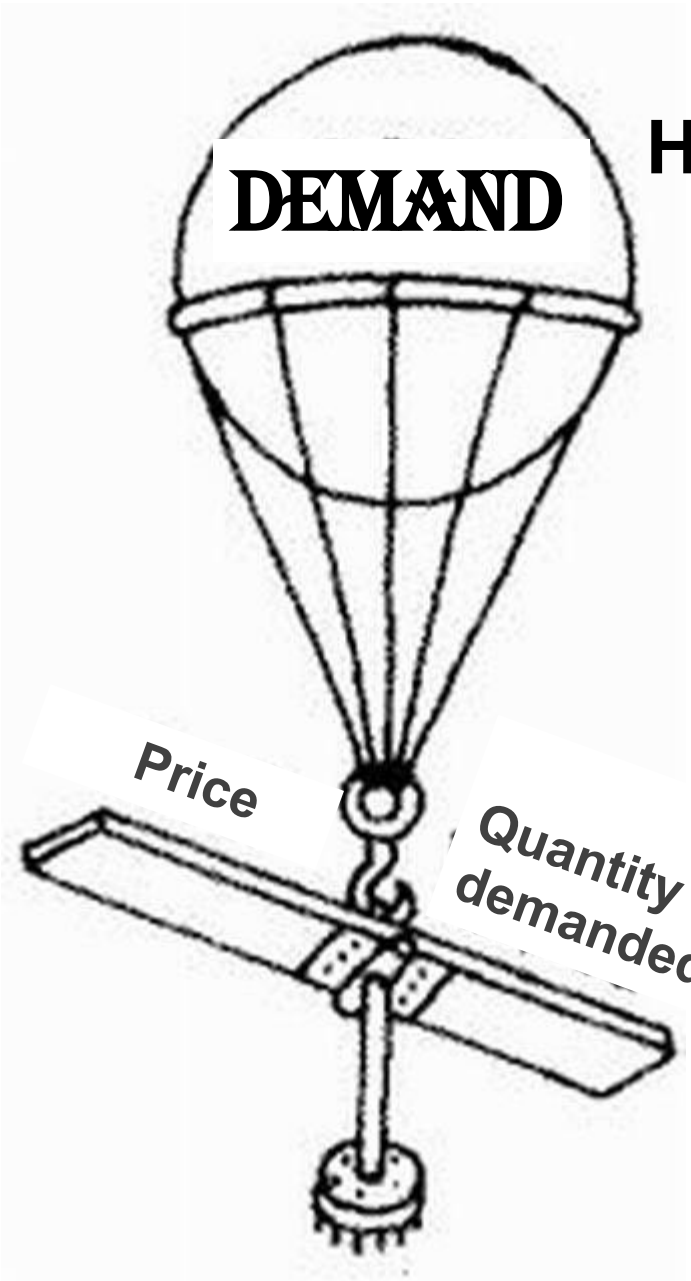
How to analyze the demand and consumer behavior?

