



The Global Bicycle Market: A Comprehensive Plan to Re-Shore the U.S. Bike & E-Bike Industry

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Table of Contents

Executive Summary 3

Introduction4

The Decline of U.S. Bicycle Manufacturing 5

 The Rise of Imports 5

How the European Bike Industry Rebuilt Local Production 8

The E-Bike Accelerates into the Market 9

Increased EU Production Benefits Many EU Member Nations 11

Technological Progress 12

Manufacturing Bicycles Profitably...Even in High-Cost Longon, England 14

E-Bikes, Climate Change Could Propel U.S. Bike Market 15

A Strategic Approach to Re-Shoring 17

Benefits of Re-Shoring Bike Production 18

A Ten-Point Plan for Re-Shoring Bike and E-Bike Production 19

Conclusion 23

References 24

Executive Summary

- **China now dominates the U.S. bicycle industry, having driven every major U.S.-based bicycle and bicycle component manufacturer out of business or out of U.S. manufacturing.** Last year, imports accounted for 97.1% of U.S. bikes purchased and China accounted for 86.3% of the U.S. market, making this one of the most import-dependent and China-dependent industries in the U.S.
- **This is the right time for the U.S. to consider taking control over its bike industry.** With the electric bike (e-bike) market set for explosive growth over the next decade, the total U.S. bike/e-bike market could double or triple from its present size of some \$10 billion a year. This makes today an ideal time to launch a major initiative to re-shore bike/e-bike manufacturing to the U.S.
- **The U.S. should launch a strategic re-shoring initiative for the U.S. bike/e-bike industry.** Such a strategy would target final bike assembly first, frame-building next, and then bike components. At less than \$1 billion cost to the federal budget, it would create thousands of good-paying manufacturing jobs, especially in depressed parts of the U.S.
- **The European Union deployed a similar plan and has a healthy domestic bike manufacturing industry today.** Beginning in 1993, European Union trade authorities took aggressive anti-dumping action against dumped Chinese imports. As a result, today the EU has a healthy bike industry, with some 120,000 Europeans employed directly or indirectly in bicycle/e-bike manufacturing, and 900 EU-owned companies engaged in the industry.
- **EU policies have created new centers of bike production and thousands of jobs in European regions including Portugal and Poland.** Portugal, with a population of just ten million people, today produces five times as many bikes as the U.S.
- **The opportunity for innovative products and features is becoming more important with the growth of the e-bike market as a more climate-friendly form of transportation.** Yet the U.S. is not a major innovator in the bike/e-bike industry. Today, most significant innovations emerge from the EU and Japan.
- **U.S. imports of Chinese bikes generate an estimated 1.5 million tons of carbon dioxide due to dirty Chinese production processes in steel, aluminum, and bike manufacturing.** Shifting manufacturing to the U.S. will reduce greenhouse gas emissions.
- **The global supply chain breakdown of 2020-2021 has intensified the plight of the U.S. bike industry.** Bike importers are struggling to find containers to bring in imported product. Many bike and e-bike models are not available in the U.S. until 2022, while some manufacturers are quoting 2023 delivery for some models.

Introduction

The United States bike industry is in the midst of an unprecedented boom, triggered by the COVID pandemic. Bike sales rose sharply in the spring of 2020, as gyms, yoga studios and other exercise centers shut down and Americans sought outdoor activities like biking, a relatively safe form of exercise. In 2021, the sales surge continued. Estimates suggest retail bike sales are today around 50% higher than 2019 levels, held back by a widespread supply shortage. Indeed, for some bike models, bike manufacturers are quoting unprecedented one to two year lead times.

The delays in meeting consumer demand for bikes and e-bikes are the most visible part of a huge problem. In the last 30 years, the U.S. has lost its entire bicycle manufacturing industry. Today, 97.1% of the bikes purchased in the U.S. are imported. The vast majority of the imports come from China, and China is increasing its hold on this industry, in part through ownership of factories sited elsewhere in Asia.

The Coalition for a Prosperous America has studied the industry because in our view it provides a prime example of an industry which can and should be re-shored to the U.S. as soon as possible. It is not the most critical industry, either to the nation's defense or health, but it does have relationships and technologies shared with critical industries such as aerospace and electric vehicles. Importantly, there are no U.S.-based multinational corporations that own large bicycle manufacturing facilities in Asia. Even the U.S. multinationals that source their bikes in China have a strong desire to bring manufacturing here, provided of course that it can be done profitably and backed up with policies to make it an enduring U.S. industry. This industry sentiment means re-shoring this industry will encounter less resistance than in other, larger industries.



In this report we look first at the history of the U.S. bike industry to gain some understanding of the forces that led to the decline of the U.S.-based industry. We look at the case of the European Union, which holds an important lesson for the U.S. By protecting its industry against predatory Chinese dumping and supporting European-based production, the EU industry succeeded in maintaining a large locally-based industry, which is now expanding. We also look at the rise of the electric bike which promises to double or triple the size of the U.S. industry. Finally, we look at a strategy to re-shore this industry, which would mean thousand of new U.S. manufacturing jobs, freedom from dependence on China, and economic growth in an industry that is increasingly using advanced technology.

The Decline of U.S. Bicycle Manufacturing

The history of the U.S. bicycle industry after 1945 can be divided into three periods: the boom years of 1945 to 1974; the struggle with imports from 1974 to 1999; and the modern period of total import domination from 1999 to today.

The strategies of U.S. bike industry leaders after 1945 paralleled those of the U.S. automobile industry in many ways. Both were industries that favored marketing and design over technical innovation. The U.S. bike industry was dominated by three major manufacturers, Huffy, Murray, and Schwinn. All three focused on children's bikes which were the largest part of the market. With national distribution networks and sales through either specialty bike shops or department stores like Sears, all had multimillion dollar businesses.

All three companies missed the two major bike innovations of the late 20th century. The rise of "sport bikes" in the 1960s was driven mainly by British companies, especially Raleigh. Sport bikes were lightweight bikes with multiple gears bought by adults who were taking a growing interest in exercise. Later, in the 1990s, the creation and popularization of the mountain bike expanded sales further. This innovation was led by young entrepreneurs and self-styled inventors, chiefly in California. At first dismissed as a fad by the majors, it was later embraced, especially by Schwinn.

The Rise of Imports

In the 1960s the Taiwanese government began to promote export-led growth. The bicycle industry was the sort of light manufacturing that suited the island nation's network of entrepreneurial small companies with plentiful resources of low-paid, semiskilled labor. The Taiwanese government supported the export drive by reducing corporate taxes on exporting companies. Imports were controlled, but bicycle components Taiwan could not make itself were granted import permission. The overvalued U.S. dollar and undervalued Taiwanese dollar helped drive Taiwanese exports.

