Kenya Debt

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A visualization of Kenya debt levels prepared by @mutwiriian

Load required packages for data manipulation and visualization

```
  library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v ggplot2 3.3.2     v purrr   0.3.4
## v tibble  3.0.4     v dplyr   1.0.2
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.0

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

Read in the data

```
debt <- read.csv("E:/Workspace/cbkdebt.csv",sep=",",header = T)
head(debt)
```

```
##   ï..Year    Month Domestic.Debt External.Debt        Total
## 1    2020     June  3,177,525.87  3,515,810.78 6,693,336.65
## 2    2020      May  3,153,143.94  3,496,428.84 6,649,572.77
## 3    2020    April  3,119,415.80  3,317,330.98 6,436,746.77
## 4    2020    March  3,070,189.38  3,212,634.23 6,282,823.61
## 5    2020 February  3,040,964.55  3,117,038.57 6,158,003.12
## 6    2020  January  3,003,700.30  3,112,897.95 6,116,598.25
```

Change the name of first column for ease of use

```
colnames(debt)[1] <- "Year"
```

Remove decimal markers in values

```
for(i in 3:5){
  debt[,i] <- as.numeric(lapply(debt[,i],gsub,pattern=',',replacement=''))
}
```

Tidying the data

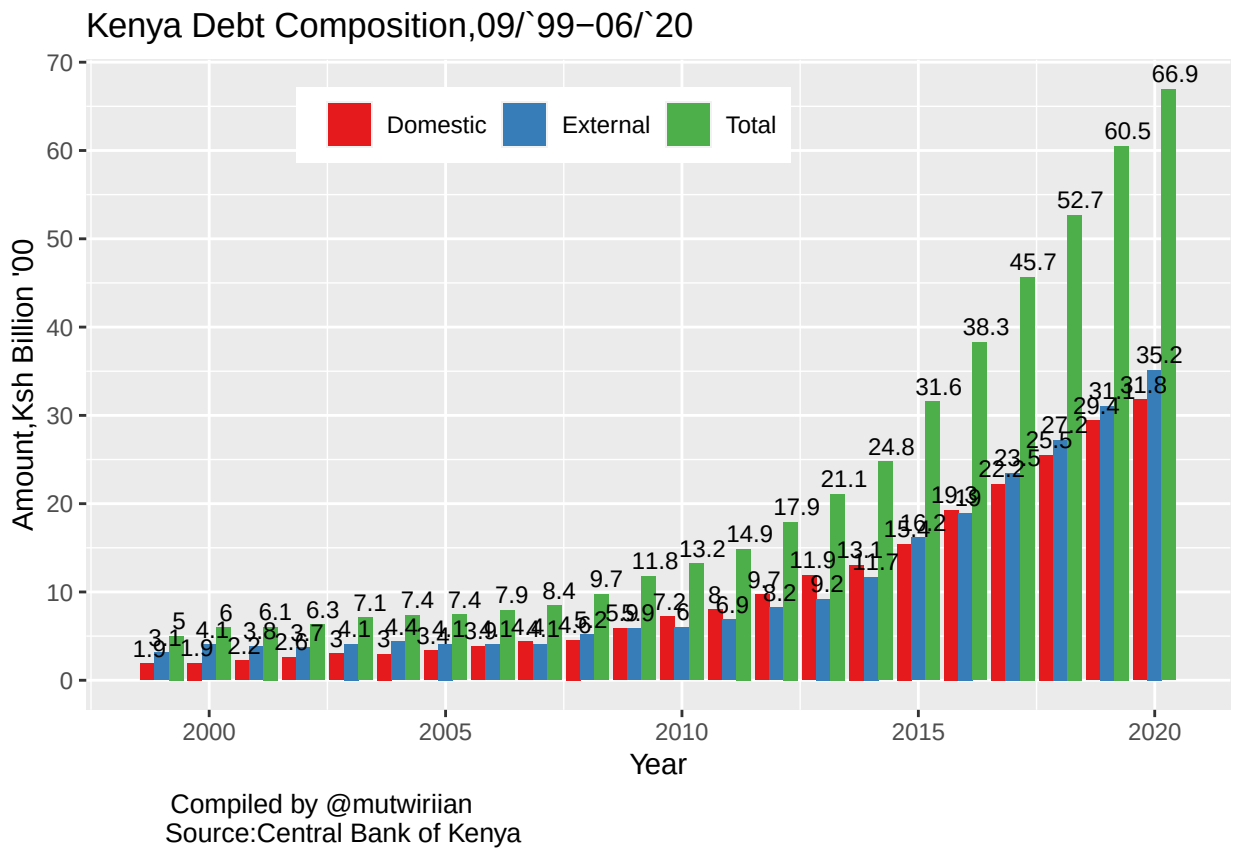
```
clean_debt <- debt%>%
  filter(Month=="December"|Month=="June"&Year=="2020")%>%
  group_by(Year,Month)%>%
  select(-2)%>%
  pivot_longer(.,cols=c(Domestic.Debt,External.Debt,Total),names_to="Type",
               values_to="Amount")
head(clean_debt)
```

