Decomposition of Price Effect, Nature of Good & Law of Demand

Intermediate

Microeconomics

by

Hal R. Varian

- *Price effect:* change in quantity demanded of good 1 due to a ceteris paribus change in price of good 1.

- *Substitution effect:* change in quantity demanded due to change in relative price with real income held constant.

- *Income effect:* change in quantity demanded when only real income changes.

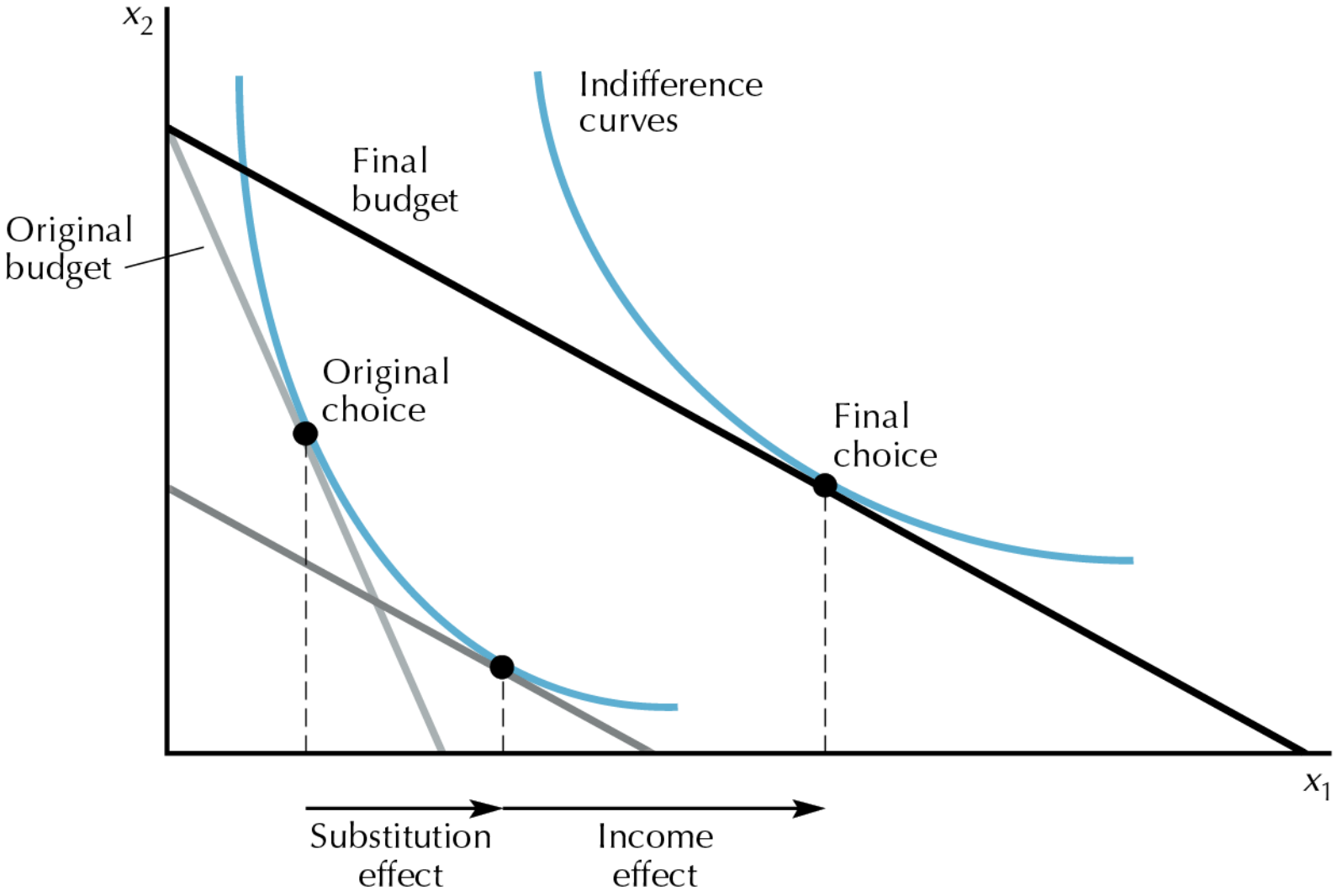


Figure 8.9 The Hicks substitution effect

To find out Substitution Effect:

Have to hypothetically keep real income constant and allow for only a change in relative price.

