

```

require(systemfit)
require(midasr)
require(lmtest)
data(Kmenta)
attach(Kmenta)
?Kmenta
#####
# Jusu
eq<-lm(consump~price+income+farmPrice+trend,data=Kmenta)
summary(eq)
#####
### Str. sistema ###
#####
eq.d<-consump~price+income #+const
# eq.s<-price~consump+income+farmPrice+trend #+const -- NEidenifik!
eq.s<-price~consump+farmPrice+trend
eqs<-list(d=eq.d,s=eq.s)
eqs
### Vertinimas ###
fit.ols<-systemfit(eqs)
instr<-~income+farmPrice+trend
fit.2sls<-systemfit(eqs,method="2SLS",inst=instr)
fit.3sls<-systemfit(eqs,method="3SLS",inst=instr)
summary(fit.ols)
summary(fit.2sls)
summary(fit.3sls)
cof<-cbind(coef(fit.ols),coef(fit.2sls),coef(fit.3sls))
colnames(cof)<-c("OLS","2SLS","3SLS")
cof
### Kovariacijos ###
objects(fit.2sls)
objects(fit.3sls)
liek<-na.omit(resid(fit.2sls))
cor(liek)
cor.test(liek[,1],liek[,2])
# D<-diag(sqrt(diag(fit.2sls$residCov)))
# R.cov<-solve(D)%*%fit.2sls$residCov%*%solve(D)
# R.cov
nobs <- nrow(resid(fit.2sls))
n<-ncol(fit.3sls$residCov)
C.sign<-nobs*(log(det(fit.2sls$residCov))-log(det(fit.3sls$residCov)))
p.val.C<-1-pchisq(C.sign,n*(n-1)/2)
p.val.C
### Hausman neteising. specif. testas ###
hausman.systemfit(fit.2sls,fit.3sls)
#####
### Perid. apribojimai ###
#####
### Red. sistema ###
eqr.d<-consump~income+farmPrice+trend
eqr.s<-price~income+farmPrice+trend
eqr<-list(d=eqr.d,s=eqr.s)
### Vertinimas ###
fit.ols.r<-systemfit(eqr)
summary(fit.ols.r)
### Perid. apr. reiksm. ###
objects(fit.ols.r)
cf<-coef(fit.3sls)
cf
A<-diag(2)
A[1,2]<- -cf[2]

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A[2,1]<- -cf[5]
A
Ai<-solve(A)
overid.sign<-nobs*(log(det(Ai%%*%fit.3sls$residCov%%*%t(Ai)))-
log(det(fit.ols.r$residCov)))
p.val.Ov<-1-pchisq(overid.sign,fit.ols.r$rank-fit.3sls$rank)
p.val.Ov
### Papildomi instrumentai specifikacijos testavimui ###
eqs
price.1<-mls(price,1,1)
price.2<-mls(price,2,1)
cbind(price,price.1,price.2)
consump.1<-mls(consump,1,1)
consump.2<-mls(consump,2,1)
farmPrice.1<-mls(farmPrice,1,1)
farmPrice.2<-mls(farmPrice,2,1)

res<-resid(fit.3sls)
ht.d<-lm(res$d~price.1+consump.1+farmPrice.1)
summary(ht.d)
ht.d0<-lm(res$d[2:nrow(res)]~1)
lrtest(ht.d,ht.d0)
ht.s<-lm(res$s~price.1+consump.1+farmPrice.1)
summary(ht.s)
ht.s0<-lm(res$s[2:nrow(res)]~1)
lrtest(ht.s,ht.s0)
lrtest(ht.s,1)
lrtest(ht.s,2:3)

ht2.d<-lm(res$d~price.1+price.2+consump.1+consump.2+farmPrice.1+farmPrice.2)
summary(ht2.d)
ht.d02<-lm(res$d[3:nrow(res)]~1)
lrtest(ht2.d,ht.d02)
lrtest(ht2.d,1)
lrtest(ht2.d,1:2)
lrtest(ht2.d,3:4)
lrtest(ht2.d,5:6)
ht2.s<-lm(res$s~price.1+price.2+consump.1+consump.2+farmPrice.1+farmPrice.2)
summary(ht2.s)
ht.s02<-lm(res$s[3:nrow(res)]~1)
lrtest(ht2.s,ht.s02)
lrtest(ht2.s,1)
lrtest(ht2.s,1:2)
lrtest(ht2.s,3:4)
lrtest(ht2.s,5:6)
### Ramsey RESET testas - atskiru lygc. spec. adekvatumas: E(e|X)=0 ###
# pradiniu lygciu (pakeitus endogeninius i instrumentus)
resettest(lm(consump ~ fitted(lm(eqr.s)) + income))
resettest(lm(price ~ fitted(lm(eqr.d)) + farmPrice + trend))
# instrumentu lygciu
resettest(ht2.d)
resettest(ht2.s)
### Kiti (neteisingi) tiesiniai apribojimai ###
Rmat<-matrix(0,1,ncol=7)
Rmat[1,2]<-1
Rmat[1,6]<-1
qv<-0
fit.3sls.r<-
systemfit(eqs,method="3SLS",inst=instr,restrict.matrix=Rmat,restrict.rhs=qv)
summary(fit.3sls.r)
cbind(coef(fit.ols),coef(fit.2sls),coef(fit.2sls.r))

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