

IBISWorld Industry Report

Global Fruit & Vegetables Processing

December 2017

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About This Industry

Industry Definition

Operators in this industry process fresh fruit and vegetables into canned, bottled, preserved, frozen, dried (except sun-dried) or otherwise processed or preserved food products for human consumption. The industry also blends salt, sugar, preservatives and other ingredients with fruits and vegetables to make consumer food products. This industry does not include producers of wine (IBISWorld report C1123-GL) or vegetable cooking oils.

Main Activities

The primary activities of this industry are:

- Baby food, canned or bottled, production (except milk based)
- Canned dry bean production
- Canned fruit and vegetables
- Canned tomato-based sauce production
- Dehydrated or evaporated fruit production (except sun-dried)
- Dried soup mix and bouillon production
- Frozen fruit and vegetable production
- Fruit and vegetable salad production
- Fruit pulp, puree, spread and jam production
- Pickle, chutney or relish production

The major products and services in this industry are:

- Frozen fruits and vegetables
- Canned vegetables
- Canned fruits
- Other

Similar Industries

C1119-GL - Other Global Food Product Manufacturing

Companies in this industry manufacture a variety of food products, some of which use processed fruit and vegetables as an input in their production.

C1123-GL - Global Wine Manufacturing

Companies in this industry manufacture wine, which is also produced through the processing of fruit, usually grapes.

C1124-GL - Global Soft Drink & Bottled Water Manufacturing

Companies in this industry primarily engaged in one or more of the following: manufacturing soft drinks; manufacturing ice; and purifying and bottling water.

F4512-GL - Global Convenience Store Chains

Generally known as supermarkets and grocery stores, companies in this industry resell processed fruit and vegetable products produced by industry operators.

Additional Resources

For additional information on this industry:

comtrade.un.org
UN Comtrade Database

www.fao.org
Food and Agriculture Organization of the United Nations

ec.europa.eu/eurostat
European Commission Eurostat

Industry Performance

Executive Summary

The Global Fruit and Vegetables Processing industry has experienced consistent demand over the five years to 2017, as economies of every size continue to consume processed fruits and vegetable products and consumer spending increases. Demand has grown particularly fast in developing economies, as industrial growth has translated into greater urbanization, higher per capita incomes and expansion in the size of the middle class. As the global middle class has grown, it has demanded larger quantities of higher quality and more diverse food. Increased consumption of fruits and vegetables can be attributed to more households becoming health centered. While competition from fresh produce poses a threat, demand for industry staples, such as juice and tomato-based products, continues to grow across the global market. The global decline in commodity prices during the middle of the period, however, has had a significant, albeit indirect, effect on the industry; trade, and as a result, demand for industry goods tumbled midway through the period. Volatile Asian markets also served a role in the industry's struggles over the past five years. As a result, IBISWorld expects the Global Fruit and Vegetables Processing industry to contract at an annualized rate of 0.9% over the five years to 2017. In 2017, industry revenue is forecast to decline 0.4% to \$290.4 billion.

Over the five years to 2022, industry revenue is expected to expand at an annualized rate of 2.9%, reaching \$335.3 billion. Industry demand is expected to increase as producers focus on nutritious ingredients and less invasive processing techniques to keep products as organic as possible. Furthermore, the expected stability of commodity prices is expected to thwart off any potential global slowdowns, ensuring demand for industry goods. While the bulk of fruit and vegetable processing is currently done in North America and Europe, industry production is expected to steadily shift to other parts of the globe, particularly China. While China currently produces about half of the world's vegetables and one-third of the world's fruit (by tonnage), the majority of this output is unprocessed. As Chinese consumers increase their demand for industry products, Chinese fruit and vegetable processing is expected to expand. This trend is expected to continue across emerging economies.

Key External Drivers

The key sensitivities affecting the performance of the Global Fruit & Vegetables Processing industry include:

Global consumer spending

Some types of processed fruit and vegetables, as well as juices, are considered discretionary purchases. As a result, an increase in consumer spending typically increases spending on such items. Global consumer spending is expected to increase in 2017, representing a potential opportunity for the industry.

Global damage caused by natural disasters

Natural disasters, such as floods, earthquakes and hurricanes, can cause substantial damage to the global economy. Natural disasters negatively affect the Global Fruit and Vegetables Processing industry by reducing crop yields (i.e. cutting input supplies), disrupting supply routes and damaging industry production capacity. The global damage caused by natural disasters is expected to increase in 2017.

Global per capita income

As global per capita income increases, consumers are able to purchase more high-quality foods. For example, consumers with high incomes are able to purchase more expensive processed vegetable and fruit products, such as imported preserved vegetables that are not grown in one's home country. As a result, growth in global per capita income tends to increase demand for industry products. Global per capita income is expected to increase in 2017.

Global population

Processed fruit and vegetable products are staple food products throughout much of the world, and are becoming increasingly popular with the increase of the global urban population, which has less access to fresh fruits and vegetables than rural populations. As a result, demand for industry products tends to increase in line with growth in the world population. The global population is expected to grow in 2017.

World price of sugar

Sugar is a primary input for the manufacturing of many processed fruit and vegetable products. The world price of sugar can have major implications in the profit margins for operators that need to keep input costs down. The world price of sugar is expected to rise in 2017, posing a potential threat to the industry.

Current Performance

The Global Fruit and Vegetables Processing industry includes all businesses that alter fresh fruit or vegetables to create a valued-added food product for human consumption. Industry products include canned fruits and vegetables, frozen fruits and vegetables, soups, jams, sauces and dehydrated fruits and vegetables. This industry does not include producers of nonfood fruit and vegetable products, nor does it include vegetable cooking oils or wine (see IBISWorld report C1123-GL).

Expansion of the world population (particularly growth in the world's urban population) and growth in global per capita income have served as positive growth drivers of global demand for food. In addition, the rising global health trend has increased consumer demand for higher-quality and more diverse fruit and vegetable products. Simultaneously, improvements in logistics and production processes have enabled the industry's larger multinational companies to increase their production and more efficiently distribute their products over geographically disparate markets. While industry production is still concentrated in North America and Europe, where advanced fruit and vegetable processing has deep roots, the processed fruit and vegetable infrastructure has been expanding in the developing world to meet its population's growing demand for industry products. Still, while China is the industry's leading exporter, nearly half of all processed fruit and vegetable products that are traded are sourced from Europe. Over the five years to 2017, however, these positive trends have been outweighed by the collapse in commodities prices in 2014 and 2015. Activity in the industry contracted considerably due to the related global economic slowdown. Profit margins were also negatively affected by the collapse and volatility in prices, declining to a five-year low of 4.7% in 2014. Revenue declined most in late 2015 and early 2016, corresponding to the trough of commodities prices. Overall, industry revenue is projected to decline an annualized 0.9% to \$290.4 billion during the current period, with a decline of 0.4% in 2017 specifically.

Demand from developed economies

Differences in food consumption patterns between developed and developing countries have affected the Global Fruit and Vegetables Processing industry's performance in different parts of the world. In both developed and developing economies, consumption of processed fruit and vegetable products has long been the staple of a balanced diet. Consumption patterns vary between developed economies based on levels of commercialization in cities and cultural differences, but in general, processed fruit and vegetable consumption is much higher on a per capita basis in the developed world than it is in the under-developed world. Slowly, due primarily to rising health consciousness and inexpensive products with lower fruit and vegetable content, demand for industry products is increasing from underdeveloped markets with consumers who desire nutritious products but require lower prices. However, perceptions that fresh fruit and vegetables are healthier than their processed counterparts, such as canned vegetables, have encouraged other consumers to replace their consumption of industry products with fresh fruits and vegetables. Overall, demand for industry products in the developed world has remained relatively consistent over the past five years, given the diversity of product offerings.

Demand from the developing world

Demand for processed fruits and vegetables has grown strongly in the developing world over the past five years, due to increasing industrialization and greater participation in world commerce. In poverty-stricken countries, people tend to consume less processed foods due to the relatively high retail prices of these products. The fruits and vegetables that consumers do eat are also much more likely to be fresh and locally

sourced, as these products tend to be less expensive than processed products, which are usually imported. However, strong industrial growth in the developing world, particularly in China and Southeast Asia, has had significant effects on food consumption patterns. As the developing world's population has become more urbanized and incomes have risen, consumers are increasingly demanding premium branded products and greater diversity in their diets. This has led to an increase in demand for processed fruit and vegetable products as the developing world's population has increased its consumption of industry products and the ratio of processed to unprocessed food consumption has risen. Therefore, the majority of demand growth for industry products has come from the developing world over the past five years.

Global production

The size and level of technological complexity of fruit and vegetable processing establishments varies greatly, from very small fruit dryers to large, technologically advanced vegetable canning plants. Industry participants that operate on a global scale must have the machinery necessary to keep up with the speed and capacity required to fulfill demand. IBISWorld expects operators in Europe and Asia to produce more than 70.5% of global exports of processed fruit and vegetables in 2017. China is the world's leading exporter of processed fruit and vegetables, with the United States and European countries filling the next five positions.

The developing world produces the majority of the world's fresh fruit and vegetables. According to data sourced from the Food and Agriculture Organization of the United Nations, China produces about half of the world's vegetables and one-third of the world's fruits. Although many of the leading fresh produce-producing countries are also leading manufacturers in this industry, many operators will import fresh produce from a separate country to manufacture new processed foods. Therefore, given the growing demand for industry products in the developing world, more industry output is being manufactured in the developed world and exported to developing and under-developed economies that may have provided the initial fresh produce. As a result of increased commerce, global industry trade is estimated to increase at an annualized rate of 0.7% over the five years to 2017 to \$58.5 billion. Production in developing nations is also growing to meet domestic demand, often fueled by a growing population. As a result, industry enterprises and employment are forecast to grow at annualized rates of 3.3% and 1.1% to 29,437 companies and 507,466 workers, respectively, over the five years to 2017.

