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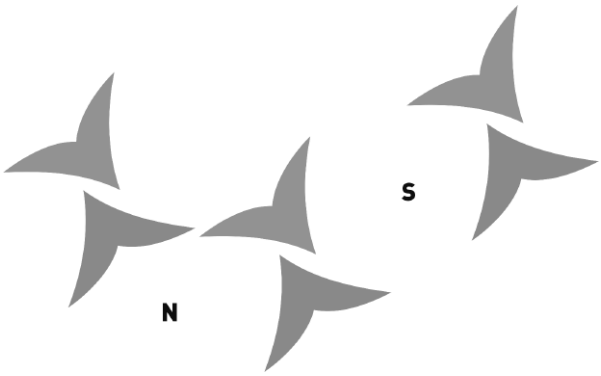

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Implications of public purchases from family farming: reflections on the Chilean case

Highlights:

1. Public purchasing programs of family farming products (PPFF) aim to provide a new market to FF.
2. Today there are PPFF initiatives worldwide, especially in Latin America, and in Chile since 2017.
3. This research reviews the Chilean PPFF considering its effects on the farmers involved.
4. The impact of Chilean PPFF is still minor because low coverage and asymmetric negotiation power.
5. Critical factors are increasing the stability of the sales and the will of the parties.

Abstract: Government purchases of food from family farmers aim to provide a new market for small-scale farming while promoting food security for vulnerable populations. In Latin America there are various examples of these initiatives but with important differences in their implementation. Our objective is to review the effects on the farmers who sell into these programs, considering the case of Chile. There, since 2017, companies hired by the government to provide school meals are required to include a percentage of local products in their purchases. Information was collected through personal interviews with farmers and advisors from three agricultural organizations participating in government purchases in two different regions. The results show that in this case public purchases have the novelty of being a formal market for farmers, which is a very relevant experience for them. However, the conditions are neither stable nor always beneficial for farmers due to important asymmetries in negotiating power with purchasing companies. We conclude that the Chilean initiative has interesting potential impacts, but some major changes must be made to it, as greater involvement and will on the part of the parties.

Keywords: Public procurements, school meals, family farmers, Chile, inclusive markets.

Implicancias de las compras públicas a la agricultura familiar: reflexiones a partir del caso chileno

Ideas clave:

1. Las compras públicas a la agricultura familiar (CPAF) tienen como objetivo abrir un nuevo mercado.
2. Existen programas de CPAF mundialmente, en especial en América Latina, y en Chile desde 2017.
3. Esta investigación revisa las CPAF chilenas considerando sus efectos en los agricultores participantes.

4. El impacto de las CPAF chilenas es bajo, dada su escasa cobertura y asimetría negociadora.
5. Es crítico incrementar la estabilidad de las ventas y la voluntad de las partes.

Resumen: Las compras públicas de alimentos a la agricultura familiar tienen como objetivo proporcionar un nuevo mercado al tiempo que promueven la seguridad alimentaria de las poblaciones vulnerables. En América Latina hay varios ejemplos de estas iniciativas, aunque con importantes diferencias en su implementación. Nuestro objetivo es revisar sus efectos en los agricultores que venden en estos programas, considerando el caso de Chile. Allí, desde 2017, las empresas contratadas para proveer alimentación escolar deben incluir un porcentaje de productos locales en sus compras. La información se recopiló a través de entrevistas personales con agricultores y asesores de tres organizaciones agrícolas que participan en las compras públicas en dos regiones. Los resultados muestran que en este caso las compras públicas tienen la novedad de ser un mercado formal para los agricultores, lo cual es una experiencia muy relevante. Sin embargo, las condiciones no son ni estables ni siempre beneficiosas para los agricultores debido a asimetrías en el poder de negociación respecto a las empresas. Concluimos que la iniciativa chilena tiene importantes impactos potenciales, pero se deben hacer algunos cambios mayores, como incrementar el involucramiento y voluntad de las partes.

Palabras clave: Compras públicas, alimentación escolar, pequeña agricultura, Chile, mercados inclusivos.

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1. Introduction and justification

One of the critical factors that limits the profitability of family farming (FF) is market access (Medina *et al.*, 2015; Graeub *et al.*, 2016). In Latin America, FF-related policies prioritize technical assistance but are increasingly including actions to improve commercialization (Sabourin *et al.*, 2014). Public purchasing programs of family-farm products (hereafter PPFF) are an example.

