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Space Sector's Commercial Transformation: Procurement Opportunities and Financial Transparency (6)

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COUNTING STARS AND COSTS: AN EMPIRICAL EXAMINATION OF SPACE LAUNCH COST  
TREND AT NASA

**Abstract**

A cornerstone of the United States space policy is fostering a robust commercial space industry, aiming to leverage cost reductions driven by the forces of competitive market for the benefit of the public. Space sector stakeholders generally applaud the implementation of this policy decision in the launch industry, citing significant decreases in space launch service costs. The policy's effectiveness can be examined through two perspectives on the effects on cost: the initial cost reduction from the transition of the domain to the private sector and the continuous decrease in cost due to the forces of competitive market until reaching an equilibrium. Empirical studies have verified the first effect by comparing commercial launch service costs to those of the Shuttle program. However, the current volume of literature faces data limitations for robust investigations of the second effect. Proprietary factors restrict access to actual launch cost data, necessitating reliance on the prices advertised by the launch service providers. This study addresses the knowledge gap with an empirical examination using actual launch costs incurred by the National Aeronautics and Space Administration (NASA). The statistical model in this paper reveals NASA's launch cost trends for non-recurring missions using commercial launch services, offering a more precise insight into the current dynamics of the launch market. The study's findings contribute to economic transparency, thereby strengthening the foundation for enhanced market competition. More importantly, the result of the study opens the opportunity to reassess the relevant policies to improve the ways government agencies engage with the private sector and utilize public funds as the exploration of the unknown expands.