Started on	Tuesday, 25 February 2025, 2:56 PM
State	Finished
Completed on	Thursday, 6 March 2025, 3:28 AM
Time taken	8 days 12 hours
Marks	24.50/25.00
Grade	**98.00** out of 100.00
Feedback	Very good work! Cheers, Long

Information

SECTION 1: ABOUT THE COURSE

This section of the quiz contains 8 questions regarding the general information about the course - Masters Microeconomics-IDEC8064 (Hint: You may find useful information for these questions in the course outline, the FAQ and the first part of the first lecture).

Question 1

Correct

Mark 1.00 out of 1.00

How are activities, assessments, and learning outcomes in this course connected?

Select one or more:

- [x] Students achieve learning outcomes through participation in lectures, tutorials, readings, doing assignments (quizzes), and undertaking a case study. ✔
- [x] When completing their assignments (quizzes), students can discuss and seek help from classmates, similar to doing real-life research. ✔
- [x] Students can learn from their mistakes because they have the option to attempt each quiz twice. ✔
- [ ] There are no connections between activities, assignments, and learning outcomes.

When can students expect feedback on assignments (quizzes)?

Select one or more:

- [x] To support students' learning, the assignments have been designed to provide immediate feedback and grades after submission. ✔
- [ ] To support students' learning, the assignments have been designed to provide feedback and grades approximately one week after submission.
- [ ] To support students' learning, the assignments have been designed to provide feedback and grades approximately two weeks after submission.
- [ ] There is no feedback provided on the assignments.

Question 3

Correct

Mark 1.00 out of 1.00

How does this course develop the ability to think?

Select one or more:

- [x] This course has been designed to cultivate thinking abilities with a broad spectrum of applications to support policy-making. ✔
- [ ] The course primarily focuses on economic theory.
- [ ] Students will only observe how economic problems are solved in class.
- [ ] The course will only focus on general equilibrium modelling.

Question 4

Correct

Mark 1.00 out of 1.00

What do the lecturer and tutor do in this course?

Select one or more:

- [x] They organize study materials and activities to support students in learning. ✔
- [x] They treat students with respect and communicate clearly about the course. ✔
- [x] They stimulate learning interest in the subject matter through problem-solving in various dynamic contexts ✔
- [ ] They find the worst group in the class to fail them.

What is true about the lecture supplementary notes of the course?

Select one or more:

- [x] They have been designed to reduce the writing burden of students in class. ✔
- [ ] Students only need to print them and study at home.
- [ ] They are the only material students should read carefully.
- [ ] They are always available before the lectures.

You might want to read the FAQ again.

Question 6

Correct

Mark 1.00 out of 1.00

What is correct about the materials of the course?

Select one or more:

- [x] Example R and Excel files are available for download from the Wattle site of the course. ✔
- [x] Lecture notes, tutorials and copies of reading permitted by the copyright law of Australia are all available on the Wattle site of the course. ✔
- [ ] Students are not encouraged to attend lectures because the lecture notes cover everything.
- [ ] Past exam papers are the only valuable material in the course.

Question 7

Correct

Mark 1.00 out of 1.00

What is correct about weekly practice questions and the tutor/teaching assistant?

Select one or more:

- [ ] The tutor provides alternative lectures to students who miss the formal lectures of the lecturer.
- [x] The tutor discusses weekly practice questions. ✔
- [ ] The tutor will repeat lectures.
- [x] Students should attempt the weekly practice questions beforehand. ✔

Mark 1.00 out of 1.00

Why R is chosen for the course?

Select one or more:

- [x] R is a free platform which students can install in their own computers and do exercises at home without requiring a license. ✔
- [ ] With R, we can calculate many things that are not possible in all other languages.
- [x] R offers a combination of ready-made commands for statistical analysis and general-computing features for more advanced users. ✔
- [ ] R is the fastest platform for coding.

Information

SECTION 2: UTILITY MAXIMIZATION

In this section of the quiz, you will solve four utility maximization problems. Questions 9-10 have the Cobb Douglas functional form, and questions 11-12 have CES utility functions. You might want to review section 1 in topic 1 and/or related practice questions (aka tutorials) before attempting these quiz questions.

