

Estimating the Market Cost of H1N1

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■ Introduction

Every so often in the livestock industry we get a huge shock, that changes the total complexion of the market, sometimes for years to come. Usually we are talking about an unexpected disease outbreak in a major producing nation, upsetting the normal ebb and flow of world trade. The best example of a real “game changer” in the livestock markets was the discovery of BSE in an Alberta cattle herd back in May 2003. Over half a decade later, North American cattle producers are still trying to secure market access to export destinations which they took for granted in April of that same year.

For hogs, foot and mouth disease (FMD) is the usual culprit, with the March 1997 outbreak in Taiwan the most prominent example. In February 1997, Taiwan was enjoying preferential access and 40%+ market share of the highly valuable Japanese pork import market, the largest and most valuable import market even today. Today, the Taiwanese pork export industry remains a fading memory, while the US enjoys 40% market share, compared to 22% in 1996. Yet the initial, barely concealed, glee in North America over Taiwan’s misfortune was somewhat misplaced. If anything, the event had a negative impact on producers in North America in the short to medium term, by encouraging aggressive expansion in 1997 and 1998. Many of us still remember how well that turned out.

That brings us to the present and the most recent shock to the livestock markets, namely swine flu. That’s right, I said swine flu. There is much in a name, and it hardly seems likely that a relatively mild new flu strain with the name of H1N1 or perhaps Mexican flu would have had any lasting impact on world pork trade, or hog and pork markets, even if discovered in the occasional swine herd. But it was initially, and still is, called swine flu in many circles and in many media outlets, despite extensive damage control efforts from the industry. Trade barriers put in place after the outbreak still linger.

I have been granted the task of estimating the impact of H1N1 on hog and pork markets. There is a morbid curiosity within the pork industry as to the extent of the damage inflicted by what is seen as a sensationalized media complex frantic to uncover the next big story, fed by health organizations and governments eager to demonstrate their heightened state of preparation for the next big pandemic.

■ The Usual Disclaimers

The discipline of economics attempts to organize and understand a complex world with millions of individuals, companies and governments making economic decisions, all impacting the larger economy. Even if all these decisions were logical (which is often not the case) it would be a daunting task to estimate the impact of one event in isolation of everything else, since the global economy is not a laboratory where we can isolate and measure one specific reaction. I offer up my own analysis and opinions on H1N1 impacts, but will not be offended or surprised if someone else comes up with a dramatically different answer.

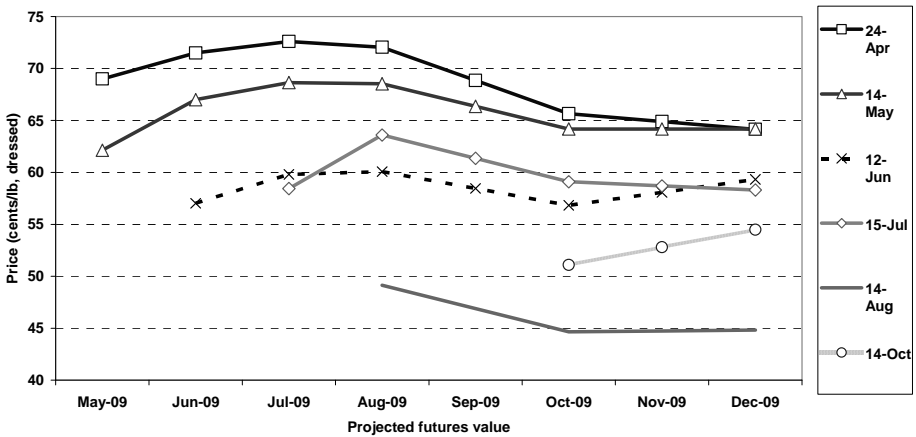
■ Futures Market Impact

The first stop to gauge the impact of an event on the pork market is the CME lean hog futures trade. This is a large market with numerous participants including most of the largest producers, processors, and exporters, not to mention a large component of speculators willing to put their money down on the likelihood of a certain price occurring in the future. Every participant has “skin in the game” and many are quite passionate regarding their market opinion. Although the value of a futures contract will swing dramatically in its lifetime, typically by over 10 cents per lb from high to low trade, over the long term the lean hog futures have been demonstrated to provide an unbiased view of market prospects, while incorporating the latest market information.

