

# Package: dynpanel (via r-universe)

August 25, 2024

**Type** Package

**Title** Dynamic Panel Data Models

**Version** 0.1.0

**Author** Taha Zaghdoudi

**Maintainer** Taha Zaghdoudi <zedtaha@gmail.com>

**Description** Computes the first stage GMM estimate of a dynamic linear model with  $p$  lags of the dependent variables.

**License** GPL-3

**LazyData** TRUE

**RoxygenNote** 5.0.1

**Depends** R (>= 3.3.0)

**Imports** stats, gtools

**Repository** <https://zedtaha.r-universe.dev>

**RemoteUrl** <https://github.com/zedtaha/dynpanel>

**RemoteRef** HEAD

**RemoteSha** 1d42f61d8e863063e02a1de53f036a35476c0349

## Contents

dynpanel-package . . . . .	2
dpd . . . . .	3
dpd.formula . . . . .	3
Produc . . . . .	4
summary.dpd . . . . .	5

<b>Index</b>	<b>6</b>
--------------	----------

---

dynpanel-package      *Dynamic Panel Data Models*

---

## Description

This package computes the first stage GMM estimate of a dynamic linear model with  $p$  lags of the dependent variables.

## Details

Package: dynpanel  
Type: Package  
Version: 1.0  
Date: 2016-08-26  
License: GPL-3

In this package, we apply the generalized method of moments to estimate the dynamic panel data models.

## Author(s)

Taha Zaghdoudi  
Taha Zaghdoudi <zedtaha@gmail.com>

## References

- Anderson, T. W.; Hsiao, Cheng (1981). Estimation of dynamic models with error components. *Journal of the American Statistical Association*. **76** (375), pp. 598-606.
- Arellano, Manuel; Bond, Stephen (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies*. **58**, pp.2)-277.
- Cameron, A. Colin; Trivedi, Pravin K. (2005). Dynamic Models. *Microeconometrics: Methods and Applications*. New York: Cambridge University Press. pp. 763-768.
- Hsiao, Cheng (2014). Dynamic Simultaneous Equations Models. *Analysis of Panel Data*. New York: Cambridge University Press. pp. 397-402.
- Munnell AH (1990). Why has Productivity Growth Declined? Productivity and Public Investment, *New England Economic Review*, pp. 3-22.

## Examples

```
# Load data
data(Produc)
# Fit the dynamic panel data using the Arellano Bond (1991) instruments
reg<-dpd(log(gsp) ~ log(pcap) + log(pc) + log(emp) + unemp,Produc,index=c("state","year"),1,4)
summary(reg)
# Fit the dynamic panel data using an automatic selection of appropriate IV matrix
```

```

#reg<-dpd(log(gsp) ~ log(pcap) + log(pc) + log(emp) + unemp,Produc,index=c("state","year"),1,0)
#summary(reg)
# Fit the dynamic panel data using the GMM estimator with the smallest set of instruments
#reg<-dpd(log(gsp) ~ log(pcap) + log(pc) + log(emp) + unemp,Produc,index=c("state","year"),1,1)
#summary(reg)
# Fit the dynamic panel data using a reduced form of IV from method 3
#reg<-dpd(log(gsp) ~ log(pcap) + log(pc) + log(emp) + unemp,Produc,index=c("state","year"),1,2)
#summary(reg)
# Fit the dynamic panel data using the IV matrix where the number of moments grows with kT
# K: variables number and T: time per group
#reg<-dpd(log(gsp) ~ log(pcap) + log(pc) + log(emp) + unemp,Produc,index=c("state","year"),1,3)
#summary(reg)

```

---

dpd	<i>method</i>
-----	---------------

---

### Description

method

### Usage

dpd(x, ...)

### Arguments

x	a numeric design matrix for the model.
...	not used

### Author(s)

Zaghdoudi Taha

---

dpd.formula	<i>formula</i>
-------------	----------------

---

### Description

formula

### Usage

```

## S3 method for class 'formula'
dpd(formula, data = list(), index = c("id", "time"), p,
    meth = c(0, 1, 2, 3, 4), ...)

```

**Arguments**

formula	PIB~INF+TIR
data	the dataframe
index	: id is the name of the identity groups and time is the time per group
p	scalar, autoregressive order for dependent variable
meth	scalar, indicator for the Instruments to use
...	not used

---

 Produc

*US States Production*


---

**Description**

- statethe state
- yearthe year
- pcappprivate capital stock
- hwyhighway and streets
- waterwater and sewer facilities
- utilother public buildings and structures
- pcpublic capital
- gspgross state products
- emplabor input measured by the employment in non–agricultural payrolls
- unempstate unemployment rate

**Usage**

```
data(Produc)
```

**Format**

A data frame with 816 rows and 10 variables

---

summary.dpd

*Summary*

---

**Description**

Summary

**Usage**

```
## S3 method for class 'dpd'  
summary(object, ...)
```

**Arguments**

object	is the object of the function
...	not used

# Index

`dpd`, [3](#)  
`dpd.formula`, [3](#)  
`dynpanel` (`dynpanel-package`), [2](#)  
`dynpanel-package`, [2](#)  
`Produc`, [4](#)  
`summary.dpd`, [5](#)