Economics of Household Technology Adoption in Developing Countries: Evidence from Solar Technology Adoption in Rural India

—Supplementary Information—

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Contents

A1 Study Description **APP-2**

A2 Map of Study Setting **APP-4**

A3 Summary Statistics and Data Description **APP-5**

A4 Regression Results: OLS Panel Regressions **APP-10**

A5 Regression Results: Cross-Sectional Analyses **APP-11**

A6 Regression Results: Village Fixed-Effects Models **APP-16**

A7 Regression Results: Subsample Analysis by Survey Wave **APP-18**

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A1 Study Description

The microgrids were installed and data collected in Barabanki district in Uttar Pradesh state in India. In total, 49 habitations are included in the study. These 49 habitations were all non-electrified in the beginning of the study; all electrified habitations were removed from the sample before the random assignment of solar microgrids.

The timeline of the study runs as follows:

1. In February 2014, a baseline survey of study households was conducted.
2. Between February-July 2014, solar microgrids were offered to all habitations ($N = 49$).
3. In August 2014, a special "summer survey" of MGP subscribers at the time was conducted to assess customer experience and satisfaction.
4. In October 2014, a midline survey of the study households was conducted.
5. In June 2015, an endline survey of the study households was conducted.

For the baseline survey, a random sample of 16 households per habitation were interviewed. The 16 households were sampled within a 100-meter radius of the center of the habitation. The center of the habitation was defined as a concrete structure that would enable MGP to install a solar microgrid. As the patterns of technology adoption among the survey respondents show, this strategy performed well in ensuring that we surveyed households that would be able to adopt solar technology as provided by the MGP.

The survey lasted about 45 minutes and was conducted in Hindi by experienced enumerators. One member of the research team trained the enumerators and supervised data collection for each of the survey rounds. The survey included basic socio-economic information, detailed information about energy use and expenditures, as well as questions about perceptions, including risk aversion and entrepreneurial spirit. In the baseline and endline surveys, the goal was to interview the same person in each household that was interviewed in the baseline. If that person was not available for an entire day, another adult from the same household was interviewed. If the entire household was away or had migrated out, a replacement household was found.

The solar microgrid installation process began with entry into village by the MGP team. The team provided households in the habitation an opportunity to subscribe to the off-grid solar electricity service. The team offered the service both to households in our survey (16 for each habitation) and other households outside the survey. Households did not have to commit to the service; they were free to discontinue the subscription at any time. However, the households had to pay the 100 rupee monthly charge in advance. If MGP secured at least 10 subscriptions, a microgrid was installed. If there were fewer subscriptions, the microgrid was not installed.

While MGP attempted to install solar microgrids in 54 habitations, the installation failed in five habitations because of flooding. We do not include these habitations in the study because the households never had the possibility to adopt the solar technology. While the original field experiment described in Aklin et al. (2017) also uses additional habitations without solar microgrid installation as a control group, these habitations are not used in our study because without an MGP offer, households could not possibly adopt the solar technology.

Besides the surveys, we collected data from MGP on the solar microgrid installations. When a microgrid was installed, we sent an independent enumerator to verify that the installation was successful. In the end, we were able to verify that microgrid installation succeeded in 25 out of the 49 habitations in the study.