Brazil was a pioneer worldwide on PPFF with the federal Food Acquisition Program (PAA by its acronym in Portuguese) launched in 2003, and the 2009 mandate to use a percentage of the National School Meal Program (PNAE by its acronym in Portuguese) budget to acquire food from FF (Schneider *et al.*, 2016; Wittman & Blesh, 2017). Following this example, other Latin American countries such as Chile have launched PPFF initiatives. In Chile, agriculture is an activity practiced by two distinct groups: a small number of medium and large companies geared toward exports, and a large majority of small farmers who sell into the local market, very often with technical and financial limitations (Ríos & Torres, 2014). Chile has been successful in the international insertion of its agriculture, but the benefits exclude the FF (Almonacid, 2018). Due to urban migration, Chilean FF is suffering a sharp increase in the average age of farmers, which today is between 55 and 60 years old (Boza *et al.*, 2019). At the same time, the nutritional status of the Chilean population has deteriorated. Only 24.5 % of adults have a normal body mass index, 39.8 % are

overweight, and 34.4 % are obese (MINSAL, 2017). Of students in the first grade, 23.9 % are obese and 26.4 % are overweight (JUNAEB, 2018).

In 2017, the National Board of School Aid and Scholarships of Chile (JUNAEB) incorporated within the terms of its public purchase for the School Meal Program (PAE) a mandate that the companies hired to provide food for school must buy a percentage of their products from small-scale local suppliers. The Institute of Agricultural Development (INDAP), the main public institution in Chile for the promotion of FF and for specialized agricultural extension (Rojas-Andrade *et al.*, 2019), also launched the "Public Purchase Program". It aims to complement the JUNAEB local purchase initiative by supporting selected FF organizations to be stable suppliers for food service providers.

Chilean PPFF have multiple characteristics that make them different from other programs such as the one in Brazil, about which there is extensive literature. The most important difference is that purchases and the related negotiations with farmers' organizations are the responsibility of the companies that the government hires to provide the food service. In the case of Brazil, the purchase to farmers is made directly by public entities. As far as we know, the impact of Chilean PPFF has not been evaluated yet. Our research question is whether this program is fulfilling its role as an instrument for the development of farmers involved and what recommendations can be made for this and similar initiatives.

2. Theoretical foundations and general background

PPFF use the mechanism of governmental food purchases for hospitals, universities, schools, nursing homes, prisons, the military, etc., to drive horizontal policies (Miranda, 2018), which aim not only to strengthen small-scale agriculture but also to promote food security in vulnerable populations (Nehring *et al.*, 2017). In practical terms, PPFF connect the demand for food by the public sector with the supply from family farming, redistributing resources and helping smallholders to integrate into the market (FAO, 2017; Swensson, 2018). PPFF can go beyond just food procurement, including an educational component to increase students' food literacy (Powell & Wittman, 2018).

Today there are PPFF initiatives worldwide. However, because the Brazilian case was a pioneer, it is the most analysed in the related literature. It is recognized as a policy that has been key in the strategy of strengthening Brazil's FF and food security (Berchin *et al.*, 2019). Regarding the first aspect, the economic benefit relative to having a guaranteed purchase at a minimum price is highly valued by farmers (Petrini *et al.*, 2016). Additionally, farmers transition to more diversified agricultural systems, as Brazilian PPFF generate a structured demand for varied products, and a price premium for those agroecological (Valencia *et al.*, 2019). On food security, the effects of improving the variety and quantity of healthy food in schools stand out. Purchases from family farming have increased the presence of fruits, vegetables, legumes, grains, and milk in school meal programs (De Amorim *et al.*, 2016; Soares *et al.*, 2017; Teo, 2018). Indeed, they also have led to a higher supply of minimally processed products in the territories involved (Ferigollo *et al.*, 2017). Despite its positive impacts, however, Brazil PPFF have had in some cases operational difficulties, particularly due to poor organization by farmers, who fail to meet the required quantity and variety (Rockett *et al.*, 2019).

The Brazilian PPFF experience for school meal programs was exported to other Latin American countries as Chile within a south-south technical cooperation scheme (FAO, 2014; Sabourin & Grisa, 2018). Despite arising from a common idea, these experiences differ in their magnitude, level of decentralization, and involvement of the public authorities in setting conditions, especially price (CEPAL, 2016). Therefore, the impact evidenced in the literature for the Brazilian experience cannot be extrapolated for the other PPFF in the region. Each case must be analysed specifically. In our research we focus on the effects of PPFF on farmers, as their perception is essential for its stability.

