

IIAP Guest Policy Brief: The Orange Industry in Brasil

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ES/S0001352/1



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Summary

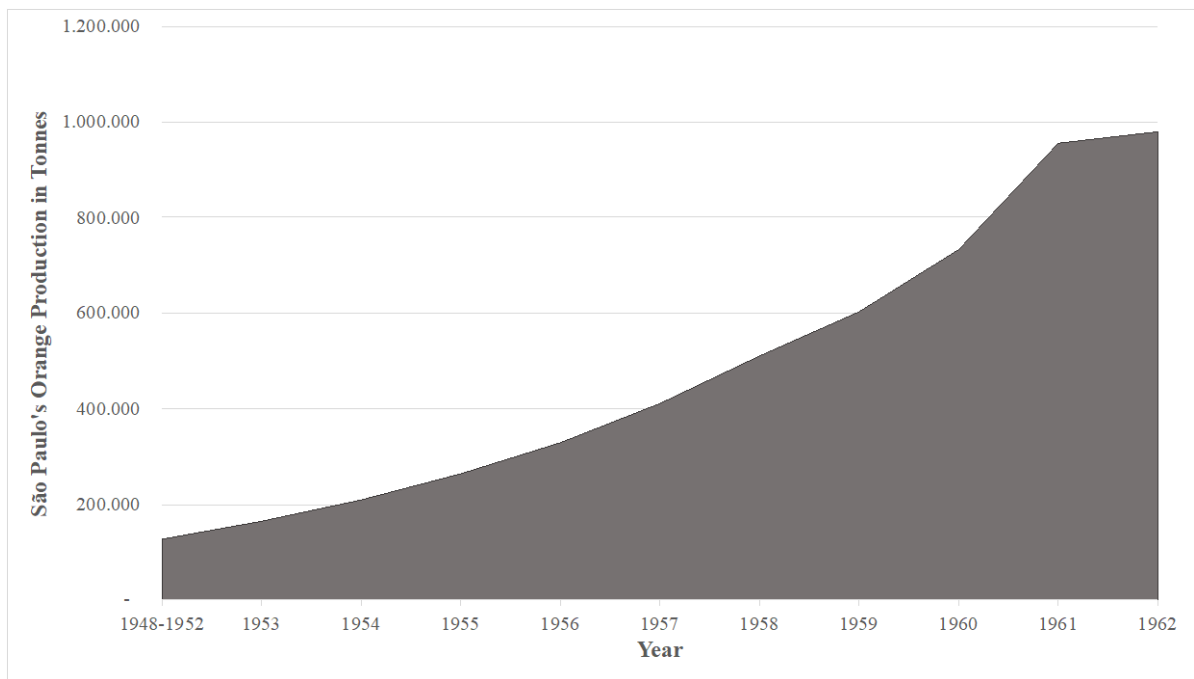
Processing fruits into juices is an opportunity for developing countries to accommodate higher value-adding economic activities within their agricultural value chain. The orange juice industry is the world's most important juice industry by volume and mainly dominated by Brazil which has a world production share of 60 per cent. Brazil's case study shows that in the second half of the 20th century the country's orange juice producers started their operations in a relatively protected economy and faced excellent market conditions to increase their production volumes rapidly. Brazil's state-business relations affecting the orange industry in the 20th century revealed a shift from regional to federal state interventions. Among the most relevant institutions for the development of the orange growers were three research institutions of the São Paulo State Department of Agriculture. From the 1960s onwards, federal institutions took over the initiative and initially accelerated the growth of the orange processors. Particularly the Banco do Brasil and its foreign trade department became the leading institution for the industry and shaped the relationship between orange growers and processors between the 1960s and 1990s. Similarly, the orange processors benefitted from rent transfers of the national development bank BNDES. The private sector is represented in business associations, and despite power imbalances between growers and processors, both actors have created a joint private sector institution, Fundecitrus, which is the primary research institution of the industry. Towards the end of the observed period, Brazil's anti-trust agency had increasingly limited the dominance of the orange processors and strengthened the position of the orange growers.

