

# **RMIT International University Vietnam**

## **School of Business and Management**

### **Assignment Cover Page (INDIVIDUAL)**

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### **I. Overview:**

For both consumers and businesses, the term "inflation" refers to an increase in the prices of products and services throughout the economy over a specific period (McKinsey & Company 2022; Fernando 2022). Thus, inflation is one of the most crucial economic factors since high inflation might discourage individuals from investing or saving, which would be detrimental to a nation's economy (Höflmayr 2022).

Sudan and Kenya are both African nations (Nations Online n.d.; National Geographic n.d.). With a rise of food and energy prices and high amounts of state debt, the area is experiencing one of the most difficult economic circumstances in recent years (Bolhuis and Kovacs 2022). High levels of inflation are one of the most pressing problems currently facing the area (Bolhuis and Kovacs 2022).

In 2021, Sudan's inflation rate was approximately 359.09% (Elhamy 2022). Despite a decline in the rate to 117.42% in August 2022, Sudan still has the highest inflationary pressures on the continent (Galal 2022). The persistent economic crisis and the country's political turmoil are the main causes of this inflationary burden (Galal 2022).

Meanwhile, Kenya's inflation rate in 2021 was approximately 5.7% (Kamer 2022), and as of August 2022, it had increased to 8.5%. (KNBS 2022). The Central Bank of Kenya's target of

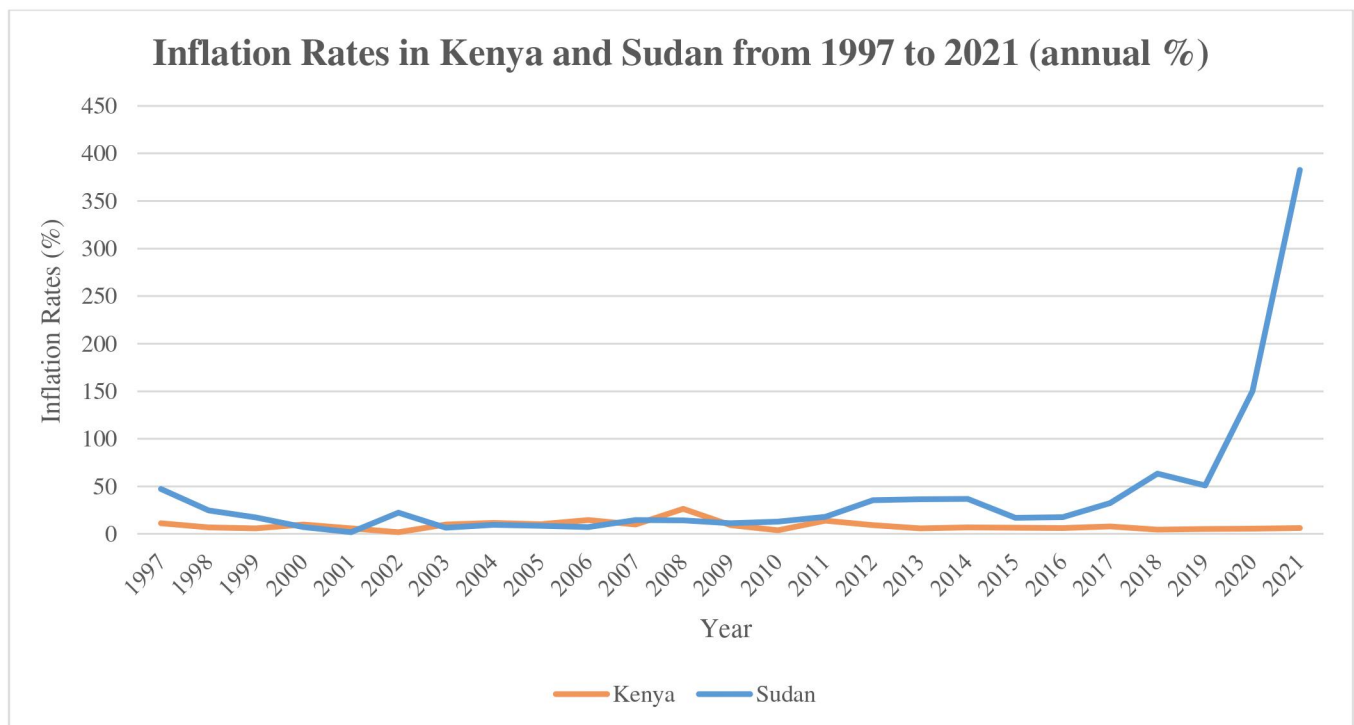
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2.5% to 7.5% was reportedly exceeded for the eighth straight month as Kenya's inflation increased (Herbling 2022). The KNBS claimed that rises in the cost of commodities were mostly to blame for the spike in inflation. In contrast to Sudan, Kenya has seen relatively moderate inflation over the years.

