

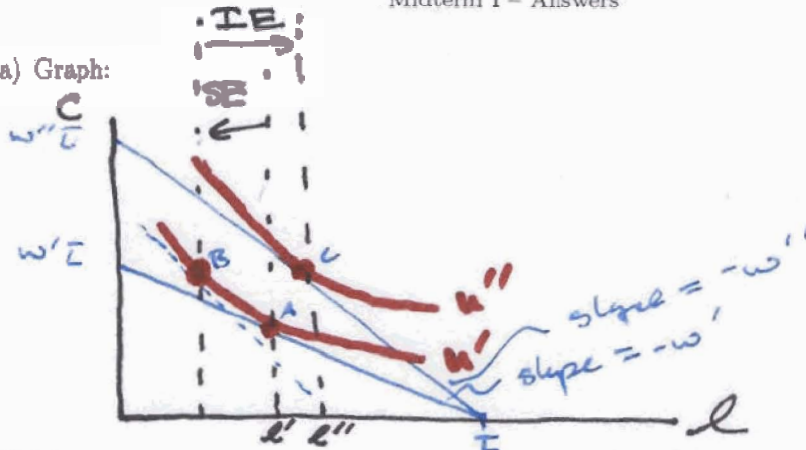
Economics 4351: Labor Economics

Southern Methodist University

Department of Economics

Midterm I - Answers

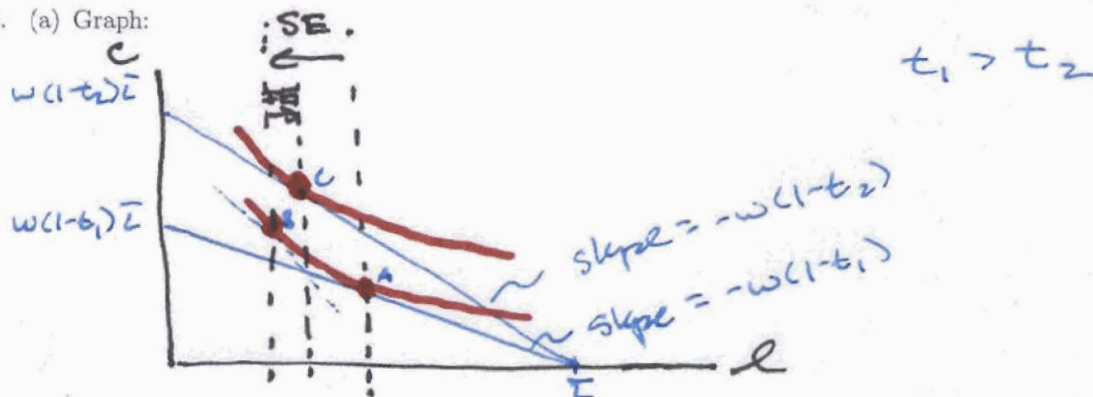
1. (a) Graph:



(b) The IE states that since the BC has shifted out, the individual feels richer. As a result, the individual consumes more leisure since it is a normal good. The SE states that since the BC is steeper, the price of leisure has risen. Consequently, the individual consumes less leisure since it is more expensive. The two effects counteract one another and the net result is ambiguous.

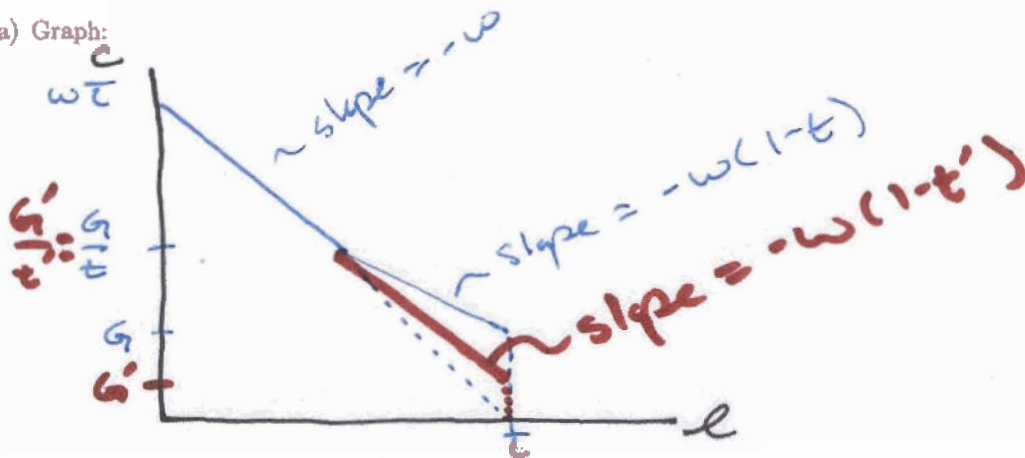
(c) If the individual reduces his/her labor supply as a result, then the IE must dominate and the individual is on the backward-bending portion of the labor supply curve.

