

A Appendix

A.1 Empirical Methodology

We make a number of structural assumptions in order to map from LHW allocations to discounting parameter distributions:

- First, we assume a stationary cost of effort function $c(v) = v^\gamma$, where v represents vaccinations performed on a given day, and $\gamma > 1$ captures convex costs of effort. In our pre-specified analysis plan, we posited γ to be constant across individuals and our tailoring exercise was conducted under the assumption of $\gamma = 2$, quadratic costs.

- Second, we assume that individuals discount the future quasi-hyperbolically such that for a given LHW, i , making allocation $(v_{1,i}, v_{2,i})$ the discounted disutility of effort can be written as

$$v_{1,i}^\gamma + \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^\gamma.$$

The indicator $\mathbf{1}_{d=1}$ captures whether the decision is made in advance or immediately on day 1.

- Third, we assume that the distribution of one period discount factors is normal in each condition

$$\begin{aligned} \delta_i &\sim N(\mu_\delta, \sigma_\delta^2) \quad \text{if } d = 0 \\ \beta_i \delta_i &\sim N(\mu_{\beta\delta}, \sigma_{\beta\delta}^2) \quad \text{if } d = 1. \end{aligned}$$

- Fourth, we assume that LHWs minimize the discounted costs of effort subject to the intertemporal budget constraint provided by their bonus contract.

- Fifth, we assume vaccinators' behavior is not the deterministic function of their preferences provided in equations 1 and 2. Rather, their optimization is subject to an additive individual random shock to marginal costs, ϵ_i . We assume these random cost shocks to be normal and mean zero,

$$\epsilon_i \sim N(0, \sigma_\epsilon^2).$$

Minimizing discounted costs subject to the intertemporal budget constraint of the experiment and marginal cost shock yields a shock-adjusted marginal condition:

$$\gamma v_{1,i}^{\gamma-1} - \frac{\beta_i^{1-d=1} \delta_i}{R} \gamma v_{2,i}^{\gamma-1} = \epsilon_i.$$

- Sixth, we assume that despite our large bonus payments LHWs may not forecast completing all of their target vaccinations. Consider a LHW with probability $p(v_{1,i}, v_{2,i})$ of successfully completing her allocated targets. Hence, the expected disutility of effort is

$$p(v_{1,i}, v_{2,i})[v_{1,i}^\gamma + \beta_i^{1-d=1} \delta_i \cdot v_{2,i}^\gamma] + (1 - p(v_{1,i}, v_{2,i}))[v_{1,i}^n{}^\gamma + \beta_i^{1-d=1} \delta_i \cdot v_{2,i}^n{}^\gamma],$$

where $(v_{1,i}^n, v_{2,i}^n)$ are expected work to be completed on days one and two when not able to complete the contract. Similarly, the expected bonus utility is

$$p(v_{1,i}, v_{2,i})\delta^2 u(1000) + (1 - p(v_{1,i}, v_{2,i}))\delta^2 u(0),$$

for a 1000 rupee bonus paid following the second day of the drive. For simplicity, we normalize the net utility under non-completion, $\delta_i^2 u(0) - v_{1,i}^n{}^\gamma - \beta_i^{1-d=1} \delta_i \cdot v_{2,i}^n{}^\gamma$, to be zero (e.g., no work and no additional earnings). Under this assumption, allocations are delivered by

the constrained optimization problem

$$\begin{aligned} \max_{v_{1,i}, v_{2,i}} p(v_{1,i}, v_{2,i}) [\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{1-d=1} \delta_i \cdot v_{2,i}^\gamma] \\ \text{s.t. } v_{1,i} + Rv_{2,i} = V. \end{aligned}$$

The corresponding shock-adjusted marginal condition,

$$\gamma v_{1,i}^{\gamma-1} - \frac{\beta_i^{1-d=1} \delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{\frac{\partial p(v_{1,i}, v_{2,i})}{\partial v_{1,i}} - \frac{1}{R} \frac{\partial p(v_{1,i}, v_{2,i})}{\partial v_{2,i}}}{p(v_{1,i}, v_{2,i})} \right) [\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{1-d=1} \delta_i \cdot v_{2,i}^\gamma] = \epsilon_i$$

highlights a central tradeoff between discounted marginal costs and marginal completion probabilities. If the probability of success is independent of choice, $\frac{\partial p(v_{1,i}, v_{2,i})}{\partial v_{1,i}} = \frac{\partial p(v_{1,i}, v_{2,i})}{\partial v_{2,i}} = 0$, the likelihood formulation without adjusting for completion provided in the main text is maintained. Otherwise, probabilistic completion can create a wedge, influencing choice and estimates.

The challenge created by probabilistic completion can be overcome with additional assumptions of functional form and internal consistency. Provided a functional form for $p(v_{1,i}, v_{2,i})$, we assume LHWs know the correct mapping,

$$p(v_{1,i}, v_{2,i}) = p^*(v_{1,i}, v_{2,i}),$$

where $p^*(v_{1,i}, v_{2,i})$ is the true completion probability induced by a given allocation $(v_{1,i}, v_{2,i})$. The researcher observes either success or failure as draws from the distribution $p^*(v_{1,i}, v_{2,i})$.³⁶ To provide a functional form for $p(v_{1,i}, v_{2,i})$, we assume that the

³⁶Hence, the function $p(v_{1,i}, v_{2,i})$, known to the LHW, can be recovered from choice and observed success. It is as if $p(v_{1,i}, v_{2,i})$ represents the physical possibility of achieving a given allocation. Given that we assume all LHWs know this mapping, we assume away failures of rational expectations such as believing one can achieve with higher probability than the truth. Intuitively, as in DellaVigna and Malmendier (2006) such misguided beliefs about efficacy would carry quite similar predictions to those of present-biased preferences.

probability of completing a target of v on day 1 or 2 is

$$p_1(v) = p_2(v) = \frac{1}{1 + \alpha v},$$

with α homogeneous in the population. Provided $\alpha > 0$, this completion function assumes that success is assured at $v = 0$ and diminishes as v increases. As such $p(v_{1,i}, v_{2,i}) = \frac{1}{1 + \alpha v_{1,i}} \frac{1}{1 + \alpha v_{2,i}}$.

Under this form of probabilistic completion two conditions obtain:

$$\gamma v_{1,i}^{\gamma-1} - \frac{\beta_i^{\mathbf{1}_{d=1}} \delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1 + \alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1 + \alpha v_{2,i})} \right) [\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^\gamma] = \epsilon_i,$$

$$\frac{1}{1 + \alpha v_{1,i}} \frac{1}{1 + \alpha v_{2,i}} = \mathbf{1}_{p^*(v_{1,i}, v_{2,i})},$$

where $\mathbf{1}_{p^*(v_{1,i}, v_{2,i})}$ is an indicator for whether the LHW completed their targets, a draw from the correct mapping.

In effect, imposing internal consistency on completion rates allows the researcher to quantify the wedge induced by considering marginal completion probabilities. It is important to note that without quality data on actual completion, the exercise would be effectively impossible; highlighting the value of our implemented monitoring technology. Naturally, the estimates may be sensitive to the imposed functional form of $p(v_{1,i}, v_{2,i})$. In Appendix Table A.1, we reconduct the analysis of Table 2, columns (3) and (6) with an alternate functional form, $p(v_1, v_2) = \frac{1}{1 + \alpha'(v_1^2 + v_2^2)}$. This functional form carries the property that success probabilities are declining with the volume of work as long as $\alpha' > 0$. Very limited differences are observed in the estimates of discounting across this functional forms and the one used in the main text.

