



Stephen Ellingson

GDP and Life Expectancy Analytics Project

Data Visualization Project



Contents of the Report

Gross Domestic Product, or GDP, is the monetary value of all finished goods produced in a country within a given time frame (usually a year). Throughout this visualization report, we will analyze six countries' GDP and life expectancy at birth (LEAB) figures and will determine if there is a correlation between the two variables.

This is an open-ended project prompt through Codecademy using Python, Jupyter, and visualization libraries matplotlib and seaborn.

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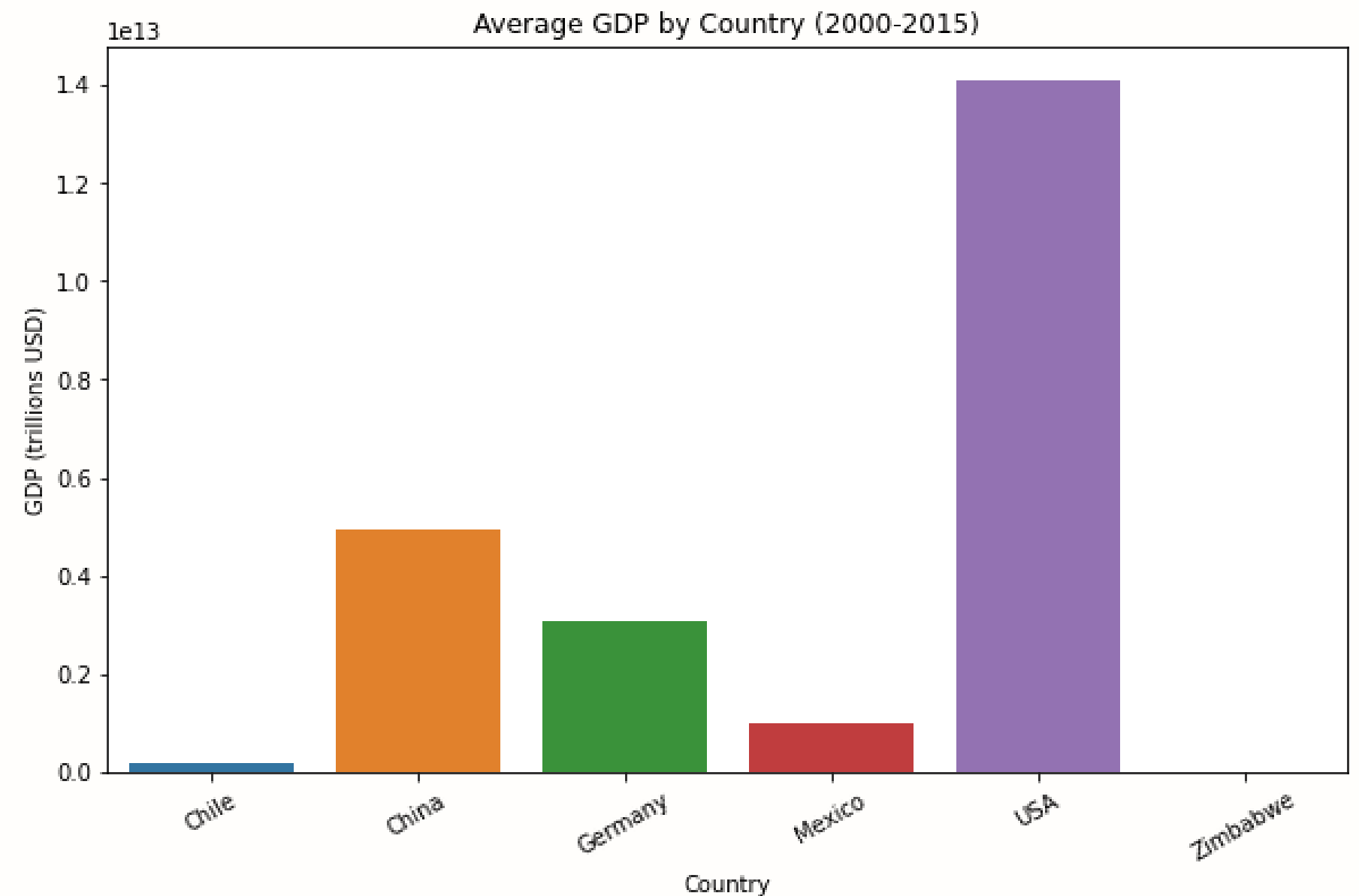


Average GDP by Country

To start, a general observation about average GDP and LEAB levels is in order. Here we have our average GDP levels for each country over a 15-year period.