Between 1970 and 1972, Taiwanese bike exports shot up tenfold to surpass a million units, most of them bound for the United States. Canada enacted anti-dumping measures in the mid-1970s which effectively shut off the Canadian market for Taiwanese exporters increasing the pressure on the U.S. market. In the late 1970s and early 1980s, imports took between 20% and 50% of the U.S. market by units. In 1985, imported bike numbers surpassed domestic production. American importers themselves played a key role in boosting imports from Taiwan. According to a study by Taiwanese researcher Wan-wen Chu: "Foreigners not only helped transfer technology, but actually initiated the growth process by deciding to move sourcing to Taiwan." (Chu, 1997).

A boom in bike sales in the early 1970s enabled U.S. manufacturers to ignore the nascent import threat. But by the late 1970s, the danger was clear. Yet U.S. bike industry leaders failed to read the handwriting on the wall. In 1967, the Federal Trade Commission had ruled that Schwinn's policy of selling only to hand-picked bike shops that met its standards was a violation of fair trade laws. Schwinn responded by building its own wholesale distribution business, which met the then-prevailing legal standards. According to Richard Schwinn, this was a distraction from the real challenges: improving

its products, staying at the cutting edge of the industry, and investing in production. For years, Schwinn had underinvested in product and engineering. Richard Schwinn was then a senior executive at the company founded by his great-grandfather in 1895. “Schwinn did not invest in derailleurs or aluminum parts,” Schwinn says. “We focused on marketing, not manufacturing,”

Multiple gears and lightweight parts made of aluminum or steel alloy were hot new features of bikes in the 1970s and 1980s. Taiwanese companies mastered these innovations by learning from their Japanese suppliers and partners. Large U.S. bike manufacturers continued to produce heavy steel bikes for the mass market. Jay Townley was a vice president of manufacturing at Schwinn in the 1970s. “We watched the Taiwanese, when what we should have done was adopted their practices,” Townley said. “We did not invest. In Schwinn Plant Number 2 we had the same presses the government put in in World War II to make machine gun barrels and ammunition and we were still using them.”

Schwinn did not invest in innovation in part because it was distracted by building its distribution channel. It also suffered from the debilitating effect on management morale of the fight with the FTC. Fundamentally, it was focused on pleasing its core customer base of parents buying bikes for their kids and failed to recognize the new opportunities. It was a textbook case of the innovator’s dilemma (Christensen, 2000).

At Huffy, the management was little better. Huffy had joined the stock market in 1968, gaining access to financial resources for expansion. But instead of using the new funds to get to the cutting edge of the bike business, it acquired a dizzying array of related businesses including lawn mowers and sporting equipment for other sports. Many of those businesses would later be divested.

In the 1980s and early 1990s, the import threat grew. In the mid-1990s Huffy management asked for wage cuts from its workforce. When workers obliged, instead of thanking them, management came back asking for more wage cuts. Comments former Huffy president John Mariotti: “Senior management was tough but not smart. Management made labor the enemy even though we had high productivity in our Celina (Ohio) plant. Leadership that does not understand what makes a business successful will make it fail.”

In the early 1990s, China became a new force in the global bike market. The Taiwanese government had never supported its bike production with large-scale direct subsidies. China had no such constraints. Under the new style of Chinese private enterprise emerging under Deng Xiaoping in the 1990s, manufacturing industry was heavily subsidized and required to ramp up production and exports in many industries. Dozens of new Chinese bicycle factories benefited from government subsidies, from subsidized steel as Beijing poured billions into building the world’s largest steel industry, from subsidized land as Beijing pushed provincial and local governments effectively to give away land to companies that committed to build factories, and from Chinese wages that according to one 1990s estimate were between 25 and 41 cents an hour in bicycle plants. Figure 1 shows how Chinese imports accelerated rapidly, driving down Taiwanese and other imports, and eventually eliminating all U.S. volume production of bicycles.

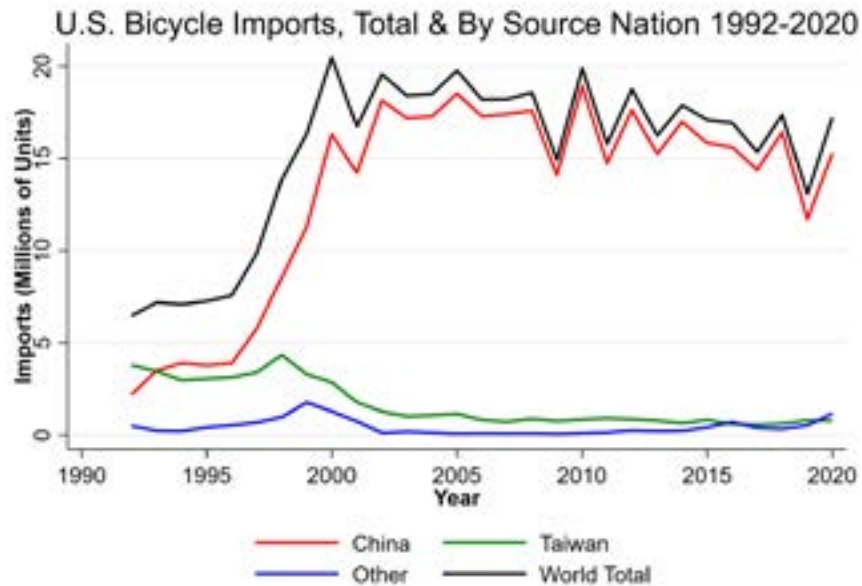


Figure 1. U.S. Bicycle Imports in units. Imports from China rose in the 1990s. Last year, they accounted for 86% of all imports. Imports accounted for 97% of U.S. bikes

In 1995, the U.S. International Trade Commission issued a finding that Chinese bikes were not being dumped and were not causing material harm to the U.S. bike industry (USITC, 1995). The report, likely influenced by the major mass-market retail chains which profited from Chinese imports and the Clinton administration’s desire to cultivate a friendly relationship with the Chinese government, proved to be both an appalling failure to understand industry trends and a dismal mistake. By 1999, all three of the major U.S. bike manufacturers had shut down their U.S. manufacturing operations, firing thousands of employees. Smaller manufacturers followed suit. Today the Schwinn and Murray brands are owned by Dorel and its bikes are manufactured primarily in China. Huffy is owned by a financial conglomerate called United Wheels based in Hong Kong and China.

Subsequently, a new generation of U.S.-based bicycle brands arose with more professional marketing and a focus on the enthusiast market as well as the children’s market. These brands, including Specialized, Trek, and Cannondale, show greater product and marketing skills than the previous generation of industry leaders. Nevertheless, they do virtually all their manufacturing in Asia. Ironically, the largest U.S. bicycle manufacturer today is a company that had its origins as an early importer in the 1970s. Kent International assembles around 200,000 bikes a year, primarily for mass market retailers, at its facility in South Carolina.

The disappearance of the U.S. bike manufacturing industry proved to be a huge loss for those regions where the industry was a major employer, including parts of Ohio, Missouri, Wisconsin, and Pennsylvania. It is also a warning for other industries that are in the cross-hairs of China’s current industrial growth plans, such as semiconductors and automobiles.

How the European Bike Industry Rebuilt Local Production

The experience of the European bike industry over the last 30 years provides a fascinating lesson for American political and business leaders. The European bike industry fought back against subsidized Chinese imports, won the regulators at the European Commission over to their side, and today have a vibrant and growing bicycle industry.