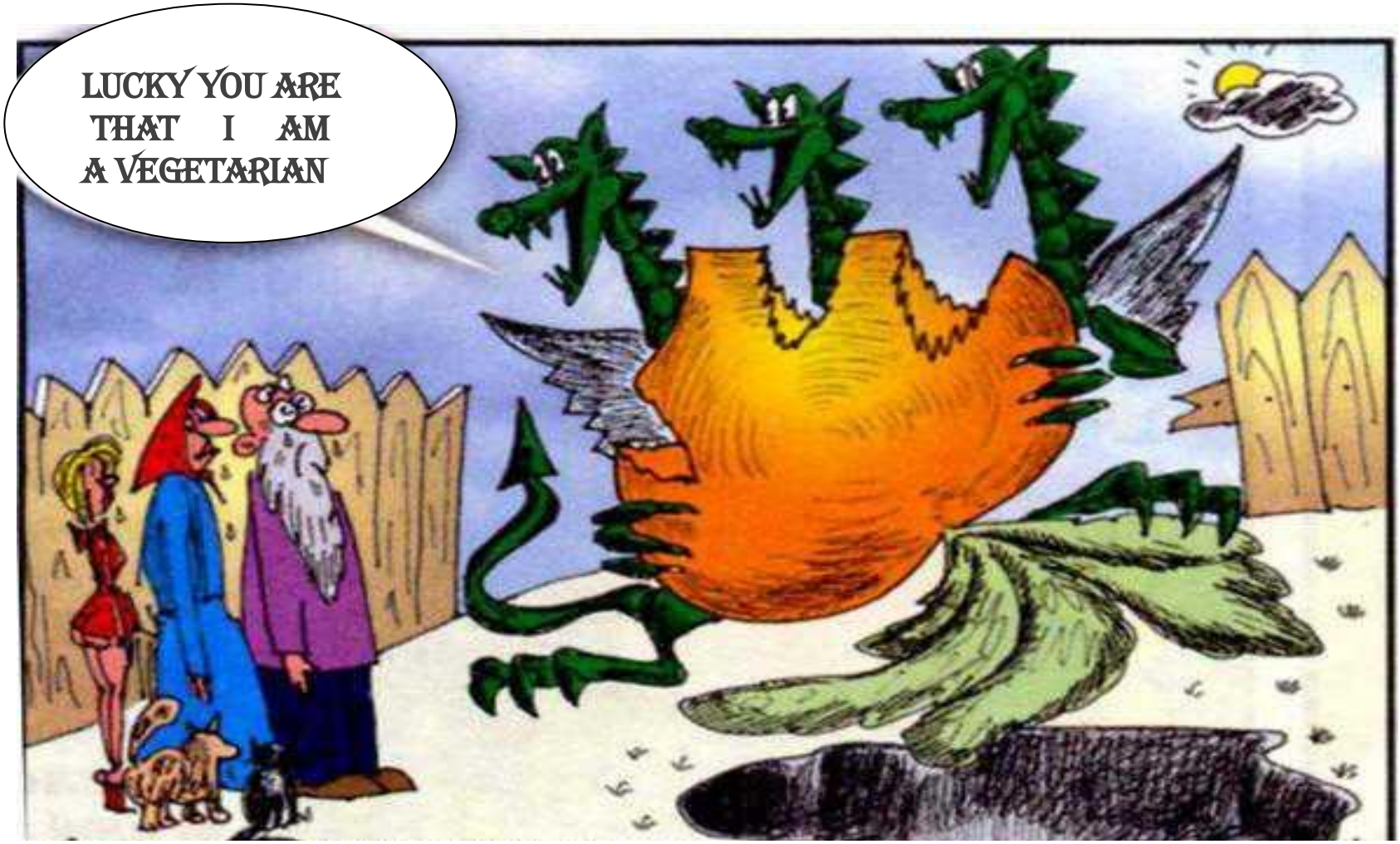


When I study the demand, my goal is to define and measure the variables affecting sales

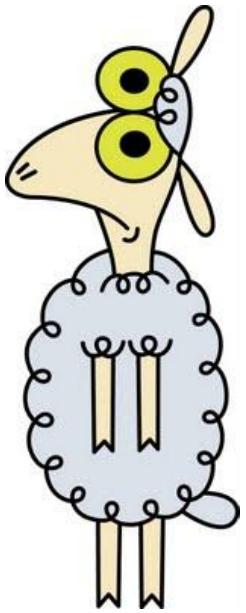
Moreover, the company is unable to be satisfied just with statistical study

The Manager must understand the dynamics of the forces affecting demand, and to determine whether and how to manipulate these forces to increase profits

The primary determining factor of the whole demand - CONSUMER



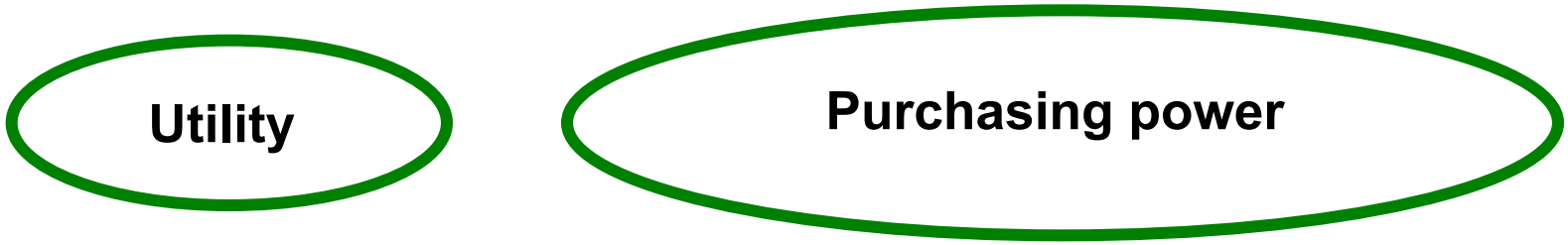
…it is necessary to understand consumer behavior…



The model of consumer balance

✔A quantitative approach to the consumer balance model

Why do YOU buy goods or services?



Utility

pleasure or satisfaction

EX: any building may be useful as a shelter

But mostly utility is subjective

…utility is a function of individual tastes, preferences, perceptions, education, personality…

Each consumer evaluates the utility of the product and base their decision to buy or not to buy on this perception

Conceptually utility can be measured in <u>units of utility</u>

No one can determine the unit if utility

However, analytically, we can determine the unit of utility to derive the law of diminishing marginal utility:

THE LAW:

The marginal utility decreases for the consumer as consumption growth

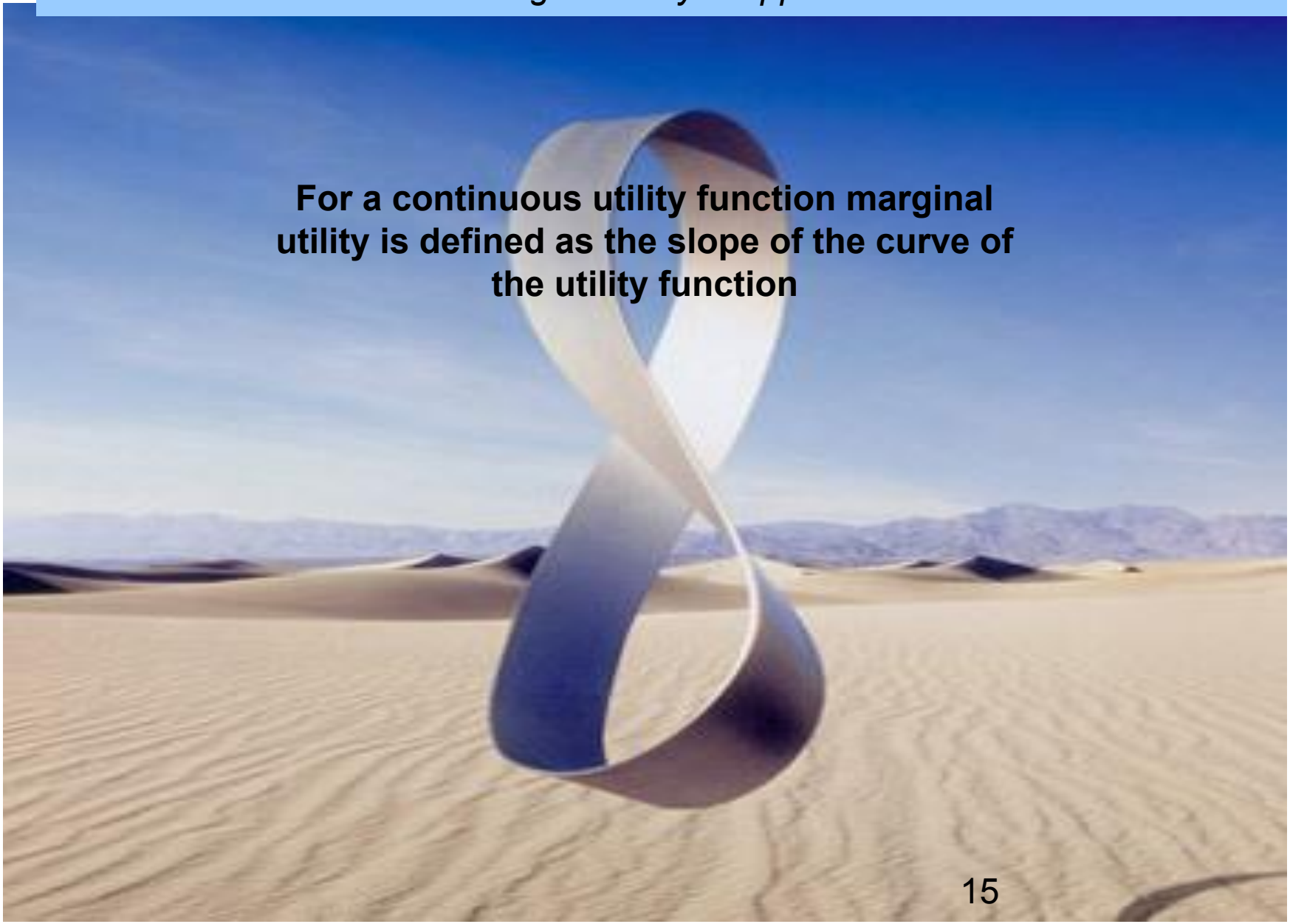
$$\mathrm{MU}_x = \frac{\Delta TU_x}{\Delta Q_x}$$

*The marginal utility of **x** goods*

*Changing in the overall utility of **x** goods*

*The change in quantity of **x** goods consumed during the period*

In real life this definition of marginal utility is applied to continuous functions:

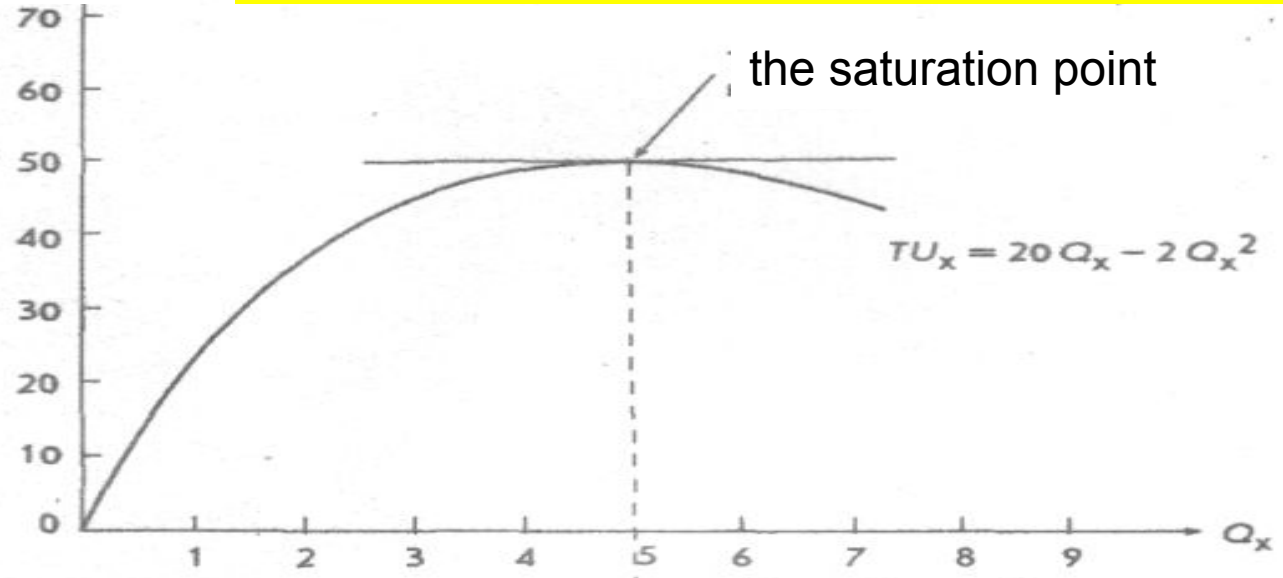


For a continuous utility function marginal utility is defined as the slope of the curve of the utility function

