Quirky Craftopia Farmer's Market Data Analysis

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Task:

To determine if weather conditions or specific item sales drive profitability at the Quirky Craftopia farmer's market stand in order to inform inventory production and market participation decisions.

Overview:

My friend Lorena has an Etsy shop called Quirky Craftopia and sells goods from the store at the Urbana, IL, Farmer's Market. The stand sells a variety of sewn items including scrunchies, bowl cozies, headbands, coasters, and more made from fun and colorful fabric patterns. She is moving an hour away to Bloomington, IL, which does not have as robust of a farmer's market and therefore she plans to continue selling at the Urbana market. She will not be able to make the trip every weekend and is wondering what factors might help determine the most profitable weekends. In addition, Lorena has limited time to create products and has qualitatively observed that sales for a particular product increase with the number of pattern options available. She would like to know which product or products she should focus on creating to take advantage of this effect, and if the answer varies over the season.

Data Cleaning and Manipulation:

Data was downloaded from Square by Quirky Craftopia and shared with me along with permission for use in this project. Weather data is from Weather Underground. No cleaning was necessary; the data was complete and without errors. All manipulation was done in Tableau with pivot tables.

Key Questions:

1) Were some weekends much more profitable than others? If so, which ones? Did they tend to fall in certain months or certain weeks within the month?
2) Did the most profitable weekends correlate with attendance? Or weather?
3) Which products sold the best? Did this change over the season?
4) Were the most profitable weekends driven by a specific product or products?

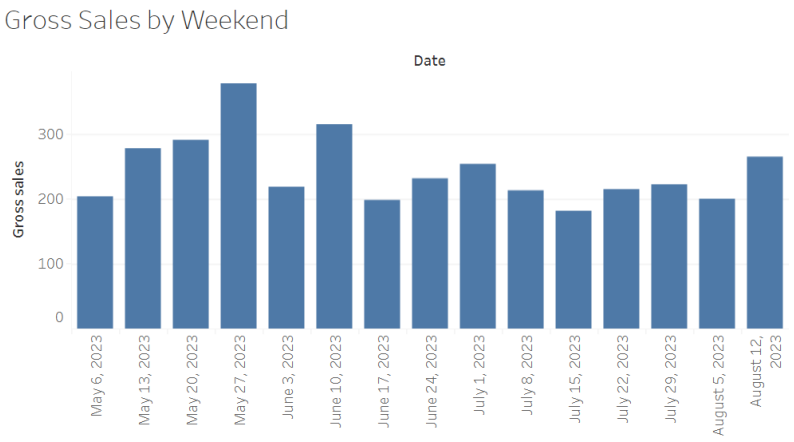
Summary of Analysis:

To answer these key questions, data was uploaded into Tableau. First, a bar graph was created showing overall gross sales by weekend to visualize patterns in profitability over time. Scatterplots were made to determine if attendance, high temperature, or dew point affected gross sales. The analysis then looked

at individual product sales over time and compared trends to overall sales. Finally, individual product sales were plotted against overall sales to determine which products were driving profitable weekends.

Visualizations and Key Findings:

Figure 1. Gross Overall Sales by Weekend

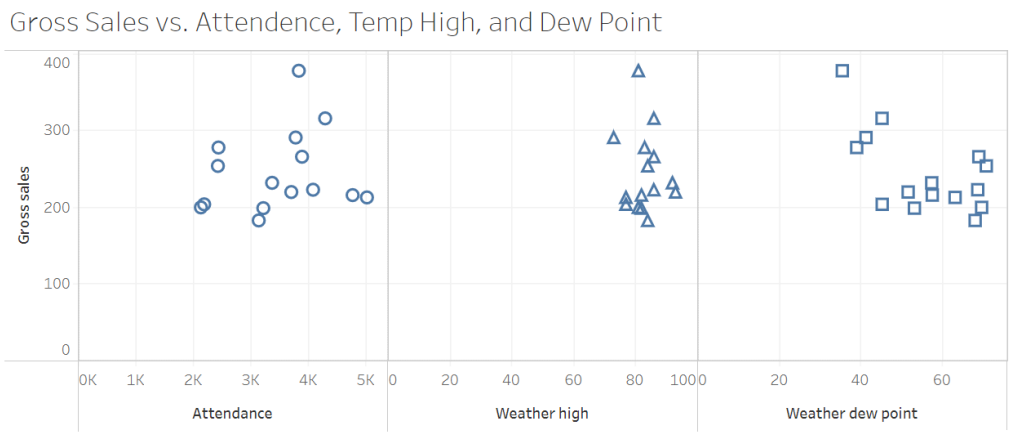


Were some weekends much more profitable than others? Which ones? Did they tend to fall in certain months or certain weeks within the month?

