

## Brazil: Inflation

### Year of the Pig: Good Fortune?

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- Since August 2018, African swine fever (ASF) has been rapidly spreading across China, having affected 30 provinces to date. The damage has been so severe that some analysts believe it will change the world protein supply chain for the years to come.
- The USDA estimates that total swine inventory will decline 18% in 2019, to 350 million heads, while others forecasts a much worse outcome, at ~30%.
- As such, we expect a demand shift in China to other proteins, mainly poultry and beef, with the U.S. and Brazil as the main suppliers.
- China's rapid switch to other proteins is evident in increasing beef and poultry imports from Brazil. In 2018, Brazil's beef exports to China and Hong Kong ("grey trade") increased 31%, with these markets already accounting for 44% of the country's total beef exports.
- China's 1.4 billion inhabitants' increasing demand for meat (primarily beef and poultry) has experienced robust growth. With the outbreaks of ASF expected to spread in the next two years, we expect this demand to increase, subsequently leading to higher global protein prices.
- We estimate that protein prices will begin to increase from 3Q19 onward, though we expect more of an effect on 2020 inflation.
- The combination of ASF outbreaks and domestic cattle cycle has led us to change our 2019 and 2020 IPCA forecast.
- We increased our 2019 and 2020 price forecast for beef & pork to 14.0% and 22.0% from 3.0% and 8.0%, respectively. We make our estimate with the caveat that there are so many other variables that can affect the accuracy of such forecasts.
- The total impact of the protein price increase in our forecast was 40 basis points for the 2019 IPCA and 60 basis points for 2020 IPCA.
- We now forecast 2019 IPCA at 4.0% and 4.5% for 2020.

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## African Swine Fever

According to the Chinese horoscope, 2019 is the Year of the Pig. In Chinese culture, pigs are a symbol of wealth, with their chubby faces and big ears being signs of good fortune. Unfortunately, **since August 2018, ASF, a viral disease that is often fatal to pigs (usually within seven days) and poses no risk to human health, has spread rapidly across China (30 provinces<sup>1</sup>) and its damage is already so strong that some analysts believe that it will change the world protein supply chain for years to come.**

Though ASF is not a new disease, it has never spread on such a large scale. Cases in Europe and Africa have been reported for some time, but have been relatively well contained. **The problem in China has been exacerbated by the fact that half of world pig herds are there, and the country consumes half of the world's pork and accounts for 28% of global meat consumption<sup>2</sup>.**

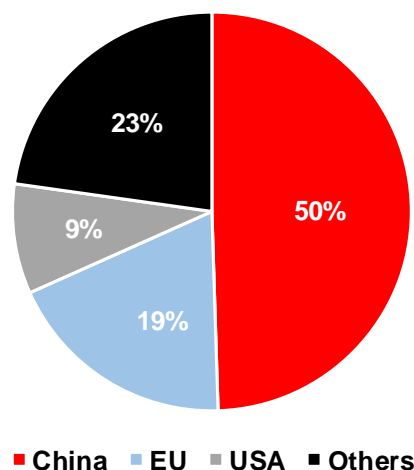
**The USDA's Foreign Agricultural Service (FAS) estimates that total swine inventory will be down 18%, to 350 million heads in 2019, while other analysts believe that the disease's impact could be much worse, falling ~30%.** In its last report<sup>3</sup>, FAS forecast that China's pork production will decline 10.3% in 2019, which means 5.5 million tons less (carcass weight equivalent) than in 2018. To give an idea of the size of this problem, **total world pork meat imports was 7.9 million tons in 2018.**

According to the Ministry of Agricultural and Rural Affairs, China's sow (female reproductive swine) herd dropped 21 percent in March/19 from the same period a year ago, while the pig herd contracted 19%, signaling further declines in the total swine inventory. **This is one of the reasons to believe that China will take at least 2 years to rebuild its pig supply and the first semester of 2020 should be the low point of pork production.**

Looking at these numbers from a different perspective, if China's total swine herd decline totals ~130 million heads that would mean China will have lost more pigs than the combined inventories of the U.S., Brazil and Canada.

