

Carrots and Sticks? Taiwanese Supply Chains Under Trump 2.0

Author: Mervyn Ming-Yen Ho

The decisive Republican victory in the Presidency and both houses in November 2024 handed President-elect Trump unfettered power to implement his economic agenda. His desire to impose punitive economic tariffs on the rest of the world and extend corporate tax cuts is well-known, yet the future outlook of the policy legacies of the Biden era, such as the CHIPS Act and the Inflation Reduction Act, remains uncertain.

Taiwanese firms have two chief concerns toward the 2nd Trump administration. The immediate short-term issue regards the scale and sustainability of the American commitment to support Taiwanese manufacturing in the United States. Namely, whether the CHIPS Act and associated federal and state-level incentives could be delivered promptly per previous agreements with the Biden Administration. Furthermore, should future opportunities for additional subsidies arise, Taiwanese firms investing in the United States need assurance that they have a level playing field vis-a-vis American competitors in securing those subsidies. Taiwanese firms should emphasize the critical importance of Taiwanese technology and manufacturing expertise in fostering robust growth and competitiveness of the supply chain that would involve not just the US, but inevitably other allied countries. Excessive preferential treatment to US manufacturers hurt downstream US customers, who seek efficient and low-cost solutions to satisfy the ever-increasing demand for high-performance computing. More importantly, subsidizing only American but not Taiwanese firms risks misallocating critical resources required for the US to manage technology competition with China.

The second issue surrounds tariffs and other non-market barriers that may target Taiwanese semiconductor and electronics supply chains. Could tariffs substitute for subsidies in coercing Taiwanese investments to the US, as Trump had notoriously suggested? Historical precedents in the US-Japanese trade war suggest that this strategy might be a sensible low-cost approach, particularly for sectors in which Taiwanese firms have actual US competitors. Thus Taiwanese firms should consider investing in the US preemptively to prepare for tariffs and expand business opportunities. To secure subsidies and negotiate more favorable and predictable policies, Taiwanese firms should build up lobbying departments and increase their presence in DC as TSMC and other foreign semiconductor firms had. For smaller firms incapable of expending such resources, the government should step in and create organizations that represent the common interests of Taiwanese firms on the supply chain.

The Carrots: the CHIPS Act and the Taiwanese supply chain in America

Taiwanese supply chains have already been on the move before the resolution of the 2024 elections. With TSMC's 4nm fab in Arizona going into production this December, associated packaging & testing and downstream assembly supply chains are also ramping up capacity in the US and Mexico. To TSMC Arizona's advanced node chips truly US-made. make TSMC's much-demanded CoWoS advanced packaging capacity is expected to follow, pulling in investments from several Taiwanese packaging equipment manufacturers.¹ On the semiconductor materials side, Taiwanese wafer firm Global Wafers doubled down on investment, building the US's first 300mm silicon wafer plant in Texas and 300mm Silicon-on-Insulator wafers in Missouri. Further down the electronics supply chain, we have the server assemblies of Foxconn, Quanta, Wistron, and Inventec, who already own capacity on US and Mexican soil. Though the largest facilities of these firms are in Mexico and Southeast Asia, they are ready to ramp up US capacity should the new administration implement new tariffs or incentives.² Foxconn in particular has by far the largest US capacity in AI server and data center assembly in

Anton Shilov, "Amkor and TSMC Team Up for Advanced Packaging in the U.S.: CoWoS and InFO to Make AI and HPC CPUs," *Tom's Hardware*, November 9, 2024. [Online]. Available: https://www.tomshardware.com/tech-industry/amkor-and-tsmc-team-up-for-advanced-packaging-in-th e-u-s-cowos-and-info-to-make-ai-and-hpc-cpus

¹ Commercial Times, "Taiwan+1 Strategy Accelerates as TSMC Supply Chain Expands in the U.S.," *Commercial Times*, November 12, 2024. [Online]. Available: https://www.ctee.com.tw/news/20241112700044-439901.

