

Industrial policy in the United States

Briefing note: October 2016

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The United States has a long history of debate regarding industrial policy. Despite the continual claim that 'we do not do industrial policy', the US has been more active in promoting particular sectors and industries than is commonly understood. In fact, the US has always had some kind of industrial policy. This is despite the fact that the federal government has continually resisted implementing anything labelled an 'industrial policy' and that several commentators have suggested that the US lacks the necessary institutional and cultural features to conduct such a policy.¹

The history of US industrial policy

The idea that the US government should engage in industrial policy stretches right back to the days of American independence. In 1791 Alexander Hamilton, the first secretary of the treasury, approached Congress with a report - the *Report on the Subject of Manufactures* - that outlined a strategy to develop the US manufacturing sector. Its goals were to catch up with Britain and build the material base for a powerful military. The report consisted of 11 principles, including direct government subsidies to targeted industries, protective tariffs, government procurement contracts, tax exemptions for manufacturing inputs and support for infrastructure improvements. Hamilton concluded his report by detailing sector-specific policies for major US manufacturing sectors, including copper, iron, cotton, grain, glass, gun powder and books. The report's main ideas were introduced gradually over subsequent decades.

The war with Britain in 1812 heightened calls for a more comprehensive industrial policy that would develop and protect American industry. Henry Clay and other members of the Whig Party devised this industrial policy, entitled the American System. It consisted of three mutually reinforcing parts: tariffs to protect and promote American industry; a national bank to foster commerce; and federal subsidies for roads, canals and other domestic improvements to develop profitable markets for agriculture. The latter involved huge subsidies to targeted industries.

The Tariff of 1816 was the first tariff passed by Congress with the explicit function of protecting US manufactured items from foreign competition. The woollen and textile industries were the first to receive such protection (from 1820), but by the early 1830s the average tariff on all manufactures had reached 40 per cent. This steep rise in tariff protection

¹ C.L. Schultze, 'Industrial Policy: A Dissent', *The Brookings Review*, Fall 1983, p.4.

was predominantly caused by the 1828 Tariff of Abominations.² Whilst tariff protection was a key foundation of the American System, these tariff hikes were partly caused by industrial lobbying. During the war, imports from the UK and Europe had been blocked which allowed US infant industries to flourish. American industrialists wanted this protection to continue, and it did so. From the 1830s up until the Second World War, the US was one of the most protectionist countries in the world.

The American System continued to be influential during the late 1800s. Under Lincoln's presidency (1861-1865) tariffs were raised; strategic industries were supported (especially agriculture); science, research and technological development were supported; and infrastructure was developed. Concerning the latter, in 1862 Lincoln signed the first bill that granted direct federal support to the railroads. It commissioned the Union Pacific and the Central Pacific to build a railroad from Omaha to Sacramento. Further commissions were granted to the Northern Pacific in 1864, the Atlantic and Pacific in 1866, and the Texas and Pacific in 1871. These commissions gave land for rights-of-way to the companies and land alongside the route which could be sold to finance the works. In total, there were 127 million acres of federal land grants and 48 million acres of state land grants. The net value of these grants was approximately \$516 million.³ High tariffs were the norm from Lincoln's presidency up until the First World War - the average tariffs on foreign manufactured goods oscillated between 40 and 50 per cent. Much of the support for specific industries and infrastructure spending that began during the pre-war years continued through the First World War and were retained afterwards.

In response to the Great Depression of 1929-1933, President Franklin D Roosevelt introduced a legislative programme designed to reconstruct and revive the US economy: the New Deal. Many of its policies targeted specific industries, regions and population groups via subsidies, protection from foreign competition, public procurement and public works. Part of this programme was the National Industrial Recovery Act (NIRA). This signalled a significant new age in US industrial policy with the introduction of the National Recovery Administration. The NIRA relaxed antitrust legislation, effectively encouraging the creation of cartels between companies in an attempt to encourage their growth. The NIRA also introduced voluntary agreements on minimum wages, hours and conditions for workers. Any business that accepted the agreements were able to display a poster of a blue eagle along with the slogan 'NRA Member, We do our part', and the government encouraged consumers to buy the products and services of companies displaying the poster. However, in May 1935 the NIRA was struck down by the United States Supreme Court. It was declared unconstitutional on the grounds that Congress had acted beyond its powers in attempting to regulate commerce within states and delegated too much discretion to the President. Roosevelt quickly recreated a number of the NIRA's provisions as separate programmes, and what can be considered a 'virtual NIRA' was in existence up until the 1970s.

Following three decades of growth and worldwide economic leadership, the 1970s heralded economic uncertainty for the US. Suddenly rapidly industrializing nations, especially Japan, were competing with US industries in a multitude of markets. By the late 1970s Japanese firms had captured much of the US' market share in automobiles and electronic goods. They

² R. Kozul-Wright, 'The Myth of Anglo-Saxon Capitalism: Reconstructing the History of the American State', in H. Chang and R. Rowthorn (ed.), *The Role of the State in Economic Change*, Oxford, Clarendon Press, 1995.

³ R. Bingham, *Industrial Policy American Style: From Hamilton to HDTV*, New York, M E Sharpe, 1998, p. 23.

were also threatening US leadership in computer chips, computers and other emergent technologies. US companies, exemplified by the automobile and steel industries, were uncompetitive in both domestic and foreign markets. The Carter Administration tried to assist the steel industry via the 1977 Solomon Plan and bailed out Chrysler in 1980. But the administration seemed ill equipped to define a long-term strategy that could restructure the US economy to become more competitive. Both political parties became anxious about the competitiveness of US firms and potential job losses. Political economist Robert Reich proposed a national industrial policy that was adopted by the Democratic candidate in the 1984 election, Walter Mondale. When Reagan won re-election the public debate about industrial policy died down.

