

Tenaga Buruh

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Objektif Analisis

- Meramal kadar pengangguran bagi 2 tahun akan datang
- Analyze the impact of economic shocks on labor market recovery
- Study the relationship between participation rates and unemployment
- Identify seasonal employment patterns
- Monitor long-term structural changes in the labor market

Load library

```
library(arrow)
```

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

```
library(forecast)
```

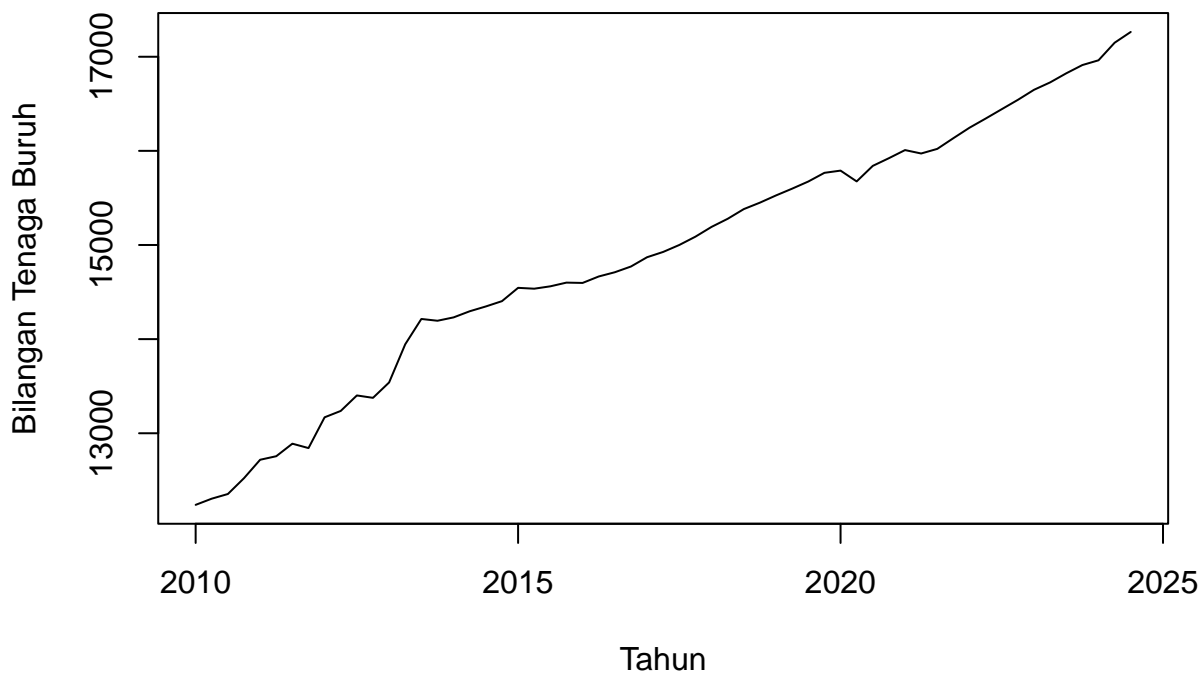
```
## Registered S3 method overwritten by 'quantmod':  
##   method           from  
## as.zoo.data.frame zoo
```

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

Tenaga Buruh

```
lf_ts = ts(lf[,2], start = c(2010,1), frequency = 4)  
  
plot.ts(lf_ts, main = 'Data Tenaga Buruh di Malaysia', xlab = 'Tahun',  
        ylab = 'Bilangan Tenaga Buruh')
```