Brazil's Orange Juice Industry

Historical Context

In the first half of the 20th century until 1962, Brazilian orange growers solely produced for the domestic and international fresh fruit markets. From the beginning, commercial orange orchards were located in the State of São Paulo which offered favourable climatic conditions. The geographical concentration of orange orchards was initiated by São Paulo's powerful coffee growers as a response to falling coffee prices in the first half of the 20th century. In addition to that, the State government of São Paulo provided the necessary technical infrastructure for professional orange growing and exporting by forming its own citrus department under the State Secretariat of Agriculture in the late 1920s (Borges & de Miranda Costa, 2006). Although the Brazilian orange industry suffered major setbacks such as various outbreaks of the Tristeza virus which led to the loss of 80 per cent of orange trees in the 1940s, the industry's output of oranges steadily grew until the 1960s (Figure 1).

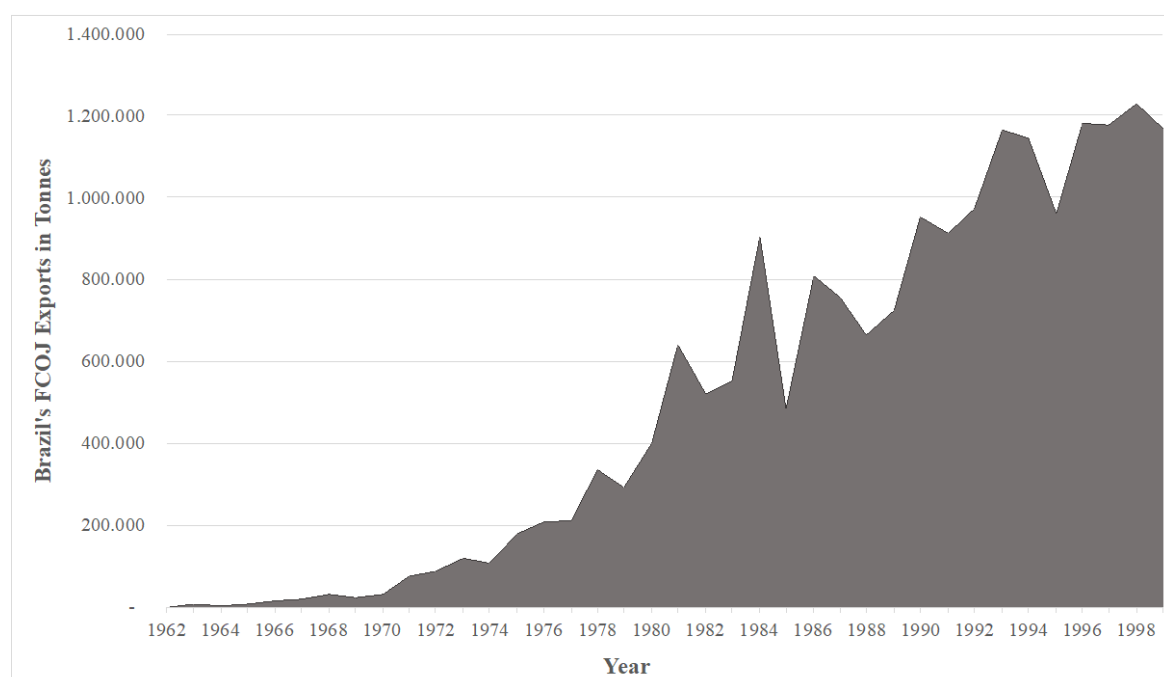
Figure 1: São Paulo's Orange Production in Tonnes (1948-1962)



Source: Own illustration based on Hasse (1987)

