[Example10-7] Trends

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```
library(dynlm);library(stargazer)
```

```
## Loading required package: zoo
```

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
##
## Please cite as:
```

```
##  Hlavac, Marek (2018). stargazer: Well-Formatted Regression and Summar
y Statistics Tables.
```

```
##  R package version 5.2.2. https://CRAN.R-project.org/package=stargazer
```

```
load("~/計量経済学演習/R data sets for 5e/hseinv.RData")
hseinv<-data
```

Define Yearly time series beginning in 1947

```
tsdata <- ts(hseinv, start=1947)
```

Linear regression of model with lags

```
res1 <- dynlm(log(invpc) ~ log(price)                , data=tsdata)
res2 <- dynlm(log(invpc) ~ log(price) + trend(tsdata), data=tsdata)
stargazer(res1,res2, type="text")
```

```
##
## ===============================================================
##                                  Dependent variable:
##                     ---------------------------------------
##                                       log(invpc)
##                              (1)                    (2)
## ---------------------------------------------------------------
## log(price)                 1.241***               -0.381
##                            (0.382)               (0.679)
##
## trend(tsdata)                                     0.010***
```

```
##                                                    (0.004)
##
## Constant                        -0.550***          -0.913***
##                                  (0.043)            (0.136)
##
## ------------------------------------------------------------
## Observations                        42                 42
## R2                                 0.208              0.341
## Adjusted R2                        0.189              0.307
## Residual Std. Error         0.155 (df = 40)    0.144 (df = 39)
## F Statistic             10.530*** (df = 1; 40) 10.080*** (df = 2; 39)
## ============================================================
## Note:                                *p<0.1; **p<0.05; ***p<0.01
```

実は trend の影響でしたって話。trend がほぼほぼ吸ってる。だから log(price)の causal effect とは言いづらい。

```
#library(zoo)
zoodata<-zoo(hseinv,order.by = hseinv$year)

res3 <- dynlm(log(invpc) ~ log(price)               , data=zoodata)
res4 <- dynlm(log(invpc) ~ log(price) + trend(zoodata), data=zoodata)
stargazer(res3,res4, type="text")

##
## ============================================================
##                                 Dependent variable:
##                     ---------------------------------------
##                                      log(invpc)
##                               (1)                 (2)
## ------------------------------------------------------------
## log(price)                  1.241***            -0.381
##                             (0.382)             (0.679)
##
## trend(zoodata)                                  0.010***
##                                                 (0.004)
##
## Constant                    -0.550***           -0.913***
##                              (0.043)             (0.136)
##
## ------------------------------------------------------------
## Observations                   42                  42
## R2                            0.208               0.341
## Adjusted R2                   0.189               0.307
## Residual Std. Error    0.155 (df = 40)     0.144 (df = 39)
## F Statistic         10.530*** (df = 1; 40) 10.080*** (df = 2; 39)
## ============================================================
## Note:                                *p<0.1; **p<0.05; ***p<0.01
```

zoo 使っても全く同じ結果出せる。