Although the news of H1N1 was trickling out prior to April 24th, the new “swine flu” really did not come to the general market’s attention until it became the leading news story in the US. About the same time, foreign governments began responding with a series of pork trade restrictions, while national and international health organizations were making their various, sometimes contradictory pronouncements. **Figure 1** shows where lean hog futures for 2009 were on the close of regular trading April 24, 2009 and then on subsequent selected dates. We will follow the progression right through to the settlement of the December 2009 futures contract. The loss in value is stark. As of October 2, every contract has closed out sharply lower than its trading value on April 24. For example, May futures closed out 7.25 cents lower, June

14.625 lower, July 14.15 lower, August 22.93 lower. You can fill in the blanks for October and December, also down sharply initially, although mounting a fall recovery.

Figure 1. Lean hog futures on selected dates (Sep & Nov imputed)



Clearly, lean hog futures traders did not take the “swine flu” news kindly. After initial limit declines, the slide continued for some days, with the nearby May contract dropping almost 12 cents in the first seven trading sessions post-H1N1, an average daily decline of 1.71 cents. We saw a typical life-of-contract trading range in the space of a few days. Other more distant futures months did not fall as far initially, as the market was still of the consensus that H1N1 was a temporary disruption. For example, December lean hog futures recovered quickly after the initial drop and by early May were actually trading **above** the April 24 close.

During the month of May, cash hog and pork markets continued to struggle; during what is almost always a period of strong seasonal price rallies. Futures showed a steady erosion of hope, as traders responded to the hugely disappointing spring market. For the more distant months, prices marked a huge downturn during mid-late summer, rebounding a bit in September.

Moving past the initial sharp drop, can we really attribute all of the spring and summer selling and negative market vibes to H1N1? Would the Chinese have abandoned US pork imports regardless of the outbreak, as many contend, owing to sharply increased production there? What about a record cool July in Iowa, contributing to much higher carcass weights this summer? Plus much larger than anticipated US hog marketings all through the spring and summer months? Overall, the futures market suggests a large and dramatic initial H1N1 impact, but other news probably helped to perpetuate

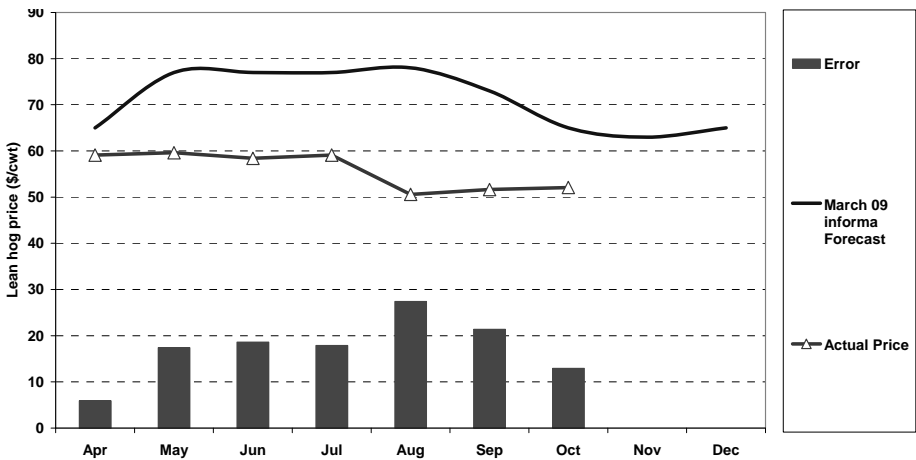
the downtrend. Furthermore, chartists will point out that a steady downtrend was already well underway by April 24.

