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Impact of Proposed Mexican Duties on US Leg Quarters on Mexican Consumers

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Executive Summary

US consumers exhibit a strong preference for chicken breast meat, and as a result, chicken leg quarters in the US sell at a significant discount to whole birds. Consumers in Mexico are either indifferent between whole birds and leg meat or actually prefer leg meat. As a result, the US sells approximately one quarter million tons of chicken leg quarters to Mexico each year. The availability of inexpensive leg quarters has allowed a significant portion of consumers in Northern Mexico to include muscle meat in their diets on a regular basis. This region is currently suffering from the aftermath of a severe drought and the widespread availability of inexpensive chicken legs has helped alleviate a severe shortage of food.

Mexico is about to make a final determination on an antidumping case and could impose duties in the range of 62.9% to 129.77% on these imported leg quarters. These duties would not impact the export of whole birds from the US to Mexico.

There is no other source of inexpensive dark meat available on the international marketplace. This is true because South American and Asian consumers also prefer dark meat. If these duties are imposed, then Mexico will initially import more whole birds from the US. These birds currently sell at a 68% price premium over chicken legs. Consumers who formerly purchased chicken legs will be forced to cut back on consumption of muscle meat or pay 68 percent more for chicken legs and chicken breasts. These consumers do not have any preference for chicken breasts and will, therefore, be much worse off than they are today.

The purpose of this report is to assess the likely impact of the duties on prices and inflation levels in Mexico. Almost all of the parameters used in this study are taken from the FAPRI international model. This model was built to study the impact of trade disputes. The FAPRI model is frequently used by US congress to evaluate the

impact of trade policy changes and results from this model have recently appeared in the academic journal, *Science*.

The results indicate that in the short run, on an annualized basis, the duties will eliminate 250,000 chicken leg quarters from the market and replace them with 79,000 tons of imported whole chicken. Domestic consumption will fall by 163,000 tons, in part because chicken prices will rise by 22.4%.

A 22.4% increase in poultry prices will increase the meat CPI by 7.2%, the food CPI by 1.9% and the overall CPI by 0.4 %. This short run price impact will last until the domestic pork industry in Mexico is able to increase production. This production response typically takes three months or more.

Within one year, the Mexican poultry industry will respond to the elimination of a 250,000 supply of imported poultry and will produce an estimated 156,000 tons of additional whole chickens. These chickens will gradually displace the import surge of US whole birds. Imports of whole birds from the US will be 61,000 tons lower than the peak, but will be about 18,000 tons greater than current levels. Poultry prices will be 11.3% higher and, as a result, consumers will purchase 86,000 fewer tons of chicken.

Mexican whole birds will sell at a premium compared to US leg quarters. Consumers who cannot afford this higher price will revert to inexpensive plant proteins or processed poultry and pork products.

An 11.3% long run increase in poultry prices will cause the meat CPI to increase by 3.6%, the food CPI by 1.0% and the overall CPI by 0.21 %. The impact of these changes will be much greater in Northern Mexico and among the poor.

Introduction

In March 2012, Mexico announced preliminary antidumping duties on US leg quarters. If the final determination on Mexico's AD case is the same as the preliminary determination, then duties will be imposed as follows: Tyson Foods, 129.77%, Simmons Foods, 62.90%, Sanderson Farms, 83.84%, with an "all others" tariff rate of 129.77%.

These duties would be used to protect the Mexican poultry industry from US competition. The Mexican government has until August to make a final decision.

Mexico is the largest customer of US poultry exports, and in 2011 imported 250,000 tons of chicken leg quarters valued at $233 million. Mexico also imported 328,000 tons of other poultry products such as whole birds that are not subject to the duties.

The loss of this enormous leg market would clearly damage the US poultry industry. Past experience with the loss of the Russian poultry market also suggests that this outcome would be harmful to the US pork industry. The most likely outcome in the US is that the legs that were exported to Mexico will be discounted and sold to dark meat markets such as Hong Kong or sold on the US domestic market. These impacts are well understood in the US.

