

National School Feeding Program: a healthy public policy

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Abstract *In this article, we analyzed the National School Feeding Program (PNAE) as a Healthy School Feeding Program (HPP). The Brazilian Law No 11,947/2009 established that at least 30% of the resources from the National Fund for Educational Development (FNDE) for school feeding must be employed in purchasing food from family farming. In addition, a HPP is a public policy whose formulation takes into account different domains that determine the population's health. The demand for purchasing food from family farming includes not only the appreciation of organic and local agricultural production of family farmers, but also the prioritization of a healthy diet for students, thus contributing to shape healthy eating habits. In view of this, the PNAE contributes to health promotion and hence can be understood as a HPP. The PNAE, by the articulation of actions from different sectors, makes public policy more effective and more efficient, generating positive results beyond health and maximizing the returns for society. In order to improve and strengthen the PNAE, in this article we propose mechanisms that aim to complement and reinforce actions carried out in SUS (Brazilian Unified Health System, called Sistema Único de Saúde).*

Key words *Public Health Policies, Health promotion, School feeding*

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Introduction

The formulation of public policies has been a target of great interest in the last 20 years, incorporating the contributions of different studies from both applied and theoretical fields, regarding the following aspects: the role of social actors in the process of policy making (called the political cycle); the understanding of the policy measures mechanisms that affect society; and the impact assessments of the implemented policies. The innovation in the field of public policies is the result of these contributions, represented by the design of policies and programs that are more in line with socioeconomic problems, allowing greater returns to society^{1,2}.

Some attributes of this new policy profile stand out, such as the complementary actions that encompass different fields of knowledge, granting them a multidisciplinary nature from conception to final evaluation of results. Another attribute is the prominent role of policy governance. Governance, also known as social control, consists of monitoring and supervising the implemented measures, ensuring compliance with the proposed actions and accountability to the community³.

A Healthy Public Policy (HPP) is a type of public policy that fits these aforementioned premises, taking into account different domains that determine the population's health. By articulating the actions of different sectors in dealing with health problems, a public policy not only becomes more effective in achieving goals, but it also becomes more efficient, generating positive results beyond health and maximizing returns for the society⁴.

Therefore, the main objective of our study is to analyze the National School Feeding Program (PNAE) – Law No 11,947/2009⁵ – as a HPP. The new PNAE can be considered an innovation in public policy since it advocates that the provision of healthy school feeding should be associated with sustainable purchase initiatives, linked to the strengthening of family farming and to the Food and Nutrition Security (SAN) of students. However, as we will point out in this study, as the PNAE is accredited as a HPP, this policy must be at the center of attention of public policymakers, as well as of the federated entities that run the Program. According to the official data, in 2011 only 26.7% of Brazilian municipalities reached the 30% minimum goal of purchasing produce directly from Family Farming (FF) businesses, which expanded to 42.1% in 2016⁶. Therefore, it

seems that there is still room for improvement and advancement in the PNAE, which depends on overcoming some bottlenecks in the execution of this Program⁷.

Thus, our study has two main contributions regarding the analysis of public policies, especially the PNAE. The first, refers to the incorporation of the concept of HPP within the scope of the PNAE, since it is an element not yet discussed in the studies about this Program, whose emphasis is on the effects on rural development, on food and nutritional security and on cooperativism⁷⁻¹⁰. Consequently, the importance of the PNAE as an efficient public policy is amplified through the incorporation of the HPP concept. The second contribution emerges from the analysis of the PNAE experience since 2009, taking into consideration its outcomes on health and education, culminating with the proposition of actions for the improvement of the program, such as its operationalization from the HPP perspective, envisioning greater positive impacts of this policy on society.

This work is divided into four further sections. In the first section, we present what constitutes a healthy public policy, referring to health promotion as the center of this issue and discussing the role of governance in this type of policy. In the second section, we explore the importance of healthy eating in promoting positive health outcomes and in improving cognitive and non-cognitive skills in early childhood. In the third section, we analyze the PNAE as a HPP. Finally, in the last section we present some proposals for improving this Program, in order to enrich it.

