

---

Framing contracts and jurisdiction ahead to match  $p = \text{"Economy Funds"}$  and  $v = \text{"Economy Velocity"}$  that can be modelled with typical approaches for fuction  $z = \text{"arrival state"}$  depending on  $x = \text{"starting state"}$ , so that "work"  $W = F \cdot r = F \cdot (z - x)$ :

Table 1: Modelling Functions

| Type              | Model                | Linearisation                        |
|-------------------|----------------------|--------------------------------------|
| Linear            | $z = a + bx$         | $z = a + bx$                         |
| Gemetric          | $z = a \cdot x^b$    | $\log z = \log a + b \cdot (\log x)$ |
| Exponential deca. | $z = a \cdot b^x$    | $\log z = \log a + (\log b) \cdot x$ |
| Exponential nat.  | $z = a \cdot e^{bx}$ | $\ln z = \ln a + bx$                 |
| Periodical        |                      |                                      |
| Polynomial        |                      |                                      |
| Taylor            |                      |                                      |

---

Linear optimization to achieve target states " $z, h$ ":

1. Oneness situaiton modelling:

minimize efforts =  $z$  or maximizie return =  $z$

$$\begin{aligned}
 &\text{target:} && z = c^T \cdot x \\
 &\text{min. constraints:} && [a_{ki}] \cdot x \geq b \\
 &\text{max. constraints:} && [a_{ki}] \cdot x \leq b \\
 &\text{condition:} && x \geq 0
 \end{aligned} \tag{1}$$

2. Duality situation modelling:

minimize efforts =  $z$  and maximize return =  $h$

---


$$\begin{array}{ll}
\text{target min.:} & z = c^T \cdot x \\
\text{min. constraints:} & [a_{ki}] \cdot x \geq b \\
\text{condition:} & x \geq 0 \\
& \text{and} \\
\text{target max.:} & h = b^T \cdot y \\
\text{max. constraints:} & [a_{ki}]^T \cdot y \leq c \\
\text{condition:} & y \geq 0
\end{array} \tag{2}$$

### 3. Normalization:

$$\begin{array}{ll}
\text{target:} & z = c^T \cdot x \\
\text{min. constraints:} & ([a_{ki}] - x_{n+k}) \cdot x = b \\
\text{max. constraints:} & ([a_{ki}] + x_{n+k}) \cdot x = b \\
\text{condition:} & x \geq 0
\end{array} \tag{3}$$

### 4. Solution with [Simplex algorithm](#)

multilinear and exponential models ...