

THE WORLD OF COFFEE: A DATA JOURNEY (2010-2022) - GLOBAL COFFEE MARKET ANALYSIS

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- Title:** The World of Coffee: A Data Journey (2010-2022) - Global Coffee Market Analysis
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AGENDA

- Executive Summary
 - Project Plan Recap
 - Data
 - Exploratory Data Analysis
 - Modeling Methods
 - Findings
 - Business Recommendations & Technical Next Steps
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EXECUTIVE SUMMARY

- **Business Problem:** How can the coffee industry ensure sustainable growth despite climate challenges, price volatility, and changing consumer preferences?
 - **Solution:**
 - Implement data-driven strategies focusing on production optimization, market development, risk mitigation, and sustainability initiatives
 - Utilize statistical analysis of 12-year coffee market data to identify key correlations and growth opportunities
 - Develop predictive models to forecast market trends and guide strategic decision-making
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DATA

Data Details Slide

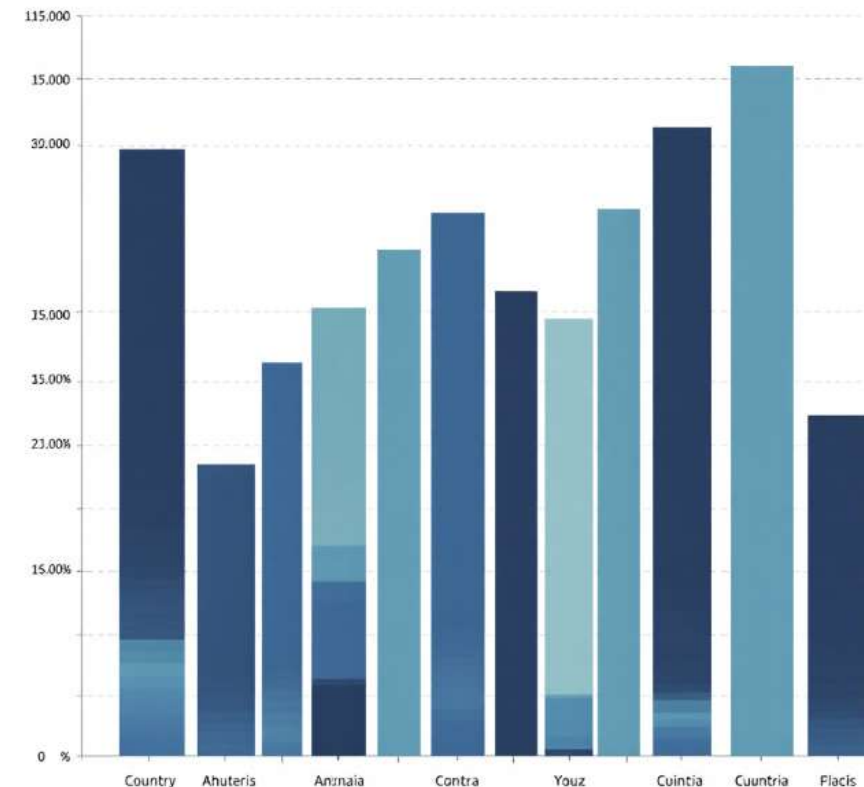
- **Data Source:** International Coffee Organization (ICO), World Bank Indicators, UN Comtrade Statistics, Industry Sustainability Reports [Include hyperlinks]
 - **Sample Size:** 12 years of global coffee market data (2010-2022), covering production, consumption, and price metrics across major producing and consuming countries
 - **Time Period:** January 2010 - December 2022
 - **Assumptions:**
 - Official ICO production data accurately represents global coffee production
 - Reported consumption figures reflect actual market demand
 - Price data accounts for market variations and currency fluctuations
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EXPLORATORY DATA ANALYSIS

