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Correlation Between GDP and Life Expectancy: Evidence from Various Research Papers and Journals

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Abstract

We examine how a country's economy and mortality are related, as well as the effects of economic conditions on mortality and health, taking into account a variety of factors like air pollution, a country's health care system, facilities available to the public, and the actions of the public that correspond to changes in the economy. Our research includes information from over ten research papers and journals. We find that when there are few economic swings, the short-term negative effects of expansion are more pronounced. The benefits of having more money, however, ultimately outweigh these negative effects when there are major economic fluctuations.

Keywords: Gross domestic product (GDP), life expectancy, mortality, economy

INTRODUCTION

Everyone wants economic growth. It is part of every politician's pledge. Research after research shows that an expanding economy makes people more prosperous and wealthier people live healthier and happier lives.

But in recent years, it has become increasingly clear that there is a negative correlation between rising money and a person's sense of well-being. It appears that accelerating economic progress is killing people. One of the first people to recognize this paradox was Christopher J. Ruhm, a professor at the University of Virginia. In a study he published in 2003 when America's economy was booming, people suffered more medical problems and died sooner; conversely, when the economy was weak, people showed a tendency to live longer [1].

University of California, Los Angeles, economist Adriana Lleras-Muney describes the situation as "very puzzling." We are aware that people in wealthy nations live longer than those in underdeveloped nations. More money is better, according to a significant correlation between gross domestic product (GDP) and life expectancy. Yet we observe that more individuals are dying when the economy is strong and rising more quickly than typical" [2].

In other words, there are various benefits to possessing money. To get affluent, on the other hand, seems to be a dangerous endeavor. With the help of her coworkers Wei Huang and David M. Cutler from the National Bureau of Economic Research, Lleras-Muney is convinced she can explain why. They have conducted one of the most in-depth analyses into this phenomenon using the analysis of data spanning more than 200 years and 32 different nations [3]. In a portion of their study, they propose a thorough, all-encompassing explanation of life, death, and economic growth.

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The first thing to note is that economists agree that death rates increase when a nation's economic output, or GDP, is higher than anticipated. The connection is obvious, but the impact is only mild. Adults have a 1% higher mortality rate in years where the GDP is 5% over trend, which is a positive boom (consider the dot-com era rather than post–World War II).

Rising fortunes have not always been linked to increased mortality. Growth is linked to better, not worse, health in locations where farming is still the primary economic activity, according to data from less developed countries. The same holds true whether you consider historical periods before many nations completely industrialized. For example, economists José Granados and Edward L. Ionides have demonstrated that in Sweden in the 1800s, economic expansion was connected with longer lives; but, in the 1900s, the relationship reversed, and development became related with death [4].

Lleras-Muney and her coworkers contend that a turning point occurs when a society's prosperity begins to depend more and more on industry output. They think that one major factor contributing to the rise in mortality rates is pollution. They did this by using data on carbon dioxide emissions, which are linked to air pollution and industrial activities.

Lleras-Muney claims that there is a widespread misconception that pollution is a problem of the past in wealthy industrialized nations like the United States. However, these connections continue today all around the world. Does this data suggest that we should cherish recessions and decry economic growth? Yes, but. According to Cutler, Huang, and Lleras-Muney [3], severe downturns in the economy (like the Great Depression) continue to be harmful to people's health while extreme upturns in the economy (like the 1950s in America) result in longer lifespans. Economic growth should be viewed as having two sides to it. On the one hand, it causes greater pollution and riskier behavior; on the other hand, the extra money allows people to spend on health and education, which has enormous returns, albeit often not right away.

Christopher J. Ruhm [5] shows in his paper published in the year 2000 that when the American economy is up, people suffer more medical problems and die faster. People tend to live longer when the economy is in trouble.

He looks into how the economy and health are related in his research. Suicides are a clear exception to the procyclical variability seen in total mortality and eight of the ten sources of fatalities analyzed.

For those causes, the variations are the most significant. Age groups are the ones where behavioral responses are most likely to occur. The detrimental consequences of short-term upswings on one's health may be partially or completely offset by persistent economic expansion, according to some data. A micro data analysis that supports this finds that when the economy grows, smoking and obesity rates increase.

Contrarily, there has been a drop in physical activity and an increase in less healthy causes of death that are related to eating. As a unit of observation, the condition is used.

The majority of the study focuses on variations in personal incomes and unemployment rates between states; changes in the nation's unemployment rates are only briefly mentioned. In addition, micro data from the Behavioral Risk Factor Surveillance System (BRFSS) for the years 1987 to 1995 are used to examine how dangerous habits and time-consuming health investments in food, exercise, and preventative medical care fluctuate with the situation of the economy. Once more, demographic characteristics, general time effects, and state fixed effects are considered [6].

When Ruhm examined earlier research on the relationship between macroeconomic conditions and health, he noticed that it tended to focus primarily on psychological aspects. He proposed that

economic downturns cause detrimental changes in physical and mental health by increasing stress and risk-taking. Contrarily, in economic models, investments in human capital, lifestyle choices, and stochastic shocks are what determine health. So, it is influenced by things like income and how much medical care costs in comparison [7].

His study examines how health alterations result from abrupt changes in economic circumstances.

Using longitudinal data spanning the years 1972 to 1991, fixed-effect (FE) models were built. Mortality rates overall, by age group, and by decade.

