

# Burkina Faso and Ghana Population Analysis

A comprehensive data-driven study of population trends from 1960-2024 using Python, Pandas, NumPy, and Matplotlib

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# Project Overview

01

## Data Collection

Imported comprehensive population dataset spanning 266 countries from 1960-2024

The link:

[https://data.worldbank.org/indicator/SP.POP.TOTL?  
end=2024&start=2024&view=map](https://data.worldbank.org/indicator/SP.POP.TOTL?end=2024&start=2024&view=map)

03

## Statistical Analysis

Computed growth rates, means, and standard deviations for population trends

02

## Data Cleaning

Removed incomplete records and irrelevant columns to ensure data quality

04

## Visualization

Created comparative charts to illustrate population dynamics over time

# Research Objectives



## Compare Growth Patterns

Analyze population growth between Burkina Faso and Ghana over 64 years



## Measure Growth Speed

Calculate percentage increase from 1960 baseline to 2023



## Assess Stability

Evaluate population stability using mean and standard deviation metrics



## Identify Thresholds

Determine when populations reached critical doubling points

# Dataset Structure

## Initial Dataset

- 266 countries and regions
- 69 columns (65 years + metadata)
- Annual population data 1960-2024
- Some incomplete records present

## Cleaned Dataset

- 264 complete country records
- 67 columns after removing indicators
- All NaN rows eliminated
- Focus subset: Burkina Faso & Ghana

