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Statistical Analysis Plan:
Heterogeneity Across Socioeconomic Factors in the Effect of LNS-P&L on Birth Outcomes in the iLiNS DYAD-G Randomized Controlled Trial

Contents

1. Overview and Study Objectives

The evaluation of a randomized intervention logically begins at the average impact across the sample population, or the average treatment effect. This treatment effect tells us, on average, the overall effect of the intervention on an outcome of interest. While the average treatment effect (or intent-to-treat in the case of partial compliance) is the primary outcome of interest in a randomized evaluation, the average treatment effect can be taken a step further by investigating whether there is systematic variation in the treatment effect across observable subpopulations. If there is significant heterogeneity in the size or significance of the treatment effect, an evaluation of how the treatment effect varies across observable, pre-randomization characteristics of the sample population, such information may help guide more efficient targeting strategies and in the design complementary policies.

The primary objective of this study is to estimate heterogeneity (or effect modification) in the effect of LNS-P&L and multiple micronutrient tablets (relative to iron/folic acid tablets) on birth weight, birth length, WAZ, LAZ, and duration of gestation across a set of baseline socioeconomic characteristics (henceforth SES effect modifiers). Since significant differences between pimiparous and multiparous mothers in the effect of LNS-P&L on a number of birth outcomes in the iLiNS DYAD-G trial have been demonstrated, this study will also estimate heterogeneity across baseline socioeconomic characteristics by primiparity (vs multiparity).

2. Description of the Study

A more detailed description of the iLiNS study, including the study population, inclusions and exclusion criteria, etc. is available in the main statistical analysis plan (iLiNS-DYAD-G Statistical Analysis Plan Version 2, 2013-06-15). In short, screening, recruitment and enrollment of pregnant women into the randomized controlled trial were done on a rolling basis over a two-year period from December 2009 to December 2011. During this period, women attending select prenatal clinics in the Manya Krobo and Yilo Krobo districts in the Eastern Region of Ghana were screened for potential participate in the trial. Eligible and willing women were then recruited to participate in the study and randomized into one of the trial's three equally-sized arms in which women received: (1) daily iron-folic acid tablets throughout pregnancy, the current standard of prenatal care in Ghana, and a placebo (low-dose calcium tablet) during the first six months of lactation, (2) daily multiple micronutrient tablets during pregnancy and the first six months of lactation, or (3) LNS-P&L during pregnancy and the first six months of lactation.[1]

Over the course of the approximately one-year maternal portion of the intervention, all women enrolled in the trial, regardless of treatment group, were visited every two weeks during their pregnancy and the first six months of lactation to deliver supplements and to collect data on

[1] Children born to these women also received an LNS product specifically formulated for their babies from 6-18 months of age. The babies of the women randomized into the iron-folic acid and multiple micronutrient tablet groups did not receive any supplementation.

morbidity and adherence to the study protocol. Birth outcome data were collected at the time of delivery (for hospital or clinic births) or within 48 hours[2] of birth (for home births). Baseline socioeconomic and demographic characteristics were collected using household surveys at approximately[3] the time of enrollment into the iLiNS study.

3. Hypotheses to be Tested

Let X be the vector of SES effect modifier variables, defined below. For each SES effect modifier variable, x, the following five null hypothesis (H_0) tests will be carried out to test for treatment effect heterogeneity in birth outcomes. The set of SES effect modifiers were chosen based on economic theory, previous empirical research, and policy relevance.

H_0 1: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth weight compared to being provided iron-folic acid tablets during pregnancy does not vary across x.

H_0 2: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth length compared to being provided iron-folic acid tablets during pregnancy does not vary across x.

H_0 3: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth WAZ compared to being provided iron-folic acid tablets during pregnancy does not vary across x.

H_0 4: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth LAZ compared to being provided iron-folic acid tablets during pregnancy does not vary across x.

H_0 5: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on weeks of gestation at delivery compared to being provided iron-folic acid tablets during pregnancy does not vary across x.

Also, for each SES effect modifier variable, x, five additional null hypothesis (H_0) tests will be carried out to test for treatment effect heterogeneity in birth outcomes by primiparity.

H_0 6: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth weight compared to being provided iron-folic acid tablets during pregnancy does not vary across x by primiparity (vs. multiparity).

