HOUSE OF REPRESENTATIVES
119TH CONGRESS—*1st Session*

THE 2025 JOINT ECONOMIC REPORT

R E P O R T

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

ON THE

2025 ECONOMIC REPORT OF THE PRESIDENT

CHAPTER 2 OF THE
CHAIRMAN'S VIEWS

The Arrogance of Industrial Policy

MARCH 3, 2025
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CHAPTER 2: THE ARROGANCE OF INDUSTRIAL POLICY

In recent years, subsidy-driven industrial welfare policy has returned. In the policy discourse in Washington, D.C., and in capitals around the world, industrial policy has grown in its prominence.[1] Industrial policy is the use of government resources through means such as subsidies, tax incentives, tariff and non-tariff trade barriers, and tailored regulations to reshape the economy in an effort to achieve economic, social, or political goals.[2] The policy shift likely started and was accelerated because of the perceived decline in manufacturing and the subsequent socioeconomic consequences.[3] Policymakers' concerns over climate change, the resilience and independence of supply chains for essential goods during and following the COVID-19

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[1] Project Syndicate, "Industrial Policy Is Back," Big Picture, September 28, 2023, https://www.project-syndicate.org/onpoint/industrial-policy-is-back.

[2] Anna Ilyina, Ceyla Pazarbasioglu, and Michele Ruta, "Industrial Policy is Back But the Bar to Get it Right Is High," International Monetary Fund blog, April 12, 2024, https://www.imf.org/en/Blogs/Articles/2024/04/12/industrial-policy-is-back-but-the-bar-to-get-it-right-is-high; Gary Clyde Hufbauer and Euijin Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020," Peterson Institute for International Economics Briefing no. 21-5 (November 2021), https://www.piie.com/sites/default/files/documents/piieb21-5.pdf.

[3] Research suggests that manufacturing employment declined largely because of automation, which increased productivity. The net consequence is continued growth in output with fewer workers. NCCI Insights, "The Impact of Automation on Employment—Part 1," October 10, 2017, https://www.ncci.com/Articles/Pages/II_Insights_QEB_Impact-Automation-Employment-Q2-2017-Part1.aspx; Aurelia Glass and David Madland, "Communities That Lost Manufacturing Jobs Are Main Beneficiaries of Biden Administration's New Industrial Policy," Center for American Progress, March 6, 2024, https://www.americanprogress.org/article/communities-that-lost-manufacturing-jobs-are-main-beneficiaries-of-biden-administrations-new-industrial-policy/.

pandemic, and national security related to China likely also played a part.[4]

Implementing industrial policy raises several significant problems, though the sentiments that led to its revival are not new. In the 1940s, the war economy led most economists to believe that the government was able to micromanage the economy.[5] As a response, Friedrich Hayek published *The Road to Serfdom* and several other articles stating that central planning would lead to tyranny. He also asserted that central planners—analogous to those enacting industrial policy—could never acquire all the preferences and economic factors faced by the collective mass of individuals with their own unique circumstances. There is a "division of knowledge" in the economy.[6] Attempting to centrally plan all economic decisions necessarily results in an inefficient and suboptimal allocation of resources, since this knowledge exists as dispersed bits of incomplete and frequently contradictory knowledge which only separate individuals possess.[7] Only

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[4] It is worth noting that each party pursues a different goal with their industrial policy plans. Réka Juhász, Nathan J. Lane, and Dani Rodrik, "The New Economics of Industrial Policy," NBER Working Paper no. 31538 (August 2023), https://doi.org/10.3386/w31538; Naveen Siddiqui and Andrew Lautz, "Industrial Policy: Path to U.S. Competitiveness or Pitfall?" Bipartisan Policy Center, October 3, 2023, https://bipartisanpolicy.org/blog/industrial-policy-path-to-u-s-competitiveness-or-pitfall/.

[5] The prevailing economic thought of the 1940s and Hayek's response are very well explained in the introductions by Bruce Caldwell and the author's prefaces in: F.A. Hayek, *The Road to Serfdom: Text and Documents—The Definitive Edition* (London and Chicago, IL: Routledge and The University of Chicago Press, 2007).

[6] Gerald P. O'Driscoll Jr., "Monetary Policy and the Knowledge Problem," *Cato Journal* 36, no. 2 (Spring/Summer 2016): 337–352, https://www.cato.org/sites/cato.org/files/serials/files/cato-journal/2016/5/cj-v36n2-9.pdf.

[7] F. A. Hayek, "The Use of Knowledge in Society," *American Economic Review* 35, no. 4 (1945): 519–30, https://doi.org/10.1142/9789812701275_0025.

individuals know the relative importance of resources and their best use for them.[8]

The foremost problem with industrial policy is that the government fails to have the information necessary to make large-scale resource allocation decisions. It almost always fails to anticipate where demand and technological innovation will be in the future, and how the market will react to shocks. This is because the economy is made up of millions of individual decision makers. The mismatch between plans and reality results in lost efficiency for public resources. The private sector in a free-market system, on the other hand, decentralizes information through the price mechanism. Prices respond to changes in supply and demand for a given product. The millions of transactions that occur and the information conveyed by the price signal do not make their way to government decision makers. However, industrial policy is not necessarily always to be avoided. There may be circumstances, such as the lack of a price mechanism, market failures, or strategic concerns regarding specific commodities, that warrant the implementation of industrial policy, or at least its consideration. But outside of specific circumstances, limited intervention in the economy produces better net outcomes. Research suggests that subsidies to high-innovation incumbent firms can reduce innovation.[9]

In addition to the knowledge problem, there are several more pitfalls to central planning and industrial policy. First, there can be massive fiscal costs to industrial policy, with some recent

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[8] Hayek, "The Use of Knowledge in Society."

