

The Dynamics of the Development of Production and Export of Agricultural Products in the Context of Australia's Foreign Trade

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Abstract: The relevance of the study is that Australia is a very open country for international trade, which accounted for 46% of its gross domestic product in 2019. In 2020, it had the 4th freest economy in the world, making its agricultural and trade freedom one of the highest in the world. The purpose of the study is to consider the dynamics of the development of production and export of agricultural products in the context of Australia's foreign trade. The following methods make up the theoretical and methodological basis of the research: theoretical, statistical, economic. Transnational corporations are becoming increasingly important in trade, so it is estimated that they now account for about 40% of international trade. Prices for agricultural products decreased both in real terms and in relative terms compared to prices for manufactured goods. The enormous technical progress achieved in the field of transport, communication and information technologies is one of the explanations for the significant growth of international trade. The development of Australia's foreign trade can be attributed to long and intense negotiations aimed at improving the conditions for the functioning of international trade.

Keywords: Export, agricultural products, production, foreign trade, economy.

JEL Classification: B17, Q10, Q17

1. INTRODUCTION

Agriculture is one of the main pillars of Australia's economy, accounting for 12% of the country's gross domestic product (GDP). Conditioned upon the explosion of arable land, the country is developing large-scale agricultural activity, including some of the largest beef ranches in the world, including vast fields of wheat and barley. The majority of agricultural products produced in Australia are sold on international markets, with 80% of all wheat, 90% of all wool and over 50% of barley exported to various international destinations. The main consumers of these products are China, the United States of America (USA), Japan and Indonesia. Australia's landscape is mostly arid and therefore suitable only for cattle breeding and especially for beef production, and according to experts, the total area of cattle breeding is estimated to be more than 60% of the entire territory of the country (Boult and Chancellor, 2020). Australia has over 2 million cattle with an annual export capacity of 2 million tonnes of veal and beef, making Australia the second-largest beef exporter in the world after Brazil. Beef accounts for 25% of the country's total agricultural exports. According to the Australian Bureau of Economics and Science of Agriculture and Resources, the country exports more than 2.34 million tons of

products. Wheat accounts for 19.9% of all agricultural products exported from the country. Wheat is grown on large plantations in Western Australia, South Australia, South Wales and Queensland (Robinson and Wang, 2018).

Although beef is the most popular export, other types of meat from Australia are also in high demand in the export market and include lamb and goat. According to the Food and Agriculture Organisation (FAO), Australia is the second-largest exporter of lamb. It is the largest exporter of goat meat in the world, exporting between 0.5 and 0.2 tons, of which 34000% is exported to the USA. Wool is another major export product for the country and accounts for 3% of total sales on the world market. Wool is produced on large sheep farms in all states of the Northern Territory, and the total number of wools producing sheep in the country is expected to reach 10 million. The horticulture industry is another key player, as numerous locally produced fruits and vegetables are exported, including tropical fruits such as mangoes, bananas and citrus fruits. The country is also exceptional in exporting opium produced for the pharmaceutical industry and is one of the few legal exporters of this rare commodity. Tubers produced in the country are also exported in large quantities to the USA and Japan (Noon and Park, 2019; Obara et al., 2010).

The Australian government has always supported the country's agricultural industry through several policies that create an enabling environment for agricultural practices to flourish.

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ish. The government subsidized many agricultural inputs, making them available to all farmers and making large-scale production a sustainable business. The government has also reached out to its international partners and concluded trade agreements that set low tariffs for agricultural exports and thus provide large international markets for local farmers. Globalization of the world economy, the process of economic liberalization, measures aimed at attracting foreign direct investment, the policy of structural restructuring and a sharp reduction in transport and communication costs are the main factors that contribute to the expansion of production and export of agricultural products of Australia. These favorable conditions allow transnational corporations to develop quickly and gain strong positions in production and international trade. This movement helps to emphasize the interdependence of economies, which is a response to the imperfection of international markets, since transactions there are often expensive conditioned upon the need to ensure the quality of the products that are purchased and the difficulties in complying with contracts signed with foreign partners (Walsh, 2018; Goldberg and Tille, 2008; Chiyachantana, 2021).

