

The Food Acquisition Program (PAA) as a strategy to face the challenges of COVID-19

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This article analyzed the Food Acquisition Program (PAA) as a tool to mitigate the economic and social impacts of COVID-19 in Brazil. The study conducted investment projections and analyzed the conditions to operate the program during the pandemic, adopting quantitative-qualitative analysis. As for the quantitative approach, the study worked with projections of public policy investments; the qualitative policy was carried out with unstructured interviews with key actors. The results showed that, in an optimal scenario, the rise of investment could provide a wide capillarization of the benefits of the program. The results point out that the PAA is strategic to face the negative effects of COVID-19 because it helps family farming products reach the consumers, structuring production chains, facilitating access to new markets, and inducing economic dynamics, in addition to combating hunger and extreme poverty of families living in vulnerability. Also, the research found that the program is in operational conditions and adapted to the reality of the pandemic, following protocols established by health authorities. Therefore, the PAA can minimize health and economic crises for the most vulnerable population. It addresses the demands of the organized civil society and recommendations from national and international organizations specialized in reducing the economic and social impacts of the COVID-19 pandemic.

Keywords: COVID-19; food and nutrition security; vulnerable populations; economic impact; *Programa de Aquisição de Alimentos*.

O Programa de Aquisição de Alimentos (PAA) como estratégia de enfrentamento aos desafios da COVID-19

Este artigo analisou o Programa de Aquisição de Alimentos (PAA) como ferramenta para mitigar os impactos econômicos e sociais da COVID-19 no Brasil. Para isso, foram realizadas projeções de investimentos e analisadas as condições de operacionalização do programa no momento atual. Foi adotada uma metodologia quanti-quali de análise. Na abordagem quantitativa, foram construídos cenários com projeções de investimentos na política pública; na qualitativa, realizaram-se entrevistas não estruturadas com atores-chave na execução do programa. Os resultados revelaram que o aumento de recursos investidos no programa em um cenário otimizado pode proporcionar ampla capilarização dos benefícios. Identificou-se que o PAA é estratégico para o enfrentamento aos efeitos negativos da COVID-19 porque escoar os produtos da agricultura familiar, o que promove estruturação de cadeias produtivas, acesso a novos mercados e indução ao dinamismo econômico, além de atuar no combate à fome e à miséria de famílias que vivem em situação de vulnerabilidade. O programa não só apresenta condições de operacionalização durante a pandemia da COVID-19, como tem se adaptado à realidade atual, seguindo protocolos estabelecidos pelas Autoridades de saúde. Concluiu-se que o PAA pode minimizar as crises sanitária e econômica, principalmente para a população mais vulnerável, apresentando ações que vão ao encontro das demandas da sociedade civil organizada e de recomendações de organismos nacionais e internacionais especializados, visando à redução dos impactos econômicos e sociais da pandemia causada pelo novo coronavírus.

Palavras-chave: COVID-19; segurança alimentar e nutricional; população vulnerável; impacto econômico; Programa de Aquisição de Alimentos.

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El Programa de Adquisición de Alimentos (PAA) como estrategia para enfrentar los desafíos de la COVID-19

Este artículo analizó el Programa de Adquisición de Alimentos (PAA) como una herramienta para mitigar los impactos económicos y sociales de COVID-19 en Brasil. Con este fin, se hicieron proyecciones de inversión y se analizaron las condiciones para operar el programa en la actualidad. Se adoptó una metodología de análisis cuantitativo. En el enfoque cuantitativo, los escenarios se construyeron con proyecciones de inversión en políticas públicas; cualitativamente, se realizaron entrevistas no estructuradas con actores clave en la ejecución del programa. Los resultados revelaron que el aumento de los recursos invertidos en el programa en un escenario optimizado puede proporcionar una amplia capilarización de los beneficios. Se identificó que el PAA es estratégico para enfrentar los efectos negativos de COVID-19 porque drena los productos de la agricultura familiar, lo que promueve la estructuración de las cadenas de producción, el acceso a nuevos mercados e induce dinamismo económico, además de actuar en la lucha contra hambre y miseria de las familias que viven en situaciones vulnerables. El programa no solo presenta condiciones operativas durante la pandemia de COVID-19, sino que también se ha adaptado a la realidad actual, siguiendo los protocolos establecidos por las Autoridades sanitarias. Se concluyó que el PAA puede minimizar las crisis sanitarias y económicas, especialmente para la población más vulnerable, presentando acciones que satisfagan las demandas de la sociedad civil organizada y recomendaciones de organizaciones nacionales e internacionales especializadas, con el objetivo de reducir los impactos económicos y sociales de la pandemia causada por el nuevo coronavirus.

Palabras clave: COVID-19; seguridad alimentaria y nutricional; población más vulnerable; *Programa de Aquisição de Alimentos*.

