

Optimizing Vendor Mix at the Downtown Phoenix Farmers Market

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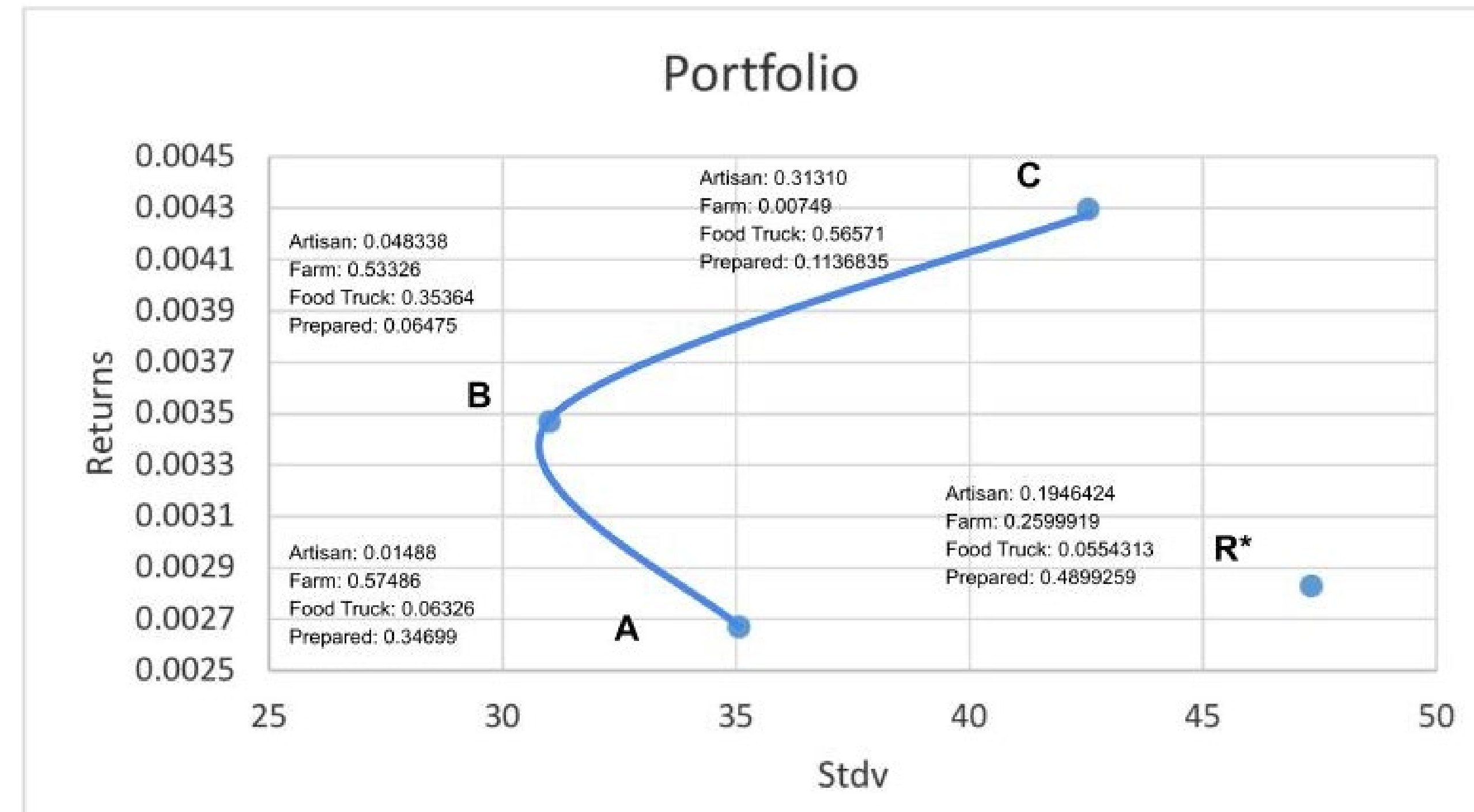
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Case Study

The Downtown Phoenix Farmers Market (DPFM) is the premier farmers market in all of the Phoenix metro area. Serving hundreds of patrons weekly with 60+ vendors every week, the DPFM has become a staple of the local community. However, recently, due to the increased cost of rent in the area, the market is relocating and is looking to take actionable steps to optimize their operations for when they move to a new location in summer 2022.

Findings

The using the portfolio model, it can be seen that the current state of the market (R*) lies within the efficient frontier – this indicates an inefficient outcome. Any point along the curve such as A,B or C would maximize the risk to revenue ratio of the market.



Graph 1: Efficient Frontier depicting the combinations of optimal vendor mixes

	# Artisan Vendors	# Farm Vendors	# Food Truck Vendors	# Prepared Food Vendors
A	1.22	19.90	2.28	22.66
B	3.97	18.46	12.76	4.23
C	25.74	0.26	20.41	7.43
Real	16.00	9.00	2.00	32.00

Table 1: Number of vendors required per category to achieve optimal mix

Modelling Approach

We apply portfolio theory, commonly used in the financial literature, to a community based-food systems problem to develop a “theoretical best” vendor mix at the DPFM that would both sustain and increase the profitability at the market.

Methods

Step 1:

Gather data on seasonality and weather data (precipitation, temperature, etc.) that can influence different vendor classifications

Step 2:

De-mean observed data by running OLS regression

Step 3:

Use predicted revenues in portfolio optimization model



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