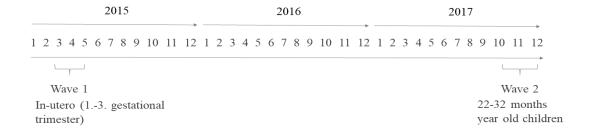
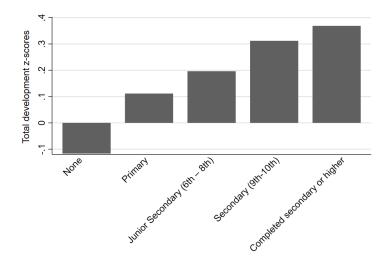
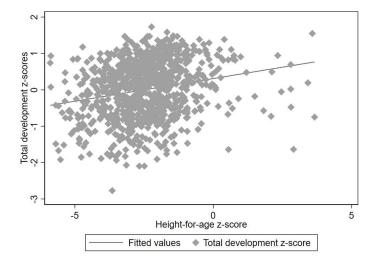
Online Supporting Material



Supplemental Figure S1 Timeline of data collections and the respective age of the children



Supplemental Figure S2 Average cumulative development test scores by maternal education category



Supplemental Figure S3 Average cumulative development test scores by of FREDI by child growth

Supplemental Table S1 Heterogeneous treatment effects using a linear regression model on child hemoglobin levels and skills dimensions

