

Analysis of Economic and Social Data
ECO 2147
Mid-term Exam
October 2019

Given name: _____

Family name: _____

Student number: _____

Instructions

1. You have 75 minutes to complete the exam.
2. The exam includes 46 questions.
3. Choose the best answer among those that are offered.
4. Put down your answers on the Scantron sheet.
5. Please ensure that your personal information is correctly entered on the Scantron sheet. This is **IMPORTANT** if you want your exam to be graded. If you are unsure how to do complete this part, please consult with the instructor or the teaching assistant.
6. Use a pencil only to fill in the bubbles on the Scantron sheet, no pens please.
7. Turn off your cell phones and put them away.
8. You can use the blank sheet at the end of the exam as a scratch pad.
9. You can use a non-programmable calculator. You cannot lend or share calculators.
10. You cannot use the built-in calculator in your phone or any device which is a non-dedicated calculator.
11. At the end, you must turn in the exam questionnaire and your Scantron sheet.

1. Which, among the following choices, is the best one for measuring the purchasing power of money?
 - a. 1/Consumer price index.
 - b. $100 \times$ Consumer price index.
 - c. 1/Industrial price index.
 - d. $100 \times$ Industrial price index.

2. Who is the current Chief Statistician of Canada?
 - a. Stephen Poloz
 - b. Anil Bologna
 - c. Anil Arora
 - d. Munir Sheikh
 - e. Ivan Fellegi

3. A price ratio that compares the price of two different products at the same point in time is called a
 - a. Relative price
 - b. Price relative
 - c. Seasonal prices
 - d. Computer prices
 - e. Notional prices

4. Which of the following is qualified as a weighted price index formula?
 - a. Dutot price index
 - b. Carli price index
 - c. Laspeyres price index
 - d. Jevons price index

5. Among the following prices index number formulas, which one is calculated using geometric mean of the price relatives?
 - a. Dutot price index
 - b. Carli price index
 - c. Marshall-Edgeworth price index
 - d. Jevons price index

6. According to assignment 1, the response rate at the level of Canada for the diary portion of the survey of household spending was around:
 - a. 100%
 - b. 80%
 - c. 60%
 - d. 40%
 - e. Less than 35%.

7. With a _____, the _____ axis is used to plot the date or time increments, and the _____ axis is used to plot the values of the variable that is being measured.
- a. time-series graph; horizontal; vertical
 - b. time-series graph; vertical: horizontal
 - c. histogram; vertical: horizontal
 - d. histogram; horizontal; vertical

8. The Canadian CPI is released
- a. Daily
 - b. Monthly
 - c. Quarterly
 - d. Annually

9. The following index formula is defined as a

$$\frac{\sum P_t \cdot Q_t}{\sum P_0 \cdot Q_t} \cdot 100$$

- a. Laspeyres price index
 - b. Paasche price index
 - c. Paasche quantity index
 - d. Laspeyres quantity index
 - e. Fisher price index
10. Which of the following is an example of a series that will likely not exhibit seasonal any variation?
- a. Sales of snow blowers.
 - b. Plant and flower sales.
 - c. The consumption of electricity by households.
 - d. Sales of suntan lotion.
 - e. Annual estimates of university tuition fees.

The following table applies to questions 11 to 13.

Table. Price and Quantity of Clothing, 2016 to 2017				
	Price (\$)		Quantity sold	
	2016	2017	2016	2017
Item 1	35.00	37.50	200	100
Item 2	30.00	25.00	250	300
Item 3	18.00	18.00	50	45

11. From the above table (assuming that 2016 is the base, i.e., = 100), the Laspeyres price index for 2017 is closest to which of these following values?
 - a. 82.3
 - b. 86.4
 - c. 90.6
 - d. 95.1
 - e. 97.0

12. From the above table (assuming that 2016 is the base, i.e., = 100), the Paasche price index for 2017 is closest to which of these following values?
 - a. 82.3
 - b. 86.4
 - c. 90.6
 - d. 95.1
 - e. 97.0

13. From the above table (assuming that 2016 is the base, i.e., = 100), the Dutot price index for 2017 is closest to which of these following values?
 - a. 82.3
 - b. 86.4
 - c. 96.3
 - d. 96.8
 - e. 97.0