Question 9

Correct

Mark 1.00 out of 1.00

Solve the utility maximization problem with $u(x_1, x_2) = x_1^{0.75} x_2^{0.25}$, price vector (w_1, w_2) and income M. What are correct about the Marshallian demands $x_1^*(w_1, w_2, M), x_2^*(w_1, w_2, M)$ and the indirect utility function $v(w_1, w_2, M)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- [ ] $x_1^*(8, 6, 51) = 5.841, x_2^*(8, 6, 51) = 2.356$ and $v(8, 6, 51) = 3.904$
- [ ] $x_1^*(7, 4, 66) = 7.071, x_2^*(7, 4, 66) = 5.507$ and $v(7, 4, 66) = 6.18$
- [x] $x_1^*(6, 5, 50) = 6.25, x_2^*(6, 5, 50) = 2.5$ and $v(6, 5, 50) = 4.97$ ✔
- [x] $x_1^*(8, 8, 77) = 7.219, x_2^*(8, 8, 77) = 2.406$ and $v(8, 8, 77) = 5.485$ ✔

Mark 1.00 out of 1.00

Solve the utility maximization problem with $u(x_1, x_2, x_3) = x_1^{0.75} x_2^{0.1} x_3^{0.15}$, price vector (w_1, w_2, w_3) and income M. What are correct about the Marshallian demands $x_1^*(w_1, w_2, w_3, M), x_2^*(w_1, w_2, w_3, M), x_3^*(w_1, w_2, w_3, M)$ and the indirect utility function $v(w_1, w_2, w_3, M)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(6,7,8,78) = 11.145, x_2^*(6,7,8,78) = 1.114, x_3^*(6,7,8,78) = 2.044$ and $v(6,7,8,78) = 5.905$
- $x_1^*(6,7,5,51) = 6.916, x_2^*(6,7,5,51) = 0.729, x_3^*(6,7,5,51) = 1.53$ and $v(6,7,5,51) = 4.023$
- $x_1^*(7,5,6,57) = 6.107, x_2^*(7,5,6,57) = 1.14, x_3^*(7,5,6,57) = 1.425$ and $v(7,5,6,57) = 4.151$ ✔
- $x_1^*(8,6,7,70) = 6.563, x_2^*(8,6,7,70) = 1.167, x_3^*(8,6,7,70) = 1.5$ and $v(8,6,7,70) = 4.425$ ✔

Question 11

Correct

Mark 1.00 out of 1.00

Solve the utility maximization problem with $u(x_1, x_2) = (\alpha_1 x_1^r + \alpha_2 x_2^r)^{\frac{1}{r}}$, where $r = 1 - \frac{1}{\sigma}, (\alpha_1, \alpha_2, \sigma) = (0.33, 0.67, 0.83)$, price vector (w_1, w_2) and income M. What are correct about the Marshallian demands $x_1^*(w_1, w_2, M), x_2^*(w_1, w_2, M)$ and the indirect utility function $v(w_1, w_2, M)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(6,6,80) = 4.762, x_2^*(6,6,80) = 8.571$ and $v(6,6,80) = 7.004$ ✔
- $x_1^*(7,4,72) = 3.901, x_2^*(7,4,72) = 11.173$ and $v(7,4,72) = 7.695$ ✔
- $x_1^*(5,5,69) = 4.929, x_2^*(5,5,69) = 9.209$ and $v(5,5,69) = 7.25$
- $x_1^*(7,5,45) = 2.925, x_2^*(7,5,45) = 6.839$ and $v(7,5,45) = 4.591$

