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THE SPACE INDUSTRY AND ITS RELATIONSHIP WITH THE SPACE SERVICES SECTOR AND THE REST OF THE ECONOMY

Abstract

The first purpose of the paper is to clarify the different ways in which the space industry (SI) is related to the rest of the economy. A first type of relationship concerns the backwards effects of an investment in the SI on its supplying sectors, as assessed by the appropriate input-output multiplier. A high multiplier is often taken as an additional argument in favour of any type of investment, but a careful examination shows that this conclusion only applies in some special contexts . The data on the upstream and downstream sections of the space sector are often arranged in such a way to show "chains" or "pyramids", resulting from an upstream space sector, much smaller than downstream space services sectors. These presentations should not lead us to believe that upstream investments multiply into downstream turnover: satellite systems are capital goods and the relative sizes of SI and space services sectors using them depend jointly on the interplay of final demands and technological change which brings about satellite systems less costly and/or of better quality. Market conditions and relative market powers will determine how the rent created by technological progress will be split between SI producers, space services providers and final consumers. This theoretical perspective suggests to evaluate the social return of individual innovations in SI, by adding up the return for the innovating companies, those for the service companies (dubbed rent spillovers by Griliches) and the net increases in consumers' surpluses. A third relationship between SI and the rest of the economy is much more pervasive and perhaps more important than the two previous ones, having to do with the existence of spillovers of technology (understood in a broad sense) from (to) the SI to (from) the rest of the economy and within the SI and its firms themselves. The second purpose of the paper is to assemble some empirical evidence of the impact of technology spillovers from the high tech and aerospace sectors, in which the space industry is embedded, on the growth of productivity in the manufacturing sector. Alternative regression models of total factor productivity growth on RD intensity and other control variables will be presented, drawing from OECD and EU KLEMS data, RD stocks and patents for a number of manufacturing sectors in Italy in 1980-2005.