Healthy public policies: towards a new paradigm

The HPPs premises are directly linked to health promotion, emerging from a broader concept of the health-disease process and its determinants, and aiming to overcome the traditional view of health medicalization, whose concept of health is linked to the absence of disease^{11,12}. In view of the studies on the promotion of wellness, health has come to be understood as a positive and multifaceted element.

Since the emergence of this concept, the international debate on health policy has centered around health promotion, having gained great support from the International Health Conferences promoted by the World Health Organization (WHO). The HPPs were initially proposed

within the 1st International Health Conference held in Ottawa (Canada) in 1986. The Ottawa Charter¹³, which synthesizes the discussions of this Conference, suggests the devising and the implementation of HPPs as the foremost of five fields of action for health promotion.

However, it was two years later, at the II International Health Conference in Adelaide (Australia), that the HPPs gained a privileged forum as they were the main object of this Conference. In this forum, the first definition of HPP⁴ was established:

Healthy public policy is characterized by an explicit concern for health and equity in all areas of policy and by an accountability for health impact. The main aim of health public policy is to create a supportive environment to enable people to lead healthy lives. Such a policy makes health choices possible or easier for citizens. It makes social and physical environments health-enhancing. In the pursuit of healthy public policy, government sectors concerned with agriculture, trade, education, industry, and communications need to take into account health as an essential factor when formulating policy. These sectors should be accountable for the health consequences of their policy decisions. They should pay as much attention to health as to economic considerations⁴(p.2).

In this definition of HPP, three elements stand out. The first refers to the fact that health must be at the center of the public policy. The defense of this privileged place for health on the public agenda derives from its impact on human development. For Lopez-Casasnovas et al.¹⁴, a healthy population ensures (and stimulates) several attributes of human development, such as greater well-being, longevity and reduction of social inequalities. The second element refers to the need of incorporating the social determinants of health in the intervention strategies, with the actions of public policy entrusted to take into consideration the different factors that contribute to its promotion, considering health as a multifaceted element.

Finally, the third element highlights the strategic role, in policies, of intersectorality and interdisciplinarity. The understanding that health is determined by different factors implies that the field of health is unable to promote health in an isolated position, requiring coordinated actions between the government, the health sector and other social and economic sectors. The multiplicity of health determinants affect, both positively and negatively, the health of the population¹⁵.

It is mandatory to highlight that the presence of these three elements in the formulation of the

HPP ensures what the literature of public sector economics calls social efficiency. This regards the designing of more appropriate actions through a systemic view of socioeconomic problems, ensuring greater economic and social results for society¹⁶. By generating greater aggregated results, the HPP guarantees more efficiency in comparison to an isolated public policy; therefore, it should be prioritized in the public agenda¹⁷.

A HPP can be configured by a wide range of instruments, such as: changes in legislation; tax measures; regulation of sectors; promotion of awareness campaigns; organizational changes within not only the health sector, but within the whole public sector; coordinated actions that aim for health equity; fairer distribution of income; and educational and social policies.

From the 1990s onwards, the movement regarding the HPPs received an important contribution from the discussions on the Social Determinants of Health (SDH)¹⁸, since studies about this topic incorporated and attached greater weight to socioeconomic factors in determining the population's health, such as work and housing conditions, thus reinvigorating the general determinants model proposed by Lalonde¹⁹.

In agreement with these propositions, the WHO²⁰ began to recommend that health policies must advance beyond financing and provision of resources for health care, with the inclusion of the economic and the social political aspects in order to induce changes in the social environment. This new WHO health policy agenda was entitled *Health in all policies*, which reinforces the premises of the HPP, emphasizing the role of these policies' governance throughout the whole political cycle (elaboration, execution, monitoring and evaluation of the policy), and highlighting the importance of the community's participation not only in the elaboration of the public policy, but also in the evaluation of the results. Reducing health inequalities is the priority axis of actions²¹. These discussions were ratified at the International Meeting on Health in All Policies, held in Adelaide (Australia) in 2010 and at the 8th Global Conference on Health Promotion held in Helsinki (Finland) in 2013, which had 'Health in all policies' as its main theme.