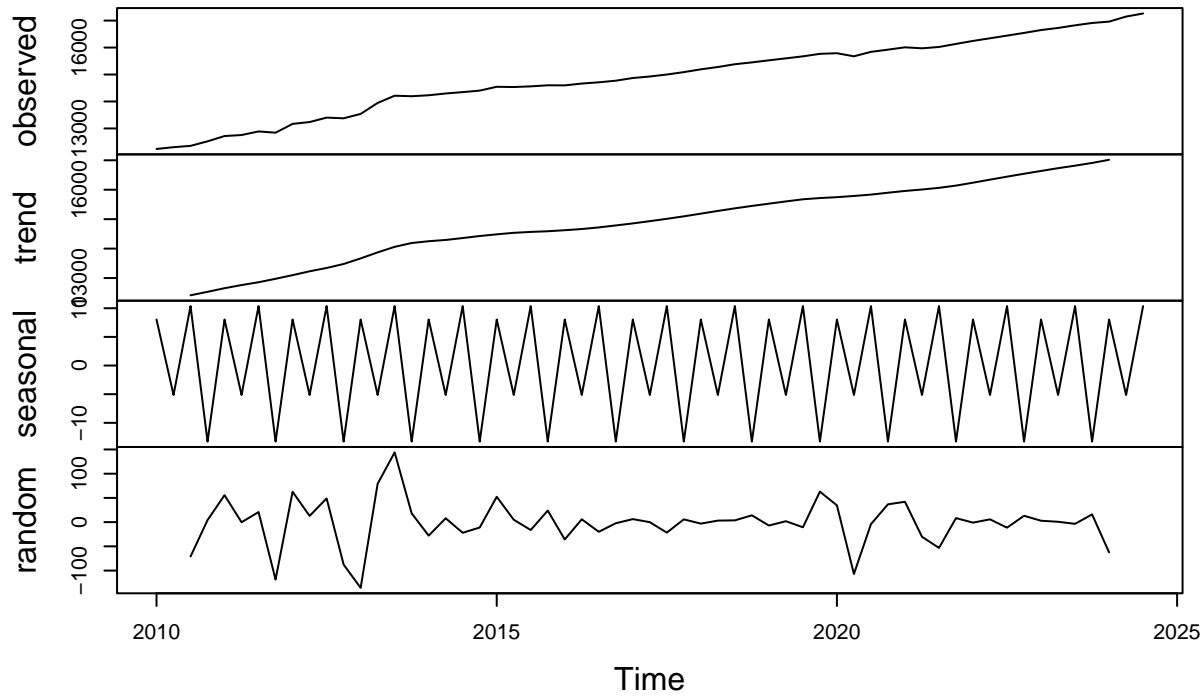
Data Tenaga Buruh di Malaysia



Decomposing labor force

```
plot(decompose(lf_ts))
```

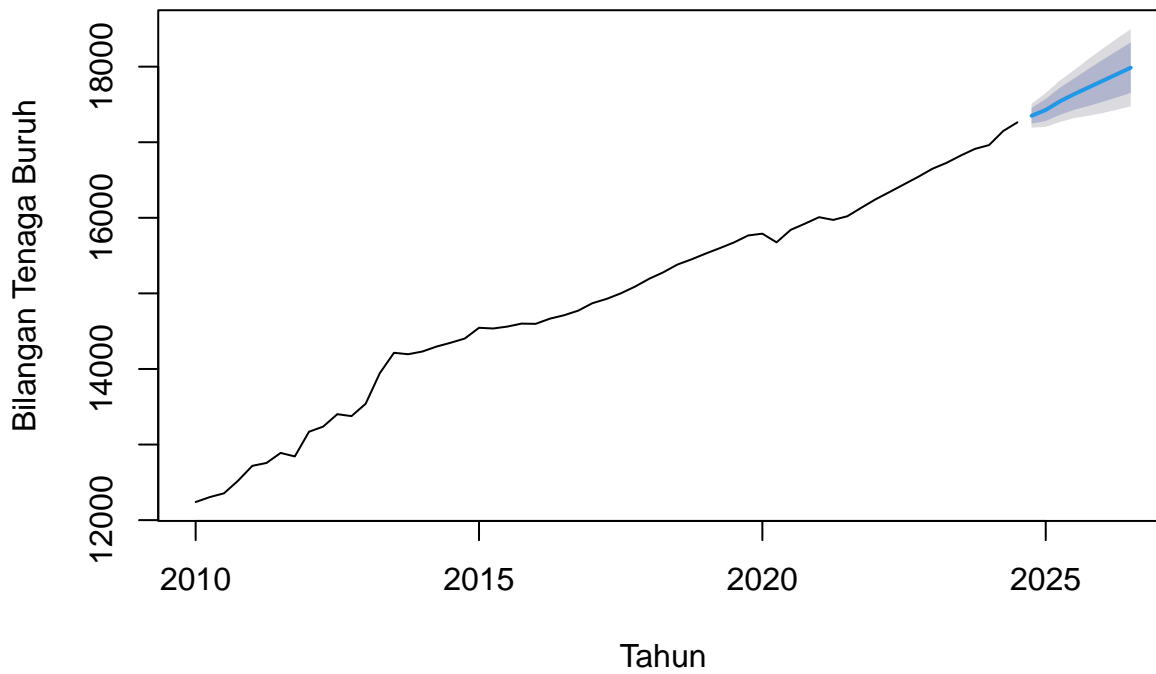
Decomposition of additive time series



Meramal Tenaga Buruh di Malaysia

```
plot(forecast(auto.arima(lf_ts)),  
     main = 'Tenaga Buruh Malaysia: Ramalan 2025-2026',  
     xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh')
```

