Appendix: The Green Revolution and Infant Mortality in India[*]

Prashant Bharadwaj[†] James Fenske[‡] Namrata Kala[§]
Rinchan Ali Mirza[**]

Wherever possible we have organized the results in the Appendix in the same way as our baseline results in Table 3, meaning that, for each variant of the baseline specification, there are two columns: one for the parsimonious model without controls and the other for the model with controls.

In Appendix Table A1, we cluster standard errors either by DHS districts, by DHS survey cluster, or by state, instead of by districts in the agricultural data. Again, our baseline results are robust to these alternative ways of clustering.

In Appendix Table A2 we use whether a woman reports that her partner is self-employed in agriculture as a proxy for whether the observation is the child of a farmer. The effect is larger for this sub-sample, though the interaction is neither large nor significant.

In Appendix Table A3, we identify the cross-sectional correlates of HYV adoption in our sample at five points in time: 1966, 1970, 1975, 1980, 1985.[††] This table shows that HYV adoption was more widespread in districts with greater aquifer thickness and topsoil thickness, neutral pH, a handful of soil types, lower latitudes and, in some specifications, greater initial shares planted to wheat and rice. Later on as part of our empirical analysis we will explicitly control for the possibility of these determinants being responsible for differential trends in infant mortality across districts.

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[†] University of California San Diego. prbharadwaj@ucsd.edu. prbharadwaj.wordpress.com
[‡] University of Warwick. j.fenske@warwick.ac.uk. jamesfenske.com
[§] Massachusetts Institute of Technology. kala@mit.edu. namratakala.com
[**] University of Kent. R.A.Mirza@kent.ac.uk. sites.google.com/site/rinchanmirza/home
[††] Our sample falls to 270 districts as aquifer and topsoil depth are not available for Etah district.

In Appendix Table A4 we show results for three different variants of our baseline specification. Columns 1 to 4 replace infant mortality (death within 12 months of birth) with child mortality (death within five years of birth) as the outcome variable. The magnitudes of the coefficients show that HYV adoption causes a greater reduction in child mortality relative to infant mortality. Columns 5 to 8 use an alternative HYV adoption measure that replaces the denominator with initial (1970) acreage as opposed to contemporary (in the same year) acreage. The magnitudes of the estimated coefficients on the alternative measure of HYV adoption are somewhat smaller, but the sign and the significance are the same. Columns 9 to 12 use another alternative HYV adoption measure that uses the natural logarithm of the area planted to HYV. Since we do not normalize HYV area by acreage this may be a more imprecise measure of HYV adoption. Even then, our results are still significant and have the same sign as the baseline estimates.

Next, we use Appendix Table A5 to show that our results are not dependent on the nature of the relationship between HYV adoption and infant mortality being linear. In columns 1 to 4 we use a quadratic functional form for our empirical specification where we include the square of the HYV adoption measure in addition to the HYV adoption measure. Both the magnitude and sign on the estimated coefficients of the HYV adoption measure are similar to those for our baseline specification. However, the positive sign on the coefficient for the square of the HYV adoption measure is evidence for there being non-linearity in the relationship between HYV adoption and infant mortality. Columns 5 to 8 use deciles of the HYV adoption measure to show that, relative to the omitted, lowest decile, higher deciles of the HYV adoption measure reduce infant mortality more.

Additionally, Appendix Table A6 shows that our baseline results are not sensitive to the exclusion of districts with extreme values of HYV adoption or child mortality. In the top panel of Table A6 we remove from the sample those districts that have a value of child mortality that is either below the first quintile or above the fifth quintile. The magnitudes of the coefficients for HYV adoption are, again, similar to the baseline. However, the effect of HYV adoption is somewhat larger once districts that have extreme values of child mortality are removed from the sample. The bottom panel of Table A6 removes from the sample districts

that have mean HYV adoption that is either below the first quintile (columns 1 to 4) or above the fifth quintile (columns 5 to 8). Again, the results remain broadly similar to the baseline despite the exclusion of extreme HYV adoption values from the sample and despite the reduction in sample size.

Appendix Table A7 shows the robustness of our baseline results to the use of alternative data on HYV from the IACD. In the top panel (Panel A) we replace values for the HYV adoption measure that are missing in the VDSA data with non-missing values based on data from the IACD. In the middle panel (Panel B) we replace the missing values for the HYV adoption measure in the IACD data with non-missing values based on the VDSA data. In the bottom panel (Panel C) we take an average of the HYV adoption measure based on the data given in the VDSA and the IACD. In all cases the sign and significance of the results remain the same as our baseline estimates. Moreover, the magnitudes do not change by much despite the inclusion of the IACD data in our sample.

We consider the possibility that correlates of HYV adoption identified in Table A3 may have been responsible for differential trends in infant mortality across districts in Appendix Table A8.‡‡ Because the correlates are time-invariant, we control for them in alternative specifications by (i) interacting them with the child's year of birth, and (ii) interacting them with fixed effects for the child's year of birth. Columns (1) through (4) report results controlling for determinants interacted with year of birth, and columns (5) through (8) report results controlling for determinants interacted with year of birth fixed effects. We select the correlates that are particularly consistent in their significance across columns of Table A3: dummies for soil types 1, 16, and 18, aquifer thickness greater than 150 meters, topsoil thickness greater than 300 centimeters, neutral soil pH, and initial shares planted in wheat and rice. Across specifications, results are little changed from the baseline.

‡‡ Some of the correlates in Table A3 such as soil type and aquifer depth have already been identified elsewhere in the literature on the Green Revolution (Zaveri et al., 2016; D'Agostino, 2017).

In columns (1) through (2) of Table A9, we consider the "strict exogeneity" assumption inherent in a fixed effects analysis such as ours, that there is no correlation between HYV adoption in district *i* in year *t* and the error terms at all leads and lags within a district. We enter additional leads and lags of HYV adoption into the regression as controls, from two years before the child is born until two years after. While we find evidence that prior lags also predict infant mortality (HYV adoption two years before birth enters with a significant and negative sign), there is no correlation between child survival and HYV adoption after the child is born, and the coefficient on HYV adoption in the child's year of birth is largely unaffected.

Because our sample size occasionally differs across tables and across columns due to the availability of different controls, we use Table A10 to report our main results, our mother fixed effects results, and our district trends results on a consistent sample. Results here are similar to the corresponding tables. Similarly, we use Tables A11 and A12 to show that our results for specific crops and predetermined characteristics are also largely unchanged if we restrict the sample to be the same across columns.

In Table A13, we further consider the issues of strict exogeneity and the unobserved determinants of HYV adoption by addressing the relationship between HYV adoption and lagged weather shocks. In a panel of districts, we estimate the following three equations:

$$ShareHYV_{dt} = \alpha + \beta Rainfall_{dt-1} + \delta_d + \eta_t + \epsilon_{dt} \quad (1)$$

$$\Delta ShareHYV_{dt} = \alpha + \beta Rainfall_{dt-1} + \delta_d + \eta_t + \epsilon_{dt} \quad (2)$$

$$\Delta ShareHYV_{dt} = \alpha + \beta Rainfall_{dt-1} + \gamma ShareHYV_{dt-1} + \delta_d + \eta_t + \epsilon_{dt} \quad (3)$$

That is, we consider whether the share of land planted to HYV in district d in year t ($ShareHYV_{dt}$) responds to lagged rainfall ($Rainfall_{dt-1}$), conditional on district and year fixed effects (δ_d and η_t). We show results with the outcome treated in levels and in first differences, as well as with a lagged dependent variable. Across specifications, the standardized estimates of β, i.e. $\hat{\beta}$ multiplied by the standard deviation of $Rainfall_{dt-1}$ and divided by the

standard deviation of the outcome variable, are small, at less than 0.06 standard deviations in absolute magnitude. This suggests that time-varying omitted variables such as rainfall that might affect infant mortality are unlikely to be major sources of variation in our principal measure of HYV adoption.

In Tables A14 through A20 we address the fact that panel data constructed from cross sections of fertility histories is likely to lead children born in later years to have higher birth orders. In Table A14, we restrict the sample to first births only. In Table A15, we restrict the sample to children born before 1975. In Table A16, we restrict the sample to children born between 1970 and 1980. In Table A17, we restrict the sample to children born between 1980 and 1990. Table A18 restricts the sample to the first two births of mothers who have at least two births. Table A19 uses only the first round of the DHS data, and Table A20 uses only the second round.

Across all these sample restrictions, the estimated coefficients are negative and have similar magnitudes to our baseline estimations. They are not, however, significant in all cases. Where this is the case, it is often because the sample restriction gives a sample much smaller than in our baseline, and the coefficient estimates remain of a magnitude that would be significant at conventional levels if the precision were the same as in our baseline estimates from Table 3. That is, the loss of significance here is due not to reduced coefficients but to larger standard errors.

In our baseline regressions, we include birth order as a linear control. In Table A21, we control instead for birth order fixed effects. In Table A22, we replace these with district × birth order fixed effects. In both cases, our results are similar to our baseline. In Table A23, we interact our main measure of HYV adoption with birth order. In three of four specifications, we find no heterogeneity by birth order. In column (4), we find that the effect is somewhat smaller for children from higher birth orders, though the effect size is less than 10% that of share planted to HYV. In Table A24, we show that controlling for a quadratic in mother's age at the child's birth and its square has little effect on our main results.

In Table A25, we re-estimate our baseline specification after including the 4th round of the DHS. Since births in the 4th round of the DHS come from later years, including data from it in our sample moves the identifying variation away from the years in which the spread of HYV corresponded with the historical event we think of as the Green Revolution. Despite such a concern, the results show from Table A25 show that the inclusion of the 4th round of DHS, aside from reducing the magnitude of the coefficients somewhat, does not change their sign or significance.

Finally, in Table A26, we show that controlling for the lagged log yield of a district's principal crop (defined by maximum area in 1966) has little effect on our main results.

References

D'Agostino, A. L. (2017): "Technical Change and Gender Wage Inequality: Long-Run Effects of India's Green Revolution," *UC Riverside Working Paper*.

Zaveri, E., et al. (2016): "Invisible water, visible impact: groundwater use and Indian agriculture under climate change," *Environmental Research Letters*, 11(8), 084005.

Table A1. Alternative clustering

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.025**	-0.024**	-0.027**	-0.027**
s.e. clustered by district in DHS	(0.007)	(0.007)	(0.009)	(0.009)
s.e. clustered by state	(0.009)	(0.009)	(0.011)	(0.010)
s.e. clustered by survey cluster	(0.007)	(0.007)	(0.009)	(0.008)
Observations	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979
R-squared	0.016	0.038	0.018	0.040
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the clustering of standard errors at the district, state or survey cluster level. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A2. Heterogeneous effect of HYV cultivation with respect to parent's partner in agriculture

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.022***	-0.023***	-0.024**	-0.026***
	(0.008)	(0.008)	(0.010)	(0.009)
Interaction	-0.006	-0.002	-0.006	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)
Observations	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979
R-squared	0.017	0.038	0.018	0.040
Interaction variable	Partner Self Employed In Agriculture		Partner Self Employed In Agriculture	
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the addition of an interaction term where the measure for HYV adoption is interacted with a binary variable indicating the presence of a parent's partner in agriculture. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A3. Determinants of HYV cultivation

	(1)	(2)	(3)	(4)	(5)
	Total Hyv Area / Total Cultivated Area				
Year	*1966*	*1970*	*1975*	*1980*	*1985*
Estimator	*OLS*	*OLS*	*OLS*	*OLS*	*OLS*
Aquifer thickness > 150meters	0.005	0.095***	0.132***	0.169***	0.181***
	(0.003)	(0.026)	(0.031)	(0.036)	(0.052)
Aquifer thickness 100-150meters	0.004	0.019	0.012	0.014	0.009
	(0.004)	(0.018)	(0.025)	(0.030)	(0.038)
Topsoil thickness 25-50 centimeters	0.004	-0.017	0.034	0.057	0.075
	(0.005)	(0.030)	(0.036)	(0.037)	(0.059)
Topsoil thickness 50-100 centimeters	0.002	-0.015	0.026	0.031	0.069
	(0.004)	(0.029)	(0.031)	(0.032)	(0.055)
Topsoil thickness 100-300 centimeters	0.004	-0.006	0.033	0.051	0.037
	(0.004)	(0.031)	(0.037)	(0.039)	(0.058)
Topsoil thickness > 300centimeters	0.005	0.037	0.129***	0.151***	0.178***
	(0.004)	(0.031)	(0.037)	(0.041)	(0.062)
slightly alkali 5.5<pH<6.5	0.004	-0.013	-0.008	-0.037	-0.039
	(0.003)	(0.018)	(0.023)	(0.027)	(0.036)
neutral 6.5<pH<7.5	-0.000	-0.045*	-0.041	-0.085**	-0.109**
	(0.003)	(0.027)	(0.030)	(0.036)	(0.046)
slightly acid 7.5<pH<8.5	-0.001	-0.017	-0.020	-0.050	-0.062
	(0.003)	(0.021)	(0.026)	(0.032)	(0.039)
slightly acid 7.5<pH<8.5	0.002	-0.007	0.015	0.018	0.007
	(0.004)	(0.031)	(0.038)	(0.044)	(0.059)
Soil Type 1	0.011**	-0.015	0.090**	0.128***	0.162***
	(0.005)	(0.027)	(0.040)	(0.041)	(0.059)
Soil Type 2	-0.006	-0.026	0.001	-0.010	-0.023
	(0.004)	(0.029)	(0.039)	(0.043)	(0.054)
Soil Type 3	-0.005	-0.005	0.043	0.004	0.042
	(0.005)	(0.024)	(0.048)	(0.041)	(0.062)
Soil Type 4	-0.002	0.005	0.015	-0.001	0.046
	(0.003)	(0.016)	(0.026)	(0.030)	(0.044)
Soil Type 5	-0.001	0.028	0.019	0.043	0.074
	(0.005)	(0.026)	(0.031)	(0.034)	(0.049)
Soil Type 6	-0.004	0.007	0.009	0.009	0.016
	(0.004)	(0.022)	(0.028)	(0.034)	(0.048)
Soil Type 7	-0.000	-0.001	0.018	0.013	-0.012
	(0.003)	(0.016)	(0.027)	(0.033)	(0.038)
Soil Type 8	0.003	0.086**	0.086*	0.097*	0.042
	(0.007)	(0.038)	(0.046)	(0.052)	(0.073)

Table A3. (Continued)

	(1)	(2)	(3)	(4)	(5)
	Total Hyv Area / Total Cultivated Area				
Year	*1966*	*1970*	*1975*	*1980*	*1985*
Estimator	*OLS*	*OLS*	*OLS*	*OLS*	*OLS*
Soil Type 9	-0.006*	-0.017	-0.010	0.034	-0.050
	(0.003)	(0.024)	(0.041)	(0.075)	(0.064)
Soil Type 10	-0.001	0.113***	0.117*	0.097	0.133
	(0.006)	(0.043)	(0.063)	(0.098)	(0.109)
Soil Type 11	-0.003	-0.013	-0.035	-0.020	0.047
	(0.002)	(0.020)	(0.040)	(0.040)	(0.061)
Soil Type 12	-0.003	-0.001	-0.079	-0.050	-0.081
	(0.003)	(0.027)	(0.055)	(0.071)	(0.118)
Soil Type 13	-0.001	0.007	-0.004	-0.123	-0.175*
	(0.005)	(0.036)	(0.052)	(0.077)	(0.095)
Soil Type 14	-0.006	-0.016	-0.004	-0.007	-0.020
	(0.005)	(0.030)	(0.044)	(0.042)	(0.064)
Soil Type 15	0.001	0.086**	0.073*	0.105**	0.047
	(0.002)	(0.034)	(0.038)	(0.041)	(0.048)
Soil Type 16	-0.003	0.034*	0.050**	0.080***	0.099**
	(0.002)	(0.018)	(0.025)	(0.030)	(0.038)
Soil Type 17	-0.003	0.000	0.054*	0.087**	0.064
	(0.005)	(0.018)	(0.033)	(0.037)	(0.048)
Soil Type 18	-0.005	-0.084*	-0.195***	-0.153*	-0.204**
	(0.005)	(0.049)	(0.066)	(0.079)	(0.098)
Soil Type 19	-0.006	0.024	-0.008	-0.016	-0.030
	(0.004)	(0.024)	(0.028)	(0.035)	(0.046)
Soil Type 20	0.015	0.040	0.069	0.086	0.093
	(0.019)	(0.043)	(0.061)	(0.092)	(0.104)
Degrees Latitude	-0.001***	-0.005**	-0.005*	-0.007**	-0.008*
	(0.000)	(0.002)	(0.003)	(0.003)	(0.005)
Degrees Longitude	-0.001	-0.004	-0.008**	-0.012**	-0.007
	(0.001)	(0.003)	(0.004)	(0.005)	(0.006)
Normal Annual Rainfall (1957 to 1987)	0.000	-0.000	0.000	0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Population Density in 1961	0.000	0.008	0.007	0.006	0.004
	(0.001)	(0.007)	(0.007)	(0.007)	(0.008)
Percent Wheat in 1957	0.007	0.153*	0.188	0.274*	0.341*
	(0.010)	(0.080)	(0.120)	(0.141)	(0.200)
Percent Rice in 1957	0.014	0.071	0.123*	0.199***	0.168*
	(0.009)	(0.051)	(0.065)	(0.073)	(0.091)
Observations	270	270	270	270	270
R-squared	0.314	0.473	0.460	0.525	0.382

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS. The data source used is the Village Dynamics in South Asia dataset. Columns 1 to 5 regress the fraction of all crops planted to HYV in the indicated year on a whole range of time-inavriant agro-climatic variables.

Table A4. Alternative variable definitions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Mortality measure											
HYV Measure	-0.032***	-0.031***	-0.031***	-0.032***	-0.019***	-0.019***	-0.019**	-0.020**	-0.035***	-0.034***	-0.038***	-0.038***
	(0.009)	(0.009)	(0.011)	(0.010)	(0.007)	(0.006)	(0.008)	(0.008)	(0.010)	(0.010)	(0.012)	(0.012)
Observations	331,838	330,577	331,838	330,577	331,752	330,491	331,752	330,491	331,838	330,577	331,838	330,577
Mean outcome	0.1347	0.1344	0.1347	0.1344	0.0981	0.0979	0.0981	0.0979	0.0981	0.0979	0.0981	0.0979
R-squared	0.026	0.048	0.028	0.050	0.016	0.038	0.018	0.040	0.016	0.038	0.018	0.040
Alternative measure		LHS: Child mortality				RHS: 1970 area as denominator				RHS: ln HYV area		
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A	Yes	Yes	N/A	N/A	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 2, 5, 6, 9 and 10 estimate a variant of equation (3) whereas columns 3, 4, 7, 8, 11 and 12 estimate a variant of equation (4). The variant being either the replacement of infant mortality with child mortality as the dependent variable or the replacement of the HYV adoption measure with either total HYV area normalized by 1970 cultivated area or ln HYV area as the main explanatory variable. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A5. Alternative functional forms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Died As Infant							
Total Hyv Area / Total Cultivated Area	-0.048***	-0.047***	-0.052**	-0.051**				
	(0.018)	(0.017)	(0.022)	(0.021)				
Total Hyv Area / Total Cultivated Area Squared	0.031	0.031	0.033	0.032				
	(0.021)	(0.020)	(0.024)	(0.023)				
HYV Decile 2					-0.007*	-0.006*	-0.010**	-0.009**
					(0.004)	(0.004)	(0.004)	(0.004)
HYV Decile 3					-0.001	-0.001	-0.005	-0.005
					(0.004)	(0.004)	(0.005)	(0.005)
HYV Decile 4					-0.008*	-0.007*	-0.012**	-0.011**
					(0.004)	(0.004)	(0.005)	(0.005)
HYV Decile 5					-0.010**	-0.009**	-0.012**	-0.012**
					(0.004)	(0.004)	(0.005)	(0.005)
HYV Decile 6					-0.011**	-0.011**	-0.014***	-0.014***
					(0.005)	(0.004)	(0.005)	(0.005)
HYV Decile 7					-0.012**	-0.012**	-0.015***	-0.015***
					(0.005)	(0.005)	(0.006)	(0.006)
HYV Decile 8					-0.013**	-0.012**	-0.016***	-0.016***
					(0.005)	(0.005)	(0.006)	(0.006)
HYV Decile 9					-0.017***	-0.016***	-0.019***	-0.018***
					(0.005)	(0.005)	(0.006)	(0.006)
HYV Decile 10					-0.013**	-0.012**	-0.015**	-0.015**
					(0.006)	(0.005)	(0.007)	(0.006)
Observations	331,838	330,577	331,838	330,577	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979	0.0981	0.0979	0.0981	0.0979
R-squared	0.016	0.038	0.018	0.040	0.016	0.038	0.018	0.040
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 2, 5 and 6 estimate a variant of equation (3) whereas columns 3, 4, 7 and 8 estimate a variant of equation (4). The variant being either the addition of a HYV adoption squared term or the replacement of the HYV adoption measure with deciles of HYV adoption. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A6. Results with outliers removed

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Died As Infant							
Total Hyv Area / Total Cultivated Area	-0.027***	-0.026***	-0.027**	-0.026***	-0.025***	-0.024***	-0.030***	-0.029***
	(0.009)	(0.008)	(0.011)	(0.010)	(0.008)	(0.008)	(0.010)	(0.009)
Observations	261,609	260,437	261,609	260,437	268,252	267,780	268,252	267,780
Mean outcome	0.1081	0.1080	0.1081	0.1080	0.0869	0.0869	0.0869	0.0869
R-squared	0.013	0.036	0.015	0.037	0.010	0.032	0.012	0.033
Removed		Child mortality Q1				Child mortality Q5		
	Child Died As Infant							
Total Hyv Area / Total Cultivated Area	-0.015*	-0.014	-0.018*	-0.017*	-0.039***	-0.039***	-0.043***	-0.043***
	(0.009)	(0.008)	(0.010)	(0.010)	(0.012)	(0.012)	(0.015)	(0.014)
Observations	265,464	264,450	265,464	264,450	265,478	264,512	265,478	264,512
Mean outcome	0.0929	0.0928	0.0929	0.0928	0.1031	0.1029	0.1031	0.1029
R-squared	0.013	0.036	0.014	0.037	0.016	0.038	0.018	0.040
Removed		HYV Q1				HYV Q5		
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 2, 5 and 6 estimate a variant of equation (3) whereas columns 3, 4, 7 and 8 estimate a variant of equation (4). The variant being the exclusion of observations that have extreme values (as measure by either the first or the fifth quintile) of either Child Mortality or HYV adoption. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A7. Incorporation of older World Bank data

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Panel A. Missing filled using World Bank data				
Total HYV Area / Total Cultivated Area	-0.022***	-0.023***	-0.029***	-0.027***
	(0.007)	(0.007)	(0.009)	(0.009)
Observations	344,854	336,937	344,854	336,937
Mean outcome	0.0995	0.0979	0.0995	0.0979
R-squared	0.018	0.038	0.020	0.040
	Child Died As Infant			
Panel B. World Bank filled using VDSA				
Total HYV Area / Total Cultivated Area	-0.025***	-0.024***	-0.031***	-0.027***
	(0.006)	(0.006)	(0.008)	(0.008)
Observations	344,854	336,937	344,854	336,937
Mean outcome	0.0995	0.0979	0.0995	0.0979
R-squared	0.018	0.038	0.020	0.040
	Child Died As Infant			
Panel C. Average of World Bank and VDSA				
Total HYV Area / Total Cultivated Area	-0.027***	-0.026***	-0.033***	-0.030***
	(0.007)	(0.007)	(0.009)	(0.009)
Observations	344,854	336,937	344,854	336,937
Mean outcome	0.0995	0.0979	0.0995	0.0979
R-squared	0.018	0.038	0.020	0.040
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1956 to 1999. The data sources used are the Village Dynamics in South Asia dataset, the Indian Agriculture and Climate Dataset (IACD) and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being that the HYV adoption measure incorporates data from an additional World Bank dataset (IACD). Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A8. Impact of HYV cultivation on infant mortality controlling for HYV determinants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Died As Infant							
Total HYV Area / Total Cultivated Area	-0.025***	-0.024***	-0.027***	-0.027***	-0.029***	-0.029***	-0.030***	-0.031***
	(0.008)	(0.008)	(0.010)	(0.009)	(0.008)	(0.008)	(0.010)	(0.010)
Observations	321,093	319,856	321,093	319,856	321,093	319,856	321,093	319,856
Mean outcome	0.0989	0.0987	0.0989	0.0987	0.0989	0.0987	0.0989	0.0987
R-squared	0.016	0.039	0.018	0.040	0.017	0.040	0.019	0.041
HYV Determinants YOB trends	*Yes*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	*No*
HYV Determinants YOB FE	*No*	*No*	*No*	*No*	*Yes*	*Yes*	*Yes*	*Yes*
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes	No	No	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 2, 5 and 6 estimate a variant of equation (3) whereas columns 3, 4, 7 and 8 estimate a variant of equation (4). The variant being the inclusion of either HYV Determinants by YOB trends or HYV Determinants by YOB fixed effects. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A9. Impact of Lag/Lead HYV cultivation on infant mortality

	(1)	(2)
	Child Died As Infant	
(Total HYV Area / Total Cultivated Area) *t + 2*	-0.002	0.001
	(0.009)	(0.010)
(Total HYV Area / Total Cultivated Area) *t + 1*	0.013	0.003
	(0.010)	(0.011)
(Total HYV Area / Total Cultivated Area) *t*	-0.026**	-0.021*
	(0.010)	(0.011)
(Total HYV Area / Total Cultivated Area) *t - 1*	0.026***	0.018*
	(0.010)	(0.010)
(Total HYV Area / Total Cultivated Area) *t - 2*	-0.032***	-0.029***
	(0.010)	(0.010)
Observations	304,143	304,143
Mean outcome	0.0980	0.0980
R-squared	0.039	0.040
District FE	Yes	Yes
Birth Year FE	Yes	N/A
State YOB trends	Yes	No
State YOB FE	No	Yes
Controls	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Column 1 estimates a variant of equation (3) whereas column 2 estimates a variant of equation (4). The variant being the addition of two lags and two leads of the HYV adoption measure. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A10. Results with consistent sample - I

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Child Died As Infant									
Total HYV Area / Total Cultivated Area	-0.026***	-0.024***	-0.028***	-0.027***	-0.021**	-0.021**	-0.016	-0.020*	-0.020**	-0.019**
	(0.007)	(0.007)	(0.009)	(0.009)	(0.009)	(0.009)	(0.011)	(0.011)	(0.008)	(0.008)
Observations	330,577	330,577	330,577	330,577	330,577	330,577	330,577	330,577	330,577	330,577
Mean outcome	0.1344	0.1344	0.1344	0.1344	0.1344	0.1344	0.1344	0.1344	0.1344	0.1344
R-squared	0.016	0.038	0.018	0.040	0.316	0.328	0.318	0.329	0.018	0.040
Fixed effects and/or trends	District + year of birth				Mother ID + year of birth				District + year of birth + trends for districts	
State YOB trends	Yes	Yes	No	No	Yes	Yes	No	No	No	No
State YOB FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 2, 5 and 6 estimate a variant of equation (3) whereas columns 3, 4, 7 and 8 estimate a variant of equation (4). The variant being the replacement of state fixed effects with either district fixed effects or mother fixed effects. Additionally, Columns 9 and 10 replace state fixed effects and state YOB trends in equation (3) with district fixed effects and district YOB trends, respectively. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A11. Results with consistent sample - II

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Child Died As Infant											
Crop HYV Area / Total Cultivated Area	-0.018	-0.012	-0.027*	-0.041*	-0.047*	-0.040	-0.044*	-0.058**	0.010	0.030	0.009	0.002
	(0.011)	(0.012)	(0.016)	(0.021)	(0.024)	(0.025)	(0.024)	(0.025)	(0.038)	(0.040)	(0.033)	(0.035)
Observations	304,329	304,329	304,329	304,329	304,329	304,329	304,329	304,329	304,329	304,329	304,329	304,329
Mean outcome	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985	0.0985
R-squared	0.039	0.040	0.039	0.040	0.039	0.040	0.039	0.040	0.039	0.040	0.039	0.040
Crop	Rice		Wheat		Sorghum		Pearl Millet		Maize		Finger Millet	
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A
State YOB trends	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
State YOB FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 3, 5, 7, 9 and 11 estimate a variant of equation (3) whereas columns 2, 4, 6, 8, 10 and 12 estimate a variant of equation (4). The variant being the total HYV adoption measure being replaced by various crop-specific HYV adoption measures. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A12. Results with consistent sample - III

