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SPACE EXPLORATION INVESTMENT INDEX: A BENCHMARK FOR GLOBAL PARTICIPATION IN SPACE EXPLORATION

Abstract

Recent discussion on space exploration at international fora, such as International Space Exploration Coordination Group (ISECG), International Space Explorations Forum (ISEF), and United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS), recognizes and calls upon increasing opportunities for new international participation in human and robotics space exploration. While the traditional space-faring nations still leads much of the global effort in space exploration, contributions by new and emerging countries would be essential in realizing the shared goal of sustainable human and robotic presence into the Solar System. Yet, it is not easy for countries to decide upon whether and how much each country should contribute in the global activity of space exploration. While the actual decision may depend upon various factors, it would be helpful for decision makers to have a benchmark to assess the size of national investment in space exploration. In this paper, we suggest Space Exploration Investment Index (SEII) as such benchmark. SEII consists of a set of indices, such as the space exploration and space science budget as a share of overall national space budget, total GDP, GDP per capita, and other macroeconomic indicators. SEII could be used to compare the investment level in space exploration across countries and over time. We calculate SEII for major space faring nations as well as new countries investing in space exploration to compare the size of and trend in investment in space exploration of various countries. This would provide decision makers around the world with simple but useful indicator to assess each country's contributions to global space exploration and to establish strategy for national participation in space exploration.