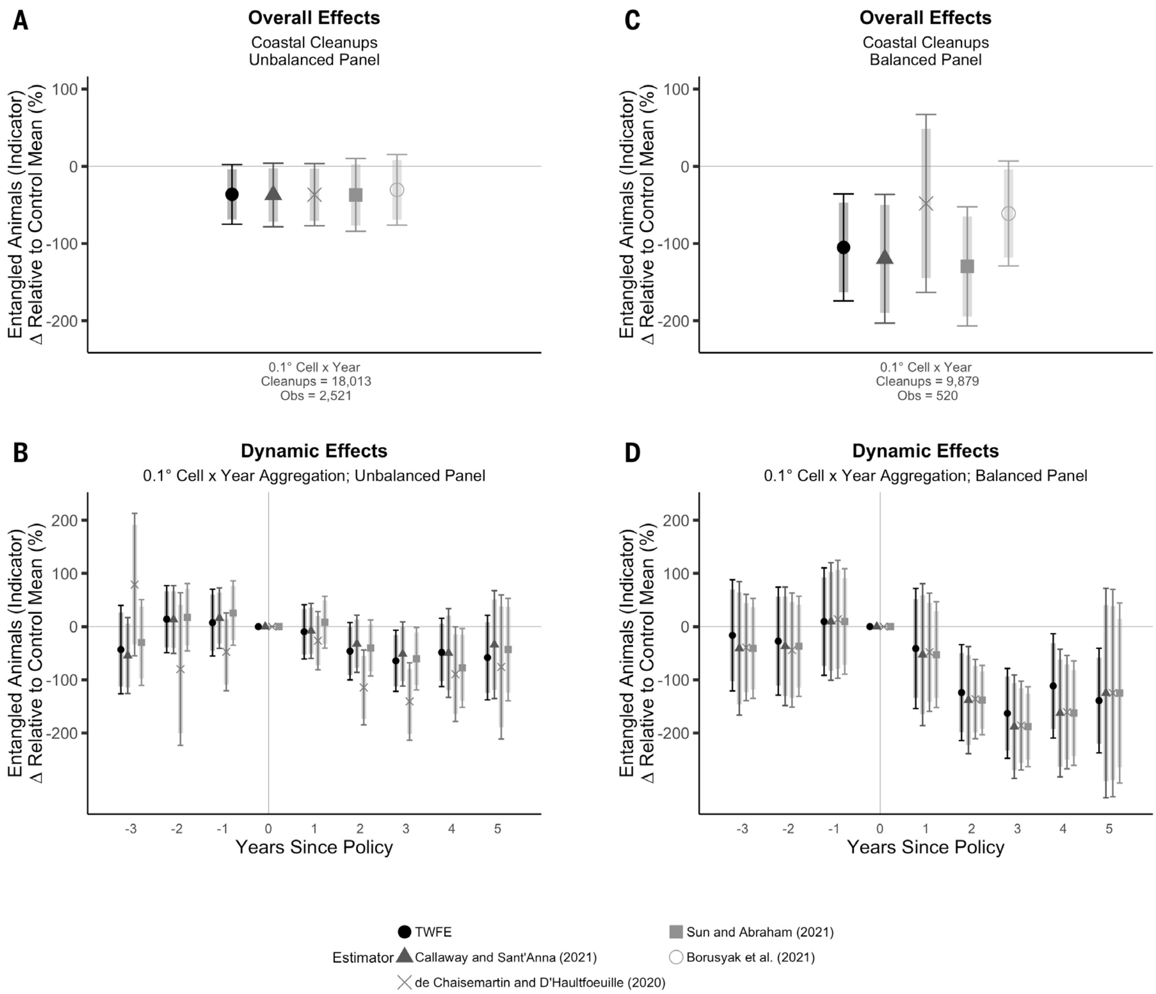

Fig. 5. Entangled animals. The effect of plastic bag policies on entangled animals found during coastal cleanups estimated according to eq. S1 using five estimators [TWFE and (*31*–*34*)]. The outcome variable is an indicator dummy variable that is set to 1 if there are entangled animals (injured or dead) found during cleanups in the relevant 0.1° grid cell and year. We repeat our analysis using a conditional logit model (table S5) and using the number of entangled animals as an outcome variable (fig. S16). Entanglement in materials other than plastic bags is excluded (although material is noted only for 7.1% of entanglement events). Data were retained for entangled animals with missing entries for entanglement debris. (**A**) Overall effects for the entire (unbalanced) sample, according to eq. S1. (**B**) Dynamic effects for the 0.1° grid cell by year aggregation level, according to eq. S2. (**C** and **D**) Results in (A) and (B), respectively, but for a balanced panel subset. In all panels, thick lines show 90% confidence interval, and thin lines show 95% confidence interval. Standard errors clustered by zip code.

treated if it is located inside a zip code that is treated. If there are multiple zip codes in a grid cell, then we use the zip code first treated for the purposes of our analyses. The 45,067 cleanups used in our main analyses are limited to 2016–2023 (data before 2016 is sparse) and exclude areas with existing or repealed policies as well as spillover areas.

We use a straightforward difference-in-differences empirical strategy that leverages the rollout of plastic bag policies across the United States. The simplest empirical model we use is a two-way fixed effects regression, where we regress the outcome of interest from the cleanup data on a treatment indicator dummy and unit (grid cell) and year fixed effects that control for time of year and local characteristics (eq. S1). To study the dynamics of treatment effects as well as to test for parallel trends, we also estimate an event-study version (eq. S2). In addition to this estimator, we also use heterogeneity-robust TWFE estimators proposed by (*31*–*34*). For more details on both materials and methods, see the full materials and methods section in the supplementary materials.

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