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USDA Agricultural Outlook Forum -- 2013

A Tragedy of the Commons – How Do We Proceed Without a Spot Market?

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From information, knowledge



The price/value information system for pigs

- Governed by the Livestock Mand-atory Reporting Act of 1999
 - VERY prescriptive law – little or no trust in the people in power at USDA at the time
 - Negotiated by producers and packers at the insistence of Congress – which wanted no part of the actual writing of the legislation
 - Driven by:
 - » The hog price debacle of 1998
 - » A deep suspicion that “Someone is getting a better deal than me!”



Key aspects of the LMRA for pigs

- Large packers required to report
 - Plants >100,000/yr for market hogs
 - Companies >200,000/yr for sows/boars
- Specific pricing mechanisms in the law
 - Negotiated
 - Swine/Pork Formula
 - Other Market Formula – futures-based prices
 - Other Purchase Arrangements – ledger contracts, feed- and cost-based prices
- Wholesale pork was NOT included



Source of various prices

- Other Purchase Arrangements is a mixed bag – as it was intended
 - Feed/cost formulas are not driven by hogs
 - Ledgers may be but are a MUCH smaller part of the total now
- Other Market Formula
 - Price (at least the base) is set some time (up to 14 mos.) before the hogs are delivered
 - Price is reported and published WHEN the hogs are delivered – Not a function of current supply/demand



Sources of prices -- continued

- Swine/Pork Formulas – driven by prices of either hogs or wholesale pork
 - Hogs – Negotiated prices in regions or nation
 - Pork – Estimated USDA cutout value
- Negotiated – buyer-seller interaction and agreement on a price and a delivery day
 - Must have both
 - Cannot be an “overage” negotiation relative to the market – that’s a formula



Pre-MPR: Negotiated share was falling fast!

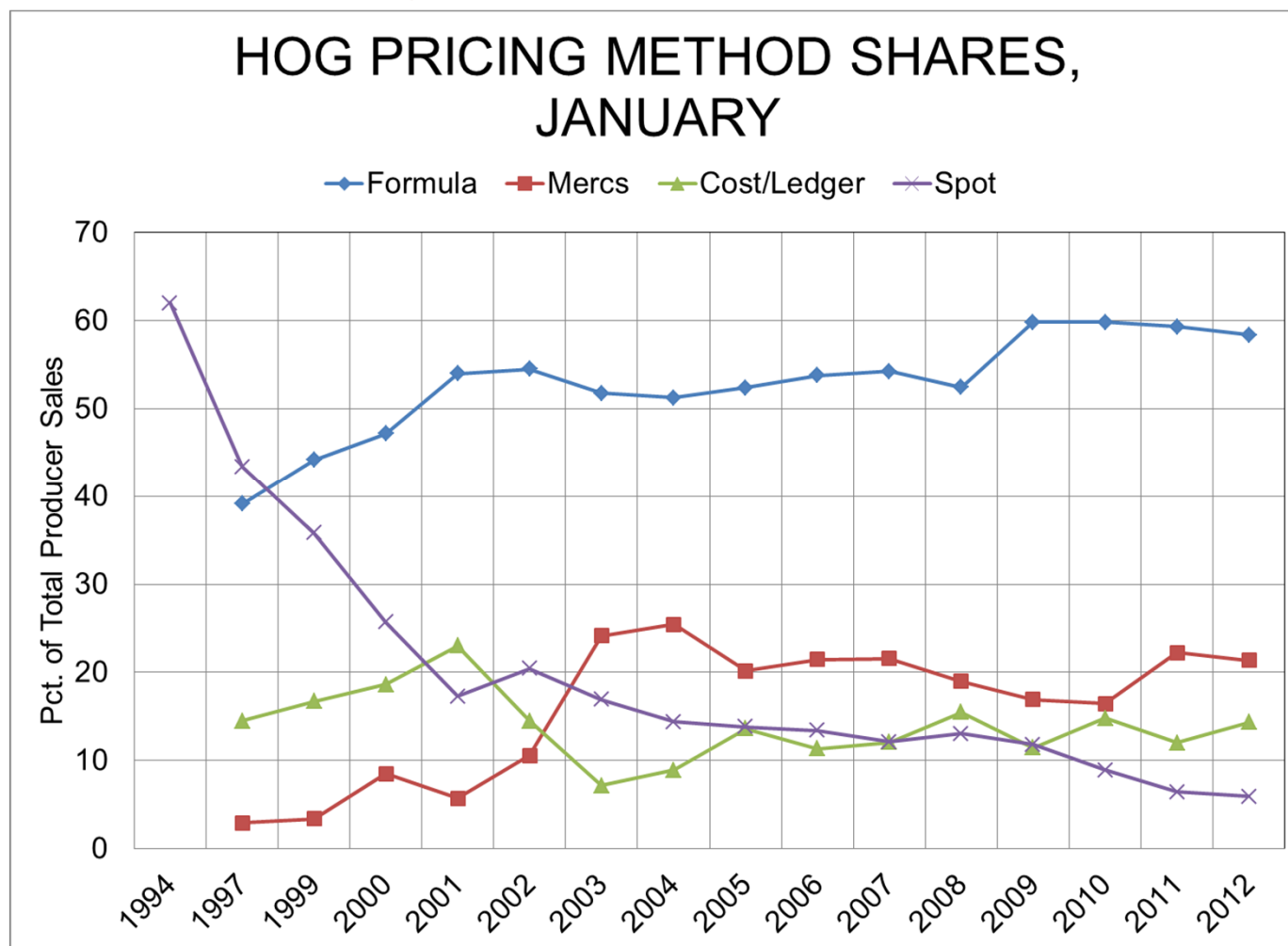
- 1994 and 1997: Mizzou structure studies
- 1999-2001: January packer surveys

