Final Project

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Abstract

Our goal for this project was to analyze what kind of impact wars have on the United States' economic development by taking a closer look into the Gross Domestic Product, or GDP, and the defense spending between the years of 1930 up to 2020. We decided to create two visuals in order to see if there was any correlation. The first visualization compares data between the GDP and defense spending. It also notes the timeline of when the wars began in order to make it readable. By clicking on the defense spending, a pie chart will pop on the right side of the screen to give a closer visual into the percentage of defense spending. The second visual takes a closer look into the growth rate for GDP. It expands on the first visual and also lists the event that starts occurring during points. We found that GDP was not directly correlated to when the wars occurred. In fact, we noticed a growth in the very beginning of the wars.

Index Terms: Wars - Economic Development - GDP - Defense Spending - Visualization

1 Introduction

The initial general question we wanted to answer were "Are wars good for the economy?" This seems like a simple question with a simple answer. However, it is complex because there are many aspects of what is going on in the United States at the same time as wars. This project could be useful for the general public because it can give people a better understanding of what wars do to the economy. In addition to economically, wars have a huge impact on the social movements. Because of that, we think that is another reason this could be important. Social movements affected by wars can affect the economy. Looking at GDP allows us to get a full view on how the economy is impacted. For example, we can look back at the Vietnam War. There was a lot of social unrest because people were so against the war [6]. We can see from the first visualization that there was still GDP growth after the war began. However, we know that after around 1965 the protesting became stronger [6]. This is shown in the visualization as the growth starts to slow and then declines. In the beginning of the Vietnam War, there was public support. When it became clear that the cost of the war was not worth it, the public was not supportive. It was one of the largest oppositions to a war ever. There was a lot of social unrest with the strong opposition [7]. This could definitely have had an impact with the economy. When there is not peace at home or abroad, people lose confidence in the system. With this in mind, it makes sense that the GDP would rise in the beginning. Though the GDP growth rate stays mostly in the positive, the growth rates slows.

2 Related Work

The first step to looking into the economy was to research it. We found out that GDP is a good measure for understanding how the economy is doing [2]. That is why we chose it for the focus of our visualizations. GDP is the representation for the monetary value of all goods and services produced in a certain amount of time [2]. In simpler terms, it can be calculated by adding up everything that everyone spent [3]. It is not necessarily GDP that tells us how well the economy is doing, but the change in it does. If GDP increases (accounting for inflation), that means GDP is growing [2]. The primary goals for all economies are to grow, have low unemployment rates, and have stable prices [3]. This is what happens when GDP is increasing and the economy is doing well. Eventually, the economy falls into a recession, in which GDP decreases, there are higher unemployment rates, and people spend less money, stunting business growth and innovation [3].

Another factor that is important when looking into wars is the amount of money that the government spends on defense. This includes spending for war, nuclear weapons, international military assistance, and more [1]. Based on that, we can expect that during wars, the spending for defense should increase. This information is important in order for us to find a correlation between GDP, events, and how the government is spending money.

The United States has put a lot of funding into military spending and spends as much as the combination of Germany, India, Japan, France, the United Kingdom, Russia, Saudi Arabia, and China. Typically, countries do not spend more than 5% of their GDP on military when they are not in a war. Wars generally have a huge impact on where economic resources go. Because of World War II, Japan spend almost 99% of their GDP on military. That is almost the entire GDP of the country [4]. That example, though the outlier, is a good example of just how much

the government will put into it's military during wars. All over the world, that is a trend that is seen.

Similarly, the United Kingdom experienced spikes in defense spending during wars or difficult events in time. World War I and World War II brought very high spikes in their defense spending [4].

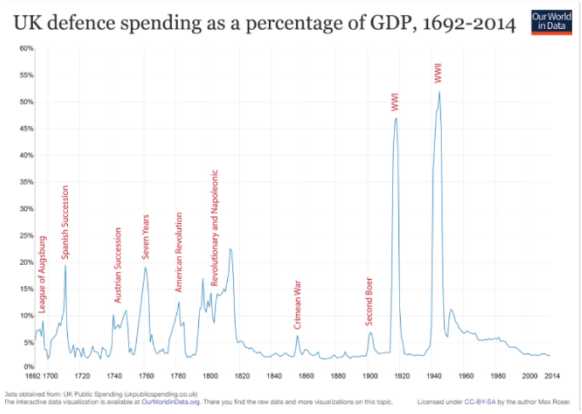

Figure 1: A visualization from 1962 to 2014 of the United Kingdom's defense spending in comparison to wars. The image is from [4] and is for public view.