An additional issue generated by probabilistic completion is the presence of monetary utility, $u(1000)$. This value partially pins down the magnitude of the wedge created by

marginal completion probabilities. Indeed the net utility of completion, $[\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^\gamma]$, can be set to any number with suitable definition of $u(1000)$. Of course, for allocations to carry any information, an obvious participation constraint needs to be satisfied,

$$[\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^\gamma] \geq \delta_i^2 u(0) - v_{1,i}^{\gamma} - \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^{\gamma} = 0.^{37}$$

To understand how slack this constraint was, we asked our LHWs survey questions attempting to identify the minimum bonus they would require to participate in the program again. Of 330 respondents, 329 said they would participate again for the same 1000 rupees bonus while only 42 said they would participate again if the bonus were 900 rupees. Of course, such responses can be difficult to interpret given a lack of incentives, but one view is that the value $[\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^\gamma]$ may be only slightly higher than the normalized non-participation value of zero. When assessing probabilistic completion in the main text we set $[\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{\mathbf{1}_{d=1}} \delta_i \cdot v_{2,i}^\gamma] = 100$. In Appendix Table A.2, we reconduct the analysis of Table 2, columns (3) and (6) assuming this net utility equal to 1000 or to 10000. Only small changes in the estimates are observed.

Under the above assumptions, the conditional likelihood of an allocation $(v_{1,i}, v_{2,i})$ and

³⁷Otherwise the LHW would want to set $v_{1,i}, v_{2,i}$ to increase the probability of non-completion.

completion, $c_i \in \{0, 1\}$ given $\beta_i^{1-d} \delta_i$ and α is

$$\begin{aligned}
L(v_{1,i}, v_{2,i}, c_i | \delta_i, \alpha) &= \left(\frac{1}{1+\alpha v_{1,i}} \frac{1}{1+\alpha v_{2,i}} \right) \phi \left(\frac{\gamma v_{1,i}^{\gamma-1} - \frac{\delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1+\alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1+\alpha v_{2,i})} \right) [100]}{\sigma_\epsilon} \right) & \text{if } d = 0, c_i = 1, \\
L(v_{1,i}, v_{2,i}, c_i | \delta_i, \alpha) &= \left(1 - \frac{1}{1+\alpha v_{1,i}} \frac{1}{1+\alpha v_{2,i}} \right) \phi \left(\frac{\gamma v_{1,i}^{\gamma-1} - \frac{\delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1+\alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1+\alpha v_{2,i})} \right) [100]}{\sigma_\epsilon} \right) & \text{if } d = 0, c_i = 0, \\
L(v_{1,i}, v_{2,i}, c_i | \delta_i, \alpha) &= \phi \left(\frac{\gamma v_{1,i}^{\gamma-1} - \frac{\delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1+\alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1+\alpha v_{2,i})} \right) [100]}{\sigma_\epsilon} \right) & \text{if } d = 0, c_i = ., \\
L(v_{1,i}, v_{2,i}, c_i | \beta \delta_i, \alpha) &= \left(\frac{1}{1+\alpha v_{1,i}} \frac{1}{1+\alpha v_{2,i}} \right) \phi \left(\frac{\gamma v_{1,i}^{\gamma-1} - \frac{\beta \delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1+\alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1+\alpha v_{2,i})} \right) [100]}{\sigma_\epsilon} \right) & \text{if } d = 1, c_i = 1, \\
L(v_{1,i}, v_{2,i}, c_i | \beta \delta_i, \alpha) &= \left(1 - \frac{1}{1+\alpha v_{1,i}} \frac{1}{1+\alpha v_{2,i}} \right) \phi \left(\frac{\gamma v_{1,i}^{\gamma-1} - \frac{\beta \delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1+\alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1+\alpha v_{2,i})} \right) [100]}{\sigma_\epsilon} \right) & \text{if } d = 1, c_i = 0, \\
L(v_{1,i}, v_{2,i}, c_i | \beta \delta_i, \alpha) &= \phi \left(\frac{\gamma v_{1,i}^{\gamma-1} - \frac{\beta \delta_i}{R} \gamma v_{2,i}^{\gamma-1} - \left(\frac{-\alpha}{(1+\alpha v_{1,i})} - \frac{1}{R} \frac{-\alpha}{(1+\alpha v_{2,i})} \right) [100]}{\sigma_\epsilon} \right) & \text{if } d = 1, c_i = .,
\end{aligned}$$

where $\phi(\cdot)$ is the density of the standard normal distribution. Integrating over the relevant distribution of preference parameters in Advance and Immediate conditions gives the likelihoods

$$L(v_{1,i}, v_{2,i}, c_i) = \int L(v_{1,i}, v_{2,i}, c_i | \delta_i, \alpha) f(\delta_i) d\delta_i \quad \text{if } d = 0 \quad (7)$$

$$L(v_{1,i}, v_{2,i}, c_i) = \int L(v_{1,i}, v_{2,i}, c_i | \beta \delta_i, \alpha) g(\beta_i \delta_i) d\beta_i \delta_i \quad \text{if } d = 1, \quad (8)$$

where $f(\cdot)$ and $g(\cdot)$ are the normal densities from which δ_i and $\beta_i \delta_i$ are drawn. We deploy the Method of Simulated Likelihood (MSL) with 1000 random Halton draws from the simulated distributions, $f(\cdot)$ and $g(\cdot)$, at each observation to estimate simulation analogs of equations (7) and (8). The average simulated likelihood over the 1000 draws is logged to arrived at a log simulated average likelihood, which is then maximized using the BFGS algorithm in Stata. The code for this estimator is provided below:

```

149 capture program drop moment_ml4
150 program define moment_ml4
151 * specify the arguments for the program
152     args lnf dbar dsd lnsd alpha
153     * declare temporary variables
154     tempvar td1 td2 R s mu1 mu2 sim_f sim_avef d g
155     quietly {
156         * initialize the data
157         generate double `td1' = $ML_y1
158         generate double `td2' = $ML_y2
159         generate double `R' = $ML_y3
160         generate double `s' = $ML_y4
161
162         * initiate simulation average likelihood
163         generate double `sim_avef' = 0
164
165         * set seed equivalent to prior seed
166         set seed 10101
167
168         * simulate likelihood at each draw of beta
169         forvalues drawnum = 1/1000 {
170
171             *draw delta
172             generate double `d' = `dbar' + exp(`dsd')*invnormal(draws1_`drawnum')
173
174             *establish gamma
175             generate double `g' = 2
176
177             * moment 1
178             generate double `mu1' = ( ///
179                 (`g'*`td1'^(`g'-1)- (1/`R')*(`d')*`g'*`td2'^(`g'-1)) ///
180                 - ///
181                 ( ///
182                     ((-`alpha'*((1+`alpha'*`td1'))^(-1))))*(Vval) ///
183                     - ///
184                     ((-`alpha'*((1+`alpha'*`td2'))^(-1)))/(`R'))*(Vval) ///
185                 ) ///
186             )
187
188             * moment 2
189             generate double `mu2' = (1/(1 + `alpha'*`td1'))*(1/(1 + `alpha'*`td2'))
190
191             *simulated likelihood
192             gen `sim_f' = .
193             replace `sim_f' = normalden(`mu1', 0, exp(`lnsd'))*`mu2' if `s'==1
194             replace `sim_f' = normalden(`mu1', 0, exp(`lnsd'))*(1-`mu2') if `s'==0
195             replace `sim_f' = normalden(`mu1', 0, exp(`lnsd'))*1 if `s'==-1
196
197             *update average simulated likelihood
198             replace `sim_avef' = `sim_avef' + (`sim_f'/1000)
199
200             * drop out values
201             drop `d' `g' `mu1' `mu2' `sim_f'
202
203         }
204
205         * Establish log simulated likelihood
206         replace `lnf' = ln(`sim_avef')
207
208     }
209
210 end

