BMF CP76: Synergy between School Meals Program and Food Banks to Combat Food Insecurity

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"After some thinking, Kingfisher reckons that only by uniting the power of the entire village could they chase Snake away."

—In "The Virtue of Sacrifice"; *The Kingfisher Story Collection*

[COLLABORATIVE PROJECT]

1. Project Description

1.1. Background

Food insecurity is the condition of not having access to adequate quality food to meet one's basic needs. This challenges the four main pillars of food security: food availability, access to food, stability of food supplies, and food utilization [1-4]. Food banks play a major role in the food aid sector by distributing donated and purchased groceries directly to food-insecure families, significantly impacting food insecurity [5]. A food bank is a non-profit, community-led charitable organization that gathers, prepares, and distributes food to those in need via food pantries and meal programs, usually through intermediaries such as food pantries and soup kitchens.

Food insecurity affects populations and age groups across the board. Among children, it is prevalent due to undernutrition and micronutrient deficiencies, resulting in hidden hunger

[6]. To address food insecurity among school-aged children, many countries implement school meal programs aimed at combating hidden hunger and malnutrition, supporting educational attainment, and promoting child development. These programs embody principles of equity and inclusivity, ensuring every child has access to nutritious meals regardless of their socio-economic background [7].

From a global perspective, linking food banks with school meal programs can effectively address food insecurity among children. School meal programs face various challenges, from supply chain issues to food serving processes, and support from food banks can help mitigate these challenges. This study aims to examine the impacts of community involvement—such as nutritionists, farmers, and private sectors—and community engagement, including parents and others, on the linkage between food banks and school meal programs. Enhancing and strengthening this linkage through increased community support may effectively combat food insecurity among children.

1.2. Materials

The granular interaction thinking of mindsponge theory [8,9] 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 [10]. The bayesvl package, aided by the Markov chain Monte Carlo (MCMC) algorithm, was employed in statistical analysis [11]. For more information on BMF analytics, portal users can refer to the following documents [12]. Data and code snippets of this initial analysis were deposited at https://zenodo.org/records/13161817

1.3. Main Findings

Preliminary analysis showed that the involvement of nutritionists, farmers, and the private sector significantly impacts the linkage between food banks and school meal programs. In contrast, the engagement of parents and others had an ambiguous impact on this linkage. The moderation effect of community engagement on the relationship between community involvement and this linkage was also unclear (see Figure 1). Therefore, it is essential to formulate strategies to increase the engagement of parents and others to successfully link food banks with school meal programs, which is crucial for effectively combating food insecurity among children.