² DIGITIMES, "Foxconn Treading Carefully as Trump Set to Return to White House," *DIGITIMES*, November 11, 2024. [Online]. Available:

https://www.digitimes.com/news/a20241111PD236/foxconn-donald-trump-wisconsin-production.html United Daily News, "Foxconn Considers New Production Strategy for Wisconsin," *United Daily News*, November 11, 2024. [Online]. Available: <u>https://udn.com/news/story/7240/8350865</u>

Wisconsin and Texas, and is actively increasing electric vehicle production in Ohio.³ Given Foxconn's past investment history in Wisconsin under Trump which had been the subject of much Democrat scrutiny, Foxconn should be eager to make amends by adding valuable manufacturing jobs in Wisconsin.

Therefore, the 2nd Trump administration will inherit a burgeoning electronics supply chain that could reliably manufacture AI servers and traditional electronics from top to bottom on US soil, in which Taiwanese firms play an integral role. Much of this is of course credited to Biden's CHIPS Act, though Trump could claim as the one who secured TSMC investment in Arizona and introduced Foxconn to Wisconsin.⁴ Trump's return to the White House introduced uncertainty as to the future of the Act, which has accelerated negotiations to finalize announced deals. As CHIPS Act distributions are made contingent on specific prespecified milestones being reached, the Republicans may seek to modify existing terms and introduce uncertainties.⁵ Previous CHIPS Act NOFO provisions include requirements on childcare facilities, communication with local unions, and environmental impact assessments reflecting socioeconomic priorities espoused by Democrats.⁶ These accordingly are under revision by Republicans, which may be welcomed by the cost-conscious Taiwanese industry as long as such revisions do not interfere with the timing of the distributions. Prospective tightening of the "guardrails" provisions prohibiting awarded firms from expanding non-legacy semiconductor capacity in China is unlikely to impact TSMC, as TSMC Nanjing produces legacy semiconductors exempted by the guardrails and had obtained a permanent license to import equipment.⁷

https://www.nytimes.com/2020/05/14/technology/trump-tsmc-us-chip-facility.html

⁵ Chosun Ilbo, "With Trump's Return, Samsung and SK Hynix Race to Lock in U.S. Subsidies," *Chosun Ilbo*, November 13, 2024. [Online]. Available:

https://www.chosun.com/english/industry-en/2024/11/13/SFBLADP2AJFNFFAHVEYESVTJ7M/

³ Reuters, "Foxconn Sees Robust Al Server Demand, Delays EV Target," *Reuters*, November 13, 2024. [Online]. Available:

https://www.reuters.com/technology/major-apple-supplier-foxconn-expected-report-strong-q3-results-a i-boom-2024-11-13/.

⁴ Ana Swanson and Raymond Zhong, "T.S.M.C. Is Set to Build a U.S. Chip Facility, a Win for Trump," *The New York Times*, May 14, 2020. [Online]. Available:

⁶ Bloomberg News, "Trump's Win Sets Off Race to Complete CHIPS Act Subsidy Deals," *Bloomberg*, November 8, 2024. [Online]. Available:

https://www.bloomberg.com/news/articles/2024-11-08/trump-s-win-sets-off-race-to-complete-chips-act -subsidy-deals

⁷ Lisa Wang, "TSMC Nanjing Gets Permanent US Approval," *Taipei Times*, May 25, 2024. [Online]. Available: <u>https://www.taipeitimes.com/News/biz/archives/2024/05/25/2003818347</u>.

However, Taiwanese firms will have to honor or even double down on commitments to sustain local employment. The current practice of bringing Taiwanese domestic engineers and fab construction supply chains to America may not be welcomed by an administration adamantly against immigration and has a history of restricting H1B employment visas. Taiwanese firms therefore need to focus on recruiting local talent for future workforce needs, which requires them to make themselves known to the American public and improve compensation to poach the best American talent. Training American workers to conform to Taiwanese manufacturing standards while simultaneously adapting to the expectations of local recruits have proved to be a challenge.⁸ Trump had remarked on more favorable immigration policies toward foreign college graduates, an agenda that Trump allies in Silicon Valley like Elon Musk will heavily support.⁹ Taiwanese firms should join forces to advocate for relaxed immigration on this front, as bilingual, American-educated foreigners willing to accept demanding work will be an indispensable part of Taiwanese advanced manufacturing in the US.