Yet the economic uncertainty facing the US meant that Reagan had to utilize some form of industrial policy, and he did. Government intervention became focused on strategic areas, including trade, innovation, education, high-tech industries, and science and technology. The aim was to transform the US' scientific and technological leadership into commercially viable products that would be produced by new domestic industries. To meet this target the state intervened and partly funded many industries and projects, including Federal labs (via the Human Genome Project), semiconductors (via SEMATECH), and the computer industry (via ARPA's Strategic Computing Initiative). Other industrial policies included the launch of The Small Business Innovation Research (SBIR) programme in 1982, which shielded US high-tech industries from foreign competition; the Hatch-Waxman Act (1984), which helped create the generic pharmaceutical industry;⁴ and the creation of the National Centre for Manufacturing Sciences in 1986, which used federal funds to develop new technology in the manufacturing sector. Reagan's presidency oversaw an extensive federal effort to develop the US economy in a specific direction. This strategy has been followed, to a greater or lesser extent, by successive presidents up to the present day.

During Obama's presidential campaign it was clear that he intended to enact an industrial policy.⁵ But during the six months prior to his inauguration the US suffered the worst economic recession since the Great Crash of 1929. Its severity made it the top political priority, and the concurrent fiscal constraints made wide-sweeping industrial policy difficult. Instead, Obama focussed government intervention on the financial services industry, deeming a reformed and revitalized financial sector crucial to the stability and growth of the entire US economy. Concerning government intervention, Obama continued the Troubled Asset Relief Programme (TARP); provided \$2 trillion to enable the federal government to buy loans from banks to boost bank lending via the 2009 Financial Stability Plan; and provided a \$787 billion stimulus via the 2009 American Recovery and Reinvestment Act (ARRA).

Whilst the financial crisis consumed vast amounts of government resources, the US was also facing other challenges, including the chronic weakness of the US' trade position, global climate change, and unemployment after the recession. This led Obama to create a wider industrial policy that contained six goals: economic recovery, industrial efficiency, international competitiveness, employment, tackling global warming and energy

⁴ A. Baltazar, 'The Hatch-Waxman Act: How It Changed the Pharma Industry', <https://www.thebalance.com/the-hatch-waxman-act-how-it-changed-the-pharma-industry-2663817>, 15 May 2016, (accessed 18 August 2016).

⁵ M.R. Tomasso and S.O. Schweitzer, *Industrial Policy in America: Breaking the Taboo*, Massachusetts, Edward Elgar Publishing Ltd, 2013, pp. 96-102.

independence.⁶ To achieve these goals Obama targeted policy at specific sectors, industries and wider horizontal objectives (such as balancing imports and exports).

The best example of Obama's strategy is the ARRA. This directed part of its \$787 billion stimulus towards specific industries that appeared to be major growth areas, including agriculture, military construction, and energy. Most of these were in high-tech or knowledge intensive industries. The administration believed that if the US could capitalize on its engineering and scientific resources to produce a continuous stream of new high-tech products and services, including 'green energy' technologies, then this would strengthen US exports, solve pertinent climate change issues and expand domestic employment. Maintaining and extending the US' international leadership in high-tech and knowledge-intensive industries, such as health, the environment and energy, was the industrial policy priority of the Obama administration.

The nature of US industrial policy

Subsidising industries

On 17 February 2009 Obama signed the ARRA into law. The impact of the ARRA can be seen in current federal grants and allocated tax credits. Between 2000 and 2015, the US federal government provided \$68 billion in grants and allocated tax credits to business.⁷ Less than 600 companies received two-thirds of this total, and six parent companies received \$1 billion or more: Iberdrola (\$2.17 billion), NextEra Energy (\$1.94 billion), NRG Energy (\$1.73 billion), Southern Company (\$1.48 billion), Summit Power (\$1.44 billion) and SCS Energy (\$1.25 billion). All six are large energy companies who receive most of these funds via section 1603 of the ARRA. This allows companies to receive cash payments in lieu of tax credits for the installation of renewable energy properties. Section 1603 has awarded more than \$23 billion to companies.

The Obama administration also allocated tens of billions of dollars to the Department of Energy in 2009. This was part of a wider strategy to shift the U.S economy from oil and coal to alternative energy sources and to retrofit existing structures to reduce energy waste. This scale of funding is unprecedented, and it represents an expansion of government efforts to shape the type of industries and innovation in the civilian economy towards green energy.

It is worth noting that the US has a long history of subsidising the fossil fuel industry, and this has continued under Obama. The US is in the midst of an oil and gas production boom, driven by fracking and horizontal drilling technologies that have enabled the exploitation of vast shale reserves. As a result, the US is now the world's largest producer of both oil and gas.⁸ Whilst the Obama administration has championed the boom, Obama also pledged to

⁶ Ibid, pp. 96-102.

⁷ P. Mattera and K. Tarczynska, *Uncle Sam's Favourite Corporations: Identifying the Large Companies that Dominate Federal Subsidies*, 2015, <http://bit.ly/18WGD33>, (accessed 25 July 2016).

⁸ A. Doukas, *G20 subsidies to oil, gas and coal production: the United States*, 2015, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9979.pdf>, (accessed 1 August 2016).

end some subsidies for oil and gas companies during his re-election campaign.⁹ He followed this up by calling for the removal of several major subsidies in every budget he has sent to Congress. However, federal subsidies to fossil fuel producers increased by 35 per cent during his presidency. Between 2013 and 2014, federal subsidies for fossil fuel producers totalled \$17.2 billion. This includes a \$3.9 billion corporate tax exemption for master limited partnerships and a \$2.6 billion intangible drilling deduction for oil and gas.¹⁰ Federal subsidies for exploration also increased from \$2.6 billion in 2009 to \$5.1 billion in 2013. Obama's attempts to end these subsidies were blocked by Congress. Whilst Obama's industrial policy included the removal of some fossil fuel subsidies to combat climate change, the US legislative system is decentralized to the point where it can create decentralized and fragmented industrial policies.

Another way the US develops specific industries is via state and local subsidies. The top five recipients are all manufacturing firms: Boeing (\$13.17 billion), Alcoa (\$5.64 billion), Intel (\$3.87 billion), General Motors (\$3.49 billion) and Ford Motor Company (\$2.52 billion).¹¹ \$8.7 billion of Boeing's amount was from one package of tax breaks in 2013. It was hoped this would incentivise Boeing to keep production of its 777X jet in Washington state, thereby securing a portion of the state's manufacturing jobs. Alcoa's amount is just one subsidy: a 30-year discounted electricity deal. This was granted by the state-owned New York Power Authority. It agreed to provide Alcoa with electricity at approximately one-quarter of the standard rate. In exchange for the discount, Alcoa agreed to invest \$600 million in one of its plants based in New York state and not to eliminate more than 15 per cent of jobs at the plant. Because of the decentralized nature of the US political system, regions and states can pursue their own economic and social goals through their own local industrial policy. It seems that many US states try to develop their own manufacturing sectors via targeted subsidies.