Many European nations have had a strong bicycle industries for over a century. When Chinese imports rose quickly in the early 1990s, European producers came together to petition the European Commission (EC) for anti-dumping action to slow down the flood of Chinese imports. The Commission is the executive and administrative arm of the 27-nation European Union. The Commission's process for investigating anti-dumping cases is more more direct and moves faster than the U.S. process. The U.S. process, managed by the International Trade Commission, is more adversarial. It involves more lawyers, and more time and money, giving importers a great opportunity to argue their case and prevent a meaningful resolution.

The EC process is designed to be more favorable to EU-based producers, reflecting the consensus in Europe that protecting EU-based production is a priority. There is also a political dimension: the Brussels-based Commission desires to show the 27 national governments that it is capable of protecting European interests. In 2018, the Commission beefed up its antidumping powers, streamlining the process to make it even faster and more transparent. Announcing the revised process, Commission president Jean-Claude Juncker said: "We are not naïve free traders. We have shown our teeth when we had to by adopting anti-dumping and anti-subsidy measures. And now we have new and improved trade defense rules in our arsenal to face down some of today's challenges in global trade. Make no mistake—we will do whatever it takes to defend European producers and workers when others distort the market or don't play by the rules."¹

In 1993, the European Commission levied its first anti-dumping duties against Chinese bicycles. It has since renewed those duties every five years, including most recently in 2019. The duties are on a variable scale, but most Chinese bike importers pay 48.5% duty to ship a bike into the EU area. It later extended the tariffs to imports from several southeast Asian countries, as well as Sri Lanka and Tunisia, when European producers demonstrated that Chinese manufacturers were trans-shipping bikes through those locations.

The result of the anti-dumping actions was a recovery and steady growth in the European bike manufacturing industry. Immediately after the antidumping duties were imposed, imports from China fell sharply. According to data from the European manufacturers' trade association CONEBI, last year the EU produced 14.5 million bikes out of a total market of 22 million units, for a market share of 66%.

That is a dramatic contrast with the experience in the U.S., where the failure to impose substantial duties allowed Chinese bikes to take over the market. "Without the antidumping measures on China, there would be zero production in Europe, just as there is in the U.S. today," comments Moreno Fioravanti, president of the European Bicycle Manufacturers Association (EBMA).

The E-Bike Accelerates into the Market

The rise of the electric bike (e-bike) is the most important innovation in the global bicycle market in many years. Initially invented by American tinkerers in the 1890s, the concept of an electric motor on a bike was abandoned until the 1990s, when Japanese innovations in small, light lithium-ion batteries made it practical. In the early 2000s, nations with strong biking cultures such as the Netherlands and Denmark began to embrace e-bikes, and sales took off.

From the point of view of the bike industry, an e-bike offers more revenue and more profit. Where children's bikes retail for \$100 to \$500 and adult bikes from \$500 to \$1000, e-bikes today start around \$1,000 and go up as high as \$10,000, with some of the most popular models from U.S. brands retailing in the \$2,000 to \$4,000 range. Even more important than the revenue and profit opportunity though is the fact that e-bikes broaden the market for biking. An e-bike can make a hilly city like San Francisco as easy to cycle across as a flat city like Amsterdam. E-bikes are purchased by non-athletes, by commuters who don't want to arrive at work soaked in sweat, and by older people seeking a moderate amount of exercise.



In the European Union e-bike sales surpassed one million units in 2014 and have grown at double-digit rates every year since then. Unsurprisingly, Chinese producers were quick to seize this new export opportunity. In addition to subsidies on bike production, Chinese e-bike producers also benefited from the support the Communist government gives to battery and electric motor producers. These are core technologies for the electric vehicle (EV), the emerging automotive category that figures in China's Made in China 2025 plan of high-priority industries for the future.

In 2014, Chinese imports of e-bikes into Europe began to rise, reaching some 40% of the market by 2017. Once again, Fioravanti's EBMA launched a case at the European Commission charging Chinese exporters with dumping. The Commission opened its case in December 2017. The EC announced its

ruling in July 2018, finding that China was dumping e-bikes. It announced preliminary duties which were confirmed in January 2019 for a period of five years. European Commission duties on Chinese e-bikes are steep, ranging from 18.8% to 79.3%. They are lower for Chinese companies that build bike plants within the EU. Most of the importers are subject to duties at the higher end of that scale.

In a 2019 statement, Fioravanti commented: “There is a direct correlation between the provisional trade measures of July 2018 and a drop in dumping. Chinese e-bike exports to the EU fell from an average of 100,000 per month in the first half of 2018 to less than 15,000 per month in the second half. EU trade defense instruments clearly work and today’s landmark decision will bolster a win-win situation for EU industry, traders, consumers, and the environment.” (EBMA, 2019)

Fioravanti was proved right. E-bike production in the EU has risen strongly in each of the last three years by more than 50% a year to reach 4.5 million units last year. Meanwhile bike imports (including e-bikes) have stayed in a narrow range of 6.5 million to 7.5 million units (out of total EU bike sales of 22 million last year). Holding imports in check is an achievement, as China is estimated to have total production capabilities for 130 million bikes, some 10 million more than total estimated world demand, and Chinese bike producers and the Chinese Communist Party’s 13th and 14th five-year plans specifically instruct Chinese bicycle producers to increase production and exports annually.

The result of EU import restrictions has been a European-wide boom in bike and e-bike production. As Figure 2 shows, the EU had a 69% share of EU bike production in EU consumption last year. The figure was even higher for e-bikes, at 85%. The industry now accounts for some 60,000 jobs in bike and e-bike manufacturing, with another 60,000 indirect jobs in companies supporting bike manufacturing. Bike assembly manufacturing businesses are growing in traditional bike producing nations like Germany and Italy and also in newer countries on the periphery of the EU where costs are lower.

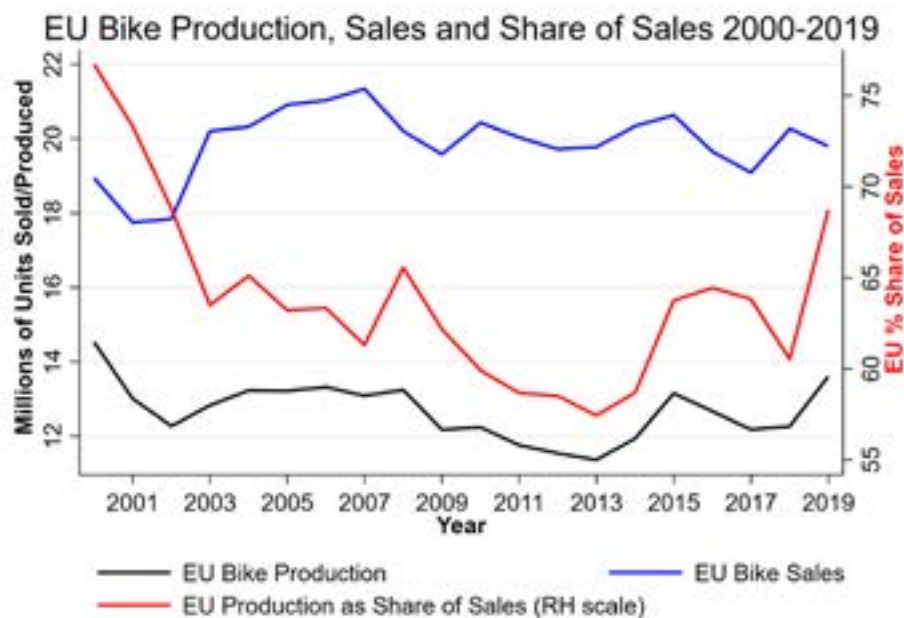


Figure 2. EU bike production reached 13.6 million units out of sales of 19.8 million units in 2019, due to anti-dumping duties followed by continuing investment by EU producers in bike production.