One of the aspects of governance improvement, advocated by WHO, refers to the need to integrate the actions under the different levels of government, which implies that the HPPs are not exclusive to the federal administration, but rather must be incorporated by local authorities, since they are closer to the target population of the

policy and, thus, are able to promote community action, enabling the HPP^{4,21}. In agreement with this perspective, the ‘healthy cities’ initiatives emerged in the late 1990s and in early 2000s, in the Brazilian cities of Fortaleza (CE), Curitiba (PR), Limeira (SP) and Bertioga (SP).

These initiatives regard a policy that seeks to involve all sectors of the municipal administration in order to transform the city into a space for social health production²². The main element that enables this transformation is the development of HPPs, consisting of integrated policies between different sectors (agriculture, education, housing, sanitation, transport and recreation), aiming to boost the population’s health. The main challenge of this intersectoral approach is the need to change the work process of the local government, which is based on a pyramidal format with a traditional view of public management. These structures reinforce the fragmented nature of public policies, which poses an obstacle to the consolidation of HPPs²³.

Regarding the actions to overcome this fragmentation in the formulation and operationalization of HPPs at the local level, the priority should be to develop a new process of planning and programming actions²⁴. This process begins with the establishment of multidisciplinary technical teams and dialogues with the community, which should take into account the accumulated knowledge on local health problems, as well as the ethical and the political values of the different subjects. This enables the building of a shared power space and the articulation of interests, knowledge and practices of the different actors and sectors involved.

The WHO²¹ mentions a set of actions, already tested in some countries, that can contribute to changing the culture of formulation and operationalization of HPPs, such as: i) creating alliances and partnerships between sectors, recognizing mutual interests and sharing objectives; ii) including responsibilities in the governmental strategies, objectives and general goals; iii) assuring shared commitment and responsibility in the decision-making process, and the monitoring of results; iv) and encouraging consultations and dialogues with the community.

Furthermore, food and nutrition were chosen, at the Adelaide Conference in 1988²¹, as one of the four domains to receive priority actions in the formulation of HPPs, considering that “The elimination of hunger and malnutrition is a fundamental objective of healthy public policies”. Therefore, in order to ensure a positive impact on

health, it must be a priority in the governmental actions.

First, the priority for food and nutrition comes from the recognition that healthy foods are primary determinants of health. Second, it is noticeable that the world faces two antagonistic phenomena that restrain a healthy diet: on the one hand, malnutrition in some countries, and on the other hand, unhealthy high-fat diets. It is also noteworthy that, in addition to the promotion of health by healthy diet and good food and nutrition security practices, they also contribute to the promotion of sustainable agricultural practices, which generates positive impacts on the health of farmers and rural communities²¹.

In line with the relationship between healthy food and good health, the next section addresses the literature on human development, which has shown that early childhood is the most critical phase for the development of skills and that health is one of the factors that promote such development. Thus, the section reinforces the relevance of PNAE in Preschool and Elementary Schools, not only to contribute to improving students’ health, but also to contribute to their cognitive development.

Healthy food in the development of cognitive and non-cognitive skills

In recent years, there has been some convergence between the fields of nutrition, psychology, economics and biomedicine in explaining the causal relationship of “good diet (or good nutrition)/health/education”. The first connection of this triad, between good nutrition and health, is well evidenced in literature, since it is known that an adequate diet plays an important role in promoting physical growth and maintaining the child’s health²⁵.

By the model proposed in Bhargava²⁶, shown in Figure 1, it is possible to observe this relationship, in which the effects of a balanced diet on a child’s health outcomes (1 to 10 years old) are analyzed considering stages of health over time. The author assays three child health indicators (height, weight and morbidity rate), which are determined by the intake of adequate nutrients and generate cross effects and feedback between them.