```

A.2 Appendix Figures

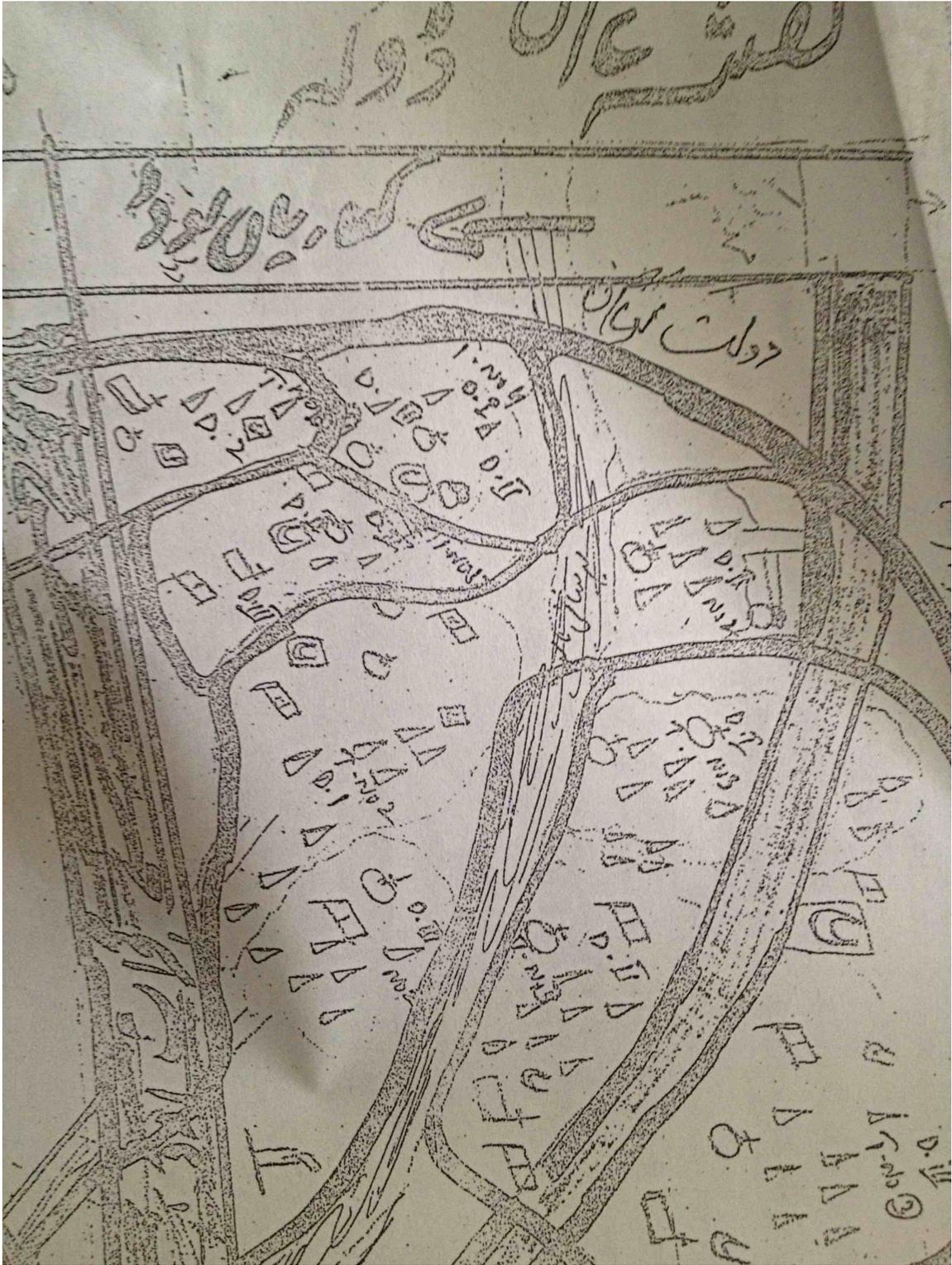


Figure A.1: Map Given to Vaccinators to Plan Route



Figure A.2: Picture of a Door-to-Door Vaccination During a Drive



Figure A.3: Chalk Marking to Record Visit by Vaccination Team

Area Incharge - Daily Teams' Data Compilation Sheet

Campaign Round: III Day 123 Catch-up

(Sheet to be filled by the Area In-Charge daily)

ایریا انچارج - ٹیموں کی روزانہ ڈیٹا کی شیٹ

District: طابشہ Tehsil: طابشہ UC: طابشہ Date: 29/8/19

No of Teams: 7 Mobile: 6 Fixed: 1 Transit Team: 0

Team No.	Team Leader and Team Member Name	Daily target children	Children vaccinated by teams		Total No. of house holds visited	Total No. of house holds with 2 or more married couples	Missed children recorded on the back of tally sheet	No. of Children vaccinated by transit teams	No. of Mobile / Migratory Children Covered	No. of AFP cases reported	No. of Zero Dose Children	Target children and vaccine distribution record	Report of non-responders	
			0-6 Months	6-59 Months									Missing	Refused
1	محمد علی	130												
2	محمد علی	140												
3	محمد علی	158												
4	محمد علی	167												
5	محمد علی	134												
6	محمد علی	154												
7	محمد علی	0												
8	محمد علی													
9	محمد علی													
10	محمد علی													
	Total	883												

Name of Area In Charge: محمد علی
Signature of Area In Charge: [Signature]

Four Stages of (VVM)

- Stage 1: Initial state of the vaccine vial monitor.
- Stage 2: First stage of color change.
- Stage 3: Second stage of color change.
- Stage 4: Final stage of color change.

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Figure A.4: End-of-Day Compilation of Self-Reports by Vaccination Teams