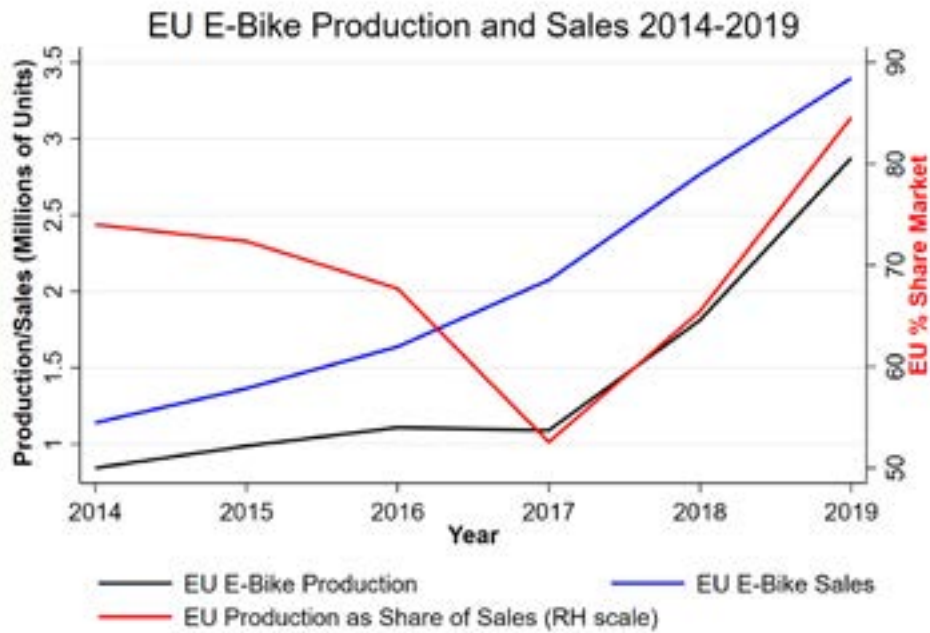


Figure 3. EU e-bike production achieved an even higher local market

Increased EU Production Benefits Many EU Member Nations

Portugal is the biggest EU success story in bicycle production. This relatively poor nation of just 10 million people has been seeking to diversify away from its dependence on agriculture since it entered the EU in 1986. Around 15 years ago, bicycle companies began to move to Portugal as a cost-effective production location with a committed workforce. The Portuguese government supported this industry, with grants paying for 50% to 100% of the investment in bike or component manufacturing equipment. According to official EU data, Portugal assembled 2.7 million bikes in 2019, making it the EU’s largest bike producer.

The area around the city of Agueda, located 50 miles southeast of Porto, has become known as Portugal’s “Bike Valley.” Gil Nadais, Secretary-General of Portugal’s bicycle trade association Abimota, says that today Portugal has about 100 companies working in the bike industry with 4,000 direct employees and 15,000 sub-contractors supporting bike manufacturing. American bicycle part maker SRAM has made chains in Portugal for years. In July this year, it moved its pedal manufacturing operation from Taiwan to Portugal. It has plans to shift other component production out of Taiwan to Portugal soon. The growth of component manufacturing within Europe is an important sign of growth in the European industry as final assembly is a relatively small part of the value of a complete bike. A larger share of the revenue, value-added, and innovation is in the components.

“Each year, we have three to five new companies opening their doors in Portugal,” says Nadais. “The industry is getting bigger, the complexity is growing, and there is growing IT [information technology] in the products.”

The European company that has done the most to drive the growth of the European bike industry is Decathlon, a French big-box out-of-town sporting goods retailer, analogous to America's Dick's Sporting Goods. Decathlon has 1,700 stores in 65 countries. Using its retail clout, Decathlon began partnering with manufacturers to build bicycles in the early 2000s. In 2006, Decathlon Bicycle Business Unit Director Didier Morelle partnered with small Portuguese manufacturer RTE to expand bicycle assembly in Portugal. Today, RTE builds 1.4 million bicycles a year in Portugal, exporting over 90% of its output.

Morelle singles out two key policies that have made it possible for Decathlon and its partners to expand bicycle production in Europe. First is the anti-dumping duties, which have kept imports down to reasonable levels. Second is the European Commission's policy of allowing bicycle parts into Europe at reduced or zero duties, provided they are used to assemble complete bikes.

"This makes it possible to build a successful assembly business," Morelle says. "And as you achieve the capability to make the parts yourself, you raise the rate [of duty on imports]." The exemption from duty for parts used to assemble a bike has proved to be a clever, strategic approach to rebuilding European bike manufacturing. The policy recognizes that many components will take longer to re-shore but assembly can be re-shored now with the right policies.

Morelle also stresses the importance of achieving economies of scale in production. He says a cost-effective bike facility should have six or seven-figure production capacity, and ideally at least five processes under one roof. Such a facility would employ about 800 workers. The typical processes in this facility include frame production and painting, rim production, wheel assembly, and final assembly.

"Our philosophy is to do the manufacturing close to the customer," Morelle says. This year and next, Morelle is focused on duplicating Decathlon's Portugal bike manufacturing facility in Romania and Poland. Bicycle assembly is moving to the low-wage nations on the edge of the European Union, while production of the high-value parts, like electric motors for e-bikes, is thriving in high-wage nations like Germany.

Technological Progress

The presence in Europe of a stable, large bike industry, boosted by the optimism surrounding the e-bike market, is leading to investment in bike and e-bike technology. The investment and progress in Europe contrasts with the situation in the U.S., where what innovation there is focuses more on product features than core technologies.

Carbon fiber is a lightweight, high-tech material with applications in aerospace, defense, sports, automotive, and recently wind power industries. Japanese companies dominate the carbon fiber production industry (Cook and Booth, 2017). The U.S. is the world's number one producer due to requirements that U.S. defense suppliers must manufacture in the U.S. But China made carbon fiber research, development, and manufacturing a priority in its 13th Five Year Plan for 2015-2020 and will likely continue to focus on it in subsequent five year plans.



