

Shaping of Demand Elasticities in TIMES

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(Feb 25, 2008)

1 Overview

The demand elasticities used in the partial equilibrium mode of TIMES are specified by using the COM_ELAST attribute. In the original design of TIMES, these elasticities were always assumed to be constant over the full range of the potential change in demand either in the upper or lower direction (but having possibly different elasticities in those directions). Starting from TIMES v2.5.0, a new attribute is available for the shaping of the elasticities within the ranges of the allowed change in demand.

2 Description of the COM_ELASTX attribute

Name: COM_ELASTX
Dimensions: reg,datayear,com,bd
Default inter-/extrapolation: Migration

The new COM_ELASTX attribute can be used for shaping demand elasticities. The value of the COM_ELASTX parameter is an integer number specifying the index of the shape curve to be applied to the corresponding demand elasticity. It can be used in the same way as any other parameters identifying the index of the shape curve to be applied.

The actual shape curves have to be defined separately by using the SHAPE attribute (see TIMES documentation, Part II). While the individual steps in the shape curve normally represent successive years, in the case of COM_ELASTX they represent percentages of change in the demand from the baseline.

An illustrative example:

Specify the 'base elasticity' in the upper direction:

```
COM_ELAST(r,y,c,ts,'up') = -0.3;
```

Specify the index of the shape curve to be applied in the upper direction:

```
COM_ELASTX(r,y,c,'up') = 40;
```

Specify the SHAPE curve 40, by percentage changes in demand:

```
SHAPE(40,5) = 1; (Elasticity stays at the base value (-0.3) up to 5%  
change in demand)
```

```
SHAPE(40,10) = .667; (Elasticity decreases to 67% from base value (i.e.  
from -0.3 to -0.2) between 5% and 10% change in  
demand)
```

```
SHAPE(40,20) = .333; (Elasticity decreases to 33% from base value (i.e.  
from -0.2 to -0.1) between 10% and 20% change in  
demand)
```