War commonly results in inflation, which is bad for the economy. The government borrows more money, especially if there is a lot of support from the public. In addition to war money, there is more cost, such as lives and rebuilding [5]. This may be important when we take a look at after the wars are finished. Effects of war are gradual and do not occur immediately, especially with patriotic support. Wars use up a lot of resources, so the economy has less capability of producing. Instead of using the resources for the citizens in the United States, they are being used on the soldiers in the war. This supports the fact that the growth rates would slow, but not immediately.

3 Project Description

For our visualization, we have chosen a line chart, pie chart, and area chart. The first visualization is a line chart. This displays information about GDP, defense spending, timeline, and wars. The timeline runs from 1930 to 2020 and includes World War II, the Korean War, the Vietnam War, the Persian Gulf War, the Afghanistan War, and the Iraq War. These were all significant events in United States history. By scrolling over each orange dot, viewers can get the year and percent of GDP that was spent on defense. By clicking on an orange dot, a pie chart pops up on the right of the graph. It allows you to see a visual on what the percentage of GDP was. The scale for defense spending is out of 100%. The blue lines and dots signify GDP. It is visible that GDP has had exponential growth over the timeline, but has a few dips. These dips can be looked at also in the Second Visualization. The scale for it is signified by the blue scale on the left and is on the scale of trillions.

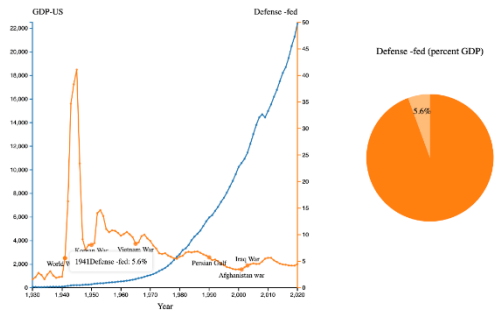

Figure 2: A visualization of the comparison between GDP and percentage of GDP spend on defense from the years of 1930 up to 2020.

The Second Visualization is another data set revolving around GDP. This has data from GDP growth rate, a timeline, and events. This helps to expand on the First Visualization because it allows viewers a closer look into the changes in growth during events on a more obvious scale. The scale on the left is percentage. The green on the visualization represents positive growth and the red represents decline in GDP growth. On the First Visualization, it is tough to notice when there is a decline whereas this visualization allows viewers to see 10 periods of time where there was a decline in GDP growth. By scrolling over the green and red dots, viewers can see the growth rate and the event that occurred that year. It is interesting because the picture is clearer on how much GDP was actually growing or declining even though the first visualization doesn't clarify that.

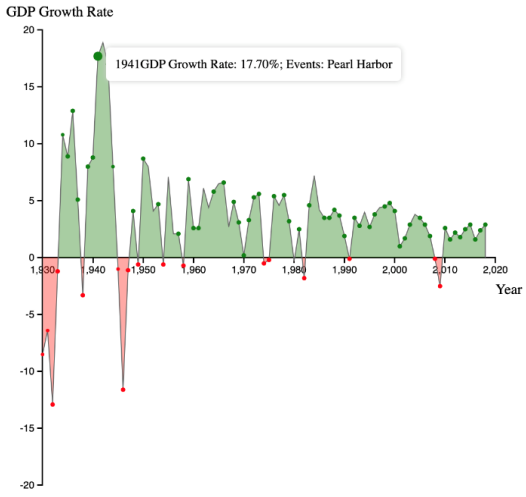

Figure 3: A visualization of the GDP growth from the years of 1930 up to 2020.

4 What We Found

These visualizations give some surprising insight into the effect of wars on the economy. We expected for GDP to decline after every war. Instead, we see

positive growth in GDP for nearly all of the timeline. When we compare the two visualizations, we can see that the negative growth rate of GDP after the start of World War II correlates to the spike in the defense spending percentage of GDP. It is also noticeable that after a war begins, there is a spike in the percentage of GDP spent on defense. This is expected as defense is responsible for military spending. However, GDP also grew in those years as well. They hit a peak before falling again. We can take a look at Pearl Harbor, which occurred in 1941. On the first visualization, we see a very huge spike in defense spending percentage, which is the largest it has ever been. On the second visualization, we see a 17.7% growth rate in GDP, which is when there is the highest growth. It is also interesting to note that there is a consistent lessening of GDP growth after 1970 even though it is mostly positive.

Another interesting factor that is shown in the visualizations involves the Korean War. The defense spending increases, which makes sense because the US had to put in resources. Meanwhile, the GDP growth was in the negatives, but then rises to the positives before dropping again. However, once again it rises just as the defense spending does. This notes a pattern in the GDP growth. It is surprising to see that when the growth rate is negative, the negative is less than 5%. This shows that the more recent wars (after the Vietnam War) have had less of an impact on GDP and its growth.

References

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