Profitability did vary significantly across weekends. The median gross overall sales amount was $220.50 with a minimum of $170 and a maximum of $337, leaving the maximum sales day over double the minimum.

The most profitable weekend was May 27th followed by June 10th and May 20th. Generally, the most profitable weekends tend to fall early in the season in spring. The least profitable weekend was July 15th followed by June 17th and August 5th. There was no strong profit pattern based on weekend order within a month.

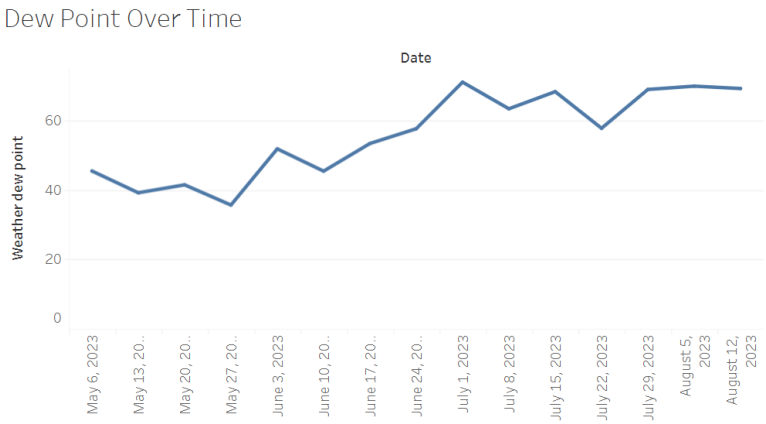
Figure 2. Gross Overall Sales vs. Market Attendance, High Temperature, and Dew Point



Did the most profitable weekends correlate with attendance? Or weather?

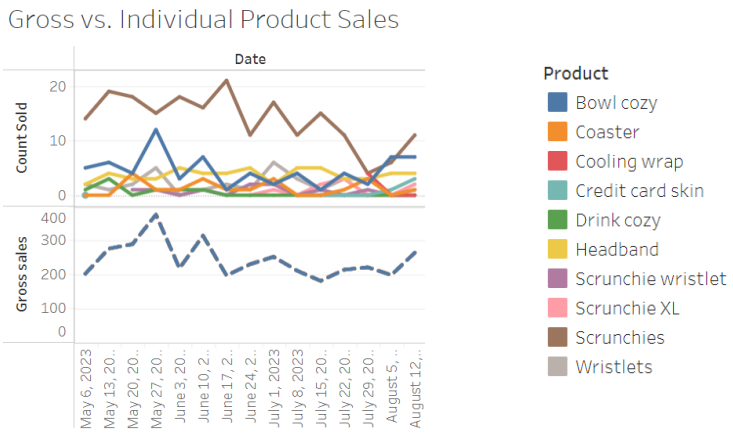
One possible explanation for higher sales earlier in the season could be cooler weather. High temperature did correlate with lower gross sales, but high dew points did. The most profitable weekends did not correlate strongly with attendance.

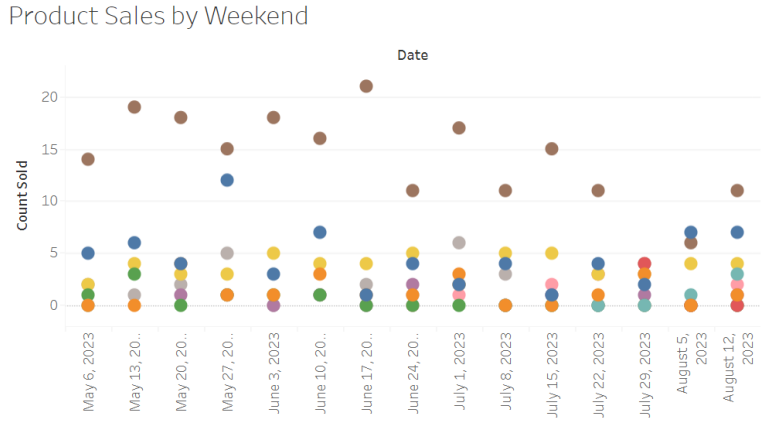
Figure 3. Dew Point by Weekend



As expected, dew point climbed over the season. Dew point could be a negative driver of sales or dew point could be climbing with time and sales could be decreasing with time separately from each other.

