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IRAN

AGRIBUSINESS REPORT

INCLUDES 5-YEAR FORECASTS TO 2019

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Iran Agribusiness Report Q1 2016

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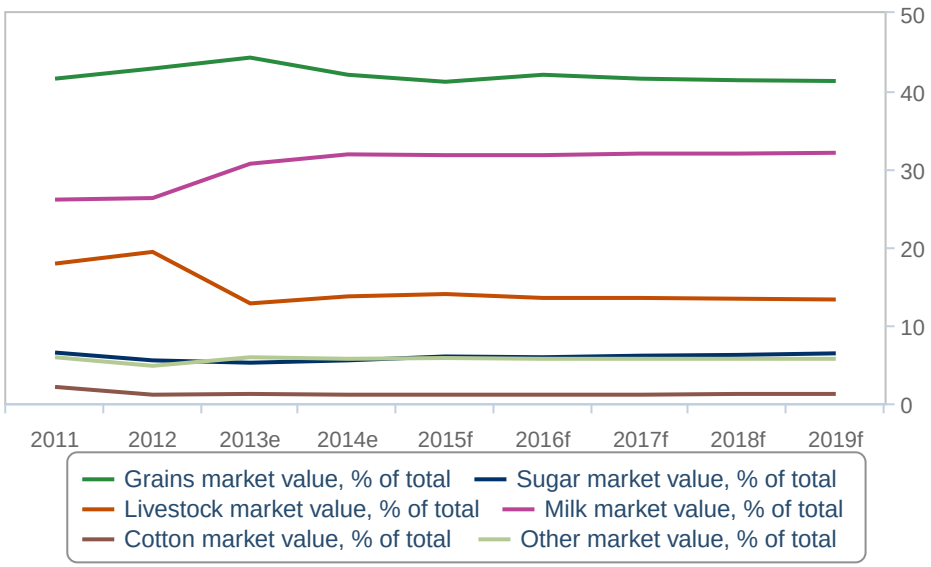
BMI Industry View

BMI View: *The landmark Iranian nuclear agreement of July 2015 paves the way for the return to growth of the Iranian economy and for a strong uptick in foreign investment. Consumer demand, including for agricultural products, will be a strong beneficiary. The increased supply of inputs and potential investment in capacity and infrastructure will improve the outlook for agricultural production growth in the country. However, such a development will depend on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather. Therefore, production expansion will be slower than consumption growth in the coming years and Iran will remain a large and growing importer of key commodities.*

Agribusiness Market Value

BMI Market Value By Commodity (2011-2019)



e/f = BMI estimate/forecast. Source: FAO, BMI

Key Forecasts

- **Wheat production growth to 2018/19: 5.0% to 15.1mn tonnes.** Wheat yields are expected to improve owing to the modernisation of technology, with the use of hardier grains variants, greater access to relevant inputs and a larger area of the country benefiting from new irrigation facilities.
- **Sugar consumption growth to 2019: 27.6% to 3.0mn tonnes.** Sugar demand will be mainly driven by population growth, as well as the improved macroeconomic conditions following the lifting of sanctions.
- **Poultry production growth to 2018/19: 13.1% to 927,800 tonnes.** Growth will be driven by domestic demand and the effects of increased investment.
- **BMI universe agribusiness market value: USD68.9bn in 2016** (up 6.3% compared with 2015, growth forecast to average 3.8% annually between 2016 and 2019).
- **2016 real GDP growth: 2.9%** (up from 0.6% expected in 2015; predicted to average 3.6% from 2016 to 2019).
- **2016 consumer price inflation: 18.0% y-o-y** (up from 23.0% expected in 2015; predicted to average 14.0% y-o-y from 2016 to 2019).

Key Developments

The landmark Iranian nuclear agreement reached in Vienna on July 14 2015 paves the way for the return to growth of the Iranian economy and for a strong uptick in foreign investment, with consumer sectors a strong beneficiary. Almost all economic sanctions will be lifted at the beginning of 2016. Western food and drink majors will benefit from the end of sanctions in the banking, insurance and transport sectors. The end of shipping and banking sanctions will lower the costs of doing business in Iran - although we caution that various operating risks remain. We also expect the end of sanctions to have a positive impact on consumer confidence. In the agribusiness space, the livestock and dairy sectors are likely to benefit.

The longer term outlook is improving for Iran's agriculture, amidst the upcoming lifting of international sanctions in 2016. Agricultural production in general is likely to benefit from easier access to cheap inputs, which will help yields improve. However, such an improvement depends on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather. The lifting of sanctions will have a more rapid and direct impact on agricultural consumption, as food price inflation is likely to ease significantly, from currently very elevated levels. Because of these dynamics, Iran's dependence on imported grains, sugar, dairy and livestock will grow over the medium term.

With the lifting of the sanctions, Iran is likely to re-diversify its import sources. Although food products were not targeted by sanctions, the restrictions made deals and payments between traders difficult. Therefore Iran has been increasingly relying on Indian exports - for both food and non-food products - as

the country did not back the sanctions and was one of the few countries to have a barter trade system and other payment mechanisms with Iran, which helped India to import oil from Iran, and export rice and other items. India became Iran's largest provider of basmati rice and soymeal according to local sources. The lifting of the sanctions pose a clear risk for Indian exports, as Iran will most likely look to import from a larger set of suppliers again, turning to traditional exporters Thailand and Pakistan for rice. For sugar, Iran will increase imports from Brazil.

SWOT

Agribusiness

SWOT Analysis

Strengths	▪ A diverse landscape and climate provides Iran with strong fundamentals, positioning the country as arguably the most productive agricultural state in the Middle East. ▪ The country's sugar-processing infrastructure is relatively well developed. ▪ Iran's milk production and added-value processing infrastructure is well developed.
Weaknesses	▪ A history of periodic droughts due to inadequate rainfall can undermine production. ▪ A reliance on oil exports for GDP revenue suggests that investment in agriculture predominantly depends on volatile external factors. ▪ An inefficient state sector, coupled with a strong state presence in an array of agricultural sectors, diminishes potential producer gains, limiting private investment. ▪ Increased investment in irrigation could serve to improve agricultural output, and yet it is enormously costly. ▪ The government has an implied favourable agricultural policy in order to boost self-sufficiency, yet its openness to imports suggests that it has not followed through.
Opportunities	▪ A satisfactory conclusion to the stand-off with the West (fuelled by disagreement regarding Iran's nuclear intentions) may lead to an increase in foreign investment. ▪ Investment in the development of irrigation could offset some of the production losses associated with drought.
Threats	▪ The prevalence of grey or informal markets serves to hinder the efficient flow of goods through official channels, thus limiting the scope for fiscal-based investment. ▪ In the future, subsidies may drain funds away from areas in which they could be better and more sustainably spent.

SWOT Analysis - Continued

- The constant speculation regarding the status of Iran's uranium enrichment programme could dampen investor confidence in the local business environment.

Industry Forecast

Grains Outlook

BMI View: *Grains production will recover in the ongoing 2015/16 season, after output declined due to unfavourable weather in 2014/15. The longer term outlook is improving for Iran's agriculture, amidst the upcoming lifting of international sanctions in 2016. Production in general is likely to benefit from improved access to inputs, which will help yields improve. However, such an improvement depends on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather.*

Latest Developments

- Grains production will recover in the ongoing 2015/16 season, after output declined due to unfavourable weather in 2014/15. We forecast wheat production to grow by a strong 6.0% y-o-y to 14.0mn tonnes, following the 7.0% drop last year. Corn and barley output will also rise.

Table: Iran - Grains Production And Consumption Outlook

	Ave growth rate 2014/15-2018/19	Drivers
Grains production	Wheat: 1.1% Corn: 1.1%	The longer term outlook is improving for Iran's agriculture, amidst the upcoming lifting of international sanctions in 2016. Production in general is likely to benefit from improved access to inputs, which will help yields improve. However, such an improvement depends on the country doing some key modernisation investment, particularly in irrigation, as Iran relies heavily on the vagaries of the weather. Despite recent improvements, wheat yields in Iran are still fairly low by world standards - comparable to the levels seen in Turkey but some way below those of Pakistan. Because of these challenges, we expect moderate growth for Iran's wheat production in the coming years.
Grains consumption	Wheat: 4.8% Corn: 4.5%	The lifting of sanctions will have a more rapid and direct impact on grains consumption, as food price inflation is likely to ease significantly, from its current very elevated level. Grains consumption growth will accelerate and outpace production expansion in the coming five years, after recording lacklustre growth over recent years.
Trade		Iran is a significant net importer of grains, and will remain so over our forecast period. The wheat and corn deficits are forecast to reach 5mn tonnes in 2019.

