
DEVIL'S ADVOCATE REPORT COMPENDIUM

February 2023

Murray's Musings

TRENDS IN HEALTHCARE

According to Statista.com, in the calendar year 2022, there were 4.76 billion retail prescriptions filled in the U.S. The current U.S. population is 334.299 million. This amounts to about 14.24 prescriptions for every human being in the nation. This does not include pharmaceuticals dispensed in hospitals. It does not include pharmaceuticals dispensed in ambulatory care clinics. It does not include so-called over-the-counter drugs sold without a prescription.

This is one of the reasons that healthcare is a growth industry. The proportion of GDP devoted to healthcare is generally increasing. A recent calculation by the World Bank tabulates that in 2019, healthcare spending in the U.S. amounted to 16.8% of GDP. The Statista calculation for 2020 indicates that healthcare spending accounted for 18.8% of U.S. GDP. Obviously, the 2020 figure was impacted by extraordinary measures necessary to deal with the pandemic.

COVID-19 is a worldwide phenomenon, yet the United States is unique even among industrialized nations as for its healthcare spending as a proportion of GDP. Apart from the U.S., the highest such expenditures as a percent of GDP are by the following ten nations, the highest of which is Canada at 12.9%.

Table 1: Healthcare Expenditure as a Percentage of Gross Domestic Product (2020)

<u>Country</u>	<u>Healthcare Expenditure / GDP</u>
Canada	12.9%
Germany	12.8%
France	12.2%
United Kingdom	12.0%
Switzerland	11.8%
Austria	11.5%
Sweden	11.5%
Norway	11.3%
Netherlands	11.2%
Japan	11.1%

Source: Statista

According to Statista, Costa Rica spends 7.9% of its GDP on healthcare. Hungary spends 7.3% of its GDP on healthcare. Luxembourg spends 5.7% of its GDP on healthcare. Mexico spends 6.2% of its GDP on healthcare.

One measure, although certainly not the only measure, of the effectiveness of these levels of spending is life expectancy. The World Health Organization (WHO) calculates life expectancy figures for nations annually.

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Table 2: Life Expectancy by Nation (2022)

<u>Country</u>	<u>Years</u>
United States	78.203
Canada	82.847
Germany	80.989
France	83.229
United Kingdom	82.156
Switzerland	84.255
Austria	82.412
Sweden	83.505
Norway	83.393
Netherlands	82.451
Japan	84.820
Costa Rica	77.320
Hungary	74.958
Luxembourg	82.591
Mexico	74.832

Source: World Health Organization

When comparing national expenditures as a proportion of GDP, it is important, for meaningful comparison, to take account of any wide differences in *per-capita* GDP. One can say that the U.S. spends 2 ½ times more on health care than Costa Rica, based on spending 18.8% of GDP on healthcare versus Costa Rica spending 7.3%. However, the per-capita GDP of the U.S. is much higher than that of Costa Rica. The estimated per capita GDP of the U.S. in 2022 is \$76,027, while for Costa Rica it's \$13,089¹. Those figures allow one to calculate the per capita dollar amount of spending on healthcare:

$$\text{U.S.: } 18.8\% \times \$76,027 = \$14,293.08$$

$$\text{Costa Rica: } 7.3\% \times \$13,089 = \$955.50$$

That reveals that the *per capita* expenditure of the U.S. on healthcare is 15.0 times that of Costa Rica. Nevertheless, the U.S. life expectancy is 78.203 years and the life expectancy of Costa Rica is 77.320 years. Viewed on a per capita basis, the vast excess of U.S. expenditure does not appear to be productive.

A problem with this type of calculation is that the various data sources do not agree on the life expectancy figures. The aforementioned life expectancy figure for Costa Rica is compiled by the World Health Organization. The Population Division of the Department of Economic and Social Affairs at the United Nations calculates the life expectancy of Costa Rica at 79 years. Macrotrends.net lists it at 80.56 years. The peer reviewed journal known as *Proceedings of the National Academy of Sciences* is the source of the macrotrends.net life expectancy figure.

¹ Statista.com

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In any case, in the U.S., national healthcare expenditure routinely expands more rapidly than GDP. According to CMS.gov (Centers for Medicaid and Medicare Services), the annual spending figures for the past 10 years are as follows.

Table 3: U.S. National Healthcare Expenditure

<u>Year</u>	<u>Annual Expenditure</u> <i>(in trillions)</i>
2011	\$2.676
2012	2.783
2013	2.856
2014	3.002
2015	3.165
2016	3.207
2017	3.448
2018	3.604
2019	3.757
2020	4.114
2021	4.256

Source: CMS.gov

The compound annual expansion rate of spending is 4.75%. It is, of course, needless to say that the U.S. population does not grow at 4.75% per annum, and the GDP does not grow at that rate, either. The logical consequence of the trend is that the healthcare expense burden on the economy will become increasingly heavy.

