R Notebook

Et positivt eksogent sjokk i basis-sysselsetting

```
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(data.table)
```

```
##
## Attaching package: 'data.table'

## The following objects are masked from 'package:dplyr':
##
##     between, first, last
```

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.3     v stringr 1.4.0
## v tidyr   1.1.3     v forcats 0.5.1
## v readr   2.0.1

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x data.table::between() masks dplyr::between()
## x dplyr::filter()       masks stats::filter()
## x data.table::first()   masks dplyr::first()
## x dplyr::lag()          masks stats::lag()
## x data.table::last()    masks dplyr::last()
## x purrr::transpose()    masks data.table::transpose()
```

```
Haug_arbeid_punkt2 <- read.csv("Haug_arbeid_punkt2.csv")
```

```
Sunn_arbeid_punkt2 <- read.csv("sunn_arbeid_punkt2.csv")
```

```
Haug_arbeid_punkt4 <- cbind(Haug_arbeid_punkt2, Etne = Sunn_arbeid_punkt2$Etne)
```

```
Haug_arbeid_punkt_ny <- Haug_arbeid_punkt4 %>%
  mutate(Haugesund1=replace_na(Haugesund, as.numeric(0)),
         Sauda1=replace_na(Sauda, as.numeric(0)),
         Bokn1=replace_na(Bokn, as.numeric(0)),
         Tysvaer1=replace_na(Tysvaer, as.numeric(0)),
         Karmoey1=replace_na(Karmoey, as.numeric(0)),
         Utsira1=replace_na(Utsira, as.numeric(0)),
         Vindafjord1=replace_na(Vindafjord, as.numeric(0)),
         Etne1=replace_na(Etne, as.numeric(0)))
```

```
Haug_arbeid_punkt_ny = mutate(Haug_arbeid_punkt_ny, tot_H1 = Haugesund1+Sauda1+Bokn1+Tysvaer1+Karmoey1+U
```

```
punkt6<- Haug_arbeid_punkt_ny%>%
  select(Naering, Aar, Haugesund1, Vindafjord1, Etne1,tot_H1)
```

```
punkt6 <- filter(punkt6, Aar %in% "2020")
```

Haugesund kommune, 2020

```
Haugesund_2020 <- select(punkt6, Naering, Aar, Haugesund1, tot_H1)
```

```
Haugesund_2020<- mutate(Haugesund_2020, Lq_Haugesund_2020 = ((Haugesund1/20852)/(tot_H1/50584)))
```

```
Haugesund_2020 <- mutate(Haugesund_2020 , Lokalnaering = case_when(Lq_Haugesund_2020 > 1 ~ "1"),
                         Basisnaering = case_when(Lq_Haugesund_2020 < 1 ~ "1"))
```

- E_t total sysselsetting: 50584
- E_s sysselsetting i basisnæringer:

```
694+425+2879+751+604+166+1098+1157+1720+5713+713
```

```
## [1] 15920
```

E_b sysselsetting i lokalnæringer:

```
50584-15920
```

```
## [1] 34664
```

Basemultiplikator Haugesund kommune, 2020

$$E_t = E_b + E_s \rightarrow 50584 = 34664 + 15920$$

$$E_s = aE_t \rightarrow 15920 = a \cdot 50584 \rightarrow 15920/50584 = a$$

```
15920/50584
```

```
## [1] 0.314724
```

$$a = 0.314724$$

$$E_t(1-a) = \bar{E}_b \rightarrow 50584(1-0.314724) = \bar{E}_b$$

```
50584*(1-0.314724)
```

```
## [1] 34664
```

$$\bar{E}_b = 34664$$

$$\frac{1}{1-a} = basemultiplikatoren \rightarrow \frac{1}{1-0.314724} = basemultiplikator$$

```
1/(1-0.314724)
```

```
## [1] 1.459266
```

$$basemultiplikator = 1.459266$$

Vindafjord kommune, 2020