R2		Hb (child)	Motor	Language	Cognition	Socio-emo.
Hb (preg.)			skills	skills	skills	skill
County C	I		enatal care up	otake		
Any ANC # Hb (preg.) 0.014	Hb (preg.)	0.162***	-0.006	0.034	-0.029	0.013
R2		(0.042)	(0.029)	(0.030)	(0.025)	(0.025)
R² 0.174 0.248 0.221 0.304 0.332 Panel B: By child's sex Hb (preg.) 0.208*** 0.009 -0.018 -0.027 -0.025 (0.041) (0.028) (0.025) (0.027) (0.024) Male # Hb (preg.) -0.077 -0.037 0.024 -0.009 0.015 (0.064) (0.037) (0.038) (0.034) (0.036) R² 0.176 0.247 0.218 0.303 0.321 N 939 972 996 990 994 Panel C: By caste category Hb (preg.) 0.164*** -0.016 -0.030 -0.035* -0.019 Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.318 N 908 941 964 958 962 Panel D: By maternal literacy Hb (preg.) 0.166*** -0.011	Any ANC # Hb (preg.)	0.014	-0.006	-0.079*	-0.007	-0.059*
N 938 972 996 999 994 Fanel B: By child's sex Hb (preg.) 0.208*** 0.009 -0.018 -0.027 -0.025 Male # Hb (preg.) -0.077 -0.037 0.024 -0.009 0.015 R² 0.176 0.247 0.218 0.303 0.321 N 939 972 996 990 994 Panel C: By caste category Hb (preg.) 0.164*** -0.016 -0.030 -0.035* -0.019 Scheduled caste or tribe # Hb (preg.) 0.033 0.022) (0.026) (0.019) (0.022) Scheduled caste or tribe # Hb (preg.) 0.033 0.032 (0.026) (0.019) (0.022) Scheduled caste or tribe # Hb (preg.) 0.033 0.032 (0.08*** 0.005 -0.019 (0.039) R² 0.177 0.245 0.220 0.306 0.318 N 908 941 964 958		(0.058)	(0.035)	(0.041)	(0.034)	(0.035)
Hb (preg.) 0.208*** 0.009 -0.018 -0.027 -0.025 (0.024) (0.028) (0.025) (0.027) (0.024) (0.028) (0.025) (0.027) (0.024) (0.028) (0.025) (0.027) (0.024) (0.028) (0.025) (0.027) (0.024) (0.037) (0.038) (0.034) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.036) (0.03		0.174	0.248	0.221	0.304	0.332
Hb (preg.)	N			996	990	994
Male # Hb (preg.) (0.041) (0.028) (0.025) (0.027) (0.024) Male # Hb (preg.) -0.077 -0.037 0.024 -0.009 0.015 (0.064) (0.037) (0.038) (0.034) (0.036) R² 0.176 0.247 0.218 0.303 0.321 Panel C: By caste category Hb (preg.) 0.164*** -0.016 -0.030 -0.035* -0.019 Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.026) (0.019) (0.022) Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.318 N 908 941 964 958 962 Panel D: By maternal literacy Hb (preg.) 0.166*** -0.011 -0.007 -0.021 -0.015 (0.035) (0.022) (0.023) (0.020) (0.021) Maternal literacy # Hb (preg.)			y child's sex			
Male # Hb (preg.) -0.077 -0.037 0.024 -0.009 0.015 R² 0.176 0.247 0.218 0.303 0.321 Panel C: By caste cates of the preg.) Hb (preg.) 0.164*** -0.016 -0.030 -0.035* -0.019 Scheduled caste or tribe # Hb (preg.) 0.033 0.022 0.088** 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.019 Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.318 N 908 941 964 958 962 Panel D: By meternal literacy Hb (preg.) 0.166*** -0.011 -0.007 -0.021 -0.015 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 R² 0.174 0.246 0.218 0.304 0.321 N 93	Hb (preg.)	0.208***	0.009	-0.018	-0.027	-0.025
R2		(0.041)	(0.028)	(0.025)	(0.027)	(0.024)
R² 0.176 0.247 0.218 0.303 0.321 N 939 972 996 990 994 Panel C: By caste category Hb (preg.) 0.164*** -0.016 -0.030 -0.035* -0.019 Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 R² 0.177 0.245 0.20 0.306 0.318 N 908 941 964 958 962 Panel D: By meternal literacy Hb (preg.) 0.166*** -0.011 -0.007 -0.021 -0.015 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 R² 0.174 0.246 0.218 0.304 0.321 N 939 972 996 990 994 Panel E: By gestational trimester # Hb 0.054	Male # Hb (preg.)	-0.077	-0.037	0.024	-0.009	0.015
N 939 972 996 999 994 Panel C: By caste category: Hb (preg.) 0.164*** -0.016 -0.030 -0.035* -0.019 C(0.033) (0.023) (0.026) (0.019) (0.022) Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.318 N 908 908 964 958 962 Panel D: By maternal literacy Hb (preg.) 0.166*** -0.011 -0.007 -0.021 -0.015 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 R² 0.174 0.246 0.218 0.304 0.321 N 939 972 996 990 994 Pan		(0.064)	(0.037)	(0.038)	(0.034)	(0.036)
Hb (preg.)	\mathbb{R}^2	0.176	0.247	0.218	0.303	0.321
Hb (preg.)	N	939	972	996	990	994
