

# SPILLING THE BEANS ON TRADE COFFEE



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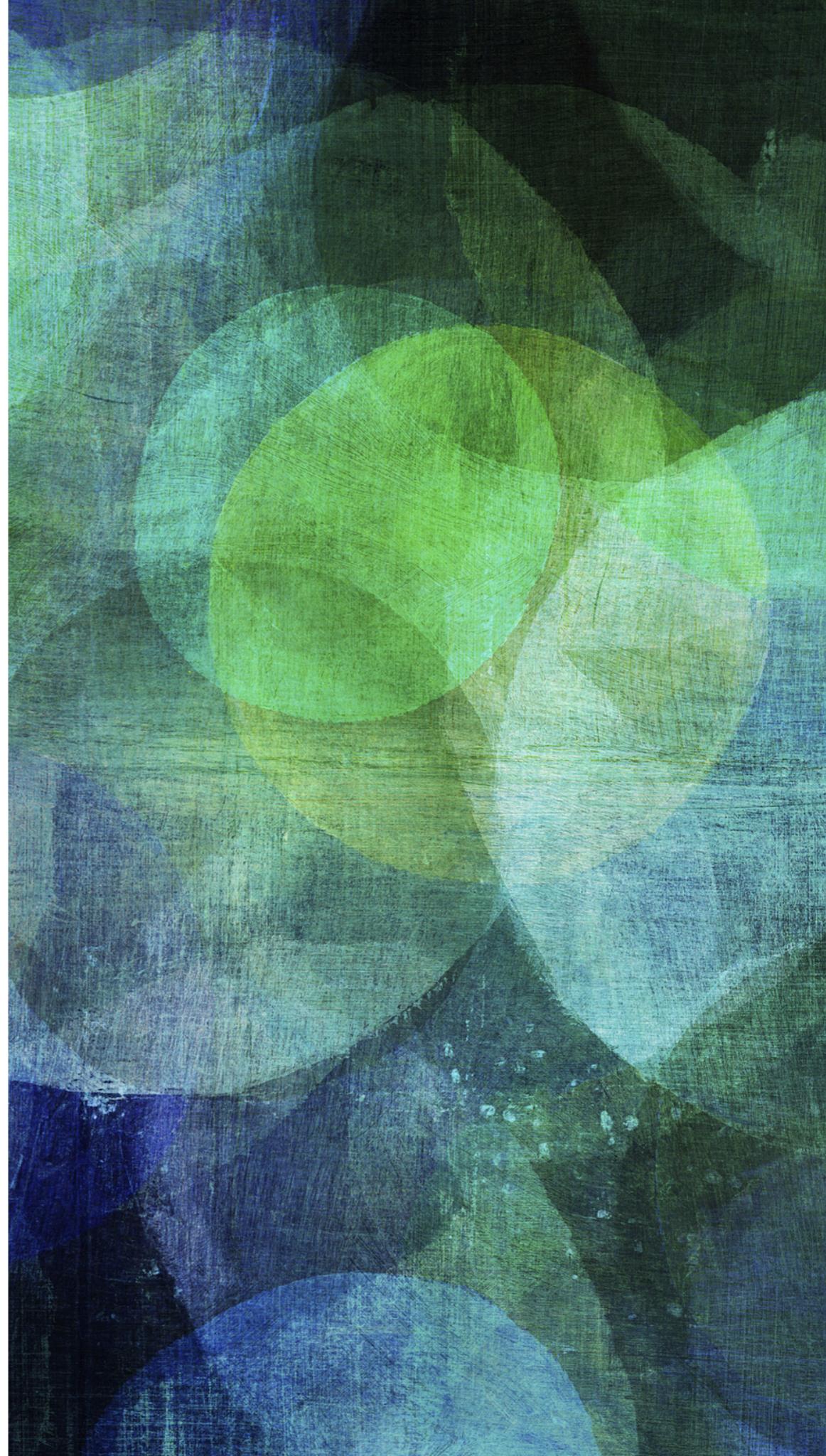
# OUTLINE

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- Background
  - Coffee Consumption in the US
  - Specialty Coffee and the Third Wave
- Trade Coffee
- Web Scraping Trade Coffee
- Data Processing and Analysis
- Insights and Observations
- Conclusions

# COFFEE

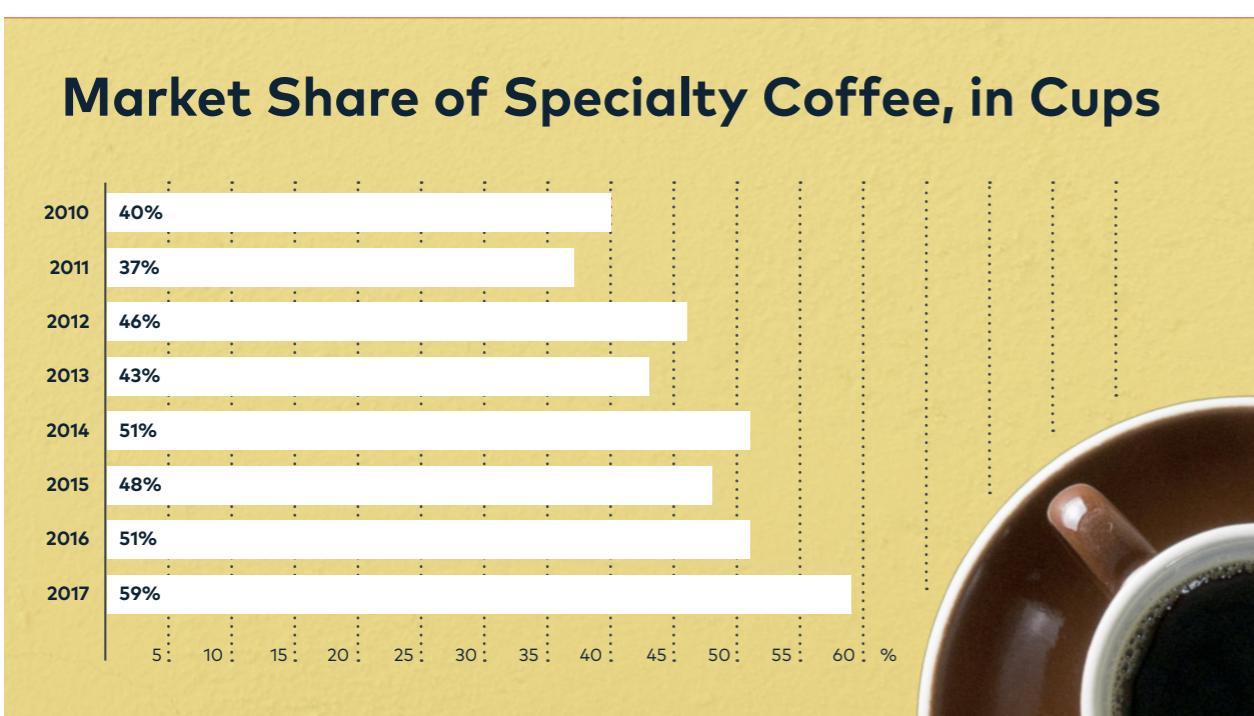
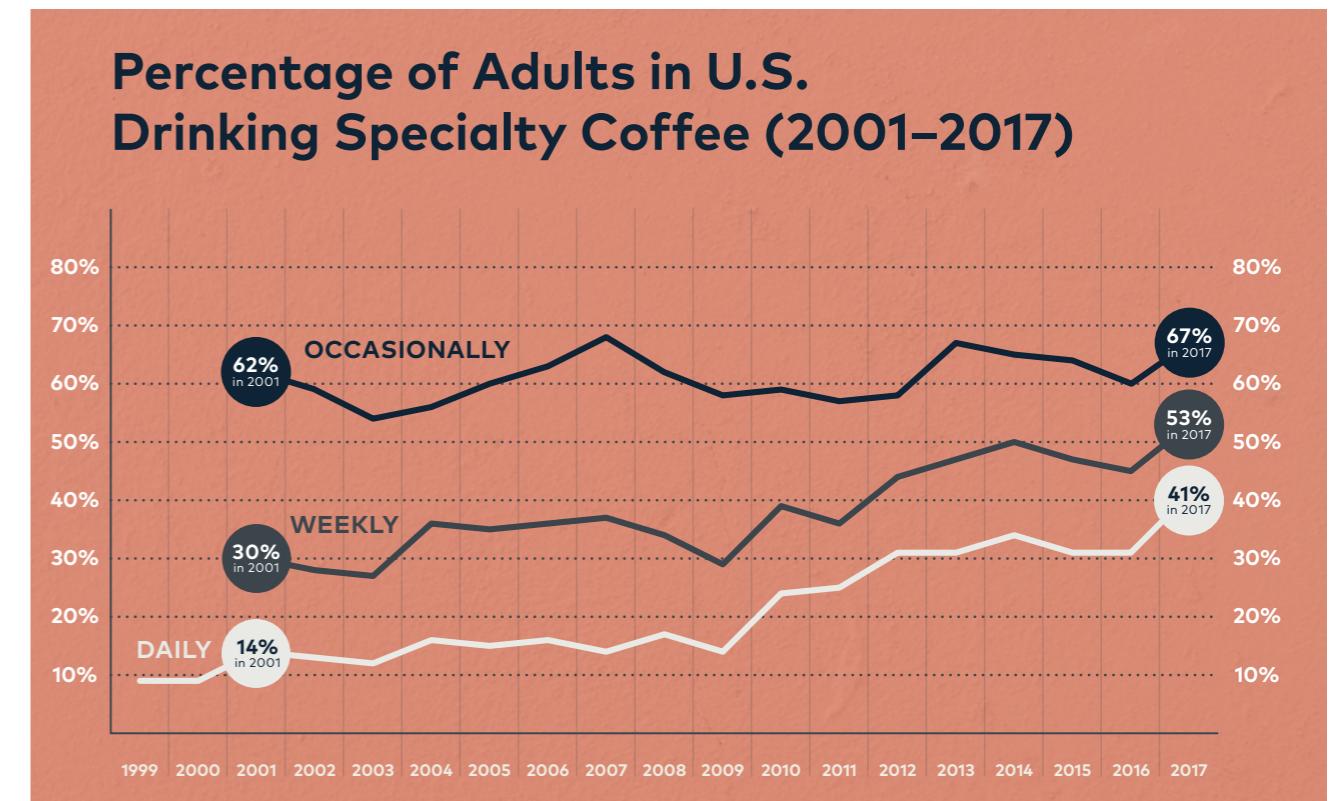
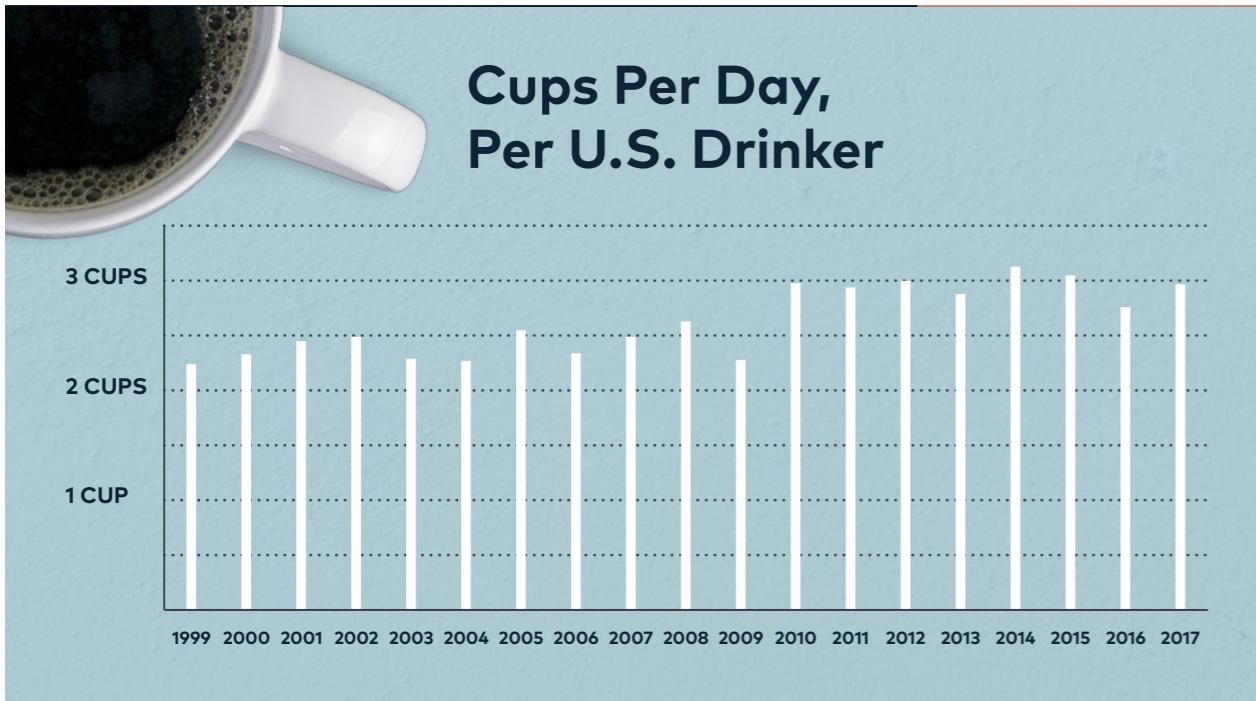
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# US COFFEE CONSUMPTION