JUNAEB is the public institution in Chile with the highest demand for food, most of which goes to school meals through the PAE, benefiting more than 1,600,000 students in 8,600 schools (Sáez *et al.*, 2015). To access the PAE, students must belong to the 60 % of more vulnerable families according to the information at Chile's Social Registry of Households managed by the Ministry of Social Development. They also must attend a public school, or a private subsidized school affiliated with the PAE. The focus on vulnerable students is related to the objective of the PAE, which is to improve attendance at classes and contribute to the goal of avoiding school dropout.

The Administrative Contracts Bases for Supply and Provision of Services, also known as Law 19886, establishes public tender as the main modality for public purchases. This is relevant to the PAE, because JUNAEB contracts with external firms to provide food to schools. The country is divided into three parts, each of which

renews its public tender every three years. The chosen companies are responsible for procuring food and distributing it to schools following a menu that is approved by JUNAEB. That menu must follow tender specifications, related to its nutritional quality. However, there is no obligation that the food used be fresh beyond the safety requirements. Another of the criteria for selection of the offer is the price per serving, which in any case must respect the budget established by JUNAEB. Companies are free to choose their own providers and negotiate with them the terms of sale. Around 30 companies throughout the country deliver between 3,000 and 500,000 meals each per day, depending on the territory covered and their scale. Some are medium-size enterprises, while others belong to international consortia. All these companies use to seek economies of scale working with medium or large suppliers (INDAP, 2017a).

In 2017, JUNAEB published the first tender for PAE in which the food service providers are required to source a percentage of their purchases from small-scale, local suppliers—generally 5.25 % of the total invoiced amount, but only 3.5 % in so-called "lagged areas". The tenders define the concept of "lagged area" as established in Decree 1116 of the Chilean Ministry of the Interior and Public Security of August 2014, i.e. those territories with a gap in their level of development compared to the country's average. Meanwhile, local suppliers are understood to be those that carry out their primary activities in the region in which the food will be served. The companies must provide documentation to JUNAEB that is issued by a public entity and certifies that the products come from small-scale, local suppliers. Those suppliers must meet food safety standards. JUNAEB tenders do not specify any further information on requirements for local providers. The conditions under which the purchase is made from local suppliers are also unregulated, so they emerge from the negotiation between these suppliers and the companies. These conditions include key aspects such as price, quantity, and delivery details. The budget per serving established by JUNAEB for the new tenders is not substantially different from the previous calls. As of March 2019, all valid JUNAEB PAE tenders in the country involve local purchases.

While preparing for these new requisite local purchases, JUNAEB and INDAP signed a cooperation agreement in 2014 (JUNAEB Exempt Resolution 2372). The parties declare their common interest in improving the quality of food service in the PAE, and in developing the territories where the program operates by generating stable supply relationships between farmers and the food service providers. The partnership between INDAP and JUNAEB functions through the INDAP's Program of Public Procurement. In 2016, the program executed five PPFF pilots. Except in one case, the providers involved were groups of farmers (INDAP, 2017b). In 2017, INDAP

moved to the second phase of the Program of Public Procurement: identifying and advising FF organizations which were potential suppliers for JUNAEB food service providers countrywide.

The potential total amount of JUNAEB local purchases is estimated at 28 billion CLP (32.5 million EUR, 12-02-2020). However, in the first two years of operation, purchases from the FF amounted to only 1 billion CLP (1.161 million EUR, 12-02-2020). The difference is due to food service companies satisfying their local purchase requirements with non-agricultural products such as bread. To address this gap, JUNAEB is developing new recipes with a local identity to include in PAE tenders. Also, once a year JUNAEB organizes a "business conference" between the companies and potential FF providers.

3. Objectives, methods and sources and case study

The objective of this study is to review the effects on the farmers who sell into PPFF, considering the case of Chile. In this way the study can not only generate further understanding of the program effects in Chile but also be a reference for the design and execution of similar public policies. Because this program is still new, we use a micro perspective to look deeply at the specific relationships between the actors participating.

In-person interviews with farmers' organizations were conducted in March 2019 in two regions of Chile. Those regions were selected because they were among the first to be included in PPFF, and because they have diverse agro-climatic conditions and vary in the contribution agriculture makes to their economies. All the agricultural organizations that deliver to the JUNAEB food service providers were interviewed in those two regions, including all the farmers who participate in that process and their technical and commercial advisors. We will not describe the regions chosen in any more depth in order to preserve the identity of the organizations and their members. In total we conducted twenty interviews: thirteen with farmers and seven with advisors. They belonged to three different organizations: two cooperatives and one agricultural society.

