

**IMPROVING COMMUNITY ENGAGEMENT BY CREATING JOBS AND INCOME-  
GENERATING OPPORTUNITIES FOR WOMEN: THE PURPOSEFUL FOCUS OF  
SCHOOL MEAL PROGRAMS**

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## Abstract

*Background:* School meal programs are not only government initiatives but also community-driven efforts. Aiming to combat food insecurity among school-aged children effectively, these programs are executed in conjunction with food bank initiatives. Various community groups play a crucial role in the success of both food security initiatives. There is a need to improve community engagement to successfully link school meal programs with food banks to build program synergy, combating food insecurity through a two-sided approach.

*Aim:* This study aims to examine community engagement in school meals program by analyzing its purposeful focus on creating jobs and income-generating opportunities for different community groups, i.e., youths, women, and others.

*Methods:* The Bayesian Mindsponge Framework, combining the reasoning strengths of Mindsponge theory and inference advantages of Bayesian analysis, was employed on a dataset of 126 government representatives who manage large-scale school meal programs in 126 different countries.

*Results:* Findings showed that the school meals program's purposeful focus on creating jobs and income-generating opportunities for women in the community was positively associated with community engagement, thereby supporting the linkage between the programs and food banks. In contrast, providing jobs and income-generating opportunities for youths and other community groups had an ambiguous association with community engagement in school meal programs.

*Conclusions:* Findings underscore the importance of creating jobs and income-generating opportunities for women to improve community engagement in school meal programs. Formulating strategies that empower woman's entrepreneurship may foster their involvement and engagement in school meal programs, promising to successfully link these programs with food bank initiatives among implementing countries.

**Keywords:** school meals program; community engagement; income-generating; business opportunity; woman entrepreneurship.

“It has been a very difficult fishing season. If we want to be full, we have to create a joint venture.”

—In “Joint Venture”; *Wild Wise Weird* (Vuong, 2024).

## 1. Introduction

Global food insecurity among school-aged children has reached an alarming rate, posing a critical challenge to human development, economic progress, and social stability (Bundy et al., 2017; Smith et al., 2023). Recent estimates from the World Food Program reveal that as of 2022, 153 million children and adolescents are experiencing severe hunger, accounting for nearly half of the 345 million people worldwide suffering from starvation (WFP, 2022). This crisis has been intensified by the COVID-19 pandemic, which has disrupted food supply systems, caused widespread economic instability, and exacerbated pre-existing inequalities in food access (Abay et al., 2021; Kenney et al., 2021). The impacts of food insecurity on children are both immediate and long-lasting. In the short term, it threatens to rob children of their future by hindering their educational attainment and exposing them to higher risks of physical, mental, cognitive, and psychosocial problems (Melchior et al., 2012; Gallegos et al., 2021; Smith et al., 2023). In the long term, it increases the risk of chronic diseases in adulthood, thereby perpetuating a cycle of poverty, ill health, and social disadvantage (Nagata et al., 2019).

School meal programs, also known as school feeding programs, have emerged as a crucial intervention to address this global challenge (WFP, 2022). These programs operate within the broader context of global efforts to combat poverty, inequality, and socioeconomic disparities, aligned closely with the United Nations Sustainable Development Goals, particularly Goal 2—Zero Hunger (United Nations, 2015). According to the World Food Program (2022), 418 million children worldwide are currently benefiting from school meals, highlighting the extensive reach and importance of these initiatives. The positive impacts of school meal programs extend across various critical outcomes. Studies have consistently shown that children who participate in school meal programs, regardless of their country's income level, are more likely to enroll in school and attend regularly (Wang et al., 2021; Matemba & Sulu, 2024). Furthermore, these programs have been linked to improved nutritional status (Cohen et al., 2021), reduced illnesses (Jomaa et al., 2011), and enhanced cognitive function and academic performance of participants (Nida & Sari, 2023).

Beyond the direct benefits to children, school meal programs have shown potential for creating jobs and empowering local communities, particularly among women and youth (Verguet et al., 2020). According to Verguet et al. (2020), for every 100,000 children fed through school meal programs, approximately 1,377 jobs are created along the value chain, resulting in about 4 million jobs across 85 countries globally. Notably, these employment opportunities benefit traditionally underrepresented groups in the workforce. A survey of 139 countries by the Global Child Nutrition Foundation (2022) revealed that 32% of school meal programs focus on creating jobs for women, while 20% prioritize youth employment. This targeted approach to job creation is crucial not only for stimulating local economies and supporting the establishment of sustainable food systems but also promotes gender equality and youth empowerment.

Despite their proven benefits, the implementation of school meal programs is facing significant challenges, primarily in funding, logistics, and food availability (Essuman & Bosumtwi-Sam, 2013; WFP, 2022; Zuercher et al., 2022; SNA, 2024; Zuercher et al., 2024). Funding constraints are particularly acute in low-income regions, where financial resources often fall short of supporting comprehensive meal programs (Essuman & Bosumtwi-Sam, 2013). Drake et al. (2020) addressed the scale of this issue, estimating that approximately 73 million children, mostly in Africa, are in urgent need of school meal programs due to insufficient government funding. Logistical challenges further complicate program implementation, with the School Nutrition Association (2024) reporting that 90% of 1,343 surveyed schools are understaffed for critical tasks like food procurement, transportation, and meal distribution. These challenges are especially profound in rural or disadvantaged communities (Zuercher et al., 2022). In addition, many schools struggle to provide a diverse range of nutritious meals due to limited access to fresh produce and quality ingredients (Aliyar et al., 2015; Zuercher et al., 2024). These challenges necessitate effective strategies and approaches to ensure the sustainability of these crucial programs.

