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# Chapter Eight

## Slutsky Equation

# Chapter 7 in One Slide

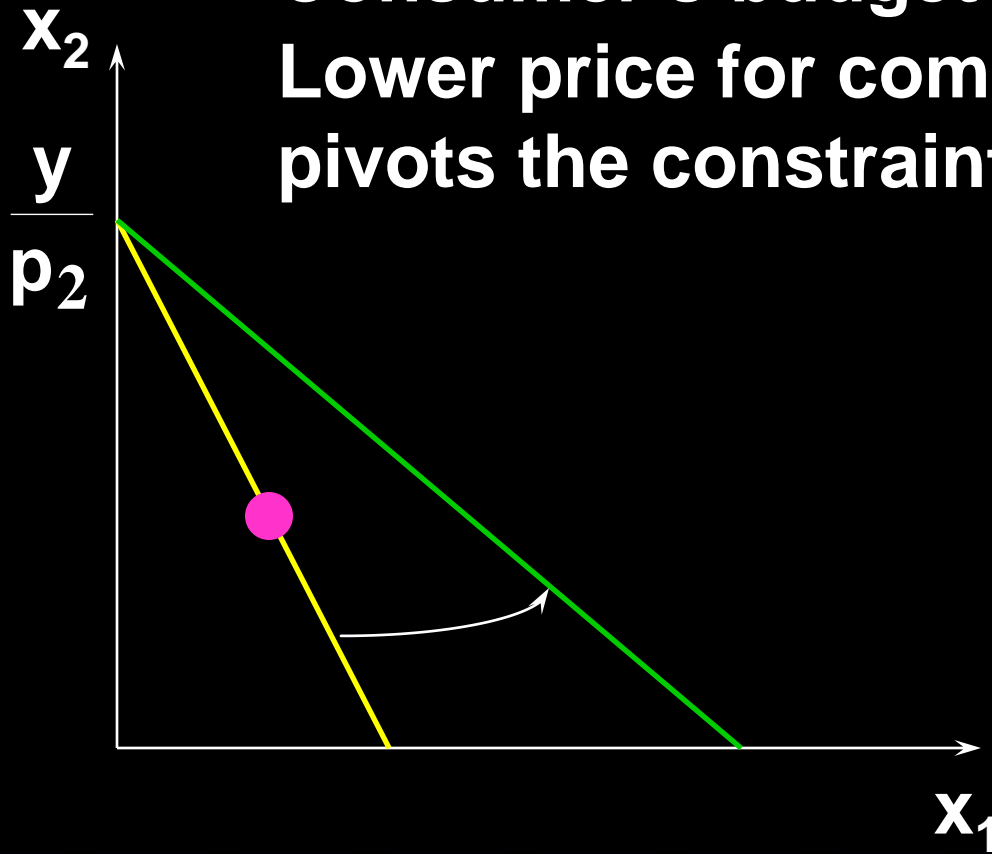
- We skipped Chapter 7, which is about how to recover a consumer's preferences (or utility function) from a dataset of choices.
- Main result: If the choice data pattern satisfies a condition called Strong Axiom of Revealed Preferences (SARP), then it is consistent with a utility maximization model.

# In Chapter 8

- We decompose the changes in demand due to price changes into two effects:
  - Substitution effect
  - Income effect
- This is called Slutsky decomposition

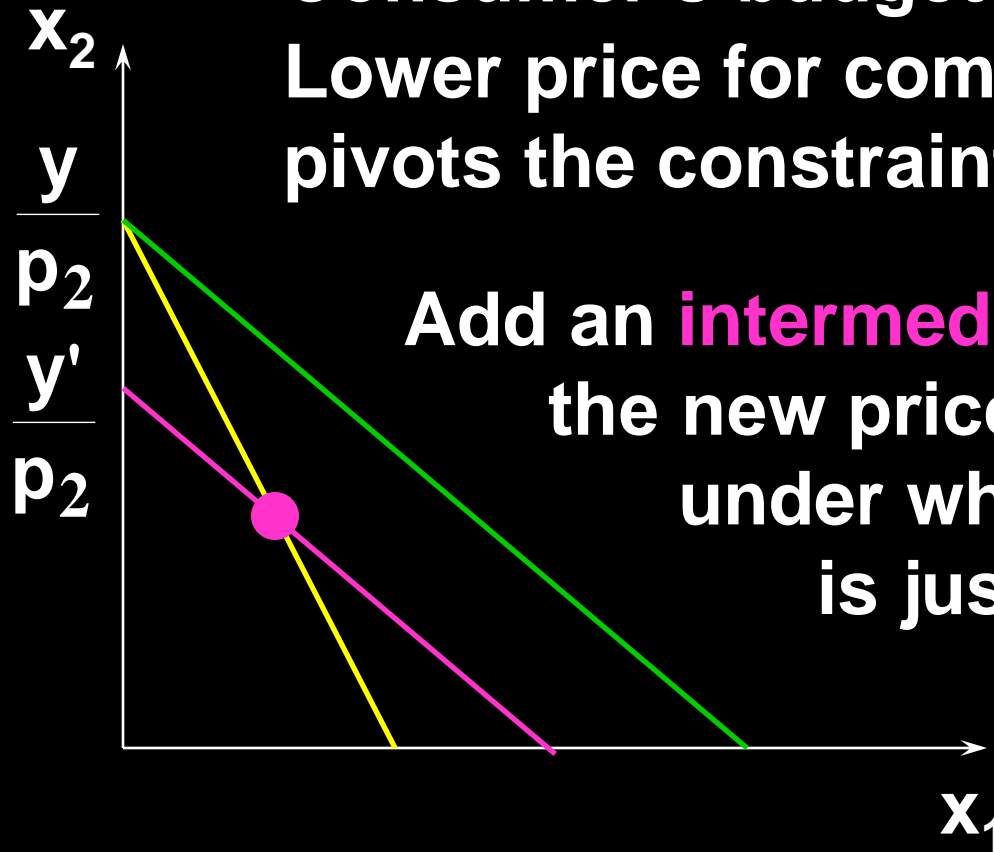
# Effects of a Price Change

Consumer's budget is \$ $y$ .  
Lower price for commodity 1  
pivots the constraint outwards.



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Add an **intermediate step**, with  
the new price and income  $y'$   
under which the old choice  
is just affordable.

