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Game changers in the space economy (3)

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ECONOMIC DEVELOPMENT OF LOW EARTH ORBIT: AN EDITED COLLECTION OF ECONOMIC RESEARCH PAPERS FROM NASA

Abstract

In the next decade, NASA will seek to expand humanity's presence in space beyond the International Space Station (ISS) in low Earth orbit to a new habitation platform around the Moon. By the late 2020s, astronauts will live and work far deep in space than ever before. As part of our push outward into the solar system, NASA is working to help commercialize human spaceflight in low Earth orbit. After the government pioneers, develops, and demonstrates a space capability - from rockets to space-based communications to Earth observation satellites - the private sector realizes its market potential and continue innovating. As new companies establish a presence, the government often withdraws from the market.

As NASA begins moving astronauts out to the lunar vicinity, Mars, and beyond, the Agency will leave the further development of low Earth orbit to private sector companies. This has the potential to be a historic transition - from a government-run laboratory in orbit to an independent human spaceflight economy. In order for a viable, sustainable economy based on human spaceflight to emerge in low Earth orbit (LEO), a number of elements must be present. First, the marketplace dynamics of supply and demand must exist. Second, the overwhelming reliance on government demand and public procurement must be transitioned to a market in which industry and other private sector demand is the primary market force, met by industry supply. The transition government-led to private sector-led human spaceflight activity in LEO will constitute a great experiment in the development of American spaceflight capabilities, and the careful management of the dynamics of this transition will be of paramount importance.

As the overall strategy for the economic development of LEO emerges, NASA asked a small group of prominent economists, including a Nobel Prize-winner, to examine some of the most important questions facing the Agency as it enters into this historic transition. This paper will provide a summary of some of the observations, theories, and conclusions that these economists offered NASA.