Tenaga Buruh Malaysia: Ramalan 2025–2026

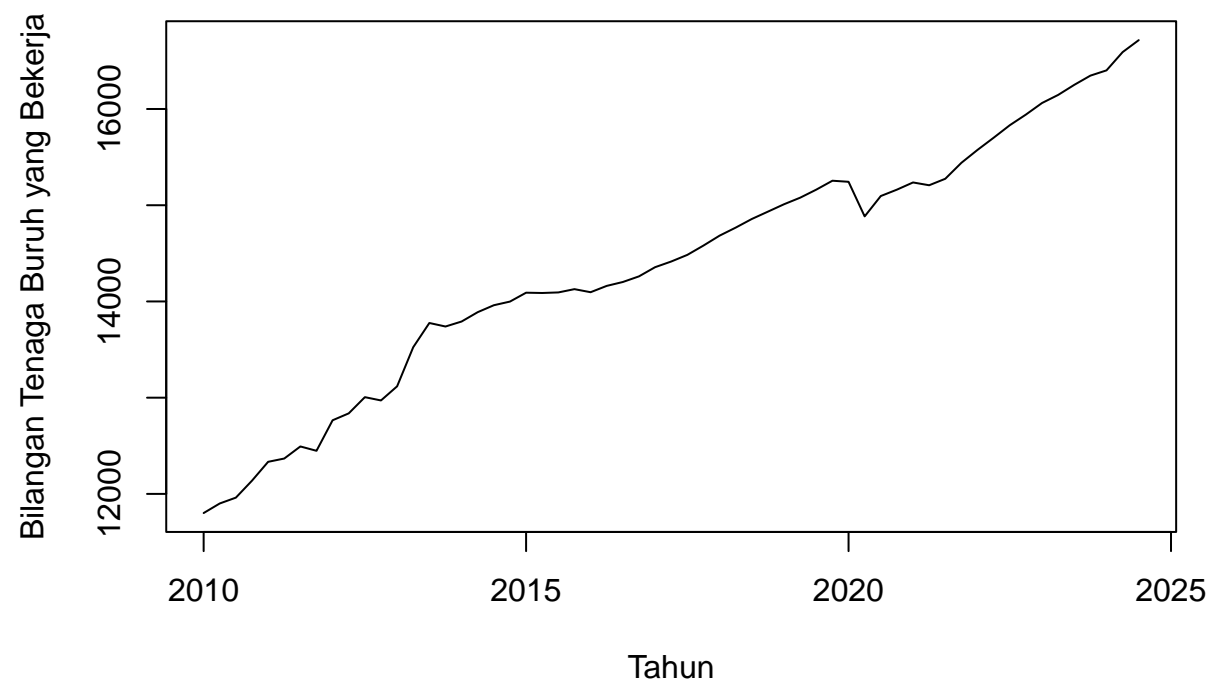


Employed labor force

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

plot.ts(lf_emp, main = 'Tenaga Buruh yang Bekerja di Malaysia',
        xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh yang Bekerja')
```

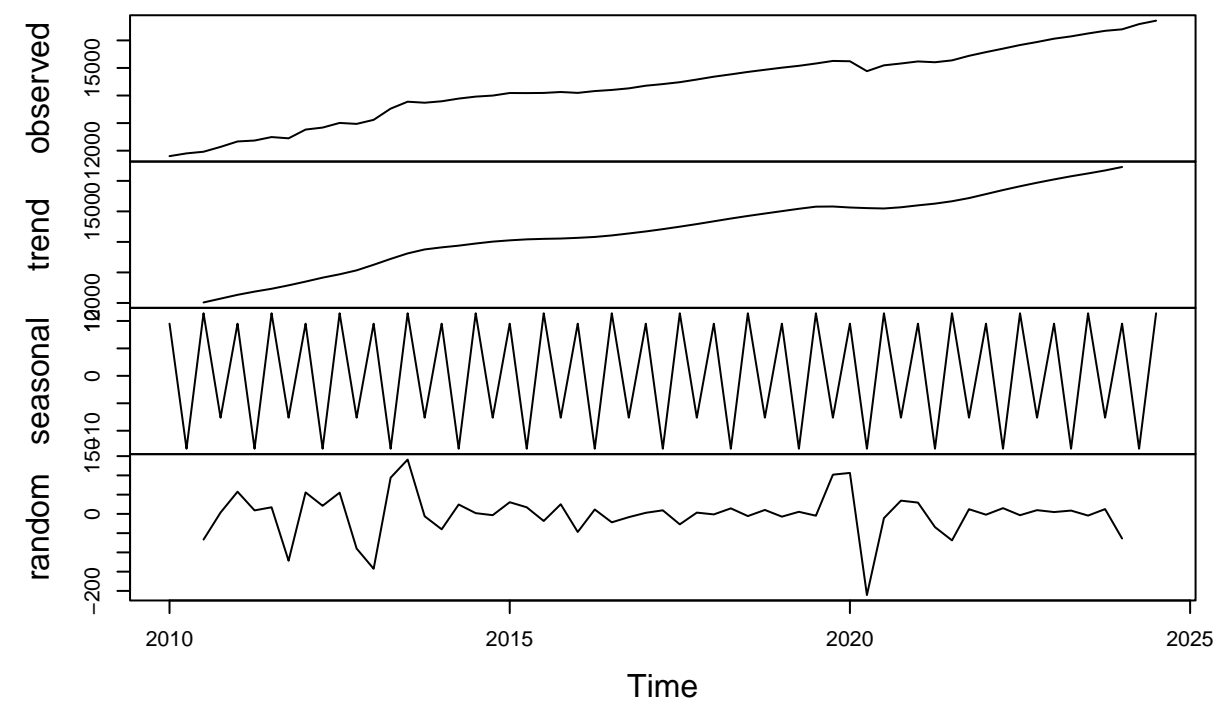
Tenaga Buruh yang Bekerja di Malaysia



Decomposing employed labor force

```
plot(decompose(lf_emp))
```

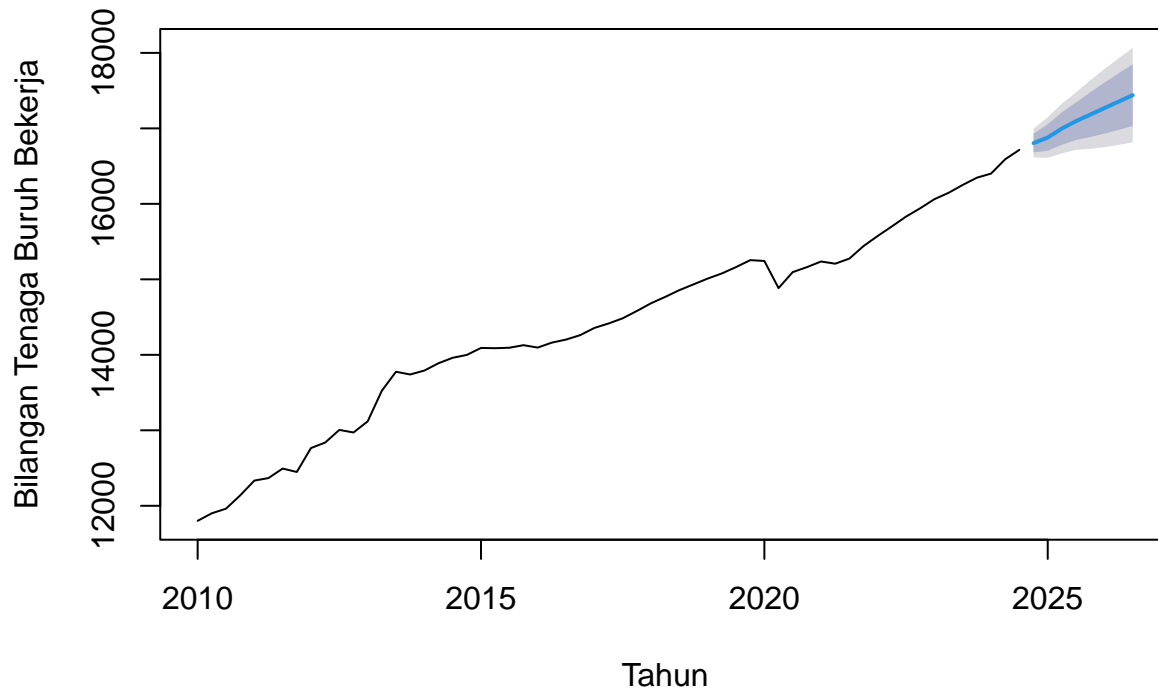
Decomposition of additive time series



Meramal Tenaga Buruh yang bekerja di Malaysia