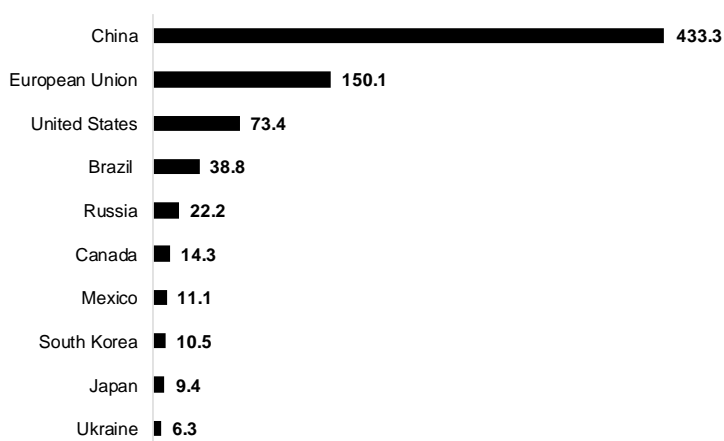
**We expect a demand shift in China to other proteins, mainly poultry and beef, with the U.S. and Brazil being the main suppliers (Australia and EU production is suffering from weather-related problems).** Though we expect China's meat imports to increase, the supply and demand gap will result in higher meat prices for the next years.

Figure 1. Global Pork Consumption (2018)



Source: USDA

Figure 2. Number of Pigs Worldwide in 2018, Country Ranking (Million Heads)



Source: USDA.

<sup>1</sup> [http://www.oie.int/fileadmin/Home/eng/Animal\\_Health\\_in\\_the\\_World/docs/pdf/Disease\\_cards/ASF/Report\\_14\\_Current\\_situation\\_of ASF.pdf](http://www.oie.int/fileadmin/Home/eng/Animal_Health_in_the_World/docs/pdf/Disease_cards/ASF/Report_14_Current_situation_of ASF.pdf)

<sup>2</sup> USDA FAS

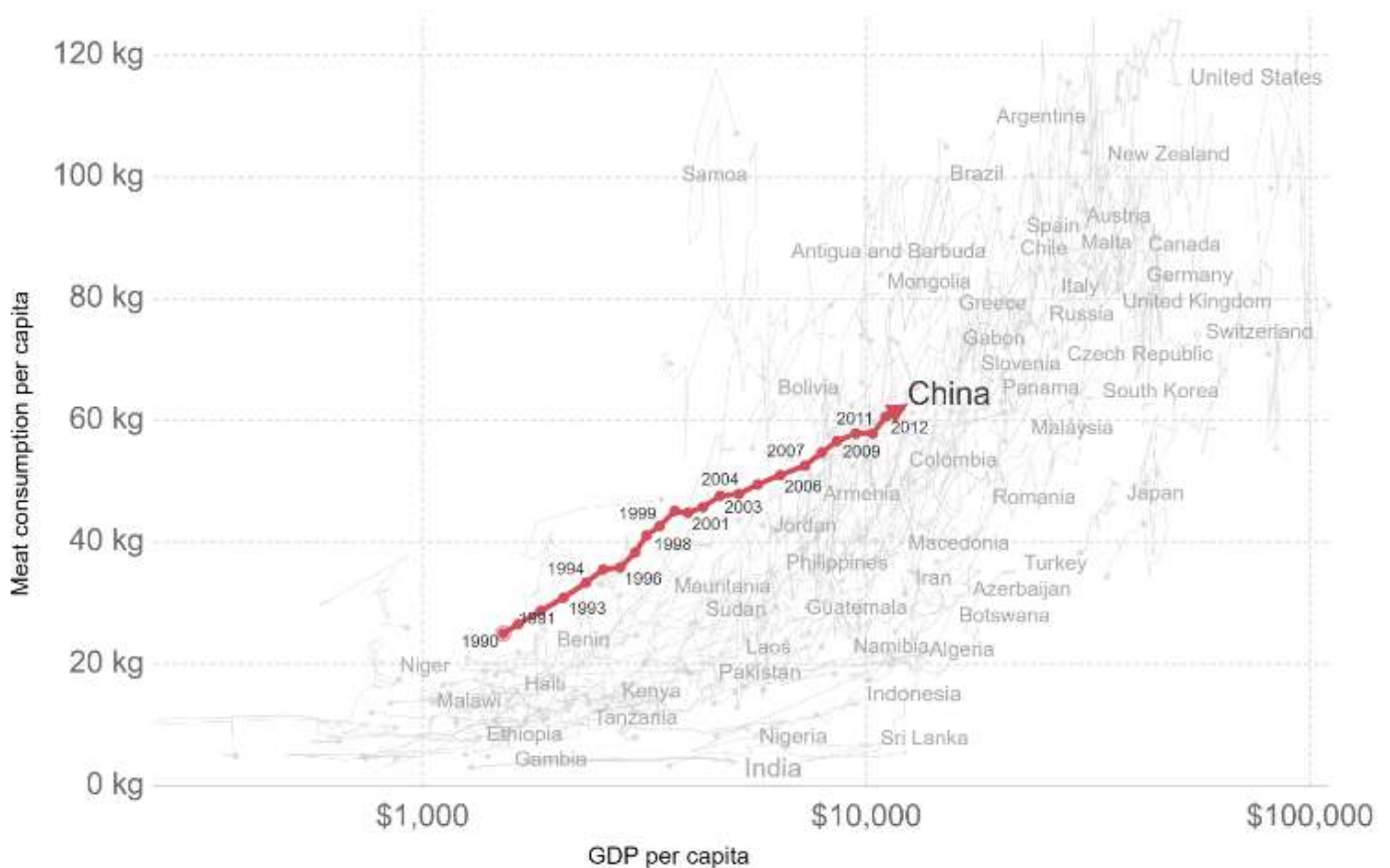
<sup>3</sup> <https://www.fas.usda.gov/data/livestock-and-poultry-world-markets-and-trade>



