



# Globalization Research Center

## *Health Expenditure and Economic Growth: An International Perspective*

by **Richard M. Scheffler, PhD**

The Nicholas C. Petris Center on Health Care Markets & Consumer Welfare  
University of California, Berkeley

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# Health Expenditure and Economic Growth: An International Perspective

by Richard M. Scheffler, PhD

## Introduction

Some of you may have taken a course in economics. For the first part of my talk, I am going to try to explain some economics terms, such as elasticity. In this case, we are going to be talking about the cross-country elasticity of health expenditures, with respect to the Gross Domestic Product (GDP). I will give you a review when I get there; it is really just economic jargon. Then, I am going to go through a set of literature, to try to explain the relationship between economic growth and health care spending across countries. This is a new line of thought that is internationally argued. The old story would be to develop a country first, and then spend resources on health. Health spending was something you wanted to postpone, something not really necessary for development. The new line of thinking is that, if you really want to successfully develop a country economically, you have to initially spend a fair amount of money on health care in the development process. This is a very important change of mindset, and I will talk a little about the mechanism by which health and health care leads to economic growth, which is centered on the development of *human capital*, a term that refers to education, training, and health.

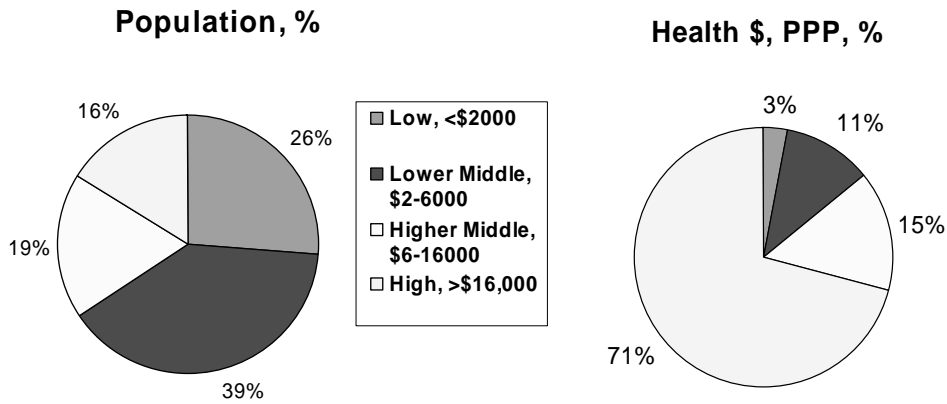
Lastly, I will ask the question: “are we spending too much, too little, or the right amount on health?” On this one simple question, I am going to ask for you to vote to determine the right answer. You often read in the newspaper that health care costs too much, or that we are spending too much on it. The question is, are we really spending too much? How is that determined? The only way an economist knows how to determine that is to ask the people whose money is being spent, the

consumers. However, an economist will not truly answer the question, because economists do not answer any questions, they just offer tradeoffs. The questions get answered by someone else, usually the participants in markets, and sometimes by a political leader, or through voting. In the end, we will go through a simple experiment to see what *you* think—if we should spend more or less, or whether we are spending the right amount.

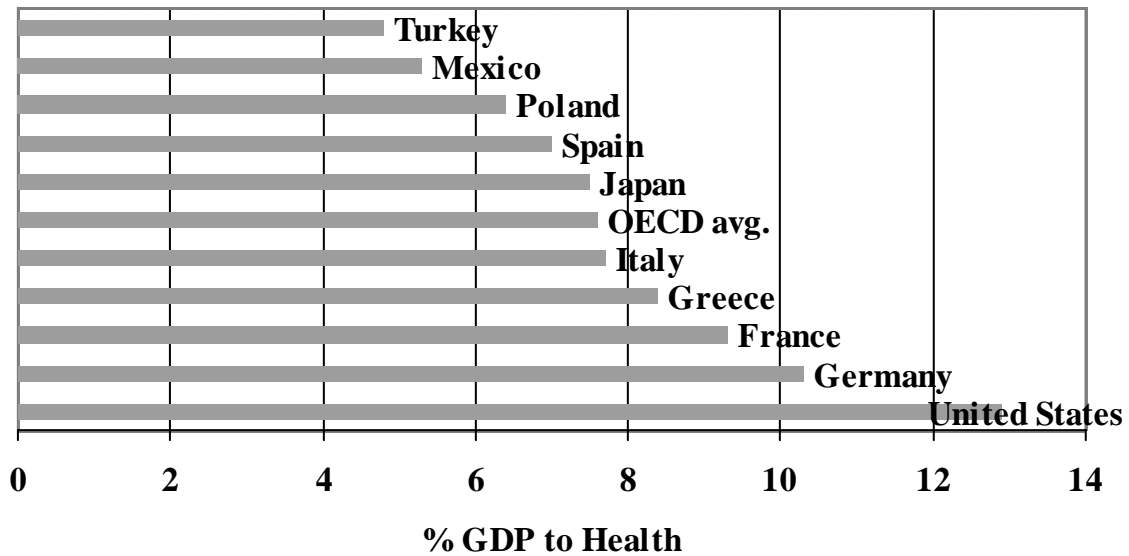
## Global Patterns of Health Care Spending