Two approaches of constant real income:

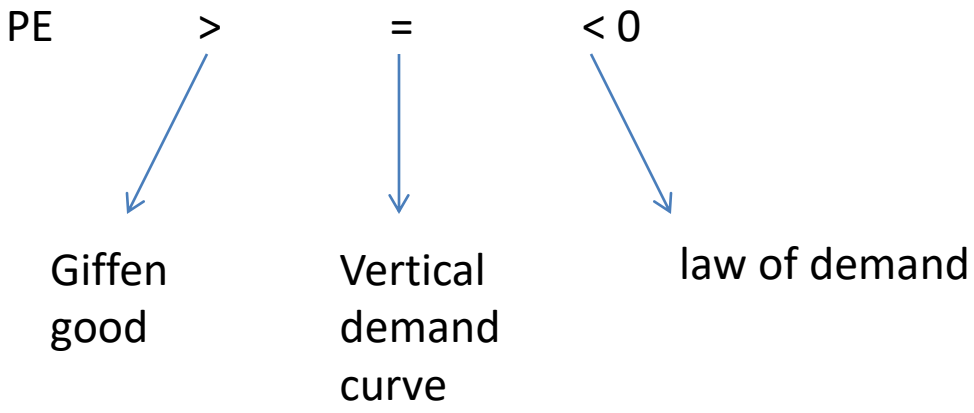
Hicksian definition: enabling the buyer to attain the same pre-price change utility level.

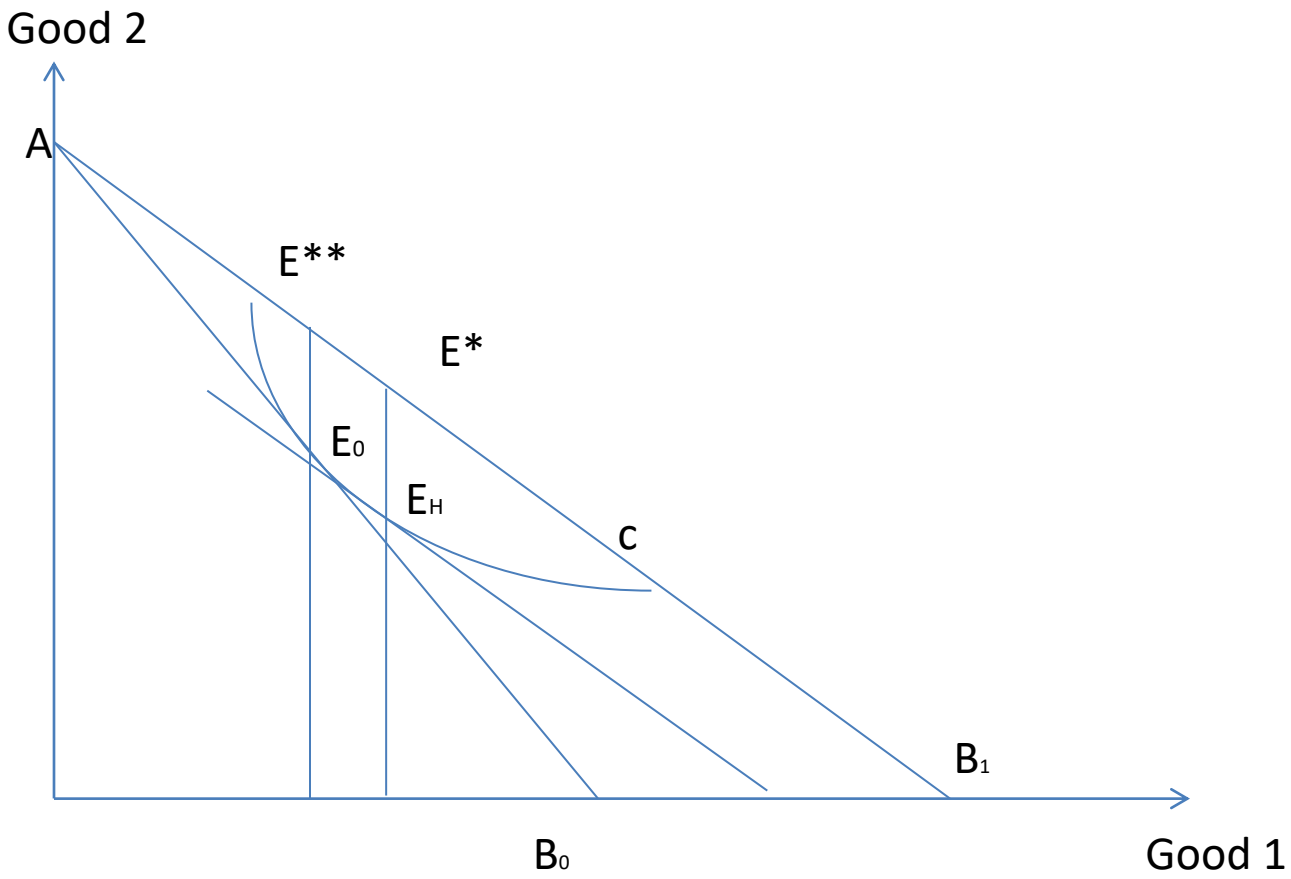
Slutsky definition: when the buyer is able to purchase the earlier MP**B.**