A2 Map of Study Setting

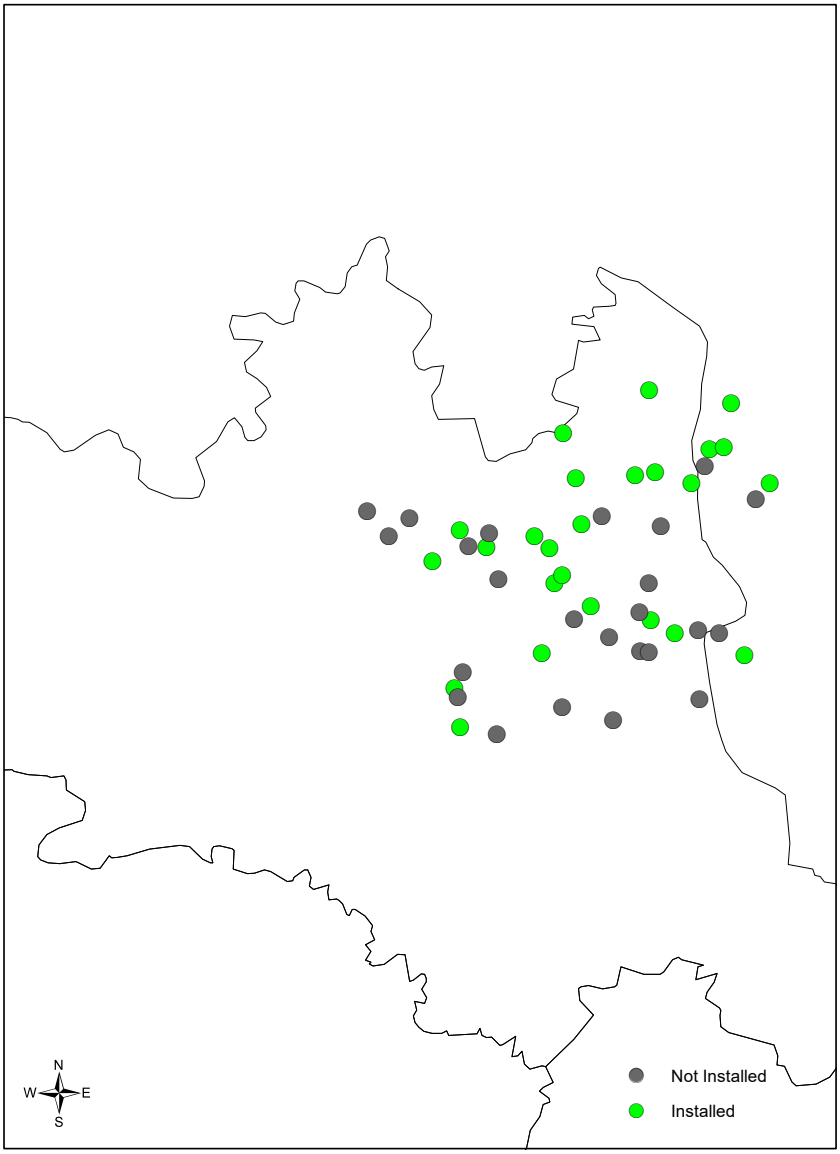

Figure A1: Locations of our 49 study habitations in Barabanki district and slightly outside it.

A3 Summary Statistics and Data Description

This section provides summary statistics, also disaggregated by adoption status at the habitation and household level.

- Table A1 shows summary statistics for all explanatory variables (pre-treatement) for the full sample.
- Tables A2 and A3 show summary statistics separately for adopting and non-adopting households in habitations in which MGP service was installed.
- Table A4 shows summary statistics for habitations without MGP service.
- Table A6 shows technology adoption by habitation and survey wave; it also provides information on habitation caste composition.

Summary statistics, full sample

	Mean	SD	Min	Max	#
HH expenditures (rupees/month, log)	8.24	0.54	6	10	778
HH savings (rupees/month, log)	4.47	3.37	0	9	778
HH in debt	0.49	0.50	0	1	778
Entrepreneurial spirit	6.27	2.45	0	11	778
Business owner	0.08	0.28	0	1	778
Risk aversion (experiment)	2.69	1.31	1	4	778
Trust in people (index)	3.55	0.79	1	5	778
Trust in firms (index)	2.98	1.13	1	5	778
Kerosene spending (PDS, rupees/month, log)	3.17	1.35	0	6	778
Kerosene spending (private, rupees/month, log)	3.30	1.99	0	6	778
HH electrification	0.03	0.18	0	1	778
HH size (#)	4.79	2.13	1	12	778
Age of HH head	38.70	13.27	18	82	778
School years of HH head	2.87	4.14	0	17	778
Scheduled caste	0.25	0.43	0	1	778
Backward caste	0.64	0.48	0	1	778
Lighting satisfaction	1.96	0.83	1	5	778
Solar power decreases lighting cost	0.76	0.43	0	1	778

Table A1: Summary statistics for main explanatory variables (pre-treatment) for full sample.

Summary statistics, subsample of habitations in which MGP service was installed

	Mean	SD	Min	Max	#
HH expenditures (rupees/month, log)	8.32	0.44	7	10	135
HH savings (rupees/month, log)	5.11	3.16	0	9	135
HH in debt	0.47	0.50	0	1	135
Entrepreneurial spirit	6.61	2.22	1	11	135
Business owner	0.10	0.30	0	1	135
Risk aversion (experiment)	2.61	1.31	1	4	135
Trust in people (index)	3.47	0.86	1	5	135
Trust in firms (index)	2.85	1.14	1	5	135
Kerosene spending (PDS, rupees/month, log)	3.01	1.42	0	5	135
Kerosene spending (private, rupees/month, log)	3.69	1.82	0	6	135
HH electrification	0.04	0.19	0	1	135
HH size (#)	4.69	2.21	1	11	135
Age of HH head	38.69	14.39	18	80	135
School years of HH head	2.60	4.00	0	17	135
Scheduled caste	0.17	0.38	0	1	135
Backward caste	0.75	0.44	0	1	135
Lighting satisfaction	1.98	0.76	1	4	135
Solar power decreases lighting cost	0.84	0.36	0	1	135

Table A2: Summary statistics for main explanatory variables (pre-treatment) for subsample of adopting households in habitations with MGP service.