# The Idea behind the Slutsky Equation

Divide the total changes to demand  
from a price change into

1) From **yellow** to **purple**

Substitution effect;

2) From **purple** to **green**

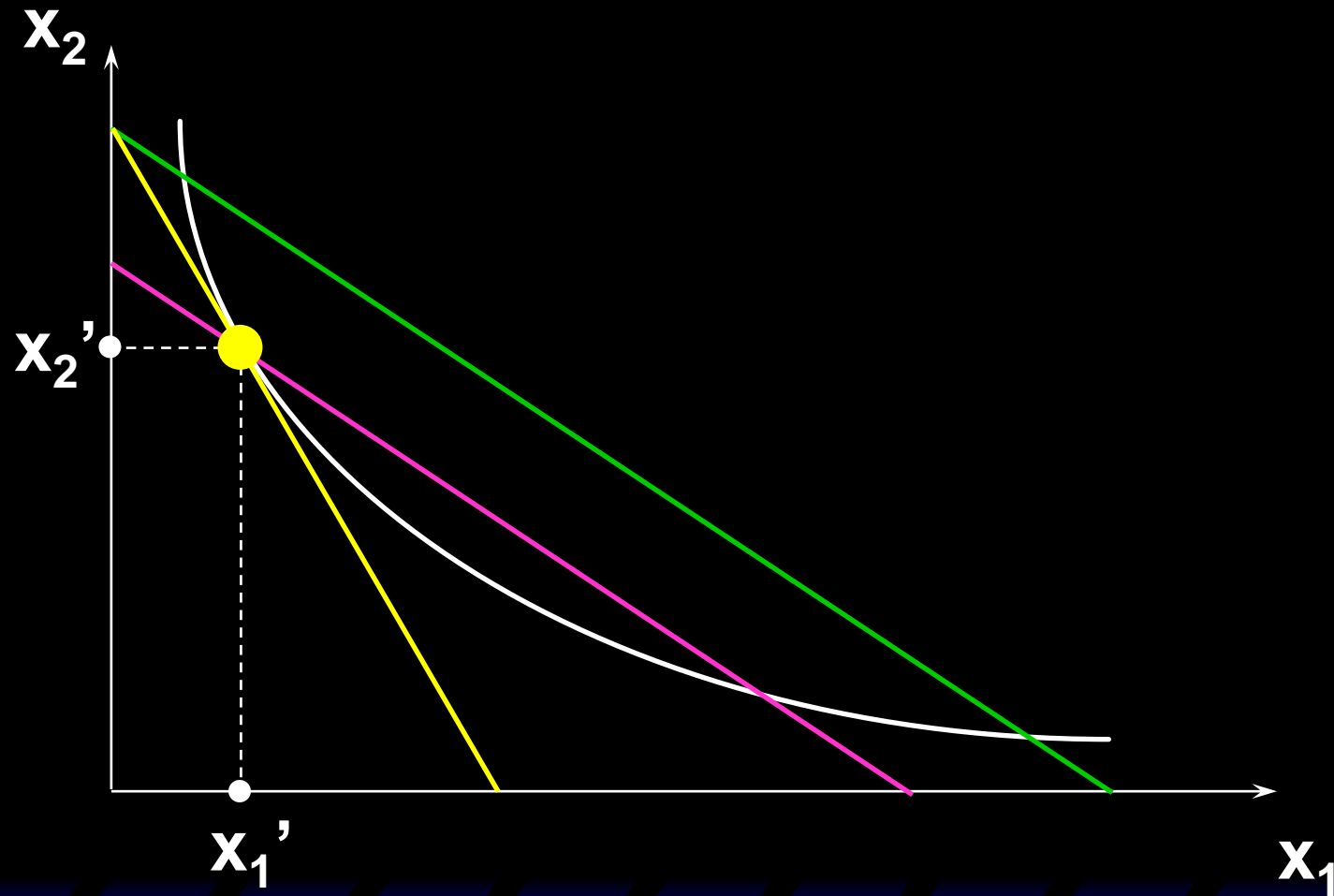
Income effect.



# Substitution Effect

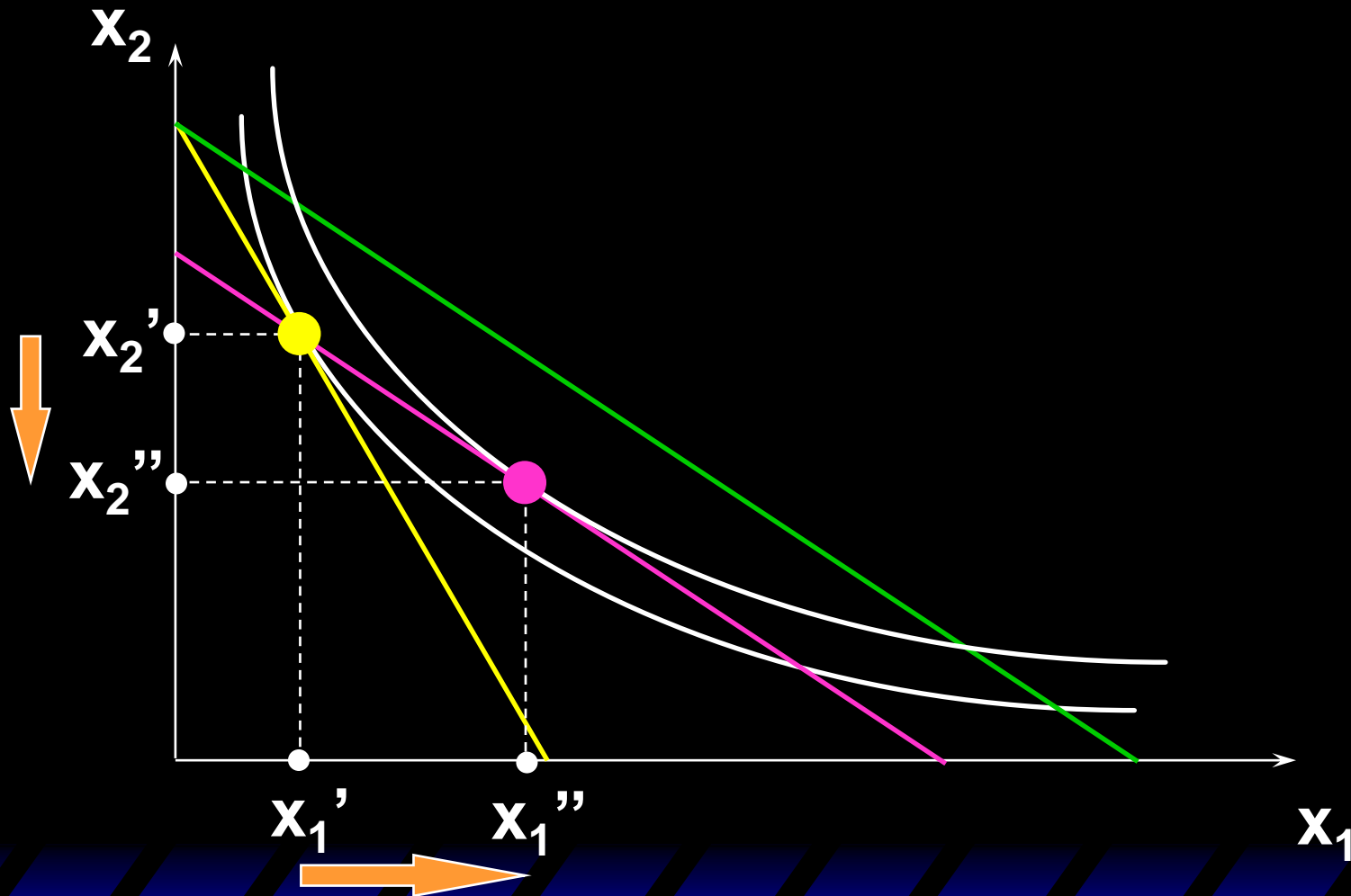
- “What is the change in demand when the consumer’s income is adjusted so that, at the new prices, she can only just buy the original bundle?”
- That is, nominal income is adjusted s.t. purchasing power remains unchanged.