Trade policy

The US utilized tariffs heavily up until the 1940s. However, since then the US has usually supported trade liberalization and pushed for free trade. Concurrently, since the mid-1940s the average tariff used by the US has decreased significantly. The US still utilizes its trade policy to help domestic industries damaged by free trade. However, tariffs now play a much smaller role in this strategy and in wider industrial strategy. This is because the international trading environment has become stricter when it comes to tariffs, especially under the World Trade Organization (WTO). Instead, the US has increasingly used other mechanisms as part of its trade policy to gain advantages for specific sectors or industries, including government procurement, export support, and multilateral and bilateral trade agreements.

Government procurement

During the twentieth century the US spent a large part of its GDP on military capabilities. This led to a huge amount of military-related public procurement contracts. The Cold War reoriented military strategy towards a new set of capabilities, including airborne, nuclear, automated and remote control. The growth in procurement contracts in these fields led to the

⁹ H. Cooper and J. Weisman, 'Obama Seeks to End Subsidies for Oil and Gas Companies', *New York Times*, 1 March 2012, http://www.nytimes.com/2012/03/02/us/politics/obama-calls-for-an-end-to-subsidies-for-oil-and-gas-companies.html?_r=0, (accessed 22 July 2016).

¹⁰ A. Doukas, 2015, p.3.

¹¹ P. Mattera, *Subsidizing the Corporate One Percent*, 2014, p. 4, <http://bit.ly/2aGyhP4>, (accessed 20 July 2016).

rapid development of US industries in aircraft, communications, electronics and computing. Concerning the latter, over 50 per cent of IBM's revenues in the 1950s came from government contracts. These contracts offered a guaranteed market that helped put IBM at the pinnacle of the computing industry. In 1982 the federal government was purchasing more than half of all aircraft, radio and television communication equipment and one-third of all electron tubes and nonferrous forgings manufactured inside the US.¹² Many American national champions, including IBM, Boeing, Caterpillar, Lockheed and Motorola, have their roots in heavy government contracting and many still largely depend on these contracts. In fact, the majority of the industries in which the US has international competitiveness have been developed via publicly funded R&D and public procurement, especially under the guise of 'defence' (aircraft, the Internet and semiconductors) and 'health' (genetic engineering and pharmaceuticals).¹³

To further assist domestic industry US legislation blocks foreign firms from winning most US public procurement contracts. Since the 1933 'Buy American' Act, successive administrations have mandated a core of 'buy national' programmes which require federal and state agencies to give preference to goods and services produced in the US. In fact, buying domestically produced goods is a legal requirement for federal agencies when purchasing over a specific threshold. In 2009 Obama inserted a 'Buy American' provision in the ARRA. This imposed a general requirement that any public infrastructure or public works project funded by the ARRA must only use iron, steel and other manufactured goods produced in the US.¹⁴ Its purpose was to ensure that ARRA funds for infrastructure development, which totalled \$105 billion, would be used to stimulate US producers and manufacturers.

Many countries, via multilateral and bilateral trade agreements, gain waivers from some 'Buy American' provisions. However, these waivers are still subject to US laws, administrative decisions and regulations. As a result, there are numerous mechanisms which make it possible for federal agencies to favour US firms in their own public procurement activity, and they often do. In 2006, the foreign share of the US procurement market was estimated at 2 per cent.¹⁵ No other industrial nation has such strict and explicit legislation regulating government procurement practices. And neither the EU, Canada, Japan, nor China place legal restrictions on the place of origin or nationality of a supplier. In fact, EU procurement directives are designed specifically to prevent 'buy national' policies.

The US government has increasingly assisted domestic industries to obtain access to foreign procurement markets. The US has pushed heavily for the opening of signatories' procurement markets in many multilateral agreements, including the GATT Government Procurement Agreement (1979), the WTO Government Procurement Agreement (1994), and the establishment of the Working Group on Transparency in Government Procurement under the 1996 Singapore Ministerial Declaration. The US has done the same via bilateral

¹² R.B. Reich, 'Why the US needs an industrial policy', *Harvard Business Review*, January 1982, <https://hbr.org/1982/01/why-the-us-needs-an-industrial-policy>, (accessed 14 October 2016).

¹³ Government Office for Science, *International industrial policy experiences and the lessons for the UK*, 2013, pp. 27-29, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277162/ep4-international-industrial-policy-experiences.pdf#page=27, (accessed 23 July 2016).

¹⁴ Laws, 'Buy American Act', <http://government-programs.laws.com/buy-american-act>, (accessed 18 August 2016).

¹⁵ L. Weiss and E. Thurbon, 'The Business of Buying American: Public Procurement as Trade Strategy in the USA', *Review of International Political Economy*, vol. 13, no. 5, 2006, pp. 701-724.

and regional trade agreements. For example, the 2005 FTA with Australia (AUSFTA) involved the latter abandoning all preferential policies for supporting domestic industry development. In exchange, Australian industry was allowed to compete for US procurement contracts alongside other countries that had gained the same access (36 at the time). Considering the US' 'Buy American' agenda, the market access gained by Australia was relatively small compared to the access US firms gained to the Australian procurement market. According to some, the US employs bilateral agreements with weaker partners to open up their otherwise restricted foreign procurement markets whilst protecting its own via 'Buy American' provisions.¹⁶

Obama also prioritised government provision of federal contracts to small businesses. The government committed itself under the ARRA to ensure that 23 per cent of federal contracting dollars are awarded to small and medium-size enterprises (SMEs). By April 2011 32.6 per cent of federal contracting dollars had been awarded to small businesses. This totalled approximately \$221 billion.¹⁷

Venture capital

Inspired by the success of Silicon Valley venture capitalists, many US federal agencies have set up their own public venture capital (VC) initiatives.¹⁸ Like private funds they make equity investments, most often in targeted small to medium-sized technology firms. But unlike private funds, whose aim is to make money, government agencies use these funds to develop, adapt and shape commercially viable technologies for their own needs. The agency does this by taking a hands-on role within the firm, usually via membership in a small firm's board of directors, cooperative prototype testing, or organizational and technical collaboration. The VC model also allows government agencies to create innovation networks centred around dynamic small firms. This proved difficult to support via traditional procurement processes. This creates a beneficial environment for high-tech SMEs because they find it easier to develop commercially viable and innovative technologies within these networks.