# Data Cleaning Process

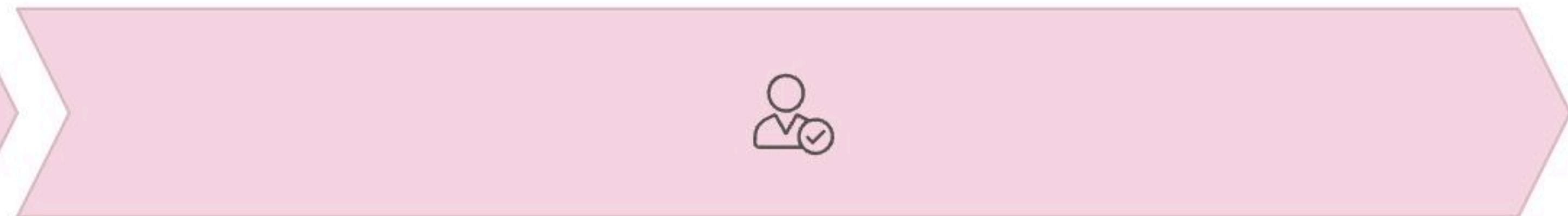


## Raw Data Import

Loaded CSV with 266 rows, 69 columns including metadata fields

## Remove Incomplete Records

Dropped rows with missing values, reducing to 264 complete entries



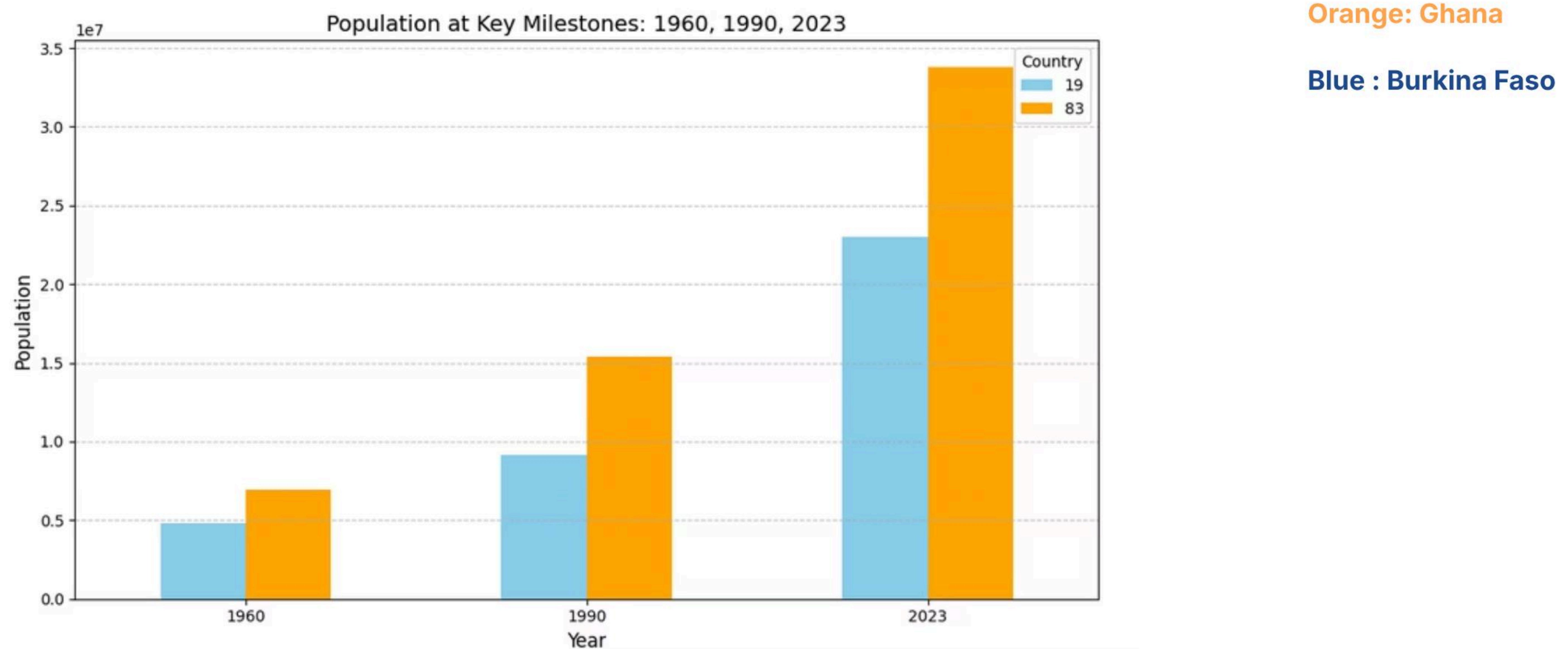
## Drop Redundant Columns

Eliminated "Indicator Name" and "Indicator Code" columns

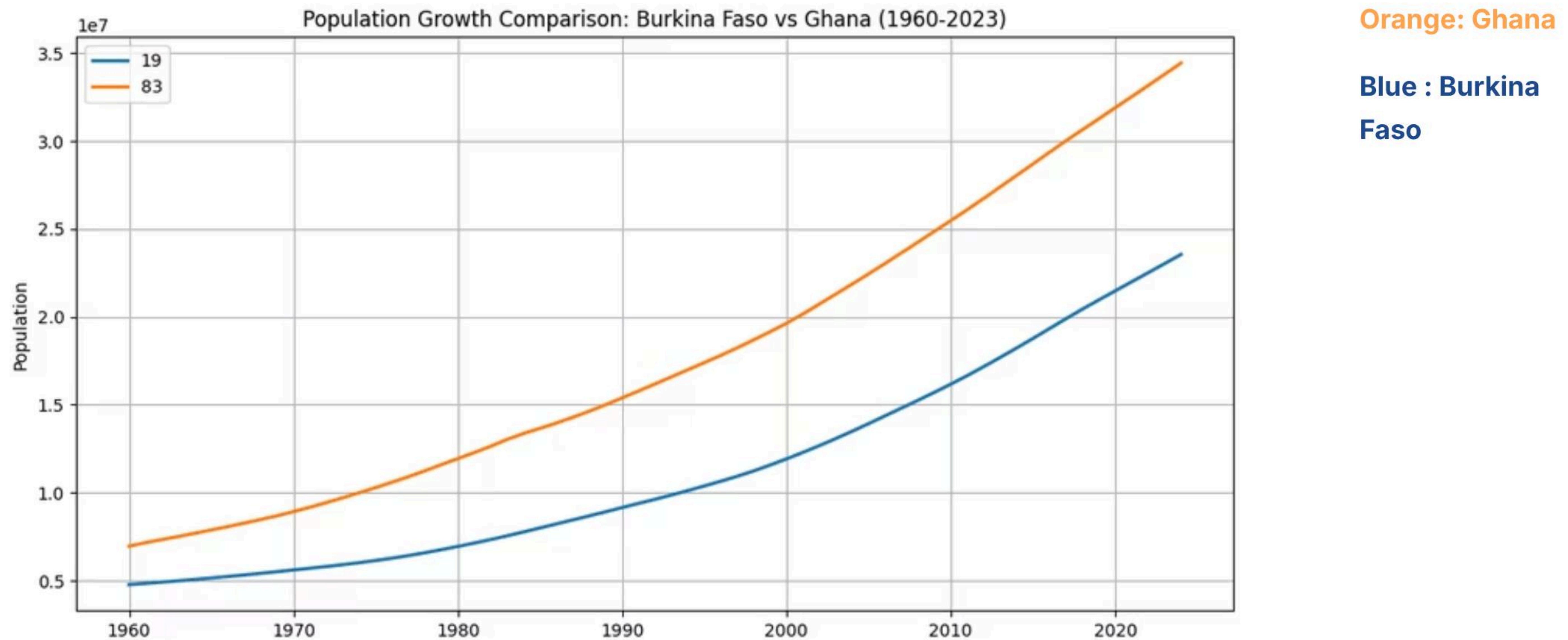
## Clean Dataset Ready

Final dataset with 264 countries, 67 columns for analysis

# Population Growth Speed Graph



# Population Growth Comparison



## Photoal Fases by Ghana

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# Population Growth Speed

Percentage increase from 1960 to 2023 reveals explosive demographic expansion in both nations