1. INTRODUCTION

Faced with the pandemic caused by the new coronavirus, various countries and organizations around the world have announced measures aimed at mitigating the negative impacts on the economy and reducing damage to groups that live in the most vulnerable social conditions.

The consequences of the economic and social paralysis caused by isolation are the closing of restaurants, the suspension of classes in public and private schools, the weakening of the activities of workers in the informal economy, an increase in the numbers of those being made redundant and a reduction in the food available for distribution to people, who thus risk going hungry. These facts may increase social vulnerability and have a direct effect on food and nutrition insecurity.

In the case of family farming, the effects of the health crisis and the necessary preventive measures being taken generate greater selling difficulties, since a significant part of the produce of family farming is distributed to popular restaurants, public schools and street fairs. In addition to the reduction in the functioning of these establishments, there is also a concern with logistics issues, since part of the public and private transportation connecting rural environments to towns and cities has been interrupted.

The consequences of the reduction in sales channels and difficulties with logistics are highly damaging to society as a whole. First, there is the impact that reduces the income of family farmers and access to adequate food for those living in a situation of social vulnerability (Valadares et al., 2020). Second, this circumstance may lead to an increase in the consumption of highly-processed foods that have little nutritional value (Oliveira, Abranches, & Lana, 2020). Third, if there is no way of distributing production, there is a risk of food going to waste on rural properties, while an increasing number of people are going hungry in towns and cities. Finally, in the medium term, there is the

threat of a reduction in supply, which will increase the risk of food shortages after the pandemic and lead to a consequent increase in the price of food products (Valadares et al., 2020).

This worrying scenario is aggravated by the weakening of social protection policies at the federal level, especially those aimed at sustainable rural development. This has been happening for some years now because of the fiscal crisis and the austerity policy adopted by the Brazilian government. It is in this context that the Food Acquisition Program (*PAA*) was set up. Established by Law 10,696 of July 2, 2003, and amended by Law 12,512 of October 14, 2011, this is a public policy whose central focus is encouraging family farming and combatting food and nutrition insecurity. For this reason, it is an instrument that can be potentially used by the public administration for dealing with the possible economic and social damage caused by COVID-19.

Within the context of the Brazilian Food and Nutrition Security Policy, among the *PAA*'s main objectives are promoting the inclusion of the production coming from the poorest farmers and guaranteeing that people have access to healthy food. The *PAA*'s direct beneficiaries are family farmers (supplier beneficiaries) and people living in a food risk situation (consumer beneficiaries); it operates in different modalities and uses different forms of implementation.

There are currently six modalities in the program: purchase and simultaneous donation (*CDS*), direct purchase (*CDAF*), support for stockpiling, incentives for producing and consuming milk, institutional purchases and the purchase of seeds. The main modality is the *CDS*, in which the program buys the food produced by family farmers and donates it to entities operating in the social assistance network, public food and nutrition security facilities - such as popular restaurants and food banks - for the public and/or philanthropic teaching networks, hospitals and others, which, in turn, distribute it to the people who need this produce.

In addition to its different modalities, the program also features different operators and sources of funds. Among the operators are the Brazilian Supply Company (*Conab*), the states, the Federal District and municipalities. Funds come mainly from the Ministry of Citizenship, but they can also come from the Ministry of Agriculture, Livestock and Supply (*Mapa*), as in the case of the stockpiling modality, or from the public body interested in buying for direct or indirect administration, in the case of the institutional purchasing modality.

Because the *PAA* is a horizontal, intersectoral policy, it is an instrument with a large number of ramifications that, it is believed, are capable of combatting the health crisis caused by COVID-19. It is a timely measure that will be quickly effective, because the program is already in place and consolidated, and has already established regulatory frameworks and an active implementation structure. Its economic and social benefits have also been proved in case studies carried out in every region in Brazil.

The purpose of this article is to analyze the *PAA* as a tool for mitigating the economic and social impacts of COVID-19 in Brazil. To this end, we forecast the investments needed and analyzed the conditions under which the program currently operates. Following this introduction, the article presents a brief review of the literature on *PAA*, its benefits and how it fits within the context of the pandemic. Subsequent sections set out the methodological aspects used, the results and discussions and, finally, the conclusion of the study.

2. LITERATURE REVIEW

2.1. The impacts of COVID-19 on food production and the strategy employed for facing up to it

In a joint declaration, the UN Food and Agriculture Organization (FAO), the World Health Organization (WHO) and the World Trade Organization (WTO) advised that countries should base their actions on reducing negative impacts on food supply, containing the weakening of their trade and promoting food security in the face of the pandemic caused by the new coronavirus (FAO, 2020).

According to the FAO (2019), even without the pandemic, the world is already having to deal with approximately 820 million people suffering from chronic hunger and 113 million from acute hunger. This public is in a vulnerable situation and may lose access to food because of COVID-19, so it should be the focus of the construction of emergency measures.

