Macro B - PS 3

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Getting things ready

Load Packages

```
if (!require("pacman")) install.packages("pacman")
pacman::p_load(
  tidyverse,
  readxl,
  DataExplorer,
  lpirfs,
  tinytex
)
```

Load Data

```
data_raw <- read_xlsx("PS3_Data.xlsx") %>%
  drop_na
```

Split the Data

Splitting the data into different data sets:

Endogenous Data

```
data_endog <- data_raw %>% select(
  ln_f,
  u,
  n,
  ln_LF,
  ln_CPI,
  ln_RW
)
```

The Instrument

```
data_iv <- data_raw %>% select(
  eMP
)
```

Shock Data

```
data_shock <- data_raw %>% select(
  FFR
)
```

Controls / Exogenous Data

```
exog_data <- data_raw %>% select(
  ln_f,
  ln_CPI,
  R1,
  MN2,
  ln_markup,
  SW1,
  SW2,
  SW3,
  SW4
)
```

Contemporary Data

```
contemp_data <- data_raw %>% select(
  t,
  t2,
  t3,
  t4
)
```

Impulse Response Function

Computing a 95% confidence interval:

```
irf_95 <- lp_lin_iv(
  endog_data = data_endog,
  shock = data_shock,
  use_twosls = TRUE,
  instrum = data_iv,
  lags_endog_lin = 0,
  exog_data = exog_data,
  lags_exog = 2,
  contemp_data = contemp_data,
  lags_criterion = NaN,
  max_lags = NaN,
  trend = 0,
  confint =1.645,
  use_nw = TRUE,
  nw_lag = NULL,
  nw_prewhite = FALSE,
  adjust_se = FALSE,
  hor = 12
)
```

Computing a 68% confidence interval:

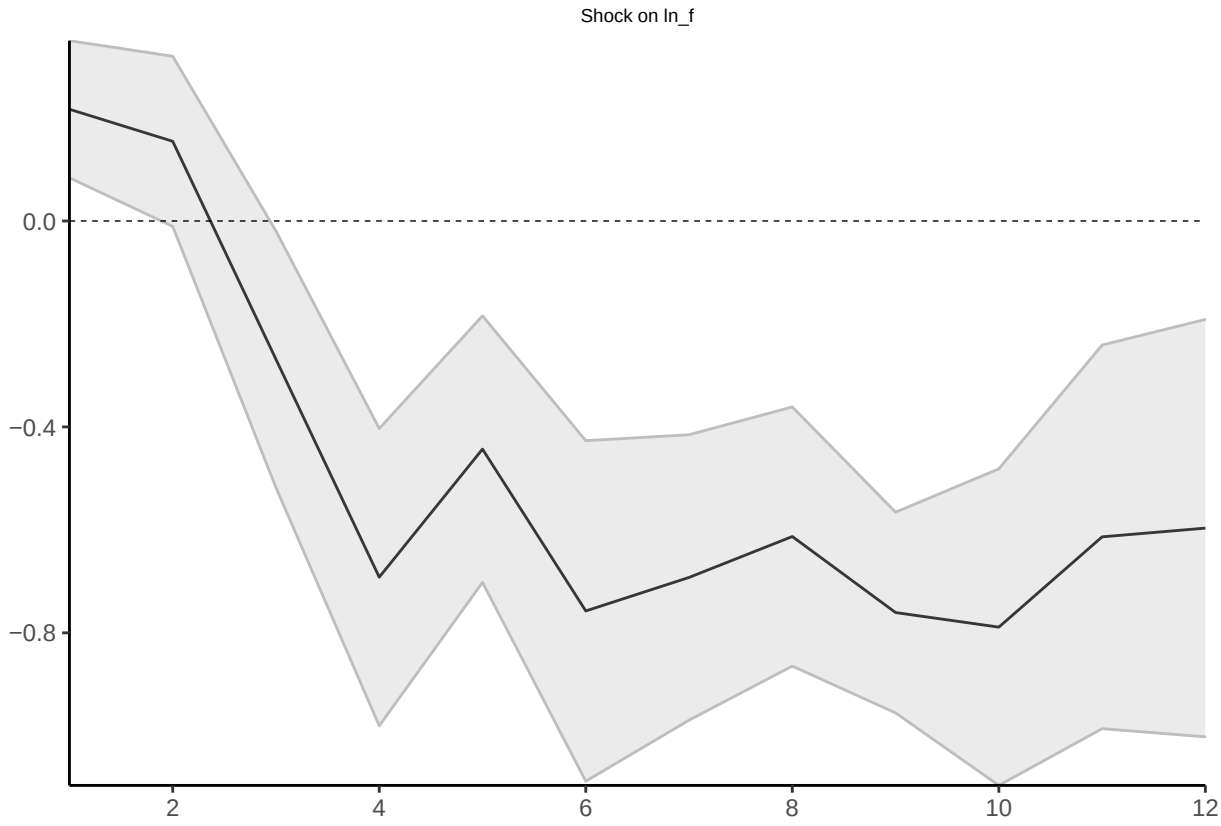
```
irf_68 <- lp_lin_iv(
  endog_data = data_endog,
  shock = data_shock,
  use_twosls = TRUE,
  instrum = data_iv,
  lags_endog_lin = 0,
  exog_data = exog_data,
  lags_exog = 2,
  contemp_data = contemp_data,
  lags_criterion = NaN,
  max_lags = NaN,
  trend = 0,
  confint =c(1,1.645),
  use_nw = TRUE,
  nw_lag = NULL,
  nw_prewhite = FALSE,
  adjust_se = FALSE,
  hor = 12
)
```