[9] Larry D. Qiu, Xu Wei, Mohan Zhou, and Yi Zhou, "Resource, Competition, and the Equilibrium Effects of Innovation Subsidies," *Journal of Economic Behavior & Organization* 224 (2024): 297–322, https://doi.org/10.1016/j.jebo.2024.05.013.

legislation estimated to cost more than $1 trillion over ten years,[10] on top of existing policy that will likely reach nearly $100 billion per year.[11] This distortionary spending reduces the availability of private capital for unsubsidized projects.[12] Second, arbitrary disbursement of funds creates incentives for crony capitalism, with lobbyists pursuing privileges for their clients, and government officials providing the greatest benefits to the most politically connected entities.[13] Public resources being used to advantage government-favored industries reduces aggregate welfare.[14] Fourth, subsidies can cause foreign countries to reactively subsidize their native industries, creating a subsidy war that can dramatically distort economic outcomes.[15] Fifth, intervention in the economy, particularly at a large scale, can result

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[10] Travis Fisher and Joshua Loucks, "The Inflation Reduction Act after Two Years: Spending Estimates Reach New Heights, but Green New Deal Supporters Want More," *Cato at Liberty*, August 16, 2024, https://www.cato.org/blog/inflation-reduction-act-after-two-years-spending-estimates-reach-new-heights-green-new-deal.

[11] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

[12] New subsidies are paid with additional public debt, partially financed with private capital. For more on the crowding-out effect, see: Congressional Budget Office, "CBO's Policy Growth Model," CBO presentation (April 29, 2021), https://www.cbo.gov/publication/57017.

[13] Adam Thierer, "Regulatory Capture: What the Experts Have Found," Mercatus Center expert commentary, July 19, 2010, https://www.mercatus.org/economic-insights/expert-commentary/regulatory-capture-what-experts-have-found.

[14] Especially when profits are burdened with high taxes. It is easy to see, from a theoretical perspective, that a system where companies profit more from government transfers than from business operations would lead to less innovation and would be detrimental to consumers.

[15] "Mark" Min Seong Kim, "Chip Security: Reconciling Industrial Subsidies with WTO Rules and National Security Exception," *Harvard Law School National Security Journal* (January 12, 2025), https://harvardnsj.org/2025/01/12/chip-security-reconciling-industrial-subsidies-with-wto-rules-and-national-security-exception/; Elizabeth van Heuvelen, "Subsidy Wars," IMF Finance & Development Magazine, June 2023, https://www.imf.org/en/Publications/fandd/issues/2023/06/B2B-subsidy-wars-elizabeth-van-heuvelen.

in significant distortions to the business cycle and the macroeconomy generally.[16] In addition to other concerns, firms may become reliant on subsidies and thus prioritize seeking subsidies over innovating and competing in private markets, making firms more brittle.[17]

Central planning of the economy always leads to suboptimal outcomes. An economic policy framework that prioritizes industrial policy outside the most precarious national security-related circumstances should be averted.

Research shows industrial policy is often both ineffective and inefficient

Industrial policy is less effective than its advocates claim. A report by Hufbauer and Jung of the Peterson Institute for International Economics (PIIE) compiles a review of the literature on the

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[16] Michael Plante, "The Long-Run Macroeconomic Impacts of Fuel Subsidies," *Journal of Development Economics* 107 (2014): 129–43, https://doi.org/10.1016/j.jdeveco.2013.11.008; Diana H. Tsai and J.R. Norsworthy, "Measuring the Effects of Macroeconomic Policy in Industry Economic Models: Toward Assessment of Industrial Policy," *Journal of Policy Modeling* 18, no. 3 (1996): 289–333, https://doi.org/10.1016/0161-8938(95)00144-1; Salvador Barrios Cobos, Jonathan Pycroft, Andrzej Leszek Stasio, and Daniel Stoehlker, "The Macroeconomic Impact of the Energy and Climate Provisions of the US Inflation Reduction Act: Evidence for the EU," JRC Working Papers on Taxation and Structural Reforms no. 08/2023 (2023), https://hdl.handle.net/10419/299560; M. Sanchez-Martinez, C. Benedetti-Fasil, P. Christensen, and N. Robledo-Böttcher, *R & D Tax Credits and Their Macroeconomic Impact in the EU: An Assessment Using QUEST III* (Luxembourg: Publications Office of the European Union, 2017), https://doi.org/10.2760/6922.

[17] Uncertainty must be added to these distortions since, as both parties target different industries, subsidized firms anticipate the possibility of subsidy cuts after elections. Stephen D. Moore, "Welfare for the Well-Off: How Business Subsidies Fleece Taxpayers," Hoover Institution essay, May 1, 1999, https://www.hoover.org/research/welfare-well-how-business-subsidies-fleece-taxpayers.

efficacy of industrial policy approaches.[18] The authors categorize the various types of industrial policies into three main categories and measure three outcomes which are usual goals of such policies. The main results of this study are summarized in Table 2-1. It suggests that most industrial policy initiatives in the U.S., particularly those that are direct subsidy incentives to individual private firms, score relatively poorly.

