Quiz 7: Tightness Fluctuations

Question A

Consider a one-period matching model with a labor force of size 1. All workers are initially unemployed; firms post vacancies and match with workers; then production occurs. The matching function is $m = \sqrt{V}$. Firms incur a recruiting cost of $r > 0$ recruiters per vacancy. Firms have a production function $y = 2 \times a \times \sqrt{N}$, where a governs labor productivity and N denotes the number of producers in the firm. Firms pay a rigid wage: $w = a^\gamma$ with $\gamma < 1$. What is the elasticity of vacancies V with respect to productivity a in the model?

1. $\epsilon_a^V = (1 - \gamma) \cdot (1 + \tau)$
2. $\epsilon_a^V = 4 \cdot \frac{1-\gamma}{1+\tau}$
3. $\epsilon_a^V = 2 \cdot \frac{1+\tau}{1-\gamma}$
4. $\epsilon_a^V = 4 \cdot (1 - \gamma) - \tau$
5. $\epsilon_a^V = 2 \cdot \gamma - r$
6. $\epsilon_a^V = 0$
7. None of the above

Question B

Under a standard US calibration, what is the value of the elasticity computed in Question H?

1. $\epsilon_a^V < 0$
2. $\epsilon_a^V \in [0, 1]$
3. $\epsilon_a^V \in (1, 2]$
4. $\epsilon_a^V \in (2, 3]$

5. $\epsilon_a^V \in (3, 4]$
6. $\epsilon_a^V \in (4, 5]$
7. $\epsilon_a^V > 5$