ECON 210C PROBLEM SET # 4

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1. Labor supply problem

2. Demand shock

3. Business cycle and external returns to scale

(a). Each firm sets wage equal to marginal product of labor, so we have
$$W_t = Y_t^{1-1/\gamma} \left(\frac{K_{it}}{L_{it}} \right)^{\alpha} Z_t^{1-\alpha}$$
and so we can find labor demand as a function of wages
$$L_{it} = (W_t Z_t^{\alpha-1} Y_t^{1/\gamma-1} K_{it}^{-\alpha})^{-\frac{1}{\alpha}}$$
which simplifies to
$$L_{it} = W_t^{-\frac{1}{\alpha}} Z_t^{\frac{1-\alpha}{\alpha}} Y_t^{\frac{1-1/\gamma}{\alpha}} K_{it}$$

4. Problems from Romer

4.1. **Problem 6.10.**

4.2. **Problem 6.11.**

4.3. **Problem 6.12.**