Instructions and definitions

Welcome to the Economics round of the IEOx WinterChallenge!

You have to answer 20 multiple choice questions in 80 minutes.

By clicking on the button in the top right corner of your screen, you can open a timer to see how much time you have left.

Keep in mind that you will get negative points for wrong answers, so if you are not sure you know the right answer, choose:
"I will not answer this question".

Suppose that comma (",") indicates a decimal point.

Click on images and zoom in, using "+" where needed.

Do not forget to submit your answers and fill in your full name and the PERSONAL code we sent you in the last e-mail (as "student's ID"), properly. It is crucial to identify your results!

Wishing you success! We hope you enjoy the experience! :)

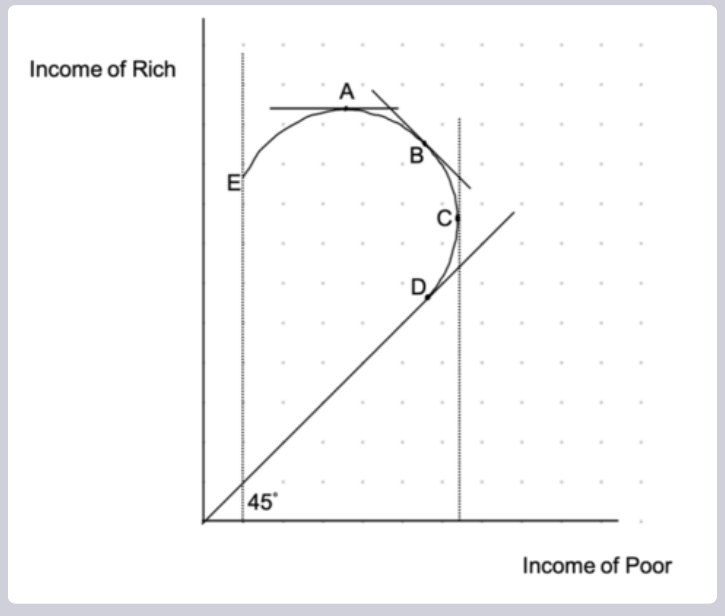
QUESTION 1

Inequality and fairness Linda, SKT, China

Imagine you are in a hypothetical world where you are asked to design your model society. There will be two groups or classes of equal size, one called "richer" and the other "poorer." You will get to live in the society you design after you have answered the question "how rich should the richer class be and how poor should the poorer class be?" But which class you get to be in will be determined by the flip of a coin after you have decided how unequal the society will be.

The graph below depicts a feasible set where you can choose between feasible income distributions. The curved line passing through E and D is the frontier of the feasible set of income distributions for the economy.

Which of the following is **NOT** true.