Community engagement is a promising solution to these challenges, with studies demonstrating the success of community-led models in enhancing program outcomes (Masset & Gelli, 2013; Pius, 2013; Appleby et al., 2019; Shrestha et al., 2020; Jamaluddine et al., 2020; Van et al., 2022; Prosper & Irechukwu, 2023; Melnick et al., 2024). Research indicates that when parents, community members, and local government officials actively participate in school meal initiatives, the benefits extend beyond mere food provision. For example, Van et al. (2022) found that in the Philippines, a school meal program that involved parents and the local community led to significant increases in children's enrollment, attendance, as well as their nutritional status. In Rwanda, Prosper and Irechukwu (2023) confirmed this finding, noting that community participation in school feeding programs has helped reduce student dropout rates and contributed to an improvement in students' cognitive abilities. According to the Global Child Nutrition Foundation (GCNF, 2022a), communities engage in school meal programs through varied activities, including food purchasing, meal preparation, program monitoring and evaluation, and in-kind donations. This engagement not only fosters a sense of ownership among community members but also encourages them to invest in the well-being of their children, thereby enhancing the program's effectiveness and sustainability (Shrestha et al., 2020).

One of the manifestations of community engagement in addressing food insecurity issues is the establishment of community-led food banks, whether they are privately funded or organized food banks (Cheyne *et al.*, 2020; Tan *et al.*, 2020; Rizvi *et al.*, 2021). These interventions, while serving distinct roles, are united by a common goal to alleviate hunger and ensure access to nutritious food. Food banks are often non-government and community-based initiatives that collect surplus food from donors (such as farmers, retailers, and individuals) and distribute it to those in need (Bertmann *et al.*, 2017; Drake *et al.*, 2021; Rizvi *et al.*, 2021). Community-led non-government food banks are more

popular in high-income countries than in low-income countries (GCNF, 2022a). This highlights greater potential synergies between school meal programs and food banks in high-income countries than in low-income countries. Evidence has shown that compared to the positive effect of expert involvement, i.e., nutritionists and the private sector, the association between community engagement and the linkage between school meal programs and food banks remains ambiguous (Sari et al., 2024). Formulating strategies to improve the synergy between both food security initiatives in implementing countries through community engagement activities is highly recommended to strengthen this linkage.

While the potential for community engagement in the school meal program is significant, the influence of job creation and income-generating opportunities on this engagement remains unclear. Particularly, the differential effects of these employment opportunities on various community groups, such as women, youth, and others, have not been thoroughly examined (Verguet et al., 2020; GCNF, 2022).

To address this research gap, in this study, we aim to examine community engagement in school meals program by analyzing its purposeful focus on creating jobs and income-generating opportunities for different community groups, i.e., youths, women, and others, utilizing a 2021 dataset of 126 large-scale school meal programs across 126 countries. By examining different community groups, we offer a comprehensive understanding of how economic empowerment can catalyze active community engagement in these crucial initiatives. Given the lack of prior research on the impacts of employment opportunities on community engagement in school meal programs, this study serves as a pioneering inquiry into these relationships. The study findings are expected to inform the development of more inclusive and community-centered strategies aimed at enhancing community engagement, community empowerment, and the sustainability of school meal programs worldwide.

## **2. Method**

### **2.1. Theoretical Foundation**

The mindsponge theory (MT) is the main idea behind this study, helping us understand human behavior as a complex process of taking in and processing information (Vuong, 2023). At first, MT used the concept of a “mindsponge” to explain how psychological factors shape what people do (Vuong, 2023; Davies & Gregersen, 2014). This idea works through a multi-step filtering process that highlights how personal judgments play a key role (Vuong & Napier, 2015; Vuong, 2023; Mantello et al., 2023). In simple terms, it shows how the mind accepts or rejects new information from the outside world. Recent updates to MT have turned it into a more detailed way of thinking about interactions (Vuong, 2024a), incorporating ideas from quantum physics (Rovelli, 2018; Keppens, 2018; Rovelli, 2016) and Shannon’s information theory (Shannon, 1948). In this new version, information is seen as a possible option, which helps MT better explain the complexities of human behavior using an entropy-based system (Nguyen, 2024; Vuong & Nguyen,

2024a, 2024b). The main focus of this approach is on how different pieces of information interact within the mind.

In the mindsponge theory (MT), the mind is seen as a system that collects and processes information. While this idea mainly applies to the human mind, it can also be used to describe various information-processing systems more broadly (Vuong, 2023). This wider view of the “mind” is reflected in research by Duong et al. (2024), Vuong et al. (2022), and Vuong et al. (2021), which looks at the mind in different contexts, such as at the level of a nation, household, or scientific field. MT has shown its value in using this information-processing approach to understand how collective minds operate and how they influence actions at the national level.

In this study, we consider the countries implementing school meal programs as a collective mind, each with its own multi-filtering systems. The information units within this collective mind, whether newly acquired or pre-existing, interact and connect in ways that help shape the nation’s core values (Vuong & Nguyen, 2024c). These information units play a role in sustaining this social system. In this context, the policies related to school meal programs can be seen as part of the nation’s core values or the mindset that informs the multi-filtering system. This mindset can act as a guide for assessing the acceptability or rejection of information from external sources.

The focus on creating jobs and income-generating opportunities for different community groups, including women, youth, and others, is viewed as part of the nation’s information processing. For these initiatives to arise, continue, and be effectively implemented in support of school feeding programs, several conditions should ideally be fulfilled. First, information regarding the potential benefits of creating jobs and income-generating opportunities for different community groups to improve community engagement in school meal programs should be accessible to the nation. The nation would benefit from having access to relevant knowledge, manpower, and resources that support the implementation of community engagement initiatives in school meal programs. Additionally, this information should be considered beneficial for it to pass through the multi-filtering system shaped by national policies as the nation’s mindset or core values. These policies ultimately influence how this information is perceived, whether as beneficial, neutral, or detrimental to the country’s interests.

There are three possible outcomes of this information-processing mechanism. If the information regarding community engagement initiatives is regarded as beneficial after passing through the national policies, it is likely to be retained and utilized within the collective mind. This could lead to the support and implementation of these initiatives in countries with school meal programs. On the other hand, if this information is seen as costly for the nation, it may be set aside, and related practices could face restrictions. If the information is considered neutral, it may be kept in a buffer zone for further evaluation, waiting for additional interactions with other information units to inform the nation’s mindset or national policies for further assessment. With this understanding, we continue to develop a model to examine the community engagement in school meals

programs by analyzing its purposeful focus on creating jobs and income-generating opportunities for different community groups, i.e., youths, women, and others.

