Difference-in-Differences (DiD) Analysis

Model Specification

We estimate the following fixed-effects DiD model with clustered standard errors at the country level:

$$\log(\text{Average\_price}_{it}) = \beta_0 + \beta_1 \cdot \text{post}_t + \alpha_i + \lambda_t + \epsilon_{it}$$

where

- $\log(\text{Average\_price}_{it})$ is the log of the average price for country i in year t,
- post_t is a dummy variable indicating the post-treatment period,
- α_i are country fixed effects,
- λ_t are year fixed effects,
- ϵ_{it} is the error term clustered at the country level.

Estimation Results

Table 1: OLS Fixed-Effects Regression with Clustered Standard Errors (Cluster: Countries)

Variable	Estimate	Std. Error	t value	p-value
post	-0.0611	0.0914	-0.669	0.507

Significance codes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.1$
Observations: 1,101 Countries (Fixed Effects): 45 Years (Fixed Effects): 26
RMSE: 0.1514 Adjusted R^2: 0.6156 Within-R^2: 0.0023

Interpretation

The estimated coefficient for the variable `post` is -0.0611 and is statistically insignificant ($p = 0.507$). This suggests that there is no significant change in the logged average price after treatment when controlling for country and year fixed effects as well as clustered standard errors.

The model includes 1,101 observations from 45 countries over 26 years. The relatively low within-R^2 of 0.0023 indicates that the model explains little variation within countries over time. The adjusted overall R^2 of 0.6156 reflects the variation explained by all explanatory variables including fixed effects.

The results imply that the "post" effect is not robustly detectable in this setting. Further investigations could include additional control variables or alternative model specifications.