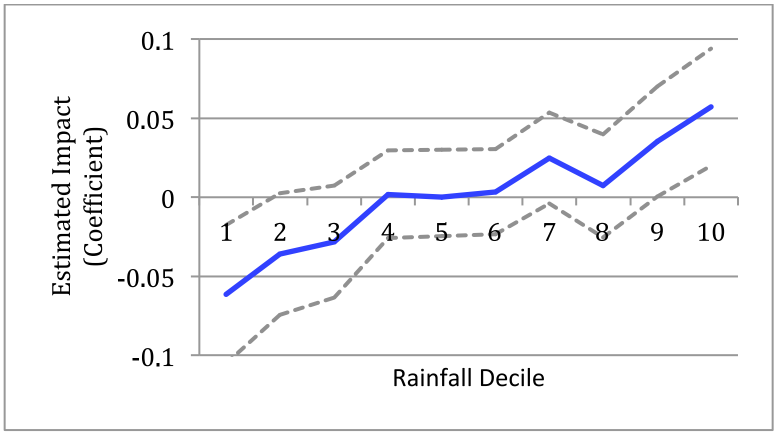
ONLINE APPENDIX

"Nominal Wage Rigidity in Village Labor Markets"

Supreet Kaur

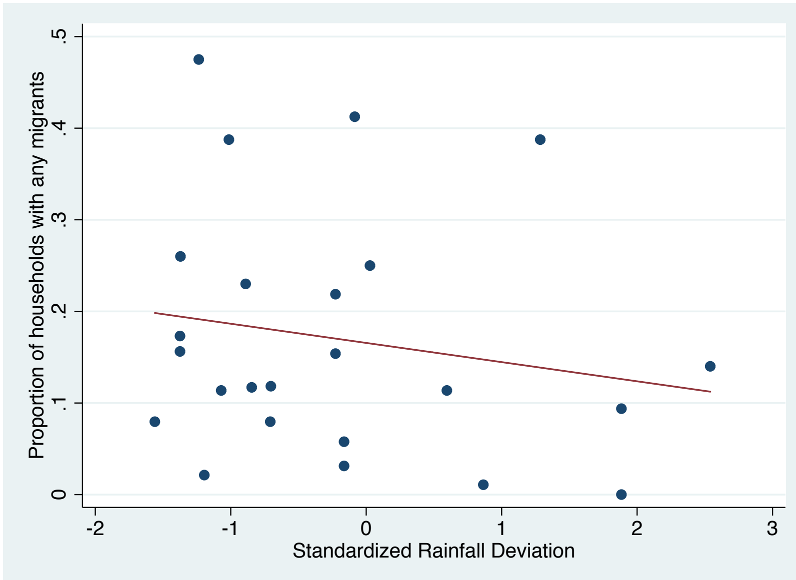
APPENDIX A: APPENDIX TABLES AND FIGURES



Appendix Figure 1 – Impact of Rainfall on Log Crop Yield

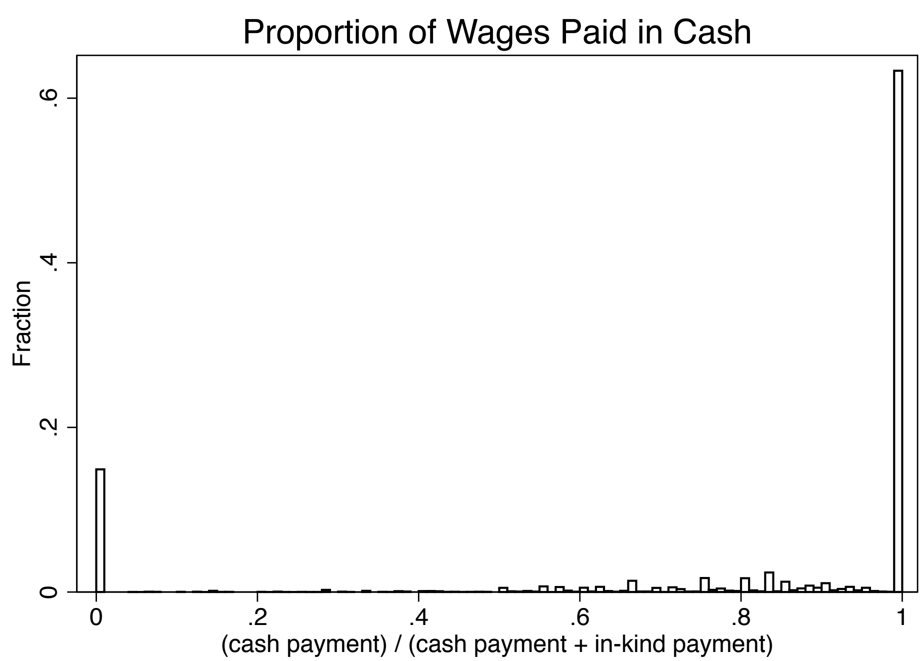
Notes:

1. The figure plots coefficients and 95% confidence intervals from a regression of log crop yields on dummies for each decile of the rainfall distribution.
2. Log crop yields is the log of a weighted average of yields of the 20 crops for which data is available in the World Bank dataset. The yield for each crop has first been normalized by the mean yield of that crop in the district. Weights are the mean percentage of land area planted with a given crop in a district.
3. Each decile dummy equals 1 if rainfall in the first month of the monsoon in the current year fell within the given decile of the district's usual rainfall distribution for that month and equals 0 otherwise. The confidence interval for the 5th decile, which is the omitted category, is computed by averaging the confidence intervals for the 4th and 6th deciles.
4. Each regression contains district and year fixed effects, and controls for lagged positive and lagged negative shocks in the past 5 years. Analysis is limited to districts with non-positive shocks in the previous year to improve precision.
5. Standard errors are corrected to allow for clustering by region-year.



Appendix Figure 2 – Relationship between Rainfall and Migration

Notes:
1. Observations are village-years from the ICRISAT VLS 2001-2004 data.
2. The y-axis measures the proportion of households that reported any out migration in a given village-year.
3. The x-axis is standardized deviation of June rainfall (the month of monsoon arrival for all these villages).



Appendix Figure 3 – Proportion of Wages Paid in Cash

Notes:
1. Histogram plots the proportion of the casual agricultural wage payment that was paid in cash.
2. Observations are from the National Sample Survey data.

Appendix Table 1
Summary Statistics

Variable	Mean	Standard Deviation	Observations: District-years	Observations: Individual-years	Source
Rainfall shocks					
% Positive Shock (1956-1987)	0.226	0.418	7,680	--	Univ of Delaware
% No Shock (1956-1987)	0.626	0.484	7,680	--	Univ of Delaware
% Negative Shock (1956-1987)	0.149	0.356	7,680	--	Univ of Delaware
% Positive Shock (1982-2009)	0.149	0.356	3,548	--	Univ of Delaware
% No Shock (1982-2009)	0.627	0.484	3,548	--	Univ of Delaware
% Negative Shock (1982-2009)	0.224	0.417	3,548	--	Univ of Delaware
Wage and employment variables					
Log nominal agricultural wage (1956-1987)	1.208	0.817	7,680	--	World Bank
Log nominal agricultural wage (1982-2009)	3.390	0.470	--	59,243	Natl Sample Survey
Agricultural employment in past week	1.743	2.783	--	632,327	Natl Sample Survey
Other measures					
Inflation	0.066	0.095	7,680	--	CPI for Agri Labourers
Acres possessed by household	2.750	6.336	--	632,327	Natl Sample Survey
Acres per adult in household	0.633	0.821	--	632,327	Natl Sample Survey

Notes:
1. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock is rainfall between the 20th-80th percentile of the district's usual distribution.
2. The nominal agricultural wage is the daily wage for casual agricultural work in each dataset.
3. Agricultural employment is the number of worker-days in the past week the individual was employed in agricultural work (either own farm or on someone else's farm).
4. Inflation equals the percentage change in the state-level CPI for Agricultural Labourers from last year to this year. In the years where state CPI is not available, national CPI is used to compute inflation (the years 1956 and 1957).

Appendix Table 2
Test for Serial Correlation in Rainfall
Dependent variable: Rainfall deviation in the current year

	Sample			
	World Bank data districts (1956 - 1987)		NSS data districts (1982 - 2009)	
	(1)	(2)	(3)	(4)
Rainfall deviation in the previous year	-0.031	-0.058	-0.014	0.054
	(0.034)	(0.032)*	(0.073)	(0.097)
District and year fixed effects?	No	Yes	No	Yes
Observations: district-years	7,680	7,680	3,548	3,548

Notes:
1. This table tests for serial correlation in rainfall. The unit of observation is a district-year.
2. Rainfall deviation is the rainfall level in inches in the first month of the monsoon minus the district's median (50th percentile) rainfall level in that month in the sample distribution. The sample distribution for the World Bank data is computed for the years 1956-1987. The sample distribution for the NSS data is computed for the years 1982-2009.
3. Each column shows results of an OLS regression of the district's rainfall deviation in the current year on the district's rainfall deviation in the previous year. The regressions are run for the district-years of data included each respective dataset: 1956-1987 in the World Bank data and the 9 years covered in the NSS data.
4. Standard errors in each regression are corrected to allow for clustering by geographic region, as defined in the NSS data.

Appendix Table 3
Summary Statistics: Wage Change Premiums

		Mean Relative Wage Change	Standard error
		(1)	(2)
Last year's shock	*This year's shock*		
Any	Positive	0.0388	0.0400
None or Negative	Negative	-0.0127	0.0412
Positive	Negative	0.0138	0.0716
Positive	None	0.0332	0.0440

Notes: This table summarizes wage change patterns for each shock category relative to the reference category in the paper. I compute the wage change as the difference between the log of the current year's wage and the log of the previous year's wage. The above presents the simple mean difference between each shock category and the reference category for this wage change variable. The estimates come from regressing the wage change on the left hand side on dummies for each shock category.