## **2.2. Model Construction**

### **2.2.1. Dataset**

This study used a dataset from a global survey conducted in 2021, which included 126 government representatives managing large-scale school meal programs across 126 countries. Funded in part by the United States Department of Agriculture (USDA) and organized by the Global Child Nutrition Foundation (GCNF), this survey is accessible through the GCNF Global Survey of School Meal Programs database (GCNF, 2022b). The survey focused on school feeding initiatives administered by various government levels and those coordinated with non-governmental entities, as well as programs reaching many students without direct government involvement. Data were collected through a standardized questionnaire with 11 sections - four for national-level questions and seven for program-level questions. The 2021 survey updated information on the scope of school feeding for the 2020-2021 school year; government financing, nutrition, education, gender aspects, agricultural and private sector engagement, health and sanitation topics, and emergency impacts. For statistical analysis, four specific variables were used (see Table 1 for details). The GCNF database maintained the confidentiality of respondents by not releasing demographic data, but principal contacts and demographic information were collected for administrative purposes and is not publicly available.

### **2.2.2. Variable Selection and Rationale**

To construct the model for this study, we employed one outcome variable and three predictor variables. The outcome variable *CommunityEngagement* captures the role of community engagement in developing the linkage between food banks and school meal programs in implementing countries. In order to thoroughly tackle the research goal, we incorporated three predictor variables capturing the role of creating jobs and income-generating opportunities for different community groups, i.e., youths, women, and others, in improving community engagement in school meal programs, such as *FocusWomen*, *FocusYouth*, and *FocusOthers*. All variables provide valuable information regarding the impact of creating jobs and income-generating opportunities to improve community engagement in school meal programs important for successfully linking these programs with food bank initiatives. Table 1 below summarizes all variables used in the analysis, reflecting how the program's purposeful focus on different community groups influences community engagement in school meal programs.

**Table 1. Variable Description**

Variable Name	Description	Data Type	Value
<i>FocusWomen</i>	The presence of any implementation of the purposeful focus of school meal programs on creating jobs and income-generating opportunities for women.	Binary	0 = No 1 = Yes
<i>FocusYouth</i>	The presence of any implementation of the purposeful focus of school meal programs on creating jobs and income-generating opportunities for youths.	Binary	
<i>FocusOthers</i>	The presence of any implementation of the purposeful focus of school meal programs on creating jobs and income-generating opportunities for others.	Binary	
<i>CommunityEngagement</i>	The presence of any community engagement (by parents and others) in school meal programs.	Binary	

### 2.2.3. Statistical Model

In this study, the variables representing the program’s purposeful focus on creating jobs and income-generating opportunities for different groups (women, youth, and others) was positioned as predictors of community engagement in the school meals program. The analytical model was constructed based on the Bayesian Mindsponge Framework (BMF), as follows:

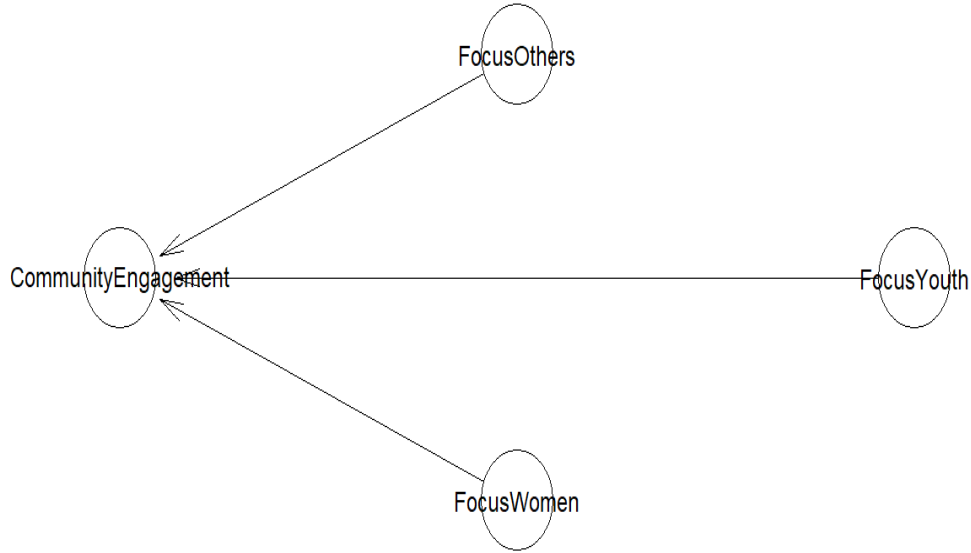
$$CommunityEngagement \sim normal \left( \log \left( \frac{\mu_i}{1-\mu_i} \right), \sigma \right) \quad (1.1)$$

$$\log \left( \frac{\mu_i}{1-\mu_i} \right) = \beta_0 + \beta_1 * FocusWomen_i + \beta_2 * FocusYouth_i + \beta_3 * FocusOthers_i \quad (1.2)$$

$$\beta \sim normal (M, S) \quad (1.3)$$

The probability around the mean  $\log \left( \frac{\mu_i}{1-\mu_i} \right)$  is determined by the shape of the normal distribution, where the width of the distribution is specified by the standard deviation of  $\sigma$ .  $\mu_i$  indicates the probability that the communities will be engaged in school meal programs in country  $i$ .  $FocusWomen_i$ ,  $FocusYouth_i$ , and  $FocusOthers_i$  represent whether there is any implementation of the purposeful focus of school meal programs on creating jobs and income-generating opportunities for women, youths, and other groups in the community. The model has an intercept  $\beta_0$  and three coefficients,  $\beta_1$ - $\beta_3$ . The coefficients of the predictor and moderating variables are presented as a normal distribution around the mean denoted  $M$  with the standard deviation denoted  $S$ . The parsimonious model is illustrated in Figure 1 below.





**Figure 1.** Analytical Model

#### 2.2.4. Data Analysis and Validation

In this study, the Bayesian Mindsponge Framework (BMF) analytics was employed to analyze community engagement within the school meals program. This method integrates the logical reasoning of MT with the probabilistic strengths of Bayesian inference, providing a robust analytical framework. The BMF method is particularly suitable for this study as it combines MT's capacity for explaining social behavior with Bayesian inference's flexibility and capacity for probabilistic predictions (Nguyen et al., 2022). Bayesian inference evaluates all properties probabilistically, both known and unknown, allowing reliable predictions even in complex models (Csilléry et al., 2010; Gill, 2015). By using Markov chain Monte Carlo (MCMC) techniques, Bayesian analysis effectively handles intricate models, such as the multilevel structures in this study (Dunson, 2001). One key advantage of Bayesian inference over traditional methods is its use of credible intervals rather than  $p$ -values for interpreting results, allowing for more refined decision-making (Halsey et al., 2015; Wagenmakers et al., 2018).