## 2017 U.S. Specialty Coffee Consumption Trends



- Average Price in the US: \$3.12
- Starbucks: \$1.95 to \$2.15
- Most expensive: \$18 at Extraction Lab in Brooklyn, NY

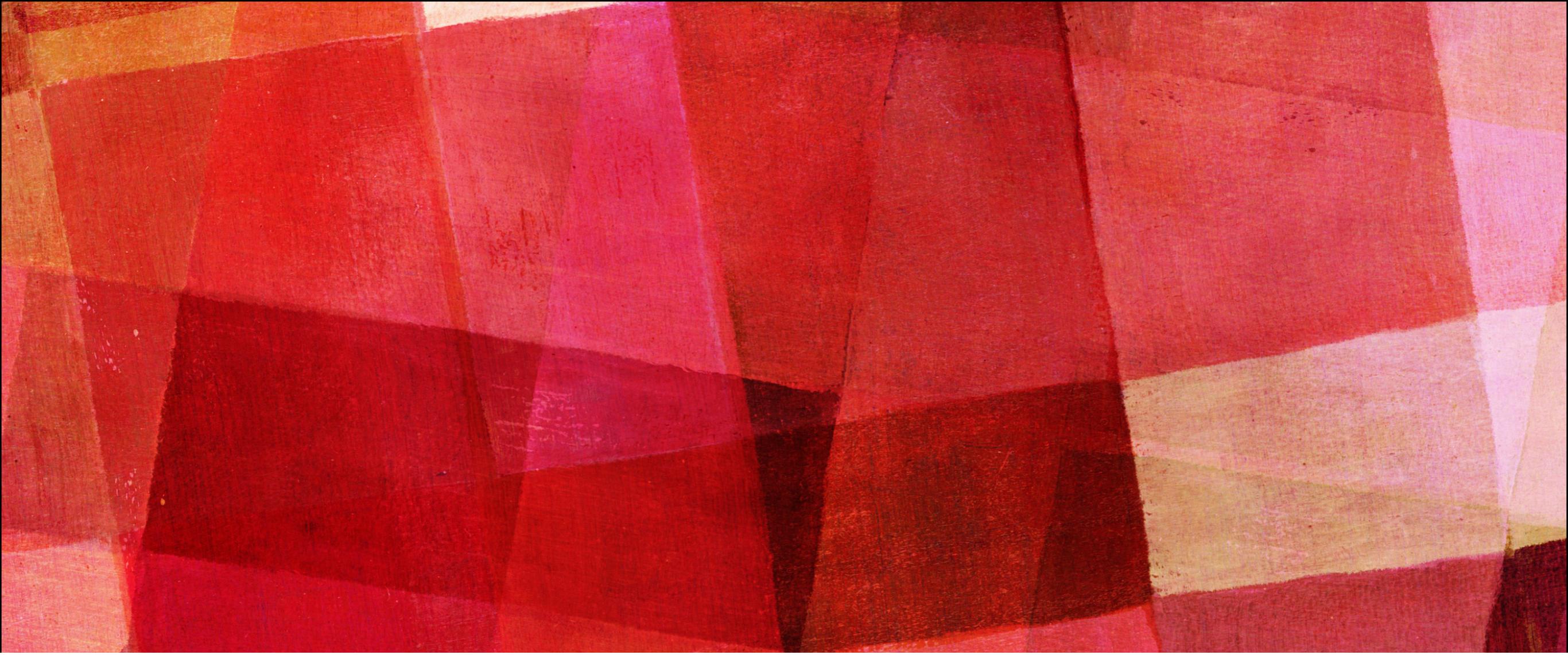
Source: UBS, Eater.com

# SPECIALTY COFFEE AND THE THIRD WAVE

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- The journey from bean to cup is very important.
  - From where and how the coffee beans are grown and harvested
  - Processing from cherry to green bean
  - Roasters
  - Consumer
- Single Origin Coffees
  - grown within a single known geographic origin





**TRADE COFFEE**

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# WHAT IS TRADE?

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- Partner with craft coffee roasters across America
- Better coffee at home.
- Offer a curated collection of seasonal, freshly roasted-to-order coffees.
- **seasonal** coffees with exceptional taste, ethically sourced from respected farmers and producers
- deliver the highest quality, premium freshness

# WHAT IS TRADE?

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# WHY TRADE?

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- Is TRADE a good resource for procuring and learning about coffee?
- Do they truly offer a diverse selection of coffees that can appeal to different tastes, price points?
- Will it satisfy both the needs of the seasoned coffee enthusiast and coffee novices?
- Is it a good jump off point for those interested in getting into specialty coffee?



# WHY TRADE?

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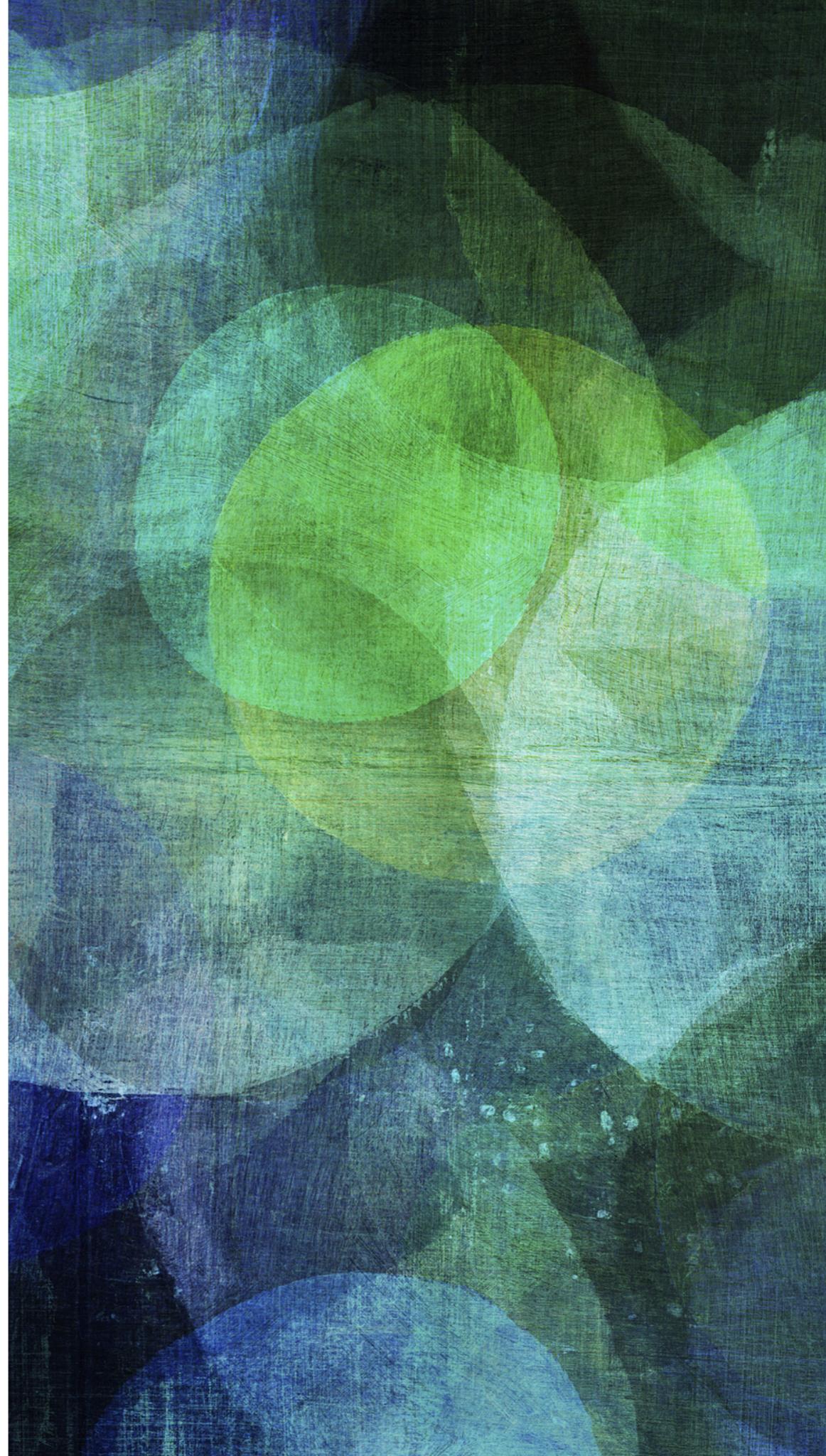
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# LET'S GET CAFFEINATED

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*Web Scraping with Selenium*



# WHERE IT ALL BEGAN: THE FIRST PAGE

A screenshot of a web browser displaying the homepage of drinktrade.com. The URL 'https://www.drinktrade.com/coffee/all-coffee' is highlighted with a red box. The page features a large, bold title 'Top-Rated Specialty Coffee'. Below the title is a subtext: 'Our 400+ specialty coffees come from the best in the nation and are roasted fresh only when you place your order! So whether you take it whole or ground, decaf or full throttle, your top-rated coffee is guaranteed a winner.' On the left, there's a 'Filter' section with dropdown menus for 'Price' and 'Roast Level'. On the right, there's a 'Sort' section with a dropdown menu set to 'Relevance'. The main content area shows three coffee products: 'Ouills' (whole bean coffee), 'Birds of a Feather' (whole bean coffee), and 'Red Bull' (ground coffee). The 'Birds of a Feather' product has a small image of a bird.

