

My short analysis

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The results below are generated from an R script.

```
# First we load the packages
library(tidyr)
library(ggplot2)

pers_exp <- USPersonalExpenditure

# Let's look at the data
pers_exp      #it looks like the row names are not actually in the matrix

##           1940    1945   1950  1955   1960
## Food and Tobacco  22.200 44.500 59.60 73.2 86.80
## Household Operation 10.500 15.500 29.00 36.5 46.20
## Medical and Health   3.530  5.760  9.71 14.0 21.10
## Personal Care        1.040  1.980  2.45  3.4  5.40
## Private Education    0.341  0.974  1.80  2.6  3.64

      #let's fix that

expenditure_type <- rownames(pers_exp)
expenditure_type <- gsub( ' ' , '_' , expenditure_type)
rownames(pers_exp) <- NULL
pers_exp <- as.data.frame(pers_exp)
pers_exp <- cbind(expenditure_type,pers_exp)

# Let's look at the data now
pers_exp      #better, but it doesn't look tidy to me

##      expenditure_type   1940    1945   1950  1955   1960
## 1   Food_and_Tobacco  22.200 44.500 59.60 73.2 86.80
## 2 Household_Operation 10.500 15.500 29.00 36.5 46.20
## 3 Medical_and_Health   3.530  5.760  9.71 14.0 21.10
## 4      Personal_Care   1.040  1.980  2.45  3.4  5.40
## 5 Private_Education    0.341  0.974  1.80  2.6  3.64

      #let's fix that

pers_exp <- gather( pers_exp , `1940` , `1945` , `1950` , `1955` , `1960` ,
                    key = year, value = expenditure)
pers_exp <- spread( pers_exp , key = expenditure_type , value = expenditure)
```

*This report is automatically generated with the R package **knitr** (version 1.15.1).

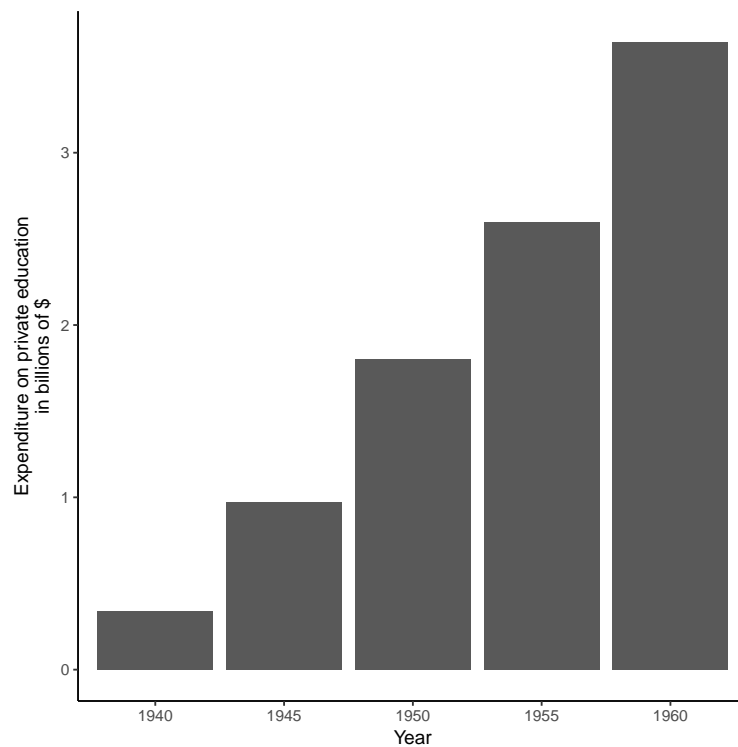
```

# Let's look at the data now
pers_exp      #better

##   year Food_and_Tobacco Household_Operation Medical_and_Health Personal_Care
## 1 1940             22.2             10.5             3.53             1.04
## 2 1945             44.5             15.5             5.76             1.98
## 3 1950             59.6             29.0             9.71             2.45
## 4 1955             73.2             36.5            14.00             3.40
## 5 1960             86.8             46.2            21.10             5.40
##   Private_Education
## 1             0.341
## 2             0.974
## 3             1.800
## 4             2.600
## 5             3.640

# Plot private education over time
ggplot( pers_exp , aes( year , Private_Education))+
  geom_bar(stat='identity')+
  labs( x = 'Year' , y = 'Expenditure on private education\nin billions of $') +
  theme_classic()

```



The R session information (including the OS info, R version and all packages used):

```

sessionInfo()

## R version 3.3.2 (2016-10-31)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 16.04.2 LTS
##

```

```
## locale:
## [1] LC_CTYPE=en_GB.UTF-8      LC_NUMERIC=C              LC_TIME=en_GB.UTF-8
## [4] LC_COLLATE=en_GB.UTF-8    LC_MONETARY=en_GB.UTF-8  LC_MESSAGES=en_GB.UTF-8
## [7] LC_PAPER=en_GB.UTF-8      LC_NAME=C                 LC_ADDRESS=C
## [10] LC_TELEPHONE=C            LC_MEASUREMENT=en_GB.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods    base
##
## other attached packages:
## [1] Hmisc_4.0-1      Formula_1.2-1  survival_2.40-1 lattice_0.20-34 gdtools_0.1.4
## [6] psych_1.6.12     tidyr_0.6.1    knitr_1.15.1   plotly_4.5.6    ggplot2_2.2.1
##
## loaded via a namespace (and not attached):
## [1] Rcpp_0.12.10      RColorBrewer_1.1-2  plyr_1.8.4       highr_0.6
## [5] base64enc_0.1-3   tools_3.3.2         rpart_4.1-10     base64_2.0
## [9] digest_0.6.12     htmlTable_1.7       jsonlite_1.1     evaluate_0.10
## [13] tibble_1.2        gtable_0.2.0        viridisLite_0.1.3 Matrix_1.2-7.1
## [17] DBI_0.6           yaml_2.1.14         parallel_3.3.2   gridExtra_2.2.1
## [21] cluster_2.0.5     dplyr_0.5.0         httr_1.2.1       stringr_1.2.0
## [25] htmlwidgets_0.8   nnet_7.3-12         grid_3.3.2       data.table_1.10.0
## [29] svglite_1.2.0     R6_2.2.0            tcltk_3.3.2     foreign_0.8-67
## [33] latticeExtra_0.6-28 reshape2_1.4.2      purrr_0.2.2      magrittr_1.5
## [37] scales_0.4.1      htmltools_0.3.5     splines_3.3.2    assertthat_0.1
## [41] mnormt_1.5-5      colorspace_1.3-2    labeling_0.3     stringi_1.1.2
## [45] acepack_1.4.1     openssl_0.9.5       lazyeval_0.2.0   munsell_0.4.3

Sys.time()

## [1] "2017-03-24 00:03:03 GMT"
```