Table 2-1: Effectiveness of Types of Industrial Policy, 1970–2020

	Improved competitiveness?	Jobs saved and created at a reasonable cost?	Led to technological advancement?
Trade measures	1.9 / 4.5	2.5 / 4.5	2.8 / 4.5
Targeted subsidies	2.2 / 4.5	2.5 / 4.5	1.8 / 4.5
Public and private R&D	3.6 / 4.5	3.4 / 4.5	4.1 / 4.5

Source: Peterson Institute for International Economics[19]

Certain industrial policy approaches, such as those used to fund research and development (R&D) for selective high-risk, high-reward research projects pertinent to national security through the Defense Advanced Research Projects Agency (DARPA), have provided significant returns for relatively little fiscal cost. Examples include the internet, large-scale data analysis, and weather satellites. Average R&D funding at DARPA is a little more than $3 billion per year.[20] Operation Warp Speed, which cost around $20 billion and was established during the COVID-19 pandemic to commit to large purchases and subsidize input components of vaccines, was another example of an R&D

[18] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

[19] The scores are averages from reviewed literature. Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

[20] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

industrial policy that had significant benefits for a reasonable fiscal cost.[21]

While highly targeted and well-structured industrial policies can be successful, particularly in the national security context, it is unlikely that the vast majority of industrial policy programs pass a cost-benefit test.[22] With noticeably subpar ratings for both subsidies to targeted firms and for trade measures as mechanisms for industrial policy, the authors conclude that these approaches are relatively ineffective at achieving their intended goals. Some particularly egregious examples include the following:

Synthetic Fuels Corporation: During and in response to the energy crisis of the late 1970s, the government-funded Synthetic Fuels Corporation (SFC) was inaugurated to increase shale production. The result was a largely failed venture that provided no real returns, had "saved job" costs of around three-times the prevailing wage at the time, and had numerous conflicts of interest and corruption problems.[23]

Solyndra: Solyndra was a solar business established in 2005 that received a half-billion-dollar loan guarantee from the federal government. Solar panel prices dramatically fell around 2010, forcing Solyndra into bankruptcy and leading to a loss of nearly the whole value of the loan guarantee to the federal government.[24]

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[21] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

[22] As mentioned in chapter one, without a major restructuring of the government's data management and how the cost-benefit analysis is performed, it is difficult to efficiently evaluate government programs.

[23] Chris Edwards, "Energy Subsidies," *Downsizing the Federal Government*, December 15, 2016, https://www.downsizinggovernment.org/energy/energy-subsidies; Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020," pp. 55–56.

[24] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

Crescent Dunes: Crescent Dunes was a solar company that used a new technology and received a federal government loan guarantee of nearly three-quarters of a billion dollars in 2011. The new technology was ineffective, and the company ceased operations in 2014, costing the government nearly half a billion dollars. Given the number of jobs "created," the cost-per-job was nearly 10-times the prevailing wage.[25]

Foxconn Wisconsin: Foxconn, a multinational cell phone maker announced a $10 billion plant in response to $3 billion in subsidies and incentives from the state of Wisconsin in 2017. As a result of environmental and cost concerns, as well as local protests, the size of both the investment and the subsidies from the state were scaled down. As of 2021, there were no jobs added from the plant, and there were no technological advancements from the plant to partially justify the cost.[26] Research suggests that economic activity in Wisconsin will be suppressed by more than the size of the subsidy.[27]

Given the precarious state of the U.S.' fiscal situation as outlined in Chapter 1, and the Republican Responses in the *2023* and *2024 Joint Economic Reports* (*Responses*), policymakers should be prudent in spending.

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[25] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

[26] Hufbauer and Jung, "Scoring 50 Years of US Industrial Policy, 1970–2020."

[27] Matthew D. Mitchell, Michael D. Farren, Jeremy Horpedahl, and Olivia Gonzalez, "The Economics of a Targeted Economic Development Subsidy," Mercatus Center Research Paper (January 7, 2020), https://www.mercatus.org/research/research-papers/economics-targeted-economic-development-subsidy.

Recent examples of industrial policy illustrate its weaknesses

Recently enacted industrial policies have fiscal and distortionary costs that notably outweigh the perceived benefits. The three chief industrial policy programs signed into law under the previous Administration were the *Infrastructure Investment and Jobs Act* (IIJA), the *CHIPS and Science Act* (*CHIPS Act*), and the *Inflation Reduction Act* (IRA). While some of the programs that arose from these bills may be defensible, they each have substantial components that come with inordinate fiscal costs.

Infrastructure Investment and Jobs Act

Passed into law in November 2021, the IIJA authorized $1.2 trillion in infrastructure spending, about $550 billion of which is new spending.[28] Accounting for offsets, this legislation was projected by the Congressional Budget Office (CBO) to add about $400 billion to the deficit over ten years.[29] While a share of the new funding is for basic infrastructure that could have positive spill-over effects, the impact of other funding is more questionable. The IIJA authorizes for roads and bridges $110 billion, airports $25 billion, and water infrastructure $55 billion. Meanwhile, it also authorizes broadband funding of $65 billion, resiliency and climate-related programs of $46 billion, environmental remediation of $21 billion, and electric vehicle

[28] Pipeline and Hazardous Materials Safety Administration, "Bipartisan Infrastructure Law (BIL) / Infrastructure Investment and Jobs Act (IIJA)," U.S. Department of Transportation, February 16, 2023, https://www.phmsa.dot.gov/legislative-mandates/bipartisan-infrastructure-law-bil-infrastructure-investment-and-jobs-act-iija.

[29] Committee for a Responsible Federal Budget, "Infrastructure Plan Will Add $400 Billion to the Deficit, CBO Finds," August 5, 2021, https://www.crfb.org/blogs/infrastructure-plan-will-add-400-billion-deficit-cbo-finds.

(EV) infrastructure of up to $7.5 billion.[30] Moreover, outlays in the IIJA come with several strings that slow program implementation and reduce their benefits.[31] While having some reasonable provisions to improve basic infrastructure, the IIJA also has numerous costly provisions that give few observable economic benefits.

