

# ISQA8086\_A2\_KyleHampton

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## Recreate This Economist Graph Assignment Background

In assignment 2, I was tasked with recreating a graph from ‘The Economist.’ The graph displays country-level corruption and human development as measured by the human development index and the corruption perceptions index. The source of this data is Transparency International, a United Nations (UN) development report.

Included below is the code I used to recreate the Economist graph on my own, mirroring the original graph as much as possible. If I had to use a single word to describe my efforts, that word would be “layers.”

## Assignment Code

```
library(knitr)
opts_chunk$set(tidy.opts = list(width.cutoff = 30),
  tidy = TRUE)
library(readr)
library(ggplot2)

## Warning: package 'ggplot2' was built under R version 3.4.2
library(ggrepel)

## Warning: package 'ggrepel' was built under R version 3.4.2
dat3 <- read_csv("C:/Users/kyleh/Google Drive UNO/UNO/Fall 2017/ISQA 8086/Assignment 2/EconomistDataV3.

## Warning: Missing column names filled in: 'X1' [1]

## Parsed with column specification:
## cols(
##   X1 = col_integer(),
##   Country = col_character(),
##   HDI.Rank = col_integer(),
##   HDI = col_double(),
##   CPI = col_double(),
##   Region = col_character()
## )

View(dat3)
EconomistGraph <- ggplot(dat3,
  aes(x = CPI, y = HDI)) + geom_point(aes(color = Region),
  shape = 21, size = 3, stroke = 2) +
  geom_smooth(color = "red",
    se = FALSE, span = 1, size = 1.25) +
  ggtitle("Corruption and human development") +
  labs(x = expression(paste(italic("Corruption Perceptions Index, 2011 (10=least corrupt)"))),
    y = expression(paste(italic("Human Development Index, 2011 (1=best)")))) +
  theme_minimal() + theme(legend.position = "top",
```

```

axis.text = element_text(size = 6)) +
scale_x_continuous(limits = c(1,
  10), breaks = seq(1, 10,
  1)) + scale_y_continuous(limits = c(0.2,
  1), breaks = seq(0.2, 1, 0.1)) +
labs(captions = "Sources:Transparency International; UN Human Development Report") +
theme(plot.caption = element_text(hjust = -0.15)) +
theme(axis.line.x = element_line(),
  panel.grid.major.y = element_line(color = "Light Gray",
    size = 1), panel.grid.minor.x = element_blank(),
  panel.grid.major.x = element_blank(),
  panel.grid.minor.y = element_blank(),
  axis.text.x = element_text(size = 13,
    margin = margin(10,
      5, 10, 5, "pt")),
  axis.text.y = element_text(size = 13,
    margin = margin(5,
      10, 10, 5, "pt")),
  axis.title = element_text(size = 10),
  axis.ticks.x = element_line(color = "black",
    size = 1, linetype = "dashed"),
  axis.ticks.length = unit(-0.2,
    "cm"), plot.title = element_text(size = 17,
    face = "bold"), legend.justification = c(0.1,
    0), legend.position = c(0,
    0.97), legend.text.align = 10,
  legend.title = element_blank(),
  legend.key.width = unit(0.5,
    "cm"), legend.key.size = unit(0.5,
    "lines"), legend.text = element_text(size = 8)) +
guides(col = guide_legend(nrow = 1)) +
theme(plot.title = element_text(hjust = -0.235,
  vjust = 3.4)) + theme(plot.margin = unit(c(1,
  1, 1, 1), "cm")) + scale_colour_manual(values = c("Blue",
  "Light Blue", "Dark Green",
  "Orange", "Dark Blue", "Dark Red"),
breaks = c("OECD", "Americas",
  "Asia & Oceania", "Central & Eastern Europe",
  "Middle East & north Africa",
  "Sub-Saharan Africa")) +
geom_text_repel(data = subset(dat3,
  X1 == 114), aes(label = Country),
  nudge_x = 10, nudge_y = 0.03,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 140), aes(label = Country),
  nudge_x = 0.5, nudge_y = -0.02,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 118), aes(label = Country),
  nudge_x = 0, nudge_y = 0.03,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,