$$\mathrm{MU}_{\mathrm{x}} = \frac{\mathrm{d}TU_x}{dQ_x}$$

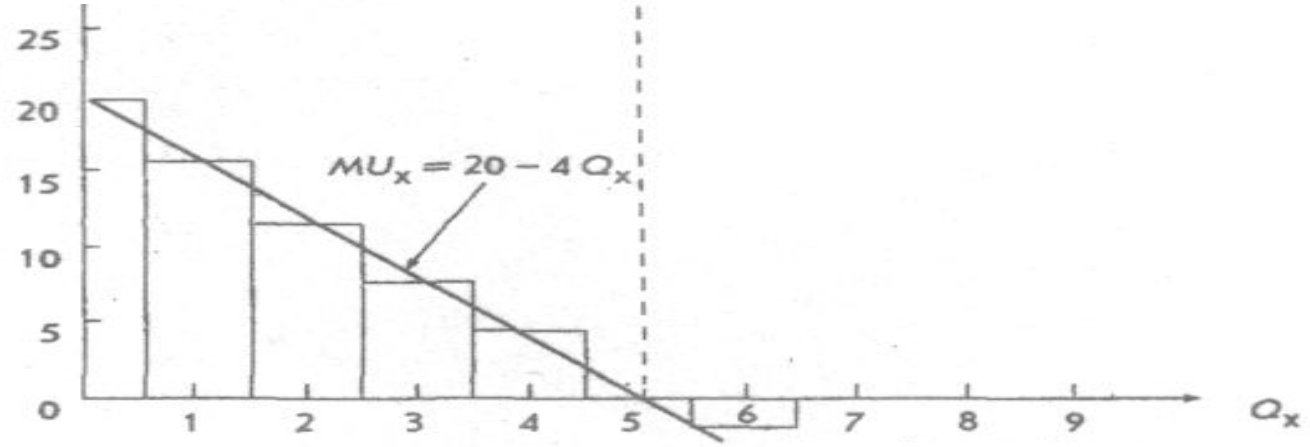
Overall Utility

] **TU = 20 Qx – 2 Q^2x** **MUx = 20 – 4 Qx**



Consumption of X

Marginal Utility



Consumption of X

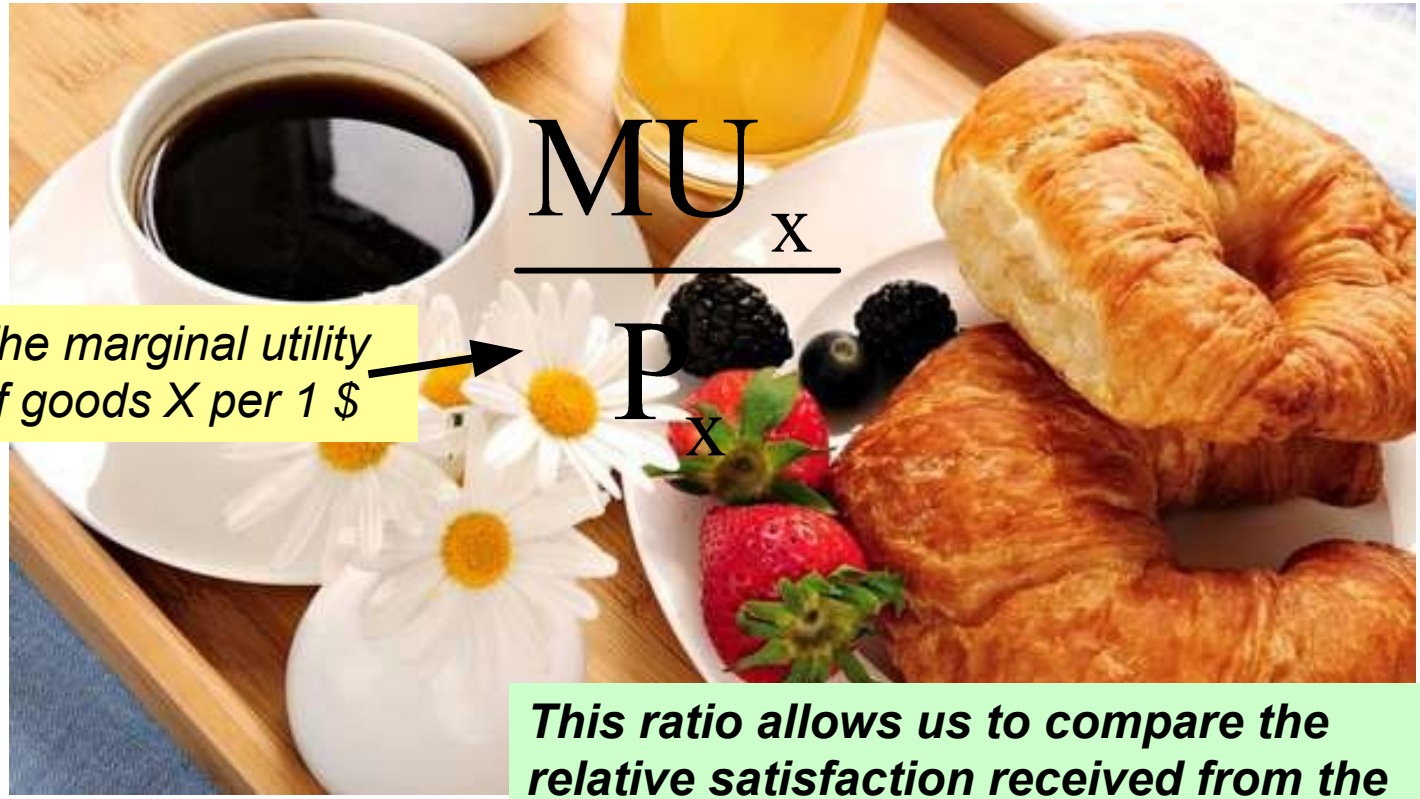
How consumer decides what to buy?

