Package: expsmooth (via r-universe)

October 10, 2024

Title Data Sets from ``Forecasting with Exponential Smoothing"

Description Data sets from the book ``Forecasting with exponential smoothing: the state space approach" by Hyndman, Koehler, Ord and Snyder (Springer, 2008).

Version 2.4

Depends R (>= 2.0.0), forecast

Suggests ggplot2, gridExtra, knitr, rmarkdown

LazyData yes

LazyLoad yes

License GPL-3

URL http://pkg.robjhyndman.com/expsmooth/, https://github.com/robjhyndman/expsmooth

BugReports https://github.com/robjhyndman/expsmooth/issues

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Encoding UTF-8

VignetteBuilder knitr

Repository https://robjhyndman.r-universe.dev

RemoteUrl https://github.com/robjhyndman/expsmooth

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Contents

`expsmooth-package` *Data sets for "Forecasting with exponential smoothing"*

Description

Data sets from the book "Forecasting with exponential smoothing: the state space approach" by Hyndman, Koehler, Ord and Snyder (Springer, 2008).

Author(s)

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References

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer. www.exponentialsmoothing.net.

ausgdp *Quarterly Australian GDP*

Description

Quarterly Australian GDP per capita, 1971:1 - 1998:1

Usage

```
ausgdp
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(ausgdp,main="Australian GDP per capita",ylab="dollars",xlab="Year")
```

bonds *Monthly US government bond yields*

Description

Monthly US government 10-year bond yields (percent pa) from Jan 1994 to May 2004

Usage

```
bonds
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(bonds,main="US 10-year bonds yield",ylab="Percentage per annum",xlab="Year")
```

---

cangas *Monthly Canadian gas production*

Description

Monthly Canadian gas production, billions of cubic metres, January 1960 - February 2005

Usage

```
cangas
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(cangas,main="Monthly Canadian gas production",ylab="billion cubic metres",xlab="Year")
```

carparts *Monthly sales car parts*

Description

Monthly sales car parts. 2674 series. Jan 1998 - Mar 2002.

Usage

```
carparts
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(carparts[,2001:2010],main="Monthly car part sales",xlab="Year")
```

dji *Monthly Dow Jones Index*

Description

Monthly Dow Jones Index: Open, High, Low, Close. Jan 1990 - Mar 2007

Usage

```
dji
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(dji,plot.type="single",main="Dow Jones Index",xlab="Year",ylab="",col=1:4)
legend("bottomright",legend=colnames(dji),col=1:4,lty=1)
```

---

djiclose *Monthly Dow Jones Index: closing*

Description

Closing values of the Dow Jones Index on the first day of each month, October 1928 - Dec 2007. Two columns: `close` and `pcreturn`.

Usage

```
djiclose
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(djiclose,main="Dow Jones Index",xlab="Year")
```

enplanements *Monthly US domestic enplanements*

Description

"Domestic Revenue Enplanements (millions): 1996-2000. SOURCE: Department of Transportation, Bureau of Transportation Statistics, Air Carrier Traffic Statistic Monthly.

Usage

```
enplanements
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(enplanements,main="US domestic enplanements",ylab="millions",xlab="Year")
```

fmsales *Weekly FM sales*

Description

Sales of a product for 62 weeks starting in early 2003.

Usage

```
fmsales
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(fmsales,ylab="FM sales (thousands)",xlab="Week")
```

---

freight *Annual US new freight cars*

Description

Annual US new freight cars, 1947-1993. Freight cars, new (excl. rebuilt), new orders, equip. mfrers. Series N0193 from the M3 competition.

Usage

```
freight
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer. www.exponentialsmoothing.net

Examples

```
plot(freight,main="New freight cars shipped in USA",xlab="Year",ylab="")
```

frexport *Quarterly French exports*

Description

Quarterly exports of a French company. (in thousands of francs) taken from Makridakis et al. (1998, p.162).

Usage

```
frexport
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(frexport,ylab="thousands of francs",main="Quarterly exports",xlab="Year")
```

gasprice *US gasoline prices*

Description

Monthly US retail gasoline price (the average price per gallon, in dollars) and the spot price of a barrel of West Texas Intermediate (WTI) oil in dollars as traded at Cushing, Oklahoma. Jan 1991 - Nov 2006.

Usage

```
gasprice
```

Format

bivariate time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net. These series are available from the US Energy Information Administration website http://www.eia.doe.gov.

Examples