Summary statistics, subsample of habitations in which MGP service was installed

	Mean	SD	Min	Max	#
HH expenditures (rupees/month, log)	8.20	0.58	6	10	264
HH savings (rupees/month, log)	4.33	3.42	0	9	264
HH in debt	0.48	0.50	0	1	264
Entrepreneurial spirit	5.90	2.44	0	11	264
Business owner	0.08	0.27	0	1	264
Risk aversion (experiment)	2.65	1.33	1	4	264
Trust in people (index)	3.56	0.78	1	5	264
Trust in firms (index)	2.94	1.10	1	5	264
Kerosene spending (PDS, rupees/month, log)	3.03	1.35	0	5	264
Kerosene spending (private, rupees/month, log)	3.42	1.91	0	6	264
HH electrification	0.03	0.16	0	1	264
HH size (#)	4.82	2.26	1	12	264
Age of HH head	40.14	13.64	19	75	264
School years of HH head	2.33	3.86	0	15	264
Scheduled caste	0.26	0.44	0	1	264
Backward caste	0.65	0.48	0	1	264
Lighting satisfaction	1.94	0.82	1	5	264
Solar power decreases lighting cost	0.73	0.44	0	1	264

Table A3: Summary statistics for main explanatory variables (pre-treatment) for subsample of non-adopting households in habitations with MGP service.

Summary statistics, subsample of habitations without MGP service

	Mean	SD	Min	Max	#
HH expenditures (rupees/month, log)	8.24	0.54	6	10	379
HH savings (rupees/month, log)	4.33	3.39	0	9	379
HH in debt	0.51	0.50	0	1	379
Entrepreneurial spirit	6.41	2.50	0	11	379
Business owner	0.08	0.28	0	1	379
Risk aversion (experiment)	2.74	1.29	1	4	379
Trust in people (index)	3.57	0.78	1	5	379
Trust in firms (index)	3.04	1.15	1	5	379
Kerosene spending (PDS, rupees/month, log)	3.32	1.30	0	6	379
Kerosene spending (private, rupees/month, log)	3.07	2.07	0	6	379
HH electrification	0.04	0.20	0	1	379
HH size (#)	4.81	2.01	1	12	379
Age of HH head	37.71	12.52	18	82	379
School years of HH head	3.35	4.34	0	17	379
Scheduled caste	0.26	0.44	0	1	379
Backward caste	0.59	0.49	0	1	379
Lighting satisfaction	1.97	0.87	1	5	379
Solar power decreases lighting cost	0.75	0.43	0	1	379

Table A4: Summary statistics for main explanatory variables (pre-treatment) for subsample of habitations without MGP service.

Means of key variables by adoption status (household and habitation level)

	Household level		Habitation level	
	Adopters	Non-adopters	w/o MGP	with MGP
HH expenditures (rupees/month, log)	8.22	8.31	8.24	8.24
HH savings (rupees/month, log)	4.33	5.09	4.34	4.59
HH in debt	0.50	0.47	0.51	0.48
Entrepreneurial spirit	6.20	6.62	6.42	6.14
Business owner	0.08	0.09	0.08	0.08
Risk aversion (experiment)	2.70	2.61	2.74	2.64
Trust in people (index)	3.56	3.47	3.56	3.53
Trust in firms (index)	3.00	2.87	3.04	2.91
Kerosene spending (PDS, rupees/month, log)	3.20	3.00	3.32	3.02
Kerosene spending (private, rupees/month, log)	3.22	3.68	3.08	3.51
HH electrification	0.03	0.04	0.04	0.03
HH size (#)	4.80	4.73	4.81	4.77
Age of HH head	38.70	38.71	37.80	39.65
School years of HH head	2.95	2.53	3.34	2.42
Scheduled caste	0.26	0.17	0.26	0.23
Backward caste	0.61	0.76	0.58	0.68
Lighting satisfaction	1.96	1.99	1.98	1.95
Solar power decreases lighting cost	0.74	0.85	0.76	0.77
Hindu	0.85	0.84	0.86	0.84
Muslim	0.15	0.16	0.14	0.16
Observations (#)	639	139	24	25