(0.033) (0.023) (0.026) (0.019) (0.022) Scheduled caste or tribe # Hb (preg.) 0.033 0.032 0.088** 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.318 N 908 941 964 958 962 Panel D: By maternal literacy Hb (preg.) 0.166*** -0.011 -0.007 -0.021 -0.015 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 R² 0.174 0.246 0.218 0.304 0.321 N 939 972 996 990 994 Panel E: By gestational trimester Hb (preg.) 0.173*** -0.029 -0.029 -0.051 -0.026 Panel E: By gestational trimester Hb (preg.) 0.173*** -0.029 -0.029 -0.051 -0.026 Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">		Panel C: By	caste categor	у		
Scheduled caste or tribe # Hb (preg.) 0.033 0.032 $0.088**$ 0.005 -0.008 R² 0.177 0.245 0.220 0.306 0.318 Panel D: By maternal literacy Hb (preg.) $0.166***$ -0.011 -0.007 -0.021 -0.015 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 R² 0.014 0.010 0.003 -0.047 -0.013 R² 0.174 0.246 0.218 0.304 0.321 Panel E: By gestational trimester Fanel E: By gestational trimester Hb (preg.) $0.173****$ -0.029 -0.051 -0.026 Hb (preg.) $0.173****$ -0.029 -0.051 -0.026 0.031 0.039 0.061 0.029 <	Hb (preg.)	0.164***	-0.016	-0.030	-0.035*	-0.019
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.033)	(0.023)	(0.026)	(0.019)	(0.022)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Scheduled caste or tribe # Hb (preg.)	0.033	0.032	0.088**	0.005	-0.008
N 908 941 964 958 962 Panel D: By maternal literacy Hb (preg.) 0.166*** -0.011 -0.007 -0.021 -0.015 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 Maternal literacy # Hb (preg.) 0.014 0.010 0.003 -0.047 -0.013 R² 0.174 0.246 0.218 0.304 0.321 N 939 972 996 990 994 Panel E: By getational trimester Hb (preg.) 0.173*** -0.029 -0.029 -0.051 -0.026 (0.054) (0.054) (0.040) (0.037) (0.034) Second gestational trimester # Hb -0.031 0.039 0.061 0.029 0.041 (preg.) (0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.		(0.079)	(0.039)	(0.044)	(0.041)	(0.039)
Panel D: By maternal literacy Hb (preg.)	\mathbb{R}^2	0.177	0.245	0.220	0.306	0.318
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	N	908	941	964	958	962
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		Panel D: By n	naternal litera	су		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Hb (preg.)	0.166***	-0.011	-0.007	-0.021	-0.015
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.035)	(0.022)	(0.023)	(0.020)	(0.021)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Maternal literacy # Hb (preg.)	0.014	0.010			-0.013
N 939 972 996 990 994 Panel E: By gestational trimester Hb (preg.) 0.173*** -0.029 -0.029 -0.051 -0.026 (0.054) (0.038) (0.040) (0.037) (0.034) Second gestational trimester # Hb -0.031 0.039 0.061 0.029 0.041 (preg.) (0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.031		(0.072)	(0.050)	(0.047)	(0.047)	(0.038)
Panel E: By gestational trimester Hb (preg.) 0.173*** -0.029 -0.029 -0.051 -0.026 (0.054) (0.038) (0.040) (0.037) (0.034) Second gestational trimester # Hb -0.031 0.039 0.061 0.029 0.041 (preg.) (0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.031			0.246	0.218	0.304	0.321
Hb (preg.)					990	994
(0.054) (0.038) (0.040) (0.037) (0.034) Second gestational trimester # Hb (0.031) (0.039) (0.041) (0.029) (0.041) (preg.) (0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb (0.027) (0.011) (0.010) (0.020) (0.031)]		stational trim	ester		
Second gestational trimester # Hb -0.031 0.039 0.061 0.029 0.041 (preg.) (0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.031	Hb (preg.)	0.173***		-0.029		-0.026
(preg.) (0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.031		(0.054)	(0.038)	(0.040)	(0.037)	(0.034)
(0.077) (0.045) (0.047) (0.044) (0.046) Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.031		-0.031	0.039	0.061	0.029	0.041
Third gestational trimester # Hb 0.027 0.011 -0.010 0.020 -0.031		(0.077)	(0.045)	(0.047)	(0.044)	(0.046)
(preg.)	Third gestational trimester # Hb (preg.)					
$(0.073) \qquad (0.052) \qquad (0.053) \qquad (0.050) \qquad (0.040)$	· · · · · · · · · · · · · · · · · · ·	(0.073)	(0.052)	(0.053)	(0.050)	(0.040)
R ² 0.175 0.246 0.220 0.303 0.323	\mathbb{R}^2					
N 939 972 996 990 994			972		990	
Controls Yes Yes Yes Yes Yes						
Tester fixed effects Yes No No No No						
FREDI fixed effects No Yes Yes Yes Yes	FREDI fixed effects		Yes	Yes	Yes	Yes

