Taking structural inequalities into account for evaluating public health policies: the approach for the National Strategy PROTEJA

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MINISTÉRIO DA SAÚDE

General Coordination for Feeding and Nutrition (CGAN)

Ministry of Health

National Strategy for Prevention and Care of Childhood Obesity

PROTEJA (*protect*)

Execution: UFPR, UFAL
Techinical support: UFJF, USP

General coordination: Jonas Silveira
Dept. of Nutrition/ UFPR

P	First Contact (Primeiro Contato)	Ensure that Primary Health Care (PHC) is the main locus for monitoring nutritional status, promoting health, preventing excessive weight gain, providing early diagnosis and providing adequate care for children, adolescents and pregnant women.
R	Accountability (Responsabilização)	Take responsibility and involve diverse partners in the prevention of childhood obesity.
O	Organizing	Organize and implement effective actions at municipality level to prevent childhood obesity.
T	Transformation	Implement innovative actions to encourage healthy eating and physical activity at individual and community levels.
E	Education	Capacity building on childhood obesity prevention for health, socialcare and education professionals, and decision makers
J	Window of opportunities	Communicate, improving communication strategies, to prevent childhood obesity.
A	Enviroment	Develop and protect environments that promote adequate and healthy eating and physical activity for children and adolescents.

Eligibility for PROTEJA

- Enrollment at 2021, followed to December/2023
- Municipalities should have < 30,000 inhabitants
- Coverage of the National Nutritional Surveillance System(SISVAN) > 50%
- Prevalence of overweight ≥15%,
- Record of food consumption markers for children <10 years-old
- N=1320 municipalities

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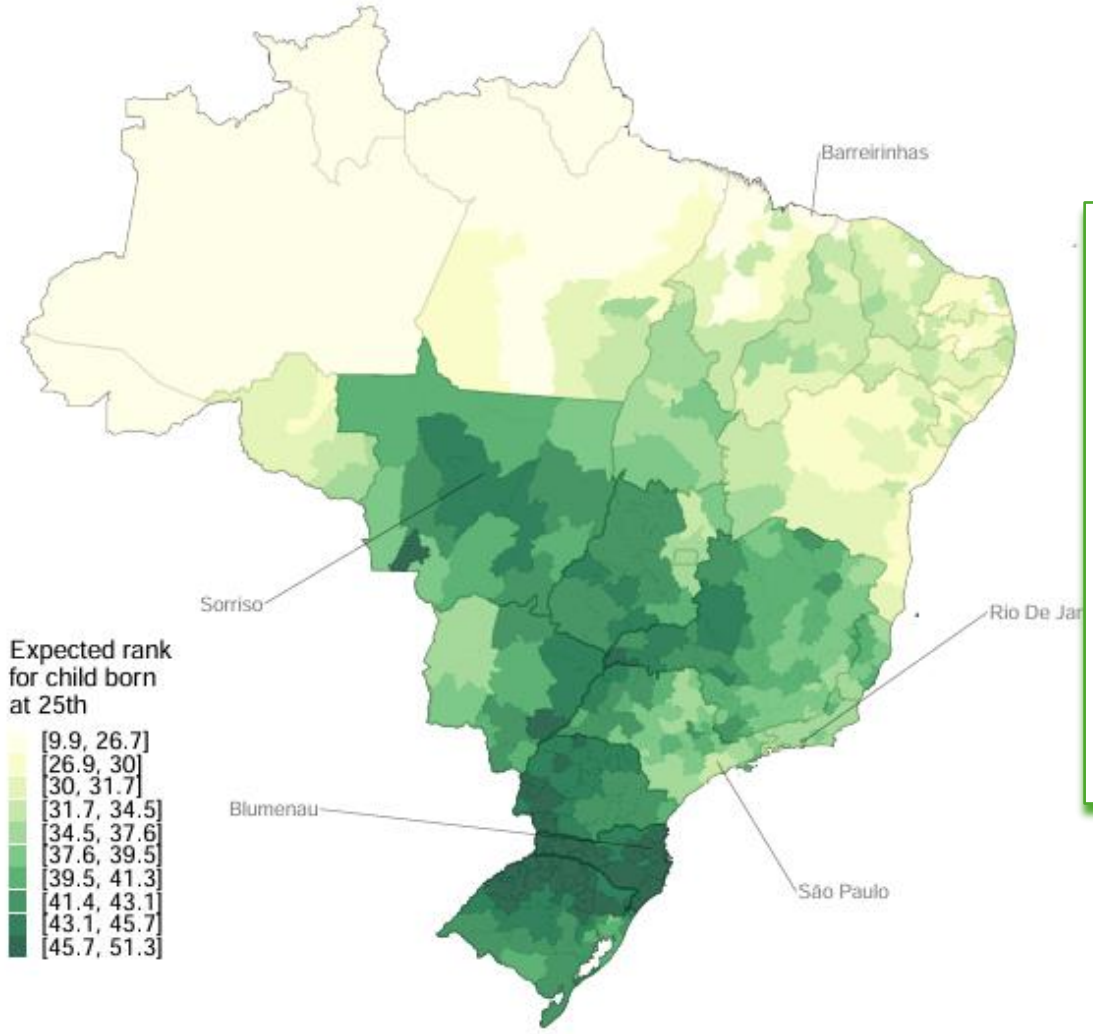
Absolute Mobility Map:
Predicted Rank (deciles) in adulthood for a child born at 25th