EDA VISUALIZATION 1

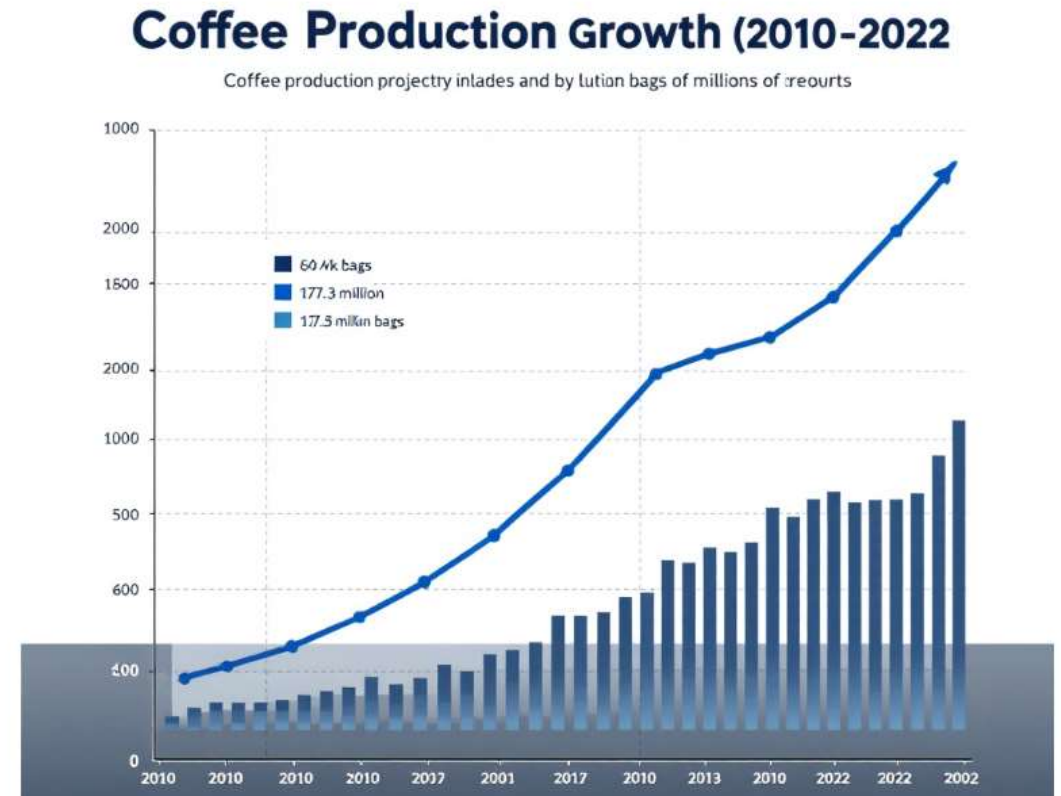
Global Coffee Production Leaders 2022

- **Title:** Global Coffee Production Leaders (2022)
- **Key Takeaway:** Brazil, Vietnam, and Colombia dominate global coffee production, representing over 50% of world output. This concentration creates significant supply vulnerability should climate or economic issues affect these regions.