It is important to note that the improvement of the agricultural sector will have a positive effect on the economic component and will ensure not only the satisfaction of the needs of the region, but also of the world community. This will contribute to the conclusion of long-term contracts and stable economic growth.

The purpose of the study is to consider the dynamics of the development of production and export of agricultural products in the context of Australia's foreign trade.

2. METHODS AND MATERIALS

The following methods make up the theoretical and methodological basis of the research: theoretical, statistical, economic. A theoretical approach consists of a general question that tries to satisfy the purpose and needs of the research. Its object is a key element of the research process: it translates and crystallizes knowledge through which it is possible to question relevant aspects that must be discovered to understand reality. Such a method can provide some clues that can help to consider the object of research. It is always tied to a meaningful context, the purpose of the conceptual basis of which is to identify a set of ideas that provide an opportunity to consider theoretical constructions that have already been presented in this field. Thus, the theoretical framework requires extensive research before starting any activity. It is often accompanied by a hypothesis that is tested with the help of various scientific experiments aimed at demonstrating the theory, applying it or finding its extension, denial. This demonstration is characterized by the presence of a scientific experiment, both in the exact sciences and in the humanities.

The statistical method demonstrates how the concept of probability underlies parameter estimation, hypothesis testing and model fitting of Australia's agricultural foreign economic policy. The probabilities and parameter estimates illustrate how the function of this methodology can statistically discriminate between hypotheses, where a comparison is made with other parameter estimation methods. The purpose of the evaluation is to measure the dynamics of achieving the

target results of export activities. This is a set of indicators calculated on a sample to determine a variable in a one-dimensional way. It includes mean, median, standard deviation, variance, quantiles, and kurtosis and skewness for a quantitative variable. For a qualitative variable, mode and proportion by modality are used, which calculates the strength of the linear relationship between two variables. This regression model allows explaining the choice of modality using information related to all modalities of the dependent variable. The only difference in the model is the nature of the explanatory variables, which involves determining a linear relationship between the independent explanatory variables and the dependent variable to be explained.

The economic approach considers the development of the global economy as a whole, because with the globalization of the economy, various states are interdependent, that is, they depend on each other conditioned upon the increase in the exchange of goods, services and labor. Despite this interdependence, not all states have the same economic system. Just like political regimes, economic systems can be placed along the left-right axis. Each system has its own characteristics and goals. Thus, the population of the state lives differently according to the economic system created in the country. Indeed, an economy based on free enterprise does not have such an impact on the population as a planned economy. Depending on the existing economic system, measures taken to fight poverty or promote business development will not be the same. Economic indicators such as GDP or the unemployment rate can help paint a picture of Australia's economic situation. Interdependence refers to relationships of mutual dependence between people, companies, or states.

3. RESULTS AND DISCUSSION

Since the 2000s, Australia has made a commitment to intensify its economic relationship with Asia, which is seen as a natural partner conditioned upon both geographic proximity and the complementarity of its economies. Asia now accounts for almost 60% of Australia's retail outlets and almost half of its imports. Thus, in thirty years, Australia was able to dramatically redirect its trade, traditionally oriented towards the United Kingdom and the Commonwealth countries. This new situation is naturally explained by geography, the very high demand for raw materials in Asia and the lack of a real industrial base in Australia. They have, directly applying Ricardo's theories, a mutual interest in trade. Three-quarters of Australia's exports are raw materials and are gaining momentum with the end of the Asian crisis. Asia is actually a favourite destination for raw materials for Australia. This also applies to agricultural products. In this context, tariff negotiations between Australian companies and Japanese buyers at the beginning of each year are critical to the outcome of Australian trade. Overall, the recovery in Australian exports to Asia, initiated by the end of the regional crisis and already visible towards Malaysia or Thailand, should be driven more by volume than by price. Australia's economy is one of the most efficient among countries and has been for more than 20 years (Josling, 2010). It was able to withstand relatively well the global financial crisis of 2008-2009 and the sovereign debt crisis of some European countries since 2011. According to the Organisation for Economic Co-operation and Development (OECD), the global

financial crisis only briefly dampened the surge in demand for agricultural products that took place between 2009 and 2012.