[2] For a number of infants, birth outcome data was collected between 3 and 14 days after birth. Birth outcome measurements will be adjusted for these infants as described in the 'General Notes on Statistical Methods' section.
[3] For logistical and other reasons, the administration of baseline socioeconomic surveys at times occurred a number of weeks after enrollment.

H_0 7: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth length compared to being provided iron-folic acid tablets during pregnancy does not vary across x by primiparity (vs. multiparity).

H_0 8: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth WAZ compared to being provided iron-folic acid tablets during pregnancy does not vary across x by primiparity (vs. multiparity).

H_0 9: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on birth LAZ compared to being provided iron-folic acid tablets during pregnancy does not vary across x by primiparity (vs. multiparity).

H_0 10: The effect of being provided LNS-P&L or multiple micronutrient tablets during pregnancy on weeks of gestation at delivery compared to being provided iron-folic acid tablets during pregnancy does not vary across x by primiparity (vs. multiparity).

4. Variable Descriptions

4.1 Outcome Variables

- Birth weight: Weight in kgs if baby was measured within 48 hours of delivery, and adjusted weight in kgs if baby was measured more than 48 hours after delivery. Adjusted weight will be calculated follow the same methodology employed by the main iLiNS study, namely bweightadj = 3.2322*(1 + 0.3809*0.14171*whowaz)**(1/0.3809), which back-calculates birth weight based on the LMS values for newborn infants in the WHO z-score program.

- Birth length: Length in cm if baby was measured within 48 hours of delivery, and adjusted length in cm if baby was measured more than 48 hours after delivery. Adjusted length will be calculated follow the same methodology employed by the main iLiNS study, namely blengthadj = 49.1477*(1 + 1*0.03790*wholaz), which back-calculates birth length based on the LMS values for newborn infants in the WHO z-score program.

- WAZ: Weight-for-age z-score at birth calculated using WHO2007, a Stata macro from the World Health Organization based on the updated WHO child growth standards.

- LAZ: Length-for-age z-score at birth calculated using WHO2007, a Stata macro from the World Health Organization based on the updated WHO child growth standards.

- Duration of Gestation: The number of weeks of gestation at the time of delivery calculated as: weeks of gestation at delivery = weeks of gestation at gestational age measurement date + (date of birth – date of gestational age measurement)/7.

4.2 Socioeconomic Effect Modifiers (SES Effect Modifiers)

- HFIA Score: The Household Food Insecurity Access (HFIA) Score is a continuous measure of the degree of food insecurity in the household. For each of nine questions, the survey respondent, who is the person primarily responsible for food preparation and meals in the household, indicates whether anyone in her household experienced the food insecurity condition in the previous four weeks. If yes, the respondent indicates how frequently the specific condition was experienced, where 'rarely' = 1-2 times in the past four weeks, 'sometimes' = 3-10 times in the past four weeks, and 'often' = more than 10 times in the past four weeks. Each household receives a score from 0-27 based on a simple sum of the frequency of occurrence of each food insecurity condition, where 'never' = 0 points, 'rarely' = 1 point, 'sometimes' = 2 points, and 'often' = 3 points. The higher the score, the higher the degree of household food insecurity experienced in the previous four weeks.

- Household Asset Index: A proxy measure of household socioeconomic status based on baseline ownership of a set of assets (radio, television, refrigerator, cell phone, and stove), lighting source, drinking water supply in the dry season, sanitation facilities, and flooring materials. Household ownership of this set of assets is combined into an index (with a mean of zero and standard deviation of one) using principal components analysis. Higher asset index scores indicate relatively 'better-off' households.

- Water and Sanitation Environment Index: A proxy measure of the household's water and sanitation environment combining drinking water supply in the dry season, drinking water supply in the wet season, sanitation facilities, refuse disposal, and refuse conditions around the household using principal components analysis.

- Household Per Capita Food Expenditures (SES subsample): Per capita daily food expenditures (including the value of purchased and home-produced foods) in 4th quarter 2011 US dollars.

- Risk Behavior: An indicator of the iLiNS woman's willingness to take on risk as measured by the amount she risked in a game of chance. In the game, the iLiNS woman was given GH¢ 2, and she indicated how much of that she would like to bet. After she stated her bet, she rolled a 6-sided die. If she rolled a one, two, or three, she was given double the amount of money she bet. If she rolled a four, five, or six, she lost half of her bet.

- Maternal Position in Household: Indicator variable that = 1 if the iLiNS women is identified at baseline as the head of her household and = 0 otherwise.