# Substitution Effect

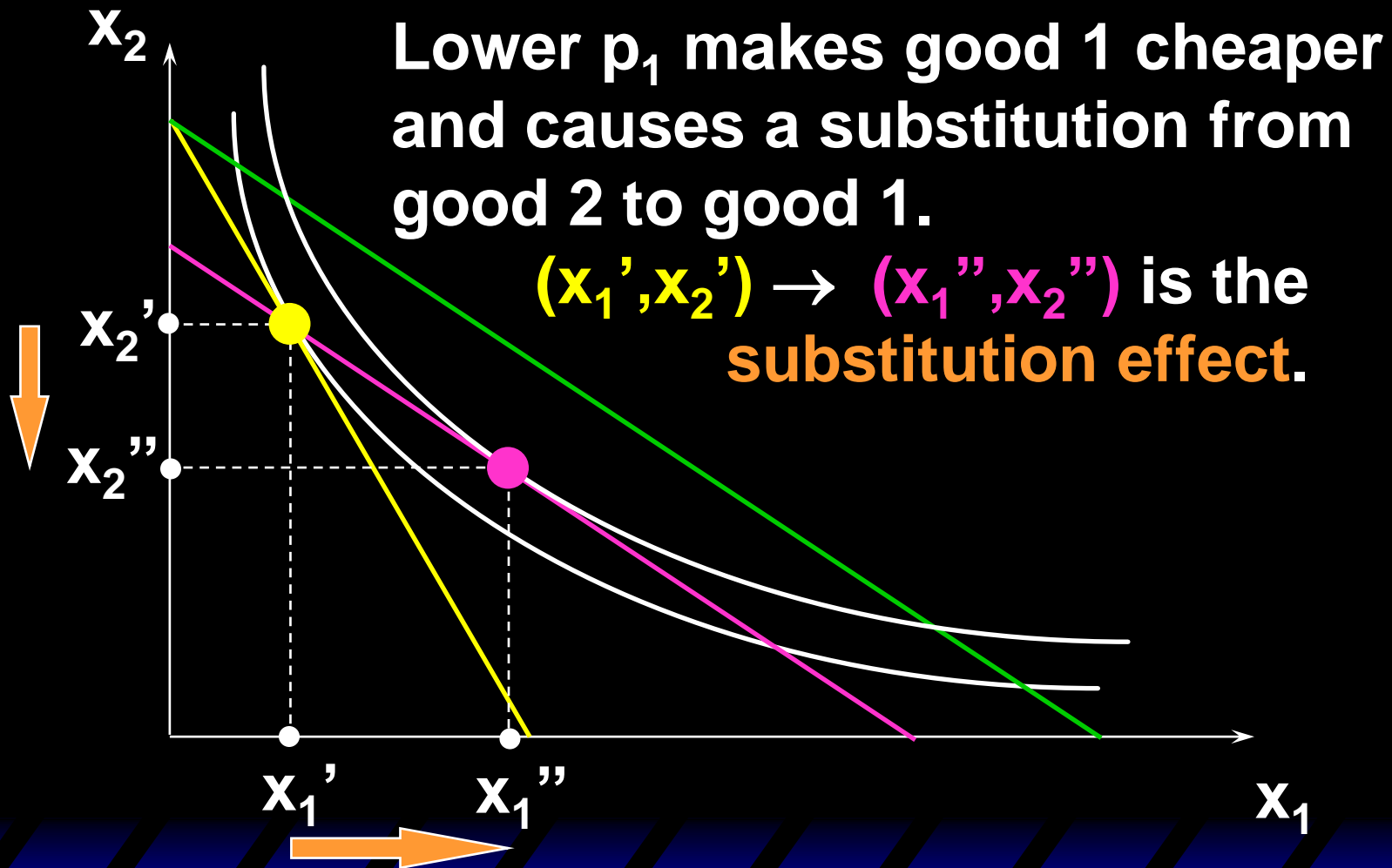




# Substitution Effect



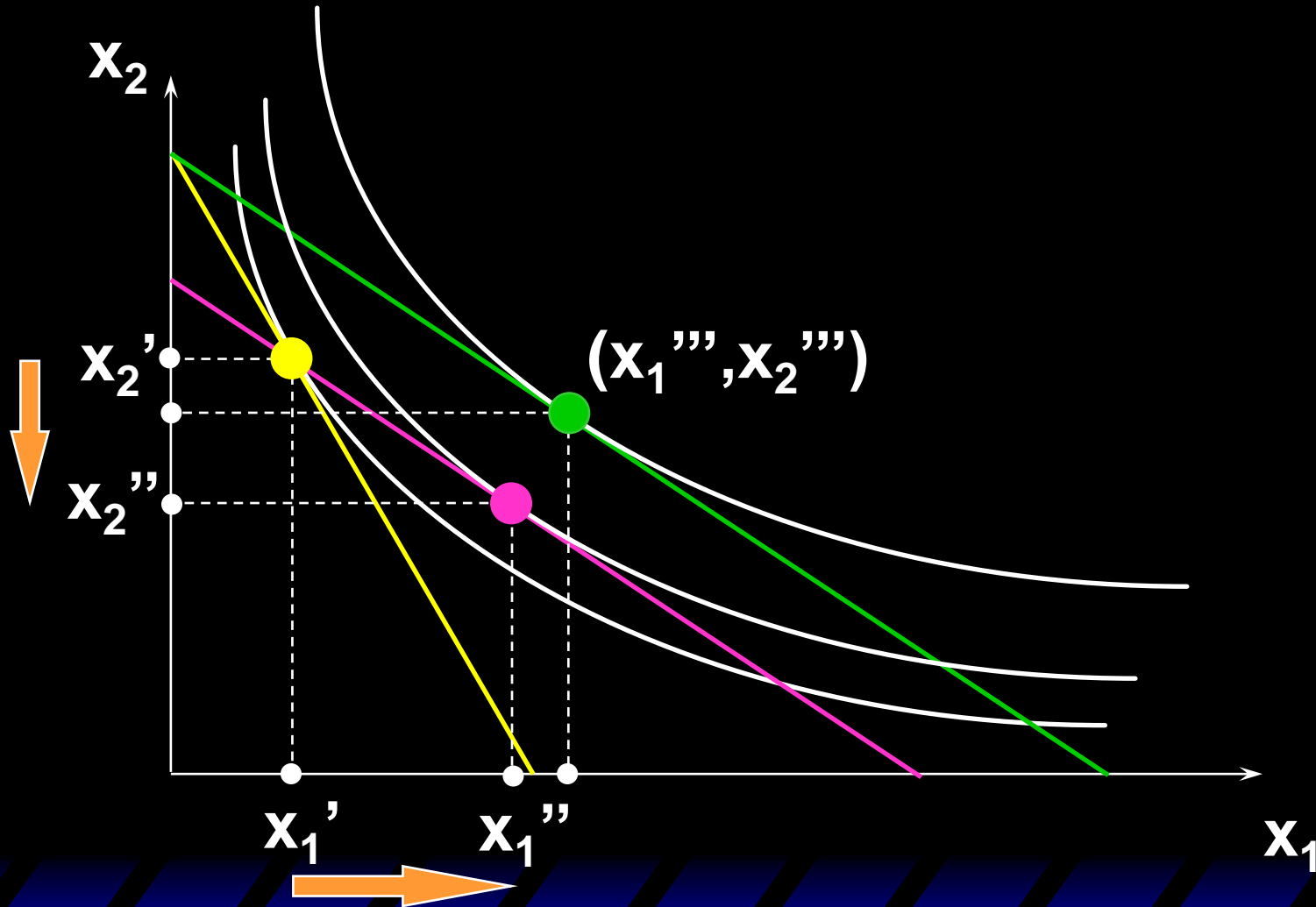