```
plot(forecast(auto.arima(lf_emp)),  
     main = 'Tenaga Buruh Bekerja Malaysia: Ramalan 2025-2026',  
     xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh Bekerja')
```

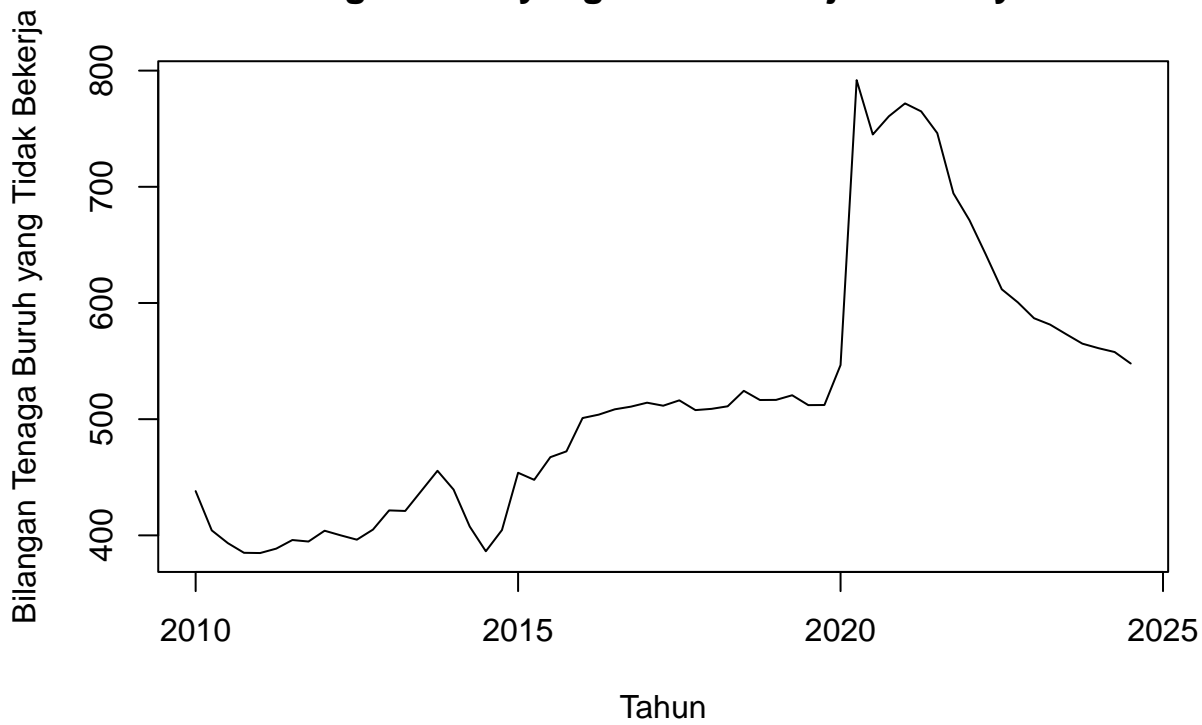
Tenaga Buruh Bekerja Malaysia: Ramalan 2025–2026



Unemployed labor force

```
lf_unemp = ts(lf[,4], start = c(2010,1), frequency = 4)  
  
plot.ts(lf_unemp, main = 'Tenaga Buruh yang Tidak Bekerja di Malaysia',  
        xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh yang Tidak Bekerja')
```

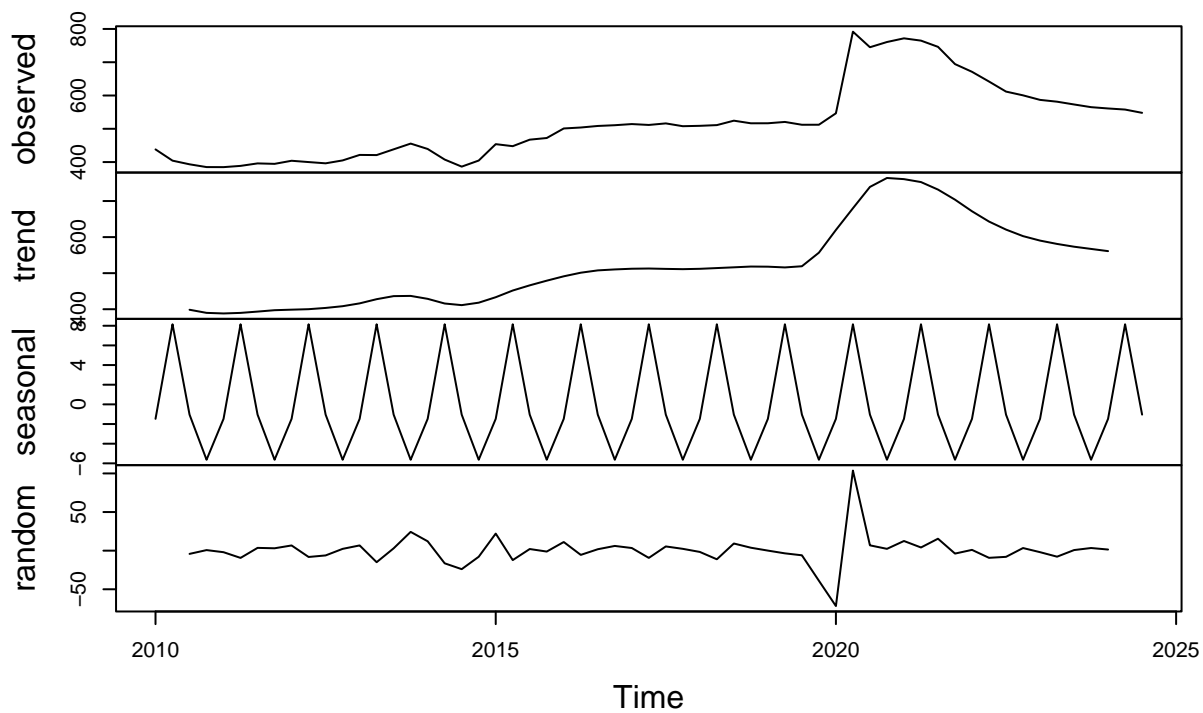
Tenaga Buruh yang Tidak Bekerja di Malaysia



Decomposing unemployed labor force