```
## # A tibble: 6 x 4
## # Groups:   Year, Month [2]
##   Month     Year Type            Amount
##   <chr>    <int> <chr>            <dbl>
## 1 June      2020 Domestic.Debt 3177526.
## 2 June      2020 External.Debt 3515811.
## 3 June      2020 Total         6693337.
## 4 December  2019 Domestic.Debt 2942104.
## 5 December  2019 External.Debt 3106823.
## 6 December  2019 Total         6048926.
```

Generate bar plots

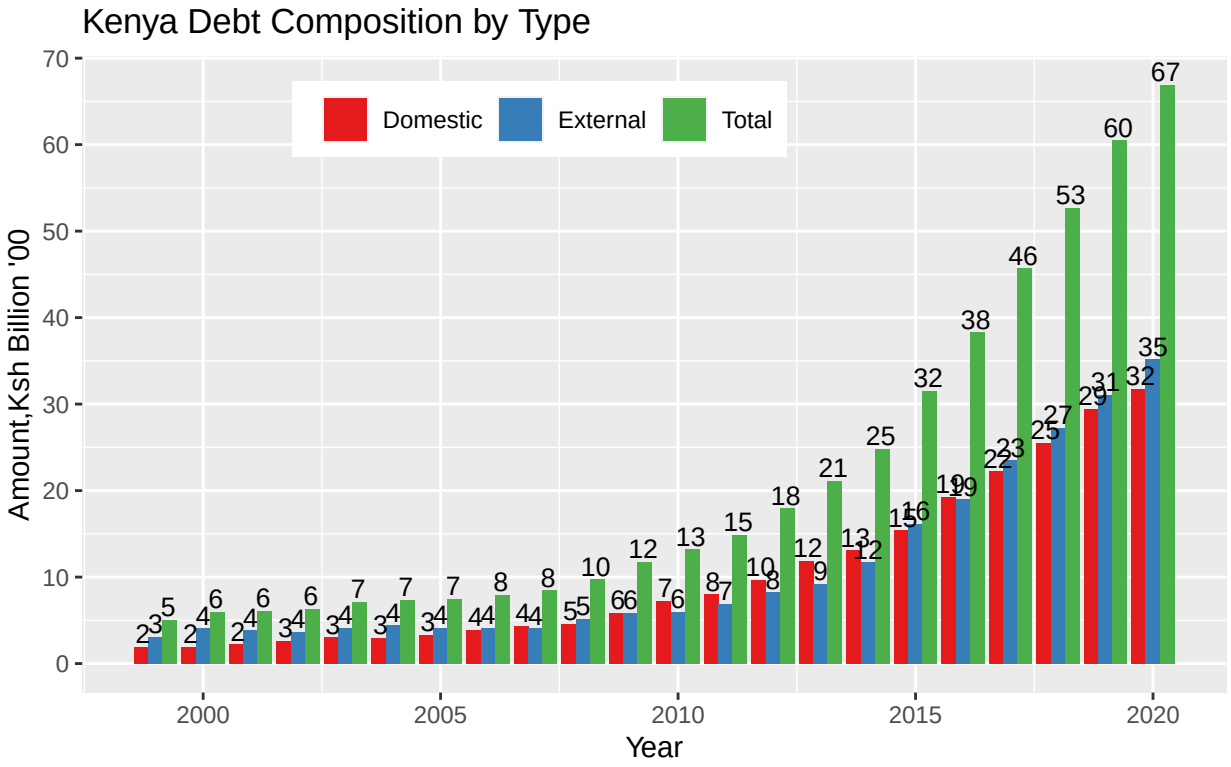
This plot is created using geom_bar()
Plot A

```
ggplot(clean_debt,aes(x=Year,y=Amount,fill=Type))+
  geom_bar(stat="identity",position=position_dodge(width = .9))+
  scale_fill_brewer(type='qual',
                    palette=6,
                    labels=c("Domestic","External","Total"))+
  #use geom-text to indicate values on top of the bars
  geom_text(aes(label=round(Amount/100000,1)),vjust=-.4,hjust=.4,size=3,
            color="black",position = position_dodge(1))+
  scale_y_continuous(labels = paste(seq(0,70,10)),
                     breaks =seq(0,7000000,1000000))+
  labs(title="Kenya Debt Composition,09/'99-06/'20",y="Amount,Ksh Billion '00",
       caption ="Compiled by @mutwiriian\nSource:Central Bank of Kenya")+
  theme(legend.direction = "horizontal",legend.position = c(0.4,.9),
        legend.title =element_blank(),
        plot.caption = element_text(size = 10,
        margin =margin(t=5),hjust = .1))
```



This plot is created using geom_col() Plot B

```
ggplot(clean_debt,aes(Year,Amount,fill=Type))+
  geom_col(position = 'dodge',width = .9)+
  scale_fill_brewer(type = 'qual',palette=6,labels=c('Domestic','External','Total'))+
  labs(title ='Kenya Debt Composition by Type',x='Year',y="Amount,Ksh Billion '00",
       caption = 'Compiled by @mutwiriian\nSource:Central Bank of Kenya')+
  geom_text(aes(label=round(Amount/100000,0)),position = position_dodge(.8),
            vjust=-0.2,hjust=.5,size=3.5)+
  scale_y_continuous(breaks = seq(0,7000000,1000000),
                     labels = paste(seq(0,70,10)))+
  theme(legend.direction = 'horizontal',
        legend.title =element_blank(),legend.position = c(0.4,0.9),
        plot.caption = element_text(size = 10,margin=margin(t=10),hjust=.1))
```



Compiled by @mutwiriian
Source:Central Bank of Kenya