Intermediate Microeconomics

ECO 220 / 221

CONSUMER THEORY

We will look at

1. **Scarcity: income and prices**
2. **Tastes**
3. **Combine scarcity and tastes**

   (i) Individual demand

   (ii) Market demand

SCARCITY

2 Products (Goods or Services): X_1 and X_2

Fixed money income: M

Given prices: p_1 and p_2

Income constraint:

$$p_1X_1 + p_2X_2 = M$$

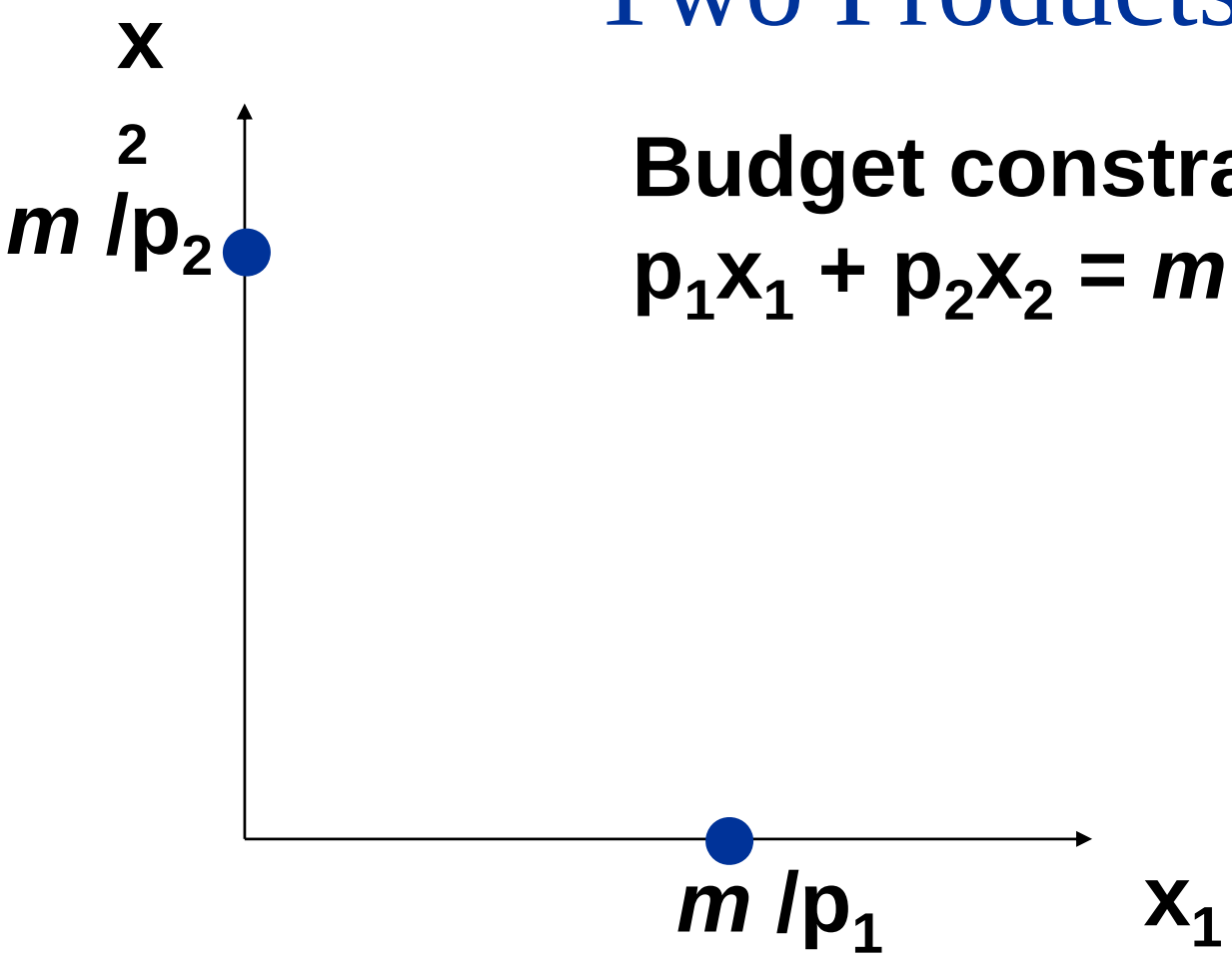
Rearranging,

$$X_2 = M/p_2 - (p_1/p_2)X_1$$

Slope:

$$\delta X_2/ \delta X_1 = - (p_1/p_2)$$

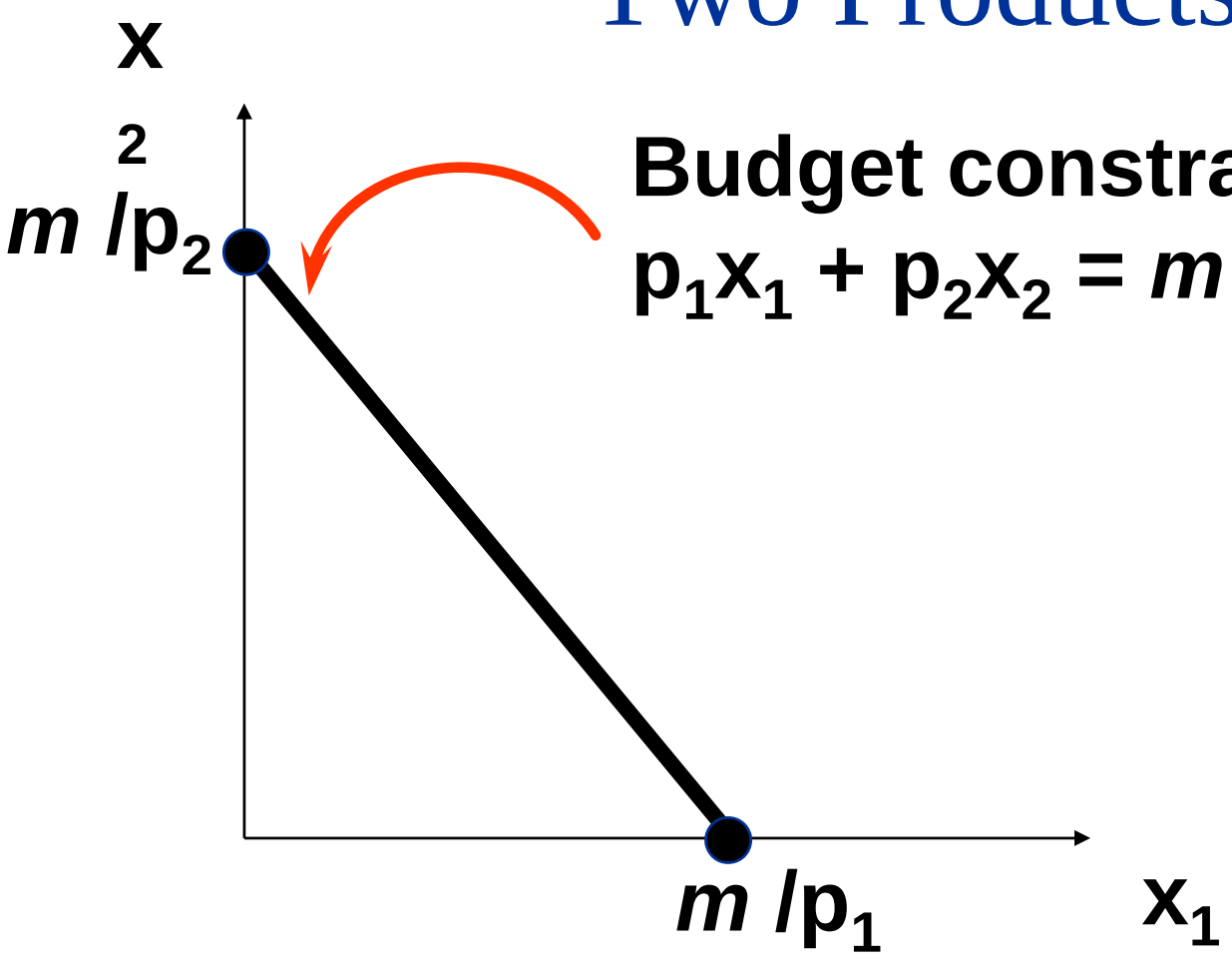
Budget Set and Constraint for Two Products