Source: BMI

Table: Iran - Risks To Grains Outlook

Period	Risks
Short term (two-year horizon)	Downside risk to production - Iran is at risk of adverse weather conditions as crops rely almost entirely on natural irrigation.
Long term (five-year horizon)	Upside risks to production and consumption - The lifting of sanctions is likely to improve the investment and growth outlook in the country, which may boost our forecasts above current levels.

Source: BMI

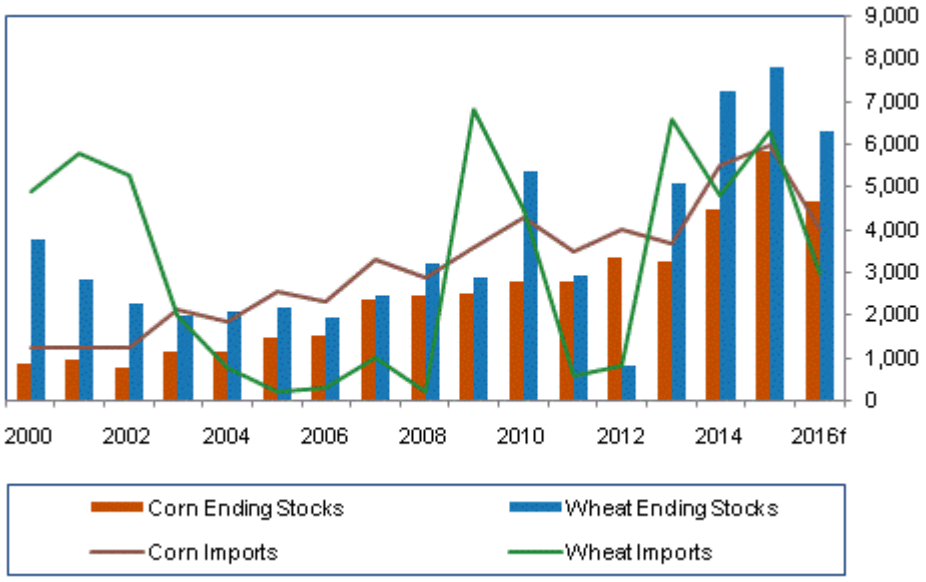
Structural Trends

1. Increasing Reliance On Imports In Sight

In spite of the government's plans to decrease reliance on imported wheat over the next four years, we forecast Iran's wheat deficit to grow, along with those of other grains. India, Latin America and the Black Sea region will most likely benefit from a rise in import demand.

Stockpiling Policy

Iran - Wheat & Corn Ending Stocks & Imports ('000 tonnes)



Source: BMI, USDA, FAO

2. Grains Production Remains Under-Developed

Grains are cultivated throughout Iran and are an extremely important part of the local farming sector. Wheat is the main grain, accounting for almost 70% of aggregate cereal production, followed by barley and then corn. These crops, particularly wheat and barley, are grown extensively on farmland in mountainous areas of the country. According to the Food and Agriculture Organization, irrigated wheat covers only one-third of the total wheat area, and the majority of the wheat crop depends on rainfall for water. Most of the rain-fed wheat crop is concentrated in the north west of the country. Since the droughts that ravaged Iran between 1999 and 2001, the area of land under irrigation has increased, which has led to improved yields, even in subsequent drought years.

The Iranian grains sector is highly regulated. Producers receive subsidised access to input costs such as fertiliser and pesticides, as well as a guaranteed support price for their crops. Wheat is then sold to consumers at heavily subsidised rates. Despite government aid, farmers often complain that the support price is too low for them to turn an acceptable profit, and that the support allows inefficient farmers to

continue producing wheat when other activities would have been a better use of capital and labour. This has inhibited the development of larger, more efficient farms and drained funds that could have been used to further boost infrastructure, such as irrigation. The effects of more targeted support for farming can be seen in the rapid rise in wheat production in the past decade. Increased investment in irrigation saw average yields rise considerably over the five years before the drought of 2008/09.

Despite the improvements in infrastructure, large areas of the country, particularly in the north and west, are still reliant on rain-fed agriculture. In some areas this is because the land is unsuitable for irrigation, but other areas could benefit from improved access to water, particularly in years when rains are below average. These areas also suffer from a lack of mechanisation, with a very low density for harvesters compared with the irrigated areas in the south and east of Iran. With the government now in the process of abolishing its subsidies on food, money could become available for funding infrastructure improvements which will, in time, help to bring down the cost of food.

Table: Grains Production And Consumption (IRAN 2011-2019)

	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f
Wheat production, '000 tonnes	13,500.0	12,400.0	13,800.0	14,350.0	13,200.0	13,992.0	14,341.8	14,700.3	15,067.9
Wheat production, % y-o-y	0.1	-8.1	11.3	4.0	-8.0	6.0	2.5	2.5	2.5
Wheat consumption, '000 tonnes	15,700.0	15,000.0	15,400.0	16,000.0	16,640.0	17,388.8	18,258.2	19,189.4	20,187.3
Wheat consumption, % y-o-y	-6.5	-4.5	2.7	3.9	4.0	4.5	5.0	5.1	5.2
Corn production, '000 tonnes	2,140.0	2,700.0	2,400.0	2,500.0	2,300.0	2,438.0	2,499.0	2,561.4	2,625.5
Corn production, % y-o-y	30.2	26.2	-11.1	4.2	-8.0	6.0	2.5	2.5	2.5
Corn consumption, '000 tonnes	5,650.0	6,050.0	5,850.0	6,050.0	6,292.0	6,568.8	6,877.6	7,200.8	7,546.5
Corn consumption, % y-o-y	0.0	7.1	-3.3	3.4	4.0	4.4	4.7	4.7	4.8
Barley production, '000 tonnes	3,210.0	2,900.0	3,400.0	3,250.0	3,412.5	3,514.9	3,620.3	3,728.9	3,840.8
Barley production, % y-o-y	-6.8	-9.7	17.2	-4.4	5.0	3.0	3.0	3.0	3.0
Barley consumption, '000 tonnes	3,900.0	4,100.0	4,600.0	4,232.0	4,359.0	4,511.5	4,669.4	4,842.2	5,031.0

Grains Production And Consumption (IRAN 2011-2019) - Continued									
	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f
Barley consumption, % y-o-y	5.4	5.1	12.2	-8.0	3.0	3.5	3.5	3.7	3.9

BMI Calculation/USDA

Rice Outlook

BMI View: *Rice is the third most produced grain in Iran, behind wheat and barley. Rice production has been growing at a slow pace over recent years, as area under cultivation stagnates and yield growth is weak. These trends will endure in the coming years, and we deem the government's plan to reach self-sufficiency by 2016 as unrealistic. Iran will remain a secondary and stable importer of rice in the coming years.*

Latest Development

- In the 2015/16 season, which started in August 2015 with the harvest, we estimate rice production in Iran will grow for the seventh consecutive year. Output will reach 1.7mn tonnes, up 2.0% y-o-y. Iran's rice imports will remain relatively stable, at around 1.5mn tonnes.

Table: Iran - Rice Production And Consumption Outlook

	Ave growth rate 2014/15-2018/19	Drivers
Rice production	1.8%	We deem the government's plan to reach self-sufficiency by 2016 as unrealistic. Overall, areas under cultivation of rice as well as yields have been stagnating over the past 20 years, to around 580,000 hectares (ha) and 4.21tonne/ha respectively. Local production will remain exposed to competition from imports. Although imports are monitored, they continue to grow and have discouraged local producers from making the necessary investment to bolster domestic output growth. The government has been revisiting its goal as it was first expecting to reach self-sufficiency in 2013.
RIce consumption	2.0%	The lifting of international sanctions in 2016 will have a positive impact on rice consumption, as food price inflation is likely to ease significantly, from its currently very elevated level. As such, rice consumption will grow at a faster pace than in recent years when sanctions were in place.
Trade		The country usually records a 1.5-1.7mn tonnes deficit, which we see expanding slightly in the coming years to 1.9mn tonnes in 2019.