A bigger future concern is whether Taiwanese manufacturing could compete with domestic American firms for future subsidies. A second round of the CHIPS Act of equivalent or larger scale is necessary should the US be serious about semiconductor manufacturing. With China expected to dominate mature node semiconductors and the current demand for advanced node semiconductors outstripping supply, the US has a pressing need to double down on expanding domestic capacity. This is especially urgent given the US-China race in artificial intelligence and the perceived geopolitical risks and energy shortage Taiwan faces. On the other hand, with Intel and Samsung struggling with yields, heavy capex, and dwindling market share across all market segments, TSMC is the only game in town for bleeding-edge logic chips.¹⁰ TSMC Arizona's past experiences with construction

⁸ Viola Zhou, "TSMC's Debacle in the American Desert," *Rest of World*, April 23, 2024. [Online]. Available: <u>https://restofworld.org/2024/tsmc-arizona-expansion/</u> https://udn.com/news/story/7240/8335389

⁹ AP News, "Trump Proposes Automatic Green Cards for Foreign College Graduates," *AP News*, June 2024. [Online]. Available:

https://apnews.com/article/trump-green-cards-immigration-colleges-1366591ba263018305ee6eb9248 03d7f

¹⁰ Ramish Zafar, "Intel & Samsung Are Reportedly Inking a Foundry Alliance, Sharing Production Facilities Along With Process Tech," *Wccftech*, November 9, 2024. [Online]. Available: <u>https://wccftech.com/intel-samsung-are-reportedly-inking-a-foundry-alliance-sharing-production-facilities-along-with-process-tech/</u>.

delays and local workforce inadequacies suggest that current CHIPS incentives are insufficient to ensure that the US will command a respectable share of advanced node manufacturing capacity in the foreseeable future. Thus more subsidies are expected should TSMC build more plants in addition to the three planned Phoenix fabs, which are rumored to be located in Texas. Leading Taiwanese firms in other segments of the supply chain, such as GlobalWafers, ASE/SPIL, and Foxconn, will also seek incentives for future expansions.

However, the US government's desire to support domestic firms could divert resources. While negotiations to finalize the CHIPS Act are still underway, a rescue package is under discussion in Washington to support the struggling Intel, with a merger with IC design competitors or a spinoff of the unprofitable manufacturing business being speculated options on the table.¹¹ Text exchanges between ex-Intel CEO Pat Gelsinger and Vice President-elect Vance after the election indicate that Gelsinger is actively pushing for Intel to be the favored champion of the new administration, via Intel's heavy investment in Ohio.¹² Gelsinger had also previously been critical of the CHIPS Act subsidizing foreign firms like TSMC, insisting that American taxpayer money should go to American firms only. ¹³ This echoes Trump's recent comments on how tariffs could replace subsidies to induce foreign direct investment. Other Taiwanese firms building factories in the US also face domestic US competitors, who may join Intel to lobby for preferential treatment.

Yet, the reality is that Intel's attempt to leapfrog TSMC with its astronomical investment in high-NA EUVs and the 18A process will exacerbate short-term unprofitability. Low yields are expected early on and cannot be rapidly improved without additional customer orders, much like Samsung's failed experiment with the GAA process at 3nm.¹⁴ The chances of Intel remaining competitive in semiconductor

https://www.semafor.com/article/11/01/2024/concerns-grow-in-washington-over-intel

¹² Mike Rogoway, "Intel CEO Optimistic About CHIPS Act's Future After Trading Texts with J.D. Vance," *The Oregonian*, November 13, 2024. [Online]. Available: https://www.oregonlive.com/silicon-forest/2024/11/intel-ceo-optimistic-about-chips-acts-future-after-tra

https://www.eetimes.com/intel-ceo-warns-about-chips-funds-export-controls/

¹¹ Reed Albergotti and Liz Hoffman, "Concerns Grow in Washington over Intel," *Semafor*, November 1, 2024. [Online]. Available:

ding-texts-with-jd-vance.html ¹³ Nitin Dahad, "Intel CEO Warns About CHIPS Funds and Export Controls," *EE Times*, October 26, 2023. [Online]. Available:

¹⁴ Ramish Zafar, "Samsung's 3nm GAA Unstable Yields Driving Customers Away, Resulting in Millions Lost," *Wccftech*, October 30, 2024. [Online]. Available:

manufacturing are increasingly murkier, especially now that the product-focused board forced the pro-foundry ex-CEO Gelsinger to retire. Saving Intel and other lagging American firms with taxpayer money is not in the interest of fabless US firms like Nvidia and Apple, who desperately need more TSMC's leading-edge capacity. Intel's capacity, currently accessed by some cloud service providers (CSP), is at best a backup option in case of a Taiwan strait crisis. Fabless and CSP are the crown jewels of the American tech industry, which the US government should prioritize to win the intense technology competition with China. Taiwanese firms therefore should highlight their investments' positive impact on the US economy and technological competitiveness, emphasizing their indispensable role and how subsidizing Taiwanese firms generates spillover benefits to downstream US fabless and CSP firms. The success of Japanese automobile investments in the United States suggests that a win-win situation could be forged if the US government allows foreign manufacturers to employ Americans and serve American customers with high-quality products. A stronger Taiwanese lobby in Washington should strive to direct the Trump Administration's attention from narrow corporate interests back to the broader interests of its constituents' as well as the national strategic interest.

Republican and Trump's openness to tax cuts relative to government distributions provides another avenue for Taiwanese firms to secure competitiveness in the United States. Firms should advocate for more favorable tax treatments contingent on achieving specific construction, production, or local employment milestones. Such policies need not prefer American or foreign companies, but apply equally to all firms capable of investing substantially in the United States. Uniform tax credits as opposed to discretionary subsidy giving should be embraced by the US government, which needs to be mindful of maintaining proper market efficiency when providing incentives.

The Stick: How Tariffs Could Shape Taiwanese Investments

The Trump Administration, bent on government efficiency and unilateral American interests, may still be reluctant to subsidize foreign firms. Instead, Trump had touted using subsidies against Taiwanese exports, which would make production

https://wccftech.com/samsung-3nm-gaa-unstable-yields-driving-customers-away-resulting-in-millions-lost/.

in the United States relatively more attractive. History suggests this approach is a plausible alternative. US-Japan trade tensions in the 1980s propelled Japanese car manufacturers like Toyota to invest in automobile plants in the US, triggered by US automobile import quotas for Japanese cars.¹⁵ The 1980s US-Japan trade war had strong parallels with that of the current US-Taiwan trade relationship. Increasing Japanese competitiveness in automobiles and semiconductors provoked American producers to lobby intensively for the Reagan Administration to implement trade restrictions against their Japanese competitors.¹⁶ Japanese security reliance on the US compelled the Japanese government to accede to American demands and imposed "voluntary export restraints". Simultaneously, the US government requested Japanese automakers to invest in the US to avoid the import guota restrictions and absorb the newly unemployed American auto manufacturing workforce. Leading Japanese automakers including Toyota, Honda, Nissan, Subaru, Mazda, and Mitsubishi began a flurry of investments in the United States, opening plants in the Midwest that are estimated to have created 35,000 direct jobs and 337,600 additional jobs indirectly.¹⁷ No significant federal subsidies were employed in the process, and Japanese automobile manufacturers remain key employers of the American automobile workforce. American automakers on the other hand remained uncompetitive, with Chrysler and GM requiring a bailout surpassing the size of the CHIPS Act in the midst of the Great Recession.¹⁸ Should Intel and other American IT manufacturers initiate a similar lobby for government support and trade protection, the Taiwanese supply chain which primarily exports to America will be at risk and may have to consider allocating some capacity to the US.

https://americancompass.org/wp-content/uploads/2022/10/AC-Case-Study_Auto-VER_Final-1.pdf. Steven Berry, James Levinsohn, and Ariel Pakes, "Voluntary Export Restraints on Automobiles: Evaluating a Trade Policy," *The American Economic Review*, vol. 89, no. 3, June 1999, pp. 400-430. ¹⁶ Douglas A. Irwin, "The U.S.-Japan Semiconductor Trade Conflict," in *The Political Economy of Trade Protection*, University of Chicago Press, 1996, pp. 49-70.

¹⁵ Wells King and Dan Vaughn Jr., "The Import Quota That Remade the Auto Industry," *American Compass*, September 2022. [Online]. Available:

¹⁷ Kazunobu Hayakawa, "FDI and the Local Labor Market: Japanese Automobile Plant Openings in the 1980s," *Institute of Developing Economies*, [Online]. Available: <u>https://hatakayama.github.io/paper_web/Japanese_FDI_US.pdf</u>.