Table A5: Means of key variables (pre-treatment) by adoption status. Columns (2) and (3) show household level information, while columns (4) and (5) show habitation level information. Note that a household qualifies as an adopting household as long as it subscribed to MGP service at *one point during the study.*

Adoption by habitation and survey wave

#	Village	Habitation	Installed	HHs (#)	Caste S/B (#)	Midline #	Midline %	Endline #	Endline %
1	Akohara	Ganga Purwa	Y	16	0/16	15	0.937	11	0.687
2	Akohara	Patti Tola	N	12	3/0	0	0.000	0	0.000
3	Amrai Gaon	Bhund	N	16	0/16	0	0.000	0	0.000
4	Amrai Gaon	Farendaha	N	16	0/16	0	0.000	0	0.000
5	Amrai Gaon	Pandey Purwa	N	15/16	0/9	0	0.000	0	0.000
6	Bairanamau Manjhari	Tipra	N	15/16	0/15	0	0.000	0	0.000
7	Ballopur	Godiyan Purwa	Y	15/16	0/15	10	0.666	7	0.437
8	Baraiya	Babapurwa	N	16	1/14	0	0.000	0	0.000
9	Baraiya	Puraina Purwa	Y	16	16/0	4	0.250	3	0.187
10	Basantapur	Basantpur	N	13/15	7/1	0	0.000	0	0.000
11	Basoli	Khali Purwa	Y	16	9/7	2	0.125	0	0.000
12	Basoli	Kritpur Purwa	N	16	9/7	0	0.000	0	0.000
13	Bijhla	Badlu Purwa	Y	16	2/14	5	0.312	0	0.000
14	Bijhla	Ban Bijhla Khas	N	16	1/14	0	0.000	0	0.000
15	Bijhla	Deeha Gaon	Y	16	0/15	3	0.187	0	0.000
16	Bikepur	Ghosin Purwa	Y	16	0/16	13	0.812	9	0.562
17	Chandoora	Pathan Basti	N	16	0/3	0	0.000	0	0.000
18	Dhorchhiya	Malla Purwa	N	16	14/1	0	0.000	0	0.000
19	Durgapur Naubasta	Babari	Y	15/16	0/15	5	0.333	5	0.312
20	Endaura	Jaddopur	Y	16	0/14	15	0.937	13	0.812
21	Gauri Chak	Loniya Purwa	N	16	6/10	0	0.000	0	0.000
22	Hathoiya	Hathoiya Purwa	Y	16	8/8	1	0.062	1	0.062
23	Jafarpur	Katra	Y	16	5/11	2	0.125	2	0.125
24	Joroda	Bhund Purwa	N	16	16/0	0	0.000	0	0.000
25	Joroda	Satyen Purwa	Y	16	0/16	11	0.687	7	0.437
26	Kandarwal Khurd	Muslim Mohalla	N	16	0/16	0	0.000	0	0.000
27	Karmullapur	Kuti	Y	16	2/12	0	0.000	0	0.000
28	Karmullapur	Paschimi Tola	Y	16	0/16	6	0.375	1	0.062
29	Karsa Kala	Muslim Mohalla	N	15/16	0/9	0	0.000	0	0.000
30	Mallapur	Mallapur Khas	N	16	0/13	0	0.000	0	0.000
31	Mathura	Bada Karmullapur	N	16	0/16	4	0.250	0	0.000
32	Mausandi	Harijan Tola	Y	16	7/9	0	0.000	0	0.000
33	Mausandi	Sain Tola	Y	16	0/16	0	0.000	2	0.125
34	Meerpur	Bodamau	Y	16	3/13	0	0.000	0	0.000
35	Nandaupura	West Tola Salimpur	N	16	3/11	0	0.000	0	0.000
36	Parwatpur	Chamarhi	Y	16	16/0	7	0.437	5	0.312
37	Parwatpur	Gaya Ghat	Y	16	1/14	0	0.000	0	0.000
38	Parwatpur	Khas Parwatpur	Y	16	0/10	9	0.562	8	0.500
39	Parwatpur	Lakhapur	Y	12/15	0/12	7	0.583	7	0.466
40	Parwatpur	Madhawpurwa	Y	15	3/12	2	0.133	0	0.000
41	Parwatpur	Nawa Gaon	N	16	7/6	0	0.000	0	0.000
42	Parwatpur	Tewarain Purwa	Y	16	0/16	2	0.125	3	0.187
43	Phoolpur	Nayi Dunia	Y	16	0/15	0	0.000	0	0.000
44	Rahta	Pokhai Purwa	Y	15/16	15/0	9	0.600	8	0.500
45	Sekhupura	Chamaran Purwa	N	16	16/0	0	0.000	0	0.000
46	Sekhupura	Sekhupura Khas	N	16	15/1	0	0.000	0	0.000
47	Semrai	Katari Poorvi Tola	N	15/16	1/5	0	0.000	0	0.000
48	Shahpurwa	Shahpurwa	N	16	4/12	0	0.000	0	0.000
49	Surihamau	Takiya	N	16	0/16	0	0.000	0	0.000
	Total		25	765/777	190/503	132	0.172	92	0.118