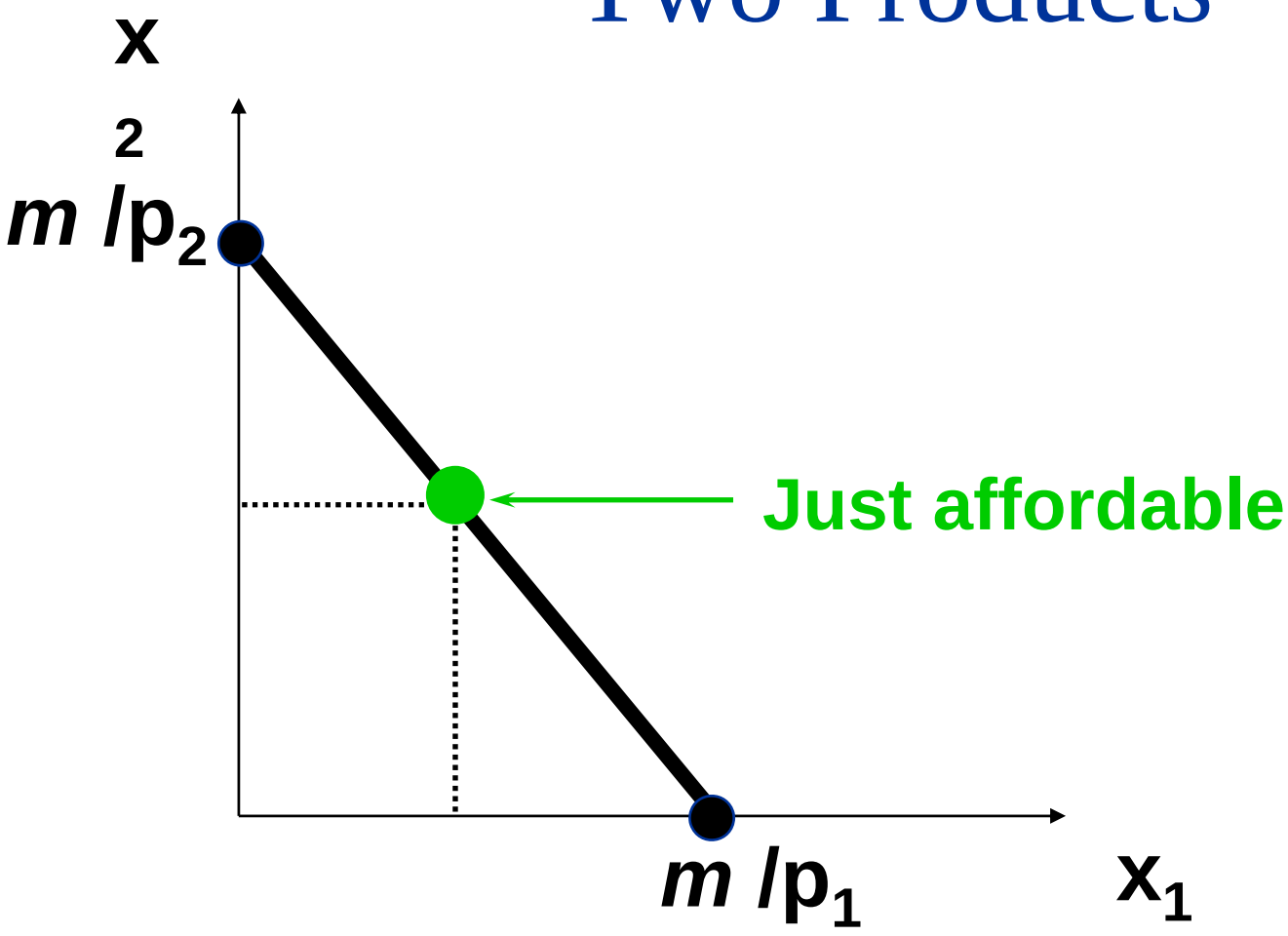
Budget constraint is

$$p_1x_1 + p_2x_2 = m$$

Budget Set and Constraint for Two Products



Budget Set and Constraint for Two Products