Question 12

Correct

Mark 1.00 out of 1.00

Solve the utility maximization problem with $u(x_1, x_2, x_3) = (\alpha_1 x_1^r + \alpha_2 x_2^r + \alpha_3 x_3^r)^{\frac{1}{r}}$, where $r = 1 - \frac{1}{\sigma}$, $(\alpha_1, \alpha_2, \alpha_3, \sigma) = (0.33, 0.4, 0.27, 0.74)$, price vector (w_1, w_2, w_3) and income M. What are correct about the Marshallian demands $x_1^*(w_1, w_2, w_3, M), x_2^*(w_1, w_2, w_3, M), x_3^*(w_1, w_2, w_3, M)$ and the indirect utility function $v(w_1, w_2, w_3, M)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(5,5,5,74) = 4.909, x_2^*(5,5,5,74) = 5.66, x_3^*(5,5,5,74) = 4.231$ and $v(5,5,5,74) = 4.98$ ✔
- $x_1^*(5,7,5,72) = 4.615, x_2^*(5,7,5,72) = 4.148, x_3^*(5,7,5,72) = 3.978$ and $v(5,7,5,72) = 4.363$
- $x_1^*(5,4,6,59) = 3.944, x_2^*(5,4,6,59) = 5.364, x_3^*(5,4,6,59) = 2.971$ and $v(5,4,6,59) = 4.09$ ✔
- $x_1^*(5,8,6,56) = 3.493, x_2^*(5,8,6,56) = 2.844, x_3^*(5,8,6,56) = 2.631$ and $v(5,8,6,56) = 2.973$ ✔

SECTION 3: EXPENDITURE MINIMIZATION

In this section of the quiz, you will solve three expenditure minimization problems. Question 13 has a simple 2-good Cobb-Douglas preference while question 14 has a 2-good CES utility function, and question 15 has a 3-good CES preference. You might want to review section 1 in topic 1 and/or related practice questions (aka tutorials) before attempting these quiz questions.

Question 13

Correct

Mark 1.00 out of 1.00

Solve the expenditure minimization problem with $u(x_1, x_2) = x_1^{0.8} x_2^{0.2}$, price vector (w_1, w_2) and targeted utility level U. What are correct about the Hicksian demands $x_1^h(w_1, w_2, U), x_2^h(w_1, w_2, U)$ and the expenditure function $e(w_1, w_2, U)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^h(5, 7, 51) = 71.979, x_2^h(5, 7, 51) = 12.853$ and $e(5, 7, 51) = 449.871$ ✔
- $x_1^h(5, 8, 52) = 75.377, x_2^h(5, 8, 52) = 11.778$ and $e(5, 8, 52) = 415.952$
- $x_1^h(7, 5, 76) = 93.756, x_2^h(7, 5, 76) = 32.815$ and $e(7, 5, 76) = 820.367$ ✔
- $x_1^h(7, 7, 78) = 102.922, x_2^h(7, 7, 78) = 25.73$ and $e(7, 7, 78) = 900.564$ ✔

Question 14

Correct

Mark 1.00 out of 1.00

Solve the expenditure minimization problem with $u(x_1, x_2) = (\alpha_1 x_1^r + \alpha_2 x_2^r)^{\frac{1}{r}}$, where $r = 1 - \frac{1}{\sigma}, (\alpha_1, \alpha_2, \sigma) = (0.2, 0.8, 1.09)$, price vector (w_1, w_2) and targeted utility U. What are correct about the Hicksian demands $x_1^h(w_1, w_2, U), x_2^h(w_1, w_2, U)$ and the expenditure function $e(w_1, w_2, U)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^h(8, 4, 65) = 12.133, x_2^h(8, 4, 65) = 92.319$ and $e(8, 4, 65) = 478.062$
- $x_1^h(8, 7, 62) = 18.708, x_2^h(8, 7, 62) = 84.845$ and $e(8, 7, 62) = 723.41$
- $x_1^h(7, 6, 55) = 14.097, x_2^h(7, 6, 55) = 75.569$ and $e(7, 6, 55) = 552.091$ ✔
- $x_1^h(5, 5, 78) = 21.781, x_2^h(5, 5, 78) = 103.982$ and $e(5, 5, 78) = 634.639$