```
plot(decompose(lf_unemp))
```

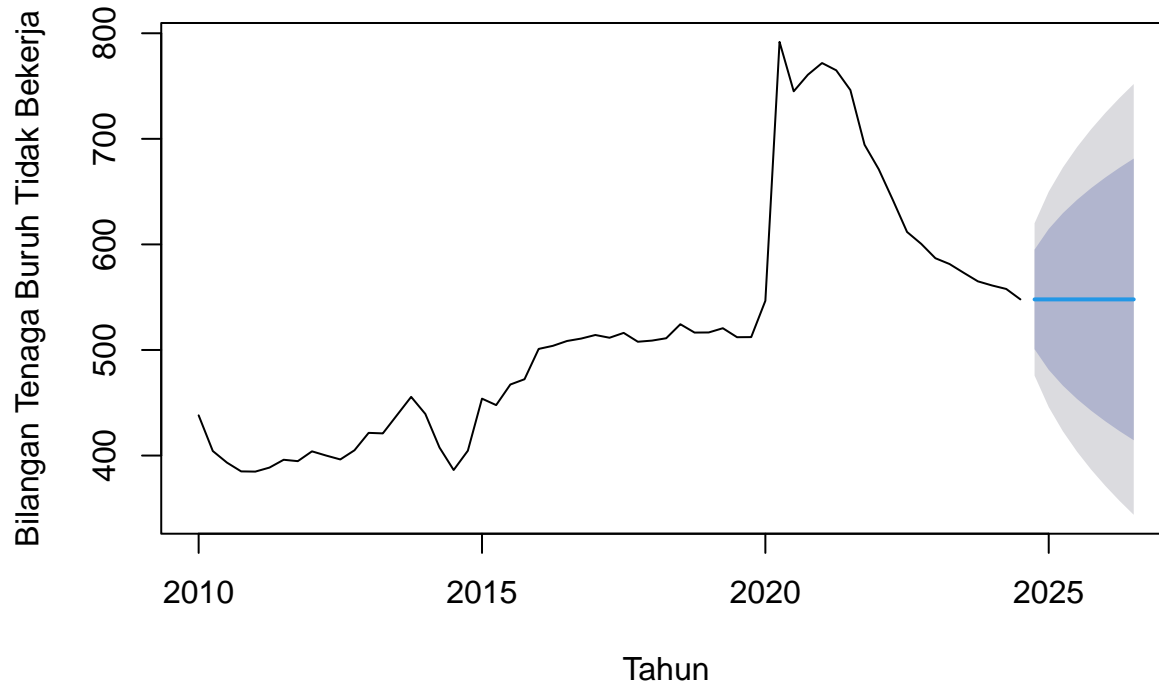
Decomposition of additive time series



Meramal Tenaga Buruh yang tidak bekerja di Malaysia

```
plot(forecast(auto.arima(lf_unemp)),  
     main = 'Tenaga Buruh Tidak Bekerja Malaysia: Ramalan 2025-2026',  
     xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh Tidak Bekerja')
```

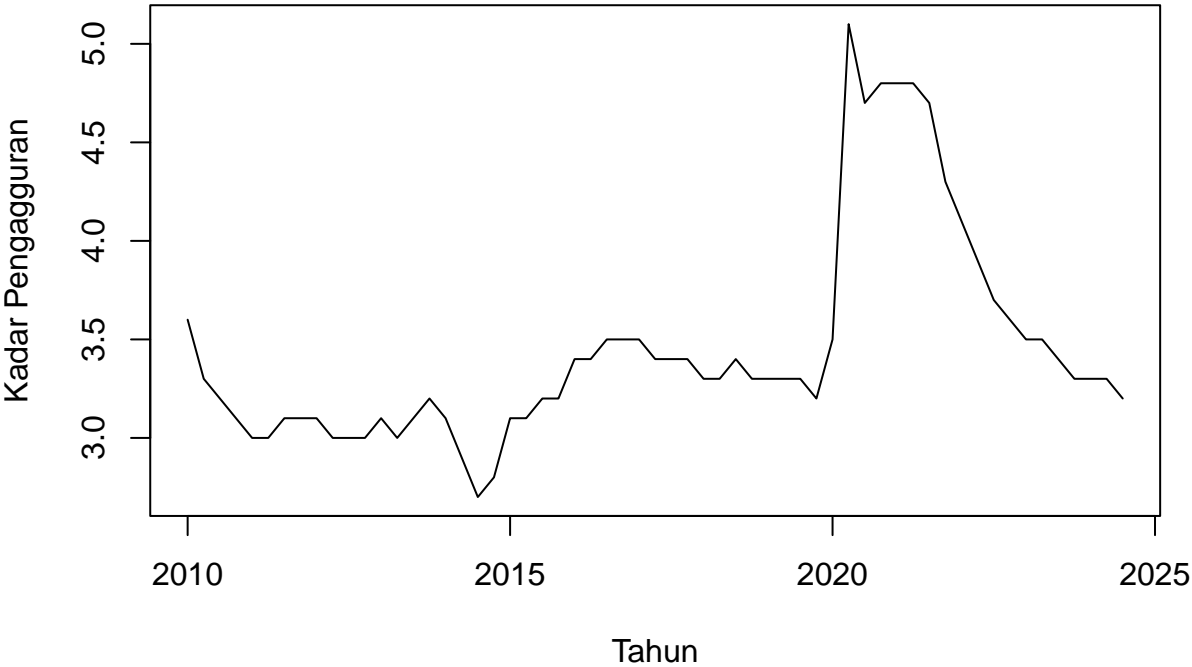
Tenaga Buruh Tidak Bekerja Malaysia: Ramalan 2025–2026



Unemployment rate