First, the most noticeable features of the Bhargava²⁶ model evidence that socioeconomic variables, such as family income and the time a mother spends with her children, affect the intake of a good diet (nutrients and energy). It

must be highlighted that, when nutrients are properly used, they positively affect health as follows: i) the energy from macronutrients (protein, carbohydrate, lipid) stimulate weight gain; ii) protein, calcium and iron stimulate height gains; iii) and beta-carotene and ascorbic acid contribute to improve immunity and to reduce the incidence of diseases. Second, the model is considered “triangular”, meaning that the socioeconomic variables and nutrients determine height, while height contributes to the perception of weight adequacy. In turn, weight and height determine the indicators of morbidity, and a higher morbidity rate is associated with less weight and less absorption of nutrients. Third, the children’s morbidity is affected not only by age, but also by genetic factors and by environmental conditions.

This model was performed in the analysis of children aged 1 to 10 years old in developing countries, such as the Philippines and Kenya, during four periods. The results evidenced positive effects of nutrient intake on children’s height and weight, and a negative effect on morbidity. Similar studies have also been carried out in Pakistan and Peru, evidencing that socioeconomic and nutritional variables explain a substantial number of child morbidity factors in the developing countries.

Pereira et al.²⁷, in their study on the nutritional status of Brazilian children under 5 years old, reiterate these findings, relating them not only to the variables of child morbidity, but also of mortality, lower school performance, reduction of productivity in adulthood and increased risk of developing chronic diseases.

Family income can be a serious constraint for an adequate nutrient intake, especially for low-income families, consisting of a fundamental element to be taken into consideration when using this model with developing countries. In this regard, offering a healthy and balanced diet in daycare centers and schools not only supports the school development, as it also represents a supplementary and extremely important measure to ensure the children’s good health.

Understanding the effects of good nutrition on health outcomes has gained new contours through the emergence of studies on skills development²⁸, which have demonstrated the importance of initial life conditions for the formation of the individual’s multiple skills, as well as the importance of these skills to obtain good results in adulthood, such as good health, higher education and higher wages^{27,29}. Such evidence contributes to explain the second connection of the aforementioned triad, good nutrition generating

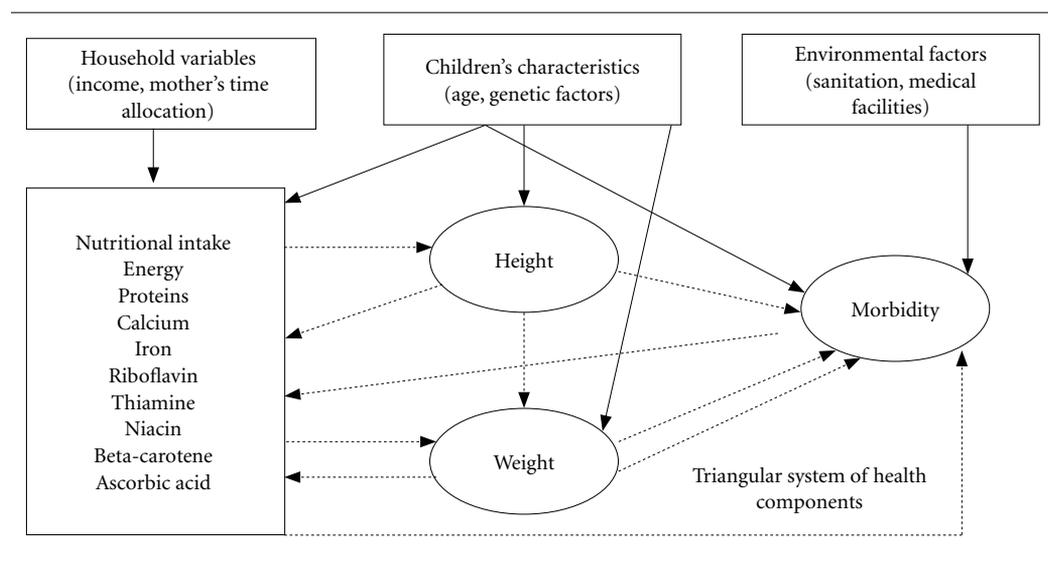


Figure 1. Graphical representation of the determinants of health indicators model proposed by Bhargava.

