

# MAPPING “MADE IN CHINA”

## Tracing the Economic, Social, and Environmental Impacts of Global Trade

By Mark Henderson

**Editor's Note:** Links to related additional teaching resources are provided in the online supplement to this article.

Few instructors can offer their students a field trip to China, but nearly every student comes into contact with products made in China every day. By tracing the routes that brought these products to them, students can learn a lot about the economics of global trade and the history and politics that affect the lives of people involved along the way. Online research and websites like Google Earth make a “virtual field trip” to China a practical addition to high school or college-level social science classes. This article presents suggestions for accessible videos and websites that, paired with an online mapping assignment, may help introduce students to current social and environmental issues in China and the global economy.

Students engaging with these issues will gain a deeper understanding of some key economic and geographical concepts, while strengthening their ability to evaluate their own roles as citizens and consumers.

### PREPARING FOR THE TRIP

Pietra Rivoli's *Travels of a T-Shirt in the Global Economy* provides an excellent template for students to plan their online journey. Rivoli traces the steps required to produce a T-shirt from the cotton fields of Texas to the Shanghai factories that spin the yarn, weave the cloth, sew the shirt, and then ship it back to Florida to be printed and sold. Illustrating economic concepts with a light touch, she tells the stories of the farmers, workers, and factory owners involved in producing this everyday object. Although the current wave of globalization is seen as a new phenomenon, the mutual benefits of comparative advantage long predate the era when the American colonies traded ginseng for Chinese tea.

For a generation wedded to consumer electronics largely made in China, controversies involving the production of computers, mobile phones, and other gadgets are likely to provoke interest and soul-searching. *New York Times* reporters Charles Duhigg and David Barboza shared a Pulitzer Prize for their 2012 article, “Apple's iPad and the Human Costs for Workers in China.” Performance artist Mike Daisey gave voice to the plight of Chinese factory workers on the Apple supply chain in his monologue “The Agony and the Ecstasy of Steve Jobs.” Excerpts from the show were broadcast in January 2012 on NPR's “This American Life” but were retracted when it was revealed that incidents Daisey portrayed as firsthand accounts were not, in fact, firsthand after all. Daisey has since revised his show to clarify where he relies on other sources. Paired with the Duhigg-Barboza article, Daisey's revised work can challenge students to consider the unseen consequences of the ever-improving gadgets they use daily while also probing the ethical limits of advocacy and journalism.

Still, Rivoli counters the common perception that Chinese factories are all “sweatshops.” Chinese labor costs are low, giving the



A supervisor keeps a close eye on textile workers during an all-night shift in *China Blue*. Photo: Chen Ya Chai. Press kit: Teddy Bear Films at <http://tiny.cc/0b4gcx>.





"Manufacturing #17," Deda Chicken Processing Plant, Dehui, Jilin, China. Photo: Edward Burtynsky. Press kit: *Zeitgeist Films* at <http://tiny.cc/n43gcx>.

country a comparative advantage in the global economy, but factory wages offer many Chinese workers a step up from farm labor. The economic opening of China over the past generation has lifted hundreds of millions out of poverty, offering unprecedented opportunities for education and personal advancement. Rivoli credits activists for raising labor standards over the past century and shows how factory workers are not just victims but, thanks to their improved skills and financial earnings, can be agents of their own destinies.

The transformation of workers' lives can be seen in *China Blue*, an undercover documentary from 2005 filmed by Micha Peled that follows a young woman from her village to a job in a blue jeans factory. Peled shows how international buyers pressure the factory owner to cut costs and speed up production, leading to long overtime hours and delayed paychecks for the young factory workers. However, despite their hardships and an uncertain future, the workers also experience their first taste of urban life, expressing amazement at the indoor plumbing in the factory dorm or sneaking into town to buy "energy tea" to get through a long shift.

