A MANUFACTURING STRATEGY BUILT FOR TRADE INSTABILITY

By Justin Rose, Ian Colotla, Michael McAdoo, and Will Kletter

As they scramble to adapt to a global business landscape that has been thrown into disarray by trade wars and renegotiated treaties, many manufacturers face a quandary. Companies that have been relying on Chinese factories to supply the US market, for example, must choose from among several strategic options. Should they shift production to North America, where costs may be slightly higher but where they can reduce their risk of exposure to fallout from geopolitical intrigue? Should they hunt for other low-cost offshore locations? Or is the wisest course over the long haul simply to stay put and see how the new world trade rules play out?

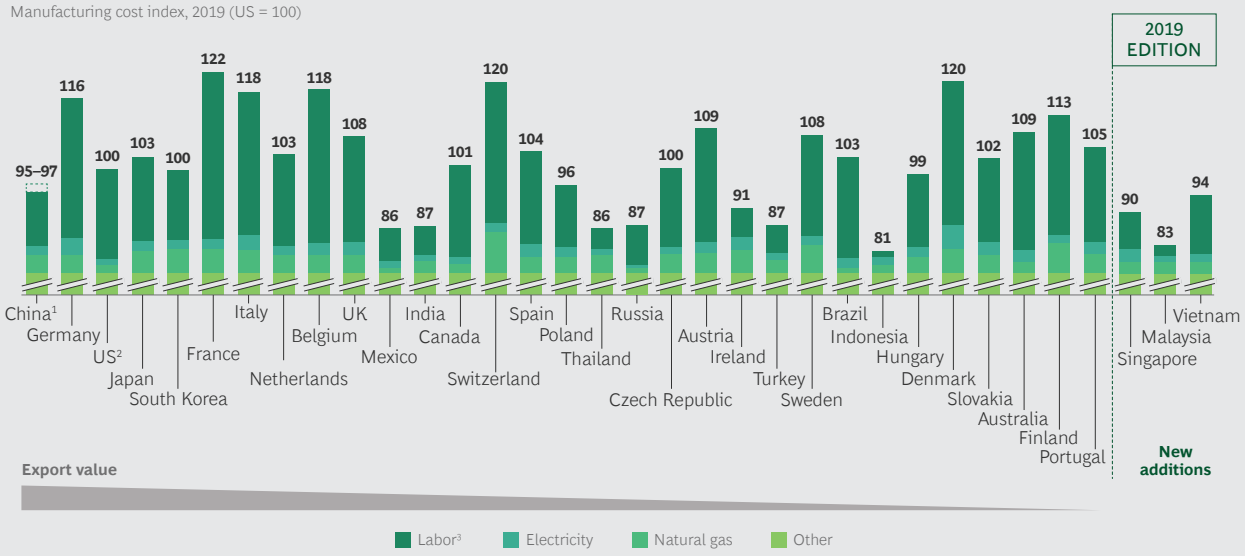
Whether manufacturers pick one of these options or a combination of all three, cost will likely be a key factor in their ultimate decision. Manufacturers should look beyond tariff rates and factory wages to take into account other, less obvious factors—such as worker productivity and energy expenses—that also help determine the underlying cost competitiveness of manufacturing economies.

An analysis of the most recent BCG Global Manufacturing Cost Competitiveness Index reveals some interesting shifts in cost structures that may be useful both to executives who are deciding where to locate production and to economic policymakers who are developing strategies to boost their manufacturing sectors. The index tracks changes in relative factory wages, productivity growth, currency exchange rates, and energy costs. (See Exhibit 1.) This year's key findings include the following:

- The US's overall cost competitiveness improved against 18 of the world's 38 biggest manufacturing export economies in 2018—reversing a recent trend—even though the once-large US cost advantage in energy has waned. The reason: manufacturing productivity leaped by 4% in 2018, compared with a 2% increase the previous year.

- European economies that have underinvested in productivity—such as France, Italy, and Spain—became less cost competitive in 2018, while manu-

EXHIBIT 1 | The 2019 BCG Global Manufacturing Cost Competitiveness Index



Sources: US Economic Census; Bureau of Labor Statistics; Bureau of Economic Analysis; International Labour Organization; Euromonitor; Economist Intelligence Unit; Oxford Economics; NDRC Price Monitoring Center; International Energy Agency; Eurostat; BCG analysis.
Note: The index covers four direct costs only. No difference is assumed in "other" costs (such as raw material inputs, and machine and tool depreciation). The cost structure is calculated as a weighted average across all industries. Ukraine, Norway, and Romania were also tracked by the index, but are not shown because they are no longer in the top 34.
[1]Range represents the average for all of China (95) and for the Yangtze River Delta region (97).
[2]Data is for states of the US South.
[3]Productivity-adjusted.

facturing productivity gains in Germany and Finland enabled those economies to maintain their competitiveness.

