**WORKSHEET 5: CALCULATING A SEASONAL INDEX**

**What it is**: A seasonal index is the ratio of the average price in a given month to the overall average annual price. Graphing the seasonal index for each month will show the seasonal pattern of prices for a given commodity.

**Data requirements**: Minimum of three years of monthly price data; ideally minimum of five years.

**How to calculate**:

1. Select one commodity. Take the average price for each month across years in one market.

JANAVG = (P1/2010 + P1/2011 + P1/2012 + P1/2013 + P1/2014)/5

FEBAVG = (P2/2010 + P2/2011 + P2/2012 + P2/2013 + P2/2014)/5

1. Take the overall average across months and years for the market

OVERALL AVERAGE = (JANAVG + FEBAVG + MARAVG + APRAVG + MAYAVG + JUNAVG + JULAVG + AUGAVG + SEPAVG + OCTAVG + NOVAVG + DECAVG)/12

1. Divide the monthly average by the overall average

SIJAN = JANAVG / OVERALL AVERAGE

SIFEB = FEBAVG / OVERALL AVERAGE

1. Graph the monthly seasonal indices against the months.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Overall** |
| **2010** | 83 | 110 | 96 | 72 | 53 | 44 | 48 | 47 | 47 | 59 | 70 | 81 |  |
| **2011** | 108 | 119 | 120 | 104 | 88 | 94 | 102 | 121 | 143 | 152 | 218 | 245 |  |
| **2012** | 285 | 279 | 308 | 149 | 100 | 79 | 77 | 83 | 89 | 85 | 85 | 94 |  |
| **2013** | 95 | 104 | 112 | 102 | 77 | 77 | 79 | 84 | 124 | 147 | 180 | 223 |  |
| **2014** | 296 | 288 | 273 | 193 | 180 | 229 | 250 | 268 |  |  |  |  |  |
| **Avg** | 174 | 180 | 182 | 124 | 100 | 105 | 111 | 121 | 100 | 111 | 138 | 161 | 134 |
| **Index** | **1.30** | **1.34** | **1.36** | **0.93** | **0.74** | **0.78** | **0.83** | **0.90** | **0.75** | **0.83** | **1.03** | **1.20** |  |

**Interpretation:** Prices for this commodity follow a seasonal pattern in which prices are high at the beginning of the year (Jan – Mar) and then fall from March to May and remain low until around October when prices start to climb again. We can infer that the crop is harvested starting around March when prices drop and supplies begin to run low around September and October, resulting in price increases.

**How to use it:** Compare the most recent weekly or monthly prices of the commodity about which you are concerned to its seasonal index. Using the example index above, if you have started to notice prices increasing from October to November to December, you can look at the seasonal index and see that we would normally expect prices to increase at this time of year, so you can likely attribute the price increases to seasonality. On the other hand, if you find that prices are remaining high after March and into April and May, you would be concerned that the prices have not dropped as would be expected given the season index. Further investigation would then be needed to figure out why the prices are not dropping as expected.