	1994	1997	1999	2000	2001
Formula		39.1	44.2	47.2	54
Mercs		2.9	3.4	8.5	5.7
Cost-Plus, No Ledger		5.3	2.9	3.3	6.4
Cost-Plus, Ledger			6.9	9	9.8
Window, No Ledger		3.1	3.6	3.8	4.6
Window, Ledger			1	0.8	2
Other		6.1	2.3	1.7	0.2
Spot	62	43.4	35.8	25.7	17.3

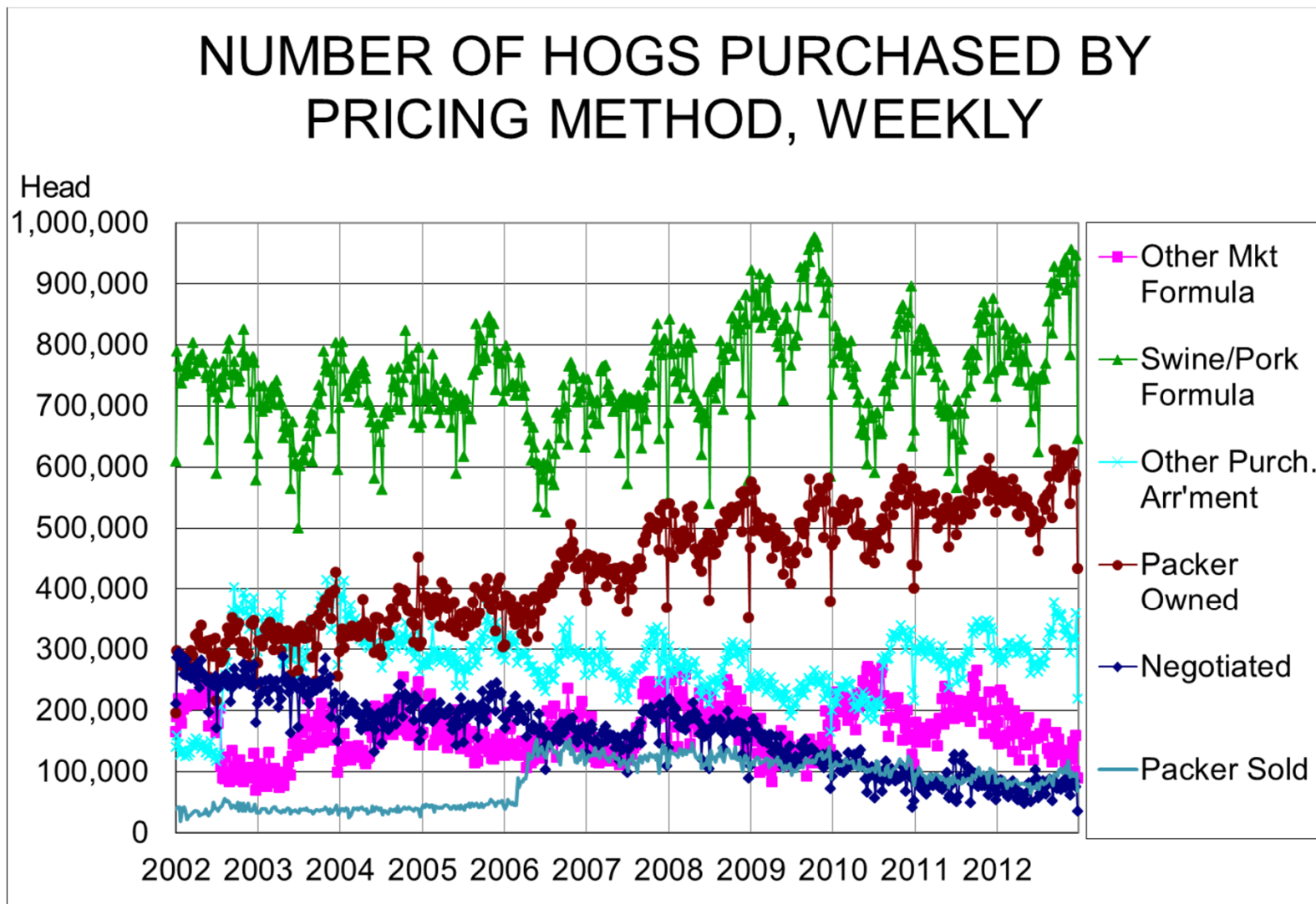


Comparing January of each year ...

