Tenaga Buruh

Contents

Load library

```
library(arrow)
```

```
## Warning: package 'arrow' was built under R version 4.4.2
```

```
##
## Attaching package: 'arrow'
```

```
## The following object is masked from 'package:utils':
##
##     timestamp
```

```
library(forecast)
```

```
## Warning: package 'forecast' was built under R version 4.4.2
```

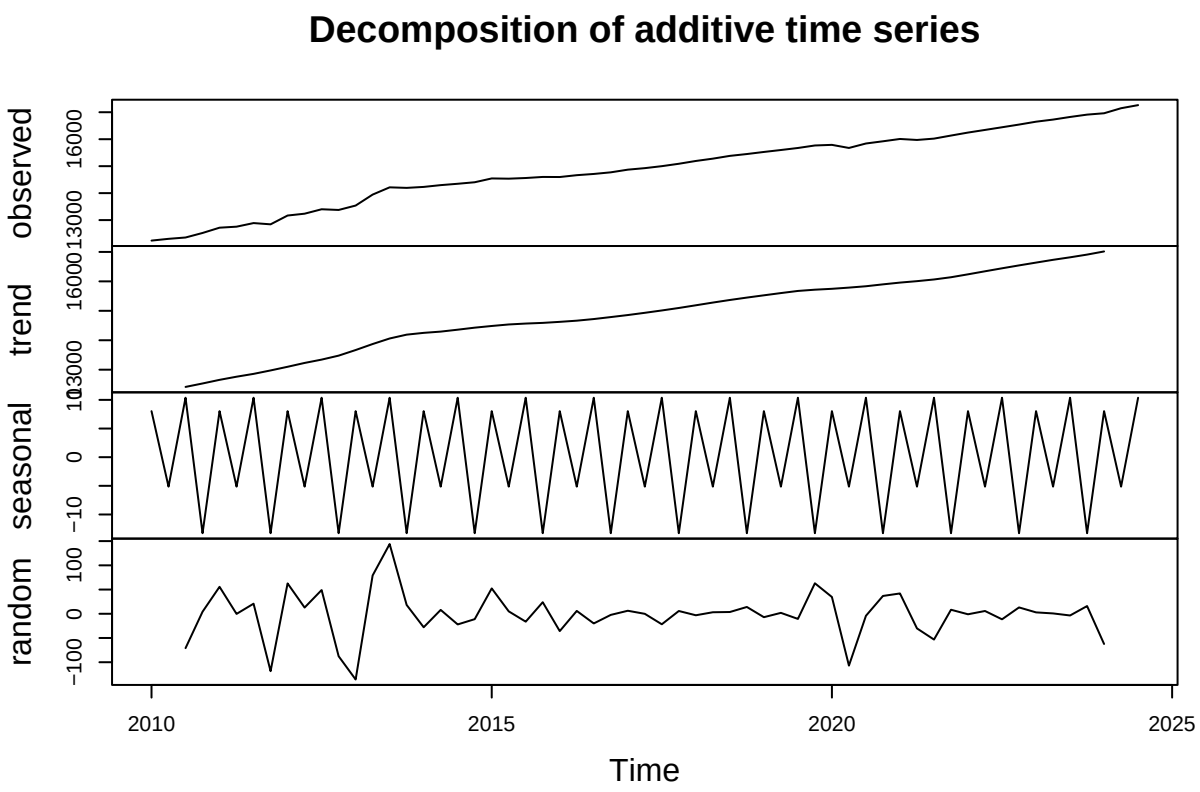
```
## Registered S3 method overwritten by 'quantmod':
##   method            from
##   as.zoo.data.frame zoo
```

```
lf = read_parquet("https://storage.dosm.gov.my/labour/lfs_qtr.parquet")
```

