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# U.S. HEALTH CARE: TOO MUCH OF A GOOD THING?

Maury R. Randall, Rider University
David Y. Suk, Rider University
Kristin McCarthy, Rider University

**ABSTRACT**

*This paper provides a critique of the U.S. Health Care system compared to other OECD (Organization for Economic Co-operation and Development) nations and extends the work of previous research in four ways. First, we identify which OECD countries have better longevity outcomes than other OECD nations while devoting a smaller percentage of their GDP (Gross National Product) to generating those results. Second, we examine whether increased levels of government healthcare funding are associated with longer life expectancy. Third, we discuss the question of whether healthcare spending is not being properly measured and the consequences if that is the case. Fourth, we consider the possibility that there might be too much total spending on healthcare in the U.S. and whether such excess spending might be having a negative effect on life expectancy. We conclude that there are many opportunities to successfully improve the U.S. system, lower costs and improve healthcare outcomes.*

**JEL**: J1, I12, I18

**KEYWORDS**: Health Care Expenditure, Life Expectancy, OECD

## INTRODUCTION

The bad news regarding U.S. healthcare, which has been widely reported, is that it is very expensive, and the life expectancy outcomes are low relative to other developed countries. This has long been true, yet it has not yet been addressed. In fact, in April 2021, the Pew Research Center reported that the affordability of healthcare ranked at the top of the list of problems which concerned Americans [Pew (2021)]. Not only are the costs high and relative life expectancy numbers weak, but the situation has also steadily deteriorated for many years. The good news is that there is plenty of opportunity to lower costs and to improve outcomes. This paper analyzes data on U.S. performance compared to other OECD countries. It highlights countries which have the best cost-benefit outcomes, and suggests approaches to address some of the problems in the U.S. The paper examines whether increased healthcare spending or increasing government financing and regulation of healthcare might improve outcomes in the United States. The paper also examines whether health care spending is being properly measured and if not, might that be hampering research to devise more effective policies to improve outcomes while controlling health care costs.

For a variety of reasons, one might expect that the U.S. should have much better life expectancy. It leads the world in acute care medicine, medical equipment technology, and in pharmacology including the newest immunotherapy innovations. In the area of nutritional science and research, the U.S. is also a world leader with volumes of research published in a variety of medical and healthcare journals. In terms of OECD measured "risk factors" the U.S. does well in 3 of the 4 categories. Percentage of population smoking and air pollution levels are quite low relative to the respective OECD averages, while alcohol consumption is somewhat below the average [OECD (2017) p. 24]. The one OECD "risk factor", which is quite high for the U.S., is percentage of the population which is obese.

Even in the area of costs, there is at least one factor which should constrain expenditures on health care. The U.S. has a lower percentage of people over 65 (15.6% compared to the OECD average 17.2%). As people age, they encounter more health issues, and a higher percentage of their income is allocated for disease treatment. However, this factor is unable to overcome a system that makes the U.S. healthcare system unusually expensive.

In Section 1 of this paper, we review recent studies and reports that examine international health outcomes and costs. In Section 2 we discuss data relating to costs and health outcomes. We then focus on which countries are particularly "efficient" in generating better outcomes than the United States with respect to high life expectancy and relatively low costs. In Section 3 we perform several statistical tests on costs and performance to determine if either more health care spending or more government involvement are correlated to improved life expectancy. We also analyze whether there may be significant errors in the measurement of true healthcare spending that could distort results of healthcare research. The paper concludes with Section 4 where policy changes currently under debate are evaluated in their feasibility to be implemented and likelihood to succeed.

## LITERATURE REVIEW

The high costs of the U.S. healthcare system and the relatively poor outcomes compared to other developed countries have generated a plethora of research. In fact, there are many journals and organizations which regularly highlight various aspects of problems that exist. A partial listing of health policy journals includes Health Affairs, Milbank Quarterly, and Journal of Health Economics. In addition, organizations such as the Commonwealth Fund, Brookings Center for Health Policy, The Heritage Foundation and the Cato Institute publish policy reports and books on the topic. While they have different perspectives on causes and solutions, they do agree that there are significant problems with the costs and performance of the U.S. system of healthcare.

There are several recent publications which specifically relate to issues analyzed in our study. Silver and Hyman (2018) focus primarily on the high costs of U.S. medical care, but also address many problems relating to quality. Their analysis and evidence identify intrusion of the political process into health care spending and the overreliance on insurance and other third-party payments as the "two most central" causes. With regard to quality, they criticize Medicare for paying doctors who provide services that are unnecessary and sometimes ineffective and harmful. They cite fraud, abuse, lack of quality control and payment of phony or inflated bills to hospitals and providers as being very common.

*Mirror, Mirror,* an annual report published by the Commonwealth Fund, documents that the United States spends more on health care than other developed countries. The 2017 report shows that spending has grown continuously over the past three decades, but the U.S. population generally has poorer health than the 10 other countries that they studied. In discussing the causes of those outcome, Schneider et al. (2017) states "Most striking it [the U.S.] is the only high-income country lacking universal health insurance coverage."

Other studies include that of Papanicolas, Woskie, and Jha (2018). In their examination of costs, they describe how the U.S pays more for doctors, pharmaceuticals, and health administration than other developed countries. In the 2017 OECD report (48), data and analyses of health outcomes and costs among the 35 OECD nations are provided. In analyzing the performance of the U.S., OECD provides a list of problems. Among their criticisms are the lack of resources for public health and primary care, greater obesity, higher consumption of prescription and illegal drugs, and more homicides and road accidents. Those conclusions, together with higher infant mortality in the U.S. are also cited in a National Research Council and Institute of Medicine report (2013).