# Substitution Effect



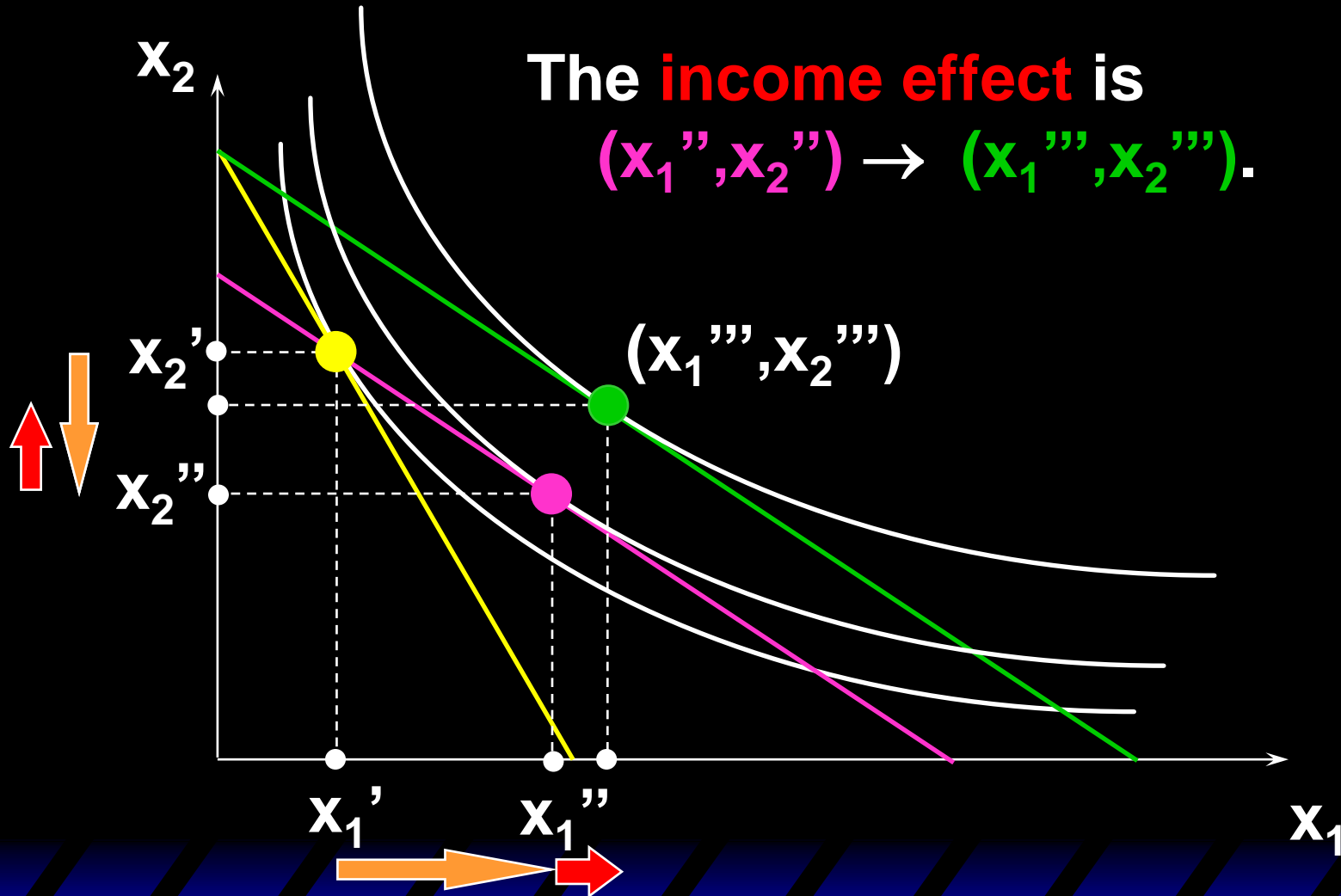
# Pure Substitution Effect Is Always Negative!