Labor force

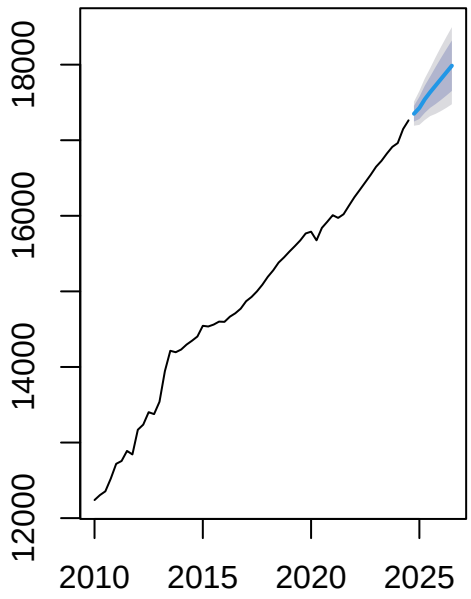
Decomposing labor force

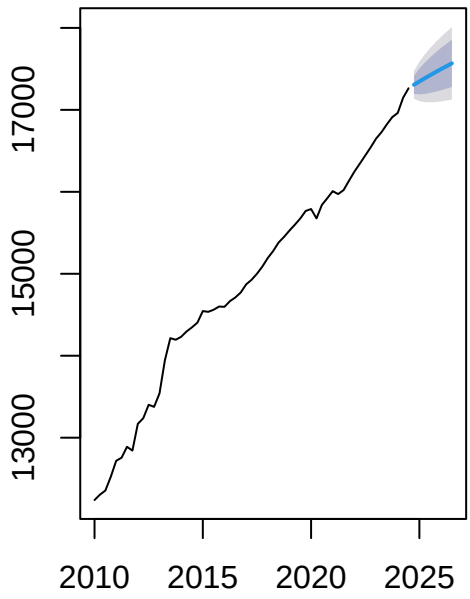
```
lf_ts = ts(lf[,2], start = c(2010,1), frequency = 4)

plot(decompose(lf_ts))
```



Forecasting labor force

```
par(mfrow=c(1,2))
plot(forecast(auto.arima(lf_ts)))
plot(forecast(tbats(lf_ts)))
```