CHIPS and Science Act

Enacted in August 2021, the *CHIPS Act* authorizes $280 billion in funding over ten years to semiconductor manufacturing, around $80 billion for production tax credits and incentives, and around $200 billion for scientific R&D subsidies and workforce development programs.[32] Arguments in favor of the legislation focused on the importance of a robust domestic semiconductor supply chain given concerns of over-reliance on Taiwanese chips

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[30] Union Pacific Railroad, "Understanding the Components of the U.S. Bipartisan Infrastructure Law," Track Record, February 14, 2023, https://www.up.com/customers/track-record/tr021423-bil-iija-bipartisan-infrastructure-law-basics.htm; BGR Group, "Infrastructure Investment and Jobs Act – Resiliency and Environmental Remediation," accessed February 18, 2025, https://bgrdc.com/infrastructure-investment-and-jobs-act-resiliency-and-environmental-remediation/.

[31] U.S. Department of Transportation, Federal Highway Administration, "23 CFR Part 680, National Electric Vehicle Infrastructure Standards and Requirements, FHWA Docket No. FHWA-2022-0008," *Federal Register* 88, no. 39 (February 28, 2023): 12724–57, https://www.govinfo.gov/content/pkg/FR-2023-02-28/pdf/2023-03500.pdf; Owen Minott and Erin Barry, "A Status Update on EV Charging Infrastructure Investments in the IIJA," Bipartisan Policy Center, July 26, 2022, https://bipartisanpolicy.org/blog/a-status-update-on-ev-charging-infrastructure-investments-in-the-iija/; Amy Huffman, Angela Siefer, and Josh Mimura, "NTIA Releases the Notice of Funding Opportunities for Three IIJA Programs Today," National Digital Inclusion Alliance, May 13, 2022, https://www.digitalinclusion.org/blog/ntia-releases-requirements-for-42-5b-of-bead-program-funding/.

[32] Justin Badlam, Stephen Clark, Suhrid Gajendragadkar, et al., "The CHIPS and Science Act: Here's what's in it," McKinsey & Company, October 4, 2022, https://www.mckinsey.com/industries/public-sector/our-insights/the-chips-and-science-act-heres-whats-in-it.

and potential territorial aggression from China.[33] The national security concerns may have merit, but the act's solutions are inefficient. [34]

Supply-side policy reforms to achieve the relocation of production should have been prioritized over subsidies. For example, the *National Environmental Protection Act* (NEPA) review process can be burdensome, and it often takes several years to complete.[35] This is likely one reason why there have been reports of projects being delayed, citing permitting concerns.[36] Instead of reducing supply-side barriers, the *CHIPS Act* implemented more, reducing efficacy of the legislation.[37] There are requirements to qualify for the funding, including abstention from dividends and stock buybacks, providing childcare access for workers, and an unspecified sharing of excess profits.[38] Furthermore, there is a requirement for a "skilled and diverse workforce" that adds

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[33] Michelle Kurilla, "What Is the CHIPS Act?" Council on Foreign Relations, April 29, 2024, https://www.cfr.org/in-brief/what-chips-act.

[34] Note that semiconductor industries have high net profits. Aswath Damodaran, "Margins by Sector (US)" Damodaran Online, https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html.

[35] Phillip Singerman and Alexander Kersten, "Implementing CHIPS: The NEPA Permitting Challenge," Center for Strategic & International Studies, May 1, 2023, https://www.csis.org/analysis/implementing-chips-nepa-permitting-challenge.

[36] National Association of Manufacturers, "Many IRA, CHIPS Manufacturing Projects Delayed," August 13, 2024, https://nam.org/many-ira-chips-manufacturing-projects-delayed-31770/?stream=series-input-stories.

[37] Wall Street Journal editorial board, "The Chips Act Becomes Industrial Social Policy," *The Wall Street Journal*, February 28, 2023, https://www.wsj.com/articles/chips-act-subsidies-progressives-industrial-policy-gina-raimondo-joe-manchin-7da07403.

[38] Erica York, "Careful What You Wish For: CHIPS Subsidies Require "Excess Profits" Sharing," Tax Foundation blog, March 2, 2023, https://taxfoundation.org/blog/biden-semiconductor-chips-act-subsidies/.

compliance costs and makes recruiting labor more difficult.[39] Indeed, there have been reports of worker shortages in the regions where plants are being built. Moreover, the enactment of this legislation set off a subsidy war, with China and the European Union reactively launching subsidies to their microchip industries of nearly $50 billion and over $40 billion, respectively.[40] The microchip fabrication plants being built because of *CHIPS Act* dollars are an example of a current physical investment that could become outdated. If microchip technology advances such that the current processes become obsolete, the investment could go to waste.[41] This could result in billions of dollars of stranded assets. Instead of providing subsidies to achieve even national security policy aims, supply-side reforms such as streamlining regulatory frameworks should be prioritized.[42] Funding should prioritize

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[39] Martin Chorzempa, "US chip construction spending skyrocketed after US CHIPS Act passed in August 2022," Peterson Institute for International Economics, August 15, 2024, https://www.piie.com/research/piie-charts/2024/us-chip-construction-spending-skyrocketed-after-us-chips-act-passed; Stephen Miran, "Brittle Versus Robust Reindustrialization," Manhattan Institute report (February 22, 2024), https://manhattan.institute/article/brittle-versus-robust-reindustrialization.

[40] Anniek Bao, "China's ambitions for semiconductor self-sufficiency thwarted by lack of chipmaking tools," *CNBC*, September 27, 2024, https://www.cnbc.com/2024/09/27/chinas-ambitions-for-chip-self-sufficiency-thwarted-by-lack-of-tools-.html; European Commission, "European Chips Act," https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-chips-act_en.

[41] Vishnu Kannan and Jacob Feldgoise, "After the CHIPS Act: The Limits of Reshoring and Next Steps for U.S. Semiconductor Policy," Carnegie Endowment for International Peace (November 22, 2022), p. 20, https://carnegieendowment.org/research/2022/11/after-the-chips-act-the-limits-of-reshoring-and-next-steps-for-us-semiconductor-policy.