```
u_rate = ts(lf[,8], start = c(2010,1), frequency = 4)  
  
plot.ts(u_rate, main = 'Kadar Pengangguran di Malaysia',  
        xlab = 'Tahun', ylab = 'Kadar Pengangguran')
```

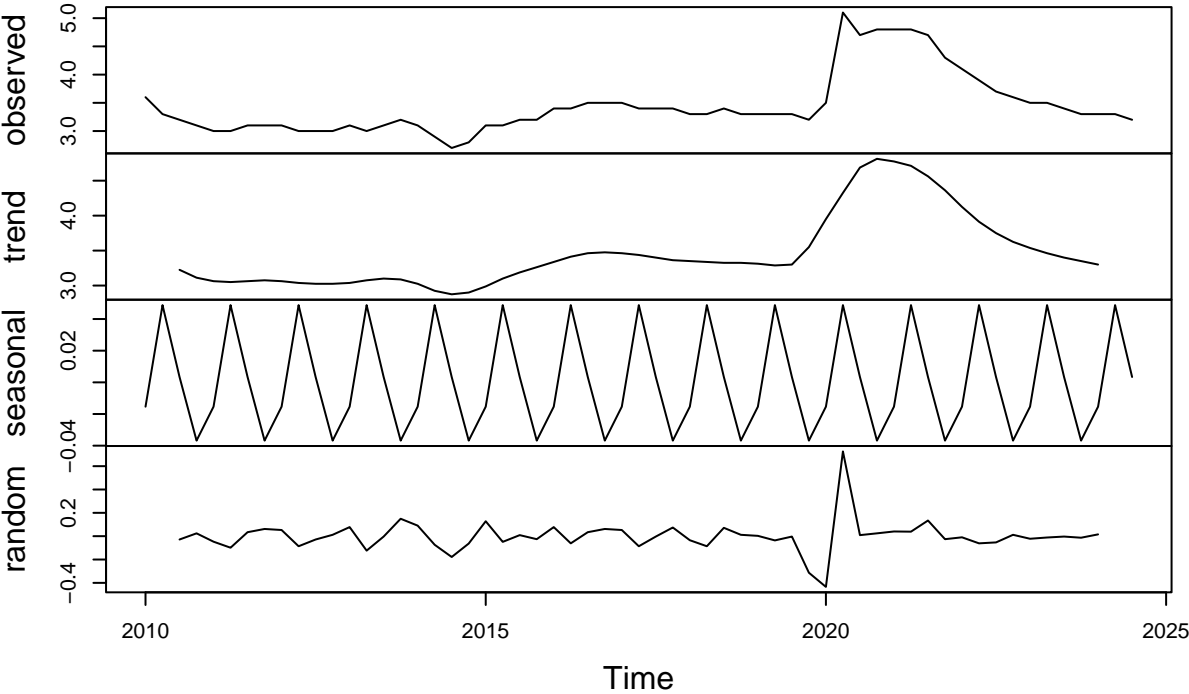

Kadar Pengangguran di Malaysia



Decomposing unemployment rate