Using a variety of relevant graphical and statistical methodologies, this paper intends to analyze the changes in the inflation rates in Sudan and Kenya from 1997 to 2021 before determining which country has a greater inflation rate. According to studies, Kenya appears to have a lower and more steady inflation rate than Sudan.

## II. Data Analysis:

### a. Line Chart:



**Figure 1.** *Inflation Rates (%) in Kenya and Sudan from 1997 to 2021.*

Over the given period, Sudan has seen higher inflation rates than Kenya. Moreover, while Kenya's inflation rates appeared to be rather steady over time, Sudan's suffered more frequent changes.

Sudan's inflation rate in 1997 was over four times more than Kenya's, which was about 47.2%. After that, its inflation rates dropped to about 1.9% in 2001 before climbing to over 22.2% in 2002. Sudan's inflation rates then experienced a growing trend, reaching nearly 37% in 2014

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before declining to about 17% in 2015. Sudan's inflation rates considerably rose in the final years, skyrocketing to almost 383% in 2021.

In 1997, Kenya's inflation rate was about 11.4%. Kenya saw an increase in inflation from 2003 to 2006, from roughly 9.8% to 14.5%, and then to almost 26.2% in 2008. Kenya's inflation rate has been erratic since 2008, with a decline to approximately 10% in 2010 and a rise to 14% in 2011 before stabilizing at around 10% for the remainder of the period.

### b. Central Tendency:

	<b>Kenya</b>	<b>&lt;,&gt;=</b>	<b>Sudan</b>
<b>Mean</b>	8.609	<	41.876
<b>Median</b>	6.878	<	17.75
<b>Mode</b>	N/A		N/A

**Table 1.** *Measures of Central Tendency of the Inflation Rates (%) in Kenya and Sudan from 1997 to 2021.*

It can be seen from the table above that using mode to compare the inflation rates between Kenya and Sudan is improper because neither country's inflation rates has recurring values. Moreover, as both countries have three extreme values that can skew the mean value, using mean is likewise inappropriate.

The median is thus the most appropriate indicator of central tendency to utilize in this situation. While the median value for Sudan is 17.75%, meaning that 50% of the country's inflation rates is higher than 17.75% for the provided years, Kenya's median value is only 6.878%, which is almost three times less than Sudan's. It follows that Sudan has a higher inflation rate than Kenya's.

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### c. Variation:

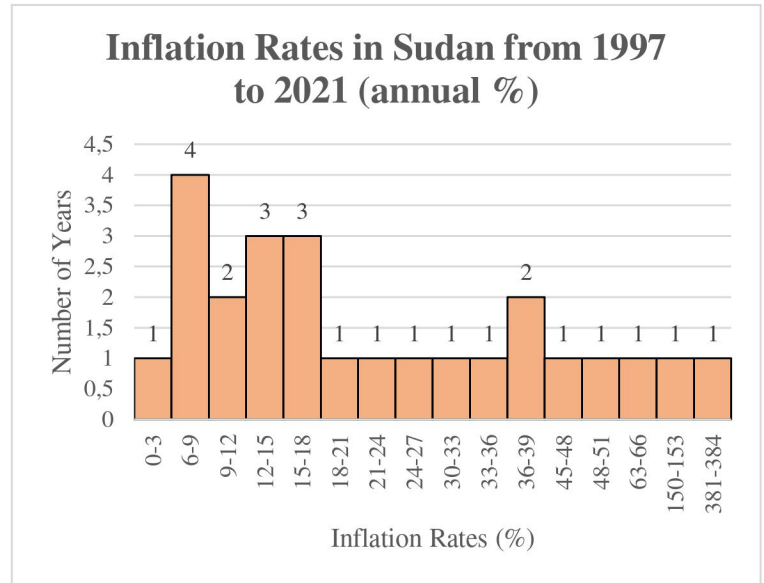
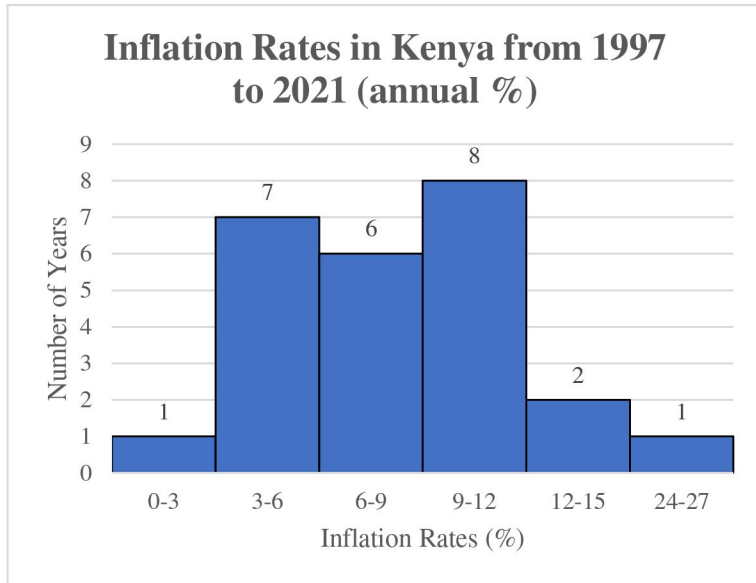
	<b>Kenya</b>	<b>&lt;,&gt;=</b>	<b>Sudan</b>
<b>Range</b>	24.3	<	380.9
<b>Interquartile Range (IQR)</b>	4.24	<	25.3
<b>Variance</b>	22.9	<	5937.4
<b>Standard Deviation (SD)</b>	4.8	<	77.1
<b>Coefficient of Variation (CV)</b>	55.6	<	184

**Table 2.** *Measures of Variation of the Inflation Rates (%) in Kenya and Sudan from 1997 to 2021.*

Since the dataset contains outliers as determined in Part 2b, the IQR is the best measure of variation to employ because it is unaffected by changes in extreme values. The outliers also have an impact on range and other measurements that employ mean in their computations.

Table 2 shows that Sudan's IQR (25.3%) is around six times higher than Kenya's (4.24%). Because larger numbers denote that the centre portion of the provided data spread out further, this means that the range of the middle half of Sudan's inflation rates spread out much more than that of Kenya's. Sudan's inflation rate hence had larger variance within the time period and was less steady overall.

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### d. Histogram:

**Figure 2.** *Histograms of Inflation Rates (%) in Kenya and Sudan from 1997 to 2021.*

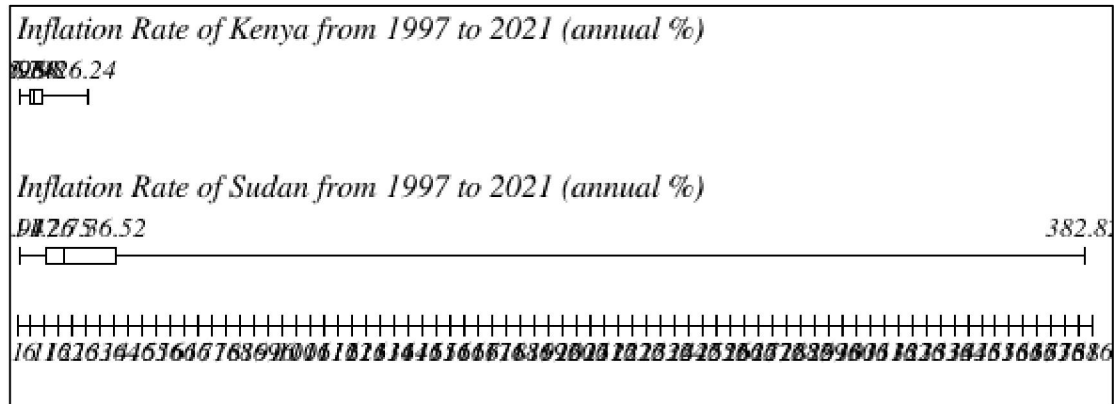
The distribution of the inflation rates in Kenya and Sudan is right-skewed, meaning that both countries experienced several years of high inflation but only few years of low rates. This is because the data for both countries are distributed primarily on the lower end of the inflation range. Although the distribution is right-skewed in both nations, the highest inflation rate in Kenya is only 27% while Sudan's is 384%, implying that Sudan has a wider rightward distribution with greater rates.

While the most tightly distributed region of Kenya's inflation rate ranges from 3% to 12% with 21 years, that of Sudan's inflation rate ranges from 6% to 18% with 12 years. In Kenya, the inflation rate has been below 12% for 22 years, however in Sudan, the number is only 7 years. Accordingly, Kenya has only had inflation rates above 12% for four years, whereas Sudan has seen inflation rates above 12% for up to 18 years. Sudan's histogram also demonstrates that the nation has seen years with varying rates of inflation. Overall, the inflation rate in Sudan varies more and is higher than that in Kenya.



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e. Box and Whisker plot:



**Figure 3.** Box and Whisker plot of Inflation Rates (%) in Kenya and Sudan from 1997 to 2021.

Both countries' inflation rates are right-skewed as the box section suggested. In addition to the mean being larger than the median, the distance between Q1 and the median is substantially shorter than the distance between median and Q3. Kenya's box length is also significantly shorter than Sudan's, indicating less fluctuation in the middle 50% of the variation than Sudan. With regard to variation outside the upper and lower quartiles, Kenya's whiskers are shorter on both sides than Sudan's, suggesting less volatility. Overall, Sudan has higher inflation that is more widely distributed compared to Kenya.

### **III. Conclusion:**

In conclusion, there are a number of reasons why Sudan's inflation rate is higher than Kenya's. First, the line chart demonstrates that, with the exception of 2008, Sudan's inflation rate is often higher than or at least comparable to Kenya's. Second, Sudan's middle inflation value (17.75%) is higher than Kenya's (6.878%), indicating that the latter 50% of Sudan's inflation rates are higher than that of Kenya's. Finally, due to Sudan's longer box and whisker, its inflation rate is more unstable. Thus, the analysis confirms that Sudan has a greater inflation rate than Kenya because most values of Sudan are higher than those in Kenya.