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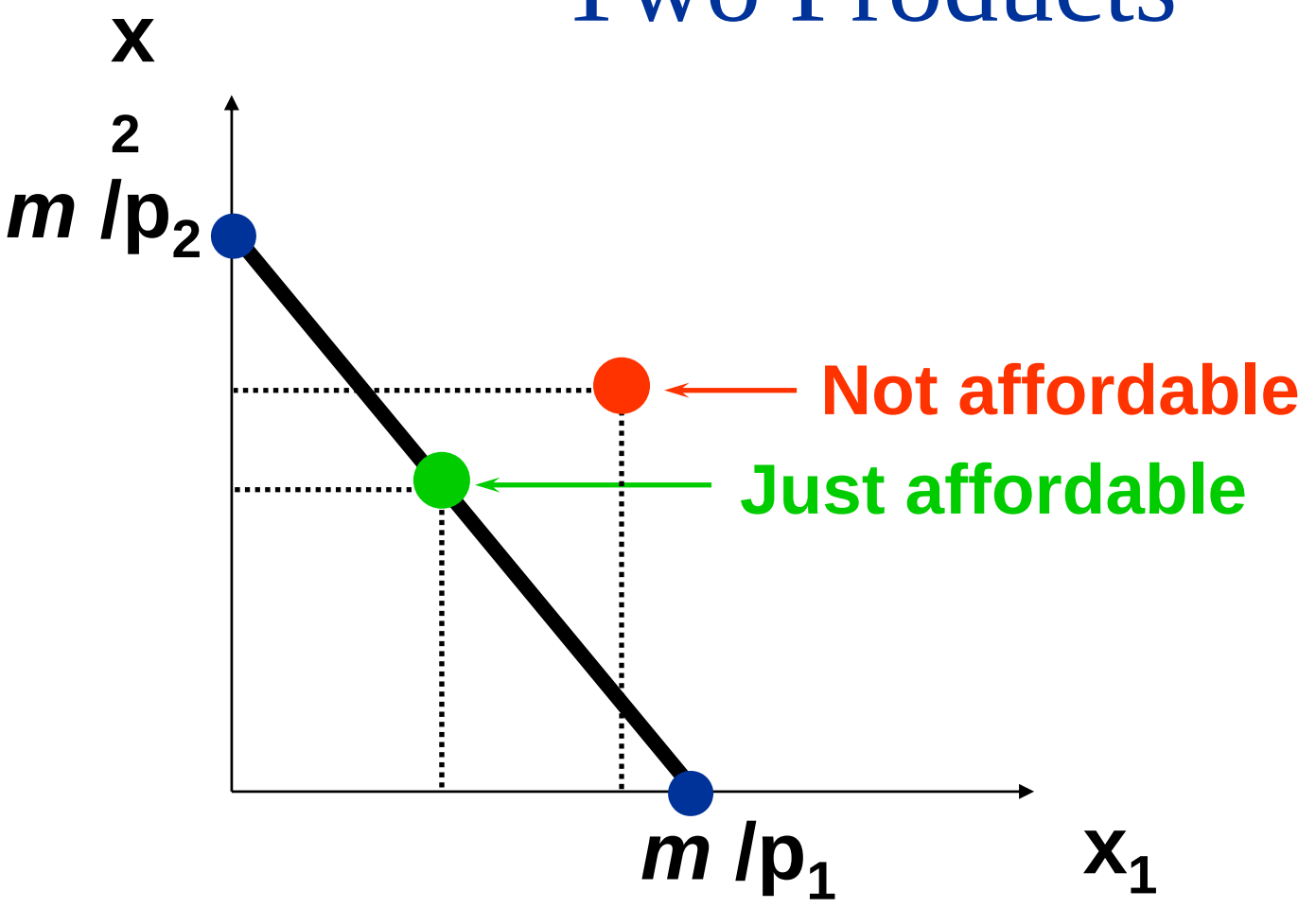

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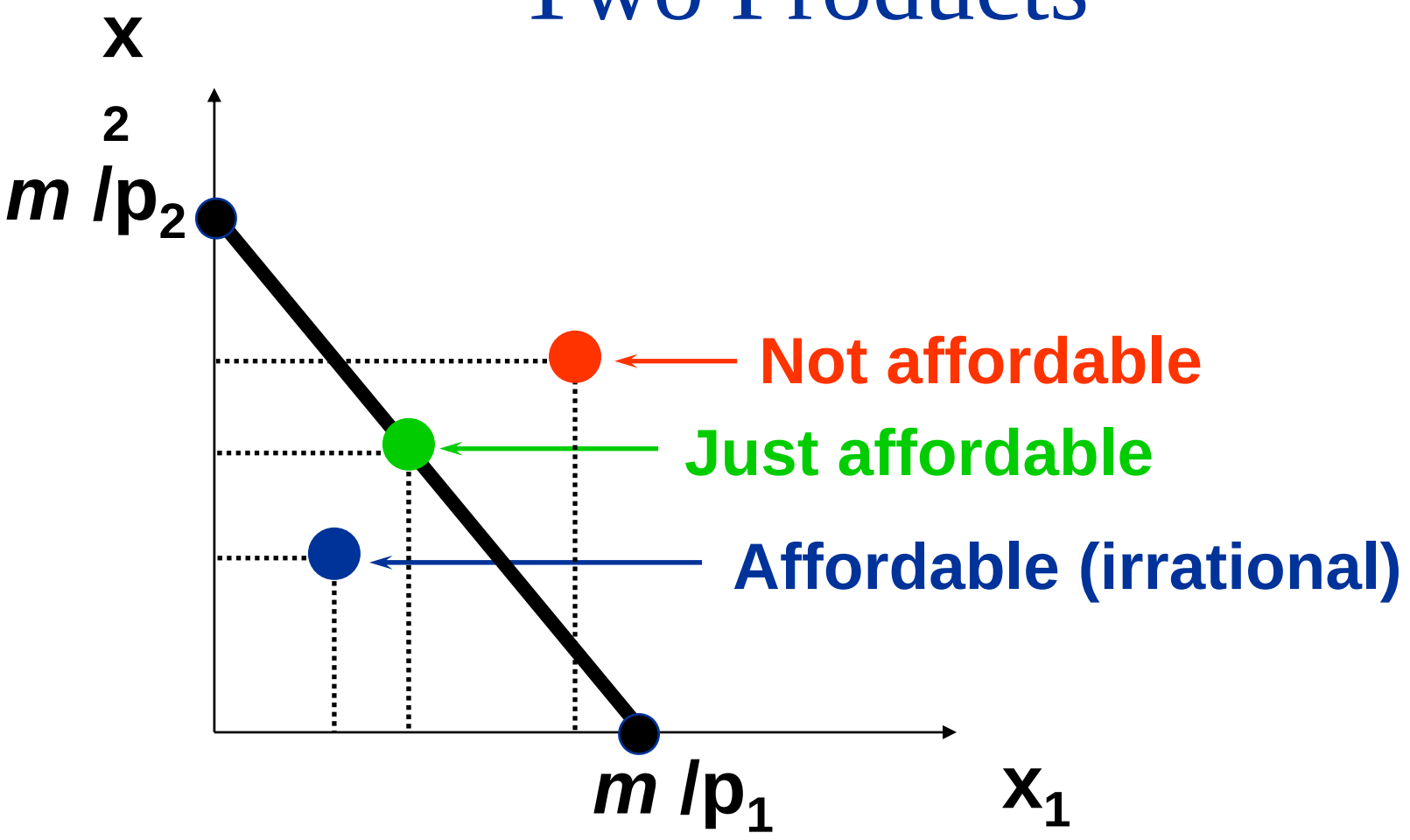