The voices of individual workers come through in the work of authors Leslie Chang (*Factory Girls*, 2009) and Peter Hessler (*Country Driving*, 2011). Chang's 2012 TEDGlobal Talk "Listening to China's Workers" gives an accessible account of the lives of migrant factory workers she has come to know. She points out that changing the factory conditions criticized by outsiders—long working hours, cramped living quarters—is not necessarily a priority for the workers themselves, who are focused on saving money and developing skills for a



Leslie Chang relates the aspirations of migrant factory workers in her 2012 TedGlobal Talk "Listening to China's Workers" at <http://tinyurl.com/8fgu2nr>.



The mapping system enables students to navigate quickly from one location to the next, illustrating each step in the journey with additional images and data linked to these locations on Google's virtual globe.

better future. These sympathetic accounts of young workers are not blind to the exploitation and hazards facing China's migrant workers, but they also show how many make the best of these opportunities for economic success and personal independence. As Rivoli concludes, factory work "beats the hell out of life on the farm."<sup>1</sup>

A number of other recent films can also help students form a clearer picture of contemporary China's varied landscapes. Following photographer Edward Burtynsky's trek through Chinese factories, countrysides, and booming cities, Jennifer Baichwal's film *Manufactured Landscapes* (2007) includes an unforgettable opening segment that hints at the vast scale of the Shenzhen factory complex referenced in Mike Daisey's monologue. *Beijing Besieged by Waste*, by Chinese documentary filmmaker Wang Jiuliang (2011), illustrates the challenge of waste management for a rapidly growing urban population. Shorter online videos from Stanford researchers (*10,000 Shovels: China's Urbanization and Economic Development*) and public television producers (*China from the Inside: Globalization*) are suitable for in-class use and are accompanied by lesson plans and suggested activities.

