# Professional Issues

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Assignment Two

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**Question:** Study the following problem statement carefully and answer the questions that follow: In Kiambu peri-urban area, there is stiff competition for milk between the formal and informal market outlets, yet many smallholder milk producers sell milk at low prices, not competitive enough to ensure positive returns to external inputs they use to support intensive milk production. It is suggested that market information flow between milk producers and market actors impact on the price that farmers receive for their milk, and access and use of market information could explain why some are able to sell competitively while others are not. Farmers may not be seeking for market information among the market outlets, if they do, there could be information barriers in access, timeliness and reliability. Knowledge of the flow and use of market information on milk prices would be useful in designing effective price information dissemination strategies to help farmers sell their milk at profitable prices and realize positive returns to their investment for improved income and food security from dairy production.
Answer the following questions in relation to this problem statement:

1. **Formulate three research objectives.**

   - To determine if the market infomation received by farmers in Kiambu area is reliable and timely.
   - To identify where in the flow of information are greater barriers and the type of barrier experienced by small scale milk producers and the actors in the formal and informal market actors.
   - To establish whether small scale milk producers seek for market information about which market outlets offer competitive prices.

2. **State three research questions.**

   - Which communication channel do you use to know the market price of milk?
   - How reliable and timely is the information on market milk price communication from market actors for small scale milk producers?
   - Is sourcing of market milk price associated with sale of milk at competitive price?

3. **State three research hypothesis.**

   - **Hypothesis Ho:** Milk producers that source market information are able to sell their milk at competitive prices than those not sourcing for market information.
     **Hypothesis Ha:** Milk producers that source market information are not able to sell their milk at competitive prices compared to those not sourcing for market information.

- **Hypothesis Ho:** The market information on milk price from market actors for small scale milk producers is reliable and timely.
  **Hypothesis Ha:** The market information on milk price from market actors for small scale milk producers is neither reliable nor timely.
- **Hypothesis Ho:** The frequency of using channels of information delivery are greatly correlated with reliability, accuracy, and timelines of relaying the milk price information.
  **Hypothesis Ha:** The frequency of using channels of information delivery is not correlated with reliability, accuracy, and timelines of relaying the milk price information.

4. **Briefly describe the suitable statistical design the researcher will use to achieve the stated objectives.**
   The best statistical design would be the observational study and specifically a retrospective study which would observe the small scale milk producers popu- lation in the present by using a sample survey and collect information from the sample about how the market information has already affected the milk prices.

5. **What are the suitable measurements variables from your stated objectives?**
   They are milk prices, quantity of milk sold, market information perception and intermediary supplier.

6. **Advise the researchers on the suitable statistical methods that can be used in analyzing the type of data expected to be collected from your stated objectives**
   The researcher can use R to perform statistical analyses. Paired t-test, factor analysis, ANOVA, and linear regression prove to suit the above scenario. They might also have to test correlation of the data collected as well as the statistical significance of the test results (p-value).

7. **Provide hypothetical tables and figures expected to be generated from the analysis of collected data.**

| Factor correlations | | | | |
|---|---|---|---|---|
| Factor | Factor1 | Factor2 | Factor3 | Factor4 |
| 1.Milk prices | 1.0 | 0.6 | 0.00 | 0.00 |
| 2.Milk quantity | 0.6 | 1.0 | 0.00 | 0.00 |
| 3.No. of households | 0.00 | 0.00 | 1.0 | 0.2 |
| 4.Intermediary supplier | 0.00 | 0.00 | 0.2 | 1.0 |

Table 1: Correlations table

| ANOVA | | | | | |
|---|---|---|---|---|---|
| ANOVA | df | SS | MSS | F | Significance of F |
| Regression | 1 | 1300 | 1300 | 34.67 | .000160053 |
| Residual | 12 | 450 | 37.5 | 0.00 | 0.00 |
| Total | 13 | 1750 | 134.6 | 0.0 | 0.00 |

Table 2: Anova table

| Regression | |
|---|---|
| 1 | Regression |
| Multiple R | 0.56743826 |
| R Square | 0.87234567 |
| Adjusted R Square | 0.76214568 |
| Standard Error | 4.67156702 |
| Observations | 13 |

Table 3: Regression table

The reseracher will use correlation to test if there are relationship between the variables, ANOVA and Regression to test the individual significance of each and /or individual variables.