The analysis in this paper extends the work of previous research in four ways. First, we identify which OECD countries have better longevity outcomes than other OECD nations while devoting a smaller percentage of their GDP to generating those results. Second, we examine whether increased levels of government healthcare funding are associated with longer life expectancy. Third, we discuss the question of whether healthcare spending is not being properly measured and the consequences if that is the case. Fourth, we consider the possibility that there might be too much total spending on healthcare in the U.S. and whether such excess spending might be having a negative effect on life expectancy.

## DATA AND METHODOLOGY

The data - life expectancy, GDP, total health care expenditure, and government health care spending - for this study are obtained from the websites of The World Bank and OECD. The annual data covers 35 OECD countries for the period of 2006 through 2017. At the beginning of the current research, Colombia, Costa Rica, and Lithuania were not member countries. Linear regression is used to estimate the linear relationship between an independent variable and a dependent variable.

In Table 1 we present life expectancy data from OECD which are used in the analysis. All 35 OECD countries are listed spanning the 10-year period from 2006 to 2016. The data show increasing longevity for both the U.S. and other OECD nations over most of the period. However, the U.S. has not only been below the OECD average, but the differential has been steadily increasing. That growing disparity is also highlighted in the studies cited above. Moreover, U.S. longevity has recently stagnated, and it was actually lower in 2016 than in 2011 and it dropped further in 2017. Woolf et. al. (2018) reveal that mortality has not only worsened among white people due to "deaths of despair" from opioids, drug overdoses and suicides, but now that higher mortality has spread to other racial and ethnic groups and the higher death rate also involves failures of the heart, lungs, and other organs.

U.S. life expectancy dropped from 78.9 in 2014 to 78.6 in 2017. While the results in the U.S. are particularly unfavorable, stagnation in life expectancy is not confined to the U.S. The data also show the OECD average has been basically flat since 2014. A recent study by Ho and Hendi (2018) examines this development using data for 18 high income OECD countries. Due to the Covid 19 Pandemic, there was an acceleration of the decline in life expectancy during the first half of 2020 according to data released by the CDC [Reuters (2021)]. However, with the advent of the vaccines, that sharp drop may be reversed as the country emerges from the pandemic.

Another issue related to life expectancy is the comparative health status of generations in the US. A study by Blue Cross Blue Shield compared the health of millennials with those in the Gen X category who preceded them [Blue Cross (2019)]. They found that Millennials are less healthy than those in the Gen X group when they were at the same age. This leading indicator is not a sign of improvement in the US Health Care system.

In Table 2 the cost of healthcare as a percentage of GDP is shown with the U.S. having by far the most expensive system. In 2017 the U.S. spent 17.2% of GDP on healthcare compared to 12.3% for Switzerland which ranked second. The gap between the U.S. and the average for the other OECD nations grew from 6.7% in 2006 [6.7% not shown in Table 2] to 8.3% in 2017.

The data in Table 2 also reveal some facts that appear to contradict some generally accepted perceptions of the U.S. healthcare system. Due to the passage of the Affordable Care Act in 2010, there has been a significant increase in Government and Compulsory Expenditures as a percentage of total health care spending. That measure for the U.S. is 81.8% for the 2016 period and it is above the mean of 73.6% for OECD nations. Given that total healthcare expenditures as a percentage of GDP is 17.2%, it implies that 14.1% of U.S. GDP is spent in just that Government and Compulsory Healthcare category. This percentage

is greater than the total GDP share of all health care spending in Switzerland (12.3%), which is second on the list in Table 2.

Table 1: Life Expectancy

| Country Name | 2006 | 2011 | 2016 |
|---|---|---|---|
| Japan | 82.32 | 82.59 | 83.98 |
| Switzerland | 81.49 | 82.70 | 82.90 |
| Spain | 80.82 | 82.48 | 82.83 |
| Italy | 81.28 | 82.19 | 82.54 |
| Norway | 80.34 | 81.30 | 82.51 |
| Australia | 81.04 | 81.90 | 82.50 |
| Iceland | 81.16 | 82.36 | 82.47 |
| Israel | 80.55 | 81.66 | 82.41 |
| Canada | 80.29 | 81.45 | 82.30 |
| Luxembourg | 79.29 | 80.99 | 82.29 |
| France | 80.81 | 82.11 | 82.27 |
| Sweden | 80.75 | 81.80 | 82.20 |
| Korea, Rep. | 78.67 | 80.57 | 82.02 |
| Finland | 79.21 | 80.47 | 81.78 |
| New Zealand | 80.05 | 80.90 | 81.61 |
| Ireland | 79.24 | 80.75 | 81.61 |
| Netherlands | 79.70 | 81.20 | 81.51 |
| Portugal | 78.42 | 80.47 | 81.13 |
| Greece | 79.44 | 80.73 | 81.04 |
| Belgium | 79.38 | 80.59 | 80.99 |
| United Kingdom | 79.25 | 80.95 | 80.96 |
| Austria | 79.88 | 80.98 | 80.89 |
| Slovenia | 78.09 | 79.97 | 80.78 |
| Denmark | 78.10 | 79.80 | 80.70 |
| Germany | 79.13 | 80.44 | 80.64 |
| Chile | 77.93 | 78.60 | 79.52 |
| United States | 77.69 | 78.64 | 78.69 |
| Czech Republic | 76.52 | 77.87 | 78.33 |
| Estonia | 72.69 | 76.23 | 77.74 |
| Poland | 75.14 | 76.70 | 77.45 |
| Mexico | 75.51 | 76.25 | 77.12 |
| Slovak Republic | 74.20 | 75.96 | 76.56 |
| Turkey | 72.87 | 74.44 | 75.76 |
| Hungary | 73.10 | 74.86 | 75.57 |
| Latvia | 70.87 | 73.58 | 74.53 |
| **OECD Average** | **78.44** | **79.84** | **80.52** |
| **U.S. Difference** | **-0.75** | **-1.20** | **-1.83** |

*Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Data source: https://data.worldbank.org/indicator/SP.DYN.LE00.IN*

Table 2: Healthcare Spending

| Country | Current Expenditure on Health as % of GDP (2017) | Government/Compulsory as % of Current Health Expenditure (2016/2017) |
|---|---|---|
| United States | 17.2 | 81.8 |
| Switzerland | 12.3 | 62.8 |
| France | 11.5 | 82.9 |
| Germany | 11.3 | 84.6 |
| Sweden | 10.9 | 83.5 |
| Japan | 10.7 | 84.3 |
| Canada | 10.4 | 70.3 |
| Norway | 10.4 | 85.1 |
| Austria | 10.3 | 74.1 |
| Denmark | 10.2 | 84.1 |
| Netherlands | 10.1 | 81.0 |
| Belgium | 10.0 | 78.8 |
| United Kingdom | 9.7 | 79.5 |
| Finland | 9.2 | 73.7 |
| Australia | 9.1 | 68.3 |
| New Zealand | 9.0 | 78.7 |
| Portugal | 9.0 | 66.4 |
| Italy | 8.9 | 74.5 |
| Spain | 8.8 | 71.2 |
| Iceland | 8.5 | 81.5 |
| Greece | 8.4 | 61.3 |
| Slovenia | 8.3 | 72.7 |
| Chile | 8.1 | 60.9 |
| Korea | 7.6 | 59.2 |
| Israel | 7.4 | 62.5 |
| Hungary | 7.2 | 66.2 |
| Czech Republic | 7.1 | 82.0 |
| Ireland | 7.1 | 72.1 |
| Slovak Republic | 7.1 | 80.8 |
| Estonia | 6.7 | 75.7 |
| Poland | 6.7 | 69.8 |
| Latvia | 6.3 | 54.2 |
| Luxembourg | 6.1 | 80.9 |
| Mexico | 5.4 | 52.3 |
| Turkey | 4.2 | 78.4 |
| **OECD Average** | **8.9** | **73.6** |

*Health spending measure the final consumption of health care goods and services (i.e., current health expenditure) including personal health care (curative care, rehabilitative care, long-term care, ancillary services, and medical goods) and collective services (prevention and public health services as well as health administration) but excluding spending on investments.*
*Data source and definition: https://data.oecd.org/healthres/health-spending.htm*

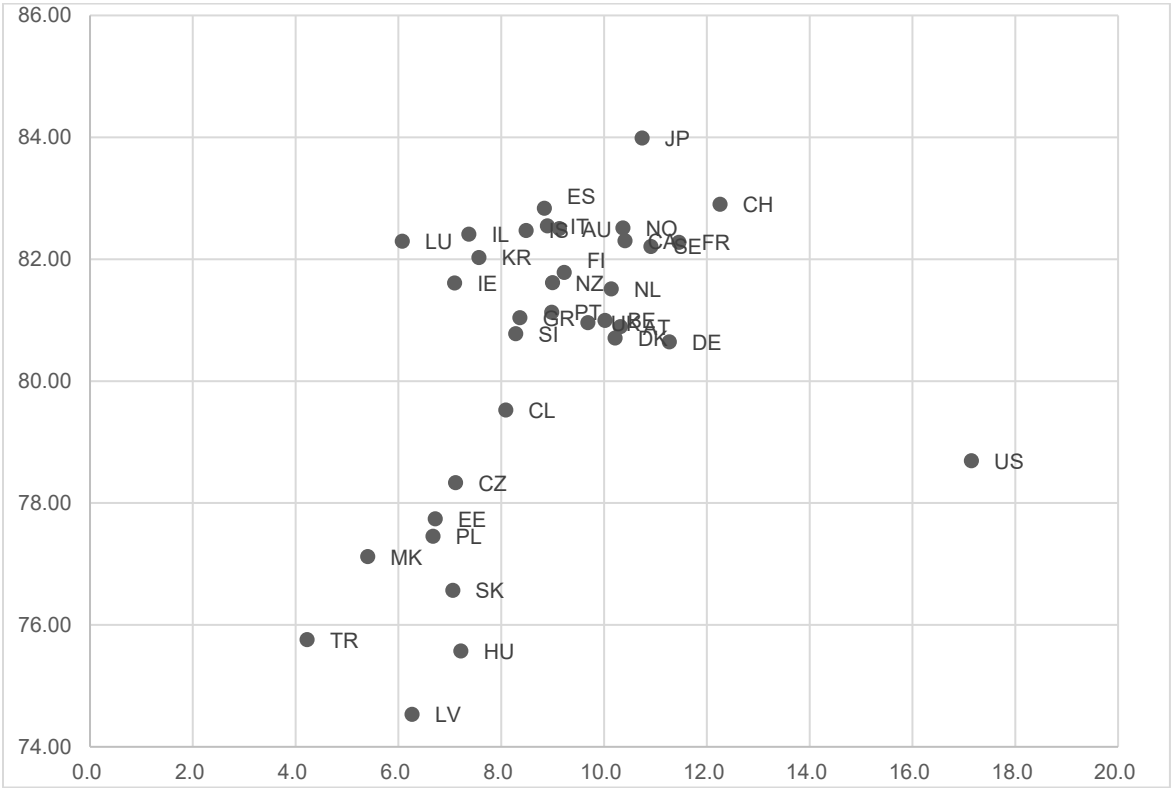
Those statistics might be viewed by some as ironic. The U.S. is identified as the only developed OECD country without Universal Coverage. At the same time, it has a 14.1% ratio of Government and Compulsory care to GDP. That component of spending alone exceeds the ratio of total healthcare spending, government/compulsory plus private, to GDP of every other OECD country.

