

Lab4

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30 October 2017

The dataset I have chosen is the extreme poverty indicator. This gives us the percentage of a country's population living on less than \$1.25 a day.

```
library(rio)
library(dplyr)

pov_data <- import("Indicator_Poverty headcount ratio at $1.25 a day (PPP) (% of population).xlsx",
                   setclass = "tibble")
colnames(pov_data) <- c("country", 1974:2013)
unique(pov_data$country)
```

Tidy the data.

```
library(tidyr)
tidy_pov <- gather(pov_data, key = 'year', value = 'extreme_pov', -country)
tidy_pov <- tidy_pov %>%
  mutate(country = factor(country), year = as.numeric(year)) %>%
  arrange(country) %>%
  na.omit
```

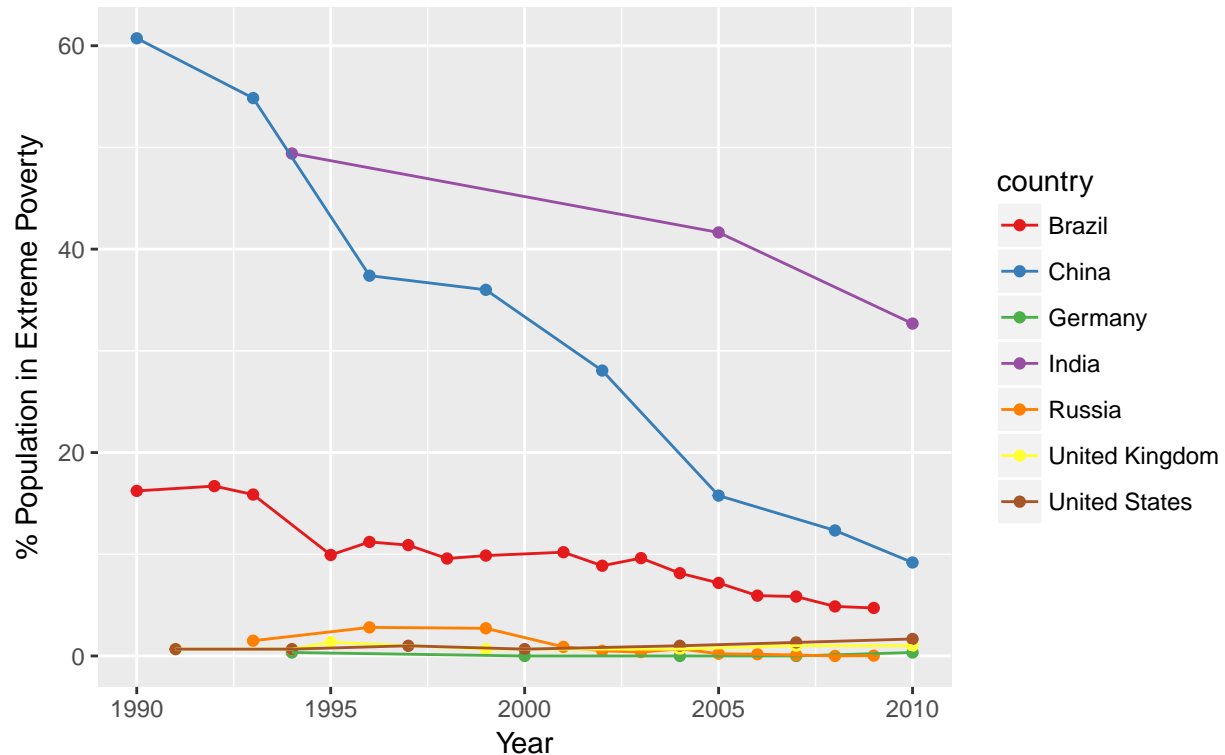
```
library(ggplot2)

sub_data <- filter(tidy_pov, (country %in% c("United States", "China", "Germany",
                                             "United Kingdom", "India", "Brazil",
                                             "Russia")))
  & (year %in% 1990:2010))

ggplot(sub_data, aes(x=year, y=extreme_pov))+
  scale_colour_brewer(palette = "Set1")+
  geom_point()+geom_line()+xlab("Year")+
  ylab("% Population in Extreme Poverty")+
  aes(colour = country) +
  ggtitle("High GDP countries compared with extreme poverty",
          subtitle = "Defined by people living on less than $1.25 per day")
```

High GDP countries compared with extreme poverty

Defined by people living on less than \$1.25 per day



All countries listed are within the top 11 of GDP in the world. Although we do not have a complete dataset for every country, interesting results can still be seen. Although China has the second largest GDP in the world, it still has almost 10% of its population living in extreme poverty, however, the trend has been falling quite rapidly over the past 20 or so years. A similar situation can be seen for India, however the data is much more scarce. India does not appear to be falling as fast as China.

Brazil has had a much slower fall in extreme poverty, however in 1990 it already had a much lower rate, less than 20%, compared to China and India. Perhaps alarmingly, extreme poverty was growing in the US, the UK and slightly in Germany from 2000 to 2010. This was likely caused by the 2007/08 financial crisis, and the large amount of consumer debt. However, this is just speculation.

I'll import the Countries.xlsx file in order to sort the countries from the poverty data into continents in order to better compare the data.