14. Changing the base year of an index number series will affect its previously calculated rate of change between two periods. For example, if the base year (the year the index = 100) of the Canadian CPI is changed from 2002 to 2012, this will affect all previously calculated inflation rates under the old 2002 base year?
 - a. True
 - b. False

15. The tuition fees index for Ontario in 1981 was 100 (the base) while the comparable estimate for 2016 was 961.2. Which of the following values below provides the best approximation of the percent change of the index between these two years?
- 961%
 - 861%
 - 761%
 - over 1000%
16. Which of the following choices best describes the data found in the table below?

person	year	income	age	sex
1	2016	1300	27	1
1	2017	1600	28	1
1	2018	2000	29	1
2	2016	2000	38	2
2	2017	2300	39	2
2	2018	2400	40	2

- It is panel data
 - It is cross-sectional data
 - It is time-series data
 - It is longitudinal data
 - All of the above.
17. According to current practices, the Canadian CPI basket weights of goods and services are typically updated every
- Year
 - Two years
 - Three years
 - Four years
18. Which of the following is found in the Canadian CPI basket?
- Most health care services.
 - Prostitution services.
 - Life insurance premiums.
 - Recreational cannabis
 - None of the above are included in the CPI.
19. The Enhanced General Data Dissemination System (e-GDDS) was put in place to encourage participating countries to improve the quality of their economic data.
- True
 - False

20. What kind of graph is best suited to isolate and visualize the trend in a series?
- Histogram
 - Times-series
 - Scatterplot
 - All of the above
21. Pooled cross-sectional data across time observes different subjects in different time periods.
- True
 - False
22. Which international body has as its mandate to promote international cooperation in the field of finance, ensure the stability of the international monetary system and sustain economic growth?
- The Organization of Economic Cooperation and Development.
 - The World Bank Group.
 - The United Nations
 - International Monetary Fund
 - The International Labour Organisation.
23. Which of the following is not a component of a time-series?
- The seasonal fluctuations component
 - The trend component
 - Normal fluctuations component
 - The irregular or random fluctuations component
 - c) and d)
24. Economic growth is measured using
- GDP in nominal (current-price) terms.
 - GDP in real (constant-price) terms.
 - GDP in real or nominal terms depending on the intended use of the measure of growth.
 - Growth is never measured using either of the GDP estimates, real or nominal.
25. At its lowest level of aggregation (or at its lowest level in its classification hierarchy), the Canadian CPI currently uses the Dutot index number formula to average prices?
- True
 - False
26. Which of the following choices is not a measure of central tendency?
- Mode
 - Mean
 - Median
 - a) and c)
 - None of the above because a) to c) are all measures of central tendency.

27. You are provided with the following price index series for the years identified in the table below. If the base year is 2017 = 100, by what value should the index of 2018 be divided by if we want to convert the entire series to one where the base year is changed to 2019?

2015	2016	2017	2018	2019	2020
89	94	100	111	119	129

- a. 89
b. 94
c. 100
d. 111
e. **119**
28. Based on our class CPI exercise, the resulting estimated CPI at the end of the period turned out to be
a. **Higher than the official CPI.**
b. Lower than the official CPI.
c. About the same as the official CPI.
d. Because it fluctuated the class CPI was sometimes lower while other times higher than the official CPI.
29. When comparing house price indexes in assignment 2, which city had all three house price indices (Teranet/National Bank, Statistics Canada's New House Price Index, and the Canadian Real Estate Association House Price Index) behaving very similarly?
a. Vancouver
b. **Calgary**
c. Toronto
d. a) and c)
30. The target population of the Canadian Consumer Price Index can best be described as including
a. People living in rural areas only.
b. People living in urban areas only.
c. **People living in rural and urban areas.**
d. People living in cities with a population of 50 000 or more.