Aim

Explore potential impacts of regional inequalities on the design of a quasi-experiment to evaluate PROTEJA

G.C. Britto, Diogo and Fonseca, Alexandre de Andrade and Pinotti, Paolo and Sampaio, Breno and Warwar, Lucas, Intergenerational Mobility in the Land of Inequality (September 30, 2022). BAFFI CAREFIN Centre Research Paper No. 2022-186, Available at SSRN: https://ssrn.com/abstract=4237631 or http://dx.doi.org/10.2139/ssrn.4237631

METHODS

Choice of control group

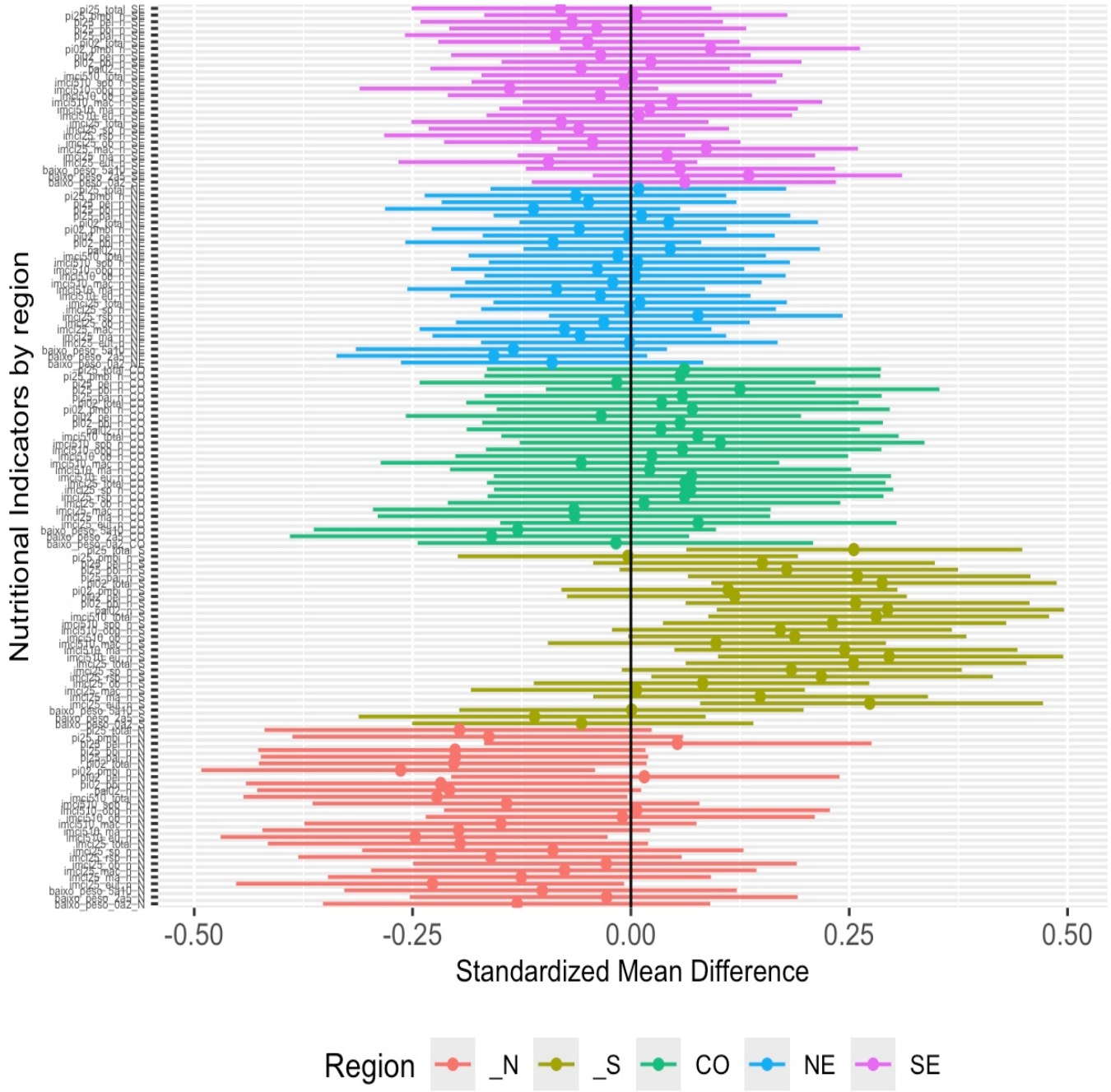
- Municipalities with < 30,000 inhabitants
- n= 3081 x 1020 from PROTEJA group

