CAPITL

CAPITL (BENCHOBS=*obs id*, BENCHVAL=*scalar*, END)
investment series depreciation rate capital stock series ;

Function:

CAPITL computes a capital stock series from a gross investment series, using a perpetual inventory and a constant rate of depreciation. If I is gross investment, K is the capital stock, and δ is the rate of depreciation then CAPITL computes

$K_t = (1-\delta)K_{t-1} + I_{t-1}$ (for the NOEND option)
$K_t = (1-\delta)K_{t-1} + I_t$ (for the END option)

It starts from a capital stock benchmark specified by an observation. If the benchmark is in the middle of the sample, CAPITL also applies the backward version of the formula,

$K_t = (K_{t+1} - I_t)/(1-\delta)$ (for the NOEND option)
$K_t = (K_{t+1} - I_{t+1})/(1-\delta)$ (for the END option)

to compute values of the capital stock in periods before the benchmark. Note that the depreciation rate, δ, is stated as a rate applicable to the frequency of the data--for quarterly data, the depreciation rate must be a quarterly rate, one fourth of the annual rate. It is possible to compute a depreciation series, δK_t, and a net investment series, $I_t - \delta K_t$.

CAPITL may be used in any application where a moving average with geometrically declining weights needs to be calculated. Further, by setting the depreciation rate to zero, it will simply cumulate a series.

Usage:

The only arguments required for the CAPITL statement are an investment series, a depreciation rate, and the name to be given to the derived capital stock series. In this case the value of the capital stock at the beginning of the computation is assumed to be zero. To alter these assumptions, see the options below.

CAPITL requires that there be no gaps in the current SMPL.

Options:

BENCHOBS= an observation identifier for the benchmark observation. This identifier should be contained in the current SMPL. If the frequency is quarterly and the SMPL is 47:4 80:4, for example, the benchmark observation could be 47:4, 56:1, 80:4, etc.

BENCHVAL= the value of the capital stock series at the benchmark observation. CAPITL will compute the capital stock both forwards and backwards from this observation.

END/**NOEND** computes the end-of-period capital stock (see the previous formulas).

Examples:

```
SMPL 1,74;
CAPITL (BENCHVAL=145.4,BENCHOBS=4)  INV,.04,KSTOCK ;
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CAPITL

In this example, the gross investment series is INV. CAPITL computes capital, KSTOCK. The benchmark applies to the 4th observation and has the value 145.4. The rate of depreciation is .04.

```
CAPITL(BENCHOBS=1,BENCHVAL=X(1),END) X,0.0,XACCUM ;
```

This example simply sums the series X and stores the result in XACCUM. Note that since the formula gives the end of period capital stock, the last observation of XACCUM contains the sum of all the observations on X.

Output:

CAPITL produces no printed output. The capital stock series is stored in data storage.