Source: BMI

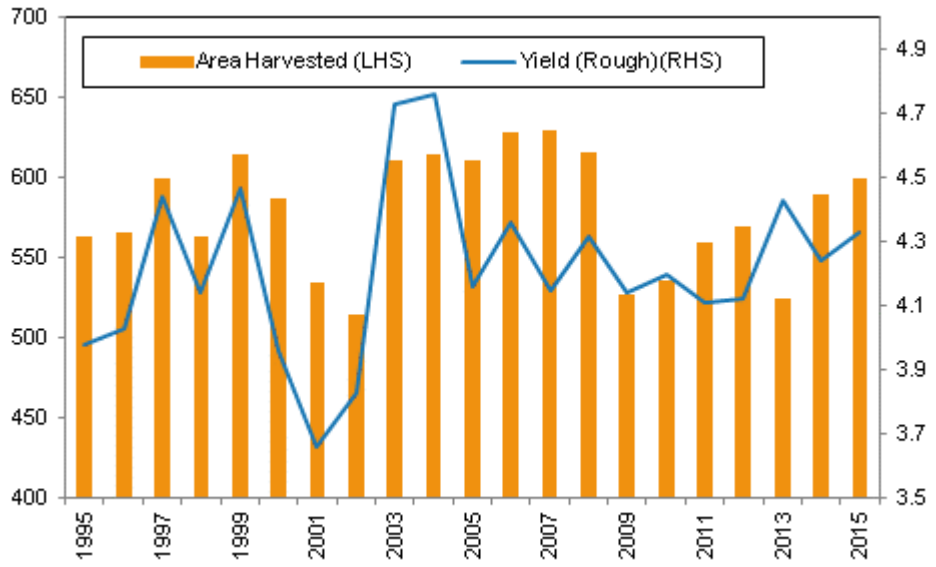
Table: Iran - Risks To Rice Outlook

Period	Risks
Short term (two-year horizon)	Downside risk to production - Iran is at risk of adverse weather conditions as crops rely almost entirely on natural irrigation.
Long term (five-year horizon)	Upside risks to production and consumption - The lifting of sanctions is likely to improve the investment and growth outlook in the country, which may boost our forecasts above current levels.

Source: BMI

Broadly Stagnating

Iran - Rice Area Harvested ('000 ha) & Rice Yields (tonnes/ha)



Source: BMI, USDA

Structural Trends

1. Iran To Re-Diversify Its Import Sources

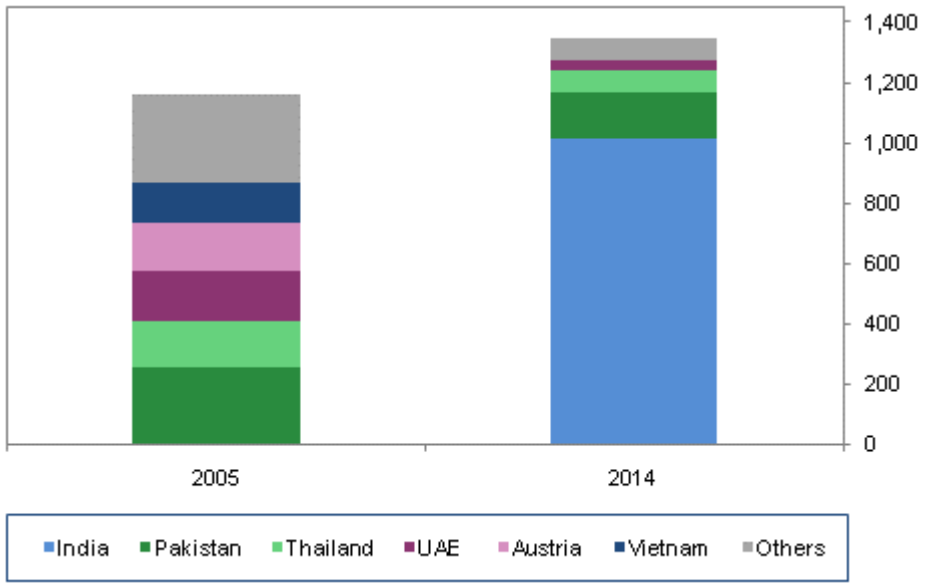
Iran has been increasingly relying on Indian rice exporters due to Western sanctions since 2011. India was one of the few countries to have a barter trade system and other payment mechanisms with Iran, which

helped India to import oil from Iran, and export rice and other items. This led to a surge in India's basmati rice exports, and Iran quickly overtook Saudi Arabia and the UAE to become the largest buyer of Indian basmati rice in 2012/13.

However, the landmark nuclear agreement reached in Vienna in July 2015 and the easing of sanctions in early 2016 will help agricultural trade normalise in the coming years. For rice, Iran is likely to turn to its traditional suppliers, Pakistan and Thailand, reducing its imports from India. Pakistan, which is the only other major basmati rice producer in the world and which also neighbours Iran, stands to gain the most. Pakistani exporters had difficulties obtaining commercial letters of credit under the sanctions, a vital process in international trade, owing to the poor availability of international banking between the two countries.

Re-Diversification On The Horizon

Iran - Rice Imports By Country (% total volume imported)



Note: Data for UAE mainly represents re-exported rice to Iran originally from India, Pakistan and Thailand. Source: Trade Map, BMI

Table: Rice Production & Consumption (Iran 2011-2019)

	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f
Rice production, '000 tonnes	1,510.0	1,550.0	1,560.0	1,660.0	1,680.0	1,713.6	1,747.9	1,782.8	1,818.5
Rice production, % y-o-y	1.5	2.6	0.6	6.4	1.2	2.0	2.0	2.0	2.0
Rice consumption, '000 tonnes	3,250.0	3,280.0	3,300.0	3,360.0	3,418.1	3,479.6	3,549.2	3,623.8	3,703.5
Rice consumption, % y-o-y	10.2	0.9	0.6	1.8	1.7	1.8	2.0	2.1	2.2

e/f = BMI estimate/forecast. Source: USDA, BMI

Sugar Outlook

BMI View: *Iran will see its sugar imports rise in the coming years as domestic production will remain undermined by a lack of investment. The lifting of sanctions may attract more investment to the sector and poses upside risks to our output forecast.*

Table: Iran - Sugar Production And Consumption Outlook

	Ave growth rate 2014/15-2018/19	Drivers
Sugar production	2.2%	Iran's sugar production will grow at a modest pace in the coming years. Although Iran is instituting plans to increase production out to 2020, we have not yet seen significant progress and therefore maintain a cautious forecast. Production capacity is slowly growing, as shown by the opening of a new sugar mill in Oshnavieh in 2013, with a capacity of 500,000 tonnes.
Sugar consumption	5.0%	We expect sugar consumption to accelerate in the coming years and grow at a relatively robust pace. Like for other commodities, the lifting of sanctions will have a positive impact on sugar consumption, as food price inflation is likely to ease significantly from its current very elevated level, while economic growth will accelerate.
Trade		As consumption will grow at a significantly faster pace than production, Iran's sugar deficit will expand in the coming years and reach 1.5mn tonnes in 2019, compared with 1.0mn tonnes in 2014.

Source: BMI

Table: Iran - Risks To Sugar Outlook

Period	Risks
Short term (two-year horizon)	Downside risk to production - Iran is at risk of adverse weather conditions as crops rely almost entirely on natural irrigation.
Long term (five-year horizon)	Upside risks to production and consumption - The potential for greater levels of investment in the sector. Public sector support for the sugar industry does not appear forthcoming, but the lifting of sanctions is likely to improve the investment and growth outlook in Iran, which may boost our forecasts above current levels.

Source: BMI

Structural Trends

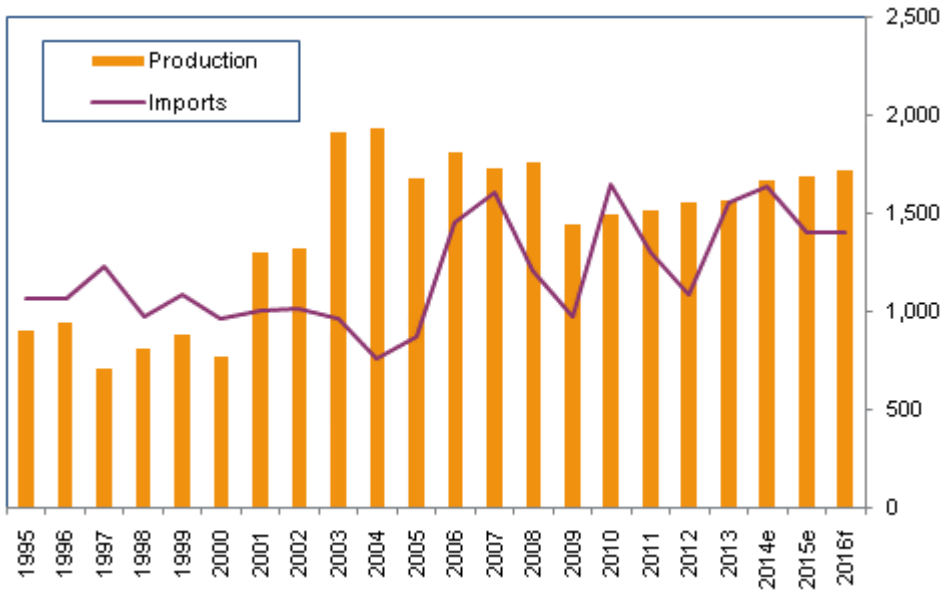
1. Production At Risk From Imports

Iran is widely regarded as having failed to exploit its sugar production resources as a result of inadequate investment and a lack of public and private sector support. A failure to control imports, which have flooded in despite modest import tariff increases, has been blamed for a growing number of bankruptcies at state-owned sugar plantations.