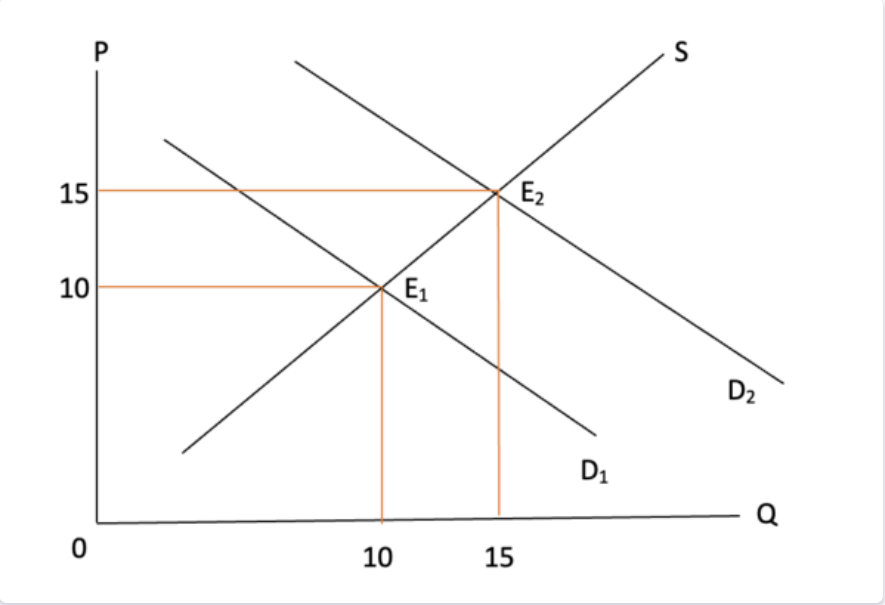


- ○ Point C is where the poor are as rich as possible, and points above C means that it's possible to make the rich much richer by making a small reduction in the income of the poor.
- ○ If you want to maximize your expected income, you will choose point B
- ◉ Point D means complete equality in the society and is Pareto efficient
- ○ If you had known that you would end up being rich before you flipped the coin, you would have chosen point A
- ○ I will not answer this question

QUESTION 2

This figure depicts a market (demand-D and supply-S) of a good. Consumers' disposable income increases by 20% and the equilibrium moves from point $\mathbf{E_1}$ to $\mathbf{E_2}$. Initial demand (D_1) is linear and price elasticity of demand satisfies $|\mathbf{E}_D| = 1$ at point $\mathbf{E_1}$.

The income elasticity ($\mathbf{E_Y}$) of demand, given it is constant for any price level, is:



- (●) $E_Y = 10$
- ( ) $E_Y = 2,5$
- ( ) $E_Y = 5$
- ( ) $E_Y = 2$
- ( ) I will not answer this question

QUESTION 3

Christos, UTH, Greece

Breaking Bad is a well known TV series (AMC, 2008 - 2013).

A peaceful chemistry teacher diagnosed with inoperable lung cancer turns to (illegally) manufacturing and selling methamphetamine with a former student in order to secure his family's future.

This is a dramatic change of his life direction. He takes a lot of risks (e.g. getting arrested, getting killed by competitors, becoming unwelcome by his family), expecting high revenues if he succeeds.

Which of the following seems to better explain this strategy change:

- ○ His utility function probably changed, because his preferences changed in favour of earning money.
- ○ He was sure that he wouldn’t get arrested or killed, so it was an easy way to make money.
- ◉ The utility loss by getting arrested or killed a few months before his inevitable death by cancer was less than it used to be while he was a healthy middle aged father and teacher.
- ○ His choice is completely inexplicable in terms of rationality.
- ○ I will not answer this question

QUESTION 4

$\mathcal{I}s\ WinterChallenge\ ineffficient?$ (data are non-applicable in reality)

Consider a typical WinterChallenge participant gaining the following utilities for their WiC experience:
$+5$ for participation
$+4$ for cooperation with 4 teammates
$+0,01 * i$ for experience exchange with i more participants in the WiC group chat
-3 for having to download and get familiar with a new messenger app.

As you might know, we use three different communication channels: Telegram, WhatsApp, and WeChat; having 400, 150, and 300 users respectively. Which of the following policies would maximize the total utility of the participants? (a participant may choose to use an app or not, depending on his/her personal utility at that moment of the announcement).

- ○ We only use WhatsApp
- ◉ We only use Telegram
- ○ We only use WeChat
- ○ We use Telegram and WeChat
- ○ I will not answer this question

QUESTION 5

Mark's utility function is: U=p^0,6*f^0,4, where p is present consumption and f is future consumption. His best feasible choice is to consume $100 now and $100 in the future. Define the interest rate Mark faces.

- ○ 5%
- ○ 10%
- ○ 30%
- ◉ 50%
- ○ I will not answer this question

QUESTION 6

WiCland's aggregate demand is given by the following equation:

$$AD = c_0 + c_1 \cdot (1 - t) \cdot Y + I + G + X - m \cdot Y$$

$$C_0 = 200,\ C_1 = 0,7,\ I = 300,\ G = 400,\ X = 200,\ m = 0,15$$

If a budget deficit of 3% of the GDP is the highest acceptable, then Y could be:

- (●) Less than 1911
- ( ) Less than 1667
- ( ) More than 1911
- ( ) More than 1667
- ( ) I will not answer this question

QUESTION 7

The appropriate monetary policy to boost an economy is:

- ( ) Increasing money supply
- ( ) Reducing interest rate
- ( ) Quantitative Easing
- (●) All of the above
- ( ) I will not answer this question

QUESTION 8

Mary finds a new teacher who helps her increase her studying productivity per hour. It would:

- ( ) reduce the time she spends studying, since she achieves easier the same results
- ( ) increase the time she spends studying, since she can achieve higher goals than before
- ( ) not affect the time she spends studying, since she has the same need for relaxation as before
- (●) possibly cause any of the effects above, depending on Mary's preferences
- ( ) I will not answer this question

QUESTION 9

Consider a small island, only trading with two shipowners. They only appear if they can use the total capacity of their ships.