Table 1.
Sample of farmers and advisors interviewed

Region	Organization	Interviewed Code	Age	Role	Products at PPFF
Region 1	Traditional Cooperative	F1	53	Member	Potatoes, tomatoes, pumpkins, and onions
		F2	55	Member	
		F3	49	Member	
		F4	54	Member	
		F5	46	Member	
		F6	39	Member	
		CA1	Commercial Advisor		
		TA1	Technical advisor		
		TA1	Technical Advisor		
		TA1	Technical Advisor		
	Agricultural Society	F1	66	President	Pears
		F2	53	Treasurer	
		F3	71	Member	
		CA1	Commercial Advisor		
Region 2	Recent Cooperative	F1	50	Director	Peppers and tomatoes
		F2	49	Member	
		F3	62	Member	
		F4	65	Member	
		CA1	Commercial Advisor		
		TA1	Technical advisor		

Source: Prepared by the authors.

To distinguish the cooperatives, the first we will denominate as "traditional", as it was founded in the 1960s. The second organization we will identify as "recent", as it was founded very recently, specifically to facilitate and formalize participation in public purchases. The other organization was founded in the 1990s and will be distinguished as an "agricultural society" because it is under that legal framework (Table 1).

The interviews were semi-structured. The interview outline applied to each farmer focused on: i) incorporation to PPFF and initial expectations, ii) technical requirements for production and adaptation, iii) general functioning of purchase process, iv) knowledge about the destination of the products, v) perception of the

overall impact of participating in PPFF, and vi) recommendations. For the advisors, the questions were adapted to deal with the same issues but from the perspective of the complete organization.

The answers to the interviews were transcribed and codified. In this process the researcher extracts the most relevant information, develops concepts, and establishes relationships, helping to understand the phenomenon under study (Glaser & Holton, 2004; Schettini & Cortazzo, 2015). To facilitate this process, we used Atlas.ti 7 software.

4. Results

The results from interviews are presented following a temporal logic and cover all the stages in which the farmers relate to PPFF: (1) incorporation and initial expectations; (2) the purchase conditions, especially price, volume, and technical requirements; (3) the farmers' adaptation process to the requirements; and (4) their overall evaluation of the program's impact and their recommendations.

4.1. Incorporation and initial expectations

The answers given by the farmers denote that the process for joining the PPFF initiative varied between organizations. In the recent cooperative, information was obtained directly from INDAP in a meeting organized at the headquarters of the cooperative, where even the food service providers were present.

> There was a meeting and all the farmers were invited. All the farmers were in a room with the company and INDAP and everyone. They explained to us how the system worked and everything. There were lots of people and the amount they were buying was tiny compared to what we could produce. (farmer, 50 years old, director of recent cooperative)

In the agricultural society, the president of the organization was summoned to Santiago to participate in a JUNAEB "business conference" with the food service providers.

> They called the leaders to the meetings. There were two meetings in Santiago ... we even went to an exhibition that JUNAEB had where the companies that work with JUNAEB were, and we met with them, we talked with all of them. They gave us a few minutes to talk with each one of the representatives according to the products they required. (farmer, 66 years old, president of the agricultural society)

After INDAP first contacted the associations, the possibility of incorporating to the PPFF was discussed more informally among the farmers or with the advisors. In the case of the traditional cooperative, the advisors knew first about the program through INDAP, and then shared the information with some of the farmers.

Regarding the expectations that farmers had for their incorporation to PPFF, most emphasized gaining access to new markets, better prices, and more stable sales terms than they get when they sell informally to intermediaries.

> In different meetings that we did with INDAP we obviously proposed that the State should have some way to back us up in the sale, to assure us it wouldn't fall through. We brought that up a lot in meetings when we heard about this program because we needed a way to make sure that someone would buy the fruit. (farmer, 53 years old, treasurer of the agricultural society)

However, the interviews showed that, at least initially, most farmers had only a superficial understanding of the program's objectives. For instance, they knew almost nothing about the destination of the products they were selling. They mentioned the schools, but in a very shallow way, and only two farmers suggested that involvement with feeding children was a motivation to participate in PPFF. Although we might expect them to be more informed, the answers that the technical and commercial advisors gave about this were very similar to the farmers'. The advisors, even those representing commercial entities, knew at most only the general area where the destination schools are located.

4.2. Delivery process, requirements, and price formation

Some of the farmers deliver the products to the cooperative, which then deals directly with the supplier companies, while others deliver directly to the company. Either way, it is the company which establishes the delivery schedule, the products that are needed, and the condition in which they must arrive. The interviews revealed

that each organization was given different schedules and requirements, and that they have changed over time.

One of the most recurrent complaints about this system was that the order volume was not stable, so it was difficult to plan the production. Some of the respondents commented that it would be good to determine long-term purchase volumes in advance.