Efforts to combat the negative effects of the new coronavirus pandemic in many countries have focused on avoiding (or reducing) those interruptions that have an influence on the workforce and an impact on food production and the generation of jobs and income. Public policies for responding to COVID-19 must be implemented in order to guarantee domestic production and the income of farmers. These measures will act as buffers in the post-pandemic period, and be responsible for maintaining “adequate levels of domestic production and income for farmers that will be used to support the economy and guarantee food security” (FAO, 2020a, p. 2).

In Brazil, part of society already lives under conditions of food and nutrition insecurity, and the new dynamics caused by the pandemic will tend to aggravate the problem. Based on recent experiences, to avoid the severity of food crises during and after the health crisis, preventive actions are needed to combat food and health insecurity, such as expanding social protection programs, meeting the immediate food needs of people living in vulnerable situations and reducing trade-related costs (FAO, 2020b).

In a recent information bulletin the Brazilian Confederation of Agriculture and Livestock (CNA) pointed out that the partial shut-down in trade, the consequent reduction in demand and high price volatility have negatively affected several agriculture and livestock farming sectors. It also indicated increasing government purchases of food as one of the measures necessary for minimizing this damage (CNA, 2020).

Civil society organizations, and trade union and social movements have also spoken out. They set out their demands and formulated documents that were endorsed by 140 civil entities. The documents point to the emergency measures that should be implemented during and after the pandemic - among them, an expansion in the demand for family farming produce from institutional markets, actions to promote income generation and the financial and production security of family farming, and regulation of both the food system and agricultural prices (Valadares et al., 2020).

A survey carried out by the Sustainable Connections Institute, the National Union of Family Agriculture and Solidarity Economy Cooperatives (*Unicafes*) and the National Council of Hunting & Gathering Populations (*CNS*) identified that 80% of the community business participants, such as cooperatives and associations, that took part in the study will not be sufficiently financially healthy to continue their activities after June 2020 (Pontes, 2020).

The reduction in consumption demand in restaurants, the closure of shops and schools, the temporary interruption of deliveries, fragmentation of the logistics structure, and communication difficulties between towns and cities and more distant rural areas are already perceived at the local level as the consequences of COVID-19 (Sustainable Connections Institute [*Conexsus*], 2020).

Other significant disruptions that occurred in the sale of family farming produce were the temporary interruption of open-air street markets and the halt in purchases by the National School Meals Program (*PNAE*) in many states and municipalities in Brazil. The former is the main sales outlet for family farming, which in the medium term may compromise not only production chains, but also food and nutrition security (*SAN*) and the local economy. The latter provides that 30% of the value passed on should be spent on purchasing the produce/products of family farming, based on Law 11,947 of 2009. All these aspects are reflected in the decrease in income of small producers and weaken the production chain and the local economy, causing a loss of production or insecurity with regard to planting plans and the acquisition of the inputs required for winter crops. They also increase the number of people living in situations of social vulnerability and food insecurity (ANA, 2020; Conexsus, 2020).

In order to minimize the damage, very important initiatives have been introduced in the private sector. Together with the technical assistance and agricultural extension company of the State of Rio de Janeiro, the Banco do Brasil Foundation (*FBB*) signed a term of commitment with family farming cooperatives and associations that declares that the *FBB* will purchase family farming produce from four municipalities in Rio de Janeiro. “Food will be distributed to workers in the informal economy who are currently unable to earn an income and who have been identified living in rural and urban areas in the mountainous region of Rio de Janeiro state” (*FBB*, 2020).

Strategies and adjustments have been used in direct selling for delivering family farming produce/products, with consumers constantly placing orders for it/them by phone, apps or via social networks. As a result, farmers have been putting together food parcels and delivering them directly to consumers’ homes (Brasil, 2020). However, the negative numbers that were observed in recent surveys indicate that these marketing and distribution alternatives have not been sufficient for dealing with all of the produce grown by family farmers and for avoiding food losses (*CNA*, 2020; Pontes, 2020).

2.2. Effects of the PAA on the local economy, on the structuring of food chains and on promoting food and nutrition security

PAA is one of the most extensively studied public support programs dealing with the sale of food and the promotion of food security. A systematic review of the literature by Almeida, Perin, Policarpo, and Sambuichi (2020) identified empirical analyses that addressed the economic, social and environmental dimensions of the *PAA*. In the economic sphere, the authors found research which points out that the *PAA* acts as a tool for promoting the structuring of production chains and access to new markets and for inducing economic dynamism (Box 1).

BOX 1 EMPIRICAL EVIDENCE OF THE PAA IN THE ECONOMIC DIMENSION

Dimension	Element analyzed	No. of studies
Economic	Boosting the local economy	21
	Improvements in the quality of the produce/products	23
	Access to new markets	15

Source: Adapted from Almeida et al. (2020).