Track Vaccinator

CERP | Center for Economic
Research in Pakistan
تجزیاتی ریسرچ پولی پاکستان

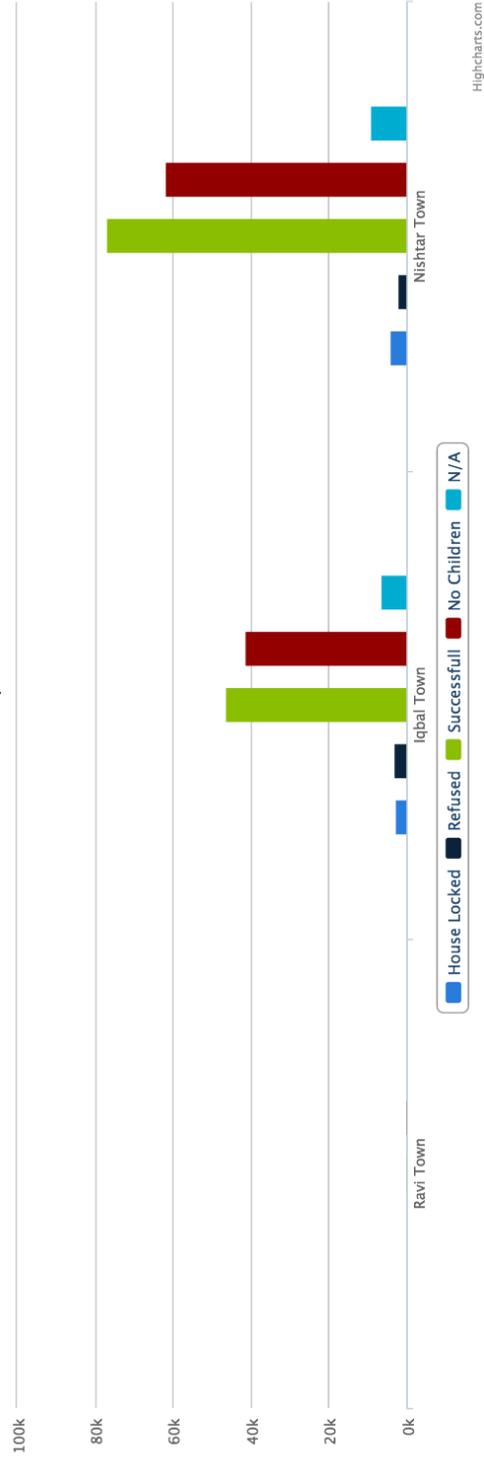
Ideas For Growth
INTERNATIONAL GROWTH CENTRE

Health Department

Dashboard Reports verification Photo verification Map verification Visitors data Admin Tasks- Change Password Logout

Date From: Date To: Select a Town: Select a UC: Select an Area: ✖ Reset Filters

District Report



Town	House status				
	Successful	Refused	House Locked	No Children	N/A
Ravi Town	333	77	36	187	84
Iqbal Town	46483	3401	2932	41560	6689
Nishtar Town	77289	2451	4235	61962	9272

Figure A.5: Screenshot of the Track Vaccinator Dashboard

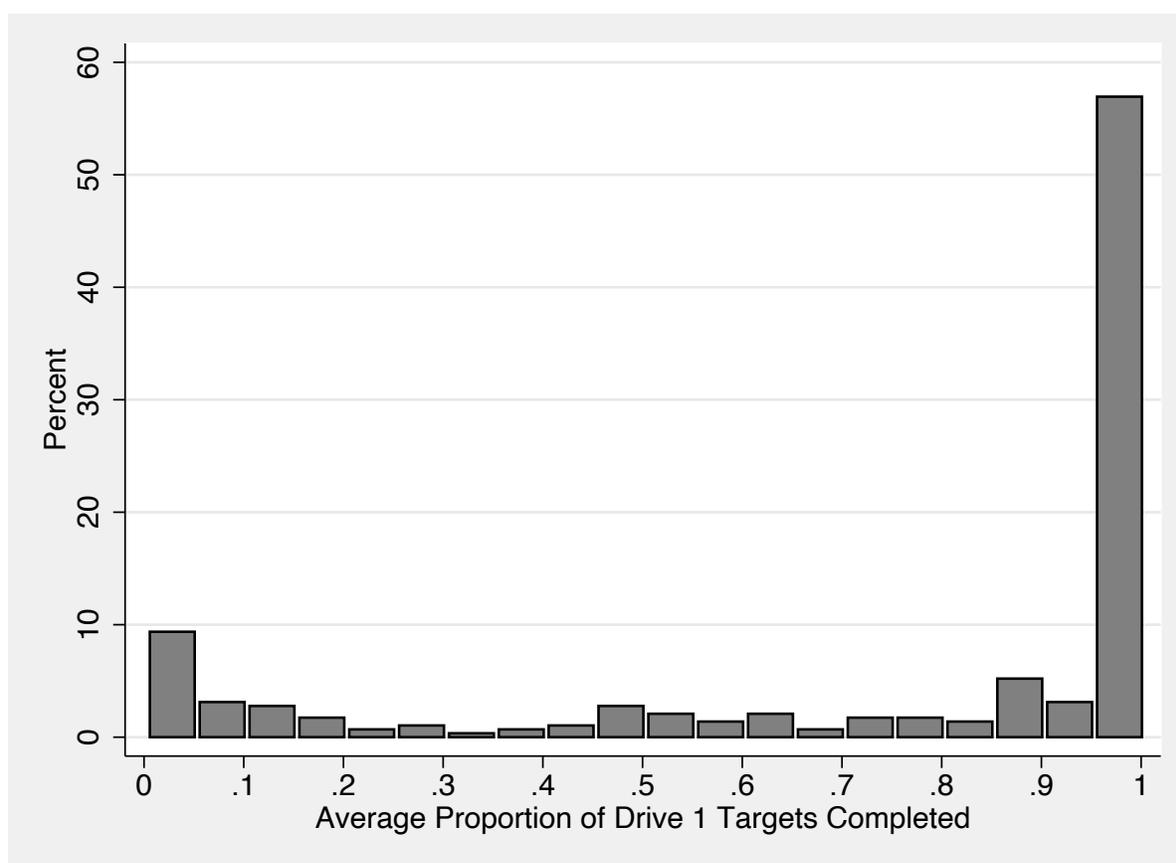


Figure A.6: Individual Completion Rates

Notes: Figure reports individual average completion rates in Drive 1 for 288 vaccinators who registered any vaccination activity . The individual average completion rate is calculated as $1/2(\min(\text{Completed}_{1,i}/v_{1,i}, 1) + \min(\text{Completed}_{2,i}/v_{2,i}, 1))$.