■ Analyst Forecasts

A few analysts actually get paid to forecast future hog prices, while others do so for fun or promotional purposes. It takes all kinds. The difference between analysts and futures traders, however, is that the former typically aren't compensated for how **well** they forecast prices. Unlike the futures, biases are not uncommon among market forecasters: University economists are usually considered bearish, while some prognosticators in allied sectors are rampantly bullish.

Prior to the outbreak of H1N1 it is safe to say that no analyst was predicting a May market of \$60 for lean hogs, nor a June average price of 58 and most certainly not an August average of only \$51, the lowest in decades. In March, 2009 I was still employed as a private sector market analyst, focusing entirely on the pork complex. **Figure 2** compares my lean hog forecast as of March 2009 to the actual 2009 market outcomes. What a sad tale.

Figure 2. Comparison of a pre-H1N1 market forecast to actual prices



Like the futures market, the expectations of forecasters were sharply above the price levels actually achieved. Throughout the industry there was a general expectation of a return to profitability during the spring and summer of 2009, based I might add, on highly reliable seasonal price patterns. While I missed the mark badly, perhaps I can take comfort that others missed by even more. I recall one forecaster who last winter was loudly calling for \$90 lean hogs throughout the summer of 2009.

■ Trade Impacts

So far we have established that the pork world changed dramatically on April 24, 2009, and that actual prices fell dramatically below expectations prior to that date, resulting in large losses instead of modest profits for the production sector. If you multiply the North American spring and summer marketings by the per head losses you can generate some really big numbers - well into the hundreds of millions of dollars! But yet we also must acknowledge that H1N1 wasn't the only negative market factor at work.

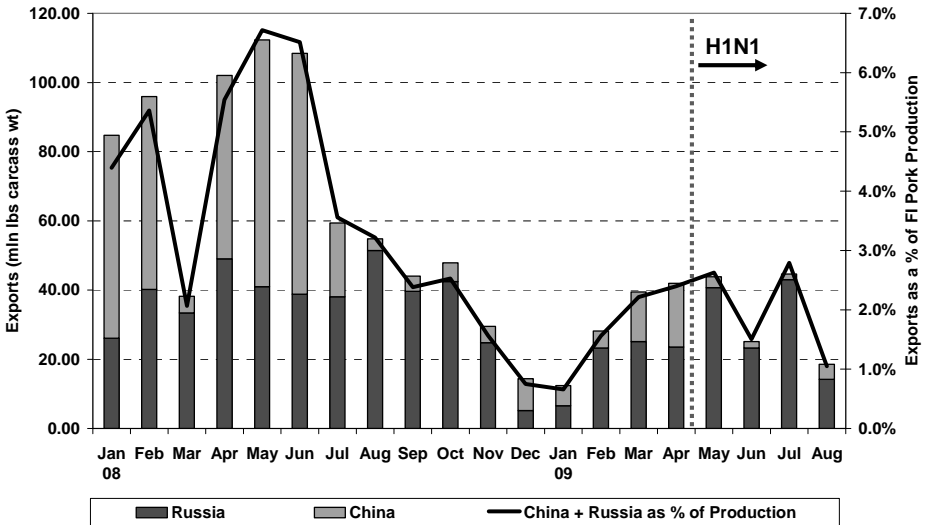
What are the possible mechanisms by which H1N1 would impact the pork market? The first and most obvious is trade. Historically this is usually the way a disease outbreak can really impact an industry, through the temporary or permanent loss of an important export market(s). As the news of H1N1 broke in late April, a number of countries were quick to place restrictions on imports of swine and pork from North America, in some cases singling out specific provinces or states rather than the entire country. Alberta fared particularly poorly thanks to its well publicized outbreak on a hog farm in the province. Some of the restrictions were lifted fairly quickly, while others remained in place for long periods.