The positive effects of the program include an increase in the amount/quantity of produce/products sold by farmers, which has had a positive impact on average revenue, net profit, total investments and on the time of return on capital of production units (Santos, Soares, & Benavides, 2015). The PAA's guarantee that produce will be sold and that the income of family farmers will consequently increase ends up having an influence on the expansion of the consumption of these families, leading to a virtuous cycle of development in the local economy (Agapto, Borsatto, Esquerdo, & Bergamasco, 2012).

In addition to boosting the local economy and acting as an inducer of consumption, another of the program's important characteristics is that it encourages a more fragmented food production in Brazil and draws producers closer to the end consumers. By encouraging and boosting short cuts, which are highly relevant at the local and regional level, the PAA induces changes in the internal dynamics of the family production unit, which has repercussions on the dynamics of consumption, on diversification and on the sustainability of economic activities (Rambo & Denz, 2015).

When analyzing the PAA from the perspective of the economy and selling, we observe that when sales channels are momentarily lost, the role the program assumes is that of distributing production at the local level, while maintaining the price balance (Agostini & Bourscheidt, 2018).

In the social sphere, the work of Almeida et al. (2020) identified studies that showed that the PAA leads to an increase in and diversification of salaries and/or income, since it is a sales channel that makes it possible to guarantee the sale and improve the quality of the food of supplier beneficiaries, who eat the food they produce, and of consumer beneficiaries, who start having access to a nutritionally varied diet. It also encourages the consumption of quality food, which improves the health of the target audience (Box 2).

BOX 2 **EMPIRICAL EVIDENCE OF THE PAA IN THE SOCIAL DIMENSION**

Dimension	Element analyzed	No. of studies
Social	Increase in and diversification of salaries and/or income	70
	Sale/guaranteed sale	56
	Quality food and the farmers eating it themselves	22
	Improvements in the food quality of consumer beneficiaries	36
	Increased access	15
	Encouragement to eat quality food	7
	Improvements in health	11

Source: Adapted from Almeida et al. (2020).

When Sambuichi, Almeida, Perin, and Moura (2019a) analyzed the profile of the municipalities that accessed the PAA between 2011 and 2016 they identified that those with the lowest Gross Domestic Product (GDP) *per capita*, with the lowest municipal human development index (MHDI), with the biggest number of family farmers and with the largest percentage of extremely poor inhabitants are

more likely to access the program. Among the regions, greater access was more likely in the Northeast and North, where the highest rates of rural poverty are concentrated. These results are in line with the policy's aims of promoting the social inclusion of the poorest farmers and serving those most vulnerable to food and nutrition insecurity.

From the point of view of consumer beneficiaries, there is an increase in the diversification of the food on the menu and an improvement in the quality of meals in municipal and state schools (Barth-Teixeira, Santos, Gregolin, & Christoffoli, 2017). The expansion of access to a wider variety of food has also had a positive influence on school performance, on attendance and on reducing the number of students who are classified as “bad” or “regular” (Martins, 2013 as cited in Ortega, Jesus, & S6, 2016). It has also resulted in new and better eating habits (Salgado, Dias, Silva, Santos, & Cunha, 2015).

With regard to supplier beneficiaries, what is noticeable is what they themselves eat, because expansion in the diversity of produce that is grown for sale has led to improvements in the food the farmers themselves eat; producing families include part of their production into their own food consumption and start enjoying a better structured diet (Chmiekewska, Souza, & Lourete, 2010).

Various studies have shown that the *PAA* is able to promote access to food and improve the quality and eating habits of the most vulnerable, thus qualifying it as being essential for mitigating the effects of the pandemic on those in Brazil who are at risk both socially and in terms of what they eat. Promoting increased access to fresh and minimally-processed food is becoming more important because when it is consumed, especially by children, the elderly and people suffering from immunosuppression, it strengthens the immune system and ensures greater resistance to disease. These nutritional benefits are in addition to the economic impact on those regions where the *PAA* is active.

3. METHODOLOGICAL ASPECTS

We used a quantitative/qualitative analysis approach in preparing this article. In the quantitative study, we analyzed the purchases and donations made by the *PAA* in previous years, and estimated the total amount invested, the amount of food purchased, and the number of supplier beneficiaries, municipalities covered and individual acts of help offered to consumer beneficiaries. We used these figures as the basis for forecasting the results that would be obtained in three different investment scenarios in the program as we tried to estimate the possible benefits generated in each case. To do so we used R software to analyze microdata from the administrative records of *PAA* purchases and donations from 2011 to 2018; these were made available by the Ministry of Citizenship and by *Conab* for this research.