Notes: Outcome variables in column (2)-(5) are standardized test scores and the coefficients are shown in standard deviations. Standard errors clustered on village level are in parentheses. Included control variables: caste category, wealth quintile, food diversity in 2017, breast feeding, maternal age and literacy, first pregnancy (dummy), gestational trimester during Hb (preg.) measurement, ANC visit (dummy), child's sex and age, and block dummies. Additional control variable in column (2)-(5): test version. Tester fixed effects are anthropometric test conductor fixed effects. FREDI fixed effects are child development test conductor fixed effects. Hemoglobin is measured in g/dl. Inverse probability weight accounting for attrition applied. Conventional significance level: *p<0.1, **p<0.05, ***p<0.01.

Supplemental Table S2 Linear regression model results of haemoglobin level of children on haemoglobin levels during pregnancy with additional covariates

	Hb (child)				
Hb (preg.)	0.176***	0.163***	0.165***	0.154***	0.213***
	(0.029)	(0.030)	(0.029)	(0.030)	(0.033)
Hb (mother)	0.127***	0.133***	0.128***	0.134***	
	(0.034)	(0.034)	(0.036)	(0.035)	
Mother gave birth in past 2	0.013				
years					
	(0.111)				
BMI (preg.)		0.009			
		(0.016)			
Postnatal depression			0.087		
			(0.118)		
Controls	Yes	Yes	Yes	Yes	No
Tester fixed effects	Yes	Yes	Yes	Yes	No
Panchayat dummies	No	No	No	Yes	No
Block dummies	Yes	Yes	Yes	No	No
N	896	933	807	939	939
\mathbb{R}^2	0.173	0.174	0.161	0.236	0.054

Notes: Each column presents the estimation results of the main estimation with the displayed covariates or spatial fixed effects. Standard errors clustered on village level are in parentheses. Control variables: caste category, wealth quintile, food diversity in 2017, breast feeding, maternal age and literacy, first pregnancy (dummy), gestational trimester during Hb (preg.) measurement, ANC visit (dummy), child's sex and age.. Hemoglobin is measured in g/dl. Inverse probability weight accounting for attrition applied. Conventional significance level: *p<0.1, **p<0.05, ***p<0.01.

Supplemental Table S3 Linear regression model results of cumulative test scores of children on haemoglobin levels during pregnancy with additional covariates

	Cum.	Cum.	Cum.	Cum.	Cum.
	development	development	development	development	development
	score	score	score	score	score
Hb (preg.)	-0.023	-0.015	-0.009	-0.015	-0.008
	(0.015)	(0.014)	(0.016)	(0.016)	(0.017)
Hb (mother)	0.042***	0.041**	0.036**	0.042**	
	(0.016)	(0.016)	(0.017)	(0.017)	
Mother gave birth in past 2	-0.017				
years					
	(0.050)				
BMI (preg.)		0.004			
		(0.008)			
Postnatal depression			0.045		
-			(0.051)		
Controls	Yes	Yes	Yes	Yes	No
FREDI fixed effects	Yes	Yes	Yes	Yes	No
Panchayat dummies	No	No	No	Yes	No
Block dummies	Yes	Yes	Yes	No	No
N	926	966	836	972	972
\mathbb{R}^2	0.335	0.325	0.325	0.375	0.000

Notes: Each column presents the estimation results of the main estimation with the displayed covariates or spatial fixed effects. Standard errors clustered on village level are in parentheses. Control variables: caste category, wealth quintile, food diversity in 2017, breast feeding, maternal age and literacy, first pregnancy (dummy), gestational trimester during Hb (preg.) measurement, ANC visit (dummy), test version, child's sex and age. Hemoglobin is measured in g/dl. Inverse probability weight accounting for attrition applied. Conventional significance level: * p<0.1, ** p<0.05, *** p<0.01.