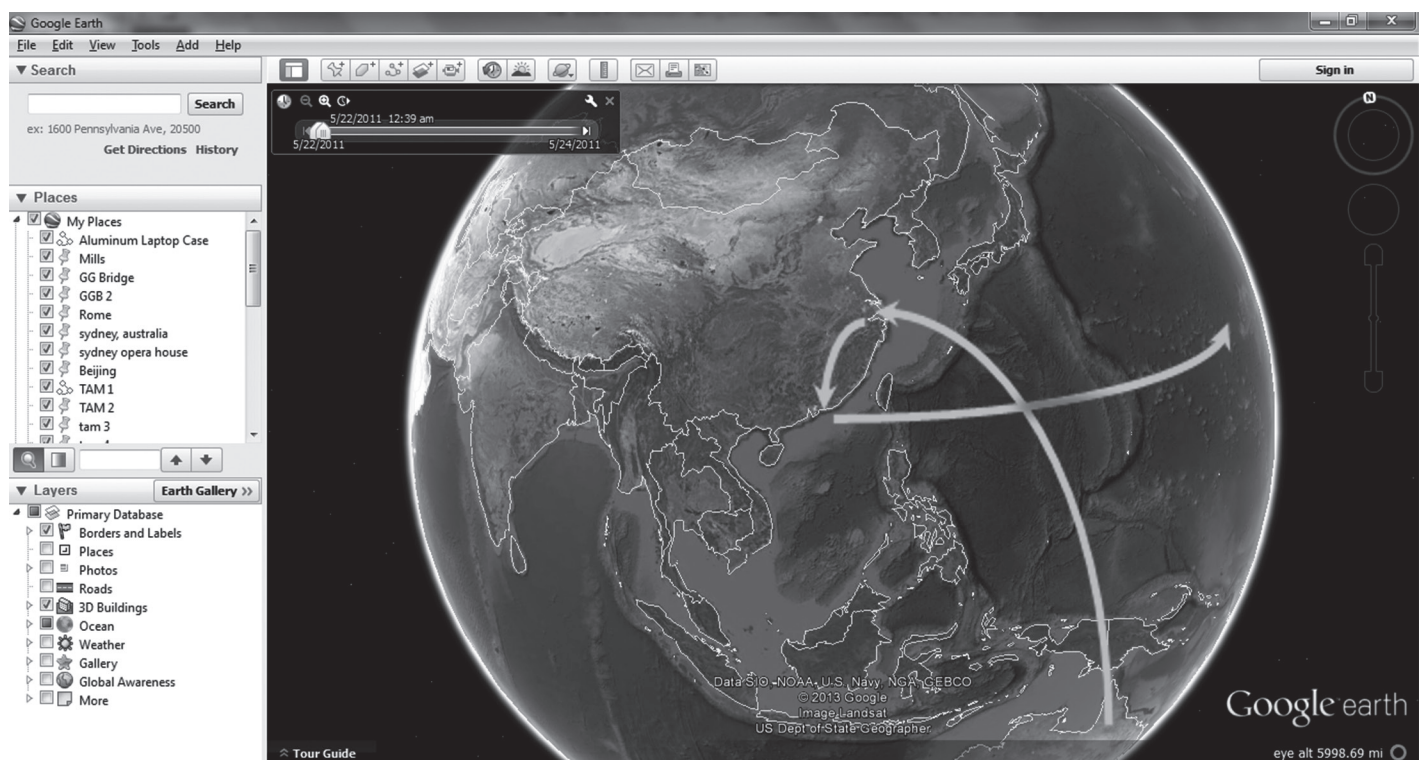
## GETTING THERE

Having previewed a variety of perspectives on contemporary conditions in China, students are ready to begin planning their own virtual journeys. Each group of students will select an item made in China that they have purchased, used, or consumed recently. This is certainly the easiest part of the journey: Nearly every student will find something with a "Made in China" label in his or her backpack or closet. Others will look no further than the furniture in their dorm room or the frozen food aisle of their supermarket.

Online research makes it surprisingly easy for students to locate factories producing many of these products. Websites like *Alibaba.com* and *MadeInChina.com* are designed to connect international traders with factories producing a variety of generic and name brand items. Some major international brands—especially those that have signed on to supply chain codes of conduct—have disclosed the names and locations of their suppliers on their websites or in publicly available reports. For commodity goods like aluminum blocks or raw plastic nurdles, which are used as inputs for finished products, students may be given latitude to select any one of the many possible sources in the supply chain.

Students can trace the journey of their product by finding each location in the supply chain and mapping it using Google Earth. This free online platform, best-known for its ability to seamlessly zoom through satellite images, includes robust search capabilities, allowing students to locate individual factories by name or street address. For many parts of China, Google Earth also has ground-level images contributed by users of Panoramio, a photo-sharing site. Close examination of the images on Google Earth can reveal much about the environmental conditions of the site: land use patterns; old and new construction; and proximity to agriculture, forestry, or water resources. Recent land use changes can be detected by comparing older and newer photos and satellite images revealing the transformation of fields or traditional settlements into modern apartments and factories.

Once the locations within the supply chain are known, an increasing amount of site-specific data on environmental quality can be gleaned through further online research. Detailed pollution reports



Using Google Earth to trace the path of an aluminum laptop case. Photo by author.





Electronic waste recycling, Guiyu, Guangdong, China. ©2006 Basel Action Network (BAN). Used by permission at <http://tiny.cc/qd4gxc>.

are mapped on the website of China's Institute of Public and Environmental Affairs. Combined with information from manufacturers, travel websites, Wikipedia, or other online sources, students can sketch a profile of the social and environmental conditions in and around the factories where their products were made: how the population has changed in recent years, what the prevalent environmental hazards are, and what industries are driving the local economy.

To connect the dots between the factories that produce these products and the consumers that use them, students will need to consider the modes of transportation linking these sites. Google Earth will estimate the road or rail routes between factories and ports in China, while various free websites provide the actual schedules of container ships connecting ports in China with the rest of the world. Students can identify the tariffs applied when the product enters their country and consider how that changes the economic equation for importers. They may also be able to locate the central distribution warehouses used by the stores where they bought their products and make educated guesses about the travel times and costs to bring these products to them.