Plotting

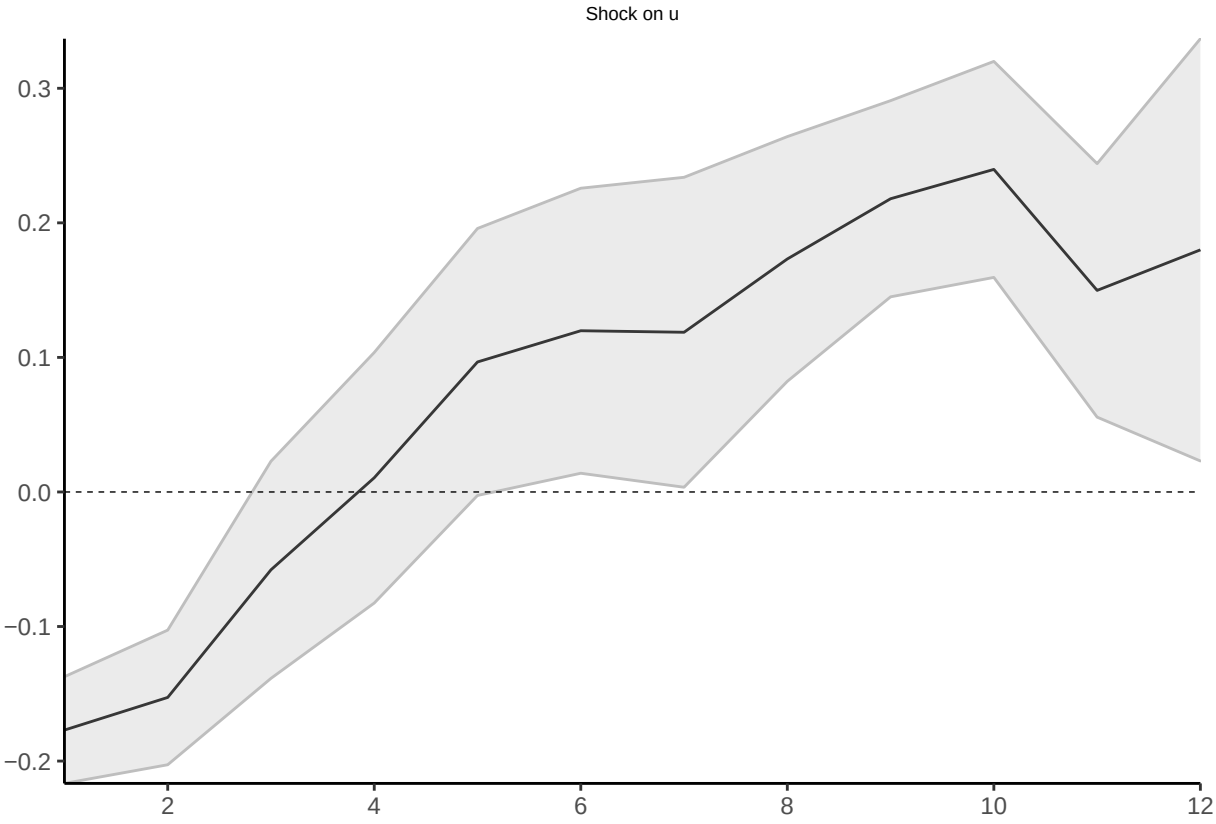
95% confident interval

```
plot_lin(irf_95)
```