# Top-Rated Specialty Coffee

Our 400+ specialty coffees come from the best in the nation and are roasted fresh only when you place your order! So whether you take it whole or ground, decaf or full throttle, your top-rated coffee is guaranteed a winner.

Filter

Clear

458 Coffees

Sort

Relevance

Price

+

Roast Level

+

Ouills



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# Top-Rated Specialty Coffee

Our 400+ specialty coffees come from the best in the nation and are roasted fresh only when you place your order! So whether you take it whole or ground, decaf or full throttle, your top-rated coffee is guaranteed a winner.

Filter

Clear

458 Coffees

Sort

Relevance

Price

+

Roast Level

+

Ouills



# THE SITE: ELEMENTS OF INTEREST

.....

- Name
- Roaster
- Single Origin/Blend
- Price
- Flavor notes, Descriptors
- Origin
- Varietal
- Roast Level

Tarrazu Vienna | George Howell x +  
https://www.drinktrade.com/tarrazu-vienna/p/783

Trade Coffee Roasters Equipment How-To's GET MATCHED

Coffee > Single Origins > George Howell > Tarrazu Vienna

**George Howell**  
**Tarrazu Vienna**  
**\$14.00 | 12 oz.**

Enjoy this classic cup of coffee from a master among roasters. Rich, bittersweet caramel with dark chocolate undertones make this one worth savoring.

Quantity More  
1 2 3

Grind Whole Ground  
Unavailable

**Roasting Schedule**  
**Roasts On Wednesday**  
Sun Mon Tue Wed Thur Fri Sat

**Trade Roast Level** ⓘ  
**Medium-Dark Roast**

**Taste**  
**Chocolatey & Sweet**  
A classic expression of Costa Rica with hints of Milk Chocolate and Nut

**Details**

**Tarrazu Vienna**

Process: Washed Sub Region: Tarrazu Harvest Time: January 2018

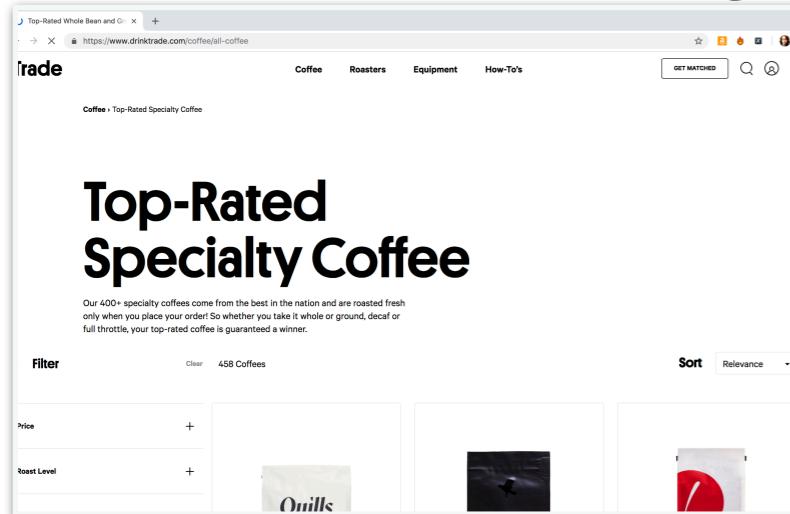
Elevation: 1190 - 1890 Varietal: Caturra & Catuai

**Roaster's Notes**

Tarrazu is a land of small farmers in a tumultuous landscape of lush green peaks, some rising over 10,000 feet, and valleys. The climate has well defined seasons: the long dry season, from December to April, coincides perfectly with the coffee harvest, leading to very even, full ripening - ideal for preparing quality coffee. Rich, bittersweet caramel with dark chocolate undertones and a whisper of citrus.

# FROM BEAN TO CUP... HOW I GOT MY DATA...

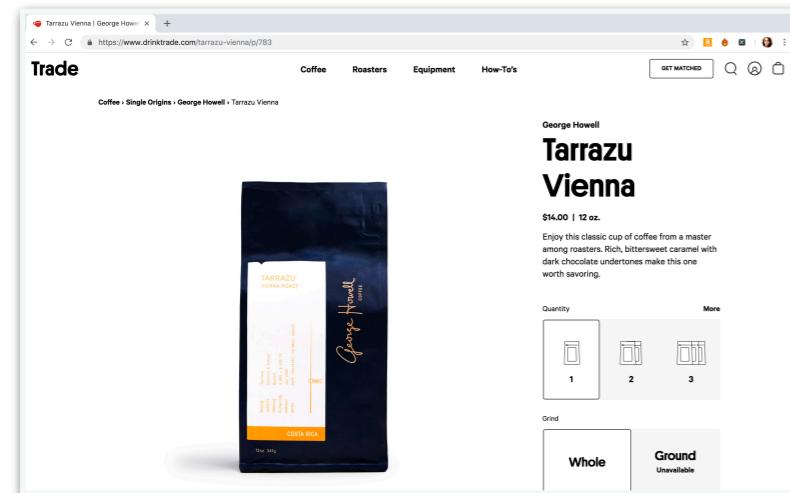
*Start: Main Product Page*



The screenshot shows a web browser displaying the Drink Trade website at <https://www.drinktrade.com/coffee/all-coffee>. The page title is "Top-Rated Specialty Coffee". A sub-header states: "Our 400+ specialty coffees come from the best in the nation and are roasted fresh only when you place your order! So whether you take it whole or ground, decaf or full throttle, your top-rated coffee is guaranteed a winner." Below this, there are filter options for "Price" and "Roast Level", both with a "+" sign to expand. The main content area shows a grid of coffee products, with one item labeled "Ovillo" visible.

*How many products are available?  
Categories?*

*Individual Product Page*



The screenshot shows a web browser displaying the Drink Trade website at <https://www.drinktrade.com/tarrazu-vienna/p/783>. The page title is "Tarrazu Vienna | George Howell". It features a product image of a bag of Tarrazu Vienna coffee, with a detailed description: "George Howell Tarrazu Vienna \$14.00 | 12 oz. Enjoy this classic cup of coffee from a master among roasters. Rich, bittersweet caramel with dark chocolate undertones make this one worth savoring." Below the description are dropdown menus for "Quantity" (1, 2, 3) and "Grind" (Whole, Ground Unavailable).

*All you need to know about the Coffee!  
Basic: name, price, flavor profile, roaster  
Detailed: varietal, elevation, subregion, producer, harvest*

# FROM BEAN TO CUP... HOW I GOT MY DATA

---

Scrape the Web Page



Attempt # 1: Scrapy - FAIL

- hidden elements
- dynamic webpage
- incomplete web scraping

Attempt # 2: Selenium - SUCCESS!

- challenge: non unique XPaths... which led to challenges downstream

	name	roaster	descriptor	price	weight	location	roasternotes	blend_single	roastlevel	classification	flavornotes	extra
0	71 House	Irving Farm	This signature House Blend was crafted as the ...	\$14.75	12 oz.	New York, NY	Our signature House Blend was created as the h...	Blends	Medium Roast	Sweet & Smooth	A traditional base with hints of Milk Chocolate...	[{'Process': 'Washed', 'Varietal': 'Bourbon, Ca...']
1	Costa Rica Santa Maria	Huckleberry	Smooth, lush, and clean, with soft apple acidity...	\$17.00	12 oz.	Denver, CO	Santa Maria is back in Huckleberry's lineup, h...	Single Origins	Light-Medium Roast	Chocolatey & Sweet	A classic expression of Costa Rica with hints ...	[{'Process': 'Washed', 'Sub Region': 'San Jose'}]
2	Ad Astra Signature Blend	PT's	If your coffee substitutes as breakfast, this ...	\$17.50	12 oz.	Topeka, KS	Ad Astra is a very heavy, dark roasted blend o...	Blends	Medium-Dark Roast	Comforting & Rich	Nostalgic with hints of Milk Chocolate and Swe...	[{'Process': 'Washed, Pulp Natural', 'Varieta...']

# FROM BEAN TO CUP... HOW I GOT MY DATA

---

Scrape the Web Page



Clean Data

- duplicate entries, remove
- Convert into proper data types
- Convert prices/weights into same units
- From 470 products down to 452 coffees

	<b>name</b>	<b>roaster</b>	<b>descriptor</b>	<b>price</b>	<b>weight</b>	<b>location</b>	<b>roasternotes</b>	<b>blend_single</b>	<b>roastlevel</b>	<b>classification</b>	<b>flavornotes</b>	<b>extra</b>
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# FROM BEAN TO CUP... HOW I GOT MY DATA

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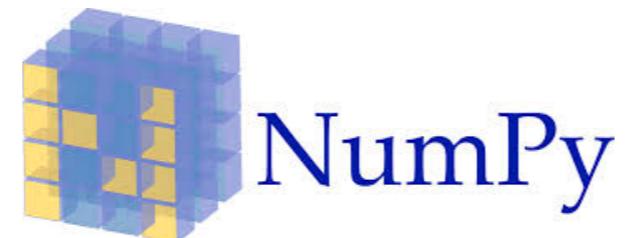
Scrape the Web Page