There is one more step in the journey to be considered: What happens to the product when the consumer is done with it? Many, perhaps most, end up in a local landfill. Rivoli shows that textiles often make their way from thrift shops to Africa, where they are sold by the bale into a thriving free market. For many products, the final journey takes them back to China, where recycled paper and electronic waste are recycled back into the global supply chain.

## SHARING THE JOURNEY

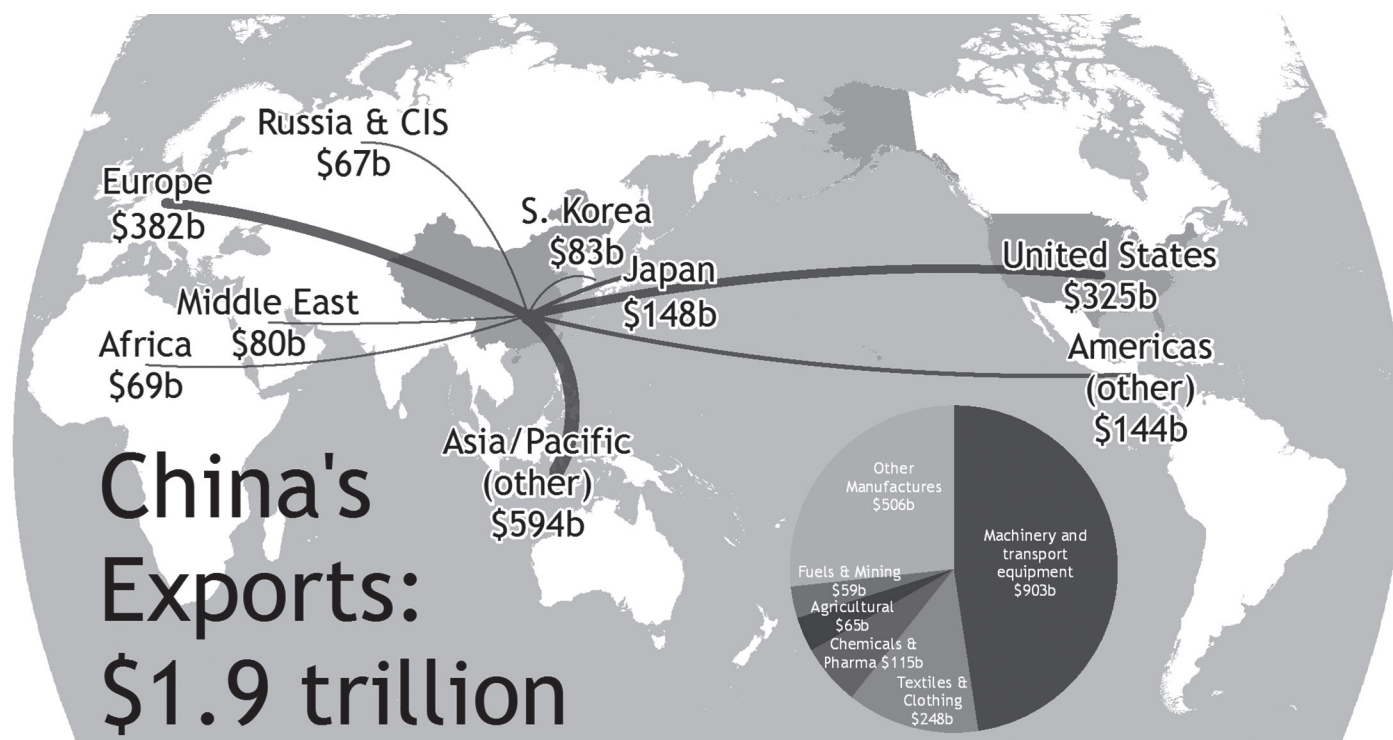
Students can present their product's journey to the class by creating a "tour" in Google Earth. The mapping system enables students to navigate quickly from one location to the next, illustrating each step in the journey with additional images and data linked to these locations on Google's virtual globe. At each step along the tour, my students researched what life might be like for workers at that stage in the production process—their daily living conditions, the skills required to perform their jobs, and the ways participating in a global economy have affected their future prospects. Some groups also estimated the portion of their product's ultimate sales price that could be attributed to each player in the supply chain.

