

Chapter 18: U.S. Health Care in a Global Economy

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Collection structure revised: September 24, 2013

PDF generated: November 5, 2013

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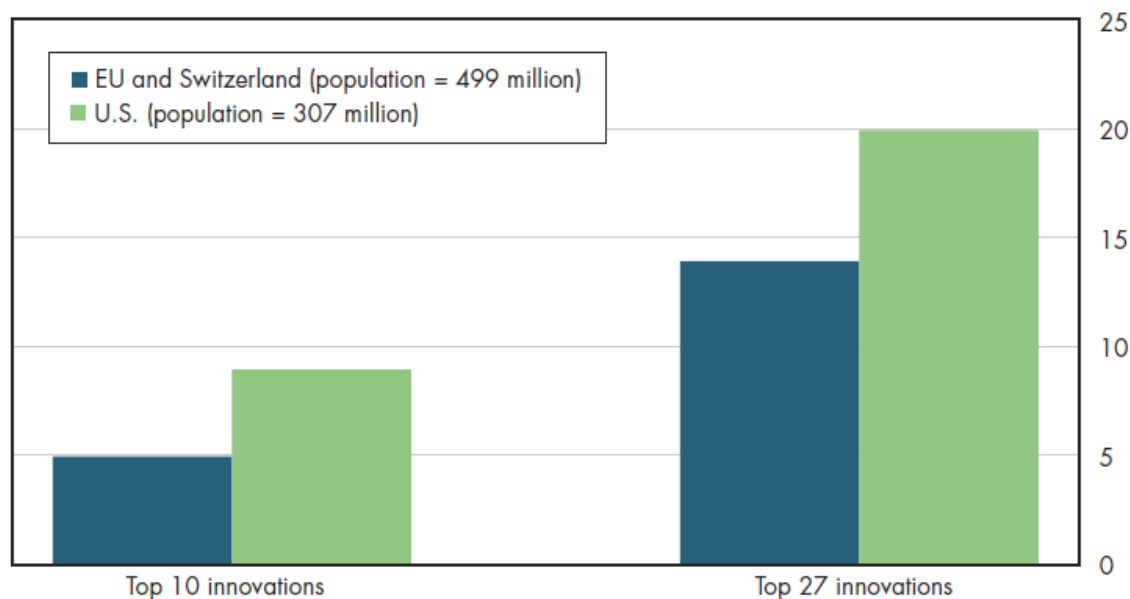
Chapter 1

18.1 US Leads the World in Medical Innovation¹

The United States has contributed to more of the leading diagnostic and therapeutic innovations in medicine than has any other nation. Even combining the European Union (EU) and Switzerland, which collectively have approximately one-half billion residents, the United States outpaces this set of nations as a group by a considerable amount (figure 18.1a).

18.1a The United States has less than 65 percent of the population of the EU and Switzerland but has produced approximately 50 percent more top medical innovations

Number of top medical innovations (1975–2000)



Note: More than one country shares the credit for some innovations. Population figures are for 2009.

There is no one way to measure the nation's worldwide role in medical innovation. Figure 18.1a is based

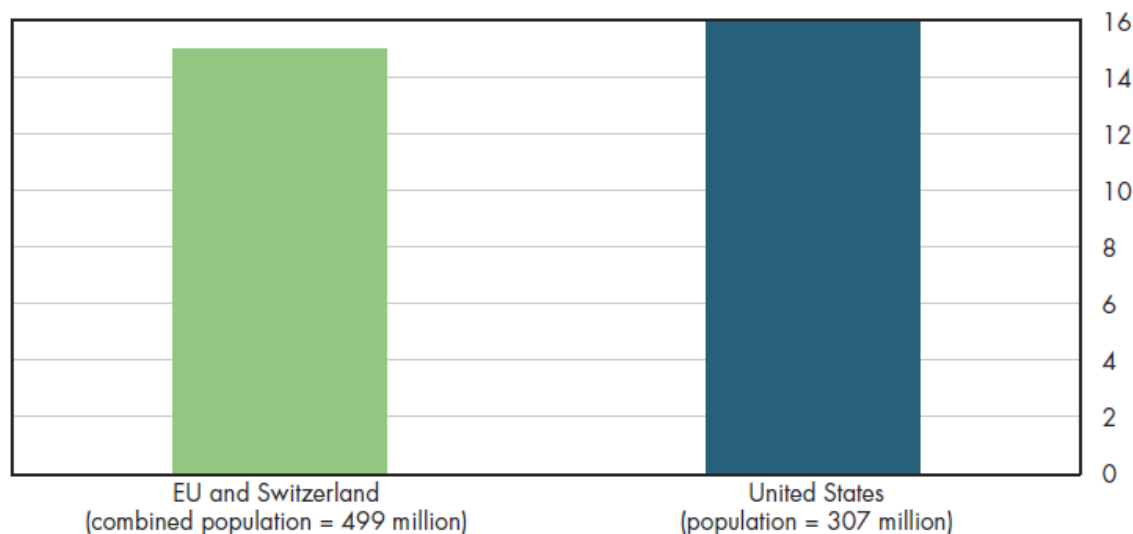
¹This content is available online at <<https://hub.mili.csom.umn.edu/content/m10075/1.1/>>.