Table A6: MGP adoption by habitation and survey wave. Column (4) shows whether MGP service was installed and column (5) shows the number of surveyed households, with two values indicating midline/endline counts (if different). Column (6) provides caste information where the first and second number is the count of scheduled caste ('S') and backward caste ('B') household heads; numbers do *not* have to sum to the number of total survey households as some households fall in the 'other' category. Columns (7)-(10) show the number/share of adopting households by wave.

A4 Regression Results: OLS Panel Regressions

OLS panel regressions: Technology adoption

	Full sample				Subsample: MGP service installed			
	(1) Model	(2) Model	(3) Model	(4) Model	(5) Model	(6) Model	(7) Model	(8) Model
HH expenditures (rupees/month, log)	0.05**	0.05**	0.05**	0.05*	0.11***	0.10**	0.10**	0.09*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.04)	(0.05)
HH savings (rupees/month, log)	0.01***	0.01***	0.01***	0.01***	0.02***	0.02***	0.01***	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
HH in debt	-0.02	-0.02	-0.02	-0.01	-0.01	-0.02	-0.02	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)
Entrepreneurial spirit		0.01*	0.01**	0.01**		0.02***	0.02***	0.02***
		(0.01)	(0.00)	(0.01)		(0.01)	(0.01)	(0.01)
Business owner		-0.00	-0.00	-0.01		0.03	0.03	0.03
		(0.05)	(0.05)	(0.05)		(0.09)	(0.09)	(0.08)
Risk aversion (experiment)		-0.01	-0.01	-0.00		-0.00	-0.01	0.00
		(0.01)	(0.01)	(0.01)		(0.02)	(0.02)	(0.01)
Trust in people (index)			-0.01	-0.02			-0.02	-0.02
			(0.02)	(0.01)			(0.02)	(0.03)
Trust in firms (index)			-0.01	-0.01			-0.01	-0.01
			(0.02)	(0.01)			(0.02)	(0.02)
Kerosene spending (PDS, rupees/month, log)				-0.00				0.01
				(0.01)				(0.02)
Kerosene spending (private, rupees/month, log)				0.01				0.01
				(0.01)				(0.02)
HH electrification				0.02				0.05
				(0.09)				(0.08)
HH size (#)				-0.01				-0.01
				(0.01)				(0.01)
Age of HH head				-0.00				-0.00
				(0.00)				(0.00)
School years of HH head				-0.01*				-0.01
				(0.00)				(0.01)
Scheduled caste				0.02				0.02
				(0.06)				(0.11)
Backward caste				0.10**				0.11
				(0.04)				(0.08)
Lighting satisfaction				0.01				0.01
				(0.02)				(0.03)
Solar power decreases lighting cost				0.06*				0.08
				(0.03)				(0.05)
Observations	1530	1530	1530	1530	784	784	784	784
Habitations	49	49	49	49	25	25	25	25

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Panel models for full sample and for subsample of habitations with MGP service.

A5 Regression Results: Cross-Sectional Analyses

This section shows additional regression results for cross-sectional data.

- Tables A8 and A10 show results from logistic regressions for midline and endline data.
- Tables A10 and A11 show results from linear probability models (LPM) for midline and endline data.