In 1962, a frost in Florida, by then, the world's only significant juice producing area, reduced its frozen concentrated orange juice (FCOJ) output by 44 per cent and leading to an increase of market prices by 100 per cent the following year (Azevedo & Chaddad, 2006). During that time, Brazil was generally interested in promoting the processing of agricultural goods as a part of its industrial development strategy. The shortage of orange juice on the world market accelerated Brazil's attempts to set up orange juice production facilities. Initiated and managed by large private orange growers and supported by the federal and the São Paulo State governments, Brazil quickly developed competitive FCOJ producers predominantly destined for export markets which can be seen in Figure 2. Consolidation among the FCOJ producers was already occurring in the founding years of the industry. Along with the higher entrepreneurial capacity of the market leaders, in contrast to their competitors, they benefitted from a series of government benefits (Hasse, 1987; Wilson, 1980).

Figure 2: Brazil's FCOJ Exports in Tonnes (1962-1999)



Source: Own illustration based on FAOSTAT (2020)

During the 1980s, Brazil suffered from a huge debt crisis, causing the state to pull out of most industrial engagements, including the support programmes for the juice industry by 1985. Further, several frosts in Florida in the 1980s created frequent supply shortages in a growing orange juice market which mainly improved the business performance of the Brazilian juice producers. Besides a more stable product availability in Brazil, compared to Florida, the dominance of the Brazilian FCOJ industry was manifested in the implementation of bulk transportation systems in the early 1980s. By the end of the 1990s, Brazil's orange juice industry was dominated by the companies Cutrale, Citrusuco, Citrovita ¹, and the global merchant and food processor Louis Dreyfus Company, after it had acquired a minor Brazilian processor in 1993 (Fava Neves et al, 2019).

State-Business Relations

To better understand the growth of Brazil's orange juice industry it is important to present its vital state-business relations which have significantly shaped the industry's development over the years.

Private Sector: The development of the capacity and structure of the orange growers, on the one hand, and the orange processors, on the other hand, changed remarkably throughout the second half of the 20th century. Since the formation of the orange juice industry in Brazil, orange growers had faced a few large orange processors on the customer side. With the growth of the orange juice industry in Brazil, most of the growers' fresh fruits soon went into the processing business. This development is demonstrated by the increased share of fresh fruit destined for the processing industry from 2 per cent in 1970 to 81 per cent in 1980 (Ito &

¹ In 2012, Citrusuco merged with Citrovita to become the world's largest orange juice producer in the world, the new Citrusuco.