Australia's foreign trade in goods and services reached 763.3 billion Australian dollars (A\$) in 2017, an 11% increase over 2016. An improvement in the terms of trade (+11.2%) combined with an increase in exports (+3.7%) led to a return to a trade surplus of A\$10.1 billion after a deficit of A\$13.7 billion in 2016. China remains Australia's largest trading partner (A\$183.4 billion, or almost a quarter of its trade), followed by Japan (A\$71.9 billion, or 9.4% of its trade), the USA (A\$68.5 billion, or 9%), South Korea (55.3 billion Australian dollars, or 7.2%) and India (27.4 billion Australian dollars, 3.6%). Australia pursues a policy of supporting free trade in a global context marked by the temptation of protectionism. Seven of the company's ten main markets are now in the Asia-Pacific region, reflecting the country's commitment to the regional environment. Economic reforms that took place within the framework of structural restructuring programs with the support of the World Bank and the International Monetary Fund also contributed to the emergence of this trend (Dwyer et al., 1993). Another reason for the growth of international trade is that the creation of regional trade blocs led to the intensification of trade in agricultural products, illustrating the evolution of the foreign economy. International trade in agricultural products grew much more slowly than in manufactured goods, and at rates comparable to mining products. This development can be explained in part by the fact that an increasing proportion of agricultural products are now sold internationally as processed food products or industrial products.

Depending on the product, there is great variability in the relative share of production involved in international trade. Australia's main partners are China, Japan, South Korea, India, the USA, Germany and Thailand. Structurally, Australia's foreign trade is highly dependent on the Chinese economic situation and the country's diplomatic relations with China. As a bloc, the European Union (EU) is Australia's second-largest trading partner. As such, Australia and the European Union began negotiations on a free trade agreement in mid-2018, but no deal has yet been signed. The country is also negotiating trade agreements with the Gulf Cooperation Council, India, Peru, Indonesia and Hong Kong. In November 2020, Australia enters the Regional Comprehensive Economic Partnership (RCEP) with 14 countries in the Indo-Pacific region. This free trade agreement is the largest trade agreement in history, covering 30% of the world economy. It includes the Association of Southeast Asian Nations (ASEAN: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) and the ASEAN Free Trade Agreement partners (Australia, China, India, Japan, New Zealand and the Republic of Korea). RCEP covers goods, services, investment, economic and technical cooperation. It also creates new rules for e-commerce, intellectual property, public procurement, competition and small and medium-sized enterprises. The country's trade balance was characterised by a structural deficit, but since then the country has alternated periods of surplus and deficit (Kwanashie et al., 1997; Campbell and Withers, 2017; Hadhek et al., 2021).

The period from 2012 to 2015 was marked by growth, although it was uneven. Indeed, each of the years of strong growth (3.6% in 2012 and 2.8% in 2014) was followed by a decline (2.1% in 2013 and 2.4% in 2015). In addition, every year during this period Australia was among the OECD member countries with the highest economic growth conditioned upon falling prices for natural resources, which are an important component of the Australian economy. Australia's gross domestic product growth was steady in 2016, thanks to continued efforts to diversify the country's economy, according to the OECD. As in previous years, investment and employment in the natural resources sector declined, but was offset by expansion in other sectors, including agricultural production, which was able to increase exports. Thanks to the devaluation of the Australian dollar, service sector exports also increased in 2016 (Fisher, 2016). The OECD notes that the growth of the Australian economy should accelerate in the coming years, in particular conditioned upon the recovery of the mining sector, including the production of liquefied natural gas (LNG). In 2019, Australia exported 271 billion United States dollar (US\$) of goods (A\$364.6 billion) and US\$69 billion of services (A\$92.8 billion), while imports of goods and services were down 4.9% from the previous year. According to the latest data from the World Bank, in 2019 Australia recorded a trade surplus of US\$48.6 billion and a total balance including services of US\$47 billion. The International Monetary Fund forecasts a 3.3% increase in exports of goods and services from the country in 2022 after a 9.7% drop in 2020 due to the COVID-19 pandemic, and a 6.3% increase in its imports after a drop of 13.9% in 2020.