- Southeast Asia's importance as a low-cost manufacturing region is rising. Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam offer some of the world's most competitive production costs.

Production cost, of course, isn't the only factor to consider when deciding where to manufacture. Logistics, proximity to key markets, and competitors' strategic moves are increasingly important, too. And as explained below, a number of factors beyond cost will continue to keep China globally competitive across a range of industries. BCG has long taken the position that, rather than locating production in a handful of low-cost developing economies to serve markets worldwide, companies should adopt a regional strategic approach that provides the flexibility necessary to respond to the shifting economics of global manufacturing.

Productivity as a Differentiator

The strong showing of the US in the 2019 BCG index illustrates the power of productivity. The US gains in cost competitiveness against 18 other economies came after several years in which the country had lost ground. This trend was due in large part to three factors: factory wages that rose faster than productivity, a strong dollar, and a decline in the US's energy-cost advantage as global prices for natural gas converged. From 2015 to 2017, the US had registered losses in competitiveness against 31 of the 34 countries tracked in the index.

The US's manufacturing productivity growth rate of 4% in 2018—an acceleration from an average of only 0.5% from 2013 through 2017—was twice as high as the overall US productivity improvement in that year. As a result of the gain, manufacturing's contribution to gross value added in the US economy increased from 11.1% in 2016 to 11.4% in 2018, even though the nation's manufacturing workforce remained roughly flat, at 10.7 million, over that time.

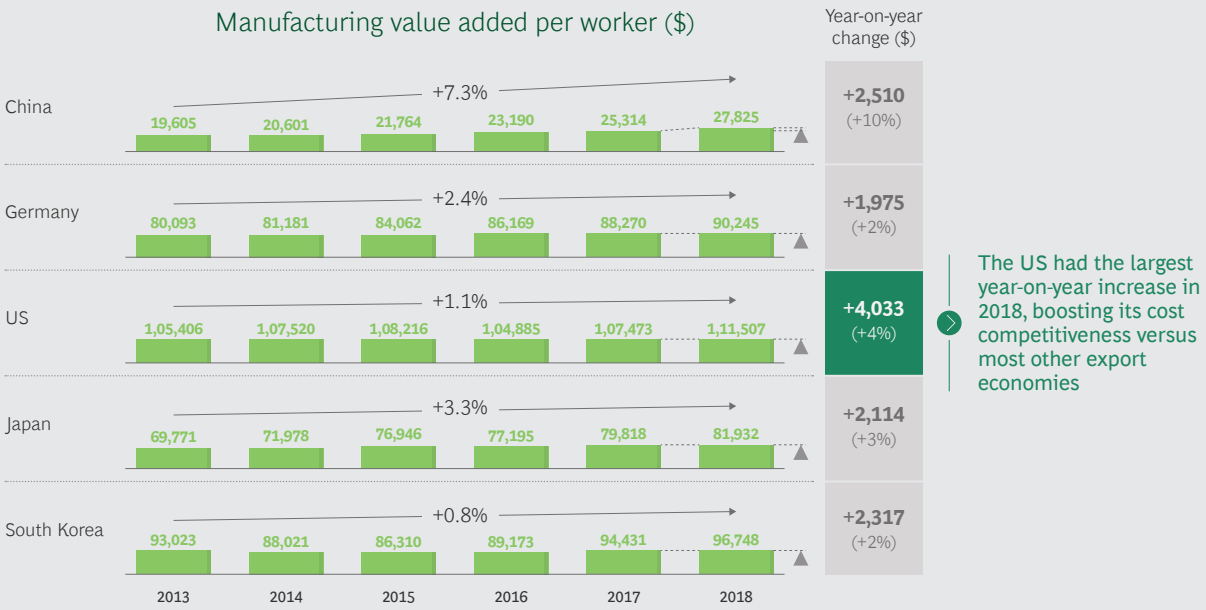
Manufacturers must also factor in recent tariff hikes—such as those on steel, aluminum, and machinery in the US—that are not captured in the BCG Global Manufacturing Cost Competitiveness Index. The impact—if any—of tariff costs varies dramatically from one product category to the next, however, and rates continue to fluctuate. So the BCG index, which serves as a broad gauge of cost competitiveness across all manufacturing sectors, does not consider them. Even with somewhat higher costs due to tariffs on inputs, moreover, many US companies are opting to keep production in the US in order to be closer to customers and to hedge against geopolitical risk to their supply chains.