Exploratory Analysis

- Average regional differences of 142 indicators (2019)
- PROTEJA x Controls
- Multilevel Bayesian Model
- Choice of the Propensity Score support set

Propensity Score Weighting

- Generalized Boosting Method (twang) -> ATT estimand
- 24 indicators (Nutritional, Social, Epidemiological
- Three approaches:
  - Without (disregarding regions),
  - Within (weights generated for each region)
  - Between (weights generated using the region as variable).



Regional standardized diferences on the Nutritional Status Indicators (SISVAN)

- Prevalence of underweight, overweight and obesity
- Different anthropometric criteria
- 0 -2y
- 2-5y
- 5-10y

Estimated by Multilevel Bayesian Model – wiskers are 95% Credibility Interv

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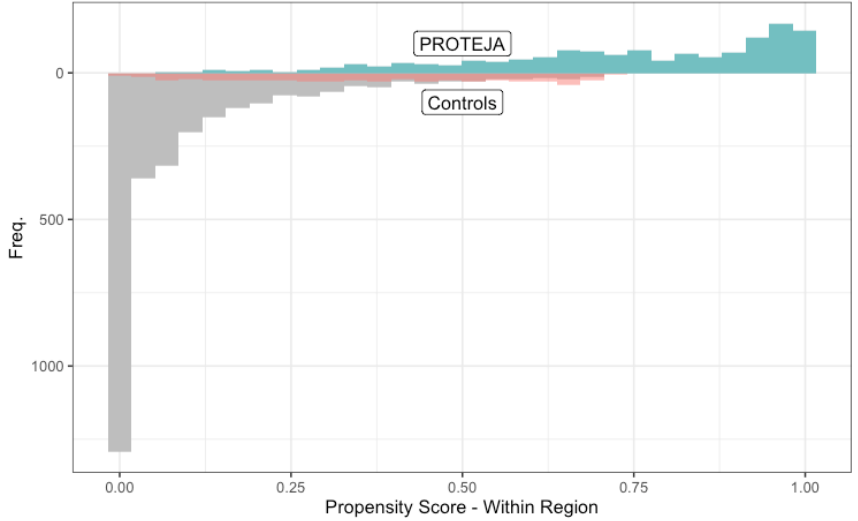
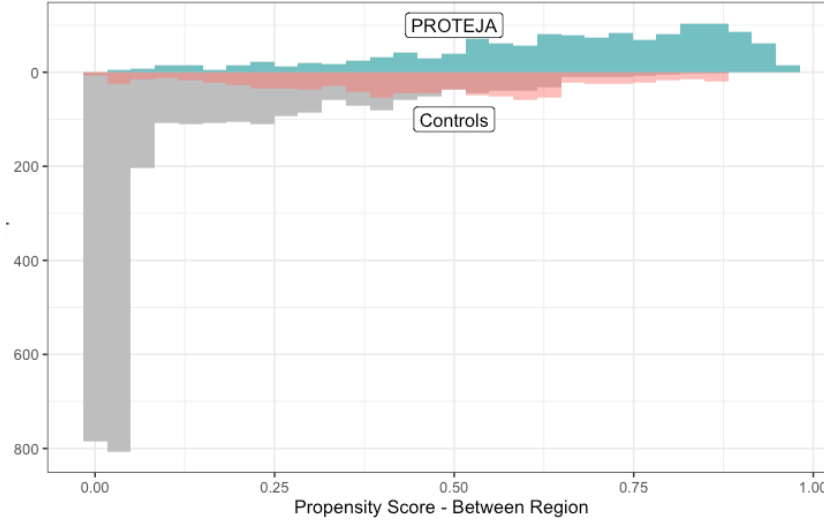
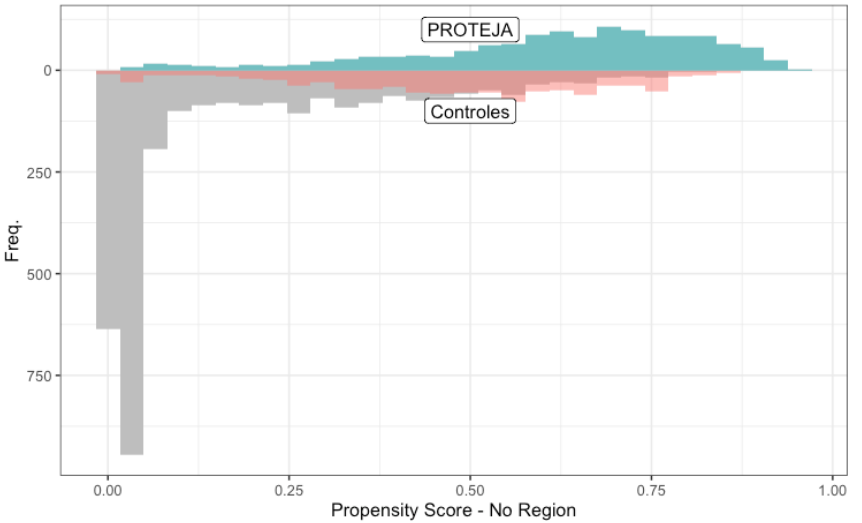
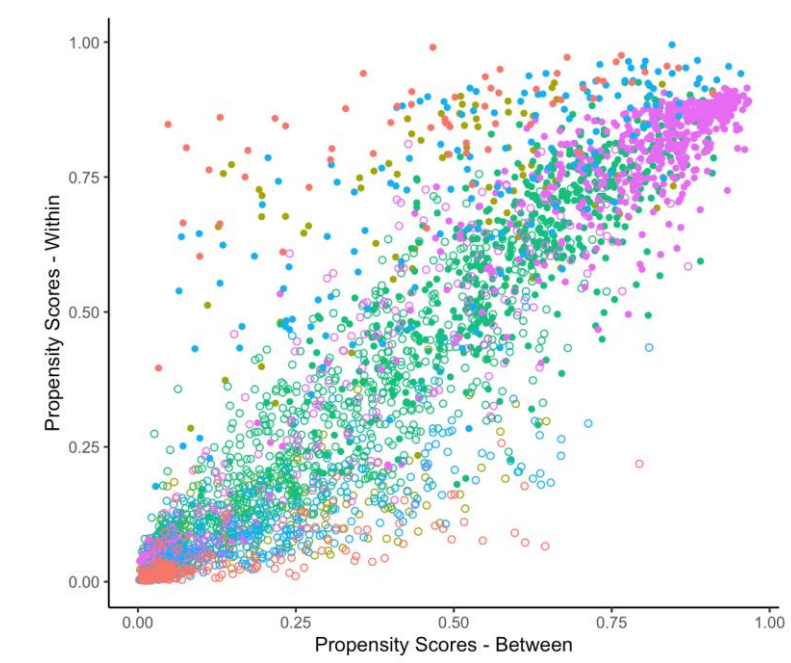
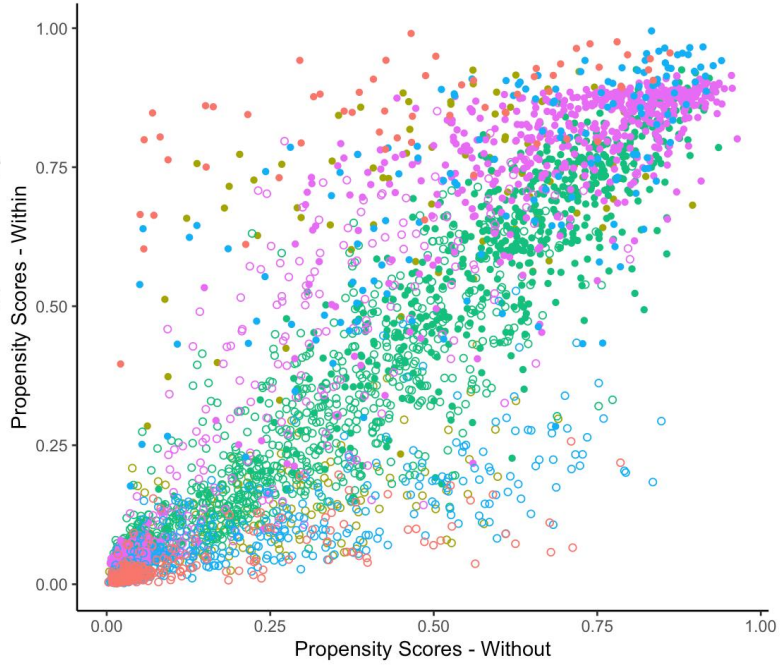
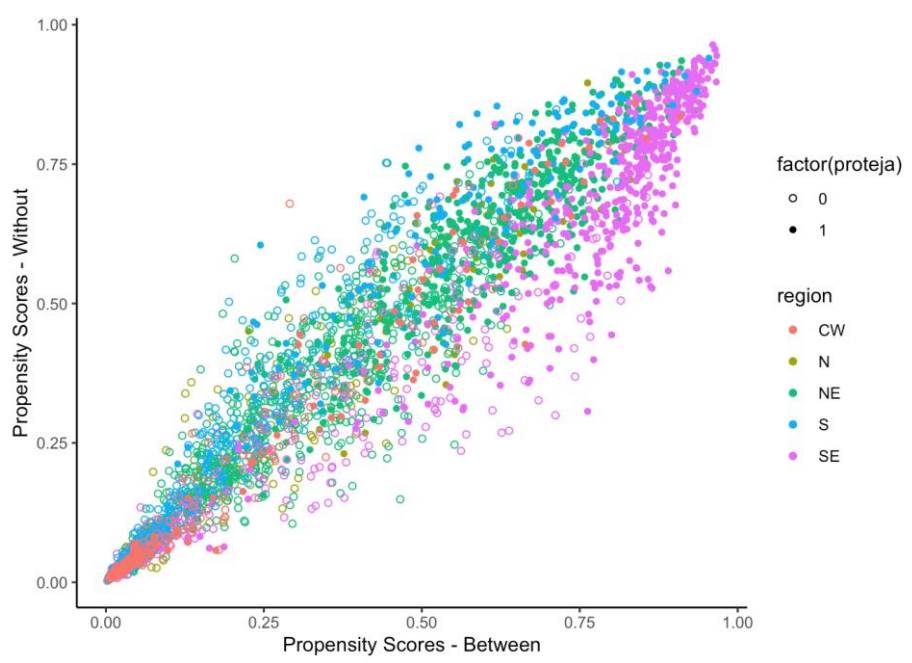