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Mother characteristics A	Low Caste		Tribal		Age in survey		Age at first marriage		Education	
Total HYV Area / Total Cultivated Area	-0.022	-0.019	0.003	-0.004	-0.141	-0.220	0.117	0.139	0.165	0.197
	(0.016)	(0.019)	(0.007)	(0.010)	(0.236)	(0.289)	(0.088)	(0.110)	(0.121)	(0.142)
Observations	282,812	282,812	282,812	282,812	282,812	282,812	282,812	282,812	282,812	282,812
Mean outcome	0.3224	0.3224	0.1088	0.1088	35.2507	35.2507	15.7990	15.7990	1.3035	1.3035
R-squared	0.123	0.126	0.260	0.260	0.522	0.523	0.147	0.148	0.091	0.093
Mother characteristics B	Muslim		Completed primary		Completed secondary		Urban		Literate	
Total HYV Area / Total Cultivated Area	0.006	0.010	0.013	0.017	0.017	0.020	0.010	0.014	0.010	0.014
	(0.011)	(0.014)	(0.016)	(0.019)	(0.012)	(0.014)	(0.013)	(0.016)	(0.015)	(0.018)
Observations	282,812	282,812	282,812	282,812	282,812	282,812	282,812	282,812	282,812	282,812
Mean outcome	0.1180	0.1180	0.2230	0.2230	0.0762	0.0762	0.2172	0.2172	0.1963	0.1963
R-squared	0.131	0.132	0.098	0.100	0.071	0.074	0.189	0.191	0.088	0.089
Child characteristics	Birth order		Female		Multiple					
Total HYV Area / Total Cultivated Area	-0.009	0.004	0.021*	0.025*	0.001	0.001				
	(0.075)	(0.094)	(0.012)	(0.015)	(0.004)	(0.005)				
Observations	282,812	282,812	282,812	282,812	282,812	282,812				
Mean outcome	2.9241	2.9241	0.4793	0.4793	0.0122	0.0122				
R-squared	0.053	0.054	0.002	0.003	0.004	0.006				
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birth Year FE	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A
State YOB trends	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
State YOB FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Controls	No	No	No	No	No	No	No	No	No	No

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1, 3, 5, 7 and 9 estimate a variant of equation (3) whereas columns 2, 4, 6, 8 and 10 estimate a variant of equation (4). The variant being that infant mortality is replaced by various characteristics of the mother or child as the dependent variable.

Table A13. Impact of Lag Rain on HYV Adoption

	(1)	(2)	(3)
	HYV Measure	First Difference HYV Measure	
(Annual Rainfall) *t - 1*	0.009267*	-0.007950*	-0.001866
	(0.004806)	(0.004182)	(0.004570)
(Total HYV Area / Total Cultivated Area) *t - 1*			-0.333460***
			(0.064823)
Observations	9,139	8,960	8,960
Mean outcome	0.2752	0.0114	0.0114
R-squared	0.786549	0.061771	0.222253
Standardized Coefficient	0.0233	-0.0533	-0.0125
1966 District FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 2009. The data source used is the Village Dynamics in South Asia dataset. Column 1 estimates an equation that where the HYV adoption measure is regressed on the first lag of annual rainfall, district fixed effects and year fixed effects. Column 2 estimates an equation that where the first difference of the HYV adoption measure is regressed on the first lag of annual rainfall, district fixed effects and year fixed effects. Column 3 estimates an equation that where the first difference of the HYV adoption measure is regressed on the first lag of annual rainfall, the first lag of the HYV adoption measure, district fixed effects and year fixed effects.

Table A14. Main results with sample restricted to first births only

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.021*	-0.021*	-0.028**	-0.030**
	(0.011)	(0.011)	(0.014)	(0.014)
Observations	94,365	94,028	94,365	94,028
Mean outcome	0.1062	0.1059	0.1062	0.1059
R-squared	0.020	0.034	0.024	0.038
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to only first births. Controls are rainfall, temperature, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A15. Main results with sample restricted to children born before 1975

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.034	-0.036	-0.046	-0.044
	(0.037)	(0.036)	(0.044)	(0.042)
Observations	50,180	50,009	50,180	50,009
Mean outcome	0.1304	0.1299	0.1304	0.1299
R-squared	0.022	0.048	0.025	0.050
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1974. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to children born before 1975. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A16. Main results with sample restricted to children born between 1970 and 1980

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.032*	-0.037**	-0.031	-0.039*
	(0.018)	(0.018)	(0.021)	(0.021)
Observations	108,484	108,083	108,484	108,083
Mean outcome	0.1154	0.1150	0.1154	0.1150
R-squared	0.018	0.040	0.019	0.041
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1970 to 1980. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to children born between 1970 and 1980. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A17. Main results with sample restricted to children born between 1980 and 1990

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.030***	-0.030***	-0.030**	-0.028**
	(0.011)	(0.010)	(0.012)	(0.012)
Observations	176,646	175,849	176,646	175,849
Mean outcome	0.0914	0.0912	0.0914	0.0912
R-squared	0.013	0.036	0.014	0.037
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1980 to 1990. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to children born between 1980 and 1990. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A18. Main results with sample restricted to first two births of mothers with at least two births