Like for other commodities, Iran has been growing increasingly reliant on India for its sugar imports (directly or via the UAE). We expect Iran to re-diversify its suppliers once sanctions are lifted, commencing imports from Brazil.

Struggling To Increase

Iran - Sugar Production & Imports ('000 tonnes)



Source: USDA, BMI

2. Consumption Not Yet Close To Saturation

Population growth and the development of packaged sugar confectionery will support consumption. Demand for modern packaged sugar confectionery in Iran remains immature, while traditional sugar confectionery products are extremely popular. Stronger promotional activities undertaken by key players in the category has made many sugar confectionery products more visible and accessible through grocery retail channels, and this has given more Iranian consumers a chance to try packaged sugar confectionery as an alternative to simpler traditional alternatives such as sugar cubes.

Table: Sugar Production & Consumption (Iran 2011-2019)

	2011	2012	2013e	2014e	2015f	2016f	2017f	2018f	2019f
Sugar production, '000 tonnes	1,200.0	1,250.0	1,300.0	1,340.0	1,350.0	1,370.0	1,411.1	1,453.4	1,497.0
Sugar production, % y-o-y	10.6	4.2	4.0	3.1	0.7	1.5	3.0	3.0	3.0
Sugar consumption, '000 tonnes	2,124.0	2,200.0	2,280.0	2,350.0	2,467.5	2,590.9	2,720.4	2,856.4	2,999.3
Sugar consumption, % y-o-y	-22.0	3.6	3.6	3.1	5.0	5.0	5.0	5.0	5.0
Sugar market value, % of total	6.5	5.5	5.2	5.5	6.0	5.9	6.1	6.2	6.4

e/f = BMI estimate/forecast. Source: National sources, BMI

Dairy Outlook

BMI View: *The short- and medium-term outlook for Iran's dairy sector is looking brighter, as the lifting of international sanctions will bode well for dairy production and consumption growth. Milk production has been hurt in recent years by the sanctions - even though they had an explicit exemption for food - as they hampered imports of grains and feed.*

Table: Iran - Dairy Production And Consumption Outlook

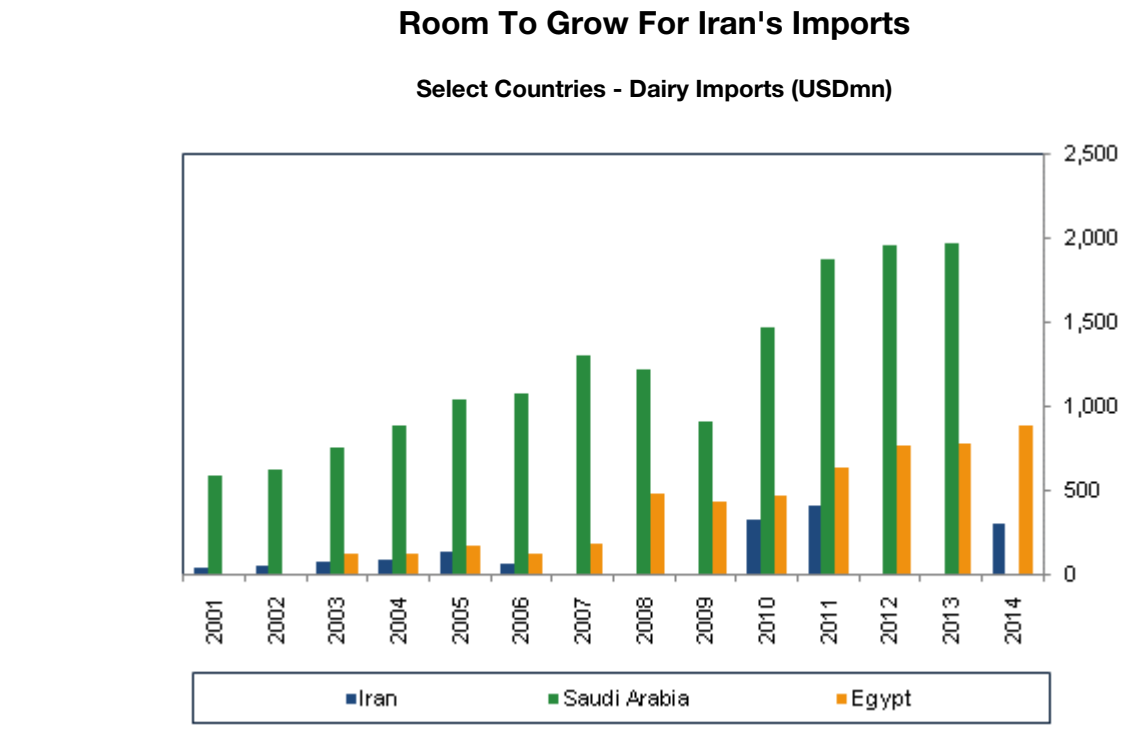
	Ave growth rate 2014/15-2018/19	Drivers
Milk production	2.7%	The easing of international sanctions will benefit Iran's dairy sector. Interest in the sector from international players will grow, and there will be an expansion in the retail sector and improvement in supply chains. Regarding milk production, the lifting of sanctions will lead to a decrease in feed import prices, especially at a time when international grains prices are relatively low. This will help dairy production accelerate in the coming years. However, milk production growth in Iran will remain modest until investment in yields and farms picks up. Low domestic milk prices, kept artificially low by the government, will prevent a boom in output growth for now.
Milk consumption	2.9%	Improvement in domestic production, coupled with more favourable economic growth over the coming years thanks to the lifting of sanctions, will support dairy products consumption in the medium term. International dairy firms are likely to attempt to penetrate the market and will push sales of packaged dairy goods. As such, Iran's dairy consumption will move towards the consumption of packaged and value-added dairy products.
Trade		Iran has the potential to become a large importer of dairy products in the coming years. It imported only USD300mn of dairy products in 2014, compared with the USD1.97bn imported by Saudi Arabia.

Source: BMI

Table: Iran - Risks To Dairy Outlook

Period	Risks
Short term (two-year horizon)	Downside risk to production - Iran is at risk of adverse weather conditions as crops rely almost entirely on natural irrigation.
Long term (five-year horizon)	Upside risks to production and consumption - The lifting of sanctions is likely to improve the investment and growth outlook in the country, which may boost production and consumption above our current forecasts.

Source: BMI



Note: There is no data available for Iran's imports for 2007-2009, 2012 and 2013. Source: Trade Map, BMI

Structural Trends

1. Improving Outlook Amid Lifting Of Sanctions

The short- and medium-term outlook for Iran's dairy sector is looking brighter, as improving profitability conditions, coupled with the lifting of international sanctions, will bode well for growth. The Iranian nuclear deal will generate an uptick in foreign investment in the food and drink sector from 2016, thanks to lower insurance and transport costs, the reintegration of Iran into the international banking system and the attractiveness of Iran's largely untapped consumer base. High operational costs will prevent a boom and Western European and Gulf Cooperation Council companies will be the strongest beneficiaries.

Below we highlight some favourable characteristics of the Iranian consumer.

- **Scalable and young population:** Iran's population of 78.5mn is attractive for fast-moving consumer goods (FMCG) companies, whose strategies often rely on high volumes, especially given that more than 40% of the population is below 25.