Source: Adapted from Bhargava²⁶.

health, which contributes to better educational performance. According to Cunha and Heckman³⁰, the skills acquired in childhood are composed of a set of three types: i) cognitive skills, represented by the individual intelligence (for example, the IQ); ii) non-cognitive skills, represented by patience, discipline and self-control; iii) and physical and mental skills, represented by physical and mental health. In this perspective, ensuring good health should be a priority in order for children to have the conditions to develop their skills.

For the authors, although these skills are constituted over time, there are critical and sensitive periods for their formation. In addition, these skills (cognitive and non-cognitive), as well as the effort to acquire them, are both reinforced over time. Therefore, the main justification for the public policy is the need for minimum investments in each phase of childhood, including investing in schools and families and in actions to ensure good health for children, such as encouraging a healthy diet, as aforementioned.

Consequently, this explains why the investments that occur in later phases and aim to remedy failures in the formation of initial skills are more costly and generate lesser effects when compared to the investments in initial phases²⁸. Therefore, investing in early childhood would be more efficient than remedying or making these investments later. The argument for investing in the childhood phase is also supported by several studies that analyze the relationship between 'health indicators in early childhood versus results in adulthood'³¹.

Barbosa *et al.*³² point out that the school plays a fundamental role in the formation of healthy habits and lifestyles, since it is a space for acquiring knowledge and values, contributing to build a healthy eating culture and impacting health throughout the individual's life. Consequently, school seems to be a favorable place for developing actions of diet and nutrition education, where the common act of eating can occur at the same time as the act of educating for eating, not just inside but also outside the school³³. Regarding the importance of healthy eating for acquiring skills, it is important to remember that, despite being a necessary condition, healthy eating alone is not enough for the formation of skills.

By addressing the effects of healthy foods on both health and acquisition of skills by young people, we have new elements to deepen the analysis of the PNAE benefits. In this perspective, the next section aims to demonstrate that the

innovation brought by the Law n^o. 11,947/2009 goes beyond what has already been demonstrated by the literature on rural development⁷, since considering the PNAE as a HPP raises its level of relevance for society. Thus, it should be strengthened by policymakers.

PNAE as a healthy public policy

The PNAE in Brazil dates back to the 1940s, when it was first conceived³⁴. For almost 50 years, this Program has maintained a charitable and centralizing character, in which the Federal Government was responsible for planning the menus and making purchases for the whole country, with no space to encompass the diversity of the Brazilian food culture and with no generation of positive impacts on regional sustainable development.

Since 1994 (although more strongly since 2003), the PNAE has undergone minor changes towards the decentralization of resources for the acquisition of food by the federated entities, with greater participation and inspection by the communities through the creation of the School Feeding Councils (CAEs) and with a Food and Nutritional Security (SAN) agenda. These changes contributed to the creation of the Law No 11,947/2009, which calls for a minimum of 30% of the resources from the National Fund for Educational Development (FNDE) to be spent on purchasing food from Family Farming (FF) businesses. This law also presses for more flexible purchasing processes than the public notice calls under the previous Brazilian bidding law (Law No 8,666/1993)³⁵.

The creation of the Law No 11,947/2009 enabled the appreciation of local, organic and small farm agricultural production, in addition to meeting an old demand from social movements linked to FF. Thus, this Law can be seen as an innovation in the field of public policy, presenting advancements in relation to the previous versions of the PNAE, due to considering school feeding a multidisciplinary issue and making the public policy intersectoral, hence establishing a dialogue with other related sectors, such as agriculture, health, environment and social assistance.

This multidisciplinary character of the policy is what will expand the possibilities of social returns, which may regard: i) the demand for local (or regional) purchase of food, which maintains resources within the region, thus enhancing local income; ii) the prioritization of healthy eating, contributing to improve health and to the

acquisition of skills by students, as well as to the development of healthy eating habits; iii) and the incentive for local production, strengthening short production circuits and reducing the need for large displacements of food between regions, thus bringing benefits to the environment.