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.012	-0.012	-0.015	-0.020
	(0.014)	(0.014)	(0.017)	(0.017)
Observations	164,239	163,640	164,239	163,640
Mean outcome	0.1010	0.1009	0.1010	0.1009
R-squared	0.557	0.561	0.559	0.563
Fixed effects	Mother ID + year of birth			
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to first two births of mothers with at least two births. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A19. Main Results with sample restricted to first round of the birth recodes (i.e. round==23)

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.031***	-0.032***	-0.025**	-0.027**
	(0.010)	(0.010)	(0.012)	(0.012)
Observations	174,695	174,695	174,695	174,695
Mean outcome	0.1018	0.1018	0.1018	0.1018
R-squared	0.020	0.042	0.022	0.045
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1993. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to the first round of the DHS birth recodes. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A20. Main Results with sample restricted to second round of the birth recodes (i.e. round==42)

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.019*	-0.018*	-0.026**	-0.026**
	(0.010)	(0.010)	(0.012)	(0.011)
Observations	157,143	155,882	157,143	155,882
Mean outcome	0.0939	0.0935	0.0939	0.0935
R-squared	0.019	0.040	0.022	0.044
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the restriction of the regression sample to the second round of the DHS birth recodes. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A21. Main Results with birth order fixed effects included

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.025***	-0.024***	-0.027***	-0.027***
	(0.007)	(0.007)	(0.009)	(0.009)
Observations	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979
R-squared	0.018	0.039	0.019	0.041
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
Birth Order FE	Yes	Yes	Yes	Yes
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the addition of birth order fixed effects. Controls are rainfall, temperature, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A22. Main Results with district-by-birth order fixed effects included

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.026***	-0.025***	-0.027***	-0.027***
	(0.007)	(0.007)	(0.009)	(0.009)
Observations	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979
R-squared	0.028	0.049	0.029	0.050
District FE	Yes	Yes	Yes	Yes
District Birth Order FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the addition of district-by-birth order fixed effects. Controls are rainfall, temperature, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A23. Heterogeneous effect of HYV cultivation with respect to child birth order

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.030***	-0.032***	-0.032***	-0.035***
	(0.009)	(0.009)	(0.010)	(0.010)
Interaction	0.002	0.003	0.002	0.003*
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979
R-squared	0.016	0.038	0.018	0.040
Interaction variable	Child Birth Order		Child Birth Order	
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the addition of an interaction term where the measure for HYV adoption is interacted with child birth order. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A24. Control for mother age and age squared

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.024***	-0.024***	-0.025***	-0.026***
	(0.008)	(0.007)	(0.009)	(0.009)
Mother age at child's birth	-0.020***	-0.018***	-0.020***	-0.018***
	(0.001)	(0.002)	(0.001)	(0.002)
Squared	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	331,838	330,577	331,838	330,577
Mean outcome	0.0981	0.0979	0.0981	0.0979
R-squared	0.020	0.040	0.021	0.041
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the addition of mother's age at child birth and mother's age at child birth squared. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A25. Impact of HYV cultivation on infant mortality including data from 4th round of DHS

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.009*	-0.011**	-0.009	-0.011**
	(0.005)	(0.004)	(0.005)	(0.005)
Observations	714,738	707,306	714,738	707,306
Mean outcome	0.0743	0.0746	0.0743	0.0746
R-squared	0.022	0.040	0.023	0.041
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 2009. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 2015-16. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the extension of the regression sample to include data from the fourth round of DHS. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.

Table A26. Control for lagged log yield of principal crop

	(1)	(2)	(3)	(4)
	Child Died As Infant			
Total HYV Area / Total Cultivated Area	-0.023***	-0.022***	-0.024**	-0.024***
	(0.008)	(0.007)	(0.010)	(0.009)
Lag log yield of principal crop	-0.000	-0.000	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	325,363	324,110	325,363	324,110
Mean outcome	0.0979	0.1341	0.0979	0.1341
R-squared	0.016	0.039	0.017	0.040
District FE	Yes	Yes	Yes	Yes
Birth Year FE	Yes	Yes	N/A	N/A
State YOB trends	Yes	Yes	No	No
State YOB FE	No	No	Yes	Yes
Controls	No	Yes	No	Yes

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated. All regressions are OLS and are based on a panel from 1966 to 1999. The data sources used are the Village Dynamics in South Asia dataset and the Demographic Health Surveys (India) of 1992-93 and 1998-99. Columns 1-2 estimate a variant of equation (3) whereas columns 3-4 estimate a variant of equation (4). The variant being the addition of the first lag of the natural logarithm of yield of principal crops. Controls are rainfall, temperature, birth order, female, multiple, DHS round, mother's age in survey, mother's age in survey squared, urban, mother's religion, and mother's caste, unless otherwise indicated.