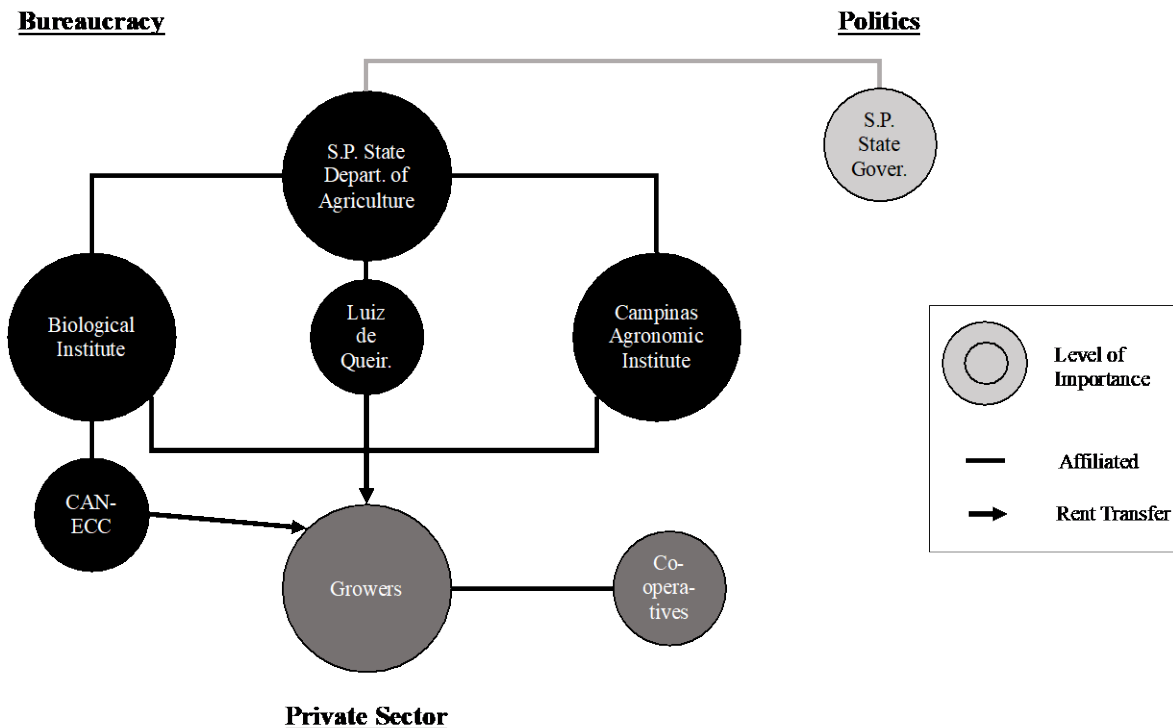
Zylberstajn, 2018). Due to the enormous economic importance of orange processors for the orange growers and the former's oligopolistic structure, the orange growers faced an unequal bargaining power in price negotiations. Furthermore, early attempts, driven by the State of São Paulo, to form market cooperatives among the citrus growers in the 1940s failed except for two cases and, hence, did not strengthen the growers' market power. An important initiative to strengthen the growers' power was the creation of the Associação Paulista de Citricultores (Associtrus) in 1973 as a response to the ongoing orange price wars during that time (Hasse, 1987).

Although the orange juice processors only started their operations in the mid-1960s, they soon became the dominant actors in the Brazilian orange industry. In the beginning, all large juice processing plant owners had their core business in the orange fresh fruit market, as the examples of José Cutrale Jr. (founder of Cutrale) and Carl Fischer (founder of Citrosuco) show. Both family firms dominated the industry right from the beginning also due to federal support programmes which primarily addressed the large orange processors, mainly Cutrale and Citrosuco, and therefore also contributed to the market concentration on the orange juice producing side. While Cutrale and Fischer showed extraordinary large economic successes, they also contributed to a business environment driven by a lack of transparency and professionalism (Interviewee 1; Interviewee 2). In addition, both companies frequently misused their oligopolistic market power in the 20th century which resulted in a temporary export ban against Citrosuco caused by price dumping in 1973, official investigations of Brazil's Administrative Council for Economic Defense (CADE) for potential abuse of power in the late 1970s, and CADE's largest-ever imposed penalty on forming a cartel to strategically lower growers' fresh fruit prices in the late 1990s (CADE, 2016a; Trevisani, 2016). With the market entrance of the multinational company Cargill in 1976, the large orange processors went through a period of technological and organisational professionalisation, mainly due to Cargill's innovation of the bulk transport system. This innovation included the use of own orange juice transporting vessels in combination with large storage capacities in Brazil and in the largest export markets, which significantly lowered costs and created a sustainable competitive advantage.

Apart from the various price disputes between Brazil's orange growers and processors, both sides have surprisingly worked well together in the jointly founded Fund for Citrus Protection (Fundecitrus). Founded in 1977 with the mission statement to protect São Paulo's orange growers from reoccurring, devastating diseases, such as citrus canker, Fundecitrus soon became the industry's most prestigious research institution and is nowadays among the leading citrus institutions in the world (Fundecitrus, 2020). Its current annual budget of around EUR 5 million is financed by orange growers as well as processors and is led by a board which is composed of different stakeholders in the Brazilian orange value chain.