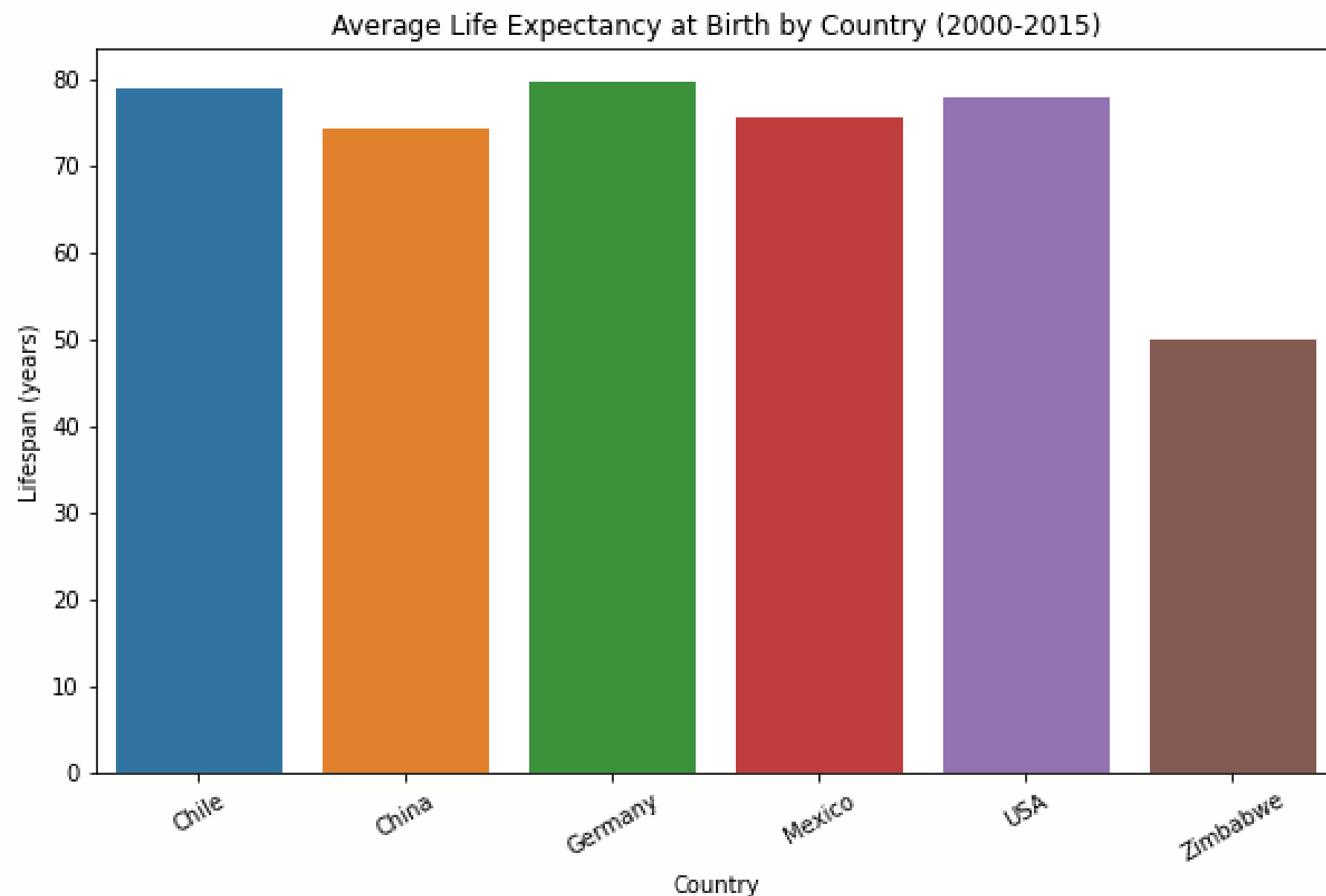
Insights:

- The US has a significantly higher average GDP than the other five countries.
- Zimbabwe's average GDP is so small in comparison that it is illegible in this visualization.





Average Life Expectancy at Birth by Country



Here we continue our introductory analysis by graphing average life expectancy at birth for our 15-year period.

Insights:

- While USA was significantly higher in average GDP, most countries have a similar LEAB (75–80 year lifespan).
- Zimbabwe's LEAB can be identified as an outlier in this visualization.