- Maternal Bednet Use: Indicator variable that = 1 if the iLiNS woman reported sleeping under a bedent the night before being interviewed for the baseline SES survey and = 0 otherwise.

- Maternal Education: Number of completed years of formal education by the iLiNS woman.

- Maternal Income: Self-reported measure of the amount typically earned per day by the iLiNS woman in her primary work in 4th quarter 2011 US dollars.

- Paternal Income: Self-reported measure of the amount typically earned per day by the iLiNS woman's husband/partner in his primary work in 4th quarter 2011 US dollars (= 0 if iLiNS woman is single/unattached).

4.3 Covariates

- Maternal height: Mother's height in meters measured at enrollment.

- Adjusted maternal BMI: Mother's body mass index at enrollment adjusted for gestational age.

- Gestational age at enrollment: Number of weeks pregnant at enrollment.

- Maternal age: Maternal age at enrollment in years.

- Primiparity: Dummy variable = 1 if iLiNS baby is mother's first child.

- Month of enrollment: Dummy variables indicating month mother was enrolled in iLiNS DYAD-G trial.

- Year of enrollment: Dummy variables indicating year mother was enrolled in iLiNS DYAD-G trial.

5. Statistical Methods

5.1 Data Cleaning

Cleaning of the SES data follows the same procedure outlined in the main analysis plan (iLiNS-DYAD-G Statistical Analysis Plan Version 2, 2013-06-15), with Katie Adams generating the queries and Emmanuel Ayifah resolving the queries.

5.2 Outliers

Identification and treatment of outliers in the birth outcome and SES data will follow the treatment described in the main statistical analysis plan (iLiNS-DYAD-G Statistical Analysis Plan Version 2, 2013-06-15).

5.3 Software

All statistical analyses will be performed with Stata 13 statistical package.

5.5 Basis for the Analysis

The basis for the analysis is an intent-to-treat framework whereby treatment effects and treatment effect heterogeneity will be estimated based on assigned treatment regardless of violations to study protocol with respect to supplement consumption.

5.6 Analysis

5.6.1 Summary baseline characteristics

Summary statistics, including mean (count for dichotomous variables), standard deviation (percentage for dichotomous variables), minimum, and maximum for all SES effect modifier variables and other covariates will be presented in Table 1 and Table 2, respectively. As a check for the success of the randomization, Table 3 will present results of an F-test (F-statistics and p-values) for difference in mean SES characteristics and other baseline covariates across treatment groups.

5.6.2 Summary of primary outcomes

Summary statistics, including mean, standard deviation, minimum, and maximum for the five primary outcome variables will be presented in Table 4. Table 5 will present summary statistics for birth outcomes across treatment groups. Table 5 will also display the difference in means and results of two-tailed t-tests for raw (without covariate adjustment) difference in mean birth outcomes for the LNS-P&L and MMN groups compared to the iron-folic acid group and the LNS-P&L group compared to the MMN group.

5.6.3 Heterogeneous treatment effects: Unconditional quantile regression

Next, unconditional quantile regression (UQR) will be used to detect heterogeneity in the treatment effects by estimating the effects along the distribution of each outcome variable. UQR techniques, proposed by Firpo et al. (2009), allow for the possibility that the size and nature of the relationship between a covariate (here, treatment group) and the dependent variable may differ from the mean effect at different points along the unconditional distribution. That is, UQR allows us to estimate the marginal effect of a small change in an explanatory variable on a specific quantile of the unconditional distribution of the dependent variable.

UQR is based on the two-step estimation procedure outlined in Firpo et al. (2009). First, a re-centered influence function (RIF) is estimated, where $RIF(y; q_\tau) = q_\tau + IF(y; q_\tau)$. Here, q_τ is the τ^{th} quantile, and $IF(y; q_\tau)$ is what is known as the influence function, defined as

$$IF(y; q_\tau) = \begin{cases} \dfrac{\tau - 1}{f_y(q_\tau)}, & y \leq q_\tau \\ \dfrac{\tau}{f_y(q_\tau)}, & y > q_\tau \end{cases}$$

where $f_y(q_\tau)$ is the density of the dependent variable y at q_τ estimated using a kernel density estimator. The influence function of a particular quantile, as described by Firpo et al. (2009), is the influence of an individual observation on that quantile. The influence function is then re-centered by adding back the τ^{th} quantile.