Public Sector: In the first half of the 20th century until Brazil started to produce FCOJ, the São Paulo State institutions were the leading public sector forces in this process (Figure 3). This is in contrast to the development of other Brazilian export commodities, such as soybeans or beef, which have been significantly shaped by state rather than federal institutions in their beginnings (Borges & de Miranda Costa, 2006; Hopewell, 2016).

Figure 3: Illustration of State-Business Relations in Brazil's Orange Industry From the 1930s to the 1960s



Source: Own illustration

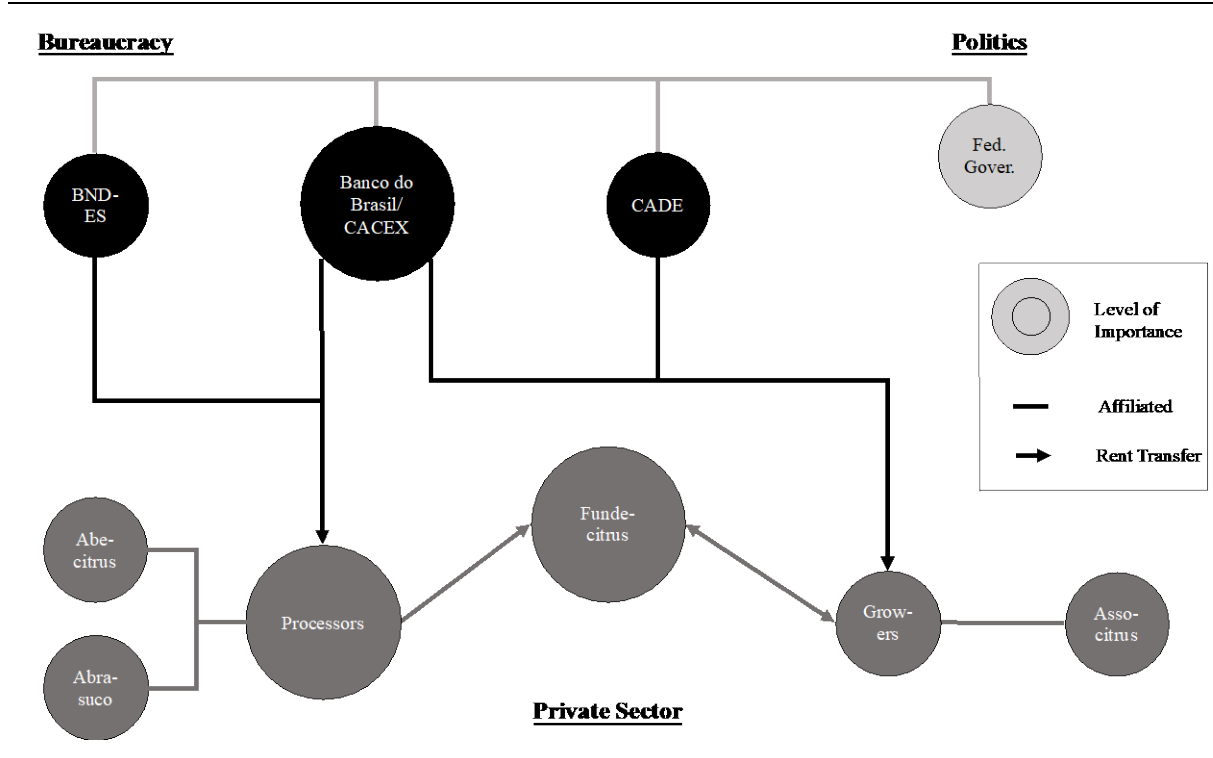
On a state level, the first influential institution which allowed the development of citrus growing in the State of São Paulo was the Luiz de Queiroz Practical School of Agriculture. Later, this agricultural school was complemented by the Campinas Agronomic Institute and the Biological Institute. All three agencies were led by the São Paulo State department of agriculture and mainly focused on the professionalisation of citrus growing until the 1960s. The Campinas Agronomic Institute, for example, contributed to this professionalisation through the provision of improved plant genetics and growing techniques. The institute's various experimental stations increased the practical surplus for orange growers and helped expand orange groves to formerly unknown soil textures. On the other hand, the Biological Institute put its focus on studying potential orange diseases and pests and was significantly involved in creating a unitary system of fruit varieties and certified planting material. Furthermore, the Biological Institute was heavily involved in the disease control measures, mainly focusing on the deadly citrus canker which caused massive losses of orange trees in the 1940s (Hasse, 1987).

