Mikro HO Jeppe Vanderhaegen

$U(x_1, x_2) = 12 \ln x_1 + x_2$

a) Først beregnes nytten.

$h_1(p_1, 1, u) = \frac{12}{3} = 4 \quad \vee \quad h(p_1, 1, u) = \frac{12}{6} = 2$

Herved kan opstilles

$$CV = \int_3^6 h_1(\pi, 1, 4)\,d\pi = \int_3^6 \frac{12}{\pi} = \Big[\ln(x)12\Big]_3^6 = 12 \ln\left(\frac{6}{3}\right) = 8{,}3$$

$$EV = \int_3^6 h(\pi, 1, 2)\,d\pi = \int_3^6 \frac{12}{\pi} = \Big[\ln(x)12\Big]_3^6 = 12 \ln\left(\frac{6}{3}\right) = 8{,}3$$

$$\Delta CS = -\int_p^{p'} x_1(\pi, p_2, m) \quad \text{Derfor:}$$

$$\Delta CS = -\int_3^6 x(\pi, 1, 40)\,d\pi = -\int_3^6 \frac{12}{\pi}\,d\pi = -12\int_3^6 \frac{1}{\pi}\,d\pi = \Big[-12\ln(\pi)\Big]_3^6$$

$$= -12\ln(6) - (-12\ln(3)) = -12\ln(6) + 12\ln(3)$$

$$= -12(\ln(6) - \ln(3)) = -12\ln\left(\frac{6}{3}\right) \Leftrightarrow -12\ln(2) = -8{,}3$$

b) DWL = EV − Provenu

Vi kender optimalt forbrug for $x_1^* = \frac{12}{p_1'} = \frac{12}{6} = 2$

Derfor $x^* = 2$.

Provenu $= tx = 3 \cdot 2 = 6$

DWL $= 8{,}3 - 6$. Derfor er dødvægtstabet ved p_1' 2,3.

c) CV er lig 8,31. Derfor er det nye $m = 48{,}31$. Ergo $\left(\frac{48{,}31}{40} - 1\right) \cdot 100 = 0{,}2077 \approx 21\%$.

x_2 Altså skal hans indkomst stige 21% for at fastholde hans nytte