**382%**

**Burkina Faso**

Population increased from 4.78M to 23.0M over 63 years

**385%**

**Ghana**

Population grew from 6.96M to 33.8M in the same period

Both countries experienced nearly **quadruple** population growth, with Ghana maintaining a slightly higher rate throughout the period.



# Stability Analysis Results

## Historical Mean Population

**Burkina Faso:** 11.23 million average

**Ghana:** 17.82 million average

Ghana consistently maintained a larger population throughout the 64-year period.

## Standard Deviation

**Burkina Faso:** 5.6 million

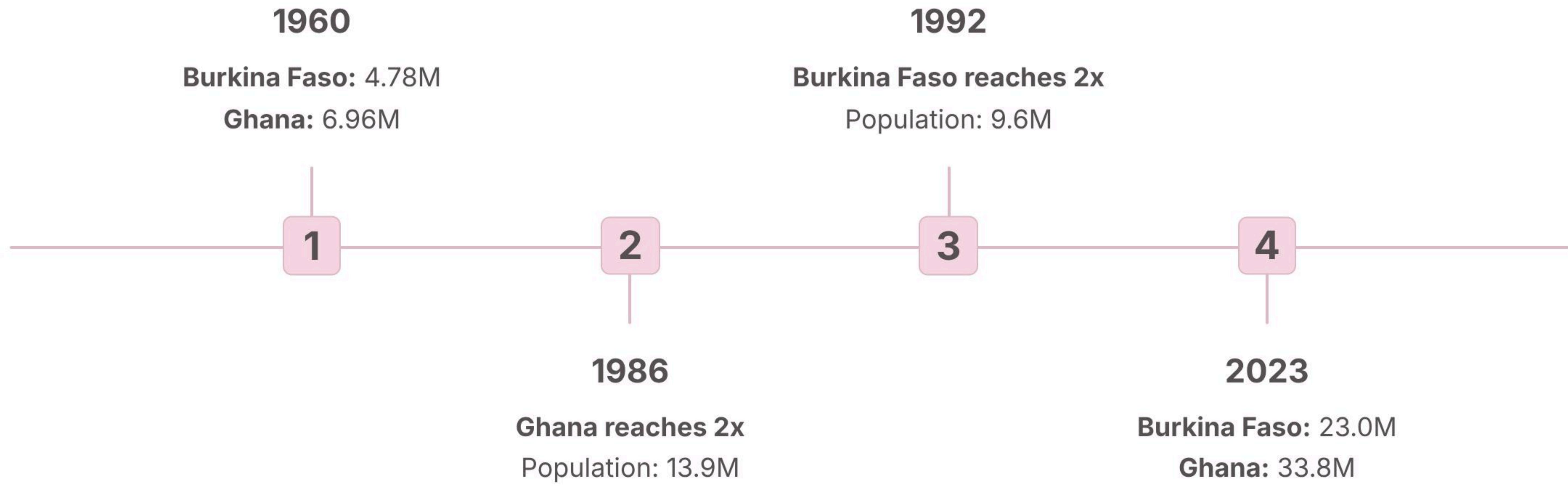
**Ghana:** 8.18 million

High deviation values indicate rapid, sustained growth rather than stable populations.



