EXAM I

One Night in the Grand Budapest Hotel

Instructions

- The use of a mobile phone, or any other means of communication, is forbidden.

- Give all the results with a two decimals precision.

- The value of a price index at the reference period is set at 100.

1   Checking In - 5 points

In 1932, the price of rooms in the Grand Budapest Hotel are the following :

- The price of the single bedroom is 200$ per night.

- The price of the double-bedroom is 50% higher.

- The price of M.Gustave suite is 150% higher than the price of the double-bedroom.

- The price of the single bedroom is 400% higher than the room of M.Zero.

1. Give the price in $ of the 4 types of room in the hotel.

2. The VAT on a room is 25% of the price excluding tax. What is the tax rate relative to the price including tax ?

3. The price of the single bedroom increases by 5% every year. In how many years will the price of the single bedroom have tripled ?

The price of Mr.Gustave suite increases by 10% in 1933, 15% in 1934, 20% in 1935.

1. What is the price of Mr.Gustave suite in 1935 ? (that is after the last 20% increase)

2. What is the average growth rate of the price of Mr.Gustave suite during the past three years?

2   A Price Index in Zubrowska - 6 points

The table below represents the typical annual consumption of an inhabitant of Zubrowska

	Mendl's Courtesan au Chocolat		Air de Panache (perfum)		Lobby boy hat	
Year	Price	Quantities	Price	Quantities	Price	Quantities
1932	5	110	100	3	30	3
1933	6	120	120	2	40	2
1934	7	140	120	1	50	1

Table 1: Annual consumptions

1. Compute the elementary indexes of the prices of each item (using 1932 as the reference year) for the three years

2. Compute the weights of each item in annual consumption in 1932

3. Derive for the previous question the Laspeyres index in year 1933 and 1934 (with 1932 as the reference year)

3   Zero's income - 3 points

The inflation rate in Zubrowska in 1933 is 20% and 14% in 1934. Zero Mustafa is earning $1000 a year as a lobby boy in 1932. His income is increased by 30% in 1933 and double in 1934.

1. What is the income of Zero Mustafa in 1934 ?

2. How has changed the purchasing power of the lobby boy Zero Mustafa between 1932 and 1933, between 1933 and 1934 ? (give the answer in percentage increase/decrease)

   The income tax rates in Zubrowska are the following (the table shows for each part of the income between the boundaries of a range, the tax rate that should be applied to it[1])

Income ranges		
0 - $1000	$1000 - $2000	Above $2000
10%	15%	20 %

Table 2: Income tax rates

3. What is the amount of taxes paid by Zero Mustafa in 1934 ?

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[1]The rate should be applied to the part of the income which is between the boundaries of the range, not the whole income

4 Mr. Gustave's Air de Panache - 4 points

In 1932, the price of 100mL of Air de Panache costs \$100 in Zubrowska (\$ is the official currency of Zubrowska). The same bottle costs €80 in France. The nominal exchange rate is €1=\$1.25.
The rate of inflation in France is 5% in both 1933 and 1934. The rate of inflation in Zubrowska during those years is the same as defined in the previous section.

1. What is the real exchange rate between Zubrowska and France in 1932 ? Explain why it follows the law of one price (we assume that there is no transaction costs) and what would happen if it what not the case.

2. What should be the nominal exchange rate in 1934 so that the real exchange rate is the same in 1932 and in 1934 ?

5 Class struggle in the Grand Budapest Hotel - 2 points

Wages	Frequencies
\$1000 - \$2000	3
\$2000 - \$3000	5
\$3000 - \$4000	7
\$4000 - \$5000	2

Table 3: Distribution of the wages in the Grand Budapest Hotel

1. What is the modal class ?

2. What is the median class ?

Bonus questions - 2 points

1. What do you think of demand's price elasticity of the Courtesan au chocolat ?

2. Are Courtesan au chocolat and Air de Panache substitutes or complements ?

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