```
plot(decompose(u_rate))
```

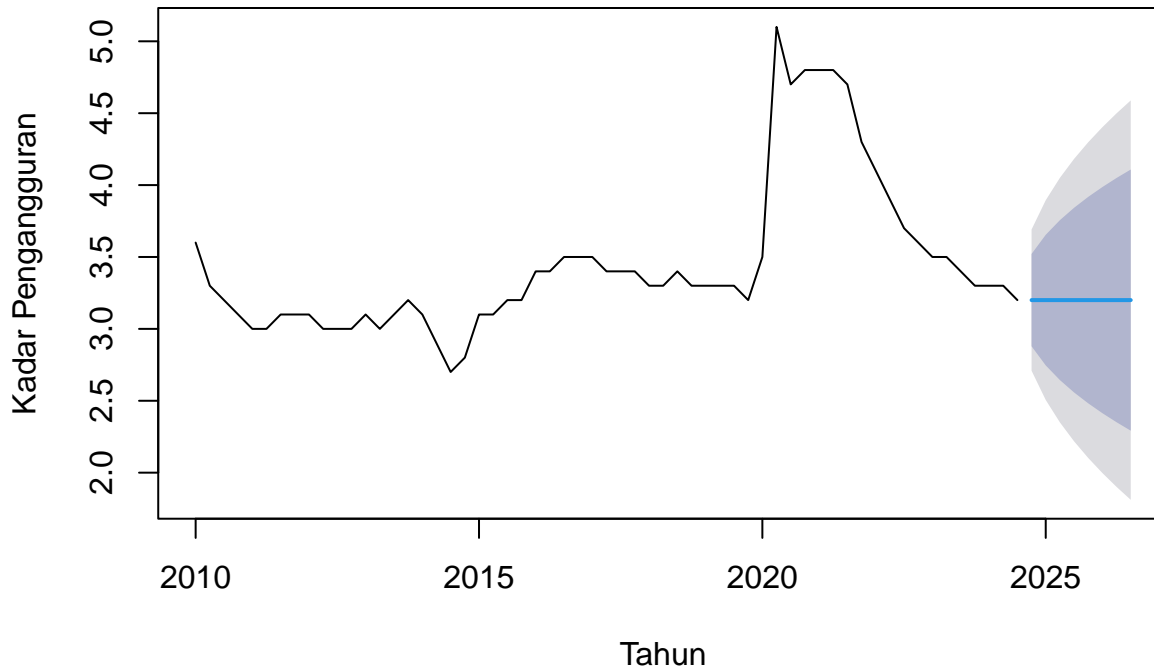
Decomposition of additive time series



Meramal kadar pengangguran di Malaysia

```
plot(forecast(auto.arima(u_rate)),  
     main = 'Kadar Pengangguran Malaysia: Ramalan 2025-2026',  
     xlab = 'Tahun', ylab = 'Kadar Pengangguran')
```

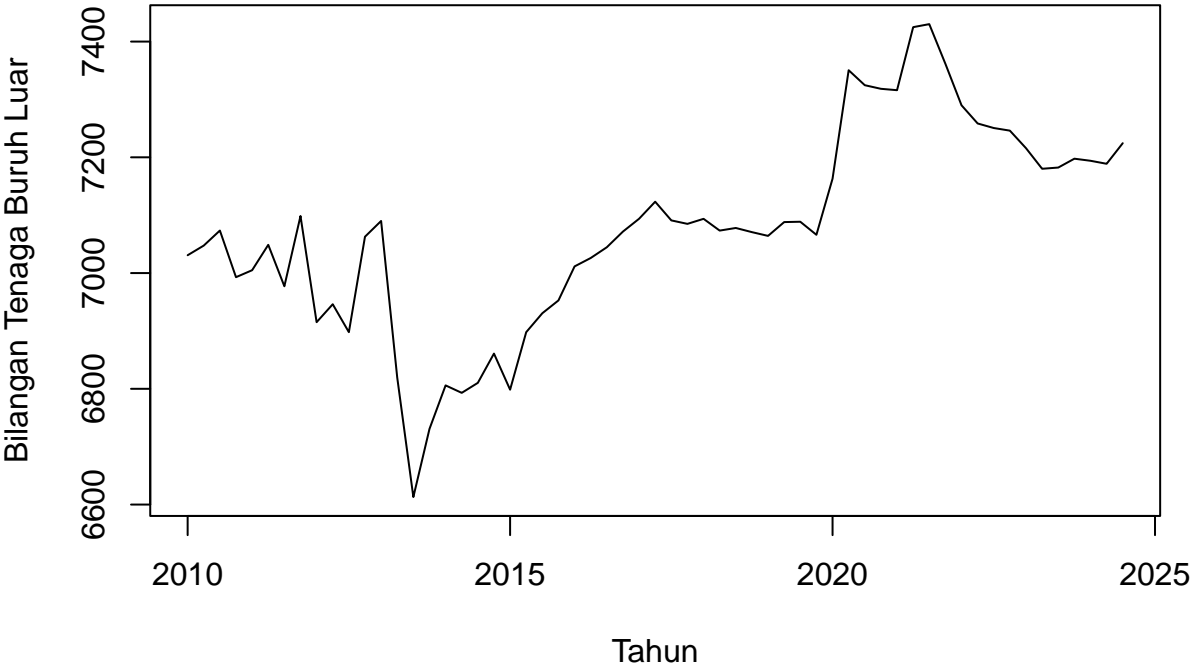
Kadar Pengangguran Malaysia: Ramalan 2025–2026



Outside labor force

```
outside_lf = ts(lf[,5], start = c(2010,1), frequency = 4)  
  