Appendix Table 4
Test for Wage Adjustment: 9-cell Specification
Dependent Variable: Log Nominal Daily Agricultural Wage

			Source: World Bank (1956-1987)			Source: NSS (1982-2009)		
			(1)	(2)	(3)	(4)	(5)	(6)
	Last year's shock	*This year's shock*	% Obs			% Obs		
1	None	None	40%	Omitted	Omitted	39%	Omitted	Omitted
2	Negative	None	8%	0.001 (0.011)	-0.002 (0.011)	12%	0.021 (0.022)	0.020 (0.022)
3	None	Positive	14%	0.021 (0.010)**	0.044 (0.011)***	9%	0.086 (0.019)***	0.086 (0.021)***
4	Negative	Positive	3%	0.062 (0.020)***	0.087 (0.020)***	3%	0.093 (0.041)**	0.088 (0.042)**
5	Positive	Positive	5%	0.015 (0.016)	0.036 (0.016)**	3%	-0.040 (0.034)	-0.041 (0.035)
6	None	Negative	8%	-0.009 (0.012)	-0.011 (0.012)	11%	0.028 (0.023)	0.024 (0.023)
7	Negative	Negative	3%	-0.017 (0.017)	-0.019 (0.017)	3%	-0.060 (0.051)	-0.059 (0.053)
8	Positive	Negative	4%	0.035 (0.020)*	0.059 (0.021)***	8%	0.058 (0.040)	0.061 (0.039)
9	Positive	None	14%	0.020 (0.010)**	0.044 (0.011)***	13%	0.065 (0.023)***	0.064 (0.024)***
	Prior shock history controls?		--	No	Yes	--	No	Yes
	Observations: district-years		7,680	7,680	7,680	3,548	--	--
	Observations: individual-years		--	--	--	--	59,243	59,243

Notes:
1. The dependent variable is the log of the nominal wage for casual daily agricultural work.
2. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution.
3. The shock sequences are presented as the shock in the previous year and the shock in the current year. Each of the 8 shock covariates is an indicator that equals 1 if the sequence of shocks was realized and equals zero otherwise. The omitted category in each regression is {None} last year and {None} this year. Cols. (1) and (4) indicate the percentage of observations in which each shock sequence was realized.
4. All regressions include district and year fixed effects. Cols. (3) and (6) add controls for positive shocks 2 years ago and 3 years ago. Standard errors are clustered by region-year.

Appendix Table 5

Effects by Gender

Dependent Variable: Log Nominal Daily Agricultural Wage

		Males	Females
		(1)	(2)
Last year's shock	*This year's shock*		
Any	Positive	0.0860***	0.0515***
		(0.023)	(0.017)
None or Negative	Negative	-0.000143	-0.0132
		(0.024)	(0.022)
Positive	Negative	0.0844*	0.0179
		(0.047)	(0.036)
Positive	None	0.0872***	0.0426**
		(0.032)	(0.021)
Observations: individual-years		30,201	29,007
R2		0.599	0.570

Notes:
1. This table replicates the main specification separately for male and female laborers.
2. Observations are from the NSS data. Note that the gender variable is missing for 35 observations, which are therefore excluded in this table.
3. All regressions include district and year fixed effects, as well as controls for positive shocks 2 years ago and 3 years ago.
4. Standard errors are clustered by region-year.

Appendix Table 6

Effects for Cash vs. In-Kind Wage Payments

		Dependent variable: Cash wage payment		Dependent variable: In-kind wage payment		
		Log wage	Wage level	Log wage	Wage level	Proportion
		(1)	(2)	(3)	(4)	(5)
Last year's shock	*This year's shock*					
Any	Positive	0.0718***	3.144***	-0.0761	-0.586	-0.0185
		(0.020)	(0.819)	(0.078)	(0.379)	(0.014)
None or Negative	Negative	-0.0324	-0.609	0.0699	0.612*	0.000516
		(0.025)	(0.924)	(0.077)	(0.351)	(0.010)
Positive	Negative	0.0745	3.853**	-0.149	-1.669**	-0.0711***
		(0.050)	(1.812)	(0.100)	(0.760)	(0.026)
Positive	None	0.0459**	2.821**	-0.109	-0.548	-0.0283**
		(0.021)	(1.422)	(0.088)	(0.764)	(0.013)
Observations: individual-years		48,892	55,825	19,529	55,825	55,825
R2		0.530	0.520	0.618	0.453	0.531
Dependent variable mean		3.297	25.88	2.482	6.167	0.202

Notes:

1. This table replicates the main specification separately for the cash and (monetary value of) the in-kind components of the daily wage payment.
2. The dependent variable in Cols. (1) and (3) is the log of the payment amount. In Cols. (2) and (4) it is the payment level (included for robustness due to the presence of zero cash or in-kind payment levels for some observations). In Col. (5) it is the proportion of the in-kind wage payment: in-kind / total payment.
3. Shocks are defined exactly as in the main specification in the paper. The omitted shock category in each regression is {None or Negative} last year and {None} this year.
4. All regressions include district and year fixed effects, as well as controls for positive shocks 2 years ago and 3 years ago.
5. Standard errors are clustered by region-year.
6. Observations are from NSS data. In round 55 of the survey, information on the cash versus in-kind components of the payment were not separately recorded for some observations; these are omitted from the analysis.

Appendix Table 7
Wage Adjustment for Flat Rate vs. Piece Rate Contracts
Dependent Variable: Log Nominal Daily Cash Payment

			Rounds with contract type (1)	Rounds with contract type (2)	All rounds (3)
	Last year's shock	This year's shock			
1	Any	Positive	0.0923**	0.102**	0.120***
			(0.041)	(0.045)	(0.038)
2	*Interaction with piece rate dummy*		-0.0153	-0.0159	-0.00809
			(0.072)	(0.072)	(0.068)
3	None or Negative	Negative	0.0306	0.0273	0.0172
			(0.040)	(0.041)	(0.041)
4	*Interaction with piece rate dummy*		-0.0772	-0.0754	-0.0923
			(0.092)	(0.092)	(0.086)
5	Positive	Negative	0.0335	0.0690	0.0375
			(0.063)	(0.062)	(0.057)
6	*Interaction with piece rate dummy*		-0.00259	-0.00494	-0.0000641
			(0.061)	(0.061)	(0.057)
7	Positive	None	0.111*	0.131**	0.139**
			(0.065)	(0.066)	(0.054)
8	*Interaction with piece rate dummy*		-0.117	-0.119	-0.114
			(0.106)	(0.105)	(0.098)
9	Piece rate dummy		0.00634	0.00666	0.00693
			(0.030)	(0.030)	(0.028)
	Shock history controls		No	Yes	Yes
	Observations: district-years		15864	15864	48512

Notes:
1. The dependent variable is the log nominal cash payment for a day of casual agricultural work.
2. Shocks are defined as in the main specifications in the paper.
3. The remaining covariates (rows 2, 4, 6, 8) are interactions of each respective shock sequence indicator with a dummy that equals 1 if the worker was paid a piece rate and equals 0 for a flat wage.
4. In the NSS, contract terms (whether the payment was a flat wage, piece rate, etc.) are only provided in rounds 55, 61, and 66. Cols. (1)-(2) are restricted to observations in which contract terms are defined. To increase power by improving the estimation of the fixed effects, Col. (3) includes observations from all rounds, and adds a full set of interactions of all covariates with a dummy for rounds in which contract terms are not defined; consequently, the displayed coefficients provide the effects for only the rounds of interest (55, 61, 66).
5. All regressions include district and year fixed effects. Cols. (2)-(3) add controls for positive shocks 2 years ago and 3 years ago. Standard errors are clustered by region-year.

Appendix Table 8
Robustness to Definition of Rainfall Shocks: NSS Data Results

		Percentile Cut-off for Positive/Negative Shocks				
		80/20	80/25	80/30	75/25	70/30
		(1)	(2)	(3)	(4)	(5)
Last year's shock	*This year's shock*					
Panel A - Dependent Variable: Log Nominal Daily Wage						
Any	Positive	0.072	0.075	0.075	0.067	0.056
		(0.019)***	(0.020)***	(0.019)***	(0.019)***	(0.021)***
None or Negative	Negative	0.001	0.013	0.013	0.021	0.025
		(0.023)	(0.021)	(0.020)	(0.023)	(0.024)
Positive	Negative	0.058	0.087	0.090	0.063	0.047
		(0.041)	(0.038)**	(0.036)**	(0.037)*	(0.033)
Positive	None	0.064	0.042	0.037	0.054	0.018
		(0.024)***	(0.024)*	(0.022)	(0.022)**	(0.023)
Panel B - Dependent Variable: Agricultural Employment						
Any	Positive	0.100	0.093	0.082	0.080	-0.020
		(0.068)	(0.070)	(0.071)	(0.066)	(0.071)
None or Negative	Negative	-0.096	-0.089	-0.112	-0.081	-0.111
		(0.055)*	(0.053)*	(0.056)**	(0.054)	(0.063)*
Positive	Negative	-0.289	-0.283	-0.308	-0.233	-0.288
		(0.086)***	(0.077)***	(0.077)***	(0.073)***	(0.079)***
Positive	None	-0.130	-0.114	-0.094	-0.047	-0.094
		(0.065)**	(0.073)	(0.075)	(0.077)	(0.074)

Notes:
1. This tables examines robustness of the results to alternate cut-offs for positive and negative shocks in the NSS data. The dependent variable in Panel A is the log of the nominal wage for casual daily agricultural work, and in Panel B is total number of days worked in agriculture (on one's own farm or as a hired laborer on someone else's farm).
2. In each column, positive and negative shocks are defined under different cut-offs, as labeled at the top of each column. E.g., in Col (1), a positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. This corresponds to the definiton of shocks in the main specification in the paper. Similarly, in Col. (2), a positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (25th) percentile of the district's usual distribution, and so on.
3. All regressions include district and year fixed effects and controls for positive shocks 2 years ago and 3 years ago.
4. Standard errors are clustered by region-year.

Appendix Table 9
Robustness to Definition of Rainfall Shocks: World Bank Data Results

		Percentile Cut-off for Positive/Negative Shocks				
		80/20	80/25	80/30	75/25	70/30
		(1)	(2)	(3)	(4)	(5)
Last year's shock	*This year's shock*					
Any	Positive	0.0474***	0.0418***	0.0410***	0.0445***	0.0444***
		(0.013)	(0.010)	(0.010)	(0.010)	(0.011)
Interaction with 1{Inflation> 6%}		-0.013	-0.00735	-0.00699	-0.00832	-0.0121
		(0.018)	(0.018)	(0.018)	(0.017)	(0.016)
None or Negative	Negative	0.000586	-0.0123	-0.0139	-0.0137	-0.0188
		(0.013)	(0.012)	(0.012)	(0.013)	(0.013)
Interaction with 1{Inflation> 6%}		-0.0312	-0.0190	-0.0142	-0.0195	-0.0154
		(0.020)	(0.018)	(0.017)	(0.018)	(0.017)
Positive	Negative	0.0849***	0.0738***	0.0720***	0.0743***	0.0711***
		(0.029)	(0.026)	(0.024)	(0.024)	(0.021)
Interaction with 1{Inflation> 6%}		-0.0816**	-0.0714**	-0.0572*	-0.0678**	-0.0594**
		(0.037)	(0.032)	(0.030)	(0.031)	(0.028)
Positive	None	0.0573***	0.0519***	0.0504***	0.0510***	0.0451***
		(0.015)	(0.016)	(0.017)	(0.016)	(0.015)
Interaction with 1{Inflation> 6%}		-0.0445**	-0.0397*	-0.0432**	-0.0422**	-0.0489**
		(0.020)	(0.020)	(0.021)	(0.020)	(0.020)
F-test p-value: Coeff 3 + Coeff 4 = 0		0.0486	0.0152	0.0184	0.00874	0.00383
F-test p-value: Coeff 5 + Coeff 6 = 0		0.891	0.902	0.434	0.759	0.555
F-test p-value: Coeff 7 + Coeff 8 = 0		0.316	0.356	0.584	0.506	0.780

Notes:
1. This tables examines robustness of the results to alternate cut-offs for positive and negative shocks in the World Bank data. It replicates the regression in Col. (4) of Table 3 under different shock definitions.
2. In each column, positive and negative shocks are defined under different cut-offs, as labeled at the top of each column. E.g., in Col (1), a positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. This corresponds to the definiton of shocks in the main specification in the paper. Similarly, in Col. (2), a positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (25th) percentile of the district's usual distribution, and so on.
3. All regressions include district and year fixed effects and controls for positive shocks 2 years ago and 3 years ago.
4. Standard errors are clustered by region-year.

Appendix Table 10
Correlation of Shocks with Prices and Inflation

		Dependent variable				
		Own CPI	Own harvest price	Other states' CPI	Other states' harvest price	Other states' inflation
		(1)	(2)	(3)	(4)	(5)
Last year's shock	*This year's shock*					
None, Drought, or Positive	Positive	0.67	-0.42	-0.24	0.13	0.0001
		(1.24)	(2.29)	(0.17)	(0.35)	(0.0006)
None or Drought	Drought	-1.17	0.79	0.13	-0.20	0.0009
		(1.84)	(2.43)	(0.24)	(0.33)	(0.0012)
Positive	Drought	-5.54	-2.27	0.42	0.79	0.0028
		(3.45)	(4.75)	(0.46)	(0.56)	(0.0014)*
Positive	None	-1.77	-1.08	-0.02	0.21	0.0017
		(2.17)	(2.83)	(0.30)	(0.40)	(0.0012)
Observations: district-years		6,851	7,680	7,440	7,680	7,680
Dependent variable mean		275	111	260	117	0.066

Notes:
1. Own CPI is the district's state-level CPI for Agricultural Labourers. Own harvest price is the harvest price for paddy (i.e. rice) (given in the World Bank dataset). Inflation is the percentage change in the CPI for Agricultural Labourers since the previous year. The dependent variables in Cols. (3)-(6) are computed by averaging values for all states except the district's own state.
2. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution.
3. The shock sequences are presented as the shock in the previous year and the shock in the current year. Each of the 4 shock covariates is an indicator that equals 1 if the sequence of shocks was realized and equals zero otherwise. The omitted category in each regression is {None or Negative} last year and {None} this year.
4. All regressions include district and year fixed effects.
5. Standard errors are clustered by region-year.

Appendix Table 11
Inflation Results: Robustness and Placebo Checks
Dependent variable: Log nominal daily agricultural wage

			Interaction Term in Regressions		
			Other states' inflation	*Linear year trend*	*Post-1970 dummy*
			(1)	(2)	(3)
	Last year's shock	This year's shock			
1	None, Drought, or Positive	Positive	0.030	0.026	0.031
			(0.009)***	(0.009)***	(0.013)**
2	*Interaction*		0.005	-0.000	-0.009
			(0.012)	(0.000)	(0.017)
3	None or Drought	Drought	0.005	-0.012	-0.004
			(0.012)	(0.011)	(0.014)
4	*Interaction*		-0.220	-0.001	-0.016
			(0.109)**	(0.001)	(0.022)
5	Positive	Drought	0.077	0.035	0.033
			(0.025)***	(0.020)*	(0.030)
6	*Interaction*		-0.522	-0.001	0.003
			(0.199)***	(0.003)	(0.040)
7	Positive	None	0.045	0.020	0.021
			(0.014)***	(0.010)**	(0.013)
8	*Interaction*		-0.271	0.000	-0.003
			(0.096)***	(0.001)	(0.019)
Observations: district-years			7,200	7,680	7,680
R2			0.946	0.947	0.947
Dependent variable mean			1.27	1.21	1.21

Notes:
1. The dependent variable is the log of the nominal wage for casual daily agricultural work. Observations are from the World Bank data.
2. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution. The shock sequences are presented as the shock in the previous year and the shock in the current year. Each of the 4 shock covariates (rows 1, 3, 5, 7) is an indicator that equals 1 if the sequence of shocks was realized and zero otherwise. The omitted category in each regression is {None or Negative} last year and {None} this year.
3. The remaining covariates (rows 2, 4, 6, 8) are interactions with the shock sequence indicators. In Col. (1) the interaction term is inflation, which equals the percentage change in the state CPI for Agricultural Labourers, averaged across all states excluding the district's own state; this is not available for 1956 and 1957. In Col. (2) the interaction term is the calendar year of the observation. In Col. (3), it is a binary indicator for whether the year is after 1970.
4. Regressions include district and year fixed effects. Standard errors are clustered by region-year.

Appendix Table 12
Inflation Results: Alternate Inflation Definitions
Dependent variable: Log nominal daily agricultural wage

			Interaction Term in Regressions			
			Current year's inflation (1)	*Avg of current and next year's inflation* (2)	*Avg of current and previous year's inflation* (3)	*Current year's inflation* (4)
	Last year's shock	*This year's shock*				
1	None, Drought, or Positive	Positive	0.0474***	0.0529***	0.0594***	0.0440***
			(0.011)	(0.011)	(0.012)	(0.010)
2	*Interaction*		-0.0128	-0.0305	-0.0442*	-0.0108
			(0.019)	(0.022)	(0.023)	(0.019)
3	None or Drought	Drought	-0.000959	-0.00247	-0.0184	-0.000959
			(0.013)	(0.015)	(0.016)	(0.013)
4	*Interaction*		-0.0348	-0.0226	0.00759	-0.0348
			(0.023)	(0.028)	(0.025)	(0.023)
5	Positive	Drought	0.0847***	0.0590	0.0987***	0.0847***
			(0.029)	(0.039)	(0.031)	(0.029)
6	*Interaction*		-0.0758**	-0.0187	-0.121***	-0.0758**
			(0.038)	(0.062)	(0.045)	(0.038)
7	Positive	None	0.0553***	0.0534***	0.0464***	0.0553***
			(0.016)	(0.016)	(0.015)	(0.016)
8	*Interaction*		-0.0334	-0.0457*	-0.0219	-0.0334
			(0.021)	(0.025)	(0.022)	(0.021)
Sample			All	All	All	Exclude 1968 & 1975
Observations: district-years			7,680	7,680	7,680	7,200

Notes:
1. Observations are from the World Bank data.
2. In Cols. (1) and (4), the interaction term is a dummy for inflation>6% in the current calendar year -- Col (1) corresponds to the main specification in the paper. Cols. (2) and (3) average the value of this variable for the current year with the next calendar year (Col. 2) and with the previous calendar year (Col. 3). The robustness checks are similar if the continuous version of variables is used instead.
3. Col (4) drops observations from years 1968 and 1975.
4. Regressions include district and year fixed effects, and controls for positive shocks 2 years ago and 3 years ago. Standard errors are clustered by region-year.

Appendix Table 13

Robustness: Wage Rigidity in Low Inflation Years

Dependent Variable: Log Nominal Daily Agricultural Wage

		Sample		
		Inflation < 4% (1)	Inflation < 2% (2)	Inflation < 1% (3)
Last year's shock	*This year's shock*			
Any	Positive	0.0438***	0.0361***	0.0363**
		(0.012)	(0.013)	(0.014)
None or Negative	Negative	-0.00388	0.00727	0.00323
		(0.014)	(0.016)	(0.016)
Positive	Negative	0.0628**	0.0530*	0.0527**
		(0.025)	(0.027)	(0.025)
Positive	None	0.0433**	0.0358**	0.0230
		(0.018)	(0.017)	(0.019)
Observations: district-years		2,792	2,312	1,926

Notes:

1. The dependent variable is the log of the nominal wage for casual daily agricultural work.
2. Each of the three columns limits observations to those in which the state inflation rate was less than 4%, 2%, or 1%, respectively, in that calendar year.
3. All regressions include district and year fixed effects and lagged positive shock controls.
4. Standard errors are clustered by region-year.

Appendix Table 14

Correlation of Shocks with Characteristics of Wage Workers

		Dependent Variable			
		1{Female worker}	Education category	Age	Landholding
		(1)	(2)	(3)	(4)
Last year's shock	*This year's shock*				
None, Negative, or Positive	Positive	-0.000609	0.0987	0.196	-0.128
		(0.017)	(0.069)	(0.334)	(0.080)
None or Negative	Negative	-0.000678	0.0481	-0.257	-0.278
		(0.014)	(0.045)	(0.381)	(0.222)
Positive	Negative	-0.0171	0.0936	0.0496	0.0701
		(0.022)	(0.075)	(0.570)	(0.121)
Positive	None	-0.00177	-0.0538	-0.719*	0.153
		(0.017)	(0.057)	(0.420)	(0.104)
Prior shock history controls?					
Observations: individual-years		59208	42016	59243	59243
Dependent variable mean		1.48	1.59	33.87	0.81

Notes:
1. The sample is restricted to observations in which a worker did agricultural work for a paid wage (NSS data).
2. Shocks are defined as in the main tables.
3. All regressions include district and year fixed effects, and controls for positive shocks 2 years ago and 3 years ago.
4. Standard errors are clustered by region-year.

Appendix Table 15
Effects of Rainfall on Composition & Size of Agricultural Labor Force

		Dependent variable		
		Individual reports being in agricultural labor force (1)	Individual migrated into village (2)	Household member migrated out of village (3)
Panel A: Simple specification				
Positive shock last year		-0.0034	0.0018	-0.0037
		(0.0039)	(0.0021)	(0.0026)
Panel B: Full specification				
Last year's shock	This year's shock			
Any	Positive	0.0027	-0.0047	-0.0026
		(0.0047)	(0.0017)***	(0.0042)
None or Negative	Negative	0.0025	0.0027	-0.0053
		(0.0035)	(0.0029)	(0.0132)
Positive	Negative	-0.0008	-0.0006	-0.0061
		(0.0070)	(0.0045)	(0.0128)
Positive	None	-0.0048	0.0020	-0.0047
		(0.0045)	(0.0019)	(0.0031)
Observations: individual-years		1,530,688	414,232	
Observations: household-years				36,251
Dependent variable mean		0.389	0.230	0.035

Notes:
1. In Col. (1), the dependent variable is an indicator that equals 1 if the respondent indicated agriculture as his/her primary or subsidiary occupation, and equals 0 otherwise. The sample is comprised of all rural residents from all rounds of the NSS.
2. In Col. (2), the dependent variable is an indicator that equals 1 if the individual is a migrant into the village and 0 otherwise. The sample is comprised of all rural residents in rounds for which questions on individual-level in-migration status were asked (rounds 38, 43, 55).
3. In Col. (3), the dependent variable is an indicator that equals 1 if the household reports having a member who has migrated out in the past year and 0 otherwise. The sample is comprised of all rural households in round 64, which has data on out-migration status by year, surveyed in the final quarter of the agricultural year (so that the 1 year recall links cleanly to agricultural year).
4. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution.
5. In Panel A, the shock covariate is a dummy for a positive shock in the previous year.
6. In Panel B, each of the 4 shock covariates is an indicator that equals 1 if the sequence of shocks (presented as the shock in the previous year and the shock in the current year) was realized and equals zero otherwise. The omitted category in these regressions is {None or Negative} last year and {None} this year.
7. Results are from OLS regressions. Regressions (1) and (2) contain district and year fixed effects. Standard errors are clustered by region-year.

Appendix Table 16
Relationship between Rainfall and Migration (ICRISAT)

Dependent variable	*Any migration*	*Any migration*	*Number of migrants*	*Number of migrants*
	(1)	(2)	(3)	(4)
Panel A: Continuous rainfall deviation				
Standardized June rain	-0.0260***	-0.0286***	-0.0343**	-0.0410***
	(0.006)	(0.006)	(0.011)	(0.010)
Panel B: Continuous rainfall deviation - Asymmetric effects				
Standardized June rain x Positive deviation	-0.0413***	-0.0437***	-0.0627***	-0.0650**
	(0.008)	(0.010)	(0.016)	(0.018)
Standardized June rain x Negative deviation	-0.00446	-0.00719	0.00562	-0.00701
	(0.016)	(0.018)	(0.025)	(0.030)
Panel C: Binary shocks				
Positive shock (above 80th percentile)	-0.0761***	-0.0841***	-0.0961**	-0.114**
	(0.020)	(0.021)	(0.043)	(0.042)
Negative shock (below 20th percentile)	0.0135	0.0161	0.0197	0.0322
	(0.017)	(0.020)	(0.027)	(0.030)
Village fixed effects?	Yes	No	Yes	No
Household fixed effects?	No	Yes	No	Yes
Observations: household-years	1781	1781	1781	1781
Dependent variable mean	0.177	0.177	0.322	0.322

Notes:
1. Observations are household-years from the ICRISAT VLS 2001-2004 data.
2. The dependent variable in Cols. (1)-(2) is a dummy for whether there was any out migration from the household. In Cols. (3)-(4), the dependent variable is the continuous number of individuals who migrated out of the household at some point during the year.
3. Standardized June rain is the standardized deviation from the mean of June rainfall, where the mean and standard deviation are taken from the rainfall timeseries for that district in the University of Delaware data (same rainfall data as in the main paper).
2. In Panel C, positive and negative shocks are defined exactly as in the main analysis for the NSS data in the paper.
A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution. Note that June corresponds to the first month of the monsoon for the ICRISAT villages.
7. Results are from OLS regressions. Regressions (1) and (3) contain village fixed effects, and Cols. (2) and (4) contain household fixed effects. Standard errors are clustered by village-year.

Appendix Table 17
Effects of Rainfall Shocks on Migration (ICRISAT)

		Full sample				Landless & Small farms
		Any migration	Any migration	Number of migrants	Number of migrants	Any migration
		(1)	(2)	(3)	(4)	(5)
		Panel A: Simple specification				
Positive shock last year		-0.0208	-0.0255	-0.0518	-0.0794	-0.0180
		(0.033)	(0.040)	(0.049)	(0.053)	(0.029)
		Panel B: Full specification				
Last year's shock	*This year's shock*					
Any	Positive	-0.0654**	-0.0731**	-0.0976**	-0.121**	-0.0618**
		(0.024)	(0.025)	(0.047)	(0.043)	(0.026)
None or Negative	Negative	0.0212	0.0237	0.0186	0.0273	0.0230
		(0.020)	(0.023)	(0.030)	(0.034)	(0.026)
Positive	Negative	--	--	--	--	--
Positive	None	0.0354	0.0362	-0.00507	-0.0233	0.0284
		(0.032)	(0.035)	(0.049)	(0.058)	(0.030)
Village fixed effects?		Yes	No	Yes	No	Yes
Household fixed effects?		No	Yes	No	Yes	No
Observations: household-years		1781	1781	1781	1781	1174
Dependent variable mean		0.177	0.177	0.322	0.322	0.175

Notes:
1. Observations are household-years from the ICRISAT VLS 2001-2004 data.
2. The dependent variable in Cols. (1), (2), and (5) is a dummy for whether there was any out migration from the household. In Cols. (3)-(4), the dependent variable is the continuous number of individuals who migrated out of the household at some point during the year.
3. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution.
4. In Panel A, the shock covariate is a dummy for a positive shock in the previous year.
5. In Panel B, each of the 4 shock covariates is an indicator that equals 1 if the sequence of shocks (presented as the shock in the previous year and the shock in the current year) was realized and equals zero otherwise.
6. Results are from OLS regressions. Cols. (1), (3), and (5) contain village fixed effects, and Cols. (2) and (4) contain household fixed effects. Standard errors are clustered by village-year.

Appendix Table 18
Effects of Rain Shocks on Employment over Time
Dependent variable: Total worker-days in agriculture

			Interaction term (Time measure)	
			Year (linear)	Post 1995 dummy
			(1)	(2)
Panel A: Simple specification				
	Positive shock last year		-0.236**	-0.143**
			(0.117)	(0.071)
	Positive shock last year x Time measure		0.00591	0.0475
			(0.006)	(0.101)
Panel B: Full specification				
	Last year's shock	This year's shock		
1	Any	Positive	0.207	0.105
			(0.159)	(0.078)
2	Interaction with time measure		-0.00318	0.0819
			(0.008)	(0.133)
3	None or Negative	Negative	-0.0708	-0.0887
			(0.111)	(0.067)
4	Interaction with time measure		-0.00112	-0.0165
			(0.006)	(0.117)
5	Positive	Negative	-0.170	-0.317***
			(0.167)	(0.103)
6	Interaction with time measure		-0.00372	0.0914
			(0.009)	(0.155)
7	Positive	None	-0.242*	-0.124
			(0.143)	(0.084)
8	Interaction with time measure		0.00731	0.0492
			(0.008)	(0.124)
F-test p-value: Coefficient 3 = Coefficient 5			0.087*	0.045**
Observations: individual-years			632,327	632,327
Dependent variable mean			1.74	1.74

Notes:
1. Observations are from the NSS data.
2. In Panel A, the shock covariate is a dummy for a positive shock in the previous year.
3. In Panel B, each of the 4 shock covariates (rows 1, 3, 5, 7) is an indicator that equals 1 if the sequence of shocks was realized and equals zero otherwise.
4. In Panel B, rows 2, 4, 6, and 8 show the coefficients from an interaction of each shock with a time measure. In Col (1), the time measure is a continuous linear variable for the year. This variable has been rescaled so that first year in sample (1982) has a value of 1; i.e. the variable is defined as: (year - 1981). In Col (2), the time measure is a dummy for whether the year is after 1995 (the midpoint of the NSS sample).
5. All regressions include district and year fixed effects. Standard errors clustered by region-year.

Appendix Table 19
Impact of Shocks on Capital Inputs

		Dependent variable		
		Bullocks	Tractors	Fertilizer
		(1)	(2)	(3)
	Panel A: Simple specification			
Positive shock last year		-0.001	0.009	-0.004
		(0.010)	(0.024)	(0.022)
	Panel B: Full specification			
Last year's shock	*This year's shock*			
None, Drought, or Positive	Positive	0.006	-0.012	-0.023
		(0.011)	(0.026)	(0.024)
None or Drought	Drought	-0.012	-0.011	-0.044
		(0.013)	(0.039)	(0.036)
Positive	Drought	-0.012	-0.037	-0.037
		(0.021)	(0.053)	(0.045)
Positive	None	0.009	0.007	0.005
		(0.011)	(0.030)	(0.028)
Observations: district-years		7,680	7,680	7,680
Dependent variable mean		0.000	0.000	0.000

1. The dependent variables are number of bullocks, number of tractors, and amount of nitrogen fertilizer (the most common fertilizer input) used in rural production. The source is the World Bank dataset. All dependent variables are standardized to have a mean of 0 and standard deviation of 1.
2. A positive (negative) shock is defined as rainfall in the first month of the monsoon above (below) the 80th (20th) percentile of the district's usual distribution. No shock ("None") is rainfall between the 20th-80th percentile of the district's usual distribution.
3. In Panel A, the shock covariate is a dummy for a positive shock in the previous year.
4. In Panel B, each of the 4 shock covariates (rows 1, 3, 5, 7) is an indicator that equals 1 if the sequence of shocks (presented as the shock in the previous year and the shock in the current year) was realized and equals zero otherwise. The omitted category in these regressions is {None or Negative} last year and {None} this year. Each covariate is interacted with the number of acres per adult in the household (rows 2, 4, 6, 8).
5. All regressions include district and year fixed effects.
6. Standard errors are clustered by region-year.

Appendix Table 20
Survey Responses to Employment Scenarios

		Proportion of Responses		
		Yes	Maybe	No
	Panel A: Laborers (N=196)			
1	Do you remember any year when the agricultural wage in this village was less than the wage [for that season] in the year before?	0.00	--	1.00
2a	Have there been times when you would have liked to work at the prevailing wage but did not obtain work?	0.74	--	0.26
2b	How often have you faced this problem of involuntary unemployment? Every year (0.60); Some years (0.12); Rarely (0.02); Never (0.26)	--	--	--
3	If a laborer was willing to accept work at a rate lower than the prevailing wage, would he be more likely to obtain work from farmers in the village?	0.61	0.20	0.19
4	When you have difficulty finding work at the prevailing wage, do you offer to work at a lower wage?	0.31	0.22	0.47
5	Suppose the prevailing wage is Rs. 100 per day. You have been unemployed for a long time and are in urgent need of money. If a farmer offers you Rs. 95 for one day of work, would you accept the job?	0.58	0.24	0.18
	Panel B: Landowning farmers (Employers) (N=200)			
6	Do you remember any year when the agricultural wage in this village was less than the wage [for that season] the year before?	0.00	--	1.00
7	Suppose the prevailing non-peak wage rate is Rs. 100. There is a laborer in your village who has been unemployed for a long time and is in urgent need of money. If a farmer offers him Rs. 95 for one day of work, would the laborer accept the job?	0.39	0.25	0.37
8	In non-peak periods, have you ever hired a laborer for agricultural work at a wage below the prevailing wage?	0.05	--	0.95

Notes:
1. The sample is comprised of 196 casual laborers and 200 landowning farmers (i.e. employers) from 34 villages across 6 districts in the Indian states of Orissa and Madhya Pradesh. Respondents were working males aged 20-80.
2. Interviews were conducted July-August 2011.
3. The tabulation of responses for Question 2b is reported below the statement of the question.

For Online Publication

Appendix B: Model Proofs

B.1: Proof of Lemma 1 (Market Clearing in Benchmark Case)

First, I show that the market clearing condition must hold in the benchmark case.

(i) Suppose there is excess labor supply: $JL^* < \frac{1}{\phi}u\left(\frac{w^*}{p}\right)$. Then firm j can cut its wage to some $w^* - \epsilon$ and still hire L^* workers. To see this, define δ as the slack in the market: $\delta \equiv JL^* - \frac{1}{\phi}u\left(\frac{w^*}{p}\right)$. At wage $w_j = w^* - \epsilon$, by the allocation mechanism for workers, the supply of workers available to j equals the mass of workers that would be willing to work for j minus the mass of workers employed by the other (higher-wage) firms:

$$L_j^{Avail} \quad = \quad max\left\{\frac{1}{\phi}u\left(\frac{w^*-\epsilon}{p}\right) - (J-1)L^*\ ,\ 0\right\}$$

Firm j can cut wages by ϵ and still hire L^* workers as long as ϵ satisfies the following condition:

$$\begin{aligned} & L^* \leq \frac{1}{\phi}u\left(\frac{w^*-\epsilon}{p}\right) - (J-1)L^* \\ \implies & \frac{1}{J}\left[\frac{1}{\phi}u\left(\frac{w^*}{p}\right) - \delta\right] \leq \frac{1}{\phi}u\left(\frac{w^*-\epsilon}{p}\right) - \frac{J-1}{J}\left[\frac{1}{\phi}u\left(\frac{w^*}{p}\right) - \delta\right] \\ \implies & \frac{1}{\phi}u\left(\frac{w^*}{p}\right) - \delta \leq \frac{1}{\phi}u\left(\frac{w^*-\epsilon}{p}\right). \end{aligned}$$

Such a wage cut will strictly decrease j's wage bill while holding revenue constant, thereby strictly increasing profits. Thus, there cannot be excess labor supply.

(ii) Suppose there is excess labor demand: $JL^* > \frac{1}{\phi}u\left(\frac{w^*}{p}\right)$. This implies that each firm is hiring strictly less labor than demanded by its first order condition. If firm j raises its wage infinitesimally above w^* to $w^*+\epsilon$, it will be able to fully satisfy its labor demand by the allocation mechanism. In what follows, denote $L_j^{FOC}(w_j)$ as j's labor demand under wage w_j (this is determined by j's first order condition, (3)). This upward wage deviation will be profitable if profits from $w^* + \epsilon$ are higher than profits from w^*, i.e. if the following inequality holds:

$$\theta pf\left(L_j^{FOC}\left(w^*+\epsilon\right)\right) - \left(w^*+\epsilon\right) L_j^{FOC}\left(w^*+\epsilon\right) > \theta pf\left(\frac{1}{J\bar{\phi}}u\left(\frac{w^*}{p}\right)\right) - w^*\frac{1}{J\bar{\phi}}u\left(\frac{w^*}{p}\right).$$

Note that:

$$\begin{aligned}
&\lim_{\epsilon\to 0}\quad \theta pf\left(L_j^{FOC}\left(w^*+\epsilon\right)\right) - \left(w^*+\epsilon\right) L_j^{FOC}\left(w^*+\epsilon\right) \\
&= \theta pf\left(L_j^{FOC}\left(w^*\right)\right) - w^* L_j^{FOC}\left(w^*\right) \\
&> \theta pf\left(\tfrac{1}{J\bar{\phi}}u\left(\tfrac{w^*}{p}\right)\right) - w^*\tfrac{1}{J\bar{\phi}}u\left(\tfrac{w^*}{p}\right).
\end{aligned}$$

The equality on the second line follows from the continuity of the first order condition and continuity of $f(\bullet)$. The inequality on the third line is due to the fact that at w^*, $L_j^{FOC}\left(w^*\right)$ maximizes profits. This implies that there exists some $\bar{\epsilon} > 0$ such that for all $\epsilon < \bar{\epsilon}$, profits from deviating to $w^* + \epsilon$ will be higher than maintaining wages at w^*.

Next, I show that no firm will deviate from the w^* pinned down by conditions (3) and (4).

(i) Suppose firm j raises its wage to some $w_j = w^* + \epsilon$. It follows from the first order condition, (3), that the firm will demand labor $L_j^{FOC} < L^*$. However, it could have hired L_j^{FOC} workers under wage w^*, with a lower wage bill and higher profits. This deviation cannot be profitable.

(ii) Suppose firm j lowers its wage to some $w_j = w^* - \epsilon$. The supply of workers available to j equals the mass of workers that would be willing to work for j minus the mass of workers employed by the other (higher-wage) firms:

$$\begin{aligned}
L_j^{Avail} &= max\left\{\tfrac{1}{\bar{\phi}}u\left(\tfrac{w^*-\epsilon}{p}\right) - (J-1)L^*\ ,\ 0\right\} \\
&= max\left\{\tfrac{1}{\bar{\phi}}u\left(\tfrac{w^*-\epsilon}{p}\right) - \tfrac{J-1}{J\bar{\phi}}u\left(\tfrac{w^*}{p}\right)\ ,\ 0\right\}.
\end{aligned}$$

Note that at $w^* - \epsilon$, $L_j^{Avail} < L^* < L_j^{FOC}$ by the above and the first order condition. This deviation will not be profitable iff $\pi_j\left(w^*, L^*\right) - \pi_j\left(w^* - \epsilon, L_j^{Avail}\right) \geq 0$.

(a) If $L_j^{Avail} = 0$, then $\pi_j\left(w^* - \epsilon, L_j^{Avail}\right) = 0$ and profits are trivially weakly higher from maintaining w^*.

(b) If $L_j^{Avail} > 0$, then profits from maintaining w^* will be higher for J sufficiently large. First, rewrite

$$\begin{aligned} & \pi_j\left(w^*, L^*\right) - \pi_j\left(w^* - \epsilon, L_j^{Avail}\right) \\ = \; & p\theta\left[f\left(L^*\right) - f\left(L_j^{Avail}\right)\right] - \tfrac{\epsilon}{J\overline{\phi}}u\left(\tfrac{w^*}{p}\right) \\ = \; & F(J) - \tfrac{\epsilon}{J\overline{\phi}}u\left(\tfrac{w^*}{p}\right), \end{aligned}$$

where I define $F(J)$ as the difference in revenue from L^* and L_j^{Avail}. Note that:

$$\frac{\partial}{\partial J}F(J) = \frac{1}{J^2\overline{\phi}}u\left(\frac{w^*}{p}\right)p\theta\left[f'\left(L_j^{Avail}\right) - f'\left(L^*\right)\right] > 0$$

by the concavity of $f(\bullet)$. Next, define $\widetilde{J}$as:

$$F(1) = \frac{\epsilon}{\widetilde{J}\overline{\phi}}u\left(\frac{w^*}{p}\right).$$

Cutting wages to $w^* - \epsilon$ will not be a profitable deviation for any J such that $F(J) - \frac{\epsilon}{J\overline{\phi}}u\left(\frac{w^*}{p}\right) > 0$. The following shows this will hold for any $J \geq \widetilde{J}$. For any positive number X:

$$\begin{aligned} F(\widetilde{J} + X) \; & > \; F(\widetilde{J}) && (since\ \tfrac{\partial}{\partial J}F(J) > 0) \\ & > \; F(1) && (since\ \tfrac{\partial}{\partial J}F(J) > 0) \\ & = \; \tfrac{\epsilon}{\widetilde{J}\overline{\phi}}u\left(\tfrac{w^*}{p}\right) && (by\ definition\ of\ \widetilde{J}) \\ & > \; \tfrac{\epsilon}{(\widetilde{J}+X)\overline{\phi}}u\left(\tfrac{w^*}{p}\right). \end{aligned}$$

Thus for J sufficiently large, profits from maintaining w^* will be higher than from deviating to $w^* - \epsilon$. This is consistent with the assumption stated in the model that J is arbitrarily large. ■

B.2: Proof of Proposition 1 (Asymmetric Adjustment to Shocks)

I prove each of the two parts of Proposition 1 in turn.

(i) Define $\widetilde{\theta}_R, = \frac{\bar{w}_{t-1}}{pf'\left(\frac{1}{(J-1)\overline{\phi}}u\left(\frac{\lambda\bar{w}_{t-1}}{p}\right)\right)}$. For $\theta \in \left(\widetilde{\theta}_R, \theta_R\right)$, no firm will deviate from wage offer $\bar{w}_{t-1}$:

(a) Suppose firm j deviates by raising the wage to $w_j > \bar{w}_{t-1}$. It follows from the first order condition, (5), that the firm will demand labor $L_j^{FOC} < \overline{L}$. However, it could have hired L_j^{FOC} workers under wage $\bar{w}_{t-1}$, with a lower wage bill and higher profits. This deviation cannot be profitable.

(b) Suppose firm j deviates by lowering the wage to $w_j \in (\lambda\bar{w}_{t-1}, \bar{w}_{t-1})$. By the firm's first order condition (5), j's labor demand will increase, but the supply of labor available to j will decrease to some L_j^{Avail}: $0 < L_j^{Avail} < \overline{L}\left(\theta, p, \bar{w}_{t-1}\right)$. Then:

$$\begin{aligned}
\pi_j\left(w_j, L_j^{Avail}\right) &= p\theta f\left(\lambda L_j^{Avail}\right) - w_j L_j^{Avail} \\
&< p\theta f\left(\lambda L_j^{Avail}\right) - \bar{w}_{t-1}\left(\lambda L_j^{Avail}\right) && (\textit{since } w_j > \bar{w}_{t-1}\lambda) \\
&< p\theta f\left(\overline{L}\left(\theta, p, \bar{w}_{t-1}\right)\right) - \bar{w}_{t-1}\overline{L}\left(\theta, p, \bar{w}_{t-1}\right) && (\textit{by FOC at } \bar{w}_{t-1}) \\
&= \pi_j\left(\bar{w}_{t-1}, \overline{L}\left(\theta, p, \bar{w}_{t-1}\right)\right).
\end{aligned}$$

This deviation is not profitable.

(c) Suppose firm j deviates by lowering the wage to $w_j \leq \lambda\bar{w}_{t-1}$. Since $\theta > \theta'_R$, the definition of θ'_R above implies:

$$\overline{L}\left(\theta, p, \bar{w}_{t-1}\right) > \frac{1}{(J-1)\overline{\phi}} u\left(\frac{\lambda\bar{w}_{t-1}}{p}\right).$$

As a result, the supply of labor available to j is:

$$\begin{aligned}
L_j^{Avail} &= max\left\{\tfrac{1}{\phi}u\left(\tfrac{w_j}{p}\right) - (J-1)\bar{L}\ ,\ 0\right\} \\
&\leq max\left\{\tfrac{1}{\phi}u\left(\tfrac{\lambda\bar{w}_{t-1}}{p}\right) - (J-1)\bar{L}\ ,\ 0\right\} && (\textit{since } w_j \leq \bar{w}_{t-1}\lambda) \\
&= 0 && (\textit{by the expression for } \overline{L} \textit{ above}).
\end{aligned}$$

The profits from cutting to $w_j \leq \lambda\bar{w}_{t-1}$ are therefore 0. This deviation is not profitable.

The first order condition (5) implies that for $\theta \in \left(\widetilde{\theta}_R, \theta_R\right)$, $\overline{L}\left(\theta, p, \bar{w}_{t-1}\right) < \overline{L}\left(\theta_R, p, \bar{w}_{t-1}\right)$. This is because the wage remains fixed at $\bar{w}_{t-1}$, while $\theta < \theta_R$, and $f(\cdot)$ is concave. Since by the definition of θ_R, $J\overline{L}\left(\theta_R, p, \bar{w}_{t-1}\right) =$

$\frac{1}{\overline{\phi}}u\left(\frac{\bar{w}_{t-1}}{p}\right)$, this implies that for $\theta \in \left(\widetilde{\theta}_R, \theta_R\right)$, $J\overline{L}\left(\theta, p, \bar{w}_{t-1}\right) < \frac{1}{\overline{\phi}}u\left(\frac{\bar{w}_{t-1}}{p}\right)$. Thus, there will be excess labor supply in the market.

Finally, note that $\underset{\lambda\to 0}{lim}\,\widetilde{\theta}_R = \underset{\lambda\to 0}{lim}\,\frac{\bar{w}_{t-1}}{pf'\left(\frac{1}{(J-1)\overline{\phi}}u\left(\frac{\lambda\bar{w}_{t-1}}{p}\right)\right)} = 0.$

(ii) The definition of θ_R and Lemma 1 imply: $\overline{w}\left(\theta_R, p, \bar{w}_{t-1}\right) = w^*\left(\theta_R, p\right) = \bar{w}_{t-1}$. Since $\frac{\partial w^*(\theta,p)}{\partial\theta} > 0$ for all θ, $w^*\left(\theta_R, p\right) \geq \bar{w}_{t-1}$ for $\theta \geq \theta_R$. The below arguments show that for $\theta \geq \theta_R$, no firm will want to deviate from $\overline{w}\left(\theta, p, \bar{w}_{t-1}\right) = w^*\left(\theta, p\right)$:

(a) Suppose firm j raises its wage to some $w_j = \overline{w}\left(\theta, p, \bar{w}_{t-1}\right) + \epsilon > \bar{w}_{t-1}$. Since $w_j > \bar{w}_{t-1}$, j's first order condition (5) coincides with the benchmark case. This deviation cannot be profitable by the same logic as part (i) of the proof of Proposition 1 above.

(b) Suppose firm j lowers its wage to some $w_j = \overline{w}\left(\theta, p, \bar{w}_{t-1}\right) - \epsilon \geq \bar{w}_{t-1}$. (Note that this implies $\theta > \theta_R$). The firm's choice of labor demand at w_j is given by first order condition (5). This deviation cannot be profitable by the same logic as part (ii) of the proof of Proposition 1 above.

(c) Suppose firm j lowers its wage to some $w_j = \overline{w}\left(\theta, p, \bar{w}_{t-1}\right) - \epsilon < \bar{w}_{t-1}$. Define $L_j^{FOC,\lambda}$ implicitly as: $p\theta\lambda f'\left(\lambda L_j^{FOC,\lambda}\right) = w_j$. In addition, define $L_j^{FOC,B}$ implicitly as: $p\theta f'\left(L_j^{FOC,B}\right) = w_j$. Note that $L_j^{FOC,\lambda} < L_j^{FOC,B}$ because of the assumption in the model that $f'\left(\overline{L}\right) > \lambda f'\left(\lambda\overline{L}\right)\ for\ \lambda < 1$. At w_j, j's optimal labor demand will correspond to $L_j^{FOC,\lambda}$. There are 2 possibilities:

1) If $L_j^{FOC,\lambda} > L_j^{Avail}$, then the amount of labor hired by the firm will correspond to L_j^{Avail} (the available labor supply). Then:

$$\begin{aligned}\pi_j\left(w_j, L_j^{Avail}\right) &= p\theta f\left(\lambda L_j^{Avail}\right) - w_j L_j^{Avail} \\ &\leq p\theta f\left(L_j^{Avail}\right) - w_j L_j^{Avail} \qquad (since\ \lambda < 1) \\ &< p\theta f\left(L^*\right) - w^* L^* \qquad (by\ Proposition\ 1\ proof) \\ &= p\theta f\left(\overline{L}\right) - \overline{w}\,\overline{L} \\ &= \pi_j\left(\overline{w}, \overline{L}\right)\end{aligned}$$

2) If $L_j^{FOC,\lambda} \leq L_j^{Avail}$, then the amount of labor hired by the firm will correspond to $L_j^{FOC,\lambda}$. Then:

$$\begin{aligned}\pi_j\left(w_j, L_j^{FOC,\lambda}\right) &= p\theta f\left(\lambda L_j^{FOC,\lambda}\right) - w_j L_j^{FOC,\lambda} \\ &< p\theta f\left(L_j^{FOC,\lambda}\right) - w_j L_j^{FOC,\lambda} \qquad (since\ \lambda < 1) \\ &< p\theta f\left(L_j^{FOC,B}\right) - w_j L_j^{FOC,B} \qquad (by\ FOC\ condn\ (3)) \\ &< p\theta f\left(L^*\right) - w^* L^* \qquad (by\ Proposition\ 1\ proof) \\ &= p\theta f\left(\overline{L}\right) - \overline{w}\,\overline{L} \\ &= \pi_j\left(\overline{w}, \overline{L}\right)\end{aligned}$$

Thus, such a downward deviation cannot be profitable.

Since $\overline{w}\left(\theta_R, p, \bar{w}_{t-1}\right) = w^*\left(\theta_R, p\right)$ for $\theta \geq \theta_R$, this implies $\overline{L}\left(\theta_R, p, \bar{w}_{t-1}\right) = L^*\left(\theta_R, p\right)$ because labor demand under the first order conditions (3) and (5) coincides for $w \geq w_R$. As a result, condition (4) implies $J\overline{L}\left(\theta, p, \bar{w}_{t-1}\right) = \frac{1}{\phi} u\left(\frac{\overline{w}(\theta, p, \bar{w}_{t-1})}{p}\right)$ for $\theta \geq \theta_R$. ■

B.3: Proof of Proposition 2 (Ratcheting: Distortions from a Higher Previous Wage)

Following the proof of Proposition 1, define $\widetilde{\theta}_R^{high} = \frac{\bar{w}_{t-1}^{high}}{pf'\left(\frac{1}{(J-1)\phi} u\left(\frac{\lambda \bar{w}_{t-1}^{high}}{p}\right)\right)}$. Following equation (6), define θ_R^{low} implicitly as $w^*\left(\theta_R^{low}, p\right) = \bar{w}_{t-1}^{low}$.

By Proposition 1, $\overline{w}\left(\theta, p, \bar{w}_{t-1}^{high}\right) = \bar{w}_{t-1}^{high}$ for all $\theta \in \left(\widetilde{\theta}_R^{high}, \theta_R^{high}\right)$. Since, from Proposition 1, $\frac{\partial \widetilde{\theta}_R^{high}}{\partial \lambda} > 0$ and $\lim\limits_{\lambda \to 0} \widetilde{\theta}_R^{high} = 0$, for λ sufficiently small, it follows that $\overline{w}\left(\theta, p, \bar{w}_{t-1}^{high}\right) = \bar{w}_{t-1}^{high}$ for $\theta \leq \theta_R^{high}$.

First note that for $\theta \in (\theta_R^{low}, \theta_R^{high})$:

$$\begin{array}{rcll} \overline{w}\left(\theta_R^{low}, p, \bar{w}_{t-1}^{low}\right) & = & w^*\left(\theta_R^{low}, p\right) & by\, definition\, of\, \theta_R^a\, and\, Proposition\, 1 \\ & < & w^*\left(\theta_R^{high}, p\right) & by\, Lemma\, 1 \\ & = & \bar{w}_{t-1}^{high} & by\, definition\, of\, \theta_R^b \end{array}.$$

In addition, for $\theta \leq \theta_R^{low}$, $\overline{w}\left(\theta, p, \bar{w}_{t-1}^{low}\right) \leq \bar{w}_{t-1}^{low} < \bar{w}_{t-1}^{high}$, where the first inequality follows from Proposition 1. Together, the above imply that $\overline{w}\left(\theta, p, \bar{w}_{t-1}^{low}\right) < \bar{w}_{t-1}^{high}$ for $\theta < \theta_R^{high}$.

Since for λ sufficiently small, $\overline{w}\left(\theta, p, \bar{w}_{t-1}^{high}\right) = \bar{w}_{t-1}^{high}$ for $\theta < \theta_R^{high}$, this implies: $\overline{w}\left(\theta, p, \bar{w}_{t-1}^{low}\right) < \bar{w}_{t-1}^{high} = \overline{w}\left(\theta, p, \bar{w}_{t-1}^{high}\right)$ for $\theta < \theta_R^{high}$. Then, $\overline{L}\left(\theta, p, \bar{w}_{t-1}^{high}\right) < \overline{L}\left(\theta, p, \bar{w}_{t-1}^{low}\right)$ *for* $\theta < \theta_R^{high}$ by the firm's first order condition (5). ■

B.4: Proof of Proposition 3 (Effect of Inflation on Wage Adjustment)

I state the text of Proposition 3(i) formally:

> *For any fixed* $\theta = \theta'$ *and* $p = p'$ *such that* $\overline{w}\left(\theta', p', \bar{w}_{t-1}\right) = \bar{w}_{t-1} > w^*\left(\theta', p'\right)$,
>
> $$\frac{\partial}{\partial p}\left(\frac{\overline{w}\left(\theta, p, \bar{w}_{t-1}\right)}{p}\right)\Bigg|_{\theta=\theta', p=p'} < 0.$$
>
> *In addition,* $\exists\, \widetilde{p} > p'$ *such that* $\forall p \geq \widetilde{p}$*:* $\overline{w}\left(\theta', p, \bar{w}_{t-1}\right) = w^*\left(\theta', p\right)$.

The first part of Proposition 3(i) states that when there is a wage distortion, real wages will fall as price levels rise. First, note that a change in the price level will shift the θ-interval over which rigidity binds. To make explicit the fact that this interval depends on p, write this interval as $\left(\widetilde{\theta}(p), \theta_R(p)\right)$. Since the rigidity binds at θ' and p', this implies that $\theta' < \theta_R(p')$ by Proposition 1. Suppose $\theta' \in \left(\widetilde{\theta}_R(p'), \theta_R(p')\right)$. For δ sufficiently small, for any $\epsilon \leq \delta$, it will be the case that $\theta' \in \left(\widetilde{\theta}_R(p'+\epsilon), \theta_R(p'+\epsilon)\right)$ by the fact that $\widetilde{\theta}_R(p)$ and $\theta_R(p)$ are continuous in p. Thus, $\overline{w}\left(\theta', p'+\epsilon, \bar{w}_{t-1}\right) = \bar{w}_{t-1}$. As a result, we have:

$$\frac{\partial}{\partial p}\left(\frac{\overline{w}\left(\theta, p, \bar{w}_{t-1}\right)}{p}\right)\Bigg|_{\theta=\theta', p=p'} = \lim_{\epsilon \to 0} \frac{\frac{\overline{w}(\theta', p'+\epsilon, \bar{w}_{t-1})}{p'+\epsilon} - \frac{\overline{w}(\theta', p', \bar{w}_{t-1})}{p'}}{\epsilon} = \lim_{\epsilon \to 0} \frac{\frac{\bar{w}_{t-1}}{p'+\epsilon} - \frac{\bar{w}_{t-1}}{p'}}{\epsilon} < 0.$$

If $\theta' \leq \widetilde{\theta}_R(p')$, then similar logic applies: an ϵ increase in the price level, firms will hold the wage fixed at $\bar{w}_{t-1}$ (thereby experiencing an increase in profits). Thus, the real wage will fall with an ϵ increase in the price level.

The second part of the Proposition 3(i) states that a sufficiently large increase in the price will enable the market to achieve the market-clearing real wage. To see this, note that as the price level rises above p', holding the wage fixed at $\bar{w}_{t-1}$, labor supply will fall, while the first order condition (5) implies that labor demand will rise. There will be a $\widetilde{p} > p'$ at which aggregate labor demand will be exactly equal to aggregate supply. This $\widetilde{p}$ is pinned down by the following condition:

$$\widetilde{p}\theta' f'\left(\frac{1}{J\bar{\phi}}u\left(\frac{\bar{w}_{t-1}}{\widetilde{p}}\right)\right) = \bar{w}_{t-1}.$$

Note that at $\widetilde{p}$ and θ', $\bar{w}_{t-1}$ is the market clearing wage. This implies that: $\overline{w}\left(\theta', \widetilde{p}, \bar{w}_{t-1}\right) = w^*\left(\theta', \widetilde{p}\right) = \bar{w}_{t-1}$. In addition, for any $p'' \geq \widetilde{p}$:

$$\begin{aligned} \overline{w}\left(\theta', \widetilde{p}, \bar{w}_{t-1}\right) &= \bar{w}_{t-1} && \textit{by definition of } \widetilde{p}. \\ &= w^*\left(\theta', \widetilde{p}\right) \\ &\leq w^*\left(\theta', p''\right) && \textit{since } \tfrac{\partial w^*}{\partial p} > 0 \\ &= \overline{w}\left(\theta', p'', \bar{w}_{t-1}\right) && \textit{by Proposition 1 since } w^*\left(\theta', p''\right) \geq \bar{w}_{t-1} \end{aligned}$$

Thus, $\forall p \geq \widetilde{p}$, $\overline{w}\left(\theta', p, \bar{w}_{t-1}\right) = w^*\left(\theta', p\right)$. In addition, this implies $\overline{L}\left(\theta', p, \bar{w}_{t-1}\right) = L^*\left(\theta', p\right)$ since $\overline{w}\left(\theta', p, \bar{w}_{t-1}\right) \geq \bar{w}_{t-1}$ and also implies market clearing by Proposition 1.

The proof of Proposition 3(ii) follows the same logic as in the benchmark case. By Proposition 1, for any $\theta > \theta_R$, the equilibrium wage corresponds to the market clearing wage (i.e. $\overline{w}\left(\theta, p, \bar{w}_{t-1}\right) = w^*\left(\theta, p\right)$). It is straightforward to verify from equations (3) and (4): $\frac{\partial w^*(\theta,p)}{\partial p} = \frac{w^*}{p}$. Consequently, for any $\theta > \theta_R$, the nominal wage will rise to keep the real wage constant.■

Appendix C: Data Construction

National Sample Survey

The National Sample Survey (NSS) is a nationally representative survey of over 600 Indian districts. I use the rural sample of all the Employment/Unemployment rounds of the NSS (rounds 38, 43, 50, 55, 60, 61, 62, 64, 66, covering the years 1983-2009). Households in each district are sampled on a rolling basis over the agricultural year (July to June). The survey elicits daily employment and wage information for each household member over the 7 days preceding the interview. Since the monsoon is the rainfall shock used in the analysis, I restrict the sample to the Kharif (monsoon) growing season: the months between monsoon arrival and the end of harvesting in January.[46] Agricultural work is identified in the questionnaire as work activity corresponding to agricultural operations; I include all operations that fall within the period of monsoon arrival to harvesting: sowing, transplanting, weeding, and harvesting.[47]

The wage data is restricted to observations in which a worker was paid for work performed; these do not include imputed wages for self-employment. I compute the daily agricultural wage as paid earnings for casual agricultural work divided by days worked. I use total wage earnings: cash plus in-kind wages. 93% of wage observations in the sample have some cash component. The wage regression results are essentially the same if log cash wages is used as the dependent variable instead of log total wages.

Across years, the Government of India has split districts and regions into smaller units; in order to keep the geographic identifiers as consistent across years as possible, I have manually recoded split districts and regions to maintain the original parent administrative units. District identifiers are not available for the first three rounds of the NSS data. For these years, the smallest geographic identifier is the region—there are on average 2.6 regions per state in the NSS data, and a region is comprised of

[46] February-April is the lean season in rain-fed areas. In areas that plant a second crop during this season, this usually requires irrigation and the monsoon is a less important determinant of labor demand.

[47] In round 61, there is no data specifying agricultural operations. For this round, I identify agricultural work by using the industry code corresponding to agriculture.

8 districts on average. As a result, for all regressions using the NSS dataset, the geographic fixed effects are region fixed effects for the first three rounds and district fixed effects for the remaining rounds. This is equivalent to using two pooled panels with separate fixed effects for analysis. Using a common set of region fixed effects for all rounds gives similar (though less precise) results in the regressions. In addition, all regressions use the multiplier weights provided with the data.

World Bank Agriculture and Climate Dataset

The World Bank Agriculture and Climate dataset provides yearly panel data on districts in 13 states over the agricultural years 1956-1987. The unit of observation is a district-year. The wage data were compiled by Robert E. Evenson and James W. McKinsey Jr. using data from the Directorate of Economics and Statistics within the Indian Ministry of Agriculture.

The reported wage variable equals the mean daily wage for a male ploughman in the district-year. This information was collected from sampled villages within each district. A knowledgeable person in each village, such as a school teacher or village official, was asked the prevailing wage rate in the village in each month. For each district-year, the annual wage variable averages over villages and across months in the agricultural year (July to June). The planting months at the start of the agricultural year are weighted more heavily than other months (because field activities are larger in those months). When the data for a male ploughman are not available, wages for a general male agricultural laborer are used instead.

The dataset includes data on 271 districts. I limit analysis to the 240 agricultural districts that grow at least some rice (measured as the districts whose mean percentage of land area planted with rice is at least 0.5%). Since rice is by far the dominant crop in India, districts that do not grow any rice are unlikely to engage in substantial agricultural activity. Performing the analysis with all 271 districts gives similar results, with slightly larger standard errors.

Rainfall Data

Rainfall data is taken from *Terrestrial Precipitation: 1900-2008 Gridded Monthly Time Series* (version 2.01), constructed by Cort J. Willmott and Kenji Matsuura at the Center for Climatic Research, University of Delaware. Rainfall estimates are constructed for 0.5 by 0.5 degree latitude-longitude grids by interpolating from 20 nearby weather stations. I match the geographic center of each district to the nearest latitude-longitude node in the rain data. These district coordinates are included in the World Bank data; for the NSS data, I have obtained them using district boundaries from the Census of India.

Consumer Price Index Data

Inflation is computed from the state-wise *Consumer Price Index for Agricultural Labourers in India*, published by the Government of India. Inflation in year *t* is the percentage change in the state CPI from calendar year *t-1* to calendar year *t*. State-level CPI data is not available before the year 1957. Thus, for the years 1956 and 1957, I use national CPI numbers and use the national inflation rate across the whole country in the regressions. Omitting these 2 years in the analysis has little effect on the findings (Appendix Table 6, Col. 1).

APPENDIX D
FAIRNESS NORMS SURVEY QUESTIONNAIRE

Author:
Supreet Kaur

Survey data collected for paper:
"Nominal Wage Rigidity in Village Labor Markets"
American Economic Review

Note:
If you use these survey questions in other work (or the associated data), please cite both the above wage rigidity paper, and also the fairness norms dataset hosted in the ICPSR repository:

Kaur, Supreet. 2019. "Fairness Norms Survey Data." Inter-university Consortium for Political and Social Research [distributor], Ann Arbor, MI.

PART 1: FAIRNESS NORMS

I am going to describe 6 hypothetical situations about interactions between farmers and laborers. For each situation, please state whether you think the actions are: completely fair; acceptable; unfair; or very unfair.

No.	Scenario	Response
(1)	A) A farmer hires a laborer to weed his land for 1 day at a wage of Rs. 120. There is a local factory that pays Rs. 100 per day. One month later, the factory shuts down and many people in the area become unemployed. After this, the farmer decides to do a second weeding and hires the same laborer as before at a wage of Rs. 100. B) … the farmer decides to do a second weeding and hires one of the newly unemployed laborers at a wage of Rs. 100.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(2)	A) Last year, the prevailing wage in a village was Rs. 100 per day. This year, the rains were very bad and so crop yields will be lower than usual. There has been no change in the cost of food and clothing. Farmers decrease this year's wage rate from Rs. 100 to Rs. 95 per day. B) … The price of food and clothing has increased since last year, so that what used to cost Rs. 100 before now costs Rs. 110. Farmers increase this year's harvest wage rate from Rs. 100 to Rs. 105.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(3)	A farmer usually pays laborers Rs. 100 per day plus "modomansu". There is not much work in the area and many laborers are looking for work. He decides to stop providing modomansu, but continues to pay laborers Rs. 100 per day.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(4)	A farmer usually pays laborers Rs. 120 per day. His son becomes sick and the medical bills are very expensive. He lowers the wage to Rs. 110 per day.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(5)	A farmer needs to hire a laborer to plough his land. The prevailing rate in the area is Rs. 120 per day. The farmer knows there is a laborer who needs money to meet a family expense and is having difficulty finding work. The farmer offers the job to that laborer at Rs. 110 per day.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(6)	A farmer needs to hire a laborer to plough his land. There is not much work in the area at that time, and 5 laborers want the job. The farmer asks each of them to state the lowest wage at which they are willing to work, and then hires the laborer who stated the lowest wage.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair

(7)	It is harvest time and all farmers in a village pay laborers Rs. 120 per day. One large farmer decides to harvest some of his land immediately and needs to hire 10 laborers. To find enough laborers, he pays them Rs. 150 per day for one week. In the following weeks, he decides to harvest the rest of his land, and re-hires 5 of the laborers at Rs. 120 per day.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(8)	There are 20 landowners in a village. The prevailing wage during ploughing time is Rs. 120. During paddy transplanting time, 10 landowners want to attract extra laborers, and they increase the wage they pay to Rs. 130. The other 10 landowners don't need much labor and maintain the wage at Rs. 120.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair
(9)	A) Last year, the harvesting wage was Rs. 100 per day. This year, there are heavy rains just before harvest and a lot of the crop is ruined. As a result, there is not much work during harvest time. <u>The price of food and clothing has increased so that what used to cost Rs. 100 before now costs Rs. 105. Farmers keep this year's harvest wage rate at Rs. 100</u>. B) … <u>The price of food and clothing has increased since last year, so that what used to cost Rs. 100 before now costs Rs. 130. Farmers increase this year's harvest wage rate from Rs. 100 to Rs. 105</u>.	1) Completely fair 2) Acceptable 3) Unfair 4) Very unfair

I am now going to ask you some more questions with general answers:

No.	Question	Response
(10)	Do you remember any year when the agricultural wage in this village was less than the wage the year before? In other words, once the wage goes up, does it ever go back down in future years? 1) Yes: The wage is flexible; from year to year, it goes up or down. 2) Yes: The wage has fallen below the previous year's wage, but only in extreme cases when there is very little work such as in a severe drought. 3) This has never happened: Wages have stayed the same or increased in subsequent years, but they have never fallen. 4) Other: ____________________	

(11)	A farmer named Mohit needs to hire a laborer to weed his land. There isn't much work in the village, and many laborers would like the job. A laborer named Balu has some family expenses for which he desperately needs the money. The prevailing wage is Rs. 120 per day. The farmer knows of Balu's situation, and so he offers him the job at: A) <u>Rs. 120</u> B) <u>Rs. 100</u>	1) More carefully than usual 2) With the normal amount of care 3) Less carefully than usual

	Given his need for money , Balu accepts the job. How carefully will Balu do the weeding?	
(12)	Everyone in the village knows the story of Mohit and Balu. A few months after this happens, Mohit (the farmer) wants to hire 3 laborers to help harvest his land. He offers Rs. 120/day plus "modomansu". Another farmer also wants to hire the 3 laborers and offers to pay them Rs. 120 only. Are the 3 laborers more likely to accept the job with Mohit or the other farmer?	1) Mohit 2) The other farmer 3) Doesn't matter

LANDOWNER QUESTIONNAIRE

PEAK PERIODS

No.	Question
(13)	What was the prevailing daily wage in your village during the harvest last year (Nov-Dec 2010)? Rs. __________
(14)	During the <u>peak period last year</u> (paddy transplanting, weeding, and harvest), have there ever been times when you could not find enough laborers to work your land at the prevailing wage? 1) Yes 2) No
(15)	How often have you faced labor shortages during <u>peak periods</u>? 1) Every year 2) Some years (e.g. 1 in 5 years) 3) Rarely (e.g. 1 in 10 years) 4) Never
(16)	In the past, when you have had difficulty finding enough labor, have you ever: A) Hired fewer laborers than you would have liked? 1) Yes 2) No B) Delayed work by some days until a time when you could hire enough laborers at once? 1) Yes 2) No C) Paid extra in-kind compensation, like modomansu, to attract extra laborers? 1) Yes 2) No D) Paid higher money wages than the prevailing rate to attract extra laborers? 1) Yes 2) No E) Put in more of your own family's labor than you otherwise would have? 1) Yes 2) No

(17)	Suppose a farmer paid a higher rate than the prevailing wage: A) Would that make it easier for him to hire additional laborers? 1) Yes 2) Maybe 3) No B) What would be the reaction of the <u>other farmers</u> in the village if one farmer pays his laborers a higher wage? 1) They wouldn't care 2) They would become angry with the farmer 3) They would never find out because wages are paid in private 4) Other ____________________________ C) Would other laborers in the village also demand pay increases from other landowners for future work? 1) Yes 2) Maybe 3) No

NON-PEAK PERIODS

(18)	What was the prevailing daily wage in your village during the <u>non-peak</u> season this year (e.g. March 2011)? Rs. __________
(19)	A) During this year's non-peak period (March-May), did you hire any agricultural laborers for any farm work? 1) Yes 2) No B) How often do you hire laborers during non-peak periods for farm work? 1) Every year 2) Some years (1 in 5 years) 3) Rarely (1 in 10 years) 4) Never
(20)	During non-peak periods**,** have there been times when you could not find enough laborers to work your land at the prevailing wage? 1) Yes 2) No
(21)	How often have you faced labor shortages during non-peak periods? 1) Every year 2) Some years (1 in 5 years) 3) Rarely (1 in 10 years) 4) Never

(22)	During the non-peak periods (periods other than transplanting, weeding, and harvest), on how many days are there laborers who would like to work at the prevailing wage but cannot find work? 1) Most days (above 75%) 2) About half of the days (about 50%) 3) Some days (about 25%) 4) None of the days: everyone who wants to work at the prevailing wage can find employment
(23)	In the non-peak periods, have you ever hired a laborer for agricultural work at a money wage below the prevailing wage? 1) Yes 2) No
(24)	In the non-peak periods, have you ever hired a laborer for agricultural work by paying an in-kind amount whose value is less than the prevailing wage? 1) Yes 2) No
(25)	Suppose the prevailing non-peak wage rate is Rs. 100. There is a laborer in your village who has been unemployed for a long time and is in urgent need of money. If a farmer offers him Rs. 95 for one day of work, will the laborer accept the job? 1) Yes 2) Maybe 3) No
(26)	A) Suppose the prevailing wage is Rs. 100 per day. You need to hire 1 laborer for one day of work. 2 laborers are available. 1 of them is willing to work at Rs. 100 per day, and the other laborer is willing to work at Rs. 95 per day. Which of the 2 laborers would you hire? 1) Rs. 100 laborer 2) Rs. 95 laborer 3) Indifferent B) Suppose you needed to hire a laborer to work during the non-peak period. The prevailing wage is Rs. 100. You know that there is a laborer who would accept the job at Rs. 95 because of money problems. What wage rate would you offer him? 1) Rs. 100 2) Rs. 95 3) Other wage: Rs. __________ C) Why? ____

LABORER QUESTIONNAIRE

PEAK PERIODS

No.	Question
(27)	What was the prevailing daily wage in your village during the harvest last year (Nov-Dec 2010)? Rs. __________
(28)	During <u>peak periods</u> (paddy transplanting, weeding, and harvest), have there ever been days you would have accepted a job at the prevailing wage but did not obtain work? 1) Yes 2) No
(29)	How often have you faced this problem during <u>peak periods</u>? 1) Every year 2) Some years (1 in 5 years) 3) Rarely (1 in 10 years) 4) Never

NON-PEAK PERIODS

(30)	What was the prevailing daily wage in your village during the <u>non-peak season</u> this year (e.g. March 2011)? Rs. __________
(31)	A) During non-peak periods (periods other than transplanting, weeding, and harvest), do you ever get hired to do agricultural work? 1) Yes 2) No B) During non-peak periods, how often do you get hired to do at least 1 day of agricultural work? 1) Every year 2) Some years (1 in 5 years) 3) Rarely (1 in 10 years) 4) Never
(32)	During non-peak periods, have there been times would have liked to work at the prevailing wage but did not obtain work? 1) Yes 2) No

(33)	How often have you faced this problem of unemployment during non-peak periods? 1) Every year 2) Some years (1 in 5 years) 3) Rarely (1 in 10 years) 4) Never
(34)	When you have difficulty finding work at the prevailing wage, do you: A) Do extra work on your own farm or house? 1) Yes 2) Sometimes 3) No B) Offer to work at a lower wage? 1) Yes 2) Sometimes 3) No
(35)	Imagine a laborer was willing to accept work at a rate lower than the prevailing wage: A) Would he be more likely to obtain work from farmers in the village? 1) Yes 2) Maybe 3) No B) What would be the reaction of the <u>other laborers</u> in the village if one laborer agrees to work at a lower wage? 1) They wouldn't care 2) They would become angry with the laborer 3) They would never find out because wages are paid in private 4) Other ______________________________ C) Would other farmers in the village also try to pay lower wages for future work? 1) Yes 2) Maybe 3) No
(36)	Suppose the prevailing non-peak wage rate is Rs. 100. You have been unemployed for a long time and are in urgent need of money. If a farmer offers you Rs. 95 for one day of work, would you accept the job? 1) Yes 2) Maybe 3) No
(37)	Suppose the prevailing wage is Rs. 100 per day. You would like to work at the prevailing wage. 2 different farmers offer you a job. 1 of them offers you Rs. 100 per day. The other farmer offers you Rs. 105 per day. Which of the 2 farmers would you work for? 1) Rs. 100 farmer 2) Rs. 105 farmer 3) Indifferent