Let us first look at global patterns in health care spending, and where, exactly, the money is being spent. From data provided by the World Bank, in Figure 1, we can see that, worldwide, we spend 3.7 trillion in U.S. dollars. There is a disparity as you can see: sixteen percent of the world spends seventy-one percent of the health care money. Thirty nine percent only has eleven percent of the expenditures. We can also get a sense, from the income categories, that the industrialized countries spend that seventy-one percent. This is an issue calling for help, and in particular, a distribution of these dollars. Clearly there is a disproportionate amount going to a small amount of the population. For instance, in Africa, annual health care expenditures are eighty-seven dollars per capita, in comparison to the U.S., which spends two thousand dollars per capita. In Europe, they spend twelve hundred dollars per capita whereas in South Asia they spend 76 dollars per capita. The numbers for Africa and South Asia are way too low for medical care, particularly in Africa, where they are looking at diseases such as malaria, tuberculosis (TB), and AIDS. The spread of these diseases is epidemic, requiring much more health care spending—and fast.

**Figure 1** Distribution of Global Population & Health Expenditure, by Income in 2000



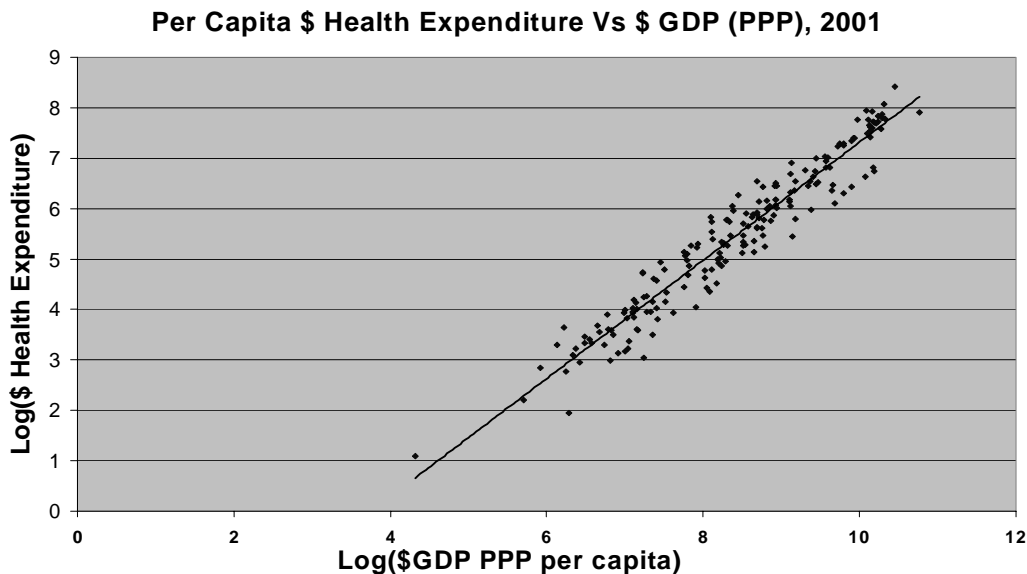
**Figure 2** Variation in % Share of Health in GDP across Select OECD Countries (1998)



So the view of global health care spending is not pretty, but there are a lot of people trying to do something about it. Worldwide, where the money is most needed is not where it is located. It is very important, as the forces of globalization bring us all closer together, to

Over time, as countries get richer, they are spending more on health care. One question is, is this too much, too little, or the right amount? A second question: why? To answer the latter question, I fit a regression of the log of health care spending to the log of per capita income

**Figure 3** National Health Expenditure and GDP, 2001



understand this, and for all members of the globe to try to do something about it.