on a widely cited study of the most important medical diagnostic and therapeutic innovations developed between 1975 and 2000. These were systematically evaluated by leading primary care physicians and ranked by the effect of these innovations on patients. For some innovations, more than one country deserves credit. Even so, the United States was the country of origin for 20 of the top 27 such innovations. This is almost 50 percent more innovations than from the EU and Switzerland combined, even though these countries collectively have a population that is approximately 65 percent more than in the United States.

Researchers in the United States also were partially or solely responsible for nine of the top 10 such innovations. This again is much more than the contribution made by the EU and Switzerland collectively. Superiority in the United States can be measured in other ways. Of 99 recipients of the Nobel Prize in medicine and physiology since 1948, 60 were from the United States and 41 were from EU countries, Switzerland, Canada, Japan, and Australia. This group of countries collectively has a population more than twice that of the United States. Much of the funding for basic research in the United States comes from the National Institutes of Health (NIH), which spends approximately seven to 10 times as much as the countries in Europe spend. The 30 billion dollars in NIH funding excludes a similar amount spent by the private sector on some basic (but mostly applied) research. In the context of these enormous investments, the U.S. lead in innovation might not be that surprising.

18.1b The United States is responsible for more major pharmaceutical innovations than the EU and Switzerland combined

Number of top 29 pharmaceutical innovations (1968–2007)



Note: More than one country shares the credit for some innovations. Population figures are for 2009.

The United States also is superior to the EU and Switzerland in terms of the top 29 pharmaceutical innovations developed in the 40 years starting in 1968 (figure 18.1b). This dominance in pharmaceutical innovation can be attributed to the sizable investments made by the pharmaceutical industry into R&D. The United States also dominates global funding for pharmaceutical R&D (figure 18.2a).

1.1 Downloads

Download PowerPoint versions of both figures.

- Figure 18.1a Image Slide (as it appears above)²

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- Figure 18.1b Editable Slide (can be formatted as desired)⁵

1.2 References

- A. Whitman G and R Rand. Bending the Productivity Curve: Why America Leads the World in Medical Innovation. Cato Insitute. Policy Analysis No 654. November 18, 2009. <http://www.cato.org/pubs/pas/pa654.pdf> (accessed August 10, 2010).

³<https://hub.mili.csom.umn.edu/content/m10075/latest/18.1aDATA.ppt>

⁴<https://hub.mili.csom.umn.edu/content/m10075/latest/18.1bIMG.ppt>

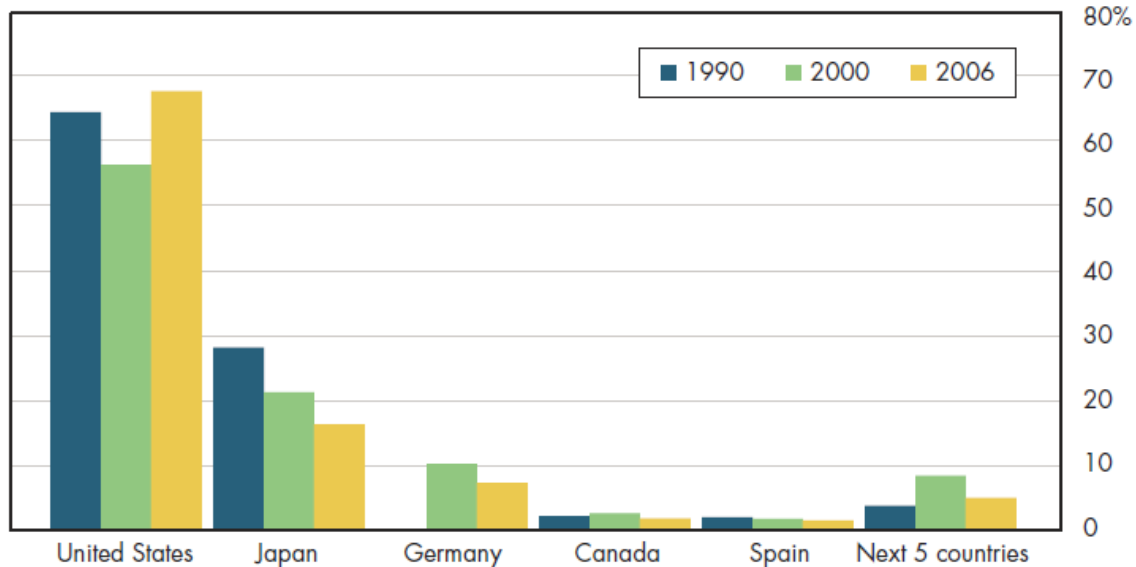
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Chapter 2