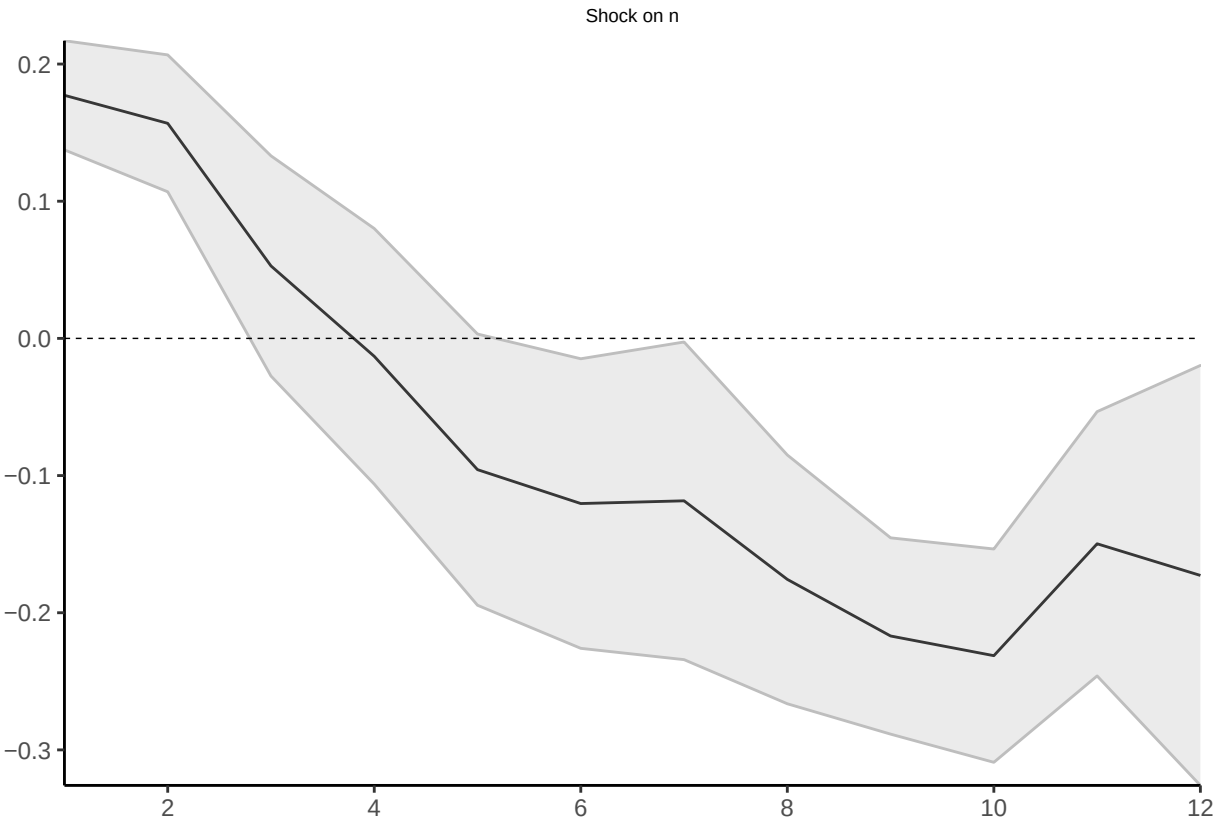
```
## [[1]]
```



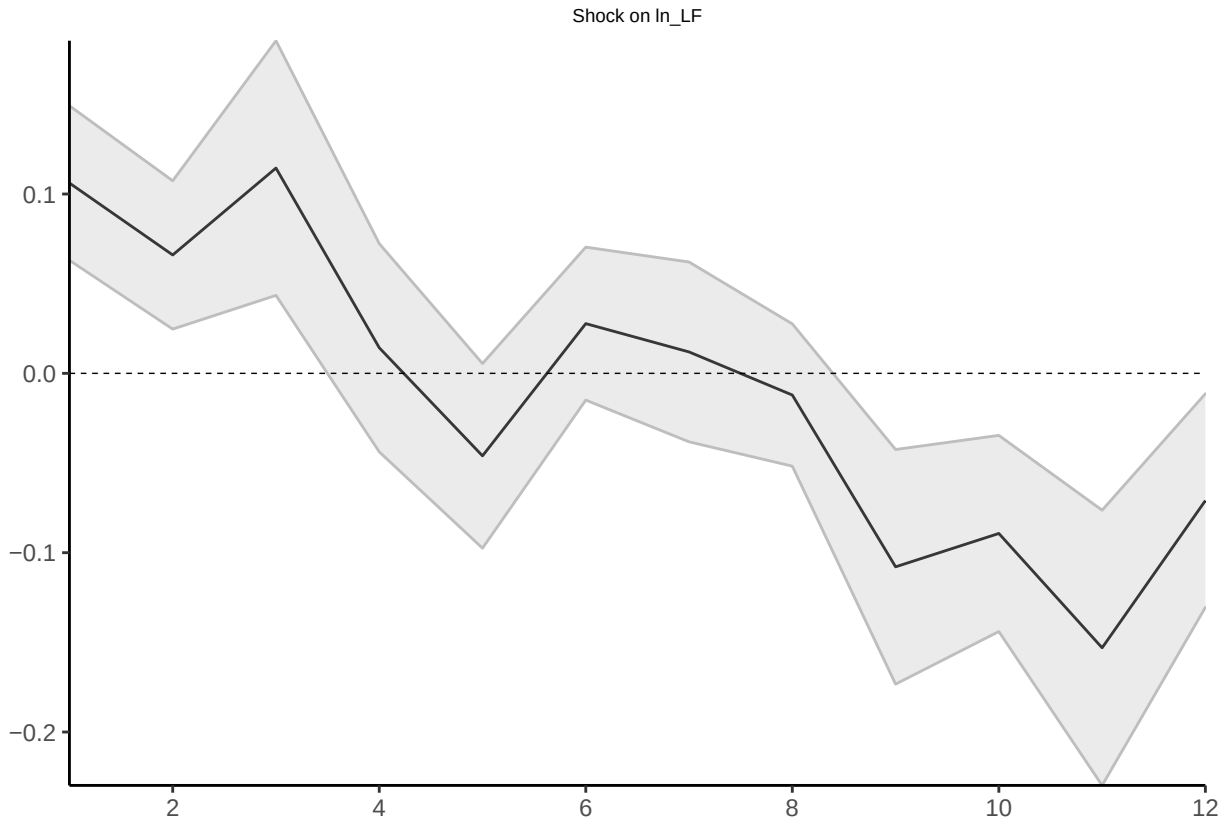

```
##
## [[2]]
```