¹⁸ Knowledge at Wharton, "The Auto Bailout Ten Years Later: Was It the Right Call?" *Knowledge@Wharton*, December 18, 2018. [Online]. Available: https://knowledge.wharton.upenn.edu/podcast/knowledge-at-wharton-podcast/auto-bailout-ten-years-l

https://knowledge.wharton.upenn.edu/podcast/knowledge-at-wharton-podcast/auto-bailout-ten-years-later-right-call/.

TSMC's dominant position in FinFET logic processes and advanced packaging makes tariffs easier to handle in periods of high demand like now. TSMC's ability to reach close to 60% gross margin as a foundry and its ability to hike prices without decreasing demand suggest a sizable chunk of the tariffs could be passed on to US customers such as Nvidia, Apple, Broadcom, and AMD. US customers are willing to pay a premium for TSMC wafers for higher yield and reliability as well as a well-developed foundry service model which IDMs like Samsung and Intel could not achieve. The Trump Administration should consider this factor before implementing extortionary tariffs on Taiwanese chip exports or final products that have TSMC chips. However, TSMC's pricing power does not apply to the whole supply chain. Tariffs on imported AI servers may benefit US-based OEMs like Dell and HP which are competitive in the market, which has prompted Taiwanese OEMs to accelerate investment in the United States.

There are increasing demands for TSMC to bring more advanced process node manufacturing to the US, with many commentators noting that Taiwan's "N+2" policy restricting outbound direct investment of bleeding edge semiconductor nodes is a potential roadblock to the US's goal for supply chain security. This provides the Trump administration additional reasons to exert pressure and demand more investments in more advanced processes as well as advanced packaging technologies, using tariffs and other nonmarket policy tools on Taiwan-manufactured or packaged products as threats. TSMC and Taiwanese authorities should demonstrate how keeping R&D and the most advanced and expensive processes in Taiwan is in the interest of the United States, should it wish the US and its allies to continue extending their lead in semiconductor manufacturing processes over China. They should remind US authorities of the difficulty, the lengthy time, and the handsome costs of building fabs in the US, and that many advanced products used for mainstream AI servers may not need the most advanced node which is usually reserved for Apple's smartphones. The Trump administration should prioritize smoothening the learning curve of TSMC's Arizona fabs, focusing on integrating Taiwanese manufacturing experiences with local conditions to achieve comparable or better yields to Taiwan while minimizing costs.

The Taiwanese government and firms need to thread the waters carefully, and avoid attracting the scrutiny of USTR or the Department of Commerce through

8

inappropriate comments or provocative actions. Reminiscent of Toshiba's violation of export control rules by supplying submarine parts to the Soviet Union in the 80s, TSMC recently was also involved in a possible breach of entity list controls in manufacturing some parts of Huawei's Ascend 910b. These incidents should be avoided to not justify additional regulatory actions and punishments, which could be costly even to firms with pricing power like TSMC.

Taiwanese government entities could also take action to alleviate prospective risks. With Taiwan's structural trade surplus with the United States, the Taiwanese central bank should restrain currency management practices to not be labeled by the US Treasury as a currency manipulator, which may warrant punitive tariffs or denying Taiwanese firms US procurement.¹⁹ The Taiwanese government could also make trade concessions in sectors such as agriculture and livestock husbandry, offering to buy American agricultural products, energy, and military goods in exchange for the Trump administration giving preferential treatment to Taiwanese electronics.²⁰ The Trump Administration's apparent intent to let Taiwan take up more regional defensive responsibilities coincide with Taiwan's longstanding desire to purchase advanced US military equipment. Taiwan's nascent defense industry in shipbuilding, drones, and other intelligent weapons will also benefit from technology cooperation with the United States military or companies. This creates a win-win situation that preserves the US-Taiwan IT supply chain's competitiveness while appeasing Trump's desire to appear protectionist of American economic interests.

