

BMF CP79: Supply sources and feeding modalities in school meal programs

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“Recently, the Sparrow family has grown bigger, which means finding food and feeding the whole gang is more difficult.”

–In “Food” ([The Kingfisher Story Collection](#))

[COLLABORATIVE PROJECT]

1. Project Description

1.1. Background

School meal programs are implemented in many countries to address food insecurity among school-aged children. These programs require the collaboration of various sectors to achieve multiple objectives, including education, nutrition, and the transfer of values [1]. Due to supply chain challenges, diverse sourcing strategies are employed to meet the demand for school meals, ranging from domestic in-kind contributions to foreign purchases [2].

The feeding modalities implemented in countries implementing school meal programs are diverse, and shaped by factors such as supply chain limitations and technical food-serving challenges. Some countries provide only breakfast or lunch to students, while others offer take-home rations. Geographic factors further complicate the provision of high-quality,

nutritious meals, as each country faces unique production constraints. For example, in Russia, low consumption of fruits and vegetables among children, exacerbated by varied climates, contributes to micronutrient deficiencies [3].

This study aims to examine the national and international capacities influencing the feeding modalities of school meal programs. The findings may help stakeholders develop strategies to enhance supply chain management and improve the overall effectiveness of these programs.

1.2. Materials

The granular interactions thinking associated with mindsponge theory [4-5] was used in study conceptualization, and Bayesian Mindsponge Framework (BMF) analytics was employed in statistical analysis on a dataset of 126 Ministry officers who managed large-scale school meal programs in 126 countries. This dataset originated from the 2021 Global Surveys, which can be accessed publicly at the GCNF Global Survey of School Meal Programs database [2]. The bayesvl package, aided by the Markov chain Monte Carlo (MCMC) algorithm, was employed in statistical analysis [6]. For more information on BMF analytics, portal users can refer to the following documents [7]. Data and code snippets of this initial analysis were deposited at <https://zenodo.org/records/13252985>.

1.3. Main Findings

The preliminary analysis revealed that sourcing supplies through in-kind donations from neighboring or distant countries had a significantly negative impact on the feeding modalities of school meal programs (see Figure 1). The influence of other methods on feeding modalities was less clear, indicating the need for further exploration.

Understanding how supplies are obtained, transferred, and managed—especially regarding food handling and storage—is crucial. By optimizing these processes, the capacity to offer a wider range of feeding modalities to students could be enhanced.