Since American cyclist Greg Lemond became the first Tour de France rider to win the race on a carbon fiber-framed bike back in 1989, carbon has played a growing role in racing bikes. However, today nearly all of the carbon fiber and carbon frames are produced in Taiwan, with a growing number in China. The good news is that with the resurgence of the European bike industry, three carbon fiber manufacturing projects have been unveiled in Europe in recent months. One is in Portugal, in Vouzela only a few miles from Agueda. Another is in Belgium. The third is an expansion by Bianchi, a historic Italian maker of racing bikes that today depends on Taiwan for its frames.

In August, Bianchi's CEO Fabrizio Scalzotto told an Italian newspaper the company would quadruple its output within a year, funded by a €10 million (\$11.8M) investment plan including a pilot program to build its own carbon frames. The huge delays caused by pandemic shutdowns in Asia and shipping congestion prompted Bianchi's actions. "The dependence on foreign supplies is no longer sustainable," Scalzotto told the newspaper. "Together with the corona pandemic, this has resulted in lead times which vary between 500 and 700 days. On the other hand, the Chinese divested following the trade war with Washington and were forced to relocate to other Far East countries, which do not guarantee the quality and flexibility. The time is right to take production back in our own hands."

The bike industry is small compared to the massive scale of the global aerospace or renewable energy industry, yet there are always synergies when multiple industries share similar technologies. Carbon fiber, electric motors, and lightweight lithium-ion batteries are three such examples. In Portugal, the presence of a growing bike industry is increasing interest among young engineers in these products and technologies. Local technical schools and universities are offering more courses in these technologies.

Fioravanti of the European EBMA trade association highlights tracking systems as a key area for technological progress in the bike industry. All e-bikes are equipped with a bike computer and the ability to add GPS tracking to these computers promises to offer solutions that could reduce bike theft. If automobiles are also equipped with GPS tracking, it could provide a way to track hit and run drivers who cause bike accidents. Theft and accidents are two factors that make consumers wary of bikes. Reducing those problems could reduce harm to bike riders and benefit the industry too.

Manufacturing Bicycles Profitably...Even in High-Cost London, England

Even in the United Kingdom there are signs of life in the bicycle manufacturing industry. In the early 1980s, engineer Andrew Ritchie developed an innovative folding bicycle aimed at urban professionals. He built the first 50 bikes in his bedroom with the help of a friend. In the 1990s, a disastrous decision to partner with a Taiwanese company led to stolen intellectual property, several court cases, and five Taiwanese men eventually convicted and sentenced to prison for theft.

Businessman Will Butler-Adams took over as CEO of Brompton Bikes in 2008, brought all assembly back to the UK, relocated it in a larger factory on the outskirts of London, and increased the variety of Brompton models, while retaining the distinctive swooping curve of the top tube. Brompton has carved out a global niche as a premium folding bike for urban commuters. The ability to fold the bike up in less than a minute and take it upstairs to an office is a key selling point popular in any city where bike theft is a problem.



The pandemic gave a further boost to Brompton's sales, which reached \$105 million in 2020. Last year the company added 150 to its workforce. This year it is continuing to hire and focusing on marketing a folding Brompton e-bike. The company pays well and all employees get a profit share. "The people we are hiring are braziers, software engineers, electrical engineers, and marketers," says Butler-Adams. Brompton exports 75% of its production to 48 countries. Says Butler-Adams: "We sell bikes in Shanghai and Beijing. This sector has huge opportunity. It is not only good for the environment, it is a way to deal with obesity and mental health."

Butler-Adams lobbied for the British government to install its own anti-dumping regime once Britain left the European Union last year. It has done so, and there are duties on Chinese imports into Britain as in the EU. "A bicycle is not a toy," says Butler-Adams. "You can kill yourself on a bike. We need to keep out cheap unsafe products for consumer safety reasons. But we should not over-protect. On a level playing field, with fair trade, we can compete with anyone. Keep the market growing and the entrepreneurs will come."

According to Eurostat figures, last year four EU countries each produced more bicycles than the U.S., based on the estimate that the U.S. produces around 500,000 bikes a year (see Figure 4). Portugal, number one on the EU list, produced 2.7 million bikes—five times as many as the U.S. despite having a population of only 10 million and average annual wage less than half that of the U.S. The other nations exceeding the U.S. in bike production were Italy, Germany, and Poland.

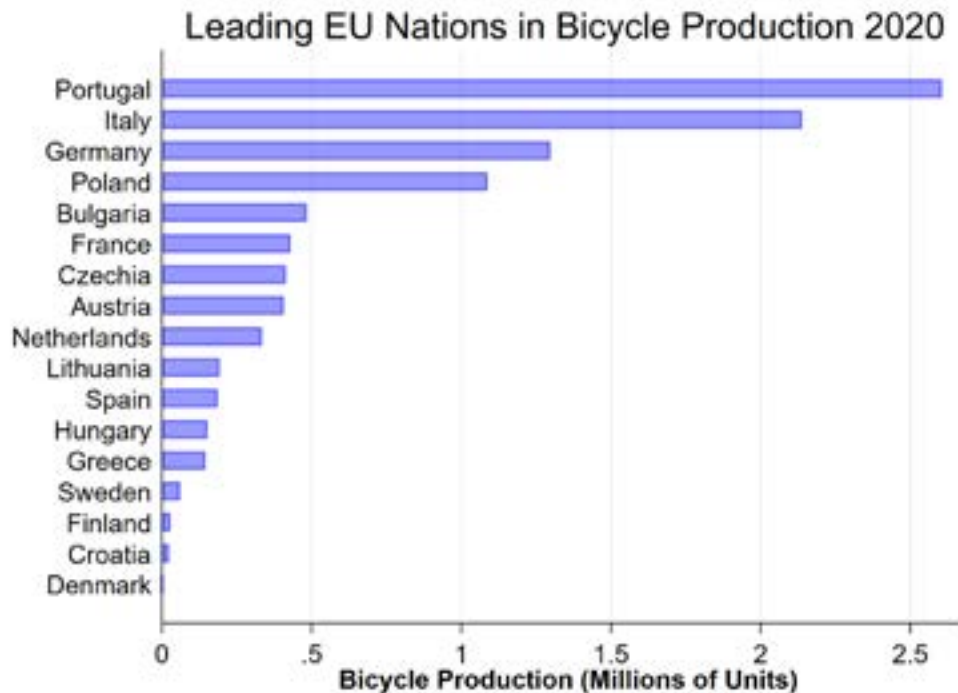


Figure 4. Nine EU nations, from Portugal to the Netherlands, produced more bicycles last year than the U.S.

E-Bikes, Climate Change Could Propel U.S. Bike Market

The strong worldwide growth of the e-bike market since 2014 illustrates the power of this new product category to create a new niche in transportation. Data from city bike-share managements document the attractions of the e-bike. For example, in New York City, e-bikes now represent just under 20% of the 19,000 bikes in the ride-share Citi Bike network. According to a New York Times report, the average e-bike gets nine rides a day compared with just 3.5 for pedal bikes, despite the higher cost of renting an e-bike.