Mark 1.00 out of 1.00

Solve the expenditure minimization problem with $u(x_1, x_2, x_3) = (\alpha_1 x_1^r + \alpha_2 x_2^r + \alpha_3 x_3^r)^{\frac{1}{r}}$, where $r = 1 - \frac{1}{\sigma}$, $(\alpha_1, \alpha_2, \alpha_3, \sigma) = (0.25, 0.5, 0.25, 1.08)$, price vector (w_1, w_2, w_3) and targeted utility U. What are correct about the Hicksian demands $x_1^h(w_1, w_2, w_3, U)$, $x_2^h(w_1, w_2, w_3, U)$, $x_3^h(w_1, w_2, w_3, U)$ and the expenditure function $e(w_1, w_2, w_3, U)$? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^h(7, 6, 8, 42) = 27.305$, $x_2^h(7, 6, 8, 42) = 68.18$, $x_3^h(7, 6, 8, 42) = 23.638$ and $e(7, 6, 8, 42) = 789.318$ ✔
- $x_1^h(5, 6, 5, 60) = 49.3$, $x_2^h(5, 6, 5, 60) = 78.836$, $x_3^h(5, 6, 5, 60) = 45.408$ and $e(5, 6, 5, 60) = 967.318$
- $x_1^h(6, 5, 6, 53) = 32.762$, $x_2^h(6, 5, 6, 53) = 84.333$, $x_3^h(6, 5, 6, 53) = 32.762$ and $e(6, 5, 6, 53) = 814.805$ ✔
- $x_1^h(8, 6, 8, 66) = 38.46$, $x_2^h(8, 6, 8, 66) = 110.932$, $x_3^h(8, 6, 8, 66) = 38.46$ and $e(8, 6, 8, 66) = 1280.951$ ✔

Information

SECTION 4: COMPENSATING AND EQUIVALENT VARIATION (CV and EV)

In this section, you will evaluate policy impact on consumer welfare. There are two questions: (i) question 16 about CV evaluation with a 2-good Cobb-Douglas preference and, (ii) question 17 about EV with a 3-good CES preference. You might want to review section 1 in topic 1 and/or related practice questions (aka tutorials) before attempting these quiz questions.

Question 16

Correct

Mark 1.00 out of 1.00

A consumer with utility function $u(x_1, x_2) = x_1^{0.2} x_2^{0.8}$ and income $M = 48$ is currently facing with current prices: $w_1 = 1, w_2 = 1$. The government is considering 4 policy options which will influence the prices and the income as follows:

- Policy option A: The price of good 1 increases by 4%, the price of good 2 increases by 17%, and the income increases by 6%.
- Policy option B: The price of good 1 increases by 5%, the price of good 2 decreases by 20%, and the income decreases by 8%.
- Policy option C: The price of good 1 decreases by 20%, the price of good 2 decreases by 10%, and the income decreases by 5%.
- Policy option D: The price of good 1 increases by 10%, the price of good 2 decreases by 12%, and the income decreases by 6%.

You will help the government evaluate the impact of these policy options on consumer welfare. Calculate the CV associated with each scenario and determine the best policy option for the consumer in terms of CV.

Select one:

- Policy option A
- Policy option B ✔
- Policy option C
- Policy option D

Mark 1.00 out of 1.00

A consumer with utility function $u(x_1, x_2, x_3) = (\alpha_1 x_1^r + \alpha_2 x_2^r + \alpha_3 x_3^r)^{\frac{1}{r}}$, where $r = 1 - \frac{1}{\sigma}$, $(\alpha_1, \alpha_2, \alpha_3, \sigma) = (0.33, 0.2, 0.47, 1.42)$ and income $M = 44$ is currently facing with current prices: $w_1 = 1, w_2 = 1, w_3 = 1$. The government is considering 4 policy options which will influence the prices and the income as follows:

- Policy option A: The price of good 1 increases by 8%, the price of good 2 decreases by 13%, the price of good 3 increases by 8%, and the income increases by 2%.
- Policy option B: The price of good 1 increases by 8%, the price of good 2 increases by 13%, the price of good 3 decreases by 5%, and the income decreases by 5%.
- Policy option C: The price of good 1 decreases by 4%, the price of good 2 decreases by 19%, the price of good 3 decreases by 13%, and the income decreases by 17%.
- Policy option D: The price of good 1 decreases by 16%, the price of good 2 decreases by 19%, the price of good 3 decreases by 17%, and the income decreases by 11%.