```
par(mar=c(5,4,2,5))
plot(gasprice[,1], xlab="Year", ylab="Average retail price per gallon (dollars)",
  main="Gasoline and oil prices")
par(new=TRUE)
plot(gasprice[,2], col="blue", xaxt="n", yaxt="n", xlab="", ylab="")
axis(4)
mtext("Spot price per barrel (dollars)", side=4, line=3)
legend("topleft", col=c("black","blue"), lty=1,
  legend=c("Ave retail price of gasoline", "Spot price of WTI oil"))
```

---

hospital *Monthly patient count*

Description

Monthly patient count for products that are related to medical problems. There are 767 time series that had a mean count of at least 10 and no zeros.

Usage

```
hospital
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(hospital[,1:10],main="Monthly patient count",xlab="Year")
```

`jewelry` *Weekly jewelry sales*

Description

Weekly sales of 314 costume jewelry items over the period week 5, 1998 to week 24, 2000.

Usage

```
jewelry
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(jewelry[,1:10],main="Weekly sales of costume jewelry items",xlab="Year")
```

`mcopper` *Monthly copper prices*

Description

Monthly copper prices. Copper, grade A, electrolytic wire bars/cathodes,LME,cash (pounds/ton) Source: UNCTAD (http://stats.unctad.org/Handbook).

Usage

```
mcopper
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(mcopper,main="Monthly copper price",ylab="pounds per ton",xlab="Year")
```

---

msales *Monthly product sales*

Description

Monthly sales for a product with shortage indicators. Contains sales (first column) and stockout indicator (second column).

Usage

```
msales
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(msales[,1],main="Monthly sales of a product",ylab="Sales",xlab="Year")
points(msales,pch=(msales[,"stockouts"]==1)+1)
legend("bottomright",pch=1:2,legend=c("Excess stock","Stock shortage"))
```

partx *Monthly sales of an automobile part*

Description

Monthly sales of an automobile part.

Usage

```
partx
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(partx,main="Monthly sales of an automobile part",ylab="Sales",xlab="Year")
```

ukcars *Quarterly UK passenger car production*

Description

Quarterly UK passenger car production (thousands of cars). 1977:1-2005:1

Usage

```
ukcars
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(ukcars,main="UK passenger vehicle production",ylab="Thousands of cars",xlab="Year")
```

---

unemp.cci *Unemployment and the CCI*

Description

100 monthly observations on the consumer confidence index (cci) and seasonally adjusted civilian unemployment (unemp) in the US, covering the period June 1997 – September 2005. The third column is an "terrorism" indicator variable taking value 1 from September 2001.

Usage

```
unemp.cci
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(unemp.cci[,1:2],main="Unemployment and the CCI",xlab="Year")
```

usgdp *Quarterly US GDP*

Description

Quarterly US GDP. 1947:1 - 2006.1.

Usage

```
usgdp
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer

References

http://www.exponentialsmoothing.net

Examples

```
plot(usgdp,main="Quarterly US GDP",xlab="Year",ylab="US Dollars")
```

usnetelec *Annual US net electricity generation*

Description

Annual US net electricity generation (billion kwh) for 1949-2003

Usage

```
usnetelec
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(usnetelec,main="Annual US net electricity generation",ylab="billion kwh",xlab="Year")
```

---

utility *Hourly utility demand*

Description

Hourly utility demand, mid western USA from 1 Jan 2003

Usage

```
utility
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(utility,main="Hourly utility demand",ylab="MW",xlab="Day")
```

vehicles *Hourly vehicle counts*

Description

Hourly vehicle counts on Monash Freeway, outside Melbourne in Victoria, Australia, beginning August 1995.

Usage

```
vehicles
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(vehicles,main="Hourly vehicle count",xlab="Day",ylab="Number of vehicles")
```

visitors *Monthly Australian overseas vistors*

Description

Monthly Australian short-term overseas vistors. May 1985-April 2005

Usage

```
visitors
```

Format

time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(visitors,main="Overseas visitors to Australia",ylab="Thousands of people",xlab="Year")
```

---

xrates *Monthly exchange rates*

Description

Monthly foreign exchange rates: US dollar and UK pound against the Australia dollar. audusd contains USD/AUD and audukp contains UKP/AUD.

Usage

```
xrates
```

Format

multiple time series

Source

Hyndman, R.J., Koehler, A.B., Ord, J.K., and Snyder, R.D., (2008) *Forecasting with exponential smoothing: the state space approach*, Springer.

References

http://www.exponentialsmoothing.net

Examples

```
plot(xrates,main="Foreign exchange rates",xlab="Year")
```

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