In the early 1960s, the newly created industrial department of the Campinas Agronomic Institute, marked the institutional start of Brazil's orange juice production. During that time the industrial department made an agreement with the Food and Agriculture Organization of the United Nations (FAO) for hosting the first demonstration plant for producing FCOJ in Brazil.

As Brazil's nascent orange juice industry was filling the gap Florida had left behind in the world market after its frosts in the 1960s and 1970s, the Brazilian orange juice industry almost exclusively produced for the export market. Given the prospects of increasing exports in the future, the Brazilian state was particularly interested in promoting the orange juice industry's growth as exports generated foreign exchange earnings which were needed to finance other imports of Brazil's economic development. Therefore, the federal government began

to finance the nascent orange juice industry with support programmes issued by federal institutions.

Figure 4: Illustration of State-Business Relations in Brazil's Orange Industry From the 1960s to the 1990s



Source: Own illustration

On a federal level, there are three important institutions which have shaped the orange juice industry's development: Brazil's national development bank BNDES, the Banco do Brasil, the bank's Federal Bureau of Foreign Trade (CACEX), and CADE (Figure 4). Starting with BNDES, it served as the leading bank for issuing export credits and credits for the acquisition of capital equipment in the 1970s, which have been extensively used by the orange juice industry (Baer, 2001). Continuing with the Banco do Brasil, this federal institution was the largest creditor to all kinds of agricultural activities in the 20th century. Particularly large farmers, which are also the most important group in the orange production, benefitted from concessional loans. Furthermore, the bank's foreign trade department CACEX became the responsible federal department for guiding the orange juice industry until 1985 (Hasse, 1987). Its tasks comprised of the determination of a minimum export price for domestic producers, the introduction of export ceilings, and the implementation of minimum prices for fresh oranges used in the processing industry. In addition to that, CACEX also moderated between the conflict lines of different private sector actors, like growers and processors, or small processors and large processors.

Different to the previous two federal institutions, Brazil's anti-trust agency CADE has shaped the orange industry through limiting the power of involved companies rather than providing federal rent transfers. Since its creation in 1962, CADE investigated the orange industry several times by particularly observing the oligopolistic power of the leading juice processors and potential negative consequences for Brazil's orange growers. Nevertheless, only by 1994 and equipped with a higher level of independence, CADE became a more effective institution in Brazil's institutional landscape (CADE, 2016b).

Practical Implications

The following practical implications for policy emerge from the preceding discussion:

- The backbone of a sustainable and productive orange industry is the existence of an unitary tree nursery scheme. In the case of Brazil, state institutions learnt out of the devastating disease of the 1940s caused by unprofessional tree management and set new standards regarding the choice of more resistant orange varieties and stricter breeding rules.
- Brazil's orange industry generally benefitted from supportive regional and federal institutions which helped private farmers and processors with financial as well as research support programmes. Particularly the early years of Brazil's orange growers and orange processors have shown that investment stimuli created by the public sector can direct private investments into desired industries.
- The orange industry in Brazil is exclusively dominated by private sector firms. Among these firms are particularly large growers as well as processors which benefitted from government support schemes. Although this has increased the overall productivity of Brazil's orange industry, small- and medium-size orange growers hardly benefitted from the industry growth throughout the second half of the 20th century.

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