- **High urbanisation:** Almost 70% of the population lives in urban areas, making it easier for food and drink companies to reach consumers.
- **Strong taste for Western products:** Iran offers a well-educated population, with a developed taste for Western products and consumption patterns. Anecdotal evidence suggests that even during the sanctions era, Western brands were still finding strong resonance, as illustrated by the Western-style shopping centres flourishing in the country and the popularity of local fast food chains largely inspired by their American counterparts.
- **Widespread access to financial services:** Despite the sanctions excluding Iran from the international banking sector, Iranian consumers have a good access to financial services compared with the rest of the Middle East and North Africa. More than 90% of adults (above 15) had a bank account in 2014, and more than 75% had a debit card. We believe that access to banking services will facilitate the development of modern forms of consumption.
- **Sizeable middle class:** According to our estimates, more than 75% of households had net income above USD5,000 in 2014. In addition, the repartition of income is relatively equal in Iran, with the middle 60% of the population accounting for 52.9% of total income in 2014. This is positive for food and drink companies, which can distribute their products to a greater share of the population.

While we expect an uptick in foreign investment as sanctions are removed, we caution that we will not see a boom in the food and drink sector. Operational and political hurdles will remain for foreign companies, on the back of widespread corruption, a high tax burden and inefficient bureaucratic procedures. Therefore, we believe that companies that were already present in Iran before the sanctions and that maintained a presence in the country will have a competitive advantage, as they have the experience of navigating the complex regulatory environment, ties with local operators and a better knowledge of the market.

Therefore, we maintain our view that Western European food companies are better positioned than their US peers, as many of them continued to operate in the country under the sanctions regime. Our outlook for Saudi food companies like **Savola** is also positive. Despite political tensions between Saudi Arabia and Iran, Saudi food companies have been present in Iran for a number of years. As they try to expand their presence regionally, we believe that their expertise of the market and trade procedures will give them a strong advantage. Although it does not operate in Iran at the moment, a company like **Almarai** is well positioned to tap the market.

Large European agribusiness companies are already present in Iran and most, such as Danone**,** entered the market before international sanctions were imposed against the country in 2012. Danone markets fresh dairy and baby nutrition products via its partnership with local dairy company Sahar and sells water under the brand **Damavand**. **Danone** also established its own factory in 2011, located in Qazvin province. Bel Groupe, also involved in the dairy sector, sells some products to Iran.

Table: Milk Production & Consumption (Iran 2011-2019)

	2011	2012	2013e	2014e	2015f	2016f	2017f	2018f	2019f
Milk production, '000 tonnes	7,240.0	7,390.0	7,500.0	7,700.0	7,777.0	8,010.3	8,258.6	8,522.9	8,804.2
Milk production, % y-o-y	-0.1	2.1	1.5	2.7	1.0	3.0	3.1	3.2	3.3
Liquid milk consumption, '000 tonnes	2,451.8	2,525.4	2,588.5	2,666.2	2,684.8	2,765.4	2,856.6	2,956.6	3,069.0
Liquid milk consumption, % y-o-y	0.2	3.0	2.5	3.0	0.7	3.0	3.3	3.5	3.8
Milk market value, % of total	26.1	26.3	30.7	31.9	31.8	31.8	32.0	32.0	32.1

e/f = BMI estimate/forecast. Source: National sources, BMI

Livestock Outlook

BMI View: *The short- and medium-term outlook for Iran's livestock sector is looking brighter, as improving profitability conditions, coupled with the easing of international sanctions, bode well for growth. Meat consumption will pick up with the growth in the economy and the easing of price inflation. Production growth will also accelerate but expansion will be more arduous. As such, imports of poultry and beef will grow in the coming years.*

Latest Developments

- Meat consumption will be the first component to benefit from the lifting of sanctions in 2016, as food price inflation will ease significantly, increasing consumer purchasing power. Meat production will benefit from the normalisation of grains trade, but investment in the sector will come in the medium term.
- In 2015, Iran ended a three-year ban on shipments from Brazil that was implemented after a mad cow disease outbreak. This bodes well for Brazil's exports to Iran, given the growing import needs of the country.

Table: Iran - Livestock Production And Consumption Outlook

	Ave growth rate 2014/15-2018/19	Drivers
Poultry production	2.5%	Meat production will benefit from the lifting of sanctions. In the short term, both poultry and beef production will see feed costs ease as grains trade normalises and grains imports become easier and cheaper. In the longer term, the lifting of sanctions is likely to lead to investment in meat production capacity, given the enticing outlook for consumption in the country. Iran has a well-developed poultry sector as it has experienced investment over recent years. As such, poultry production growth will outpace beef in the coming years.
Beef production	1.5%	Although it was once dominated by small holdings, the Iranian beef sector has begun to commercialise, which is likely to help to improve efficiency and production volumes. However, the beef sector is significantly less developed than poultry.
Poultry consumption	3.5%	Although food products were not included in the sanctions placed on Iran, meat consumption was impacted as they led to a steep acceleration in food price inflation. As such, the lifting of sanctions will prove beneficial for meat demand and we see consumption accelerating in the coming years, outpacing production growth. High growth rates in meat consumption are also due to base effects as consumption was weak in 2013 and 2014.
Beef consumption	4.0%	Rising disposable incomes are likely to benefit the consumption of beef at the expense of poultry, as higher-income consumers trade up to the more expensive meat.
Trade		We deem the government's goal to reach self-sufficiency in poultry and beef as overly optimistic. Production deficits will expand in the coming years, especially in the case of beef, which we see reaching 250,000 tonnes in 2019 compared with 180,000 tonnes in 2014.

Source: BMI

Table: Iran - Risks To Livestock Outlook

Period	Risks
Short term (two-year horizon)	Downside risk to production - Iran is at risk of adverse weather conditions as its crops rely almost entirely on natural irrigation.
Long term (five-year horizon)	Upside risks to production and consumption - The lifting of sanctions is likely to improve the investment and growth outlook in the country, which may boost production and consumption above our current forecasts.

Source: BMI

Structural Trends

1. Lifting Of Sanctions Positive For The Livestock Sector

The upcoming lifting of international sanctions on Iran will prove beneficial for the country's livestock sector. The lifting of sanctions will help meat consumption growth accelerate. The improvement in economic growth and the easing of inflation pressures will boost revenue per capita and help consumption of food products.

The normalisation of trade will help grains and feed imports become more stable and less expensive. Lower feed costs will help profitability for livestock producers and bode well for future investment in the sector. The challenges of importing food escalated over 2013, as the US blacklisted Iran's shipping, shipbuilding, energy and ports management sectors, adding to other sanctions targeting the banking sector and key oil exports. While the sanctions have an explicit exemption for food, medicine and other humanitarian goods, foreign shipping firms pulled out of Iran, and banking and financing of food trade was reportedly difficult.

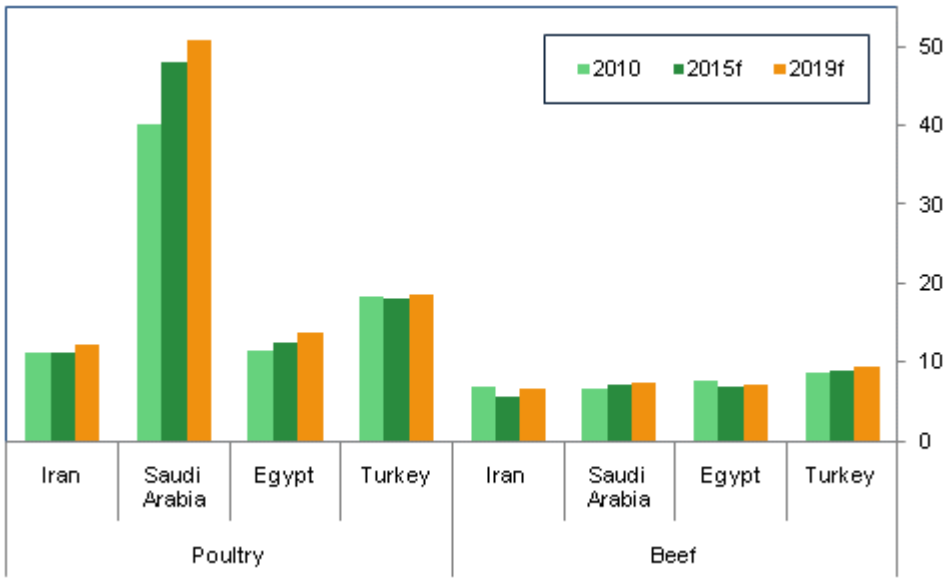
Iran will attract foreign investor interest, especially in the dairy and livestock sectors. This may lead to the consolidation and modernisation of the poultry and beef sectors in the medium-to-long term.

