Goods x, y 1 consumer has \$60 $u(x,y) = x^{\frac{1}{2}} y^{\frac{1}{2}}$

$\approx$ $u(x,y) = x \cdot y$

prices $p \cdot q$ $px + qy = 60$

$$y = \frac{60 - px}{q}$$

$$\max_x \; x\left(\frac{60-px}{q}\right) = \frac{1}{q}\left(60x - px^2\right)$$

$$\frac{d}{dx} = \frac{60}{q} - \frac{2px}{q} = 0$$

$$60 = 2px$$

$$\frac{30}{p} = x \qquad px = 30$$

$$u(x,y) = \sqrt{x} \cdot \sqrt{y}$$

MC of each good = \$1

no taxes → $p = \$1$ $q = \$1$

consumption = (30, 30)

$u = x^{\frac{1}{2}} y^{\frac{1}{2}} = 30$

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1. 50¢ tax on good y
2. 20¢ tax on both goods

claim:

a. same revenue

b. (2) is "better"

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1. $p = 1$ $q = 1.50$

$x = 30$ $y = 20$

$u(30, 20) = 30^{\frac{1}{2}} 20^{\frac{1}{2}}$

≈ 24.49

revenue = \$10

2. $p = 1.2$ $q = 1.2$

$x = 25$ $y = 25$

$u(25, 25) = 25^{\frac{1}{2}} 25^{\frac{1}{2}}$

$= 25$

revenue = \$10