Industry Outlook

The Global Fruit and Vegetables Processing industry is expected to return to growth over the five years to 2022. Domestic demand for industry products is expected to grow strongly in developing economies such as China and India. Conversely, demand in developed economies such as the United States is expected to decline at a marginal rate as consumers increasingly replace their consumption of processed fruits and vegetables with fresh produce. Furthermore, the projected stability in commodity prices is expected to thwart off any potential slowdown in the global economy. These operating conditions are anticipated to result in continued rising production in the developing world; industry enterprises are expected to grow at an annualized rate of 2.0% to 32,578 companies. IBISWorld anticipates that production will increase despite a projected marginal decline in industry employment to 506,744 workers. Much of this stagnation in industry employment is due to the ongoing automation trend in developing countries; as companies continue to invest in capital, their reliance on labor is expected to decline as a result. As a result, global trade of processed fruit and vegetable products is expected to grow at an annualized rate of 3.4% to \$69.2 billion over the five years to 2022. Similarly, industry revenue is expected to grow at an annualized rate of 2.9% to \$335.3 billion over the five years to 2022.

North American demand

The consumption of industry products in North America, the largest market for processed fruit and vegetable products, is forecast to decline slightly due to the influence of consumer health consciousness. A growing number of consumers are expected to replace their consumption of industry products with fresh fruits and vegetables with the intention of improving their diet. While this is expected to decrease demand for frozen and canned fruits and vegetables, other product segments are anticipated to become more popular. For instance, as North Americans' free time is increasingly restricted and the frequency of sit-down meals decreases, demand for convenient, ready-to-eat meal options is expected to increase. This is expected to increase demand for certain industry products, such as prepackaged salads and dried fruit snacks. Given that these products carry high individual product profit margins, profit margins for those industry operators that serve the North American market are expected to increase. However, decreasing consumption for canned and frozen fruits and vegetables is expected to lower industry revenue derived from sales to consumers in this region.

European demand

Demand for processed fruit and vegetable products in Europe is expected to remain relatively stable over the five years to 2022. European per capita consumption of processed fruits and vegetables is currently lower than North American consumption, leaving little room to further decline. While Europeans consume more fruits and vegetables per capita than North Americans do, a larger portion of this consumption is fresh, not processed. Demand from fruit and vegetable processing in the UK is expected to decline in 2017.

North Asian (including East Asian), Southeast Asian, Indian and Central Asian demand

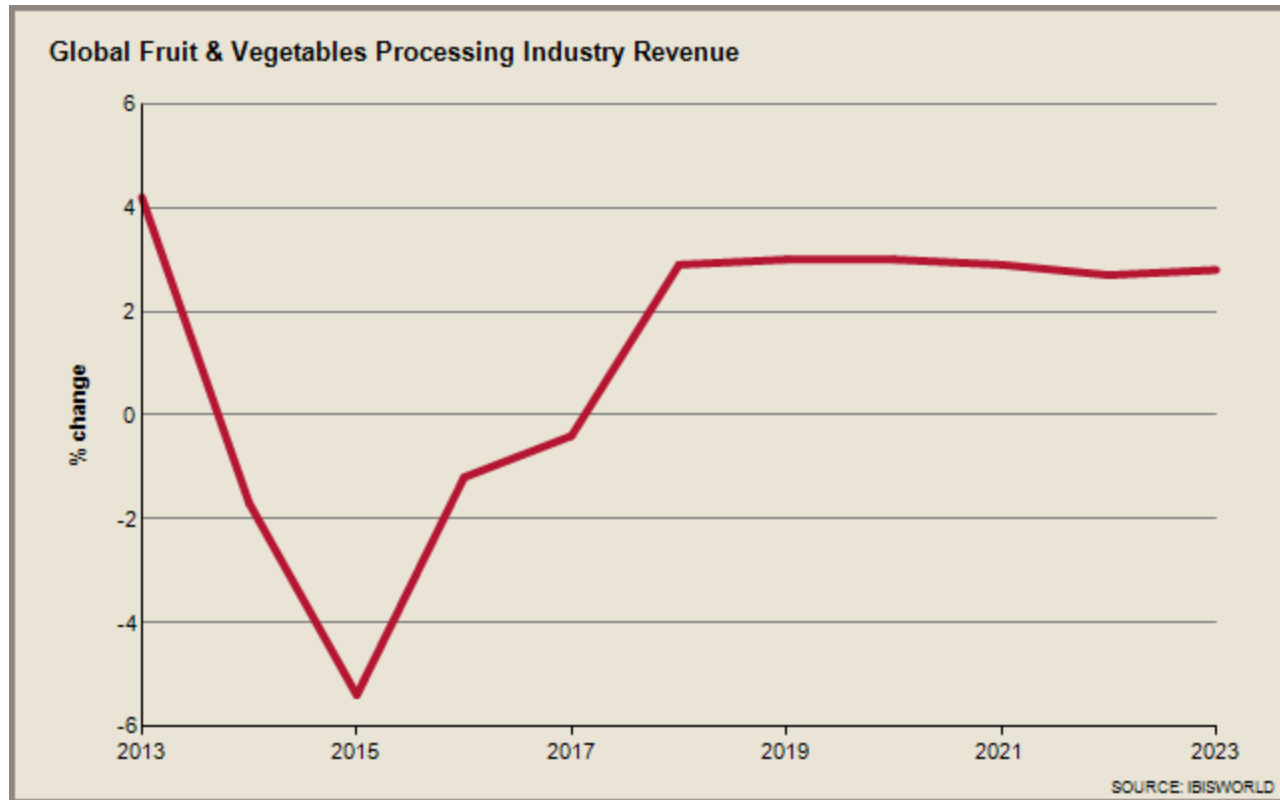
The majority of global growth in demand for processed fruit and vegetable products is expected to come from Asia, in particular from China and, to a lesser extent, India. Economic growth in much of North Asia, Southeast Asia and the Indian subcontinent is expected to drive increased urbanization rates and expand the size of the Asian middle class, which will demand greater quantities of processed food, including industry products. Increased demand for industry products is expected to be partially satisfied by imports from Europe and North America. However, the production of industry products is also expected to increase in Asia, particularly among regional companies that tend to provide niche products that appeal to local tastes.

South American and African demand

Demand for processed fruits and vegetables, already relatively high, is expected to grow strongly in South America. Much of this growth is expected to come from Brazil, by far the continent's largest consumer market and leading industry exporter. South America's processed fruit and vegetable product manufacturing is already high by global standards, with a considerable share of production focused on the North American export market. As demand for processed fruits and vegetables increases in the developing

world, South American industry exports are expected to be directed further abroad, expanding the continent's share of global production.

While fruit and vegetable processing infrastructure is sparse in Africa, the continent, which is home to more than 1.1 billion people, represents an enormous future market for the Global Fruit and Vegetable Processing industry. As the African middle class grows, particularly in wealthy and politically stable countries such as South Africa, Botswana and Ghana, demand for industry products from this continent is expected to grow. While much of this growth in demand is forecast to be met by imports, the continent's production of industry products meant for domestic consumption is expected to grow as well.



Industry Life Cycle

This industry is in the mature stage of its life cycle.

Life Cycle Stage

- This industry experiences strong competition from substitute foods, such as fresh fruit and vegetables
- Technological change is relatively minimal and focused on improving processing efficiency
- Industry product categories are well-defined, with relatively minimal product innovation
- Demand for processed and preserved fruit and vegetables is increasing in line with growth in the global middle class

The Global Fruit and Vegetables Processing industry is in the mature stage of its life cycle. Industry Value Added (IVA), a measure of an industry's contribution to the overall global economy, is expected to grow at an annualized rate of 0.1% over the ten years to 2022. In comparison, global GDP is expected to expand at an annualized rate of 2.9% over the same period of time. This rate of IVA growth relative to that of GDP, would indicate an industry that is in the declining stage of its life cycle. There are, however, other characteristics and considerations that illuminate the industry's place as a mature industry.

Fruit and vegetable processing came into existence during the European industrialization of the 19th century as a means of extending the shelf-life of fruits and vegetables, enabling them to be transported far distances and consumed year-round. Demand for processed fruits and vegetables across the world has subsequently grown substantially as the global population has become more urbanized (and therefore with lesser access to fresh fruits and vegetables), and has become wealthier, therefore demanding more food, more diverse types of food and higher-quality food. As a result, demand for industry products is steadily increasing as the world becomes more urbanized, richer and more globally integrated. However, industry product staples, although highly diverse, have remained relatively unchanged in their form for decades, and are becoming widely accepted by the global population.

Products & Markets

Supply Chain

Key Buying Industries

C1119-GL - Other Global Food Product Manufacturing

Operators in this industry purchase processed fruits and vegetables for use as inputs in the production of other food products.

F4512-GL - Global Convenience Store Chains

Operators in this industry purchase processed fruit and vegetables for resale to consumers.

F4513-GL - Global Supermarkets

While supermarkets purchase the bulk of the products they resell from wholesalers, some, especially major retailers with significant purchasing power, purchase processed fruits and vegetables directly from manufacturers.

G4611-GL - Global Hotels & Resorts

Hotels and resorts purchase industry products for use in the preparation of meals for their customers.

G4621-GL - Global Fast Food Restaurants

Fast food restaurants purchase processed fruits and vegetables for use in the preparation of food products sold to their customers. Some large fruit and vegetable processors have pre-existing arrangements with fast food outlets.

Key Selling Industries

A0119-GL - Other Global Agriculture

Industry operators purchase fruits and vegetables for use as inputs in the production of industry products.

C1115-GL - Global Sugar Manufacturing

Industry operators purchase sugar for use as an input in the production of some industry products, such as fruit juice.

C1512-GL - Global Cardboard Box & Container Manufacturing

Industry operators use cardboard boxes and containers to package processed fruits and vegetables for transport to retailers.

C1951-GL - Global Plastic Product & Packaging Manufacturing

Industry operators purchase plastic bottles and wrappings for the packaging of some industry products, such as jams and jellies.

