

ROLE OF SEMICONDUCTOR INDUSTRY IN THE GROWTH OF LESS DEVELOPED COUNTRIES

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ABSTRACT

The semiconductor industry (consisting of design of integrated circuits, semiconductor wafer processing, packaging, testing, and materials supply) with annual sale of over \$200 billion serves as a feedstock to the electronics industry with an annual sale of almost \$ 1.4 trillion. The economic performance of virtually all high-tech industries is tied to the health of semiconductor industry in a particular country or in a particular region.

The cost of most advanced 300 mm manufacturing facility is about \$3B. The older generations of Fabs can be bought with price as low as \$0.5B. Thus rarely any country with less developed economy can afford such an investment. On the other hand, electronics consumption is increasing in almost every country. In order to take advantage of the growing demand of electronics consumption in a particular country, the local economy can benefit only when some kind of semiconductor/electronics manufacturing takes place in that country (each manufacturing job brings about 10 related jobs and has tremendous impact on the local economy). This requires careful planning of the investment of local resources. As an example, the R&D investment of future generation of semiconductor products should be carefully weighed versus investment of resources in forming alliances and joint companies for manufacturing of certain semiconductor/electronics products in a particular country.

In this paper we will examine global semiconductor industry and cite specific examples of China and India. Guidelines will be proposed that can be helpful for less developed countries.