Linear model

2024-03-11

```
source(file = "~/work/Stat_app/DATA/exporting_data_from_link.R")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```
#Packages :
install.packages("dplyr")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```
install.packages("ggplot2")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```
install.packages("labelled")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```
library("dplyr")
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library("ggplot2")
library("labelled")

# Add this package for %>%
library("magrittr")
```

Source: https://search.r-project.org/CRAN/refmans/miceadds/html/lm.cluster.html

```
### Failed attempts
# install.packages("miceadds")
# install.packages("clusterSEs")
# model <- miceadds::lm.cluster(formula = hwactual ~ sex, cluster= eulfs_small$country, data = eulfs_sm
## Problem: we do not have the correct intercept (44.69 instead of 37.81)
```

```r
# get_p_value()
# model2 <- lm(formula = hwactual ~ sex, data = eulfs_small)
## One problem to solve: not as much information with cluster as with a simple linear regression.

# glm(formula = hwactual ~ sex, cluster= eulfs_small$country, data = eulfs_small)


# clusterSEs::cluster.bs.glm(
#      model,
#      eulfs_small,
#      eulfs_small$country)
```

```r
install.packages("sandwich")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```r
install.packages("lmtest")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```r
install.packages("stargazer")
```

```
## Installing package into '/usr/local/lib/R/site-library'
## (as 'lib' is unspecified)
```

```r
reg <- lm(formula = hwactual ~ sex, data = eulfs_small)
v_country = sandwich::vcovCL(reg, cluster = ~country)
reg_year = lmtest::coeftest(reg, v_country)
```

```r
stargazer::stargazer(reg, title = "Actual working hours regressed on sex, standard errors account for cl
```

```
##
## % Table created by stargazer v.5.2.3 by Marek Hlavac, Social Policy Institute. E-mail: marek.hlavac a
## % Date and time: Sat, Mar 30, 2024 - 05:24:39 PM
## \begin{table}[!htbp] \centering
##   \caption{Actual working hours regressed on sex, standard errors account for clustering by countries
##   \label{}
## \begin{tabular}{@{\extracolsep{5pt}}lc}
## \\[-1.8ex]\hline
## \hline \\[-1.8ex]
##  & \multicolumn{1}{c}{\textit{Dependent variable:}} \\
## \cline{2-2}
## \\[-1.8ex] & hwactual \\
## \\[-1.8ex] & \textit{OLS} \\
##  & Number of hours actually worked in main job \\
## \hline \\[-1.8ex]
##  Sex (1 for male and 2 for female) & $-$6.884$^{***}$ \\
##   & (0.094) \\
##   & \\
##  Constant & 44.693$^{***}$ \\
##   & (0.145) \\
##   & \\
## \hline \\[-1.8ex]
## Observations & 109,479 \\
```

```
## \hline
## \hline \\[-1.8ex]
## \textit{Note:}  & \multicolumn{1}{r}{$^{*}$p$<$0.1; $^{**}$p$<$0.05; $^{***}$p$<$0.01} \\
## \end{tabular}
## \end{table}
```

% Table created by stargazer v.5.2.3 by Marek Hlavac, Social Policy Institute. E-mail: marek.hlavac at gmail.com % Date and time: Sun, Mar 24, 2024 - 05:22:43 PM

Table 1: Actual working hours regressed on sex, standard errors account for clustering by countries

	Dependent variable:
	hwactual
	OLS
	Number of hours actually worked in main job
Sex (1 for male and 2 for female)	-6.884^{***}
	(0.094)
Constant	44.693^{***}
	(0.145)
Observations	109,479
Note:	*p<0.1; **p<0.05; ***p<0.01