Logistic regressions: Technology adoption, midline data

	(1) Model	(2) Model	(3) Model	(4) Model
HH expenditures (rupees/month, log)	1.36*	1.30	1.26	1.29
	(0.22)	(0.22)	(0.21)	(0.27)
HH savings (rupees/month, log)	1.08***	1.08***	1.08***	1.09***
	(0.03)	(0.03)	(0.03)	(0.03)
HH in debt	0.89	0.88	0.87	0.95
	(0.24)	(0.24)	(0.24)	(0.25)
Entrepreneurial spirit		1.08*	1.09**	1.13***
		(0.05)	(0.04)	(0.05)
Business owner		1.08	1.08	0.98
		(0.42)	(0.42)	(0.39)
Risk aversion (experiment)		0.96	0.95	0.98
		(0.08)	(0.08)	(0.07)
Trust in people (index)			0.90	0.86
			(0.13)	(0.12)
Trust in firms (index)			0.89	0.87
			(0.12)	(0.11)
Kerosene spending (PDS, rupees/month, log)				0.98
				(0.08)
Kerosene spending (private, rupees/month, log)				1.10
				(0.09)
HH electrification				1.06
				(0.79)
HH size (#)				0.94
				(0.04)
Age of HH head				1.00
				(0.01)
School years of HH head				0.95*
				(0.03)
Scheduled caste				1.18
				(0.90)
Backward caste				2.66*
				(1.33)
Lighting satisfaction				1.14
				(0.19)
Solar power decreases lighting cost				1.98**
				(0.60)
Observations	765	765	765	765
Habitations	49	49	49	49
Pseudo R^2	0.014	0.019	0.024	0.069

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Cross-sectional analysis (odds-ratios) of technology adoption (midline data).

Logistic regressions: Technology adoption, endline data

	(1) Model	(2) Model	(3) Model	(4) Model
HH expenditures (rupees/month, log)	1.93***	1.87***	1.85***	1.89***
	(0.41)	(0.40)	(0.39)	(0.41)
HH savings (rupees/month, log)	1.09**	1.09**	1.09**	1.09**
	(0.04)	(0.04)	(0.04)	(0.04)
HH in debt	0.81	0.80	0.80	0.84
	(0.23)	(0.23)	(0.24)	(0.24)
Entrepreneurial spirit		1.06	1.07*	1.10*
		(0.05)	(0.05)	(0.06)
Business owner		0.84	0.83	0.78
		(0.40)	(0.39)	(0.37)
Risk aversion (experiment)		0.95	0.94	0.98
		(0.08)	(0.08)	(0.07)
Trust in people (index)			0.88	0.84
			(0.12)	(0.10)
Trust in firms (index)			0.95	0.94
			(0.12)	(0.12)
Kerosene spending (PDS, rupees/month, log)				0.99
				(0.09)
Kerosene spending (private, rupees/month, log)				1.10
				(0.08)
HH electrification				1.31
				(0.92)
HH size (#)				0.95
				(0.06)
Age of HH head				0.99
				(0.01)
School years of HH head				0.96
				(0.03)
Scheduled caste				1.32
				(1.03)
Backward caste				2.17
				(1.08)
Lighting satisfaction				0.90
				(0.19)
Solar power decreases lighting cost				1.36
				(0.49)
Observations	777	777	777	777
Habitations	49	49	49	49
Pseudo R^2	0.029	0.033	0.035	0.058

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Cross-sectional analysis (odds-ratios) of technology adoption (endline data).

Linear probability models: Technology adoption, midline data

	(1) Model	(2) Model	(3) Model	(4) Model
HH expenditures (rupees/month, log)	0.04*	0.04	0.03	0.03
	(0.02)	(0.02)	(0.02)	(0.03)
HH savings (rupees/month, log)	0.01**	0.01**	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
HH in debt	-0.02	-0.02	-0.02	-0.01
	(0.04)	(0.04)	(0.04)	(0.04)
Entrepreneurial spirit		0.01*	0.01**	0.01**
		(0.01)	(0.01)	(0.01)
Business owner		0.01	0.01	0.00
		(0.06)	(0.06)	(0.06)
Risk aversion (experiment)		-0.01	-0.01	-0.00
		(0.01)	(0.01)	(0.01)
Trust in people (index)			-0.02	-0.02
			(0.02)	(0.02)
Trust in firms (index)			-0.02	-0.02
			(0.02)	(0.02)
Kerosene spending (PDS, rupees/month, log)				-0.00
				(0.01)
Kerosene spending (private, rupees/month, log)				0.01
				(0.01)
HH electrification				0.01
				(0.11)
HH size (#)				-0.01
				(0.01)
Age of HH head				0.00
				(0.00)
School years of HH head				-0.01
				(0.00)
Scheduled caste				0.02
				(0.07)
Backward caste				0.12**
				(0.06)
Lighting satisfaction				0.02
				(0.02)
Solar power decreases lighting cost				0.09**
				(0.03)
Observations	765	765	765	765
Habitations	49	49	49	49
R^2	0.012	0.018	0.022	0.059

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Cross-sectional LPM analysis of technology adoption (midline data).