The first federal-level VC fund was created by the Central Intelligence Agency (CIA) in 1999: In-Q-Tel. With an initial budget of \$28 million, the fund's aim was to invest in the development of commercial technologies that had market potential and could be applied or adapted to meet CIA imperatives. These types of technologies were increasingly being developed by high-tech SMEs and were becoming extremely difficult to capture via the traditional procurement process. This is because large defence contractors were reluctant to dedicate their own workforces to generating innovations in such a rapidly changing field. Instead, they preferred to wait for SMEs to develop the innovation and then buy them out. As a result, the CIA often obtained technologies after a long delay, by which time they were no longer cutting edge and the products often did not match the agency's specific operational needs.

¹⁶ Ibid, p.708.

¹⁷ The White House, 'White House Releases The Small Business Agenda: Growing America's Small Businesses to Win the Future Highlighting Critical Support for Small Businesses Across the Country', <https://www.whitehouse.gov/the-press-office/2011/05/16/white-house-releases-small-business-agenda-growing-americas-small-busine>, May 2011(a), (accessed 10 July 2016) .

¹⁸ M.R. Keller, 'The CIA's Pioneering Role in Public Venture Capital Initiatives', in F.L. Block and M.R. Keller (ed.), *The State of Innovation: The US Government's Role in Technology Development*, New York, Routledge, 2011, pp. 109-132.

To gain access to innovative technologies more rapidly, In-Q-Tel acted like a hybrid: part VC firm and part procurement agency. On the one hand, the agency supported technological development by making equity investments in small firms, providing strategic consultation and organizational guidance, and engaging in development partnerships with other venture capitalists. By investing itself, the CIA could have direct access to a SME's innovations whilst also partly directing their research. On the other hand, In-Q-Tel also acted like a government lab or procurement agency. It contracted with companies to purchase licences or develop technologies, and it also offered some partners the use of its prototype laboratories for product development.

During the 2000s this VC model proliferated amongst US federal agencies in both military and non-military departments, including the Army, Navy, the National Aeronautics and Space Administration, the National Technology Alliance, and the Department of Energy (which created several). During Obama's 2008 presidential campaign he included a plan for a \$15 billion VC fund for clean energy technologies. Under his presidency federal VC programmes continued to foster close ties with small tech firms and the venture capital community, especially in the Department of Energy. US states are also utilizing VC funds. In 2015 New York state launched the New York State Innovation Venture Capital Fund. With a budget of \$100 million, this seed and early-stage VC fund seeks to support and attract new high-growth businesses to the state. It is particularly focused on promoting the commercialization of new technologies, economic growth, and job creation. In 2013 there were 36 state-level VC programmes in 30 states that participated with Obama's State Small Business Credit Initiative (SSBCI).

Too big to fail

The US has a history of assisting and promoting failing domestic industries. Some have been saved because they have strategic importance, such as the steel industry; are crucial to the long-term health of the economy, such as financial services; or they guarantee jobs, such as Chrysler. The US government has even intervened and altered the corporate governance structures of a company to make it more competitive. This is demonstrated by the US government's purchase of General Motors (GM) in 2008.

The Bush and Obama administrations provided loans of \$65 billion to Chrysler and GM in 2008 and 2009. Both firms told Congress that without any federal assistance they would go bankrupt, thereby causing significant job losses and threatening the US' economic recovery. Despite the bailout, both firms proceeded into bankruptcy protection in March. However, the level of government support softened the requirements for coming out of bankruptcy. This made it easier for both firms to maintain a semblance of their normal operations.

TARP and ARRA funding allowed the US government to purchase a large portion of GM's assets in 2009. In total the US government invested \$49.5 billion. But the administration was concerned that bail-out spending would only be meaningful in the short-term and not sustainable, especially if corporate governance structures did not change. As a result, Congress chose to help reform the company. The CEO of GM was replaced three months after Obama became president, and the new Board of Directors eliminated product lines, closed plants and reduced the number of dealerships. It was hoped that government intervention would make the company more profitable and innovative. As a result, it was anticipated that a revived GM would play an important role in the US' economic recovery.

The US government recovered \$39 billion in 2013 when it sold its shares in GM. Whilst this resulted in a net loss of approximately \$10 billion, some have argued that the GM bailout saved 1.2 million jobs and preserved \$34.9 billion in tax revenue.¹⁹

After the financial crisis, both the Bush and Obama administrations intervened in the financial services industry. They both believed that a reformed and revitalized financial sector was crucial for the short-term stability and long-term growth of the US economy. Bush enacted the Emergency Economic Stabilization Act in 2008, which included TARP. TARP attempted to create liquidity in the failing house market by giving the US Treasury the authority to purchase up to \$700 billion worth of mortgage-backed securities. Of the \$700 billion, \$619 billion was committed and \$564 billion was dispersed. Obama carried on the extensive government efforts to rescue and reshape major financial institutions. He continued the TARP programme, provided \$2 trillion to enable the federal government to buy loans from the banks to boost bank lending, and provided a \$787 billion stimulus package.

Tax policy

The US national tax code selects, inadvertently or strategically, particular industries, activities or businesses for preferential treatment.²⁰ The home mortgage interest tax deduction allows homeowners to subtract the annual interest of a loan secured by their home, usually a mortgage, from their taxable income, thereby lowering their annual income tax. This subsidy stimulates demand for home ownership, thereby subsidising construction firms, real estate brokers, mortgage lenders and borrowers. The private equity industry is subsidized via preferential tax treatment. Carried interest is the share of any profits that a general partner of a private investment fund receives as compensation, regardless of whether they contribute any initial funds.²¹ In the US carried interest is taxed as capital gains income rather than ordinary income.²² This allows many recipients of carried interest to pay a lower tax rate because long-term capital gains tax is lower than five of the seven ordinary income tax brackets.²³ This policy is meant to promote long-term investment by lessening the risk and cost for private investment companies to build up or finance firms.