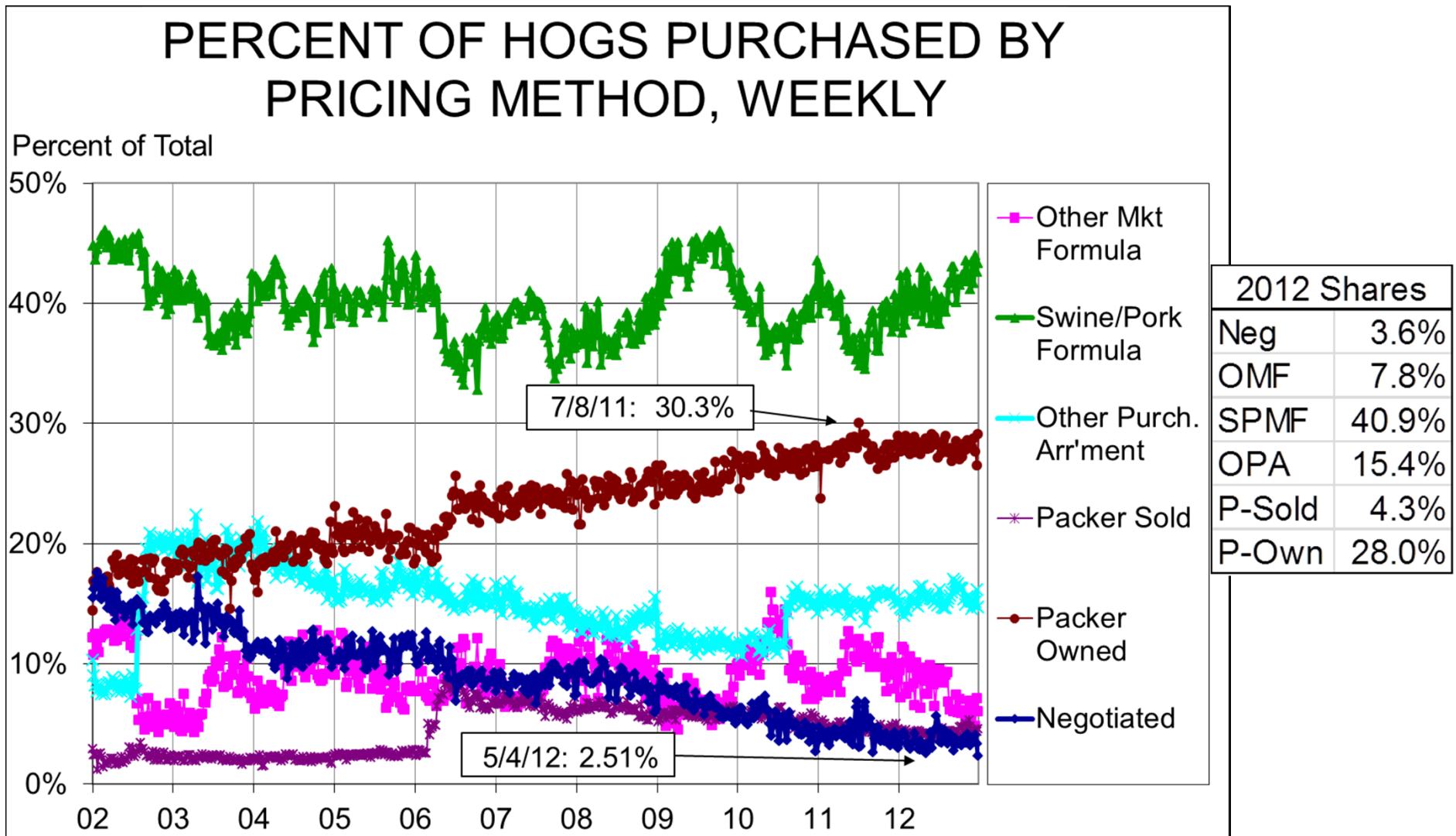
... Spot/Neg is replaced by SPMF and OMF



