Inflation vs the Cost of Labour

By: Charan Sridhar

My Abstract….

I used the OECD “Inflation(CPI)” and the OECD “Unit labour costs” datasets in this project to answer the question, “Does Inflation affect the Cost of Labor?” I created functions to extract the data with the right country, measurement, method of dating, and subject. I analyzed the data by graphing both inflation and unit labour costs against time in separate graphs. I then plotted them against each other in a scatter plot and added a regression line. I then used a function to get the correlation coefficient to gain a quantitative evaluation of the relationship between inflation and unit labour costs. I repeated this process for the USA, Canada, France, and Italy.

My Motivation…

Inflation is currently an issue affecting people around the globe. In the USA the rate as of 2022 is 9.1%. People are currently struggling to continue their lifestyle because as prices increase their wages stay the same. Working class people will want to know whether their wages will go up. I will use data on past inflation and cost of labor to see if there is a correlation and whether working class people can look forward to seeing their wages go up in response to this rampant inflation.

Datasets I will be using….

I am using the OECD “Inflation(CPI)” and the OECD “Unit labour costs” datasets to try and analyze if and what relationship there is between the two. I got these data sets from the official OECD website. The “Inflation(CPI)” dataset contains 8 columns: location, indicator, subject, measure, frequency, time, value, and flag codes. It has 289,822 rows with information on multiple countries and groups.The “Unit Labour Costs” dataset also has the same 8 columns and 17,916 rows.

Data Preparation and Cleaning that I did….

The datasets that I used had multiple countries, measures, and times so I had to isolate individual countries, types of measurement, and type of time. The dataset had time in business quarters and year. I decided to pick year as there were not quarters for every single country or year. I didn’t have to get rid of any outliers or null values because it is an already cleaned dataset from an official organization.

My Research Question…

Does Inflation affect the Cost of Labor?

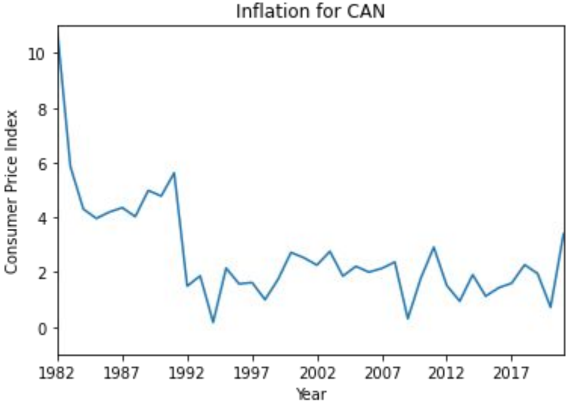
Methods I used…

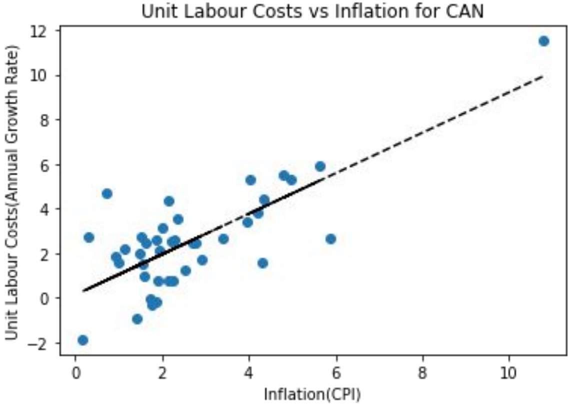
The first thing I did with the datasets to analyze them is extract all the data I needed. I created two functions: one for picking out the the data for inflation and the other for picking out data for cost of labor. After this I plotted them both against time in separate graphs to see if they both followed the same trends. I then plotted them against each other in a scatter plot and created a regression line. I was able to see how close the points were to the regression line and see how well they correlated. I then got the exact correlation coefficient to make sure what I saw in the scatter plot was correct.

My Findings for the USA…

The first two graphs are not identical but they share many similarities. They both have a record peak before and after 1976 with a large fall in the middle. The record inflation during the 1970s was caused by high inflation and unemployment rising simultaneously which is called stagflation. The drop was caused by an extreme raising of interest rates to 20%. The dip after 2008 was caused by the great recession. These events are mirrored in both of the first two graphs. The last graph is inflation being plotted against labor cost as a scatter plot with a regression line. Once again we see a strong correlation with most of the points being clustered around the line. The correlation of the inflation and labor costs is 0.88 which is quite high.