> One of the main problems is that we have not been able to get to the point with the buyers where we can anticipate purchase volumes ahead of time. We only receive them on Thursday or Friday of the previous week. The buyers give us the order for the following week, to be delivered Monday and Tuesday, but we only know the number of kilos that they are going to buy five days in advance. (technical advisor, traditional cooperative)

Another controversial issue is the packaging and transport requirements of the buyers, which is a cost that providers must assume. The requirements are often very different from what farmers use for their other markets, and they are complicated to adhere to.

> There are several formats. For example, they have ordered 500 or 600 one kilo bags, or 50 boxes of 150 units, stuff like that. All the fruit must be a standard size. You can't send a 70-gram fruit and a 110-gram fruit because they say that the children all must receive the same size fruit, don't feel discriminated. (farmer, 66 years old, president of the agricultural society)

Other key requirements of the buyers are related to the safety of the products. The limits on pesticides and the food safety certification for products with a certain level of processing were the most mentioned issues.

> The food production must be carried out safely, because the products have to be healthy—only using authorized pesticides, respecting the pre-harvest interval. For example, you cannot deliver a pear if you sprayed a pesticide ten days before harvest. That's why each producer has a great responsibility. (farmer, 66 years old, president of the agricultural society)

In Chile, the food safety certification must be requested from the Regional Ministerial Health Service, but in order to get it, the processing area must comply with hygiene conditions such as ventilation, washable walls and floors, and available restrooms. Farmers very often do not have these conditions for themselves. This

situation has led to the fact that, despite being a mandatory requirement for local producers in tenders, JUNAEB has been flexible during these first years of application of the PPFF.

> Not all the farmers have a food safety certificate. The food safety requirement is for the processing, for example washing fruit, which is hard to enforce. They could just send the trays to the cooperative and nobody would know. However, for their own certification they need the microbiological analysis of the irrigation water and of the fruit itself. They also sample the waste at least once a year. (commercial advisor, traditional cooperative)

The traditional cooperative, which has many members, decided to choose which members would sell into the program based on their existing capabilities.

> We choose the farmers at the PPFF by their production, quality, and level of infrastructure and management. We must look for producers with a level of infrastructure that allows them to go through a pre-audit that we do ourselves and is in part coupled with good agricultural practices. But also, it is important that they keep good records, which is something that the cooperative helps with. (commercial advisor, traditional cooperative)

The price is determined during a negotiation between elected representatives from the farmers' organizations, usually the commercial advisor, and the buyers. However, the organizations often affirmed that they have no real latitude to negotiate. In the recent cooperative, they explained that the first year they sold their products to the food service companies, the prices were negotiated every month, which complicated the procurement. After that, they achieved a fixed price for the last trimester of 2018. They expected a similar price for all of 2019, but the buyer offered an average of the price paid in 2018, which was lower than the last price. They did not have any power to negotiate.

The farmers at the agricultural association also had the impression that there was little room to negotiate.

> The situation is very complex, because if we have a very tight margin like we did last year, the companies don't budge. They say, "If you can't match our 140 pesos, we will buy from this provider for 120 pesos ... we have other people". (farmer, 66 years old, president of the agricultural society)

At the traditional cooperative, the only organization in our sample which has been selling to two different companies through the program, they reported that there were even differences in terms of flexibility in pricing between them. The commercial advisor pointed out that with one of the companies he even had the feeling that they simply had no real interest in buying their products, while in the other they were very understanding.

Also, at the traditional cooperative they expressed that when prices are not attractive enough, farmers do not comply with scheduled deliveries. Therefore, they are considering establishing internal mechanisms to incentivize commitment.

> Moving forward, we plan to make formal contracts with the producers in which they commit to a quantity and to the price and terms in the contract. Because when a farmer leaves us for better prices, it harms our image with the buyers. That kind of thing does not look good, and we must try to work on it. (commercial advisor, traditional cooperative)

Regarding the payment structure, all three organizations receive their money seven, fifteen, or thirty days after the product is delivered. They did not express further discrepancy. In fact, they emphasized that the agreed upon conditions are always followed. All three direct their payment to the organization and then distribute it internally to the farmers, minus administrative expenses. That is a common practice in agricultural cooperatives, not only for public purchases.