Due to its innovative characteristics, the Law No 11,947/2009 has already been the object of several studies that sought to evaluate the results of its implementation^{7-10,36,37}. The following main results can be highlighted as positive points: the creation of jobs and income for family farmers and for local communities, due to the local availability of PNAE resources; the diversification of products that started to be produced in rural properties, contributing both to the increase of income and to the improvement of the farmers' own family diets; the encouragement of cooperation, including the creation of agricultural cooperatives (farmers' co-ops); the search for new spaces for food sale, such as farmers' markets and local supermarkets; and the expansion of organic and/or agroecological production initiatives. Finally, many studies have also observed a return to the regional food culture, since regional produce started to be incorporated in the menus.

Such positive results corroborate the premises of an innovative public policy with great socioeconomic impact and reflect the strengthening and improvement that this type of policy may induce. The fact that the PNAE has not yet been fulfilled in Brazilian municipalities, demonstrates the need for improvement in this policy. According to data from FNDE⁶, fewer than 50% of Brazilian municipalities have reached the 30% minimum of FF produce purchase in 2016 (seven years after the creation of the Law No 11,947); moreover, those who did accomplish this goal claimed to have had some difficulties implementing this policy.

The main difficulties pointed out are related to demand and supply restrictions of this institutional market. Regarding the demand, there is still a large amount of idleness in FNDE resources destined for FF, mainly due to the lack of greater engagement of the federated entities running the Program^{9,36}. Some of the situations that hinder the impact of the program are: being unaware of the available local produce when setting up menus; creating technical and bureaucratic impediments in carrying out public notice calls for FF; poor school infrastructure in receiving and preparing food; lacking of dialogue between local sectors involved with PNAE (thus centering the PNAE actions around nutritionists), and poor CAEs activity.

Regarding the supply, there are difficulties related to guaranteeing not only the quantity, but also the regularity and quality of food. Such limitations result from the lack of Rural Technical Assistance (RTA) aimed at this type of production, as well as from logistical difficulties in food delivery, along with excessive administrative demands for delivering the food, sanitary requirements, certifications) and farmers' lack of interest.

In this sense, taking into consideration the attributes of the Law No 11,947/2009, the PNAE can be understood as a HPP, which substantially contributes to the enhancement of the program, and consequently, adds new and important arguments in defense of its improvement and expansion. The adequacy of PNAE as a HPP, as presented in the second section and shown in Figure 2, can be accomplished through the presence of three necessary conditions for a public policy to be considered healthy.

The first condition refers to the fact that health must be at the center of the public policy. The Law No 11,947/2009 has students' learning and health at its core, combined with the strengthening of family farmers' businesses. Although health is not the starting point of this new PNAE, improving health is a prevalent concern throughout the program. Two aspects stand out regarding this issue: first, the concern with the provision of healthy food, which is rich in nutrients, providing students good physical and mental development. This type of food is available locally, with fresh produce and low industrial food processing, thus with a predominance of organic and/or agroecological products. The second intends to foster students' healthy habits, which affects not only their lives in the long term, but also the life of their family members. Therefore, by accomplishing these two aspects, the PNAE meets the first prerequisite of a HPP.

The second condition that characterizes a HPP is the need to incorporate the social determinants of health in the intervention strategies of the policy. In this regard, PNAE deals with the social determinants of health in several ways, such as: improving the feeding and the nutritional quality, thus contributing to the development of students' skills; improving income for local family farmers, thus increasing the quality of life of this population; and promoting the organic and/or agroecological production, thus encouraging sustainable development. The third condition emphasizes the strategic role of intersectoriality and interdisciplinarity in this public