Investment in Iran has been significantly hampered by international sanctions, the country's opaque business environment and its challenging macroeconomic picture over the past few years. Recent developments regarding nuclear negotiations and the easing of sanctions have seen renewed interest by foreign businesses in the Iranian market. For instance, in January, a French delegation of more than 100 companies visited Iran, including representatives of the agribusiness industry, indicating that there is still tremendous international appetite for the sector. Large agribusiness companies are already present in Iran and most,

such as **Danone**, entered the market before international sanctions were imposed against the country in 2012.

Iran's Meat Demand Has Bright Days Ahead

Select Countries - Poultry & Beef Consumption Per Capita (kg/year)



f = BMI forecast. Source: FAO, USDA, BMI

2. Beef Self-Sufficiency Nowhere In Sight

In spite of the government's plan to reach self-sufficiency for beef, we forecast the country's beef production deficit to expand in the coming years. Various livestock companies only operate at 20-30% of their production capacity due to the lack of live cattle. Animals delivered to the slaughter house are often underweight and do not meet the accepted quality standards. Brazil is likely to be one of the main beneficiaries of growth in import demand. In 2015, Iran ended a three-year ban on shipments from Brazil that was implemented after a mad cow disease outbreak. India will also benefit, given its established trade ties with Iran.

Table: Beef Production & Consumption (Iran 2011-2019)

	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f
Beef & veal production, '000 tonnes	232.0	235.0	237.0	239.0	242.1	245.7	249.4	253.4	257.5
Beef & veal production, % y-o-y	5.5	1.3	0.9	0.8	1.3	1.5	1.5	1.6	1.6
Beef & veal consumption, '000 tonnes	455.0	405.0	410.0	417.0	429.5	444.5	462.3	483.1	507.3
Beef & veal consumption, % y-o-y	1.1	-11.0	1.2	1.7	3.0	3.5	4.0	4.5	5.0

e/f = BMI estimate/forecast. Source: National sources, BMI

Table: Poultry Production & Consumption (Iran 2011-2019)

	2011	2012	2013	2014	2015f	2016f	2017f	2018f	2019f
Poultry production, '000 tonnes	785.0	800.0	810.0	820.0	830.0	846.6	872.0	899.0	927.8
Poultry production, % y-o-y	2.6	1.9	1.3	1.2	1.2	2.0	3.0	3.1	3.2
Poultry consumption, '000 tonnes	838.0	840.0	838.0	841.0	866.2	896.5	928.8	962.7	998.8
Poultry consumption, % y-o-y	2.2	0.2	-0.2	0.4	3.0	3.5	3.6	3.7	3.8

e/f = BMI estimate/forecast. Source: National sources, BMI

Commodities Price Analysis

Global Commodities Strategy

Table: Select Commodities - Performance And BMI Forecasts

Commodity	Unit	Current Price	YTD (% Chg)	1 Year (% Chg)	2014 (ave)	YTD (ave)	2016f (ave)	2017f (ave)
Agriculture								
Cocoa (London)	GBP/ tonne	2,243	13.3	15.6	1,923	2,071	2,000	1,950
Coffee	USc/lb	117	-29.9	-36.7	178	134	130	135
Corn	USc/ bushel	362	-8.8	-3.1	415	378	425	435
Cotton	USc/lb	62	3.3	-1.6	76.3	63.4	72.0	73.0
Feeder Cattle	USc/lb	173	-21.1	-27.5	205	208.8	na	na
Lean Hogs	USc/lb	54	-33.3	-39.7	106	89.6	na	na
Live Cattle	USc/lb	129	-22.0	-22.7	152	149.3	na	na
Class III Milk (Third-Month)	USD/cwt	15	-1.6	-13.5	20.0	16.0	16.2	17.5
Palm Oil (Third-Month)	MYR/ tonne	2,331	2.9	2.9	2,936	2214	2280	2350
Rough Rice	USD/cwt	12	1.3	-0.8	13.9	11.0	12.5	13.0
Soybean	USc/ bushel	867	-15.0	-18.8	1,242	956	975	1050
Sugar #11	USc/lb	15	2.5	-8.3	16.3	12.82	14.50	15.50
Wheat	USc/ bushel	494	-16.2	-5.9	587	512	530	540
Energy								
Coal, Thermal (Newcastle)	USD/ tonne	61.8	-2.0	-25.4	70.2	62.1	59.0	60.0
Brent Crude	USD/bbl	47.3	-17.5	-42.1	99.4	55.6	56.0	55.0
OPEC Basket, Oil	USD/bbl	42.3	-18.6	-46.4	96.3	51.7	53.0	52.0
WTI Crude	USD/bbl	43.8	-17.8	-43.8	92.9	50.3	53.0	53.0
Natural Gas (HH)	USD/ mnBtu	2.3	-20.3	-45.8	4.26	2.71	3.30	3.50
Natural Gas (NBP)	USD/ mnBtu	5.7	-26.7	-34.1	8.39	6.67	7.38	8.09
Metals								
Aluminium	USD/ tonne	1,508	-18.6	-25.8	1,896	1,711	1,900	1,950
Copper	USD/ tonne	4,926	-21.8	-26.1	6,830	5,626	5,400	5,600

Select Commodities - Performance And BMI Forecasts - Continued

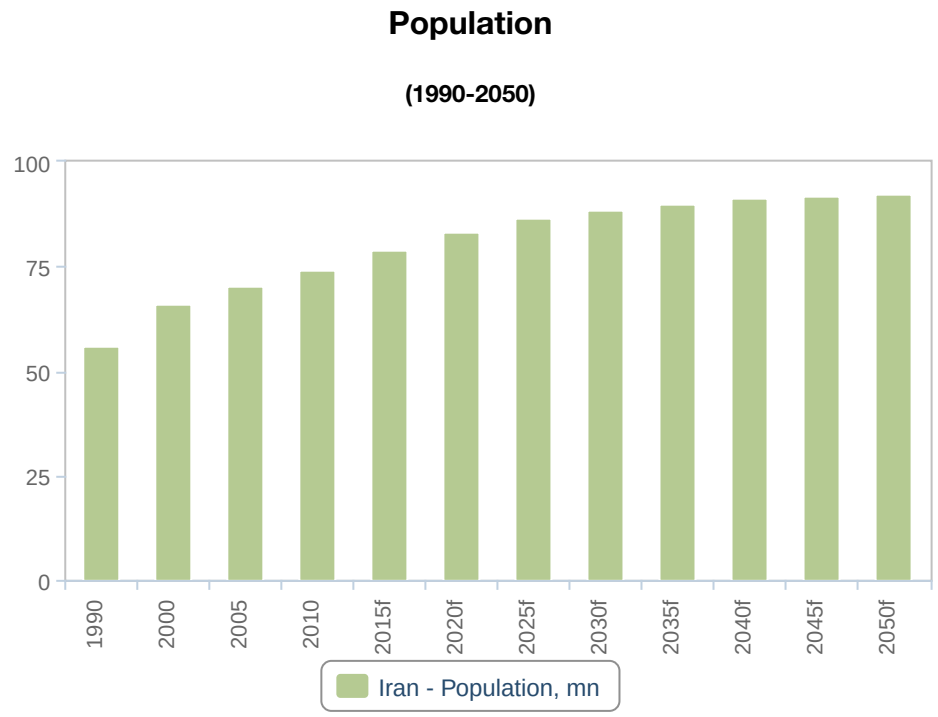
Commodity	Unit	Current Price	YTD (% Chg)	1 Year (% Chg)	2014 (ave)	YTD (ave)	2016f (ave)	2017f (ave)
Gold	USD/oz	1,089	-8.0	-6.5	1,266	1,174	1,150	1,125
Iron Ore (62% CFR, Qingdao)	USD/ tonne	48	-32.3	-36.4	96.9	58	55	58
Lead	USD/ tonne	1,634	-12.1	-19.9	2,113	1,814	1,900	1,975
Nickel	USD/ tonne	9,505	-37.3	-37.7	16,951	12,349	12,500	14,000
Palladium	USD/oz	600	-24.9	-22.4	804	758	na	na
Platinum	USD/oz	905	-25.2	-25.0	1,385	1,254	na	na
Silver	USD/oz	14	-7.5	-8.1	19.0	18	na	na
Steel (MEPS Carbon Steel)	USD/ tonne	542	-15.8	-23.8	699	567	535	550
Tin	USD/ tonne	14,725	-24.1	-26.6	21,871	16,237	15,000	16,500
Zinc	USD/ tonne	1,607	-26.2	-28.4	2,167	1,998	1,950	2,000

Notes: All metals prices except steel and iron ore refer to generic third-month contracts. All energy and agricultural prices refer to generic front-month unless otherwise stated; Performances as of November 11, 2015; Source: Bloomberg, BMI

Demographic Forecast

Demographic analysis is a key pillar of **BMI**'s macroeconomic and industry forecasting model. Not only is the total population of a country a key variable in consumer demand, but an understanding of the demographic profile is essential to understanding issues ranging from future population trends to productivity growth and government spending requirements.