Supplemental Table S4 Linear regression model results of childhood Hb levels on Hb levels during pregnancy controlling for gestational month during Hb measurements and gestational trimester specific subgroup analyses

	Hb (child)	Hb (child)	Hb (child)	Hb (child)
Hb (preg.)	0.17***	0.13**	0.15***	0.20***
	(0.03)	(0.06)	(0.05)	(0.05)
Hb (mother)	0.13***	0.16**	0.13**	0.08
	(0.03)	(0.06)	(0.06)	(0.06)
Gestational month during				
preg. Hb measure	0.01			
	(0.02)			
Controls	Yes	Yes	Yes	Yes
Tester fixed effects	Yes	Yes	Yes	Yes
Sample	Full sample	First trimester	Second trimester	Third trimester
-	-	subsample	subsample	subsample
N	972	245	467	260
\mathbb{R}^2	0.324	0.376	0.416	0.364

Notes: In column (1) the dummies for the gestational trimester during pregnancy Hb measurement are replaced by the gestational month. Column (2)-(4) present the sub-group analyses for each gestational trimester. Standard errors clustered on village level are in parentheses. Control variables: caste category, wealth quintile, food diversity in 2017, breast feeding, maternal age and literacy, first pregnancy (dummy), ANC visit (dummy), child's sex and age and block dummies. Hemoglobin is measured in g/dl. Inverse probability weight accounting for attrition applied. Conventional significance level: *p<0.1, **p<0.05, ***p<0.01.

Supplemental Table S5 Linear regression model results of cumulative test scores of children on Hb levels during pregnancy controlling for gestational month during Hb measurements and gestational trimester specific subgroup analyses

	Cum.	Cum.	Cum. development	Cum. development
	development	development	score	score
	score	score		
Hb (preg.)	-0.01	0.00	0.01	-0.06*
	(0.01)	(0.03)	(0.02)	(0.03)
Hb (mother)	0.04**	-0.04	0.04*	0.07**
	(0.02)	(0.04)	(0.02)	(0.03)
Gestational month during				
preg. Hb measure	0.03**			
	(0.01)			
Controls	Yes	Yes	Yes	Yes
FREDI fixed effects	Yes	Yes	Yes	Yes
Sample	Full sample	First trimester	Second trimester	Third trimester
-	•	subsample	subsample	subsample
N	972	245	467	260
\mathbb{R}^2	0.324	0.376	0.416	0.364

Notes: In column (1) the dummies for the gestational trimester during pregnancy Hb measurement are replaced by the gestational month. Column (2)-(4) present the sub-group analyses for each gestational trimester. Standard errors clustered on village level are in parentheses. Control variables: caste category, wealth quintile, food diversity in 2017, breast feeding, maternal age and literacy, first pregnancy (dummy), ANC visit (dummy), test version, child's sex and age. Hemoglobin is measured in g/dl. Inverse probability weight accounting for attrition applied. Conventional significance level: *p<0.1, **p<0.05, ***p<0.01.

Supplemental Table S6 Logit estimation results of child survival until wave 2 on Hb levels and anemia status during pregnancy

	Not alive	Not alive	Not alive	Not alive
Hb (preg.)	1.017	0.991		
	(0.047)	(0.052)		
Mild anemia (preg.)			0.995	1.012
			(0.183)	(0.205)
Moderate/severe anemia (preg.)			1.080	1.170
			(0.195)	(0.230)
Controls	No	Yes	No	Yes
N	1821	1622	1821	1622

Notes: Standard errors clustered in village level are in in parentheses. The binary outcome variable equals 1 if a child had not survived from pregnancy to wave 2. The coefficients are reported in odds ratios. Column (1) and (2) uses pregnancy Hb level of the mother as main explanatory variable. In Column (3) and (4), the two explanatory variables of interest are mild pregnancy anemia and moderate/severe pregnancy anemia. The reference category in column (3) and (4) is "no pregnancy anemia" Control variables include maternal literacy, ANC visit (dummy), first pregnancy (dummy), gestational trimester during Hb (preg.) measurement, caste category and block dummies. Hemoglobin is measured in g/dl. Conventional significance level: * p<0.1, ** p<0.05, *** p<0.01.