In fact, urbanization, rising income and improving living standards have already made beef consumption increase significantly in China in the last few years. According to FAS, on a per capita basis, beef consumption increased from 5.6 kg to 6.2 kg per person in the last two years, still well below the world average of 8.5 kg per person.

There is a clear correlation between rising income and meat consumption, and in the context of global trends, **China still has a long way to go.**

**Figure 3. Meat Consumption vs GDP per Capita, 1990-2013 (USD, adjusted for prices differences)**



Source: UN FAO, World Bank, World Development Indicators

**China is already the world's #1 beef importer, with Brazil, Uruguay and Australia being its main suppliers. The USDA estimates that overall Chinese beef imports should grow 15% in 2019, reaching 1.7 million tons, but others estimates are much higher due to the underestimated effects of the swine fever. The USDA also expects China to increase chicken imports by 68% (up to 575,000 tons) and pork imports to increase 41% (reaching 2.2 million tons).**

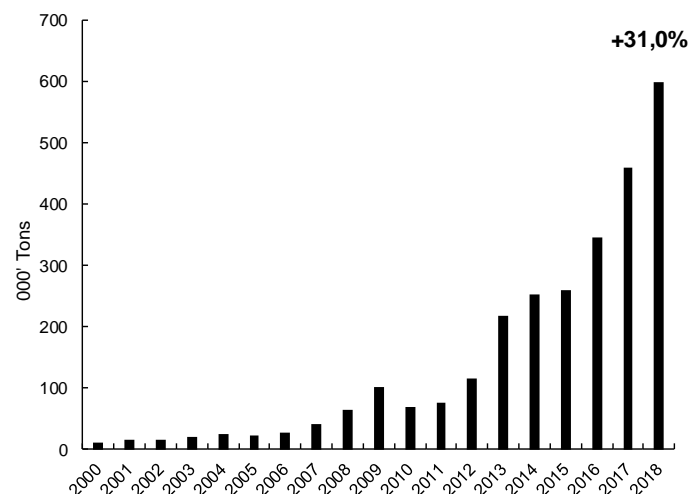
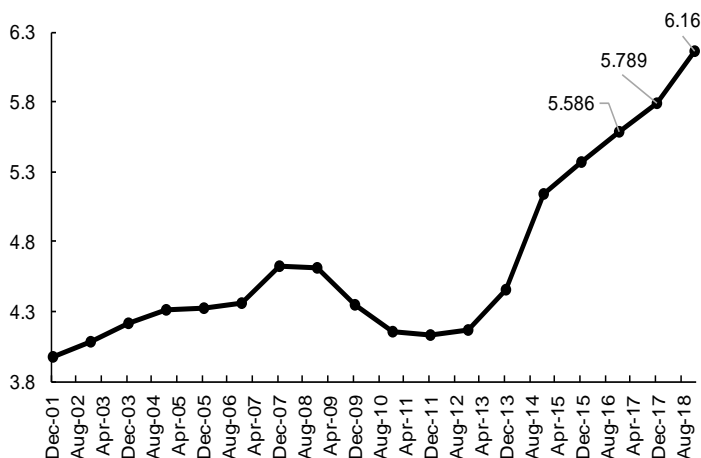
**In 2018, Brazilian beef exports to China and Hong Kong ("grey trade") increased 31% and already account for 44% of the country's total beef exports.**