Clean Data

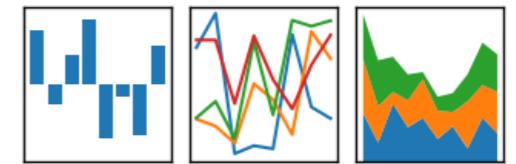


Analyze and Visualize Data



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$

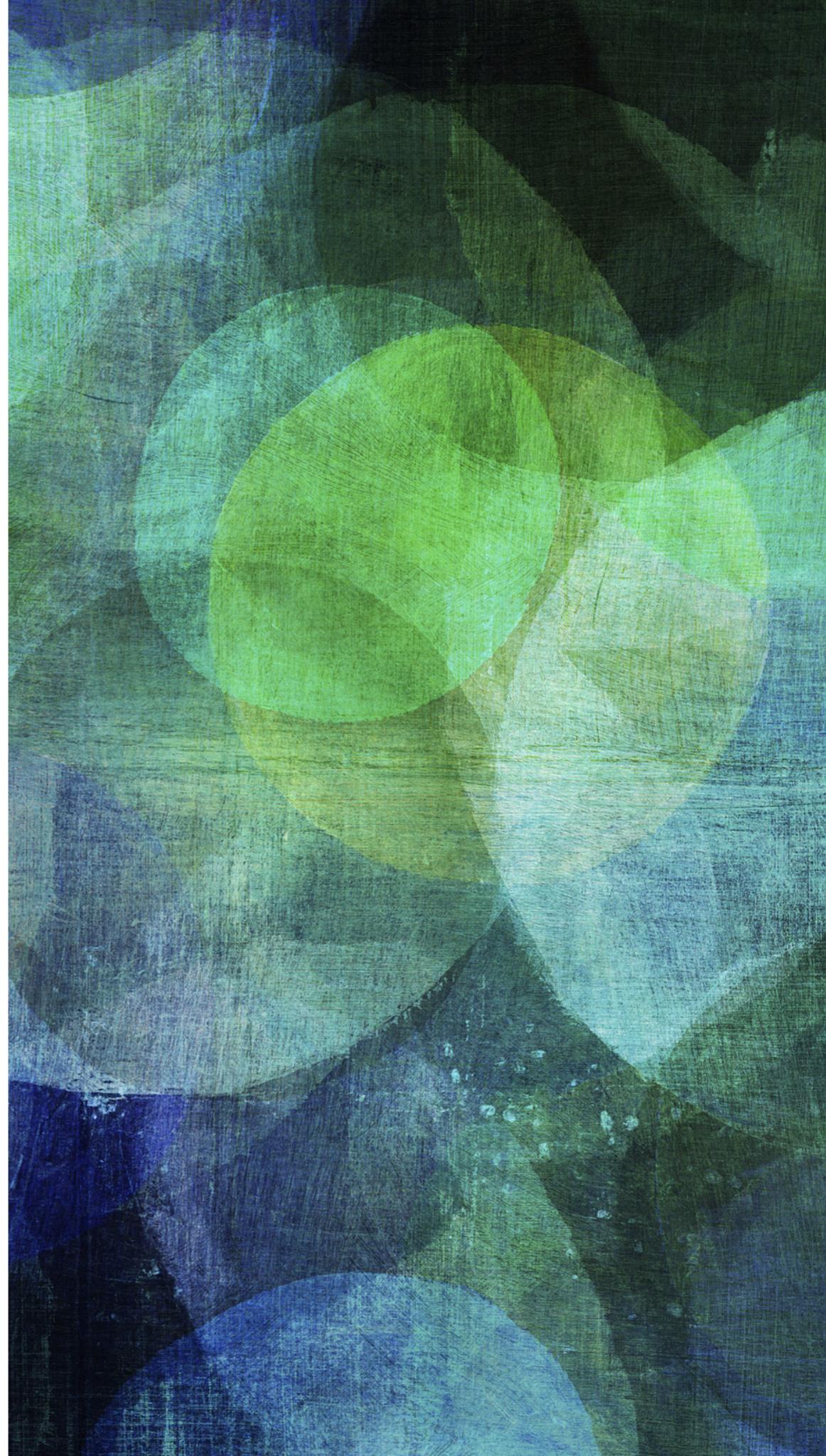


- Look for patterns, relationships
  - Single Origin vs Blend
- Average, max, min product price
- Create plots and charts
- NLP analysis on descriptions, flavor profile

# WHAT'S THE BUZZ

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*What did we find about Trade?*



# COFFEE PRICES

- 51 Roasters
- 39 Cities
- 14 Classifications
- 261 Single Origins
- 209 Blends

Most Roaster S	location	
Oakland, CA	3	
Seattle, WA	3	
Chicago, IL	3	
Portland, OR	2	
Philadelphia, PA	2	
New York, NY	2	

Most Beans	beans	
Chicago, IL	33	
Lancaster, PA	28	
Philadelphia, PA	26	
Seattle, WA	25	
Denver, CO	21	
New York, NY	20	

*Brew Recipe (1:15 ratio):*

*20 g freshly ground coffee*

*300 mL water*

\* *Yield: 250 mL of great tasting coffee*

Most Products

PASSENGER  
COFFEE ROASTERS

28

# COFFEE PRICES

---

- 51 Roasters
- 39 Cities
- 14 Classifications
- 261 Single Origins
- 209 Blends

*Brew Recipe (1:15 ratio):*

*20 g freshly ground coffee*

*300 mL water*

\* *Yield: 250 mL of great tasting coffee*

*Most expensive*



*Fruity & Crisp*

PASSENGER  
**Gesha Village 2016 Dry Process**  
\$85.00 | 10 oz.

*\$ 85.00 for 10 oz.*

*\$ 6.00 per cup*

*Least expensive*



*Comforting & Rich*

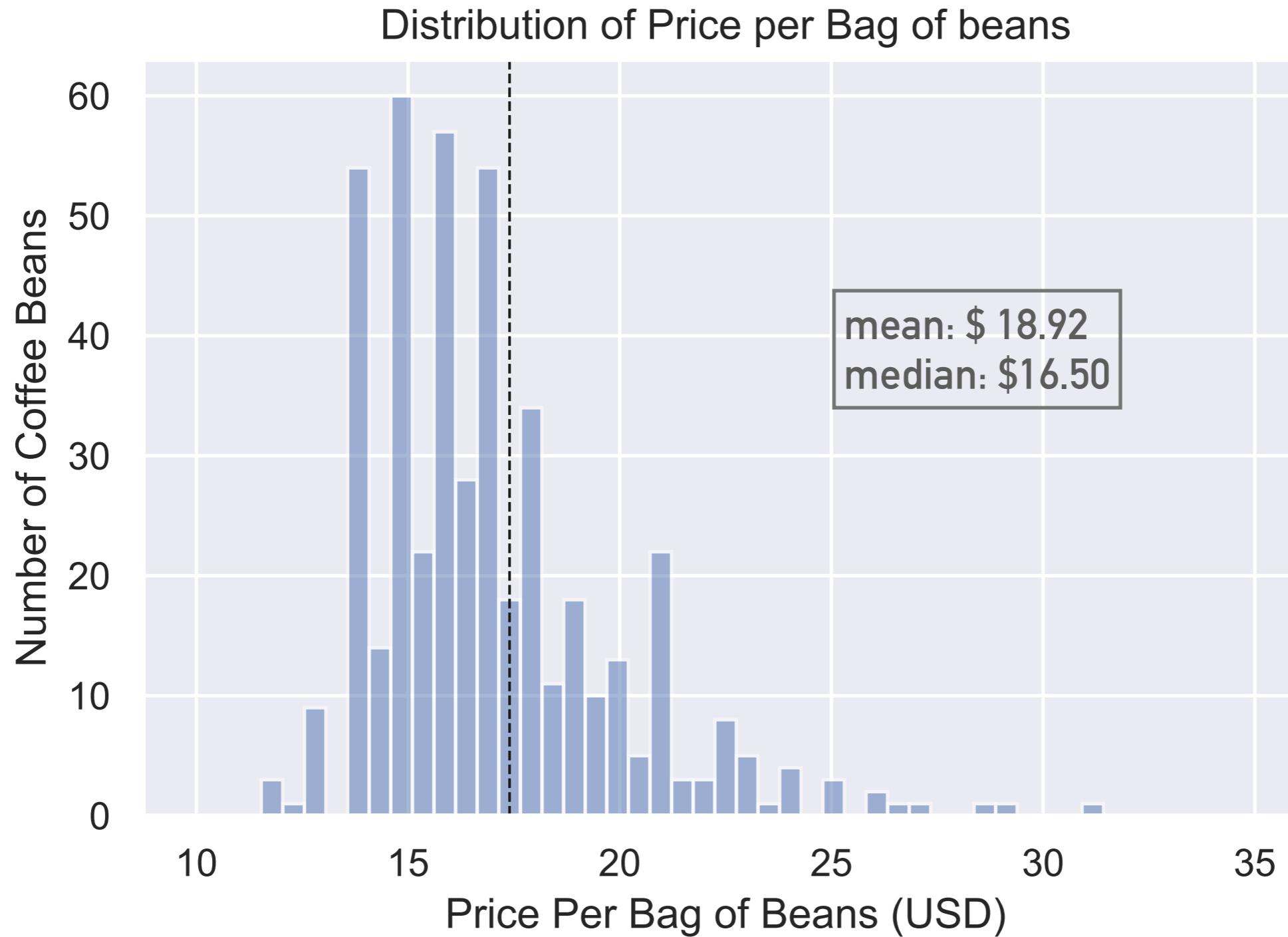
ANODYNE  
**Milwaukee Rockstar Blend**  
\$14.45 | 16 oz.