You will help the government evaluate the impact of these policy options on consumer welfare. Calculate the EV associated with each scenario and determine the second best policy option for the consumer in terms of EV.

Select one:

- Policy option A ✔
- Policy option B
- Policy option C
- Policy option D

Information

SECTION 5: CALIBRATING UTILITY FUNCTIONS

- There are 4 questions in this section of the quiz. In each question, you will first calibrate consumer preference and then use that to derive Marshallian demand functions.
- For calibrating the preference, you might want to review topic 1, section 2 of the course and/or related tutorials. In each situation, data on consumption behaviours and the functional form of the utility will be given. Questions 18 and 19 assume the Cobb-Douglas functional form, and questions 20 and 21 assume the CES preference. For the CES functions, elasticity-of-substitution coefficients will be provided, so you can focus only on the calibration exercise (estimating this coefficient will be in the next section of this quiz).
- Deriving Marshallian demand functions is similar to section 2 of this quiz. You might want to review section 1 in topic 1 and/or related practice questions (aka tutorials) before attempting these quiz questions.

Mark 1.00 out of 1.00

A utility-maximizing consumer has utility function $u(x_1, x_2) = x_1^{\alpha_1} x_2^{\alpha_2}$ where $\alpha_1 + \alpha_2 = 1$. When facing with prices $(w_1, w_2) = (1, 1)$, this consumer spends 17 on good 1 and 9 on good 2. Calibrate the utility function and derive the Marshallian demand functions $x_1^*(w_1, w_2, M)$ and $x_2^*(w_1, w_2, M)$. What are correct about the Marshallian demands? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(1.03, 1.17, 28.34) = 17.99$ and $x_2^*(1.03, 1.17, 28.34) = 7.517$
- $x_1^*(0.99, 0.9, 26) = 18.397$ and $x_2^*(0.99, 0.9, 26) = 11.168$
- $x_1^*(0.98, 1.05, 28.08) = 18.735$ and $x_2^*(0.98, 1.05, 28.08) = 9.257$ ✔
- $x_1^*(0.82, 0.89, 29.12) = 23.22$ and $x_2^*(0.82, 0.89, 29.12) = 11.326$ ✔

Question 19

Correct

Mark 1.00 out of 1.00

A utility-maximizing consumer has utility function $u(x_1, x_2, x_3) = x_1^{\alpha_1} x_2^{\alpha_2} x_3^{\alpha_3}$ where $\alpha_1 + \alpha_2 + \alpha_3 = 1$. When facing with prices $(w_1, w_2, w_3) = (1, 1, 1)$, this consumer spends 6 on good 1, 9 on good 2 and 7 on good 3. Calibrate the utility function and derive the Marshallian demand functions $x_1^*(w_1, w_2, w_3, M)$, $x_2^*(w_1, w_2, w_3, M)$ and $x_3^*(w_1, w_2, w_3, M)$. What are correct about the Marshallian demands? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(1.13, 1.19, 0.89, 20.46) = 4.938$, $x_2^*(1.13, 1.19, 0.89, 20.46) = 8.443$ and $x_3^*(1.13, 1.19, 0.89, 20.46) = 7.315$
- $x_1^*(1.17, 1.07, 1.01, 24.64) = 5.744$, $x_2^*(1.17, 1.07, 1.01, 24.64) = 9.421$ and $x_3^*(1.17, 1.07, 1.01, 24.64) = 7.762$ ✔
- $x_1^*(0.95, 1.2, 0.82, 20.02) = 6.391$, $x_2^*(0.95, 1.2, 0.82, 20.02) = 6.128$ and $x_3^*(0.95, 1.2, 0.82, 20.02) = 7.768$
- $x_1^*(0.94, 0.91, 0.89, 25.74) = 7.468$, $x_2^*(0.94, 0.91, 0.89, 25.74) = 11.571$ and $x_3^*(0.94, 0.91, 0.89, 25.74) = 9.582$