Despite the COVID-19 pandemic, agricultural exports to Australia have made significant progress. Recently, Australian companies have reduced rice imports from several countries, but they have always preferred rice from Vietnam, and in large quantities. This continued to confirm the quality of Vietnamese rice in this demanding market. Vietnam and Australia recently completed the signing of a strategy to strengthen their economic ties to increase bilateral trade to US\$15 billion, promising more opportunities for exports. Australia has one of the toughest markets in the world, with many demanding quality standards and strict procedures. Agriculture continues to use 75% of water resources, with farmers making less effort to conserve water conditioned upon better rainfall over the past two years. But drought cycles are likely to return and be exacerbated by high fees for the exploitation of unconventional gas. The country is one of the strongest supporters of trade liberalisation in the World Trade Organisation (WTO). However, trade with Australia still suffers from numerous non-tariff barriers, including sanitary and phytosanitary barriers. Agriculture, forestry, fisheries and aquaculture account for 2% of Australia's GDP, with an output value of €40.9 billion in 2011-2012. The main drivers of this growth are cotton (+43%), barley (+22%) and wheat (+7%). The working population in these industries is now only, 317000 people, or 2.9% of the working population. The main productions of recent years are, in descending order of their contribution to the value of agricultural products: wheat (14.2%, 29.9 million tons), beef (13.6%, 2.1 million tons), milk (7.3%, 94.8 million tons), vegetables (6.4%, 2.2 million tons), fruits and nuts (5.8%, 0.94 million tons) (Diewert and Fox, 2022; Mundlak and Larson, 1992).

In Australia, the production, whether commercial or experimental, of genetically modified products is only permitted with the approval of the responsible federal authority, the Office of the Gene Technology Regulator (OGTR). Cotton, carnation, blue rose and canola are the only cash crops currently permitted in Australia. The area planted to genetically modified cotton and canola more than tripled from 200000 hectares in 2009 to 650000 in 2010. 90% of cotton and nearly 12% of canola were genetically modified. Three of the 6 states have decided to ban all genetically modified crops on their territory: the Federal States of South Australia, Tasmania and the Australian Capital Territory. In the states of South Australia, only the testing of genetically modified canola crops is allowed. In 2011-2012, the volume of seafood production amounted to 237000 tons worth about 1.83 billion euros. While fish catches are declining, aquaculture production has been growing steadily and rapidly since the early 2000s. The share of aquaculture in total production is now 38% of production, compared to 26% ten years ago (Goldstein and Khan, 1978). 2012 itself was marked by federal government-commissioned analytical work on the evolution of Australia's agricultural sector, whether in terms of the national food chain or the adaptation of Australian agricultural production to the Asian market. Although Australian agriculture can currently feed 60 million people, growing demand in Asia is both an opportunity and a challenge for Australian agriculture.

Over the past ten years, Asia's share of Australia's agricultural trade has increased dramatically, from 52% to 62% today. These trends will be reinforced by an increasing Asian population, rising per capita income, and changing consumption patterns and eating habits. In fact, Australia is very well-placed to meet this Asian demand conditioned upon its location at the gateway to this market, so it can offer off-season products. To respond to these problems, Australian companies, government bodies, in addition to concluding free trade agreements, use several tools: resource management, financing, research and development, export support mechanisms and development assistance (Edwards, 1993). The Ministry of Agriculture has implemented several programs aimed at improving resource management. The Future of Carbon Farming program aims to help farmers adapt their production methods to reduce carbon emissions. The "Care for our Country" project is an interministerial program that includes a component of smart agriculture managed by the Ministry of Agriculture. In addition, the Ministry manages the "Water for the Future" program to improve water management.