Number of hogs by pricing method -- MPR

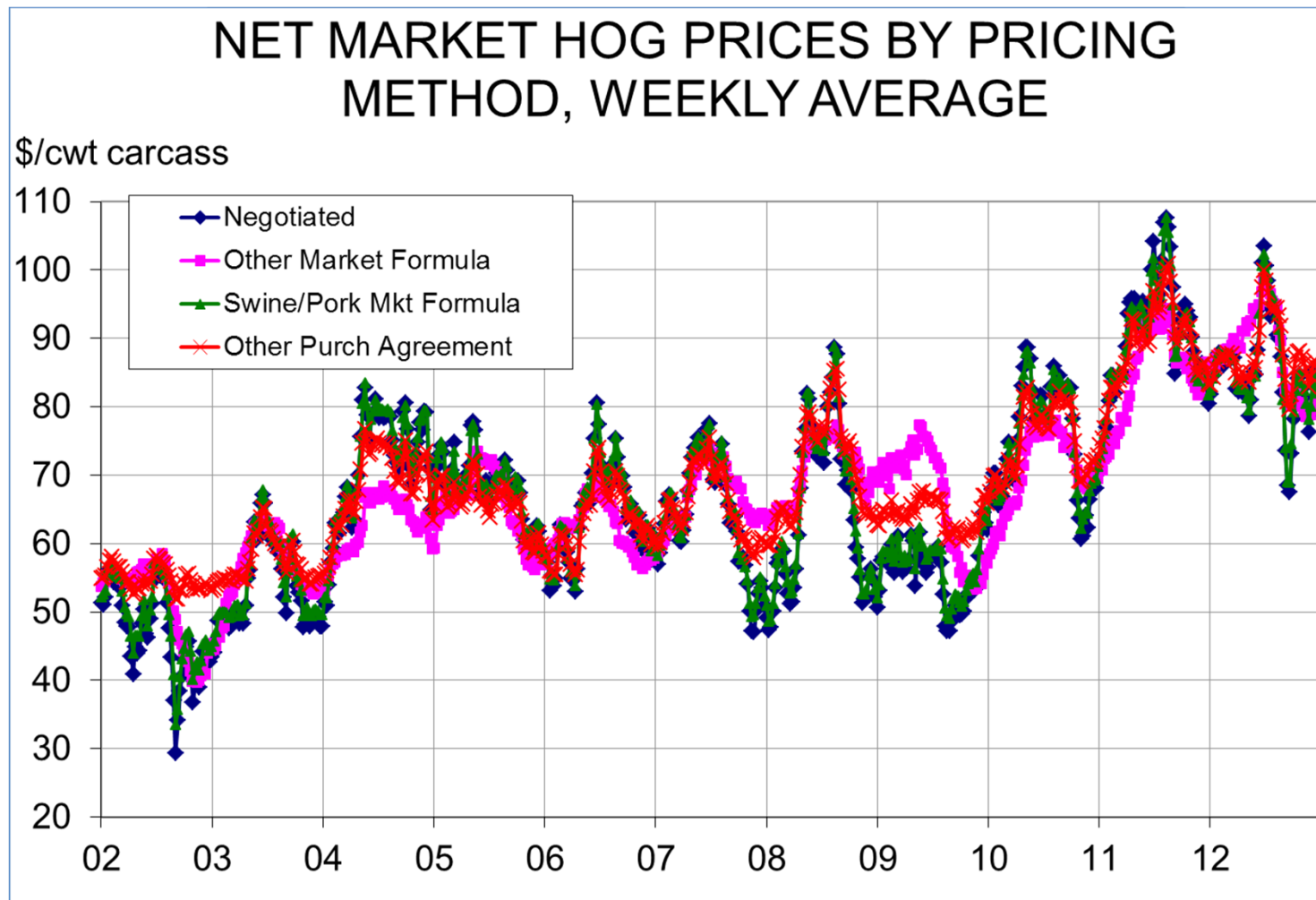


Percentage of hogs by pricing method - MPR



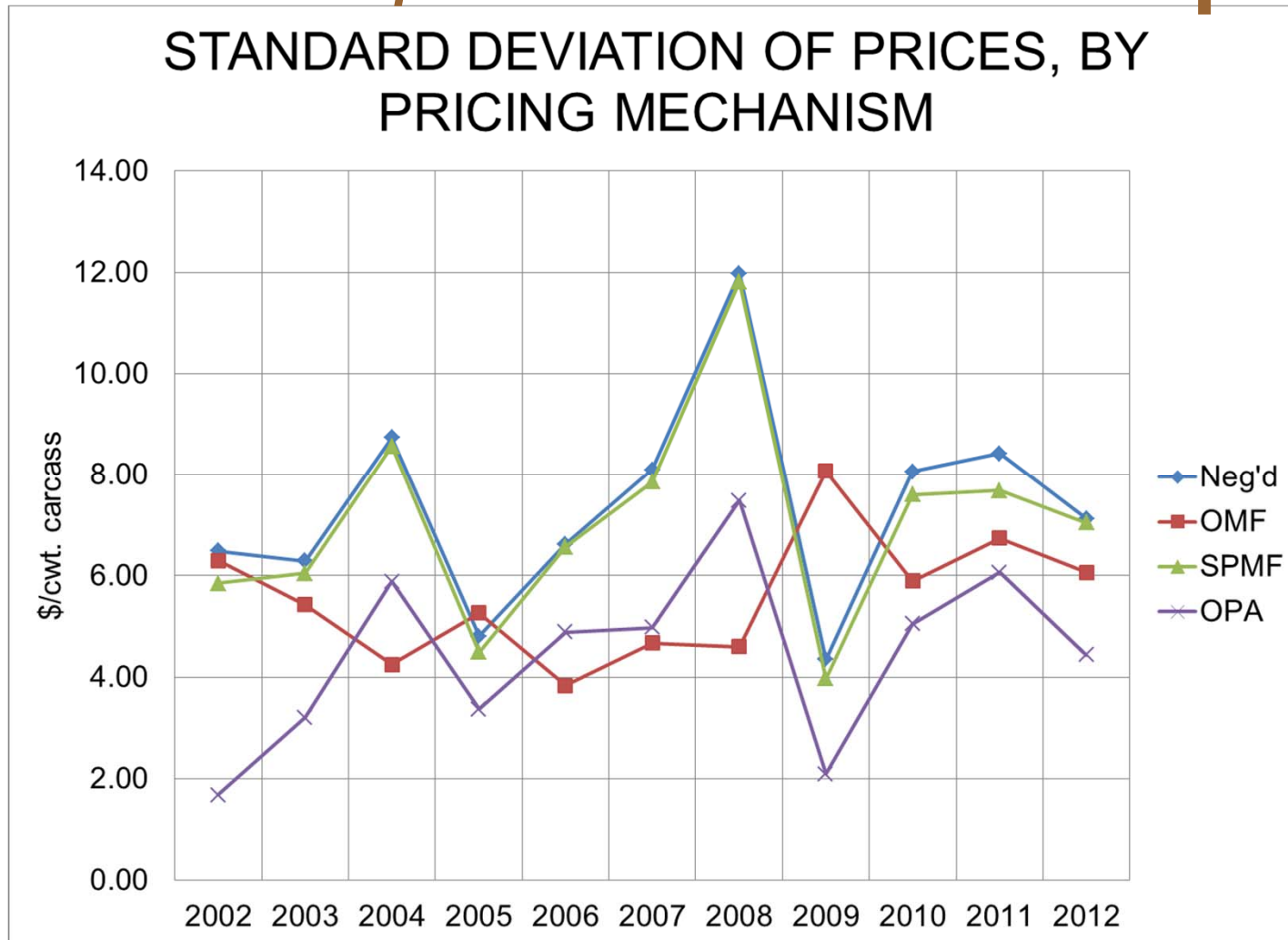
Prices paid by pricing method ...

... The relationships are very logical



Variation is logical – SPMF is same as Neg'd

.. OMF is lower, OPA is lower -- same pattern?



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Many factors to think about?

- Volatility is perceived to be higher – but is it? Or is it just a function of larger number for hog price today?
- Producers/packers have not moved away from formula pricing as spot has thinned
 - Expectation was that lack of comfort and/or confidence in spot would cause producers to formula price less, negotiate more
 - Continued decline – confidence/comfort or the lack of any good alternative?



Why has the negotiated portion fallen so?

- Very few hog producers EVER negotiated
 - Terminal markets – commission agents
 - Buying stations – bid comparisons relative to transport costs/time
 - Direct delivery – much the same as stations
- Not everyone – and perhaps very few – can do it well enough to make it pay
 - Personality
 - Skills
 - TIME – or willingness to devote it!



The nature of price information

- Publicly disseminated
 - MPR forces all data in to USDA
 - Publication makes it available to all – non-excludability of a public good
 - Using the published information does not make it less available to others – non-rivalrous consumption of a public good
- **BUT THE DATA ARE NOT PRODUCED BY THE GOVERNMENT – they are produced by individual business decisions**



A strange public goods situation ...