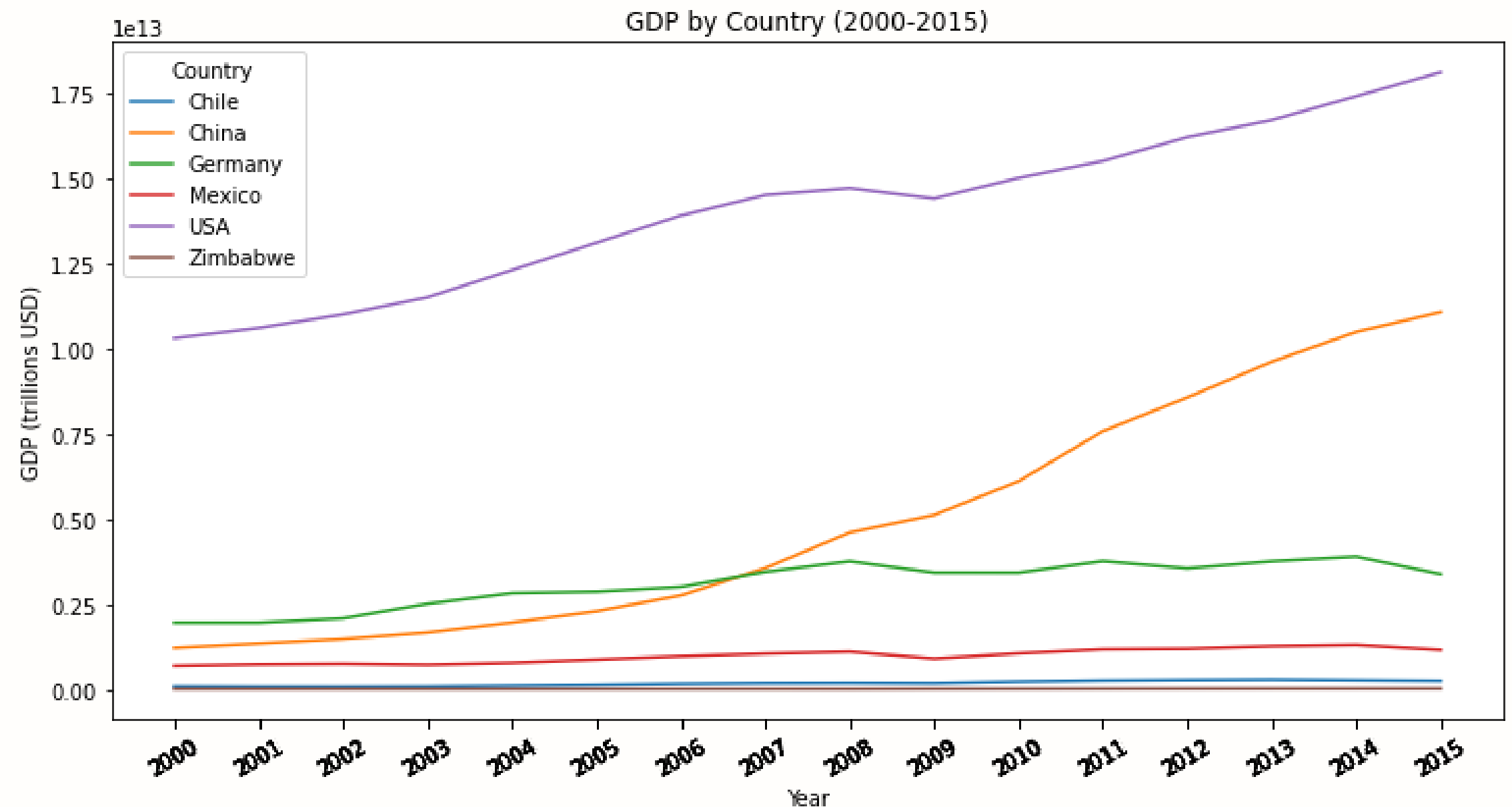


GDP by Country Over Time

Moving on to time series analysis, we take a look at GDP over time by country.