31. The table below shows the seasonal variations for a quarterly time series spanning the period Q3 2003 to Q2 2007. From these estimates, the average fluctuations for each of the four quarters have been calculated (see the estimates in row called “average”). However, like in the assignment, an operation must be performed as a first step to the estimates in this row to arrive at the final seasonal coefficients (in the Adjusted average row) that are used for estimating the seasonal adjusted series. What is this operation assuming that the sum of the numbers in the average row is -0.3)?
- You add -0.2 to the numbers in the average row.
 - You subtract -0.2 from the numbers in the average row.
 - You subtract -0.2/4 from the numbers in the average row.
 - You subtract -0.2/12 from the numbers in the average row.
 - You add -0.2/4 to the numbers in the average row.

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2003			-11.3	6.9
2004	10.9	-5.8	-14.6	11.1
2005	10	-6.8	-16.6	15.5
2006	9.5	-9.9	-15.8	14.6
2007	14	-12.5		
Average	11.1	-8.8	-14.6	12.0
Adjusted Average				

32. Which price index number formula is more likely to give a larger weight to items that have experienced large price increases over time?
- Paasche
 - Laspeyres
 - Fisher
 - Marshall-Edgeworth
 - Jevons
33. An “establishment” is defined as the most homogeneous unit of production for which the business maintains accounting records from which it is possible to assemble all the data elements required to compile the full structure of the gross value of production (total sales or shipments, and inventories), the cost of materials and services, and labour and capital used in production is defined as an establishment.
- True
 - False
34. Which of the following classification systems is designed for the compilation of production statistics and, therefore, for the classification of data relating to establishments?
- NAICS (North American Industrial Classification System)
 - NAPCS (North American Product Classification System)
 - ISCO (International Classification of Occupations)
 - COICOP (Classification of Individual Consumption According to Purpose)
 - COFOG (Classification of Functions of Government)

35. The branch of statistics that uses a random sample of data taken from a population to describe and draw conclusions about the population is called
- Descriptive statistics
 - Econometrics
 - Basic statistics
 - Inferential statistics.
36. The target population for a survey is the sample of units for which the survey data are to be used to make inferences.
- True
 - False
37. A census survey always generates better quality statistical estimates compared to a sample survey.
- True
 - False
38. A poorly designed survey questionnaire can lead to
- Non-sampling error
 - Sampling error
 - Low response rates
 - a) and b)
 - a) and c)
39. The Globe & Mail's article describing the availability of data in Canada found that as the benefits of open government data become more widely accepted and recognized, Canada is _____ many of its peer countries in making use of these data.
- Keeping pace with
 - Falling behind
 - Moving ahead of
 - Can be moving ahead or falling behind, it depends on the nature of the data.
40. Which of the following is not a dimension of quality according to Statistics Canada?
- The relevance of statistical information
 - The timeliness of statistical information
 - The cost of producing statistical information.
 - The interpretability of statistical information
 - The coherence of statistical information
41. The United Nations Fundamental Principles of Official Statistics states that data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records.
- True
 - False
42. The most cited obstacle for exporting by Canadian businesses are high shipping costs.
- True
 - False

43. In an interview (as seen on YouTube) between the chief statistician of the United Nations and the interviewer, the question arose as to what is the most important variable that is being applied today by and for the benefit of all member states. What was that variable?
- Population
 - Gross Domestic Product
 - Measures of sustainability
 - Measures of poverty
 - Labour market activity.
44. How many standard measures of poverty does Canada have?
- None
 - One
 - Two
 - Three
 - Four
45. In the following article from the reading list: Statistics Canada's Attention Deficit Disorder, the author (and the large number of commenters that then jumped into the fray) is critical of Statistics Canada. What is the reason for his criticism?
- The numbers are often published with errors and seldom revised.
 - There is a critical shortage of statistical information because of StatCan which are causing issues when attempting to monitor the progress of government policies.
 - Many of the statistical time series (e.g., GDP, CPI, and the Industrial product price index) found on CANSIM (the StatCan database) come to an abrupt end when a new one is introduced to replace it, which leads to a discontinuity in the series thus preventing long term comparisons and trend analysis.
 - The series are difficult to find because the search engine used by Statistics Canada is outdated.
46. In the first assignment, which province had the highest tuition fees?
- Ontario
 - Québec
 - Alberta
 - British Columbia
 - There was insufficient information to be able to answer this question.