Mistress goes to the supermarket and she has 100 $

How will she spend her money?

I will try to get as much as I can

Maximum utility = state of balance

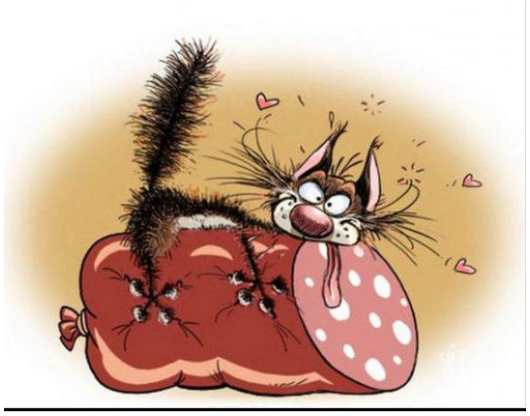


$$\frac{MU_x}{P_x}$$

The marginal utility of goods X per 1 $

This ratio allows us to compare the relative satisfaction received from the purchase of goods with incommensurable prices, such as prices for bread and car

The consumer reaches the maximum level of utility at the point of equilibrium in which the marginal utility per last rouble spent is the same for all goods



Some value that characterize the marginal utility of money

$$\frac{\mathrm{MU}_a}{\mathrm{P}_a} = \frac{MU_b}{P_b} = \ldots = \frac{MU_n}{P_n} = MU_m$$

The utility model to maximize customer satisfaction

The consumer allocates revenue to purchase various goods in accordance with the personal perception of the marginal utility per 1 ruble

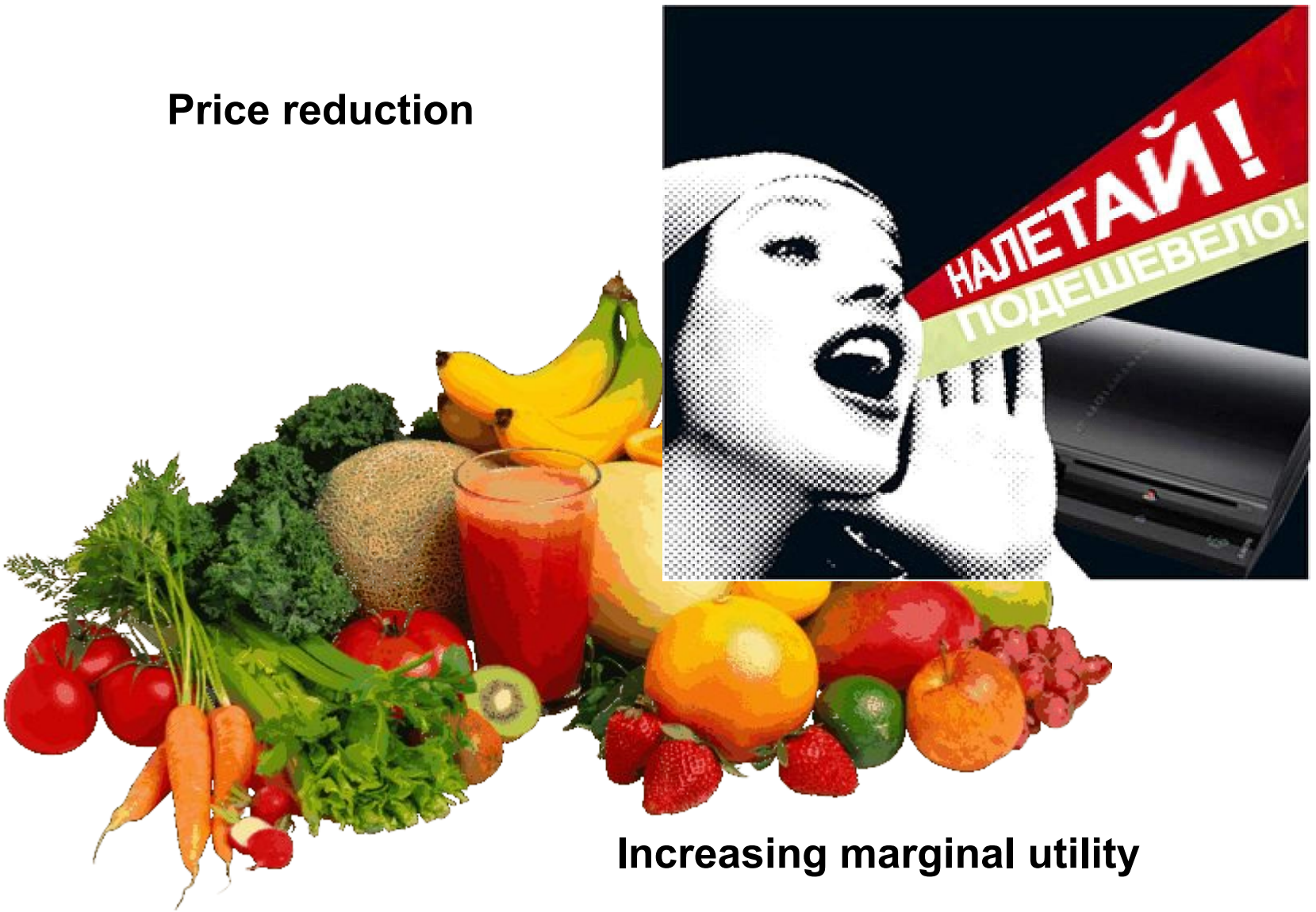
There is a persistent and consistent pattern of behaviour of the consumer, in accordance with which he always tries to get the maximum value from limited income