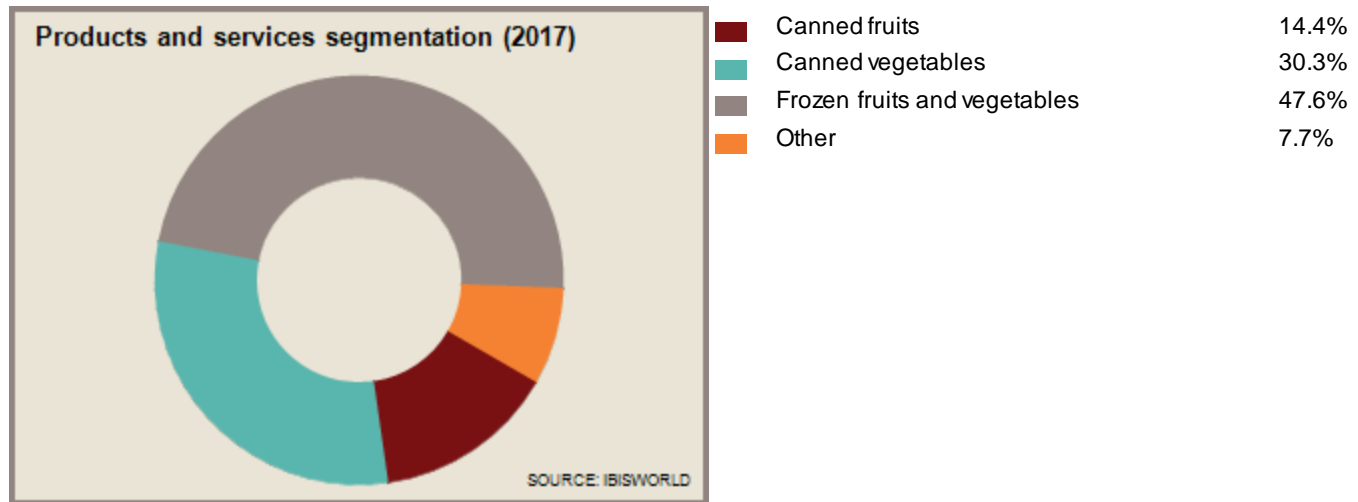
C2111-GL - Global Glass and Glass Products Manufacturing

Industry operators purchase glass bottles and jars for use in the packaging of some industry products, such as pickled vegetables.

C2321-GL - Global Alumina and Aluminum Production and Processing

Industry operators purchase and use aluminum cans for use in the packaging of some industry products.

Products & Services



Frozen fruits and vegetables

Production of frozen fruit and vegetables represent the Global Fruit and Vegetables industry's most produced product, accounting for an estimated 47.6% of industry production. Within this segment, frozen potatoes, the popularity of which is growing across the world, account for the most important specific product type. Other popular frozen vegetables are peas, carrots, beans and vegetable mixes for stir-fries. In the developed nations of the OECD, consumers have become more health-conscious and increasingly time-poor, which has driven demand in these countries for frozen fruit and vegetable products. In the developing world, the expansion of middle-classes has led to increased durable good ownership rates. This includes expanded freezer ownership, which is necessary for storing frozen fruits and vegetables. As a result, economic growth and rising incomes have led to expanding demand for products within this segment from the developing world. As a result of this widespread increase in global demand for products within this segment, this product segment has expanded over the past five years.

Canned fruits and vegetables

The Global Fruit and Vegetables Processing industry's second-most produced products canned vegetables accounting for an estimated 30.3% of industry production in 2017. In addition to canned vegetables, the segment also includes pickled and brined fruits and vegetables, pickles, relishes and sauerkraut. While demand for canned fruits and vegetables has been increasing in growing developing economies, North American consumers, are increasingly opting to purchase fresh fruits and vegetables at the expense of industry products due to the perceived health benefits of consuming fresh produce.

Despite being a significant source of revenue for industry operators, canned fruits are estimated to account for only 14.4% of industry production in 2017. This can be attributed to the fact that canned fruits are comparatively much more expensive than their vegetable counterparts. As a result, consumers often purchase a greater amount of canned vegetables than they do fruit. Included in these segments are canned tomato-based sauces such as ketchup, salsa, tomato paste, as well as other sauces.

Other

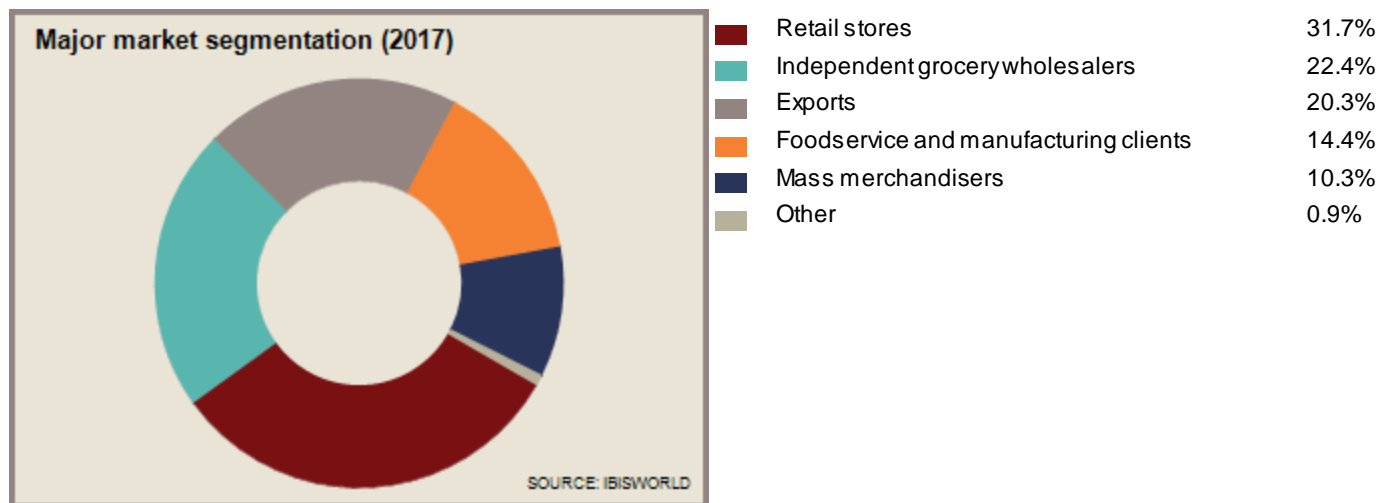
The remaining production includes jams, jellies, dried fruits and vegetables, fruit preserves and other miscellaneous products. Due to their ease and low cost of production, dried fruits and vegetables are produced and sold for relatively low-prices across all parts of the world. For example, dried dates, figs and grapes (raisins) are popular over wide geographic areas. However, due to their low cost, products within

this segment have long been widely accessible to much of the world population. As a result, global consumption of products within this segment have increased only marginally as global incomes have risen.

Demand Determinants

Demand for the Global Fruit and Vegetables Processing industry's products is primarily dependent on urbanization, per capita income levels and consumer preferences. While urbanization rates vary widely from country to country, the world urban population is growing as people increasingly move from rural, farming areas to cities and towns. Urban populations, which are located further away from farming communities, consume much higher quantities of processed foods (including processed fruits and vegetables) than rural populations do. As a result, growth in the global urban population increases demand for industry products. In addition, as incomes grow, consumers demand larger quantities of more diverse and higher quality food. In the developing world, this usually translates into an increase in processed fruits and vegetable consumption relative to less expensive, locally-sourced food. Conversely, in the developed world, this often encourages consumers to increase their consumption of fresh fruits and vegetables (which are often more expensive) relative to processed industry products. However, growth in consumer incomes in the developed world also increases demand for ready-made salads, fruit cups and other more expensive, convenient food items. As a result, in sum, higher global per capita income increases demand for industry products. Finally, consumer preferences can substantially affect industry demand, with consumers' preference for fruits in vegetables (processed and unprocessed), processed fruits and vegetables relative to unprocessed fruits and vegetables, and preferences for specific industry products all affecting industry demand.

Major Markets



Retail stores

Groceries, supermarkets and other retail stores are the largest market for this industry, accounting for an estimated 31.7% of industry revenue in 2017. This market is especially prevalent in developing nations, as mass merchandisers are responsible for satisfying a lower proportion of domestic demand. This segment tends to supply most of the industry's products, as fruits and vegetables in all forms are often sourced from these stores.

Independent grocery wholesalers

Grocery wholesalers account for an estimated 22.4% of industry revenue in 2017. This market continues to be a major market for the industry, as wholesaling tends to represent the most cost-efficient means of delivering industry products to downstream retailers. However, in many developed countries, improved logistics and increased supermarket purchasing power have enabled many manufacturers to bypass

wholesalers and sell directly to downstream supermarkets and convenience stores. In much of the developing world, rising consumer income and growth in the size of the urban population has led to an expansion in the number of consumers that use supermarkets as their primary source of food products. However, due to the decline in the use of food wholesalers in many developed economies, this market segment has declined as a share of industry revenue over the past five years.

Exports

Exports are expected to represent 20.3% of industry revenue, as a significant portion of industry goods are produced and shipped to other countries. Processed fruits and vegetables tend to have lengthy shelf lives that lend themselves to being traded worldwide. Overall, this market segment's share of industry revenue has increased marginally over the five years to 2017.

Foodservice and manufacturing clients

Sales of industry products to foodservice industries, including restaurants, bars, hotels, motels, casinos and catering companies, as well as to other food manufacturers such as frozen food, bakery product and pet food producers, are expected to account for 14.4% of industry revenue. Growth in global per capita disposable income enables urban consumers to increase the frequency that they visit foodservice establishments and the amount of money that they spend each visit. In addition, increased tourism expands global spending at foodservice industries as consumers cook much less frequently while traveling than while at home.

In addition, other food manufacturers buy processed vegetable and fruit products from industry operators for use as inputs in their manufacturing processes. Demand from this market is primarily dependent on global per capita disposable income and consumer spending on food products, which have both increased over the past five years. As a result, this market has grown as a share of industry revenue over the past five years.

Mass merchandisers

IBISWorld anticipates that this segment will account for 10.3% of industry revenue in 2017. Mass merchandisers are large retail locations with the cost-efficiencies of wholesalers. They seek to provide a comprehensive catalogue of products to become consumers' one-stop shop for all goods. Due to their ability to compete on the bases of price and convenience, other retail stores are often hard-pressed to compete with this market. As mass merchandisers such as Walmart expand into previously untapped geographic regions, the proportion of demand satisfied by this segment is expected to increase significantly.

