SWAMISPEAK Are subsidies for silicon fabrication plants liable to be wasteful 'revadis'?

Hold On to Your Chips, India

Swaminathan S Anklesaria Aiyar

Along with Taiwan's Foxconn, Anil Agarwal's Vedanta plans to set up India's first silicon fabrication plant (fab) in Gujarat, along with a display glass unit, costing a whopping $20 billion (₹1.6 trillion). Silicon from this project will be sliced into wafers and converted in stages into microprocessors — computers on a chip — and solar power modules.

It is not clear to what extent the processing will be done by Vedanta itself. But Agarwal's philosophy has always been, 'We produce raw materials only, and leave processing to others.' So, it appears that his fab will produce silicon and sell that to others to process.

It Ain't Too Fab

Maharashtra chief minister Eknath Shinde has complained that the project was supposed to be set up in his state, but has been diverted to Gujarat under political pressure of the previous regime. Vedanta says no, the site was chosen after an independent technocratic evaluation, and politics had no role in it. Business circles say that no project of this size can be entirely free of politics.

Both states think a silicon fab is the starting point of downstream industries providing lakhs of jobs. The Gujarat government claims that the Vedanta fab will produce a lakh jobs. Whoa! Fabs are enormously costly, create few direct jobs and are being increasingly automated. They can easily turn into white elephants requiring expensive rescues.

GoI has offered a 50% subsidy for silicon fabs. As part of its production-linked incentives (PLI), it has proposed a support package of $10 billion for creating a series of fabs along with allied units like display glass. But if a single project like Vedanta's costs $20 billion, which threatens to swallow up the entire provision of $10 billion, what about the four or five other fabs to follow? If each gets a similar subsidy, where will the money come from? A 50% subsidy for Vedanta will amount to $10 billion (₹80,000 crore), exceeding the entire central allocation for MGNREGA this year (₹73,000 crore). Priorities, anybody?

No wonder some economists ask whether such subsidies are 'revadis', Prime Minister Narendra Modi's term for unwarranted subsidies. Why pour enormous sums into capital-intensive plants creating very few jobs, rather than in MGNREGA? Why not import silicon wafers to be processed in downstream units, avoiding huge subsidies and creating far more jobs for the same investment?

India has no comparative advantage in fabs, which is why a 50% subsidy is required. But India is competitive in chip design, which also yields more jobs. A time will come when India's industry becomes so large that building silicon plants will become viable. But is this the right time? The most vociferous opponent of the government's policy is former RBI governor Raghuram Rajan. He worries about the entire PLI scheme, especially the subsidies for fabs.

I am amused at the political battle going on between Maharashtra and Gujarat to get this fab. They have offered to provide free land and freebies on top of central subsidies, thinking that a huge downstream industry will come up around the silicon fab.

Fab for snacks only

This does not follow. Globally, some plants are fully integrated — they produce silicon and convert this into computer chips in the same place. But many giant fabs export the bulk of their production to stand-alone processing facilities across the world. Vedanta's track record is one of producing raw materials and selling them across the world, not just to Gujarat companies.

Chipped at the Edges

Major US companies do not have their own fabs. Qualcomm, Broadcom and Nvidia are examples, and they produce the most sophisticated chips. India, too, can generate microprocessor companies that do not have their own fab. Maharashtra may, in fact, be very well-off letting Gujarat bear the subsidy burden of the fab plant, and then making merry by attracting plants for processing the silicon. This approach can create a hundred times as many jobs as the fab itself, while avoiding a big subsidy bill.

Globally, a security issue has now arisen. The US is the world leader in producing sophisticated designs for integrated circuits (ICs) and high-end chips. Its companies have the most sophisticated plants for making machinery for the microprocessor industry. Its strength is in design and patents. It has outsourced the production of silicon and chips — its share of global chip production is down to around 12%.

China and Taiwan are the overwhelming producers of silicon and of chips (though not of high-end chips). The US fears it has become overdependent on chips and, that too, on its biggest strategic foe.

Recently, a worldwide shortage of chips forced auto companies across Europe and the US to slow down production, and the shortage is expected to last into 2023.

So, the US passed the CHIPS (Creating Helpful Incentives to Produce Semiconductors) for America Act in July providing $52.7 billion of subsidies over several years to attract fresh investment in fabs and semiconductors. India, too, must at some point build its own fabs. But if India builds just five fabs as big as Vedanta's, its subsidy bill may be as large as the US'. That looks excessive. We must not rush into this sector prematurely.