$$\frac{\mathrm{MU_a}}{\mathrm{P_a}} \lesseqgtr \frac{MU_b}{P_b}$$

How manufacturers can increase sales?

There are 2 possibilities:

Price reduction



Increasing marginal utility

The utility of any product exists only in the mind of the consumer

The marginal utility can be changed with the help of advertising and strategy of product promotion on the market

The demand curve can be derived from data on marginal utility

If the consumer is in the state of balance, then the marginal utility per 1 dollar for every item is equal to marginal utility of money

$$\frac{\mathrm{MU_x}}{\mathrm{P_x}} = \frac{MU_{\mathrm{m}}}{1_{руб}} = MU_m$$

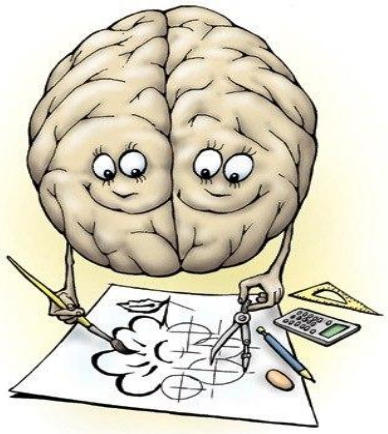
$$\mathrm{P_x} MU_m = MU_x$$

$$\mathrm{P_x} = \frac{MU_x}{MU_m}$$

] $MUm = 2$; $MU\,x = 200 - 4\,Qx$

Let's calculate the price of the product on the basis of information about its marginal utility and marginal utility of money:

Q_x	MU_x	MU_m	$P_x = \frac{MU_x}{MU_m}$
0	200	2	100
5	180	2	90
10	160	2	80
15	140	2	70
20	120	2	60
25	100	2	50
30	80	2	40
35	60	2	30
40	40	2	20
45	20	2	10
50	0	2	0

