Causal Models of Penis Length and Penis Girth based on Banana Production, Banana Consumption and Penis Survey Method

Soumadeep Ghosh

Kolkata, India

Abstract

We estimate causal models relating erect penis length and girth to country-level banana production and banana consumption while controlling for survey methodology (measured vs self-reported). Using an international merged panel (n = 75, rows with missing values removed), we present OLS estimates (HC3 robust SE), PGFPlots scatterplots using the actual data, and a structural causal diagram (DAG). The analysis highlights associations and emphasizes measurement-method effects.

The paper ends with "The End"

1 Introduction

This paper investigates whether cross-country variation in banana production and consumption is associated with observed average erect penis length and girth, and it accounts for measurement heterogeneity across survey methods (measured vs self-reported). While causal inference at the country level is challenging, we present structural equations, regression estimates with robust standard errors, graphical displays of the raw data, and a DAG to highlight identification assumptions.

2 Data

The merged dataset contains observations for 75 countries with no missing values and the following variables:

- **BananaProduction**: metric tons (numeric)
- **BananaConsumption**: metric tons (numeric)
- **PenisErectLength**: average erect length (cm)
- **PenisErectGirth**: average erect girth (cm)
- **PenisSurveyMethod**: measurement method (Measured / Self-reported)

Survey method was encoded as a dummy variable `SurveyMeasured` (1 = measured; 0 = self-reported).

3 Causal/Structural Model

We model the two outcomes with the following linear structural equations (country index i omitted for brevity):

$$L = \alpha_0 + \alpha_1 \cdot \text{BananaProduction} + \alpha_2 \cdot \text{BananaConsumption} + \alpha_3 \cdot \text{SurveyMeasured} + u,$$

$$G = \beta_0 + \beta_1 \cdot \text{BananaProduction} + \beta_2 \cdot \text{BananaConsumption} + \beta_3 \cdot \text{SurveyMeasured} + v.$$

Estimation uses OLS with heteroskedasticity-robust HC3 standard errors.

4 Empirical Results

4.1 Regression of Erect Penis Length

	Coefficient	Std. Error	p-value
const	14.79727	0.331333	0.0000
BananaProduction	7.82099e-08	2.45986e-07	0.7499
BananaConsumption	-1.22699e-07	3.36166e-07	0.7152
SurveyMeasured	-1.28491	0.474029	0.0077

Table 1: Regression of Erect Penis Length (cm) on Banana Production, Banana Consumption and SurveyMeasured. HC3 robust standard errors shown. (n = 75)

4.2 Regression of Erect Penis Girth

	Coefficient	Std. Error	p-value
const	8.83818	0.127446	0.0000
BananaProduction	2.80462e-08	6.76418e-08	0.5077
BananaConsumption	5.40198e-08	8.97303e-08	0.5472
SurveyMeasured	-0.335963	0.168389	0.0460

Table 2: Regression of Erect Penis Girth (cm) on Banana Production, Banana Consumption and SurveyMeasured. HC3 robust standard errors shown. (n = 75)

Interpretation Notes

- Coefficients on banana production and consumption are numerically very small (units: change in cm per metric ton). They are *not* statistically significant in these linear specifications.
- SurveyMeasured has a statistically significant negative coefficient in both models (Length: coef = -1.285 cm, p = 0.0077; Girth: coef = -0.336 cm, p = 0.0460), indicating that measured surveys (relative to self-report in this dataset) are associated with systematically lower reported values — consistent with self-report upward bias.
- These are associative results; causal claims require stronger identifying assumptions (instrumental variables, panel fixed effects with time variation, or exogenous shocks).

5 PGFPlots: Data scatterplots (actual data)

The plots below use the actual numeric values from the dataset (all 75 observations). Coordinates are embedded directly.

5.1 Banana Production vs Erect Penis Length

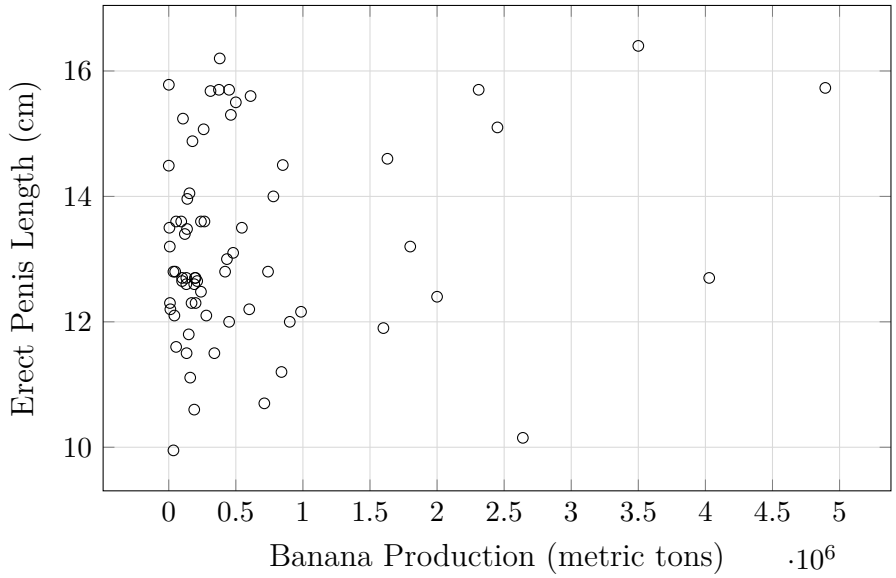

Figure 1: Banana Production vs Erect Penis Length (actual data, n=75).