Note that:

Price Effect (PE)/TE (Total Effect)=Substitution Effect (SE) + Income Effect (IE)

- SE is always <0 except for perfect complements but IE depends on the nature of the good.
- If Good 1 is normal law of demand always holds as both SE and IE negative implying PE<0.
- If Good 1 is inferior SE and IE move in opposite direction.





If Optimum is:
at E* preference is quasi-linear
in AE*: good 1 is inferior
In AE**: good 1 is Giffen good

Slutsky Approach

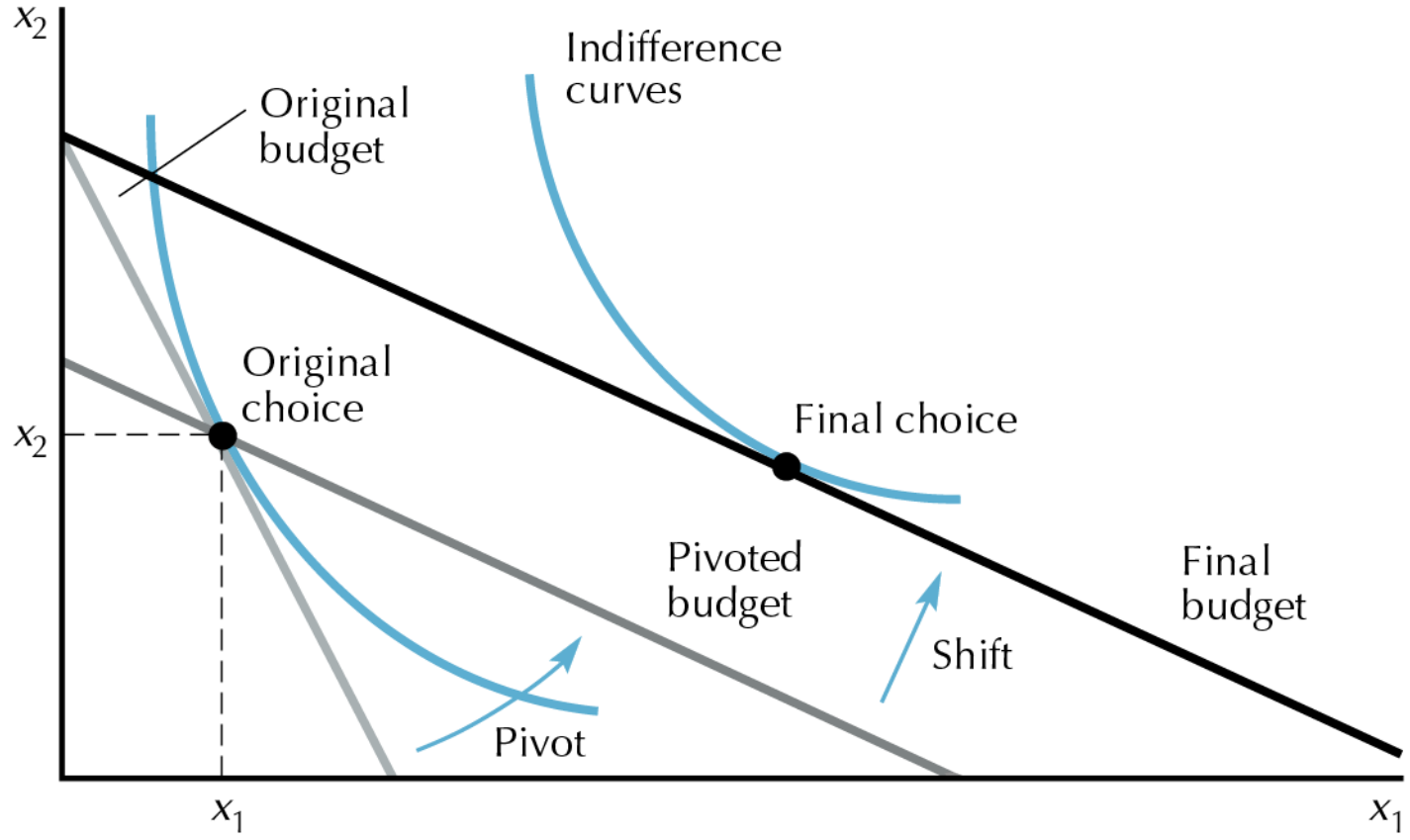


Figure 8.1 Pivot and shift