Figure 4. Gross vs Individual Product Sales by Weekend, Trendlines and Scatterplot

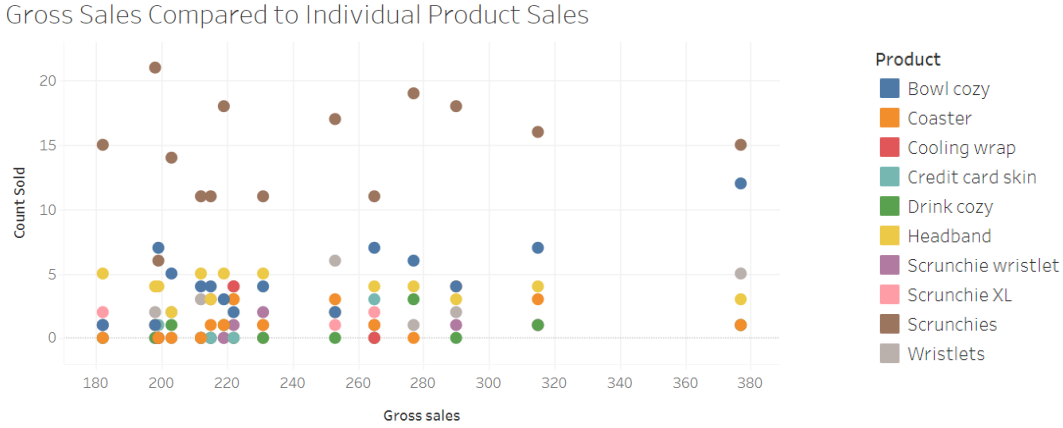




Which products sold the best? Did this change over the season?

Scrunchies sold best all but one weekend. Scrunchies were followed by bowl cozies or headbands most weekends, though occasionally it was wristlets. Changes in which product sold best did not follow any notable trends throughout the season. Scrunchies and especially bowl cozies followed a similar pattern to overall sales.

Figure 5. Overall Gross Sales Compared to Individual Product Sales



Were the most profitable weekends driven by a specific product or products?

Most profitable weekends were somewhat driven by scrunchie sales. This was expected as scrunchies are the most popular item at the Quirky Craftopia stand. The correlation between bowl cozies and overall sales was stronger, despite them being less popular than scrunchies (though still a popular item). Bowl cozies are more expensive than scrunchies at $17 vs. $5, which might explain why they are a stronger driver of profitable weekends. However, headbands are similarly popular to bowl cozies and priced at $16 but do not drive overall sales. Credit card skins showed a moderate positive correlation but few sales leave too small a sample size to consider notable.

Figure 6. Scrunchie, Bowl Cozy, Headband, and Credit Card Skin Isolated Sales Compared to Overall Sales

Recommendations Based on Findings:

Findings suggest that the most profitable weekends for the Quirky Craftopia stand at the Urbana Farmer's Market tend to occur earlier in the season in springtime. The increase in sales earlier in the season did not occur due to higher attendance or lower temperature but might be related to lower dew points leaving customers in better moods or more likely to spend time perusing, leading to more purchases. Another possible explanation for the drop in sales is that market regulars who were most likely to buy Quirky Craftopia products did so early on and did not need more later, though there is no data available to address the question.

As far as which products to focus on producing, bowl cozies should likely be a priority as they are the strongest driver of overall sales, followed by scrunchies. Inventory data would be critically important in determining what effect variety has on various products and overall sales. In mid-July, Lorena started another part time job that left her with less time to make products and restock the stand. The decline in sales later in the season could be due to a declining product variety rather than increased dew points or exhaustion of the customer base. Another piece of data that could be critically useful in providing better

suggestions on which items to focus increasing production on is the time spent creating each product. An analysis could be conducted comparing profitability to time input and the time it would take to increase various inventories could be determined. These measures could narrow the products most affected by variety down into which are feasible for Lorena to substantially increase.

In summary, according to current findings, Lorena should prioritize returning to the Urbana Farmer's Market earlier in the season and producing more bowl cozies and scrunchies. Data from this upcoming fall may help determine if the dew point is a driving factor as dew point decreases and other factors likely remain similar. Additionally, data on inventory and production time could provide much greater insights on and suggestions for production focus.