4.3. Technical limitations and adaptatiom strategies

Selling into public procurements poses an infrastructure and handling challenge for all the farmers' organizations. The specific limitations are quite similar. In the traditional cooperative, they mentioned that many of the farmers do not have adequate pesticide storage sheds or a warehouse for the produce. At the recent cooperative they had the same pesticide storage problem at the beginning, so they applied for funding from INDAP to build a shed. They still have serious problems with the hygienic conditions of the packing. The technical advisor mentioned that farmers pack on the ground, which facilitates the contamination of the fruit. The agricultural society installed a packing area specifically for the fruit that was going to the public purchases. They still do not have a food safety certification but are applying for it and are also incorporating new equipment.

> We made a mini packing house here, which is why we are asking for a food safety certification so that we can work here. We have been working on it for two years and have even earned funding to install a calibrating machine which will reduce the staffing requirements and add more precision as well. (farmer, 66 years old, president of the agricultural society)

Despite the difficulties, most of the farmers participating in public purchases appeared to be willing to adapt their technologies and practices. They even saw those changes as a significant improvement over their regular way of doing things.

> I have advanced one step at a time. I've been working for three years, and every year I've improved a little. I decided to modernize everything, and I have already done 6 hectares. It's not easy. I still propose myself goals and try to achieve them. I try to produce well to sell well. (farmer, 46 years old, traditional cooperative)

However, the insecurity producers feel about the stability of this market and the terms of sale for them in the future limit their willingness to make larger investments. Fruit growers especially have a hard time justifying planting new trees without any assurance that they will be able to sell at a good price, or even that the market will exist in the future.

> When you are going to plant new trees you think, what do I grow? If there was a contract with JUNAEB through public procurement that could last fifteen years, you can plan. Then we can securely buy apple and pear trees and grow them. That would be the best, so I would know that if I plant an orchard, in fifteen years I will have a guaranteed market. (farmer, 53 years old, treasurer of the agricultural society)

4.4. Overall perception of impact and recommendations

Each organization had a different perception of the benefits the program has had for producers. In the agricultural society, they all liked the certainty of receiving a payment. However, the price was not as high as they expected in comparison with other markets.

> I don't have a completely positive opinion about the program because the companies are also destined for profit, and we benefit from negotiating with them because they always pay, but their prices are not so attractive. The benefit is more that we are guaranteed to receive our money, but not great prices. (farmer, 66 years old, president of the agricultural society)

In the traditional cooperative, on the other hand, farmers perceived that they were having access to comparatively high prices with public procurement, but they did not like the small and constantly changing order volumes. They appreciated that by selling to a formal market they can recover the Value Added Tax (VAT) amount.

> It is not stable because I don't know how much they are going to order. They tell me they need two hectares, but I do not have a signed contract that tells me the company will commit to take all the production from the two hectares. I do not have any assurance that this sale is going to be made. I trust the word of the cooperative. (Farmer, 49 years old, traditional cooperative)

Regarding the low order volumes, the technical advisor of the traditional cooperative clarified that this is especially problematic for its members because they are a large organization. The commercial advisor pointed out that it is possible that the companies just don't want to buy more from them, that they are not convinced with PPFF.

In the recent cooperative, they think having a stable price, even though sometimes it was lower than other markets, was an advantage, and as in the traditional cooperative, being able to sell formally allowed them to recover the VAT.

> It is good to have a stable price so you can plan for the year. Sometimes the tomato price is very low, and we get to sell it at a good price to the companies, and sometimes tomato prices are very high, and we are selling, not low, but we are earning less. But if we average the tomato price in the general market, it will always be less than the price we get in this market. In that sense, I see it as a great advantage to work with an established price, and it's another good bonus to be able to recover VAT. (farmer, 50 years old, director of the recent cooperative)

Finally, the farmers and advisors were asked to consider their overall experience with public procurements in order to recommend changes. The responses differed between the organizations. In the agricultural association they insisted on the need to

raise the prices, even if that means government intervention. They also desired long-term contracts.

In the traditional cooperative, the farmers' responses were divided, but the most mentioned issues were increasing order volumes and stability, for example through contracts, increasing prices, and having more financial and advisory support from public institutions. The traditional cooperative's commercial advisor mentioned that generating bonds of trust and commitment is a key factor to improve the program.

> The challenge we can see is for all the pieces of the puzzle. There is the will and maturity that this business has, as well as the pieces where the farmer must improve and be a bit more efficient in their production. And the companies must play their part and come with the political will to be able to accompany us through this. They need to estimate volumes at the beginning of the year with a schedule where they tell us how much they want to buy this year, in which periods; and prices should be fixed periodically according to official information. (commercial advisor, traditional cooperative)

In the recent cooperative, most of the farmers emphasized that they should have more margin to negotiate the prices at which they sell into the program.