*\$ 14.45 for 16 oz.*

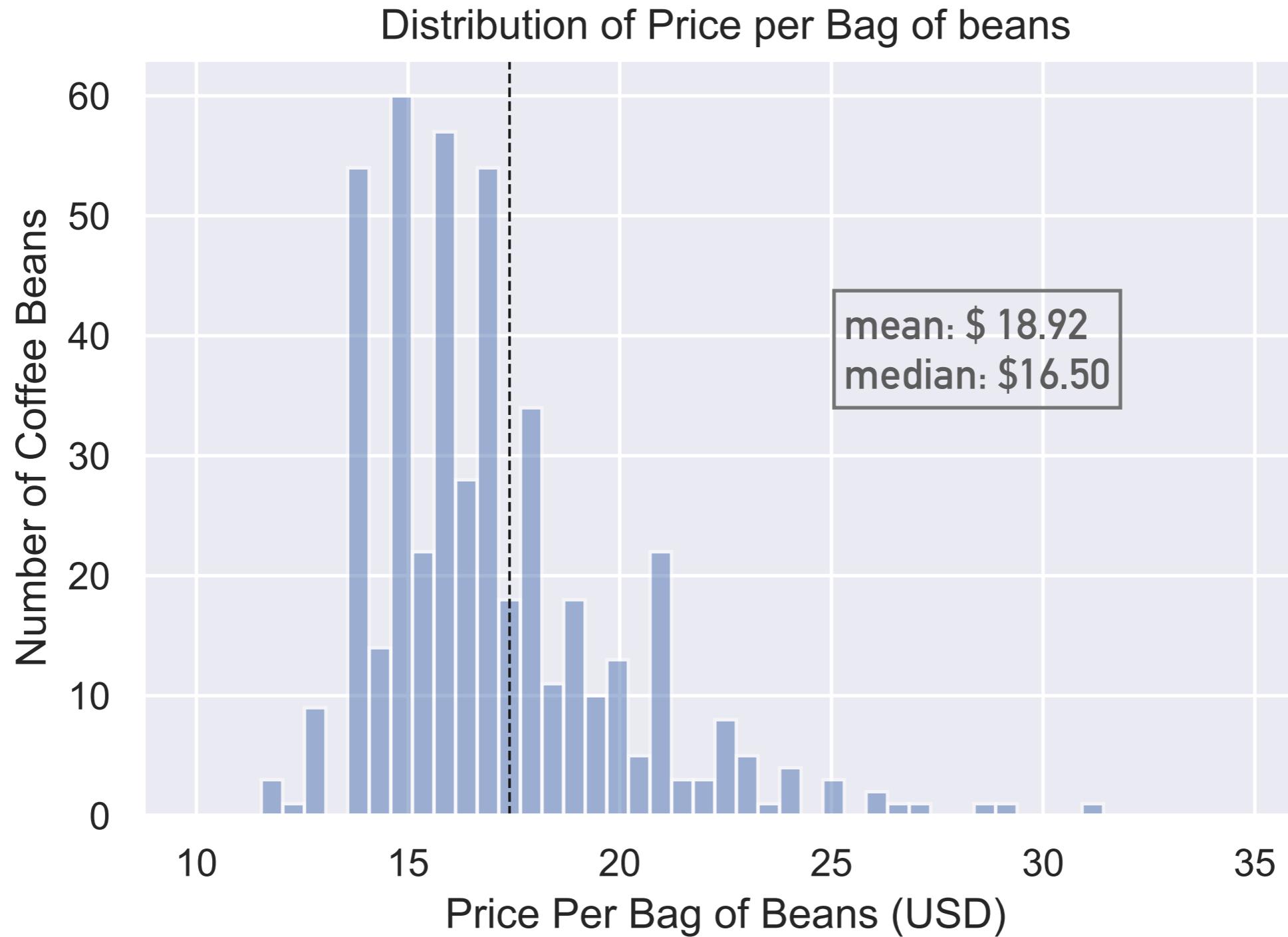
*\$ 0.64 per cup*

*\*20 g or 0.71 oz. of beans per cup of coffee*

# PRICE PER BAG

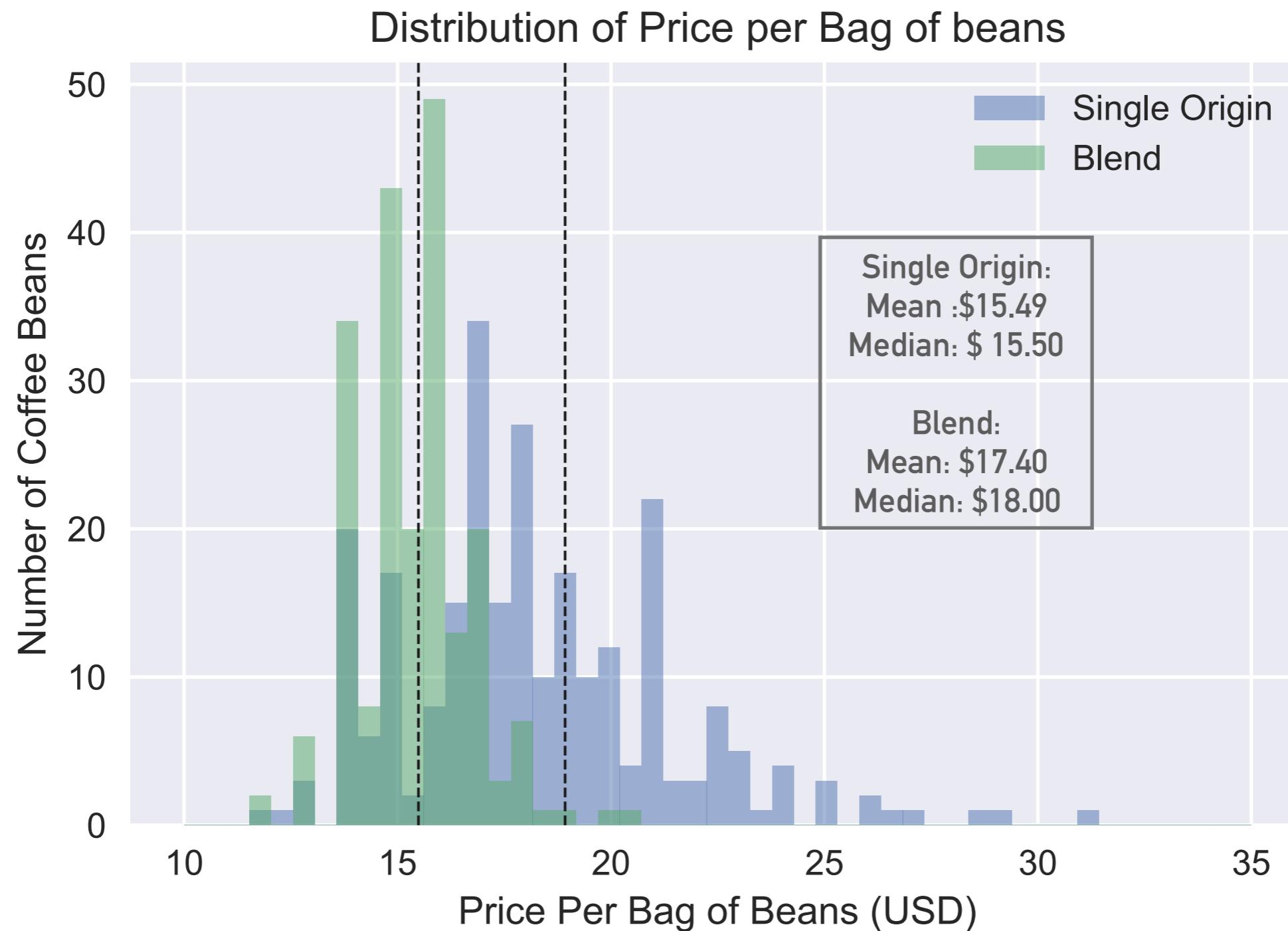


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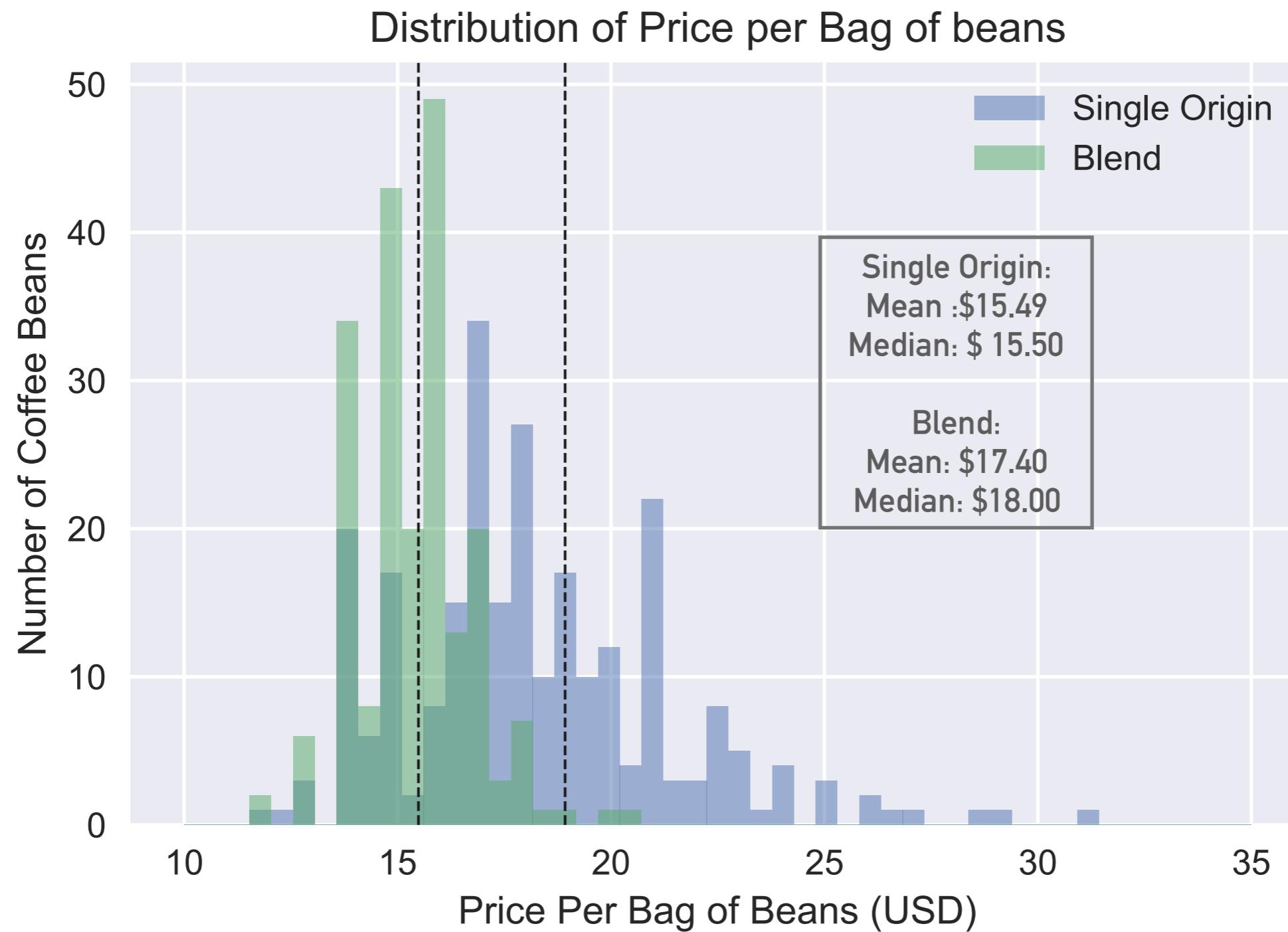
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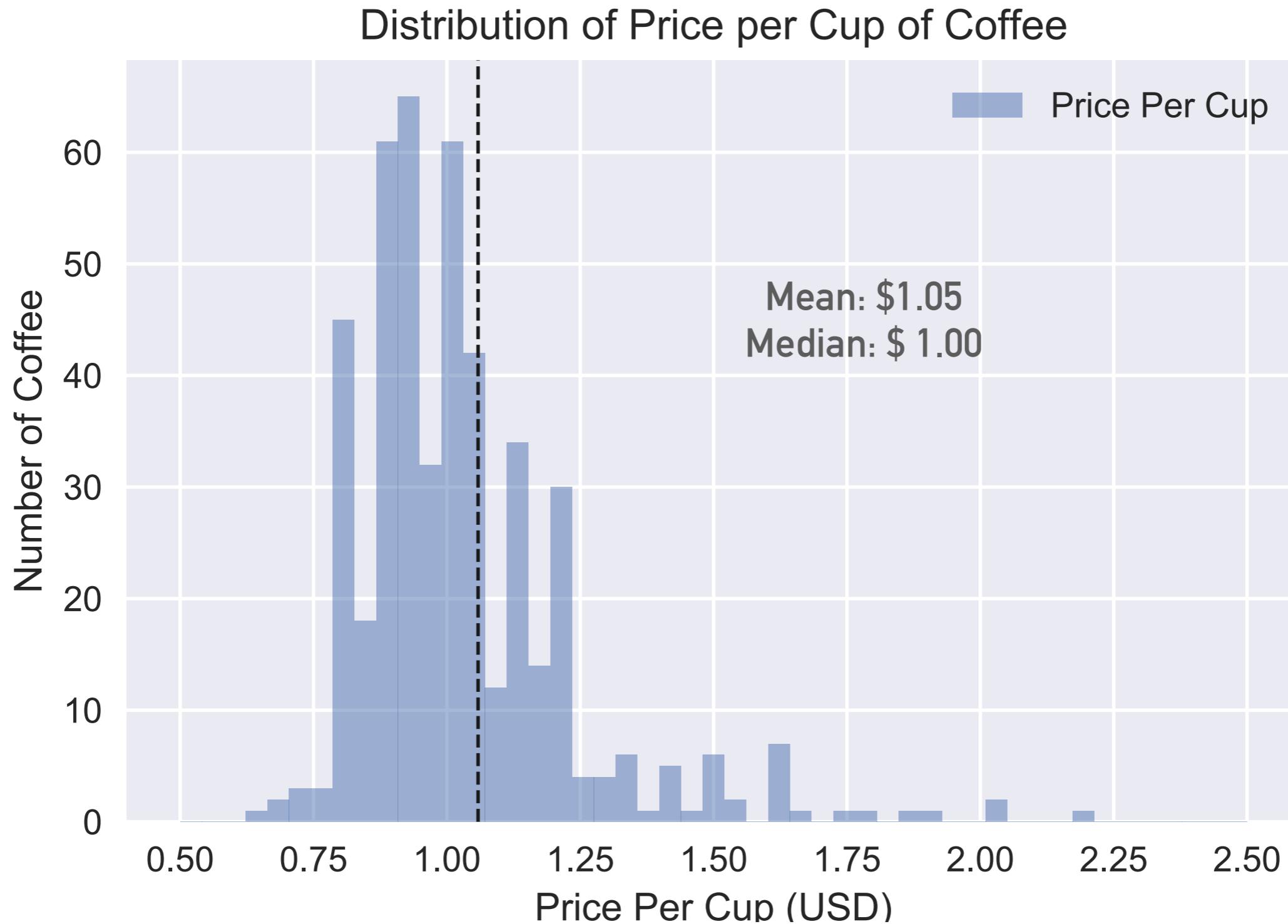