Other stores

Processed and preserved fruit and vegetable products are also sold to other retail outlets including convenience stores, warehouse club stores and grocery warehouses. Additionally, discount stores represent an important channel in parts of Western Europe, especially Scandinavia.

International Trade

Exports in this industry are medium and steady.
Imports in this industry are medium and steady.

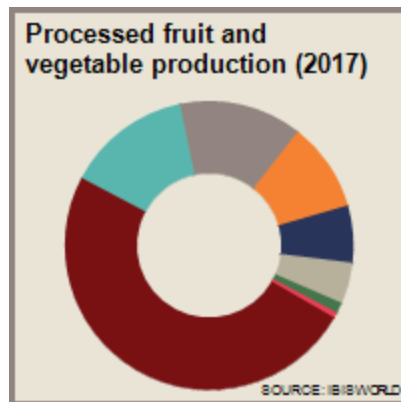
Increasing consumer wealth in developing countries has led to increased demand for food, including fruits and vegetables. However, in most cases, food processing infrastructure in these countries is not developed enough to satisfy domestic demand. At the same time, consumer food preferences in developed economies is changing due to globalization, with demand in OECD countries for foods not produced domestically

increasing as a consequence. As a result, international trade in food products, including fruits and vegetables has increased over the past five years. According to World Bank figures, about 37.0% of the fruit and vegetables that are traded internationally (by value) are processed products, which is largely due to the nonperishable nature of processed produce relative to fresh produce. Fresh produce is also traded, yet doing so is more costly to transport because more expensive measures have to be taken to reduce the likelihood of spoilage. While improvements in refrigerated transportation have facilitated increased international trade in fresh produce, IBISWorld expects that trade in fresh produce is limited to countries with a better-developed cold supply chain and transport infrastructure. The value of the international trade in processed fruit and vegetable products is expected to grow at an annualized rate of 0.7% over the five years to 2017 to \$58.5 billion.

Certain processed fruit and vegetables are more likely to be produced in certain countries depending on soil composition, weather conditions and regional fruit and vegetable preferences. For example, large quantities of canned peaches are exported from Greece, China and Chile due to the large quantity of peach production in these countries. Tinned pears, however, are more often exported from South Africa, China, or Spain. Frozen potato products are most intensively exported from the Netherlands and Canada, while large quantities of canned tomatoes originate from Italy and Spain.

The largest exporting countries of preparations of fruit and vegetables are China, the United States, the Netherlands, Belgium and Italy. Due to the relatively small size of its domestic Fruit and Vegetable Processing industry, Japan imports a large percentage of the processed fruits and vegetables that it consumes. The United States, Germany, the Netherlands, the United Kingdom, France, and Belgium rank among the largest importers of fruit and vegetable juices, while France, the United States, Germany, Japan and the United Kingdom are the largest importers of frozen vegetables. China represents the country with the highest rate of industry product import growth as the country's growing urban middle class has rapidly demanded higher quantities of processed fruit and vegetable products.

Business Locations



Region	%
Europe	49.4
North America	14.0
North Asia	13.8
South America	10.0
South East Asia	6.4
Africa & Middle East	4.6
India & Central Asia	1.2
Oceania	0.6

The production of processed fruits and vegetables occurs in all regions of the globe. In particular, low-tech fruit and vegetable processors, such as fruit driers, exist in almost every country in the world. However, high-tech, large-scale fruit and vegetable processing operations are concentrated primarily in Europe and Asia. These continents dominate the Global Fruit and Vegetables Processing industry primarily due to the fact that industry operations have been established in these areas for a very long time, enabling time for the development of major companies and advanced fruit and vegetable processing technology. However, as demand for industry products increases across the world and middle-income economies become more advanced, production is slowly shifting to other parts of the globe.

In general, the level of fruit and vegetable processing activity within a region depends on several factors. Fruit and vegetable processing operations are most often established in regions with high demand for industry products. For example, there are few fruit and vegetable processing operations in areas where subsistence agriculture is widespread, while there is usually little frozen food production in areas in which most people do not own freezers. In addition, industry operators are usually located in areas with ample and inexpensive access to fruit, vegetable and packaging material inputs, as well as areas with low wage and other operating costs.

Europe

Europe represents the global region that produces the largest share of industry products, at an estimated 49.4% of the global total. Fruit and vegetables have long been mass-produced to feed this region's dense and highly urbanized population. The region is also home to several medium-sized fruit and vegetable processors, including France's Bonduelle. Fruit and vegetable processing is done in high quantities across the continent, but a relatively higher concentration of industry operations occurs in the continent's largest economies, including Germany, Russia, Italy, France and the United Kingdom. Overall however, Europe's share of global production has been in decline as other regions, notably North Asia, increase their share of global production. This is partially due to stagnant continent demand for industry products, as well as the gradual weakening of the Common Agricultural Policy of the European Union, a subsidization of the bloc's agricultural sector that helps provide fruit and vegetable processors with inexpensive inputs.

North America

North America is the second largest manufacturer of processed fruits and vegetables at an estimated 14.0% of global production, with the United States playing by far the most important role in industry production. In the United States, over half of fresh fruit and vegetables are processed. The major fruit and vegetable processing region is in the Far West, with a large portion of industry establishments, followed by the Great Lakes. In the United States, California is the most dominant state, as processors are close to freshly grown fruits and vegetables. Mexico also provides an abundant supply of fruits and vegetables, with a high proportion that are processed. Due to increasing consumer demand and advances in technology, Canada has continued to increase its production volume.

North America also houses the headquarters of some of the most profitable processed and preserved fruit and vegetable companies in the world: Kraft Heinz (United States), Campbell Soup Company (United States), McCain (Canada) and Simplot (United States). The North Americans are also the largest per capita consumers of processed and preserved fruit and vegetables in the world.

North Asia

North Asia represents the region with the third highest level of processed fruit and vegetable production at an expected 13.8% of total production and is the region that has experienced the most growth over the past five years. The majority of this growth has come from China, which, according to the Food and Agriculture Organization of the United Nations, produces about half of the world's fresh vegetables and one third of the world's fresh fruit. As China has grown economically, its population has become richer and more urbanized. The burgeoning Chinese, urban middle class is increasingly demanding more food products of higher quality, including processed fruits and vegetables. Domestic production of industry products has increased over the past five years to meet this growth in domestic demand.

South America and Southeast Asia

South America is the fourth largest manufacturer of processed fruits and vegetables, and is estimated to account for 10.0% of global production. Given its large consumer base and substantial production of fresh fruits and vegetables, Brazil is by far the largest processed fruit and vegetable manufacturer on the continent. Also of note is Chile, which is one of the largest producers of concentrated juices in the Americas.

Southeast Asia is the fifth largest producer of processed and preserved fruit and vegetables, accounting for an estimated 6.4% of global production. The Philippines, Thailand and Malaysia are the largest producers, accounting for over half of fresh fruit and vegetables. Common processed vegetables include chili peppers pickled in vinegar, drinks made from ginger and tofu (bean curd).

India and Central Asia

While India is one of the world's largest producers of fresh fruit and vegetables, the Fruit and Vegetables Processing is relatively undeveloped in this country. However, industry production in India has been slowly increasing as the country's growing middle class demands more food and of higher quality. Pakistan and Bangladesh also have large consumer bases that are slowly demanding more processed fruit and vegetables, some of which is being produced domestically. In contrast, the former Soviet republics of Central Asia, and in particular Kazakhstan, have relatively highly developed domestic fruit and vegetable processing industries, yet these countries' small populations have limited domestic demand for industry products. In contrast, Afghanistan, Nepal and Bhutan all have very small fruit and vegetable processing operations.

Africa and the Middle East

With about 20.0% of the world population, Africa and the Middle East represents a region with a very large potential consumer base for industry products. However, particularly in Sub-Saharan Africa, the majority of fruit and vegetable consumption is that of fresh produce, not processed goods. As the middle class grows in this region, consumer demand for industry products is expected to increase, spurring an impetus for increased regional manufacturing of industry products.

Competitive Landscape

Market Share Concentration

Industry concentration is low.

The Global Fruit and Vegetables Processing industry has a low level of market share concentration, with the industry's four largest companies estimated to control 10.9% of the global market for processed fruits and vegetables. In individual countries or regions, large companies are often able to satisfy a large share of demand for processed fruit and vegetables. For example, Campbell Soup Company controls about 10.0% of the US market for industry products. However, given the wide variety of products this industry produces, regional differences in specific fruit and vegetable input production and dissimilar fruit and vegetable product preferences of different countries, it is difficult for a single player to control a large share of the global market for processed fruits and vegetables. A notable exception to this trend is Kraft Heinz's large role in the global ketchup market, which has been possible due to the relatively high demand for ketchup across the globe. While industry market share concentration is low, it is growing slowly as increased global trade is enabling the industry's larger companies to expand into underdeveloped markets with relatively untapped consumer bases.

Key Success Factors

The key success factors in the Global Fruit & Vegetables Processing industry are:

Access to high quality inputs

Consumers are sensitive to the quality and taste of the industry products they purchase. Therefore, purchasing agricultural inputs from healthy yields is crucial to ensure maximized end-product quality, increasing demand for a company's products.

Attractive product presentation

Given the relative homogeneity of industry products within each industry product segment, successful advertising and product presentation can positively distinguish a company's product from others, which can increase company sales.

Economies of scale

Companies that produce a high volume of output benefit from lower operating costs due to economies of scale. This grants these companies a competitive advantage by enabling them to sell their products at lower prices.

Ability to pass on cost increases

The industry's most successful companies must be able to establish well-known brands. In doing so, these companies are more able to pass on cost increases when input prices rise due to brand loyalty.

Supply contracts in place for key inputs

The prices of fruit and vegetable inputs are incredibly volatile due to factors such as adverse weather conditions and insect infestations. To negate this, long-term fixed-price supply contracts with farmers and distributors are crucial.