> It is difficult to negotiate because the company establishes the maximum price. We give a price and the company says no, that they have this other price from outside the program, and with that it is very difficult to raise the price. (farmer, 49 years old, recent cooperative)

This feeling was shared by the technical advisor of the cooperative, who recommended direct involvement of public institutions in negotiations.

> People feel that, after all, the companies are paying whatever they want to pay. They don't raise the price because of the quality. INDAP and JUNAEB should sit down to negotiate with these big companies so that they make agreements. (technical advisor, recent cooperative)

The recent cooperative, just like the traditional cooperative, considered it necessary to have more financial support from public institutions.

5. *Discussion*

Chilean PPFF have multiple characteristics that make them different from other initiatives such as the one in Brazil. While these programs are still quite young, our results provide evidence that the way in which they are being executed in Chile does not allow them to be significant instruments—neither for the development of FF nor for rural territories. Although this is a new market for farmers, its coverage is very small, the volumes and prices are not stable, there is asymmetric negotiating power, and the technical requirements imply investments that in many cases are not feasible.

On coverage, at the time of this research, in both regions we included, only 13 farmers had delivered produce through the program. The total number of INDAP beneficiaries in those regions exceeds 17,000 (INDAP, 2018). In the program's first two years of operation, the purchases made total 1 billion CLP (1.616 million EUR, 12-02-2020). In comparison, sales at traditional markets for small-scale farming were much higher. In Santiago, at La Vega Central, around 200 million CLP of fresh fruits and vegetables are sold per day (232,331 EUR, 12-02-2020), and around 700 million CLP (813,159 EUR, 12-02-2020) is sold in the wholesale market of Lo Valledor per day (ODEPA, 2018).

Second, we found that the market conditions, volume, and price in the PPFF market are not stable. In fact, in general, prices are not fixed for a full season, and when they are, the farmers felt that they lost out on the agreements made with the companies. It is even less stable for the order volumes, where there was no certainty for farmers, with weekly changes. For Chilean farmers, the main markets are intermediaries and wholesalers (Boza *et al.*, 2019). This results in lower revenues for producers than they would get in shorter supply chains (Aguiar *et al.*, 2018), but farmers appreciate that intermediaries are able to buy high volumes at one time, and thus provide certain income stability (Rimisp, 2015). For any alternative market to be attractive in the long term, it must demand a significant and consistent volume at competitive prices. However, any increase in the prices offered by the companies would reduce their profit margin. This is because the price per serving that the companies receive from JUNAEB has not significantly increased after the incorporation of the local purchases' obligation in the tenders.

Market conditions are related to the asymmetric negotiating power, which is common for small-scale farmers (Scheinkerman de Obschatko *et al.*, 2007). The farmers, and even their advisors, stated that in practical terms they are price takers, as the companies do not have any impetus to work with them to reach a consensus. In fact, the organizations in this research are selling to only one or in one case two companies. This reality is very difficult to change, given that this system promotes local purchases. With only thirty companies providing this service to the whole country, there are very few companies in each farmer's area, and if the farmers did want to sell outside of their area, they would have to assume the cost of transporting their produce further distances. As a result, Chilean PPFF are functioning as a monopsony market. The monopsony firm has the market power to reduce the prices of the inputs it is buying, especially if the volumes are relatively low compared to its total demand, as is the case (Manning, 2018).

Finally, we found that to participate in PPFF, farmers must meet technical requirements that in many cases are not available for them. Chilean FF has low access to technologies, and its only source of significant financing for investment is INDAP (Berdegué & Rojas, 2014). The responses from farmers and their technical advisors supported this. Some facilities that are basic for larger farms, such as proper pesticide storage and processing areas that comply with food safety standards, pose a challenge for them, and the markets they usually sell into do not demand them. While participating in a formal market opens the door to a private banking loan, we suggest that it is hard for farmers to make that commitment if they do not perceive the PPFF as a significant and stable option.

We believe that in order to improve the current conditions of Chilean PPFF substantially, greater participation on the part of the related government agencies is needed, but more than anything, there needs to be more willingness on the part of the companies. Likewise, increasing mutual knowledge is very important. Although JUNAEB makes efforts to bring companies and farmers together, for instance in annual "business conferences", their relationship is still very superficial. This foreseeably results in the situation that companies lack realistic understanding regarding the present and potential situation of farmers as suppliers. It is necessary to foster a closer relationship between companies and farmers based on the perception of a win–win sitiuation.

PPFF have been shown to be a valuable tool for the development of FF in other countries such as Brazil. Even in Chile, the farmers and advisors perceived positive outcomes such as being able to sell into a formal market, recover VAT, and the motivation to produce with higher quality. We believe, therefore, that the program

should continue, but it should take advantage of the fact that it is still in its beginning stages to make relevant changes.