PROTEJA
Controls
Freq.
0
500
1000
0.00
0.25
0.50
0.75
1.00
Propensity Score - Within Region


PROTEJA
Controls
0
200
400
600
800
0.00
0.25
0.50
0.75
1.00
Propensity Score - Between Region


PROTEJA
Controles
Freq.
0
250
500
750
0.00
0.25
0.50
0.75
1.00
Propensity Score - No Region

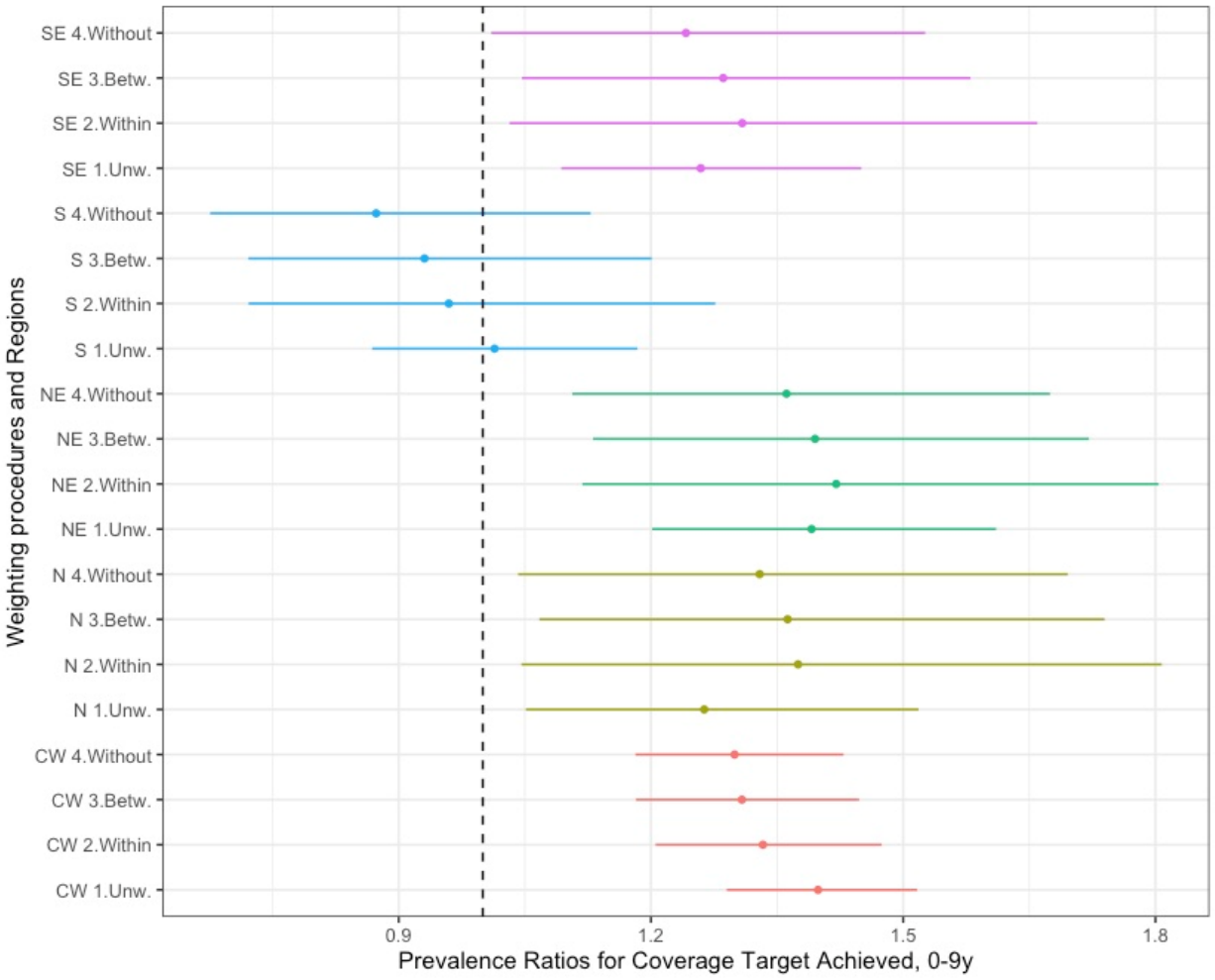

Propensity Scores - Within
1.00
0.75
0.50
0.25
0.00
0.00
0.25
0.50
0.75
1.00
Propensity Scores - Between