The second step is then to regress the RIF on the set of covariates using OLS to obtain coefficient estimates, $\hat{q}_\tau$, for the τ^{th} sample quantile. The covariates in this case will be treatment group indicator variables (LNS and multiple micronutrient tablet groups with iron-folic acid the omitted group) and the set of control variables. Unconditional quantile regression results at the 10th, 25th, 50th, 75th, and 90th quantiles will be presented in Table 6 alongside the OLS results for comparison. The results will also be presented graphically as in Figure 1[4] with quantile and OLS estimate comparisons for each birth outcome and each treatment (LNS and MMN).

5.6.4 *Heterogeneous treatment effects: One-way effect modification*

Multiple regression will be used to estimate one-way heterogeneity (across each SES effect modifier) in the effect of providing LNS-P&L and MMN tablets vis-à-vis iron-folic acid tablets. As a first step, ordinary least squares (OLS) will be used to estimate the covariate-adjusted intent-to-treat (without effect modifiers) using the following regression equation:

$$Y_i = \beta_0 + \beta_{MMN} MMN_i + \beta_{LNS} LNS_i + \beta_c C_i + \varepsilon_i$$

where Y_i is the birth outcome variable of interest for iLiNS woman $i's$ baby (e.g., birth weight, birth length, WAZ, LAZ, or duration of gestation), MMN_i and LNS_i are treatment indicator variables (the omitted category is IFA_i, iron-folic acid), C_i is a vector of covariates, and ε_i is an idiosyncratic error term.

The one-way effect modification hypothesis tests will then be performed using a set of OLS regressions that include an interaction between the treatment groups and x_i, a baseline SES effect modifier, as:

$$Y_i = \beta_0 + \beta_{MMN} MMN_i + \beta_{LNS} LNS_i + \beta_x x_i + \beta_{x,MMN}(x_i * MMN_i) + \beta_{X,LNS}(x_i * LNS_i) + \beta_c C_i + \varepsilon_i$$

[4] Note that Figure 1 was generated for a different analysis but just serves as an example graphic.

The results will be presented in Tables 7a/7b for birth weight, Tables 8a/8b for birth length, Tables 9a/9b for WAZ, Tables 10a/10b for LAZ, and Tables 11a/11b for duration of gestation. The presentation and interpretation of results will primarily focus on separate regressions run for each potential effect modifier, but the results of an F-test of the null hypothesis that overall (i.e., a full model with all effect modifier interactions included in the same regression equation) there are no subgroup differences in the intent-to-treat effect will also be presented. If the main inferences drawn from the full model are different from those drawn from the separate regressions, the results of estimating the full model will also be presented.

5.6.5 *Heterogeneous Treatment Effects: Two-way effect modification*

Multiple regression will also be used to estimate two-way heterogeneity (across each SES effect modifier and by primiparity) in the effect of providing LNS-P&L and MMN tablets vis-à-vis iron-folic acid tablets. First, ordinary least squares (OLS) will be used to estimate the covariate-adjusted intent-to-treat by primiparity using the following regression equation:

$$Y_i = \beta_0 + \beta_{MMN} MMN_i + \beta_{LNS} LNS_i + \beta_p Primip_i + \beta_{p,MMN}(Primip_i * MMN_i) + \beta_{p,LNS}(Primip_i * LNS_i) + \beta_c C_i + \varepsilon_i$$

where Y_i is the birth outcome variable of interest for iLiNS woman $i's$ baby (e.g., birth weight, birth length, WAZ, LAZ, or duration of gestation), MMN_i and LNS_i are treatment indicator variables (the omitted category is IFA_i, iron-folic acid), $Primip$ is an indicator variable equal to one if the iLiNS baby is the mother's first child, C_i is a vector of covariates (excluding primiparity), and ε_i is an idiosyncratic error term.

The two-way effect modification hypothesis tests will then be performed using a set of OLS regressions that include a three-way interaction between the treatment groups, a baseline SES effect modifier, and the indicator of primiparity, as:

$$Y_i = \beta_0 + \beta_{MMN} MMN_i + \beta_{LNS} LNS_i + \beta_p Primip_i + \beta_x x_i + \beta_{p,x,MMN}(Primip_i * x_i * MMN_i) + \beta_{p,x,LNS}(Primip_i * x_i * LNS_i) + \beta_c C_i + \varepsilon_i$$

The results will be presented in Tables 12a/12b for birth weight, Tables 13a/13b for birth length, Tables 14a/14b for WAZ, Tables 15a/15b for LAZ, and Tables 16a/16b for duration of gestation. The presentation and interpretation of results will primarily focus on separate regressions run for each potential effect modifier, but the results of an F-test of the null hypothesis that overall (i.e., a full model with all effect modifier interactions included in the same regression equation) there are no subgroup differences in the intent-to-treat effect will also be presented. If the main inferences drawn from the full model are different from those drawn from the separate regressions, the results of estimating the full model will also be presented.