Insights:

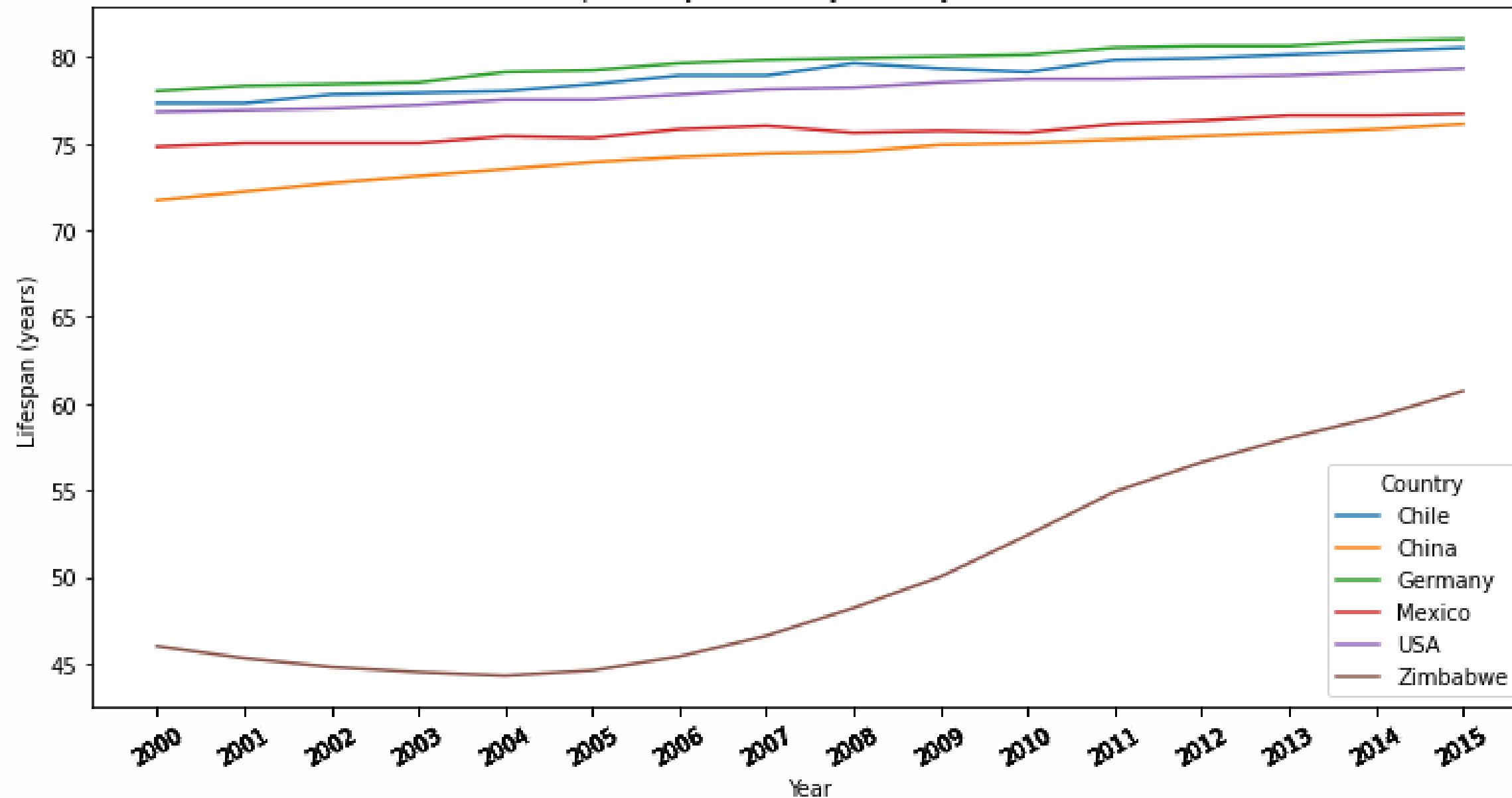
- Like average GDP, US GDP levels over time are significantly higher than the next-highest country.
- Interesting to note: the 2008 financial crisis' effect can be seen on the GDP levels of most countries.





LEAB by Country Over Time

Life Expectancy at Birth by Country (2000-2015)