One of the driving forces for e-bike sales is the beneficial environmental impact of e-bike travel. The Environmental Protection Agency (EPA) estimates² that the average car in the U.S. emits 404 grams of carbon dioxide per mile, or 4.6 metric tonnes a year. An academic study by researchers at Portland State University (McQueen, MacArthur, Cherry, 2020) estimated that an individual e-bike owner would reduce carbon dioxide emissions by 225 kilograms a year, and if 15% of car trips were replaced with e-bike trips, U.S. carbon dioxide emissions from passenger transportation could be reduced by 12%. According to some surveys, more than half of U.S. car trips are two miles or less, suggesting e-bikes are a realistic alternative for many trips. Climate-conscious Americans are increasingly asking why they should use a

5,000 pound vehicle, even if powered by an electric motor, for a short shopping trip, when an e-bike can serve the purpose at far less cost to their pocketbook and the climate. The e-bike industry is playing into this opportunity by building out a growing number of so-called cargo bikes, designed to carry packages, grocery bags, and small children.

Growing concern with the climate has led many city governments to prioritize building more bike lanes to make biking safer and encouraging car users to switch to bikes where possible. Since 2006, New York City has more than doubled the stock of bike lanes to over 1,200 miles,³ with plans to add 250 miles of protected bike lanes (lanes between a line of parked cars and the sidewalk) within the next six years.⁴ New York and other city governments have been inspired by Paris, where Mayor Anne Hidalgo took office in 2014 and embarked on a plan to turn Paris into a “green” city where one could “experience Paris at the rhythm of a bicycle.” Her administration has doubled the stock of bike lanes, banned cars from the left bank of the River Seine, closed off dozens of streets to cars, added 10,000 parking places for bikes, and plans to eliminate 72% of Paris’s on-street parking places for cars. Her office quotes as evidence of success the fact that car trips in Paris are down 5% from 2010, while bike trips rose 54% in 2019.⁵ She won re-election easily last year and recently declared herself a candidate for the French presidency in next April’s elections.⁶



For the bike industry the combination of mass adoption of e-bikes and growing public desire to address climate change suggests that the 2020s could be a fantastic decade for bike sales growth. The combination of a broader market for the product, based on the appeal of e-bikes to the millions of non-athletes, the psychological satisfaction of doing something about the climate in one’s daily life, and the higher average price of e-bikes could add up to a historic boom in the business. As an illustration, last year the Netherlands became the first nation where e-bikes reached sales parity with traditional bikes, each accounting for half the nation’s sales of 1.1 million units.⁷ But since the average price of an e-bike is much higher than a traditional bike, total bike/e-bike sales revenue in the Netherlands rose 33%.

The implications for the U.S. economy are significant too. The European Union’s bike market is roughly the same size as that of the U.S. With some 60%-80% of the market held by local producers, the EU industry accounts for some 60,000 direct and 120,000 total manufacturing jobs. The benefits of a local manufacturing industry include more good-paying jobs and prosperity in local communities, many of which are today “job deserts,” suffering from a shortage of good jobs and an excess of low-paying service sector jobs (which more and more Americans appear to be spurning). Another benefit is increased research and development in an industry that has growing synergy with electric vehicles and other industries in the new “green economy.” Finally, a domestic U.S. bike manufacturing industry would reduce our dependence on China.

A Strategic Approach to Re-Shoring

There is growing consensus that allowing so much manufacturing capacity to leave the U.S. in the last 30 years has been a terrible mistake. It has given us greater income inequality, led to hundreds of deprived, depressed cities and towns across much of the country, and contributed to social and political polarization.

President Trump's Section 301 tariffs on China shifted some manufacturing out of China but was insufficient to re-shore manufacturing production to these shores. In many industries, our production capacity has fallen so low that levying tariffs, at virtually any level, is simply not enough. A strategic approach is necessary.

A large tariff, or anything short of an outright ban on imports (which consumers will not accept) will founder on the fact that Asia today has a logistical chokehold on the U.S. bike industry. U.S. industry will not break this chokehold all at once. It must be done slowly, steadily, in step-by-step fashion. Each investment in U.S. bike manufacturing must prove to be profitable in a reasonable time (say 2-3 years). No company will invest in a complete production process because the 100-plus parts and components in a bike are too complex for any one company to undertake all at once. The U.S. must begin to rebuild a bike manufacturing ecosystem by focusing on the steps in the production process that can achieve profitability relatively rapidly. They must also be resistant to any effort by Chinese companies to choke off production. Finally, they must be a step down the path towards further reshoring activities.

Final bike assembly is the part of the manufacturing process that best fits these requirements. Final assembly operations can be erected here relatively quickly, and provided the international trade environment is supportive, generate profits for U.S. manufacturers. U.S. manufacturers can leverage their relationships with wholesalers and retailers to know they have a secure customer base for the bikes they assemble. As this business grows and establishes a firm footing, the assemblers can then identify parts and components they can next begin to manufacture here in the U.S. Over a time period of ten years, the U.S. could have a thriving bicycle manufacturing industry with concentrations of production and talent in multiple key segments of the industry.

The strategy should be developed with specific targets. For example, we could set a target that within five years, 30% of U.S. bikes purchased in the U.S. should be assembled here. Such a target imposes a sense of urgency, and a yardstick for measuring success on the public sector and private sector participants in the project.

Benefits of Re-Shoring

The benefits of re-shoring U.S. bike and e-bike production come in multiple forms: good-paying jobs and new businesses, synergies with other industries, more funds for research and development.

Good jobs and regional economic growth. Bicycle manufacturing relies on semiskilled workers for much of the assembly, painting, testing, and quality control work. It is an excellent occupation for Americans without four-year college degrees (about 68% of American adults do not have a bachelor's degree). Many of the communities where bicycle production once thrived are today "job deserts," with declining populations and too much local employment in poorly-paid retail or leisure/hospitality occupations. The current locations of the bicycle industry, including parts of South Carolina, Wisconsin and Illinois, and the city of Detroit, are all depressed areas that could profit greatly from a manufacturing revival.

Benefits for minorities. Many of the bike manufacturing facilities that thrived before the 1990s shutdown had high percentages of minority employees. Minorities suffered disproportionately when these plants shut down. The largest bike manufacturing facility in the U.S. today, Kent International's Manning, South Carolina facility, has a high proportion of women and African-American employees. This and other facilities that would benefit from an industry revival would likely continue to rely on minority employees.

Research and development. With the rise of the e-bike, technology is becoming more deeply embedded in the bike industry. Computer control, GPS navigation, anti-bike theft technology, and lightweight materials are technologies that differentiate companies from the competition. Highly differentiated companies are the ones that succeed in the market, generating more wages, profits, and growth. Relying on foreign producers limits the U.S. industry primarily to a brand marketing operation. The rise of the e-bike already threatens to leave U.S. brands behind in the technology race. Bringing manufacturing back to the U.S. will enable us to take our rightful place in the technology competition with Europe, Japan, and Taiwan/China.