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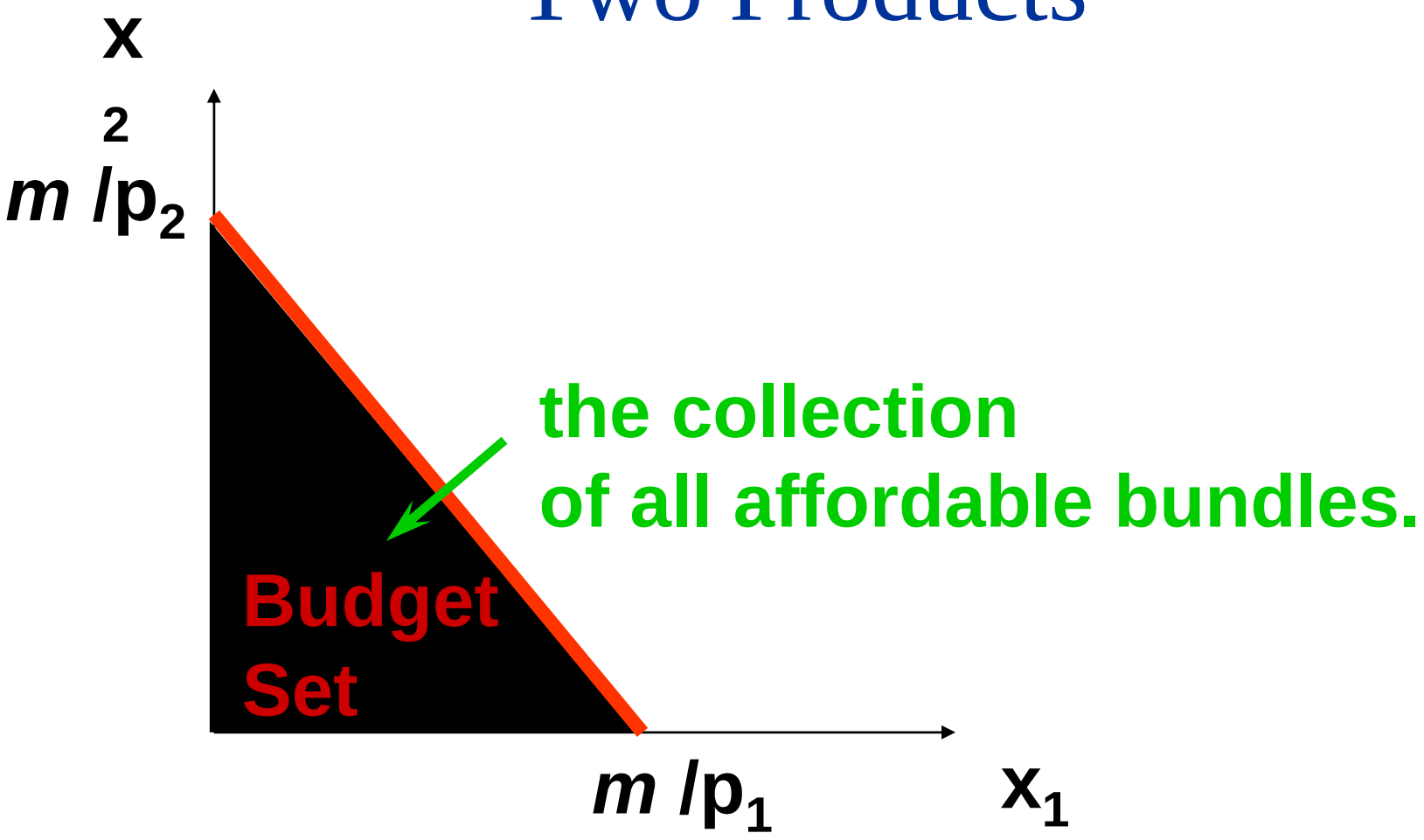
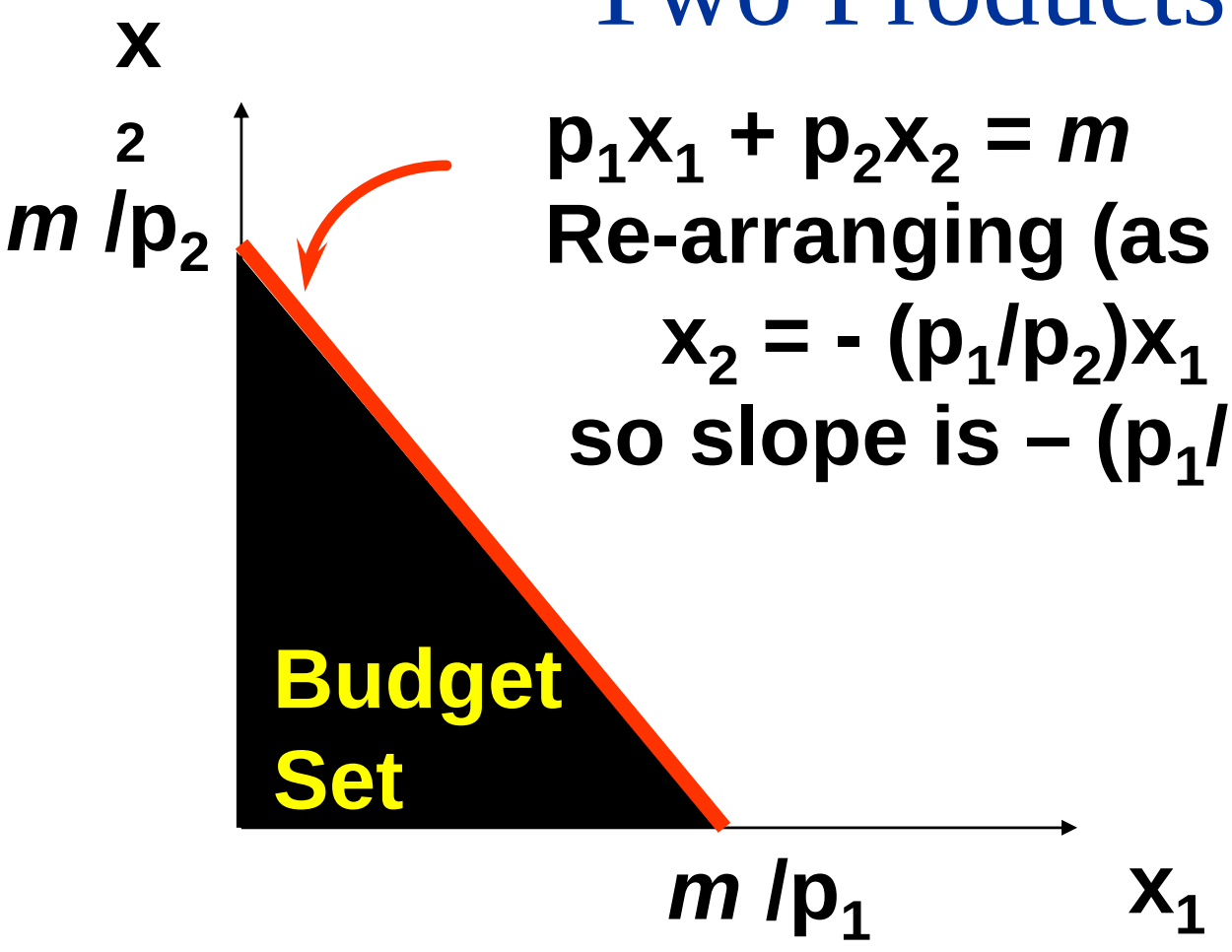