```

```

    X1 == 80), aes(label = Country),
    nudge_x = 0.3, nudge_y = -0.06,
    size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
    X1 == 60), aes(label = Country),
    nudge_x = 0, nudge_y = 0.065,
    size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
    X1 == 13), aes(label = Country),
    nudge_x = 0.5, nudge_y = -0.02,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
    X1 == 22), aes(label = Country),
    nudge_x = -0.1, nudge_y = -0.025,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
    X1 == 166), aes(label = Country),
    fontface = "bold", nudge_x = 0,
    nudge_y = 0.03, size = 3,
    segment.color = NA) + geom_text_repel(data = subset(dat3,
X1 == 56), aes(label = Country),
nudge_x = -0.5, nudge_y = 0.06,
size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
    X1 == 145), aes(label = Country),
    nudge_x = -0.5, nudge_y = 0.065,
    size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
    X1 == 20), aes(label = Country),
    nudge_x = 0.6, nudge_y = 0.02,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
    X1 == 29), aes(label = Country),
    nudge_x = 0.7, nudge_y = 0.005,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
    X1 == 17), aes(label = Country),
    nudge_x = 0.5, nudge_y = 0,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
    X1 == 131), aes(label = Country),
    nudge_x = 0.5, nudge_y = 0.01,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
    X1 == 144), aes(label = Country),
    nudge_x = 0.5, nudge_y = -0.04,
    size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
    X1 == 33), aes(label = Country),
    nudge_x = 0.7, nudge_y = -0.025,
    size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
    X1 == 78), aes(label = Country),

```

```

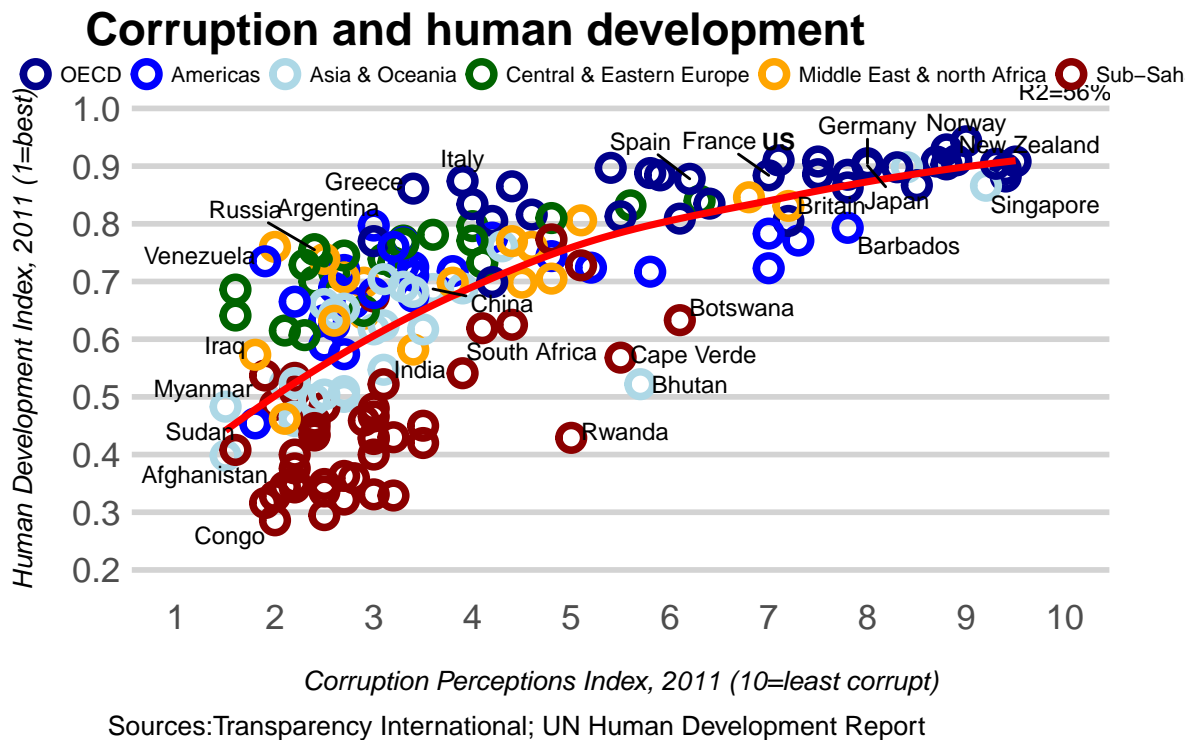
    nudge_x = 0, nudge_y = 0.04,
    size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 62), aes(label = Country),
  nudge_x = -0.45, nudge_y = 0.01,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 5), aes(label = Country),
  nudge_x = -0.45, nudge_y = 0.03,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 72), aes(label = Country),
  nudge_x = 0.35, nudge_y = 0,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 130), aes(label = Country),
  nudge_x = -0.7, nudge_y = 0.07,
  size = 3, segment.color = "Black") +
geom_text_repel(data = subset(dat3,
  X1 == 170), aes(label = Country),
  nudge_x = -0.65, nudge_y = 0.01,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 75), aes(label = Country),
  nudge_x = -0.3, nudge_y = 0.015,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 110), aes(label = Country),
  nudge_x = -0.2, nudge_y = 0.03,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 147), aes(label = Country),
  nudge_x = -0.3, nudge_y = 0.025,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 1), aes(label = Country),
  nudge_x = -0.3, nudge_y = -0.025,
  size = 3, segment.color = NA) +
geom_text_repel(data = subset(dat3,
  X1 == 36), aes(label = Country),
  nudge_x = -0.2, nudge_y = -0.005,
  size = 3, segment.color = NA) +
annotate("text", x = 10, y = 1,
  label = "R2=56%", size = 3,
  vjust = -0.5)

