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*As more firms take advantage of the cost savings of an increasingly international division of labor, continued growth in the variety of imports coming from developing nations can be expected.*

## Expanding Variety of Goods Underscores Battle for Competitive Advantage

by *Shalab M. Mostashari*

**T**he variety of goods imported to the U.S. has dramatically increased in the past two decades. This growth reflects a widening circle of nations delivering the same goods to this country. In some cases, the U.S. makes its own version of these products—such as Hershey’s chocolate, which is consumed within the U.S. and exported. At the same time, a growing number of competing brands originating from numerous other countries are sold here.

Such increasing variety of trade has been characteristic of many goods. Analyzing this type of commercial activity helps explain how countries and firms gain a competitive advantage, how they organize their production internationally and how quickly they can expand into new product lines.

### Documenting Variety

It’s important to distinguish between a “good” and a “variety.” In this article, a good is considered a product as defined at the most-detailed level used to track U.S. imports.<sup>1</sup> A variety is a good that originates from a particular country. Thus, French red wine is a variety different from Chilean red wine, even though they may have the same “good” classification. This approach assumes that goods are differentiated by country of origin.<sup>2</sup> Admittedly, this definition may not accurately reflect the complete number of imported varieties. For example, within the category of French red wine, there may be a number of imported types with varying characteristics and prices.

The number of varieties imported by the U.S. increased 33 percent between 1989 and 2007 and 23 percent between 1989 and 2009. Decreases in 2008 and 2009, when import varieties tumbled back to 2001 levels, largely reflect the world trade collapse during the financial crisis that



began in August 2007. Nevertheless, the trend over most of the 20-year span is positive.

Growth in varieties can result from importing a broader range of goods or importing the same good from more countries. Of the 8,870 total possible goods, the U.S. imported 8,414 goods in 2009. Over the past 20 years, the number of goods the U.S. imported ranged from a maximum of 8,503 in 1989 to a minimum of 8,383 in 1992, reflecting little variation in the number of imported goods across time relative to the growth in variety (*Chart 1*).

On the other hand, the average good was exported by about 12 countries in 1989, compared with about 16 in 2007. The substantial increases in import variety are primarily driven by more countries exporting the same goods the U.S. already imported.

### Rationalizing Trade

Trade patterns suggest that resources and technological knowledge are particularly helpful in explaining

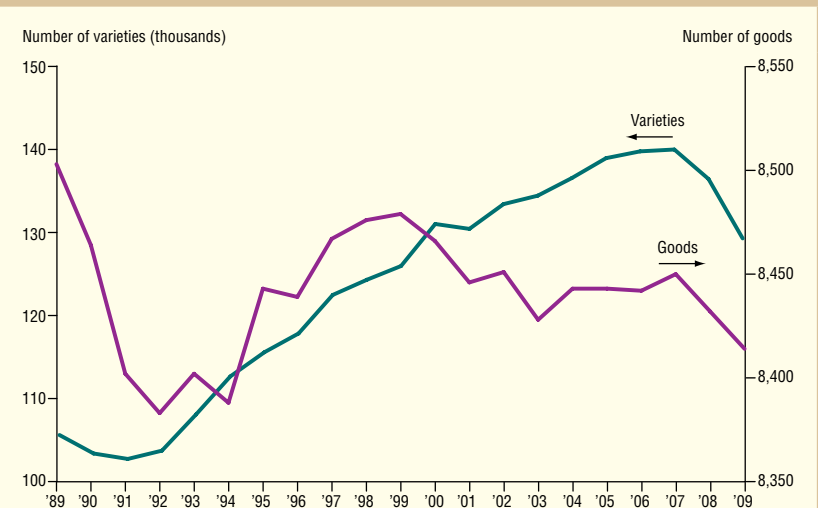
which countries can competitively produce certain goods. However, consumer preferences for variety and choice also play a role in the large number of differentiated products bought and sold. These findings are consistent with two widely held theories of trade.