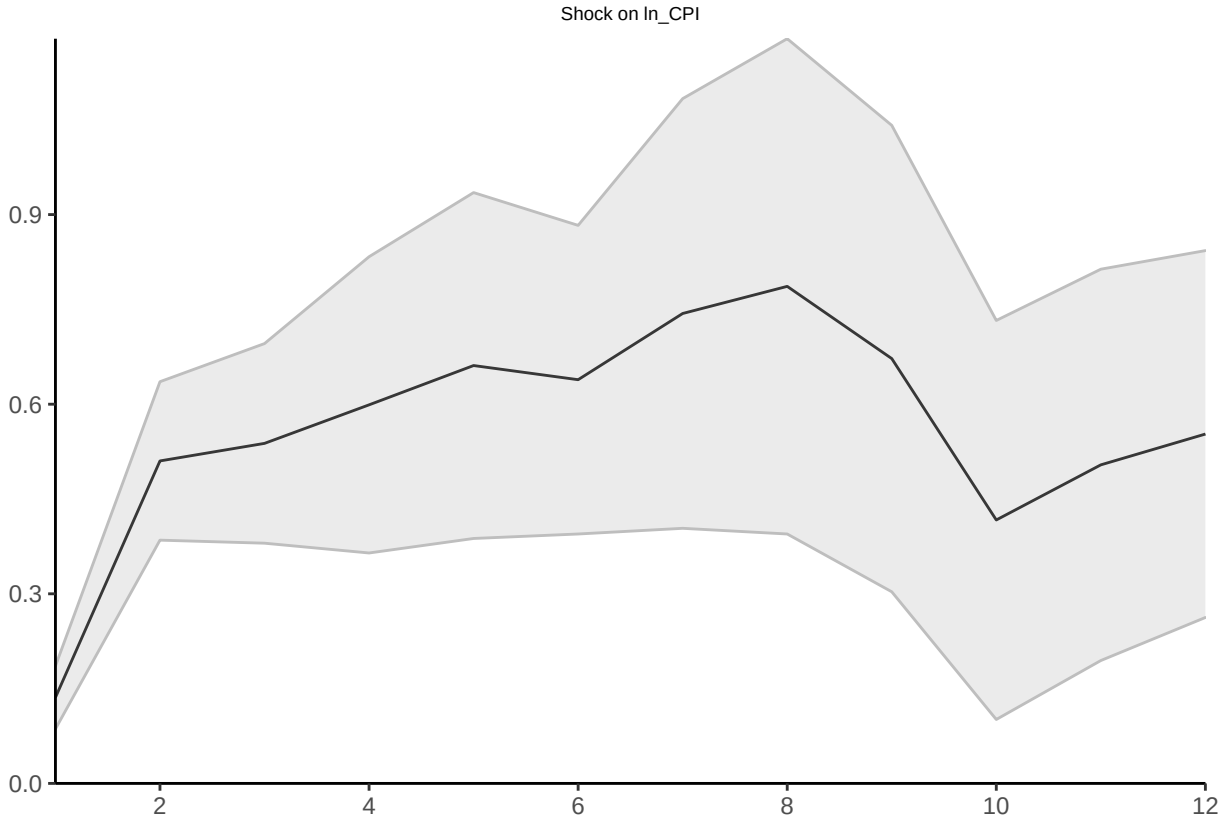

```
##
## [[3]]
```



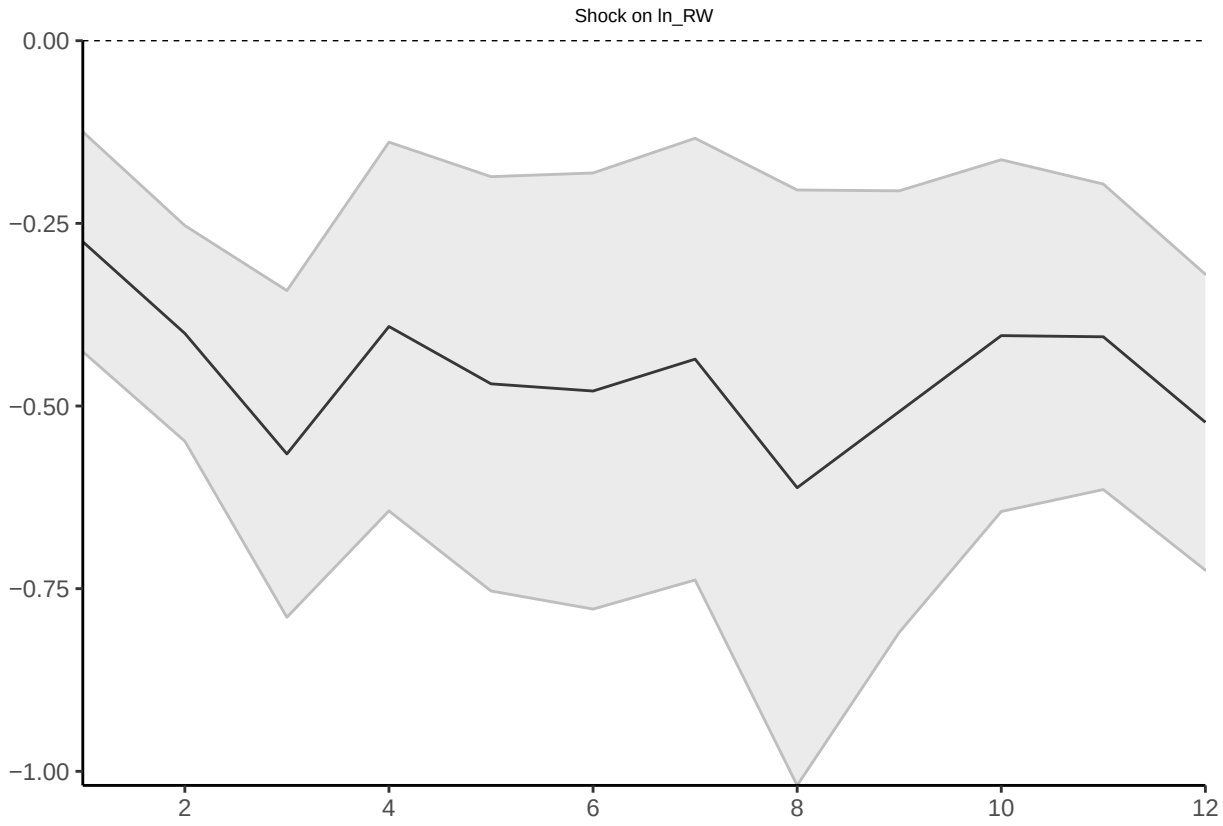

```
##
## [[4]]
```




```
##
## [[5]]
```