[42] The previous administration followed the subsidy approach. A better approach would have been to target industries that are highly concentrated because of the patent system making them high-risk-high-reward and to soften the costs of R&D in exchange for a reduction in the patents' term. This would encourage competition and reduce consumer prices downstream. Yifan Yu, "U.S. needs

innovations, like in the case of DARPA, not simply capital assets for geographic relocations.

Inflation Reduction Act

The *Inflation Reduction Act* was enacted in August 2022, following passage of the *CHIPS Act* earlier the same month.[43] This legislation, while initially scored as deficit-reducing over the ten-year budget window by CBO is now anticipated to add over $1 trillion to the deficit over the same period, with the energy tax credits amounting to well over $1 trillion in total outlays.[44] The IRA is split into two main policy areas, energy and healthcare, with some tax increases included to pay for some provisions.[45] The largest share of outlays arise from tax incentives related to energy, with some outlays going to grants and loans.[46] These subsidies

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another CHIPS Act to lead world, says Raimondo," *Nikkei Asia*, February 22, 2024, https://asia.nikkei.com/Business/Tech/Semiconductors/U.S.-needs-another-CHIPS-Act-to-lead-world-says-Raimondo.

[43] U.S. Senate, "On Passage of the Bill (H.R. 5376, As Amended)," Roll Call Vote no. 325 (August 7, 2022), https://www.senate.gov/legislative/LIS/roll_call_votes/vote1172/vote_117_2_00325.htm; Congress.gov, "H.R.5376—117th Congress (2021–2022): Inflation Reduction Act of 2022," August 16, 2022, https://www.congress.gov/bill/117th-congress/house-bill/5376/actions.

[44] Congressional Budget Office, "Estimated Budgetary Effects of H.R. 5376, the Inflation Reduction Act of 2022," CBO cost estimate (August 3, 2022), https://www.cbo.gov/publication/58366; Goldman Sachs, "The US is poised for an energy revolution," April 17, 2023, https://www.goldmansachs.com/insights/articles/the-us-is-poised-for-an-energy-revolution.html; Fisher and Loucks, "The Inflation Reduction Act after Two Years."

[45] William McBride, Alex Muresianu, Erica York, and Michael Hartt, "Inflation Reduction Act One Year After Enactment," Tax Foundation research, August 16, 2023, https://taxfoundation.org/research/all/federal/inflation-reduction-act-taxes/.

[46] Justin Badlam, Jared Cox, Adi Kumar, et al., "The Inflation Reduction Act: Here's what's in it," McKinsey & Company, October 24, 2022, https://www.mckinsey.com/industries/public-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it.

were designed to reduce the relative cost of clean energy products, such as EVs, to reshape the U.S. economy to be less dependent on fossil fuels and reduce aggregate carbon emissions.[47]

Subsidies, tax credits, and other similar policies are rife with waste, fraud, and abuse. The IRA's provisions are no exception. Many of the tax credits are made to be transferable, and findings suggest that transferring the credit in the market results in a discount of 6 to 15 percent from its nominal value.[48] This means that the government could spend $100 to create only $85 worth of incentives. While on a micro scale this may seem insignificant, because the cumulative outlays for green energy credits in the IRA are anticipated to be well over $1 trillion over ten years, a 15 percent rate of inefficiency could amount to over $100 billion in waste. Moreover, tax credits often also result in fraud and abuse, with reports of fraudulent tax credits from biodiesel to COVID-19 relief. Within the last year, the Internal Revenue Service (IRS) uncovered an illegal scheme related to the IRA's clean energy tax credit.[49]

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[47] International Energy Agency, "Inflation Reduction Act of 2022," October 27, 2024, https://www.iea.org/policies/16156-inflation-reduction-act-of-2022.

[48] Martin Karamon, Timothy Doran, and David Mohimani, "FAQ: Inflation Reduction Act Energy Tax Credit Transfer Explained," Cherry Bekaert insight, January 22, 2025, https://www.cbh.com/insights/articles/irc-section-6418-faq-transferring-energy-tax-credits/.

[49] U.S. Treasury Inspector General for Tax Administration, "TIGTA Identifies Fraud Scheme, Alerts IRS to Prevent $3.5 Billion in Potentially Improper Pandemic Tax Credits," U.S. Department of the Treasury, April 24, 2024, https://www.tigta.gov/articles/press-releases/tigta-identifies-fraud-scheme-alerts-irs-prevent-35-billion-potentially; Internal Revenue Service, "IRS warns of new scam targeting Clean energy tax credit," IRS news release no. IR-2024-182, July 3, 2024, https://www.irs.gov/newsroom/irs-warns-of-new-scam-targeting-clean-energy-tax-credit; Adam N. Michel, "A Case Study in Tax Credit Fraud and Manipulation, Biofuel Edition," *Cato at Liberty*, May 2, 2024, https://www.cato.org/blog/case-study-tax-credit-fraud-manipulation-biofuel-edition.

Research on previous green energy tax credit policies also suggests that most of the benefits of the IRA will go to the top quintile of income earners, with the bottom three quintiles likely receiving only around 10 percent of allocated dollars.[50] A recent study also found that about 75 percent of the EV tax credits claimed as of the time of the report had gone to consumers that would have purchased an EV regardless of the subsidy.[51] The aim of industrial policy is to change the behavior of economic actors, and the IRA not only fails at this objective but also wastes resources to do so. Even more, the IRA is projected to have little impact on emissions over the next ten years.[52]