Budget Set and Constraint for Two Products



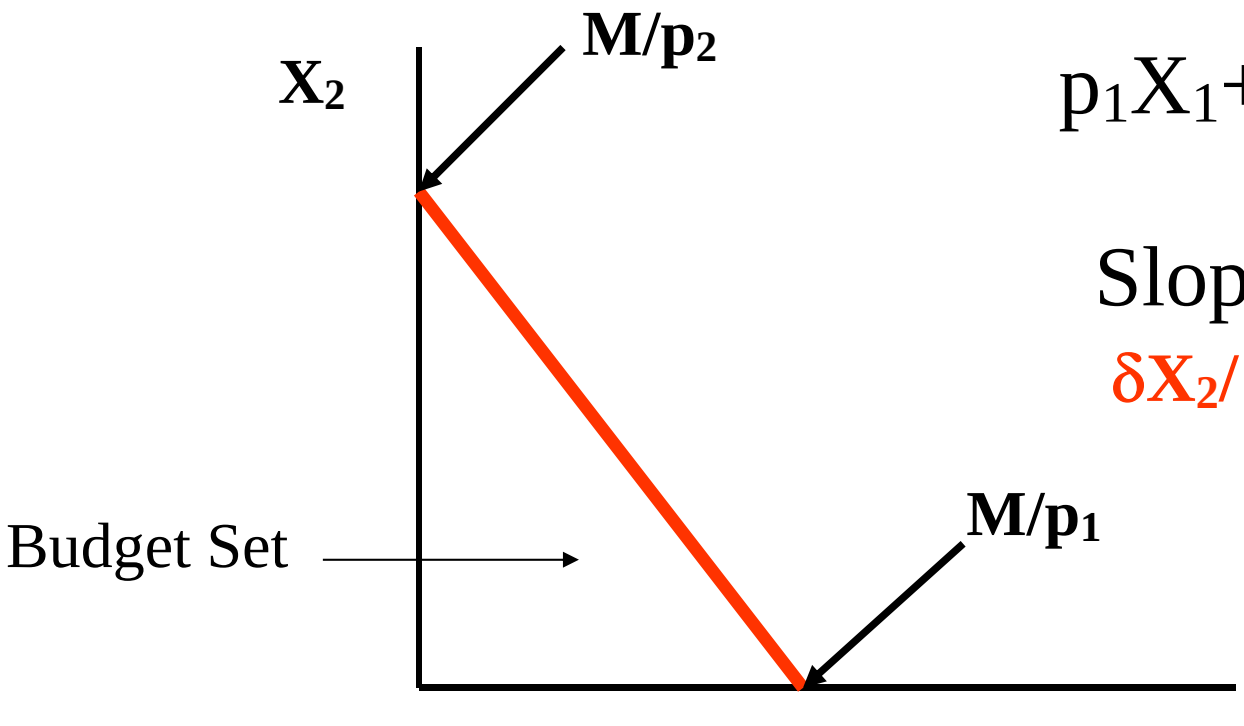
$p_1x_1 + p_2x_2 = m$

Re-arranging (as before)

$x_2 = -(p_1/p_2)x_1 + m/p_2$

so slope is $-(p_1/p_2)$

SCARITY
Budget Constraint



$$p_1X_1+p_2X_2 = M$$

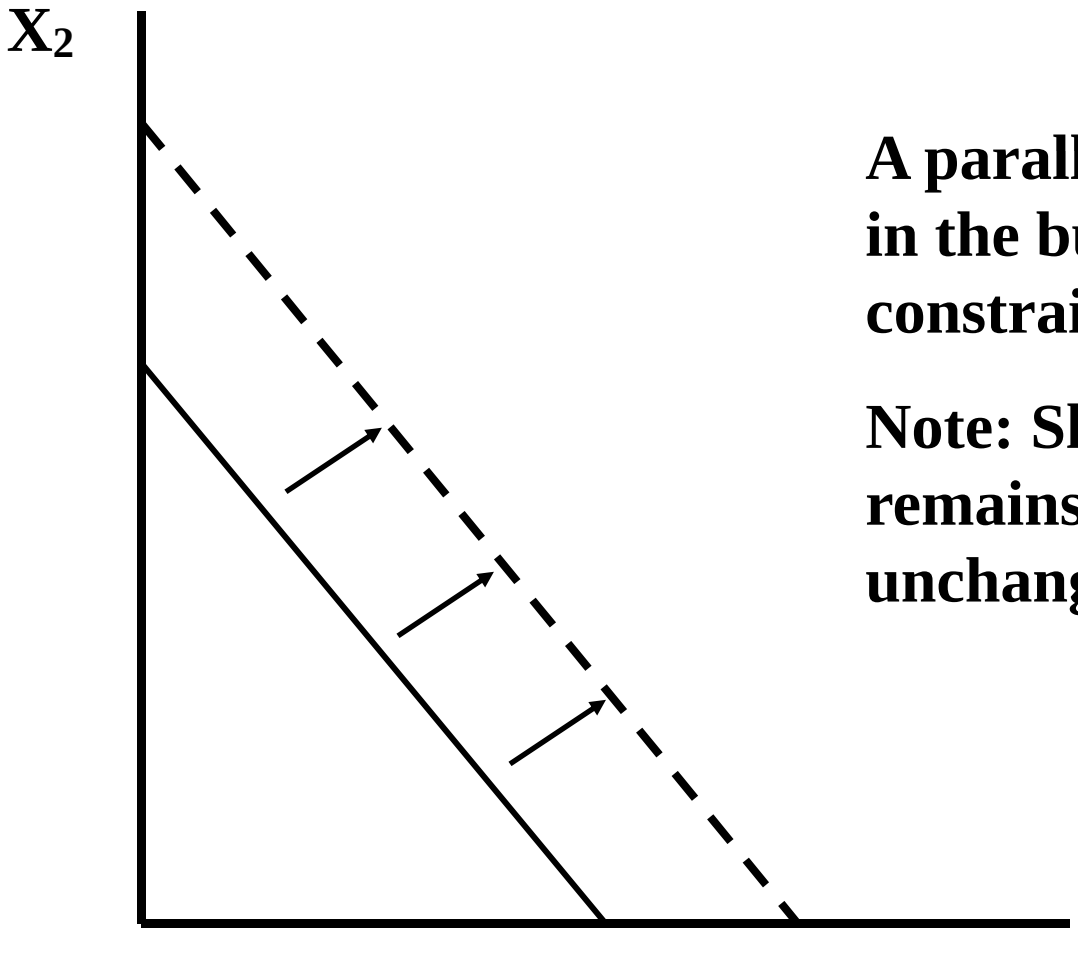
Slope

$$\delta X_2/\ \delta X_1 = -\ (p_1/p_2)$$

The slope of the income constraint represents society's willingness to trade; to increase consumption of product 1 by 1 unit, an individual must decrease consumption of product 2 by P_1/P_2 units.

