

The price of fish

The price of fish (1)

In this first activity students analyse data on the price of fish, presented as index numbers. From a basic analysis the activity leads on to an inquiry of changes in market price of seafood seen in later activities.

Table 2. Indices of Market Prices for Non-Fuel Commodities, Petroleum, and Natural Gas, 1999-2003
(1995=100; in terms of U.S. dollars)

Commodities	Weights	2001	2002	2003 2/	03 Q1	03 Q2	03 Q3	03 Q4 2/	Nov-03	Dec-03 2/	Percent change	
											Dec-02 to Dec-03	Nov to Dec
Non-Fuel Commodities 1/	52.2	76.3	76.7	82.1	80.7	79.5	80.6	87.8	87.9	89.9		12.9
Food	21.7	80.7	81.3	86.1	85.3	84.1	83.2	91.9	92.3	93.0		9.1
Meat	3.6	108.8	102.7	105.2	98.8	101.9	108.3	111.9	113.7	111.9		16.6
Beef	1.4	111.6	110.3	103.7	97.5	92.6	103.7	121.2	128.0	121.8		25.5
Lamb	0.3	115.0	129.0	141.1	140.0	138.9	140.4	145.2	142.0	147.2		5.6
Swine Meat	1.0	97.8	75.3	85.0	76.2	91.9	92.5	79.6	77.5	77.5		11.5
Poultry	1.0	114.7	113.7	119.3	113.7	116.6	123.3	123.7	123.2	124.3		12.2
Seafood	3.8	77.0	66.6	69.6	73.6	71.2	63.8	69.8	68.1	70.1		-0.5
Fish	2.6	60.5	61.5	62.7	68.3	63.6	54.3	64.5	62.0	65.2		-1.6
Shrimp	1.2	113.5	77.8	85.0	85.5	88.1	85.0	81.4	81.5	81.1		1.4
Sugar	1.9	67.1	56.8	62.2	68.1	62.0	59.9	58.8	58.5	60.0		-7.7
Free market	1.4	62.0	47.0	52.2	60.5	51.9	49.5	46.8	46.6	47.8		-15.5
United States	0.1	92.5	90.8	93.3	96.1	94.7	92.2	90.0	90.4	88.5		-7.4
EU	0.4	76.5	79.8	86.8	85.2	86.1	85.5	90.4	89.1	92.9		10.3

1/ Weights are based on 1995-97 average world export earnings.

2/ Provisional.

3/ Average Petroleum Spot Price (APSP). Average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

4/ Break in series. Mombasa Auction price (Best PF1, Kenyan) replaces London Auction price beginning July 1998.

Table 6.
Specifications for Commodity prices

Commodities	World Export Weights 1995-97	Price Specifications	Unit
Non-fuel commodities:	100		
Edibles:	47.4		
Food	41.5		
Seafood	7.3		
Fish	5.0	Fresh Norwegian Salmon, farm bred, export price (NorStat).	US\$/kg
Shrimp	2.3	Mexican, west coast, white, No. 1, shell-on, headless, 26 to 30 count per pound, wholesale price at New York (World Bank).	US\$/lb

(Adapted from <http://www.imf.org/external/np/res/commod/table2.pdf>)

The prices of commodities seen in Table 2 are presented as index numbers. Index numbers help us compare price changes from a base year. They are calculated using the formula (current price / price in base year * 100). The base year in this table is 1995 shown as (1995 = 100). The weights shown in the table indicate how important each commodity is in relation to the total; for instance meat makes up 3.6% of average world export earnings.

A Study Table 2 above and complete the following:

1. Identify the commodity that has recorded the greatest percentage increase in price:
 - a. in the month to December 2003
 - b. in the 12 months to December 2003

- c. since 1995.
2. What is the significance of each of the following:
 - a. (1995 = 100)
 - b. '03 Q4'
 3. Calculate the following:
 - c. percentage change in price of fish from 1995 to Dec 2003
 - d. percentage change in price of fish from Dec 2001 to Dec 2003
 - 3.
 4. Compare the change in price for fish and shrimps since the base year.
 5. Suggest why the data is presented in the form of index numbers.
 6. Suggest reasons for the changes seen in the price of fish.
- B The following tasks relate to both Table 2 and Table 6 above.
1. Referring to the footnotes in Table 2 explain the meaning of the weights for:
 - a. Food = 21.7
 - b. Seafood = 3.8.
 2. Distinguish between the weights for Table 2 and Table 6.
 3. Suggest why \$US for comparing the commodity prices shown.
 4. Is the type of fish shown in the table representative of New Zealand fish?

For additional material on index numbers refer to <http://www.bized.ac.uk/stafsup/options/indnos.htm> and Senior Economics, Longmans, 2000 (p. 270 - 273).

The price of fish (2)

Curriculum and assessment links: Level 3 Economics:
Achievement standard 3.6

Carry out an economics investigation to test a hypothesis (e.g. Fish and poultry are close substitutes).