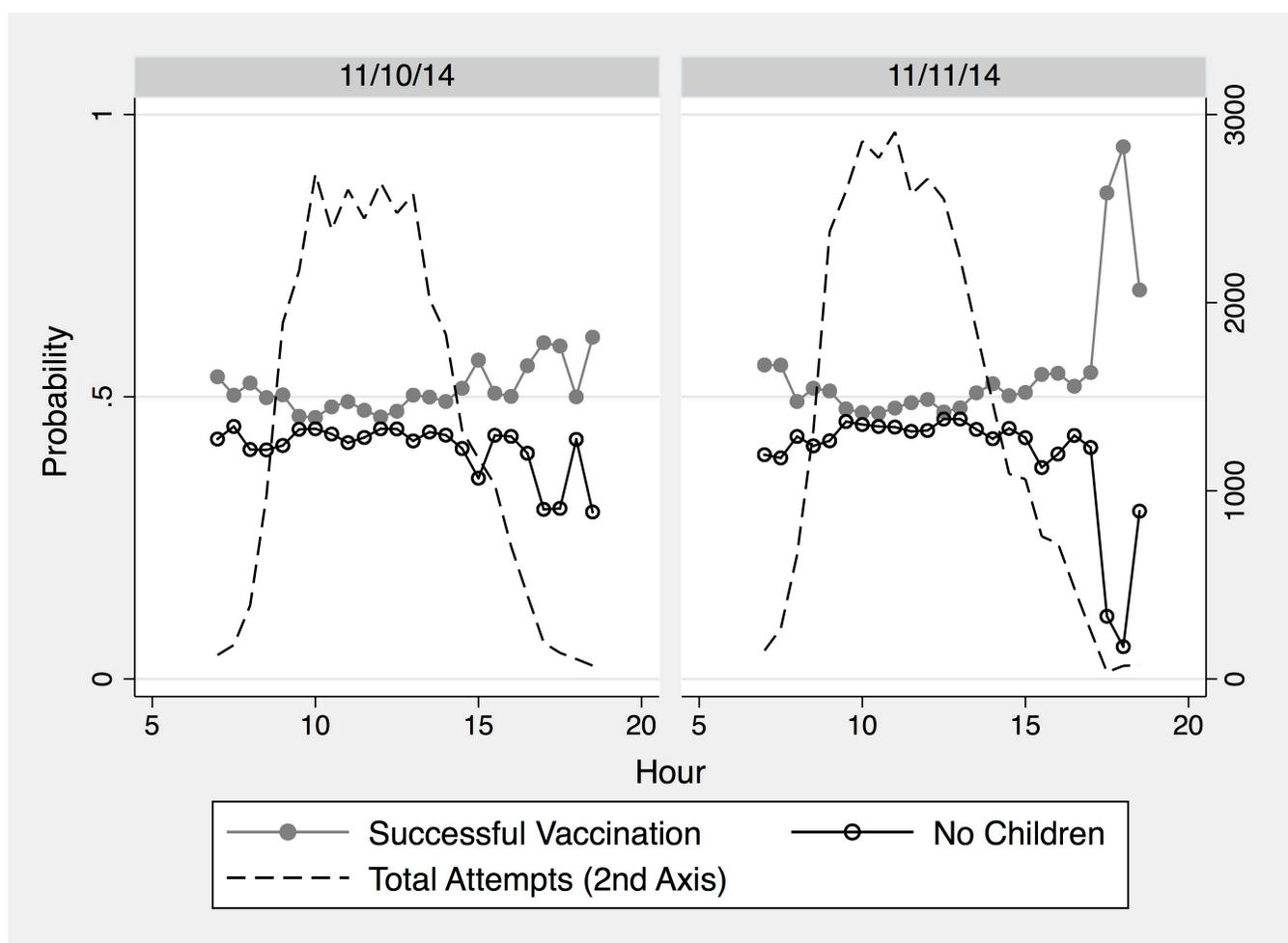


Figure A.7: Drive 1 Vaccination Activity

Notes: Figure reports Drive 1 vaccination attempts for 288 vaccinators who registered vaccination activity. The solid light grey circles are the share of all vaccination attempts that reflect a successful vaccination during the indicated hour. The hollow dark black circles are the share of all vaccination attempts that report no children being available during the attempt. These quantities are compared against the left axis. The dotted line indicates the total number of vaccination attempts for all Vaccinators in the sample. This quantity is compared against the right axis.

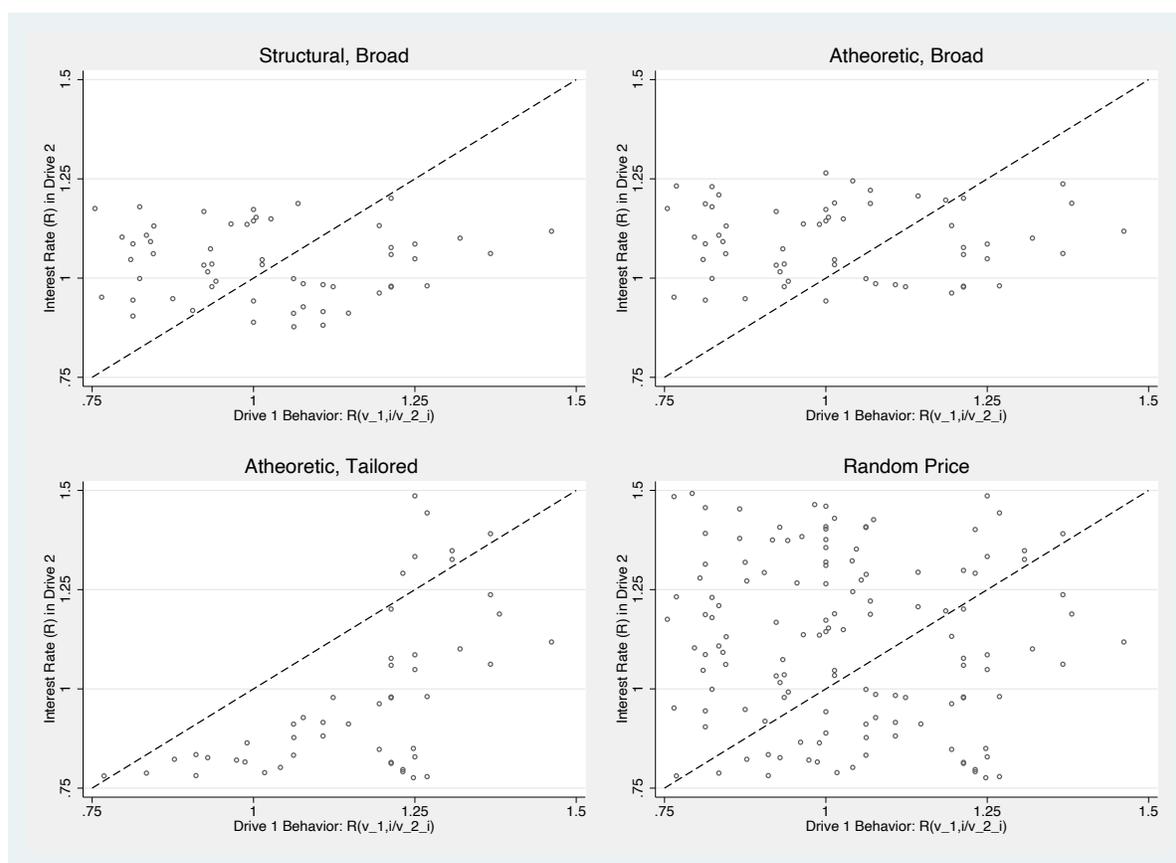


Figure A.8: Exact Assignment of Comparison Policies

Notes: Figure presents the exact assignments of 280 vaccinators in the Tailoring Sample to four policy comparison groups: Structural, Broad; Atheoretic, Broad; Atheoretic, Tailored; and Random Price.

A.3 Appendix Tables

Table A.1: Robustness to Changing Completion Function

	$p(v_{1,i}, v_{2,i}) = \frac{1}{1 + \alpha'(v_{1,i}^2 + v_{2,i}^2)}$	
	<u>Advance Choice</u>	<u>Immediate Choice</u>
	(1)	(2)
<i>Discounting Parameters:</i>		
μ_δ	0.966 (0.022)	
$\ln(\sigma_\delta)$	-2.449 (0.584)	
$\mu_{\beta\delta}$		0.959 (0.029)
$\ln(\sigma_{\beta\delta})$		-1.526 (0.164)
<i>Completion Parameter:</i>		
α'	0.00001 (0.000)	0.00002 (0.000)
<i>Shock Parameter:</i>		
$\ln(\sigma_\epsilon)$	4.068 (0.119)	4.147 (0.148)
# Vaccinators	174	164
# Cell Phone Completion Obs.	142	146
Log-Likelihood	-1057.87	-1067.45

Notes: Parameters from maximum simulated likelihood estimation for Drive 1 allocations and completion data where noted. Allocation data provided by Full Sample of 338 vaccinators. Completion data provided by 288 vaccinators. Standard errors in parentheses.