Cost Structure Benchmarks



Purchases	59.1%
Wages	6.2%
Rent & Utilities	2.8%
Depreciation	2.2%
Marketing	1.9%
Other	22.3%
Profit	5.5%

Profit

Profit, or earnings before interest and taxes (EBIT), is estimated to account for 5.5% of industry revenue in 2017, down from 5.9% in 2012. The Global Fruit and Vegetables Processing industry is relatively profitable with moderate value added to its products. Increasing purchase costs have tempered industry profit margins over the past five years, since they overwhelmingly represent the industry's top expense. Increased investment in capital equipment, however, has reduced the industry's reliance on labor and increased industry production efficiency, mitigating the margin squeeze brought about by the increase in purchase costs.

Purchases

Purchases represent the Global Fruit and Vegetables Processing industry's largest expense, accounting for an estimated 59.1% of industry revenue in 2017. The most important industry purchases costs are fresh fruit and vegetable inputs, as well as packaging materials such as aluminum cans, glass jars, cardboard boxes and plastic containers and wrapping. Industry operators use an extensive variety of fruits and vegetables as inputs in their operations, the prices of which vary greatly depending on geographic location. For example, most fruits and vegetables are generally very expensive in Japan due to the country's wealth and lack of significant domestic fruit and vegetable production. In addition, individual fruit and vegetable prices vary greatly over time within geographic regions due to crop failures and seasonality, since most fruits and vegetables are only grown during certain parts of the year. As a result, industry purchases costs as a whole can fluctuate substantially even on a day-to-day basis.

When looking at annual global fruit and vegetable price averages, prices have been on the rise over the past five years. Global economic growth has spurred the expansion of the global middle class, which increasingly demands a more varied food supply, including higher quantities of processed fruits and vegetables. In addition, the use of corn, soybeans and other vegetables for biofuel production has diverted vegetable yields from the food production chain, decreasing global supply, and consequently increasing global prices. Global economic growth, especially the development of the Chinese economy, has also increased global demand for metals and other raw materials, increasing the price of this industry's packaging material inputs. As a result, in sum, industry purchases costs as a share of industry revenue have grown over the five years to 2017.

Wages

Wages are expected to account for 6.2% of industry revenue in 2017. Traditionally, vegetable and fruit processing was a highly labor-intensive process. Still today, many industry activities, such as the production of jam and the drying of fruits and vegetables, is largely done by hand in many parts of the world. Conversely, however, canning, bottling, freezing and many other industry activities are done by machines and require little labor to carry out. The automation of industry activities has been growing over the past five years as fruit and vegetable processors have increased capital investments in their production facilities. These capital investments have led to increased automation of industry production, which has decreased the industry's need for labor. As a result, industry wages costs have fallen as a share of industry revenue over the five years to 2017.

Other

Other costs that significantly affect the industry include capital investments, rent, utilities, advertising, administrative fees, distribution costs, legal fees and research and development expenditures. Capital investments have increased as a share of industry revenue over the past five years as industry operators have increasingly moved to increase the production capacities of their facilities. Conversely, rent and utilities costs, while increasing in absolute terms, have fallen as a share of industry revenue over the five years to 2017 because industry revenue has grown at a relatively faster rate. Industry marketing expenditures, while accounting for a small share of industry revenue, have grown over the past five years as the industry's larger players have attempted to expand their brands' recognition to new consumer markets.

Basis of Competition

Competition is medium and increasing

Internal competition

Industry competition is reasonably high, with smaller regional companies and the industry's larger multinational corporations competing for market share across a plethora of regional markets. Industry competition has increased over the past five years, with more aggressive promotional activity taking place to attain sales increases. Competition for supply contracts with large wholesalers and supermarkets is particularly intense given that these downstream buyers are the most important link to mass consumer markets.

Given the variety of inexpensive generic branded products, price is a chief source of competition among processors. Price is particularly important for processors of generic products and those supplying fruit concentrate to downstream food industries. For processors of premium products, such as gourmet pickles, and those with established, well-known brands, product prices have a less important role in industry competition. Instead, these industry operators compete based on product taste, quality and brand recognition. In addition, many processors are taking advantage of growing consumer concerns about health in developed countries by introducing products with reduced sugar and salt. Similarly, some processors are using the nutritional benefits of their products as a marketing platform for gaining market share. For example, marketing the health benefits of fruit cups and prepackaged salads for consumption in school cafeterias. Finally, larger industry operators are increasing the range of products that they produce to appeal to niche consumer markets and increase their brand exposure.

External competition

The Global Fruit and Vegetable Processing industry is confronted with external competition from producers and distributors of fresh fruits and vegetables. In general, consumers and restaurants tend to prefer fresh fruits and vegetables to their processed alternatives due to the perception that fresh produce is relatively better tasting and are healthier (processed fruits and vegetables often contain preservatives or added salt or sugar). However, processed fruits and vegetables have a competitive advantage over fresh alternatives as they have a much longer shelf-life, which enables processed products to be transported to more disparate markets and enables consumers to plan their fruit and vegetable consumption over a longer period of time. However, genetically modified fruits and vegetables, which are very prevalent in North America but illegal in Europe, have increased the shelf-life of fresh fruit and vegetables, reducing the competitive advantage that processed fruits and vegetables have over their fresh equivalents in some markets.

Barriers to Entry

Barriers to entry are medium and steady.

Barriers to Entry checklist	Level/Impact
Industry Competition	Medium
Industry Concentration	Low
Life Cycle Stage	Mature
Capital Intensity	High
Technology Change	Low
Regulation and Policy	Medium
Industry Assistance	Medium

SOURCE: IBISWORLD

Barriers to entry into the Global Fruit and Vegetables Processing industry are low and depend on the scale of production a potential entrant pursues. Entry into this industry is relatively straightforward since the technology needed for production is readily available and specialist processors can operate on a relatively small scale in the manufacturing of some products. Initial capital costs can represent a relatively high barrier to entry depending on the kind of industry product a potential entrant is attempting to manufacture. These costs can include the construction or purchase of a processing facility, warehouse, plant and equipment. Such costs are particularly high for canning operations, which are characteristically capital intensive.

Branding is important to those industry operators that wish to market their products to a large consumer base. Established industry operators regularly invest heavily in advertising campaigns to solidify brand loyalty and market new products, which can make it difficult for new entrants without enough funding to advertise to convince consumers to purchase their products. Branding is, however, less important for companies that produce generic products or processed fruit and vegetable ingredients used as inputs by downstream food manufacturers.

Large, established industry operators also have a competitive advantage over new entrants in that they are able to produce more efficiently due to the benefits of economies of scale. This enables larger companies to charge downstream markets lower prices for their products, which can sap demand for new entrants' output. In addition, even if new entrants are able to produce very efficiently and charge low prices, they may still have difficulties establishing contracts with downstream buyers, which can be another barrier to entry.

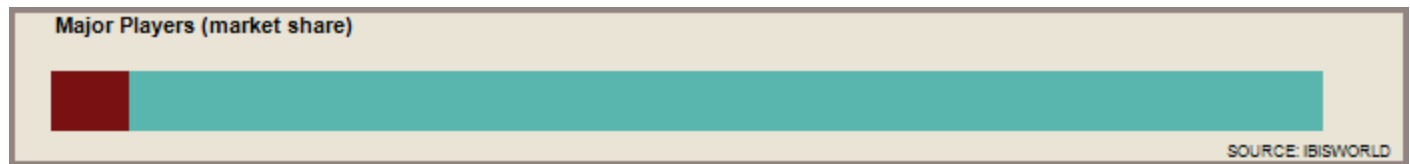
Industry Globalization

The level of globalization is high and increasing.

The Global Fruit and Vegetables Processing industry is highly globalized, with international trade and foreign multinational companies both playing a large role in industry operations. Industry globalization has also risen over the past five years as international trade in both processed fruits and vegetables for consumption and fresh fruits and vegetables for use as inputs in industry production increased. The share of industry revenue attributable to international trade, however, has also increased from an estimated 20.1% in 2012 to an expected 20.3% in 2017. This has occurred as producers continue to take advantage of price differentials between countries, basing production in low-cost regions and selling output in higher value markets. The extent to which producers engage in such practices is, however, constrained by transportation costs.

All of the major players in this industry operate across several geographical regions. For example, Campbell Soup Company employs over 20,000 workers across its global operations, which are located in North America, Europe, Latin America, Asia and Australia. Comparably, Kraft Heinz, which is a new pro forma corporation resulting from the merger of Kraft Foods Group and H.J. Heinz Corporation sells its products in more than 190 countries and territories.

Major Companies



Major Player	Market Share
Kraft Heinz Company	6.1% (2017)
Other	93.9% (2017)

Kraft Heinz Company

Market Share: 6.1%

In the second quarter of 2015, Kraft Foods Group Inc. merged with H.J. Heinz Company and was renamed Kraft Heinz Company (Kraft Heinz). Headquartered in Pittsburgh, PA, the company employs 41,000 full-time workers in more than 190 countries. As the fifth-largest food and beverage producer in the world, Kraft Heinz manufactures products including, condiments and sauces, cheese and dairy, meals, meats, refreshment beverages, coffee and other grocery products. The company is known for iconic brands within the Global Fruit and Vegetable Processing Industry, including Heinz (ketchup), Chef Francisco (frozen soups), Plasmon (baby food, Europe), Wyler's (bouillon and soups), Ore-Ida (frozen potatoes and potato products), HP (sauces), Amoy (Asian sauces), Classico (pasta sauce) and Orlando (tomato products, Europe). In 2016, Kraft Heinz generated revenue of \$26.5 billion and operating income of \$6.1 billion.

In February 2013, Berkshire Hathaway Inc. and 3G Capital Management purchased Heinz for \$28.8 billion in cash (the largest deal in the food sector's history) before merging the company with Kraft Foods to form the Kraft Heinz Company in 2015. Kraft Heinz is expected to continue to implement an aggressive M&A strategy moving forward, as the company tries to capture a larger slice of the global market. This is evidenced by the company's February 2017 bid to acquire Unilever in what would have been, at the time, the third-largest takeover ever.