My Findings for Canada…



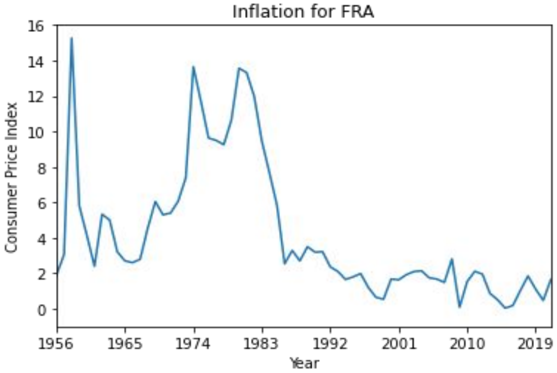


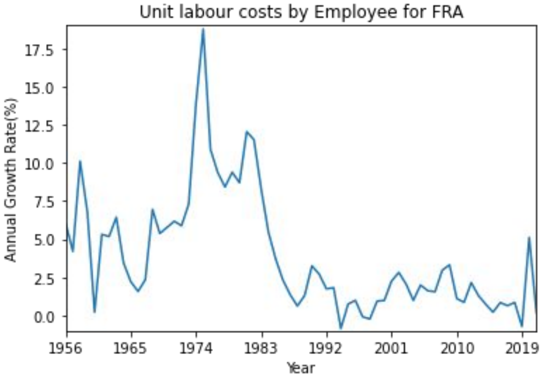
The graphs show Canada also has a correlation between inflation and labour costs like the USA. The correlation is 0.76 which is less than the USA's but still a high number. They both share a rapid decline following 1982 which shows when the federal bank raised interest rates after stagflation. There is also a dip following 2007 which shows the great recession. Many of the rises and falls are mirrored in the graphs for the USA as the events that caused them affected the entire world.

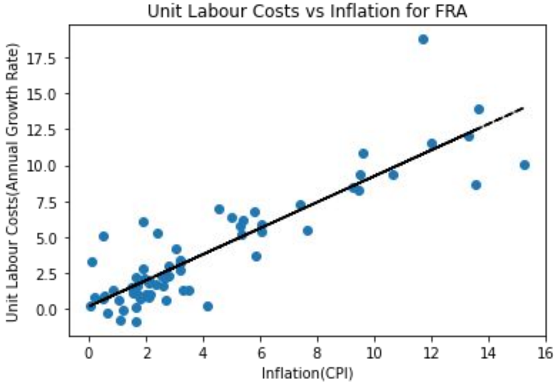
More Examples of a Strong correlation….

France

Correlation: 0.88

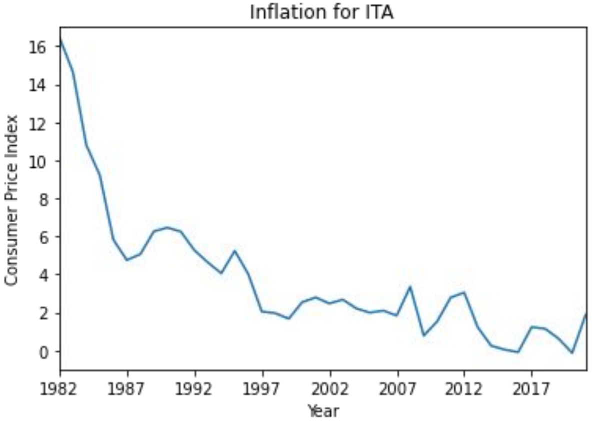


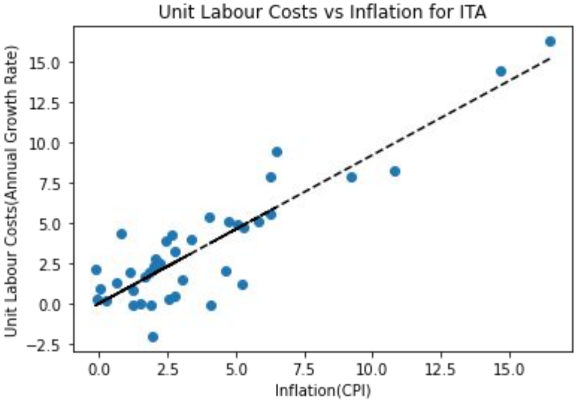




Italy

Correlation: 0.89





Limitations of this project….

The limitations of this project is that it might not apply to all countries. The relationship between inflation and wages is dependent on the country having a successful free market economy. I used well known western countries for this as that is what I had the most data for. However, authoritarian countries like North Korea could just force their citizens to work. Another limit is that the common people have to have influence. In certain countries employers can pay whatever they want and their employees have no choice but to accept because there are no other jobs. All in all, the biggest limitation of this project is that it only applies to democratic capitalist countries where there is a free market economy and the common people have a say in how the country is run.

My Conclusion….

My research questions was “Does Inflation affect the Cost of Labor?” I analyzed the USA, Canada, Italy, and France and found that answer to be yes. Using the data from oecd I plotted inflation and cost of labor against time in separate graphs and I could see strong correlation. During major events like the great recession, covid-19, and the financial crisis of the 1970s I could see rises and falls in both graphs at the time. When I plotted them against each other and added a regression line I could see strong correlation again and the exact correlation coefficient confirmed what I saw. All four countries had a coefficient higher than 0.75 which is very high. I do believe that this correlation is also causation as when the cost of living rises, people need more money to make ends meet. Employers would be forced to raise wages to keep their employes.

Acknowledgements

I would like to thank my parents and friends for giving me feedback on this project.

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