China is already preparing for more meat imports. Last December, Brazil was given "pre-approval" to establish an additional 78 new meat plants in China, comprising 26 pork plants, 22 beef plants and 30 poultry plants. During May, the Brazilian Minister of Agriculture, Tereza Cristina, will travel to China to conclude this deal.



Figure 4. China Beef Domestic Consumption (KG per capita)

Figure 5. Brazil Beef<sup>4</sup> Exports to China and Hong Kong



Source: USDA FAS.

Source: Secex and Santander

China's 1.4 billion inhabitants' increasing demand for meat (primarily beef and poultry) has experienced robust growth. With the outbreaks of ASF expected to spread in the next two years, we expect this demand to increase, subsequently leading to higher global protein prices.

Can we estimate the impact of this confluence?

### The Case of the Blue Ear

Looking at the past, we see one swine disease that significantly affected pork prices in China: the first case of porcine reproductive and respiratory syndrome (aka PRRS, or "blue-ear" disease) was reported in China in 2006. It spread throughout the country, causing pork prices to increase during 2007-08. However, we have reason to believe that the ASF is much worse than the blue ear. PRRS is not immediately fatal; it affects the piglets of infected sows and the mortality rate is much lower than that of ASF's 100%. Also, a vaccine for PRRS was quickly developed, containing the disease in a few months. Subsequently, China's total pig herd contracted 8% due to the lagged effects of sows being slaughtered, though pork production recovered in only two years.

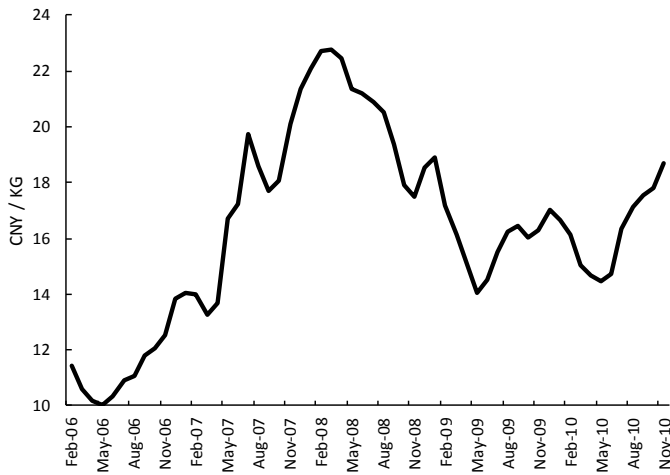
As mentioned above, our best estimate for the total decline in China's swine herd due to ASF is already 18%; moreover, a cure has yet to be found and the disease is still spreading.

What happened to meat prices during the blue ear outbreak? First, pork prices in China increased 125% from May 2006 to March 2008. After an initial decline due to increasing slaughter, prices increased for almost two years. International bovine and poultry meat prices also increased, as shown in Figure 5 and 6.

<sup>4</sup> "In natura" NCMs: 0201.10.00 - 0202.30.00

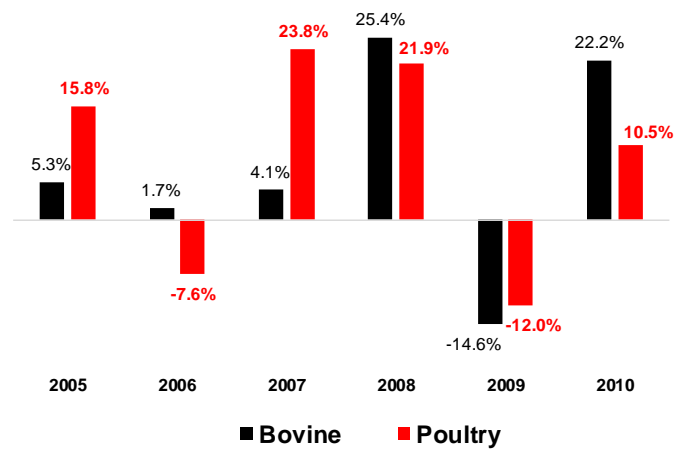


**Figure 6. China Agriculture Products Pork Wholesale Spot Price**



Source: Bloomberg.