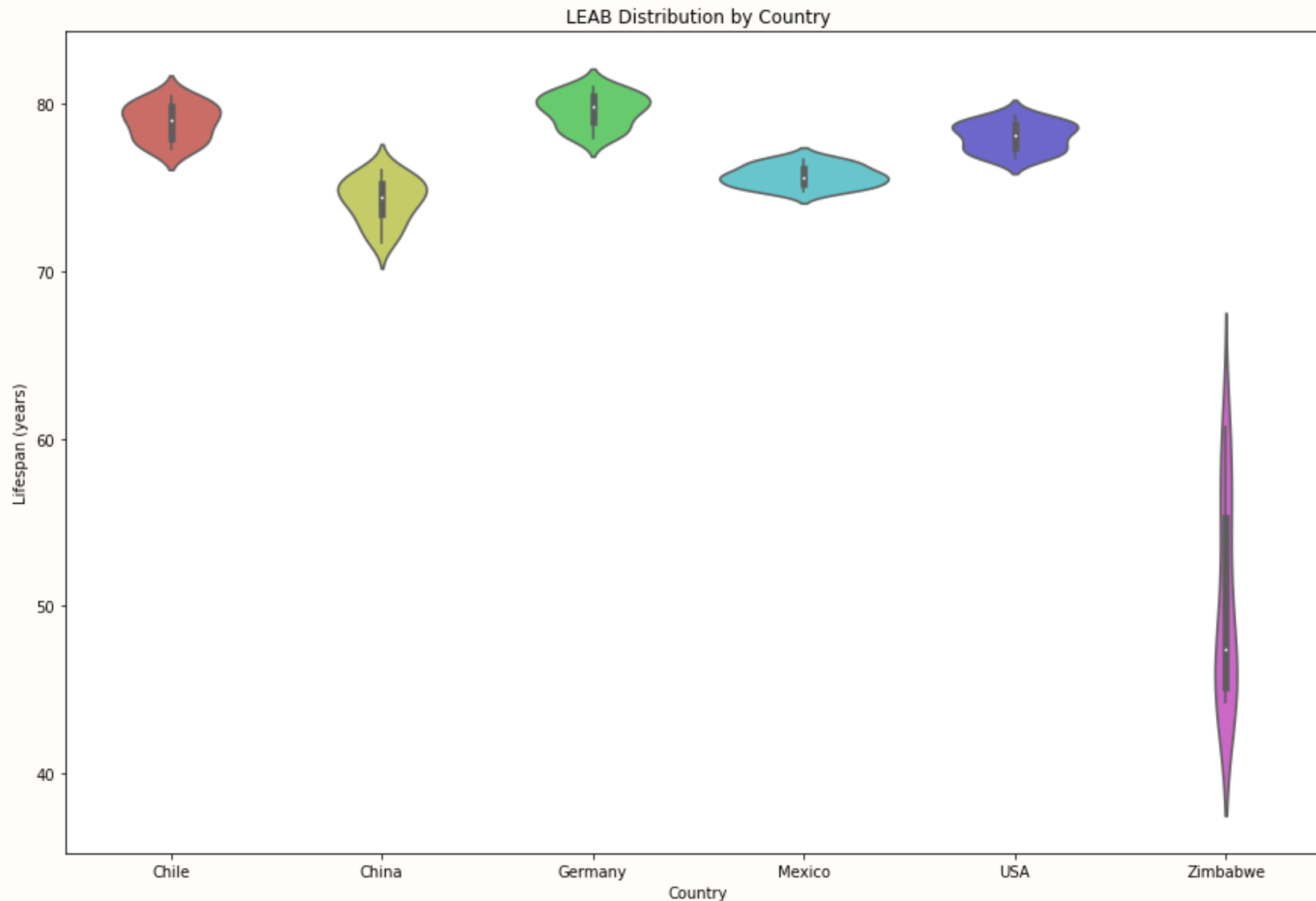


Same as the previous visualization, we plot LEAB levels over time.

Insights:

- The difference between Zimbabwe and the other countries is seen prominently here.
- While GDP levels were influenced by the 2008 financial crisis, LEAB levels appear to be unaffected.

