

Analyzing Numerical Data: Indices Using Weighted Sums and Averages**I.C Student Activity Sheet 9: Fan Cost Index**

An *index* is a numerical scale. Characteristics of an index can be used for the following:

- to compare variables with one another or a reference number,
- to give information about general trends, and
- to help make comparisons and judgments.

It is often calculated as a weighted sum of various factors resulting in a single summary number.

The Fan Cost Index (FCI), compiled by Team Marketing Report, tracks the cost for a family of four to attend a professional sporting event. The FCI includes the prices of 2 average-price adult tickets, 2 average-price child tickets, 4 small soft drinks, 2 small other drinks, 4 regular-size hot dogs, parking for 1 car, 2 game programs, and 2 least expensive, adult-size adjustable caps. The Average Ticket Price in the following tables represents the average cost of a ticket for each member of the family.

The FCI for each Texas team in professional baseball, basketball, and football for 2006 and 2007 is shown in the following two tables. The Soft Drink column includes the price of 1 drink and its size in ounces.

2006 Fan Cost Index

Team	Avg. Ticket Price	Soft Drink (size in oz)	Other Drink	Hot Dog	Parking	Program	Cap	FCI
Rangers	15.81	2.75 (16)	6.00	2.50	8.00	5.00	10.00	134.24
Astros	26.66	4.00 (21)	7.00	4.00	10.00	4.00	11.00	192.64
Spurs	45.88	3.75 (24)	6.25	4.00	10.00	5.00	18.00	283.02
Mavericks	54.24	2.75 (12)	4.00	4.00	20.00	6.00	15.00	313.96
Rockets	38.64	4.00 (22)	5.75	4.25	15.00	—	20.00	254.06
Cowboys	66.12	3.50 (32)	5.00	3.50	12.00	5.00	10.00	344.48
Texans	56.97	3.25 (21)	6.00	5.00	15.00	5.00	20.00	337.88

(Compiled from www.teammarketing.com)

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2007 Fan Cost Index

Team	Avg. Ticket Price	Soft Drink (size in oz)	Other Drink	Hot Dog	Parking	Program	Cap	FCI
Rangers	16.47	3.00 (20)	6.50	2.75	8.00	5.00	11.00	141.88
Astros	26.90	4.00 (21)	7.00	4.25	10.00	4.00	12.00	196.60
Spurs	51.24	2.50 (24)	6.00	4.00	10.00	6.00	21.00	306.96
Mavericks	60.58	2.75 (15)	4.00	4.00	20.00	6.00	15.00	339.32
Rockets	41.98	4.00 (22)	7.00	4.50	15.00	—	20.00	270.92
Cowboys	84.12	3.50 (32)	5.00	3.50	12.00	5.00	10.00	416.48
Texans	62.41	3.25 (21)	6.00	5.00	15.00	5.00	20.00	359.64

(Compiled from www.teammarketing.com)

- Complete the 2006 table by calculating the missing FCI values.
- There are seven components in the FCI. Find the largest percent increase in a single component from 2006 to 2007 by giving the team, component, and percent increase.
- Which of the Dallas-area teams (Rangers, Mavericks, Cowboys) had the following during 2006 or 2007:
 - Most expensive soft drink in terms of price per ounce?
 - Least expensive soft drink in terms of price per ounce?
- EXTENSION:** Create a personal cost index (PCI) in which you select only the items and the number of those items that you and three friends would buy (for example, 4 tickets, 8 hot dogs, no soft drinks, no caps). In 2007, which team is the best buy according to your PCI? Why?

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The following table contains the average FCI for all teams in Major League Baseball (MLB), the National Basketball Association (NBA), and the National Football League (NFL) for 2002 through 2007.

FCI Average

	2002	2003	2004	2005	2006	2007
MLB	145.26	148.66	155.52	164.43	171.19	176.55
NBA	254.86	261.26	263.44	267.37	274.67	281.90
NFL	290.41	301.75	321.62	329.91	346.16	367.31

This table contains the rates of inflation from 2003 through 2007.

Year	2003	2004	2005	2006	2007
Inflation Rate (%)	2.27	2.68	3.39	3.24	2.85

Use this information and additional calculations to answer the following questions.

- Did the rate of increase of each sport's average FCI exceed the rate of inflation for all these years? Find the sport, year, and rate of increase for all cases in which the average FCI rate increase did not exceed the inflation rate.
- Find the sport and year in which the average rate of increase exceeded the inflation rate by the greatest amount.
- REFLECTION:** Why do you think the FCI is highest for the NFL and lowest for MLB?
- EXTENSION:** There are several indices related to consumer spending. Two of them are the Consumer Price Index (CPI) and the Consumer Confidence Index (CCI). Find out how they are calculated and how they are used.