The most conservative scenario (Scenario 1) predicted a total investment, without any provision, of R\$ 186 million as provided for in the budget; this already includes the parliamentary amendments that are to be applied in the program in 2020. The intermediate scenario (Scenario 2) provided for a total allocation to the *PAA* of R\$ 500 million, which was planned by way of Presidential Decree 957 of April 24, 2020, which granted an extraordinary credit to the Ministry of Citizenship for confronting the public health emergency caused by the pandemic. The best-case scenario (Scenario 3) predicted the results if R\$ 1 billion were to be allocated, an amount that is being demanded by social movements for the program in 2020 (ANA, 2020).

In Scenarios 1 and 2, the figures presented follow the trends observed between 2011 and 2018 for each total amount allocated. These were estimated by means of linear regression using the ordinary least squares method ([MQO], Greene, 2007). The parameters of the equations used to estimate the values are shown in Table 1.

In Scenario 3, the projections of the number of farmers were optimized in order to reach a greater number of supplier beneficiaries. The amount per farmer was fixed at an average value of R\$ 600.00 a month in order to serve a larger number of farmers, which would give a total of R\$ 4,800.00 per farmer, considering there to be 8 months in the year as from May. The remaining amounts were estimated using the same method adopted in the other two scenarios.

TABLE 1 REGRESSION PARAMETERS USED TO ESTIMATE THE AMOUNT OF FOOD AND NUMBER OF FARMERS, MUNICIPALITIES AND THE HELP PROVIDED IN SCENARIOS 1 AND 2; TOTAL AMOUNT OF FOOD, THE NUMBER OF MUNICIPALITIES AND THE HELP PROVIDED IN SCENARIO 3

Variables	Amount	Farmers	Municipalities	Help
Intercept	-20.98652	17.89329*	1785.686***	6.441143***
	(22.16934)	(5.16181)	(85.709)	(1.066342)
Amount	0.44142**	0.1329***	1.581***	0.00563**
	(0.03104)	(0.007228)	(0.120)	(0.001493)

Note: *** p < 0.01; ** p < 0.05; * p < 0.1. Standard deviation in brackets.

Source: Elaborated by the authors.

Qualitatively, we conducted unstructured interviews with representatives from the Ministry of Citizenship, *Conab* and the National Articulation of Agroecology (*ANA*), in order to collect information about the current implementation situation of the *PAA*, the feasibility of the projected values being applied in the different scenarios and the adaptations that have been made in the program due to the needs generated by the pandemic. These actors were chosen in order to include those representatives of the government and civil society who are working on this theme. Choice was based on the following criteria: the Ministry of Citizenship is the main manager and source of funds for the *PAA*; *Conab* is one of the main program executors; and *ANA* is one of the important linking and convergence agencies, and brings together representatives from movements, networks and civil society organizations who are engaged in strengthening family farming.

4. RESULTS AND DISCUSSIONS

4.1. The PAA operation scenarios

Table 2 shows the monetary values allocated, the amount of food purchased and the beneficiaries covered by the program in the 2011 to 2018 period. Taken together, these data show all the modalities that are operated with resources from the Federal Government, from the Ministry of Citizenship and *Mapa*, and also include donations from the *CDS* modality. The figures, however, do not include purchases made under the institutional purchase modality, which is operated using funds that come from the direct or indirect administration entity that purchases the food; we have no available data on the funds that were applied in the period.

TABLE 2 AMOUNTS, QUANTITIES ACQUIRED AND BENEFICIARIES OF THE PAA¹ IN THE 2011 – 2018 PERIOD

Period	Amount applied ¹ (R\$ million)	Amount of produce (000s tons)	No. of farmers (000s)	No. of municipalities helped ²	No. of bodies helped (000s)	No. of individual acts of help for consumer beneficiaries (million)
2011	1006.8	465.4	156.6	3429	25.0	12.7
2012	1157.1	468.9	175.8	3630	23.4	12.8
2013	588.6	253.9	93.4	2635	17.7	8.5
2014	752.6	309.9	112.0	3065	14.2	9.4
2015	668.6	239.3	96.7	2665	11.2	11.0
2016	426.6	150.8	77.3	2428	11.3	10.7
2017	362.6	143.6	68.2	2456	10.3	9.1
2018	232.7	93.8	53.6	2192	11.1	6.5
Total ³	5195.6	2125.5	454.8	4610	65.1	80.8

¹ Amounts corrected to December 2018 by the IPCA-E.

² Includes the municipalities of farmers who supplied produce to the PAA in at least one modality in the period and of the body that received *CDS* donations.

³ The total number of beneficiaries is shown for the whole period and not repeated.

Source: Elaborated by the authors, based on microdata provided by the Ministry of Citizenship.

Table 2 shows that the purchase amounts were higher in 2011 and 2012, fell sharply in 2013, recovered partially in 2014 and 2015, and fell sharply again in recent years due to budget cuts caused by the economic crisis and the reduction in federal government spending.