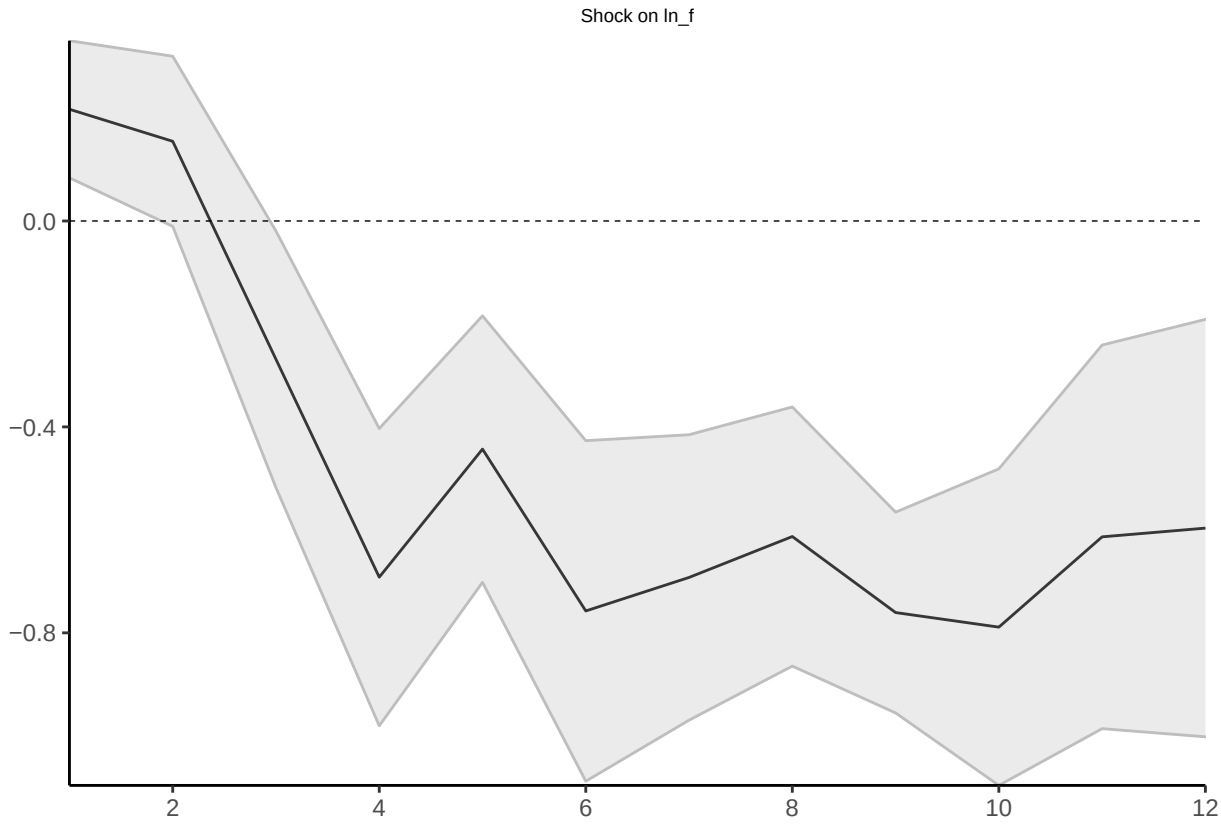



```
##
## [[6]]
```

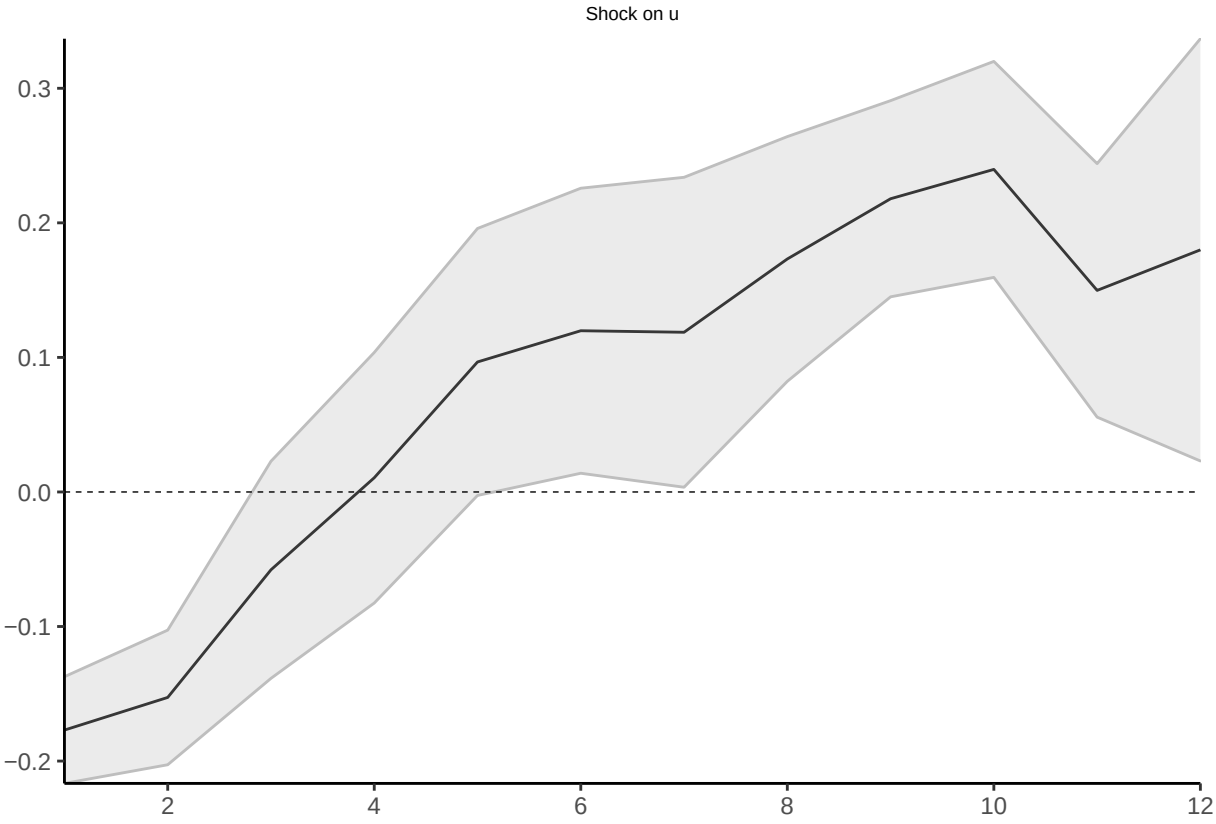



```
plot_lin(irf_68)
```

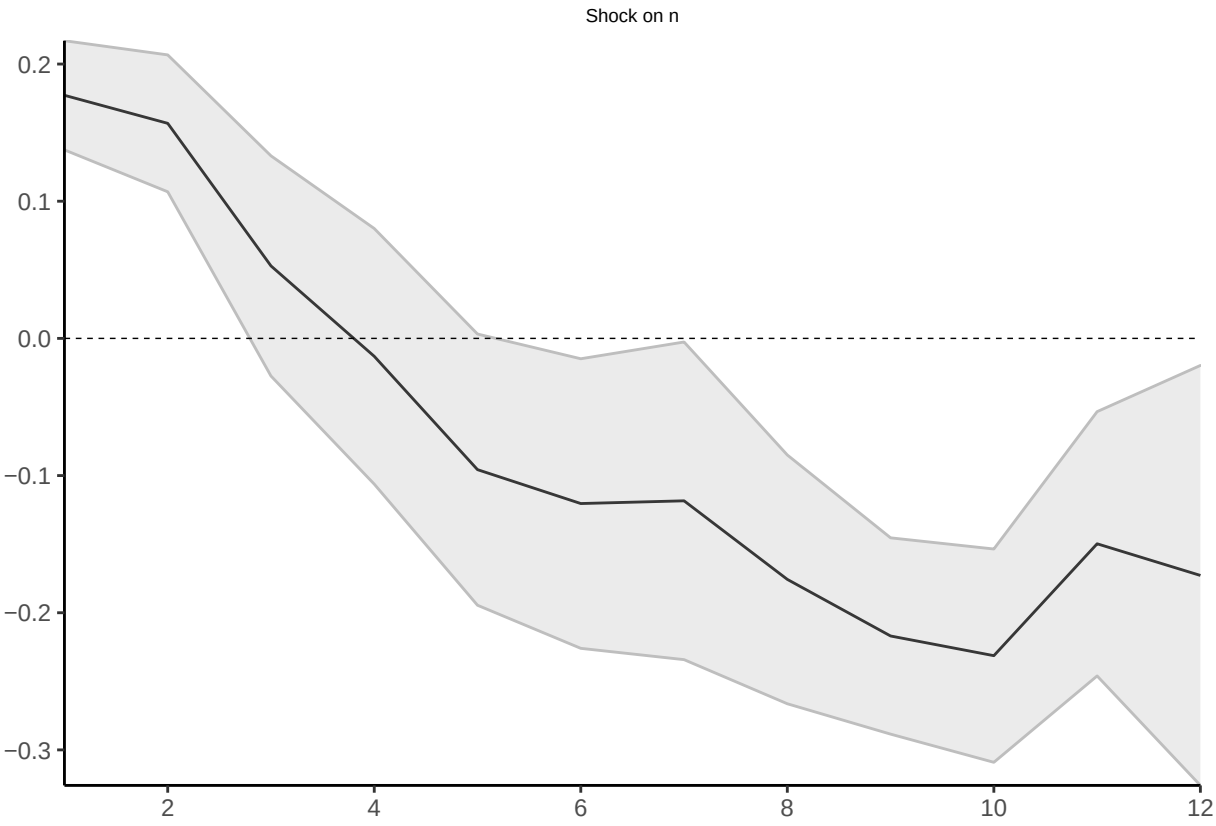
```
## [[1]]
```



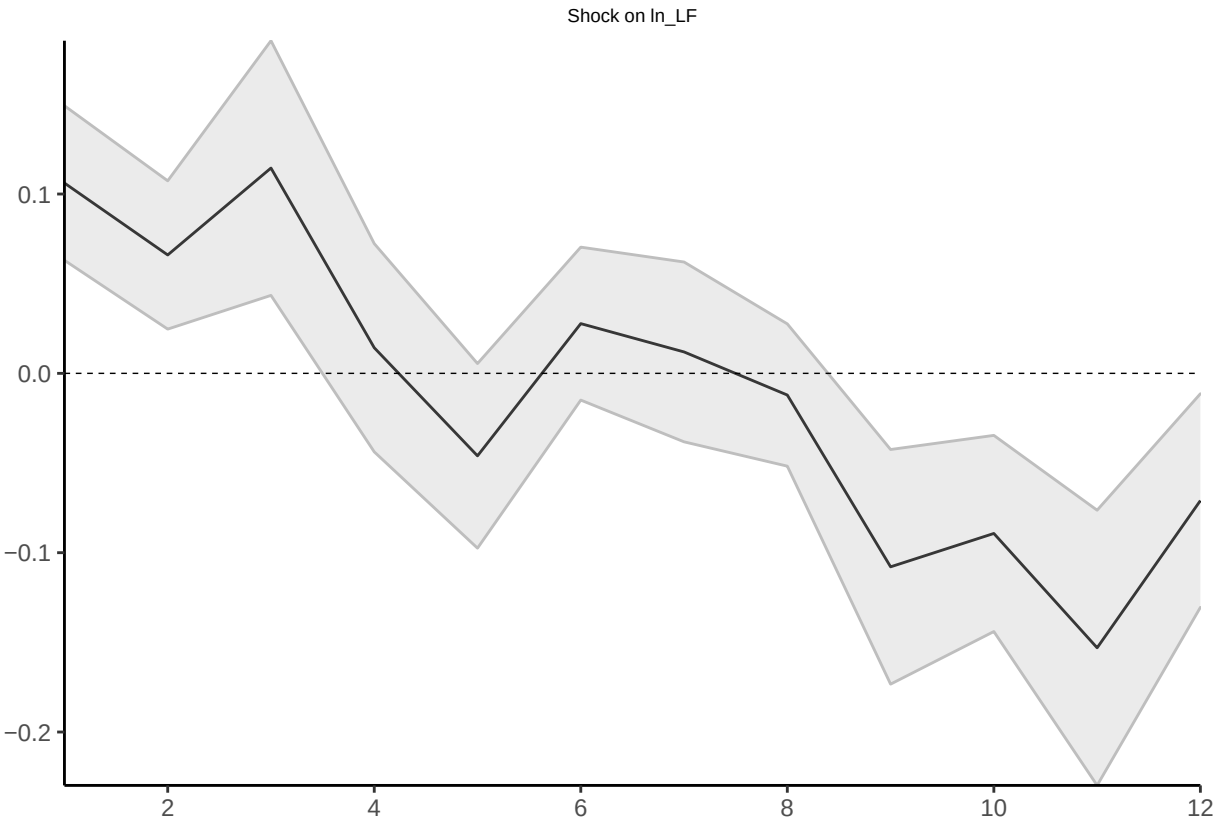

```
##
## [[2]]
```



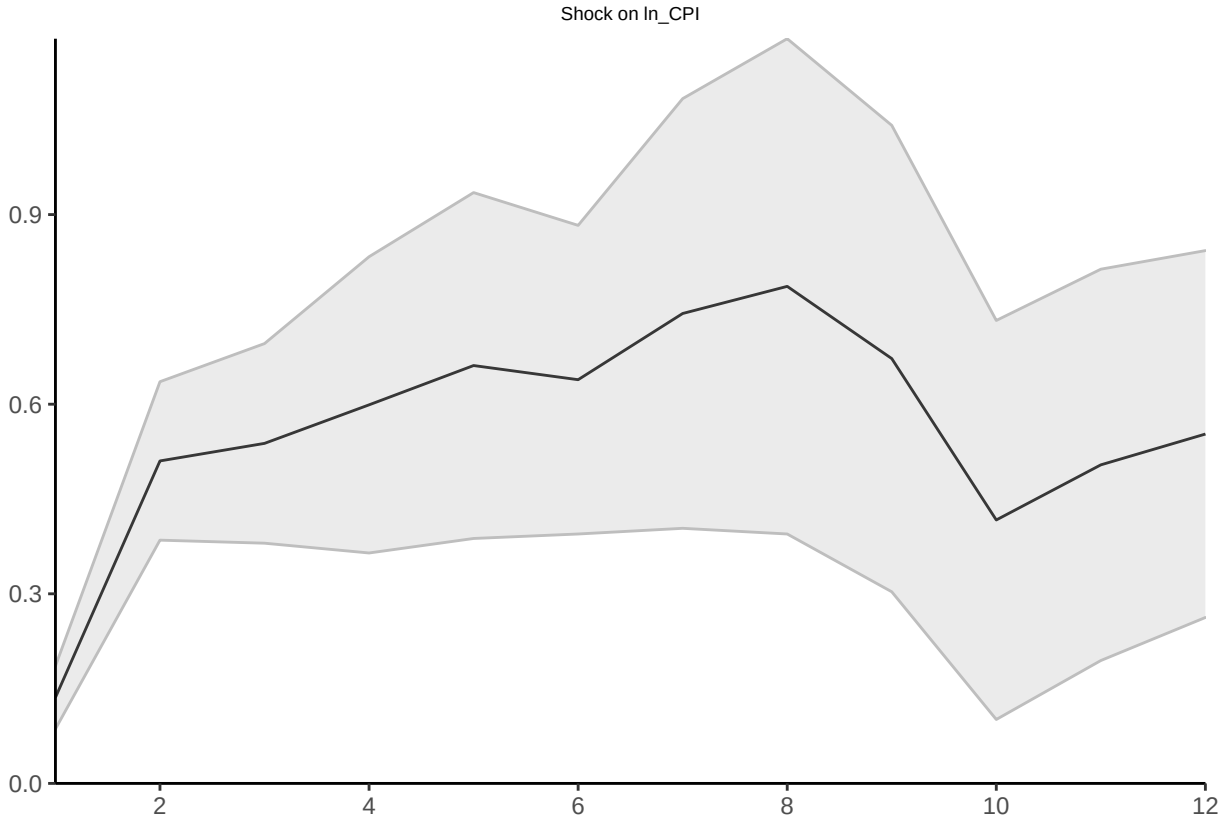