In common investment parlance, the healthcare industry is frequently used as a synonym for pharmaceuticals. However, the U.S. healthcare sector is far more diverse. This is evident in the sectoral diversification of the largest healthcare ETF, known as The Health Care Select Sector SPDR Fund (XLV). This ETF is divided into five sectors, as detailed in the accompanying table.

Table 4: XLV Industry Allocation

<u>Sector</u>	<u>Weight</u>
Health Care Equipment & Supplies	18.77%
Health Care Providers & Services	22.36%
Life Sciences Tools & Services	12.95%
Pharmaceuticals	30.28%
Biotechnology	15.64%

Source: ssga.com

Of these, biotechnology is an interesting category. It is obvious that the sector commands significant market capitalization. However, it does not produce large quantities of revenue. In any analysis of healthcare expenditure, it is more meaningful to determine the respective shares of that expenditure exclusive of biotechnology due to its limited revenue relevance. If this were done, the proportionate share of each of the four sectors would be as follows. While the pharmaceuticals sector accounts for somewhat over a third of the total, the balance is made up of health care providers and services, and two separate categories of companies providing health care equipment and supplies, and analytical tools, instruments, clinical trial services and research services.

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Table 5: XLV Industry Allocation Excluding Biotechnology

<u>Sector</u>	<u>Weight</u>
Health Care Equipment & Supplies	22.25%
Health Care Providers & Services	26.51%
Life Sciences Tools & Services	15.36%
Pharmaceuticals	35.89%

Source: *ssga.com*

In order for this system to continue to expand at its historical rate, the typical human being would have to devote more time to medical examination and analysis in order to determine if medical intervention is required and, should such intervention be required, the degree of intervention and type of treatment. Ultimately, the growth proposition for health care spending can be reduced to the internet/technology growth proposition that has previously been propounded in Compendium discussions: that in order for the historical rate of industry growth to be sustained, the average person must spend more time on the internet. In the medical sphere, the average person would have to spend increasing amounts of time interacting with the medical system.

The OECD (Organisation for Economic Co-operation and Development) maintains data on the length of the average hospital stay for most nations. It will be recalled from a prior table that the U.S. spends more on healthcare, as a proportion of GDP, than other industrialized nations. The following table compares the length of the average hospital stay in the U.S. versus the other industrialized nations.

Table 6: Length of Average Hospital Stay (2021)

<u>Country</u>	<u>Days</u>
Canada	7.7
Germany	7.4
France	5.5
United Kingdom	6.2
Switzerland	6.9
Austria	6.4
Sweden	5.3
Norway	5.9
Netherlands	5.2
Japan	16.4
Costa Rica	6.8
Hungary	5.4
Luxembourg	7.5
Mexico	N/A
United States	5.4

Source: *OECD*

Using length of hospital stay as a metric indicates that the U.S. uses its healthcare system less intensively than all nations on the list, excepting Sweden and the Netherlands. Even in these two instances, the intensity of hospital use is only marginally less than that of the U.S. Nevertheless, the U.S. spends a

far greater proportion of its GDP on healthcare than does either Sweden or the Netherlands. The relevant figures are that Sweden spends 11.5% of its GDP on healthcare, the Netherlands spends 11.2% of its GDP on healthcare, and the U.S. spends 18.8%. If one were to use life expectancy as a measure of healthcare outcomes, the U.S. obtains a less satisfactory result than either Sweden or the Netherlands, or even any other industrial nation.

If U.S. healthcare expenditures were to remain at 18.8% of GDP and not rise beyond this point, it must logically follow that the healthcare industry would be growing at the rate of GDP. This would be the nominal figure and not the real figure. Thus, if real GDP were to

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average 2% growth per annum and inflation were held at the level of 2%, and the healthcare industry maintains its current share of GDP, it would be growing at a 4% rate.

At the time of this writing, The Health Care Select Sector SPDR Fund (XLV) trades at 16.32x earnings and 4.67x book value, and the 3-5 year estimated annual growth rate, as stated on the most recent fund factsheet, is 7%.

Those valuations make it fairly obvious that the stock market participants in this sector presume that the current circumstance, which is to say the historical rate of expansion, will continue. Implicitly, that embodies the presumption that the healthcare industry will represent an ever-increasing share of U.S. GDP. It presumes that the general populace will not be troubled by the fact that other nations have a healthcare industry that consumes a much smaller proportion of GDP; that foreign healthcare systems appear to be used more intensively by the population and with a far lower financial burden than is the case in the U.S. Moreover, the general populace will not be troubled that the outcome, at least as measured by life expectancy, however imperfectly, is lower in the U.S. than in other industrialized nations.

The alternative view to that of the investment community as expressed in the valuation of the health care sector, is that the current circumstance is unsustainable and that the unsustainability will have negative consequences for equity indexes, the U.S. GDP, and the national government solvency. In any case, the consensus does appear to be untroubled, an additional measure of that sentiment being the \$40.987 billion in assets under management of XLV, as of the most recent reckoning.

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