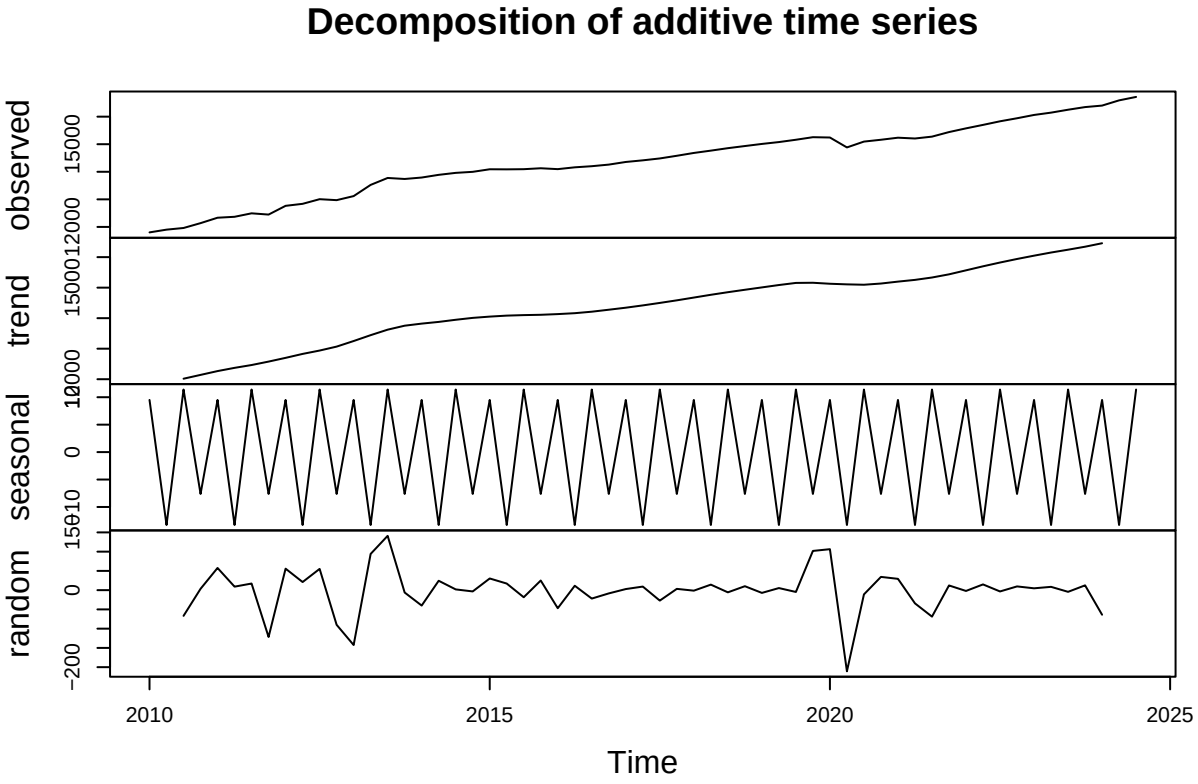




Employed labor force

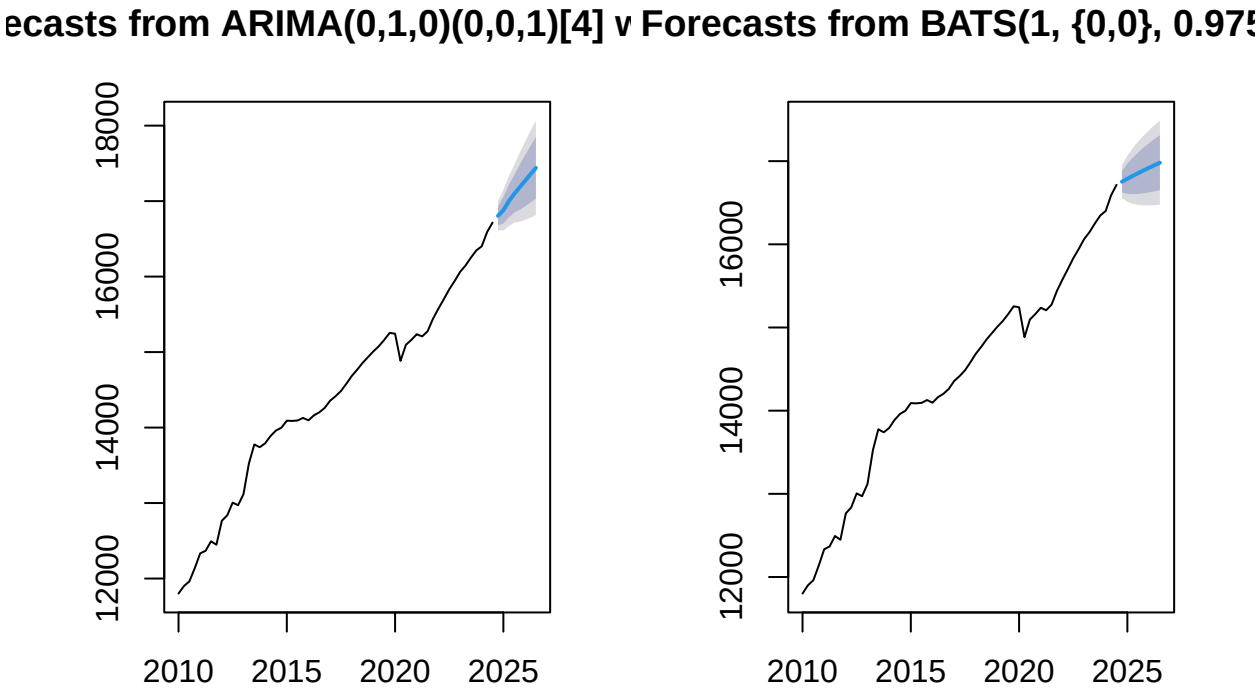
Decomposing employed labor force

```
lf_emp = ts(lf[,3], start = c(2010,1), frequency = 4)

plot(decompose(lf_emp))
```