Financial performance

One of the major drivers of performance over the past five years has been rapid growth in developing markets across China, Russia, India, Indonesia and South America. These markets have accounted for 30.0% of revenue growth in recent years and are expected to continue growing over the five years to 2022. This reflects the positive demand for industry products as a result of population and income growth in developing countries, which are expected to be major drivers of overall industry performance. The importance of developing markets was illustrated in 2011, when Kraft Heinz expanded into the Chinese food-manufacturing sector by acquiring Foodstar.

Kraft Heinz's strong performance over the past five years can also be attributed to the company's focus on social trends that are driving industry growth, such as rising health consciousness. In 2010, Heinz announced the reduction of salt in its ketchup recipe for the first time in 40 years. The incorporation of strategies such as these has helped Kraft Heinz maintain high demand in developed markets by positioning its products as nutritious and convenient meal options. Over the five years to 2017, industry-relevant revenue is expected to grow at an annualized rate of 7.0% to

\$17.8 billion. Although revenue and operating income slid drastically in 2013, the company's investment in restructuring and productivity initiatives as a part of its ongoing cost reduction efforts has boosted its financials extensively. Operating income has also risen drastically, increasing at an annualized rate of 20.5% to \$4.7 billion during the five-year period. Growth across the board was largely driven by the merger between Kraft and Heinz, as well as organic growth in emerging markets.

Other Players

McCain Foods Ltd.

Estimated market share: 2.1%

Founded in 1957 and headquartered in New Brunswick, Canada, McCain Foods Ltd. (McCain) is the world's largest French fry manufacturer, producing about one-third of the French fries consumed across the world. McCain employs over 19,000 workers in its production sites located in Canada, the United Kingdom, the United States, the Netherlands, Belgium, France, Poland, Australia, New Zealand, Argentina, Mexico and South Africa. McCain's products are exported to more than 160 countries across the world. While the company is primarily engaged in the production of frozen potato products, McCain also makes green vegetables, desserts, pizzas, juices and beverages, oven meals and entrees. Over the past decade, McCain's global food operations have continued to expand in the United States, Canada, Taiwan, China, Mexico and South America. While McCain is a private company that does not regularly release its financial records, IBISWorld estimates that the company will generate \$6.2 billion in industry-relevant revenue in 2017.

Campbell Soup Company

Estimated market share: 1.5%

Founded in 1869 and headquartered in Camden, NJ, Campbell Soup Company (Campbell) is a large multinational producer of soups, pasta sauces, crackers, biscuits, confectionary products, prepared meals and other food products. The company employs over 20,000 workers across its global operations and sells its various products in more than 120 countries worldwide. Campbell generated \$8.3 billion in global revenue in fiscal 2014 (year-end July) through its five reportable segments: US Simple Meals, Global Baking and Snacking, International Simple Meals and Beverages, US Beverages and Bolthouse and Foodservice. Campbell operates within the Global Fruit and Vegetables Processing industry through the following brand names: Campbell's (soups), Prego (pasta sauces), Pace (Mexican sauces), Stockpot (foodservice soups), V8 and V8 Splash (vegetable and fruit juices), Erasco (soups, Germany), Heisse Tasse (soups, Germany), Lesieur (sauces, France) and Royco (soups, Belgium and France). Campbell generated industry-relevant revenue of \$4.4 billion in fiscal 2017.

J.R. Simplot Company

Estimated market share: 1.0%

Founded by John Richard Simplot in 1929 and headquartered in Boise, ID, the J.R. Simplot Company (Simplot) is one of the largest privately held agribusiness companies in the United States. The company is involved in a variety of business activities, such as fertilizer manufacturing, crop growth advising, biotechnology research and animal feed manufacturing. Simplot is also a major food manufacturer, with its food product range including fruit and vegetables and French fries under the Roastworks and Simplot Classic Labels. Today, the principle activities of Simplot include the processing, manufacturing and marketing of a range of frozen, canned and baked foods. The company is perhaps most famous for being one of

McDonald's primary French-fry suppliers, a role the company has played since 1967. Simplot also supplies French fries to Burger King, KFC and Wendy's and harvests and processes a wide range of other vegetables, including corn, beans, peas, carrots, broccoli, cauliflower, onions and tomatoes.

While production is focused on the United States, Simplot also has major operations in Canada, Mexico, Australia, New Zealand and China. Of particular relevance to this industry are the company's potato and vegetable processing operations in the United States; the manufacturing and selling of frozen, canned and baked products in Australia; and potato processing operations in Canada and China. Simplot has smaller operations and distribution facilities across the rest of the world. Simplot sells a variety of products in Europe, including appetizers, frozen tropical fruit, avocado products and tortillas. In Korea, the company specializes in the introduction of western products to the national foodservice industry. In Central America, the company sells potato products, frozen vegetables, avocado products and other frozen garnishes and appetizers. The company is expected to generate about \$3.0 billion in industry-specific revenue in fiscal 2017.

Operating Conditions

Capital Intensity

The level of capital intensity is high.

- N/A

The Global Fruit and Vegetable Processing industry has a high level of capital intensity. Vegetable and fruit processing is a business activity with a low to moderate level of capital intensity throughout much of the world. However, in wealthier parts of the world such as North America and Europe, fruit and vegetable processing has become highly mechanized, with machines involved in most of the canning, packaging and sorting of industry products. Overall, industry operators are projected to spend \$0.35 on capital for every \$1.00 spent on labor in 2017. In addition, growing capital investment in the fruit and vegetable industries of the developing world is increasing the overall capital intensity of the industry, as IBISWorld estimates that industry operators allocated \$0.32 to capital expenditure for every dollar spent on labor in 2012. Presently, high-speed production lines have increased production throughput in many countries, enabling increased production of higher quality processed fruits and vegetables without requiring corresponding increases in employment.

Industry capital intensity also varies significantly depending on the industry product being manufactured. Canning and bottling tend to employ large quantities of capital equipment, while drying and pickling are relatively more labor-intensive. In addition, rising global disposable incomes over the past five years have increased demand for higher quality products and more diverse product offerings. For example, consumers from developing countries are increasingly demanding products such as prepackaged salads, packaged apple slices and other products that are convenient to eat. Companies that wish to produce a greater variety of value-added products and at a higher rate of output have had to increase their capital expenditures to do so. As a result, while the level of capital investment required to produce industry products varies depending on the product, capital intensity has increased overall as the plethora of industry products has increased.

Technology & Systems

The level of technology change is low.

Fruit and vegetables are processed in a variety of different ways depending on what fruits and vegetables are being used and the end product desired. The technology used to process fruits and vegetables, with the exception of some more complex processes such as canning or chemical preservation, are relatively simple and have not changed significantly over time. For example, drying, freezing and pickling of fruits and vegetables are relatively simple processes. However, there have been some significant innovations in the packaging of industry products, such as the development and proliferation of microwave-proof plastic. Some other technological and processing advances are also affecting industry operations. For example, Kraft Heinz uses EFS Network, Inc.'s electronic supply chain network. The EFS electronic order management system reduces distribution costs and enhances the trading relationships between foodservice distributors and suppliers. Participation in EFS, and other related logistics services, reduces the costs associated with ordering goods and managing supply chain transactions by replacing manual, error-prone processes with more efficient and accurate electronic processing.

Another example of industry technology development is the increasing prevalence of countercurrent extraction, a juicing method developed in the mid-1990s, especially in developing

economies. This process increases yields by up to 60.0% over conventional processing. The treatment also reduces acidity and bitterness, thus producing a superior tasting product. In general, while the development of new technology is relatively slow for the Global Fruit and Vegetable Processing industry, the industry is becoming more technologically advanced as countries with only basic fruit and vegetable processing infrastructure increasingly invest in the development of more advanced fruit and vegetable processing plants.

Revenue Volatility

Industry revenue volatility is medium.

Fruit and vegetable availability can be affected by consumer demand for fresh fruit and vegetables, land and technology use by upstream fruit and vegetable growers and demand for fruits and vegetables from other industries, such as demand for corn from ethanol fuel manufacturers. Most significantly, crop failures can lead to massive decreases in the supply of a particular fruit or vegetable, which can lead to dramatic purchases costs increases for those companies that process the corresponding crop. Barring a simultaneous decrease in demand for this fruit or vegetable, however, industry operators are often able to protect any decline in their profit margins due to the increase in purchases costs by charging higher prices to consumers.

Industry operators that are unable to secure a supply of inputs, however, are unavoidably confronted with a drop in sales, which in sum affects the global industry as a whole. For major crops such as potatoes and corn which are grown all over the world, supply shocks can be limited to certain geographical areas, and therefore are less likely to significantly affect industry revenue as a whole. Crop failures of fruits and vegetables that are more restricted in their geographical growing locations, such as oranges, are more likely to have a stronger effect on industry revenue. Finally, consumer demand for processed fruits and vegetables, which can be affected by such factors as per capita income levels and consumer preferences, can also affect year-over-year revenue fluctuations. Overall, this industry experiences a moderate level of revenue volatility, as demand for fruits and vegetables remains fairly stable; barring worldwide price collapses, different fruits and vegetables often serve as substitutes for each other, which helps stabilize demand for industry products as a whole.

Regulation & Policy

The level of regulation is medium and the trend is increasing.

Fruit and Vegetable processors must adhere to various food and health regulations. These are aimed at maintaining high levels of food hygiene and safeguarding the community against health scares associated with poor food safety. In recent years, much attention has been given to food labeling as one means of protecting consumers. Details of labeling requirements are described.

Europe

The European Union is constantly reviewing regulations for the industry to keep up with the changing marketplace and international trade demand. One of the key bodies for food safety is the European Food Safety Authority (EFSA), which was established in 2002 after the outbreak of several food crises during the prior decade. The EFSA works to uphold consumer protection as well as the integrity of the EU food supply through objective scientific advice and risk assessment for EU legislation, EU authorities and member states. Topics covered by the ESFA include food and feed safety, nutrition, animal welfare and health, plant protection and health.