- These are private goods in production and public goods in usage – BIG PROBLEM
- Producers of the goods:
 - Are not compensated for the data – but believe they get more for their hogs
 - Cannot exclude others from using them
- Users of the goods:
 - Do not have to pay for them
 - Clearly benefit from not having to discover prices



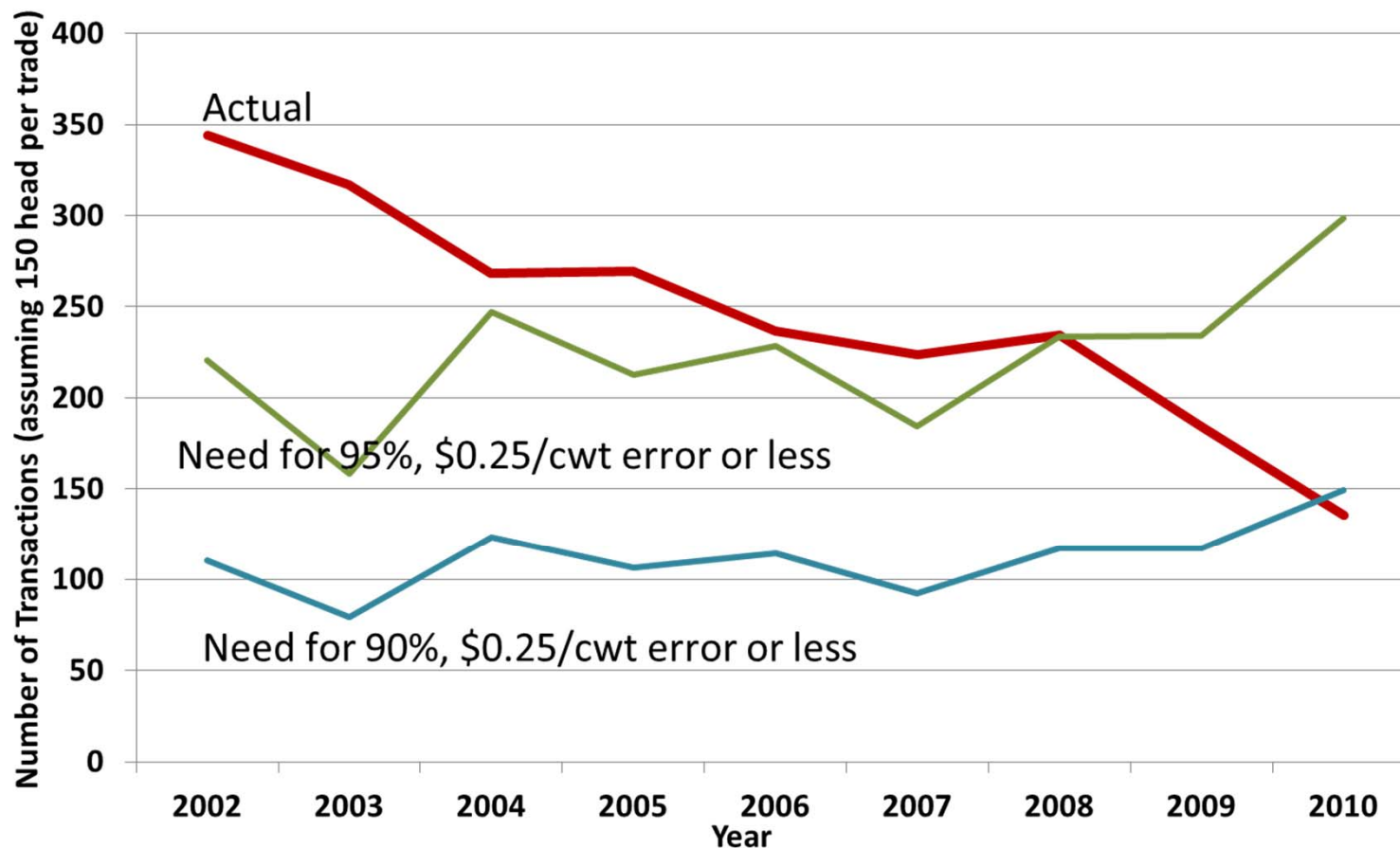
The net result is a shortage – no surprise

- The amount of information from negotiated purchases is perceived to be too little
- The amount of information used by others is too large
- The result is a THIN MARKET
 - No longer large enough to result in reasonable accuracy with reasonable probability



From Schroeder – Chebychev's Inequality

Estimated Number of Daily Negotiated Cash Hog Transactions, Annual Averages, '02-'10



Source: Own calculation from USDA head counts

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The net result is a shortage – no surprise

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- The result is a THIN MARKET
 - No longer large enough to result in reasonable accuracy with reasonable probability
 - Could result in a price discovery failure
 - Far more prone to manipulation – or just bad luck from a spot market S/D mismatch



How do we solve the “problem”?

- Leave it alone and allow participants to use the methods they trust
 - Used so far and we have had few problems
 - Does not prevent problems (inaccuracy, manipulation) – only solves them *ex ante*.
- Force a minimum share for spot market
 - Clearly inefficient – or participants would do it
 - Distributional impacts – who loses contracts?
 - How does USDA police it with fewer resources?



