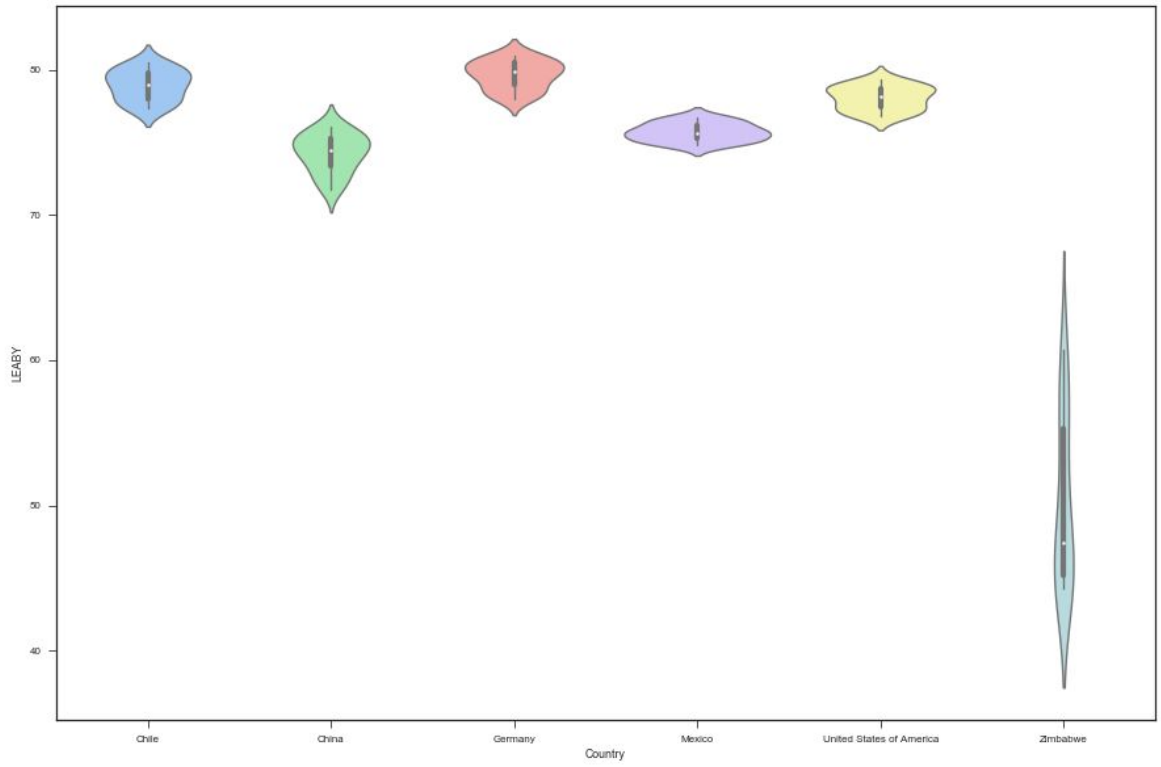
Mo' Money, Fewer Problems?

July 30, 2018 - Money may not buy happiness, but when it comes to measuring life expectancy, there appears to be a clear link between a country's economic output as measured by Gross Domestic Product (GDP) and how long its citizens live.