We recommend limiting in the tender terms the companies' purchases of local products that are not from FF, and second, increasing the required number of food program recipes that use local ingredients. With these measures, the demand from public purchases would increase and, because the program is characterized by a monopsony structure, so would prices. Furthermore, we believe it is crucial that the bid made by the companies for the public-tender food service contracts include a purchasing plan for FF products with a concrete commitment on how they are going to fulfil that requirement. Finally, for the farmers to be able to adequately satisfy a growing demand, financial support should be made available for infrastructure, as well as rural credit.

6. Conclusions

Although they come from a common idea, each country's adaptation of PPFF has been diverse. Therefore, being able to identify the program's effects requires a case-by-case analysis. There is abundant literature for Brazil, but other experiences —such as the Chilean one— have barely been examined. PPFF in Chile are intended to make small-scale farming into a stable supplier of the food service companies that provide meals for schools, and through that, contribute to rural development. The information collected and analysed in this study allows us to conclude that due to the way in which PPFF have been designed and executed in Chile until now, they are unlikely to have that impact in a significant way.

The number of farmers participating in the program and the total expenditure of the companies on FF products is negligible. One of the main reasons seems to be the diversion of the budget they are required to spend on local products toward non-fresh foods such as bread. Some actions by the companies bring into doubt their willingness to consider FF as a relevant provider for them. They make almost unilateral decisions about volume, price, and product characteristics that take little account of the reality and current mode of operations of the farmers. The negotiating power between farmers' organizations and the food service companies is highly asymmetric. This market has a monopsony structure, where farmers have one or sometimes two

sales outlets, which gives them no room to negotiate. Long-term contracts between companies and farmers are absent, and often conditions such as quantity and price are not stable. This makes it difficult for farmers to plan their production schedule ahead in order to provide for the public purchase demand and increases the perceived risk of making investments in infrastructure and other changes that the program requires of them. If public purchase programs are not seen as a relevant and stable market for farmers, they will not be an effective rural development strategy. Moreover, companies must perceive PPFF as an opportunity, more than as an obligation. A closer relationship and mutual knowledge between companies and farmers must be promoted and sustained.

Even in its current form, the Chilean PPFF mechanism does have positive outcomes for the farmers involved. By selling into a formal market, farmers gain useful experience and can recover VAT. Additionally, they have a motivation to improve their technical performance. It is therefore ideal to maintain PPFF in Chile, but with major modifications. In order to accomplish the stated goals of the program, greater willingness needs to be demonstrated by the relevant parties. Specifically, we strongly recommend three changes: i) limiting the amount of non-agricultural purchases that can count for the budget percentage requirement, ii) making progress on the requirement to serve a menu with territorial identity, and above all, iii) requiring the companies to explain in their original bid for the contract how they plan specifically to satisfy the local purchasing requirement and support family farming.

7. Future orientations

We focused on the impact of Chilean public procurement on farmers, but this program also seeks to improve the diet for vulnerable populations, in this case children. In our opinion, this is not currently being fulfilled given the low volumes, which make FF products highly underrepresented in the finished meal that the students eat. We believe that further research should address that perspective. In this sense, we do recommend that, as the program grows, the farmers should know the exact destination of their produce, for instance, through visits to the schools, because this may be a motivational.

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Authors' contribution

ITEM	Sofía Boza	Aracely Núñez	María Sol Anigstein	Junior Scheuer	Karen Murillo	Total
Conceptualization	50 %	10 %	10 %	5 %	25 %	100 %
Data curation	20 %	20 %	20 %	20 %	20 %	100 %
Formal analysis	10 %	40 %	40 %	10 %	0 %	100 %
Funding acquisition	100 %	0 %	0 %	0 %	0 %	100 %
Investigation	30 %	20 %	0 %	0 %	50 %	100 %
Methodology	50 %	0 %	0 %	30 %	20 %	100 %
Project administration	100 %	0%	0 %	0 %	0 %	100 %
Resources	100 %	0 %	0 %	0 %	0 %	100 %
Software	10 %	40 %	40 %	10 %	0 %	100 %
Supervision	100 %	0 %	0 %	0 %	0 %	100 %
Validation	60 %	0 %	40 %	0 %	0 %	100 %
Visualization	40 %	10 %	20 %	20 %	10 %	100 %
Writing – original draft	40 %	10 %	20 %	20 %	10 %	100 %
Writing – review & editing	40 %	10 %	20 %	20 %	10 %	100 %

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