

## Example 10-4

September 11, 2020

```
[ ]: # install the following packages and libraries
install.packages("pder")
install.packages("plm")
install.packages("splm")

library(spData)
install.packages("spDataLarge")
library("pder")
library("plm")
library("splm")
library("lmtest")

# import the data and estimate the CCEMG model
data("usaw49", package="pder")
data("HousePricesUS", package="pder")

ccemgmod <- pmg(log(price) ~ log(income), data = HousePricesUS, model = "cmg")
```

```
[4]: ##-----Block 1-----

#### Example 10-4 ####

## -----

# pure-SAR model of the residuals from the CCEMG model
e <- resid(ccemgmod)
edat <- data.frame(ind = attr(e, "index")[[1]],
                  tind = attr(e, "index")[[2]], e = as.numeric(e))
sarmod.e <- spreml(e ~ 1, data = edat, w = usaw49, lag = TRUE, errors = "ols")
summary(sarmod.e)$ARCoefTable
```

	Estimate	Std. Error	t-value	Pr(> t )
lambda	0.6498244	0.02037116	31.89924	2.73596e-223

```
[5]: ##-----Block 2-----

# spatial OLS model
```

```
coeftest(plm(e ~ slag(e, listw = usaw49) - 1, data = edat, model = "p"))
```

t test of coefficients:

	Estimate	Std. Error	t value	Pr(> t )
slag(e, listw = usaw49)	0.883112	0.025104	35.178	< 2.2e-16 ***

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