Trade restrictions cause harm to both sides, and in this case the Mexican poultry consumer will lose access to inexpensive dark meat chicken. The purpose of this report is to describe the harm that would be done to this consumer.

Market Overview

Figures 1 and 2 show recent trends in the Mexican and US poultry markets. Prosperity associated with free trade and sound macroeconomic policy has allowed Mexican consumers to purchase more animal protein, and as a result, Mexican poultry production has grown to meet demand for fresh poultry. Imports have also grown in part because Mexican consumers prefer leg meat, whereas the US consumer prefers breast meat. It is, therefore, less expensive for Mexico to import legs from the US than to produce additional whole birds domestically. This kind of trading arrangement is the type of example economists use when they explain the benefits of free trade. Products that are in abundance in one country are typically exported to countries where they are scarce, thereby improving welfare in both countries.

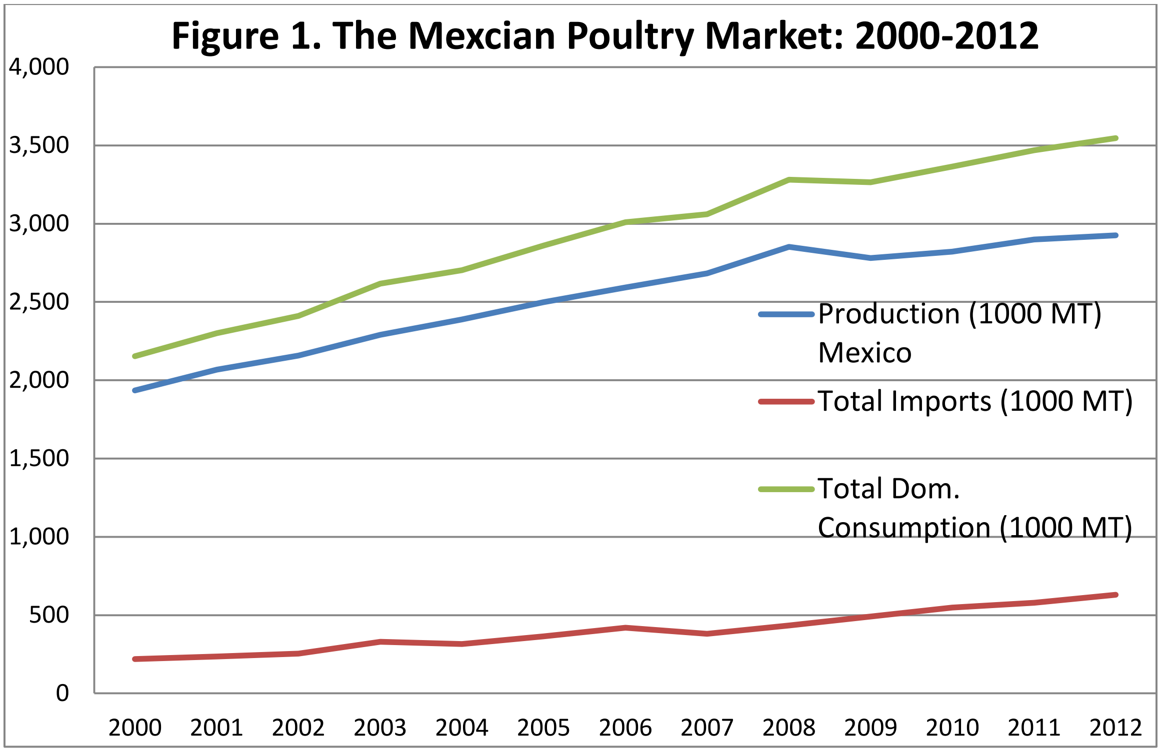
The increase in Mexican poultry production shown in Figure 1 was expected and was also observed in the pork sector. Mexican consumers, like those all over the world, prefer fresh domestic meat. As a result of this additional demand, production of domestic pork and poultry has grown. Low interest rates and overall prosperity has also allowed the Mexican poultry industry to integrate and modernize. Mexican poultry production has increased by about 50% while US production grew modestly up to 2008 and has since stagnated.