In this study, Bayesian analysis was conducted in R using the bayesvl package, which offers powerful visualization capabilities (La & Vuong, 2019). In Bayesian analysis, selecting appropriate priors is essential. For this exploratory study, uninformative or flat priors were chosen to minimize prior influence on the results (Diaconis & Ylvisaker, 1985). The model's fit was evaluated using Pareto-smoothed importance sampling leave-one-out (PSIS-LOO) diagnostics (Vehtari & Gabry, 2019; Vehtari, Gelman, & Gabry, 2017). The LOO statistic was computed to assess how well the model fits individual data points, and k-Pareto values were used to identify any influential or problematic observations. Values below 0.5 indicated a good model fit.

$$LOO = -2LPPD_{loo} = -2 \sum_{i=1}^n \log \int p(y_i | \theta) p_{post(-i)}(\theta) d\theta$$

The posterior distribution  $p_{post(-i)}(\theta)$  is calculated based on the data excluding data point  $i$ . In the PSIS method,  $k$ -Pareto values are used to compute leave-one-out cross-validation, which helps identify observations with a high degree of influence on the PSIS estimate. Observations with  $k$ -Pareto values greater than 0.7 are often considered influential and may pose problems for accurately estimating leave-one-out cross-validation. Generally, a model is considered well-fitted when the  $k$  values are below 0.5.

If the model demonstrated a good fit, we proceeded with convergence diagnostics using both statistical and visual methods. The effective sample size (neff) and Gelman-Rubin shrink factor ( $Rhat$ ) were the primary metrics for statistical convergence. A  $n_{eff}$  value over 1000 suggests sufficient sampling, while  $Rhat$  values near 1.0 indicate convergence (Brooks & Gelman, 1998). To visually confirm convergence, trace plots, Gelman-Rubin-Brooks plots, and autocorrelation plots were analyzed. For the sake of transparency and reproducibility, the dataset and code snippets used in this analysis were deposited in Zenodo for public evaluation and utilization: <https://zenodo.org/records/13220994>

### 3. Results

Before interpreting the results of BMF analytics, it is necessary to evaluate how well the model fits the data. As can be seen in Figure 2, we found all values were below the 0.3 threshold; the recommended value is below the 0.7 threshold. Therefore, there is a good fit signal between the model and the data.