Each one of them has two ships. They never send both their ships.

Price (p) is the same for all parts of the market.

For any tree a farmer maintains, they can collect 20 units of fruit. Cost equals $20 per tree.

Shipowner A brings his big ship if $p \leq \$0,5$, to collect 60 units of fruit and his small ship to collect 30 units of fruit, if $p \leq \$2$.

Shipowner B brings his big ship if $p \leq \$1$, to collect 20 units of fruit and his small ship to collect 15 units of fruit, if $p \leq \$1,5$.

Maximum profit is:

- ○ $0
- ○ $7,5
- ◉ $20
- ○ $60
- ○ I will not answer this question

QUESTION 10

Fertilopia's land can produce 9 tones of wheat or 6 tones of cotton per hectare. Povertopia's land can only produce 3 tones of wheat or 3 tones of cotton per hectare. Should they consider cooperation and specialization?

- ○ No, Fertilopia is clearly more productive and shouldn't bother
- ○ No, because no economies of scale appear
- ◉ Yes, Fertilopia should specialize in wheat
- ○ Yes, Fertilopia should specialize in cotton
- ○ I will not answer this question

QUESTION 11

Consider a market where:

$Q_D = 80 - 20 \cdot P$ and $Q_S = 40 + 20 \cdot P$.

If the government sets a tax of $1 per unit of the product, it will cause a deadweight loss. Its value would be:

- ○ 0
- ◉ 5
- ○ 55
- ○ 60
- ○ I will not answer this question

QUESTION 12

Which of the following events is not related to a bubble?

- ○ Tulip mania in the Netherlands (1636)
- ○ The Great Depression (1927-1929)
- ○ The real estate crisis of 2007-2008
- ◉ The COVID-19 crisis of 2020
- ○ I will not answer this question

QUESTION 13

Mike uses metro to travel around his city. He finds out that the marginal cost of the metro ride is $1.

He thinks that tickets could cost $1, although all tickets are sold for $2.

Since he is studying economics he understands that it could **NOT** be explained due to:

- ○ High fixed costs
- ○ Lack of close substitutes
- ○ Profits maximization
- ◉ Price discrimination
- ○ I will not answer this question

QUESTION 14

I own $20.000 stocks of Increases SA, and $10.000 stocks of Incrisis SA.

While Increases SA was growing by 9% per year, Incrisis SA was shrinking by 9% per year. How many years prior (approximately) my portfolio was allocated 50-50.

- ○ 2
- ◉ 4
- ○ 8
- ○ 16
- ○ I will not answer this question

QUESTION 15

Peter the barber reduced his consumption and concentrated wealth, changing his life.

This experience leads almost all the residents of his village to reduce consumption, starting by reducing their haircut expenses, leading Peter to poverty.

This is an example of:

- ○ bad luck
- ○ stinginess
- ○ Pareto efficiency
- ◉ the paradox of thrift
- ○ I will not answer this question

QUESTION 16

A village of 400 residents records a 5% unemployment rate.

The Mayor, following an expansive fiscal policy, hires 10 unemployed people to plant flowers in the Central Park of the village.

Unemployment rate might have decreased to:

- ○ 0
- ○ 2,5%
- ○ 1%
- ◉ Cannot define
- ○ I will not answer this question

QUESTION 17

Which of the following is a non-excludable public good:

- ○ tap water
- ○ healthcare
- ◉ streetlights
- ○ the metro
- ○ I will not answer this question

QUESTION 18

Spyridon Terzis, AUTH, Greece

According to Statistics Canada, bananas' prices in this country have been almost stable between June 2021 and June 2022. They seem to be immune to inflation, that has affected most of the products, especially agricultural ones and those that are highly dependent on transportation costs.

