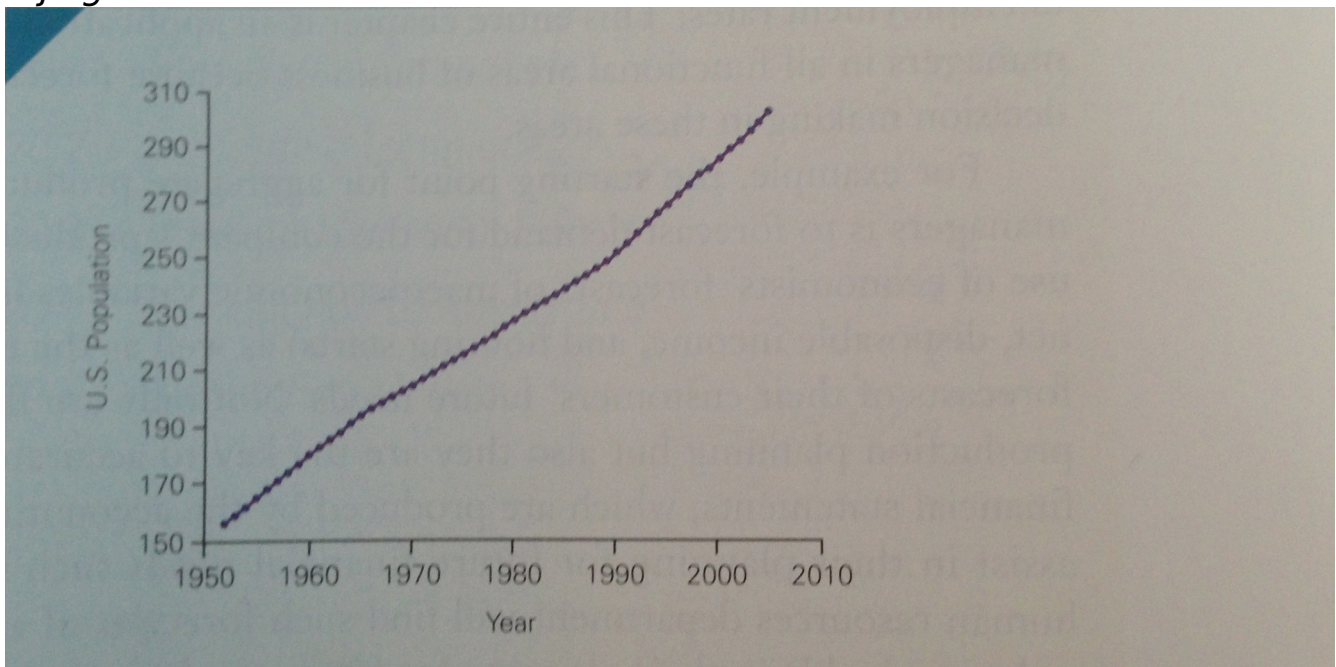


# Hoofdstuk 20

## Bijlage 20.1



## Bijlage 20.2

### Exponentially Smoothed Time Series

$$S_t = \alpha y_t + (1 - \alpha)S_{t-1} \text{ for } t \geq 2$$

where

- $S_t$  = Exponentially smoothed time series at time period  $t$
- $y_t$  = Time series at time period  $t$
- $S_{t-1}$  = Exponentially smoothed time series at time period  $t - 1$
- $\alpha$  = Smoothing constant, where  $0 \leq \alpha \leq 1$

### Bijlage 20.3

#### Mean Absolute Deviation

$$\text{MAD} = \frac{\sum_{i=1}^n |y_t - F_t|}{n}$$

where

$y_t$  = Actual value of the time series at time period  $t$

$F_t$  = Forecasted value of the time series at time period  $t$

$n$  = Number of time periods

#### Sum of Squares for Forecast Error

$$\text{SSE} = \sum_{i=1}^n (y_t - F_t)^2$$

### Bijlage 20.4

#### Forecast of Trend and Seasonality

The forecast for time period  $t$  is

$$F_t = [b_0 + b_1 t] \times SI_t$$

where

$F_t$  = Forecast for period  $t$

$b_0 + b_1 t$  = Regression equation

$SI_t$  = Seasonal index for period  $t$



## Autoregressive Forecasting Model

$$y_t = \beta_0 + \beta_1 y_{t-1} + \varepsilon$$