Forecasting employed labor force

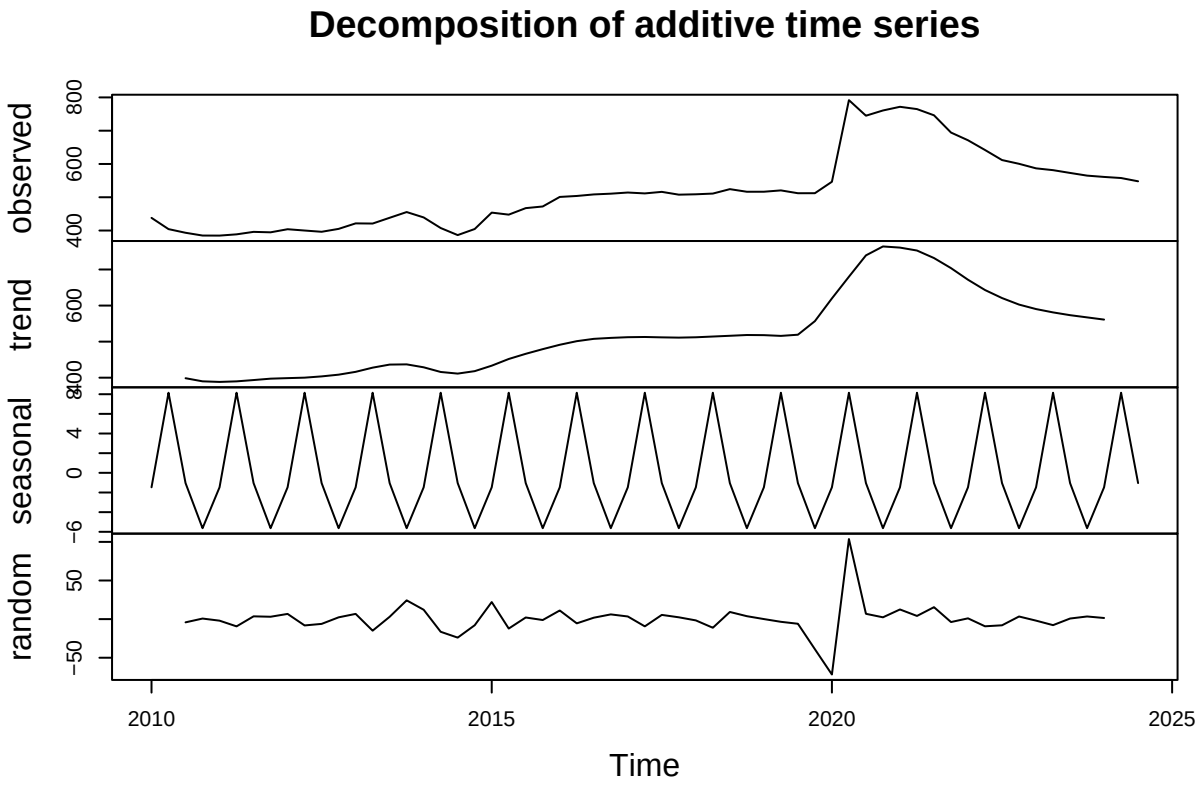
```
par(mfrow=c(1,2))
plot(forecast(auto.arima(lf_emp)))
plot(forecast(tbats(lf_emp)))
```



Unemployed labor force

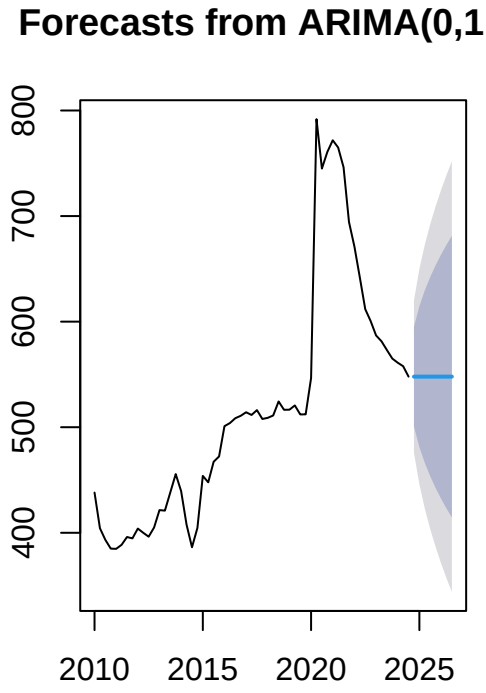
Decomposing unemployed labor force

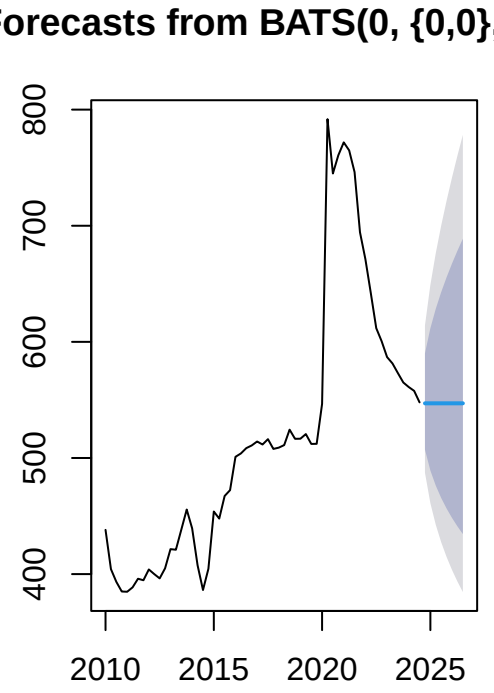
```
lf_unemp = ts(lf[,4], start = c(2010,1), frequency = 4)

plot(decompose(lf_unemp))
```