Linear probability models: Technology adoption, endline data

	(1) Model	(2) Model	(3) Model	(4) Model
HH expenditures (rupees/month, log)	0.07**	0.06**	0.06**	0.06**
	(0.02)	(0.02)	(0.02)	(0.03)
HH savings (rupees/month, log)	0.01**	0.01**	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
HH in debt	-0.02	-0.02	-0.02	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)
Entrepreneurial spirit		0.01	0.01*	0.01*
		(0.00)	(0.00)	(0.00)
Business owner		-0.02	-0.02	-0.02
		(0.05)	(0.05)	(0.05)
Risk aversion (experiment)		-0.01	-0.01	-0.00
		(0.01)	(0.01)	(0.01)
Trust in people (index)			-0.01	-0.02
			(0.01)	(0.01)
Trust in firms (index)			-0.00	-0.01
			(0.01)	(0.01)
Kerosene spending (PDS, rupees/month, log)				-0.00
				(0.01)
Kerosene spending (private, rupees/month, log)				0.01
				(0.01)
HH electrification				0.03
				(0.09)
HH size (#)				-0.01
				(0.01)
Age of HH head				-0.00
				(0.00)
School years of HH head				-0.00
				(0.00)
Scheduled caste				0.02
				(0.06)
Backward caste				0.07*
				(0.04)
Lighting satisfaction				-0.01
				(0.02)
Solar power decreases lighting cost				0.03
				(0.03)
Observations	777	777	777	777
Habitations	49	49	49	49
R^2	0.021	0.024	0.025	0.040

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Cross-sectional LPM analysis of technology adoption (endline data).

A6 Regression Results: Village Fixed-Effects Models

This section shows estimation results for the same set of models as presented in the paper's results section, while adding village fixed-effects. In the main text, we discussed that habitation fixed effects are problematic in our case as these are likely to introduce bias as all habitations are dropped from the estimation in which either no microgrid was installed (24 habitations) or where microgrids were installed but we did not end up having MGP customers in our random sample of survey respondents (5 habitations).

Nonetheless, to address concerns about spatial heterogeneity, we introduced village level fixed-effects here and re-estimated our main models. The village level is India's administrative division above the habitation level and hence useful for the purpose of controlling for unobserved (spatial) heterogeneity. Our 49 habitations are clustered in 33 villages.

Logistic regressions: Technology adoption, village fixed-effects

	Full sample				Subsample: MGP service installed			
	(1) Model	(2) Model	(3) Model	(4) Model	(5) Model	(6) Model	(7) Model	(8) Model
HH expenditures (rupees/month, log)	3.51**	3.08**	3.02**	3.37*	3.62*	3.19*	3.28*	3.70*
	(2.01)	(1.65)	(1.55)	(2.10)	(2.47)	(2.10)	(2.07)	(2.55)
HH savings (rupees/month, log)	1.19**	1.16**	1.13*	1.13**	1.23**	1.20**	1.16**	1.15*
	(0.08)	(0.08)	(0.07)	(0.07)	(0.10)	(0.09)	(0.08)	(0.08)
HH in debt	1.29	1.31	1.45	1.83	1.08	1.05	1.14	1.22
	(0.70)	(0.72)	(0.82)	(1.09)	(0.57)	(0.57)	(0.65)	(0.67)
Entrepreneurial spirit		1.21**	1.28***	1.37***		1.19*	1.26**	1.29**
		(0.11)	(0.12)	(0.16)		(0.12)	(0.13)	(0.14)
Business owner		7.53**	5.70**	4.34		5.86*	4.50	4.88
		(6.58)	(4.86)	(4.12)		(5.72)	(4.26)	(4.87)
Risk aversion (experiment)		0.97	0.96	1.04		1.09	1.11	1.15
		(0.19)	(0.17)	(0.16)		(0.18)	(0.17)	(0.19)
Trust in people (index)			0.40***	0.39***			0.43***	0.45**
			(0.14)	(0.13)			(0.13)	(0.14)
Trust in firms (index)			1.11	1.03			1.24	1.22
			(0.27)	(0.24)			(0.22)	(0.23)
Kerosene spending (PDS, rupees/month, log)				0.65**				0.64**
				(0.12)				(0.12)
Kerosene spending (private, rupees/month, log)				0.94				0.88
				(0.17)				(0.19)
HH electrification				0.37				1.56
				(0.53)				(1.95)
HH size (#)				0.95				0.96
				(0.14)				(0.15)
Age of HH head				1.02				1.03
				(0.02)				(0.02)
School years of HH head				1.01				1.08
				(0.07)				(0.08)
Scheduled caste				0.82				0.85
				(1.44)				(1.33)
Backward caste				5.61				1.04
				(7.85)				(0.97)
Lighting satisfaction				1.06				0.99
				(0.40)				(0.36)
Solar power decreases lighting cost				2.09				1.13
				(1.59)				(0.87)
Village FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	936	936	936	936	720	720	720	720
Habitations	30	30	30	30	23	23	23	23

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Panel models (odds-ratios) from main text with village fixed-effects.