Many of the US's preferential tax policies exist at the state level. Over the past four decades states have competed to attract companies to set up within their territories. This intense competition is driven by the ease with which firms can move between states. In fact, most mass job relocations are from one US state to another rather than to a foreign location.²⁴ Taxes are a key part of many state's economic development strategies, and they are used to spur economic growth, create and retain jobs, target high-value industries and spread

¹⁹ J.R. Healey, 'Government sells last of its GM shares', <http://www.usatoday.com/story/money/cars/2013/12/09/government-treasury-gm-general-motors-tarp-bailout-exit-sale/3925515/>, 10 December 2013, (accessed 18 August 2016).

²⁰ G.P. Pisano, 'It's Manufacturing's Turn for Special Treatment', *Harvard Business Review*, 5 March 2012, <https://hbr.org/2012/03/maybe-its-manufacturings-turn.html>, (accessed 12 August 2016).

²¹ Investopedia, 'Carried Interest', <http://www.investopedia.com/terms/c/carriedinterest.asp>, (accessed 28 September 2016).

²² G. J. Mastel et al., 'Obama pushes carried interest to the fore of U.S. tax policy debate', <http://www.lexology.com/library/detail.aspx?g=f7d8fa06-89ec-4087-af46-fd539c461265>, 11 February 2013, (accessed 28 September 2016).

²³ Charles Schwab, 'Taxes: What's New for 2016?', <http://www.schwab.com/public/schwab/nn/articles/Taxes-Whats-New>, 12 January 2016, (accessed 28 September 2016).

²⁴ U.S. Department of Labor, *Extended Mass Layoffs: First Quarter 2013*, 2013, Table 10, <http://www.bls.gov/news.release/pdf/mslo.pdf#page=15>, (accessed 15 August 2016).

economic activity throughout the state via geographic targeting. In 2002 it was estimated that state and local business incentives totalled \$50 billion annually.²⁵

Several states do without a number of general taxes: Texas, Nevada, South Dakota and Wyoming have no corporate or individual income tax; New Hampshire and Montana have no sales tax; and Alaska has no individual income tax or state-level sales tax.²⁶ Looking beyond these general tax regimes, states will offer targeted tax incentives that seek to meet specific economic objectives, including job creation or increased business investment. To foster job creation Delaware offers a job creation tax credit of \$500 for each qualified new job. To increase investment and attract capital-intensive industries, Florida's Capital Investment Tax Credit offers an investment credit of 5 per cent annually for 20 years of eligible capital costs. Companies respond to these altered tax patterns. In 2010 Northrup Grumman chose to move its headquarters to Virginia over Maryland, citing the better business tax climate. In 2015 Aetna and General Electric threatened to move from Connecticut if the governor signed a budget that would increase corporate tax burdens.

States also utilize tax incentives to attract a specific company to their territory or to keep a company that is already based within the state. Two of the biggest tax breaks given since 2014 were given to Tesla Motors and Intel. In 2014 Tesla Motors received a subsidy package worth approximately \$1.3 billion from Nevada. This includes 100 percent abatements of sales taxes (a \$725 million saving over 20 years), real and personal property taxes (a \$332 million saving over 10 years) and modified business taxes (a \$27 million saving over 10 years). It is the largest incentive package in Nevada state history. In return, Tesla is currently building its new Gigafactory at the Tahoe Reno Industrial Centre in Nevada. It's predicted that the factory will create 6,500 direct jobs. In the same year, Oregon gave Intel 30 years worth of property tax breaks which were predicted to save the firm \$2 billion. According to Intel, it would have been harder to maintain its main manufacturing base in Washington County without this exemption. The incentive exempted Intel from paying property tax on its equipment (with a ceiling of \$25 billion).

Many of these deals, including Intel's, are assisted by state-administered business incentive programmes. The aim of these programmes is to further a state's economy by fulfilling the various needs of businesses inside the state. By doing so, states help develop and retain their current businesses, improve their general business climate and infrastructure, and attract new businesses. In 2015 1,934 such programmes existed in the US. However, the amount of programmes differ in each state. In 2015, Wyoming had the lowest number of programmes (12) whilst Maryland had the highest (81).²⁷ Most of these programmes are administered by the state's lead economic development agency. They utilize a number of incentives to benefit businesses including tax credits, grants, loans, equity investment and tax exemptions. In 2015 tax credits were the most utilized incentive programme with 69 tax credit programmes in existence. Tax incentive programmes make up 45 per cent of all state-administered programmes nationwide.

²⁵ A. Peters and P. Fisher, 'The Failures of Economic Development Incentives', *Journal of the American Planning Association*, vol. 70, no. 1, Winter 2004, p. 28.

²⁶ J. Walczak, S. Drenkard and J. Henchman, *2016 State Business Tax Climate Index*, 2016, http://taxfoundation.org/sites/taxfoundation.org/files/docs/SBTCL_2016_FINAL.compressed.pdf, (accessed 25 July 2016).

²⁷ For a map detailing the number of programmes in each state see: <http://www.stateincentives.org/index.asp>.

These incentives usually target businesses based on their location, industry sector, ownership, age or size. Intel's deal noted earlier was secured via a state-administered business incentive programme based in Oregon: the Strategic Investment Programme (SIP). Created in the 1993, the SIP offers property tax exemption on a portion of large capital investments in an attempt to induce large, capital-intensive facilities to locate and grow in Oregon. The SIP is but one programme among 31 such business incentive programmes in Oregon. But compared to other states, Oregon's entire portfolio places strong emphasis on product and process improvement as well as technology and product development. The state is trying to attract specific kinds of industries that are capital intensive. In comparison, Oklahoma focuses more on assisting firms in site location, business management and workforce development. Of its 61 active programmes in 2014, 24 were dedicated to these three areas. In addition, over half of Oklahoma's business incentives target a specific industry, the most common being transportation manufacturing and agriculture. One example is the state's Quality Jobs programme which is designed to target specific industries to advance and set job-creation goals within those sectors. States have enough autonomy to adapt these programmes to promote industries and behaviours that they deem crucial to their economic development.²⁸ This gives states their own means to conduct industrial policy.