Another perspective can be observed in column 2 of Table 2. Canada and the United Kingdom, which have single payer systems, have lower government/compulsory ratios than the U.S. (and they also have higher

life expectancy.) The statistics on most of the countries in Tables 1 and 2 suggest that there are a variety of opportunities to improve the U.S. system. It may be possible to increase competition in the health care market, have some type of universal coverage, improve costs and efficiency, improve health outcomes and even possibly reduce current government/compulsory costs.

Figure 1 is based on the data from Tables 1 and 2. It shows the combination of health spending and life expectancy among the 35 OECD countries. The U.S. at the far right is an outlier due to the high level of spending. Figure 1 can be used to address the question of which countries are getting the most life expectancy given the level of expenditures. For example, Japan is on the boundary since it has the highest life expectancy in the OECD. Switzerland is an interior point since it spent more than Japan but had lower life expectancy. Spain is on the boundary since while it had lower life expectancy than Japan, it spent less than the Japanese. In summary the "boundary" countries that maximize life expectancy at lowest cost are Japan, Spain, Iceland, Israel, Luxembourg, Mexico and Turkey. In other words, those nations might be viewed as part of a theoretical envelope showing the highest life expectancy for a given level of health care spending. They are a diverse group which includes Asians, Europeans, Middle Easterners, and Latin Americans. The nations on the theoretical envelope that might be of most interest for the United States (for policy improvements) might be Japan, Spain, and Israel, each of which significantly outperformed the U.S. at far lower cost. [Iceland and Luxembourg, both with small populations (under 1 million) might arguably be less applicable as examples for policy changes.] However, any of the OECD countries with greater longevity than the U.S., including those shown as "interior points," might be potential models for improvements since each had lower health care costs.

Figure 1: Health Expenditure (as % of GDP) vs. Life Expectancy




*Abbreviations: Unites States (US), Switzerland (CH), France (FR), Germany (DE), Sweden (SE), Japan (JP), Canada (CA), Norway (NO), Austria (AT), Denmark (DK), Netherlands (NL), Belgium (BE), United Kingdom (UK), Finland (FI), Australia (AU), New Zealand (NZ), Portugal (PT), Italy (IT), Spain (ES), Iceland (IS), Greece (GR), Slovenia (SI), Chile (CL), Korea (KR), Israel (IL), Hungary (HU), Czech Republic ( CZ), Ireland (IE), Slovak Republic (SK), Estonia (EE), Poland (PL), Latvia (LV), Luxembourg (LU), Mexico (MK), Turkey (TR)*

## RESULTS AND DISCUSSION

In this section a series of statistical tests are discussed that pertain to the performance of the U.S. healthcare system relative to other OECD countries. These tests relate to assertions made in the introductory section and they provide some information on whether specific changes in policy might generate improvements.

In the introduction we stated a smaller percentage of people 65 or older should have the effect of lowering the ratio of healthcare spending to GDP (H/GDP). While the proposition appears to be reasonable, we test whether there is a statistically significant relationship with the data used in our study. The latest data on the older group are from 2016 and H/GDP statistics are from 2017. Since the share over 65 and H/GDP numbers do not vary much from year to year, using data sets of data from consecutive years should be satisfactory. The U.S. was excluded since it is an outlier, and it would likely distort the results.

In Table 3 the dependent variable is H/GDP, and the independent variable is the percentage of the population over 65.

$H/GDP = \alpha + \beta *$ (population 65 years old and over measured as % of total population)

Was there a positive correlation between those 2 measures and was the correlation significant? As can be observed, the answer is yes to both questions, and the level of significance was 5% (with an $R^2$ of 15%). In short, this result would support the notion that the U.S. with a relatively younger population should have relatively lower healthcare costs, other things equal.

Table 3: Effect of Population 65 Years Old and Over (as % of Total Population) on Healthcare Spending

| **Dependable Variable** | |
|---|---|
| Constant terms | 4.75<br>(2.92)*** |
| H/GDP | 0.24<br>(2.61)** |
| Adj-$R^2$ | 0.15 |
| F-stat | 6.80** |
| Observations | 35 |

*Independent variable is population 65 years old and over measured as % of total population. Dependent variable (H/GDP) is level of current health expenditure is as a percentage of GDP. This table shows the equation estimates of the equation: H/GDP = α + β * (population 65 years old and over measured as % of total population) ***, **, and * indicate significance at the 1, 5, and 10 percent levels respectively. Data source: OECD Stat*

The next set of tests pertains to the issue of government finance of health care. If government controls a larger percentage of national healthcare expenditures, are there any effects on life expectancy. This question is particularly relevant given the continuing political debate on which reforms should be adopted to improve the healthcare system, and what should be the role of government in the process.