# PRICE PER BAG

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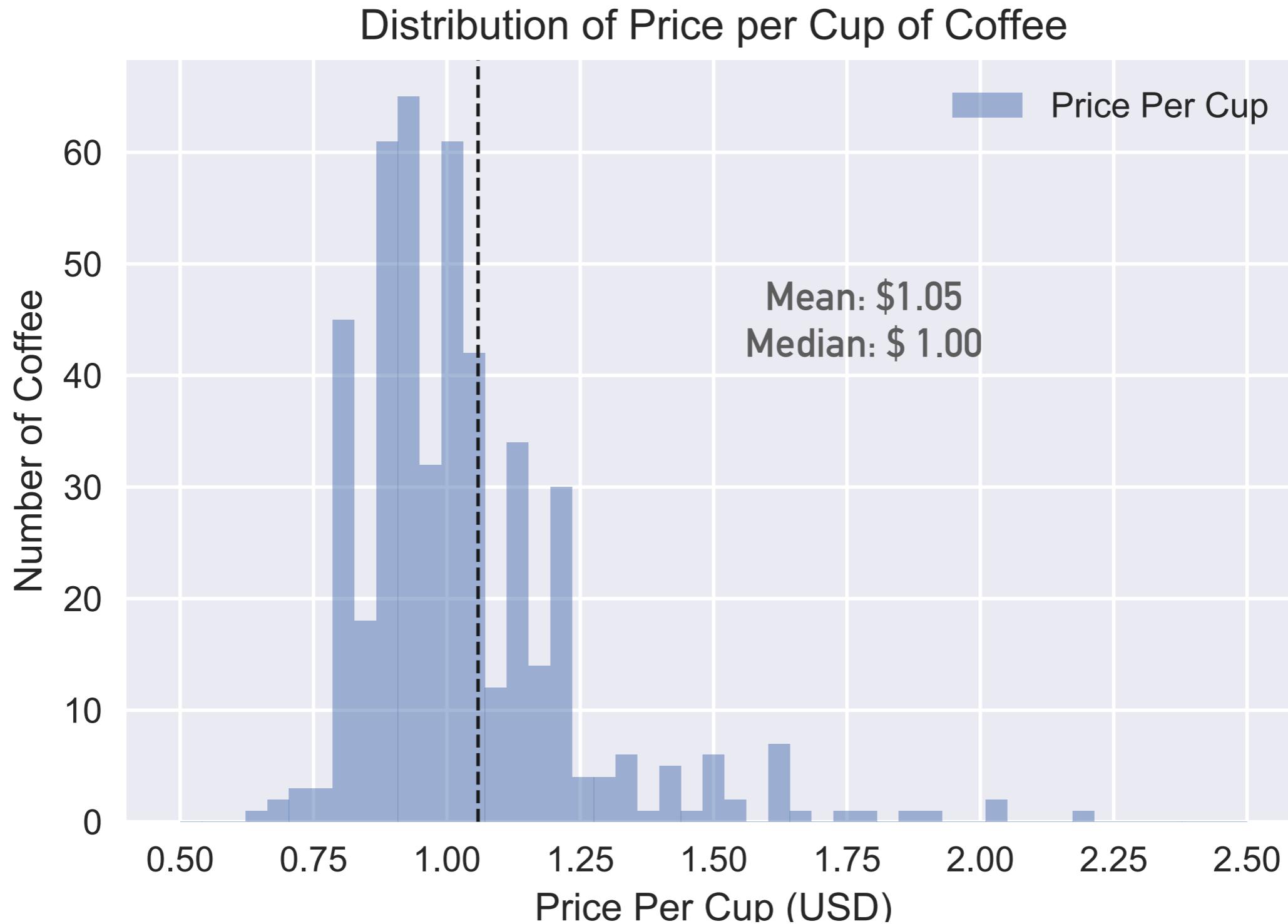


# PRICE PER CUP



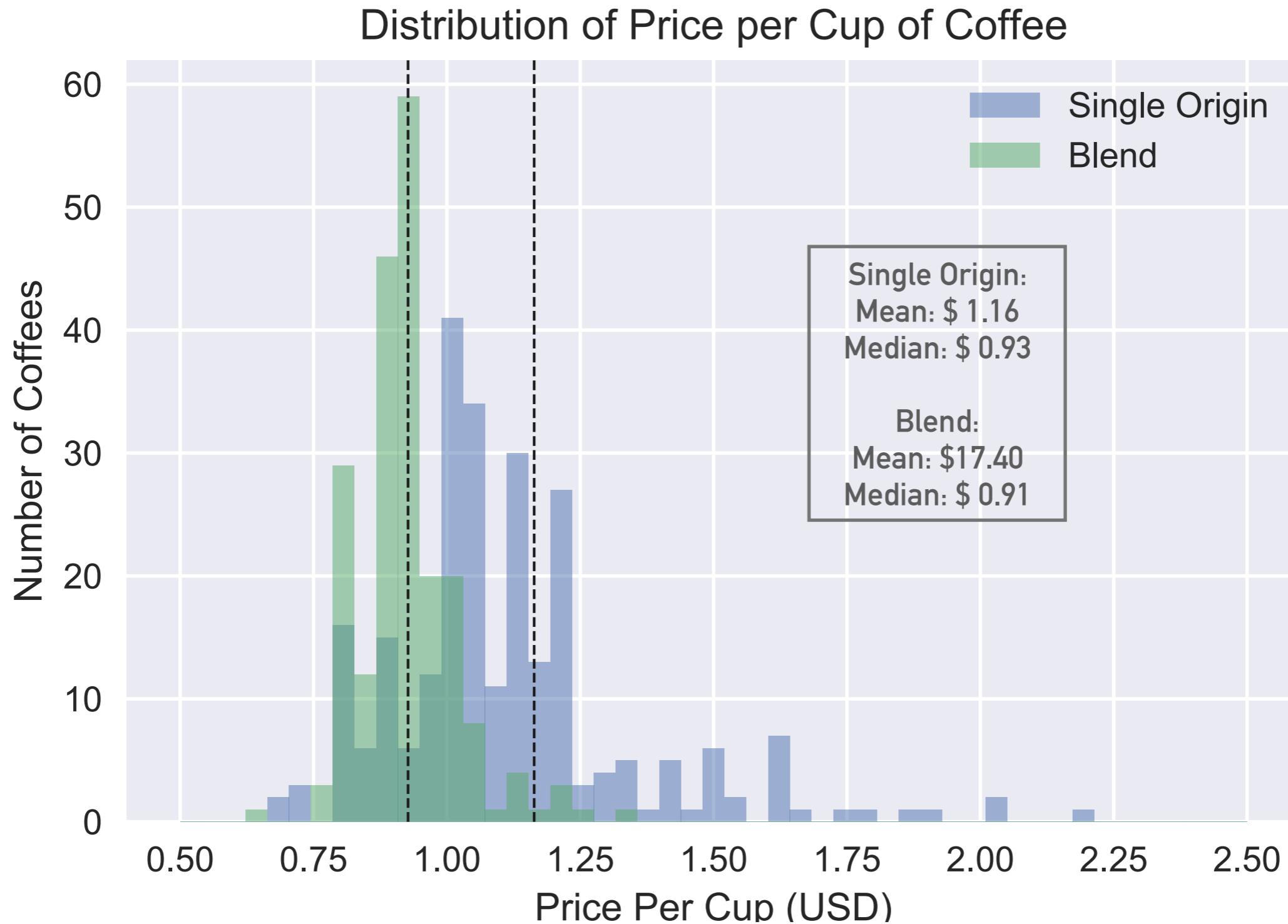
20 g or 0.71 oz. of beans per cup of coffee