Question 20

Correct

Mark 1.00 out of 1.00

A utility-maximizing consumer has utility function $u(x_1, x_2) = (\alpha_1 x_1^r + \alpha_2 x_2^r)^{\frac{1}{r}}$ where $\alpha_1 + \alpha_2 = 1, r = 1 - \frac{1}{\sigma}$ and $\sigma = 1.03$. When facing with prices $(w_1, w_2) = (1, 1)$, this consumer spends 14 on good 1 and 7 on good 2. Calibrate the utility function and derive the Marshallian demand functions $x_1^*(w_1, w_2, M)$ and $x_2^*(w_1, w_2, M)$. What are correct about the Marshallian demands? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(1.05, 0.9, 22.68) = 14.378$ and $x_2^*(1.05, 0.9, 22.68) = 8.426$ ✔
- $x_1^*(0.97, 1.06, 23.52) = 14.71$ and $x_2^*(0.97, 1.06, 23.52) = 7.383$
- $x_1^*(1.16, 1.09, 18.06) = 10.189$ and $x_2^*(1.16, 1.09, 18.06) = 5.53$
- $x_1^*(1.02, 0.99, 18.9) = 12.349$ and $x_2^*(1.02, 0.99, 18.9) = 6.367$ ✔

Mark 1.00 out of 1.00

A utility-maximizing consumer has utility function $u(x_1, x_2, x_3) = (\alpha_1 x_1^r + \alpha_2 x_2^r + \alpha_3 x_3^r)^{\frac{1}{r}}$ where $\alpha_1 + \alpha_2 + \alpha_3 = 1$, $r = 1 - \frac{1}{\delta}$ and $\delta = 0.57$. When facing with prices $(w_1, w_2, w_3) = (1, 1, 1)$, this consumer spends 18 on good 1, 6 on good 2 and 16 on good 3. Calibrate the utility function and derive the Marshallian demand functions $x_1^*(w_1, w_2, w_3, M)$, $x_2^*(w_1, w_2, w_3, M)$ and $x_3^*(w_1, w_2, w_3, M)$. What are correct about the Marshallian demands? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(1.14, 1.13, 0.89, 46.8) = 19.263$, $x_2^*(1.14, 1.13, 0.89, 46.8) = 6.453$ and $x_3^*(1.14, 1.13, 0.89, 46.8) = 24.068$
- $x_1^*(0.91, 1.08, 1.19, 44.4) = 20.706$, $x_2^*(0.91, 1.08, 1.19, 44.4) = 6.944$ and $x_3^*(0.91, 1.08, 1.19, 44.4) = 14.525$
- $x_1^*(1.19, 1.02, 0.86, 32.4) = 13.059$, $x_2^*(1.19, 1.02, 0.86, 32.4) = 4.753$ and $x_3^*(1.19, 1.02, 0.86, 32.4) = 13.968$ ✔
- $x_1^*(0.84, 1.19, 1.08, 36) = 17.646$, $x_2^*(0.84, 1.19, 1.08, 36) = 5.569$ and $x_3^*(0.84, 1.19, 1.08, 36) = 16.174$

Information

SECTION 6: ESTIMATING CES COEFFICIENTS

- In this section of the quiz, you will practice 2 questions about estimating the elasticity-of-substitution coefficient (CES coefficient). In each question, a dataset will be provided to estimate the coefficient, then you use the estimate to calibrate the utility functions and derive the Marshallian demands.
- Question 22 is a 2-good CES preference so estimating the CES coefficient is easier. Question 23 assumes a 3-good CES preference, and you need to stack data before running a regression. There are different ways to stack data and you must try all possible combinations, then pick the option that generates the smallest standard error for the estimate. For how to stack data and estimate the CES coefficient, you might want to review section 3 in topic 1 and/or related practice questions (aka tutorials).
- After obtaining the estimate of the CES coefficients, you calibrate the utility and derive the Marshallian demand functions. This is similar to section 5, but you might still want to review section 2 and subsection 1.1 in topic 1 and/or related practice questions (aka tutorials) before attempting these quiz questions.

