Grunfeld Yatırım Modeli

Grunfeld'in (1958), 1935-1954 yılları arası 10 büyük ABD imalatçı firmasına ait verileri (stata-grunfeld)

$$invest_{it} = \beta_0 + \beta_1 mvalue_{it} + \beta_2 kstock_{it} + u_{it}$$

invest: toplam yatırımlar (milyon $, 1947 temelli zımni üreticilerin dayanıklı teçhizat fiyat deflatörü kullanılarak deflate edilmiştir).

mvalue: firmanın piyasa değeri (milyon $, 1947 temelli zımni GSMH fiyat deflatörü kullanılarak deflate edilmiştir).

kstock: kapital stoğu (milyon $, demirbaş ve teçhizata yapılan net ilavelerden (1947 temelli zımni üreticilerin dayanıklı teçhizat fiyat deflatörü kullanılarak deflate edilmiştir) amortisman indirimleri (1947 temelli amortisman giderleri deflatörü ile deflate edilmiştir: metal ve metal ürünlerinin toptan fiyat indeksinin 10 yıllık hareketli ortalaması) düşülerek hesaplanmıştır).

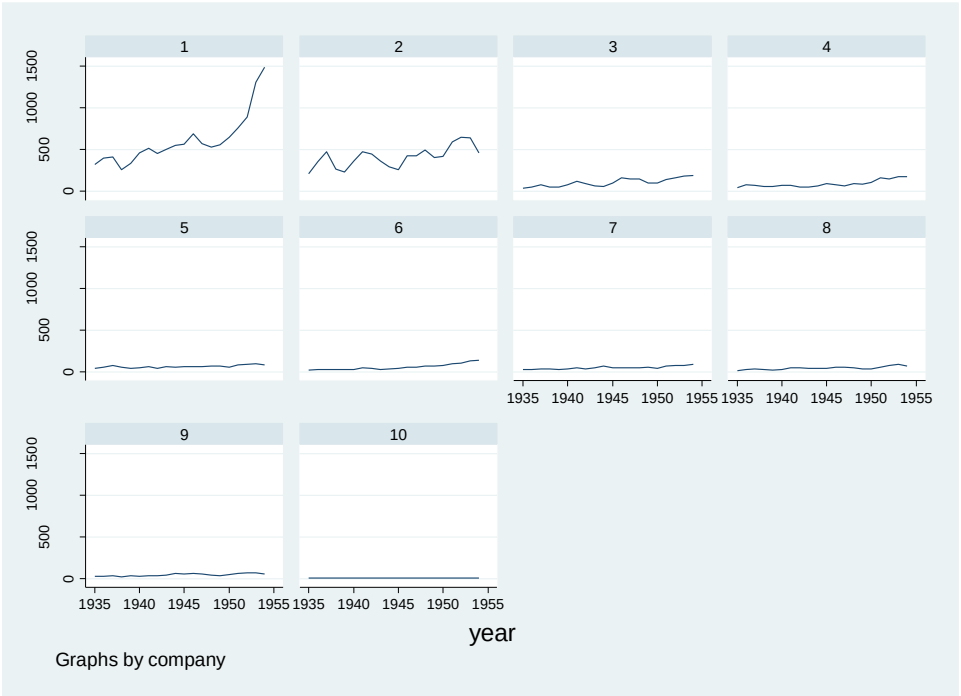
i (company): 10 firma (General Motors, US Steel, General Electric, Chrysler, Atlantic Refining, IBM, Union Oil, Westinghouse, Goodyear, Diamond Match)

t (year): 1935-1954

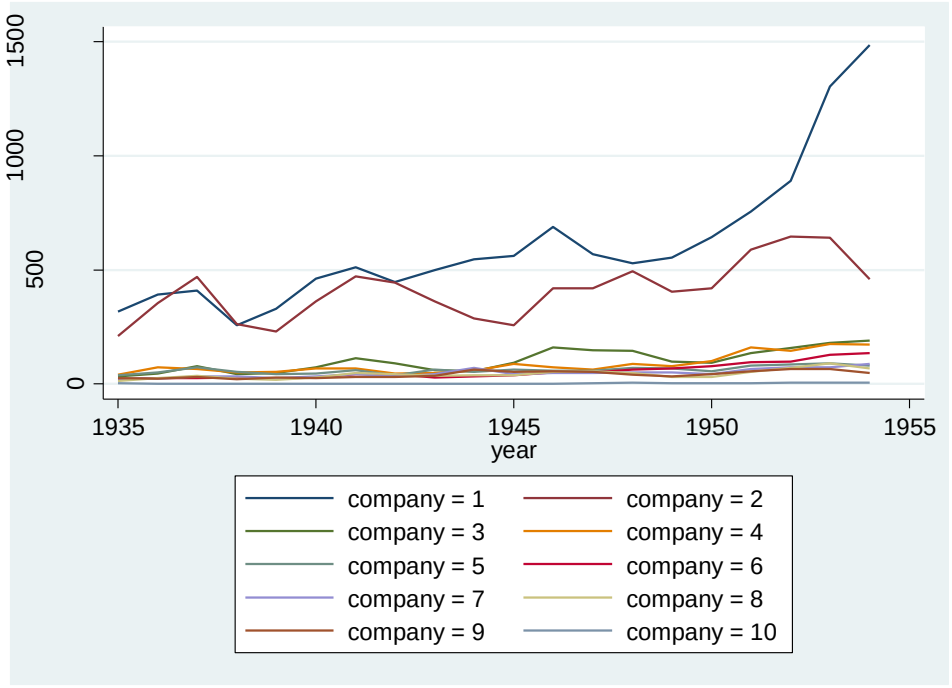
```
. webuse grunfeld

. xtset company year
       panel variable:  company (strongly balanced)
        time variable:  year, 1935 to 1954
                delta:  1 year


. xtline invest
```



```
. xtline invest, overlay
```