"**OPPPORTUNITY COST**"

CHANGES IN INCOME CONSTRAINT
INCOME CHANGES



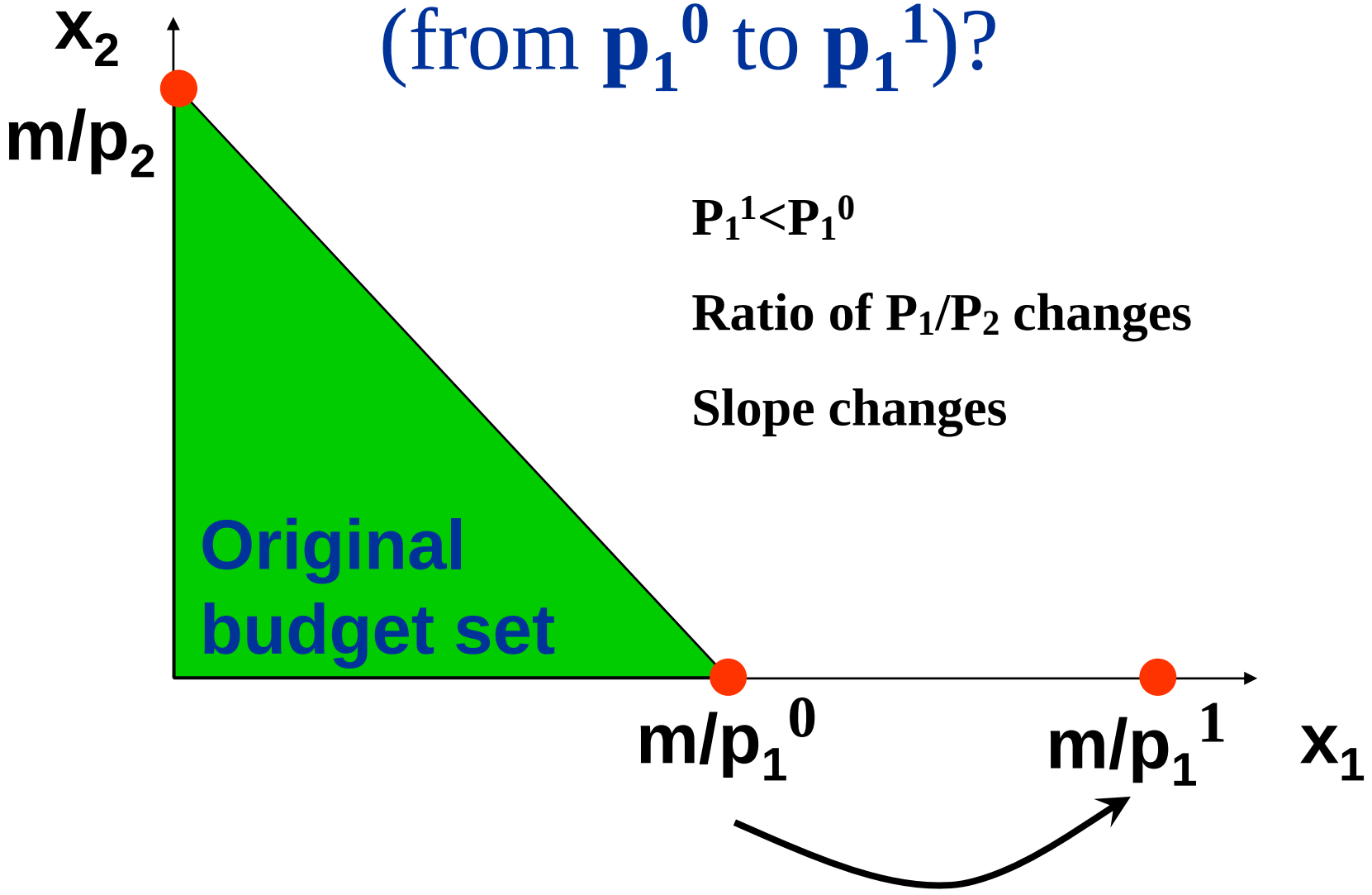
A parallel shift in the budget constraint

Note: Slope remains unchanged

INCOME CHANGES

- **No original choice is lost and new choices are added when income increases, so higher income will make a consumer better off.**
- **Trade off between products [– (p_1/p_2)] remains unchanged.**
- **An income decrease will make the consumer worse off.**

How do the budget set and budget constraint change as p_1 decreases (from p_1^0 to p_1^1)?



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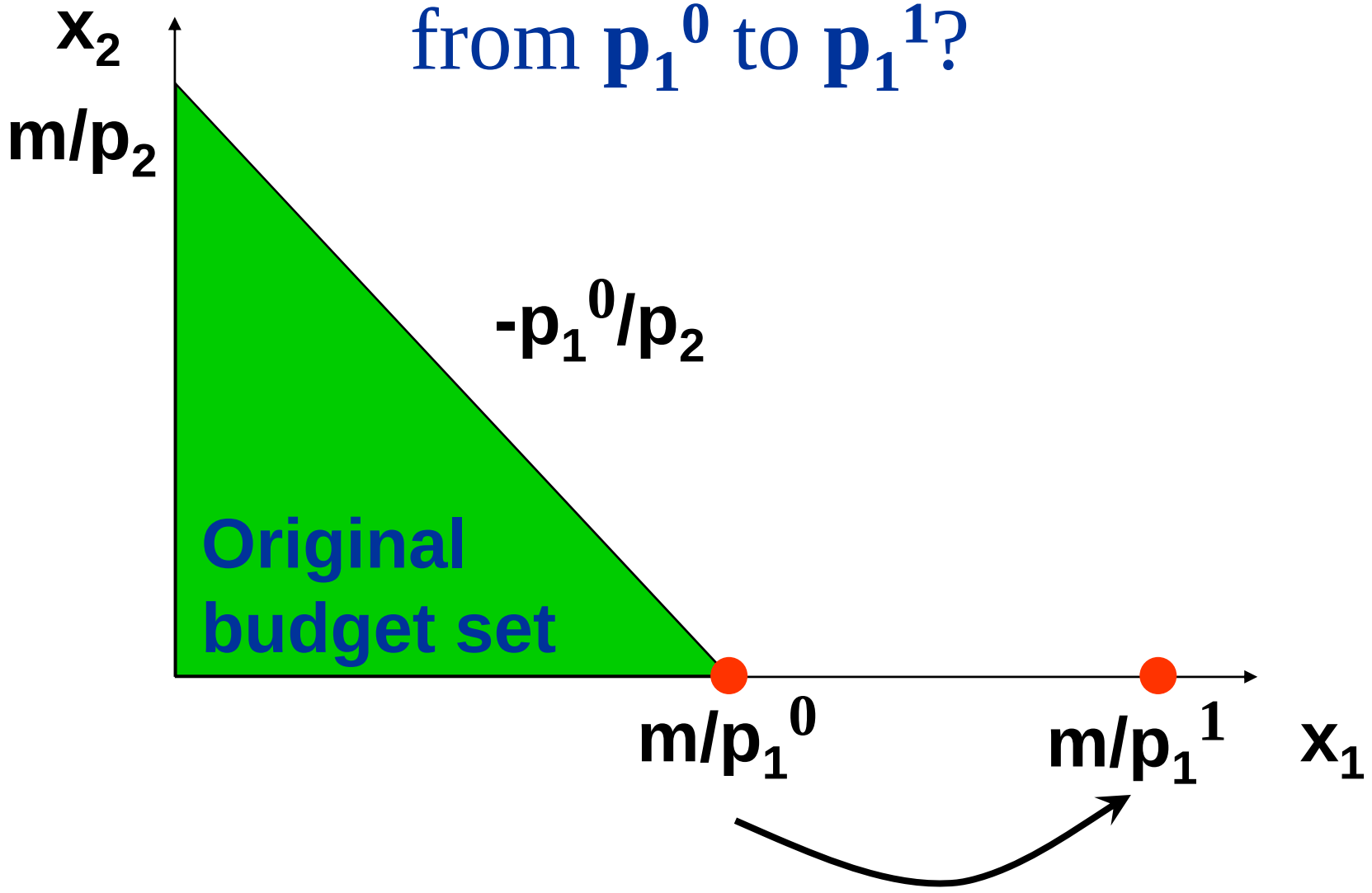