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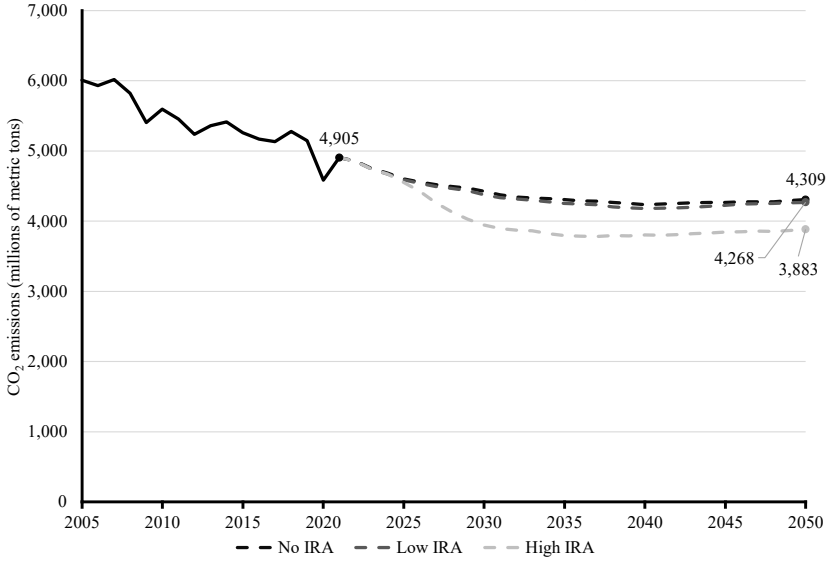
[50] Severin Borenstein and Lucas W. Davis, "The Distributional Effects of U.S. Tax Credits for Heat Pumps, Solar Panels, and Electric Vehicles," NBER Working Paper no. 32688 (July 2024), https://doi.org/10.3386/w32688.

[51] Stanford University Institute for Economic Policy Research, "Study finds EV subsidies in the Inflation Reduction Act help the climate, U.S. automakers — but at a questionable cost to taxpayers," October 7, 2024, https://siepr.stanford.edu/news/study-finds-ev-subsidies-inflation-reduction-act-help-climate-us-automakers-questionable-cost.

[52] Ben Evans, "IRA update: Buildings projected to deliver largest IRA-related emissions reductions," U.S. Green Building Council, October 24, 2023, https://www.usgbc.org/articles/ira-update-buildings-projected-deliver-largest-ira-related-emissions-reductions.

Figure 2-1: Energy-Related CO_2 Emissions Under Alternative Uptake Levels of the Inflation Reduction Act (IRA)



Source: Energy Information Administration[53]

American Rescue Plan Act

Passed in March 2021 as an additional COVID-19 stimulus package after the *CARES Act* and *Consolidated Appropriations Act, 2021* already ballooned deficits and the national debt, the *American Rescue Plan Act* (ARPA) provided an additional $1.9 trillion in aid.[54] The new deficit spending consisted of over $400

[53] U.S. Energy Information Administration, "U.S. Energy-Related Carbon Dioxide Emissions, 2023" (April 2024), https://www.eia.gov/environment/emissions/carbon/pdf/2023_Emissions_Report.pdf; U.S. Energy Information Administration, *Annual Energy Outlook 2023* (March 16, 2023), https://www.eia.gov/outlooks/aeo/index.php.

[54] Pandemic Oversight, "Update: Three rounds of stimulus checks. See how many went out and for how much," Pandemic Response Accountability Committee, February 17, 2022, https://www.pandemicoversight.gov/data-interactive-tools/data-stories/update-three-rounds-stimulus-checks-see-how-many-went-out-and; National Association of Counties, "American Rescue Plan Act Funding Breakdown," April 12, 2021,

billion in direct cash assistance through stimulus checks, $200 billion through unemployment benefits, and over $300 billion in transfers to state and local governments for "fiscal recovery." The rest of the subsidies were allocated to education, childcare, health, transportation, and other programs.[55] Several states used the designated funds for purposes that could be classified as industrial policy, such as for broadband implementation.[56]

The fiscal expansion that occurred because of this legislation has had significant impacts on the macroeconomy. Research suggests that the enactment of the ARPA caused an increase in inflation above trend, contributing to about 3 percentage points of year-over-year inflation in late stages of the pandemic.[57] The rise in

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https://www.naco.org/resources/featured/american-rescue-plan-act-funding-breakdown; Congress.gov, "H.R.1319—117th Congress (2021–2022): American Rescue Plan Act of 2021," March 11, 2021, https://www.congress.gov/bill/117th-congress/house-bill/1319/all-actions; Marcos Dinerstein and Jon Huntley, "The Long-Run Fiscal and Economic Effects of the CARES Act," Penn Wharton Budget Model, May 5, 2020, https://budgetmodel.wharton.upenn.edu/issues/2020/5/5/long-run-economic-effects-of-cares-act.

[55] National Association of Counties, "American Rescue Plan Act Funding Breakdown."

[56] National Conference of State Legislatures, "ARPA State Fiscal Recovery Fund Allocations Dashboard," updated January 2, 2025, https://www.ncsl.org/fiscal/arpa-state-fiscal-recovery-fund-allocations.

[57] As for any tax on consumption, inflation has the same regressive characteristic as such taxes. Dong Gyun Ko, "Did the American Rescue Plan Cause Inflation? A Synthetic Control Approach," *Economic Modelling* 143 (2025), https://doi.org/10.1016/j.econmod.2024.106935; Òscar Jordà, Celeste Liu, Fernanda Nechio, and Fabian Rivera-Reyes, "Why Is U.S. Inflation Higher than in Other Countries?" Federal Reserve Bank of San Francisco Economic Letter 2022-07 (March 28, 2022), https://www.frbsf.org/wp-content/uploads/el2022-07.pdf; William McBride and Alex Durante, "The 'Inflation Tax' Is Regressive," Tax Foundation blog, September 29, 2022, https://taxfoundation.org/blog/inflation-regressive-effects/.

inflation also precipitated an increase in interest rates by the Federal Reserve.[58]

Figure 2-2: Consumer Price Index (CPI) Inflation and the Federal Funds Rate

Source: Bureau of Labor Statistics;[59] Board of Governors of the Federal Reserve System[60]

Discussed in Chapter 3 of this *Response,* the compounded higher interest rates and larger debt profile have led to a substantial increase in net interest costs for the federal government. Higher

[58] Such a response is typical for central banks. Jane Ihrig and Chris Waller, "The Federal Reserve's responses to the post-Covid period of high inflation," FEDS Notes (Board of Governors of the Federal Reserve System, February 14, 2024), https://doi.org/10.17016/2380-7172.3455; Federal Reserve Bank of Cleveland, "Why Does the Fed Care about Inflation?" https://www.clevelandfed.org/center-for-inflation-research/inflation-101/why-does-the-fed-care-start.

