

The spec files, etc. adopted in the seasonal adjustment of the Indices of Tertiary Industry Activity using the X-12-ARIMA method.

(1) Method

Not only seasonal but also “trading day and holiday” and “leap-year” effects are adjusted as follows.

Seasonal adjustment Index = Original Index / (Seasonal, “Trading day and holiday” and “leap year” indices)

(2) Spec file

The spec file of X-12-ARIMA for seasonal adjustment of the Tertiary Industry is as follows. The spec file of the industries other than the Tertiary Industry are shown on the next page.

```
series{ start = 2004.jan
        span = (2004.1,2011.12)
        decimals = 1 }
transform { function = log }
arima { model = (2 1 0)(0 1 0) } *1
regression { variables = (td1 nolpyear lpyear) *1
             save = ( td hol )
             user = ( zzzzz ) *2
             usertype = holiday
             start = 2004.1
             file = "xxxxxxxxxxxxxxxxxxxxxxxxx" }
forecast { maxlead = 14 }
estimate { maxiter = 2000 }
outlier { types = all *3
          span=2008.1,2011.12} *1
x11 { appendfcst = yes
      print = (none + d10 + d11 + d16)
      save = (d10 d11 d16)
      seasonalma = x11default }
```

*1 See next page for details.

*2Parameters on holidays are set according to the corresponding trading day adjustments.

*3The released data after January 2009 are outlier-treated data. The commands other than those underlined and boxed commands in the above spec file are fixed.

(3) Employment of seasonal index, “trading day and holiday” and “leap year” indices

The seasonal indices used after January, 2012 are predicted by the X-12-ARIMA. The “trading day and holiday” and “leap year” indices after January, 2012 are calculated from the estimated parameters in the (2) above and the calendar.

Spec for major series

series	ARIMA model	Tradingday and leap year iriatives.
The Indices of Tertiary Industry Activity	(2 1 0)(0 1 0)	td1 nolpyear lpyear
Electricity, Gas, Heat Supply and Water	(0 1 1)(0 1 1)	td1 nolpyear lpyear
Information and Communications	(2 1 0)(0 1 0)	td1 nolpyear lpyear
Transport and Postal Activities		
Wholesale and Retail Trade		
Finance and Insurance		
Real Estate and Goods Rental and Leasing		
Scientific Research, Professional and Technical Services	(0 1 1)(1 1 0)	td1 nolpyear lpyear
Eating and Drinking Places	(0 1 1)(0 1 1)	td1 nolpyear lpyear
Living-Related and Personal Services and Amusement Services	(0 1 0)(0 1 1)	no variables
Learning Support		
Medical, Health Care and Welfare	(0 1 0)(0 1 0)	td1 nolpyear lpyear
Compound Services	(2 1 0)(0 1 0)	td1 nolpyear lpyear
Miscellaneous Services (Except Government Services etc.)		
Government Services etc.		
Tertiary Industry and Government Services etc.		

The following outliers have been treated during the annual revision 2011.

Series	Outliers	Year / Month
Tertiary Industry	TC	200903
	LS	201001
	TC	201103
Transport and Postal Activities	TC	201103
<Transport>	TC	201103
Wholesale and Retail Trade	TC	200903
	AO	201011
	TC	201103
<Wholesale Trade>	TC	200903
<Retail Trade>	AO	201010
	TC	201012
	AO	201103
	AO	201104
	TC	201106
Scientific Research, Professional and Technical Services	TC	200908
Accommodations, Eating and Drinking Services	LS	200901
	TC	201103
Accommodations	TC	201103
	AO	201104
<Eating and Drinking Places>	TC	201103
Living-Related and Personal Services and Amusement Services	TC	201103
	LS	201105
Miscellaneous Services (Except Government Services etc.)	LS	201001
Tertiary Industry and Government Services etc.	TC	200903
	LS	201001
	TC	201103
Tertiary Industry (except Electricity, Gas, Heat Supply and Water)	TC	200903
	LS	201001
	TC	201103