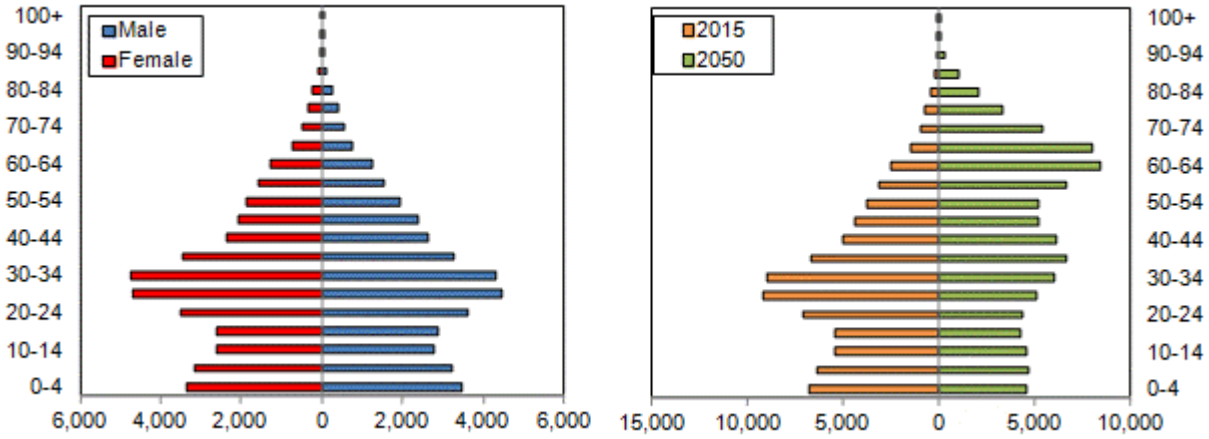
The accompanying charts detail the population pyramid for 2015, the change in the structure of the population between 2015 and 2050 and the total population between 1990 and 2050. The tables show indicators from all of these charts, in addition to key metrics such as population ratios, the urban/rural split and life expectancy.



f = BMI forecast. Source: World Bank, UN, BMI

Iran Population Pyramid

2015 (LHS) & 2015 Versus 2050 (RHS)



Source: World Bank, UN, BMI

Table: Population Headline Indicators (Iran 1990-2025)

	1990	2000	2005	2010	2015f	2020f	2025f
Population, total, '000	56,169	65,850	70,122	74,253	79,109	83,403	86,496
Population, % y-o-y	na	1.7	1.2	1.2	1.2	0.9	0.6
Population, total, male, '000	28,617	33,372	35,796	37,542	39,835	41,940	43,439
Population, total, female, '000	27,551	32,477	34,325	36,710	39,274	41,463	43,057
Population ratio, male/female	1.04	1.03	1.04	1.02	1.01	1.01	1.01

na = not available; f = BMI forecast. Source: World Bank, UN, BMI

Table: Key Population Ratios (Iran 1990-2025)

	1990	2000	2005	2010	2015f	2020f	2025f
Active population, total, '000	28,800	40,064	48,413	53,171	56,428	58,737	61,495
Active population, % of total population	51.3	60.8	69.0	71.6	71.3	70.4	71.1
Dependent population, total, '000	27,368	25,785	21,709	21,081	22,681	24,665	25,000
Dependent ratio, % of total working age	95.0	64.4	44.8	39.6	40.2	42.0	40.7

Key Population Ratios (Iran 1990-2025) - Continued

	1990	2000	2005	2010	2015f	2020f	2025f
Youth population, total, '000	25,492	23,011	18,251	17,418	18,677	19,449	18,237
Youth population, % of total working age	88.5	57.4	37.7	32.8	33.1	33.1	29.7
Pensionable population, '000	1,876	2,773	3,457	3,662	4,003	5,216	6,763
Pensionable population, % of total working age	6.5	6.9	7.1	6.9	7.1	8.9	11.0

f = BMI forecast. Source: World Bank, UN, BMI

Table: Urban/Rural Population & Life Expectancy (Iran 1990-2025)

	1990	2000	2005	2010	2015f	2020f	2025f
Urban population, '000	31,640.1	42,171.7	47,373.1	52,442.2	58,046.4	63,173.8	67,253.7
Urban population, % of total	56.3	64.0	67.6	70.6	73.4	75.7	77.8
Rural population, '000	24,529.1	23,678.4	22,749.0	21,811.2	21,062.8	20,229.5	19,242.9
Rural population, % of total	43.7	36.0	32.4	29.4	26.6	24.3	22.2
Life expectancy at birth, male, years	61.6	69.2	70.4	72.5	74.5	75.1	75.8
Life expectancy at birth, female, years	66.3	71.1	73.5	75.5	76.7	77.4	78.1
Life expectancy at birth, average, years	63.8	70.1	71.9	74.0	75.6	76.2	76.9

f = BMI forecast. Source: World Bank, UN, BMI

Table: Population By Age Group (Iran 1990-2025)

	1990	2000	2005	2010	2015f	2020f	2025f
Population, 0-4 yrs, total, '000	9,346	6,379	5,494	6,402	6,855	6,228	5,197
Population, 5-9 yrs, total, '000	8,885	7,598	5,556	5,472	6,395	6,836	6,213
Population, 10-14 yrs, total, '000	7,260	9,034	7,200	5,543	5,426	6,384	6,826
Population, 15-19 yrs, total, '000	5,775	8,781	9,299	7,136	5,478	5,407	6,365
Population, 20-24 yrs, total, '000	4,674	6,868	9,123	9,148	7,086	5,434	5,369
Population, 25-29 yrs, total, '000	4,031	5,269	6,796	8,996	9,158	7,026	5,388
Population, 30-34 yrs, total, '000	3,506	4,419	5,156	6,759	9,045	9,096	6,979
Population, 35-39 yrs, total, '000	3,005	3,864	4,670	5,140	6,738	8,988	9,044
Population, 40-44 yrs, total, '000	2,123	3,344	4,091	4,580	5,029	6,688	8,931
Population, 45-49 yrs, total, '000	1,621	2,832	3,393	3,920	4,454	4,979	6,629

Population By Age Group (Iran 1990-2025) - Continued							
	1990	2000	2005	2010	2015f	2020f	2025f
Population, 50-54 yrs, total, '000	1,527	1,930	2,776	3,227	3,813	4,384	4,906
Population, 55-59 yrs, total, '000	1,393	1,431	1,767	2,631	3,124	3,723	4,286
Population, 60-64 yrs, total, '000	1,140	1,322	1,336	1,629	2,497	3,009	3,594
Population, 65-69 yrs, total, '000	899	1,145	1,258	1,193	1,475	2,338	2,828
Population, 70-74 yrs, total, '000	508	826	1,055	1,054	1,009	1,299	2,075
Population, 75-79 yrs, total, '000	269	509	654	780	785	776	1,015
Population, 80-84 yrs, total, '000	136	203	347	413	477	494	502
Population, 85-89 yrs, total, '000	49	67	113	174	194	232	249
Population, 90-94 yrs, total, '000	11	18	22	40	54	63	79
Population, 95-99 yrs, total, '000	1	2	3	5	7	10	12
Population, 100+ yrs, total, '000	0	0	0	0	0	0	1