Control our own supply chain. Today, in late 2021, it is common to find that many bike models are not likely to be available in U.S. bike shops for one to two years. Incredibly, bike dealers are quoting 2023 delivery dates for certain models! Today's supply chain is dependent upon tiny parts from countries like Malaysia and Vietnam, which have done a poor job putting anti-COVID measures into place and are now paying the price by halting factory production. In addition, some complex bike components are only available from one or a very small number of suppliers, who are unable to cope with the recent surge in demand, adding further delays to delivery times. Finally, many well-known U.S. bike brands suffer from being dependent upon their direct competitors for final assembly of their products. Giant is a Taiwanese-Chinese bike manufacturer with some of the world's largest bike assembly plants. It assembles bikes for some of its direct competitors including American brands. In times like today of overburdened factories, it would not be surprising to find that it is favoring its own brands ahead of the American brands it produces. By beginning today to re-shore our supply chain, we can regain control over our own fate. We must target the components and parts that have been the greatest bottlenecks in the 2020-2022 bicycle capacity crunch, while at the same time developing realistic logistical solutions to keep the supply chain efficient and economical.

Health and Safety. China is notorious as the source of many poor quality products, often in blatant violation of U.S. health and safety standards. Three examples illustrate the problem:

- U.S. ride-sharing company Lyft paid \$250 million in 2018 to buy a startup called Motivate, which provided e-bikes to large U.S. cities for their city-owned bike-rental service. In April 2019, Lyft was forced to recall and replace e-bikes from the bike-rental services of New York, San Francisco, and Washington, DC due to multiple cases of malfunctions in the front brake which threw riders from the bike.⁸ In one case, according to the New York Times, a rider broke his hip.⁹ Only three months later, Lyft was forced to issue another recall, this time because batteries on the Motivate-designed, China-manufactured bikes were catching fire.¹⁰
- In October 2020, exercise equipment maker Peloton was forced to issue a recall for 27,000 of its bikes after the U.S. Consumer Product Safety Commission found 120 reports of pedal breakages, with 16 breakages resulting in injury.¹¹ The bikes were manufactured in Taiwan. Bike pedal breakages are usually due to defective pedal spindles. It is likely the spindles were manufactured in China.
- In January 2021, the U.S. Customs and Border Protection agency announced it had seized 600 bright pink girl's bikes arriving at the port of Baltimore from China due to excessive levels of lead in the paint on the bike frame. The bike's manufacturer, Dripe-X, made no comment to Bicycle Retailer magazine, which reported the story.¹² In the U.S., lead paint has been banned since the 1970s as a cause of brain damage, especially dangerous for children and pregnant women. An American company would have apologized and assured consumers it had safety precautions in place to keep lead paint out of its products. China-based Dripe-X apparently saw no need to issue any such statement. Dripe-X bikes are sold on Amazon.

A Ten-Point Plan for Re-Shoring Bike and E-Bike Production

This ten-point plan provides a guide for policymakers to a program that can rebuild U.S. bike manufacturing, leading ultimately to a 30% market share of locally produced bikes and e-bikes within five years, and a 50% share in ten years. It will attract the support of eight U.S. bicycle manufacturers, including Kent International, the largest U.S. bike manufacturer today, with a plant in South Carolina. Our model calls for the U.S. to reach 5 million bikes assembled here within five years, creating 5,000 direct jobs and another 5,000-8,000 indirect jobs. The vast majority of these jobs will be in depressed U.S. regions and many jobs will go to people of color, at wage and benefit packages superior to most of the jobs currently available in those regions.

1. Target final assembly first and frame manufacturing second.

Final assembly of a bike is a practical and important part of the production process that can be done cost-effectively in the U.S. The cost of assembly is some \$30-\$60 per bike, around 10% to 20% of the manufactured cost of a bike and some 5% of the cost of an e-bike. The higher cost of U.S. labor would be somewhat offset by a combination of reduced shipping costs, higher automation in the U.S.

assembly plants, and shorter supply chains and delivery times. The technology of final assembly is well understood by U.S. bike manufacturers and former manufacturers. It represents the most cost-effective way for the U.S. to quickly build up a manufacturing presence.

Subsequently, frame manufacturing including painting, and wheel manufacturing should follow. These are large parts which are more economically built here instead of being built 6,000 miles away and shipped here.

2. Production tax credit for manufacturers investing in bike and e-bike manufacturing.

For decades, the renewable energy industries have enjoyed an investment tax credit. Although “investment” is in the name, it is in fact an incentive not for investment but for spending. Some 75% of the billions of dollars of tax credit dollars ends up in China, supporting the Chinese industries that manufacture the majority of the renewable energy equipment used in the U.S.

For an economy to grow and generate good-paying jobs and rising living standards, production is more important than consumption. Production generates the wages which support consumption. The U.S. must modify its government tax and spending policies to support production at least as much, and preferably more, than consumption. In renewable energy, Senator Jon Ossoff (D-GA) has proposed a production tax credit to incentivize manufacturers to build solar energy manufacturing plants here in the U.S. A bill supporting a tax credit for semiconductor manufacturing is also under active consideration.

Congress should support a production tax credit for bicycle manufacturing. The tax credit should be tied to investment in genuine plant and equipment that will be used for manufacturing. With the relatively high wages in the U.S., bicycle manufacturing will involve a high level of mechanization. We can make it affordable for U.S. bike manufacturers to invest in this equipment with a production tax credit.

We estimate that tax credits to support some \$1 billion of investment would be sufficient to reach a target of 50% of U.S. bikes sold each year assembled in the U.S. This is a fraction of the financial support that goes to most other U.S. industries. For example, the semiconductor industry is set to receive some \$60 billion of tax credit support from bills currently in Congress. This \$60 billion in tax credits will be provided to chipmakers without any obligation to increase production to any target level. Our plan is innovative in that it requires recipients to commit to public targets for production in return for claiming tax credits.

3. SBA loans for manufacturing investments.

U.S. banks are reluctant to lend to U.S. manufacturing businesses in direct competition with state-subsidized Chinese business. For manufacturers that sign up for this program, the Small Business Administration (SBA) should make available standard low-cost SBA loans at the rate of \$10 million for each 100,000 bikes/year of committed production. The loans will be used to purchase state-of-the-art manufacturing equipment to assemble bikes and build frames. This equipment will provide the cost efficiencies necessary to be globally competitive. Manufacturers will have to make a commitment to hit

their production targets or pay a penalty. This is innovative: instead of Congress just distributing monies blindly, it will be asking manufacturers for firm commitments in return. And we fully expect the SBA to make a profit on these loans, as it does on its entire loan portfolio.

4. Temporary tariff relief for U.S. manufacturers

The U.S. government will grant temporary tariff waivers on U.S. bike parts imported by manufacturers in the program and used for assembly into complete bikes. For example, current tariffs on imported saddles and pedals are 8 percent and tariffs on bicycle spokes are 10%. By waiving these tariffs only for parts assembled into complete bikes, the plan provides a substantial incentive to build bikes here. The combination of reduced shipping costs, since the bulkiest parts of the bikes will be made here, the waived tariffs on selected parts, and the efficiencies from the new equipment will make the U.S. globally competitive. Customs and Border Patrol (CBP) will certify that the manufacturers are not reselling any duty-free components with regular audits. The temporary tariff waivers expire in five years. Note that the existing 30 percent tariffs on bike parts from China will not be waived.