The strategy employed by Ruhm was as follows:

He used data that spanned all 50 states plus the District of Columbia from 1972 to 1991. He proposed the basic regression equation for the relationship, indexing the state and year with the subscripts *j* and *t*:

$H = t + X_{jt}ß + E_{jt}ß + S_j + jt,$

E is a proxy for economic conditions, while *H* is the natural log of the death rate.

A vector of additional repressors is called *X*.

The mistaken term is the fixed-effect controls the time-invariant state properties. S_j. takes into account the effects of both national temporal effects and within-state differences in economic conditions.

He also used the following to gather some data on how national business cycles are affected:

$H_{jt} = X_{jt}ß + E_{jt}\gamma + E_t\delta + S_j + \varepsilon_{jt}$

where E_t denotes the exclusion of the temporal effects and the indication of national economic conditions.

Ruhm considered a number of factors, including homicide, suicide, heart illness, cancer, the flu/pneumonia, liver ailments, automobile accidents, and other accidents. He showed how state unemployment rates are inversely and significantly connected with eight of the ten different causes of mortality, showing how many aspects of health deteriorate as the economy becomes more robust.

Furthermore, compared to fatalities clustered among older people, those that affect young individuals disproportionately show more significant variance. The predicted mortality from homicides, other accidents, and auto accidents decreases by 3.0, 1.6, and 1.6, respectively, and by 1.9%, correspondingly, for every one point increase in unemployment. Conversely, just a 0.5% and 0.7% decrease in fatalities from cardiovascular disease and influenza/pneumonia is anticipated.

A pattern of disease development is also supported by the findings. Since short-term changes in medical care or lifestyle are unlikely to have a significant impact on cancer deaths, it would be odd to find a significant fluctuation in cancer fatalities, for example. As a result, the findings are internally validated by the absence of any effect on cancer.

Overall, his research demonstrated a clear negative relationship between macroeconomic conditions and health. For instance, a one percentage point increase in a state's unemployment rate relative to its historical normal is associated with a 0.5% to 0.6% decline in total mortality, or a reduction of nearly 11,000 fatalities annually. A cursory investigation finds that the effects of both more localized and national downturns are similar (Table 1).

Table 1. Comparative analysis.

Serial No.	Title	Author(s)	Year of Publication	Methods Used	Results
1	Recessions: Are they good for your health?	Christopher J. Ruhm [5]	2000	Regression analysis, time-series analysis, difference-in-differences analysis	Recessions can have both beneficial and bad impacts, depending on how long they last.
2	Does air quality matter? Evidence from the housing market	Kenneth Y. Chay and Michael Greenstone [8]	2005	Combination of econometric techniques like hedonic pricing model, regression analysis, sensitivity analyses	Improving air quality could have significant economic advantages because air pollution has a detrimental impact on house prices.
3	Economics and mortality: 200 years of data show a relationship	David M. Cutler, Wei Huang, and Adriana Lleras-Muney [3]	2016	Regression analysis, difference-in-differences analysis, sensitivity analysis	Population health is significantly impacted by economic factors, and policies targeted at improving such factors may have considerable positive effects on health.
4	Life and death during the Great Depression	José A. T. Granados, and Ana V. Diez Roux [9]	2009	Descriptive statistics, regression analysis, difference-in-differences analysis, sensitivity analysis, subgroup analysis	Economic downturns have significant negative impacts on population health, particularly for disadvantaged groups, and policies aimed at improving economic conditions may have important health benefits.
5	The reversal of the relation between economic growth and health progress: Sweden in the 19th and 20th centuries	Edward L. Ionides [4]	2008	Time-series analysis, regression analysis, decomposition analysis, sensitivity analysis, historical analysis	The relationship between economic growth and health progress is complex and may not always hold, and factors such as lifestyle, behavior, and environmental conditions play an important role in shaping health outcomes.

CONCLUSION

A thriving economy stimulates death in other forms too. People start spending longer at their professions, which exposes them to occupational risks and the stress of overwork. As more people drive, the number of deadly traffic accidents rises.

People also consume more alcohol, causing health problems and misfortunes. The statistics from economists specifically show that the second most important explanation for the association between economic growth and death rates is alcohol-related mortality, after pollution.

Does all this proof suggest that we should praise recessions and worry about economic developments? Well, no. According to Cutler, Huang, and Lleras-Muney, severe depressions like the Great Depression still have a negative impact on people's health while extreme booms like the 1950s in America are associated with longer lifespans.

It's best to believe that economic growth is a double-edged sword. On the one hand, this causes increased pollution and a riskier attitude; on the other hand, the extra money allows people to spend on health and education, which has great returns, albeit often not right away.

In the short run or when there is little economic instability, development's negative effects are more pronounced. But over time, or during periods of severe economic turmoil, these disadvantages are offset by the benefits of having more money.

According to Lleras-Muney, if the pollution does not immediately kill you, the higher money will eventually enable you to live a longer life. The point here is that we should not be skeptical of development but handle the downsides. Researchers in economics find that nations with better social safety nets are particularly adept at protecting their citizens from the negative effects of booms and busts on their people' health. These nations may also have stricter regulations about how much pollution is allowed.

In conclusion, it was found that the short-term mortality rate may be adversely affected by the economic boom. Nevertheless, this finding takes into account a number of additional aspects. The majority of the studies on the aforementioned subjects were conducted decades ago or used mathematical models created by humans, which may be prone to inaccuracies. As a result, this cannot be relied upon completely.

Factors like how a particular country uses its resources and how much of those resources are utilized in the healthcare industry were not considered effectively, so how the economy affects mortality is inconclusive.

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