The reduction in the amounts allocated was accompanied by spending being spread out more among the municipalities, since the drop in the number of municipalities benefiting was not in the same proportion as the drop in the resources allocated to the program (Table 2). As a result, municipalities

started receiving lower average amounts, which may have affected the program's potential for making the local economy more dynamic. Despite this, the fact that the PAA has continued to operate in a significant number of municipalities shows that it still has extensive reach. If the amounts allocated start to increase once more, therefore, the program may be able to act quickly and recover the reach it had in previous years.

The projections of the reach of the benefits generated by the PAA in the different fund allocation scenarios investigated in this research are presented in Table 3.

TABLE 3 PROJECTED REACH OF THE BENEFITS OF THE PAA IN DIFFERENT FUND ALLOCATION SCENARIOS

Scenarios	Amount (R\$ million)	Quantities acquired (000s tons)	No. of farmers benefiting (000s)	No. of municipalities benefiting	No. of individual acts of help for consumers (million)	Average annual amount per farmer (R\$)
Scenario 1	186	61	42	2080	7.5	4365.89
Scenario 2	500	199	84	2576	9.3	5928.64
Scenario 3	1000	420	208	3366	12.0	4800.00

Source: Elaborated by the authors based on microdata provided by the Ministry of Citizenship.

Considering Scenario 1, with a budget of R\$ 186 million, it is estimated that 61,000 tons of food would be purchased, attending approximately 42,000 family farmers in 2080 municipalities, with consumer beneficiaries receiving a total of 7.5 million individual acts of help. This figure is not the number of consumer beneficiaries helped, but the number of individual acts of help the entities provided; the way this help is provided varies according to the type of entity receiving the donations.

With the R\$ 500 million being provided for in Presidential Decree 957, it is estimated that in Scenario 2 it is possible to purchase approximately 199,000 tons of food, which will help approximately 84,000 family farmers in 2576 municipalities, with consumers receiving 9.3 million individual acts of help. In Scenario 3, considering an investment of R\$ 1 billion, which is an amount close to that allocated in the years when the program was most active in 2011 and 2012, the total estimate would be to purchase 420,000 tons of food benefiting 3366 municipalities, with consumer beneficiaries receiving 12 million individual acts of help. If the resource is optimized and the amount per farmer limited to R\$ 4800.00 in the last 8 months of 2020, this would allow a greater number of supplier beneficiaries to be reached and directly benefit 208,000 family farmers.

These results show that without allocating additional funds to the program (Scenario 1), the PAA would help even fewer beneficiaries in 2020 than it had in 2018 (shown in Table 2). Based on all the potential benefits of the program, therefore, this is not a scenario to be recommended, especially in view of the needs generated by the current economic crisis caused by the pandemic, which underlines the need for the extraordinary credit that was provided for in Presidential Decree 957.

As Scenario 3 projections show us, however, if more resources are made available to the program, at the R\$ 1 billion or more level, it will be able to help a considerable number of direct beneficiaries, as well as providing the indirect benefit of stimulating local economies and healthy food production chains, in order to guarantee supply and promote food and nutrition security for Brazilians.

4.2. The operationalization and possible impacts of the PAA in the context of COVID-19

Researchers, social movements and representatives of family farming have argued that, given the positive results produced by the PAA throughout its existence, the program can play a relevant and strategic role in facing up to the challenges of the pandemic caused by the new coronavirus, both in producing food and developing the local economy (ANA, 2020).

As we have seen in this article, Brazil has to deal with a large number of people who are living with hunger and in poverty. According to the FAO (2020b), this number may increase as a result of the pandemic, and its recommendation, therefore, is to introduce measures that avoid interruptions in the food supply chain. The biggest challenge in Brazil is to maintain supply, because in addition to the difficulties with logistics and marketing caused by the health restrictions imposed by COVID-19, there is also a series of pre-existing situational problems, such as the economic crisis and the deconstruction process of the “structures for protecting and encouraging family farming production” that have occurred in recent years (Valadares et al., 2020).

That is why the PAA is so economically and socially important: on the one hand, it distributes the produce of family farming, and on the other it combats hunger and poverty for families living in vulnerable situations. It also acts as a communication bridge between rural and urban environments, since it builds a network based on reciprocity around the whole policy. The PAA, therefore, has the strategic elements of a central and urgent response to the risk of food shortages and the guarantee of income and food security in the countryside and in towns and cities (Valadares et al., 2020).

Actors involved in implementing the PAA point out that it is important to resume the program's purchases, particularly direct purchases, purchase and simultaneous donation, and stock piling (ANA, 2020), and to continue with the PAA-Milk modality (Valadares et al., 2020). The aim is to stimulate selling short cuts, which can quickly distribute the production, in order to boost the economy, donate food to social assistance bodies and, in the case of stock-piling, advance funds to family farming organizations.

