

How include institutions in a regression equation?

- Corn output = f (land, labor, seed, institutions)
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 - labor productivity = f (human capital, inst.)
 - seed productivity = f (research on genetics, timeliness of planting, etc.)
 - Timeliness of planting = f (institutions motivating workers)

Crocker: Phosphate Mining

- Land value = f (citrus prices, land fertility, pollution level, ..., n)
 - Profit = f (price \times output) - (price \times input)
 - Pollution level = f (farmers own with right of injunction as a dummy variable)

Crocker reasons that with farmer ownership, the pollution variable in the land value equation should be insignificant after the institutional change. The sign & significance of this variable becomes the impact variable.

Experimental time series design where X is the point when the ownership rules changed.

O_1, O_2, O_3 X O_4, O_5, O_6

The observations at each time period are the sign and significance of the pollution variable in the land value equation.

IUG & Trans. Cost-Labor Monitoring– Fogel, 1977

- Factor Ownership:
 - 1. **Slavery plus specialized gangs.**
 - 2. **No slaves; self-motivation.**
- 1. Index of total factor productivity. 48% higher.
- No human dignity.
- 2. Lower factor productivity. Can choose between leisure and income.

Output = f (labor, capital, land, scale, prices, product mix)

Separate equations for slave & non-slave farms.