The list of countries that placed swine and pork import restrictions in the wake of H1N1 is fairly long but hardly reads as a who's who of global pork trade. Rest assured that North America does not ship a lot of pork to Azerbaijan, Indonesia, Jordan, Lebanon, Kyrgyzstan, and Kazakhstan, nor to the Kurdistan region of Iraq. Thankfully, many of our highest value and largest volume importers resisted the temptation to place non-tariff barriers to trade, most notably Japan, South Korea, Hong Kong, and Mexico (which obviously was in no position to place trade restrictions).

Sorting through the chaff, only two major importers imposed restrictions on North American pork: China and Russia. Unfortunately, the restrictions from both countries have proven persistent, with China finally opening up their market conditionally to the US as of October 29, 2009. Russia was the #4 market for Canadian pork by value (#5 by volume) in the first half of 2009, while China was the #10 market by value and volume, but much more important for exports of pork offal. For the US, the ban is more impactful. China was the second largest volume market for US pork imports in 2008, so that left a huge gap in potential exports. But again, how much would exports to China have declined even without the ban in 2009? Russia was the #4 market for the US in volume, so obviously large enough to hurt in its absence. **Figure 3** shows monthly US pork exports to the two restricted markets, and also show exports to these countries as a % of total US production. Keep in mind a rule of thumb that a 1% change in supply typically results in a 3% or larger change in US hog prices. One key message from Figure 3 is that exports to these two markets were already down sharply prior to the outbreak

of H1N1 in North America. Also it is interesting to note that significant quantities of US pork were moving to Russia in particular last summer, despite the bans on various states' exports.

Figure 3. US pork exports to China and Russia, 2008-09



■ **Demand Impacts: Wholesale and Retail**

Losing access to a specific export market is pretty concrete example of a negative market impact. Surprisingly, it is much more difficult to measure effects in the domestic pork market. We know that the North American consumer showed an initial level of concern about swine flu that was quite high, up to 25% in late April. But the disease faded in the public's consciousness, with only 8% of US consumers concerned about getting swine flu (as the survey question was worded) by mid-June, according to Gallup. Of course the fall flu season has been heavily hyped by the media and governments. By the time we meet in Banff we will have a good measure as to how that went. Will the final tally be millions of souls lost as the Center for Disease Control once prognosticated, or perhaps a few hundred as we saw in the Southern hemisphere winter?

Of those consumers who are concerned about the flu, a much smaller subset is going to alter their pork purchasing habits. Anecdotally, it would appear that the message that H1N1 is not transmittable from eating pork has gotten out fairly well, and most consumers are behaving as they always would, or if they are cutting back it is only a subconscious reaction.

I have left out retail price data altogether from my analysis. There have been a few efforts to sift through the public data, and I believe the general conclusion is that pork demand at the retail level did not suffer dramatically post-H1N1. Frankly, I do not trust this data series because of its lack of breadth (no Wal-Mart) and lack of depth (exclusion of feature pricing). As one of my thesis advisor’s loved to say: “garbage in – garbage out”.

However, I still have quite a bit of confidence in the wholesale pork pricing data tabulated daily by the USDA, even if the reporting volumes are modest. Pork cutout values, compiled from all the cuts traded, give us a good feel for how well the product is moving through domestic channels, keeping in mind the meat trader’s maxim “sell it or smell it”. To use yet another common expression, this is where the rubber hits the road.

The inescapable conclusion from the wholesale data is that North American packers were struggling mightily to keep the pork from backing up in their coolers in the wake of H1N1. There was more pork to sell thanks to ample production and sharply lower exports. This pork was moving out the back of the plant only at sharply discounted prices; packer margins were poor to mediocre at best. A windfall situation was created for further processors, retailers, and restaurants this spring and summer, none of whom are likely to change their pricing in the short term.

