Impact of the *Grain for Green* program on forest cover in China

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**Objective**
Evaluate the impact of China’s Grain for Green program on forest cover and forest structure.

**Empirical Framework**
- Identification strategy: Difference-in-differences model for multiple time periods.
- Additional controls: Control for pre-program trend in forest cover, which could potentially determine the Priority designation.
- Reduce the five-year panel to a two period panel: 1995-2000 as the pre-program period and 2005-2008 as the post program period.

**Main model:**
\[ \Delta Y_{it} = \beta_1 \text{Priority}_{i} + \Delta X_{it} + \Delta Y_{it-1} \alpha_i + \Delta \epsilon_i \]
where \( \Delta Y_{it} \) is the deforestation at each time period; \( \text{Priority}_{i} \) is equal to 0 for all counties in the pre-program period (1995-2000) and equal to 1 for the priority counties in the post program time period (2005-2008). \( \Delta X_{it} \) is the net change of the covariates in each time period. We controlled for \( \alpha_i \) the county specific time trend which does not change over the two time periods; \( \Delta Y_{it} \) is the lag term of \( \Delta Y_{i} \) to control for the pre-program trend.

**Results**
- The GFG program has lead to an increase of 612 ha in total forest cover in the priority counties during our study period. This is equivalent of +0.47% forest cover growth compared to the forest cover in the priority counties in the baseline year (2000). This rate is larger than global annually mean change in forest cover of -0.13% (2000-10).
- We find evidence of heterogeneous impact: closed canopy increased by 382 ha and shrub-covered canopy by 215 ha. The larger impact on closed or open canopy forests.

**Caveats:** The results may be confounded with uncontrolled time-variant variables such as other forest policies implemented during the same time period.

**References**