*Background*

On February 28, 2023, the Department of Commerce is overseeing $50 billion to revitalize the U.S. semiconductor industry, including $39 billion in semiconductor incentives. The first funding opportunity seeks applications for projects to construct, expand, or modernize commercial facilities for the production of leading-edge, current-generation, and mature-node semiconductors. This includes both front-end wafer fabrication and back-end packaging.

*Government*

By giving subsidies to semiconductor industry, U.S. government hopes that the nation can less reliant on foreign suppliers that originally power computers, household appliances, cars and more. The subsidy to the semiconductor industry aligns with the US government's efforts to enhance national security and supply chain resilience. The dependency on foreign countries for critical semiconductor components has been a concern for the United States. By providing incentives to domestic semiconductor manufacturers, the government aims to reduce reliance on foreign suppliers and ensure a stable and secure supply of semiconductors for defense applications, infrastructure, and critical industries. Strengthening the domestic semiconductor industry will enhance the country's ability to withstand disruptions, protect sensitive technologies, and maintain sovereignty in strategically important areas

The subsidy to the semiconductor industry will foster technological advancement and innovation within the United States. With increased financial resources, semiconductor companies will be able to invest in cutting-edge technologies, such as advanced manufacturing processes, chip design capabilities, and emerging technologies like artificial intelligence and quantum computing. This will position the US as a global leader in semiconductor technology, attracting research and development activities, and promoting collaboration between the private sector and academic institutions. The resulting advancements will have far-reaching implications for multiple industries, including healthcare, telecommunications, automotive, and defense.

The subsidy to the semiconductor industry can positively impact the US trade balance and export competitiveness. By investing in the semiconductor sector, the government aims to increase domestic production and reduce imports of semiconductor components. This shift will help address the trade deficit and strengthen the country's export capabilities in semiconductors and related technologies. As the US semiconductor industry becomes more competitive globally, it is expected to attract foreign investments and create opportunities for semiconductor exports, thus contributing to a favorable trade balance and supporting economic growth.

There is opportunity cost of this government expense. By giving subsidies to semiconductor industry, the government lost the chance to invest other industries. For example, U.S. government could have used these subsidies to support infrastructure and education.

The quantity of subsidy needed is also hard to determined. If the quantity of subsidy on semiconductor industry is less than the real amount needed, it will not help much to the industry and less producer will join in the industry. What’s more, if the subsidy put in semiconductor industry is larger than real amount needed to overcome the industry’s difficulty, these extra subsidies could have been used for the country's infrastructure, education, etc. Thus, the quantity of subsidy should be determined after research, which will consume human and financial resources.

The definition of subsidy is that a subsidy refers to a assistance by the government to individuals or groups of individuals, such as firms, consumers, industries or sectors of an economy.

<https://www.commerce.gov/news/press-releases/2023/02/biden-harris-administration-launches-first-chips-america-funding#:~:text=As%20part%20of%20the%20bipartisan,%2439%20billion%20in%20semiconductor%20incentives>.

<https://www.nytimes.com/2023/02/27/us/politics/chips-act-biden-commerce-department.html>