

America's bet on industrial policy starts to pay off for semiconductors

IN THE FINAL days of Joe Biden's presidency, most parts of his administration are winding down. Not so the top brass in the Department of Commerce: on an almost daily basis, they are signing giant funding contracts with chipmakers, racing to dole out cash before Donald Trump enters the White House. When all is said and done, they will have awarded nearly \$40bn to semiconductor makers in little more than a year—arguably the biggest single bet on industrial policy by the government in decades, and one that could end up as Mr Biden's most lasting economic legacy.

The rush to disburse cash has invited questions about whether the funding commitments—the cornerstone of the CHIPS and Science Act, passed in 2022—are at risk under Mr Trump. On the campaign trail, he called CHIPS a “bad” deal, saying the government could have just slapped tariffs on imported semiconductors.

Gina Raimondo, commerce secretary in the Biden administration, is not fretting about a rollback by Mr Trump or Howard Lutnick, nominated as her successor. In an interview with *The Economist*, she notes that support for the law is bipartisan, with both Republicans and Democrats keenly aware that a capacity to make chips, a critical component in every electronic device, is needed for national security. Moreover, she adds, people forget that it was Mr Trump who got things started by urging TSMC, a Taiwanese firm that is the world's most advanced chipmaker, to build a semiconductor factory (or fab) in America.

She also rejects the notion that Commerce is rushing money out the door. The stated plan had always been to complete allocations by the end of 2024, and the due diligence began much earlier. “I see it as getting the job done efficiently with taxpayer money,” says Ms Raimondo.

In fact, the recent concern about the frenetic pace is the exact opposite of the criticism that previously dogged the CHIPS programme—namely, that it was moving too slowly because of conditions attached to deals, including requirements that chipmakers ensure access to childcare for their workers. Much of the initial slowness also reflected basic prudence on the part of the commerce department as it built up its CHIPS office from scratch, recruiting a mixture of semiconductor veterans and Wall Street dealmakers. It was charged, in effect, with implementing a major departure from the usual distaste for industrial policy on Capitol Hill (apart from when it comes to weapons). “There are large numbers of congressional staffers just waiting for the first mistake so they can denounce the investment,” says Charles Wessner of Georgetown University.

Could the CHIPS programme yield a more durable change in America’s attitudes towards industrial policy? The other part of Mr Biden’s industrial policy—the Inflation Reduction Act (IRA), focused on clean-tech spending—is bigger but much more diffuse, covering everything from hydrogen production to electric-vehicle charging stations. Climate wonks had hoped that the IRA would be politically protected from a future Republican Congress because so much of its spending goes towards Republican states. But given a choice between keeping green tax credits associated with the Biden administration and cutting voters’ taxes, most Republican lawmakers know which they would prefer.

In the case of CHIPS, by contrast, funds have already been promised to companies contractually, provided they hit specific production milestones. Early returns are impressive: the programme has catalysed about \$450bn of private investments. And this money is spread across much of the industry, from high-tech packaging to memory chips. One marker of success is the production of the most advanced chips, measuring less than 10 nanometres in size. In 2022 America made few such chips. By 2032 it is on track to have a share of 28% of global capacity, according to the Semiconductor Industry Association, a trade group. “That is not chopped liver,” says John Neuffer, its CEO.

The subsidies have helped to shrink a gap of roughly 30% in the cost of building and operating fabs in America compared with in Asian countries. In part costs are lower in Asia because Asian governments lavish handouts on companies. But Asian producers

have also reaped the benefits of dense manufacturing clusters, with well-trained workforces and plenty of suppliers nearby. The hope is that CHIPS has started this process in America. “It’s enough to get the flywheel going,” says Ms Raimondo.

But neither she nor just about anyone in the industry thinks that it will ultimately prove to be enough. It can take five years to build a cutting-edge fab, while the CHIPS Act itself runs for just five years. TSMC alone spends more than \$30bn annually on expanding and upgrading its manufacturing operations, and China is throwing multiples of that at its companies. “I think we should be sober about how challenging it will be to keep the investment going,” says Chris Miller, author of “Chip War”, a book about the industry. The question facing the Trump administration thus will not be whether to repeal CHIPS but how to build on it. For starters it is likely to come under pressure to extend a 25% tax credit for manufacturing investment that is due to expire in 2027.

Mr Trump will also have to decide what to do with the newly muscular Department of Commerce. The department’s headquarters in Washington, DC, was the largest office building in the world when completed in 1932, a measure of its institutional importance at the time. But over the decades it faded into the background, mainly handling trade missions. Over the past few years its labyrinthine corridors have pulsed with energy again, with the department leading not just the semiconductor push but also much of the effort to restrict exports of advanced technology to China. “This shouldn’t be a blip for the commerce department,” says Ms Raimondo. “This is where the world is today.”