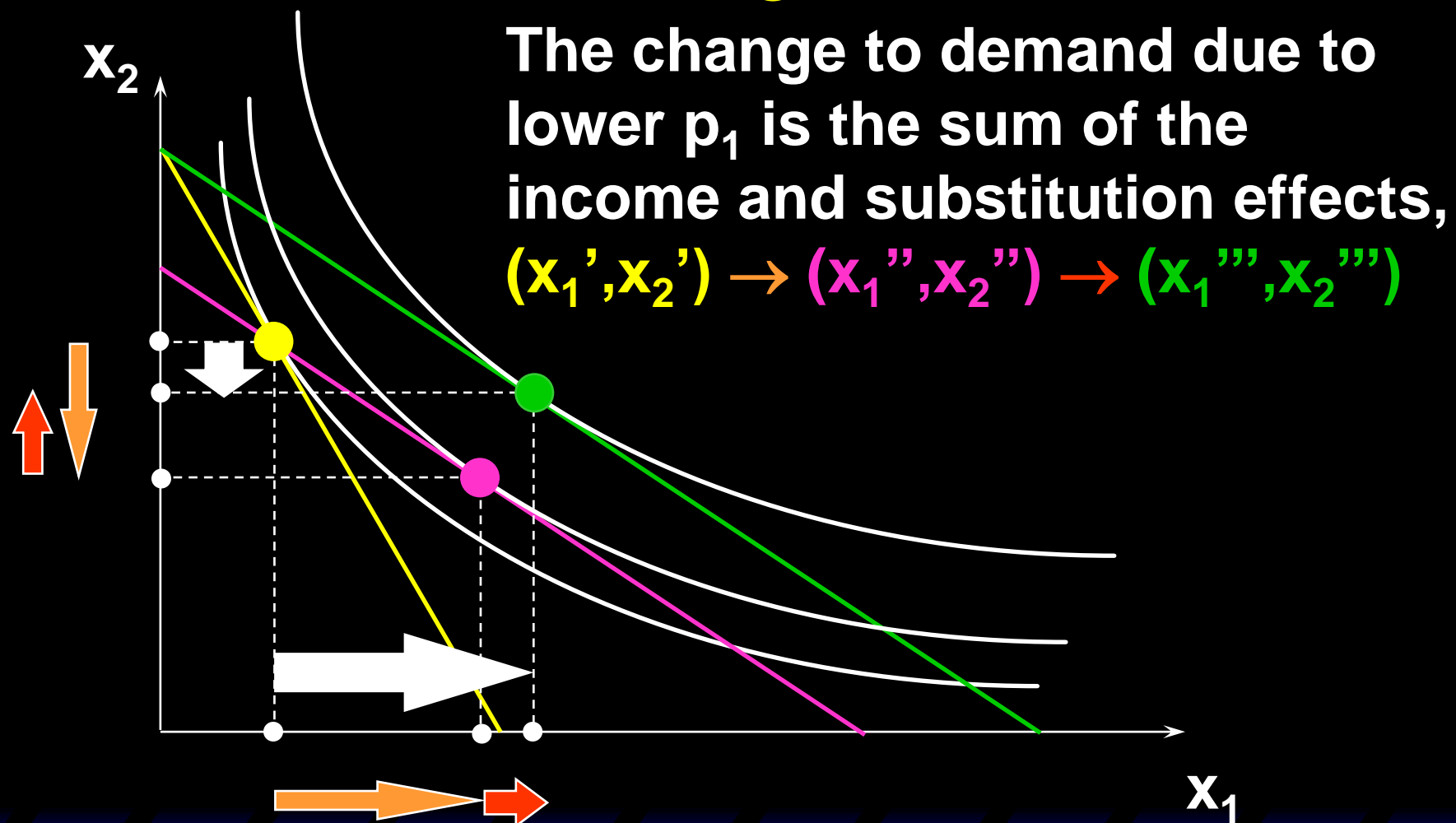
# And Now The Income Effect



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# The Overall Change in Demand