Productivity growth has also bolstered the competitiveness of other major export economies. (See Exhibit 2.) Although wages have been rising in Germany, for example, an average 2.4% annual increase in the value of output per worker from 2015 through 2018 has offset that cost. Over that period, Germany's cost disadvantage versus the US shrank from 26% to 17%. In Finland, average productivity growth of 4.2% from 2015 through 2018 enabled the country's economy to hold its ground over that period.

Manufacturing productivity growth also accelerated in China in 2018, to 10% from an average annual percentage of 6.6% from 2013 through 2017. Labor costs rose faster in 2018, however, which caused China's direct manufacturing cost advantage over the US to slip that year. That reversed a trend that had emerged over the previous two years, when China's direct manufacturing cost advantage over the US widened. China's cost advantage over the US South (which we use as our benchmark)—again excluding the costs of higher US tariffs—dropped a few percentage points in 2018 for the country as a whole and for the Yangtze River Delta region, the base of many industries that compete most directly with the US. In that region, the gap narrowed from 5% to just 3%.

Economies with weak productivity growth have seen their competitiveness decline. France, which saw output value per worker fall by 0.7% from 2015 through 2018, is now the second-least competitive of the top 38 export economies, and its direct cost structure is 23% higher than that of the US. The cost competitiveness of Italy, Norway, Portugal, and Spain also weakened because productivity didn't keep pace with labor costs.

EXHIBIT 2 | Rising Productivity Enables the Top Five Exporters to Stay Competitive



Sources: US Economic Census; Bureau of Labor Statistics; Bureau of Economic Analysis; International Labour Organization; Euromonitor; Economist Intelligence Unit; Oxford Economics; NDRC Price Monitoring Center; International Energy Agency; Eurostat; BCG analysis.

Southeast Asia on the Rise

Significant shifts in manufacturing competitiveness among developing nations have been occurring, too. Southeast Asia has emerged as a manufacturing hot spot, led by rising goods exports to both the US and China. (See Exhibit 3.) During the first half of 2019, goods exports from Vietnam to the US surged by 34%, to $28 billion, while those from Cambodia to the US leaped by 30%. Malaysia and Thailand increased their exports to China by 8% over that same period. In fact, Malaysia now ranks as the world's 20th-largest manufacturing exporter, and Vietnam is number 22. Neither economy ranked among the world's 34 leading manufacturing exporters in 2017.

Some of the world's lowest direct manufacturing costs are powering the rise of Southeast Asia.

Costs are 17% lower in Malaysia than in the US, according to our index; they are also 15% lower in the Philippines and 14% lower in Thailand, making these nations slightly less expensive than Mexico, India, Russia, and Turkey.

Whether Southeast Asian nations will have the capacity to absorb a massive shift of manufacturing work from China is another question. Already, costs in Vietnam have risen sharply. According to our 2019 Global Manufacturing Cost Competitiveness Index, productivity-adjusted direct manufacturing costs in Vietnam are 9% higher than in Thailand and 12% higher than in Malaysia—even though factory wages in those economies are significantly higher. Vietnam's costs are also 5% higher than in Singapore, which has one of the world's highest per capita GDPs.

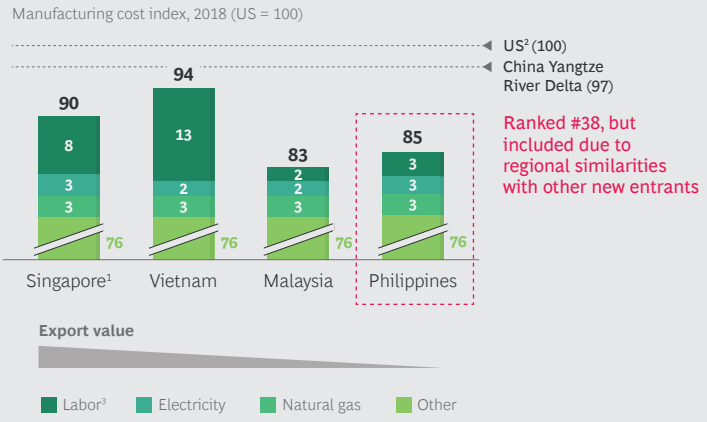
One reason for Vietnam's weak competitive position relative to its neighbors is productivity. Vietnamese factories remain far more labor intensive and less mechanized than those of neighboring countries, and the skill levels they require are lower. These factors offset some of Vietnam's advantages in low factory wages in many sectors. The value of output per worker is more than four times as high in Thailand and nearly eight times as high in Malaysia as in Vietnam. Meanwhile, Vietnamese manufacturing wages have been rising by