**Figure 7. International meat prices (% change)**



Source: FAO

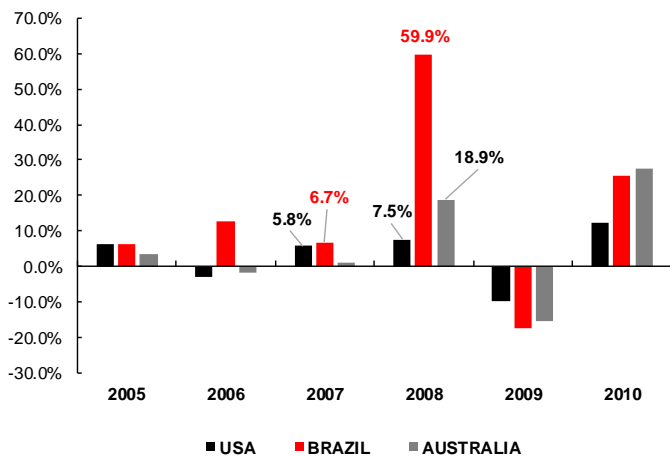
**However, it appears there is a missing link in the episode.** In 2007-08 China beef and poultry imports were close to zero, a situation that did not change after the outbreak of blue ear disease (although pork imports tripled during that time). Furthermore, the country's urbanization was not as advanced as today and per capita income was half of where it stands presently. As such, it was far more difficult for consumers to switch from pork consumption to more expensive beef at that time. So why international meat prices have increased?

**An important part of our thesis is that in 2007-08 international meat prices increased, driven by Brazilian domestic beef prices, which in turn was related to Brazil's cattle cycle.** From 2002 to 2006, cow slaughter increased more than 100% due to lower prices (foot and mouth disease) that led a supply meat deficit in 2007-08, driving cattle prices to record highs.

Thus, the blue ear disease appears to have affected mainly domestic meat prices in China.

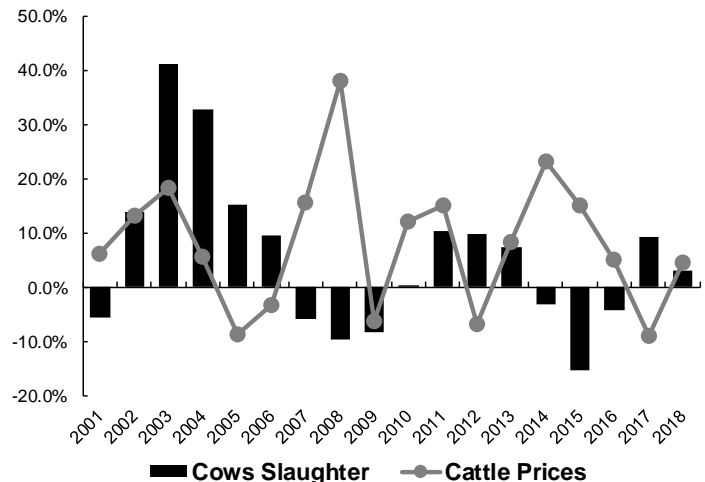
**However, we think that ASF will be different, significantly affecting global protein prices for the next two years (at least).** The culling of pigs has been unprecedented; the disease has not been contained; China's economic situation differs from 2007-08; and Chinese consumers are eating much more beef and poultry.

**Figure 8. International Bovine Prices (% change)**



Source: FAO

**Figure 9. Brazilian Cow Slaughter x Cattle Prices (% change)**



Source: IBGE, Cepea and Santander



**It's hard to estimate a supply/demand shock impact without any similar situation in history.** Some Chinese authorities are already saying that pork prices are going to increase at least 70% in the second half of the year (U.S. hog future prices are already up 60% since March). We believe this figure could prove conservative and do not know how much of this increase will be transmitted to other protein prices. Nonetheless, we expect a major shock.