Table A.2: Robustness to Changing Completion Utility

$[\delta_i^2 u(1000) - v_{1,i}^\gamma - \beta_i^{1-d=1} \delta_i \cdot v_{2,i}^\gamma] :$	Advance		Immediate	
	1000 (1)	10000 (2)	1000 (3)	10000 (4)
<i>Discounting Parameters:</i>				
μ_δ	0.966 (0.022)	0.967 (0.022)		
$\ln(\sigma_\delta)$	-2.454 (0.589)	-2.496 (0.660)		
$\mu_{\beta\delta}$			0.959 (0.029)	0.962 (0.029)
$\ln(\sigma_{\beta\delta})$			-1.528 (0.164)	-1.545 (0.167)
<i>Completion Parameter:</i>				
α	0.001 (0.000)	0.001 (0.000)	0.003 (0.000)	0.003 (0.001)
<i>Shock Parameter:</i>				
$\ln(\sigma_\epsilon)$	4.069 (0.119)	4.088 (0.118)	4.148 (0.147)	4.164 (0.144)
# Vaccinators	174	174	164	164
# Cell Phone Completion Obs.	142	142	146	146
Log-Likelihood	-1058.16	-1059.94	-1068.07	-1068.54

Notes: Parameters from maximum simulated likelihood estimation for Drive 1 allocations and completion data where noted. Allocation data provided by Full Sample of 338 vaccinators. Completion data provided by 288 vaccinators. Standard errors in parentheses.

Table A.3: Panel Distributional Estimates

	<u>Advance Choice</u>			<u>Immediate Choice</u>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Discounting Parameters:</i>						
μ_δ	0.970 (0.019)	0.958 (0.020)	0.982 (0.029)			
$\ln(\sigma_\delta)$	-1.649 (0.108)	-2.538 (0.655)	-2.141 (0.420)			
$\mu_{\beta\delta}$				0.889 (0.027)	0.910 (0.030)	0.886 (0.039)
$\ln(\sigma_{\beta\delta})$				-1.354 (0.090)	-1.443 (0.110)	-1.475 (0.139)
<i>Shock Parameter:</i>						
$\ln(\sigma_\epsilon)$	4.052 (0.101)	4.210 (0.089)	4.149 (0.131)	4.488 (0.071)	4.502 (0.076)	4.581 (0.088)
Drive 0 Included	Yes	Yes	Yes	Yes	Yes	Yes
Drive 1 Included	Yes	Yes	Yes	Yes	Yes	Yes
Only Panel Vaccinators	No	Yes	Yes	No	Yes	Yes
Only Changed Timing	No	No	Yes	No	No	Yes
# Vaccinators	340	254	126	282	210	126
Log-Likelihood	-1968.35	-1444.11	-717.30	-1747.04	-1293.67	-782.22

Notes: Parameters from maximum simulated likelihood estimation for Drive 0 and Drive 1 allocations. Allocation data from 622 vaccinator-observations over the two drives. 232 vaccinators participated in both Drive 0 and Drive 1, and 126 participated in both drives and transitioned from Advance to Immediate conditions across drives. Standard errors in parentheses. Standard errors in parentheses.

Table A.4: Impacts of Financial Incentives and Tailoring on Total Vaccination Attempts

Dependent Variable:	Total Vaccinations Attempted During Two-Day Drive					
	(1)	(2)	(3)	(4)	(5)	(6)
Incentive Group (=1)	36.195*** (11.384)	33.224*** (10.559)	30.709** (13.662)	33.452** (16.690)	- -	- -
Structural Tailored (=1)					-12.455 (14.144)	-6.664 (18.254)
Immediate Choice						10.433 (20.529)
Structural Tailored x Immediate						-13.664 (28.589)
Constant	181.851*** (10.200)	184.259*** (9.422)	164.535*** (11.884)	205.843*** (15.130)	215.550*** (43.341)	212.958*** (43.237)
R-squared	0.01	0.18	0.20	0.21	0.15	0.15
Union Council Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Stratum Fixed Effects	No	No	No	No	Yes	Yes
Exclude 99th and 1st Percentiles	No	No	No	No	Yes	Yes
Vaccination Drives	Zero and One	Zero and One	Zero	One	Two	Two
Mean in Phone Only Group	181.85	181.85	164.41	203.37	N/A	N/A
# Vaccinators	434	434	354	353	225	225
# Observations	707	707	354	353	225	225

Notes: Table reports the effect of offering incentives on the total number of vaccinations attempted relative to the group which carried a smartphone but was not offered incentives. Columns 1 and 2 combine data from Drives 0 and 1. Column 3 reports the estimates for Drive 0 alone and column 4 reports the estimates for Drive 1 alone. Columns 4 and 5 report estimates from Drive 2 alone. Column 5 and 6 focus on the same subgroup as Table 3, excluding the 1st and 99th percentile of Drive 2 allocations, and similarly control for the stratum fixed effects and the Drive 2 value of R_i^* or \tilde{R}_i . Standard errors clustered at the participant level reported in parentheses in columns 1 and 2 and robust standard errors reported in parentheses in columns 3 through 6. *Level of significance:* * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: No Allocation Provided in Drive 0

	Allocation Provided (1)	No Allocation Provided (2)	p-value (3)
Gender (Female = 1)	0.965 (0.020)	1.000 (0.000)	0.082
Years of Education	10.294 (0.220)	10.146 (0.185)	0.608
Number of Children	3.268 (0.239)	3.388 (0.188)	0.695
Punjabi (=1)	0.952 (0.023)	0.975 (0.018)	0.440
Has a Savings Account (=1)	0.317 (0.052)	0.305 (0.051)	0.867
Participated in a Rosca (=1)	0.446 (0.055)	0.378 (0.054)	0.380
Years in Health Department	10.135 (0.554)	10.886 (0.547)	0.337
Years as Polio Vaccinator	9.994 (0.538)	10.531 (0.502)	0.467
# Vaccinators	86	82	

Notes: Table tests whether the failure of the smartphone app during Drive 0 for LHWs in the Immediate condition was systematic. Standard errors reported in parentheses. Column 3 reports a p-value corresponding to the null that the mean in the Did Not Fail group is equal to the Failed group.

Table A.6: Tailoring Intertemporal Incentives, Untrimmed Tailoring Sample

Dependent variable:	$\left \frac{w_{1,i}}{w_{2,i}} - 1 \right $							
Policy Comparison Group	Random Price		Structural, Broad		Atheoretic, Broad		Atheoretic, Tailored	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-0.346 (0.234)	-0.002 (0.086)	-0.428 (0.423)	-0.055 (0.053)	-0.402 (0.378)	-0.031 (0.042)	-0.008 (0.030)	-0.023 (0.022)
Immediate Choice		0.866* (0.496)		1.127 (1.007)		0.989 (0.802)		0.144** (0.061)
Structural Tailored x Immediate		-0.782 (0.532)		-1.011 (1.024)		-0.873 (0.819)		-0.010 (0.074)
Constant	-0.244 (0.992)	-0.416 (1.009)	0.434 (0.295)	0.163 (0.224)	0.740 (0.608)	0.558 (0.473)	0.131 (0.099)	0.090 (0.099)
Stratum FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exclude 99th and 1st Percentiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drive 2 R_i^* or \tilde{R}_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.047	0.061	0.033	0.059	0.031	0.053	0.028	0.125
Mean in Untailored Contract	0.612	0.612	0.575	0.575	0.575	0.575	0.143	0.143
Mean in Untailored Advance		0.098		0.103		0.088		0.095
Mean in Untailored Immediated		1.190		1.349		1.167		0.250
# Vaccinators	280	280	200	200	204	204	197	197
# Comparison Vaccinators	138	138	58	58	62	62	55	55

