

Kenya Household Assets

Mburu

7/7/20

Kenya selected households assets 2019 census

I figured that it will be important for me to do this to show why it is impossible for online learning to be adopted in Kenya.

I used 2019 census data set which can be found [here](#) and the counties shape file can be found [here](#)

```
#Packages used

library(plotly)
library(tidyverse)
library(data.table)
library(sf)
library(DT)
library(tmap)
library(ggthemes)
library(ggiraph)
```

Read data set

```
household_assets <- fread("percentage-distribution-of-conventional-households-by-ownership")

#
kenya_shapefile <- st_read("County") %>% setDT()
```

```
Reading layer `County' from data source
`/home/mburu/personal_projects/github_io_blog/posts/kenya_population/County'
```

```

using driver `ESRI Shapefile'
Simple feature collection with 47 features and 8 fields
Geometry type: MULTIPOLYGON
Dimension:      XY
Bounding box:   xmin: 33.91182 ymin: -4.702271 xmax: 41.90626 ymax: 5.430648
Geodetic CRS:   WGS 84

```

```

kenya_shapefile[, county := tolower(COUNTY)]

# rename column
setnames(household_assets,
         c("County / Sub-County", "Conventional Households" ),
         c("county", "households"))

```

Some minor cleaning

```

# remove commas
household_assets[, households := as.numeric(gsub(",", |AR K      ", "", households))]

household_assets[, county := tolower(county)]

sub_county <- household_assets %>%
  group_by(county) %>%
  filter(households == max(households)) %>% setDT()

sub_county_melt <- melt(sub_county,
                       id.vars = c("county", "households"))

```

% of households with various assets 2019 census

- This is overall data set for the whole country computer devices is ownership about 8.8% this just means that about 91% of the students can't access online learning. This is is just a naive estimation the number could be higher.

```

kenya_dat <- sub_county_melt[county == "kenya"]

p <- ggplot(kenya_dat, aes(variable, value, tooltip = paste(variable, " : ", value))) +

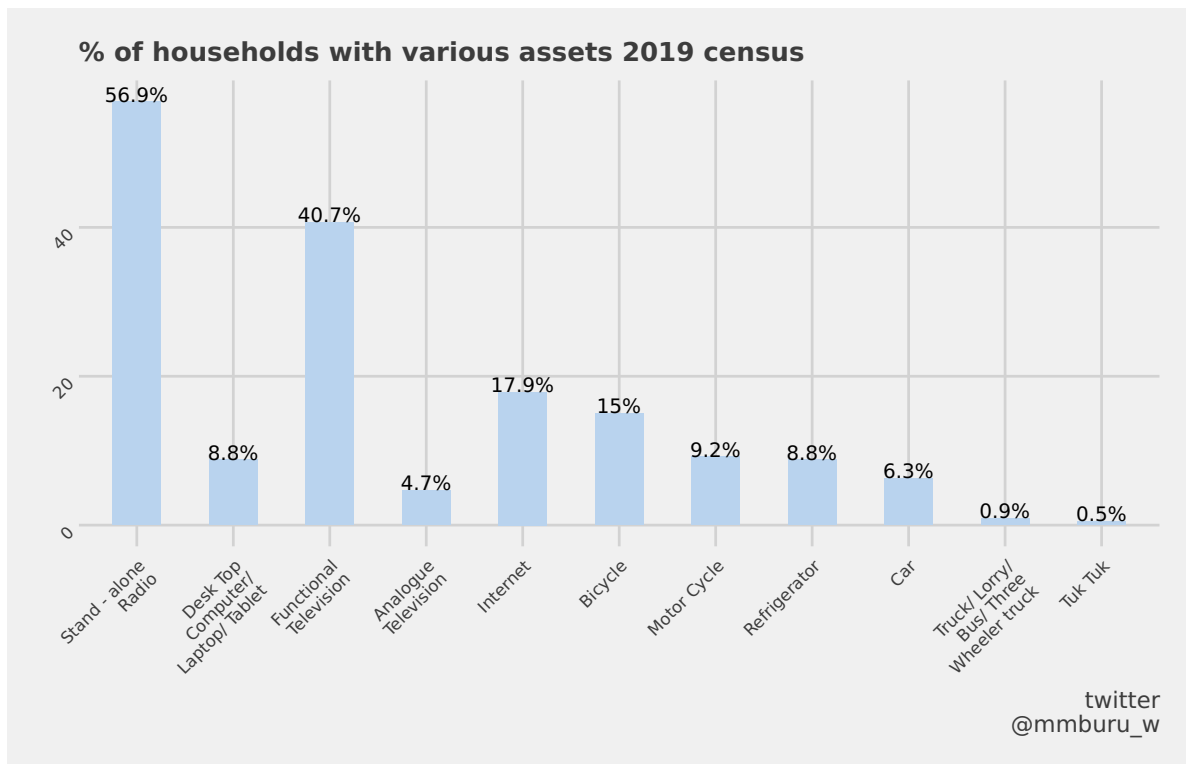
```

```

geom_bar_interactive(stat = "identity", width = 0.5, fill = "slategray2" ) +
geom_text_interactive(aes(variable, value, label = paste0(value, "%")),
  position = position_dodge(width = 0.5),
  vjust = 0.001, size = 3)+
labs(x = "Household assets", y = "%",
  title = "% of households with various assets 2019 census",
  caption = "twitter\n@mmburu_w")+
theme_fivethirtyeight()+
theme(
  axis.text = element_text(size = 7, angle = 45, vjust = 1, hjust = 1),
  plot.title = element_text_interactive(size = 11)
)
p1 <- girafe(ggobj = p, width_svg = 7, height_svg = 4.5,
  options = list(
    opts_sizing(rescale = T) )
)