## Brazilian inflation

**We expect that protein prices to increase from 3Q19 onward, though we expect more of an effect on 2020 inflation.** We assume that China still has frozen meat supply, that it will take some time for new facilities to start exporting meat to China and that lower meat production is going to be in 1H20 due to sow slaughter in China. There are a lot of variables that can change this scenario, so tracking Brazilian meat exports and the approval of new facilities require careful monitoring.

**Another source of concern for 2020 cattle prices, as Figure 8 shows, is that Brazilian cattle is late in the cycle, and 2019 could be the third consecutive year of cow slaughter increases, implying that 2020 will see less meat available for the domestic market.**

The combination of ASF and where Brazil is in the cattle cycle has lead us to change our 2019 and 2020 IPCA forecast.

The weight of meat prices (poultry, beef and pork) in the IPCA as of March 2019 stands at 4.2%, including industrialized and processed meat. Considering milk and eggs, total protein weight goes up to 6.3% in IPCA.

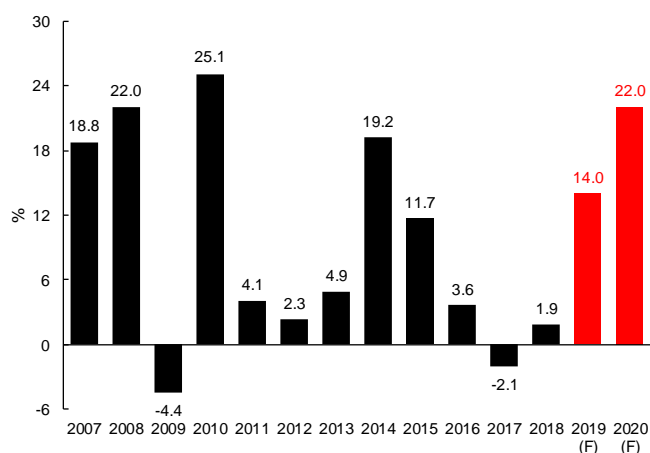
It is worth mention that food away from home will also be affected due to rising food prices, but the soft economic activity environment (see our report, *No News Is Bad News*, April 22, 2019) and the high unemployment rate should reduce this pass-through.

**Despite strong differences, we believe that a shock similar to what happened in 2007-08 is plausible, so we have increased our beef and pork price forecast from 3.0% and 8.0% for 2019 and 2020 to 14.0% and 22.0%.** This is our best estimate, considering the low visibility we have on the many variables involved in this scenario.

Figure 10. IPCA – Protein Weight (%)

	Weight
<b>Protein</b>	<b>6.30</b>
<b>Beef and Pork</b>	<b>3.40</b>
<b>Poultry</b>	<b>0.80</b>
<b>Eggs</b>	<b>0.20</b>
<b>Milk Products</b>	<b>1.90</b>

Figure 11. IPCA – Beef and Pork (%)



Source: IBGE and Santander

Source: IBGE and Santander



The total impact of the protein prices increase in our forecast was 40 basis points for the 2019 IPCA and 60 basis points for 2020 IPCA.

We now expect 2019 IPCA of 4.0% and 4.5% for 2020, above the Central Bank's target (4.25% in 2019 and 4.0% in 2020).

Figure 12. IPCA Forecast (%)

		2019 (F)	2020 (F)
<b>Weight</b>	<b>IPCA</b>	<b>4.0</b>	<b>4.5</b>
<b>26%</b>	Regulated Prices	4.8	3.5
	<i>Electricity</i>	9.0	4.6
	<i>Gasoline</i>	-0.4	1.8
<b>8%</b>	Durable Goods	1.1	2.1
<b>7%</b>	Semi-durable Goods	2.1	2.9
<b>36%</b>	Services	3.7	4.3
<b>36%</b>	<i>Core Services</i>	3.7	4.0
<b>24%</b>	Non Durables	5.1	7.3
<b>16%</b>	Food	6.8	9.2
<b>6%</b>	<b><i>Protein</i></b>	<b>10.4</b>	<b>16.4</b>

Source: IBGE and Santander

However, we do not think that the Central Bank will react to this supply shock, as it will be seen as a temporary relative price change and because core inflation will remain subdued due to lower economic activity.

**We continue to believe that the Central Bank will maintain interest rates at the current low level until the end of 2020** (see our report, *Low for (Much) Longer*, March 29, 2019).

**The key takeaway of this report is that the world protein chain might be facing a significant structural change that will affect food inflation until 2020.**

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