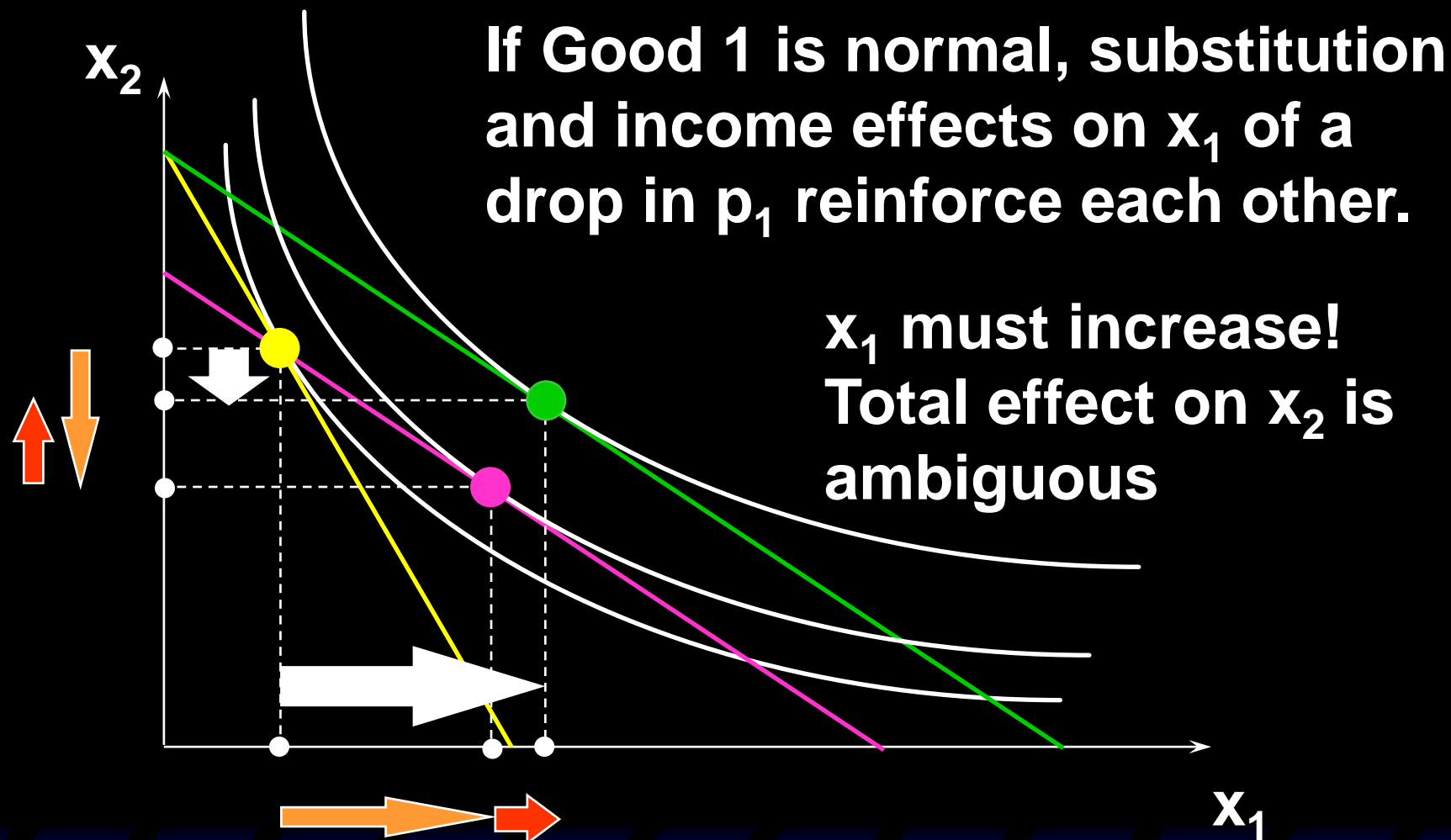


# Slutsky Equation

**Total Effect**

**= Substitution Effect + Income Effect**

# Slutsky's Effects for Normal Goods

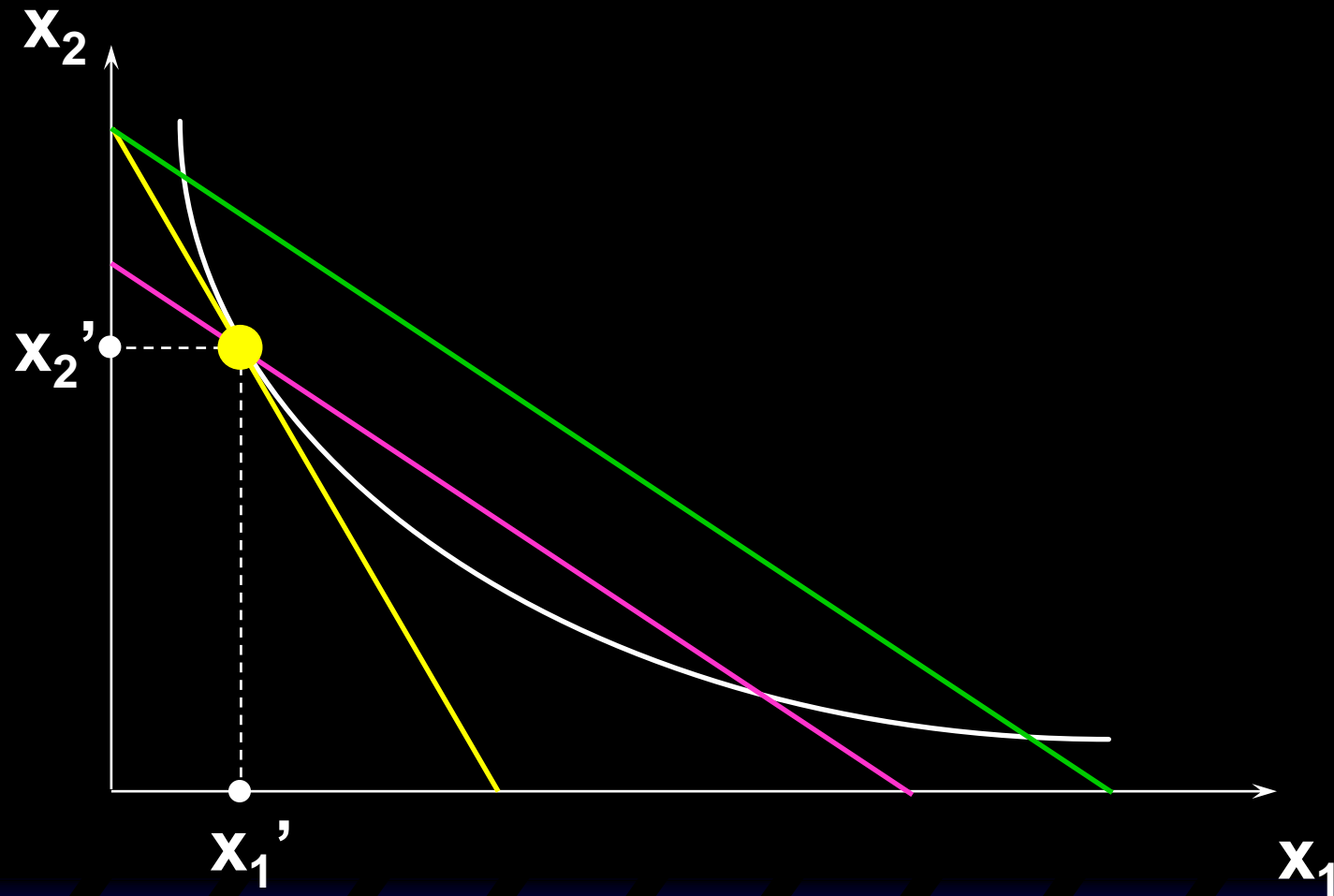




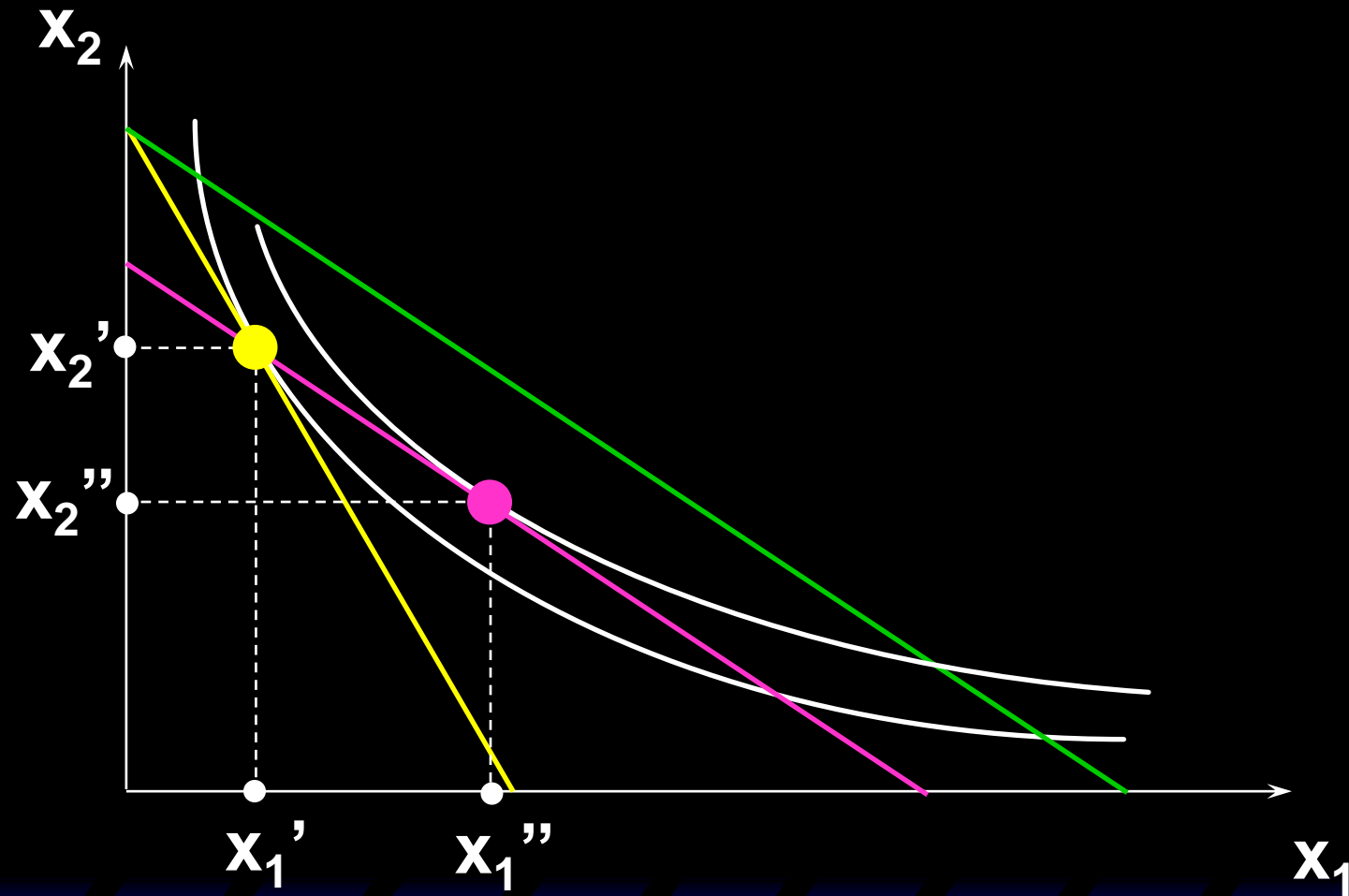
# Slutsky's Effects for Normal Goods

- Since both the substitution and income effects increase