```

p1



Merge shapefile with asset data sets

```
sub_county_melt[county == "elgeyo/marakwet", county := "keiyo-marakwet"]
sub_county_melt[county == "tharaka-nithi", county := "tharaka"]
sub_county_melt[county == "taita/taveta", county := "taita taveta"]
sub_county_melt[county == "nairobi city", county := "nairobi"]

county_shapes <- merge(kenya_shapefile, sub_county_melt, by = "county")

setnames(county_shapes, "value", "Percentage")
```

Computer devices data

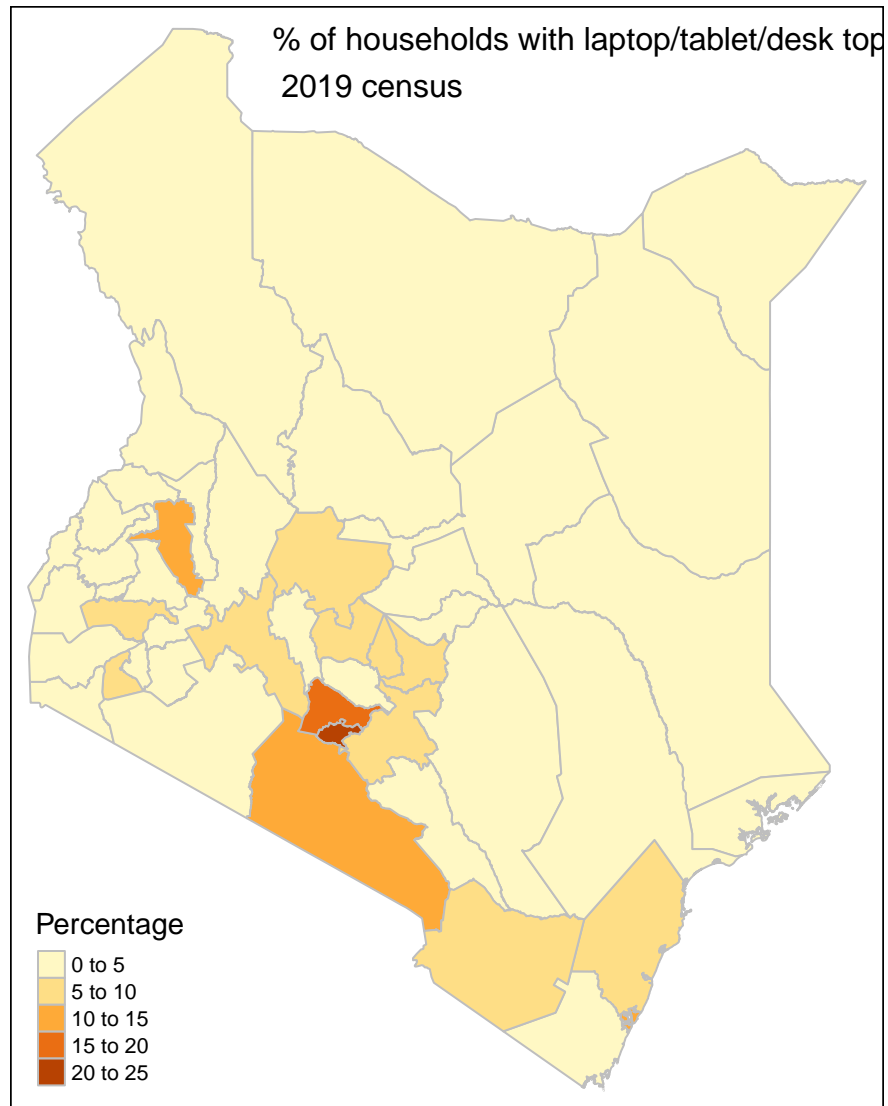
```
computer <- county_shapes[variable %in% c("Desk Top\nComputer/\nLaptop/ Tablet")]

# this converts to sf object
computer <- st_set_geometry(computer, "geometry")
```

Percentage of households with computer devices per county

- That is if a household owns a tablet, laptop or a desktop

```
#ttm()
tm_shape(computer)+
  tm_borders(col = "grey")+
  tm_fill(col = "Percentage")+
  tm_layout(title = "% of households with laptop/tablet/desk top \n 2019 census",
            title.size = 1, title.position = c(0.3, 0.95))
```



```
#ttm()
```

% of households that can access internet

- This looks like is internet access through mobile phones

```

internet <- county_shapes[variable == "Internet"]

internet <- st_set_geometry(internet, "geometry")

#ttm()
tm_shape(internet)+
  tm_borders(col = "grey")+
  tm_fill(col = "Percentage")+
  tm_layout(title = "% of households with internet access",
            title.size = 1, title.position = c(0.3, 0.95))

```