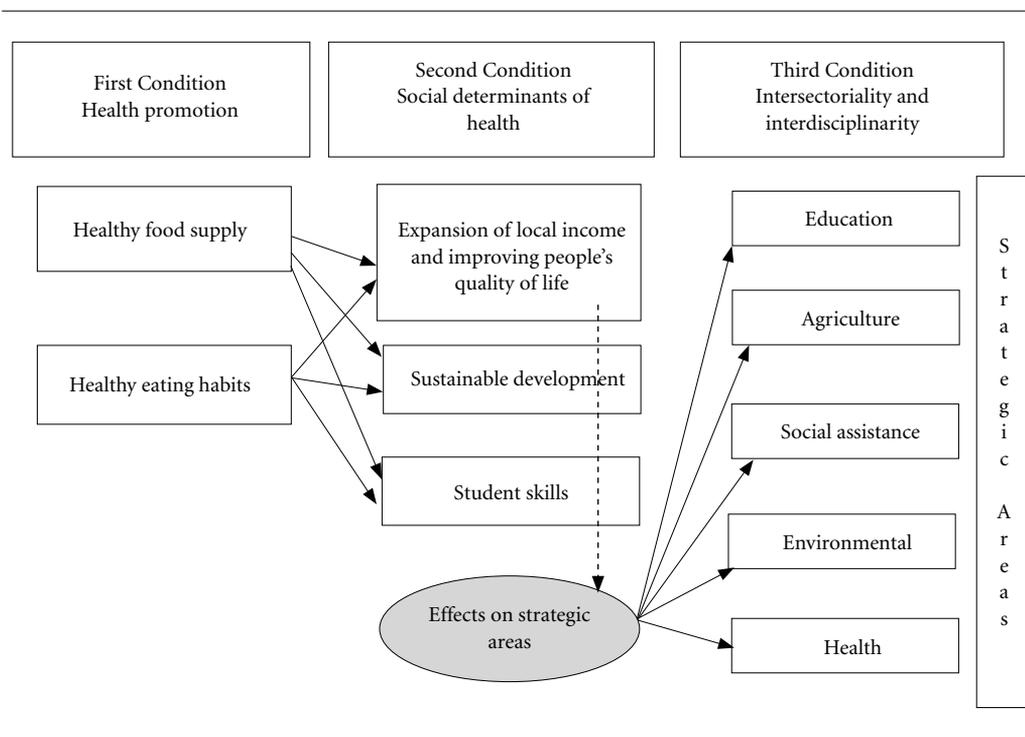


Figure 2. Innovative character and positive effects multiplier of the PNAE as HPP.

Source: The authors (2018).

policy. In agreement with this condition, the Law No 11,947/2009 crosses different fields of knowledge, such as education, agriculture, social assistance, environment and health.

Therefore, more than a new adjective or label, the comprehension of the PNAE as a HPP reinforces both its innovative character and the potential to escalate the positive effects on society, evidencing the efficiency of this public policy. The biggest opportunity that opens up with this HPP regards health promotion, which is the main action strategy of the Brazilian Unified Health System (SUS). The PNAE is understood as a health promotion action when dealing with the provision and encouragement of healthy eating habits of children, which is a primary factor for health promotion.

Another opportunity observed is bringing closer together the two key human development sectors: education and health. Considering the PNAE a HPP not only contributes to the SAN, but it also creates the need for greater joint actions between the two sectors, enabling the implementation of health education actions, as exemplified by the strengthening of the Health at

School Program, which aims to contribute to the comprehensive education of students in the basic education network through actions of promotion, prevention and health care. This program enables them to face vulnerabilities regarding health and creates a healthy life culture by means of adequate diet, sports, discouraging addictions and preventive care. Therefore, the PNAE fits the definition of a HPP. In the following section, we present some actions to improve and strengthen the Program.

Proposals for the improvement of the PNAE

Assuming that the Law No 11,947/2009 is a HPP and that it can expand the space for health in the PNAE, the next natural step consists of indicating actions in order to improve the PNAE as a HPP. A first step to strengthen the Program is to increase the minimum requirement for purchasing produce from FF using FNDE resources from 30% to 100%. This recommendation is consistent with the social gains of healthy eating, as presented in this study. Another justification for this change is that by reinforcing the use of all

FNDE resources in this modality, the debate on the importance of feeding is brought to the center of this policy, consequently creating strong incentives for society to mobilize around this issue and hence expanding the efforts of federated entities in achieving these goals.