Forecasting unemployed labor force

```
par(mfrow=c(1,2))
plot(forecast(auto.arima(lf_unemp)))
plot(forecast(tbats(lf_unemp)))
```

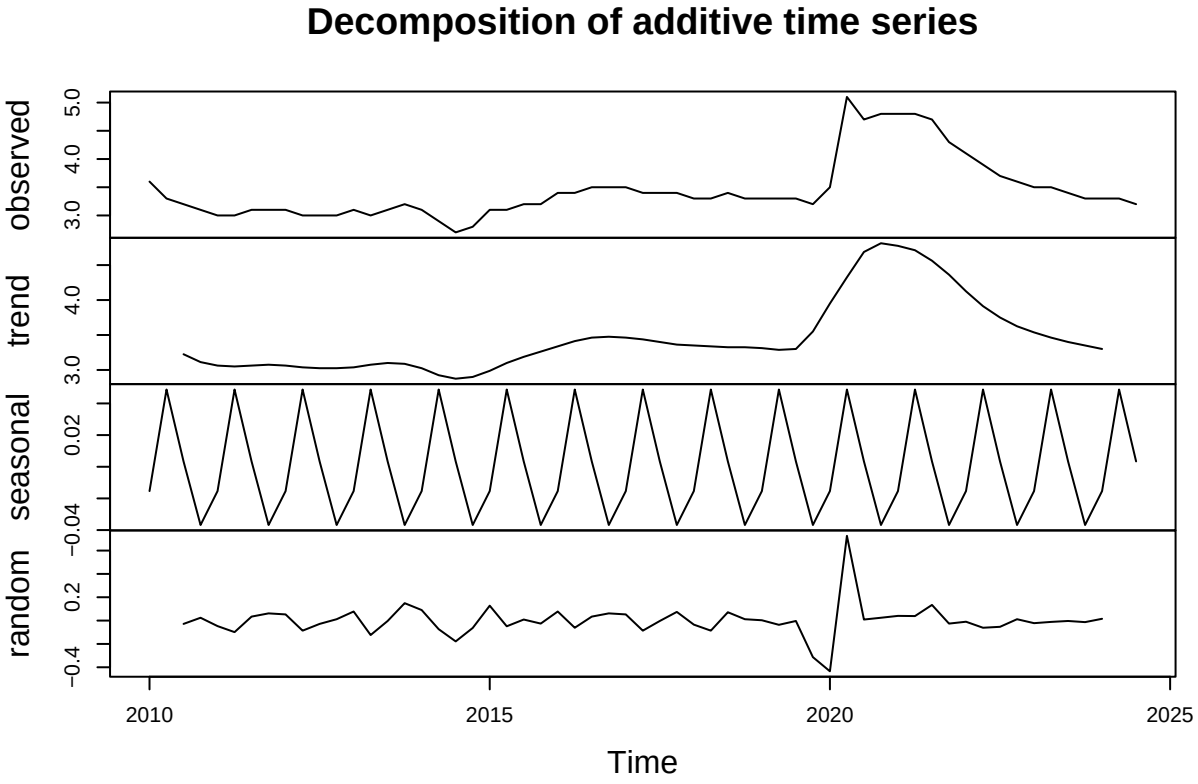




Unemployment rate

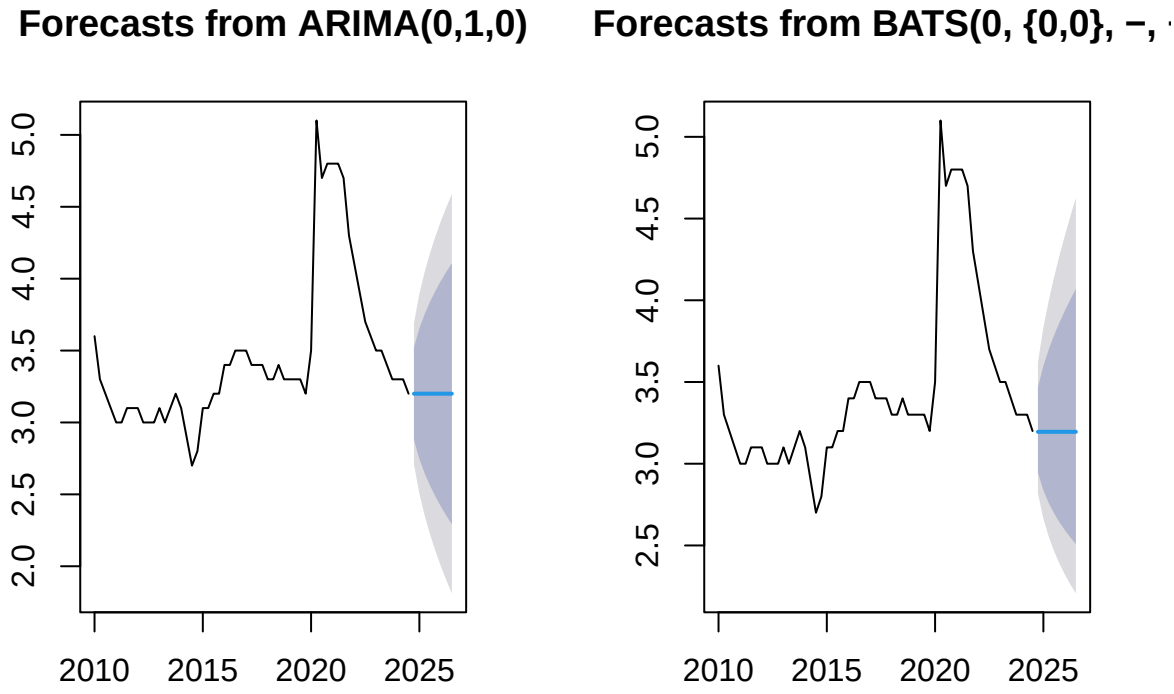
Decomposing unemployment rate