5. Phase Two: component manufacturing

Phase Two will begin three years after Phase One and involves a similar program as above to stimulate the production of bike components in the U.S. Tax credits and SBA loans will be made available to manufacturers committing to manufacture bike components in the U.S. As component production reaches significant scale, tariffs will be raised on those components.

6. Incentivize bike/e-bike sales with increased federal spending on cycleways.

Many cities and states are spending millions of dollars on cycleways today. The federal government spends billions on roads but very little on cycleways. Safety, especially fear of automobile accidents is one of the prime factors keeping people from bikes. A federal program for cycleways would accelerate the construction of cycleways in cities and suburbs and provide a great increase in the perceived safety of using a bike or e-bike. This would easily pay for itself in terms of benefits to the climate and health.

7. Research and development programs.

Bike safety and bike theft are two issues inhibiting the rise in adoption of biking, especially in large cities. European companies are addressing these problems with high-tech solutions such as bike locators using the GPS network and movement detection products that send alarms if a bike is moved. The federal government should launch R&D programs, in partnership with private companies, to investigate these challenges and develop commercially viable solutions. The benefits of successful

solutions will go well beyond the bike industry, to address similar challenges in many other industries. As we have found many times in the past, an R&D breakthrough is often best achieved by focusing on specific problems in a specific environment.

8. Marketing.

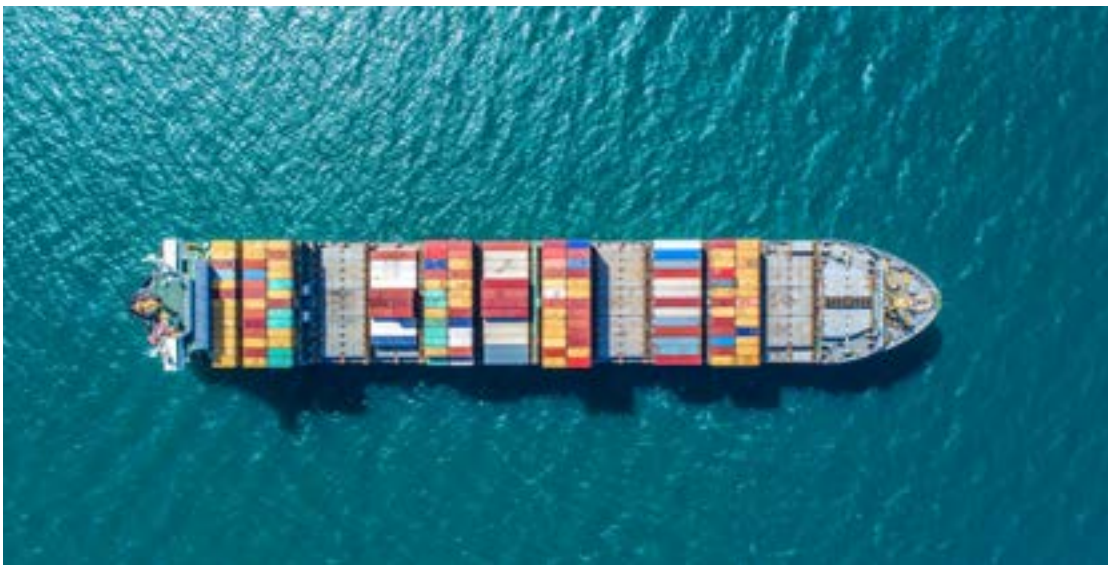
The Federal Trade Commission should confirm that bikes assembled in the U.S. can be branded and advertised as “Assembled in the U.S.” However, assembly from entire kits shipped in from foreign locations will not qualify.

9. Import regulation.

The Consumer Product Safety Commission should significantly increase its resources to inspect imported bicycles and stop sub-standard bicycles from entering the U.S. Every year hundreds of bikes are turned away by the CPSC but hundreds more escape inspection. As an example, last year Peloton had to recall 27,000 bikes because of faulty pedals liable to break and cause injury to the rider.

10. De minimis

The U.S. government must modify the current “de minimis” rule which allows imported goods worth less than \$800 to enter the U.S. free of duty or inspection. Amazon and other retailers are importing an unknown number of bikes under the de minimis rule, with no safety or counterfeit checks on goods entering the country this way. The U.S. de minimis limit is the highest in the world. The de minimis limit in China is \$8. In Switzerland it is \$5, and in Mexico \$50. To protect U.S. consumers from unsafe products, and to support U.S. manufacturing production and jobs, the U.S. should adopt a low limit of \$10.



Conclusions

Over the last 25 years, the U.S. has lost virtually its entire bike manufacturing industry, while China has become the world's dominant manufacturer of bikes, e-bikes and bike parts. As a \$10 billion industry, it is not the most important industry in America. Yet it is part of the challenge facing the U.S. The loss of those companies and jobs hit communities hard in parts of Chicago, Ohio, Mississippi, Pennsylvania and elsewhere. Minorities often suffered the most as they were strongly represented in the workforces of these companies.

The U.S. has an opportunity to rebuild this industry today, at a modest cost. Several companies in the industry are eager to seize this challenge, spurred on in part by the huge supply chain delays and snafus that have created two to three year delays in the delivery of many models. Charles McCormick owns Electric City Bikes, the largest dedicated retail store for e-bikes in Washington DC. McCormick sums up the feeling of many in the industry when he says: "We're sick of being muscled around by the mafia of Asian producers. We would like to be able to offer our clients a U.S.-built e-bike with a U.S.-built motor and some of the latest high-tech features. That's very possible to do cost-effectively today in the U.S."

An industrial turnaround in bike manufacturing can be achieved for a modest investment of government resources. The benefits go well beyond the jobs, revenue, investment, and new technologies in the bike business. They include health and safety benefits, and benefits for the climate. They can also serve as a testbed for policies that can work for other industries.

We should learn from the European Union model. Facing an onslaught of dumped Chinese bikes in the 1990s, the EU took decisive action. Today the EU has some 900 companies engaged in various aspects of bike manufacturing (including manufacturing product for the U.S. market, some of it by U.S. companies that find it uneconomic to manufacture in the U.S.). These companies employ some 120,000 employees and are responsible for some of the most exciting technological advances in the industry. According to Moreno Fioravanti, president of the European Bike Manufacturers Association, each one of those workers saves some 30 tons of carbon dioxide per year from going into our atmosphere because of the superior environmental regulations in the EU as compared with China. "No country can have a bike industry without a policy on dumped Chinese product," Fioravanti says. "This is what we will face in the electric vehicle industry tomorrow."

We can use this simple formula to shift U.S. bike manufacturing into high gear. We can then apply it to many other other industries, delivering a broad-based boost to high-paying manufacturing jobs, American national security, and Made in USA pride.

Endnotes

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