5.7 Other Statistical Notes

5.7.1 *Imputation*

Multiple imputation using Stata's 'mi impute' command will be used to impute select missing values in the SES data. These include: missing food expenditure or food consumption observations (if missing for single foods only), household asset ownership (if missing for single assets only), and water and sanitation environment index (if missing for single sources/facilities only). The pmm (predictive means matching) option will be used to impute continuous variables, and the logit (logistic regression) option will be used to impute binary variables.

5.7.2 *Covariate adjustment*

To help improve the precision of estimated effects, covariates that are individually strong predictors of the outcome variable ($p < .05$) will be included in the OLS regressions (both with and without effect modifiers), implying an outcome-specific vector of covariates. All analyses will also be performed without covariates to ensure the results are robust to covariate inclusion.

5.7.3 *Adjustment for Multiple Hypothesis Tests*

Because there will be multiple tests for heterogeneity and because the potential SES effect modifiers were identified post-randomization, the proposed analyses run the risk of detecting statistically significant heterogeneity in the treatment effects by chance alone. To guard against such spurious findings, the Type 1 error rate will be adjusted (specific methodology still to be determined) for multiple tests. Both adjusted and unadjusted p-values will be reported.

6. Design of Tables and Figures

Table 1. Summary Baseline Socioeconomic Characteristics

Variable	Definition	Mean/ Count	Std Dev/ Percent	Min, Max
HFIA Score	Household Food Insecurity Access Score			
Asset Index	Proxy measure of household's socioeconomic status based on asset ownership			
Wat-San Index	Proxy measure of household's water and sanitation conditions based on drinking water source and type of toilet			
PC Food Expenditures	Per capita daily household food expenditures (including the value of purchased and home-produced foods) in 4th quarter 2011 US dollars			
Risk Behavior	Relative measure of iLiNS woman's risk-seeking behavior			
Maternal Position in HH	= 1 if iLiNS woman is head of her household			
Maternal Bednet Use	= 1 if the iLiNS woman reported sleeping under a bedent the night before being interviewed for the baseline SES survey			
Maternal Education	Number of completed years of formal education by the iLiNS woman			
Maternal Income	Self-reported measure of the amount typically earned per day by the iLiNS woman in her primary work in 4th quarter 2011 US dollars			
Paternal Income	Self-reported measure of the amount typically earned per day by the iLiNS woman's husband/partner in his primary work in 4th quarter 2011 US dollars			

N = xxx

Table 2. Summary Baseline Covariates

Variable	Definition	Mean/ Count	Std Dev/ Percent	Min, Max
Maternal Height	Mother's height in meters measured at enrollment	x.xx	x.xx	x.xx, x.xx
Adjusted Maternal BMI	Mother's body mass index at enrollment adjusted for gestational age			
Maternal Age	Maternal age at enrollment in years			
Gestational Age at Enrollment	Number of weeks pregnant at enrollment			
Primiparity	= 1 if iLiNS baby is mother's first child			

N = xxx

Table 3. Baseline Characteristics, by Treatment Group

	Mean (Standard Error)				
Variable	IFA	MMN	LNS-P&L	F-Stat	P-Value
HFIA Score	x.xxx (x.xx)	x.xxx (x.xx)	x.xxx (x.xx)	x.xxx	.xxx
Asset Index					
Wat-San Index					
PC Food Expenditures					
Risk Behavior					
Maternal Position in HH					
Maternal Bednet Use					
Maternal Education					
Maternal Income					
Paternal Income					
Maternal Height					
Adjusted Maternal BMI					
Maternal Age					
Gestational Age at Enrollment					
Primiparity					
N	xxx	xxx	xxx		