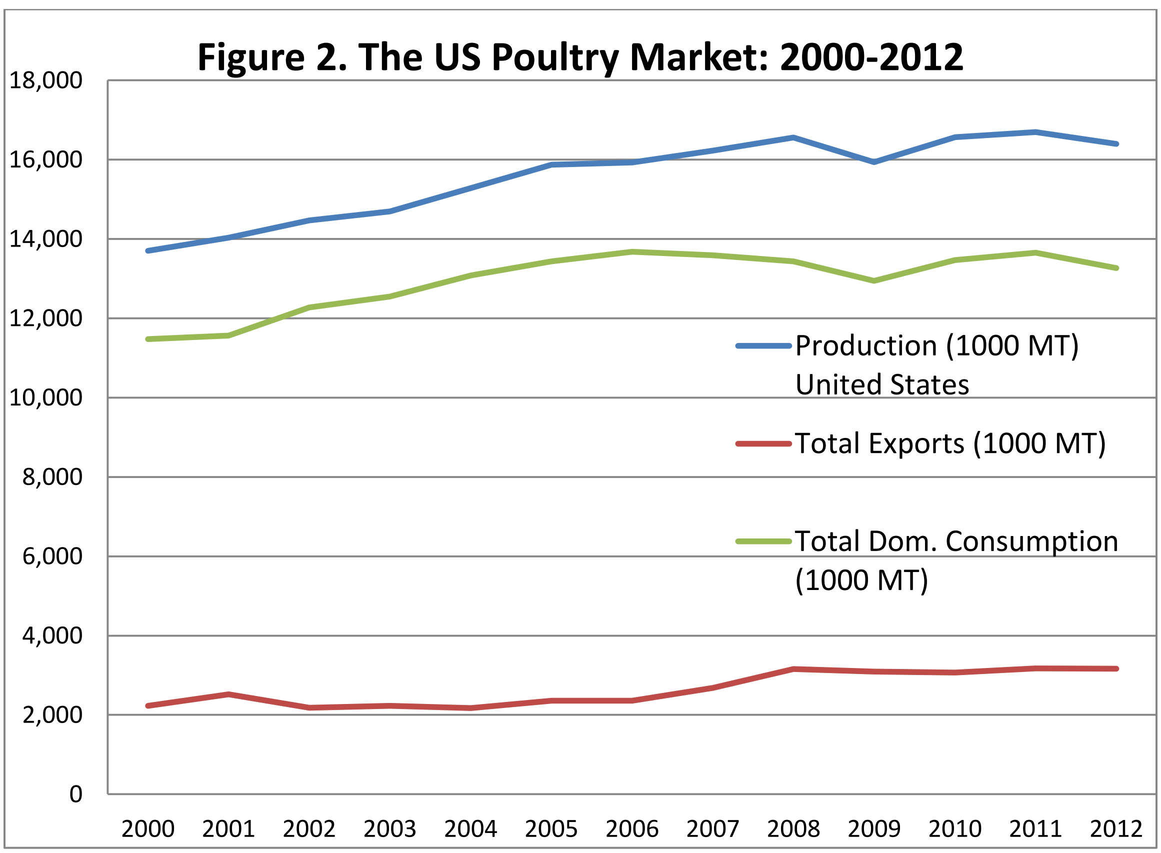
Interestingly, the data in figures 1 and 2 suggest that the last twelve years have been more profitable for the Mexican broiler industry than the US broiler industry. Had price conditions in Mexico not been favorable, then the Mexican industry would not have grown at such a rapid pace.