Question **22**

Correct

Mark 1.00 out of 1.00

A utility-maximizing consumer, when facing with prices $(w_1, w_2) = (1, 1)$, spends 19 on good 1 and 12 on good 2. Assuming $u(x_1, x_2) = (\alpha_1 x_1^r + \alpha_2 x_2^r)^{\frac{1}{r}}$ where $\alpha_1 + \alpha_2 = 1$ and $r = 1 - \frac{1}{\sigma}$, we need the CES coefficient (σ) to calibrate this utility function. THIS DATASET contains 25 observations of the prices (w_1, w_2) and the consumption level (x_1, x_2) of a similar consumer. Estimate the CES coefficient using the OLS technique (round it to the nearest 3-digit), use that to calibrate the utility function and derive the Marshallian demand functions $x_1^*(w_1, w_2, M)$ and $x_2^*(w_1, w_2, M)$. What are correct about the Marshallian demands? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(1.11, 0.96, 33.79) = 18.619$ and $x_2^*(1.11, 0.96, 33.79) = 13.67$ ✔
- $x_1^*(0.97, 1.06, 26.35) = 16.671$ and $x_2^*(0.97, 1.06, 26.35) = 8.624$
- $x_1^*(0.93, 1.17, 35.03) = 23.162$ and $x_2^*(0.93, 1.17, 35.03) = 11.659$
- $x_1^*(1.05, 1.15, 25.73) = 17.72$ and $x_2^*(1.05, 1.15, 25.73) = 8.643$

Mark 1.00 out of 1.00

A utility-maximizing consumer, when facing with prices $(w_1, w_2, w_3) = (1, 1, 1)$, spends 8 on good 1, 13 on good 2 and 17 on good 3. Assuming $u(x_1, x_2, x_3) = (\alpha_1 x_1^r + \alpha_2 x_2^r + \alpha_3 x_3^r)^{\frac{1}{r}}$ where $\alpha_1 + \alpha_2 + \alpha_3 = 1$ and $r = 1 - \frac{1}{\sigma}$, we need the CES coefficient (σ) to calibrate this utility function.

THIS DATASET contains 16 observations of the prices (w_1, w_2, w_3) and the consumption level (x_1, x_2, x_3) of a similar consumer.

- In the first step of the question, estimate the CES coefficient using the OLS technique with data of all three goods, not any two of them. Try all possible combinations (combining good 1 with the stack of goods 2 and 3, combining good 2 with the stack of goods 1 and 3 and combining good 3 with the stack of goods 1 and 2), pick the estimate with the smallest standard error and round it to the nearest 3-digit.
- In the second step, use the CES coefficient you picked (and rounded) in the first step to calibrate the utility function and derive the Marshallian demand functions $x_1^*(w_1, w_2, w_3, M)$, $x_2^*(w_1, w_2, w_3, M)$ and $x_2^*(w_1, w_2, w_3, M)$.

What are correct about the Marshallian demands? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- $x_1^*(0.92, 1, 0.9, 40.66) = 9.276$, $x_2^*(0.92, 1, 0.9, 40.66) = 13.191$ and $x_3^*(0.92, 1, 0.9, 40.66) = 20.651$
- $x_1^*(1.04, 1.08, 1.09, 44.08) = 8.519$, $x_2^*(1.04, 1.08, 1.09, 44.08) = 15.84$ and $x_3^*(1.04, 1.08, 1.09, 44.08) = 16.452$
- $x_1^*(0.86, 0.96, 1.04, 33.82) = 8.793$, $x_2^*(0.86, 0.96, 1.04, 33.82) = 12.027$ and $x_3^*(0.86, 0.96, 1.04, 33.82) = 14.704$
- $x_1^*(1.05, 1.01, 0.94, 39.9) = 8.08$, $x_2^*(1.05, 1.01, 0.94, 39.9) = 13.566$ and $x_3^*(1.05, 1.01, 0.94, 39.9) = 18.845$ ✔