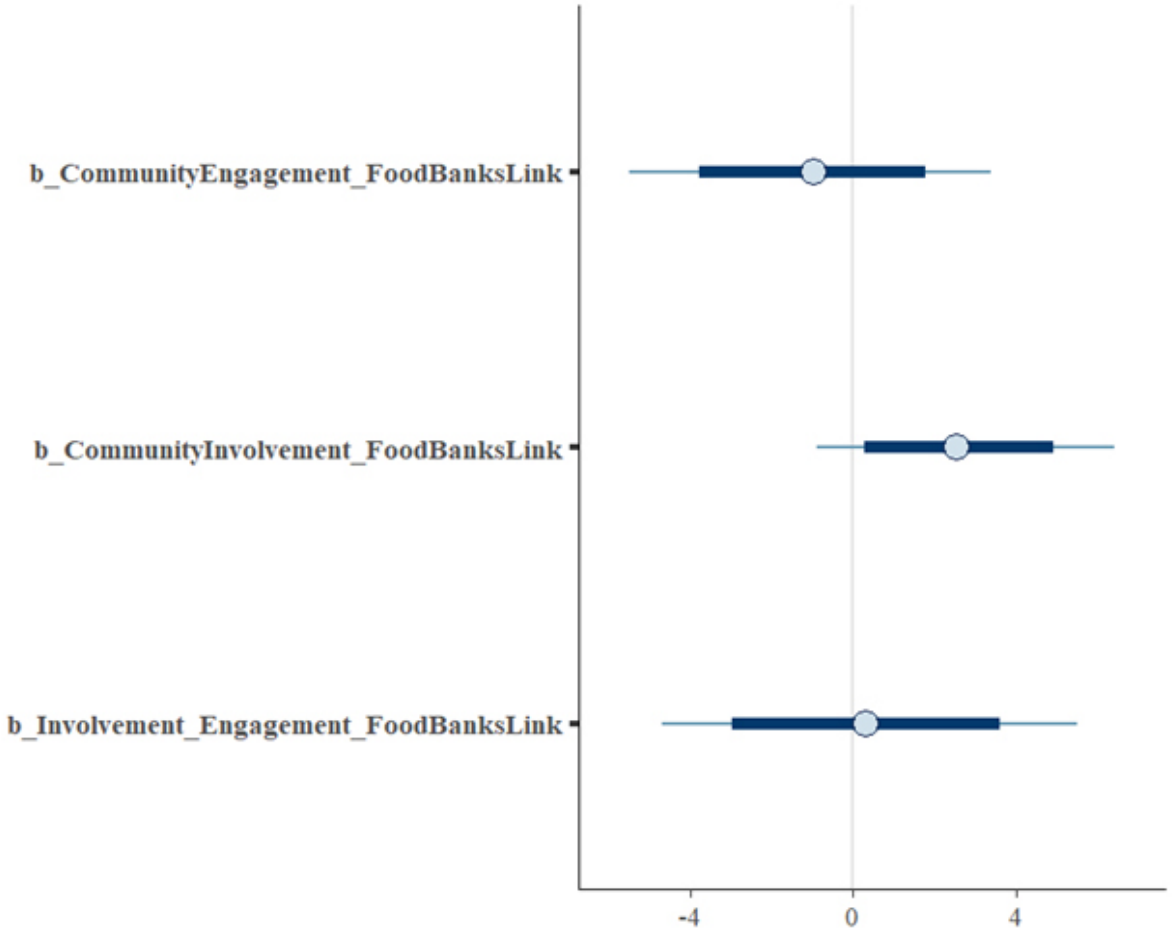

Figure 1: Estimated coefficients

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: ***Ni Putu Wulan Purnama Sari***.

The AISDL mentor for this project is Minh-Hoang Nguyen.

Other members who have joined this project: 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] Abafita J, Kim K-R. (2014). Determinants of household food security in rural Ethiopia: An empirical analysis. *Journal of Rural Development/Nongchon-Gyeongje*, **37**(1071-2016-86950), 129-157. https://doi.org/10.22004/ag.econ.196613

[2] Shakeel A, Shazli T. (2021). Coping strategies and struggle against food insecurity: the case of district Banda in Bundelkhand region, India. *GeoJournal*, **86**, 1721-1742. https://doi.org/10.1007/s10708-020-10155-x

[3] Mazenda A, et al. (2022). The invisible crisis: the determinants of local food insecurity in Gauteng municipalities, South Africa. *British Food Journal*, **124**(13), 274-289. https://doi.org/10.1108/BFJ-11-2021-1234

[4] Lin HI, Yu YY, Wen FI, & Liu PT. (2022). Status of food security in East and Southeast Asia and challenges of climate change. *Climate*, **10**(3), 40. https://doi.org/10.3390/cli10030040

[5] Bazerghi C, McKay FH, & Dunn M. (2016). The Role of Food Banks in Addressing Food Insecurity: A Systematic Review. *Journal of Community Health*, **41**(4), 732–740. https://doi.org/10.1007/s10900-015-0147-5

[6] Editorial. (2023). The triple burden of malnutrition. Nature Food, 4(11), 925–925. https://www.nature.com/articles/s43016-023-00886-8

[7] Mawela A, Van den Berg G. (2018). Management of school nutrition programs to improve environmental justice in schools: A South African case study. *South African Journal of Clinical Nutrition*, **33**(2), 30–35. https://doi.org/10.1080/16070658.2018.1507208

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

[9] Vuong QH. (2023). *Mindsponge Theory*. Walter de Gruyter GmbH. https://www.amazon.com/dp/B0C3WHZ2B3/

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

[11] 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

[12] 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/