

# Statistical Test Result #182 — Analysis Report

Generated 2026-09-21 02:37:24 · 1 run(s) · CAT-G Data Analyzer

## 1. glm (#182)

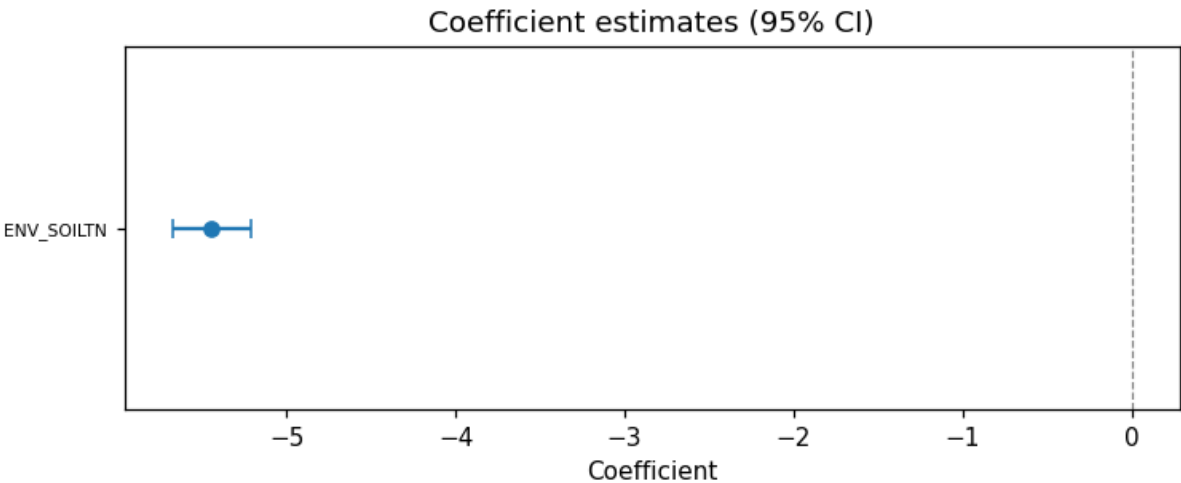
2026-09-21 02:15:12 · statistical\_test · status: completed

The glm on GH\_COUNT completed.

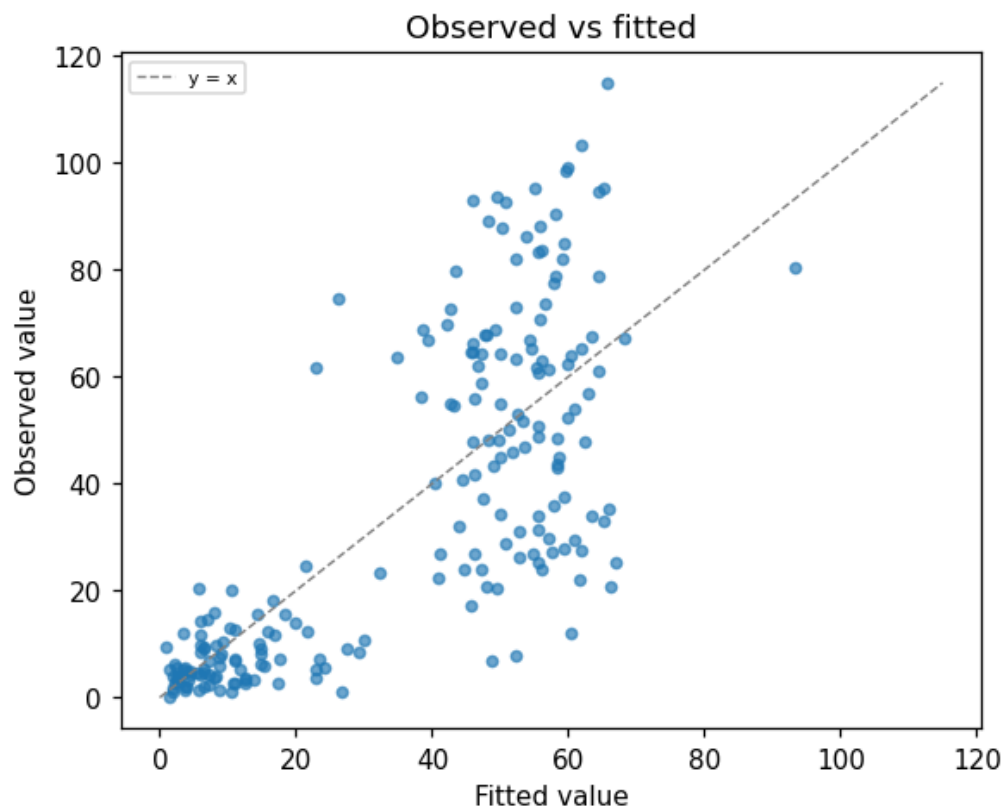
|                |             |
|----------------|-------------|
| family         | poisson     |
| aic            | 2948.86159  |
| deviance       | 1942.210341 |
| null_deviance  | 5619.785632 |
| pseudo_r2      | 0.654398    |
| n_obs          | 207         |
| dispersion_phi | 9.474405    |
| deviance_gof_p | 0.0         |
| method         | glm         |
| value_col      | GH_COUNT    |
| significant    | True        |