Let us focus briefly on Organization for Economic Co-operation and Development (OECD) data, for in it we have a lot of specific information, and so we can discuss the relationship between GDP and health care expenditures and how this affects economic growth. From Figure 2 we can see that the U.S. spends 13 percent of its GDP on health care. Meanwhile, Germany spends a little over 10 percent; France, nine percent; and Turkey, at the low end of this group, spends four and a half percent. So even among the more industrialized countries, there is wide variation in the percent of GDP spent on health care. Moreover, what this snapshot does not show us is that in all of these countries the percent is going up. It is hard to find a country in which the percent of GDP that is spent on health care is decreasing.

(GDP per capita). This is depicted in Figure 3. Given that we are measuring health care spending and income in logs, we can interpret  $b$ , the estimated coefficient on the log of GDP, as the *elasticity of health care spending with respect to income, or GDP*. If elasticity is greater than 1 (as it is here), then that means that if income goes up by 10 percent, health-care spending goes up by more than 10 percent. Economists call something with such a high elasticity a “luxury” good, which simply means that as countries get richer, they want to spend proportionally more of their income on that good. For health care, as countries get richer, they want more health care because they want what health care gives them: health care contributes to a greater quantity and quality of life. This is true of every country.

In general, the wealthier the country, the higher the elasticity. With poorer countries, elasticity is very close to one; for wealthier countries, it is about 1.25. This means that for the United States, Britain, and France, for every ten percent increase in income you get a 12.5 percent increase in health care spending. So, with one variable you can explain a lot, and what it explains is that the populations of almost all countries want more health care when their incomes go up. One note: there is a weaker correlation between GDP and health-care spending in countries that have a more public share of health expenditure, that is, countries that have a health care system run by the government (because the government can control the health budget better, it is not responsive to individual decisions). For instance, in the United Kingdom, the income-elasticity of health spending is a little bit less than 1 because the government decides health expenditures, not consumers.

### **Health and Economic Growth**

How does health affect economic growth? *Human capital* is a term that comes from Gary Becker, who wrote a book called Human Capital in 1964 while at Columbia University. The meaning of the term may seem obvious now because the world has changed. You can rationally calculate why people go to school to get an education, because we know there is a rate of return on that investment. In economic development, this would mean training and education leading to higher productivity. Trained workers do better and kids learn better and faster if they have preschools—this is obvious. We find that school and health become important in what has been called the *demographic transformation*, because of three mechanisms. First, as health improves, the infant mortality rate drops. If you look at undeveloped countries, they have large families. One of the reasons they have large families is because a small percentage will survive. However, as mortality rates drop, families get smaller. You do not have to have six children to end up with two that survive. With fewer children, you can spend more resources on each

one, so you get a healthier, better educated population—this is called the demographic transformation. Families switch to having higher quality, rather than larger quantities of children. This is very important to the economic growth model.

Another thing that is well known is that ill health is a major cause of poverty. We used to think that poverty caused bad health. Now we know when you get sick you get poor. You cannot blame people when they catch malaria or TB, because when they get sick they get poor, even if they are very good workers. Serious illness causes people to become poor because they drop out of the labor market. So if you want to do something to help a country develop, then you have to do something to help the health of the population. It is obvious when you think about it, but this has not been reflected in practice the last few years.

Finally, the adult education of a woman reduces the cost of making the population healthy. If you educate the female, then you increase the health of the family, because she is the primary producer of health within the family. Thus, educated females are critical to the process of economic growth because, as we already know, healthier people improve labor productivity, which leads to higher wages and GDP.