Regional and Sectorial Patterns

US poultry hind quarters are an entry level protein for consumers who might not otherwise be able to afford muscle meat. As poultry hind quarter prices fell, poorer consumers upgraded their diet away from beans, rice and highly processed fatty meats to the high quality protein in muscle meat. This trend was particularly evident in the Northern Mexico where penetration of leg quarters is greatest.

Poorer consumers in Northern Mexico therefore have the most to lose from this case.





Northern States such as Chihuahua, Zacatecas and Durango have recently suffered through a severe drought that destroyed crops and killed cattle. Some media sources have described localized famine conditions in these areas. The availability of a quarter million tons of inexpensive poultry has almost certainly alleviated these conditions, especially among the poorest in the region.

Impact of the Duties on the Mexican Consumer

The purpose of the duties is to increase Mexican poultry prices to benefit the Mexican poultry companies who brought the case. Given the magnitude of the proposed duties, this will certainly be the case. Faced with higher poultry prices, the Mexican consumer can be expected to substitute away from poultry leg quarters towards less inexpensive proteins. Other consumers will continue to purchase poultry muscle meat albeit at a higher price. Some consumers will purchase pork and poultry, but the prices of these meats are at record highs and muscle meats from these animals sell at a significant premium compared to chicken leg quarters.

In the short run, the Mexican poultry industry will not be able to make up for the shortfall in imports and the solution will be to import poultry products not subject to the duty, as well as to cut back on consumption of poultry muscle meat.

Which country will replace the missing poultry?

Table 1, as shown below, provides data on Mexican poultry imports. Historically, the US has provided 93% of imports. Chile has provided 6% and Canada less than 1%.

In 2011, Chile produced 545,000 tons of chicken and consumed 529,000 domestically. It imported 74,000 tons and exported 90,000 tons, with Mexico being the number one market. With net exports of only 16,000 tons, Chile is clearly not in a position to replace a 250,000 ton order. Canada controls its chicken market using production quotas, so it is not in a position to meet this demand.

A second alternative might be to remove current sanitary barriers against Brazilian and Argentinean poultry and let the market encourage poultry producers in these countries to build new poultry barns so as to provide the missing product. Brazil is clearly in a position to do this, but like Mexico, it is a market where dark meat is valued. Moreover the largest buyers of Brazilian poultry (Hong Kong, China and the Middle East) are also dark meat markets.

If poultry producers in Brazil and Argentina thought there was a long term opportunity in Mexico, then they would build these new barns, but this would only make economic sense if the Mexican market bought the whole bird. In other words, producers in these countries can easily make up for the missing US leg quarters, but they will not do this with a dark meat discount. These birds would need to be shipped via ocean carriers and would most likely be frozen. The US product can be sent in chilled or frozen via surface transport. From a logistical perspective, it makes most sense to buy US whole birds than whole birds from Brazil or Argentina. Therefore, the most likely outcome is that the US will provide about 93% of additional whole bird imports with Chile providing the remainder.

Mechanically separated chicken is not impacted by the proposed duties and it is less expensive than whole birds. But this paste like product cannot be shredded for inclusion in home cooked meals or formed for slicing in deli meats and, therefore, its use is restricted to processed products such as inexpensive sausages and hot dogs. Consumption of these processed items will increase, and additional imports of mechanically separated chicken will grow, but this increase in processed meat consumption can best be viewed as a replacement for muscle meats in a category similar to plant proteins. In the calculations that follow, the focus is on muscle meats.

Table 1. Mexico Import Statistics **Commodity: Chicken**						
Annual Series: 2006 - 2011						
	United States Dollars					
Partner Country	2006	2007	2008	2009	2010	2011
World	$350,692,150	$363,729,288	$446,024,934	$475,298,807	$512,863,720	$626,337,464
Canada	$2,010,231	$1,503,503	$1,517,755	$1,202,772	$1,523,044	$1,911,683
Chile	$68,864,459	$35,739,082	$65,833,020	$58,050,943	$47,206,095	$39,739,785
China	0	0	$25,536	0	0	0
Colombia	$44,759	0	0	0	0	0
France	750	0	0	0	0	0
Spain	0	0	0	0	0	$1,614
United States	$279,771,951	$326,486,703	$378,648,623	$416,045,092	$464,134,581	$584,684,382

Cost associated with importing additional whole birds from the US

The USDA Broiler Market News Report for Friday, May 4th lists the following delivery dock prices at Georgia poultry plants[i]: Whole birds $0.93 per pound, boneless breasts $1.64 per pound and leg quarters $0.554 cents per pound.