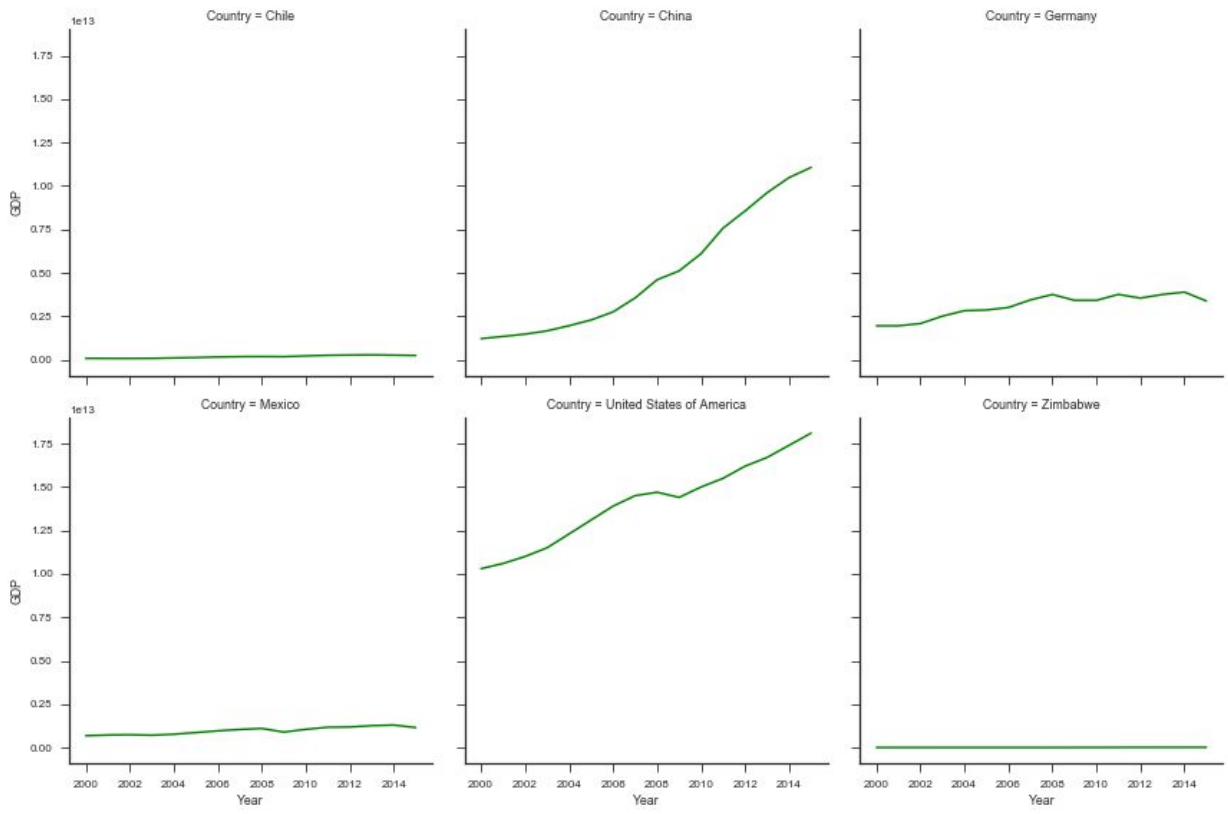
The numbers don't lie. In a recent comparison of six countries measured over the years 2000-2015, the fate of their populations was shown to rise and fall with the economy. To display these trends, check out the following, which plot GDP[1] and Life Expectancy at Birth[2].

This first graph shows each of the six countries and how their Life Expectancy at Birth (Years) - LEABY - has changed over time, along with the relative distribution of the annual measurements. As you can see, Zimbabwe's LEABY has changed the most over the sixteen-year period, though it remains well below that of the other countries:



To begin to understand how the economies of each country are linked to LEABY, it is important to see more clearly how each has changed over time. The following two sets of plots show GDP change and LEABY change for each country over the years:

[1] GDP data from the World Bank archives
[2] Data on Life Expectancy at Birth (years) from the World Health Organization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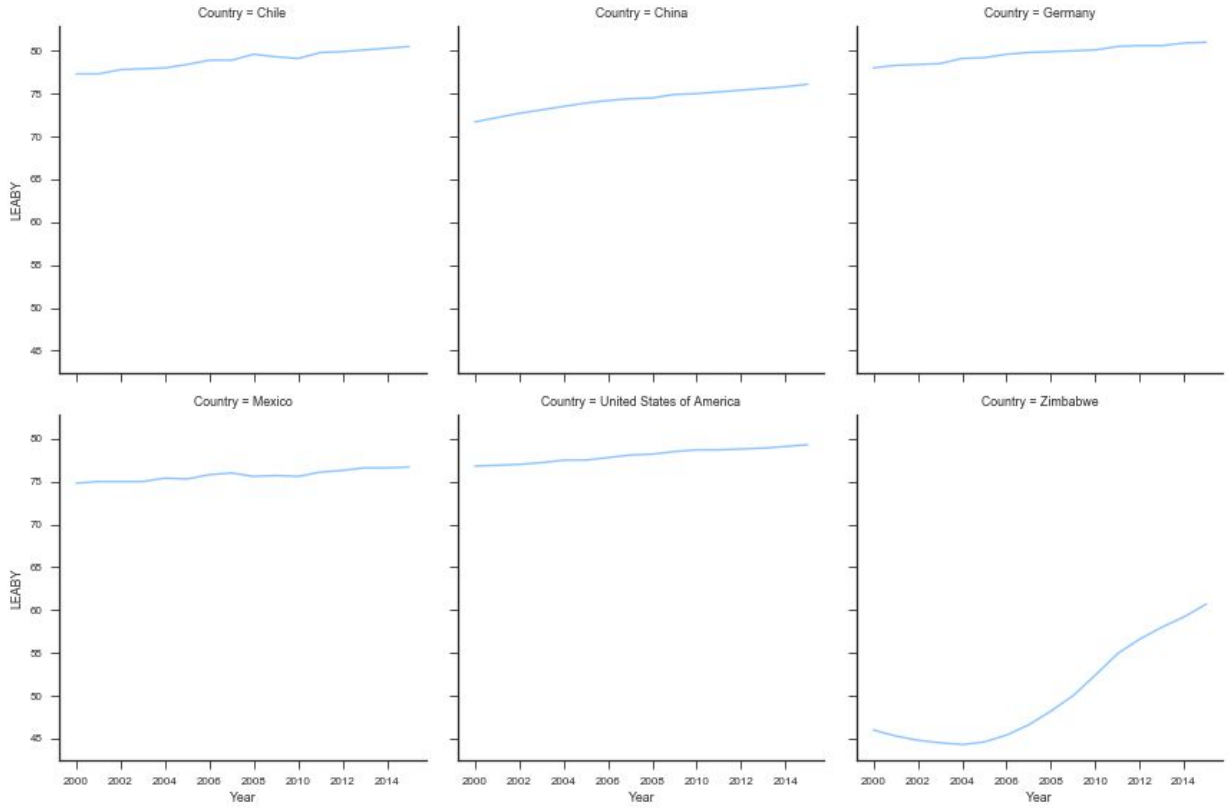
GDP
Year


Country = Chile
Country = China
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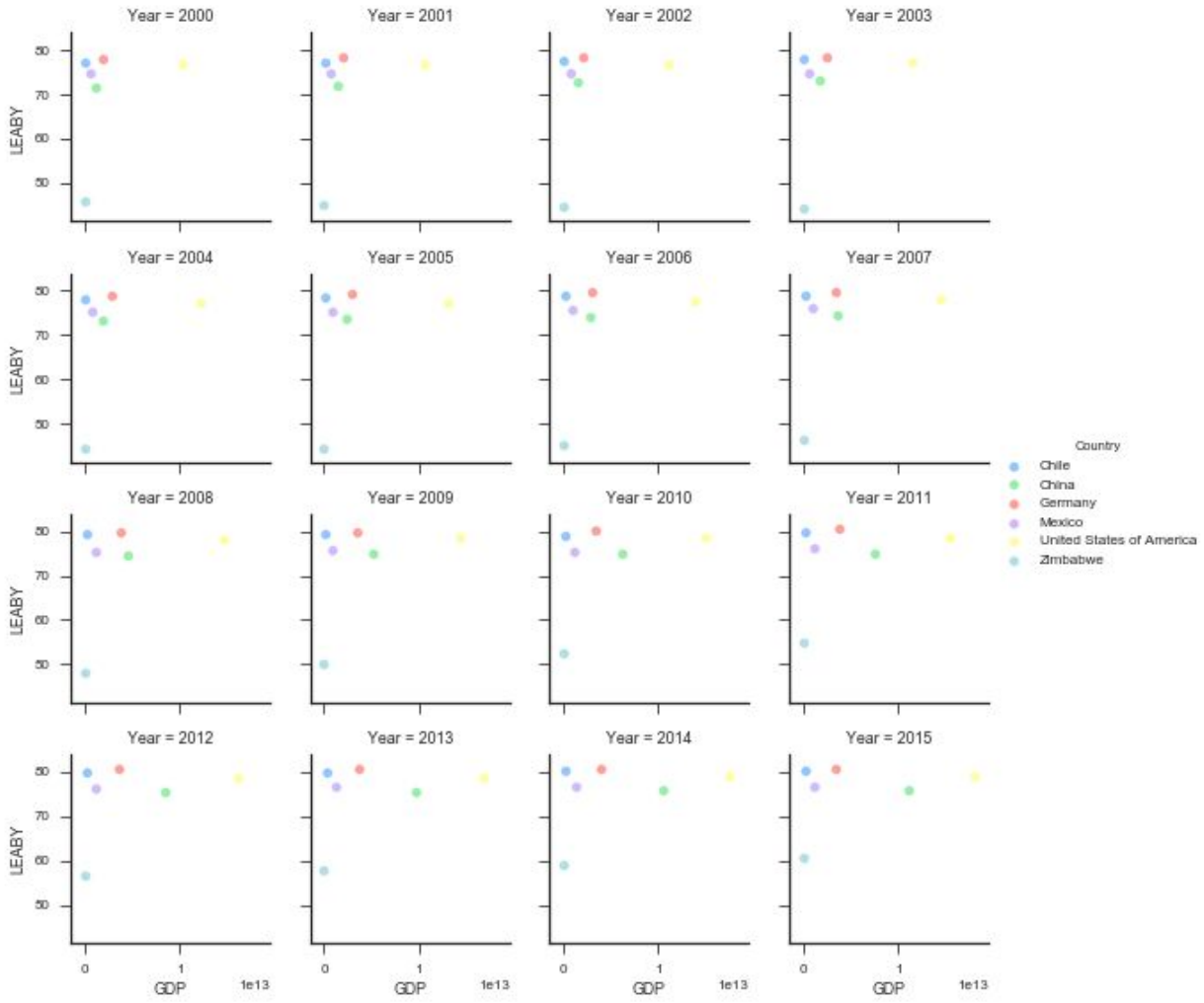
Country = Zimbabwe
LEABY
Year