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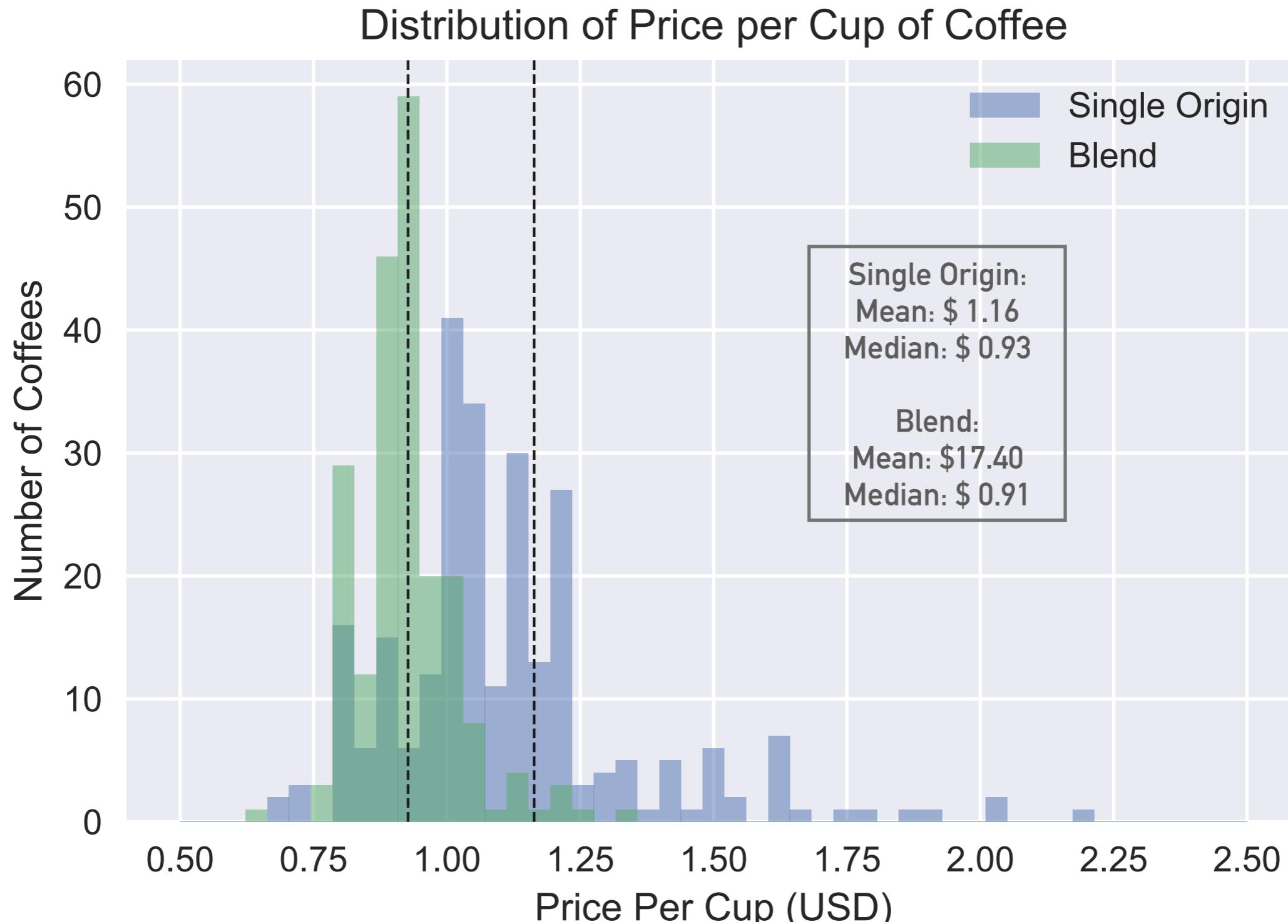
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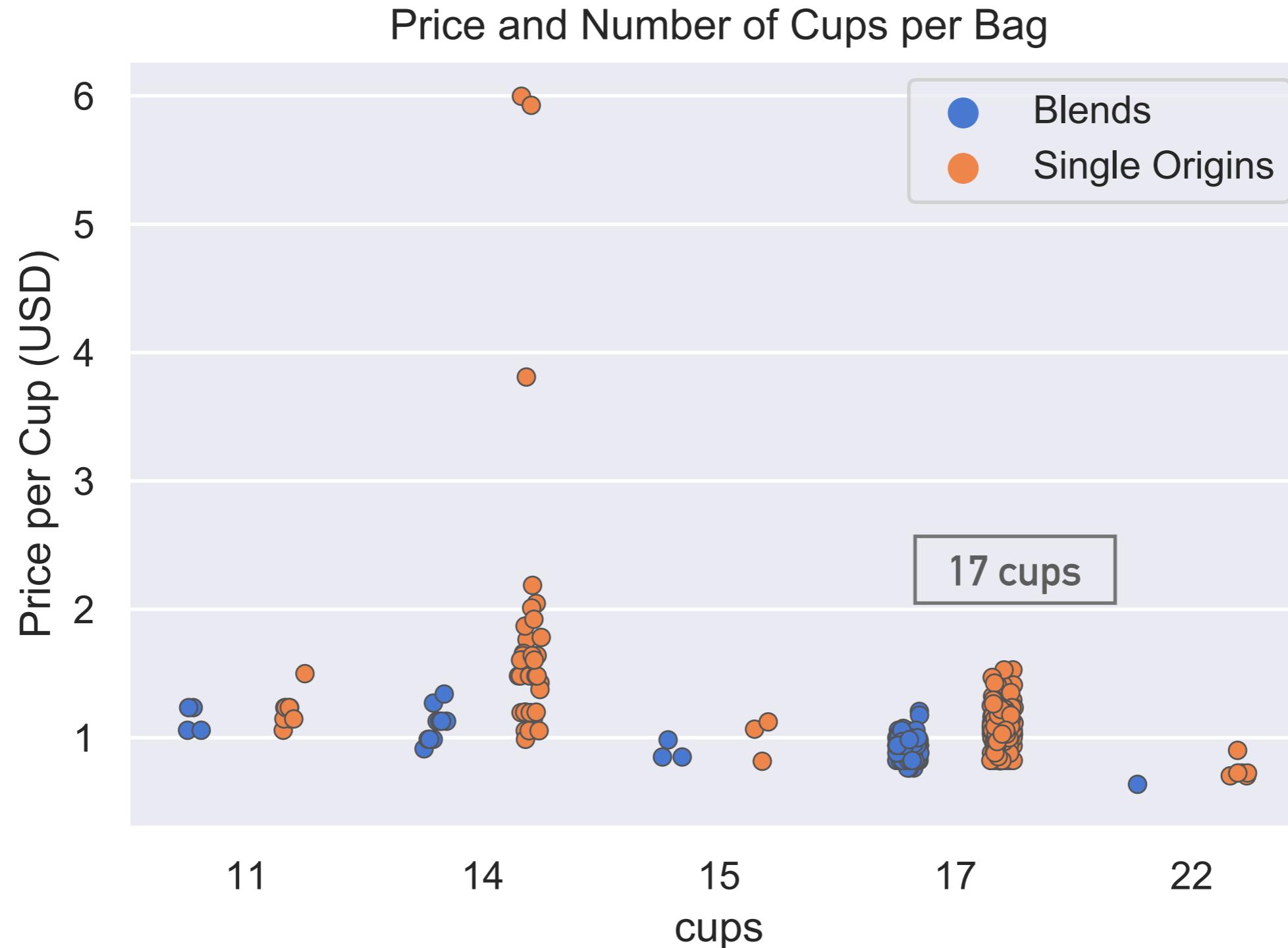
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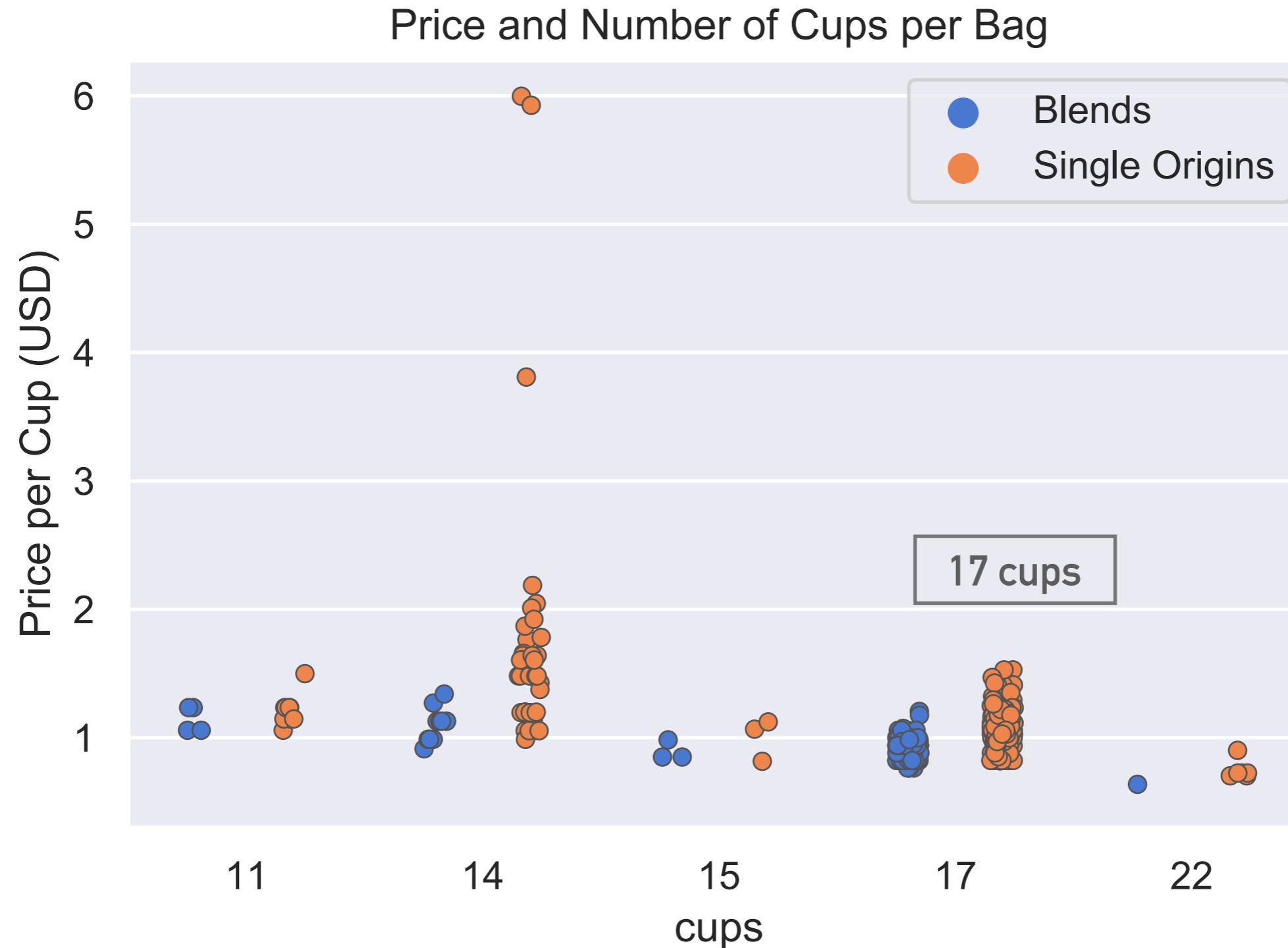