One way a woman improves the health of the family is by providing a nutritious diet. A study by Fogel (1994), from the University of Chicago, found that thirty percent of British economic growth over the last two hundred years could be attributed to improvements of nutrition. There are also many longitudinal studies now that look at young kids, from age 0 to 3. By separating them by how many calories they get, what we find in surveys when looking at their incomes later in life is a positive association between caloric intake when young and income as an adult. What is the mechanism, why would nutrition affect economic growth, if not by making people healthier? It gives them fuel to work, and also affects labor force participation.

Barro (1997) has found that ten percent of the increase in life expectancy is linked to a

four-tenth percent increase in economic growth. For every ten percent increase in life expectancy you can expect almost half a percent in economic growth. Is that big? Yes. A country is doing well if it can achieve two and one-half to three percent growth. A 2002 World Health Organization commission found that there are still major problems in health around the world, such as tuberculosis in poor countries, which costs about twelve billion dollars. This is a treatable problem, though, as is malaria. However, in Africa, countries with high rates of malaria have growth rates 1.3 percent lower than other countries. Thus, the impact of treatable illness is tremendous in those parts of the world that have no health expenditures.

However, the problems are not just limited to poor countries that do not have the resources to deal with conditions that have long been eliminated from the rest of the world. One issue that I have spent some time on is mental illness. Psychiatric disorders in the United States alone have been estimated to cost 148 billion dollars (Rice, et al., 1990). Mental illness reduces employment by 14 percent in women and about 12.5 percent in men. These are staggering figures, particularly considering that depression is the third leading cause of disease worldwide. Fortunately, we now have pharmaceuticals that allow many people to effectively deal with the condition.

### **Research Agenda—and a Question**

Given the accumulated evidence on the role of health in economic development, it is time for the research community to consider new theoretical models. We need theoretical models that treat health as an input to, not an outcome of, economic development. From a policy perspective, we need to figure out what kind of health strategy we want in order to produce economic growth. Where do we put health? Does it go into high tech medicine or does it go into vaccines, does it go with behavioral changes like smoking, alcohol, drinking, and sexual activity? This is a major challenge. No one knows the answer, as countries are still trying to figure out the best way. We need to have better causal models between health and

economic growth. We also need to have an analysis of rising health care costs and the role of technology.

The biggest change in health care, and what drives health care, is technology. In the United States and other industrialized countries, we see the enormous growth of health care spending and say that it is driven by income, yet the thing that people buy with the dollars spent on health care is new technology—new procedures, new drugs, new tests. It is very important to understand that a lot of the increase in health care costs is due to technology. However, we have seen an enormous improvement in health in the United States, for instance, the rate of death from cardiovascular disease has gone down by two thirds. It happened because we learned about cholesterol, we learned about ways of controlling our cholesterol, and we learned about bypass surgery and other procedures. Cancer deaths are also down, by about fifty percent, because of diagnostic tests and devices to find tumors, because of radiology, because of other new ways to detect and treat it, and because of new drugs. We have made huge strides in improving the health of the population and the performance of the economy.

So where are we now? Well, here is the question I have for you. We now know why we are spending more money on health care: because people want it. We also know that if you want to develop a country economically you need to spend money on improving health. So the question is what is the right amount? Here is where economics does not give you the answer, only (at best) the possibilities. Suppose I gave you two situations from which to pick. Here is the choice: 1) Would you rather have the income of the United States from 1960, which would be roughly about a third less of the GDP we have now, with the life expectancy that you have now, which is roughly 85 for females and 80 female for males, and with an average quality of life or 2) would you rather have the current GDP, which is a third higher at least, but lose twenty years of your life and have a life expectancy of approximately 60?

Of audience members over forty years old, who wants situation number one?

*<A good portion of hands associated with bald or gray heads are raised >*

How many forty year olds want the second situation?

*<Not so many>*

Now, how many people under forty want situation number one? How many want situation number two?

*<About an even number of hands>*

Some people are not sure because they are young and they have a lot of years ahead of them. So, if we are to decide whether we are spending too much on health care, the older group would say "spend more," the other group would say "we are not so sure." Typical answer.

What we are saying is that life is important and that health is very important to those over forty. However, to me, both groups are saying that we are not spending enough on health care for society in America, that is, if that health care will improve the quantity or quality of life. So if it can be demonstrated in the health care field that this spending will make you live longer or have a higher quality of life, then most people are willing to spend more, not less. Since people tend to want to live as long as possible, that sounds about right.

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