Figure 4. Per capita pork consumption vs. USDA composite cutout: 3rd quarter, 1995-2009

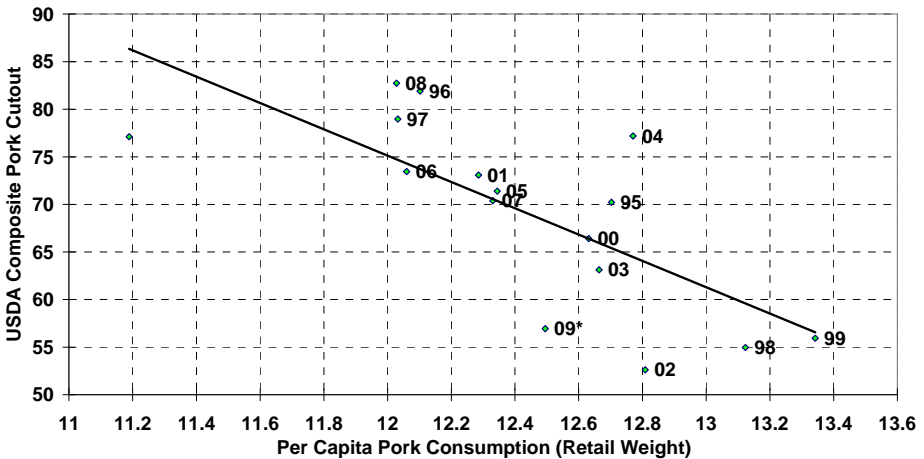


Figure 4 supports my contention that pork demand **at the wholesale level** has been abysmal. Just how bad? Prices since spring have been running at least 10 cents per lb below the historical **average** relationship between per capita pork supplies and the wholesale cutout, similar to 2002 and worse than

1998 pork demand. In other words, with average pork demand, prices would have been about 10 cents higher this spring and summer, even accounting for the much larger-than-expected production and the sharply reduced export volumes. Then the question becomes, how much of this demand destruction do you want to ascribe to H1N1, and how much to everything else in the marketplace from a weak economy, to savvy pork buyers eager to take advantage of a compromised seller. In the meat business, one man's pain is often another man's gain.

■ Conclusion

In summary, I offer the following points:

- H1N1 had a huge and immediate impact on futures markets. Yet there were still decent hedging opportunities a couple of weeks after the news broke, as the largest downward moves didn't come until late spring and summer. Other news besides swine flu clearly contributed to slumping lean hog futures.
- Trade to two key export markets was curtailed, although not shut off completely, and remains restricted at the time of writing. It will take a long time to restore full normal access to China and Russia pork exports, if there even is such a thing as "normal" access to these markets. Exports to both markets were probably going to be down sharply in 2009 anyway as a result of increased production in those countries and other market factors, so we don't want to lay all the blame at the feet of H1N1.
- The industry did a good job of discrediting the idea of a link between the flu and pork consumption. For the most part, North American consumers reacted less dramatically than Asian pork consumers and probably did not alter their eating habits to any great degree. Per capita pork consumption (a residual term) will be higher, not lower for 2009. Freezer stocks have remained manageable.
- On increased production and reduced exports, there was a lot more pork to clear the domestic market compared to 2008. At the wholesale level, packers struggled to keep pork moving and had to face huge price cuts. Wholesale pork demand was the worst since 2002. But the good news is wholesale pork demand will eventually improve, probably by some time in 2010. Indeed, by the fall of 2009 there was already evidence of rebounding wholesale pork demand.

- At the bottom of the food chain, hog producers were the big losers from H1N1, arguably to the tune of hundreds of millions of dollars. On the positive side, further herd liquidation was needed in order to achieve a better chance of long term profits. North American hog producers have yet to make the necessary adjustments to a higher cost structure, which is driven in turn by governments' detrimental ethanol policies.
- Retailers, further processors, and restaurants were the big winners from H1N1, although all three face continuing challenges from a weak economy.
- Yet another cruel lesson has been provided as to why an ongoing risk management program is a necessity, not a luxury, for today's hog production businesses. I recommend a minimum 30% lean hog coverage at all times, ramping up to 80 or 90% when favorable opportunities are presented.