

# Trends in Net Wholesale Price

This chapter analyzes recent trends in the net wholesale price, which along with the retail markup, determines the cost of infant formula to the WIC program. The analysis examines the net wholesale prices associated with both the powder and liquid concentrate forms of milk-based infant formula. Because both the can sizes and reconstitution factors for powder formula differ across manufacturers, all prices reported in this chapter were converted to a standard unit of volume—26 ounces of reconstituted formula. Net wholesale prices have been adjusted for inflation and represent the price of 26 reconstituted ounces of infant formula as of January 2006.<sup>43</sup>

The real net wholesale price for both powder and liquid concentrate has increased, on average, across those States awarding new infant formula rebate contracts since 2002 (fig. 10). However, there are several caveats. Our calculations are based on unweighted data, that is, the net wholesale prices for all States awarding contracts in a particular year are counted the same regardless of the size of their WIC infant population. Also, the mix of States represented in the annual averages varies from year to year.<sup>44</sup> Historically, some State agencies receive lower net wholesale prices than other States. Therefore, the upward trend in net wholesale prices may arise, in part, because the contracts in the later years represent high net-wholesale-price States, whereas the contracts in the early years could represent low net-wholesale-price States. The next section examines whether net wholesale prices are increasing or decreasing for individual State agencies.

## State-Specific Changes in Real Net Wholesale Prices, Wholesale Prices, and Rebates

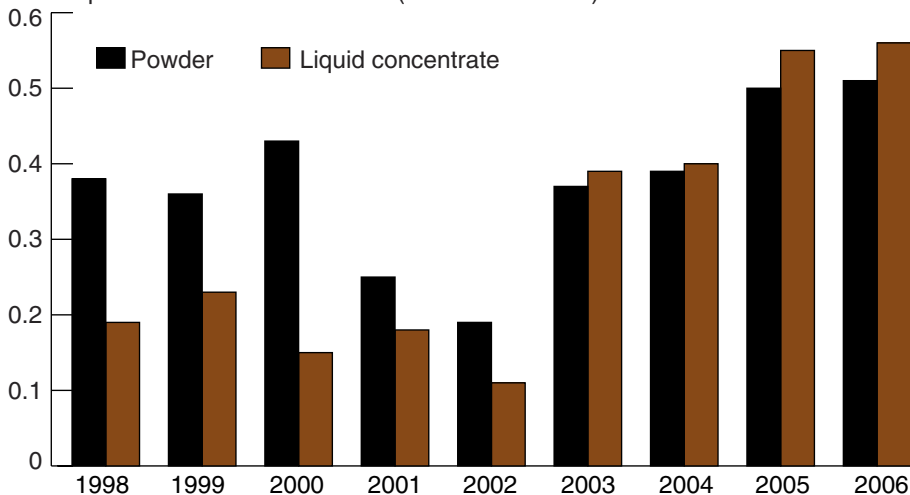
Figures 11 and 12 show the difference between a State’s net wholesale price in its most recent contract (2003 or later) and the net wholesale price in the

<sup>43</sup>Specifically, net wholesale prices discussed in this section have been deflated by the CPI-U for all items—the most widely used measure of inflation.

<sup>44</sup>Although infant formula contracts typically last about 3 years, they vary in duration across States and can be longer or shorter. A recent report by the Government Accountability Office (2006) found that 45 States allow for extensions of their infant formula contracts ranging from 1 to 4 years.

Figure 10  
Average real net wholesale prices of newly awarded infant formula rebate contracts, 1998-2006

Dollars per 26 reconstituted ounces (Jan. 2006 dollars)



Source: USDA’s Economic Research Service.

State's prior contract, adjusted for inflation.<sup>45</sup> For example, if a State negotiated contracts in 2005 and 2002, the 2002 real net wholesale price was subtracted from the 2005 real net wholesale price. States are represented twice in the figures if they awarded more than one contract since 2003.

Of the 19 contracts since 2003, 11 show an increase in the real net wholesale price for milk-based powder (fig. 11). Three States—Oklahoma, Louisiana, and New York—awarded two contracts since 2003. Oklahoma and Louisiana saw a decrease in real net wholesale price for their contracts effective in 2003, but an increase in net wholesale price for their more recent contracts. On the other hand, New York saw an increase in real net wholesale prices for its contract effective in 2003, while the next contract, effective in 2006, showed a decrease.<sup>46</sup> The net effect of the two contracts was an increase in real net wholesale price in Oklahoma and Louisiana and a decrease in real net wholesale price in New York. So, of the 16 States that awarded contracts since 2003, 10 (63 percent) saw real net wholesale prices increase relative to their latest pre-2003 contract, and 6 (38 percent) saw net wholesale prices decrease.

Of the 19 contracts for liquid concentrate that became effective since 2003, 13 showed an increase in real net wholesale price (fig. 12). The net effect in all three States that awarded two contracts since 2003 was an increase in real net wholesale price. So, of the 16 States that awarded contracts since 2003, 13 (81 percent) saw a net increase in real net wholesale price over their latest pre-2003 contract.

