[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 Summary 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***
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##
## ----------------------------------------------------------------
## Observations              42                42
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## ================================================================
## Note:                          *p<0.1; **p<0.05; ***p<0.01
```

zoo使っても全く同じ結果出せる。