These relative prices suggest that whole birds imported from the US would cost about 68% ($0.376) more than is currently paid for imported US leg quarters.

One might suspect that whole birds would be preferable to leg quarters in Mexico because they contain breast meat, but this is not the case. The USDA agricultural attaché in Mexico city has been comparing fresh whole bird prices with leg quarter prices over a several year period and the ratio of one to the other is almost exactly 1 (1.000546). More recent data from some regional markets is shown in Table 2.

Table 2. Chicken and Chicken Leg prices In Mexican Markets, April 27, 2012 (Cents per Pound)		
	Whole Chickens	**Legs with Thighs**
RAYON		
Low	64.65	69.89
High	67.45	87.37
Mostly	66.40	80.38
SAN JUAN		
Low	63.60	69.89
High	66.40	83.87
Mostly	66.40	76.88
NEW SAN JUAN		
Low	65.00	73.39
High	66.40	90.86
Mostly	66.40	83.87
BECERRA		
Low	66.40	76.88
High	69.20	94.36
Mostly	66.40	90.86
Source: USDA AMS Poultry Programs, Market News & Analysis		
Atlanta, GA 404.562.5850 email: PYMNATL@ams.usda.gov		
http://www.ams.usda.gov/mnreports/AJ_PY020.txt		

This 68% price increase is in the same range as the smallest of the proposed duties, but substantially less than that proposed for Tyson and "all others". This means that the importation of whole birds would, in almost all cases, be preferable than paying duties. Therefore, the duties can be considered prohibitive[ii].

Price Impacts

For consumers who depend on imported chicken leg quarters and now switch to imported whole chickens, it will be as if poultry prices had increased by 68%. This is true because most of these consumers will be indifferent between the two products. As mentioned earlier, many of these consumers are poor and live in the drought ravaged area of Northern Mexico.

The sudden disappearance of 250,000 tons of leg quarters will also cause national poultry prices to increase. In the immediate aftermath of the duties, it will not be possible for the Mexican poultry industry to increase production. This means that the market will be brought back into balance by reduced consumption and by increased whole bird imports.

In the long run, the Mexican poultry industry will be able to respond to higher domestic prices and fill most of the vacuum created by the missing leg quarters.

We, therefore, need to measure the short and long run impacts of the duties. In the poultry business, it typically takes three months or more for production to respond to higher prices. Most of the production response will be over after one year. Therefore, in the calculations that follow, the short term response is the one expected in the first and possibly the second quarter after the imposition of the duties and the long run response is that seen after one year. In order to make the short and long run results comparable, all of the quantities and prices have been annualized.

The FAPRI group at Iowa State has an international commodities model that can be used to solve for the national price impacts. This model is documented and described at http://www.fapri.iastate.edu/

The relevant parameters from the FAPRI model are a 0.45 long run elasticity of supply and a -0. 22 own price elasticity of demand. [iii] The short run supply elasticity of supply in Mexico is zero by assumption. The export supply elasticity is 0.8.

Using these parameters, it is possible to solve for the price impact that clears the market in both the short and the long run. The results of this analysis appear in Table 3 below.