Maharashtra may be better off letting Gujarat bear the fab plant's subsidy burden and prefer plants to process the silicon, creating a hundred times more jobs

Turning aatmanirbhar in silicon-making will also make India a critical cog in the global supply chain

Get Chip Off the Shoulder

Shashi Shekhar Vempati

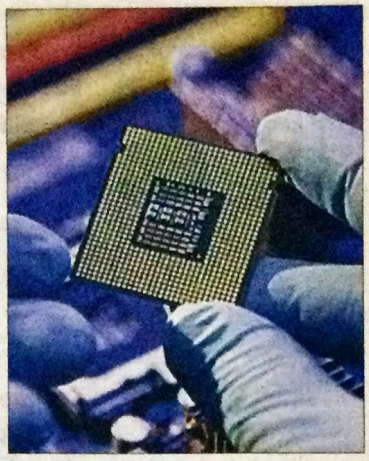
J R D Tata's radio autobiography was recorded by All India Radio (AIR) in 1986 and was recently digitised and made public. In it, Tata speaks at length about Air India's nationalisation during the Jawaharlal Nehru administration. He also speaks on how Nehruvian India missed the opportunity to become a giant in aviation manufacturing by shackling private enterprise. It is this Nehruvian folly that came to mind after reading Swaminathan S Anklesaria Aiyar's column last week on this page critical of GoI's semiconductor mission.

Aiyar's misgivings about the production-linked incentive (PLI) support to the Vedanta-Foxconn collaboration for establishing silicon and display fabs may be up for debate. But his misplaced comparison with MGNREGA allocation is jarring. Aiyar chose to bring up the UPA-era 'ditch-digging' scheme to make his case against India's most ambitious attempt yet to create a hi-tech ecosystem. Apart from being an entitlement scheme that is a drain on the exchequer, MGNREGA has no history of contributing to India's economic growth, strategic interests or global competitiveness.

One cannot deny the 'techno-nationalist' reality of this decade where global supply chains have to be derisked and domestic capabilities have to be built up given the geopolitical risks that have surfaced over the past two years. It is this reality that has seen the US place big bets on bringing back silicon manufacturing through the CHIPS (Creating Helpful Incentives to Produce Semiconductors) for America Act, and spurred nations from Europe to Australia to review their dependency on China and Russia in sectors like hi-tech, defence and energy.

No Vaccine for Disbelievers

The discomfiture of a certain section of the intelligentsia with India's foray into hi-tech manufacturing reminds one of the scepticism shown towards India's Covid-19 vaccine strategy and vaccine manufacturing abilities, and arguments were made for India to subsidise expensive mRNA vaccines from the US. It is to the credit of Prime Minister Narendra Modi and his government that not only was the domestic vaccine manufacturing ecosystem effectively leveraged, but India overcame a health crisis of such a scale to open up its economy while others continue to struggle.



Handling with care

Aiyar argues that India must prioritise chip design over silicon manufacturing. This is a false binary. For India to have effectively respond to the pandemic, it had to leverage an already well-developed domestic ecosystem of laboratories, processing plants and tech platforms. Such ecosystems do not create themselves overnight. While India is home to a vast engineering talent, the domestic ecosystem is significantly underdeveloped. A silicon fab of the scale envisioned by Vedanta-Foxconn, any limitations notwithstanding, is bound to have a multiplier effect both upstream and downstream on the development of the semiconductor ecosystem in India. A study by the US Semiconductor Industry Association found that a dollar invested in semiconductor manufacturing generates about $16 for the overall economy.

The India Semiconductor Mission (ISM) must not be conflated with PLI schemes. Unlike the latter, fiscal support for ISM is based on project cost and capital expenditure rather than output-linked incentives. This was a conscious decision taken by GoI based on the sector's specific needs. ISM includes a design-linked incentive (DLI) scheme for startups and companies working on semiconductor design alongside incentives for silicon fabs.

Inscribed in Silicon

Further, the claims made of a $10 billion subsidy are vastly exaggerated. Actual government support sought by the companies is for about $4.8 billion. With the Vedanta-Foxconn proposal still under appraisal, any estimates are pure conjecture till the final figures are approved by GoI.

A July 2022 Nikkei Asia study (s.nikkei.com/3Sg4qBO) on the long road to building self-reliance in chip manufacturing by countries highlights how Gujarat Fluorochemicals is already a source for fluoropolymers needed upstream. From nanotechnology to advanced material science, the study identifies several specialised capabilities that need to be simultaneously developed by countries aspiring for semiconductor chip self-reliance. This emphasises the critical role ISM has to play in the years to come, to realise the vision laid out by the PM at the Semicon India 2022 conference in April where he said, 'A new world order is forming and we must seize this opportunity.'

The silicon fab envisioned by Vedanta-Foxconn will have a multiplier effect both upstream and downstream on the development of the semiconductor ecosystem in India

The writer is former CEO, Prasar Bharati, GoI