Whilst states have autonomy over which firms or sectors they target, national trends exist. Many of the biggest state tax incentives go to manufacturing firms. In fact, in 2015 it was the most targeted sector accounting for 22 per cent of total state incentives. Whilst some incentives target specific companies, like Intel or Tesla Motors, others target the sector as a whole. Arkansas, Kentucky and North Dakota target manufacturers via their sales tax exemptions for machinery for new or expanding facilities. In 2013 California passed an initiative that exempted all manufacturing and biotech equipment from a 4.19 per cent state sales tax for eight years. This exemption will save manufacturers approximately \$4 billion.

Manufacturing is attractive to states for many reasons. Firstly, it usually offers relatively high wages and benefits for employees. Secondly, large manufacturing plants often induce suppliers to locate nearby, particularly other manufacturers, thereby creating more jobs. For example, whilst Tesla's Gigafactory is predicted to create 6,500 direct jobs, it is also predicted to create 22,700 total jobs within Nevada. During the post-recession period, industries in agriculture, technology (especially energy) and film were heavily targeted via state-level tax incentives.

Access to finance

The Small Business Administration (SBA) was established in 1953 to promote the interests of small businesses in order to enhance competition in the private marketplace.²⁹ The SBA currently supports small businesses via a variety of programmes, including contracting programmes to increase small business opportunities in federal contracting; venture capital programmes and loan guarantees to enhance small businesses' access to capital; and training programmes to assist business formation and expansion.³⁰ The SBA has the

²⁸ For a list of fact sheets that analyse the different approaches taken by states see: <http://www.stateincentives.org/media/2015/outcomes/>.

²⁹ R. J. Dilger and S. Lowry, *Small Business Administration: A Primer on Programs and Funding*, 2016, p.1, <https://www.fas.org/sgrp/crs/misc/RL33243.pdf>, (accessed 28 September 2016).

³⁰ *Ibid*, p.1.

authority to make direct loans. However, with the exception of loans to Microloan programme intermediaries and disaster loans, the SBA has not exercised this authority since 1998.³¹ Instead, the SBA usually guarantees a portion of a loan provided by a lender. The lender can be a credit union, regulated bank or a community based lending organisation.³²

The SBA has been significantly revitalised in recent years, particularly through the provisions of the 2010 Small Business Jobs Act (SBJA). This extended the SBA's brief, enlarged its budget, and increased the maximum size of the loans that the SBA could guarantee from \$2 million to \$5 million for the 7(a) Loan programme and the 504 Loan programme.³³ Concerning the latter, the SBJA also permanently increased the loan limit to \$5.5 million for manufacturers and energy related public policy projects.³⁴

The SBA has established specific 'size standards' which represent the largest size a business can be to become classified as a small business.³⁵ These size standards apply to SBA's financial assistance and its other programmes. They also apply to federal government procurement programmes that offer benefits to small businesses. The criteria differ depending on the business's industry, and caps are placed on a firm's average annual receipts or average number of employees.³⁶ Manufacturing firms have a limit on the average number of employees. This is between 500 and 1,500, depending on the type of manufacturing.³⁷ Firms in the construction industry have a cap on their average annual receipts. This is between \$15 million and \$36.5 million, depending on the type of construction.³⁸

The ARRA enhanced small businesses' access to finance by reducing the fees applicable to the borrowers of SBA-backed loans. Since 2009 the SBA, via the ARRA and the SBJA, has approved 334,815 loans, supporting approximately \$163 billion in lending for small businesses.³⁹

The SBJA also introduced the Small Business Lending Fund (SBLF) to provide capital to community development loan funds (CDLFs) and qualified community banks. The aim is to incentivise small business lending.⁴⁰ In total, the Treasury invested approximately \$4 billion in 332 community banks and CDLFs via the SBLF. In June 2016, which is the latest measure, all of the community banks and 96 percent of CDLFs that were participating in the SBLF had increased their small business lending. In fact, as of 30 June 2016, the SBLF had

³¹ Ibid, p.5.

³² US Small Business Administration, *Resource Guide for Small Business*, Fall 2015, p. 14, https://www.sba.gov/sites/default/files/files/resourceguide_national.pdf, (accessed 28 September 2016).

³³ US Small Business Administration, 'SBA Implements Higher Maximum Loan Sizes Made Possible by Small Business Jobs Act', <https://www.sba.gov/content/sba-implements-higher-maximum-loan-sizes-made-possible-small-business-jobs-act>, 8 October 2010, (accessed 28 September 2016).

³⁴ Ibid.

³⁵ US Small Business Administration, 'What are the Small Business Size Standards', <https://www.sba.gov/contracting/getting-started-contractor/make-sure-you-meet-sba-size-standards/what-are-small-business-size-standards>, (accessed 28 September 2016).

³⁶ US Small Business Administration, 'Table of Small Business Size Standards', <https://www.sba.gov/contracting/getting-started-contractor/make-sure-you-meet-sba-size-standards/table-small-business-size-standards>, (accessed 28 September 2016).

³⁷ Ibid.

³⁸ Ibid.

³⁹ The White House, 'Supporting Small Business', <https://www.whitehouse.gov/economy/business/small-business>, (accessed 14 October 2016).

⁴⁰ US Department of the Treasury, 'Small Business Lending Fund', <https://www.treasury.gov/resource-center/sb-programs/Pages/Small-Business-Lending-Fund.aspx>, (accessed 14 October 2016).

supported \$18.7 billion in increased lending to small business.⁴¹ Because the institutions that received the funds leverage their capital, the actual volume of lending that was delivered to small businesses as a consequence of the SBLF is likely to be many times the value of the capital provided.⁴²

The State Small Business Credit Initiative (SSBCI) was also introduced in the SBJA and was intended, via \$1.5 billion of funding, to strengthen state-based programmes that support lending to small manufacturers and small businesses.⁴³ At its inception, the SSBCI was expected to support up to \$15 billion of lending to small businesses. The SSBCI will allow states to build on successful models for state small business programmes, including capital access programmes and loan guarantee programmes.

Export support

Since the 1970s it has become especially important for successive US governments to address the country's balance of trade deficit. Multilateral and bilateral trade agreements to reduce barriers for US firms have become an important part of the US' strategy (especially to the Reagan, Bush Sr. and Clinton administrations). Obama has continued with this strategy. Whilst breaking down trade barriers is important, successive US governments have also taken steps to promote exports by making US exporters more competitive.