2. (a) Graph:



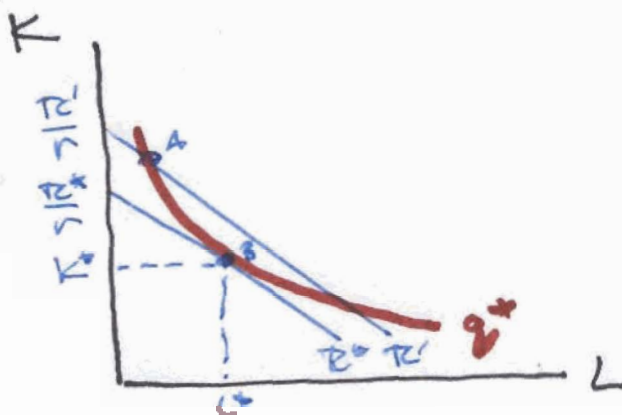
(b) A tax cut raises the net wage (i.e., $\tilde{w} = w(1 - t)$ from class). An increase in the wage has both an income effect (IE) and a substitution effect (SE). The IE states that as a result of the tax cut, income has increased, so one should work less and consume more leisure if leisure is a normal good. The SE states that since the net wage has increased, the opportunity cost (or price) of leisure has increased; therefore, one should substitute away from leisure and work more. These two effects are of the opposite direction. The net result is ambiguous, but clearly Reagan and his advisors were assuming that the SE would dominate, causing people to work more and spur growth.

3. (a) Graph:



(b) To assess the impact on time allocation of a simultaneous reduction in the lump-sum component and the implicit tax rate, one should analyze the two changes together. From the graph, the net effect of the two changes on an individual initially working only a little, is to shift the BC down. This implies that total income has fallen. If leisure is a normal good, then the IE says that labor supply will increase (and leisure decrease). However, the price of leisure has also changed, as seen by the fact that the new BC has a different slope. Specifically, the new BC is steeper, implying a higher opportunity cost of leisure (since the implicit tax was reduced, take home pay increases). Thus, the SE says that leisure is reduced and labor supply increases. The total effect is to increase labor supply.

4. Graph:

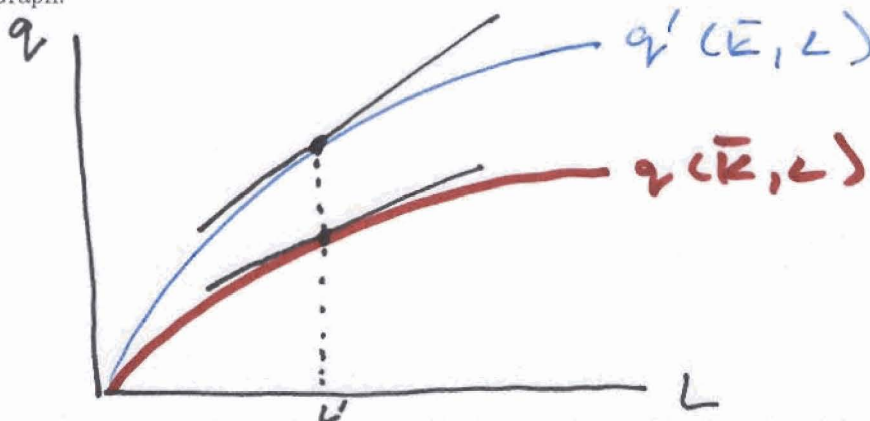


The cost minimizing condition is $MP_K / r = MP_L / w$. With the given information it is obvious that $MP_K / r = 18 / 3 = 6 > 2 = 12 / 6 = MP_L / w$. Since the wage rate and rental rate are fixed, the firm must $\uparrow K \Rightarrow \downarrow MP_K$ and $\downarrow L \Rightarrow \uparrow MP_L$ until $MP_K / r = MP_L / w$, as shown in the graph above.

5. Labor demand:

- (a) an increase in the demand for the firm's product, resulting in a higher price, the higher price increases $MRP_L = P * MP_L$, which shifts out the labor demand curve and increases the firm's demand for labor.
- (b) the firm's competitors go out of business, leaving the firm as a monopolist, a monopolist's demand curve for labor is shifted inward relative to a competitive firm since a monopolist cares about MR instead of P . So, when the firm becomes a monopolist, it will hire less labor.
- (c) a decline in the productivity of labor lowers the MP_L which shifts the firm's labor demand curve in since the demand curve is the MRP_L , which depends on MP_L . So, the firm will hire less labor.

6. (a) Graph:



- (b) It increases. In order for the new production function to lie above the old one, the marginal product of each worker must be greater. Mathematically, this means the derivative (slope) of the production function is larger at every point.
- (c) The short-run labor demand curve is given by a firm's $MRP_L = P * MP_L$. Since MP_L has increased, the MRP_L curve shifts up, increasing labor demand for any given wage.