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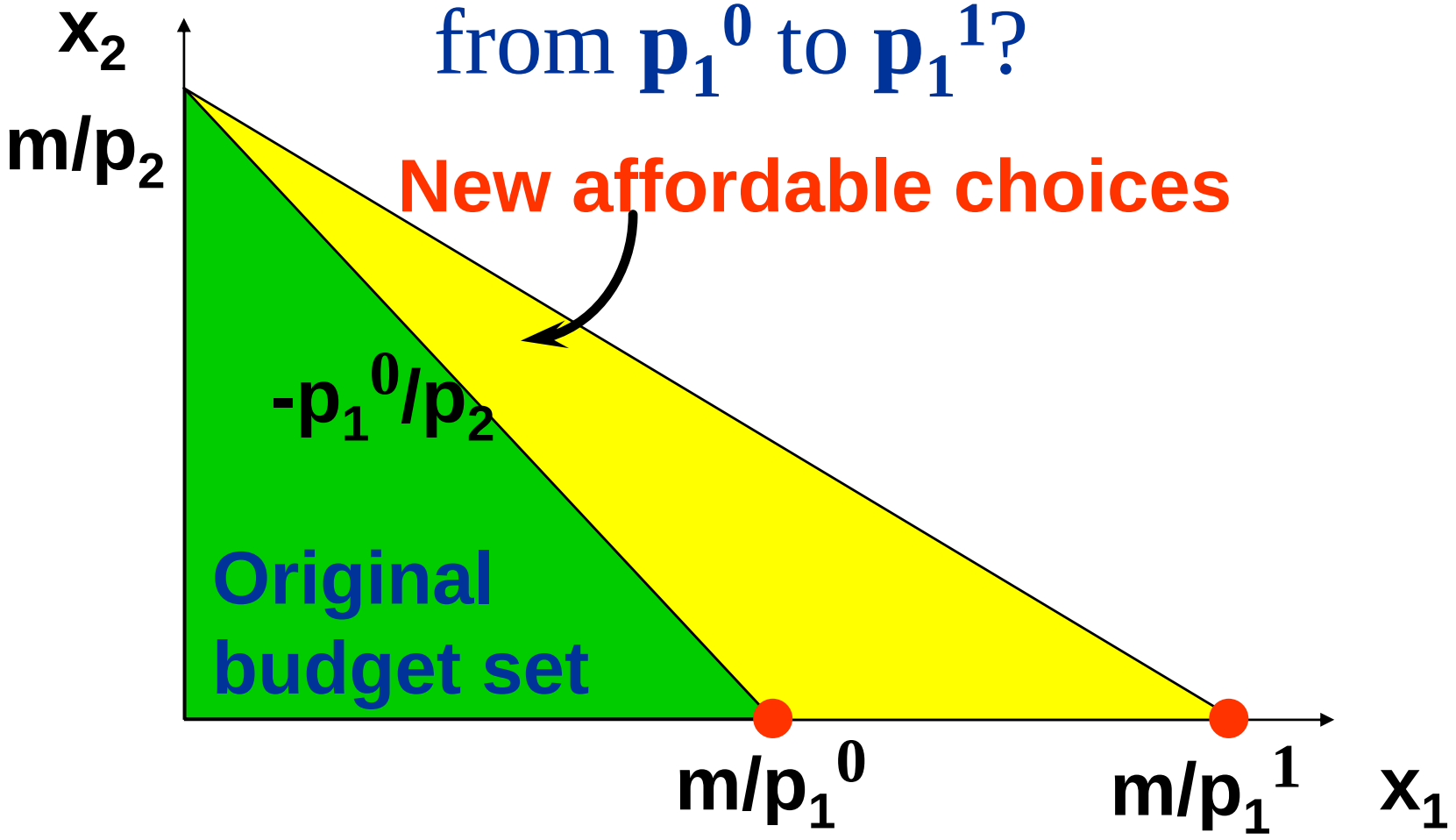

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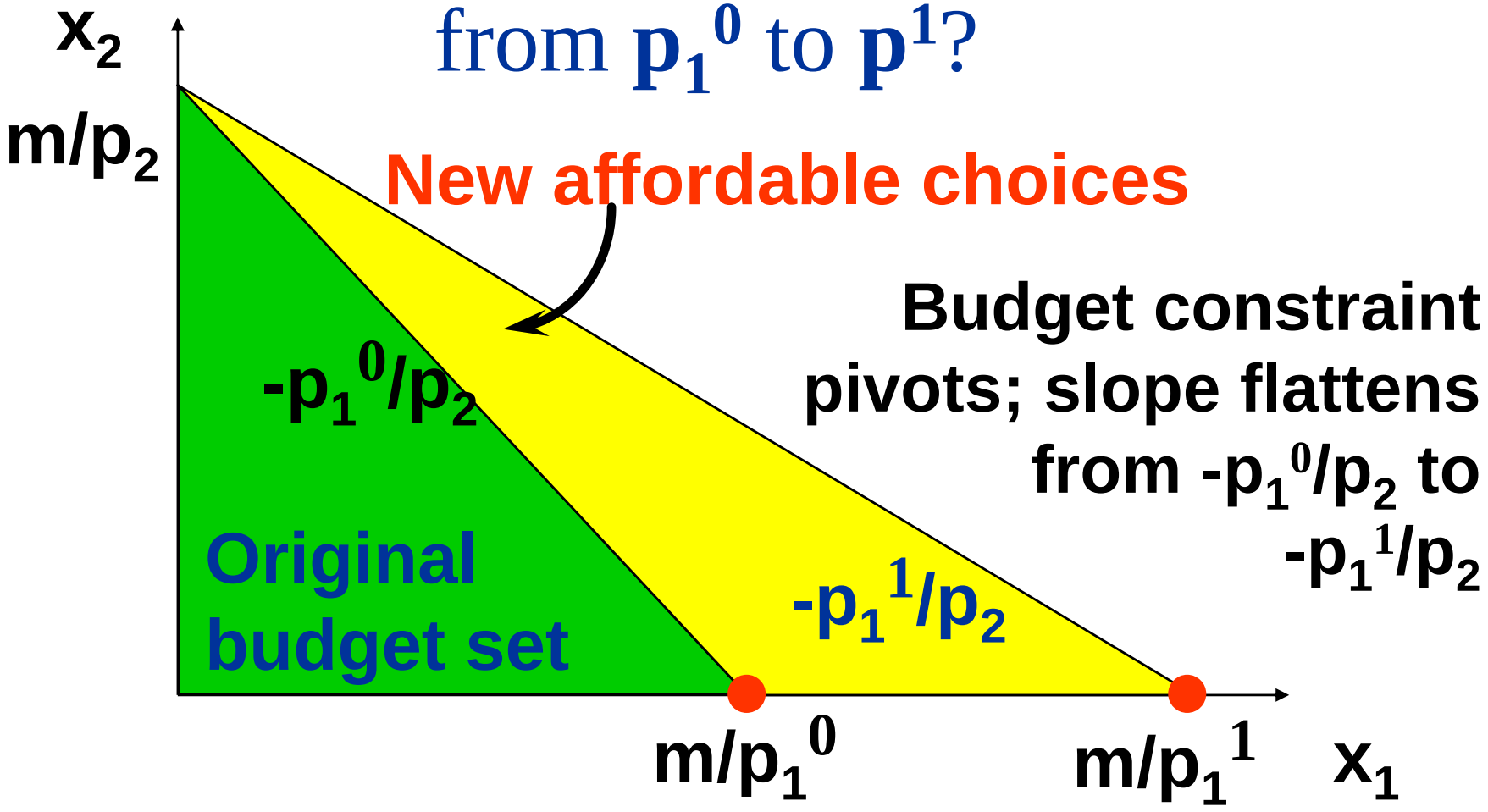