The PAA, however, cannot be analyzed in isolation. In order to achieve results and have a positive impact on the economy and the structuring of food chains, it needs to be treated in an intersectoral way that is related to other public policies, such as Food and Nutrition Security (SAN), Technical Assistance and Rural Extension (*Ater*) and help with credit.

From the food and nutrition security point of view, the advice of the National Health Council (CNS) “is for those involved in food and nutrition security (popular restaurants, community kitchens and food banks) to expand the distribution of food and emergency food parcels and to prioritize social assistance organizations that serve risk groups, long-term organizations and those that are able to support different local solidarity networks” (CNS, 2020).

An important recommendation is that these measures obey the guidelines for healthy eating. According to the CNS (2020), a diet based on the consumption of fresh and minimally-processed food

is a way of avoiding infections and disease, ensuring the health of the population and protecting the Brazilian Public Health System (*SUS*) from being overloaded by the pandemic. For this reason, the Council requested the immediate return of the *PAA*, in addition to recommending the reconstitution of the Inter-Ministerial Chamber of Food and Nutrition Security (*Caisan*) and reactivating and strengthening the Food Security Councils (*Consea*).

The *CNS*'s recommendation that the *PAA* should be reactivated is also based on the program's potential for promoting a diverse diet and encouraging healthy eating habits. According to a study by Sambuichi et al. (2019b), for example, *PAA-CDS* acquired 536 different items in the 2011 to 2018 period, the annual average number being 345. The produce included several categories of fresh food, such as fruit, vegetables, legumes, root-vegetables, eggs, meat, cereals and honey, as well as a variety of products that are made by the family farming industry, such as cheese, fruit pulp, desserts, flour, bread, cakes and preserves, while also observing socio-biodiversity produce, such as *açaí*, Brazil nuts and babassu oil, and others.

Ater is currently trying to adapt its services to fit the new reality, and is promoting online courses and classes, distributing guidelines and booklets by way of social networks and building communication channels via cell phone apps. The information, however, is restricted to a specific audience - those who have access to the Internet and/or live close to an urban environment - making it difficult for family farmers living in more remote regions in the interior of Brazil (National Technical Assistance and Rural Extension Agency [Anater], 2020).

Investments in *Ater* in Brazil need to start again; since 2015 the budget for policies aimed at sustainable rural development has been significantly reduced. Spending on initiatives aimed at developing family farming, such as the *PAA* itself and *Ater*'s actions for small producers, reduced by anything between 33.7% and 99.9% between 2014 and 2018 (Fian Brasil, 2019).

As for financial protection for family farming and for its production, extending the period for paying off loans granted to farmers – like the National Program for Strengthening Family Farming (*Pronaf*) – the creation of new emergency credit lines, making funds available for dealing with climate problems and providing settled families with loans are just some of the measures that may be adopted (Valadares et al., 2020).

Taking into account the recommendation of this research for implementing the *PAA* in an optimized scenario, some of the situational elements must be observed, such as creating demand, the viability of production, making bureaucratic processes and procedures more flexible and adapting to the new reality for receiving and distributing produce/products.

The data collected for this research showed that, currently, demand is mainly being satisfied by the way in which the social assistance network, hospitals and public food and nutrition security agencies function. Popular restaurants, food banks, community kitchens and family farming distribution units are essential services, and the way they function, when adjusted to comply with the standards of health required for combatting the pandemic and guaranteeing the vulnerable population access to food, is fundamental for maintaining demand for family farming produce/products and avoiding the deterioration of perishable items and any increase in food waste in rural family units.

On the other hand, we also need to analyze whether family farming would have sufficient production capacity to supply public food and nutrition security agencies should there be an increase

in the funds made available for buying food by way of public policies, such as the PAA, as a result of COVID-19. According to the information we collected in this research, there is a large demand from family farming organizations for the program, because the situation in the countryside has been getting worse in recent years and the pandemic has intensified certain problems, such as access to markets. In the last three years *Conab* has carried out a correlation analysis to validate the criteria for distributing resources by state and it has identified a strong correlation between the distribution of resources and the demand that comes from the projects of family farming organizations, showing that there is repressed demand on the part of farmers for access to the program, in other words, they have the produce/products to offer if there is anyone to sell it to.

With regard to production feasibility, an important aspect is *Ater's* supply. For the PAA to function well, particularly during a health crisis, it is believed that with specialized technical assistance that is appropriate to their reality, farmers can be provided with advice on how to plan and organize their production (thus guaranteeing efficiency and avoiding loss), on storage and transportation, and on selling, aimed at preventing contagion by COVID-19. This can also be a channel for helping reorganize production according to local dynamics, directing any surplus to consumption by way of techniques for using and preparing food, while maintaining the quality of the family diet (Valadares et al., 2020).