Information

SECTION 7: NON-MARKET VALUATION

In this last section of Quiz 1 there are two questions where you will work with (possibly different) datasets about non-market valuation. Each dataset contains data about the choice of respondents. Each respondent (ID) were asked to make several choices ($ChoiceSet$) and in each choice, the respondent selected the most preferred ($ChosenAlternative$) from three alternatives ($Alternative$). Each alternative includes four attributes (i) the percentage of area affected by invasive weed ($Weed$), (ii) the percentage of area affected by crawling insects ($Crawl$), (iii) the percentage of area affected by flying insects (Fly) and (iv) the amount in dollars the respondent is willing to pay to obtain the attribute levels specified in the alternative ($Cost$). The Business-As-Usual alternative, namely $(Weed = 25, Crawl = 10, Fly = 20, Cost = 0)$, is included in all choices. Data about the gender of the respondent is also included ($F = 1$: female, $F = 0$: male)

- Question 24 is about getting familiar with the format of the data. A small fraction of a dataset is provided and you will explore to determine what is what.
- In question 25, you will estimate the WTP (and the standard error) for each of the attributes, and perform a hypothesis test using the likelihood ratio test.

You might want to review section 5 in topic 1 and/or related practice questions (aka tutorials) before attempting these quiz questions.

Mark 1.00 out of 1.00

THIS FILE is extracted from a dataset to contain data about the choice of the first 10 respondents, each was asked to make 3 choices. In each choice, the respondent selected the most preferred from 3 alternatives, including the current situation. Look at the file and determine what are correct.

Select one or more:

- [ ] In choice No.3 the seventh respondent, who is a male, selected the alternative with: (i) the area invaded by invasive weeds is 25%, (ii) the area affected by crawling insects is 8%, (iii) the area affected by flying insects is 12%, and (iv) with annual payment is 40$.
- [x] In choice No.1 the fifth respondent, who is a female, selected the alternative with: (i) the area invaded by invasive weeds is 5%, (ii) the area affected by crawling insects is 10%, (iii) the area affected by flying insects is 12%, and (iv) with annual payment is 20$. ✔
- [ ] In choice No.2 the tenth respondent, who is a male, selected the alternative with: (i) the area invaded by invasive weeds is 25%, (ii) the area affected by crawling insects is 10%, (iii) the area affected by flying insects is 20%, and (iv) with annual payment is 0$.
- [ ] In choice No.2 the third respondent, who is a male, selected the alternative with: (i) the area invaded by invasive weeds is 25%, (ii) the area affected by crawling insects is 10%, (iii) the area affected by flying insects is 20%, and (iv) with annual payment is 0$.

Question 25

Correct

Mark 1.00 out of 1.00

THIS DATASET contains data about the choice of 75 respondents. Each respondent was asked to make 5 choices. You will fit this dataset to the multinomial/conditional logit models to estimate linear utility functions.

- First estimate the baseline utility function (U^b) and the WTP (as well as the standard error using the Delta method) for each of the attributes:

$$U^b = \beta_1 Weed + \beta_2 Crawl + \beta_3 Fly + \beta_4 Cost$$

- Then estimate the unrestricted specification (U^u) and test for the hypothesis (A) that there are no gender differences in the WTP for any of the attributes:

$$U^u = U^b + \beta_5(Weed * F) + \beta_6(Crawl * F) + \beta_7(Fly * F)$$

What are correct? Numerical results are rounded to the nearest 3-digit.

Select one or more:

- [x] The estimated WTP to reduce the area affected by weeds by 1% is 4.916 and its estimated standard error is 0.803 . ✔
- [ ] The estimated WTP to reduce the area affected crawling insects by 1% is 7.089 and its estimated standard error is 1.885 .
- [ ] The estimated WTP to reduce the area affected flying insects by 1% is 11.492 and its estimated standard error is 1.536 .
- [x] The statistic for the likelihood test for hypothesis A is 8.978 and the associated p-value is 0.03 . ✔