demand when own-price falls, a normal good's demand curve slopes down.
- The Law of Downward-Sloping Demand therefore always applies to normal goods.
  - A normal good must be ordinary
  - A Giffen good must be inferior

# Slutsky's Effects for Inferior Goods



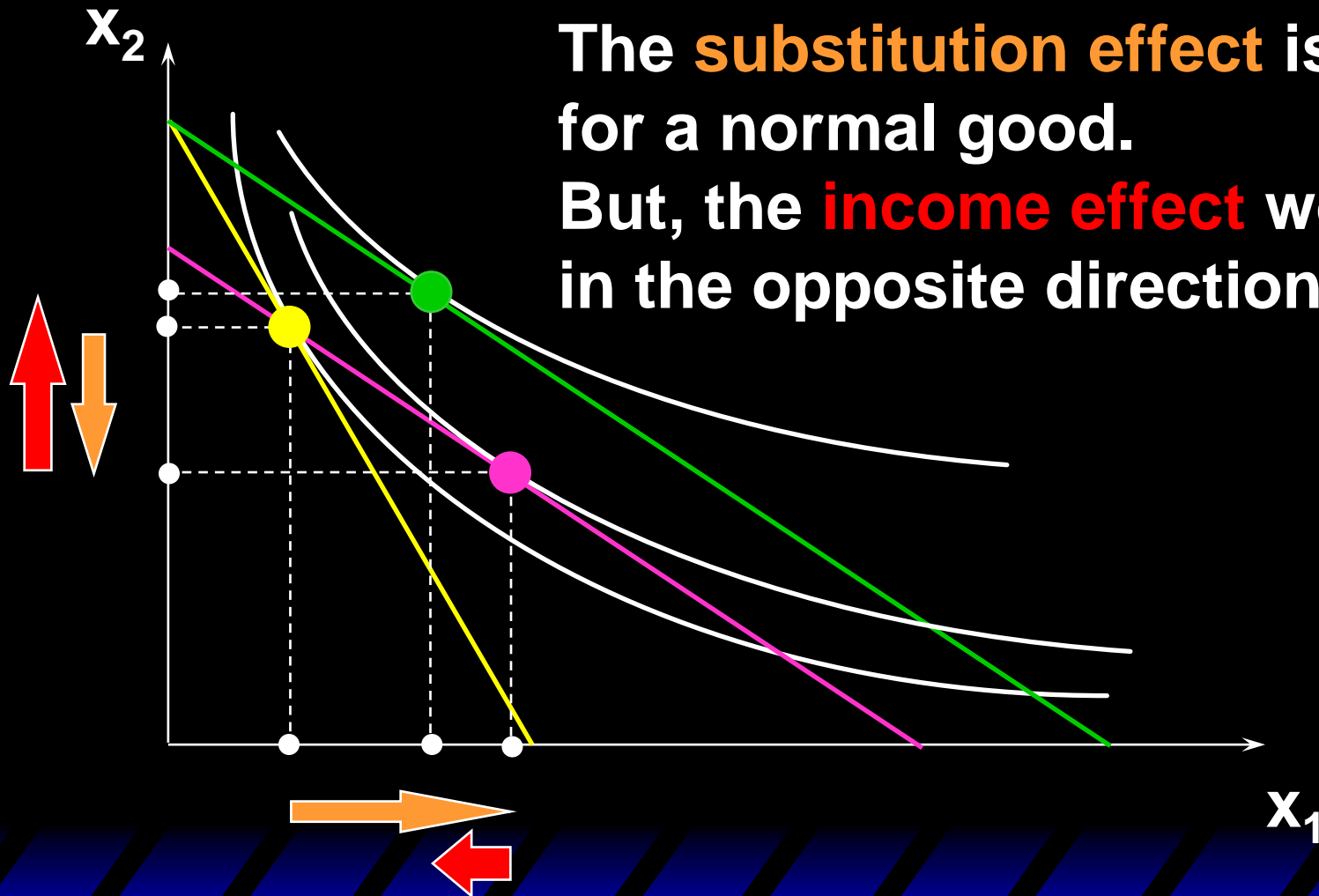
# Slutsky's Effects for an Inferior Good