Notes: Table reports the effect of structural, tailored policy relative to alternatives on realized distance to the policy target, $\left| \frac{w_{1,i}}{w_{2,i}} - 1 \right|$ in Drive 2 for 280 Tailored and Untailored vaccinators in the Tailoring Sample. Ordinary least squares regressions. Heteroskedasticity robust White standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.7: Tailoring Intertemporal Incentives, Winsorized Tailoring Sample (1%)

Dependent variable: Policy Comparison Group	$\left \frac{w_{1,i}}{w_{2,i}} - 1 \right $							
	Random Price		Structural, Broad		Atheoretic, Broad		Atheoretic, Tailored	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-0.037 (0.028)	-0.013 (0.019)	-0.025 (0.035)	-0.023 (0.024)	-0.044 (0.038)	-0.009 (0.023)	-0.009 (0.029)	-0.023 (0.022)
Immediate Choice		0.185*** (0.043)		0.159** (0.069)		0.220*** (0.068)		0.144** (0.062)
Structural Tailored x Immediate		-0.060 (0.058)		-0.031 (0.080)		-0.092 (0.078)		-0.013 (0.073)
Constant	0.004 (0.091)	-0.033 (0.089)	0.236* (0.127)	0.204 (0.126)	0.198 (0.130)	0.162 (0.126)	0.140 (0.095)	0.099 (0.095)
Stratum FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drive 2 R_i^* or \tilde{R}_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.063	0.162	0.033	0.123	0.056	0.166	0.032	0.132
Mean in Untailored Contract	0.194	0.194	0.162	0.162	0.188	0.188	0.143	0.143
Mean in Untailored Advance		0.098		0.103		0.088		0.095
Mean in Untailored Immediated		0.302		0.260		0.311		0.250
# Vaccinators	280	280	200	200	204	204	197	197
# Comparison Vaccinators	138	138	58	58	62	62	55	55

Notes: Table reports the effect of structural, tailored policy relative to alternatives on realized distance to the policy target, $\left| \frac{w_{1,i}}{w_{2,i}} - 1 \right|$ in Drive 2 for 280 Tailored and Untailored vaccinators in the Tailoring Sample. Dependent variable winsorized at top and bottom 1%. Ordinary least squares regressions. Heteroskedasticity robust White standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.8: Aggregate Drive 1 Behavior

	(1) Full Sample	(2) Tailoring Sample
<i>Dependent Variable: v_1</i>		
Immediate Decision (=1)	-2.00* (1.13)	-3.00*** (0.91)
Relative Price (R)	-54.29*** (4.38)	-66.67*** (3.66)
Constant	201.86*** (4.72)	216.33*** (3.93)
Median Advance Choice	146.5	148
# Observations	338	281

Notes: Table reports on the effects of decision timing and relative price variation on vaccinations allocated to the first day of the drive. Median regression. *Levels of Significance:* * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.9: Drive 1 Completion

<i>Dependent Variable:</i>	(1) <i>Registered Vaccination Activity</i>	(2) <i>Successfully Completed Targets</i>
Immediate Decision (=1)	0.074* (0.038)	-0.097 (0.059)
Relative Price (R)	-0.071 (0.157)	0.160 (0.230)
Constant	0.891*** (0.167)	0.373 (0.247)
Advance Completion Probability	0.816	0.542
# Observations	338	288

Notes: Table reports on the effects of decision timing and relative price variation on registering vaccination activity and completion in Drive 1. Column (1) based on Full Sample of 338 vaccinators. Column (2) based on sample of 288 vaccinators who registered vaccination data. Linear probability models with robust standard errors. *Levels of Significance:* * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10: Testing Stationarity of Costs Across Days

<i>Panel A: Time Lapse Between Vaccinations (in minutes)</i>								
Dependent variable:	Day 1 Med. Time Lapse			Day 2 Med. Time Lapse			Day 1 - Day 2 Med. Time Lapse	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Advance Choice (=1)	0.519 (2.492)	1.134 (1.163)	1.011 (1.045)	-0.910 (3.164)	-1.161 (3.324)	-0.829 (3.182)	2.295 (3.527)	1.840 (3.343)
$\frac{Rv_{1,i}}{v_{2,i}}$			-3.697 (3.504)			10.004 (8.247)		-13.701 (9.000)
Constant	3.370* (1.851)	1.422*** (0.084)	5.337 (3.708)	4.447* (2.372)	4.540* (2.501)	-6.053 (6.558)	-3.118 (2.501)	11.390 (7.581)
R-Squared	0.000	0.004	0.016	0.000	0.001	0.013	0.002	0.022
# Observations	265	228	228	240	228	228	228	228
<i>Panel B: Distance Walked Between Vaccinations (in Kilometers)</i>								
Dependent variable:	Day 1 Med. Distance			Day 2 Med. Distance			Day 1 - Day 2 Med. Distance	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Advance Choice (=1)	0.112 (0.144)	0.146 (0.154)	0.132 (0.139)	-0.148 (0.152)	-0.171 (0.161)	-0.154 (0.144)	0.317 (0.223)	0.286 (0.199)
$\frac{Rv_{1,i}}{v_{2,i}}$			-0.444 (0.466)			0.509 (0.516)		-0.953 (0.697)
Constant	0.059** (0.026)	0.038*** (0.010)	0.507 (0.492)	0.201 (0.151)	0.201 (0.161)	-0.337 (0.388)	-0.164 (0.162)	0.844 (0.629)
R-Squared	0.002	0.004	0.014	0.004	0.005	0.020	0.009	0.033
# Observations	257	226	226	240	226	226	226	226

Notes: Table reports on the relationship between decision timing and the one period expected discount factor with two proxies of the cost of performing a vaccination (the amount of time that lapses between vaccinations and the distance traveled between vaccinations). Samples drawn from 288 vaccinators who registered vaccination data in Drive 1. Location and time lapse data not available for all. Heteroskedasticity robust White standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11: Robustness Tests for Tailoring Intertemporal Incentives