Trade explained by comparative advantage, or “old trade theory,” suggests that countries exchange goods when they have fundamentally dissimilar attributes. Differences between countries could be derived from variations in productivities or in the resources they possess to manufacture goods. For example, the U.S., being relatively abundant in capital and skilled labor, is expected to export goods to China that rely heavily on these inputs. China is expected to export to the U.S. goods belonging to industries such as textiles, whose production is relatively labor intensive, standardized and does not require workers to be formally educated or trained. In extreme cases, when countries are very different, their exports

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Chart 1

### Varieties of U.S. Imports Rise Even as Number of Goods Remains Stable



SOURCES: Author's calculations using data from the U.S. International Trade Commission and "Concording U.S. Harmonized System Categories Over Time," by Justin Pierce and Peter Schott, National Bureau of Economic Research, Working Paper no. 14837, April 2009.



are specialized in unique subsets of goods—such as Pakistan exporting textiles to Japan, which sends computers to Pakistan.

On the other hand, “new trade theory” has primarily been applied to explain trade between similar countries. Countries respond to consumer preferences for variety and choice by producing and trading differentiated versions of the same products.

Overall, the expectation is that countries with similar resources trade different varieties of the same products, whose production requires comparable levels of technology and types of inputs; very different countries specialize in distinct sets of goods.

However, in the detailed product data, one sees that in many cases the U.S. imports exactly the same goods from relatively less-developed nations as it does from rich, advanced economies. For example, in 2009 the U.S. imported similar nonmilitary turbofan-powered airplanes from Canada, France, Israel and Brazil.<sup>3</sup> Still, goods’ and countries’ characteristics matter. In 2009, 33 countries, including China and the U.K., were exporting men’s leather footwear, but only four countries were exporting those more-technology-intense airplanes.<sup>4</sup> Small and low-income countries export substantially fewer goods, and their exports are still concentrated in low-level manufacturing and labor-intensive industries.

This suggests that some species of hybrid between “new” and “old” theory may be at work. Peter Schott studied unit cost differentials within a product category across countries and found that unit values vary systematically with exporter resources.<sup>5</sup> For example, China’s average price per pair of men’s leather footwear was \$14, but the U.K.’s average price was \$149 in 2009. Schott argues that capital- and skill-abundant countries make intensive use of their resources by producing superior varieties that possess added features or higher quality. Low-wage countries export lower-

quality and labor-intensive varieties of the same goods and, consequently, sell those products at lower prices.

### Dynamics of Variety

A critical question is by what means a competitive advantage is gained over time. The early stages of producing and marketing a good are likely to take place close to the ultimate markets, typically rich countries, Raymond Vernon found.<sup>6</sup> The location reflects a heightened need for flexibility in the choice of production technique and a requirement for reliable and swift communication with customers and suppliers. Once production becomes standardized, differences in production costs invariably take precedence over the flexibility needed in the early stages. As a consequence, production moves to countries where labor and production costs of the more-standardized process are lower—presumably less-developed countries. Still, developed countries may continue to produce goods through innovation

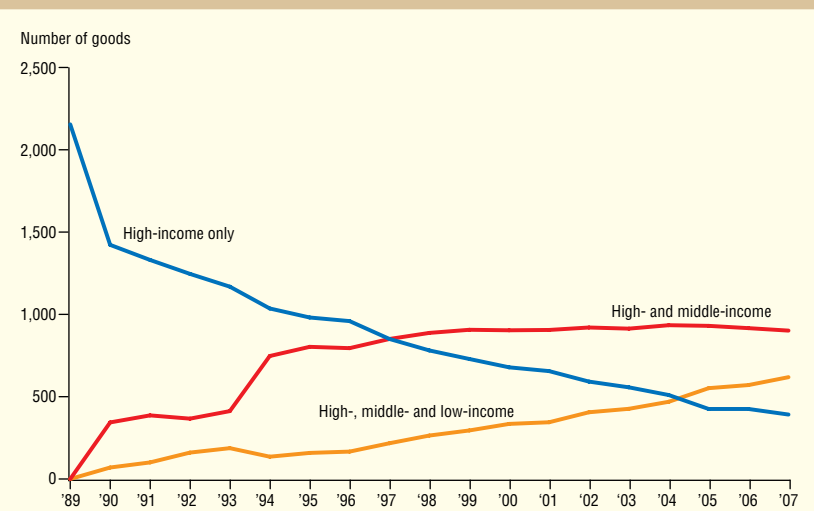
and the manufacture of new and superior varieties.<sup>7</sup>