PRICE CHANGES

- **Reducing the price of one commodity pivots the constraint outward. No old choice is lost and new choices are added, so reducing one price cannot make the consumer worse off.**
- **Trade off between products [– (p_1/p_2)] is changed.**
- **Similarly, increasing one price pivots the constraint inwards, reduces choice and cannot make the consumer better off.**

PRICE CHANGES II

Claim: A doubling of all prices is equivalent to halving income.

$P_1X_1 + P_2X_2 = M$

Let all prices change by a factor of t

(e.g. t = 2)

$(tP_1)X_1 + (tP_2)X_2 = M$

$\Rightarrow P_1X_1 + P_2X_2 = M/t$ **(i.e. equivalent to a parallel shift in the income constraint)**

(Relatuve prices remain unchanged.)

COMPOSITE PRODUCT

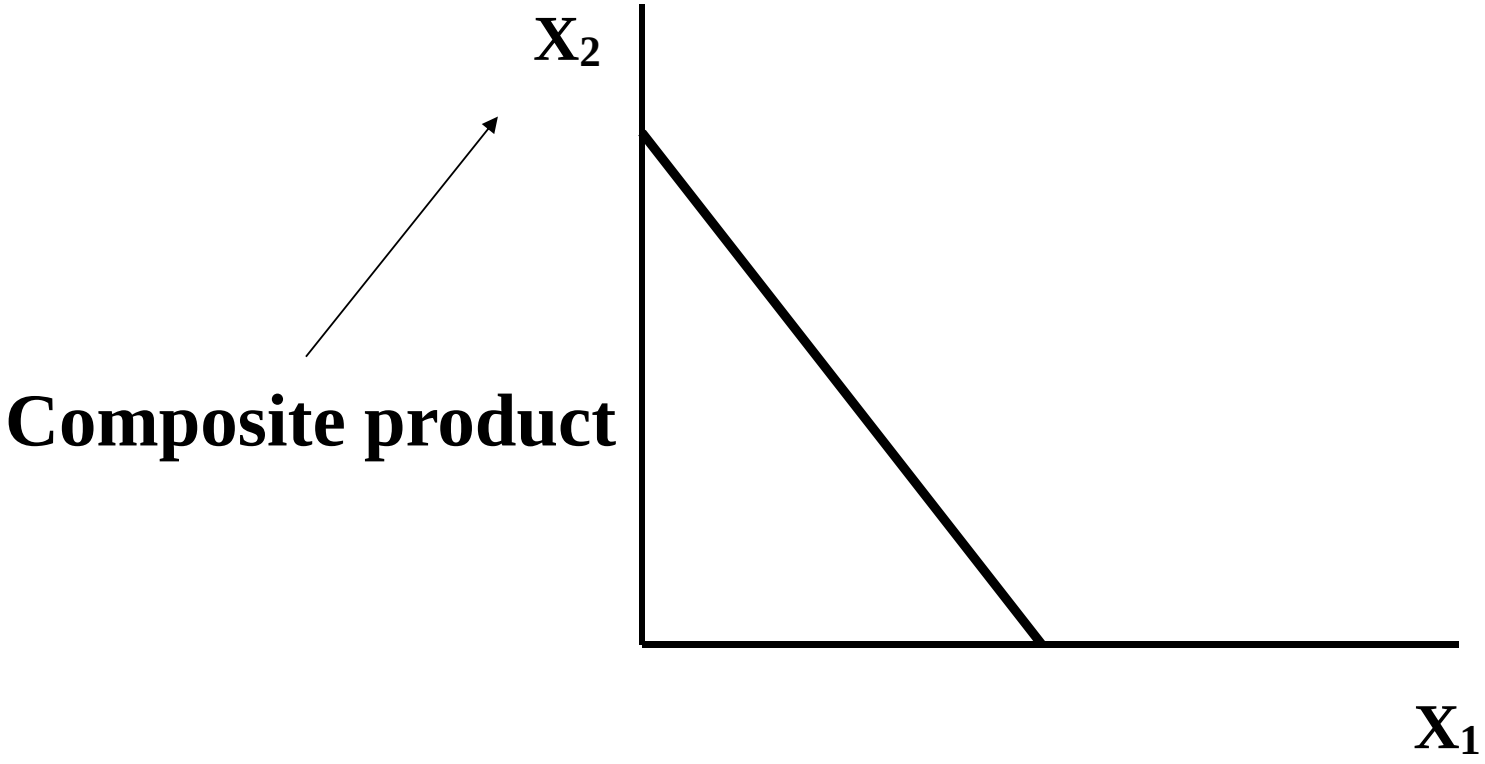
n products?

$$P_1X_1 + P_2X_2 + \ldots\ldots\ldots + P_nX_n = M$$

$$P_1X_1 + [P_2X_2 + P_3X_3 + \ldots\ldots\ldots + P_nX_n] = M$$

$[P_2X_2 + P_3X_3 + \ldots\ldots\ldots + P_nX_n]$ represents income spent on all products other than product 1, that is, income spent on a composite product.

COMPOSITE PRODUCT



INCOME CONSTRAINT and TAXES

Excise tax: $(P_1+t)X_1 + P_2X_2 = M$

Value added tax: $(1+T)P_1X_1 + P_2X_2 = M$

Lump Sum tax:

$P_1X_1 + P_2X_2 = M - (\text{Lump Sum})$

Think about

(i) **Income constraint and subsidies**

(ii) **Income constraint and rationing**