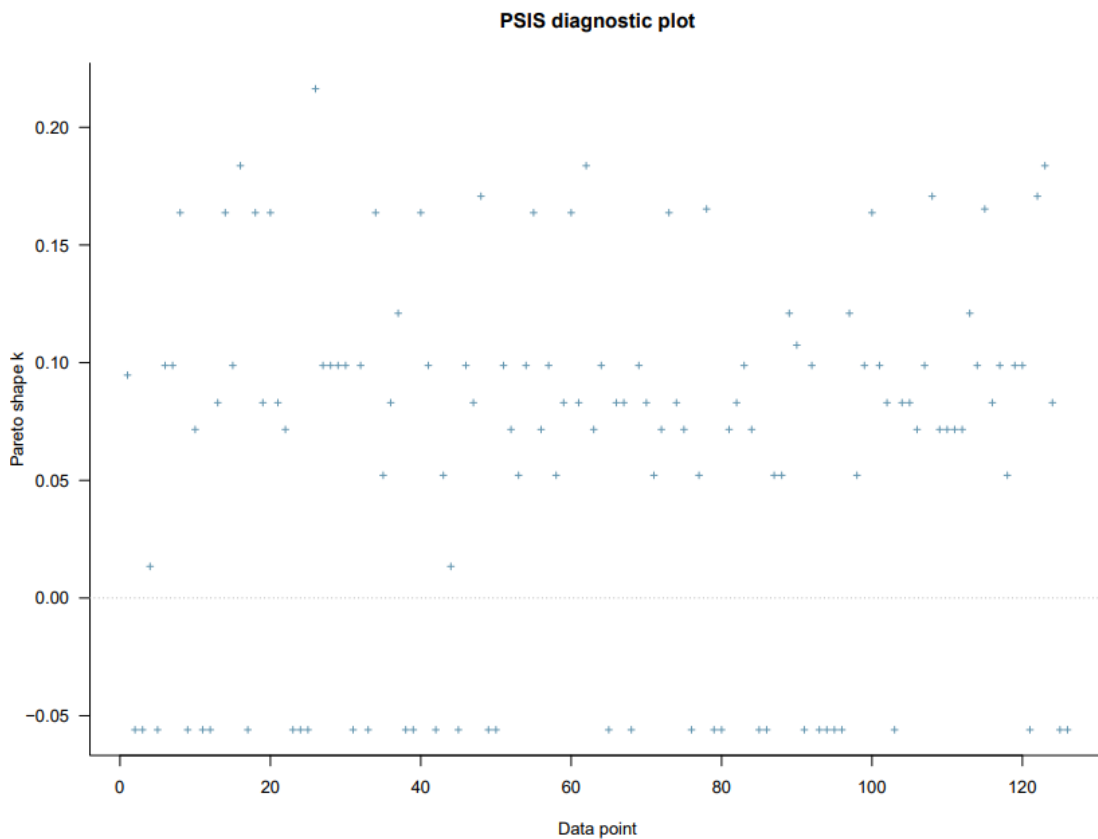


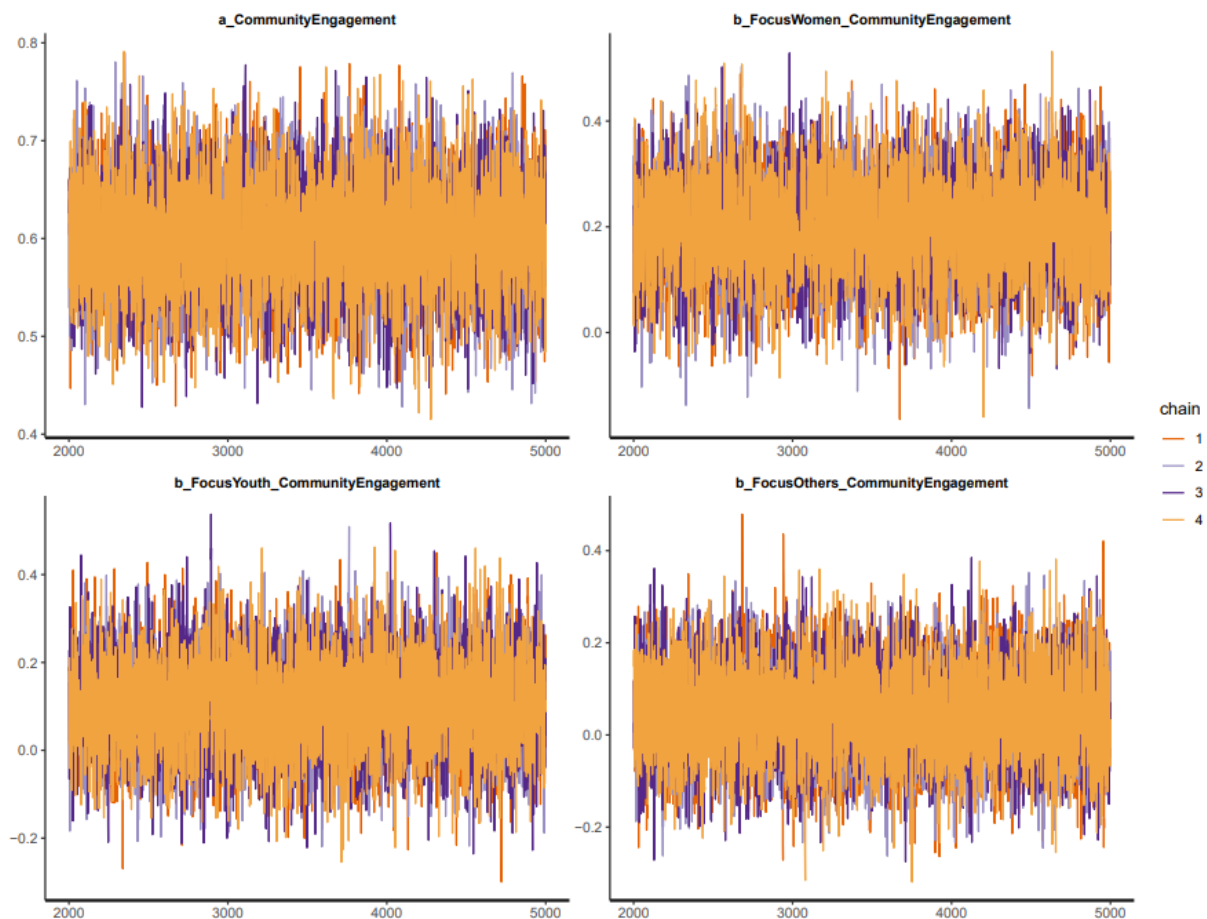
Figure 2. Model 1's PSIS-LOO diagnosis

The posterior distribution statistics of Model 1 are shown in Table 2. All  $n_{eff}$  values are greater than 1000, and  $Rhat$  values are equal to 1, so it can be assumed that the model's Markov chains are well-convergent. Table 2 below explains the model's posterior distribution statistics, as illustrated in Figure 1.

**Table 2.** Estimated results of Model 1

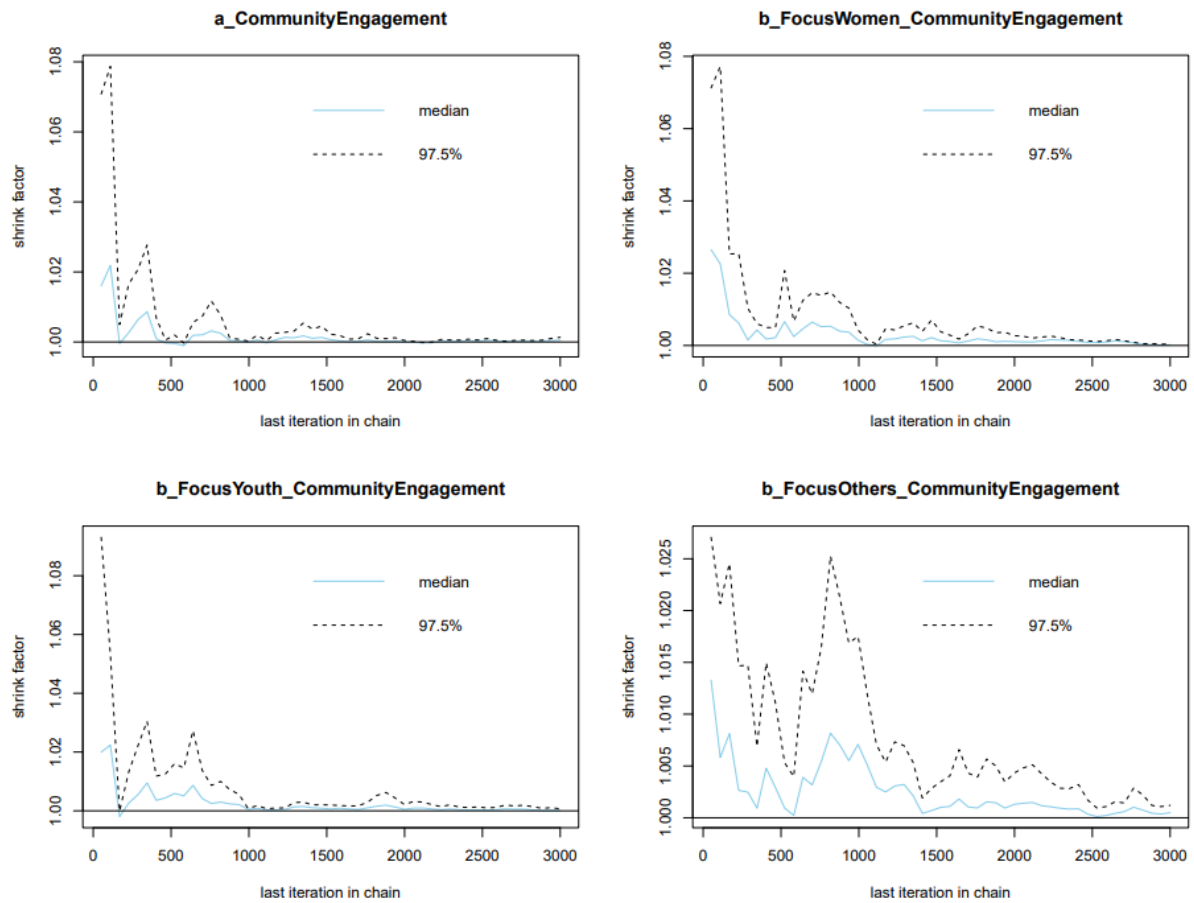
Parameters	Mean	SD	$n_{eff}$	$Rhat$
$a\_CommunityEngagement$	0.60	0.05	9062	1
$b\_FocusWomen$	0.20	0.09	7848	1
$b\_FocusYouth$	0.10	0.10	9995	1
$b\_FocusOthers$	0.05	0.10	9987	1