A7 Regression Results: Subsample Analysis by Survey Wave

This section presents estimation results for the subsample of habitations in which MGP service was installed, separately by survey wave.

- Table A13 shows estimation results for midline data for habitations in which MGP service was installed.
- Table A14 shows estimation results for endline data for habitations in which MGP service was installed.

Logistic regressions: Technology adoption, midline data

	(1) Model	(2) Model	(3) Model	(4) Model
HH expenditures (rupees/month, log)	1.49*	1.42	1.38	1.34
	(0.31)	(0.31)	(0.31)	(0.37)
HH savings (rupees/month, log)	1.09***	1.08**	1.08**	1.08**
	(0.03)	(0.03)	(0.03)	(0.04)
HH in debt	0.99	0.94	0.96	1.05
	(0.27)	(0.25)	(0.26)	(0.29)
Entrepreneurial spirit		1.14***	1.15***	1.16***
		(0.06)	(0.05)	(0.05)
Business owner		1.35	1.35	1.34
		(0.64)	(0.61)	(0.61)
Risk aversion (experiment)		1.00	0.98	1.03
		(0.10)	(0.09)	(0.08)
Trust in people (index)			0.91	0.88
			(0.14)	(0.15)
Trust in firms (index)			0.90	0.89
			(0.14)	(0.14)
Kerosene spending (PDS, rupees/month, log)				1.05
				(0.10)
Kerosene spending (private, rupees/month, log)				1.08
				(0.10)
HH electrification				1.10
				(0.45)
HH size (#)				0.93
				(0.04)
Age of HH head				0.99
				(0.01)
School years of HH head				0.97
				(0.03)
Scheduled caste				1.06
				(0.75)
Backward caste				1.98
				(1.03)
Lighting satisfaction				1.17
				(0.21)
Solar power decreases lighting cost				1.92**
				(0.59)
Observations	392	392	392	392
Habitations	25	25	25	25
Pseudo R^2	0.020	0.036	0.039	0.068

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: Cross-sectional models (odds-ratios) for subsample of habitations with MGP service (midline data).

Logistic regressions: Technology adoption, endline data

	(1) Model	(2) Model	(3) Model	(4) Model
HH expenditures (rupees/month, log)	2.21***	2.14***	2.16***	2.14***
	(0.56)	(0.54)	(0.53)	(0.52)
HH savings (rupees/month, log)	1.09**	1.08**	1.08**	1.07*
	(0.04)	(0.04)	(0.04)	(0.04)
HH in debt	0.84	0.80	0.81	0.84
	(0.23)	(0.22)	(0.22)	(0.23)
Entrepreneurial spirit		1.11**	1.12**	1.12**
		(0.06)	(0.06)	(0.06)
Business owner		0.92	0.90	0.91
		(0.47)	(0.46)	(0.45)
Risk aversion (experiment)		0.98	0.98	1.02
		(0.09)	(0.08)	(0.08)
Trust in people (index)			0.88	0.85
			(0.11)	(0.10)
Trust in firms (index)			1.03	1.03
			(0.14)	(0.14)
Kerosene spending (PDS, rupees/month, log)				1.05
				(0.12)
Kerosene spending (private, rupees/month, log)				1.07
				(0.09)
HH electrification				1.44
				(0.67)
HH size (#)				0.96
				(0.06)
Age of HH head				0.99
				(0.01)
School years of HH head				0.97
				(0.04)
Scheduled caste				1.19
				(0.90)
Backward caste				1.54
				(0.79)
Lighting satisfaction				0.89
				(0.19)
Solar power decreases lighting cost				1.24
				(0.44)
Observations	398	398	398	398
Habitations	25	25	25	25
Pseudo R^2	0.039	0.049	0.051	0.064

Dependent Variable: MGP adoption.
Standard errors in parentheses and clustered by habitation.
All explanatory variables are measured pre-treatment.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A14: Cross-sectional models (odds-ratios) for subsample of habitations with MGP service (endline data).

Supplementary Appendix: References

Aklin, Michaël, Patrick Bayer, S.P. Harish, and Johannes Urpelainen. 2017. "Does Basic Energy Access Generate Socioeconomic Benefits? A Field Experiment with Off-Grid Solar Power in India." *Science Advances* 3 (5): e1602153.