From the point of view of reducing bureaucracy, the ideal approach would be to simplify food purchasing processes, by dispensing with documents that are not strictly necessary because of the emergency nature of the current situation. *ANA* (2020) is suggesting that health aspects might possibly be made more flexible, provided they do not put public health at risk, and that food can be analyzed in a laboratory by sampling, instead of analyzing all batches of food. This would speed up the purchase and distribution process, as civil society organizations are also pointing out.

According to the data in this study, it is clear that an effort is being made to simplify processes so that operational and financial aspects flow without any paralyzation that might compromise the progress of the policy at the local level. Documents that previously required meetings are now dispensed with in order to speed up the bureaucratic process. The idea behind this is to guarantee family farming deliveries and the control of documents without this leading to losses and the risk of consumer beneficiaries being contaminated by the food.

As for the adaptations necessary for receiving and distributing the food, the inference from the data collected is that there is mobilization to enable implementation of the PAA. Guidance has been provided by official communique since the beginning of the pandemic about planning the delivery of food parcels in order to avoid crowds (maintaining social distancing).

According to those interviewed, many states in Brazil, such as Rio Grande do Norte, Bahia, Piauí, Paraná and Minas Gerais, have implemented a series of adaptations from the health point of view that have defined food deliveries on predetermined days, with different days and times being scheduled for family farmers. Distribution has now been decentralized, which avoids a concentration of people in a single location. There are also cases in which deliveries are made directly to the entities that are being helped. To receive and distribute the food, the agents involved are using personal protective equipment, such as disposable gloves, caps, masks, and alcohol gel, in addition to maintaining a safe distance between people, as required by health agencies.

The data collected indicate that these efforts have not been specifically concentrated on the *PAA*. Protocols based on WHO and Ministry of Health guidelines are also being adopted by the *PNAE* - in those places in which it is operating - and by the open-air markets, when they are allowed to function.

The adaptations required by the *PAA* and by the other food procurement policies, and the open-air markets have shown that it is possible to operate public programs in the midst of the pandemic when precautions are adopted. Although protocols and safety measures are not a reality in all municipalities and regions in Brazil, they can be replicated. To do so, however, central and local governments need to coordinate their mobilization and logistical planning so that the standards and conduct to be adopted, such as health safety measures, have a minimum degree of standardization, with the aim of ensuring the proper functioning of public programs for supporting the marketing of family farming.

5. CONCLUSION

Throughout its history, the *PAA* has proved to be a tool capable of promoting the structuring of production chains and access to new markets and of inducing economic dynamism, in addition to its various benefits in the social area, such as increased access to a healthy diet and improvements in health. The program has an important role to play in promoting the health of those who are most vulnerable in the population, by promoting access to healthy food and improving the quality of the diet of people living in a food risk situation.

In the way it is structured, the program is in line with the recommendations of the FAO and the demands of civil society and of social movements for combatting the damage caused by COVID-19. It helps keep the food chain alive, as a precaution against the impacts on food supply that are currently occurring and the impacts on demand that may occur after the pandemic. Strengthening the *PAA* as a tool for combatting the crisis is also a timely measure, considering that the program has already been set up and is consolidated, and has an active implementation structure.

Quantitative analysis showed that there has been a marked tendency to reduce the volume of resources allocated to the *PAA* in recent years, while the projections indicated that the amount budgeted for 2020 would further reduce the number of beneficiaries and the reach of the program. On the other hand, an increase in funds, especially in an optimized scenario, has shown that it is possible that the benefits generated can achieve a broad reach, which may provide better living conditions for the beneficiaries and mitigate the social impacts that derive from health and economic crises.

In order for the program to resume in an optimized scenario, ways of creating demand need to be thought of, as do ways of making the bureaucracy more flexible and adapting to the new reality for receiving and distributing products. The qualitative survey showed that the *PAA*, by way of its executors and the agents involved, has proved to be effective in constructing local procedures, protocols and arrangements, thus enabling the policy to become operational.

Coordination and transparency in its implementation were also important. Social control was an essential tool in this regard, with civil society participating locally to ensure the adequacy of the actions and that they were being supervised. The reopening of these mechanisms, therefore, will link government and society and establish a dialogue between food suppliers and consumers, thus improving the adequacy of the processes given the crisis being faced and the regional demands.

In view of both the Brazilian and international forecasts that the health crisis is going to get worse and that there will be a subsequent economic shock, and because of the potential the *PAA* has for combatting the effects of the crisis, especially with regard to those who are most vulnerable, this work recommends that the *PAA*'s actions be expanded and more resources allocated to the program. It also recommends that the Federal Government and local agencies join forces and build joint information documents containing the general protocols and procedures to be adopted during the pandemic with regard to the health requirements necessary for receiving and distributing produce/products. In addition to the resources made available during the pandemic, it is also suggested that additional funds be made available in subsequent years that are equal to or greater in volume in order to minimize any post-pandemic impact. This will ensure that the positive effects of the *PAA* in supporting the economy and promoting food and nutrition security for the population continue.

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