

$$L = \frac{P}{P+W} \rightarrow \frac{P}{P+\sigma_{\epsilon}^2}$$

$$P = A^2 \left(P - \frac{P^2}{P+W} \right) + V$$

$$P = A^2 P \left(1 - \frac{P}{P+W} \right) + V$$

$$P = A^2 P \left(\frac{W}{P+W} \right) + V$$

$$(1 - \alpha A^2) P = V$$

$$P = \frac{V}{1 - \alpha A^2}$$

$$xV = A^2 xV \left(\frac{W}{xV+W} \right) + V$$

$$x = A^2 x \frac{W}{xV+W} + 1$$

$$x = A^2 x \frac{\frac{W}{V}}{x + \frac{W}{V}} + 1 = A^2 x \frac{\rho}{x + \rho} + 1$$

$$x^2 + \rho x = A^2 \rho x + 1$$

$$x^2 + (1 - A^2) \rho x - 1 = 0$$

$$x = \frac{-(1 - A^2) \rho \pm \sqrt{(1 - A^2)^2 \rho^2 + 4}}{2} \quad \text{only the plus option will produce a positive number}$$

$$x = \frac{1}{2} \left(\sqrt{(1 - A^2)^2 \rho^2 + 4} - (1 - A^2) \rho \right)$$