Table 3. Short and Long Run Impacts of the imposition of Prohibitive Duties on US Leg Quarters

Measure	Baseline	Short Run	Long run
Production (1000 MT)	2,900	2,900	3,056
Total Imports (1000 MT)	578	407	346
Total Supply (1000 MT)	3,478	3,307	3,402
Total Exports (1000 MT)	8	8	8
Total Dom. Consumption (1000 MT)	3,470	3,307	3,384
Total Use (1000 MT)	3,478	3,315	3,392
Total Distribution (1000 MT)	3,478	3,315	3,392
Per Capita Consumption (KG)	30.5	29	29.7
Poultry Price Impact (Percent Change)		22.40	11.30
Meat Price Impact (Percent Change)		7.21	3.64
Food Price CPI (Percent Change)		1.97	0.99
Overall CPI (Percent Change)		0.42	0.21

In the short run, Mexican poultry prices increase by 22.4%. This price increase causes Mexican poultry consumption to fall by 163,000 tons and Mexican whole bird imports to increase by 79,000 tons, (578-250=328, 407-328=79). Imports of chicken leg quarters are eliminated.

Using expenditure shares that are taken from three academic studies, [iv] the Food CPI increases by 1.97% and the overall CPI increases by less than one half of one percent.

Conclusion

US exports of chicken leg quarters to Mexico benefit both US chicken producers and Mexican consumers. This is true because Mexican consumers place much higher relative value on dark meat than do consumers in the US. The most viable alternative to the importation of US leg quarters is for Mexico to buy whole birds from the US, or to produce more whole birds domestically. The former is the most likely outcome in the short run and the later will most likely occur in the long run. In both cases the Mexican consumer is forced to pay a premium for a whole bird relative to the price they currently pay for dark meat. This is true even though there is strong evidence that Mexican consumers are indifferent between whole birds and leg quarters.

Imported chicken leg quarters are an entry level animal protein for poorer consumers, especially in Northern Mexico. These consumers will bear the brunt of the adjustment. The duties will also have nationwide price implications. This is true because the proposed duties will effectively remove one quarter million tons of poultry from the market. In the short run the food consumer price index will increase by about 2% and in the long run this food CPI impact will be about one percent.

The Mexican poultry industry will benefit most from these duties. This industry has grown at a far faster rate than the poultry industry in the US. The Mexican poultry industry has grown because middle class Mexican households prefer domestically produced fresh poultry. It is ironic that the expansion in the number of middle class Mexican consumers is due in part to the free trade agreement that prompted this dispute.

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[i] www.ams.**usda**.gov/...0/getlatestfile?...PY20060703T**Broiler**Fryer...

[ii] In the immediate aftermath of the imposition of the duties the US leg quarter price might collapse and it would therefore make sense to pay the duties based on this much lower price. But this situation will quickly be remedied as US poultry companies find alternative markets for these legs in price conscious markets such as Hong Kong

[iii] http://www.fapri.iastate.edu/tools/elasticity.aspx

[iv] See Amos Golan, Jeffrey M. Perloff, and Edward Z. Shen *The Review of Economics and Statistics,* August 2001, 83(3): 541–550 and Daniel L. Hicks Consumption Volatility, Marketization, and Expenditure in Emerging Market Economies Working paper Department of Economics University of Oklahoma 5/15/2011 available http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CD4QFjAB&url=http%3A%2F%2Ffaculty-staff.ou.edu%2FH%2FDaniel.Hicks-1%2Fcv_hicks.pdf&ei=aOynT-vEC4Segwex04nZAQ&usg=AFQjCNFg5Qfsaz-yuRvRUlC8NRoQeY8ipQ&sig2=culuIMxovPYnrr_scN6GHg
And Jose de Jesus Garcia Vega and Martial Canales Gracia, The Role of Economic and Demographic Variables in Mexican Food Consumption available http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CGMQFjAA&url=http%3A%2F%2Fageconsearch.umn.edu%2Fbitstream%2F27410%2F1%2F31010024.pdf&ei=2uunT72hK8WmgwfL1NClAQ&usg=AFQjCNFckhTM5XSozTtIbMdZgdnefWdkBw&sig2=NwtASYyq3Y4iaWTl6QNh9w