The EU food safety framework incorporates safe food as well as welfare and health for plants and animals. In conjunction with the "farm to fork" program, the program tracks the movement of food

from production to manufacturing and across EU borders for both EU production and imports. Overall, EU food regulations on food safety standards are complex and focused on quality control, process verification, labeling and traceability. These regulations have influenced other countries to adopt stringent regulations of the same level.

After two years of discussion, regulations for processed fruit and vegetables were adopted in 1996. Fruits and vegetables produced for consumers have to meet the quality parameters according to requirements given in European Council Regulation, which surrounds the principle of product quality and safety. In 2005, the European Commission adopted a proposal for new regulations for organic production and labeling, which will make the use of the EU logo or wording obligatory for all organic food products sold in the European Union. The aim of this is to make it clearer for consumers to identify organic products. These regulations came into force in 2009.

In 2007, the European Union reached an agreement to bring the fruit and vegetable sector into closer line with the rest of the reformed Common Agriculture Policy. The reforms will improve competitiveness and market orientation, while reducing income fluctuations and promote consumption. EU regulations also cover food contamination and environmental safety in the production of food. There are regulations to track the use of forbidden chemical substances in farming or processing, genetically modified organisms and food packaging. The European Union also tries to contain environmental pollution for water or air, and exposure to radioactivity.

Australia

The Australia New Zealand Joint Food Standards Code places labeling requirements on industry players. Under the Code, manufacturers are required to provide information on the percentage share of ingredients used as well as the nutritional value of the food product. These requirements have been widely criticized for placing significant costs on the industry. In the past few years, consumer groups have intensified their calls for more detailed nutritional information on a wider range of food labels. Opponents of this move claim that it is not the role of food regulators to educate consumers about food nutrition. They argue that issues of nutrition and diet are better addressed by health departments through public information initiatives.

Since December 2001, all food manufacturers (including fruit and vegetable processors) have also been required to take reasonable steps to establish whether their raw ingredients contain any genetically modified food. Final food products must be labeled so to provide consumers with adequate information. This move by State Health Ministers was aimed at addressing perceived health and safety issues in the community.

Similarly, processors are required by legislation to correctly declare the country from which produce has been sourced. In the past, processors have experienced difficulty in complying with these Country of Origin Labeling requirements. In November 1998, the Australian Competition and Consumer Commission found that Golden Circle Limited had misled consumers by incorrectly labeling a product as Australian grown.

Although not industry-specific, regulations relating to employment and the environment are important considerations for fruit and vegetable processors. Like other manufacturers, fruit and vegetable processors must comply with various laws governing wages and employee rights. Equally important is compliance with Occupational Health and Safety regulations to minimize workplace injuries and avoid stiff penalties and fines. Fruit and vegetable processors also need to be aware of environmental regulations set out by the Federal and State governments. Generally, these regulations relate to odors, water usage, wastewater generation and the treatment of waste arising from processing.

Finally, failure to comply with any regulations, laws and other rules governing fruit and vegetable processing can subject industry players to civil remedies, administrative penalties, injunctive relief

and possible recalls of products. It can also result in much negative publicity that can damage the reputation and public image of producers. Given this; noncompliance can potentially have a material effect on the earnings and competitive position of companies operating in this industry. It is worth noting that industry sources believe that laws and regulations on food production are becoming more stringent, resulting in increasing compliance costs for Australian fruit and vegetable processors.

United States

EPA and state governments enforce environmental issues pertaining to the industry, where the US Department of Agriculture (USDA) enforces health issues, which has a greater effect than environmental regulations on the way business is done in the industry. The US Food and Drug Administration (FDA) preside over food safety regulations that are likely to affect fruit and vegetable processors. In late 2010, the US Congress boosted the regulatory powers of the FDA to increase safety inspections, instigate food recalls and check the records of food producers and processors to minimize the risk of food-related diseases. The Food Safety Modernization Act aims to minimize the high percentage of the population prone to food borne illnesses each year and subjects imported food to the same level of scrutiny as locally produced food.

The Nutrition Labeling and Education Act, which amended the Federal Food, Drug and Cosmetic Act (FD&C), requires most foods to bear nutrition labeling and requires labels that bear nutrient content claims and certain health messages to comply with specific requirements. It is the responsibility of the manufacturers to remain current with the legal requirements for food labeling. The FDA has also instituted the Food Ingredient Safety Program that governs and evaluates claims about ingredients, nutritional content and other such claims made by food producers.

The United States and its consumers are demanding more stringent rules about food labeling, advertising, packaging and other nutritional claims made by manufacturers. Failure to abide by them can seriously impair a producer's credibility, result in expensive product recalls, and be liable to civil or criminal penalties. Pending enforcement of new FDA regulations has created new opportunities for food manufacturers to differentiate themselves from the competition. Those that can respond proactively rather than reactively to safety requirements can eclipse the competition in terms of efficiency, quality and brand integrity.

Various federal environmental regulations and statutes, such as the Federal Water Pollution Control Act or the Clean Water Act (CWA), Clean Air Act (CAA), Pollution Prevention Act (PPA), and Resource Conservation and Recovery Act (RCRA), have changed the way processing facilities handle their products and dispose of their waste. The CWA's increasingly stringent regulations for discharging wastewater are becoming important regulatory drivers for the industry. RCRA regulations typically apply only to solid waste disposal issues.

Most federal and state regulations and statutes are typically met with resistance from private industry. Conversely, the federal pollution prevention principles and the subsequent development of clean technologies have been viewed as ways to offer cost savings and sometimes even improve product quality, while simultaneously improving public relations for companies and industries that aggressively pursue their implementation. Pollution prevention has proved to be an effective means of reducing compliance and treatment costs for fruit and vegetable processing manufacturers.

Pollution prevention and clean technologies are meant to focus on a multimedia (i.e., air, water, and land) approach to reducing waste. Solid waste and wastewater discharges tend to dominate activity for implementing pollution prevention advances. Unless located in a remote area, most food processing facilities pretreat and discharge wastewater directly to a publicly owned treatment works. When a facility discharges to the environment, they are required to have a National Pollutant Discharge Elimination System (NPDES) permit as mandated in the CWA.

The EPA is looking for several ways to promote voluntary pollution prevention. The PPA lacks the regulatory powers needed to force companies to implement pollution prevention practices into their production processes. Agencies are exploring ways to write more flexible permits to enable companies to make process changes without having to resubmit a lengthy permit modification. Environmental agencies are encouraging pollution prevention by doing such things as reducing the cost of a permit or extending the compliance schedules for companies that are proactive in pollution prevention practices.

Through the US Department of Agriculture's Agriculture Marketing Service, the majority of canned vegetables are graded according to quality. The USDA also provides an inspection service for processed vegetables, which certifies the quality based on their US grade standards. Processed vegetables are inspected during preparation, processing and packaging. This method in return helps determine the value of the product.

Industry Assistance

The level of industry assistance is medium and the trend of industry assistance is increasing

Key Tariffs

Goods	Low Rate*	High Rate*
Per cent/kilogram - US	0.0	16.0
Cents/kilogram - US	0.0	10.6
Fruit Juice - Australia	0.0	5.0
Processed Fruit and Vegetables - Australia	0.0	5.0

*PERCENTAGE OF VALUE UNLESS OTHERWISE SPECIFIED

Tariffs imposed on processed fruit and vegetable products imported are varied throughout the world. Generally, industry protection is very high, which has the effect of reducing the total level of imports. However, imports were still relatively strong because of greater competitiveness from overseas sources and improved domestic demand conditions in the United States and parts of Europe. Industry protection also misallocates resources toward this industry, in favor of more productive uses of land, labor and capital.

Europe

EU tariffs on processed fruits and vegetables vary significantly depending on the country of origin and the produce in question. Below are three examples for processed tomatoes, homogenized mixed vegetables and jams and jellies.

Jams and jellies from the United States and Brazil attract an ad valorem tariff of 24.0%, in addition to €4.20 per 100 kilograms of produce. From Mexico and India, the same products attract an ad valorem tariff of 20.4% in addition to €4.20 per 100 kilograms of produce. The same products from Zimbabwe or Jordan attract no tariff.

In the case of homogenized mixed vegetables, EU countries will apply an ad valorem tariff of 17.6% for imports from the United States, Mexico and Brazil, while imports from India will be at a concessional rate of 14.1%. Again, the same product imported from Zimbabwe or Jordan will be free of tariff. Processed tomatoes imported into the European Union from the United States, Mexico, Brazil or India will attract an ad valorem tariff of 14.4%, while imports from Jordan and Zimbabwe will be tariff free.

United States

US tariffs vary greatly but have a general rate applied to most countries (those not covered by free trade agreements). The main free trade agreements of the United States are the North American Free Trade Agreement and the Central American Free Trade Agreement. The United States also gives preferential treatment to many less developed countries.

Tariffs imposed on processed fruit and vegetable products imported into the United States are varied and complex. Preserved fruits and vegetables attract tariffs ranging from 1.5 cents per kilogram to 14 cents per kilogram, depending on the type of produce imported. Frozen fruit and vegetables can carry tariffs between 3.2% of the product's value per kilogram to 14.9 cents per kilogram. Jams, jellies and other similar pastes have tariffs ranging between 1.3 cents per kilogram and 14 cents per kilogram. Juices made from fruits or vegetables also have imposed import tariffs, ranging between 0.14 cents per kilogram and 7.9 cents per kilogram.

The American Frozen Food Institute (AFFI) offers various assistance programs to producers of frozen food products in the United States. The AFFI is the national trade association representing the frozen food supply chain, including manufacturers, distributors, suppliers and packagers. Its assistance measures include research and development, technical advice, public and trade relations.

The National Frozen & Refrigerated Foods Association (NFRA) represents the interests of the frozen and refrigerated foods industries, including manufacturers, distributors, retailers, wholesalers, suppliers and sales agents. The NFRA works in close association with the AFFI and offers assistance to producers relating to marketing, promotion, research and development, and communicating category strengths and new product innovations.

Asia

Japan's tariffs on canned peaches are 8.0%, while frozen peaches are 7.0%. Korea's tariffs on grapefruit juice are 30.0%, while tariffs on sweet corn are set at 15.0%. The Philippines has continued to reduce its tariffs, with canned peaches and canned fruit mixtures now at 35.0%, and sweet corn at 45.0%.