Australia's economy is based on two very important pillars: agriculture and services. If the environment is unstable explained by many very arid regions, agricultural products account for at least 30% of exports. In Australia, industry experienced a strong development after the end of the Second World War, thanks to immigration, which made it possible to obtain a sufficient amount of labour. Customs protection and the influx of foreign capital allowed developing heavy industry and agribusiness, which are predominant and diversified. Today, the sector accounts for 25% of Australia's exports, as well as the gross national product. The agrifood industry allows increasing the production of agricultural raw materials, in particular textiles, flour mills and slaughterhouses, which is also useful for the extraction of minerals

(Vinod and Nash, 2001; Lotfi and Lotfi, 2021). The first buyers are China and Japan, followed by the USA and, finally, New Zealand. Australia was also able to take advantage of its soils for mass export of grain or mining products. By diversifying its activities, it allows its population to benefit from a very tangible standard of living.

Support for Australian agricultural producers is estimated at approximately 2% of gross farm receipts in 2016-2018, and continues to be the lowest among OECD countries. Australia no longer applies market price support measures to benefit its producers, so domestic prices for its main agricultural products are in line with world prices. In 2018, about 44% of direct support to producers was in the form of subsidies for the use of resources. Essentially, these are grants to upgrade on-farm water infrastructure that aim to help reduce external environmental impacts, including payments to help producers better deal with drought and other adverse natural events through loans at subsidised interest rates (Islam and Subramanian, 1989). The bulk of the remaining producer support is for risk management and environmental management through programs such as the Income Tax Averaging Scheme, the Farm Management System (FMD) and other environmental programs, which account for 51%. Australia has extensive agricultural knowledge and an innovative system. Indeed, knowledge and innovation services account for 60% of the expenditure accounted for in the ESSG, with the bulk of the remaining expenditure – 28% used to support the development and renewal of infrastructure. Over the years, as the support of manufacturers gradually decreased, the share of public service increased from 6% to 52% in 2018, which somehow affects the country's foreign policy.

In 2018, the government announced a number of initiatives aimed at strengthening the resilience of the agricultural sector to drought. The Australian Government has appointed a Drought Coordinator-General to advise it on the development of a long-term drought preparedness and resilience strategy. A new National Drought Agreement between the Commonwealth and the States and Territories has also been signed to continue to focus the framework for action and risk management as long-term priorities (Engle and Granger, 1987). The Government has also completed a review of the Australian Standards for the Export of Livestock (ASEL). The authors of this review recommended animal welfare obligations, progress in reporting and increased transparency regarding the activities of exporters, and the application of fines in the event of non-compliance with the conditions of transport of exported live animals. A mandatory code of conduct is being developed for the dairy sector after years of research into the state of competition in the sector. In 2019, Australia continued to strengthen its international trade ties by implementing or signing various trade agreements. Drought policy continues to evolve as drought has worsened across the country since 2018. The new National Drought Agreement (NDA), signed in December 2018, sets priorities for action in terms of preparedness, resilience and risk management. However, in recent years some states and territories have continued to introduce measures that could encourage producers to take risks, including subsidising and transporting feed and water transport, and paying other one-off allowances. The more unified approach enshrined in the NDA is a welcome step towards eliminating sometimes conflicting

incentives and better achieving long-term sustainability of the import and export sectors (Palamarchuk et al., 2021).

