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Space economy – Stimulating measurable economic activities through space policies and budgets (3)

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EVALUATING GOVERNMENT'S ROLE IN THE COMMERCIALIZATION OF SPACE

Abstract

The United States' agreement to directly fund the International Space Station (ISS) expires in 2024, and the U.S. President's Budget Request for Fiscal Year 2019 does not include plans to extend direct funding past that date. The U.S. government's plan to maintain American human spaceflight presence in low Earth orbit (LEO) beyond this deadline thus hinges on transitioning the ISS or another human-tended space station to the commercial sector, which would also help accomplish another U.S. government goal: that of commercializing LEO. To facilitate this handoff of LEO to commercial industry, NASA's Fiscal Year 2019 Budget Estimate includes plans to request \$900 million from 2019 to 2023 for the commercialization of the ISS, starting with \$150 million for FY19.

This is not, however, the U.S. government's first attempt at developing commercial space; such efforts have been in place for many decades, dating back to the 1960s. Policies to increase private sector involvement in space have since included mechanisms such as grants, challenges, prizes, and other instruments, to varying degrees of success.

Following a brief history of the U.S. government's efforts in commercializing space, this paper presents an analysis of possible alternative mechanisms for increasing commercial participation in space, specifically LEO. Building on over 60 interviews with experts in government, finance, and industry, we identified challenges to establishing a vibrant commercial space market. These challenges fell into four major categories: unproven demand, difficulties reconciling government and private market demand, high costs of testing, and financing. We assess possible economic policy instruments to help the development of commercial space technologies, such as solution-based government contracting and strategic investment funds, both for their potential for successful implementation and their ability to address the above challenges. Additionally, we analyze the implications for NASA of a robust commercial space industry by evaluating the downstream effects on NASA's mission selection and procurement.