In Table 4 the dependent variable is life expectancy (LE), and the independent variables are total healthcare spending to GDP (H/GDP) and the ratio of government/compulsory healthcare spending to total healthcare expenditures (GH/H).

Life Expectancy $= \alpha + \beta_1 *$ (GH/H) $+ \beta_2$ (H/GDP)

One regression excludes U.S. data, while the other includes it. In both regressions there is a significant and positive relationship between LE and H/GDP, but the coefficient of GH/H was not significant. However, because the U.S. is an outlier with regard to very high spending and lower LE, its inclusion creates some distortion.

The results in Table 4 show that the size of GH/H had no significant impact on life expectancy. This result occurred with or without U.S. data included. The distortion effect of the U.S. is verified by observing that the $R^2$ increased from 16% to 42% with the deletion of the U.S.

Table 4: Life Expectancy vs. Healthcare Spending

| Independent Variable | OECD | OECD (Without US) |
|---|---|---|
| Constant terms | 74.78<br>(24.36)*** | 72.45<br>(27.49)** |
| GH/H | 0.03<br>(0.60) | 0.01<br>(0.27) |
| H/GDP | 0.42<br>(2.39)** | 0.85<br>(4.61)*** |
| Adj-$R^2$ | 0.16 | 0.42 |
| F-stat | 4.26** | 13.03*** |
| Observations | 35 | 34 |

*Life expectancy at birth, the dependent variable, indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Government/Compulsory spending is measured as % of current health expenditure (GH/H). Level of current health expenditure is expressed as a percentage of GDP (H/GDP). Estimates of current health expenditures include healthcare goods and services consumed during each year. This table shows the equation estimates of the equation: Life Expectancy = $\alpha + \beta_1$ * (GH/H) + $\beta_2$ (H/GDP). ***, **, and * indicate significance at the 1, 5, and 10 percent levels respectively. Data source: Life expectancy data are from World Bank, Healthcare spending data from OECD Statistics.*

Table 5: Life Expectancy vs. Healthcare Spending: Subgroup Analysis (US is not Included)

| Independent Variable | OECD High Spending Countries | OECD Low Spending Countries |
|---|---|---|
| Constant terms | 79.69<br>(32.56)*** | 68.95<br>(19.65)*** |
| H/GDP | 0.21<br>(0.89) | 1.46<br>(2.99)*** |
| Adj-$R^2$ | -0.01 | 0.33 |
| F-stat | 0.79 | 8.92*** |
| Observations | 17 | 17 |

*Life expectancy at birth, the dependent variable, indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Level of current health expenditure is expressed as a percentage of GDP. Estimates of current health expenditures include healthcare goods and services consumed during each year. This table shows the equation estimates of the equation:Life Expectancy = $\alpha + \beta$ * (H/GDP). ***, **, and * indicate significance at the 1, 5, and 10 percent levels respectively. Data source: The World Bank (https://data.worldbank.org/indicator/SH.XPD.GHED.CH.ZS) and OECD Statistics.*

