

**Electric Cooking After the Trial:  
Three-Year Impacts, Perceptions, and Preferences**

**Addendum – Wave 2 surveys & SUM data**

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**Trial location:** Goma, North Kivu, Eastern DRC

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This document is an addendum to the pre-analysis plan “*Electric Cooking After the Trial: Three-Year Impacts, Perceptions, and Preferences*” (AEA RCT Registry: <https://www.socialscisceregistry.org/trials/17612>). It implements two decisions that were explicitly anticipated in the original PAP: the inclusion of Wave 2 households, conditional on budgetary, security, supervision, and scale-up considerations; and the determination of the subsample for the pre-announced Stove Use Monitor (SUM) measurements.

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## **1. Original PAP**

This document constitutes an addendum to the pre-analysis plan “[\*Electric Cooking After the Trial: Three-Year Impacts, Perceptions, and Preferences\*](#)” (Registry ID: AEARCTR-0017612), which covers a +3-year follow-up of an RCT in Goma (Democratic Republic of Congo) that randomized offers of free Electric Pressure Cookers (EPCs), in which we assess whether 12-month impacts on EPC use and fuel substitution persist. We add spouse-specific modules on stove preferences and willingness to pay, and on beliefs about EPC use, time and cost savings, examining how these vary with EPC exposure and intra-household responsibility for charcoal and electricity payments.

## **2. Expansion of sample**

The initial PAP focused only on households in Wave 1 (N = 762; 462 treatment, 300 control), who received their EPC in August 2022. It specified that the inclusion of Wave 2 households would depend on four conditions: “(i) available budget; (ii) local security conditions; (iii) in-country presence of a PI or qualified supervisor; and (iv) whether a public scale-up is announced before fieldwork begins.” These conditions were sufficiently favorable to proceed, and we therefore decided to include Wave 2 households (N = 832; 572 treatment, 260 control), who received their EPC in August 2023.

## **3. SUM subsample determination**

The initial PAP announced that, in a subsample, Stove Use Monitors (SUMs) would measure on/off-peak EPC use and characterize stacking (using EPC and charcoal in the same meal) versus substitution (replacing charcoal with electricity). The PAP noted: “The size and stratification of the SUMs subsample cannot be defined at this point; it depends on SUM data accuracy (which will be tested internally) and device inventory (collected during the survey). We will publicize the SUM sample size in a dated PAP addendum (leaving this PAP unchanged).”

We have now determined the SUMs subsample size at 150 households. The sample will be drawn from households with a functioning EPC and stratified by the self-reported number of meals cooked with the EPC. The number of observations per stratum will be determined using Neyman allocation, which assigns more observations to strata with higher outcome variance and fewer observations to strata with lower variance. We will oversample slightly to allow for replacement households in case of refusal or failed SUM installation.

Selected households will be re-contacted by phone to obtain verbal consent and schedule installation. During the installation visit, trained staff will attach one SUM to the EPC and up to two additional SUMs to the household’s main charcoal stoves and, where present, to an LPG burner. In addition, in a subsample of households, we will install an ambient-temperature SUM in the cooking area, away from direct heat from any stove, sunlight, or ventilation outlets. These ambient-temperature readings will help calibrate the temperature thresholds used to identify EPC cooking events.

The installed SUM devices will allow us to validate self-reported EPC-use estimates, characterize the timing of cooking, and examine how households stack different fuels. SUM data will be collected for two months. In the analysis, we will exclude the first week after installation, as cooking behavior during this period may be affected by the Hawthorne effect.

#### **4. Adjusted Empirical Specification**

All main estimations will follow the empirical specifications outlined in the original PAP. For analyses pooling Wave 1 and Wave 2, we will add wave fixed effects.

For electricity-consumption outcomes, we further clarify that we will exploit the monthly structure of the electricity-billing data. Specifically, we will estimate both an event-study specification and a two-way fixed-effects specification using all monthly observations from six months before EPC distribution until the month preceding the start of the public scale-up. These models will include household fixed effects and month fixed effects. The event-study specification will allow us to examine the dynamic evolution of treatment effects over time, while the two-way fixed-effects specification will estimate the average treatment effect over the post-distribution period.

Because SUM installation is implemented only for a subsample of households and may affect behavior once monitoring begins, these specifications will include an indicator for whether the household received a SUM, equal to one from the first month of monitoring onward.

#### **5. Public health contingency**

We are monitoring the evolving Ebola outbreak in eastern DRC. If public health conditions deteriorate, or if local authorities, ethics boards, or our field partner recommend limiting or suspending in-person data collection, we will comply with all applicable health protocols. In that case, fieldwork may be paused, adapted, or terminated prematurely. Any resulting deviations from the planned sample size, timing, or implementation of SUM installation and monitoring will be documented transparently in the final analysis.