The Frozen Food Manufacturing industry in China is protected by import tariffs and export rebates. Generally, the import tariff of frozen foods varies from 10.5% to 80.0%, and the export rebate is 5.0%. In June 2009, the Ministry of Finance and State Administration of Taxation increased the export rebate of cooked and stuffed foods to 15.0%.

In recent years, the Chinese government has increased assistance and protection to the agricultural sector, increasing agricultural incomes, adjusting the agriculture structure, promoting the rural economy, and developing industrialized operations for agriculture. Additionally, the Chinese government selects leading agricultural enterprises to assist their development and promote the development of agricultural product processing industries. The Chinese government supplies direct subsidies to frozen food manufacturers and sales companies to encourage the local industrialized operations of agriculture and exports of frozen foods.

In 2009, the Chinese government issued a restructuring and revitalization plan on light industry. The planning period is from 2009 to 2011. According to the plan, local governments are encouraged to actively adopt measures, including offering discounts for circulating fund loans, to assist enterprises store agricultural products, including frozen foods, which is helpful to ease product sales pressures. In addition, there will be increasing financial support to frozen food manufacturers.

Import tariff rates for canned and bottled foods vary with different products. Tariff rebates for most-favored-nations (MFNs) range from 5.0% to 19.0%, while tariff rebates for others countries are between 80.0% and 90.0%. The export rebate rate for canned food is 13.0%.

Import tariffs on juice products protect domestic juice manufacturers from competing imports to a certain extent. Generally, the import duty rate for fruit juices is 90.0% and for vegetable juices is 80.0%, which are very high, while the import VAT rate is 17.0%. For most favored nations, the import duty rates are much lower, the lowest of which is 7.5%. Conversely, the current export rebate rate for juice is 15.0%, an increase from 13.0% prior to June 1, 2009, to stimulate repressed exports.

Australia

Historically, the industry has been protected from foreign competition by tariffs and Australia's geographical position. Today, the industry receives limited protection. The level of protection has been reduced considerably over the past decade as respective Australian governments have pursued free trade policies. General tariffs on citrus concentrate, for example, fell from 15.0% in the late 1980s to 5.0% by 1996. From time to time, the Federal Government also imposed countervailing duties on imported products from Eastern Europe. Presently, many of the industry's natural protections have also disappeared as advances in transportation reduced costs for importers.

Fruit and vegetable processes currently have access to the range of assistance measures available to industry in general and to food processors in particular. Industry players are also eligible to participate in government programs offered to the broader Food Manufacturing Sector. The industry benefits from efforts by the Australian Government to improve access to export markets through trade agreements. To this end, the government participates in various bodies such as the World Trade Organization and is a signatory to various bi-lateral trade agreements. Australia is currently a signatory to free-trade agreements with the United States and New Zealand. In addition to public funding, fruit and vegetable processors also benefit from the activities of various industry bodies and associations.

The federal government also runs assistance programs to boost productivity and innovation within Australia's food sector. For example, in 2009 the federal government established a four year Regional Food Producers Innovation and Productivity Program which provides finding grants between AU\$50,000 and AU\$2.0 million to food and seafood businesses for projects including the design and implementation of new technologies, production processes and techniques; the adoption of overseas food production or processing technologies and the innovative redesign of existing production lines to boost productivity and efficiency.

There are also key industry associations such as Horticultural Australia Limited that indirectly assist processors through their research efforts focusing on fruit and vegetable production. The association's primary function is to manage government-funded research and development projects aimed at lifting the competitiveness of local fresh produce. Meanwhile, broader-based associations such as the Australian Industry Group can provide support, networking opportunities, and lobbying efforts on behalf of paid-members.

At a state level, industry participants can receive funding under assistance programs targeting the general Manufacturing sector. Commonly, state governments run a range of export programs for encouraging manufacturers to develop markets abroad. For example, the Victorian Government operates export programs such as the Targeted Trade and Investment Mission, the Grow Your Business program, Export Networks and Global Export Engagement Program. These programs offer funding and support for export initiatives in form of grants, research and intelligence, marketing, assistance in the development of relationships as well as general business advice.

Government funding has also played a critical role in helping upstream fruit growers and processors gain better access to export markets.

Key Statistics

Industry Data

	Revenue (\$m)	IVA (\$m)	Establishments (Units)	Enterprises (Units)	Employment (Units)	Exports (\$m)	Imports (\$m)	Wages (\$m)	Global per capita income (\$)
2008	292,990.2	46,714.7	22,214	20,373	477,176	57,136.9	57,136.9	22,396.5	9,584.7
2009	268,528.9	40,473.6	22,508	20,367	441,500	51,013.2	51,013.2	17,917.2	9,311.4
2010	275,860.0	43,063.0	22,095	20,513	463,291	53,417.7	53,417.7	18,235.6	9,603.9
2011	310,320.2	46,520.1	23,570	22,974	479,181	62,124.1	62,124.1	21,694.5	9,793.6
2012	304,523.6	46,164.8	25,801	25,016	480,028	60,992.6	60,992.6	21,498.4	9,917.0
2013	317,166.8	47,218.3	28,077	26,298	522,629	64,340.6	64,340.6	21,369.2	10,057.3
2014	311,791.3	43,722.8	28,566	27,133	530,322	63,580.2	63,580.2	22,209.3	10,219.2
2015	295,031.8	44,511.3	30,166	27,587	517,276	59,256.8	59,256.8	21,056.3	10,384.7
2016	291,599.7	41,829.0	31,259	28,574	508,106	58,297.5	58,297.5	18,792.6	10,532.3
2017	290,382.5	40,029.9	32,123	29,437	507,446	58,528.7	58,528.7	17,852.3	10,719.1
2018	298,801.0	41,448.8	32,924	30,059	508,288	60,547.8	60,547.8	18,102.7	10,929.4
2019	307,746.9	42,679.9	33,293	30,701	505,413	62,656.5	62,656.5	18,355.3	11,148.5
2020	317,066.2	43,221.9	33,630	31,262	502,164	64,850.7	64,850.7	17,550.6	11,375.1
2021	326,334.5	44,737.2	34,107	31,898	503,221	67,074.9	67,074.9	17,578.9	11,614.8
2022	335,271.6	46,645.2	34,732	32,578	506,744	69,244.2	69,244.2	18,191.3	11,865.8

Annual Change

	Revenue (%)	IVA (%)	Establishments (%)	Enterprises (%)	Employment (%)	Exports (%)	Imports (%)	Wages (%)	Global per capita income (%)
2009	-8.3	-13.4	1.3	0.0	-7.5	-10.7	-10.7	-20.0	-2.9
2010	2.7	6.4	-1.8	0.7	4.9	4.7	4.7	1.8	3.1
2011	12.5	8.0	6.7	12.0	3.4	16.3	16.3	19.0	2.0
2012	-1.9	-0.8	9.5	8.9	0.2	-1.8	-1.8	-0.9	1.3
2013	4.2	2.3	8.8	5.1	8.9	5.5	5.5	-0.6	1.4
2014	-1.7	-7.4	1.7	3.2	1.5	-1.2	-1.2	3.9	1.6
2015	-5.4	1.8	5.6	1.7	-2.5	-6.8	-6.8	-5.2	1.6
2016	-1.2	-6.0	3.6	3.6	-1.8	-1.6	-1.6	-10.8	1.4
2017	-0.4	-4.3	2.8	3.0	-0.1	0.4	0.4	-5.0	1.8
2018	2.9	3.5	2.5	2.1	0.2	3.4	3.4	1.4	2.0
2019	3.0	3.0	1.1	2.1	-0.6	3.5	3.5	1.4	2.0
2020	3.0	1.3	1.0	1.8	-0.6	3.5	3.5	-4.4	2.0
2021	2.9	3.5	1.4	2.0	0.2	3.4	3.4	0.2	2.1
2022	2.7	4.3	1.8	2.1	0.7	3.2	3.2	3.5	2.2

Key Ratios

	IVA/revenue (%)	Imports/demand (%)	Exports/revenue (%)	Revenue per employee (\$'000)	Wages/revenue (%)	Employees per est.	Average wage (\$)
2008	15.9	19.5	19.5	614.0	7.6	21	46,935.5
2009	15.1	19.0	19.0	608.2	6.7	20	40,582.6
2010	15.6	19.4	19.4	595.4	6.6	21	39,361.0
2011	15.0	20.0	20.0	647.6	7.0	20	45,274.1
2012	15.2	20.0	20.0	634.4	7.1	19	44,785.7
2013	14.9	20.3	20.3	606.9	6.7	19	40,887.9
2014	14.0	20.4	20.4	587.9	7.1	19	41,878.7
2015	15.1	20.1	20.1	570.4	7.1	17	40,706.1
2016	14.3	20.0	20.0	573.9	6.4	16	36,985.6
2017	13.8	20.2	20.2	572.2	6.1	16	35,180.7
2018	13.9	20.3	20.3	587.9	6.1	15	35,615.0
2019	13.9	20.4	20.4	608.9	6.0	15	36,317.4
2020	13.6	20.5	20.5	631.4	5.5	15	34,949.9
2021	13.7	20.6	20.6	648.5	5.4	15	34,932.8
2022	13.9	20.7	20.7	661.6	5.4	15	35,898.4

Figures are inflation-adjusted 2017 dollars

NOTE: UNLESS SPECIFIED, AN ASTERISK (*) ASSOCIATED WITH A NUMBER IN A TABLE INDICATES AN IBISWORLD ESTIMATE AND REFERENCES TO DOLLARS ARE TO US DOLLARS.

Jargon

COMMON AGRICULTURAL POLICY (CAP) The European Union's controversial system of agricultural subsidies. It has undergone numerous alterations since its implementation in 1962.

SUBSISTENCE AGRICULTURE A form of farming where people produce food and fibers for their own consumption rather than on a commercial basis.

VALUE ADDED Total value added comprises the labor cost, and any other processing and packaging functions adding value to the fruit of vegetable product.

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