Dq: $c(F,u) \leq \int x\,dF(x) \quad \forall F$ //

$\Longrightarrow \pi(x,\varepsilon,u) \geq 0$.

Rdo: Sea F distribución.

$$u\big(c(F,u)\big) = \int u(x)\,dF(x)$$

Sea $\varepsilon > 0$

$$u(x) = \left(\frac{1}{2}+\pi\right)u(x+\varepsilon) + \left(\frac{1}{2}-\pi\right)u(x-\varepsilon)$$

$\Rightarrow$ | Sea $x, \varepsilon > 0$.

$$\Rightarrow u(x) = \left(\frac{1}{2}+\pi\right)u(x+\varepsilon) + \left(\frac{1}{2}-\pi\right)u(x-\varepsilon)$$

Sea $L_\pi : \left(\frac{1}{2}+\pi\right)(x+\varepsilon),\ \left(\frac{1}{2}-\pi\right)(x-\varepsilon)$

$\therefore$ π es tal que $c(L_\pi, u) = x$.

Por otro lado $\int x\,dL(x) = x\left(\frac{1}{2}+\pi+\frac{1}{2}-\pi\right) + \varepsilon\left(\frac{1}{2}+\pi-\frac{1}{2}+\pi\right)$

$$= x + 2\pi\varepsilon$$

y por hipótesis:

$$x = c(L_\pi, u) \leq \int x\,dL(x) = x + 2\pi\varepsilon$$

$$\Rightarrow 0 \leq 2\pi\varepsilon \Rightarrow \pi \geq 0 \ //$$

Ej 2

· bienes (x_1, x_2)

· Riqueza w

· $u(x_1, x_2) = f(x_1 + x_2)$, f creciente

· L_1: $\frac{1}{2}(1,3)$, $\frac{1}{2}(3,1)$

· L_2: $(2,2)$

L_2

$$\max_{x_1,x_2} f(x_1+x_2) \iff \max_{x_1,x_2} x_1+x_2$$

$$\text{s.a} \quad 2x_1+2x_2 = w \qquad \text{s.a} \quad x_1+x_2 = \frac{w}{2}$$

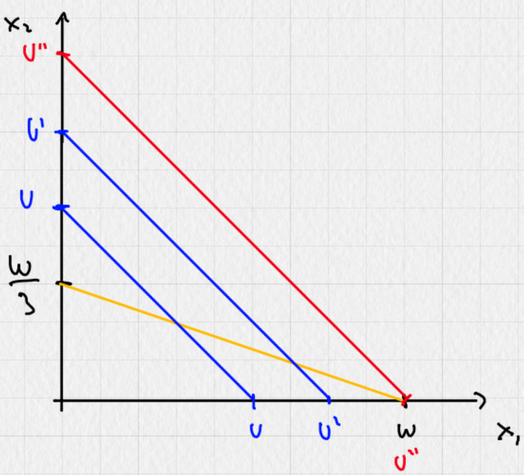
$$\iff \max_{x_1,x_2} \frac{w}{2} = \frac{w}{2} \;// \qquad \text{con} \quad x_1^* + x_2^* = \frac{w}{2}$$

L_1

Con prob. $1/2$, $p = (1,3)$:

$$\max_{x_1,x_2} f(x_1+x_2) \iff \max_{x_1,x_2 \geq 0} x_1+x_2$$

$$\text{s.a} \quad x_1 + 3x_2 = w \qquad \text{s.a} \quad x_1+3x_2 = w$$



$$x_1 + 3x_2 = w \iff x_2 = \frac{w}{3} - \frac{x_1}{3}$$

$$x_1 + x_2 = U \iff x_2 = U - x_1$$

$$\iff \max \; x_1 + \frac{w}{3} - \frac{x_1}{3}$$

$$w \geq x_1 \geq 0$$

$$\Rightarrow x_1^* = w \; , \; x_2^* = 0$$

Nota: $x_2 \geq 0$

$$\iff \frac{w}{3} - \frac{x_1}{3} \geq 0$$

$$\iff w \geq x_1$$

Análogo: $p' = (3,1)$, $x_1^* = 0$, $x_2^* = w$

$$\therefore U(L_1) = \frac{1}{2} f(w) + \frac{1}{2} f(w) = f(w)$$

$$U(L_2) = f\left(\frac{w}{2}\right) < f(w) = U(L_1) \;//$$

Ej 3 | $L: \; pG \;, (1-p)B \;.\; G > B > 0$

1) Dueño : $\cdot\, U(L) = p\,u(w+G) + (1-p)\,u(w+B)$

$\cdot$ Si vendo a precio t: $\quad u(w+t)$

$$\Rightarrow \boxed{u(w+t^v) = U(L) = p\,u(w+G) + (1-p)\,u(w+B)}$$

2) $\cdot$ Sin lotería $u(w)$.

$\cdot$ Comprando lotería : $p\,u(G+w-t) + (1-p)\,u(B+w-t)$

$$\Rightarrow \boxed{p\,u(G+w-t^c) + (1-p)\,u(B+w-t^c) = u(w)}$$

3) $u(x) = -e^{-\lambda x}$, $\lambda > 0$.

t^v |

$$-e^{-\lambda(w+t^v)} = p\cdot -e^{-\lambda(w+G)} + (1-p)\cdot -e^{-\lambda(w+B)}$$

$$e^{-\lambda(w+t^v)} = p\,e^{-\lambda(w+G)} + (1-p)\,e^{-\lambda(w+B)} \quad /\cdot e^{\lambda w}$$

$$\boxed{e^{-\lambda t^v} = p\,e^{-\lambda G} + (1-p)\,e^{-\lambda B}} \quad (A)$$

t^c |

$$p\cdot -e^{-\lambda(G+w-t^c)} + (1-p)\cdot -e^{-\lambda(B+w-t^c)} = -e^{-\lambda w} \quad /\cdot -e^{\lambda w}$$

$$\boxed{p\,e^{-\lambda(G-t^c)} + (1-p)\,e^{-\lambda(B-t^c)} = 1} \quad (B)$$

$$(A) \Rightarrow (1-p)\,e^{-\lambda B} = e^{-\lambda t^v} - p\,e^{-\lambda G}$$

En (B)

$$\Rightarrow p\,e^{-\lambda(G-t^c)} + \left(e^{-\lambda t^v} - p\,e^{-\lambda G}\right)\cdot e^{\lambda t^c} = 1 \quad /\cdot e^{-\lambda t^c}$$

$$\Rightarrow p\,e^{-\lambda G} + \left(e^{-\lambda t^v} - p\,e^{-\lambda G}\right) = e^{-\lambda t^c} \qquad \boxed{\Rightarrow e^{-\lambda t^c} = e^{-\lambda t^v}}$$

$$\Rightarrow t^v = t^c \;//$$

1) Dueño.

Vendo a t. $\qquad$ Quedar:

$$u(w+t) \geq p\,u(G+w) + (1-p)\,u(B+w)$$

$$u(w+t^v) = p\,u(G+w) + (1-p)\,u(B+w)$$

2) No dueño:

No compro: $\qquad$ Compro t:

$$u(w) \leq p\,u(G+w-t) + (1-p)\,u(B+w-t)$$