18.2 US Accounts for More than Half of World Pharmaceutical R&D Spending¹

The U.S. dominance in pharmaceutical research can be measured in two ways. First, among the 10 countries that rank highest in pharmaceutical R&D expenditures, the U.S. share has ranged from more than 50 percent to 65 percent of the collective R&D spending by this group (figure 18.2a). This has been true since at least 1990. Unfortunately, information is available for only four of these countries for 1980; thus, it is not possible to attain certainty about the U.S. share that long ago.

¹This content is available online at <<https://hub.mili.csom.umn.edu/content/m10076/1.2/>>.

18.2a Among the top 10 global funders of pharmaceutical R&D, the United States accounts for more than half to two-thirds of total spending*Percentage of aggregate R&D expenditures*

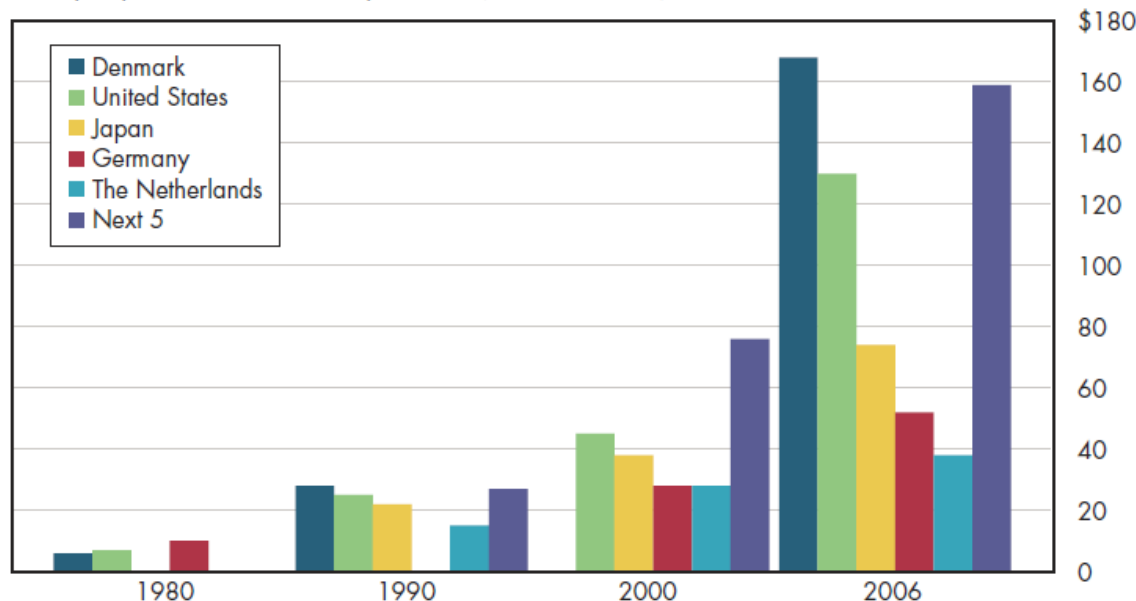
Top 10 global funders of pharmaceutical R&D
(listed [left to right] by 2006 R&D expenditures in U.S. dollars PPP)

Note: Data not reported for selected years in selected countries. Shares are of summed totals for countries that reported data.

Of course, the United States has a substantially larger population than any of the others on this list. Thus, an arguably better comparison examines pharmaceutical R&D spending per capita (figure 18.2b). Doing so reveals that only Denmark has higher relative spending on pharmaceutical R&D than does the United States; in 2006, Denmark ranked sixth on the top-ten list cited (figure 18.2a).

18.2b On a per capita basis, U.S. spending on pharmaceutical R&D is exceeded only by Denmark

Per capita pharmaceutical R&D expenditures (U.S. dollars, PPP)



Some demand-side factors might affect where pharmaceutical companies are located. However, location decisions of major pharmaceutical companies also are driven by the availability and cost of the scientific research personnel required to conduct R&D, and by government regulations that affect how R&D is conducted.