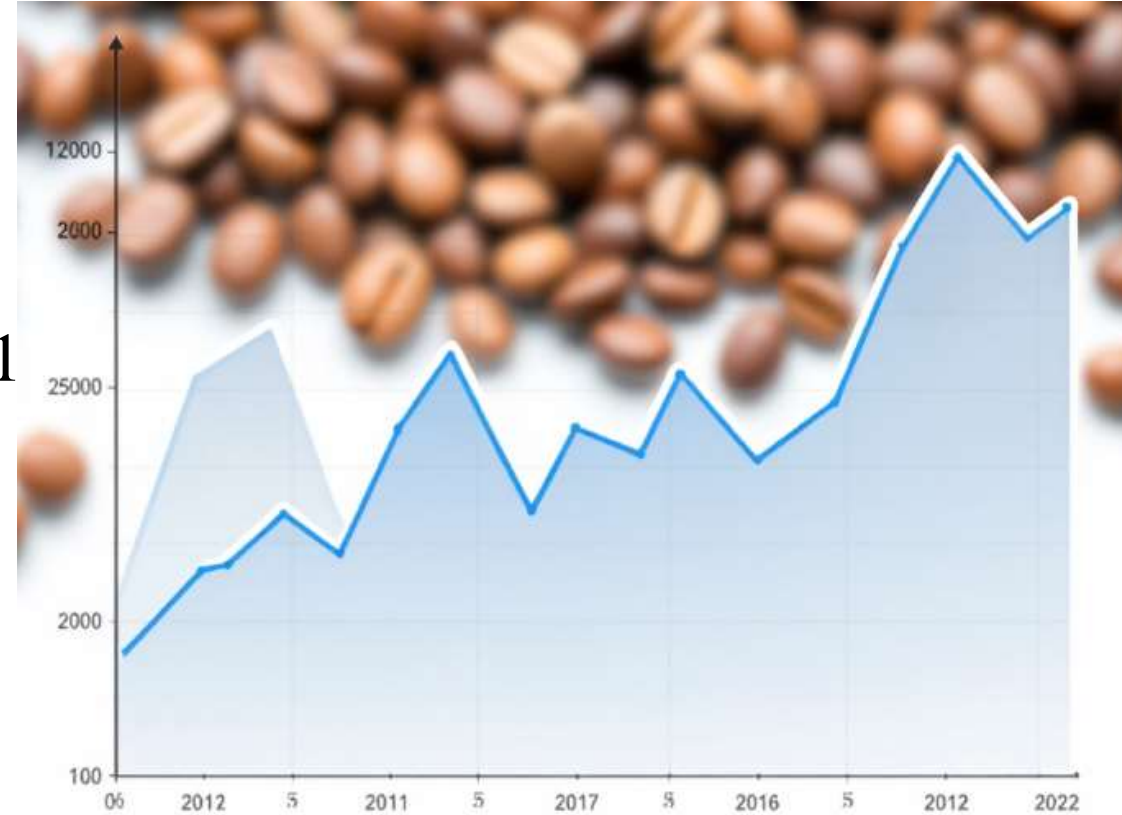
EDA VISUALIZATION 2

- **Title:** Coffee Production Growth Trajectory (2010-2022)
- **Key Takeaway:** Global coffee production increased 27.4% from 2011 to 2022, reaching 171.3 million 60kg bags, demonstrating market expansion despite challenges. This growth trend suggests continued market development potential.



EDA VISUALIZATION 3

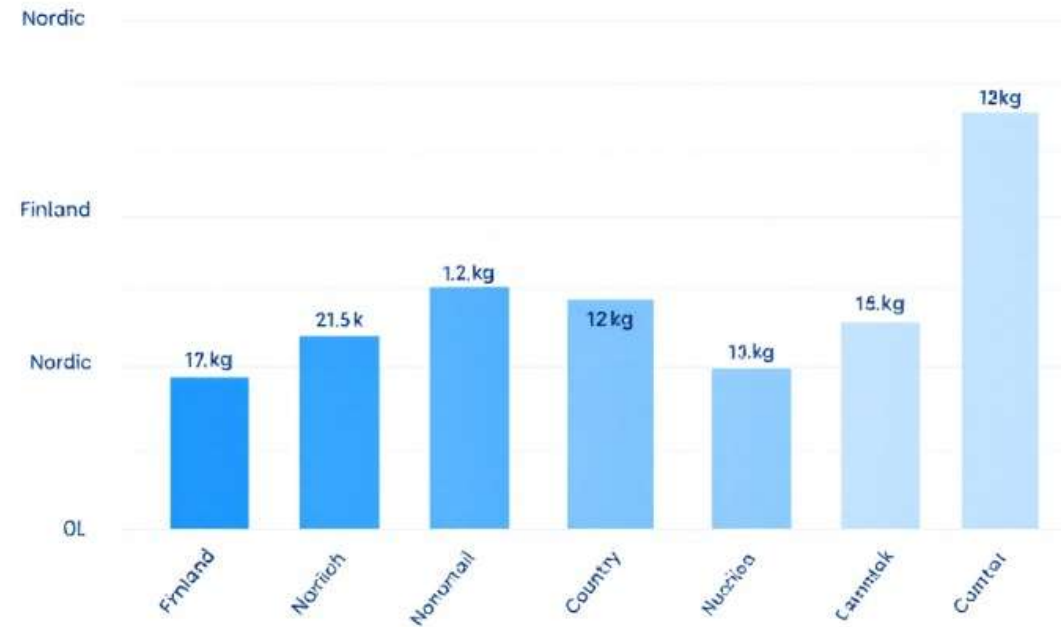
- **Title:** Global Coffee Price Volatility (2010-2022)
- **Key Takeaway:** Coffee prices exhibited significant volatility with major peaks in 2011 and 2017, directly impacting producer profitability and market stability. Understanding these patterns is crucial for developing effective risk management strategies.