### coefficients

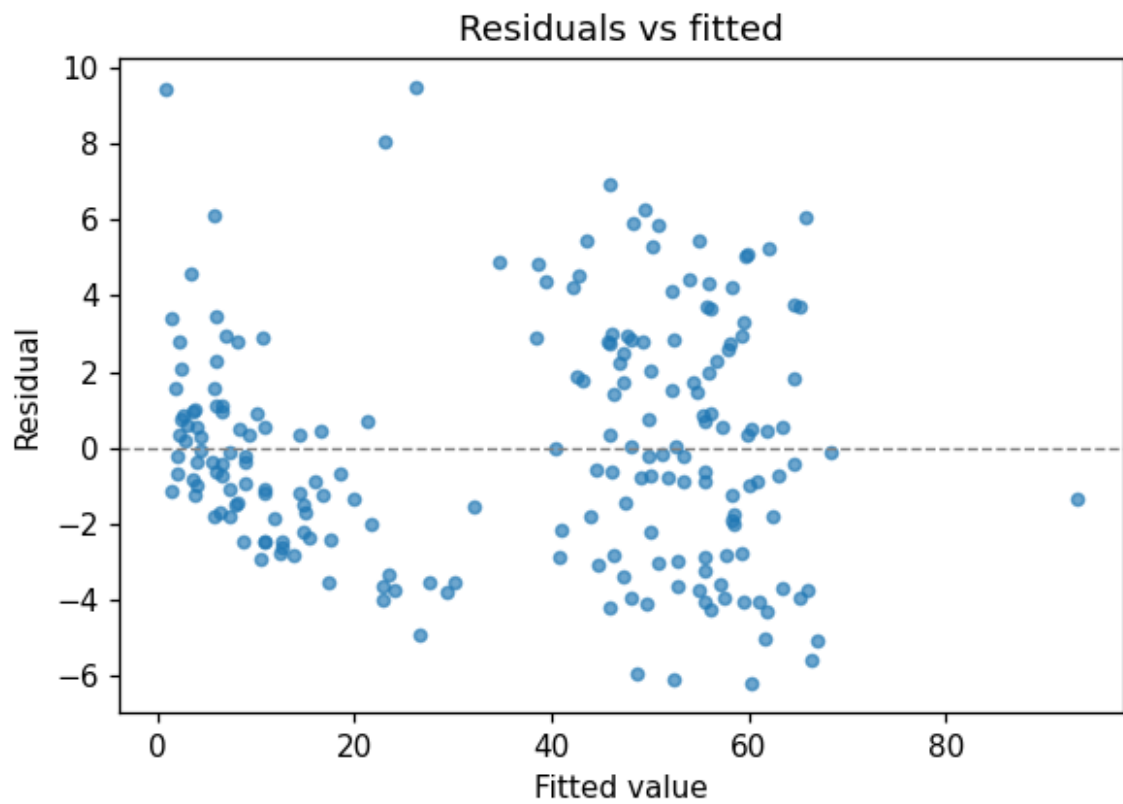
| term      | coef      | se       | z          | p   | ci_lower  | ci_upper  |
|-----------|-----------|----------|------------|-----|-----------|-----------|
| const     | 4.536949  | 0.019579 | 231.719669 | 0.0 | 4.498574  | 4.575324  |
| ENV_SOILT | -5.442332 | 0.119154 | -45.674756 | 0.0 | -5.675869 | -5.208794 |



coef forest



*fitted vs observed*



*residuals vs fitted*

## Warnings

- The data appear overdispersed relative to the Poisson model (Pearson  $\phi = 9.47$ ; values near 1 are expected). Coefficient standard errors are likely too small — refit with the Negative Binomial family.
- The deviance goodness-of-fit test rejects adequate fit ( $p = 3.402e-280$ ); residual structure may remain unexplained.

Method & Provenance

|                |                                                                                                                                                                                     |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| method         | Count GLM (Poisson / Negative Binomial)                                                                                                                                             |
| engine         | Python · statsmodels 0.14.6                                                                                                                                                         |
| datasets       | gallery — catg_example_05_grasshopper_pest_pressure.csv                                                                                                                             |
| started        | 2026-09-21 02:15:12.174965                                                                                                                                                          |
| permanent link | <a href="https://cat-g-omxpert.wishartlab.com/results/by-token/e5dac942c0614cd5bc9baa185963">https://cat-g-omxpert.wishartlab.com/results/by-token/e5dac942c0614cd5bc9baa185963</a> |

| Parameter      | Value      |
|----------------|------------|
| test_type      | glm        |
| value_col      | GH_COUNT   |
| predictor_cols | ENV_SOILTN |

Command history

```
# python
import statsmodels.api as sm

# python
model = sm.GLM(y_counts, X_predictors, family=sm.families.Poisson())

# python
fit = model.fit()
```