[59] U.S. Bureau of Labor Statistics, "Consumer Price Index for All Urban Consumers: All Items in U.S. City Average," https://fred.stlouisfed.org/series/CPIAUCSL.

[60] Board of Governors of the Federal Reserve System, "Federal Funds Effective Rate," https://fred.stlouisfed.org/series/FEDFUNDS.

net interest costs crowd out other national spending priorities and contribute to debt growth. Without the ARPA, this expansion in net interest costs may have been notably muted.

Box 2-1: The Effect of a Housing Down Payment Subsidy on Housing Prices

During the 2024 presidential campaign, a $25,000 down payment support for first-time homeowners was proposed with the aim of closing the wealth gap and increasing supply by shocking demand.[61] However, research suggests that such subsidies are effectively fully capitalized into housing prices.[62] In some cases, the increase in prices was as large as the financial aid from the government, meaning all of the aid is transferred to the sellers.

Forthcoming research by JEC Republicans estimates the effect on prices of this proposal for several metropolitan areas using the literature's standard elasticities of demand and supply for the housing sector and granular microdata on mortgage applications and households' finances.[63]

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[61] Selina Wang and Gabriella Abdul-Hakim, "Harris to propose up to $25K in down-payment support for 1st-time homebuyers," *ABC News*, August 15, 2024, https://abcnews.go.com/Politics/harris-propose-25k-payment-support-1st-time-homeowners/story?id=112877568.

[62] Carla Krolage, "The Effect of Real Estate Purchase Subsidies on Property Prices," *International Tax and Public Finance* 30 (2023): 215–46, https://doi.org/10.1007/s10797-022-09726-0; Felipe Carozzi, Christian A.L. Hilber, and Xiaolun Yu, "On the Economic Impacts of Mortgage Credit Expansion Policies: Evidence from Help to Buy," *Journal of Urban Economics* 139 (2024), https://doi.org/10.1016/j.jue.2023.103611.

[63] Albert Saiz, "The Geographic Determinants of Housing Supply," *The Quarterly Journal of Economics* 125, no. 3 (August 2010): 1253–96, https://doi.org/10.1162/qjec.2010.125.3.1253; David Albouy, Gabriel Ehrlich, and Yingyi Liu, "Housing Demand, Cost-of-Living Inequality, and the Affordability Crisis," NBER Working Paper no. 22816 (November 2016), https://doi.org/10.3386/w22816.

Preliminary estimations predict that in most markets the property prices will rise by most of the value of the subsidy. In our results, metropolitan areas are classified into deciles of property values. As expected, the percentage increase in property value is higher in the lowest deciles, and the incidence of the subsidy would likely be regressive.

This is a good example of how a well-intended industrial policy would have had a very different outcome, especially since investors and sellers anticipate the shock of subsidized demand and increase prices accordingly. Moreover, the fiscal cost of such ineffective policy on the deficit would also have a negative impact on economic growth.

Alternatives to industrial policy

Reducing costs of doing business and eliminating frictions generally provide more efficient solutions than government-directed programs. When distortions are eliminated, capital will flow to industries with higher potential for returns.[64] Instead of subsidies, supply-side barriers should first be reduced where reasonable to allow the market to facilitate capital formation and investment. These supply-side barriers include poorly designed and out-of-date regulations and excessively high business taxation.

Regulation

Regulations, when improperly constructed or no longer serve the intended purpose, can cause unnecessary barriers to economic

[64] Richard A. Williams, "The Impact of Regulation on Investment and the U.S. Economy," Mercatus Center Policy Brief (January 11, 2011), https://www.mercatus.org/research/policy-briefs/impact-regulation-investment-and-us-economy.

investment.[65] An improperly constructed regulatory framework could make investment onerously costly, dispelling activity in a sector of the economy where advocates may push for subsidization due to its relative importance.

One study finds that regulation, by distorting the investment choices that lead to innovation, has had a considerable effect on slowing economic growth over the past several decades. If the number of regulations had been constant at 1980 values, the U.S. economy would have been 25 percent larger by 2012, equivalent to additional yearly growth of 0.8 percent.[66] Another study finds a relation of almost one-to-one between annual regulatory growth and the increase of operating costs per unit of output. The average level of annual regulatory growth at 3.55 percent increases operating costs per unit of output by 3.3 percentage points per year.[67] A similar work estimates the cost of regulations to be between 1.3 to 3.3 percent of the total wage bill for firms, costing the economy about $300 billion in 2014.[68] Another recent paper uses a novel machine learning algorithm on regulatory documents and finds that an increase in regulations explains 31 to 37 percent of the rise in market concentration.[69] It is important to note that

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[65] See Chapter 5 of the *2024 Response* for a more detailed explanation.

[66] Bentley Coffey, Patrick McLaughlin, and Pietro Peretto, "The Cumulative Cost of Regulations," Mercatus Center Working Paper (April 26, 2016), https://www.mercatus.org/research/working-papers/cumulative-cost-regulations.