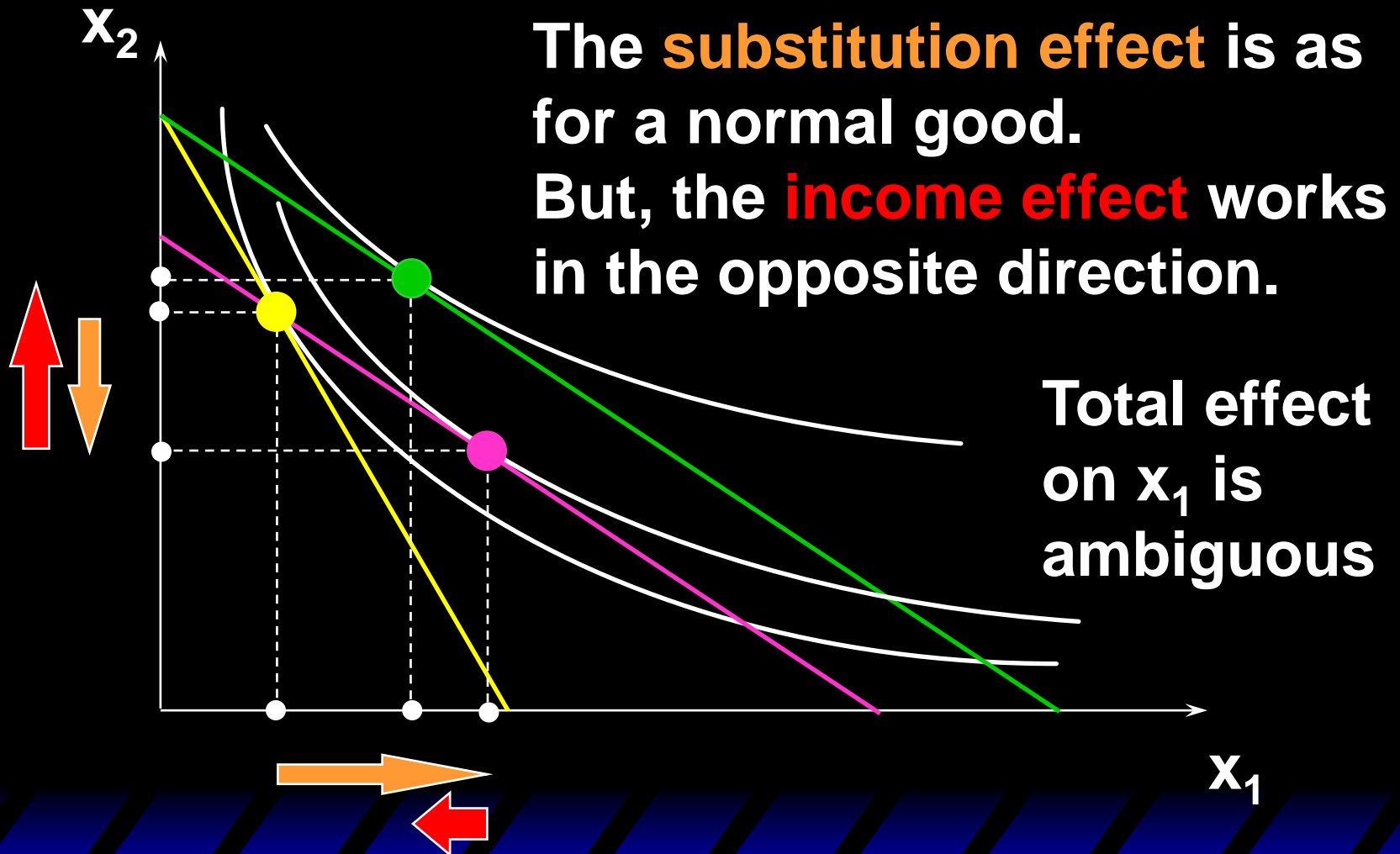
# Slutsky's Effects for an Inferior Good



# Slutsky's Effects for an Inferior Good



# Slutsky's Effects for an Inferior Good



# Giffen Goods

- In cases of extreme inferiority, the income effect may dominate the substitution effect, causing quantity demanded to fall as own-price decreases.
- Such goods are Giffen goods.

# Summary: The Key to This Chapter

- Find the “auxiliary” intermediate step
  - New price and compensated income
- Original -> intermediate
  - Substitution effect
- Intermediate -> new
  - Income effect