**Coffee/Equipment Spending Analysis for Remote/In-person workers**

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**Problem Statement**

The objective of this analysis is to explore the relationship between post-pandemic work location dynamics (remote, in-person, hybrid) and coffee/coffee equipment spending habits. Specifically, the study investigates:

**1. Does work location influence the amount spent on coffee equipment?**

**2. Does work location influence monthly coffee spending?**

We aim to use this analysis to determine how to further market and promote coffee products in the post-pandemic workplace.

**Data Description**

The dataset includes responses for various questions each participant was asked. For this analysis, the following response columns used were:

• **"Do you work from home or in person?"**

Categories:

[“I primarily work from home”, “I primarily work in-person”, “I do a mix of both”]

• **Approximately how much have you spent on coffee equipment in the past 5 years?**

Categories:

["Less than $20", "$20-$50", "$50-$100", "$100-$300",  "$300-$500", '$500-$1000', 'More than $1,000']

• **In total, how much money do you typically spend on coffee in a month?**

Categories:

["<$20", "$20-$40", "$40-$60", "$80-$100", ">$100"]

**Data Cleaning and Prep**

• Firstly, we selected the columns necessary for carrying out this analysis as described above.

• Column names were standardized for clarity (e.g., correcting typos).

• We planned to carry out two tests, for which we created two separate data subsets. One subset included Work location and Coffee equipment spending data. The other subset included Work location and Monthly Coffee spending data.

• Missing data entries (nan) were removed from both subsets to ensure robust statistical calculations.

• Subsets were turned into cross tabulated contingency tables to prepare for the analysis.

**Analysis Techniques**

Since our data compares two categorical variables, the test we performed was:

**Chi-Square Tests**

Two chi-square tests of independence were conducted to evaluate:

**1. Work location vs. 5-year Coffee Equipment Expenditure**

**2. Work location vs. Monthly Coffee Expenditure**

**Visualizations**

To help understand how the data looks we provided visualizations of the 3 categorical variables:

• Count plots were generated to display distributions of work location preferences.

• Spending patterns for both coffee equipment and monthly coffee expenditure were visualized and ordered from lowest to highest range.

**1. Work Location Distribution**

Most respondents work from home, followed by in-person and hybrid, a close third.

A screenshot of a computer screen

Description automatically generated

**2. Coffee Equipment Expenditure**

Spending peaks in the "$100-$300" and “more than “$1000” ranges.

A graph with different colored bars

Description automatically generated

**3. Monthly Coffee Expenditure**

Most respondents spend $20-$40 on coffee monthly, followed by $40-60 in second place.

A graph with multiple colored squares

Description automatically generated with medium confidence

**Results**

**1. Work location vs. 5-year Coffee Equipment Expenditure**

**Null Hypothesis:** Work location and coffee equipment expenditure are independent.

**Result:** p-value < 0.05

**Conclusion:** The null hypothesis is rejected, indicating that work location and coffee equipment expenditure are not independent of each other.

In simple terms, we conclude that an individual’s work location changes how much they spend on coffee equipment.

**2. Work location vs. Monthly Coffee Expenditure.**

**Null Hypothesis:** Work location and monthly coffee expenditure are independent.

**Result:** p-value < 0.05

**Conclusion:** The null hypothesis is rejected, indicating that work location and monthly coffee expenditure are not independent of each other.

In simple terms, we conclude that an individual’s work location changes how much they spend on coffee per month.

**Conclusion**

The analysis highlights significant differences in coffee-related spending based on work location. These findings suggest opportunities for targeted marketing strategies.