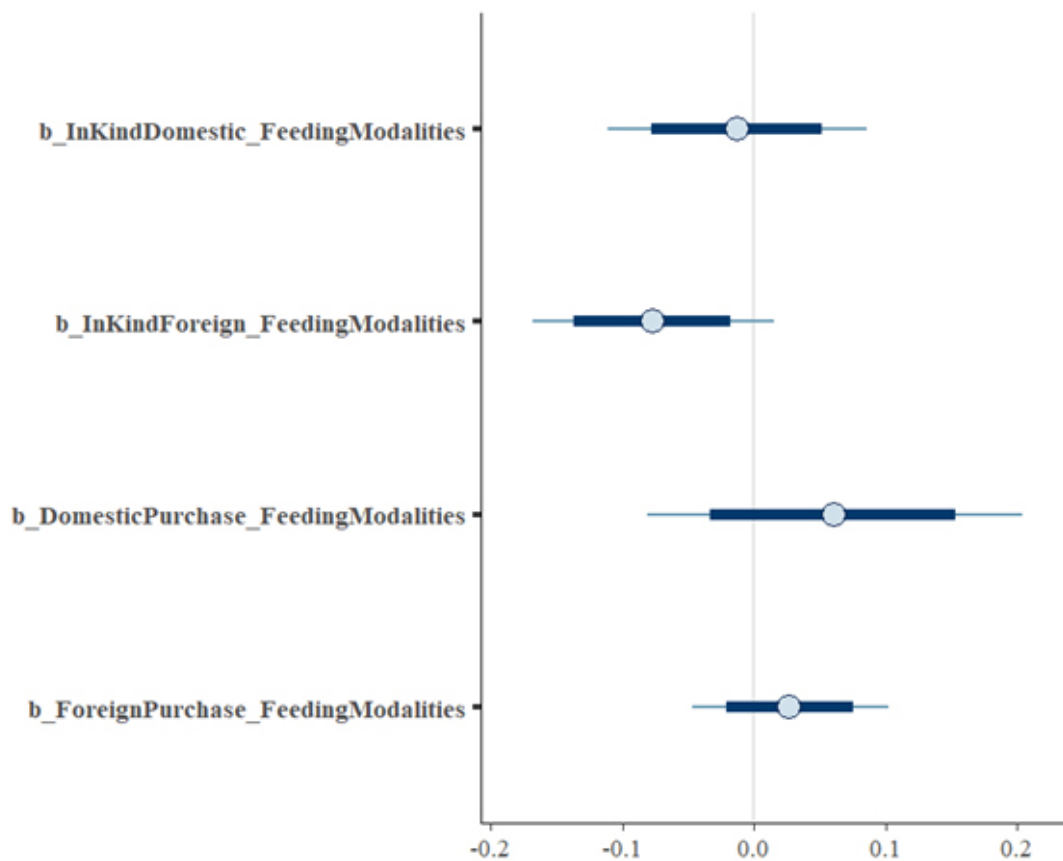


Figure 1: Estimated coefficients

2. Collaboration procedure

Portal users should follow these steps for registering to participate in this research project:

1. Create an account on the website (preferably using an institution email).
2. Comment on your name, affiliation, and desired role in the project below this post.
3. Patiently wait for the AISDL mentor to give the formal agreement on the project.

If you have further inquiries, please get in touch with us at aisdl_team@mindsponge.info.

If you have been invited to join the project by an AISDL member, you are still encouraged to follow the above formal steps.

All the resources for conducting and writing the research manuscript will be distributed upon project participation.

Project coordinator/mentor: **Ni Putu Wulan Purnama Sari**.

Other members who have joined this project: Minh-Hoang Nguyen and Quan-Hoang Vuong.

The research project strictly adheres to scientific integrity standards, including authorship rights and obligations, without incurring an economic burden at participants' expenses. Our philosophy embraces the fostering of humanistic values in conducting empirical investigations for sustainable and feasible solutions to real-world problems.

References

[1] Kretschmer A, Spinler S, Van Wassenhove LN. (2014). A school feeding supply chain framework: critical factors for sustainable program design. *Production and Operations Management*, **23**(6), 990–1001. <https://doi.org/10.1111/poms.12109>

[2] Global Child Nutrition Foundation. (2022). *Global Survey of School Meal Programs Database*. GCNF: Seattle. <https://gcnf.org/global-reports/>

[3] Ferrero EM, Wineman A, Mitchell A. (2023). Changes in school feeding operations during the COVID-19 pandemic: evidence from 139 countries. *Food Security*, **15**(6), 1521–1537. <https://doi.org/10.1007/s12571-023-01393-1>

[4] Vuong QH, Nguyen MH. (2024). *Better Economics for the Earth: A Lesson from Quantum and Information Theories*. AISDL. <https://www.amazon.com/dp/B0D98L5K44/>

[5] Vuong QH, Nguyen MH. (2024). Further on informational quanta, interactions, and entropy under the granular view of value formation. <https://philarchive.org/rec/VUOARN>

[6] La VP, Vuong QH. (2019). bayesvl: Visually learning the graphical structure of Bayesian networks and performing MCMC with 'Stan'. *The Comprehensive R Archive Network*. <https://cran.r-project.org/web/packages/bayesvl/index.html>

[7] Vuong QH, Nguyen MH, La VP. (2022). *The Mindsponge and BMF Analytics for Innovative Thinking in Social Sciences and Humanities*. Walter de Gruyter GmbH. <https://www.amazon.com/dp/8367405102/>



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