```
##
## [[3]]
```



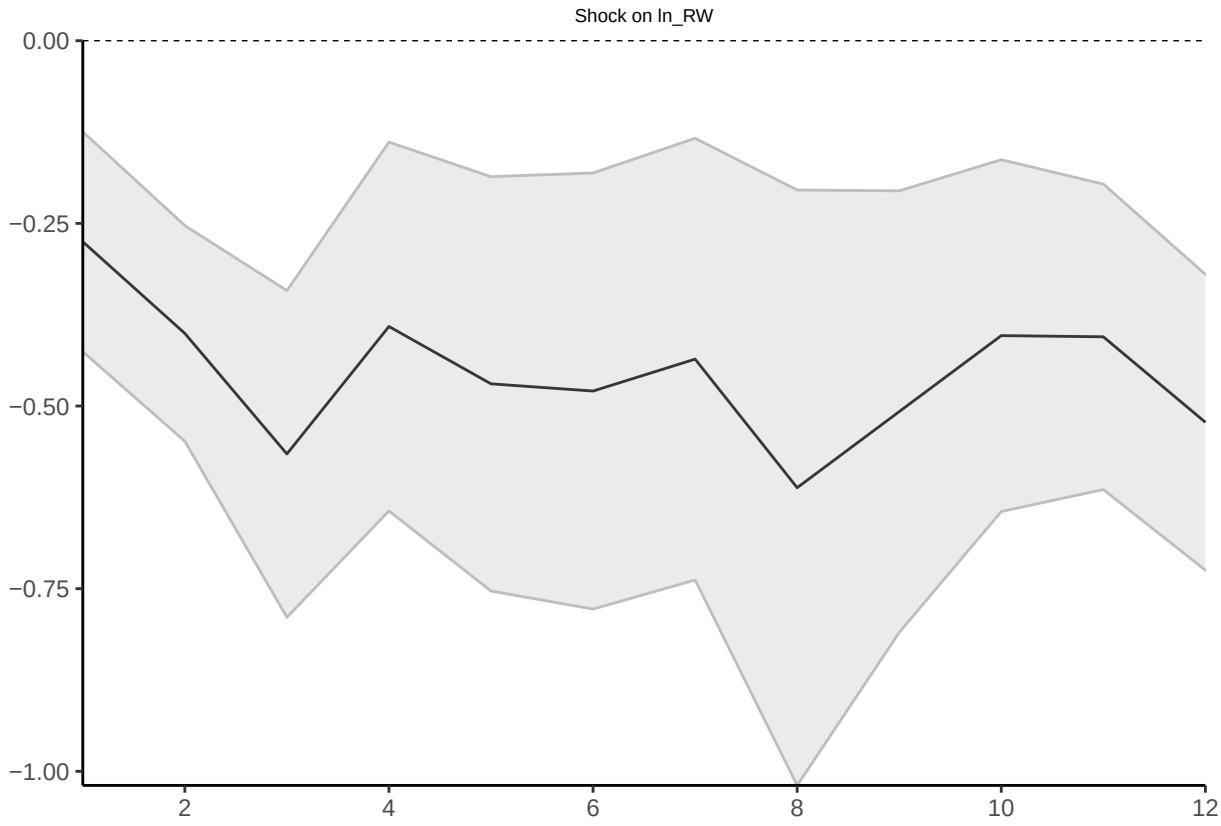

```
##
## [[4]]
```




```
##
## [[5]]
```




```
##
## [[6]]
```



Analysis

68% confident interval

Variable	Model	Data
GDP / Output	drops down sharply at t = 0, and than converges back to the baseline in t = 7	drops down at t = 2, and neve goes back to baseline
Unemployment	spikes up sharply at t = 2, and than slowly converges to the baseline in t = 7	rises up slowly in t = 0 to t =5, and than seems to be steady at a higher level then the baseline
Employment	Drops down with Output	Drops down with Output
Labor Force	Drops down with Output (but not as much as output)	Drops down slower than output
Inflation	Drop down immediately, converges fast back to baseline	the same
Real Wages	Drop down immediately, converges slowly back to baseline	drops down and not coming back