```
u_rate = ts(lf[,8], start = c(2010,1), frequency = 4)

plot(decompose(u_rate))
```



Forecasting unemployment rate

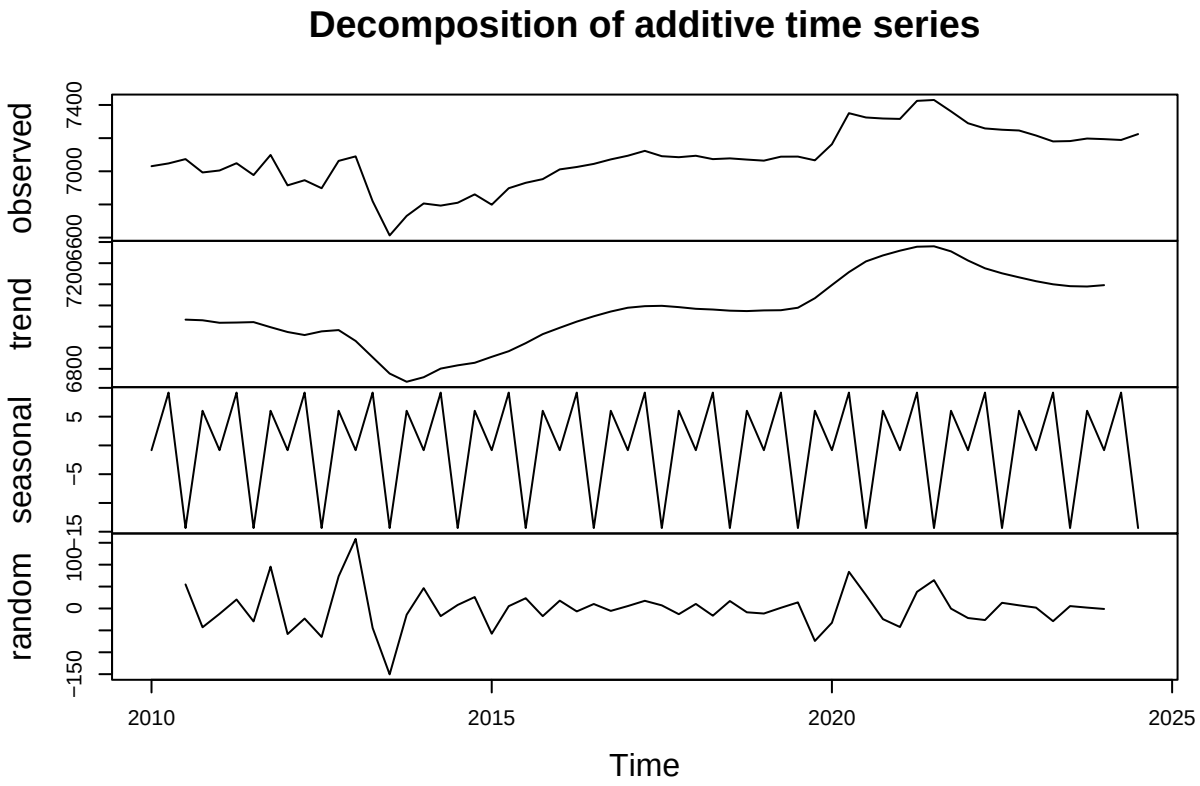
```
par(mfrow=c(1,2))
plot(forecast(auto.arima(u_rate)))
plot(forecast(tbats(u_rate)))
```