f = BMI forecast. Source: World Bank, UN, BMI

Table: Population By Age Group % (Iran 1990-2025)							
	1990	2000	2005	2010	2015f	2020f	2025f
Population, 0-4 yrs, % total	16.64	9.69	7.84	8.62	8.67	7.47	6.01
Population, 5-9 yrs, % total	15.82	11.54	7.92	7.37	8.08	8.20	7.18
Population, 10-14 yrs, % total	12.93	13.72	10.27	7.47	6.86	7.66	7.89
Population, 15-19 yrs, % total	10.28	13.34	13.26	9.61	6.93	6.48	7.36
Population, 20-24 yrs, % total	8.32	10.43	13.01	12.32	8.96	6.52	6.21
Population, 25-29 yrs, % total	7.18	8.00	9.69	12.12	11.58	8.42	6.23
Population, 30-34 yrs, % total	6.24	6.71	7.35	9.10	11.43	10.91	8.07
Population, 35-39 yrs, % total	5.35	5.87	6.66	6.92	8.52	10.78	10.46
Population, 40-44 yrs, % total	3.78	5.08	5.84	6.17	6.36	8.02	10.33
Population, 45-49 yrs, % total	2.89	4.30	4.84	5.28	5.63	5.97	7.66
Population, 50-54 yrs, % total	2.72	2.93	3.96	4.35	4.82	5.26	5.67
Population, 55-59 yrs, % total	2.48	2.17	2.52	3.54	3.95	4.46	4.96
Population, 60-64 yrs, % total	2.03	2.01	1.91	2.19	3.16	3.61	4.16
Population, 65-69 yrs, % total	1.60	1.74	1.79	1.61	1.87	2.80	3.27
Population, 70-74 yrs, % total	0.90	1.25	1.51	1.42	1.28	1.56	2.40
Population, 75-79 yrs, % total	0.48	0.77	0.93	1.05	0.99	0.93	1.17
Population, 80-84 yrs, % total	0.24	0.31	0.50	0.56	0.60	0.59	0.58

Population By Age Group % (Iran 1990-2025) - Continued							
	1990	2000	2005	2010	2015f	2020f	2025f
Population, 85-89 yrs, % total	0.09	0.10	0.16	0.23	0.25	0.28	0.29
Population, 90-94 yrs, % total	0.02	0.03	0.03	0.05	0.07	0.08	0.09
Population, 95-99 yrs, % total	0.00	0.00	0.01	0.01	0.01	0.01	0.01
Population, 100+ yrs, % total	0.00	0.00	0.00	0.00	0.00	0.00	0.00

f = BMI forecast. Source: World Bank, UN, BMI

Methodology

Industry Forecast Methodology

BMI's industry forecasts are generated using the best-practice techniques of time-series modelling and causal/econometric modelling. The precise form of model we use varies from industry to industry, in each case being determined, as per standard practice, by the prevailing features of the industry data being examined.

Common to our analysis of every industry is the use of vector autoregressions. Vector autoregressions allow us to forecast a variable using more than the variable's own history as explanatory information. For example, when forecasting oil prices, we can include information about oil consumption, supply and capacity.

When forecasting for some of our industry sub-component variables, however, using a variable's own history is often the most desirable method of analysis. Such single-variable analysis is called univariate modelling. We use the most common and versatile form of univariate models: the autoregressive moving average model (ARMA).

In some cases, ARMA techniques are inappropriate because there is insufficient historic data or data quality is poor. In such cases, we use either traditional decomposition methods or smoothing methods as a basis for analysis and forecasting.

BMI mainly uses ordinary least squares estimators. In order to avoid relying on subjective views and encourage the use of objective views, we use a 'general-to-specific' method. **BMI** mainly uses a linear model, but simple non-linear models, such as the log-linear model, are used when necessary. During periods of 'industry shock', for example, if poor weather conditions impede agricultural output, dummy variables are used to determine the level of impact.

Effective forecasting depends on appropriately selected regression models. We select the best model according to various different criteria and tests, including but not exclusive to:

- R^2 tests explanatory power; adjusted R^2 takes degree of freedom into account;
- Testing the directional movement and magnitude of coefficients;
- Hypothesis testing to ensure coefficients are significant (normally t-test and/or P-value);
- All results are assessed to alleviate issues related to auto-correlation and multicollinearity;

Human intervention plays a necessary and desirable role in all or our industry forecasting. Experience, expertise and knowledge of industry data and trends ensure analysts spot structural breaks, anomalous data, turning points and seasonal features where a purely mechanical forecasting process would not.

Sector-Specific Methodology

Within the Agribusiness industry, issues that might result in human intervention could include but are not exclusive to:

- Technological developments that might influence future output levels (for example greater use of biotechnology);
- Dramatic changes in local production levels due to public or private sector investment;
- The regulatory environment and specific areas of legislation, such as import and export tariffs and farm subsidies;
- Changes in lifestyles and general societal trends;
- The formation of bilateral and multilateral trading agreements, and political factors.

The following two examples show the demand (consumption) and the supply (production) of rice. Note that the explanatory variables for both are quite similar, but the underlying economic theory is different.

Example Of Rice Consumption Model

$(\text{Rice consumption})_t = \beta_0 + \beta_1*(\text{real private consumption per capita})_t + \beta_2*(\text{inflation})_t + \beta_3*(\text{real lending rate})_t + \beta_4*(\text{population})_t + \beta_5*(\text{government expenditure})_t + \beta_6*(\text{food consumption})_{t-1} + \varepsilon_t$

Where:

- β are parameters for this function.
- Real private consumption per capita has a positive relationship with rice consumption, if rice is a normal good in a particular country. If rice is an inferior good in a country, the relationship is negative. So the sign of β_1 is determined by a specific product within a specific country.
- When inflation is high, people with rational expectations will consume today rather than wait for tomorrow's high price to come. Higher rice demand in year t due to higher inflation in that year leads to an assumed positive sign of β_2.
- The relationship between real lending rate and rice consumption is expected to be negative. When real lending rates increase, disposable incomes, especially for those with mortgage burdens, etc, will decrease. So the sign of β_3 is expected to be negative.
- Of course, other things being equal, growth in rice consumption can also be caused by growth in population. Consequently, positive sign of β_4 is expected.

- Government expenditure typically causes total disposable incomes to rise. So the sign of β_5 is expected to be positive.
- Human behaviour has a trend: a high level of food consumption in previous years means there is very likely to be a high level of food consumption the next year. So the positive sign of β_6 is expected.
- ε is the error/residual term.

Example Of Rice Production Model

$(\text{Rice production})_t = \beta_0 + \beta_1*(\text{real GDP per capita})_t + \beta_2*(\text{inflation})_t + \beta_3*(\text{real lending rate})_t + \beta_4*(\text{rural population})_t + \beta_5*(\text{government expenditure})_t + \beta_6*(\text{food production})_{t-1} + \varepsilon_t$

Where:

- The same as above: the relationship between real GDP per capita and rice production depends on whether rice is normal or inferior good in that country.
- If high inflation is caused by food prices increasing, farmers will be more profitable. Then they will supply more agricultural product (eg, rice) to increase their marginal (extra) profit, although this is tempered by the rising cost of other inputs in line with inflation.
- There is a global move towards corporate farming, away from small holdings, in order to achieve greater agricultural productivity. Corporate farming means more investment in the modes of production, ie, agricultural machinery. Higher real lending rates discourage investment, which in turn reduce production.
- **BMI** assumes that only the rural population has a positive effect on agricultural product supply.
- With supportive government policy, other things being equal, rice production is expected to go up. Government expenditure is likely to play some role in supporting agribusiness.
- Again, previous food production positively affects this year's prediction.

Agribusiness Market Value

The construction of the Agribusiness market value is done in two steps.

1. **BMI** constructs an in-house model of the agribusiness market. Where for each commodity, its forecasted production value is multiplied by its commodity price. This is repeated for each commodity in the **BMI** agribusiness universe and then aggregated to give a **BMI** agribusiness total market value. Commodity prices reflect either market prices or production prices, this depends on the commodity in question and whether sufficient data is available.
2. **BMI** uses their in-house agribusiness total market value model as a benchmark model to forecast FAO's gross production value. In addition analysts can also subjectively intervene into the model if necessary to take into account qualitative data.

To summarise the final BMI Agribusiness market value is historical data from the FAO gross production value which is then forecasted using an in-house **BMI** agribusiness market value model that is objectively and subjectively estimated.

The model itself is priced in US dollars. Conversion to local currency and euros is done directly using **BMI**'s country risk exchange rate forecasts.

BMI ensures that our internal model best matches the FAO gross production value definition and construction to ensure that our internal model serves as a useful benchmark.

FAO Definition of Gross Production Value (USD)

Value of gross production has been compiled by multiplying gross production in physical terms by output prices at farm gate. Thus, value of production measures production in monetary terms at the farm-gate level. Since intermediate uses within the agricultural sector (seed and feed) have not been subtracted from production data, this value of production aggregate refers to the notion of 'gross production'.