[67] Tyler Richards and Richard Fullenbaum, "The Impact of Regulatory Growth on Operating Costs," Mercatus Center Working Paper (September 9, 2020), https://www.mercatus.org/research/working-papers/impact-regulatory-growth-operating-costs.

[68] Francesco Trebbi, Miao Ben Zhang, and Michael Simkovic, "The Cost of Regulatory Compliance in the United States," USC Marshall School of Business Research Paper (January 15, 2023), http://dx.doi.org/10.2139/ssrn.4331146.

[69] The authors find that while large firms are opposed to regulations in general, they push for the passage of regulations that have an adverse impact on small

federal, state, and local governments impose regulatory burdens. An onerous regulatory framework reduces innovation and investment, making American companies less competitive. Poorly designed subsidies can also reduce innovation, exacerbating this trend.[70] When evaluating the costs and benefits of industrial policy, pertinent regulatory barriers should first be investigated and amended where necessary before considering subsidization.

Taxation

Taxes are a significant component of most businesses' costs, affecting operating and location decisions, even at the state and local levels.[71] Yet, not all taxes affect firm behavior in the same way. Full expensing for capital investment and R&D are often the most recommended pro-growth tax changes.[72] These provisions allow businesses to deduct the full cost of new investments in the year they are made, instead of amortizing the costs over several

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firms. Moreover, besides the effect on business inequality, other studies find a regressive effect because of a tax increase on consumers. Shikhar Singla, "Regulatory Costs and Market Power," LawFin Working Paper no. 47 (February 23, 2023), http://dx.doi.org/10.2139/ssrn.4368609; Dustin Chambers and Courtney A. Collins, "How Do Federal Regulations Affect Consumer Prices? An Analysis of the Regressive Effects of Regulation," Mercatus Center Working Paper (February 23, 2016), https://www.mercatus.org/research/working-papers/how-do-federal-regulations-affect-consumer-prices-analysis-regressive.

[70] Qiu, Wei, Zhou, and Zhou, "Resource, Competition, and the Equilibrium Effects of Innovation Subsidies."

[71] Shawn Rohlin, Stuart S. Rosenthal, and Amanda Ross, "Tax Avoidance and Business Location in a State Border Model," *Journal of Urban Economics* 83 (2014): 34–49, https://doi.org/10.1016/j.jue.2014.06.003.

[72] Full expensing and R&D expensing were temporary measures of the *Tax Cuts and Jobs Act* but phased out at the end of 2022. According to the Tax Foundation, these provisions would generate the highest GDP growth for each billion dollars of forgone revenue. Erica York, Alex Durante, Huaqun Li, Garrett Watson, and William McBride, "Options for Navigating the 2025 Tax Cuts and Jobs Act Expirations," Tax Foundation research, May 7, 2024, https://taxfoundation.org/research/all/federal/2025-tax-reform-options-tax-cuts-and-jobs-act/.

years.[73] Inflation erodes the value of deductions taken in future years.[74] From an economic theory perspective, expensing investment costs would tax the "normal" returns on that investment with an effective marginal rate of zero. This would make capital investment far less expensive.[75] It is more sensible to reduce tax barriers to investment in an even manner and allow companies to compete on a level field than to implement distortive business-related tax subsidies.[76] A simple tax code is a concept that generally has universal agreement as it decreases costs of compliance, reduces tax evasion, and promotes growth.[77]

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[73] Erica York and Alex Muresianu, "Expensing: It Pays to Be Permanent," Tax Foundation blog, January 28, 2025, https://taxfoundation.org/blog/permanent-bonus-depreciation-expensing-options/.

[74] The effect increases with the inflation rate. Adam N. Michel, "Expensing and the Taxation of Capital Investment," Cato Institute Briefing Paper no. 159 (June 7, 2023), https://www.cato.org/briefing-paper/expensing-taxation-capital-investment.

[75] These tax changes do not add complexity to the tax code, just to the timing of tax write-offs, which is applicable to all firms. Jason Furman, "How to increase growth while raising revenue: Reforming the corporate tax code," The Hamilton Project (January 28, 2020), https://www.hamiltonproject.org/wp-content/uploads/2023/01/Furman_LO_FINAL.pdf; Office of Tax Policy, "Case for Temporary 100 Percent Expensing: Encouraging Businesses to Expand Now by Lowering the Cost of Investment" (U.S. Department of the Treasury, October 29, 2010), https://www.govinfo.gov/app/details/GOVPUB-T-PURL-gpo160066; Scott Hodge, "Empirical Evidence Shows Expensing Leads to More Investment and Higher Employment," Tax Foundation blog, May 19, 2020, https://taxfoundation.org/blog/expensing-leads-to-more-investment-and-higher-employment/.

[76] Adam N. Michel, "Slashing Tax Rates and Cutting Loopholes," Cato Institute Policy Analysis no. 975 (June 17, 2024), https://www.cato.org/policy-analysis/slashing-tax-rates-cutting-loopholes; Veronique de Rugy, "Tax Extenders: Don't Extend Bad Policy," Mercatus Center Policy Brief (November 11, 2016), https://www.mercatus.org/research/policy-briefs/tax-extenders-dont-extend-bad-policy.

[77] William G. Gale, "Tax Simplification: Issues and Options," Brookings Institution commentary, July 17, 2001, https://www.brookings.edu/articles/tax-

simplification-issues-and-options/; Jason J. Fichtner, Veronique de Rugy, Matthew D. Mitchell, Angela Kuck, and Adam N. Michel, "'Fixing' the Tax Code: Key Principles for Successful, Sustainable Reform," Mercatus Center Policy Brief (May 25, 2016), https://www.mercatus.org/students/research/policy-briefs/fixing-tax-code-key-principles-successful-sustainable-reform.