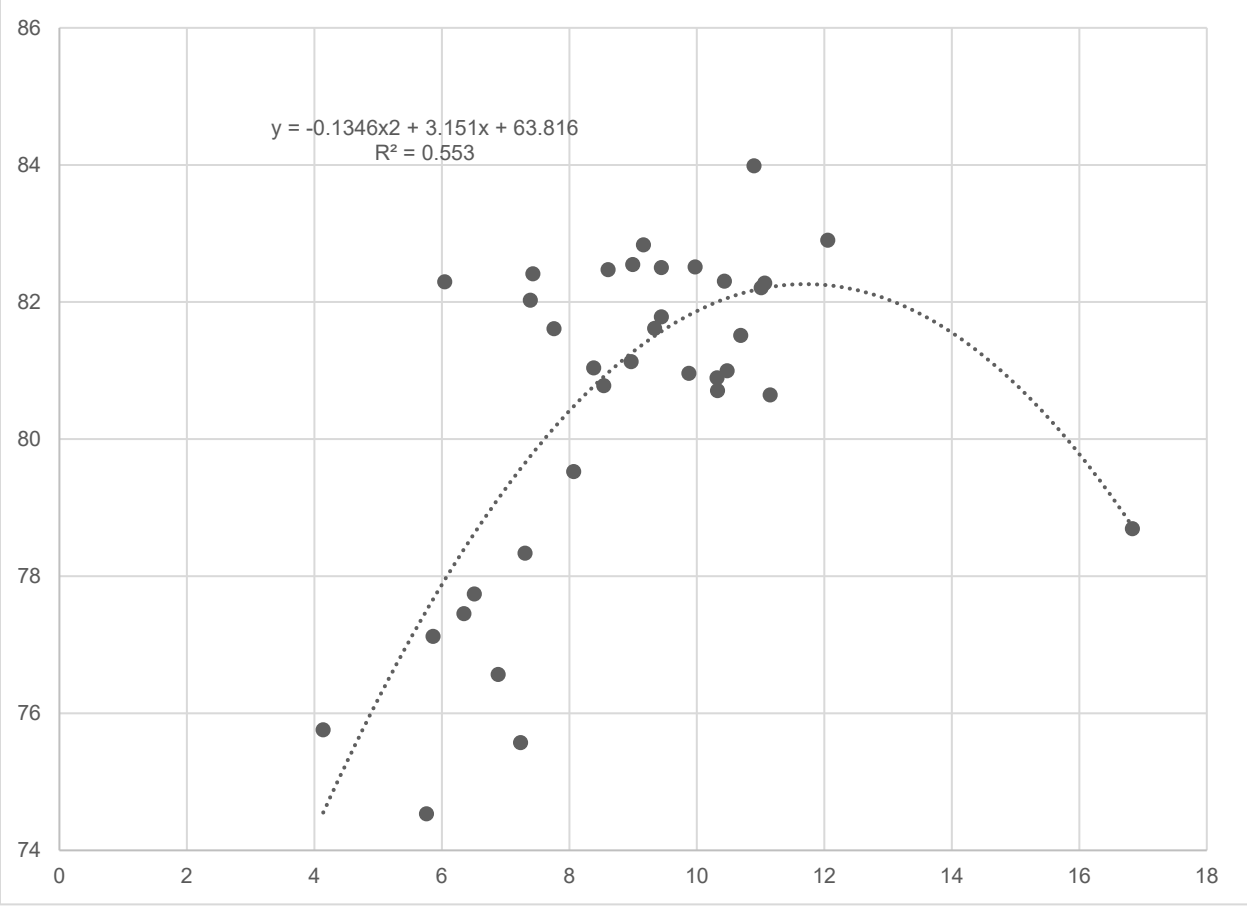
The last set of tests examines the question of whether additional spending on healthcare will have the same effect on countries with higher levels of H/GDP compared to countries with lower H/GDP. Generally, though not consistently, the more developed countries tend to devote a larger percentage of GDP to healthcare. In Table 5 we split that sample into the 17 with the lowest H/GDP and the 17 with the highest H/GDP. The dependent variables are LE and the independent variable is H/GDP.

The results show that there is a positive significant relationship for the set of low H/GDP nations. In addition, if we look at just the high H/GDP nations there is no significant relationship even if we exclude the U.S. due it being an outlier with regard to spending and LE.

An observation of Figure 2 and the results in Table 5 suggest that a "production function" interpretation may be applicable. Healthcare spending is an input in the production of life expectancy, and we are observing diminishing marginal returns. Beyond a certain point the marginal returns may become insignificant. Extending this reasoning, it is possible that there might be too much health care spending, and the marginal returns might become negative. Perhaps the analogy of medicine dosages might be applicable. In the case of taking a medicine, there is an optimal dosage and a safe range. If one goes beyond the safe range, the impact on health would likely be negative.

Carroll (2017), Szabo (2018), *The Wall Street Journal* (2013), and Kaiser Health News (2017) suggest that the possible existence of excess spending on medical care has come from many in the healthcare community. The concern is not only that resources are being wasted, but excessive testing and treatments may be harming the recipients. Some of this excess spending may be due to the practice of "defensive medicine". The fear of malpractice lawsuits has been cited as one of the incentives for physicians to order more medical tests than necessary. If one accepts the premise that beyond a certain point there may be too much medical spending, and if one believes that the U.S. has entered that region, perhaps the U.S. is not deviating from a life expectancy production function. It may be on the curve but in a region where the slope has become negative.

Figure 2: Health Expenditure (as % of GDP) vs. Life Expectancy



There are insufficient statistics to test the above hypotheses since there are no OECD countries between Switzerland and the U.S., the two with the highest H/GDP (12.3% and 17.2% respectively). One could fit a curve through the existing data as in Figure 2, but with the large gap between Switzerland and the United States, we cannot verify any validity for the curve that is shown.

The analysis at the end of section 3 may be used to examine the healthcare issue in a somewhat different perspective. In this study we follow the conventional approach used in published papers regarding measurement of healthcare costs. However, there may be measurement problems that are masking the relationship between healthcare spending and the health of the population. Included in measures of healthcare costs are expenditures for control of symptoms that do not actually "cure" the disease. Such "healthcare" expenditures may involve inappropriate use of drugs with very harmful side effects such as opioids. In other situations, use of antibiotics for conditions where they are not warranted would be classified as healthcare, but such use might do damage, both to the patient and the environment. Some cosmetic procedures might be classified as healthcare spending, but other cosmetic procedures might not be included. Yet, the purpose and effect in both cases might be to make the individual feel better about their appearance and not to treat a disease. In addition, there may be situations where people are both very elderly and sick, and the tabulated "healthcare costs" of certain medical procedures may have no relationship to restoration of health.

At the same time, it is generally agreed that good diet, proper exercise, stress management, adequate sleep, and good social relationships are contributors to both good health and longer life expectancy. Additional expenditures to improve shortcomings in those areas would be healthcare spending. For example, the OECD ranks the U.S. as having the highest level of obesity which is regarded as a major risk factor in health. If a sufficient number of individuals take action to improve diet, exercise and increase other healthful activities, the incidence of obesity could drop, and the health of the nation would improve. If this occurred, measured healthcare spending could show a decrease due to the improved health of the population even though true healthcare spending might have increased.

