

# Compensating & Equivalent Variations, Substitution & Income Effects

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**Figure 1:** Suppose a consumer has preferences of the form  $U(x, y) = x^{0.5}y^{0.5}$ . The price of good  $y$  is 1 and the price of good  $x$  changes from 1 to 2. The consumer has income  $m = 8$ . Assuming the consumer is utility maximizing, calculate the Compensating Variation and Equivalent Variation of the price change. Finally, decompose the total change in demand for good  $x$  into a substitution effect and an income effect.

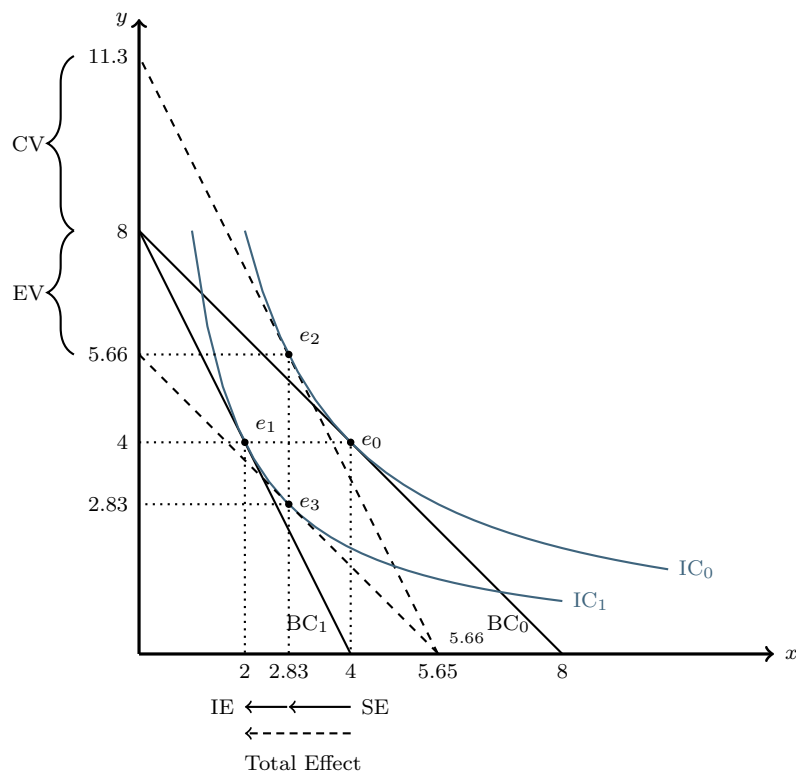


Figure 1:  
 $e_0$ : initial equilibrium  
 $e_1$ : final equilibrium (after price of  $x$  increases)  
 $e_2$ : CV adjustment  
 $e_e$ : EV adjustment

**Figure 2:** Consider the utility function  $U(x, y) = x^{0.5} + y$ . Suppose that income  $m = 4$ , the price of good  $y$  is 1 and the price of good  $x$  is 0.25. If the price of good  $x$  changes from 0.25 to 0.5, calculate the Compensating Variation and Equivalent Variation of the price change, and decompose the total change in demand for good  $x$  into a substitution effect and an income effect.

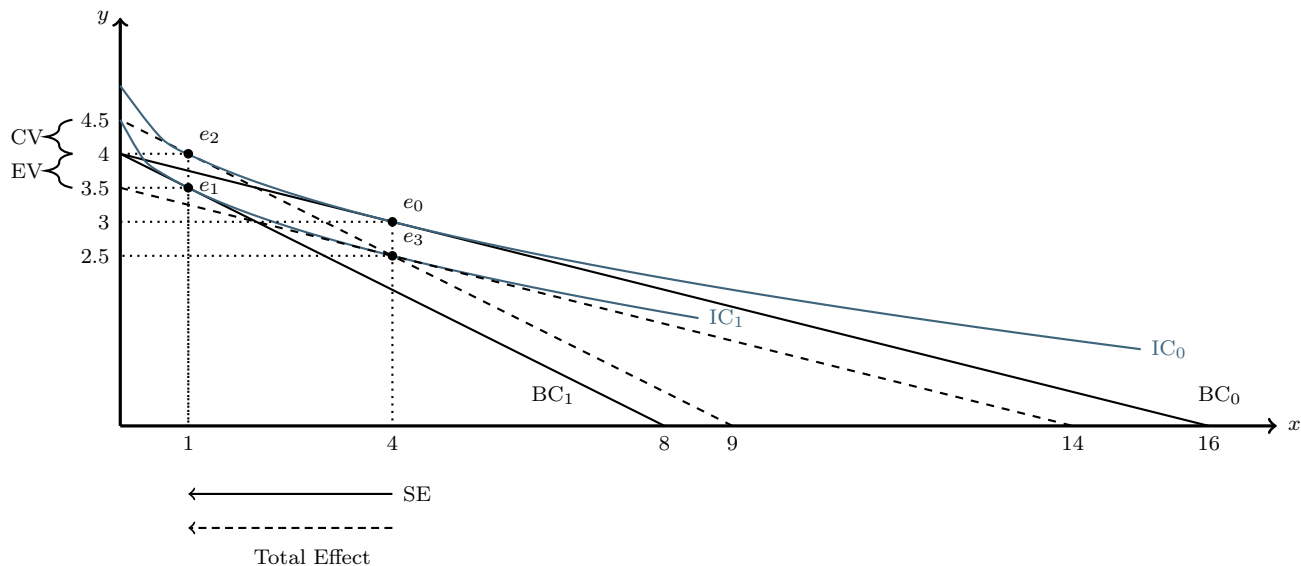


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 $e_0$ : initial equilibrium  
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