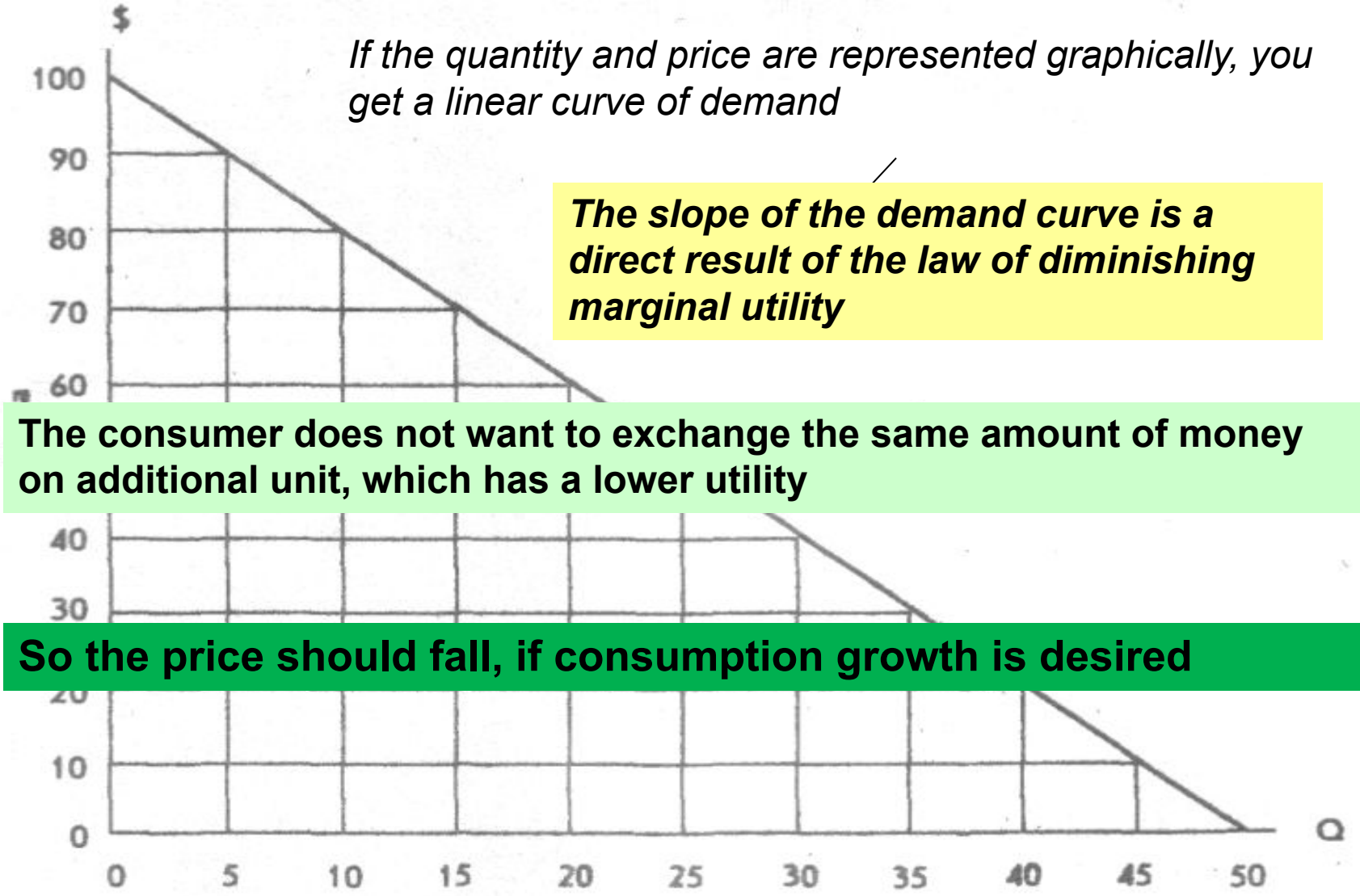


If the quantity and price are represented graphically, you get a linear curve of demand

The slope of the demand curve is a direct result of the law of diminishing marginal utility

The consumer does not want to exchange the same amount of money on additional unit, which has a lower utility

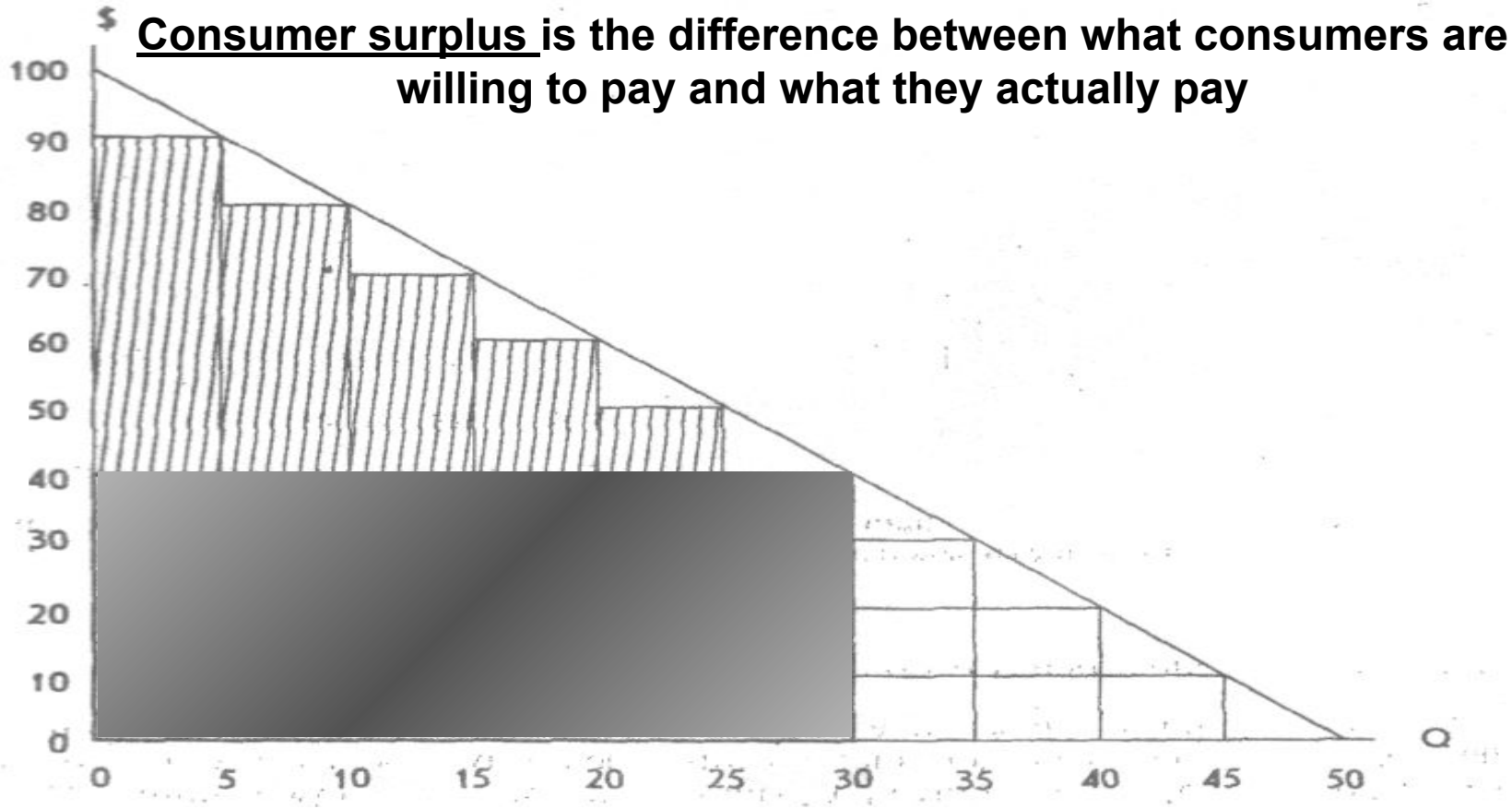
So the price should fall, if consumption growth is desired