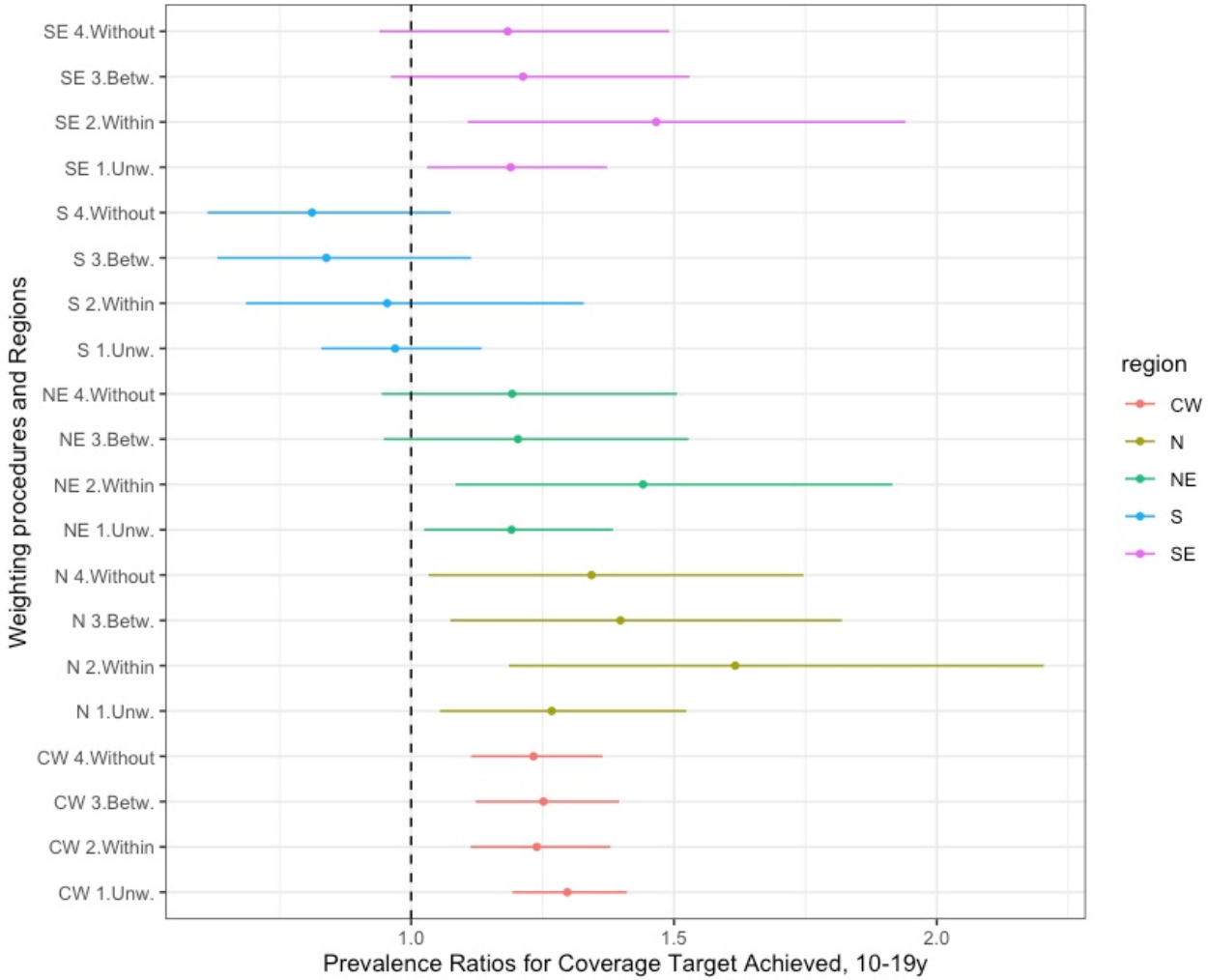

Propensity Scores - Within
1.00
0.75
0.50
0.25
0.00
0.00
0.25
0.50
0.75
1.00
Propensity Scores - Without


Propensity Scores - Without
1.00
0.75
0.50
0.25
0.00
0.00
0.25
0.50
0.75
1.00
Propensity Scores - Between
factor(proteja)
0
1
region
CW
N
NE
S
SE

Output evaluation – Coverage Target Achieved (2021)

Weighted quasi-Poisson models





Final Remarks

- Heterogeneity among regions on the differences between groups is lower than expected...S and N region claims attention for nutritional status
- Overall selection bias is strong – elegibility criteria
- Only possible to use Average Treatment Effect on Treated (ATT) estimand
- PS estimated within each region are more discriminative – amplifies selection bias, lower weights
- On output evaluation, effect point estimates do not differ a lot, but Within models push estimates to higher values
- 95%CI were similar among the three weighting approaches

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Thank you !

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