20 g or 0.71 oz. of beans per cup of coffee

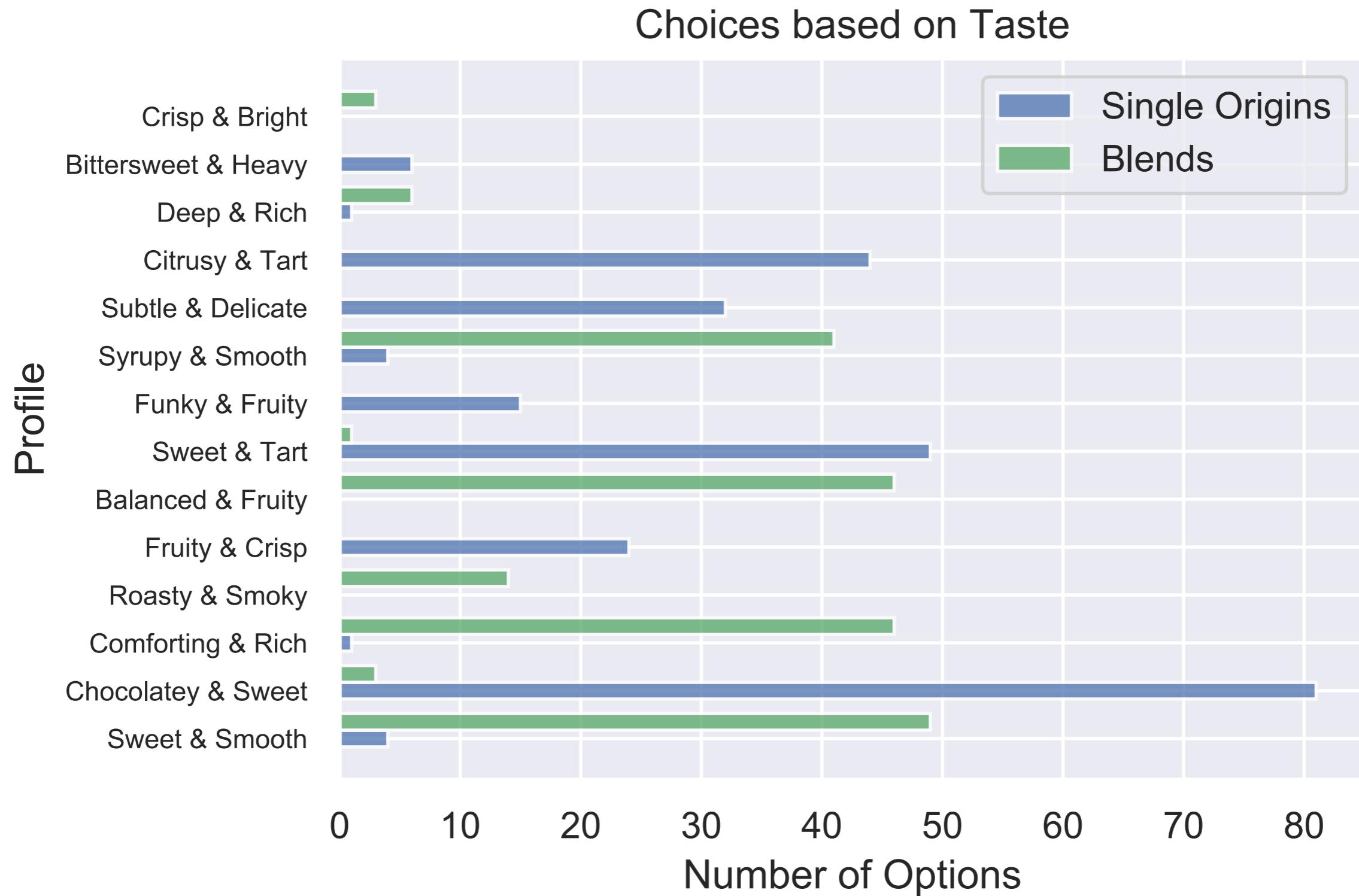
# HOW MANY CUPS OF COFFEE CAN ONE BAG MAKE?



# HOW MANY CUPS OF COFFEE CAN ONE BAG MAKE?



# COFFEE CHOICES



# FLAVOR NOTES AND PROFILES

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*Descriptors*

# FLAVOR NOTES AND PROFILES

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ripe traditional  
complex Costa Rica  
fresh fruit  
rica citrus  
tropical  
savoriness packed  
nicaragua  
el salvador  
peru  
papua new guinea  
roastiness el salvador  
spice  
florals  
bold  
berry  
brown sugar  
nostalgic  
acid  
vanilla  
nut earthiness base  
chocolate  
comforting

# FLAVOR NOTES AND PROFILES

.....

Ruiru  
Jamaica  
Catuai  
Raymond  
St  
S795  
Dega  
Ethiopian  
Brasil Cultivar  
Wolisho  
Linie  
Caturra Colombia  
Caturra  
Caturra  
Guatemala  
Villalobos  
Abana  
Mountain  
Local  
Tekisic  
Anacafe  
Pache Varieties  
Kudhume  
Catuai de Indigenous  
Changes Timtim  
Dwarf  
Mundo Peru  
Castilla CR  
Maracaturra  
varietals

Bourbon

Castillo

Ruiru Blue  
Latua Blue

Pacamara Parainema

Mixed Maragogipe E1

Red Mondo etc Hibrido Tim

Catimor SL Novo

Yellow Icatu Setami Sarchi Verde

Estate Varies Multiple landraces Bourbon

Ethiopia Ruiru Angel null Garuda

SL34 Native Tino Villa Catual

Arabica Caturra SL28 Sarchimor Gesha

Caturra Laturro types Carmona Laurina

Catuai Hacienda Maragogype Heirloom Elevation Jember

Various

Colombia

Crowned

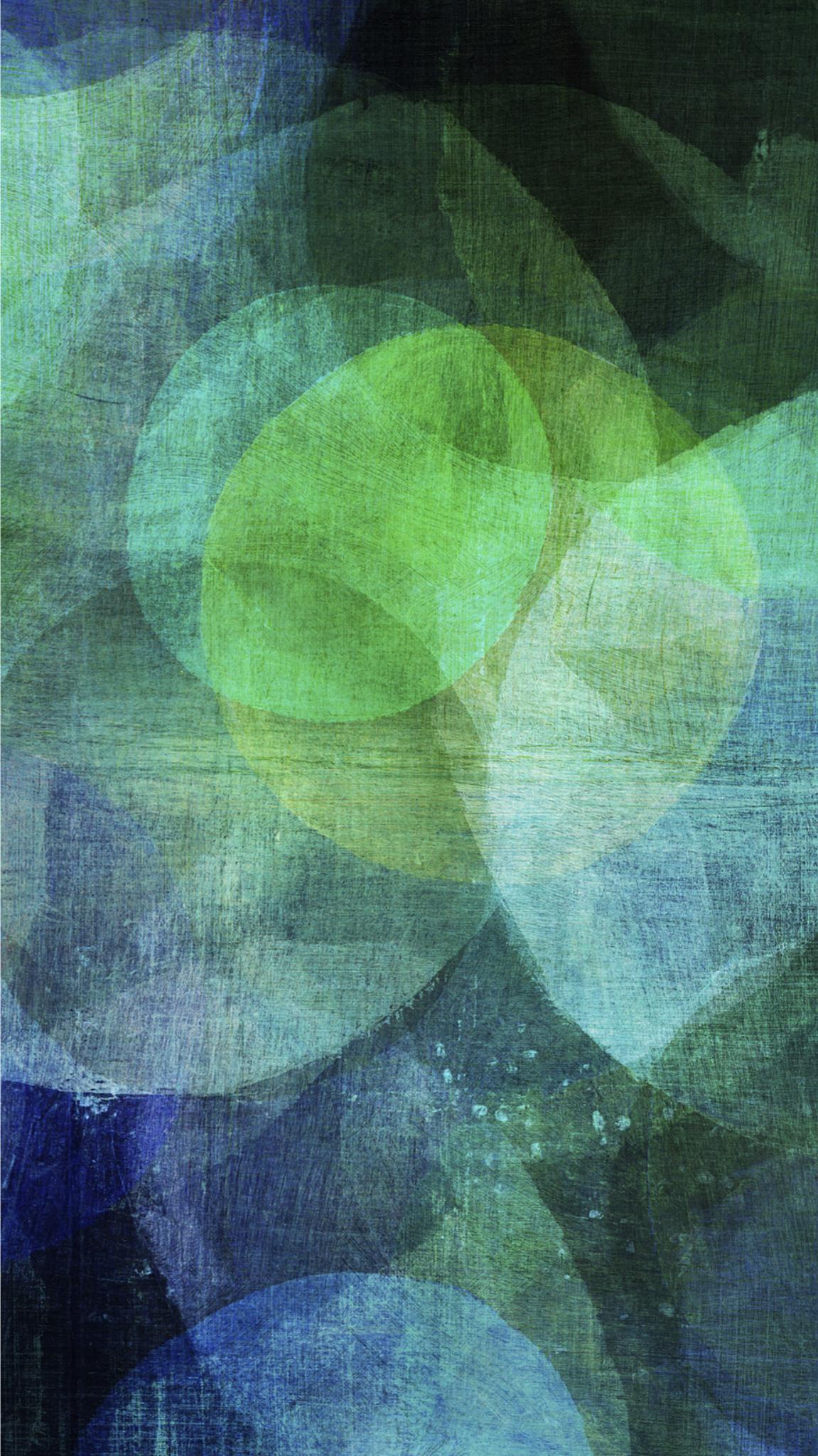
Varietals

# FLAVOR NOTES AND PROFILES



# END NOTES

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# SOME INSIGHTS AND CONCLUSIONS

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- Home brewing is a cost-effective way of enjoying coffee.
- Trade has a wide variety of coffees for all types of home brewers.
- Those into craft coffee can find the latest offerings from different roasters across the country.
- From budget friendly options to limited selections.
- Didn't take into account shipping...  
Free shipping when you spend \$50.00

## NEXT STEPS...

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- Trade changes its inventory regularly.
- It might interesting to see trends in the products they offer.
- Take a closer look into the specific details of products in addition to price points.
  - Trends on varietal, origin, sub region
  - Roasters

“

Questions? Comments?

Thank you!