I asked students to narrate their tour for the rest of the class using the Google Earth system live onscreen. Although most students found it easy to navigate between locations in Google Earth, some had difficulty transferring their tour from their home computer to the classroom, and a high-speed Internet connection is required. As an alternative, students can incorporate maps from Google Earth along with other images into a conventional presentation or printed poster.

The presentations by students in my class started in a wide variety of environments—for example, a Russian forest for Ikea furniture, an Australian bauxite mine for aluminum in an iBook laptop case, or a Shandong sheep farm for the wool felt tip in a Sharpie pen—ultimately converging on our own classroom where the students displayed the products. The journeys took them to factories mostly on the Chinese coast, such as a plastic factory clearly built in the middle of a Fujian



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China's exports by major category and region (US\$ billions). Map by the author based on data from the World Trade Organization, International Trade Statistics 2012.

coastal wetland or the assembly plants around Shenzhen where small village houses and garden plots abut sprawling industrial complexes. Continuing on the trail of their products, students were challenged to talk about the daily lives not only of factory workers, but also farmers raising ducks for the down in a Patagonia jacket and sailors on the two to three-week trip across the Pacific for just about every product.

#### REFLECTING ON THE JOURNEY

Having completed their virtual sightseeing trip to the places that produce the goods they use, students are now prepared to reflect on their own roles as consumers and citizens—actors in a global consumer culture.

Two dominant narratives emerge from popular discussions of global trade. In one, the virtues of market forces and comparative advantage produce an expanding array of choices for consumers while spreading the benefits of economic development around the world. In the other, the forces of globalization encourage wasteful consumption while exploiting workers and despoiling the natural environment. By considering the phenomenon through the lens of a specific product that they have purchased or used, students should be well-prepared to contend with both of these arguments.

To move to the next step, suggesting what (if anything) consumers and policymakers should do about globalization, students will need to wrestle with the hidden layers of complexity in globalization and consider the limitations of each narrative. Today's consumers enjoy an unprecedented variety of quickly evolving products, of which smartphones are the most obvious example. Pessimistically, *New York Times* reporters Duhigg and Barboza quote Harvard fellow Heather White, a former labor conditions monitor, who concludes that "right now, customers care more about a new iPhone than working conditions in China."<sup>2</sup>

If consumers hold the power to mitigate the impact of the products they buy, what should be their response? One option is simply to boycott them, as Sara Bongiorni illustrates in her book *A Year Without "Made in China"* (2008). Disappointingly, however, Bongiorni gives little attention to making affirmative consumer choices, merely substituting other purchases for Chinese goods and perhaps inadvertently contributing to an anti-Chinese sentiment. For consumers wanting to make more conscious choices, the GoodGuide organization, founded by UC Berkeley professor Dara O'Rourke, enables shoppers to gauge the relative social and environmental impacts of thousands of products. Meanwhile, filmmaker-activist Annie Leonard's *The Story of Stuff* video series encourages people to reduce their consumption levels and build more locally sustainable economies.

Students may also consider how their consumer choices and their activism on labor and environmental issues can encourage manufacturers to improve conditions upstream in the supply chain while continuing to support the economic benefits of global trade. Some research suggests that trade can help "green" China. For example, Walmart, which sources as much as 70 percent of its products from China, has set stringent environmental requirements for its Chinese suppliers, raising local standards. Rivoli credits the work of the labor movement and corporate social responsibility activists in setting global standards that are much better than the sweatshops of the past. Others may point to China's domestic efforts to promote environmental protection and raise labor standards; the country has become a world leader in developing renewable energy sources, and there is some space for civil society to agitate for local environmental issues by appealing to the central government.