Despite the fact that the consumer is willing to pay for their first purchase the higher price, and for subsequent – lower,

a common price for all units is fixed

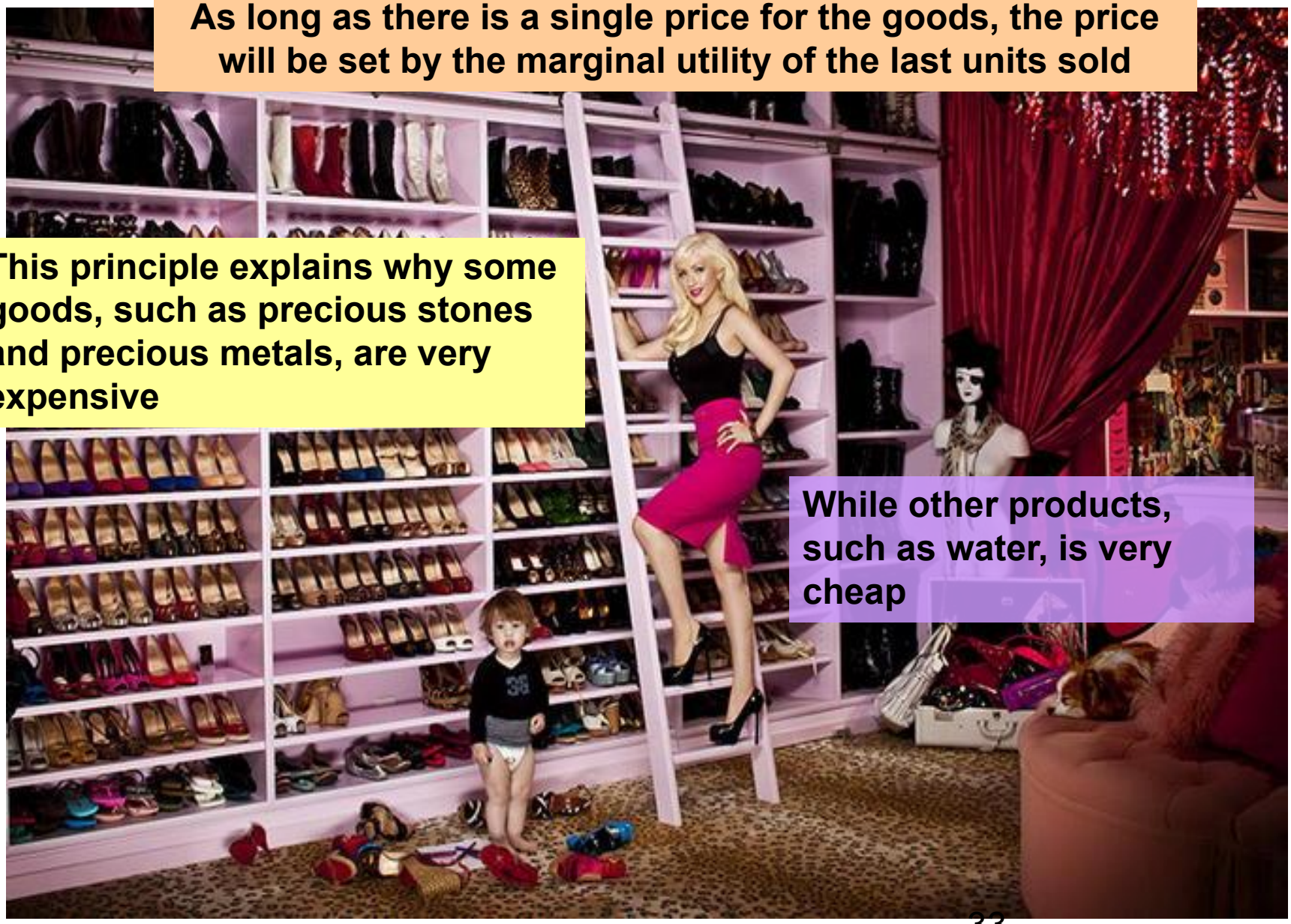
<u>Consumer surplus</u> is the difference between what consumers are willing to pay and what they actually pay



Why the seller does not raise the price and will not reimburse thus consumer surplus?

Because at a higher price, the quantity sold in the present, will not be sold

As long as there is a single price for the goods, the price will be set by the marginal utility of the last units sold



This principle explains why some goods, such as precious stones and precious metals, are very expensive

While other products, such as water, is very cheap

Ex: