

# AVOCADO PRICES



**SAKSHAM JAISWAL**

# PROBLEM STATEMENT

ANALYZE AND FORECAST AVOCADO PRICE TRENDS ACROSS US REGIONS—USING TIME SERIES AND STATISTICAL TOOLS TO REVEAL KEY PRICE AND VOLUME DRIVERS THAT EMPOWER SMARTER MARKET DECISIONS.

**DATASET SOURCE:**  
KAGGLE/DATASETS/NEUROMUSIC/AVOCADO-PRICES/CODE  
BY JUSTIN KIGGINS (2018)

HISTORICAL WEEKLY DATA ON AVOCADO PRICES AND SALES VOLUME FROM MAJOR US MARKETS, SOURCED FROM THE HASS AVOCADO BOARD. THE DATASET COVERS RETAIL TRANSACTIONS BY REGION, PRODUCT TYPE, AND VOLUME, AND CAN BE ADAPTED FOR PRICE AND SALES ANALYSIS OF OTHER PRODUCE ACROSS GEOGRAPHIES.

Completeness · 100%

- ✓ Subtitle
- ✓ Tag
- ✓ Description
- ✓ Cover Image

Credibility · 100%

- ✓ Source/Provenance
- ✓ Public Notebook
- ✓ Update Frequency

Compatibility · 100%

- ✓ License
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- ✓ Column Description

COLUMNS 14  
ROWS 18250  
DATAPOINTS 255500

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	Date	AveragePrice	Total Volume	4046	4225	4770	Total Bags	Small Bags	Large Bags	XLarge Bags	type	year	region		
0	27-12-2015	1.33	64236.62	1036.74	54454.85	48.16	8696.87	8603.62	93.25	0	conventional	2015	Albany		
1	20-12-2015	1.35	54876.98	674.28	44638.81	58.33	9505.56	9408.07	97.49	0	conventional	2015	Albany		
2	13-12-2015	0.93	118220.22	794.7	109149.7	130.5	8145.35	8042.21	103.14	0	conventional	2015	Albany		
3	06-12-2015	1.08	78992.15	1132	71976.41	72.58	5811.16	5677.4	133.76	0	conventional	2015	Albany		
4	29-11-2015	1.28	51039.6	941.48	43838.39	75.78	6183.95	5986.26	197.69	0	conventional	2015	Albany		
5	22-11-2015	1.26	55979.78	1184.27	48067.99	43.61	6683.91	6556.47	127.44	0	conventional	2015	Albany		
6	15-11-2015	0.99	83453.76	1368.92	73672.72	93.26	8318.86	8196.81	122.05	0	conventional	2015	Albany		
7	08-11-2015	0.98	109428.33	703.75	101815.4	80	6829.22	6266.85	562.37	0	conventional	2015	Albany		
8	01-11-2015	1.02	99811.42	1022.15	87315.57	85.34	11388.36	11104.53	283.83	0	conventional	2015	Albany		
9	25-10-2015	1.07	74338.76	842.4	64757.44	113	8625.92	8061.47	564.45	0	conventional	2015	Albany		
10	18-10-2015	1.12	84843.44	924.86	75595.85	117.07	8205.66	7877.86	327.8	0	conventional	2015	Albany		
11	11-10-2015	1.28	64489.17	1582.03	52677.92	105.32	10123.9	9866.27	257.63	0	conventional	2015	Albany		
12	04-10-2015	1.31	61007.1	2268.32	49880.67	101.36	8756.75	8379.98	376.77	0	conventional	2015	Albany		
13	27-09-2015	0.99	106803.39	1204.88	99409.21	154.84	6034.46	5888.87	145.59	0	conventional	2015	Albany		
14	20-09-2015	1.33	69759.01	1028.03	59313.12	150.5	9267.36	8489.1	778.26	0	conventional	2015	Albany		
15	13-09-2015	1.28	76111.27	985.73	65696.86	142	9286.68	8665.19	621.49	0	conventional	2015	Albany		
16	06-09-2015	1.11	99172.96	879.45	90062.62	240.79	7990.1	7762.87	227.23	0	conventional	2015	Albany		
17	30-08-2015	1.07	105693.84	689.01	94362.67	335.43	10306.73	10218.93	87.8	0	conventional	2015	Albany		
18	23-08-2015	1.34	79992.09	733.16	67933.79	444.78	10880.36	10745.79	134.57	0	conventional	2015	Albany		
19	16-08-2015	1.33	80043.78	539.65	68666.01	394.9	10443.22	10297.68	145.54	0	conventional	2015	Albany		
20	09-08-2015	1.12	111140.93	584.63	100961.5	368.95	9225.89	9116.34	109.55	0	conventional	2015	Albany		
21	02-08-2015	1.45	75133.1	509.94	62035.06	741.08	11847.02	11768.52	78.5	0	conventional	2015	Albany		
22	26-07-2015	1.11	106757.1	648.75	91949.05	966.61	13192.69	13061.53	131.16	0	conventional	2015	Albany		
	avocado	+													

ANALYTICAL QUESTIONS/HYPOTHESES

WHAT ARE THE SEASONAL PRICE TRENDS FOR AVOCADOS IN VERSUS MARKETS?  
IS THERE ANY PLACOR REGION FROM WHERE WE CAN SOURCE MOT AFFORDABLY?  
CAN WE RELIABLY FORECAST AVOCADO PRICES TO GUIDE INVENTORY PLANNING?

# UNDERSTANDING DATASET

A WEEKLY PANEL OF AVOCADO PRICES AND VOLUMES BY REGION, VARIETY, AND PACK IN THE US (2015-18).



54  
REGIONS

VARIETY

CONVENTIONAL

ORGANIC

4046

4046

4225

4225

4770

4770

SMALL BAG

LARGE BAG

XL  
BAG

PACKING BAG SIZE

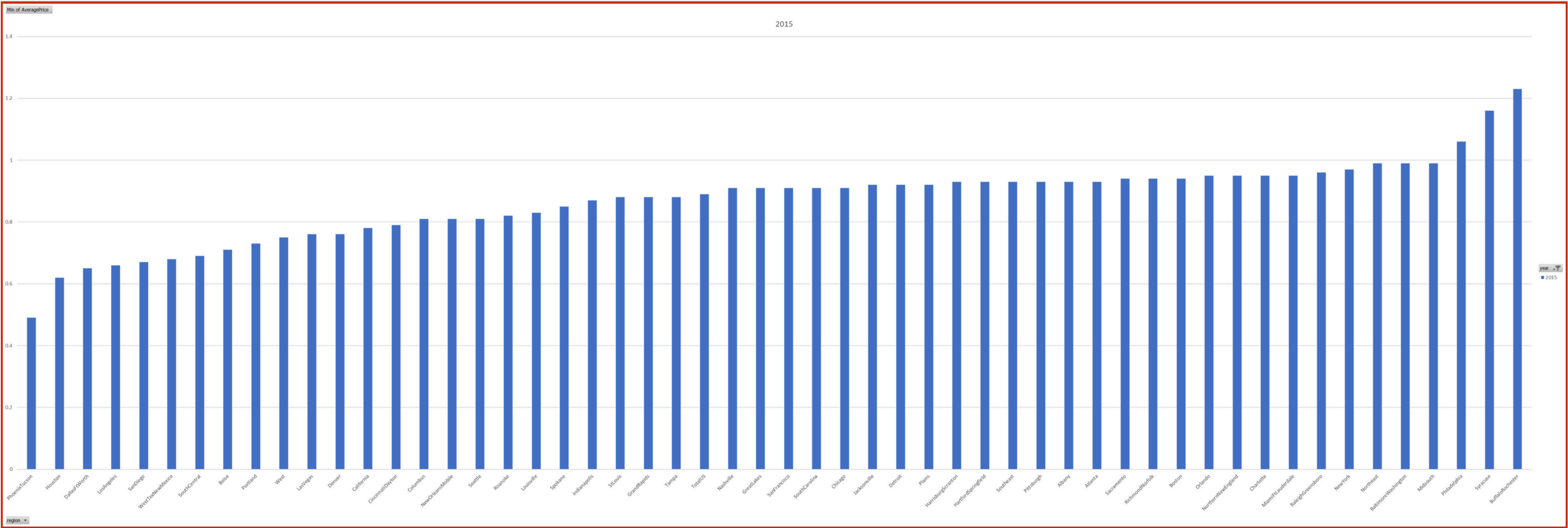
TIME DURATION  
2015-18

VOLUME

PRICE

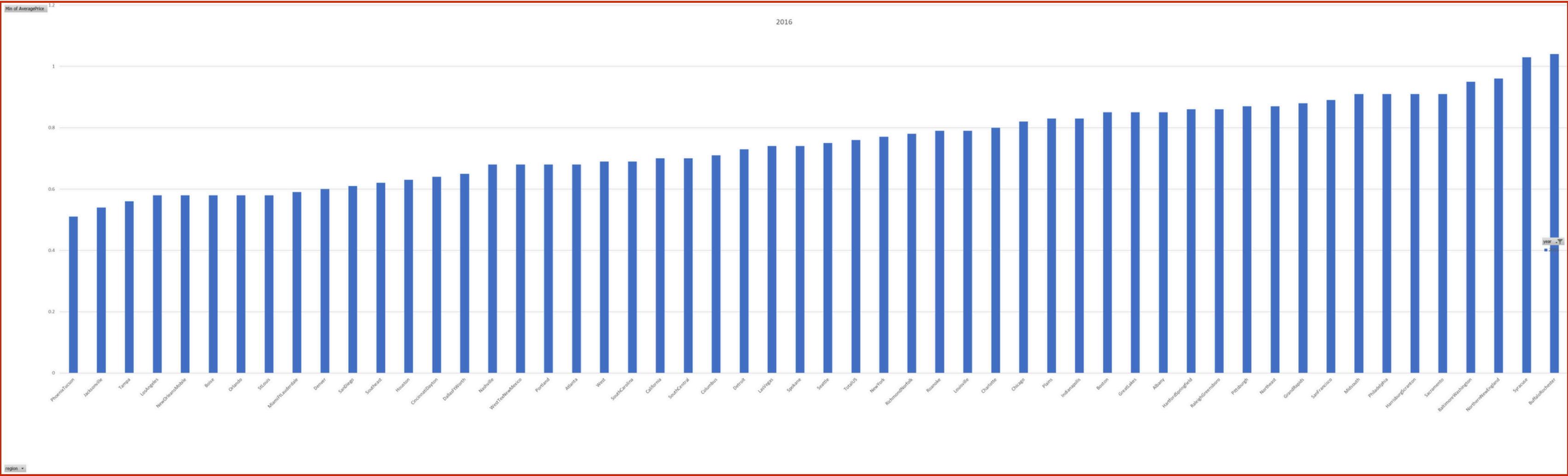
# AVERAGE PRICE / REGION (2015)

THIS BAR CHART DISPLAYS THE MINIMUM AVERAGE AVOCADO PRICES ACROSS US REGIONS FOR 2015, HIGHLIGHTING STRONG PRICE DIFFERENCES BETWEEN CITIES. REGIONS LIKE **SYRACUSE AND BUFFALO/ROCHESTER** SEE THE HIGHEST MINIMUM PRICES, WHILE PROVIDENCE POSTS THE LOWEST.



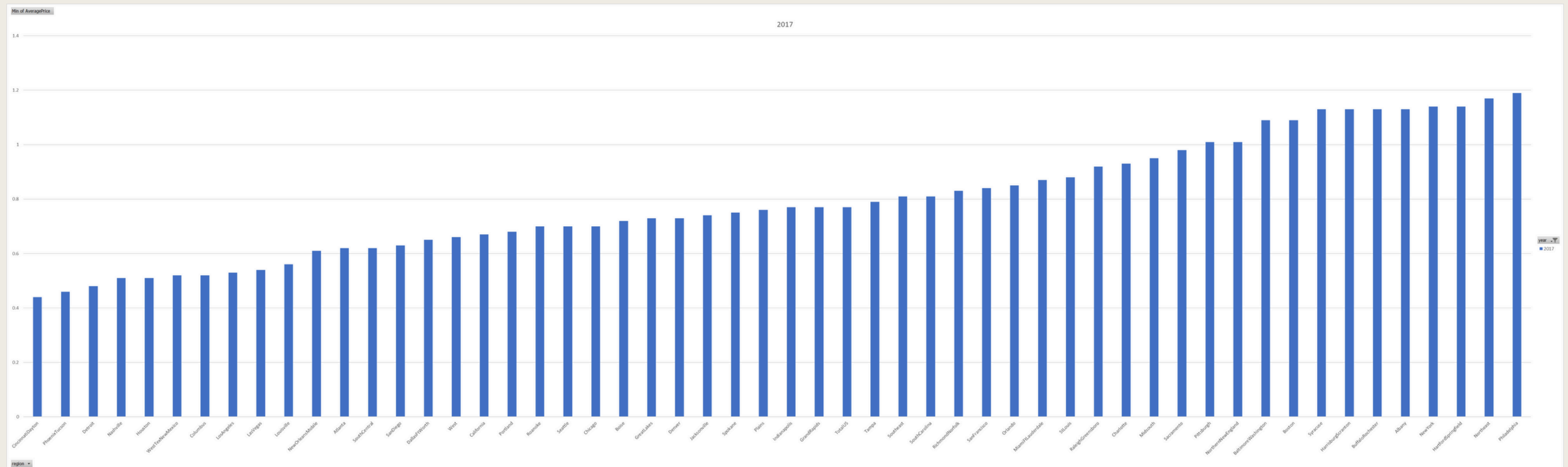
# AVERAGE PRICE / REGION (2016)

THIS CHART PRESENTS THE MINIMUM AVERAGE PRICE OF AVOCADOS IN 2016, SORTED BY REGION ACROSS THE US. THERE IS A CLEAR UPWARD TREND, WITH **BUFFALO/ROCHESTER AND SYRACUSE** EXPERIENCING THE HIGHEST BASELINE PRICES, AND PROVIDENCE THE LOWEST.



# AVERAGE PRICE / REGION (2017)

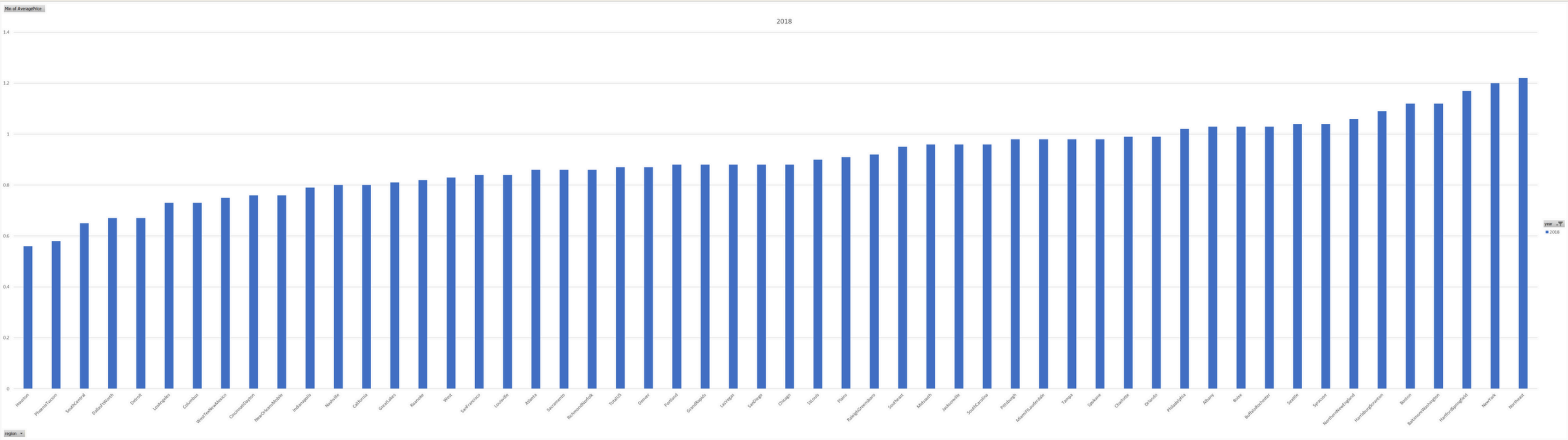
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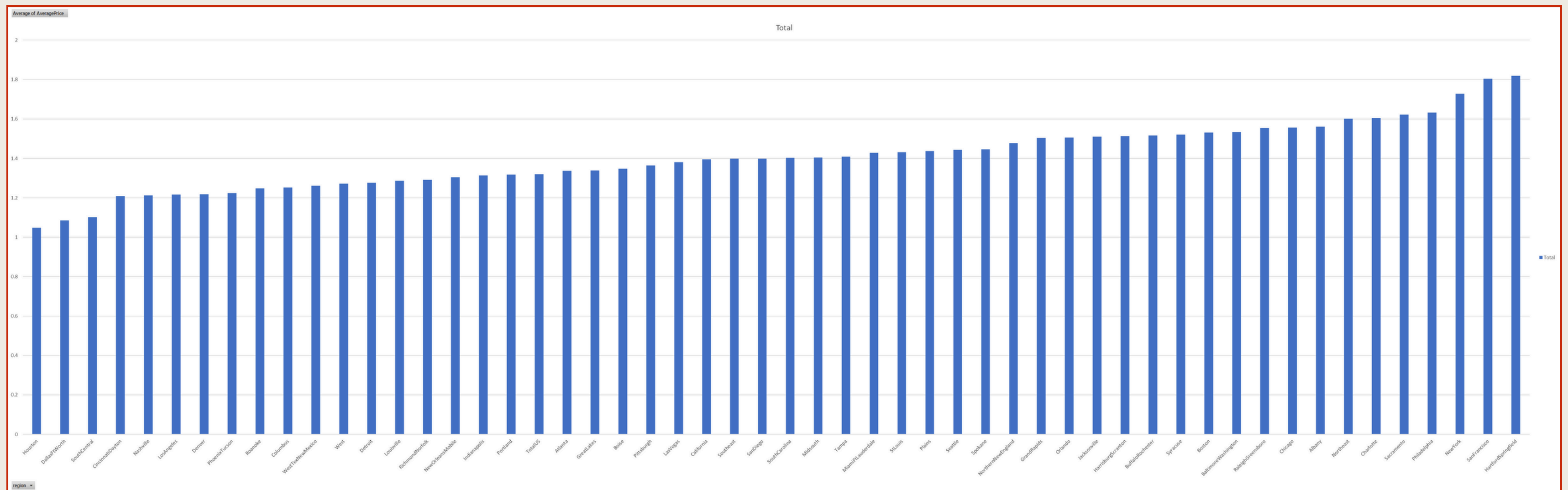
# AVERAGE PRICE / REGION (2018)

THE MINIMUM AVERAGE AVOCADO PRICE BY REGION IN 2018 DISPLAYS A STEADY CLIMB FROM CITIES LIKE ALBANY AND PROVIDENCE UP TO **NEWARK** AND **HARTFORD/SPRINGFIELD**. THIS DEMONSTRATES PERSISTENT REGIONAL PRICE GAPS AND A CONTINUED UPWARD SHIFT IN BASELINE PRICING.



# AVERAGE PRICE / REGION

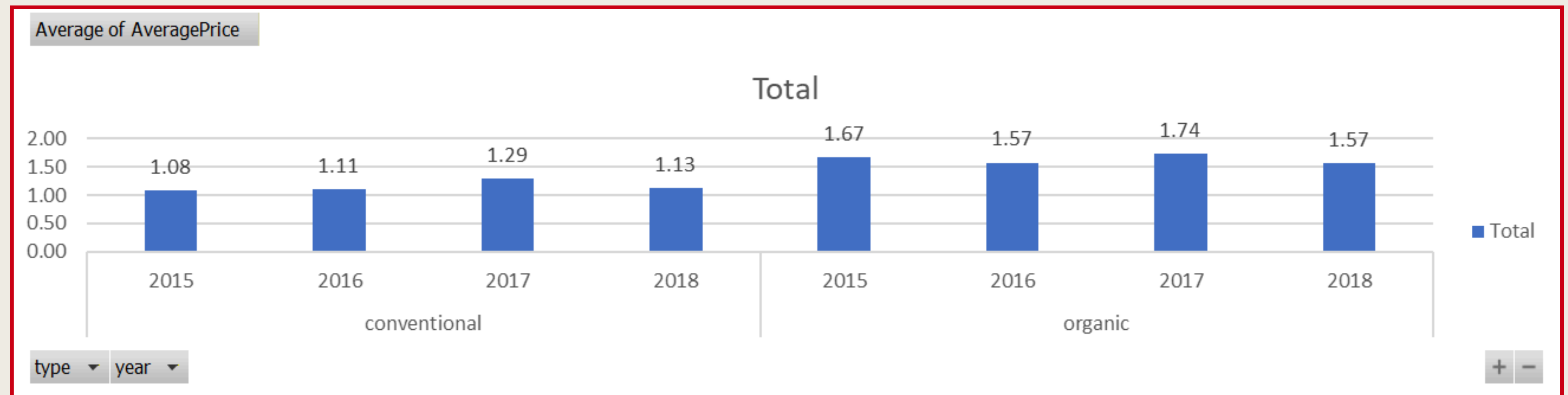
THE CHART SHOWS HOW THE AVERAGE RETAIL PRICE OF AVOCADOS VARIES BY REGION ACROSS THE US, WITH **SAN FRANCISCO AND HARTFORD/SPRINGFIELD** TOPPING THE PRICE RANKINGS. PRICES ARE LOWEST IN **HOUSTON**, SUGGESTING SIGNIFICANT GEOGRAPHIC DIFFERENCES IN AVOCADO PRICING.





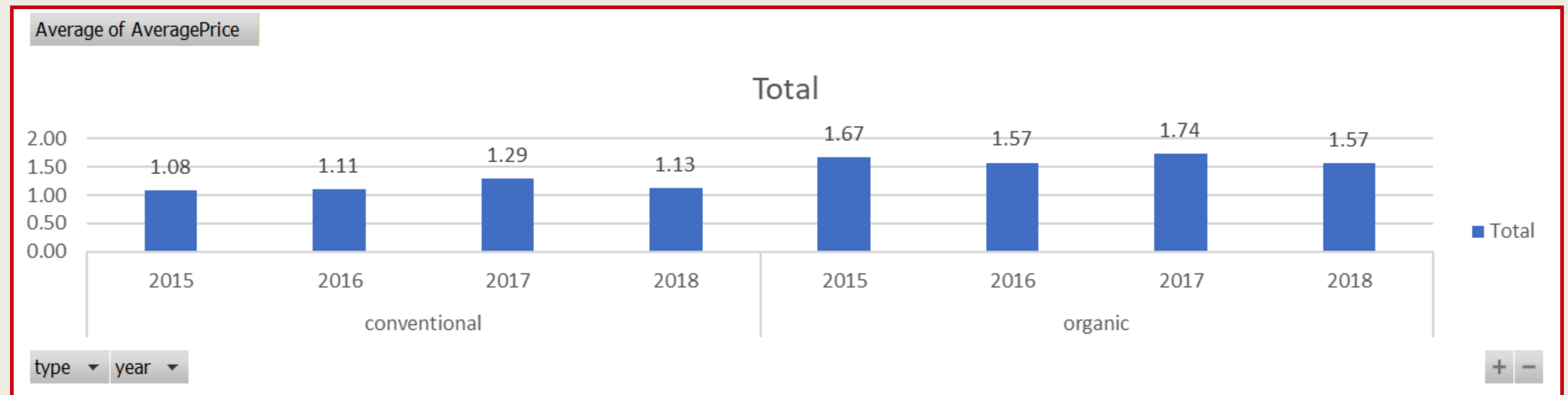
# AVERAGE PRICE / CATEGORY

**ORGANIC AVOCADOS** CONSISTENTLY COST MORE THAN **CONVENTIONAL** ONES, WITH A PRICE GAP VISIBLE EVERY YEAR FROM **2015 TO 2018**. THE HIGHEST AVERAGE PRICE FOR ORGANICS OCCURS IN 2017, WHILE CONVENTIONAL PRICES PEAK IN THE SAME YEAR BUT REMAIN MUCH LOWER OVERALL.



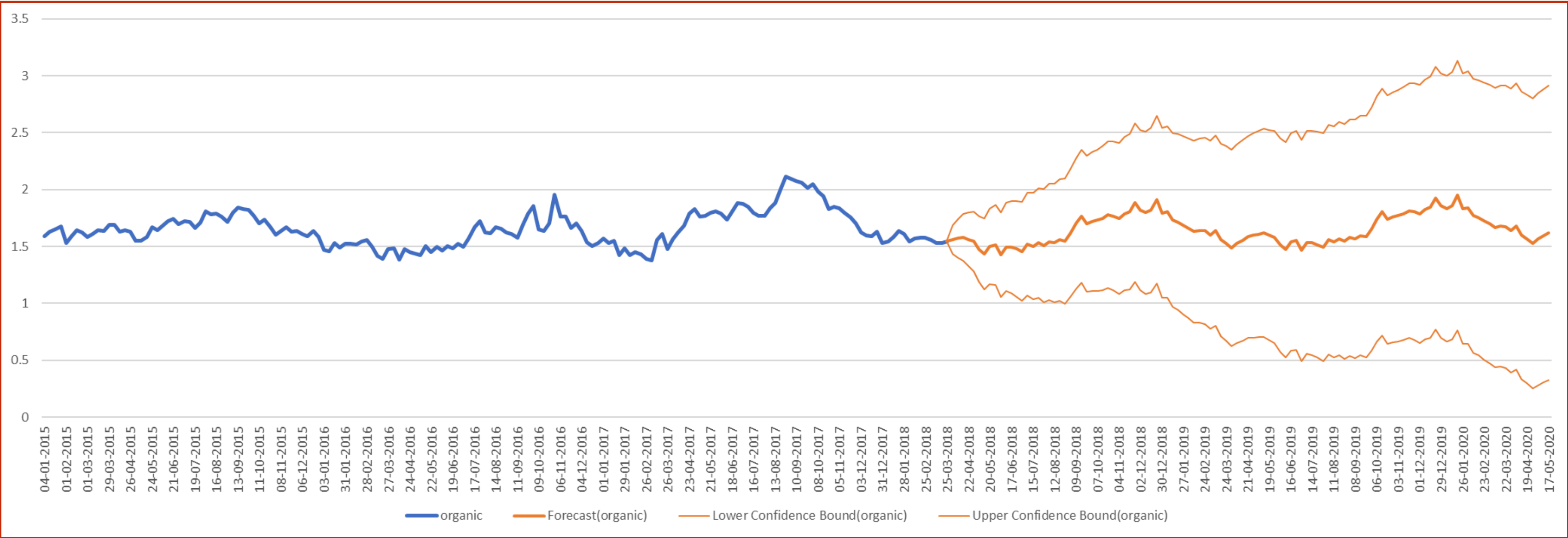
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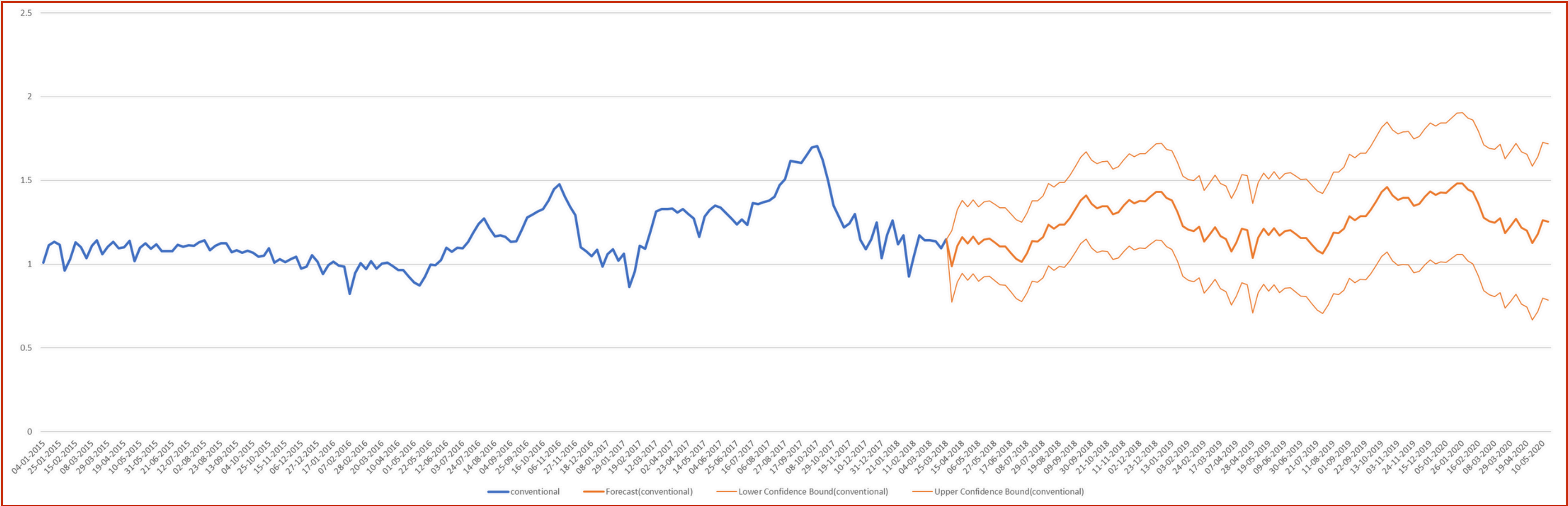
# FORECASTING (ORGANIC)

THE TIME SERIES AND FORECAST CHART FOR ORGANIC AVOCADO PRICES SHOWS HISTORICAL FLUCTUATIONS FOLLOWED BY PROJECTED GROWTH AND INCREASED VOLATILITY. CONFIDENCE BOUNDS INDICATE POTENTIAL FUTURE SWINGS, WITH PRICES EXPECTED TO REMAIN ABOVE HISTORICAL AVERAGES.



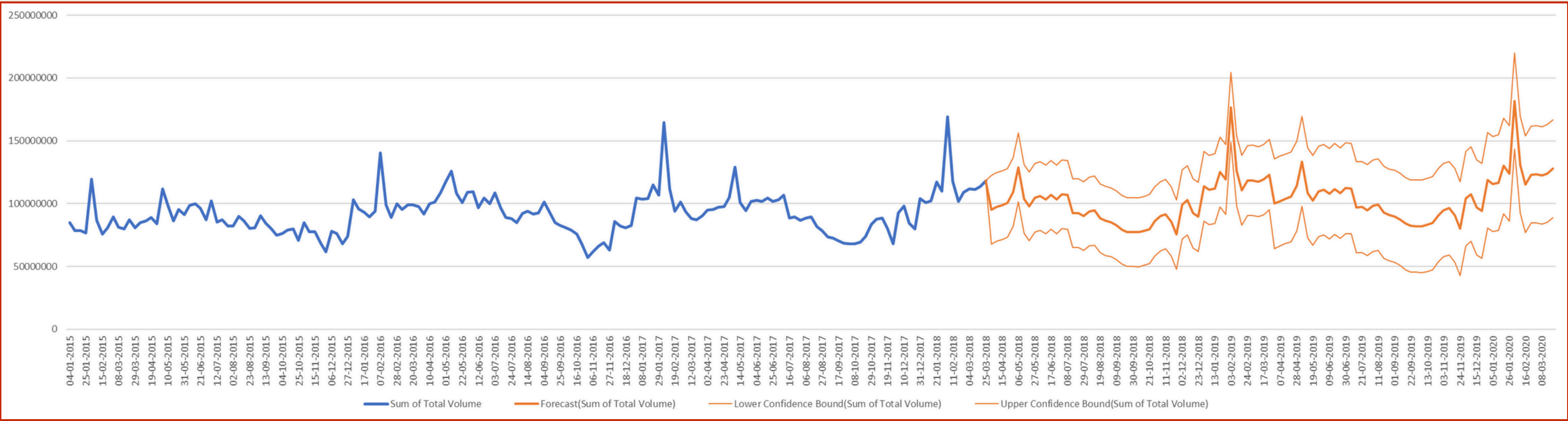
# FORECASTING (CONVENTIONAL)

THIS CHART SHOWS HISTORICAL AND FORECASTED CONVENTIONAL AVOCADO PRICES, WITH FUTURE PROJECTIONS REVEALING BOTH POSSIBLE GROWTH AND PRICE VOLATILITY. THE CONFIDENCE BOUNDS HIGHLIGHT UNCERTAINTY, SUGGESTING PRICE SWINGS ABOVE AND BELOW CURRENT LEVELS ARE LIKELY.



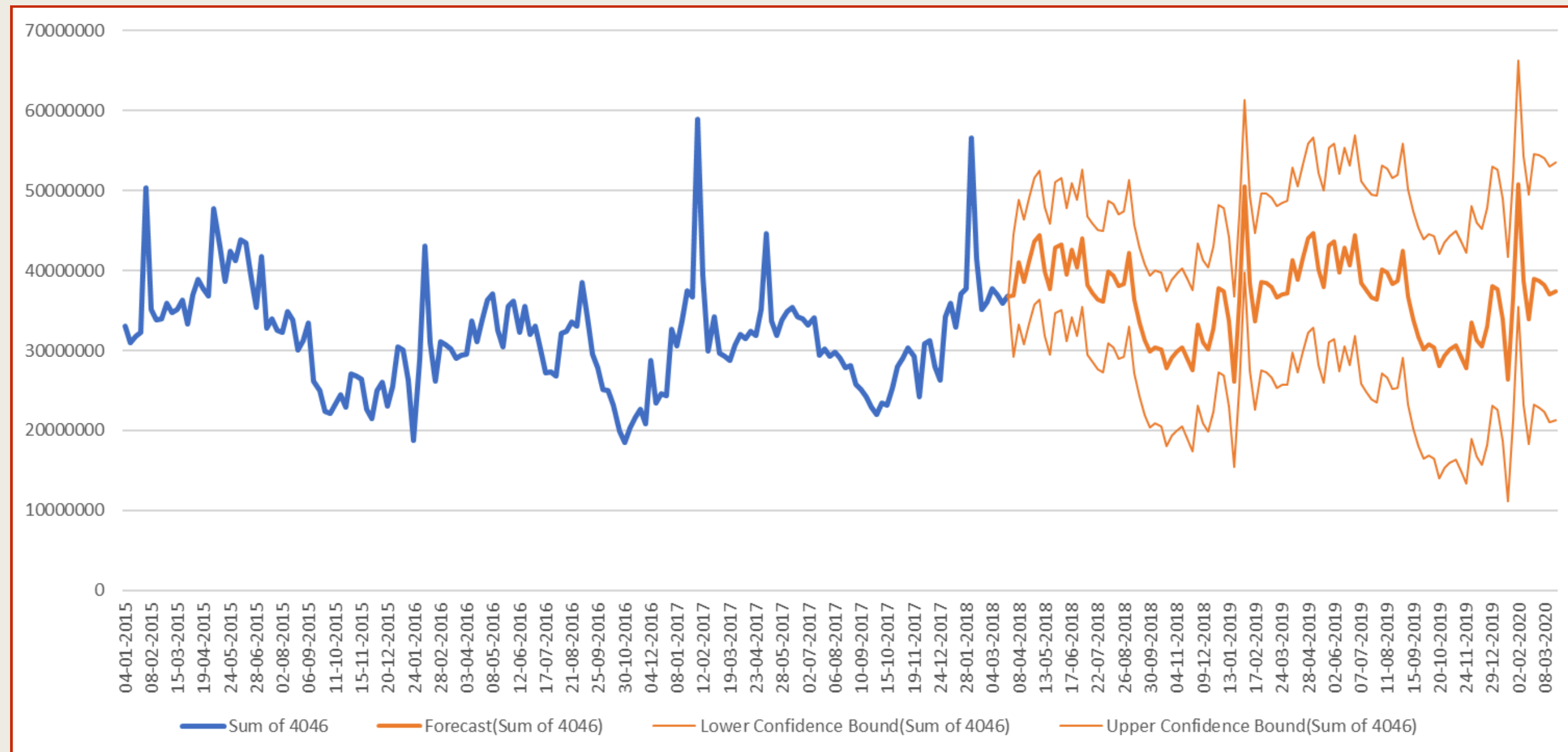
# FORECASTING (TOTAL VOLUME)

THE CHART DISPLAYS HISTORICAL AND FORECASTED CONVENTIONAL AVOCADO SALES VOLUME IN MILLIONS, REVEALING SEASONAL SPIKES AND STRONG FLUCTUATIONS OVER THE YEARS. FORECAST BANDS SUGGEST FUTURE VOLUMES MAY REMAIN VOLATILE, WITH THE POTENTIAL FOR HIGH PEAKS AHEAD.



# FORECASTING (4046)

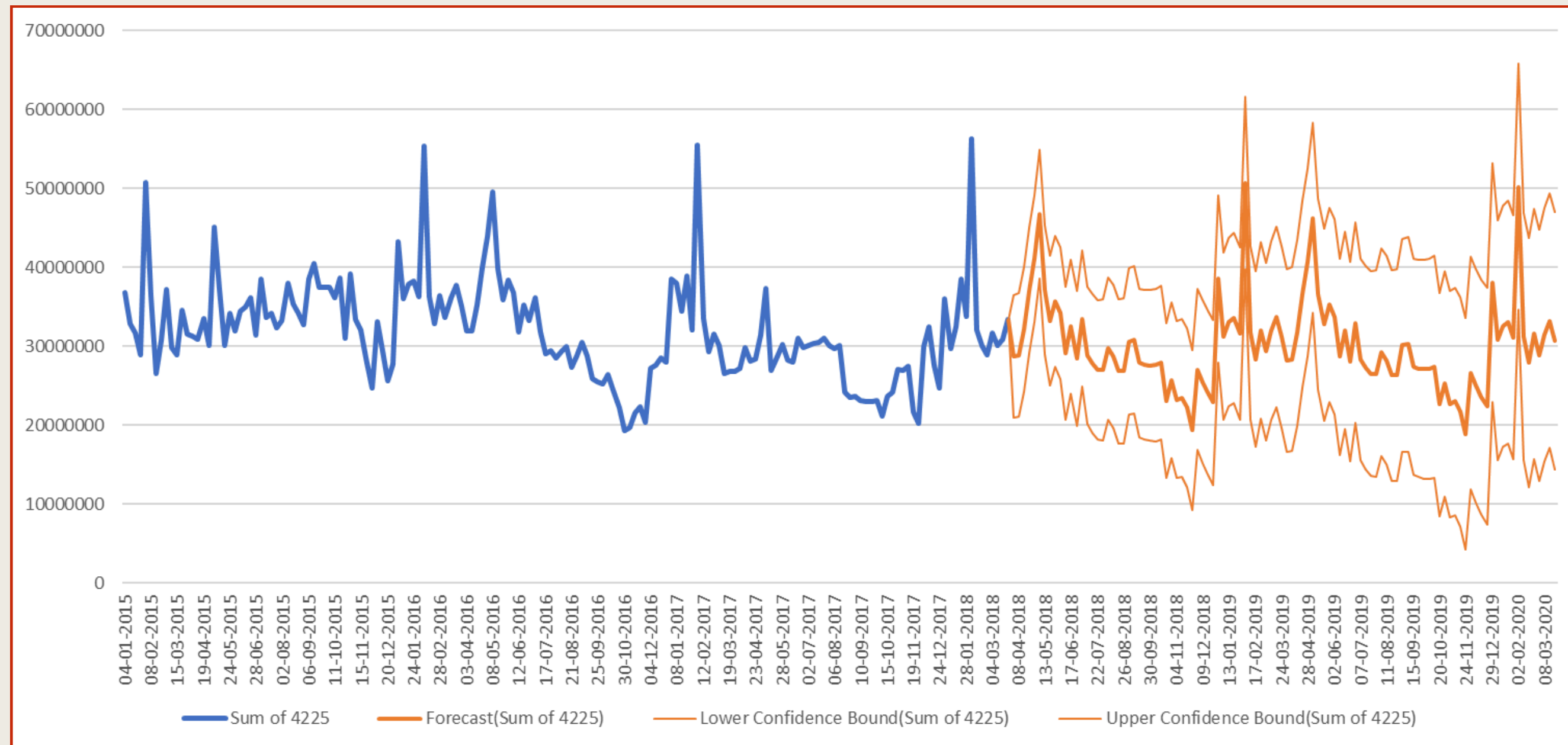
THE CHART DISPLAYS HISTORICAL AND FORECASTED CONVENTIONAL AVOCADO SALES VOLUME IN MILLIONS, REVEALING SEASONAL SPIKES AND STRONG FLUCTUATIONS OVER THE YEARS. FORECAST BANDS SUGGEST FUTURE VOLUMES MAY REMAIN VOLATILE, WITH THE POTENTIAL FOR HIGH PEAKS AHEAD.





# FORECASTING (4225)

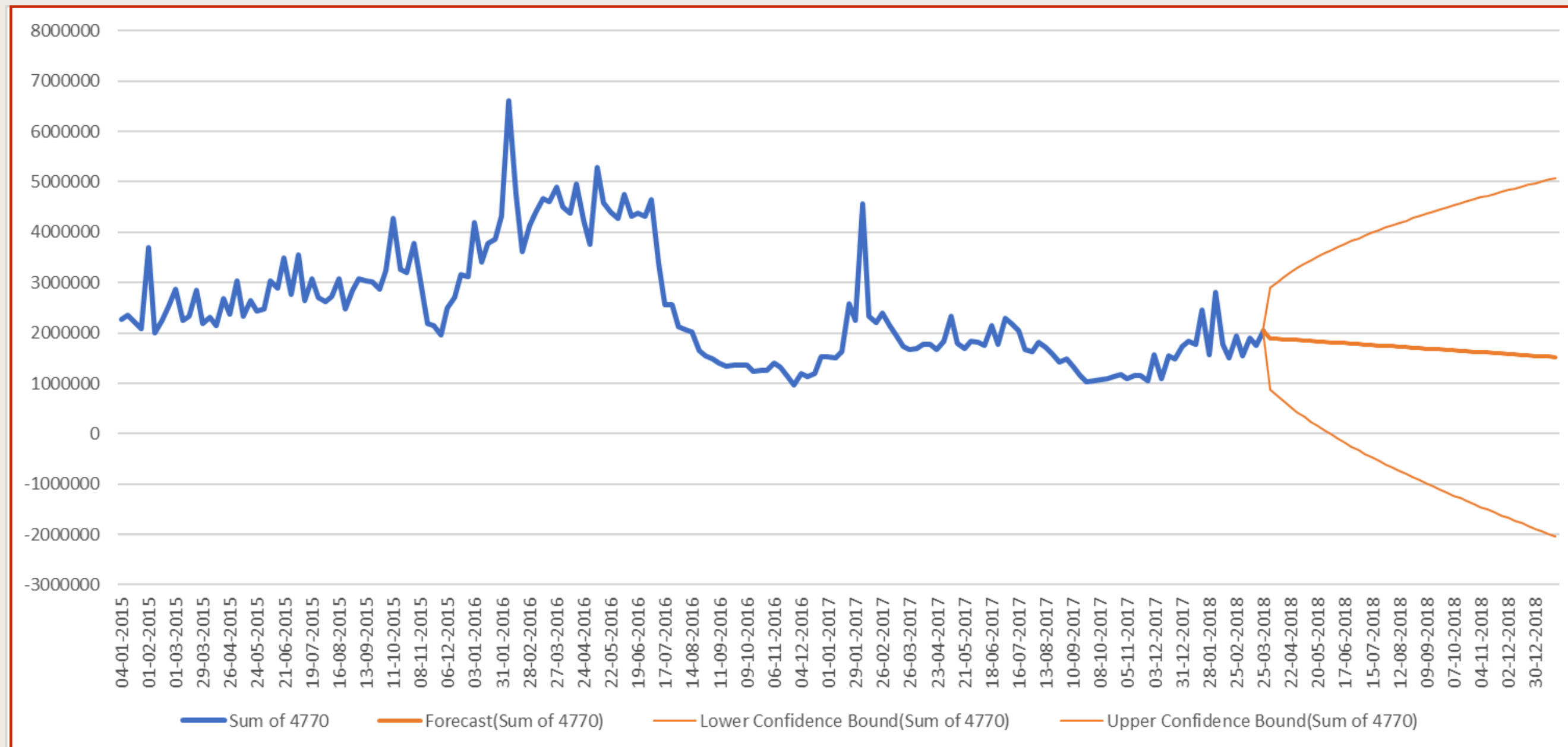
THE CHART SHOWS HISTORICAL AND FORECASTED SALES VOLUME FOR A SPECIFIC AVOCADO PRODUCT CODE, REVEALING FREQUENT SPIKES AND ONGOING VOLATILITY IN MILLIONS OF UNITS. FORECAST TRENDS SUGGEST SIGNIFICANT UNCERTAINTY AHEAD, WITH PROJECTED VALUES OSCILLATING WIDELY AROUND THE MEAN.





# FORECASTING (4770)

THIS CHART ILLUSTRATES HISTORICAL AND FORECASTED SALES VOLUME FOR A SPECIFIC AVOCADO SEGMENT, MEASURED IN MILLIONS, WITH PERIODS OF SHARP SPIKES AND SUBSEQUENT STABILIZATION. FORECAST LINES DIVERGE WIDELY, REFLECTING HIGH UNCERTAINTY ABOUT FUTURE SALES DIRECTIONS.



# ANNOVA SINGLE FACTOR

THE ANOVA RESULTS SHOW A STATISTICALLY SIGNIFICANT INCREASE IN AVERAGE SALES VOLUME AND A SIGNIFICANT DECREASE IN AVERAGE PRICE BETWEEN TWO TIME PERIODS. THIS MEANS THE MARKET IS SELLING MORE AVOCADOS OVER TIME, EVEN AS PRICES DROP, CONFIRMING MAJOR SHIFTS IN BUYING AND PRICING PATTERNS.

Anova: Single Factor					
SUMMARY					
Groups	Count	Sum	Average	Varianc	
Column	17	715088	42064	1249.5	
Column	17	13365280	786193	8350000	
ANOVA					
Source of	SS	df	MS	F	P-value F crit
Between	4710000000000	1	4710000	1127.554	0.000000 4.149097
Within Groups	1340000000000	32	4170000		
Total	4840000000000	33			

Anova: Single Factor					
SUMMARY					
Groups	Count	Sum	Average	Varianc	
Column	17	715088	42064	1249.5	
Column	17	23.11167	1.35951	0.001902	
ANOVA					
Source of	SS	df	MS	F	P-value F crit
Between	150000000000	1	1500000	2407160	0.000000 4.149097
Within Groups	19992.03	32	624.751		
Total	150000000000	33			

# COORELATIONS

CORRELATIONS NEAR ZERO (0.01,0.14,−0.19) SHOW ONLY WEAK RELATIONSHIPS IN YOUR DATA, WITH THE STRONGEST BEING A SLIGHT TENDENCY FOR HIGHER PRICES TO REDUCE SALES VOLUME. MOST OF YOUR KEY MARKET INDICATORS HAVE NOT STRONGLY SHIFTED IN PREDICTABLE PATTERNS OVER TIME, BASED ON THESE CORRELATION VALUES. VARIETIES ARE NOT MOVING INDEPENDENTLY—ANY FACTOR AFFECTING ONE (LIKE PROMOTIONS, SEASONALITY, OR SUPPLY SHOCKS) IS LIKELY INFLUENCING THE OTHERS IN THE SAME DIRECTION.

	<i>Date</i>	<i>Avg Price</i>	<i>Volume</i>
Date	1		
Avg Price	0.145514	1	
Volume	0.009263	-0.19275	1

	<i>7046</i>	<i>7225</i>	<i>4770</i>
7046	1		
7225	0.92611	1	
4770	0.833389	0.887855	1

# SOLUTION STATEMENT

LOWEST AVERAGE PRICE OF AVOCADO					HIGHEST PRODUCTION OF AVOCADO					LOWEST AVG PRICE WITH HIGHEST PRODUCTION REGIONS (TOP 3)	
YEAR	2015	2016	2017	2018	YEAR	2015	2016	2017	2018	SOUTH CENTRAL	
AVERAGE PRICE	0.49	0.51	0.44	0.56	PRODUCTION	1053997	1198679	1637554	1272039	LOS ANGELES	
REGION	PHOENIX TUCSON	PHOENIX TUCSON	CINCINNATI DAYTON	HOUSTON	REGION	WEST TEXAS NEW MEXICO	WEST TEXAS NEW MEXICO	WEST TEXAS NEW MEXICO	WEST TEXAS NEW MEXICO	HOUSTON	
	FORECASTING OF PRICING (CONVENTIONAL)		FORECASTING OF PRICING (ORGANIC)			FORECASTING OF PRODUCTION (4046)		FORECASTING OF PRODUCTION (4225)		FORECASTING OF PRODUCTION (4770)	
YEAR	2019-2020		2019-2020		YEAR	2019-2020		2019-2020		2019-2020	
AVERAGE PRICE (MIN)	0.98		1.43		MINIMUM VOLUME	26117396		19379053		1537843	
AVERAGE PRICE (MAX)	1.48		1.94		MAXIMUM VOLUME	50835237		50679864		1867234	
TRENDS IN THE AVOCADO INDUSTRY											
VARIETIES ARE NOT MOVING INDEPENDENTLY. ONE IS LIKELY INFLUENCING THE OTHERS IN THE SAME DIRECTION.						CORRELATIONS NEAR ZERO SHOW ONLY WEAK RELATIONSHIPS BETWEEN VOLUME AND AVG PRICE.					
MOST OF KEY MARKET INDICATORS HAVE NOT STRONGLY SHIFTED IN PREDICTABLE PATTERNS OVER TIME, BASED ON CORRELATION VALUES.						THE MARKET IS SELLING MORE AVOCADOS OVER TIME, EVEN AS PRICES DROP, CONFIRMING MAJOR SHIFTS IN BUYING AND PRICING PATTERNS.					