EDA VISUALIZATION 4

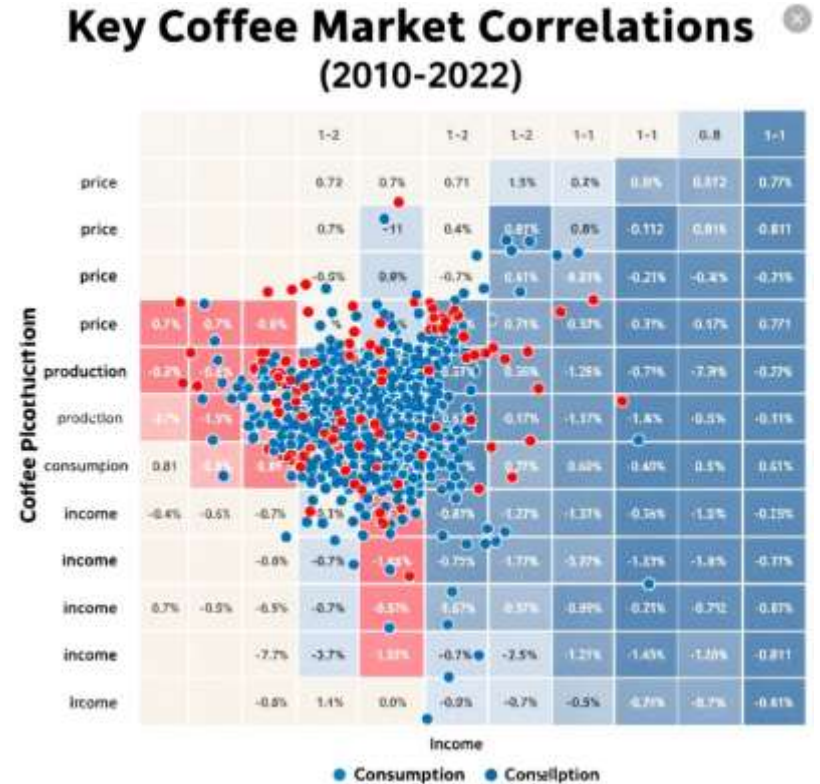
- **Title:** Per Capita Coffee Consumption Leaders (2022)
- **Key Takeaway:** Nordic countries dominate per capita consumption, with Finland leading at approximately 12kg per person annually. This highlights the contrast between mature markets and emerging markets with growth potential.

Per-Capita Coffee Consumption Leaders, 2022
Leaders



EDA VISUALIZATION 5

- **Title:** Key Coffee Market Correlations (2010-2022)
- **Key Takeaway:** Strong correlations exist between key market variables, with price-production showing a negative relationship (-0.72) and consumption-income demonstrating a positive relationship (0.81), providing crucial insights for market prediction.



MODELING METHODS

- **Outcome Variable:** Future coffee market value (projected in USD billions)
 - **Features:**
 - Historical production volumes by region
 - Price trend data (2010-2022)
 - Consumption patterns by market
 - Climate indicators affecting growing regions
 - Sustainability certification adoption rates
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FINDINGS

Market Growth Projection Finding

- **Title:** Coffee Market Set for Steady Growth Through 2030
 - **Finding:** Our model projects market growth from \$138.37B in 2025 to \$174.25B by 2030, representing a 4.72% CAGR
 - **Business Impact:** This growth trajectory presents significant expansion opportunities, particularly in emerging markets and premium segments
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FINDINGS

Regional Growth Finding

- **Title:** Emerging Markets Lead Consumption Growth
 - **Finding:** Asia Pacific region shows the strongest growth potential with projected highest regional CAGR
 - **Business Impact:** Market development strategies should prioritize these high-growth regions to maximize return on investment
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FINDINGS

Price-Production Correlation Finding

- **Title:** Price Volatility Strongly Linked to Production Volumes
 - **Finding:** The -0.72 correlation coefficient between price and production highlights the significant market sensitivity to supply fluctuations
 - **Business Impact:** Developing robust risk management strategies is essential for maintaining financial stability
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BUSINESS RECOMMENDATIONS

- **Finding 1: Market Growth Opportunity**

- **Recommendation:** Develop targeted product offerings for emerging markets while focusing on premium segments in mature markets
- **Recommendation:** Implement regional pricing strategies aligned with projected growth rates and consumer purchasing power

- **Finding 2: Production-Price Relationship**

- **Recommendation:** Establish long-term supply contracts with producers across multiple regions to mitigate price volatility risks
 - **Recommendation:** Invest in climate-resilient growing techniques and farmer education programs to stabilize production
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- **Advanced Modeling:** Develop predictive models at the regional level to capture market-specific nuances and opportunities
 - **Data Expansion:** Incorporate additional datasets on climate patterns, sustainability metrics, and consumer behavior to enhance prediction accuracy
 - **Real-time Analytics:** Implement dashboard-based monitoring system to track key market indicators against projections
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GIT REPO

- <https://colab.research.google.com/drive/1NKYWWEY4hv6Ga44sW4yvPN2-x7JE8NH4x?usp=sharing>

THANK YOU

- Any Questions
 - Feel free to reach out for further discussion
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