Plotting GDP and LEABY on the same graphs:



As you can see, whether the economy is large or small, and regardless of the shortness or length of the actual life expectancies, there is an unmistakable correlation between the two. As economies grow, so does lifespan and vice-versa. Because the economies of Chile and Zimbabwe are so much smaller than those of the economically-larger countries measured here, the GDP growth/decline is hard to measure along this scale; however, the raw data clearly reflect the same correlating trend - perhaps an analysis that compares countries that are more similar in economic terms would be an interesting future study. Even comparing apples (United States, China) to oranges (Chile, Zimbabwe), this is still a useful visualization. What is immediately striking, of course, is the disparity between life expectancy in Zimbabwe and the other countries studied. More on that to come[3].

[3] Source: Researchgate.net - Life Expectancy in Zimbabwe: An Analysis of Five Decades, April 2015

What's happening in Zimbabwe?

So why has lifespan in Zimbabwe lagged so far behind the other countries measured here? Is there perhaps a further correlation, not just between trends in GDP and LEABY, but between the actual SIZE of an economy and length of life? The short answer is yes. More developed countries have cleaner water, better healthcare and disease control, more plentiful food sources, better access to transportation, faster dissemination of critical information, and more. Digging further into Zimbabwe's issues reveals that not only is lifespan short, but their statistics for the first decade-plus of this century run contrary to those of most other countries: Zimbabwean men outlive women - one of only six countries where that is the case! The aforementioned reasons are partly to blame; lack of access to proper healthcare has certainly been a factor affecting women even more than men. Overall, corruption in the government has been a major contributing factor that has damaged the economic and human health of the country. A once-committed political ruler became complacent about the welfare of his people, and poor economic policies coupled with HIV/AIDS and crop failures sent the economy and the well-being of Zimbabweans into decline. Toward the latter portion of the 2000's into the early 2010's, greater cooperation among Zimbabwe's various political parties helped to reverse both trends and significantly increase lifespan. With an upcoming election that could see a change in political power, it will be interesting to watch if new policies benefit the people there.

Obviously, as with many studies, while the data paint a very clear picture, there are many more questions that could be asked. For example, how does life expectancy vary between men and women in each country? How is it affected by infant mortality rates vs. disease? What is the quality of healthcare and the cost of government services in each country? How have the data been affected by weather patterns that affected crop production? Were there wars, internal strife, or cultural factors that impacted lifespan? All of these are valid questions and worthy of further study. And, of course, there's the chicken-and-the-egg conundrum: are people living longer because their countries are increasingly productive, or are these countries' economies growing because their populations are living longer and have that many more years to contribute to the workforce…? But what is clear from this data and the charts presented is that there is a clear correlation between the two.