Obama launched a government-wide strategy to promote exports during his first term.⁴⁴ The National Exports Initiative (NEI) was an essential component of this strategy. Launched in March 2010, the NEI sought to double US exports by the end of 2014. The administration only managed to increase US exports by 28 per cent. The NEI was the first in a series of steps taken by the administration to utilize federal government resources to assist US exporters in a number of ways, including advocacy and export promotion programmes, export financing, and education for US exporters regarding foreign markets.

Advocacy has been a key strategy for the Obama administration. The Department of Commerce's Advocacy Centre helps US firms win foreign procurement contracts. Between January 2010 and September 2012, the Advocacy Centre coordinated an inter-agency group to assist hundreds of US businesses win foreign procurement contracts totalling approximately \$111 billion in US export content.

There have also been federal efforts to promote US exports to foreign buyers. The US and Foreign Commercial Service tries to build relationships between US exporters and foreign buyers via a number of methods, including organizing in-country promotions for individual US exporters, customized in-country market development work and trade events. The latter included bringing over 1,100 US companies on 135 trade missions to 55 countries, bringing over 35,000 foreign buyers to visit US trade shows, and supporting approximately 12,500

⁴¹ The Department of the Treasury, *Small Business Lending Fund: Final Impact Report*, October 2016, p. 1, https://www.treasury.gov/resource-center/sb-programs/Documents/SBLFTransactions/SBLF%20Final%20Impact%20Report%202010_13_16.pdf, (accessed 14 October 2016).

⁴² *Ibid*, p. 3.

⁴³ US Department of the Treasury, 'State Small Business Credit Initiative', <https://www.treasury.gov/resource-center/sb-programs/Pages/ssbci.aspx>, (accessed 14 October 2016).

⁴⁴ Trade Promotion Coordinating Committee, *2012 National Export Strategy: Powering the National Export Initiative: Year 3*, 2012, <http://bit.ly/2aL1ECM>, (accessed 27 July 2016).

companies participating in foreign trade shows. As a result, the US and Foreign Commercial Service supported \$73 billion in exports from January 2010 to September 2012.

US exporters can also seek financing via the Export Import Bank (Ex-Im Bank). The bank provides loan guarantees, loans and insurance to help foreign companies buy US goods when private banks will not lend. This is especially prevalent in industries such as aerospace, energy and manufacturing. 2012 was the peak year for lending - the bank extended its financing to \$35.8 billion (a 46 per cent increase on the total financing granted in 2010). This boom was partly caused by the bank diversifying its financing streams. This included new schemes, such as the Global Credit Express, and new types of products, such as the bond product/capital market option. In 2012 Ex-Im Bank's total authorizations supported an estimated \$50 billion in US export sales and 255,000 jobs across the US. Since 2012 the bank has seen a continual downturn in activity. 2015 saw approximately \$12 billion in authorizations and \$17 billion generated by US exports. In January 2015 Obama announced that the Ex-Im Bank would finance \$1 billion of exports of 'Made in America' products to India. Many have hailed the bank as a success. Since 2004 the value of US exports generated has always outstripped authorizations. Also, the bank's default rate has been less than one per cent since 1934.⁴⁵ But critics have suggested that the bank favours certain firms⁴⁶ and that its loans could be vulnerable in a downturn.

During Obama's first term the administration realized that continued growth in exports would rely on encouraging thousands of smaller businesses to export. In 2011 SMEs accounted for 98 per cent of all goods exporters and 33 per cent of the overall value of merchandise exports. As a result, the administration pushed for SMEs to borrow more to finance exports. In 2012, the Ex-Im Bank authorized a record amount in export financing for small businesses: \$6.1 billion. This helped more than 3,300 small businesses to expand their export sales in 2012. Ex-Im Bank estimated that 81 per cent of its transactions benefited small businesses.

Support for manufacturing

The US has always granted special treatment towards specific manufacturing sectors. For example, the steel industry has gained protections throughout much of US history, primarily due to its strategic significance and the political power of its unions and workers. The 1970s created new challenges for the manufacturing sector with other rapidly industrializing nations, such as Japan and Germany, out competing traditional US manufacturing firms. Each successive president used slightly different policies to meet these challenges. Yet since Reagan, all presidents have utilized a long-term industrial policy to promote a high-tech and innovative manufacturing sector that creates new technologies.

The reason for intervention is the vital nature of manufacturing to the US economy. The sector accounts for approximately 12 million workers.⁴⁷ In 2014 it accounted for 75 per cent

⁴⁵ B. Wingfield, 'U.S Export-Import Bank', *Bloomberg*, 9 March 2016, <http://bloom.bg/2aFFpwl>, (accessed 20 July 2016).

⁴⁶ The following study shows that Boeing benefited from approximately 30 per cent of the bank's transactions in 2013. V.D. Ruy, 'Export-Import Bank Exposure Grows as Private Lenders Profit', <http://mercatus.org/publication/export-import-bank-exposure-grows-private-lenders-profit>, 1 April 2014, (accessed 25 July 2016).

⁴⁷ The Bureau of Labor Statistics, 'Manufacturing: NAICS 31-33', <http://bit.ly/1OJ5Wnb>, (accessed 15 July 2016).

of private-sector R&D⁴⁸ and 86 per cent of total goods exports.⁴⁹ In fact, if the US manufacturing sector was a country, it would have been the eighth largest economy in the world in 2014 (in terms of GDP).⁵⁰

Since his first campaign speeches, government intervention in favour of manufacturing was at the core of Obama's policy strategy. The essentials of the Obama administration's strategy to revitalize the manufacturing sector were contained in the 'Make it in America' agenda. Between 2010 and 2012, Obama enacted many 'Make it in America' legislations aimed at serving four broad objectives: direct support to help grow the manufacturing sector, enhance the funding for innovation and develop the patent system, create job growth, and promote US manufacturing exports. Examples include lowering tariffs on raw materials and intermediaries used by US manufacturers via the 2010 United States Manufacturing Enhancement Act, extensive R&D subsidies and infrastructure improvements. Concerning the latter, Obama also strengthened 'Buy American' provisions that made it easier for domestic manufacturing firms to win US public procurement contracts.