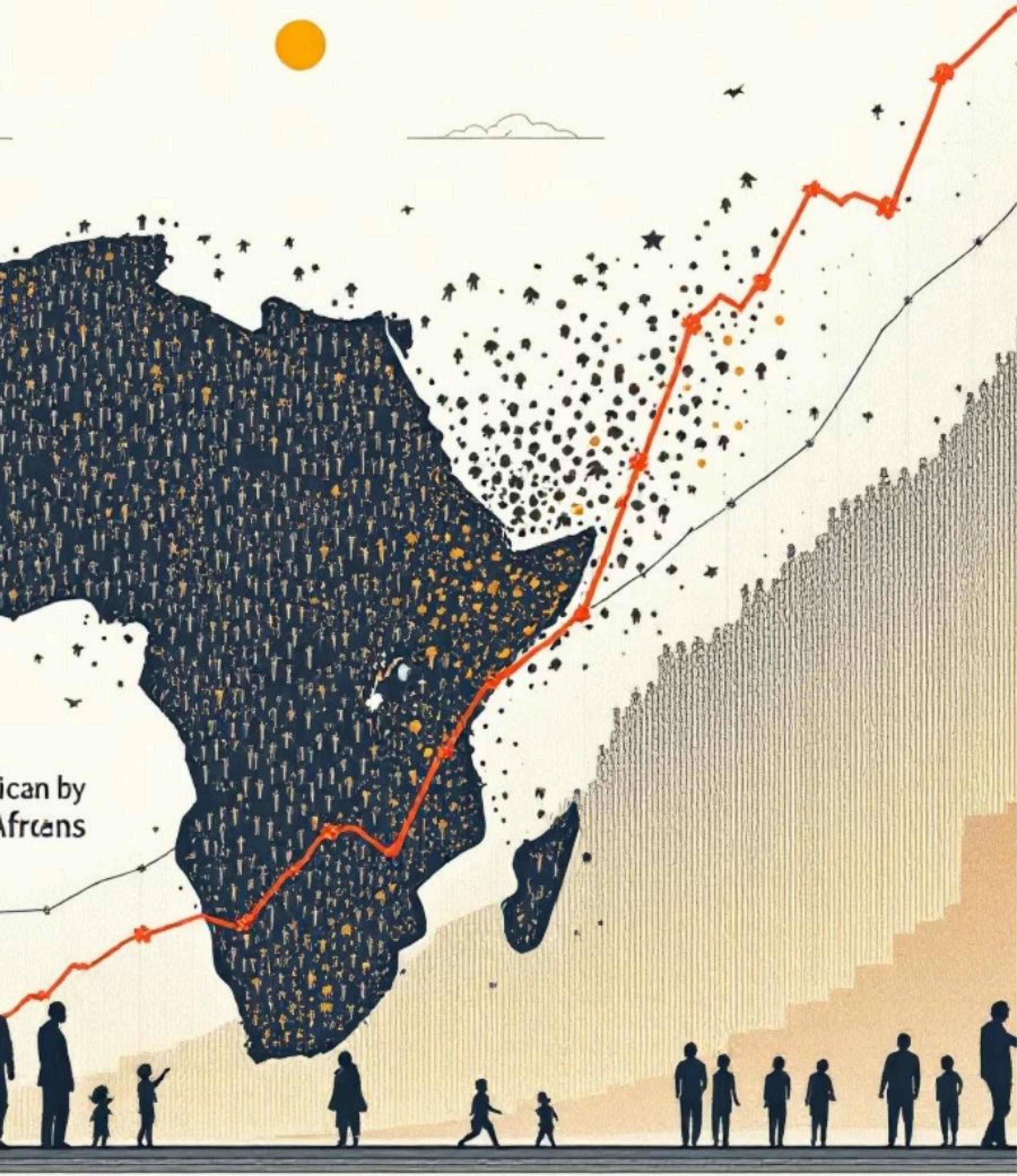
# Critical Threshold: Population Doubling

Analysis identified the exact year when each country's population reached twice its 1960 baseline



Ghana reached the doubling threshold **6 years earlier** than Burkina Faso, demonstrating faster early growth momentum.

Population growth of the two African nations over 63 years.



# Population Trends Visualization

Comparative line plot reveals parallel growth trajectories with Ghana maintaining consistent lead

## 1960-1990

Steady exponential growth phase for both countries

## 1990-2023

Accelerated growth with widening gap between nations

## Key Pattern

Ghana's population consistently 1.4-1.5x larger than Burkina Faso

# Key Findings & Conclusions

## Explosive Growth

Both nations experienced ~380% population increase over 63 years, indicating sustained demographic expansion

## Ghana's Advantage

Ghana maintained larger population and reached doubling point 6 years earlier than Burkina Faso

## High Variability

Large standard deviations confirm rapid, continuous growth rather than population stability

## Parallel Trajectories

Despite different scales, both countries followed remarkably similar growth patterns throughout the period