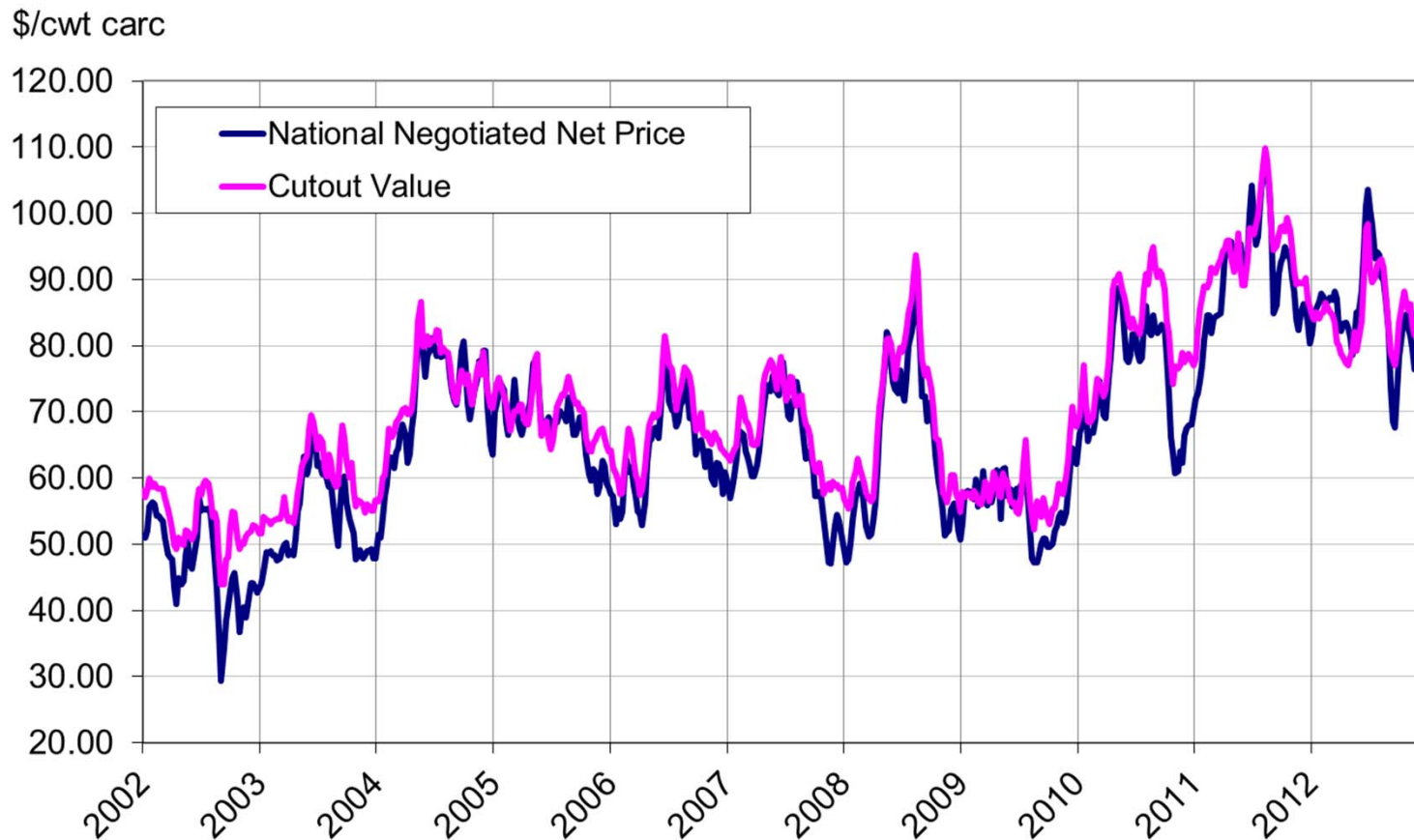
How do we solve the “problem”?

- Use another price that is correlated or fair
 - USDA cutout has been used more and more but share is not known – Swine/Pork Formula



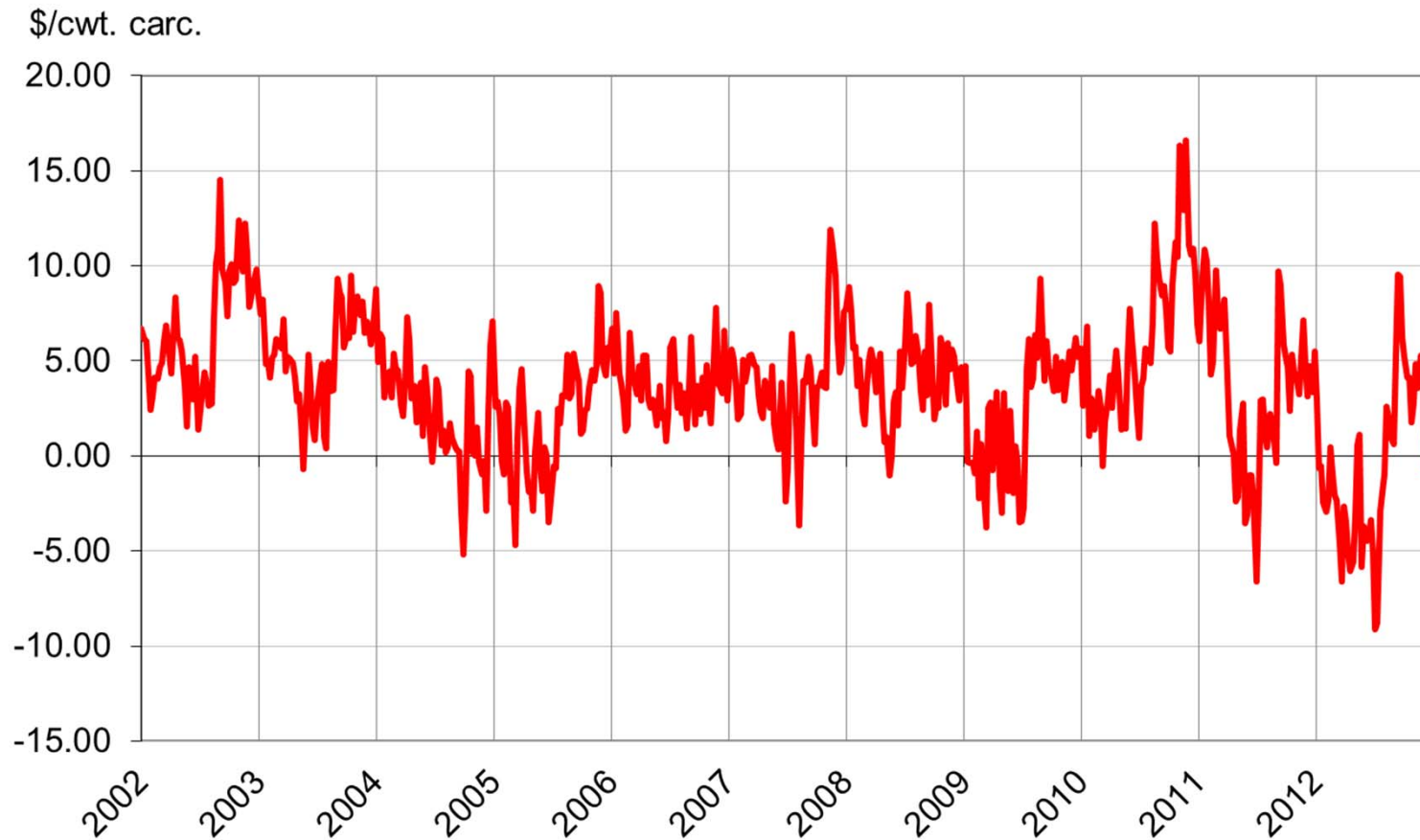
Highly correlated to net hog price – 0.969 ...