Looking ahead, students may ask what will happen if China's standard of living reaches the level of Western countries. There is some

indication in some parts of China this process is underway, with rising wages, skills, and consumption patterns. Southeast Asia and Africa are increasingly providing low-cost labor and resources for international manufacturers, and Chinese firms are leading this global shift. Within the next few years, students tracing the “Made in China” trail may need to follow an even more global path.

Reflecting on this online mapping assignment, students commented that they had a better understanding of why so many of the products they use are made in China. The economic, geographical, and historical concepts they picked up along the way were tied to “real world” applications. They could see both the benefits and costs of economic development and could challenge dominant, simplistic narratives for and against free trade. Some concluded that policies should be changed to better protect workers or remove incentives to export polluting industries; others resolved to use their own power as consumers to influence manufacturers. All had come a bit closer to understanding the people and the environment in China, a place at once far away and yet part of their daily lives. ■

## ACKNOWLEDGMENTS

The author is grateful to the students in PPOL 180 at Mills College, Spring 2013, and the reviewers for *Education About Asia* for their helpful comments and suggestions.

## NOTES

1. Pietra Rivoli, *The Travels of a T-shirt in the Global Economy: An Economist Examines the Markets, Power, and Politics of World Trade*, 2nd Edition (Hoboken: Wiley, 2009), 110.
2. Charles Duhigg and David Barboza, “Apple’s iPad and the Human Costs for Workers in China,” *The New York Times*, January 25, 2012, <http://tinyurl.com/79y6us3>.

## ADDITIONAL TEACHING RESOURCES

(also available in EAA online supplement)

### DATA SOURCES

“China Pollution Map Database,” *Institute of Public and Environmental Affairs*, last modified February 2, 2014, <http://tinyurl.com/kvznrlx>.

“About the Harmonized Tariff Schedule,” *US International Trade Commission*, accessed February 26, 2014, <http://tinyurl.com/7jtvor9>.

### WORKING WITH GOOGLE EARTH

“Creating a Narrated Tour in Google Earth,” *Google Earth Outreach*, accessed February 27, 2014, <http://tinyurl.com/lpqvy9r>.

“Twenty-Three Interesting Ways to Use Google Earth in the Classroom,” *Slideshare*, accessed February 27, 2014, <http://tinyurl.com/kn3x8ko>.

### DIFFERING PERSPECTIVES

Leslie Chang, “The Voices of China’s Workers,” *TED.com*, last modified September 2012, <http://tinyurl.com/8fgu2nr>.

Mike Daisey, “The Agony and the Ecstasy of Steve Jobs (Release 2.0),” *MikeDaisey.com*, last modified September 21, 2012, <http://tinyurl.com/pqkuw8v>.

Annie Leonard, “The Story of Change,” *StoryofStuff.org*, last modified June 2012, <http://tinyurl.com/lk77hnd>.

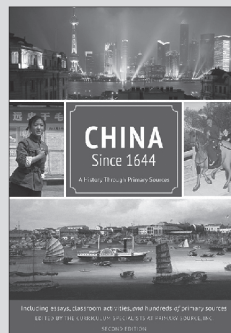
Dara O’Rourke, “Welcome to GoodGuide,” *GoodGuide*, accessed February 27, 2014, <http://www.goodguide.com/about>.

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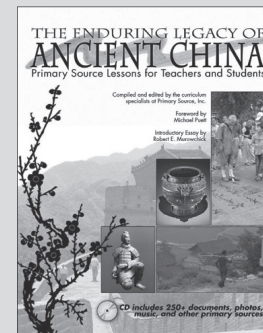


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