EXHIBIT 3 | Low Costs Heighten Southeast Asia's Appeal as a Manufacturing Destination

Top 34 exporters of manufactured goods

Rank	Country	Rank	Country
1	China	18	Thailand
2	Germany	**19**	**Malaysia**
3	US	20	Russia
4	Japan	**21**	**Vietnam**
5	South Korea	22	Czech Republic
6	France	23	Austria
7	Italy	24	Ireland
8	Netherlands	25	Turkey
9	Belgium	26	Sweden
10	UK	27	Brazil
11	Mexico	28	Indonesia
12	**Singapore[1]**	29	Hungary
13	India	30	Denmark
14	Canada	31	Slovakia
15	Switzerland	32	Australia
16	Spain	33	Finland
17	Poland	34	Portugal

Southeast Asian economies that newly rank among leading manufacturing exporters



Sources: US Economic Census; Bureau of Labor Statistics; Bureau of Economic Analysis; International Labour Organization; Euromonitor; Economist Intelligence Unit; Oxford Economics; NDRC Price Monitoring Center; International Energy Agency; Eurostat; World Trade Organization; JETHRO; BCG analysis.
Note: The index covers four direct costs only. No difference is assumed in "other" costs (such as raw material inputs, and machine and tool depreciation). The cost structure is calculated as a weighted average across all industries. Ukraine, Norway, and Romania were also tracked by the index, but are not shown because they are no longer in the top 34.
[1]Export value is inflated due to port activities.
[2]Data is for states of the US South.
[3]Productivity-adjusted.

an average of 5% annually for the past five years. Other costs not captured in our index, such as industrial real estate, are escalating too, as more companies shift production to Vietnam. Wages are also rising fast in Malaysia and other booming manufacturing economies in the region, however.

Manufacturers should take shifting cost dynamics in developing nations into account when developing medium- or long-term global manufacturing and supply chain strategies. Moreover, even with rising costs and the threat of higher US tariffs, China remains very competitive globally in many industries, due to its manufacturing sector's enormous scale, deep component and material supply base, well-developed infrastructure, and huge—and growing—domestic market. For these reasons, among others, we advise companies to maintain diverse, flexible global manufacturing footprints dedicated to serving regional customers, and to avoid relying excessively on a few low-cost economies.

Navigating Through Volatility with a Steady Hand

Executives need to keep a steady hand on the wheel while navigating a world of constantly shifting manufacturing costs and trade policies. We see several key actions that global manufacturers should take. First they should evaluate the current geographic footprints of their customers—and then they should move boldly to optimize manufacturing and supply-chain capabilities to ensure that their companies are globally balanced, flexible, and resilient to future changes in trade regimes.

It is critical for manufacturers to recognize that productivity—not just labor rates—will be a primary battleground for determining cost competitiveness in the future. They must continue to aggressively pursue lean practices and continuous improvement, and invest in advanced manufacturing systems such as autonomous robots and digital "virtual" factories to cut costs and boost productivity.

Companies can accomplish only so much by improving productivity in their own factories, however. To make a greater impact, they must also drive improvement in their underlying supply base. As the business-to-business world increasingly migrates to globe-spanning digital platforms, for example, manufacturers should partner with their vendors and with consortia of other manufacturers to digitize supply chains.

Given ongoing trade tensions and geopolitical volatility, companies should also consider undertaking a comprehensive, country-by-country review of their supply chains' risk exposure. For example, they should assess whether the IT systems of foreign companies within their ecosystem pose a potential security risk.

The findings of the latest BCG Global Manufacturing Cost Competitiveness Index underscore an argument we have been making for nearly a decade, long before the recent trade wars began: companies should adopt a regional approach to their manufacturing and supply chain footprints, rather than locating all of their production in a handful of low-cost countries.

For companies that have built manufacturing footprints and supply chains on the assumption that a global environment of free trade will continue, adapting to sharp swings in trade policy can be disruptive. But executives should regard the current trade instability as the new normal. By going beyond short-term tactical moves and beginning to build flexible, regionally focused supply chains informed by a better understanding of the cost dynamics of different locations, companies can turn the current climate of adversity into a source of competitive advantage.

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