Havuzlanmış EKK Tahmincisi

```
. reg invest mvalue kstock

      Source |       SS           df       MS      Number of obs   =       200
-------------+----------------------------------   F(2, 197)       =    426.58
       Model |  7604093.48         2  3802046.74   Prob > F        =    0.0000
    Residual |  1755850.43       197  8912.94636   R-squared       =    0.8124
-------------+----------------------------------   Adj R-squared   =    0.8105
       Total |  9359943.92       199  47034.8941   Root MSE        =    94.408
------------------------------------------------------------------------------
      invest |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      mvalue |   .1155622   .0058357    19.80   0.000     .1040537    .1270706
      kstock |   .2306785   .0254758     9.05   0.000     .1804382    .2809188
       _cons |  -42.71437   9.511676    -4.49   0.000    -61.47215   -23.95659
------------------------------------------------------------------------------
```

Birinci Farklar Tahmincisi-1

```
. gen Linvest=L.invest
(10 missing values generated)

. gen Lmvalue=L.mvalue
(10 missing values generated)

. gen Lkstock=L.kstock
(10 missing values generated)

. gen Dinvest=invest-Linvest
(10 missing values generated)

. gen Dmvalue=mvalue-Lmvalue
(10 missing values generated)

. gen Dkstock=kstock-Lkstock
(10 missing values generated)

. reg Dinvest Dmvalue Dkstock, noconstant

      Source |       SS           df       MS      Number of obs   =       190
-------------+----------------------------------   F(2, 188)       =     70.58
       Model |  259740.904         2  129870.452   Prob > F        =    0.0000
    Residual |  345936.596       188  1840.08828   R-squared       =    0.4288
-------------+----------------------------------   Adj R-squared   =    0.4228
       Total |    605677.5       190  3187.77631   Root MSE        =    42.896

------------------------------------------------------------------------------
     Dinvest |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     Dmvalue |   .0890628   .0082341    10.82   0.000     .0728197    .1053059
     Dkstock |    .278694   .0471564     5.91   0.000     .1856703    .3717177
------------------------------------------------------------------------------
```

Birinci Farklar Tahmincisi-2

```
. gen D1invest=D.invest
(10 missing values generated)

. gen D1mvalue=D.mvalue
(10 missing values generated)

. gen D1kstock=D.kstock
(10 missing values generated)

. reg D1invest D1mvalue D1kstock, noconstant

      Source |       SS           df       MS      Number of obs   =       190
-------------+----------------------------------   F(2, 188)       =     70.58
       Model |  259740.904         2  129870.452   Prob > F        =    0.0000
    Residual |  345936.596       188  1840.08828   R-squared       =    0.4288
-------------+----------------------------------   Adj R-squared   =    0.4228
       Total |    605677.5       190  3187.77631   Root MSE        =    42.896

------------------------------------------------------------------------------
    D1invest |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    D1mvalue |   .0890628   .0082341    10.82   0.000     .0728197    .1053059
    D1kstock |    .278694   .0471564     5.91   0.000     .1856703    .3717177
------------------------------------------------------------------------------
```

Birinci Farklar Tahmincisi-3

```
. reg D.invest D.mvalue D.kstock, noconstant

      Source |       SS           df       MS      Number of obs   =       190
-------------+----------------------------------   F(2, 188)       =     70.58
       Model |  259740.904         2  129870.452   Prob > F        =    0.0000
    Residual |  345936.596       188  1840.08828   R-squared       =    0.4288
-------------+----------------------------------   Adj R-squared   =    0.4228
       Total |    605677.5       190  3187.77631   Root MSE        =    42.896

------------------------------------------------------------------------------
    D.invest |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      mvalue |
         D1. |   .0890628   .0082341    10.82   0.000     .0728197    .1053059
             |
      kstock |
         D1. |    .278694   .0471564     5.91   0.000     .1856703    .3717177
------------------------------------------------------------------------------
```

Birinci Farklar Tahmincisi-4

```
. reg D.(invest mvalue kstock), noconstant

      Source |       SS           df       MS      Number of obs   =       190
-------------+----------------------------------   F(2, 188)       =     70.58
       Model |  259740.904         2  129870.452   Prob > F        =    0.0000
    Residual |  345936.596       188  1840.08828   R-squared       =    0.4288
-------------+----------------------------------   Adj R-squared   =    0.4228
       Total |    605677.5       190  3187.77631   Root MSE        =    42.896

------------------------------------------------------------------------------
    D.invest |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      mvalue |
         D1. |   .0890628   .0082341    10.82   0.000     .0728197    .1053059
             |
      kstock |
         D1. |    .278694   .0471564     5.91   0.000     .1856703    .3717177
------------------------------------------------------------------------------
```