A further research would reveal that bananas are cheaper than they used to be in 2010.

Which of the following could explain this phenomenon?

- ○ Bananas' price is restricted by state intervention
- ○ Canada has an increasing production of bananas that covers for the quantity demanded
- ◉ There is an oversupply of bananas, globally
- ○ As apple prices increase, people choose to eat more bananas and prices decrease
- ○ I will not answer this question

(Introduction to the following two questions)

Carbon Credit Market Tomás Aguirre, Brazil

Read the beginning of the following The Guardian article:

Revealed : More than 90 % of rainforest carbon offsets by biggest provider are worthless, analysis shows

The forest carbon offsets approved by the world's leading certifier [...] and used by Disney, Shell, Gucci and other big corporations are largely worthless and could make global heating worse, according to a new investigation.

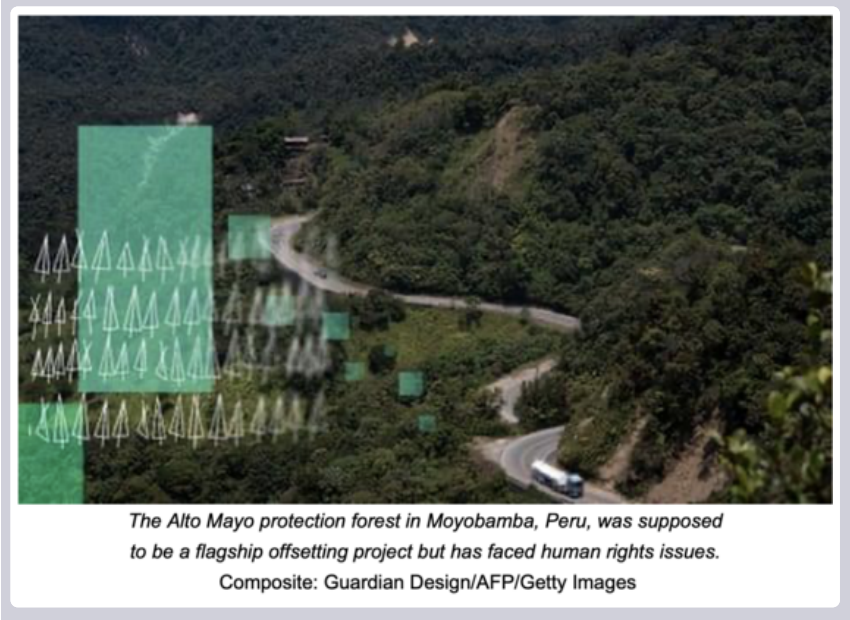
The research into leading carbon standard for the rapidly growing $2bn (£1,6bn) voluntary offsets market, has found that, based on analysis of a significant percentage of the projects, more than 90% of their rainforest offset credits – among the most commonly used by companies – are likely to be "phantom credits" and do not represent genuine carbon reductions.

Source: https://www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe

QUESTION 19

Carbon Credit Market **Tomás Aguirre, Brazil**

What is the correct alternative regarding the carbon credit market?



The Alto Mayo protection forest in Moyobamba, Peru, was supposed to be a flagship offsetting project but has faced human rights issues.
Composite: Guardian Design/AFP/Getty Images

- ○ Carbon credit markets are a command-and-control solution to the adverse selection problem caused by CO_2 emissions
- ○ Despite some flaws, carbon credit markets are widely regarded by economists as an effective solution to climate change, not demanding direct government regulation or enforcement
- ◉ If working effectively, carbon credit markets should set the price of a tonne of carbon equal to its marginal social cost
- ○ Carbon credit markets are an evidence of how it is possible to solve externality problems using Coase bargaining even under the presence of significant transaction costs
- ○ I will not answer this question

QUESTION 20

Carbon Credit Market **Tomás Aguirre, Brazil**

The issue described in the article in which, according to The Guardian's investigation, the nonprofit organisation does not do carbon offset projects as well as what was contracted by its clients, can be considered:

- ○ An illustration of the availability heuristic
- ○ A moral hazard problem
- ○ A Pareto dominant equilibrium
- ◉ An example of the spillover effect
- ○ I will not answer this question