Table 4. Summary Birth Outcomes

Variable	Definition	Mean	Std Dev	Min, Max
Birth Weight	Birth weight in kgs	x.xx	x.xx	x.xx, x.xx
Birth Length	Birth length in cm			
WAZ	Weight-for-age z-score at birth			
LAZ	Length-for-age z-score at birth			
Duration of Gestation	The number of weeks of gestation at the time of delivery			

N = xxx

Table 5. Birth Outcomes, by Treatment Group

	Mean (Standard Error)			Difference in Means		
Variable	IFA(1)	MMN(2)	LNS-P&L(3)	(2)-(1)	(3)-(1)	(3)-(2)
Birth Weight	x.xxx (x.xx)	x.xxx (x.xx)	x.xxx (x.xx)	.xxx	.xxx	.xxx
Birth Length						
WAZ						
LAZ						
Duration of Gestation						
N	xxx	xxx	xxx			

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Table 6. OLS and Unconditional Quantile Regression Results

			Quantile[a]				
	Variable	**OLS**	**.10**	**.25**	**.5**	**.75**	**.90**
Birth Weight	LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx	x.xx
		(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
	MMN						
Birth Length	LNS-P&L						
	MMN						
WAZ	LNS-P&L						
	MMN						
LAZ	LNS-P&L						
	MMN						
Duration of Gestation	LNS-P&L						
	MMN						
	R^2	0.xx	0.xx	0.xx	0.xx	0.xx	0.xx
	Mean/Quantile	x.xx	x.xx	x.xx	x.xx	x.xx	x.xx

N=xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, and gestational age at enrollment, primiparity, and year and month of enrollment are also included in the models (unreported).

[a]Numbers in parentheses are robust standard errors, which were obtained over 400 bootstrap replications for unconditional quantile regressions.

Figure 1. OLS and UQR Coefficients with 95% Confidence Intervals

Note: 95% confidence intervals are represented by dashed lines for OLS coefficients and shaded areas for UQR coefficients.

Table 7a. Heterogeneous Intent-to-Treat Effects in Birth Weight by SES Subgroup

	Dependent Variable: Birth Weight (kgs)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score	x.xx				
	(x.xx)				
MMN*HFIA Score	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index		x.xx			
		(x.xx)			
MMN*Asset Index		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index			x.xx		
			(x.xx)		
MMN*Wat-San Index			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures				x.xx	
				(x.xx)	
MMN*PC Food Expenditures				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior					x.xx
					(x.xx)
MMN*Risk Behavior					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 7b. Heterogeneous Intent-to-Treat Effects in Birth Weight by SES Subgroup

	Dependent Variable: Birth Weight (kgs)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH	x.xx				
	(x.xx)				
MMN*Maternal Position in HH	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education			x.xx		
			(x.xx)		
MMN*Maternal Education			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income				x.xx	
				(x.xx)	
MMN* Maternal Income				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income					x.xx
					(x.xx)
MMN* Paternal Income					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	Xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 8a. Heterogeneous Intent-to-Treat Effects in Birth Length by SES Subgroup

	Dependent Variable: Birth Length (cm)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score	x.xx				
	(x.xx)				
MMN*HFIA Score	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index		x.xx			
		(x.xx)			
MMN*Asset Index		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index			x.xx		
			(x.xx)		
MMN*Wat-San Index			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures				x.xx	
				(x.xx)	
MMN*PC Food Expenditures				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior					x.xx
					(x.xx)
MMN*Risk Behavior					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	Xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 8b. Heterogeneous Intent-to-Treat Effects in Birth Length by SES Subgroup

	Dependent Variable: Birth Length (cm)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH	x.xx				
	(x.xx)				
MMN*Maternal Position in HH	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education			x.xx		
			(x.xx)		
MMN*Maternal Education			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income				x.xx	
				(x.xx)	
MMN*Maternal Income				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L*Paternal Income					x.xx
					(x.xx)
MMN*Paternal Income					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 9a. Heterogeneous Intent-to-Treat Effects in Birth WAZ by SES Subgroup

	Dependent Variable: WAZ				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score	x.xx				
	(x.xx)				
MMN*HFIA Score	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index		x.xx			
		(x.xx)			
MMN*Asset Index		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index			x.xx		
			(x.xx)		
MMN*Wat-San Index			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures				x.xx	
				(x.xx)	
MMN*PC Food Expenditures				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior					x.xx
					(x.xx)
MMN*Risk Behavior					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 9b. Heterogeneous Intent-to-Treat Effects in Birth WAZ by SES Subgroup