There is some anecdotal evidence that the factors cited above are important contributors to longevity and good health. Hispanic-Americans have a life expectancy of 81.8 years compared to 78.6 for total Americans, 78.8 for Whites and 75.3 for Blacks (National Center for Health Statistics, 2019). This better outcome for Hispanic-Americans of health exists despite the fact that they have lower household income and income per capita than both the White Americans and total Americans categories. Among the reasons that have been proposed for the better health of Hispanic Americans are less smoking, a better diet, and strong social structure. Seventh Day Adventists have been presented as another example of a group within the United States who maintain good health and have long life expectancies (Buettner, 2012). A healthful diet and good social relationships have been cited as a central part of their lifestyle.

A second example of spending not included as healthcare relates to pollution control. Since air and water pollution are detrimental to health, expenditures to control harmful levels of pollution should have a positive effect on health. If such spending occurred and was effective, health would improve while reported healthcare costs would show no increase.

To summarize the above, some components measured as health care costs may confer no health benefits and possibly be harmful. If so, that would result in an overstatement of true healthcare spending. Conversely, some legitimate expenditures for health care are not part of the measured spending but theoretically belong in the statistics. To the extent that such errors exist, true relationships on spending and outcomes could be significantly distorted. In turn, policy recommendations based on analyses of the reported statistics may not provide the intended benefits of improved health.

An examination of health care statistics shows that until the 1980s the health spending in the United States was remarkably similar to that of other OECD countries. This highlights the fact that high health costs should not be thought of as inevitable but rather a function of market conditions and policy choices (Breunig and Busemeyer, 2012; Ruben et al., 2016). There is recent evidence that this rise in health care expenditures can be linked with the underfunding of important social services which ultimately is responsible for the United States' relatively poor health outcomes (Butler and Cabello, 2018). According to a 2016 research study, "rising proportionate US health spending relative to social spending is in stark contrast to other OECD countries' spending patterns. In contrast to the health expenditure trajectory, the United States has consistently spent much less on social programs than the majority of its high-income counterparts, meaning that the gap between health and social expenditure in the United States has widened over time." (Rubin et al, 2016). Moreover, research has documented the association between social spending, such as housing allowances and retirement benefits, and better health (Rubin et al., 2016). Additionally, we also recognize that population's health status impacts overall health care utilization and costs thus the healthier the population the less need for health care services and dollars (Bradley et al., 2011; Bradley and Taylor, 2013). Thus, it is not a surprise that the United States outspends its OECD counterparts with respect to health care expenditures but gets little in return in terms of health outcomes.

At the same time advocates of free market solutions to healthcare costs such as the Cato Institute, American Enterprise Institute, Heritage Foundation are skeptical about the value of many social programs and would argue that their positive impact is overstated. As noted previously, they support measures on price transparency, removal of excessive regulations that impede competition in the healthcare market and advocate reform in malpractice laws.

It is also important to note that much of the variation in health spending between OECD countries can be explained by wealth (wealthier countries expectedly spend more on health care). Frakt (2010), Reinhardt et al. (2004) and a McKinsey & Company study (2007) all other wealthy OECD countries have maintained a much lower ratio of health care spending to GDP with better outcomes than the U.S.

One could reasonably assert that the "excess money" the United States is spending compared to other OECD is waste. A recent JAMA study estimated the cost of waste in the US health care system ranged from $760 billion to $935 billion which accounts for almost 25% of total health care spending. The source of waste comes from many areas within the health care system thus making policy remedies difficult but not impossible. As highlighted in the JAMA study, administrative complexity ($265 billion) was the largest source of waste, but overtreatment and low-value services ($75 billion to $101 billion) and pricing failures ($230 billion) were large contributors to waste as well (Shrank et al., 2019). Optimistic estimates on value-based payment models, which reward value over volume of services, indicate they have the potential to eliminate up to 50% of waste in pricing failures, low-value services, and uncoordinated care delivered to patients (Shrank et al., 2019). Value-based health care delivery models were one of the cornerstones of the Affordable Care Act in which providers are paid based on patient health outcomes and rewarded for patient outcomes while sharing in cost savings with the payers.

According to Antonisse et al., (2018), the ACA, and specifically Medicaid expansion, has been quite successful in terms of improving health outcomes – i.e., all-cause mortality, maternal mortality, end-stage renal disease one-year mortality rates, opioid mortality, substance use disorder mortality and other primary care services and screening improvement. (See also Rudowitz and Antonisse, 2018) Additionally, the ACA has been associated with improved hospital performance and significant reductions in the probability of hospital closure (especially in rural areas). (Antonisse et al., 2018; Lindrooth et al., 2018)

Silver and Hyman (2018) agree that there are problems in high and opaque prices, poor quality controls, and insurance company practices. However, unlike those who favor increased government intervention, they cite failures of government policies as contributors to problems with the United States health care

system. Moreover, they are critical of the Affordable Care Act and argue that it has not been effective in controlling healthcare costs and has not improved outcomes in several important areas. Siver and Hyman specifically cite excessive use of antibiotics and excessive invasive testing that has harmful side effects that have plagued the U.S. health care system for decades. (One could also point to poor life expectancy outcomes for the country as a whole, high levels of obesity and diseases linked to that condition). They emphasize insurance and other third-party payment as sources of inefficiency. Medical savings accounts and empowerment of consumers would, in their view, serve to select and monitor the quality and value of healthcare services available in the market.

