presented as examples of privatization display a rather tight relationship with government. One of these, SpaceX, depends heavily on government contracts, and filed an antitrust suit (unsuccessfully) against two other private-sector firms (Boeing and Lockheed) to prevent its competitors from forming a joint venture to launch satellites for the government. Solomon does not pass judgment on this lawsuit, though he generally favors less regulation and a move toward private enterprise. He does, however, show that many of these space flight firms are funded largely with an individual's personal funds, in pursuit of a personal vision.

Libertarians interested in lifting the barriers to private space transport and exploration may be most interested in Chapter 7, "The Legal Environment for Private Sector Space Enterprises." Here, Solomon argues that the uncertainty of legal rights to property in space has hindered investment in private space ventures. The 1967 Outer Space Treaty, he says, should be updated, and the 1984 Moon Agreement should be abrogated. Regulatory law in general appears to be a sea anchor on the private space flight industry, with regulations designed around older technology unintentionally slowing innovation. The author does not, however, drive that point home as decisively as he could have, with comments about "excessive regulation" and uncritical discussion of some existing regulation and regulatory changes. There is also an extensive discussion of the liability standards for space flight and the applicable international treaties.

It comes out in Solomon's discussion that the private space flight industry is the beneficiary of certain subsidies from the U.S. government. For instance, Solomon mentions (p. 107) the U.S. government's indemnification of up to \$1.5 billion of damages above the amount of the required insurance policy for space flight. "Indemnification by the federal government to commercial space flight licensees for liability to third parties helps support the nascent industry by protecting against high insurance costs due to the risk of a single catastrophe." This is inconsistent with a free market order, but Solomon says that "[t]he federal government must continue to provide indemnification coverage against a successful claim by a third party resulting from an activity carried out under a space license" (pp. 111, 112). Enthusiasm for the industry, apparently, has trumped free market ideas.

However, Solomon does make an effort to reconcile private property with existing international agreements. He mentions three ways in which private property claims to objects in outer space might be consistent with the Outer Space Treaty, which some have interpreted to prohibit private property claims in outer space. First, he argues, “property rights to objects launched into space do not dissolve once they have obtained orbit, thereby establishing a quasi-territorial jurisdiction. When a firm launches tangible property into space, it remains the entity’s private property” (p. 109). Conceivably, structures built by private firms in orbit, on the Moon, or on asteroids, could have ownership rights recognized by governments. Secondly, a nation may have jurisdiction over the area necessary to ensure the safety of facilities or structures built by private entities originating in that nation. Thirdly, a kind of homesteading right may be recognized by governments, so that mineral extraction by a private entity may be allowable under the provisions of the treaty—though not claims of un-extracted resources.

By stating that the exploration and use of outer space “shall be the province of all mankind,” the current situation under the Outer Space Treaty is one of ambiguity in regard to property rights, which Solomon argues has a detrimental effect on the market. The U.S. Presidential Aldridge Commission stated that this uncertainty “could strangle a nascent space-industry in its cradle; no company will invest millions of dollars in developing a product to which their claim is uncertain” (p. 112). The Moon Treaty is more specific in its rejection of lunar property rights, stating that the moon is communally owned by mankind and that no right of ownership can be recognized on the moon. But it largely lacks the force of law, since no space-faring nation has signed it.

The Privatization of Space Exploration would be a useful, short read for someone who needs background information on the history or legal aspects of private space flight. Libertarians would find some policy positions less than consistent with liberty and free markets, but overall, the book is a good introduction to the issues for someone with a pro-market perspective.