```

## Assignment Visualization

Despite how cluttered the resulting plot looks in the R Markdown document, running the code separately in the R Studio console will result in a strikingly similar looking graph to the original. Unfortunately, I could not quite figure out how to set the formatting to adequately display the detail of the graph in the R Markdown file. I have included a screen shot of my graph in the R Studio console as a reference.

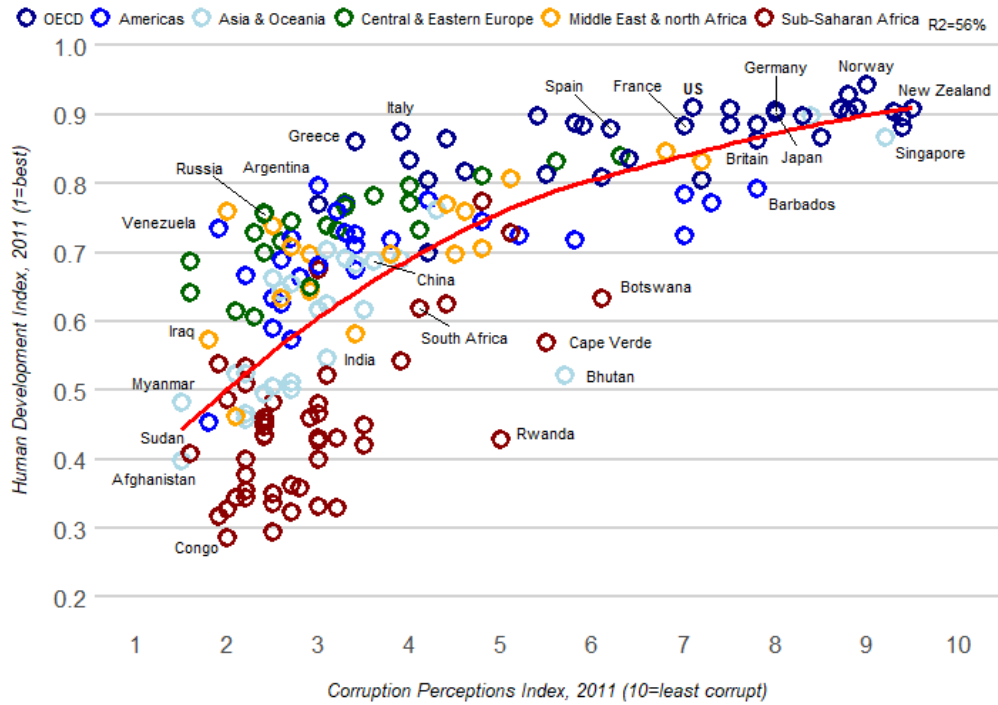
```
## `geom_smooth()` using method = 'loess'
```



## R Studio Graph Screen Shot

```
library(png)
library(grid)
img <- readPNG("C:/Users/kyleh/Google Drive UNO/UNO/Fall 2017/ISQA 8086/Assignment 2/A2_RStudio_Graph.png")
grid.raster(img)
```

## Corruption and human development



Sources: Transparency International; UN Human Development Report