Another factor that has fueled U.S. pharmaceutical R&D relates to generic competition. The Hatch-Waxman Act enacted in 1984, designed to promote the use of generics, and the rise of managed care formularies have been cited as the principal drivers of growth in the U.S. generic drug industry. Unless there are externalities (my taking a drug benefits or harms someone else's health), competition should lead to the desired result of pushing drug prices down to the marginal cost of producing them. It likewise will encourage a socially optimal level of consumption, that is, where the marginal benefit of consumption equals the marginal cost of supplying a drug. Numerous studies have shown that following the expiration of patents, prices fall toward marginal costs (the more generic competitors, the more prices fall). Generic competition thus forces brand-name pharmaceutical manufacturers to invest in R&D to ensure a steady pipeline of new products under development.

2.1 Downloads

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2.2 References

- A. Organisation for Economic Co-operation and Development.

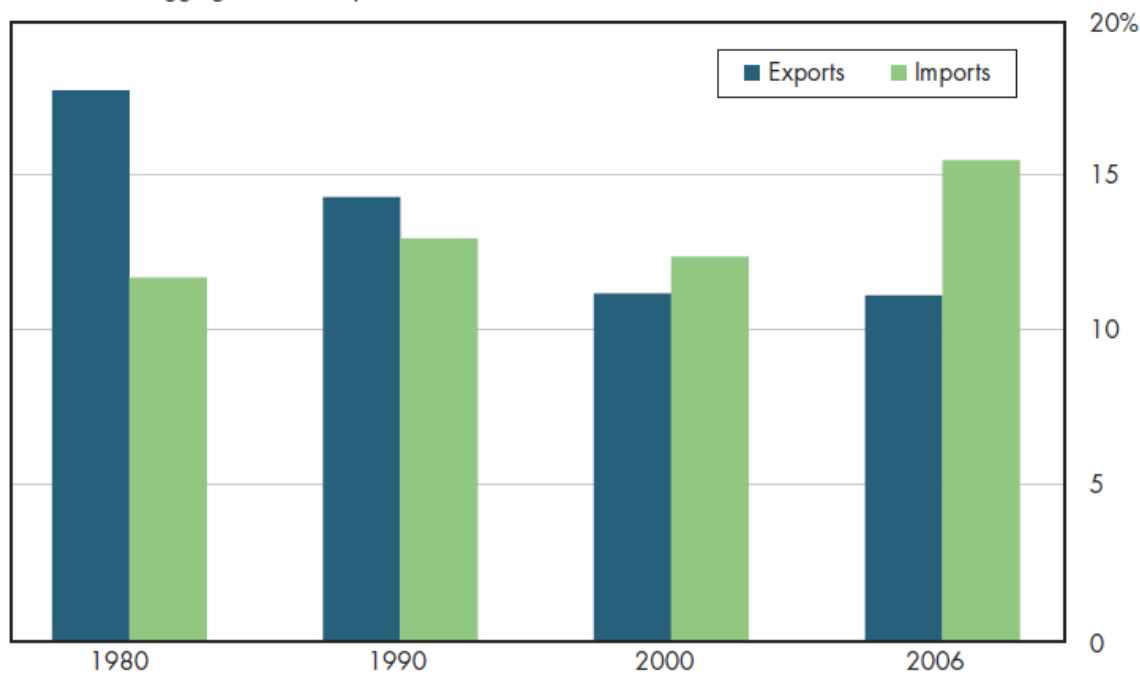
Chapter 3

18.3 US Accounts for a Relatively Small Share of Pharmaceutical Exports¹

U.S. dominance in pharmaceutical research is not mirrored in its shares of pharmaceutical exports. Not only is this share small—approximately 10 percent in 2006—but it has declined considerably since 1980, when it was closer to 20 percent (figure 18.3a). The United States likewise accounts for a modest share of imports—approximately 15 percent (compared with 45 percent of global pharmaceutical sales accounted for by those who live in the United States).