The Sydney Fish Market <http://www.sydneyfishmarket.com.au/> provides an opportunity to research the market prices for fish.

Enter the site and follow the links to Trade / Fish prices / Monthly history report. This is an opportunity to select and collect data to develop a time series of prices (some species provide information for NZ e.g. Species: Snapper, Region: New Zealand). For 2002 this produced an interesting set of data that can then be analysed (see below).

1. Collect and select data for the price of snapper (of a particular process, e.g. 'clean') for NZ for the September in 2000 to 2003 and present this information in the form of a table.
2. Graph your data and describe the trend.

3. Explain what data would be required to calculate the cross elasticity of demand between fish and poultry and how this information could be used by economists and others.

Consumption of poultry in NZ

Year	(September years, 000 tonnes)
2000	148.2
2001	162.3
2002	172.0
2003	183.0

<http://www.ams.usda.gov/poultry/mncs/International/2001Reports/x101601.pdf>

4. Calculate the cross elasticity of demand of poultry and fish between 2000 and 2001.
5. Explain how poultry and fish are related.
6. Evaluate your research data and findings.

Follow-up:

Research average disposable household income in NZ and then calculate the income elasticity of demand for snapper.

The price of fish (3)

Curriculum and assessment links: Level 3 Economics:

Achievement standard 3.1

Understand the concepts of demand and supply

On this site, you can find out about the auction system used at The Sydney Fish Market (SFM). Go to About SFM / SFM Auction. Read the information provided here.

An auction is where all the interested buyers are able to bid for the goods. The market supply curve for a good sold at auction is shown as perfectly inelastic. This is because once the good has been delivered to the market and the auction is underway, there is no chance for the quantity supplied to respond to any change in market price. (Senior Economics, Longmans, 2000 (p. 93 - 94).

Complete tasks 1 - 7 below.

1. Define an auction.
2. What auction system is used in The Sydney Fish Market?
3. Suggest how the Dutch Clock Auction differs from other auction systems.
4. Explain how this auction is used to determine the market price of fish.
5. Draw a market supply curve for fish at auction. Explain your diagram.

6. Draw a graph to illustrate how the fish auction establishes equilibrium price. Explain your diagram.
7. Suggest why the price of fish tends to change from day to day.

The price of fish (4)

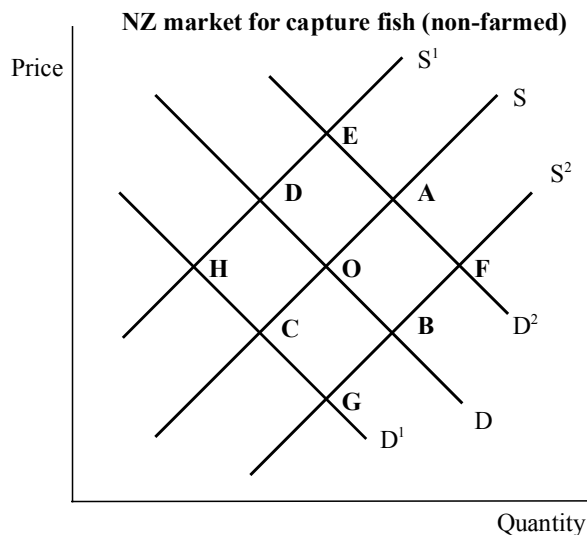
Curriculum and assessment links: Level 3 Economics:

Achievement standard 3.2

Describe and illustrate the market and allocative efficiency

Carry out background reading on some of the factors that will affect the market for fish and which would be expected to lead to changes in the price of fish. Follow the links below to read about the key ideas in each of the following:

- Increase in the world demand for fish
<http://www.futureharvest.org/earth/fish.shtml>
- Health benefits of fish consumption
http://www.seafood.co.nz/doclibrary/publications/Seafood_For_Health_brochure_2003.pdf
- Toxic farmed fish <http://news.bbc.co.uk/1/hi/health/3380735.stm>
- Cuts in hoki quota
<http://www.nzherald.co.nz/business/businessstorydisplay.cfm?storyID=3544611>
- Developing new markets for mussels
http://www.stuff.co.nz/stuff/0,2106,2785519a13_00.html
- Mercury in some NZ fish <http://www.greens.org.nz/searchdocs/PR3148.html>



- a). Identify the most likely new equilibrium position as a result of each of the changes in market conditions. The starting point for each change is at the original equilibrium position (shown as O).

Change in market conditions	New equilibrium
i) Increase in world demand for fish	
ii) Media reports stress the health benefits of eating fish	
iii) Highly toxic Dioxin and PCB identified in farmed salmon overseas	

iv)	Quotas are reduced to conserve fish stocks in the NZ fishery	
v)	A new market is established for farmed mussels in the dog food industry	
vi)	Scientists reveal danger of mercury poisoning when eating some fish	

b) Explain your answer to (i to vi) above

c). Analyse the effect of a move in equilibrium from O to D in terms of changes in consumer and producer surplus.