The convergence of Markov chains is also reflected in the trace plots of Figure 3. In particular, after the 2000<sup>th</sup> iteration, all chains' values fluctuate around the central equilibrium.



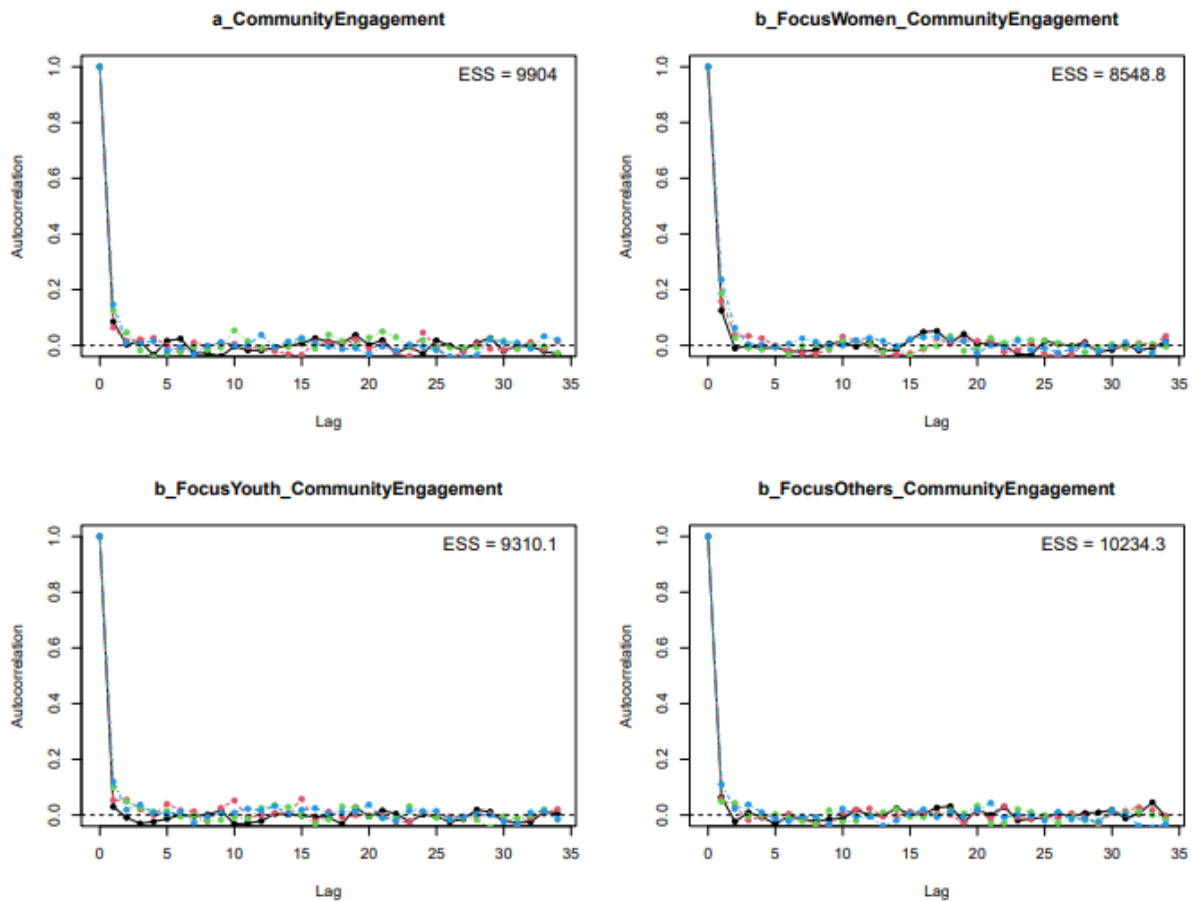
**Figure 3.** Model 1's trace plots

The Gelman-Rubin-Brooks plots and autocorrelation plots also show that the Markov chains have good convergence. Gelman-Rubin-Brooks plots are used to evaluate the ratio between the variance between Markov chains and the variance within chains. The  $y$ -axis demonstrates the shrinkage factor (or Gelman-Rubin factor), while the  $x$ -axis illustrates the iteration order of the simulation. In Figure 4, the shrinkage factors of all parameters rapidly decrease to 1 before the 2000<sup>th</sup> iteration (during warm-up). This manifestation indicates that there are no divergences between Markov chains.