	Dependent Variable: WAZ				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH	x.xx				
	(x.xx)				
MMN*Maternal Position in HH	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education			x.xx		
			(x.xx)		
MMN*Maternal Education			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income				x.xx	
				(x.xx)	
MMN*Maternal Income				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L*Paternal Income					x.xx
					(x.xx)
MMN*Paternal Income					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 10a. Heterogeneous Intent-to-Treat Effects in Birth LAZ by SES Subgroup

	Dependent Variable: LAZ				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score	x.xx				
	(x.xx)				
MMN*HFIA Score	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index		x.xx			
		(x.xx)			
MMN*Asset Index		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index			x.xx		
			(x.xx)		
MMN*Wat-San Index			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures				x.xx	
				(x.xx)	
MMN*PC Food Expenditures				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior					x.xx
					(x.xx)
MMN*Risk Behavior					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 10b. Heterogeneous Intent-to-Treat Effects in Birth LAZ by SES Subgroup

	Dependent Variable: LAZ				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH	x.xx				
	(x.xx)				
MMN*Maternal Position in HH	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education			x.xx		
			(x.xx)		
MMN*Maternal Education			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income				x.xx	
				(x.xx)	
MMN*Maternal Income				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L*Paternal Income					x.xx
					(x.xx)
MMN*Paternal Income					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 11a. Heterogeneous Intent-to-Treat Effects in Duration of Gestation by SES Subgroup

	Dependent Variable: Duration of Gestation (Weeks)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score	x.xx				
	(x.xx)				
MMN*HFIA Score	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index		x.xx			
		(x.xx)			
MMN*Asset Index		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index			x.xx		
			(x.xx)		
MMN*Wat-San Index			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L* PC Food Expenditures				x.xx	
				(x.xx)	
MMN* PC Food Expenditures				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L* Risk Behavior					x.xx
					(x.xx)
MMN* Risk Behavior					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 11b. Heterogeneous Intent-to-Treat Effects in Duration of Gestation by SES Subgroup