```
Vindafjord_2020 <- select(punkt6, Naering, Aar, Vindafjord1, tot_H1)
```

```
Vindafjord_2020 <- mutate(Vindafjord_2020, Lq_Vindafjord_2020 = ((Vindafjord1/4898)/(tot_H1/50584)))
```

```
Vindafjord_2020 <- mutate(Vindafjord_2020 , Lokalnaering = case_when(Lq_Vindafjord_2020 > 1 ~ "1"),
                          Basisnaering = case_when(Lq_Vindafjord_2020 < 1 ~ "1"))
```

- E_t total sysselsetting: 50584
- E_s sysselsetting i basisnæringer:

```
578+887+101+638+149+216+31
```

```
## [1] 2600
```

E_b sysselsetting i lokalnæringer:

```
50584-2600
```

```
## [1] 47984
```

Basemultiplikator Vindafjord kommune, 2020

$$E_t = E_b + E_s \rightarrow 50584 = 47984 + 2600$$

$$E_s = aE_t \rightarrow 2600 = a \cdot 50584 \rightarrow 2600/50584 = a$$

```
2600/50584
```

```
## [1] 0.05139965
```

$$a = 0.05139965$$

$$E_t(1-a) = \bar{E}_b \rightarrow 50584(1-0.05139965) = \bar{E}_b$$

```
50584*(1-0.05139965)
```

```
## [1] 47984
```

$$\bar{E}_b = 47984$$

$$\frac{1}{1-a} = basemultiplikatoren \rightarrow \frac{1}{1-0.05139965} = basemultiplikator$$

```
1/(1-0.05139965)
```

```
## [1] 1.054185
```

$$basemultiplikator = 1.054185$$

Etne kommune, 2020

```
Etne_2020 <- select(punkt6, Naering, Aar, Etne1, tot_H1)
```

```
Etne_2020<- mutate(Etne_2020, Lq_Etne_2020 = ((Etne1/1613)/(tot_H1/50584)))
```

```
Etne_2020 <- mutate(Etne_2020 , Lokalnaering = case_when(Lq_Etne_2020 > 1 ~ "1"),
                            Basisnaering = case_when(Lq_Etne_2020 < 1 ~ "1"))
```

- E_t total sysselsetting: 50584
- E_s sysselsetting i basisnæringer:

```
172+242+51+68
```

```
## [1] 533
```

E_b sysselsetting i lokalnæringer:

```
50584-533
```

```
## [1] 50051
```

Basemultiplikator Etne kommune 2020

$$E_t = E_b + E_s \rightarrow 50584 = 50051 + 533$$

$$E_s = aE_t \rightarrow 533 = a \cdot 50584 \rightarrow 533/50584 = a$$

```
533/50584
```

```
## [1] 0.01053693
```

$$a = 0.01053693$$

$$E_t(1-a) = \bar{E}_b \rightarrow 21322(1-0.01053693) = \bar{E}_b$$

```
50584*(1-0.01053693)
```

```
## [1] 50051
```

$$\bar{E}_b = 50051$$

$$\frac{1}{1-a} = basemultiplikatoren \rightarrow \frac{1}{1-0.01053693} = basemultiplikator$$

```
1/(1-0.01053693)
```

```
## [1] 1.010649
```

$$basemultiplikator = 1.010649$$

Et positivt eksogent sjokk i basis-sysselsetting; Haugesund, Ølensvåg og Skånevik

Haugesund:

$$basemultiplikator \cdot 500 = 1.459266 \cdot 500$$

```
1.459266*500
```

```
## [1] 729.633
```

Ølensvåg:

$$basemultiplikator \cdot 500 = 1.054185 \cdot 500$$

```
1.054185*500
```

```
## [1] 527.0925
```

$$basemultiplikator \cdot 500 = 1.010649 \cdot 500$$

```
1.010649*500
```

```
## [1] 505.3245
```

Forklare

Haugesund: 729.633 Ølensvåg:527.0925 Skånevik:505.3245

Sammenligne med pendlerinnstrømmingen

Konklusjon