This measure can be complemented by the expansion to both Preschool and Elementary School, of per capita resources directed to school meals, which currently represents no more than R\$ 1.07 per student/school-day (amount paid for daycare and full-time elementary schools). In view of this, one of the measures could regard the engagement of the federated entities' own resources with this type of action, aiming to guarantee the achievement of the goals established for Health and Education areas.

The feasibility of expanding the requirement of FNDE resources to 100% necessarily involves overcoming the administrative and organizational difficulties of production in order to meet this increased demand, as pointed out by the aforementioned studies. Providing technical training for the professionals involved in the policy is a proposal suggested to overcome the administrative difficulties, concerning for instance: i) nutritionists, to adapt the menus according to the local FF food supply; ii) legal and purchasing sectors of the municipalities, in order to adequate the public calls; iii) school lunch workers, regarding receiving the food and preparing the meals; iv) and teachers and health professionals, so that they can carry out joint actions, including Food and Nutrition Education. In order to implement these training actions, the Law should include an article requiring the elaboration of a PNAE technical training plan for the federated entities, involving all the actors responsible for the operationalization of the PNAE.

Moreover, in order to implement the proposed technical training, two other joint measures are also necessary. The first measure concerns strengthening the CAEs, which may also involve training courses featuring Universities, Federal Institutes and the Public Prosecutor's Office, as well as disseminating this council's importance to the community, since the CAEs are responsible for monitoring and supervising the PNAE, thus being responsible for demanding effective actions from all actors involved in the process in order to achieve the expected results. The second measure regards the creation of a policy management committee, engaging the Departments of Education, Health, Agriculture and Administration in managing the policy.

An innovative policy such as the PNAE, which requires a multidisciplinary praxis, relies on the joint articulation of actions between the four sectors as follows: education, as it deals directly with the school feeding, the target of the policy; health, given the need to articulate knowledge in order to instill a healthy culture in students; agriculture, due to the engagement with actors responsible for food production; and administration, in that it is responsible for dealing with the technical issues of public calls. The engagement of these four sectors will enable the planning of adequate food supply, the operationalization of procedures for bidding, purchasing, delivering and cooking the food, as well as the actions aimed at ensuring a culture of healthy eating and other healthy practices by students.

A final proposal regarding the PNAE refers to the concern of overcoming the bottlenecks in the food supply not only in terms of quantity, but also in diversity and quality. To this end, the creation of Rural Technical Assistance (RTA) teams is essential in order to deal with the production of school meals; these teams can incorporate existing human resources from the agriculture departments, but they can also be expanded through partnerships with Universities and Technical Schools. The lack of RTA specific for this type of production is pointed out in the case studies as one of the main bottlenecks to expand the food supply. The creation of programs that state conditionalities for the municipalities can be an instrument to leverage this type of action. Given the fundamental role of FF cooperatives, they can be encouraged and subsidized to provide the required RTA services. The resources for this type of action could come from joint sources from the sectors involved, perhaps by granting RTA Scholarships through public notice calls in order to select technicians for two-year terms, that can be extended for another two-year term.

Therefore, the set of four articulated measures are feasible from the financial and operational point of view and are supported by studies that deal with health promotion and education economics that also analyzed the PNAE. The measures we proposed consist of: expanding the minimum amount required for the purchase of food from FF, training plans for the actors involved, creating an intersectoral management committee and expanding specific RTA. Such actions may enable the strengthening of this innovative HPP, resulting in great returns for society. In times when there is a lot of discussion about the rational use of government resources,

the prioritization of public policies with greater escalating effect should be a natural step to the public sector.

Collaborations

DC Kroth contributed to the design of the study and the discussion of the topics related to health economics, specifically the review of the literature on skills development (section 3). DS Geremia contributed to the discussion of the topics related to public health, specifically the review of literature in section 2. BR Mussio contributed to the discussion of the topics related to nutrition and food and nutritional security. All authors contributed to the final review of the article.

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