There is evidence that over time middle- and low-income countries are able to move into product lines previously dominated by rich countries, consistent with changes in the production location predicted by the cycle of product innovation and standardization. Countries may be divided into three types: High-income refers to the richest one-third of countries in the sample, middle-income refers to the middle one-third and low-income to the poorest third. Of the 2,163 goods initially considered in 1989, only 383 were still exclusively exported by the richest countries by 2007, 905 were exported by both high- and middle-income countries and 621 were exported by high-, middle- and low-income countries (*Chart 2*).<sup>8</sup>

### Propelling the Product Cycle

Several mechanisms have likely contributed to developing countries’ ability to start exporting new product

**Chart 2**  
**Goods Exclusively Exported by High-Income Countries Decline**



SOURCES: Author’s calculations using data from the U.S. International Trade Commission and “Concording U.S. Harmonized System Categories Over Time,” by Justin Pierce and Peter Schott, National Bureau of Economic Research, Working Paper no. 14837, April 2009. GDP data from “Penn World Table Version 6.3,” by Alan Heston, Robert Summers and Bettina Aten, Center for International Comparisons of Production, Income and Prices, University of Pennsylvania, August 2009.

lines. Imitating firms may reverse-engineer products, allowing them to acquire the knowledge to create other versions. Technology may be diffused to manufacturers in developing nations in exchange for royalties or licenses paid to firms in developed countries.

Advances and widespread investment in information and communication technologies as well as greater international capital mobility have lowered the costs of fragmenting the production process across borders. A developing country may begin exporting a new good as a result of a firm locating there the parts of the production process that are routine and labor intensive, such as assembly. Meanwhile, the company maintains innovative activities such as research and development in the developed country. As more firms take advantage of the cost savings of an increasingly international division of labor, continued growth in the variety of imports coming from developing nations can be expected.

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## Notes

<sup>1</sup> For the purpose of this analysis, a good is defined according to the 10-digit code of the Harmonized Tariff Schedule (HTS). Only products that were consistently defined over the sample period (1989–2009) are included. Any product code introduced after 1989 that became obsolete before 2009 or underwent some sort of redefini-

tion between 1989 and 2009 was eliminated from the analysis. Similarly, with the exception of East and West Germany, whose exports were aggregated in 1989, all countries that restructured were eliminated from the analysis.

<sup>2</sup> The reason for this distinction is simple: Many countries export the same good but at different unit prices. If these goods were identical in every way, they would need to sell at the same price to be competitive, a prediction that is not at all borne out in the data.

<sup>3</sup> This statement refers to HTS 10-digit code 8802300040. As a basis for comparison, real 2007 per capita GDP for these countries was \$36,166 for Canada, \$29,632 for France, \$24,047 for Israel, but only \$9,644 for Brazil. GDP data were taken from “Penn World Table Version 6.3,” by Alan Heston, Robert Summers and Bettina Aten, Center for International Comparisons of Production, Income and Prices, University of Pennsylvania, August 2009.

<sup>4</sup> The specific code for men’s leather footwear considered is HTS 10-digit code 6405100030.

<sup>5</sup> See “Across-Product Versus Within-Product Specialization in International Trade,” by Peter K. Schott, *Quarterly Journal of Economics*, vol. 119, no. 2, 2004, pp. 647–78.

<sup>6</sup> See “International Investment and International Trade in the Product Cycle,” by Raymond Vernon, *Quarterly Journal of Economics*, vol. 80, no. 2, 1966, pp. 190–207.

<sup>7</sup> See *Innovation and Growth in the Global Economy*, by Gene M. Grossman and Elhanan Helpman, Cambridge, Mass.: MIT Press, 1991.

<sup>8</sup> The share exported by middle and low only, or low and high only, or which stopped being exported were consistently small numbers over the time frame. As such, they were omitted from the chart.

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