

# Subject 2: Purchasing power of English workers from the 16th to the 19th century

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## Preamble

Ceci est un document R markdown que vous pouvez aisément exporter au format HTML, PDF, et MS Word. Pour plus de détails sur R Markdown consultez <http://rmarkdown.rstudio.com>.

Lorsque vous cliquerez sur le bouton **Knit** ce document sera compilé afin de ré-exécuter le code R et d'inclure les résultats dans un document final. Comme nous vous l'avons montré dans la vidéo, on inclue du code R de la façon suivante:

We will need to use the following libraries:

```
# The environment
library(tidyverse)
library(ggplot2)
library(reshape2)
library(Hmisc)
```

## Build the data frame

From the following link we have downloaded the data we are going to work with in the form of a csv file, and make it into data/ folder: <https://raw.githubusercontent.com/vincentarelbundock/Rdatasets/master/csv/HistData/Wheat.csv>

We assign it to a data frame as follows:

```
df <- read.csv("data/Wheat.csv",header=T)
df[c(1,2),]
```

```
##   X Year Wheat Wages
## 1 1 1565    41  5.00
## 2 2 1570    45  5.05
```

## Clean the data frame

We observe that the first column indicates a sort of an identifier for each data sample. This is not an interesting parameter, so we can simply omit it:

```
#only keep columns from 2 to 4 (column 1 is omitted)
df <- df[c(2:4)]
df[c(1,2),]
```

```
##   Year Wheat Wages
## 1 1565    41  5.00
## 2 1570    45  5.05
```

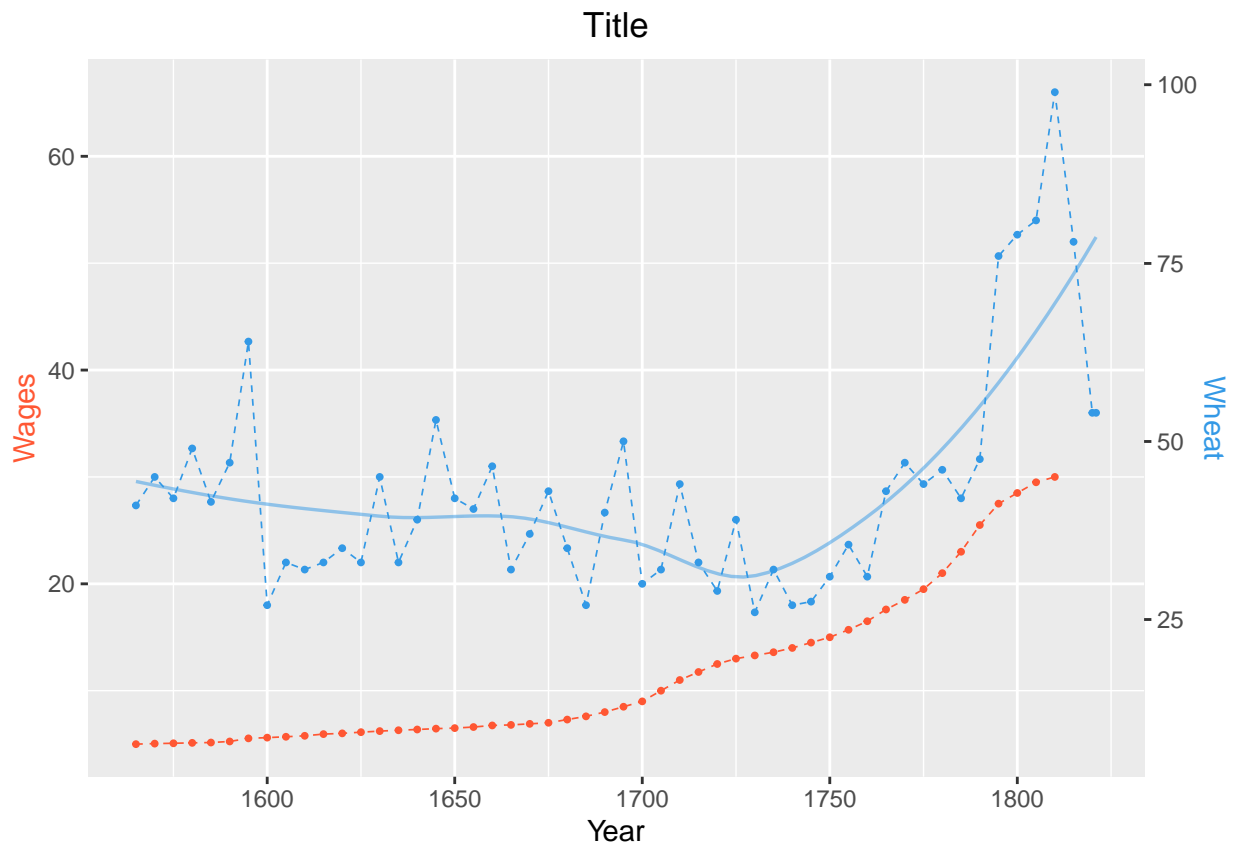
## Plotting

```
# set some parameters
wages_color <- "#ff5733"
wheat_color <- rgb(0.2, 0.6, 0.9, 1)
wheat_color_trans <- rgb(0.2, 0.6, 0.9, 0.5)

# Start with a usual ggplot2 call:
ggplot(df, aes(x=Year)) +
  geom_point( aes(y=Wages), size = 0.7, color = wages_color) +
  geom_point( aes(y=Wheat/1.5), size = 0.7, color = wheat_color) +
  geom_line( aes(y=Wages), size = 0.3, color = wages_color, linetype="dashed") +
  geom_line( aes(y=Wheat/1.5), size = 0.3, color = wheat_color, linetype="dashed") +
  stat_smooth(aes(y=Wheat/1.5), level = 0.00, size=0.6, color=wheat_color_trans) +

# Custom the Y scales:
scale_y_continuous(
  # Features of the first axis
  name = "Wages",

  # Add a second axis and specify its features
  sec.axis = sec_axis( trans=~.*1.5, name="Wheat")
) +
labs(title = "Title") +
theme(plot.title = element_text(hjust = 0.5),
      axis.title.y.left = element_text(colour = wages_color),
      axis.title.y.right = element_text(colour = wheat_color))
```



**Comment:** TBD