### **IV. Further Discussion:**

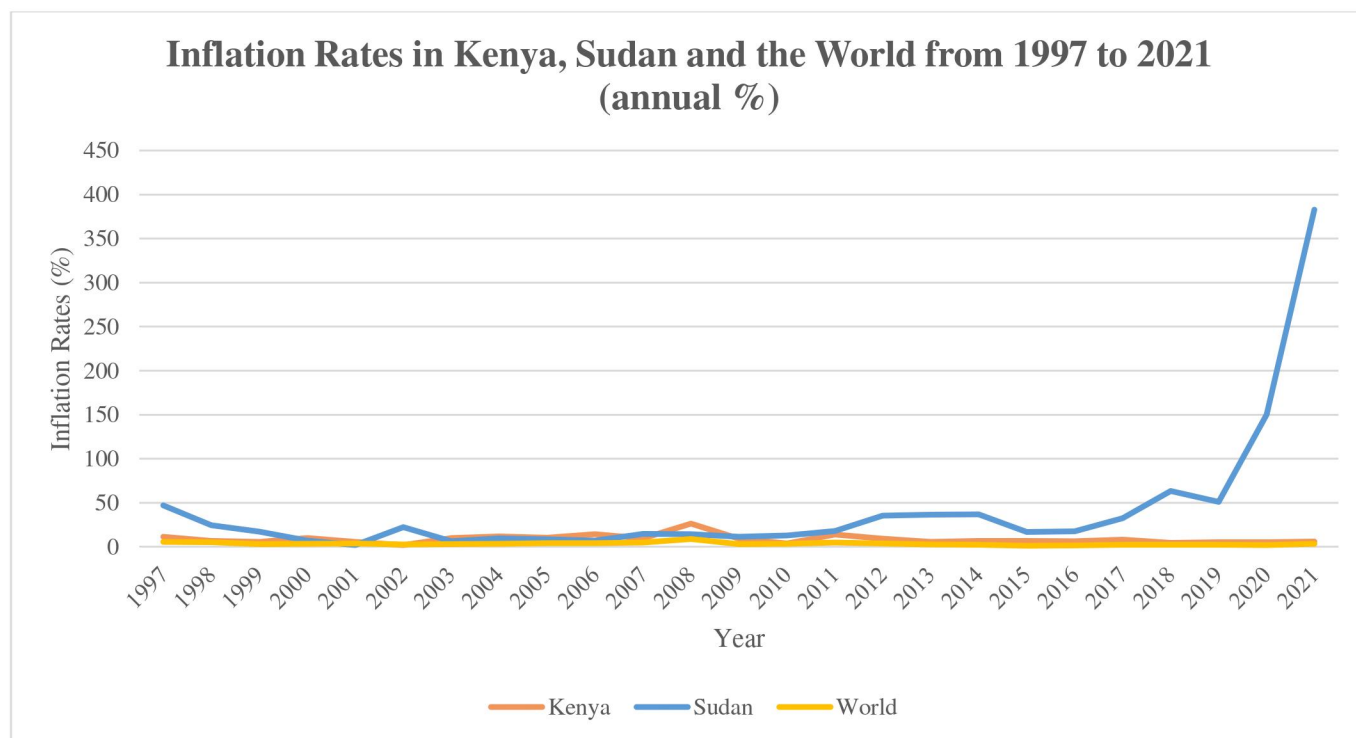
In comparison to the overview, the conclusion above is rational and reasonable because it supports the information presented. Kenya was not even close to Sudan's inflation rate, which was the highest in all of Africa. This can be demonstrated by comparing the maximum limit of the two nations. Kenya's highest inflation rate is only about 27%, compared to Sudan's of almost 383%. Additionally, Kenya's inflation rates over the years were less variable, supporting the findings of the overview section.

### **V. Factors' Discussion:**

The expansion of the money supply is one of the economic factors that influences Kenya's inflation rate. This is due to the recent introduction of M-PESA and mobile banking (Wangare 2018). Due to financial advances, notably the emergence of mobile banking, the amount of money in Kenya has been increasing rapidly since 2006. (AfDB 2012). Moreover, the adoption of e-money had increased the amount of money available (AfDB 2012). Kenya's high inflation rate is a result of this.



## VI. Data Comparison:



**Figure 4.** *Inflation Rates (%) in Sudan, Kenya and the World from 1997 to 2021.*

Figure 4 shows that, with the exception of 2008, Kenya's inflation rates were largely comparable to those of the rest of the world, exhibiting a similar trend to global. The higher line in the chart shows that Sudan's inflation rates were significantly higher than the global average. Thus, the analyst's claim regarding the annual inflation rates of both nations relative to the rest of the globe is only partially accurate because only Kenya exhibits a similar pattern to the global inflation rate between 1997 and 2021.

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