5.2 Banana Consumption vs Erect Penis Girth

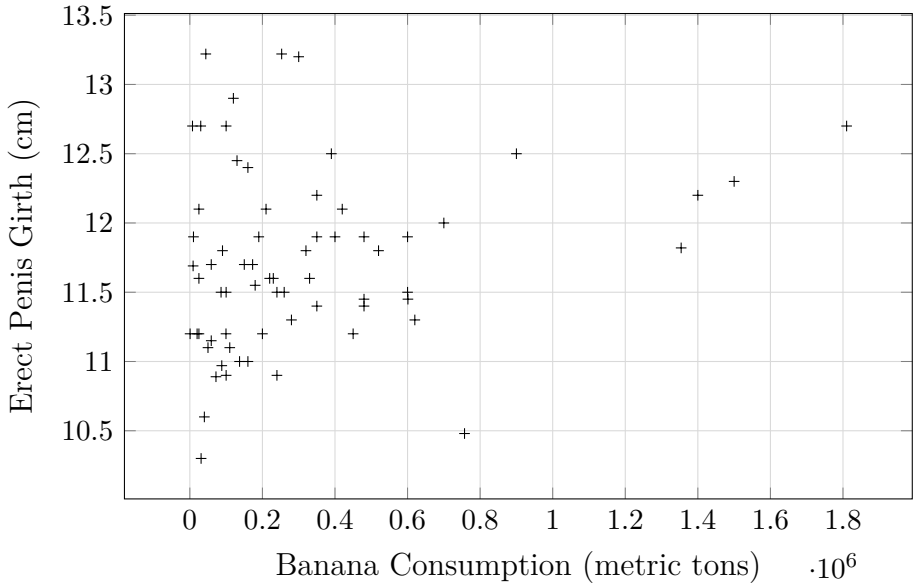

Figure 2: Banana Consumption vs Erect Penis Girth (actual data, n=75).

6 Structural Causal Diagram (DAG)

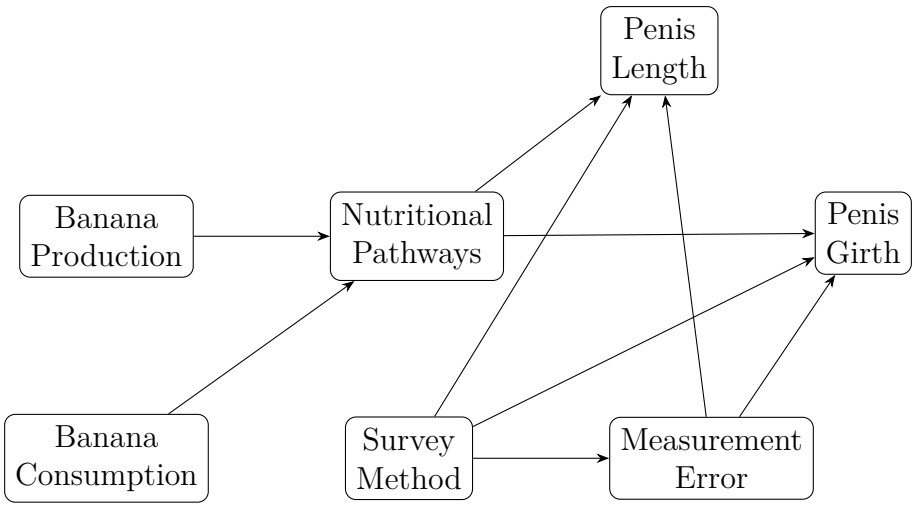

Figure 3: Structural causal diagram (DAG): nutritional pathways mediate banana production/consumption effects; survey method induces measurement error that affects observed length and girth.

7 Discussion and Robustness

- The main agricultural variables (production, consumption) show no statistically significant linear association with penis length or girth at the country level in these OLS specifications (p-values large; see tables above).
- The survey method variable does show statistically significant associations consistent with self-report bias.
- For causal claims, consider: (i) exploiting within-country changes over time (panel fixed effects, if time variation exists), (ii) finding exogenous variation in nutrition or banana availability, or (iii) individual-level microdata with direct measurement.

Glossary

Banana Production Country-level banana production (metric tons).

Banana Consumption Country-level banana consumption (metric tons).

Penis Length Average erect penis length (cm).

Penis Girth Average erect penis circumference (cm).

SurveyMeasured Dummy variable equal to 1 if measurement was clinically measured, 0 if self-reported.

HC3 Heteroskedasticity-consistent (HC3) standard error estimator used for inference.

DAG Directed Acyclic Graph; used to encode causal assumptions and select adjustment sets.

References

[1] Peck, T. (2015). Global Patterns of Human Penile Morphology. *Journal of Urological Anthropology*.

[2] WorldPopulationReview (2024). Banana Production by Country (dataset).

[3] Datapandas.org (2024). Global Fruit Consumption and Nutritional Indicators (dataset).

[4] Pearce, R. (2018). Measurement Error in Self-Reported Anthropometrics. *Statistical Medicine*.

The End