NATIONAL NEG'D NET PRICE VS. USDA 51-52% LEAN CUTOUT VALUE



But the spread – adjustment – has changed ... And become much more volatile

CUTOUT - NET HOG PRICE SPREAD



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Note SD values vs. Coef. Of Variation ...

... And the BIG jump in spread volatility

HOG PRICE, CUTOUT VALUE & SPREAD STATISTICS

		Mean	Std Dev	Coef of Var
Neg'd Hogs	'02-'09	61.00	10.62	0.17
	'10-'12	83.58	10.04	0.12
All Hogs	'02-'09	62.22	8.84	0.14
	'10-'12	83.34	8.99	0.11
Cutout	'02-'09	64.78	9.06	0.14
	'10-'12	86.68	8.10	0.09
Neg'd Spread	'02-'09	3.78	3.07	0.81
	'10-'12	3.10	4.98	1.61



How do we solve the “problem”?

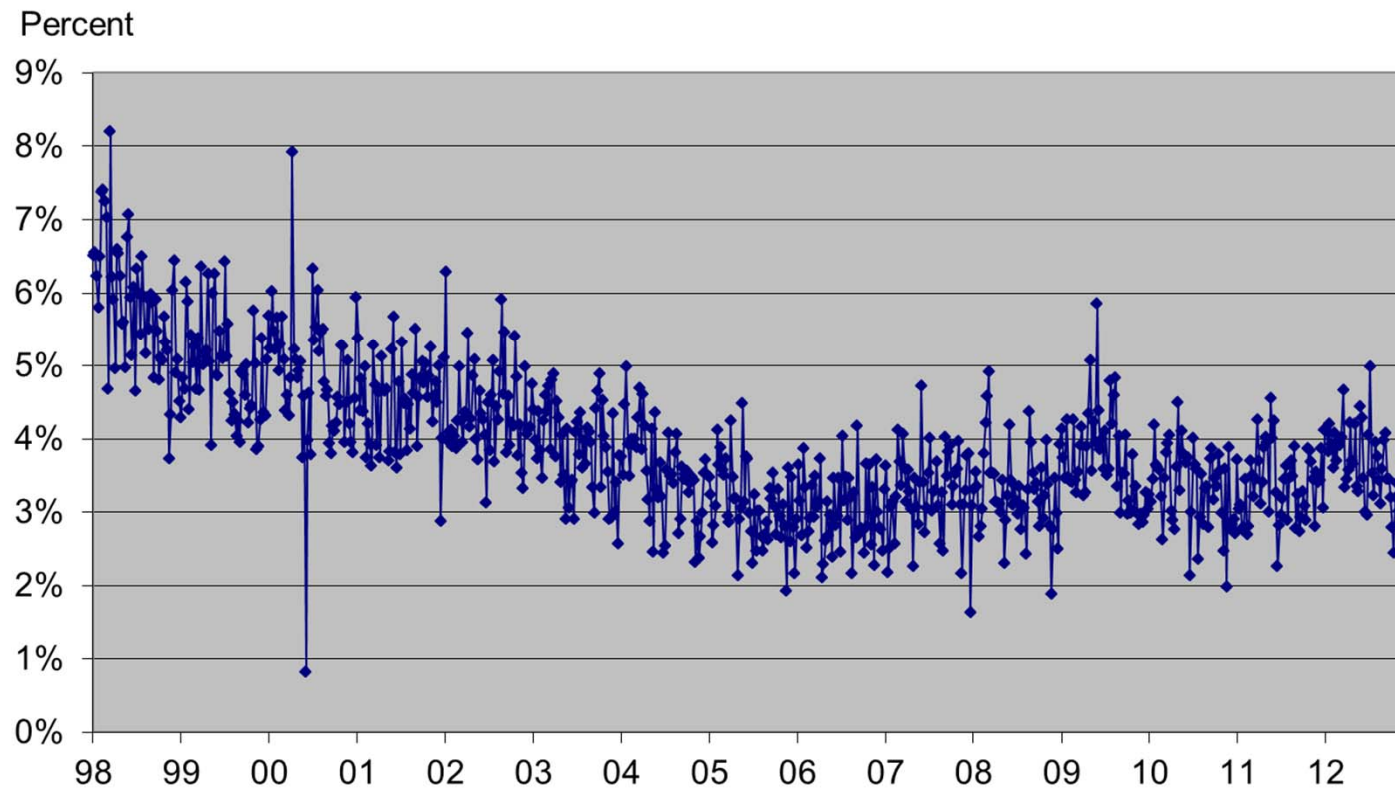
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 - USDA cutout has been used more and more but share is not known – Swine/Pork Formula
 - Cutout value has historically been based on even thinner market and thinner data than negotiated hogs