Outside labor force

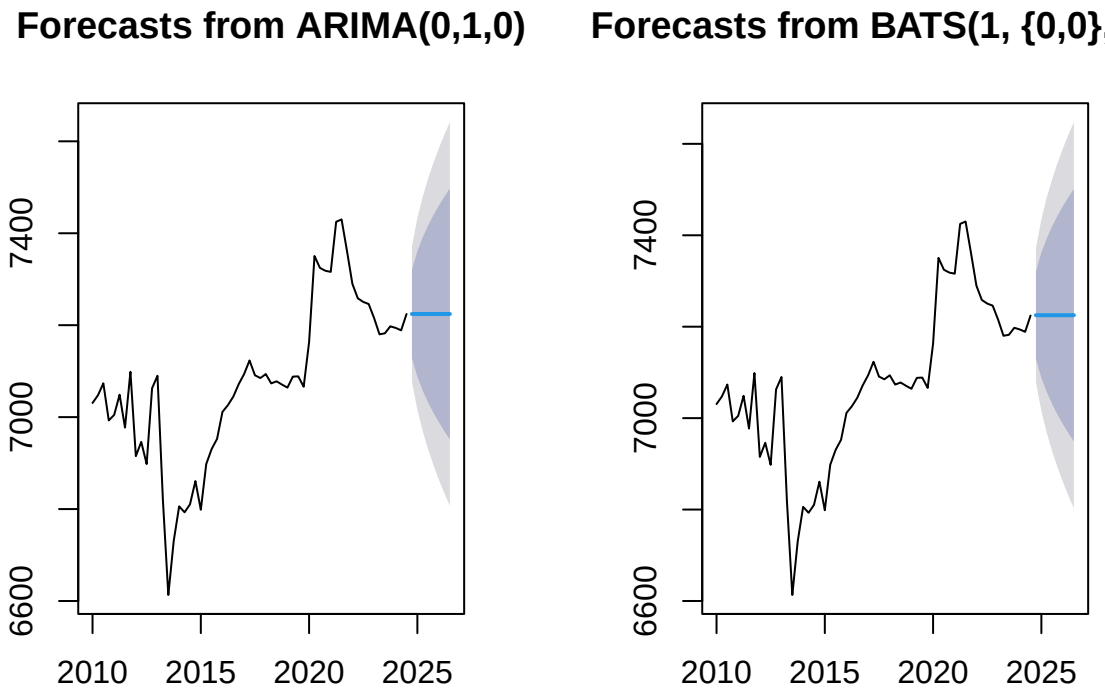
Decomposing outside labor force

```
outside = ts(lf[,5], start = c(2010,1), frequency = 4)

plot(decompose(outside))
```



Forecasting outside labor force

```
par(mfrow=c(1,2))
plot(forecast(auto.arima(outside)))
plot(forecast(tbats(outside)))
```


Forecasts from ARIMA(0,1,0)
Forecasts from BATS(1, {0,0}, −,
7400
7000
6600
2010
2015
2020
2025
7400
7000
6600
2010
2015
2020
2025