LEAB Distribution by Country

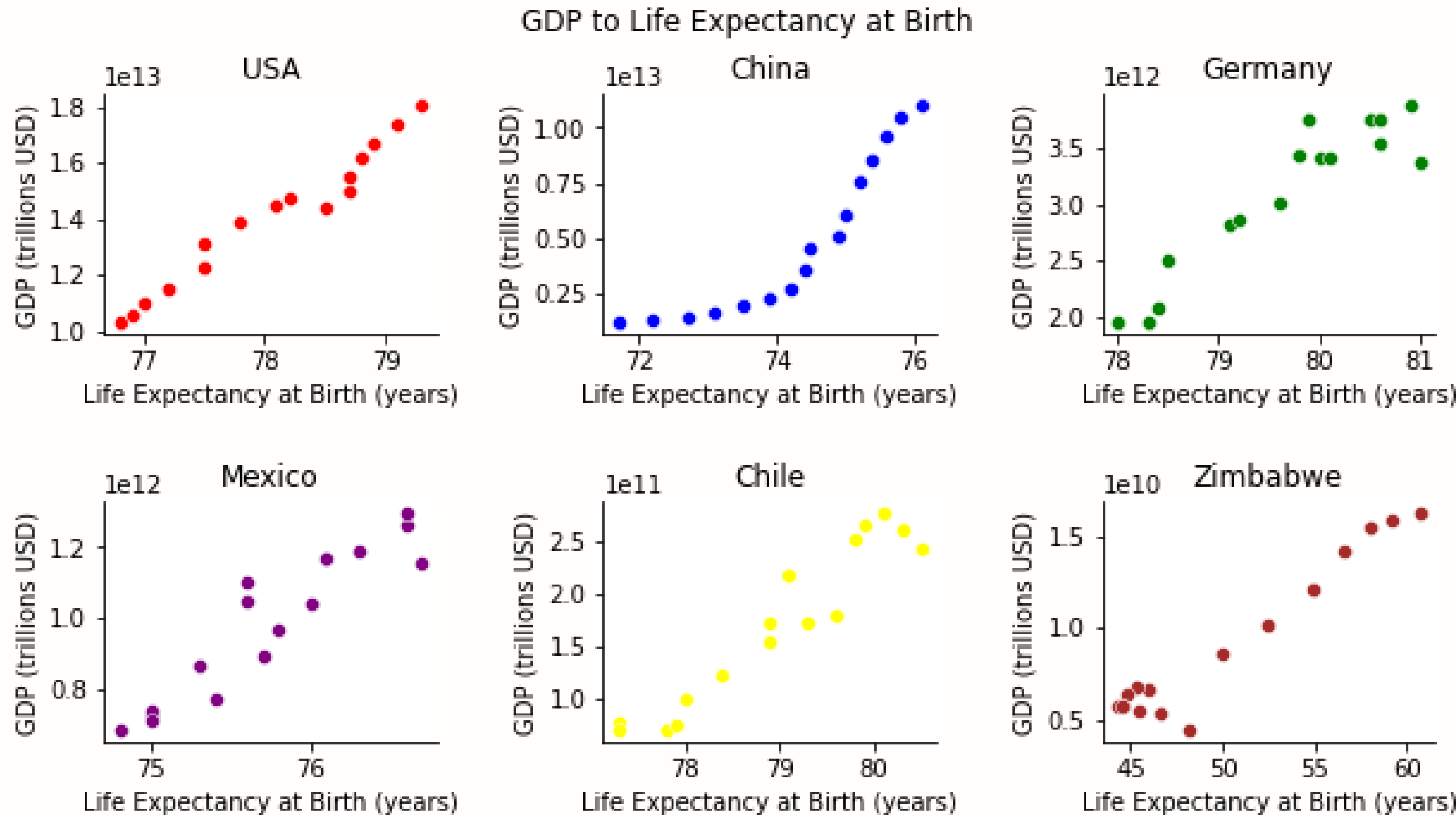


Using a violin plot, we can see the distribution of LEAB levels from 2000–2015.

Insights:

- China and Zimbabwe have the widest distribution in LEAB data, although Zimbabwe's range is more than three times that of China's.
- Mexico's distribution appears to have the least amount of variation in LEAB data. While this can be seen in the line graph, a violin plot better displays this insight.

GDP to LEAB by Country



Finally, we create a scatter plot to check for a potential link between our two most important variables.

Insights:

- It appears that there is a strong positive correlation between GDP and LEAB growth.
- While some correlations are tighter than others, there is an obvious relationship amongst all six countries.



Conclusion and Contact Info



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Throughout this report, we went through isolated analyses of GDP and LEAB variables through multiple types of visualizations. We examined many different insights before determining through a final scatter plot that there is a positive correlation between GDP growth and higher LEAB levels.

Some important takeaways:

- the United States has held the highest level of GDP from 2000–2015
- the effect of the 2008 financial crises can be seen through analyzing GDP levels over time (while LEAB levels are relatively unaffected)
- Zimbabwe's life expectancy at birth is very much lower than the other five countries, but the nation has seen large strides towards the rest of the world since its lowest point in 2004
- all six countries show a clear indication that GDP growth and LEAB growth are linked together

Thank you very much for viewing this report. Please let me know your feedback as it is extremely beneficial, or feel free to reach out with questions!