It appears that the most important factor for the high level of health care spending in the United States compared to other OECD countries is the prices for health care services and pharmaceuticals. The United States has the highest health care prices in the world as documented in a recent Health Care Cost Institute report (2019). The report compared the prices paid for medical services by private insurance in the United States to prices in other countries (Hargraves and Bloschichak, 2019). The United States outspends other OECD countries for most medical services and prescription drugs. For example, in the United States, a CT scan costs $1100 and in Holland it costs $140. A normal delivery for childbirth in Holland costs $3,640 – 33% of the US price ($11,170) In Switzerland, a cardiac catherization is 22% of the US price ($1,550: $7,090) (Hargraves and Bloschichak, 2019). The price differentials in prescription drugs follow the same trend of higher prices in the United States. It is clear that the lack of price regulation in the US is a leading culprit of why the health care costs in the US are so high.

## CONCLUDING COMMENTS AND POLICY IMPLICATIONS

The paper examines whether increased healthcare spending or increasing government financing and regulation of healthcare might improve outcomes in the United States. The paper also examines whether health care spending is being properly measured and if not, might that be hampering research to devise more effective policies to improve outcomes while controlling health care costs. We find that health care expenditure is positively related to levels of elderly population. Life expectancy is positively related to amount of health care expenditure. However, increasing government health care spending does not seem to affect life expectancy. Life expectancy did not improve with increasing health care spending among the high-spending (rich) countries.

There is widespread agreement on several aspects of the U.S. healthcare system, and this consensus includes those on the left and the right of the political and economic spectrum. (1) The performance of the system is substandard in terms of life expectancy and other measures of health and (2) the costs of healthcare are excessive given the substandard performance. Based on polling and recent elections, there appears to be a consensus that something should be done to improve the system.

While the advocates of market-based solutions make some good points, based on recent trends, it appears that alternative policies supported by organizations such as the Commonwealth Fund and OECD have been gaining public support. The majority of Americans appear to like Medicare, support the idea that pre-existing conditions should not result in high premiums and seem to want more and not less insurance. In other countries of the developed world, universal coverage seems to be popular as “settled law” and accepted policy.

Granted, some reforms such as medical savings accounts might be expanded. However, continued movement toward more universal coverage seems to be a good bet for the United States. As to whether such a move would lower H/GDP to levels in other OECD nations is unclear. It would depend on whether the American people would be willing to accept necessary cost controls and other restrictions that might be imposed.

There are also management and marketing issues relevant to companies serving the health care market. The incentives for new laws and regulations are very strong and companies would be advised to anticipate the changes and be proactive. Large health insurance companies that have an interest in reducing health care costs may want to look at measures in advanced countries that have demonstrated lower costs and better outcomes. Lobbying efforts for new laws that lower medical costs and encourage healthier behavior may benefit such companies. If insurance companies and other health care providers do not offer good alternatives, they may be losers when reforms are enacted. In the realm of marketing, companies that offer wellness products have expanding opportunities. Many firms have already profited by offering new, healthier products and services that improve health. In some cases, there may be opportunities to form alliances with health insurance companies if those products can reduce health care costs.

In summary, there is strong pressure for reforms in the U.S. health care system. If the U.S. adopts financing arrangements similar to other developed countries, it would likely involve more government regulation related to pricing. In addition, one might expect reduced availability of public funds for very expensive medical products and services. At the same time, many developed nations have options for citizens to purchase additional healthcare insurance and additional medical care that goes beyond that provided by government plans. In any case, given the better record of so many other countries, there are many opportunities to successfully improve the U.S. system, lower costs and improving healthcare outcomes.

## APPENDIX

Appendix 1: Table of Summary Statistics

| | LE (2006) | LE (2011) | LE (2016) | H/GDP (2017) | GH/H (2016/2017) |
|---|---|---|---|---|---|
| Mean | 78.44 | 79.84 | 80.52 | 8.89 | 73.60 |
| Standard Error | 0.48 | 0.43 | 0.41 | 0.40 | 1.56 |
| Median | 79.25 | 80.73 | 81.13 | 8.90 | 74.46 |
| Standard Deviation | 2.86 | 2.53 | 2.42 | 2.35 | 9.23 |
| Range | 11.46 | 9.12 | 9.46 | 12.92 | 32.80 |
| Minimum | 70.87 | 73.58 | 74.53 | 4.23 | 52.33 |
| Maximum | 82.32 | 82.70 | 83.98 | 17.15 | 85.13 |
| Count | 35 | 35 | 35 | 35 | 35 |

Table of summary statistics for the data. LE: life expectancy. H/GDP: Level of current health expenditure is expressed as a percentage of GDP.GH/H: Government/Compulsory spending is measured as % of current health expenditure (GH/H).

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## BIOGRAPHY

Dr. Maury Randall is Professor Emeritus of Finance at Norm Brodsky College of Business, Rider University. His research appears in journals such as *Financial Management, Financial Analysts Journal, and The Journal of Investing.*

Dr. David Suk is Associate Professor of Finance at Norm Brodsky College of Business, Rider University. His research appears in journals such as *The Financial Review, The Journal of Gambling Business and Economics*, *The Journal of Trading, and The International Journal of Finance.*

Dr. Kristin McCarthy is Assistant Professor of Health Administration at Norm Brodsky College of Business, Rider University. She received her doctorate degree (Doctor of Public Health) from Columbia University. Her research interest is population and public health, social and environmental determinants of health, and urban health issues.