Smaller Taiwanese firms in America unfamiliar with American regulatory processes and socioeconomic environment face an even more difficult challenge when investing in America. They lack the resources of TSMC to field local agents to properly represent their interests, which is a huge disadvantage at a time when all firms are racing for government incentives and market opportunities. To properly represent Taiwanese commercial interests, the Taiwanese government should help forge a trade association that represents the interests of all members of the

¹⁹ Rebecca M. Nelson, "Exchange Rates and Currency Manipulation," *Congressional Research Service*, June 11, 2024. [Online]. Available: <u>https://crsreports.congress.gov/product/pdf/IF/IF10049</u>.

²⁰ Commercial Times, "央行談川普新政效應 台灣列匯率操縱國觀察名單 恐成常態" ["Central Bank Discusses Effects of Trump's New Policies; Taiwan's Inclusion on Currency Manipulation Watchlist May Become Routine"], *Commercial Times*, November 14, 2024. [Online]. Available: https://www.ctee.com.tw/news/20241114700045-439901.

Taiwanese electronics supply chain in the US. This association could provide resources and advice on business and legal issues, resolve disputes between Taiwanese firms, agree on priorities and policy agendas, and jointly advocate for policies in Washington and local governments. Such an administration pools all resources of the diverse Taiwanese supply chain together, resulting in a joint lobby that can push the incoming administration to not be captured by protectionist American forces.

Conclusion: Taiwan's Historical Opportunity

The fledgling American IT manufacturing base is an inadvertent joint legacy by two successive administrations. The first Trump administration's aggressive tariffs and sanctions against China initiated the relocation of electronics supply chains away from China to Southeast Asia and Mexico. The Trump trade war did not transform the US into the most appealing manufacturing location, but Foxconn's initial investment in Wisconsin and TSMC's decision to choose Arizona signaled the wind of change. The Biden administration in turn fully embraced industrial policy with the Inflation Reduction Act and the CHIPS Act, and have proved to be impartial between American and foreign firms in distributing the hefty CHIPS incentives. Trump's trade policies and Biden's industrial policy have reshaped supply chains and built the future foundation for American manufacturing, the direction of which will be now decided by the 2nd Trump administration.

The choice right now in front of the Trump administration is whether Taiwanese and other allied supply chains could have a fair share of the pie. An isolationist American manufacturing sheltered by tariffs and trade barriers will introduce bad incentives for US corporations to focus on rent-seeking in Capitol Hill rather than healthy competition and innovation. In contrast, China has been encouraging emerging tech firms to compete with each other in an "involuted" fashion before selecting the best national champion to support. ²¹ In the long run, an unhealthy obsession with supporting unprofitable American manufacturers without regard to market incentives will be fatal to the US and its allies. Despite its America

²¹ DIGITIMES, "China's Chip Industry Faces Intense Internal Competition as SMIC Strives to Keep Pace," *DIGITIMES*, July 11, 2024. [Online]. Available: https://www.digitimes.com/news/a20240711VL200/china-chips-involution-competition-smic.html.

First bias, the Trump administration should strive to maintain a level playing field between companies of America and allied countries, rewarding whichever firm that could contribute the most to US manufacturing employment and technological competitiveness regardless of its origin. This approach also aligns with the interests of the American consumer and downstream firms interested in procuring the highest quality computer at the cheapest cost, which is the sensible way for the US to outcompete China in the AI race.

For Taiwan, this is a historic opportunity. A stronger Taiwanese manufacturing presence on American soil strengthens the American stake in cross-strait affairs and makes Taiwanese economic power heard and felt in American public opinion. A stronger Taiwanese lobby in Washington DC, backed up by Taiwanese investments, may paradoxically make the US more willing to defend Taiwan. US advanced manufacturing could not succeed without the R&D and talent from Taiwan. The more integrated the economies of Taiwan and the United States, the stronger the so-called "Silicon Shield" will be. Countering the "beggar thy neighbor" mindset of the Trump administration will be the Taiwanese government's utmost foreign policy priority. It should promote actions emphasizing the common interests shared by the US and Taiwan, and form a coalition with American constituents that benefit from a prosperous Taiwanese economy. Curating allies in Silicon Valley, represented by influential figures invested in AI development like Elon Musk, as well as China hawks in the Republican Party is a sensible first step to sway the Trump administration from its protectionist instincts.