18.3a Since 1980, the U.S. share of pharmaceutical exports within the OECD has been declining while its share of imports has increased since 1980

U.S. share of aggregate value of pharmaceuticals traded, in U.S. dollars, PPP



Measures of exports and imports are based on the location of the manufacturing facility, regardless of ownership. The approximate 10 percent export share in 2006 does *not* imply that U.S.-owned firms

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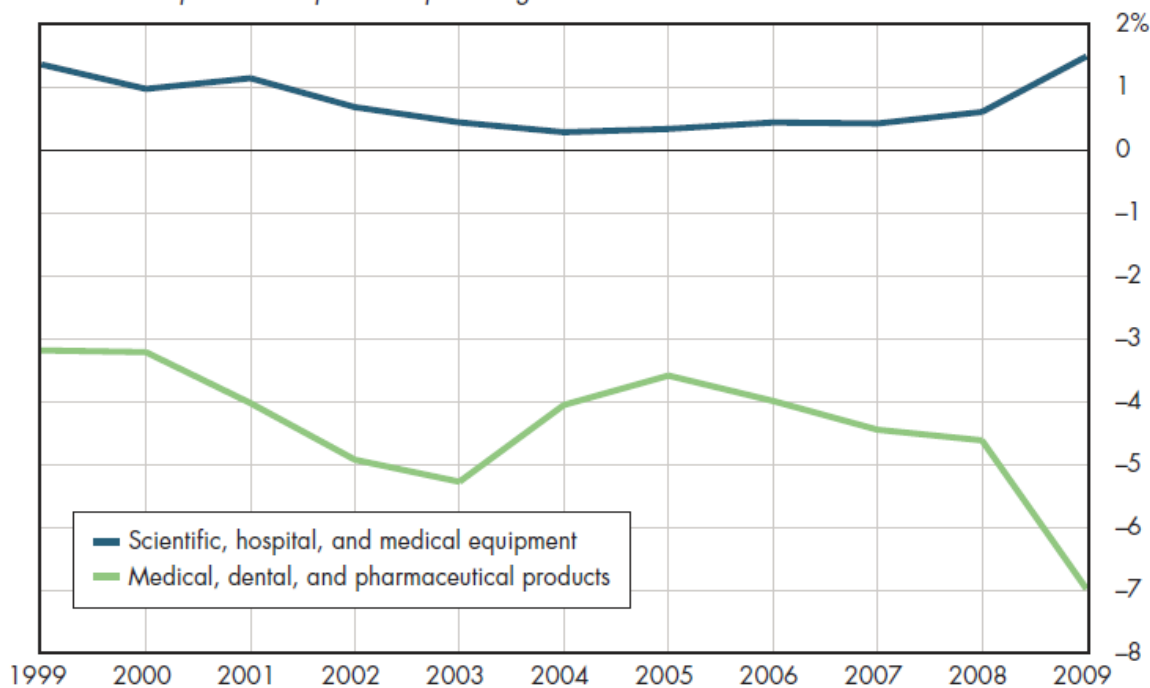
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supplied 10 percent of pharmaceutical products purchased by other nations. Nor does it mean that U.S.-owned firms accounted for 10 percent of pharmaceuticals exported because some foreign-owned firms (for example, GlaxoSmithKline [GSK]) have U.S.-based manufacturing facilities. It simply refers to the share of pharmaceutical products manufactured on U.S. soil that cross country borders.

Health-related goods and services play a much smaller role in the U.S. trade imbalance than they do in the entire economy. In 2009, the U.S. trade imbalance (excess of imports over exports) exceeded one-half trillion dollars (figure 18.3b). Pharmaceutical, medical and dental products accounted for approximately 7 percent of this total. This was offset by a trade surplus in scientific, hospital, and medical equipment that reduced the trade imbalance by less than 2 percent. Thus, the health industry overall accounted for approximately 20 percent of the most recently measured trade imbalance.

18.3b The health sector contributes a relatively small share to the U.S. trade imbalance, but it appears to be increasing

Balance of imports over exports as a percentage of U.S. net trade balance



For the limited time for which such detailed statistics are available, it appears that this share is increasing. This scenario of trade involving the health care sector is not complete. Medical tourism, for example, appears to be a rapidly growing industry. Its magnitude is not large enough yet to warrant separate tracking by the U.S. government.

3.1 Downloads

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⁴<https://hub.mili.csom.umn.edu/content/m10077/latest/18.3bIMG.ppt>

- Figure 18.3b Editable Slide (can be formatted as desired)⁵

3.2 References

- A. Author's calculations.
- B. Department of Commerce. Bureau of Economic Analysis.
- C. Organisation for Economic Co-operation and Development.

⁵<https://hub.mili.csom.umn.edu/content/m10077/latest/18.3bDATA.ppt>

Index of Keywords and Terms

Keywords are listed by the section with that keyword (page numbers are in parentheses). Keywords do not necessarily appear in the text of the page. They are merely associated with that section. *Ex.* apples, § 1.1 (1) **Terms** are referenced by the page they appear on. *Ex.* apples, 1

H health spending, § 1(1), § 2(5), § 3(9)

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