**Figure 4.** Model 1's Gelman-Rubin-Brooks plots

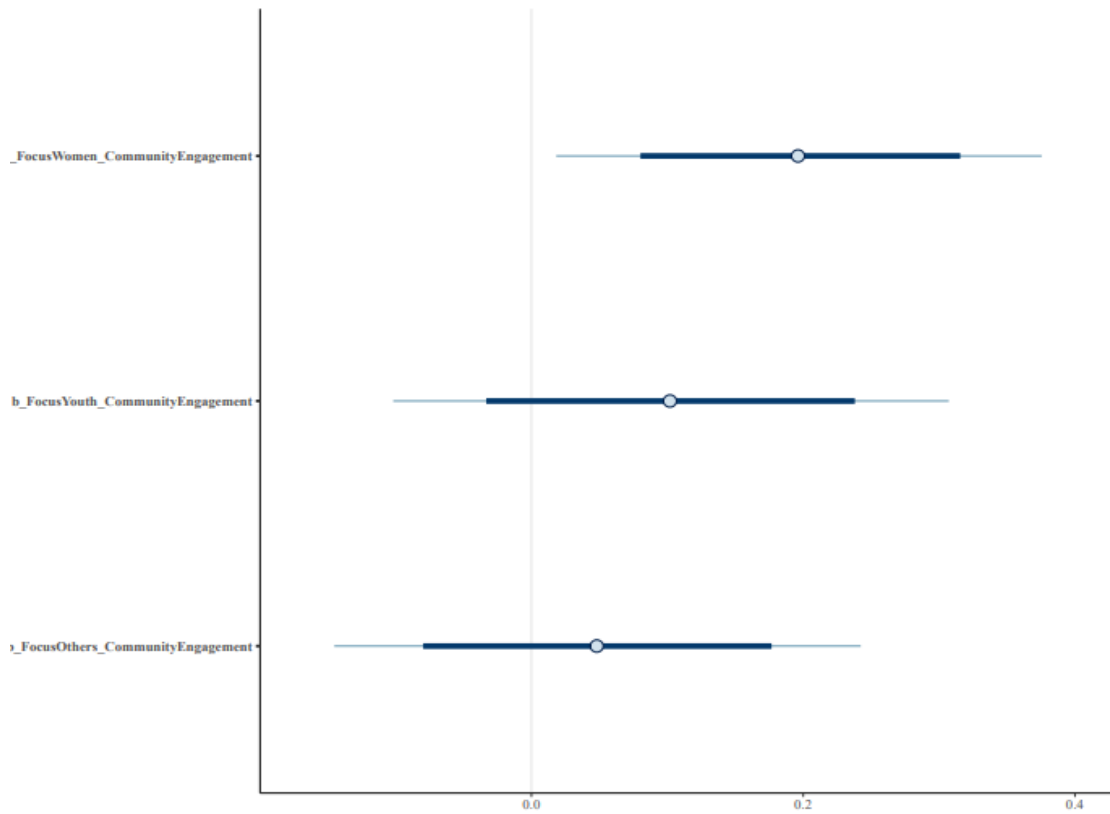
The Markov property refers to the memory-less property of a stochastic process. In other words, iteration values are not auto-correlated with the past iteration values. Autocorrelation plots are used to evaluate the level of autocorrelation between iteration values. The plots in Figure 5 show the average autocorrelation of each Markov chain along the  $y$ -axis and the delay of these chains along the  $x$ -axis. Visually, after several delays (before 5), the autocorrelation levels of all Markov chains swiftly drop to 0, indicating that the Markov properties are preserved and the Markov chains converge well.



**Figure 5.** Model 1's autocorrelation plots

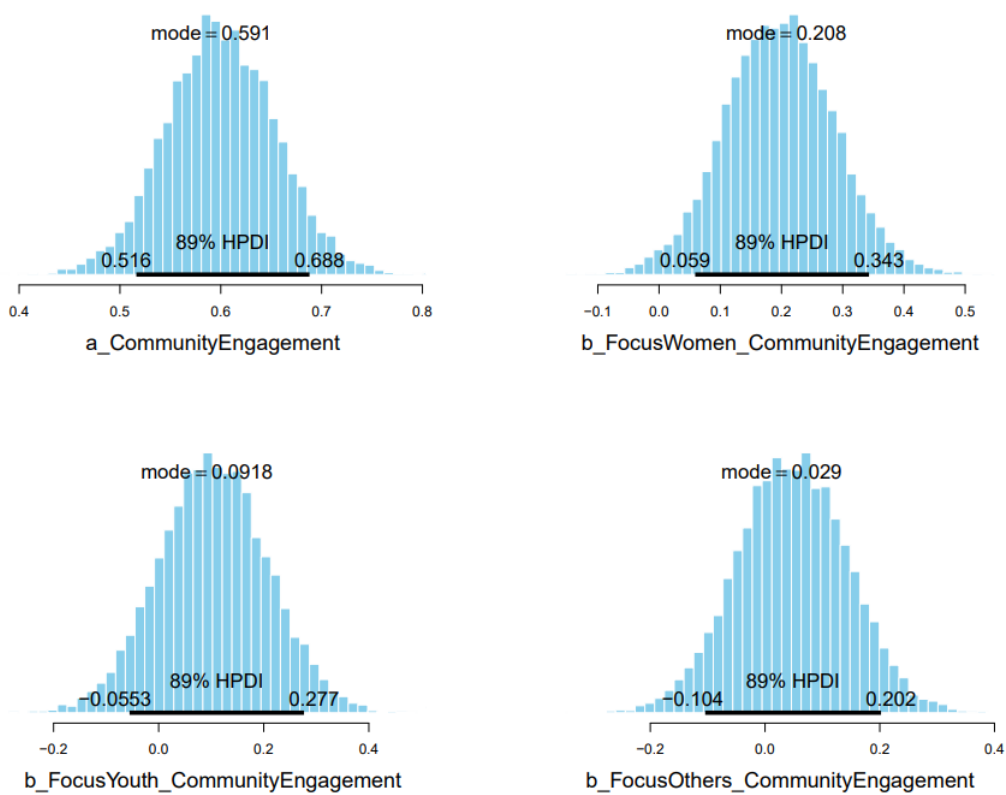
Since all the diagnostics confirm the convergence of Markov chains, the simulated results are eligible for interpretation. The estimated results of Model 1 show that the school meals program's purposeful focus on creating jobs and income-generating opportunities for women in the community was positively associated with community engagement, thereby supporting the linkage between the programs and food banks. In contrast, providing jobs and income-generating opportunities for youths and other community groups had an ambiguous association with community engagement in school meal programs.

To aid in the interpretation of results, Figure 6 illustrates the estimated coefficients with mean values having the highest probability of occurrence. The distribution of *b\_FocusWomen\_CommunityEngagement* is fully located on the positive side of the x-axis. This distribution signifies the reliable positive association between *FocusWomen* and *CommunityEngagement*.