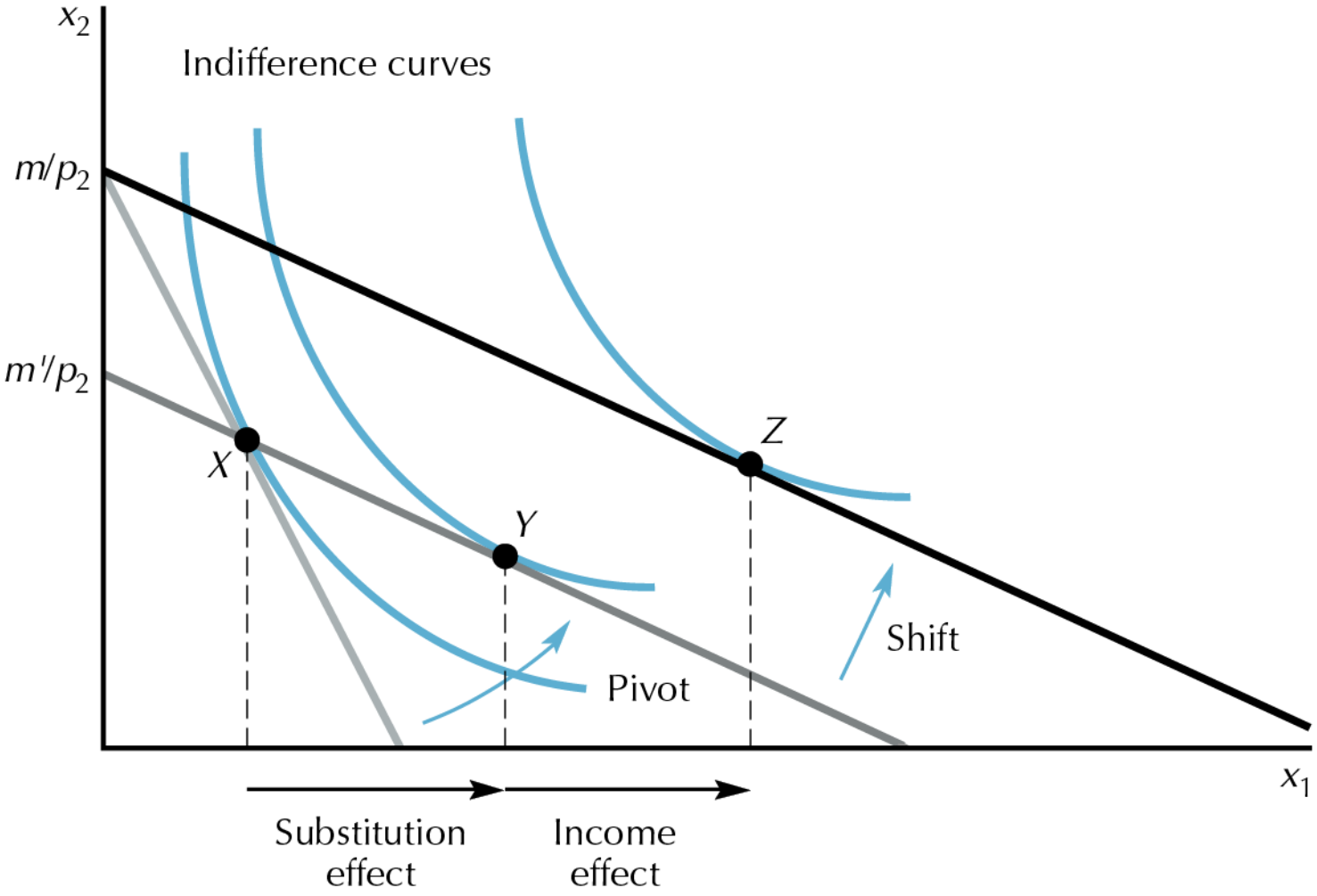


Figure 8.2 Substitution effect and income effect

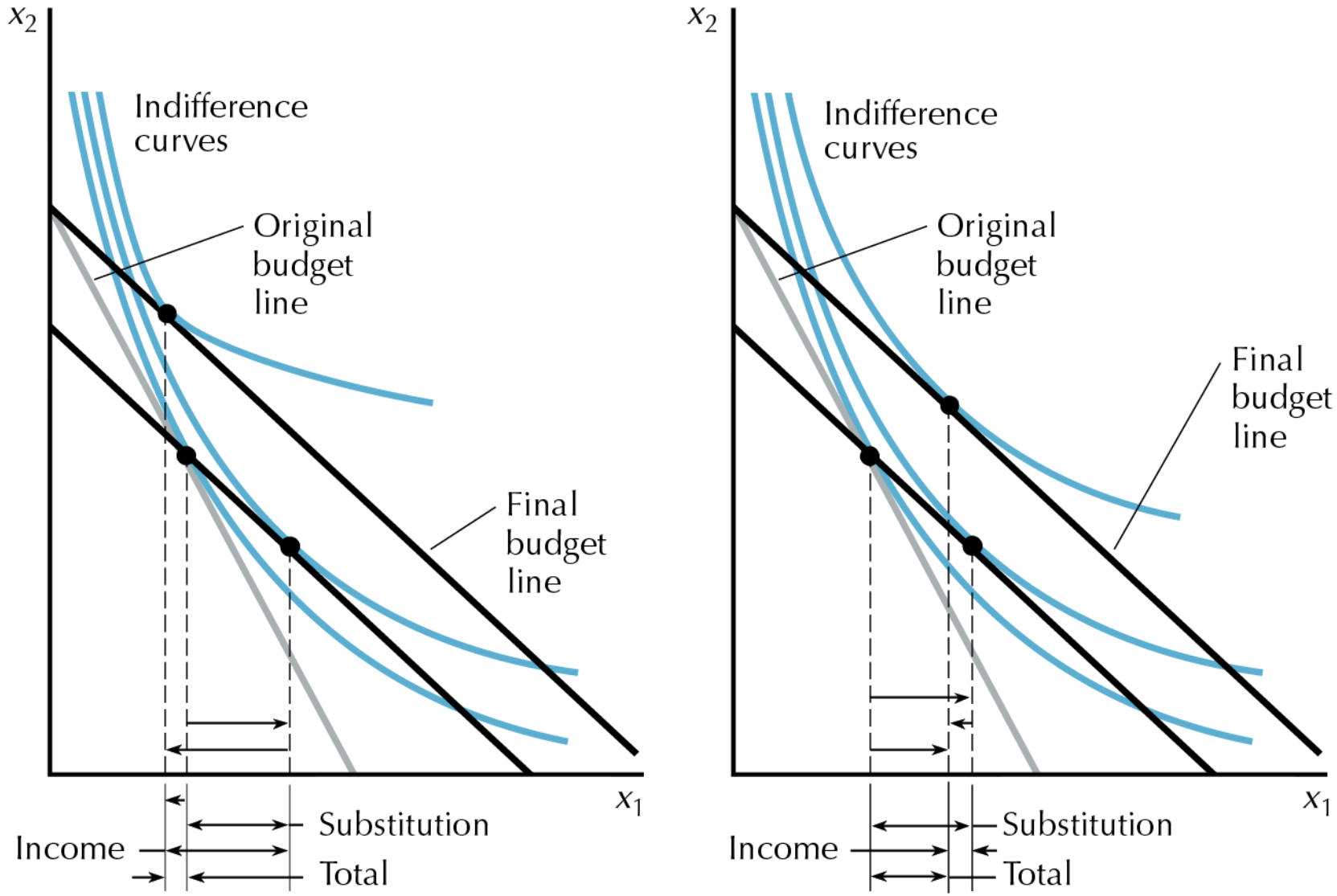


Figure 8.3 Inferior goods

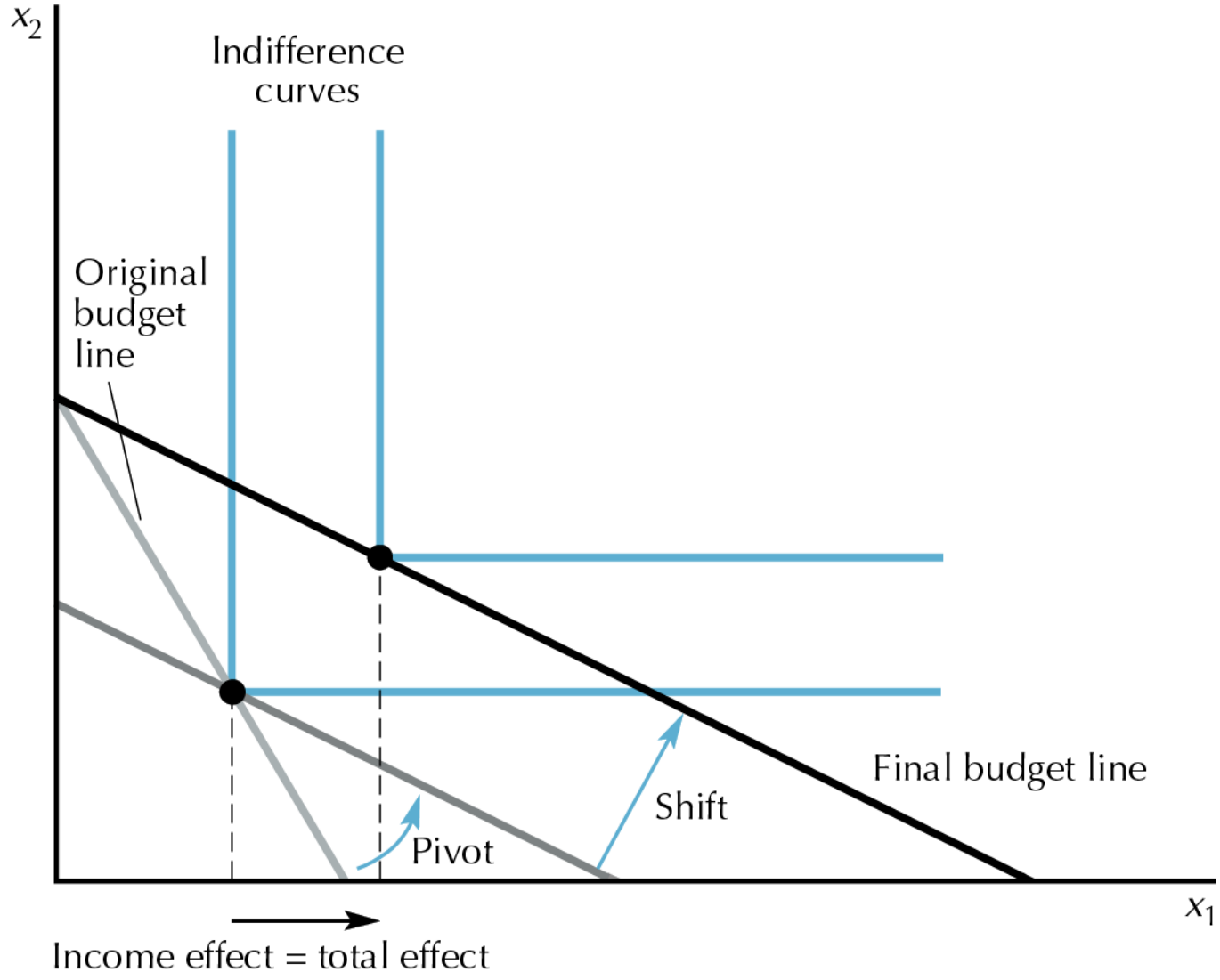


Figure 8.4 Perfect complements

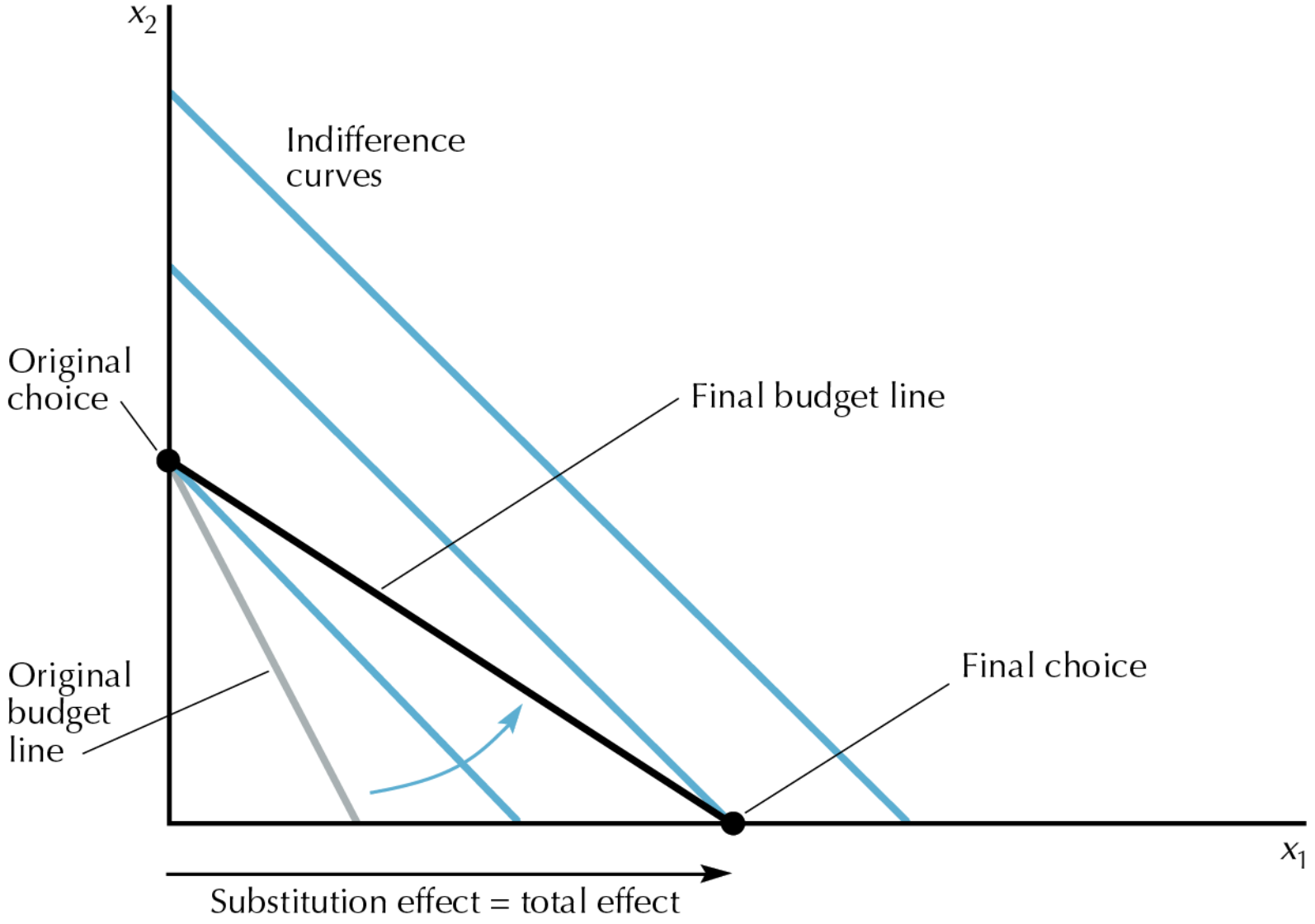