Cereal crops, which occupy three-quarters of cultivated land, are very susceptible to climatic hazards and seasonal fluctuations. Much of the production is destined for export, which explains the importance that the Australian government attaches to international negotiations on customs tariffs and the setting of world prices for agricultural products, since Australia is strongly opposed to protectionist measures applied in the main markets. Half of the cultivated land is devoted to wheat, from which most of the production is exported to Russia, China, Japan or the Arab world. Developed since the 1950s, irrigation has allowed growing rice and cotton in the Murray Basin, which covers about 1 million square kilometres and is irrigated by Australia's main rivers. This very water-intensive irrigation policy is now being questioned because of the damage it is causing: salinisation problems, drying up of rivers, declining water quality. Fruits grown in temperate, Mediterranean and tropical regions are mainly intended for national consumption. The grapevine has developed significantly in the Southeast and allows it to be exported to the world. Queensland's sub-littoral plains provide favorable conditions for sugarcane, the country's main tropical crop, which is produced on small farms with very high yields, and which Australia exports mainly to Asia. In terms of forestry, the country uses several species of eucalyptus for the pharmaceutical industry, pine forests for construction activities in the immediate neighboring countries and some hardwoods, but overall the sector experiences a significant shortage of wood and pulp. Fishing, meanwhile, remains a rather limited sector, part of which is exported to Japan and the USA (Kaletnak and Lutkovska, 2020).

Australia's agricultural sector has always sought innovation to improve productivity and the value of its exports. Building on this strong track record of innovation, the country is becoming a hub for next-generation agriculture and technologies designed to revolutionise agriculture and the food sector. Australian developments in robotics, remote sensing and machine learning are disrupting the global food supply chain. These technologies enable a more active, efficient, safer and environmentally friendly local industry with benefits for international partners and markets. The main challenges for the coming years are establishing a sustainable management of water resources, combating land salinisation and deciding whether to cultivate genetically modified organism GMOs. Australia develops a wide range of agricultural products for both personal consumption and export. Dozens of agricultural grains, oil seeds and pulses are produced in Australia in large quantities for both human and livestock consumption. Wheat is the main grain production in Australia both by value and by area grown. Sugarcane grown in tropical Australia is also an important crop, but its non-sublimated cultivation has great difficulty in competing with Brazilian production. Conditioned upon its geographical proximity to Asian countries, Australia is a major player in the Asia-Pacific region, where 71% of agricultural products are exported (Patyka et al., 2021).

It is worth noting that the mechanism of export of agricultural products had a positive effect on the Australian economy. And the focus on international needs and expanding the pos-

sibilities of their provision made it a center of demand in the world. Thus, the industrial model of the realization and sale of products has a favorable effect on economic policy and has great chances for the modernization and modernization of industries, as well as the stable functioning of economic relations. That is, Australian agriculture will benefit from export orientation, which is confirmed in the works of many researchers. And the implementation model has a solid basis for future projects.

4. CONCLUSIONS

As such, Australian agriculture remains firmly market oriented, with domestic prices in line with international prices for all major production sectors. Agriculture is supported by combining direct budget expenditures with tax benefits. Budget-financed programs are used to encourage investment to increase risk appetite through soft loans and to support farm incomes in difficult times. Also, direct support is provided for the modernisation of farm infrastructure to improve the use of natural resources and environmental management. Tax incentives are also part of the tools used by public authorities to help producers manage production and market risks, allowing them to better smooth their revenues, and are another form of incentive to invest in training at the operational level. Given the low level of direct state support for producers and the lack of a sustainable mechanism for subsidising farms, research and development programs are the main form of support for the export sector. Mainly through rural research and development corporations, the Australian government supports rural innovation and agricultural productivity growth.

Over the past 20 years, Australia has experienced positive economic growth. In addition, it has a GDP per capita almost twice the national average, relatively low unemployment, and low and stable inflation. The balance of its trade in agri-food products remains positive and grow. About half of Australia's agri-food exports are for final consumption, i.e. consumed overseas. The other half consists of intermediate products that are processed in the destination markets. Economic changes of recent decades – globalisation, falling commodity prices, forced Australia to move away from traditional economic policy, which consisted in exporting minerals, agricultural products and protecting its industrial sector through customs barriers. Until the 2020s, the prosperity of the Australian economy was based on the export of raw materials and agricultural products. Industry, whose workers benefited from a developed system of social protection and high wages, was protected by no fewer customs tariffs. However, currently a growing part of the Australian economy is under the control of foreign capital, and 70% of foreign direct investment has been directed to the tertiary sector, reflecting the structure of the Australian economy and especially the relative weakness of its industry.

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