	Dependent Variable: Duration of Gestation (weeks)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L* Maternal Position in HH	x.xx				
	(x.xx)				
MMN* Maternal Position in HH	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use		x.xx			
		(x.xx)			
MMN* Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L* Maternal Education			x.xx		
			(x.xx)		
MMN* Maternal Education			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L* Maternal Income				x.xx	
				(x.xx)	
MMN* Maternal Income				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income					x.xx
					(x.xx)
MMN* Paternal Income					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 12a. Heterogeneous Intent-to-Treat Effects in Birth Weight by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score* Primiparity	x.xx				
	(x.xx)				
MMN*HFIA Score* Primiparity	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index* Primiparity		x.xx			
		(x.xx)			
MMN*Asset Index* Primiparity		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
MMN*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
MMN*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior* Primiparity					x.xx
					(x.xx)
MMN*Risk Behavior* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 12b. Heterogeneous Intent-to-Treat Effects in Birth Weight by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
MMN*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use* Primiparity		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education* Primiparity			x.xx		
			(x.xx)		
MMN*Maternal Education* Primiparity			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income* Primiparity				x.xx	
				(x.xx)	
MMN* Maternal Income* Primiparity				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income* Primiparity					x.xx
					(x.xx)
MMN* Paternal Income* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	Xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 13a. Heterogeneous Intent-to-Treat Effects in Birth Length by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score* Primiparity	x.xx				
	(x.xx)				
MMN*HFIA Score* Primiparity	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index* Primiparity		x.xx			
		(x.xx)			
MMN*Asset Index* Primiparity		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
MMN*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
MMN*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior* Primiparity					x.xx
					(x.xx)
MMN*Risk Behavior* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 13b. Heterogeneous Intent-to-Treat Effects in Birth Length by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
MMN*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use* Primiparity		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education* Primiparity			x.xx		
			(x.xx)		
MMN*Maternal Education* Primiparity			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income* Primiparity				x.xx	
				(x.xx)	
MMN* Maternal Income* Primiparity				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income* Primiparity					x.xx
					(x.xx)
MMN* Paternal Income* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 14a. Heterogeneous Intent-to-Treat Effects in WAZ by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score* Primiparity	x.xx				
	(x.xx)				
MMN*HFIA Score* Primiparity	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index* Primiparity		x.xx			
		(x.xx)			
MMN*Asset Index* Primiparity		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
MMN*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
MMN*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior* Primiparity					x.xx
					(x.xx)
MMN*Risk Behavior* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 14b. Heterogeneous Intent-to-Treat Effects in WAZ by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
MMN*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use* Primiparity		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education* Primiparity			x.xx		
			(x.xx)		
MMN*Maternal Education* Primiparity			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income* Primiparity				x.xx	
				(x.xx)	
MMN* Maternal Income* Primiparity				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income* Primiparity					x.xx
					(x.xx)
MMN* Paternal Income* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 15a. Heterogeneous Intent-to-Treat Effects in LAZ by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score* Primiparity	x.xx				
	(x.xx)				
MMN*HFIA Score* Primiparity	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index* Primiparity		x.xx			
		(x.xx)			
MMN*Asset Index* Primiparity		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
MMN*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
MMN*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior* Primiparity					x.xx
					(x.xx)
MMN*Risk Behavior* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 15b. Heterogeneous Intent-to-Treat Effects in LAZ by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
MMN*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use* Primiparity		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education* Primiparity			x.xx		
			(x.xx)		
MMN*Maternal Education* Primiparity			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income* Primiparity				x.xx	
				(x.xx)	
MMN* Maternal Income* Primiparity				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income* Primiparity					x.xx
					(x.xx)
MMN* Paternal Income* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 16a. Heterogeneous Intent-to-Treat Effects in Duration of Gestation by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(1)	(2)	(3)	(4)	(5)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
HFIA Score	x.xx				
	(x.xx)				
LNS-P&L*HFIA Score* Primiparity	x.xx				
	(x.xx)				
MMN*HFIA Score* Primiparity	x.xx				
	(x.xx)				
Asset Index		x.xx			
		(x.xx)			
LNS-P&L*Asset Index* Primiparity		x.xx			
		(x.xx)			
MMN*Asset Index* Primiparity		x.xx			
		(x.xx)			
Wat-San Index			x.xx		
			(x.xx)		
LNS-P&L*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
MMN*Wat-San Index* Primiparity			x.xx		
			(x.xx)		
PC Food Expenditures				x.xx	
				(x.xx)	
LNS-P&L*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
MMN*PC Food Expenditures* Primiparity				x.xx	
				(x.xx)	
Risk Behavior					x.xx
					(x.xx)
LNS-P&L*Risk Behavior* Primiparity					x.xx
					(x.xx)
MMN*Risk Behavior* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.

Table 16b. Heterogeneous Intent-to-Treat Effects in Duration of Gestation by SES Subgroup and Primiparity

	Dependent Variable: Birth Weight (kgs)				
Variable	(6)	(7)	(8)	(9)	(10)
LNS-P&L	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
MMN	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Primiparity	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
Maternal Position in HH	x.xx				
	(x.xx)				
LNS-P&L*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
MMN*Maternal Position in HH* Primiparity	x.xx				
	(x.xx)				
Maternal Bednet Use		x.xx			
		(x.xx)			
LNS-P&L* Maternal Bednet Use* Primiparity		x.xx			
		(x.xx)			
MMN*Maternal Bednet Use		x.xx			
		(x.xx)			
Maternal Education			x.xx		
			(x.xx)		
LNS-P&L*Maternal Education* Primiparity			x.xx		
			(x.xx)		
MMN*Maternal Education* Primiparity			x.xx		
			(x.xx)		
Maternal Income				x.xx	
				(x.xx)	
LNS-P&L*Maternal Income* Primiparity				x.xx	
				(x.xx)	
MMN* Maternal Income* Primiparity				x.xx	
				(x.xx)	
Paternal Income					x.xx
					(x.xx)
LNS-P&L* Paternal Income* Primiparity					x.xx
					(x.xx)
MMN* Paternal Income* Primiparity					x.xx
					(x.xx)
Constant	x.xx	x.xx	x.xx	x.xx	x.xx
	(x.xx)	(x.xx)	(x.xx)	(x.xx)	(x.xx)
R^2	0.xx	0.xx	0.xx	0.xx	0.xx
N	xxx	xxx	xxx	xxx	xxx

Significance codes: *** (p < .01), ** (p < .05), * (p < .1)

Note: Controls for maternal height, adjusted maternal BMI, maternal age, gestational age at enrollment, primiparity, and month and year of enrollment are also included in each model (unreported).

[a]Numbers in parentheses are robust standard errors.