plot.ts(outside_lf, main = 'Tenaga Buruh Luar di Malaysia',  
        xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh Luar')
```

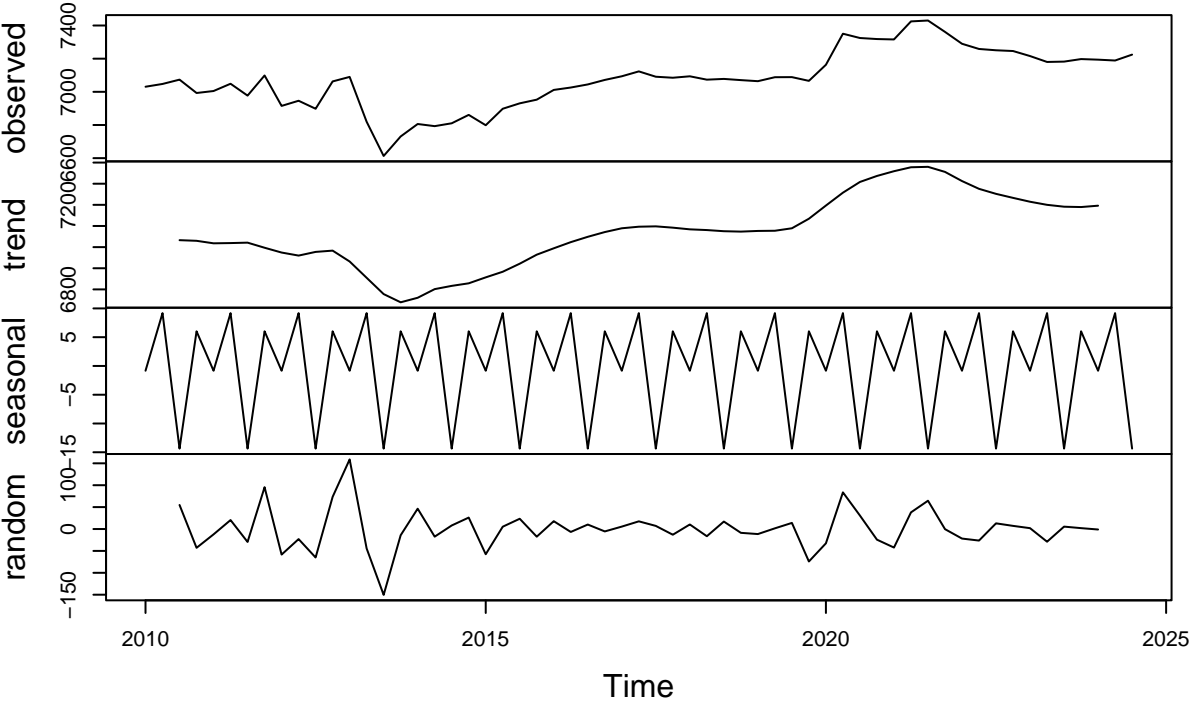
Tenaga Buruh Luar di Malaysia



Decomposing outside labor force

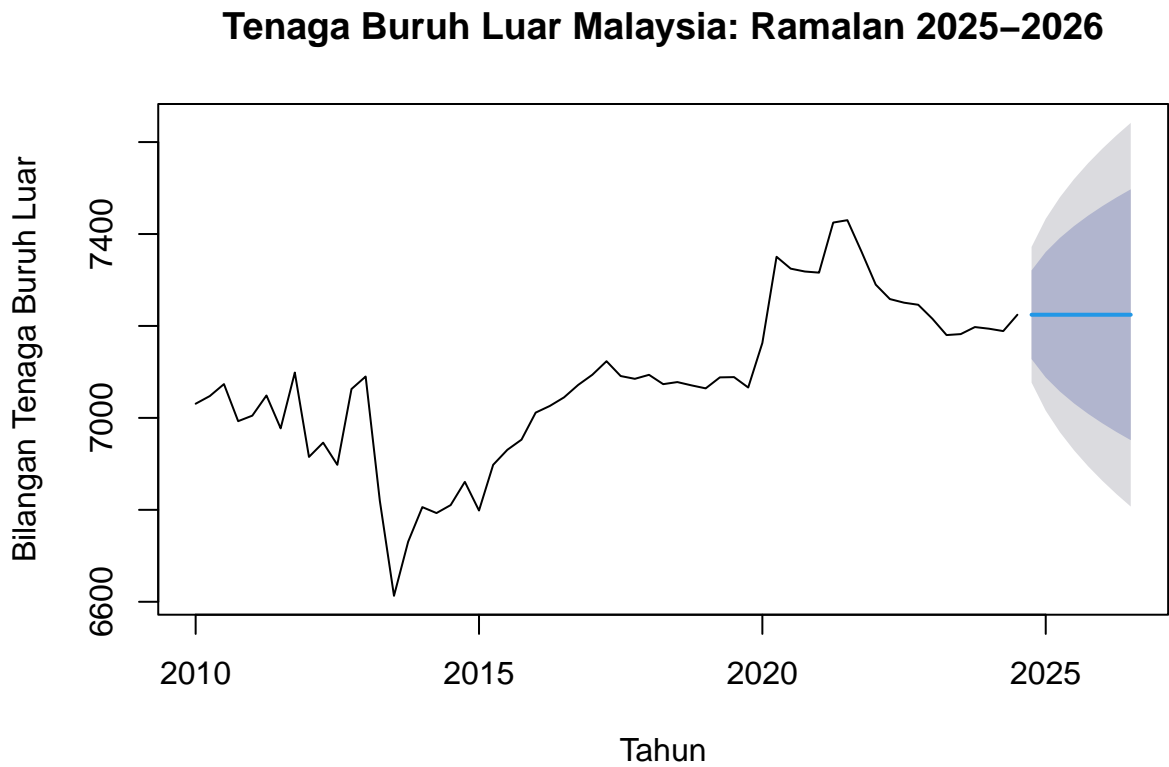
```
plot(decompose(outside_lf))
```

Decomposition of additive time series



Meramal tenaga buruh luar di Malaysia

```
plot(forecast(auto.arima(outside_1f)),
      main = 'Tenaga Buruh Luar Malaysia: Ramalan 2025-2026',
      xlab = 'Tahun', ylab = 'Bilangan Tenaga Buruh Luar')
```



Significant Findings:

- Structural break in 2020: Unemployment rate jumped from 3.5% to 5.1% due to COVID-19
- Strong recovery trend: Post-COVID recovery bringing unemployment rates back to pre-pandemic levels
- Seasonal patterns: Slight seasonal variations in employment, typically higher in Q3 and Q4
- Long-term trend: Overall increasing labor force participation rate from 63.5% (2010) to 70.5% (2024)
- Recent stability: Unemployment rate has stabilized around 3.3% in recent quarters

The analysis shows that Malaysia’s labor market has been resilient, showing strong recovery post-COVID and maintaining stable unemployment rates while increasing labor force participation.