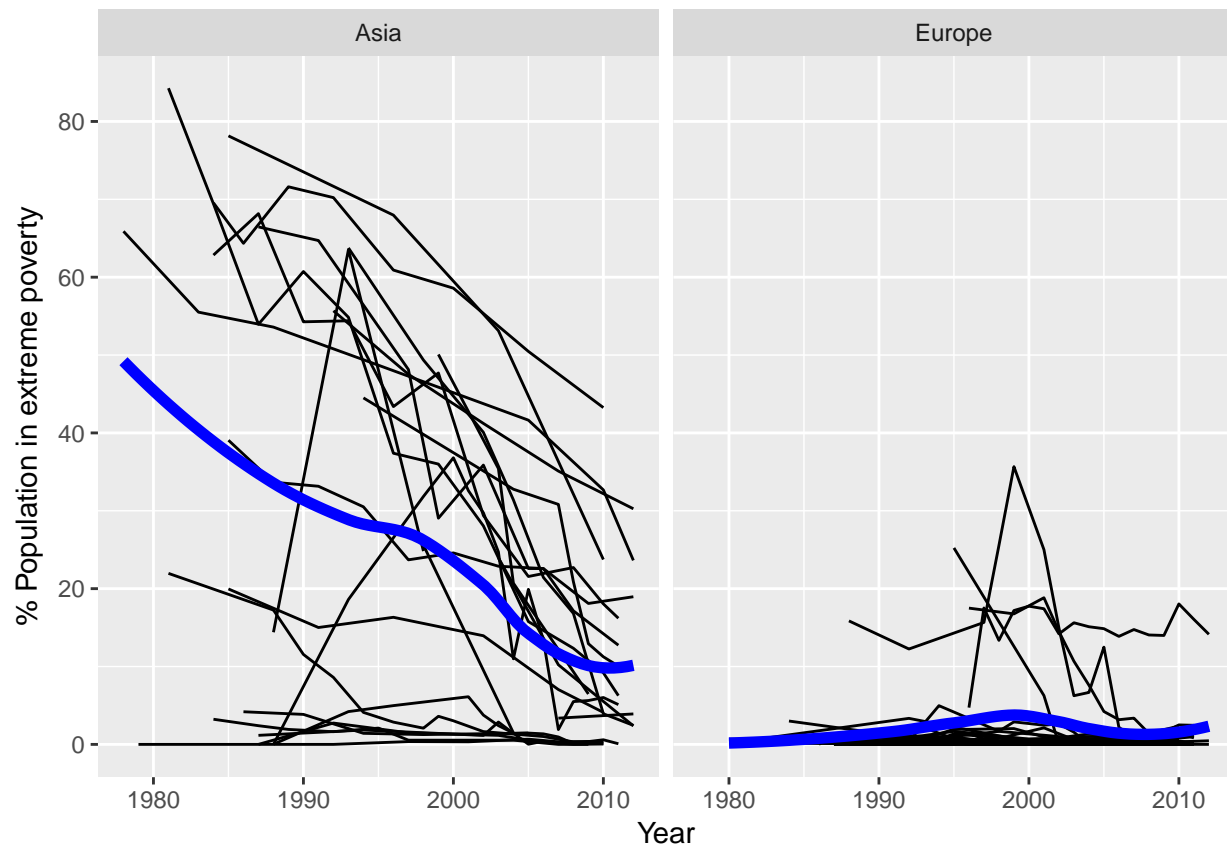
```
Countries <- import("Countries.xlsx", setclass = "tibble")
Countries <- filter(Countries, country %in% tidy_pov$country)
tidy_pov <- left_join(tidy_pov, Countries, by = "country")

## Warning: Column `country` joining factor and character vector, coercing
## into character vector

tidy_pov <- mutate(tidy_pov, country = factor(country), continent = factor(continent))

library(ggplot2)
sub_data2 <- filter(tidy_pov, continent %in% c("Asia", "Europe"))

ggplot(sub_data2, aes(x=year, y=extreme_pov, group = country))+
  geom_line()+xlab("Year")+ylab("% Population in extreme poverty")+
  geom_smooth(se=FALSE, colour = "blue", size = 2, method = "loess", group = 1)+
  facet_wrap(~continent)
```



```
sub_eu <- sub_data2[sub_data2$continent == "Europe",]
which.max(sub_eu$extreme_pov)
sub_eu[sub_eu$extreme_pov==215,]
sub_eu[which.max(sub_eu$extreme_pov),] #Moldova 1999
sub_eu[sub_eu$year==2010,] #Shows us that Georgia is the country with the consistently higher levels of
sub_Asia <- sub_data2[sub_data2$continent == "Asia",]
sub_Asia[sub_Asia$year==2010,] #Bangladesh, second highest is India
```

Although these Spaghetti graphs appear quite ‘wiggly’, they can actually provide quite a bit of information on the situation of poverty in Asia compared to Europe.

Clearly Asia has had consistently higher levels of extreme poverty over the past 30 or so years. This is most easily seen by following the blue line in both graphs.

In fact, the only lines in Europe with particularly high extreme poverty levels are ex-soviet states. For example, the large spike in 1999 is caused by Moldova. From gaining independence in 1991 it was war torn between rival pro-Russian and pro-Europe groups. Similarly, Georgia is the line that is consistently higher than all the others (aside from Moldova). The ex-soviet state has had many issues related to independence from Russia.

Asia has much higher levels of extreme poverty overall. Bangladesh generally has the highest levels. Quite astonishingly, in 2010 India had extreme poverty levels of 32.68%, and China had 9.19%. Both of these countries have become within the top 5 largest economies since 2010, with China and India being 2nd and 9th respectively in 2010.

This perhaps shows that having a large GDP is not indicative of the inequality levels within a country.