The administration also tried to encourage a long-term, structural adjustment in the sector so that it could compete with foreign competitors. The sector accounts for 88 per cent of merchandise exports. This meant that manufacturing could play a crucial role in addressing the US's chronic trade deficit. High-tech manufacturing that developed new technologies was of particular importance due to the smaller number of foreign competitors as well as its high productivity and wages. However, US leadership was being challenged in many high-tech manufacturing sectors, including high-tech batteries, wind turbines, solar panels, biotechnology, high-speed rail and computer-based architecture. Obama deemed it crucial to make the manufacturing sector more competitive via targeted industrial policies, including next generation battery development grants, advanced vehicle manufacturing loan programmes, and federal R&D funding for ARRA programmes concerning Nano manufacturing. The 2011 federal budget provided \$1.8 billion to the National Nanotechnology Initiative.

Support for SMEs

Following the 2008 global financial crisis, President Obama reoriented US industrial policy by emphasising the importance of SMEs to the US economy: 'they create two of every three new jobs in America, spur economic growth, and spark new industries across the country'.⁵¹ Government support for SMEs during this period was substantial. Between January 2009 and May 2011, more than \$53 billion of SBA loan guarantees and over \$221 billion of federal government contracts were awarded to SMEs.⁵² The SBJA also offered small businesses greater access to subsidised loans, export credit and tax reliefs to help them grow and create additional jobs.

⁴⁸ The White House, *Making in America: U.S. Manufacturing Entrepreneurship and Innovation*, June 2014, p. 4, https://www.whitehouse.gov/sites/default/files/docs/manufacturing_and_innovation_report.pdf, (accessed 10 July 2016).

⁴⁹ National Association of Manufacturers, *United States Manufacturing Facts*, February 2015, p. 2, <http://www.nam.org/Data-and-Reports/State-Manufacturing-Data/2014-State-Manufacturing-Data/Manufacturing-Facts--United-States/>, (accessed 14 October 2016).

⁵⁰ Manufacturing Institute, 'U.S. Manufacturing is the World's Tenth Largest Economy', <http://bit.ly/2cvLVoi>, (accessed 17 July 2016). Note that the updated graph states eighth largest economy.

⁵¹ The White House, May 2011(a).

⁵² The White House, *The Small Business Agenda: Growing America's Small Businesses to Win the Future*, May 2011(b), p. 1, <http://bit.ly/2aLbYul>, (accessed 7 July 2016).

In April 2010 the Obama Administration established an Interagency Taskforce on Federal Contracting Opportunities for Small Businesses.⁵³ It trained government departments to understand the importance of awarding federal contracts to SMEs and paying them promptly.

All US federal government agencies with extramural R&D budgets over \$100 million are required to allocate 2.8 per cent of their R&D budget to the Small Business Innovation Research (SBIR) programme.⁵⁴ Currently 11 such agencies participate in the programme. Established in 1982, the programme encourages US small businesses to engage in federal research or research and development that has the potential for commercialization. In 2013 4,485 SBIR awards totalling \$1.4 billion were given to small businesses.⁵⁵ Research has showed that the programme has had positive effects on a firm's sales and employment growth.⁵⁶ Also, because awards increase the prestige of the firm, angel and venture capital funding become easier for the firm to acquire.⁵⁷ The SBIR programme is one of the major ways that the US government targets high-tech firms. It is also one of the central linchpins of America's innovation system because it is the first place that many technological entrepreneurs go for funding. It sets aside more than \$2 billion per year in direct support for high-tech firms,⁵⁸ and the programme has nurtured many new enterprises and moved hundreds of technologies from the laboratory to the marketplace.

Conclusion: The success of US industrial policy

Throughout most of its history the US has been supporting key industries and sectors. Despite often protesting that the US does not do industrial policy, the federal and state-level governments have promoted American businesses and industry through a variety of measures, including subsidies for particular industries, public procurement contracts, tariffs, tax relief measures for R&D, initiatives ensuring access to finance and encouragement of manufacturing. Many of these interventions have ensured employment, growth and prosperity. Whilst many interventions have been short-term, many others have been part of a wider, long-term industrial strategy to alter what is being produced in the economy. Evidence of this can be seen in Hamilton's recommendations, Roosevelt's New Deal and the reorientation of the US economy after the 1970s. Interestingly, whilst the list of presidents who have used industrial policy is extremely long, it also includes economic conservatives as well as liberals. Even Reagan, who singularly ruled out government intervention in firms and industries, felt obligated to change tack and intervene in markets and firms.

The desire to target specific industries, sectors and technologies has been carried into the 2016 presidential election. Hilary Clinton's campaign talks of 'creating the industries and jobs

⁵³ US Small Business Administration, 'Interagency Task Force on Federal Contracting Opportunities for Small Businesses', <https://www.sba.gov/contracting/contracting-officials/interagency-task-force-federal-contracting-opportunities-small-businesses>, (accessed 14 October 2016).

⁵⁴ Small Business Innovation Research, 'About SBIR', <https://www.sbir.gov/about/about-sbir>, (accessed 14 October 2016).

⁵⁵ US Small Business Administration, *Annual Report: Fiscal Year 2013*, 2014, p. 5, https://www.sbir.gov/sites/default/files/annual_reports/FY13_SBIR_STTR_AR_Final.pdf, (accessed 14 October 2016).

⁵⁶ J. Lerner, 'When Bureaucrats Meet Entrepreneurs: The Design of Effective 'Public Venture Capital' Programmes', *The Economic Journal*, vol. 112, no. 477, 2002, pp. F73-F84.

⁵⁷ Ibid.

⁵⁸ US Small Business Administration, 2014, p. 42.

of the future', and does so via specific industrial policies. These include a \$10 billion commitment to strengthen US manufacturing via the 'Make it in America' plan, cutting red tape and providing tax relief for small businesses, and building on the commitment showed under the Obama administration towards R&D. Trump has also put forward policies to protect American industries and sectors. His proposals include high tariffs on foreign goods, including a potential 45 per cent tariff on Chinese goods; tariffs or taxes on US companies that move manufacturing overseas; and a promise to regrow the steel and coal industries in some states, including Pittsburgh. The US' commitment to assisting its industry is something that crosses party lines, and this commitment is something that will most likely continue well into the 21st century.

Acknowledgment: This article is partially based on a previous article written by Lucy Hatton in 2012 entitled 'Industrial Policy in the United States'.

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