Voluntary pork has stabilized at ~3.5%

... Thinness was a major driver for pork MPR

PERCENT OF PORK PRODUCTION
WITH WHOLESALE PRICES REPORTED



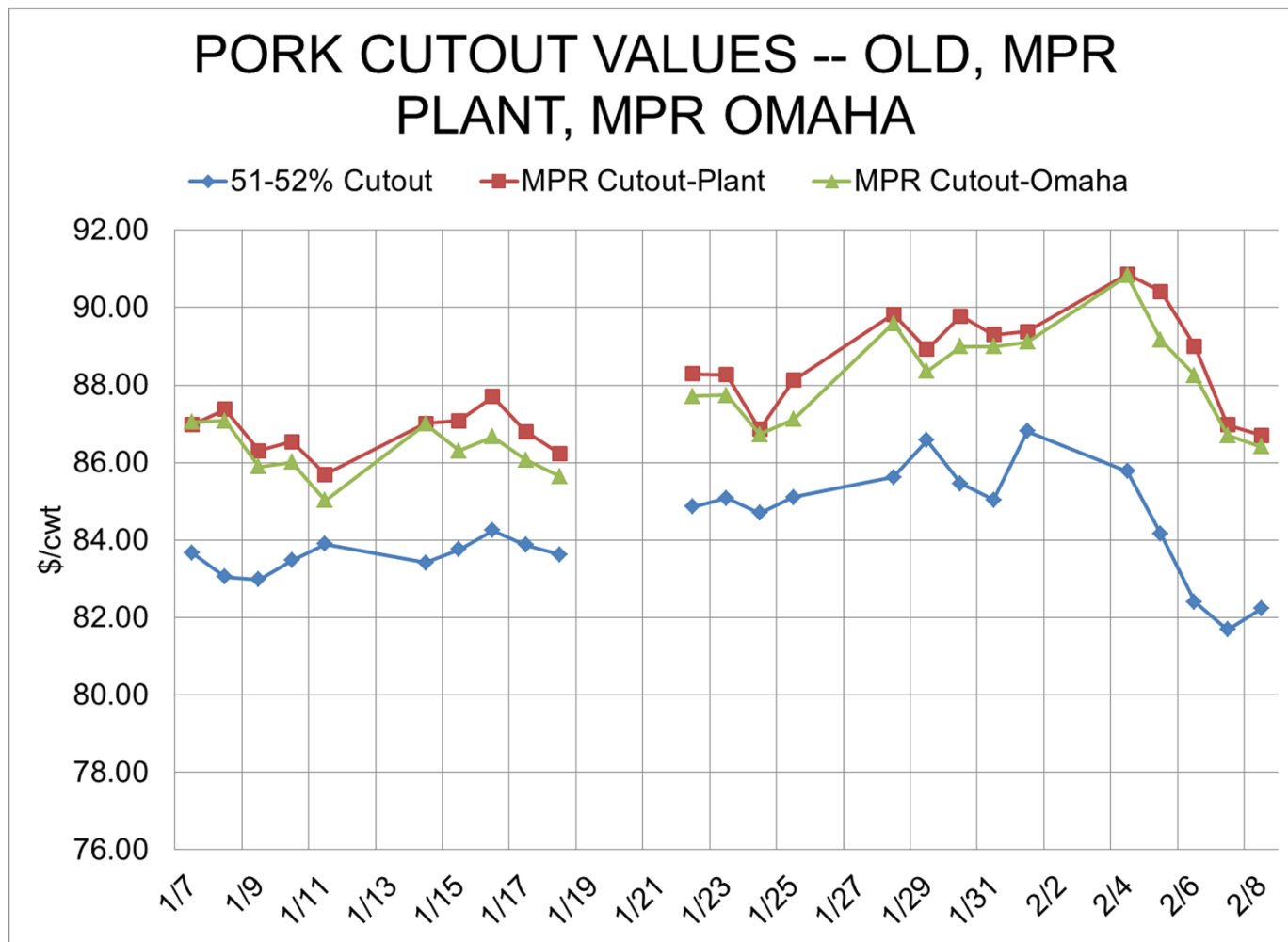
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 - Cutout value has historically been based on even thinner market and thinner data than negotiated hogs
 - **SOLUTION: MPR for wholesale pork**
 - » Full participation, all of TRADED cuts reported
 - » Packers and their customers supported this
 - » Long-term: High quality data = more formulas, fewer negotiations



MPR cutouts are sharply higher so far ...

... New yields, all cuts, all firms



How do we solve the “problem”?

- Price based on costs and value
 - MANY businesses base long-term pricing arrangements off costs plus “normal” profit
 - Or negotiate “value” above costs
 - Negotiate periodically -- not daily
 - » This is what many hog producers do now – their negotiation is for an overage vs. spot
 - » Happens once per year or three or five
 - Not unusual in ag – wine grapes, tomatoes
 - Bad cost-based contracts in ‘90s and ‘00s



How do we solve the “problem”?

- Charge data users and compensate data producers
 - Incentivizes data production -- negotiation
 - Discourages data use without production
 - Most efficient, economically
 - Optimal level of negotiation/data production?
 - Mechanism – similar to checkoff?
 - Proper rate? – Change it until a “satisfactory” level of data generation is reached?
 - CANNOT CALL IT A TAX!!!



How do we solve the “problem”?

- Do away with publishing the data
 - Privatize or allow only those that generate information to see the data
 - NOT just those that “report” – they must do something to discover a price
 - Modern information systems make this viable
 - What about the small guy?
 - Bigger issue is internet access and cost
 - Still need a data gathering and synthesis system



Summary

- Prices for fewer and fewer hogs are being negotiated
- Number of trades are now low enough to question accuracy and acceptable prob's
- Producers have a great deal of control over the level of negotiations but are collectively letting it fall
- There are alternatives for establishing value – some good, some bad



QUESTIONS & DISCUSSION?

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