Policy Comparison Group	Random Price	Structural, Broad	Atheoretic, Broad	Atheoretic, Tailored				
<i>Panel A: Dependent variable $\frac{ w_{1,i}-w_{2,i} }{\sqrt{2}}$</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-4.481** (2.068)	-1.868 (2.229)	-4.450 (2.779)	-3.224 (3.149)	-4.852* (2.469)	-1.734 (2.571)	-5.313 (3.223)	-1.511 (3.058)
Immediate Choice		10.597*** (3.449)		8.996 (5.648)		12.325** (4.868)		17.503** (7.720)
Structural Tailored x Immediate		-6.220 (4.136)		-4.325 (6.117)		-7.933 (5.375)		-12.911 (8.140)
Constant	16.412**	14.128**	32.672***	30.805***	26.219***	24.051***	21.422***	16.129**
<i>Panel B: Dependent variable $\frac{ w_{1,i}-w_{2,i} }{\sqrt{2(w_{1,i}+w_{2,i})}}$</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-0.016** (0.007)	-0.007 (0.008)	-0.016* (0.009)	-0.011 (0.011)	-0.018** (0.009)	-0.006 (0.009)	-0.019* (0.011)	-0.005 (0.010)
Immediate Choice		0.037*** (0.012)		0.031 (0.019)		0.044** (0.017)		0.059** (0.024)
Structural Tailored x Immediate		-0.023* (0.014)		-0.017 (0.021)		-0.030 (0.019)		-0.045* (0.026)
Constant	0.033	0.025	0.089***	0.083**	0.070***	0.062**	0.052**	0.034
<i>Panel C: Dependent variable $w_{1,i} - \frac{300}{1+R}$</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-3.445** (1.459)	-1.405 (1.591)	-3.353* (1.976)	-2.401 (2.238)	-3.856** (1.825)	-1.452 (1.891)	-3.942* (2.294)	-1.121 (2.135)
Immediate Choice		7.844*** (2.509)		6.473 (4.095)		9.095** (3.636)		12.664** (5.287)
Structural Tailored x Immediate		-4.850 (2.974)		-3.277 (4.402)		-6.092 (3.970)		-9.512* (5.582)
Constant	7.571	5.871	19.468***	18.107**	15.291***	13.666***	11.378**	7.539
<i>Panel D: Dependent variable $w_{1,i} - \frac{300}{1+R} > 10$</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	0.206 (0.168)	0.146 (0.234)	0.119 (0.219)	0.198 (0.292)	0.245 (0.212)	0.175 (0.302)	0.137 (0.242)	0.021 (0.313)
Immediate Choice		-0.573** (0.238)		-0.346 (0.390)		-0.640* (0.362)		-0.866** (0.415)
Structural Tailored x Immediate		0.144 (0.340)		-0.107 (0.456)		0.188 (0.438)		0.409 (0.487)
Constant	1.530***	1.705***	0.134	0.201	0.617	0.720	0.950	1.253**
<i>Panel E: Dependent variable $\min\{w_{1,i}, w_{2,i}\}$</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	2.540* (1.416)	0.843 (1.567)	4.057** (1.966)	3.079 (2.228)	4.404** (1.766)	2.179 (1.885)	2.711 (2.187)	0.263 (2.178)
Immediate Choice		-6.815*** (2.332)		-6.221 (4.106)		-8.383** (3.513)		-11.173** (5.149)
Structural Tailored x Immediate		4.037 (2.806)		3.299 (4.406)		5.639 (3.844)		8.292 (5.451)
Constant	208.758*** (4.541)	210.228*** (4.433)	200.751*** (6.759)	202.074*** (6.971)	204.405*** (5.357)	205.905*** (5.228)	208.831*** (5.476)	212.213*** (5.306)
Stratum FEs	Yes							
Exclude 99th and 1st Percentiles	Yes							
Drive 2 R_i^* or \tilde{R}_i	Yes							
# Vaccinators	267	267	191	191	194	194	184	184
# Comparison Vaccinators	132	132	56	56	59	59	49	49

Notes: Table reports the effect of structural, tailored policy relative to alternatives on realized distance to a range of policy targets in Drive 2 for 267 Tailored and Untailored vaccinators in the Tailoring Sample. Thirteen of 280 Tailoring Sample vaccinators with extreme Drive 2 allocations are excluded. Ordinary least squares regressions. Heteroskedasticity robust White standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12: Structural Tailoring Intensity

Dependent variable:	$\left \frac{w_{1,i}}{w_{2,i}} - 1 \right $					
	(1)	(2)	(3)	(4)	(5)	(6)
Structural Tailoring Intensity	0.110*	0.089	0.124*	0.025	0.874	-0.353
	(0.063)	(0.076)	(0.065)	(0.054)	(0.745)	(0.361)
Immediate Choice		0.068***		0.064**		0.069
		(0.022)		(0.025)		(0.215)
Structural Tailoring Intensity x Immediate		0.057		0.154		2.087
		(0.131)		(0.114)		(1.841)
Constant	-0.009	-0.018	0.044	0.016	-0.448	-0.451
	(0.058)	(0.058)	(0.065)	(0.063)	(0.727)	(0.632)
# Vaccinators	267	267	320	320	337	337
Include Boundary Sample	No	No	Yes	Yes	Yes	Yes
Stratum FEs	Yes	Yes	Yes	Yes	Yes	Yes
Exclude 99th and 1st Percentiles	Yes	Yes	Yes	Yes	No	No
Drive 2 R	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Table reports the effect of structural tailoring intensity on realized distance to the policy target, $\left| \frac{w_{1,i}}{w_{2,i}} - 1 \right|$ in Drive 2. Individuals in the Tailoring Sample who are tailored have intensity measures equal to zero and all others are calculated as the absolute distance between their assigned Drive 2 R and their value of $\frac{Rv_{1,i}}{v_{2,i}}$ in Drive 1. Column 1 provides results for 267 of 280 LHWs in the Tailoring Sample, excluding 13 LHWs with extreme Drive 2 allocations. Column 2 includes the Boundary Sample and provides results for 320 of 337 LHWs, excluding 17 LHWs with extreme Drive 2 allocations. Column 4 includes the Boundary Sample and provides results for all 337 LHWs. Ordinary least squares regressions. Heteroskedasticity robust White standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A.13: Structural Tailoring and Completion

Dependent variable:	$\left \frac{w_{1,i}}{w_{2,i}} - 1 \right $							
Policy Comparison Group	Random Price	Structural, Broad		Atheoretic, Broad		Atheoretic, Tailored		
<i>Panel A: Completed Drive 1</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-0.042* (0.024)	-0.004 (0.025)	-0.030 (0.029)	-0.009 (0.031)	-0.012 (0.024)	0.011 (0.023)	-0.107** (0.049)	-0.051 (0.037)
Immediate Choice		0.119*** (0.045)		0.116* (0.062)		0.111** (0.050)		0.160* (0.089)
Structural Tailored x Immediate		-0.096* (0.051)		-0.079 (0.067)		-0.076 (0.054)		-0.135 (0.094)
Constant	-0.051 (0.088)	-0.077 (0.090)	0.217* (0.119)	0.190 (0.122)	0.110 (0.084)	0.091 (0.076)	-0.043 (0.097)	-0.088 (0.111)
# Vaccinators	142	142	98	98	101	101	93	93
<i>Panel B: Failed Drive 1</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Structural Tailored (=1)	-0.053 (0.039)	-0.009 (0.042)	0.004 (0.035)	-0.009 (0.056)	-0.085 (0.068)	-0.027 (0.071)	-0.007 (0.049)	0.049 (0.044)
Immediate Choice		0.098 (0.070)		-0.013 (0.072)		0.127 (0.128)		0.209* (0.110)
Structural Tailored x Immediate		-0.086 (0.075)		0.023 (0.078)		-0.106 (0.125)		-0.201* (0.116)
Constant	0.028 (0.098)	0.016 (0.092)	0.116 (0.101)	0.119 (0.103)	0.199 (0.149)	0.186 (0.138)	0.114 (0.096)	0.093 (0.086)
# Vaccinators	87	87	65	65	66	66	63	63
Stratum FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exclude 99th and 1st Percentiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Drive 2 R_i^* or \tilde{R}_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Table reports the effect of structural, tailored policy relative to alternatives on realized distance to the policy target, $\left| \frac{w_{1,i}}{w_{2,i}} - 1 \right|$ in Drive 2 for 229 vaccinators in the Tailoring Sample who also registered cell-phone vaccination activity. Separate estimates provided for those who succeeded or failed to hit their Drive 1 targets. Thirteen of 280 Tailoring Sample vaccinators with extreme Drive 2 allocations are excluded and an additional 38 vaccinators without registered vaccination activity are excluded. Ordinary least squares regressions. Heteroskedasticity robust White standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.