

06E:204 Macroeconomics
Assignment 2

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1. Consider the following representative agent model. There is a representative consumer, with preferences given by the utility function $u(c, l)$, where c is consumption, l is leisure, and $u(\cdot, \cdot)$ has the same properties as in my notes. The representative consumer is endowed with one unit of time and k_0 units of capital. The production technology is given by

$$y = zf(k, n),$$

where y is output of consumption goods, z is total factor productivity, k is the capital input, and n is the labor input. The function $f(\cdot, \cdot)$ has the same properties as in my notes. The government purchases g units of consumption goods, and finances these purchases with a lump-sum tax τ on the representative consumer.

- (a) Determine the equilibrium effects of a change in government purchases on consumption, employment, the real wage, and output. Assume that consumption and leisure are normal goods for the representative consumer. Explain your results.
- (b) Determine the equilibrium effects of a change in total factor productivity on consumption, employment, the real wage, and output. Show that your results depend on income and substitution effects and, where possible, determine the income and substitution effects. Explain your results.