1 Building a Price Index

Download the excel price of the website. The excel file contains seven columns, one for year, and one for price and another for quantities of each of the three items : an haircut, a baguette and 1L of diesel.

1. Compute an elementary index for the price of each item between 1996 and 2014 with 2005 as the baseline period.

2. Build a unweighted average index of the prices indexes of the three items (between 1996 and 2014).

3. Compute the weights in total consumption of each item for each year.

4. Build a Paasche index between 1996 and 2014 with 2005 as the baseline period.

5. Build a Laspeyres index between 1996 and 2014 with 2005 as the baseline period.

6. For each synthetic index, compute their year-over-year (y-o-y) growth rate. Compare them with the y-o-y inflation rate (second tab).

2 Bob and Alice Index

The table below represents the weights of each good in total consumption of Alice and Bob in year 1. The last column is the price variation between year 1 and year 2.
We know that Alice is earning $30,000 per year while Bob is earning $20,000 per year. Both have a 10% bonus at the end of the year. The table below gives weights of each good in Bob's consumption and Alice's consumption and the price's variation for each good between year 1 and year 2.

Good	Weights (Bob)	Weights (Alice)	Price's variation between year 1 and year 2
Hair-cut	25%	60%	+15%
Baguette	50%	35%	+5%
Cup of coffee	25%	5%	+2%

Table 1: Variations of prices & Weights of goods consumed in Tataouine

1. According to their consumption, compute the Laspeyres price index for Alice and for Bob.

2. How has their purchasing power changed between year 1 and year 2 ?

3   Trade between Orsenna and Farghestan

In year 1, a basket of goods costs \$10,000 in Orsenna (\$ in the Orsenna currency) and
€30,000 in Farghestan (€ is the Farghestan currency). The nominal exchange rate is 1\$ for
€3.
5 years later, prices have increased by 20% in Orsenna and by 50% in Farghestan. The
nominal rate has not changed.

1. What is the price of the basket of goods in Orsenna expressed in € ?

2. What is the price of the basket of goods in Farghestan expressed in \$?

3. In which way should trade go between the two countries ?

4. How should the exchange rate change so that the purchasing power parity is constant ?

5. If Orsenna accept to reevaluate their currency by 10%, what should the authorities of
   Farghestan do so that the purchasing power parity is the same as in year 1 ?

4   Elasticities

Years	Squid		Sweet pepper	
	Price	Quantities	Price	Quantities
Year 1	4	90	1	270
Year 2	7	60	2	300
Year 3	9	?	2	400

Table 2: Price & Quantities of goods consumed in Tataouine

1. Between year 1 & year 2, what is the price elasticity of demand for squid ?

2. What should be the quantities consumed in Year 3 so that the demand elasticity for
   squid remains constant ?

   Assume that a typical Tataouinian consumed 52.4 squids in year 3.

3. Are squids and sweet peppers substitutes or complements ? [1]

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[1]Use Year 2 & Year 3 for your calculations since the price of squids changed while the price of sweet
peppers remains constant