**Figure 6.** Estimated coefficients

Figure 7 shows the posterior distribution with Highest Posterior Density Intervals (HPDIs) at 89%. The found effects are clear, which suggests that the results are reliable.



**Figure 7.** Distributions of posterior coefficients with HPDI at 89%

#### 4. Discussion

This study employed BMF analytics to evaluate community engagement in the school meals initiative, particularly regarding its emphasis on generating employment and income opportunities for diverse community demographics. An analysis involving 126 government representatives overseeing large-scale school meal initiatives across 126 countries indicated that the program's strategic focus on creating jobs and income-generating opportunities specifically for women greatly enhances community engagement, thus reinforcing the connection between the program and food banks. Conversely, initiatives aimed at providing employment and income opportunities for youth and other community groups demonstrated an unclear impact on community engagement with the school meals program.

The study's overall results correspond with the initial hypotheses established within the mindsponge theoretical framework. In particular, the school meals program's purposeful focus on creating jobs and income-generating opportunities for women in the community significantly enhances community engagement, thereby supporting the linkage between the program and food banks. It corroborates Ghattas et al. (2020), who assert that the Healthy Children program, which employs women, provides a nutritious daily snack to elementary school children in Palestinian refugee camps in Lebanon. This initiative enhances dietary variety for the school, particularly in marginalized communities, while also generating food-related income opportunities for women in the community. With the increased participation of women, enhanced dietary diversity, and additional income, the school feeding program further contributes to enhanced child health, helps conserve household income, as well as strengthens relationships within families and the broader community members (Borish et al., 2017).

From the mindsponge perspective, the actual implementation of the school meals program's purposeful focus on supporting women entrepreneurship in the community is viewed as the outcome of the nation's information-processing system. The findings indicate that women's entrepreneurship positively correlates with community engagement in school meal programs. Therefore, the information regarding the potential benefits of creating jobs and income-generating opportunities for women to improve community engagement in school meal programs are fully accessible by the nation and deemed beneficial so that this practice is raised, continue, be effectively implemented, and protected by the nation's core values, which is the regulations or the national policies related to school feeding. Further, after the effective implementation of women's entrepreneurship supporting school feeding programs, all related information regarding this practice will be retained and utilized by the nation to maintain the system's survival by developing sustainable school meal programs.

In contrast, the analysis highlights that when programs aimed at providing employment and income opportunities for youth and other community groups are implemented, the results of community engagement with school meal initiatives appear unclear. In the study by Roothart et al. (2021), which included participation from students, parents,

teachers, and others, a similar ambiguous engagement was observed. Specifically, some groups actively engaged in raising awareness of the school feeding program, managing kitchen and storage facilities, and assisting the school food committee with daily tasks such as rationing, food preparation, and serving; however, these groups were entirely disengaged or excluded in other schools. According to MT, the argument suggests that engagement levels among different groups in school meal programs are influenced by their cognitive processing patterns that are deeply embedded in their collective mindset, impacting their evaluation of food-related benefits within the initiative (Vuong, 2023). For instance, parents may hesitate to participate in school meal programs due to doubts concerning food quality and safety or a limited understanding of the program (Rootheart et al., 2021). Furthermore, youth participation declines due to dissatisfaction with the meals served, which may not fulfill their daily nutritional needs (Oganga, 2013; Sanya, 2015). Additionally, the absence of involvement from other stakeholders, such as farmers or food providers, may stem from their focus on cost-effectiveness (Rootheart et al., 2021).

These findings hold significant implications for enhancing community engagement, aiming to establish a robust connection between school meal programs and food banks to effectively address child food insecurity. From a practical standpoint, it is advisable to develop strategies that empower women, thereby increasing their involvement in the implementation of school meal programs. To encourage greater community involvement, parents need broader access to information regarding school feeding programs to inspire their contributions; students must receive dependable water sources, cooking materials, food storage facilities, and sufficient kitchen space; enhanced coordination throughout the whole feeding process is essential; and educating the community on nutrition and the benefits of school feeding can help shape cultural attitudes, enabling students to adopt healthier eating habits (Rootheart et al., 2021).

Moreover, school and community officials must be accountable for linking current school feeding initiatives with community development efforts covering overall community groups (Borish et al., 2017). From a policy perspective, to foster meaningful participation from other community groups, policymakers must adapt and negotiate policy frameworks to align with the realities faced by students and families, as well as the broader local community and governmental support for such initiatives (Torres & Simovska, 2017). In addition, the policy advocating for the establishment of partnerships at the coalition and community levels, coupled with the assessment of their quality and impact, is critical for boosting engagement and ensuring long-term sustainability (Cunningham-Sabo et al., 2022).

The current research presents some limitations, which we have delineated here for the sake of transparency (Vuong, 2020). Firstly, the dataset is comprised solely of government representatives; while these officials hail from various countries, they may not adequately represent other parties or groups both within and outside the educational institution who may hold differing viewpoints regarding community engagement in the school meals program. Later investigations should endeavor to validate the information



processing hypothesis related to MT across a more extensive array of stakeholders. Also, this analysis of the perspectives of government representatives on community engagement in the school meals initiative is predicated on self-reported data, which subjective biases may influence. Furthermore, the cross-sectional design of the study renders the temporal evolution of the variables examined unquantifiable.

## 5. Conclusion

The school meals program's purposeful focus on creating jobs and income-generating opportunities for women in the community significantly enhances community engagement with the program, thereby supporting the linkage between the programs and food banks. Formulating strategies that empower woman's entrepreneurship may foster their involvement and engagement in school meal programs, promising to successfully link these programs with food bank initiatives among implementing countries. By supporting women's entrepreneurship in the community, the synergy between school meal programs and food banks may be developed and strengthened to effectively and strongly combat food insecurity among children through a two-sided approach. In contrast, providing jobs and income-generating opportunities for youths and other community groups has an unclear association with community engagement in school meal programs. Further studies exploring the possible involvement of the youth and other groups in the community are needed to strengthen their roles and responsibilities, building a positive mindset of their involvement-engagement with the programs. By doing so, their involvement may be strengthened, promising other alternatives to effectively engage all community groups with the school meal programs for increasing public awareness and proactive attitude actions in initiatives combating child food insecurity.

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