Figure 8.5 Perfect substitutes

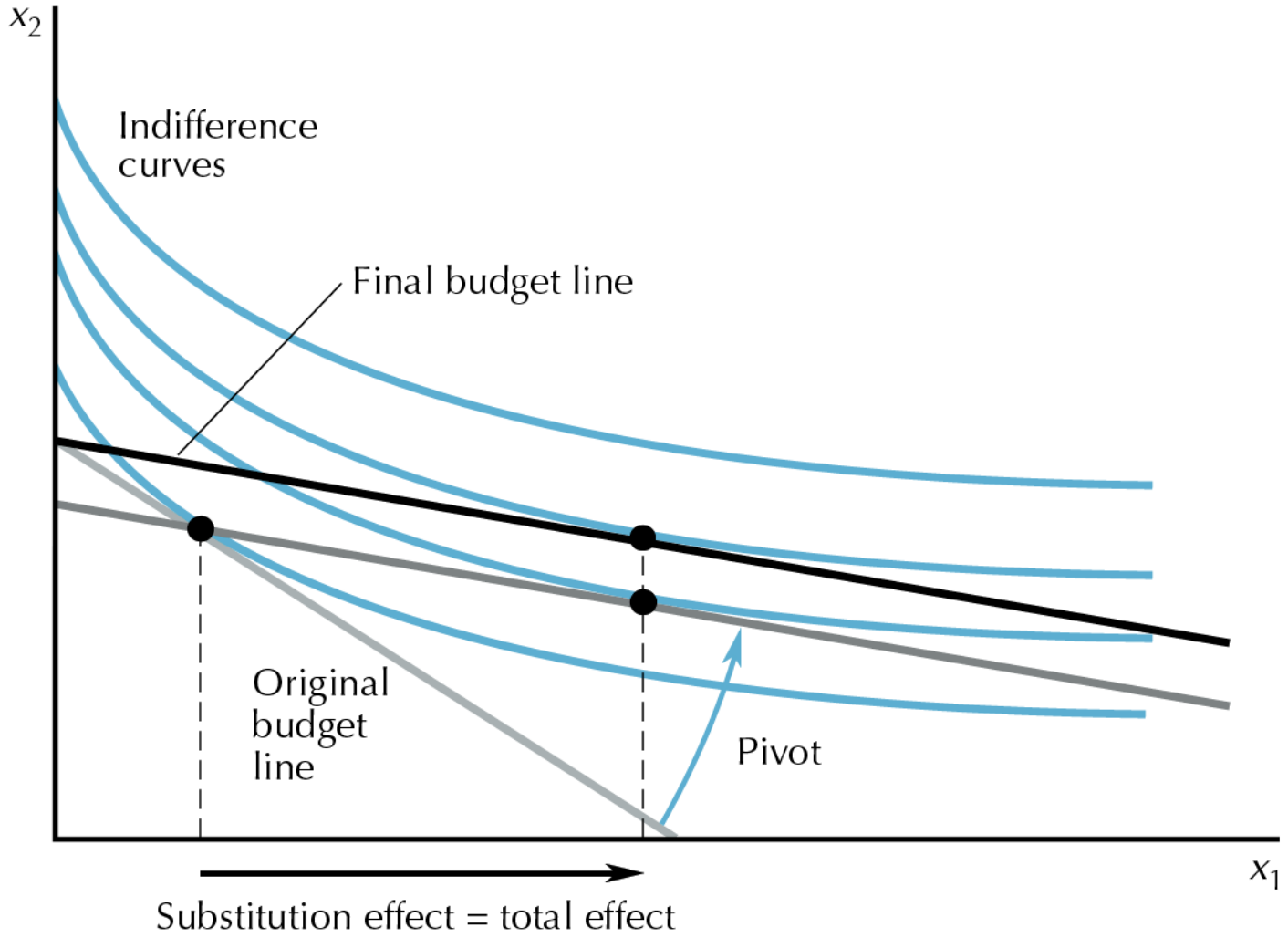


Figure 8.6 Quasilinear preferences

Comparison between Hicksian and Slutsky SE

By Hicksian definition Slutsky buyer is overcompensated in the sense that even if his real income remains the same, he can attain a higher IC, & is thus better off.

If good is normal, Hicksian SE is < Slutsky SE.

Compensated demand curve:

It is the relationship between own price and quantity demanded of a good when "real" income remains constant, that is, we can measure SE along the compensated demand curve.

Ordinary demand is called the **Marshallian demand curve**.

Slutsky equation

$$\frac{\partial x_j}{\partial p_i} = \left.\frac{\partial x_j}{\partial p_i}\right|_{\bar{U}} - x_i \cdot \frac{\partial x_j}{\partial y}$$

Cross effect/net effect/ Hicks-Allen SE

Income effect