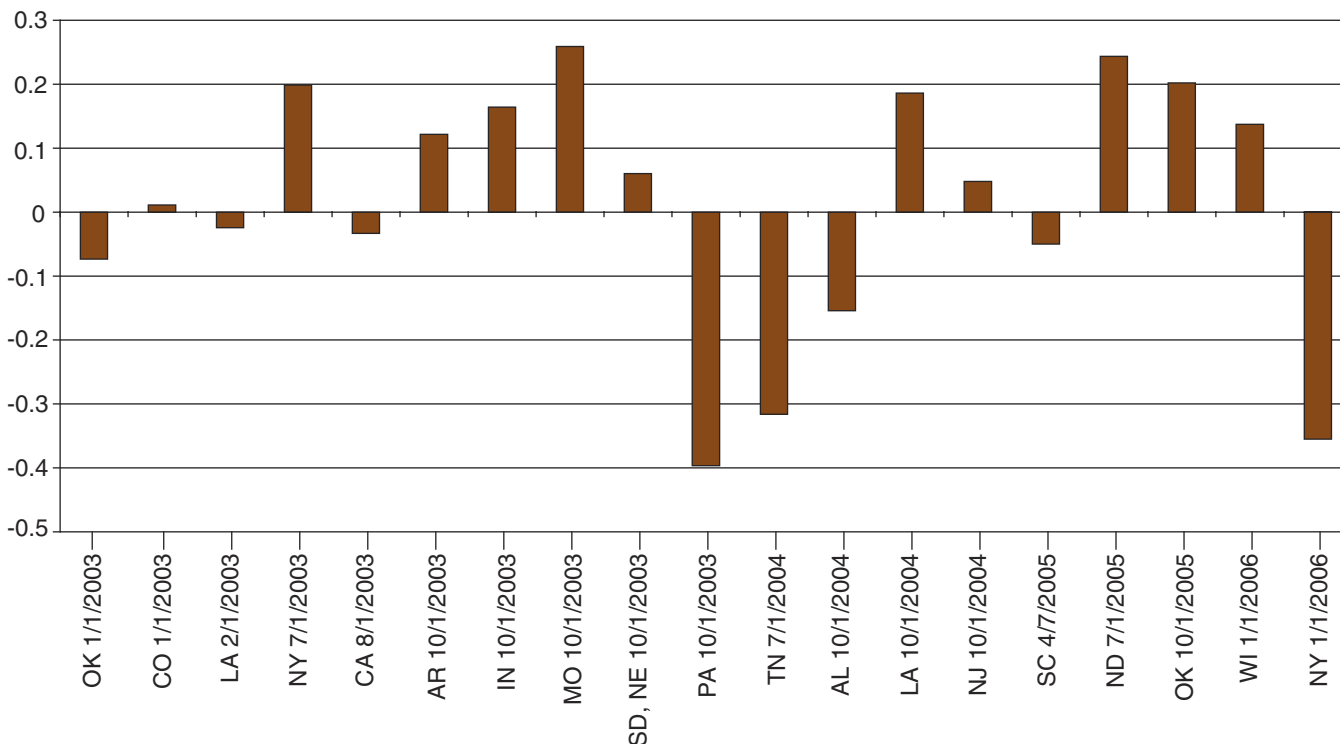
<sup>45</sup>The total cost to a WIC State agency depends on the combined effect of powder and liquid concentrate costs based on the State's issuance of powder vs. concentrate. However, because data on the ratio of powder and concentrate issued by individual States was not available, data on the changes in real net costs in this section are presented for powder and concentrate separately.

<sup>46</sup>Note that the comparison is based on real net wholesale price as of the effective date of the contract (7/1/2003) and does not reflect the contract amendment on 1/1/2004 that reduced the net wholesale price to 25 percent of its wholesale price.

Figure 11

**Change in State's real net wholesale price for milk-based powder contracts awarded since 2003 compared with prior contract**

Dollars per 26 reconstituted ounces (Jan. 2006 dollars)



Source: USDA's Economic Research Service based on formula manufacturers' bids.

Tables 3 (powder) and 4 (liquid concentrate) show State-specific changes in real net wholesale prices, real wholesale prices, and real rebates for those States awarding contracts since 2003. The “change in real net wholesale price” column contains the data graphed in figures 11 and 12. Data in the next two columns—“change in real wholesale price” and “change in real rebate”—provide information on the factors behind changes in real net wholesale price, i.e., whether the changes in real net wholesale price were due to a change in the real wholesale price, a change in the real rebate, or both.

The tables show that real wholesale prices usually increased between contracts.<sup>47</sup> In many cases, the wholesale price for the latest contract was based on the more costly DHA- and ARA-supplemented formulas while the wholesale price for the previous contract was based on the unsupplemented formula. Therefore, the net wholesale price will increase for those States that switch from unsupplemented to supplemented formulas if the rebate remains constant. In the past, each State could choose the formulas it would offer participants from among all the contract brands of the winning manufacturer. However, the Child Nutrition and WIC Reauthorization Act of 2004 (P.L. 108-265) requires State agencies to use the primary contract infant formula product submitted by the manufacturer as the first choice of issuance for all contracts based on solicitations after September 2004.<sup>48</sup> Consequently, with all manufacturers currently submitting bids for the DHA- and ARA-supplemented formulas, wholesale prices will be higher.

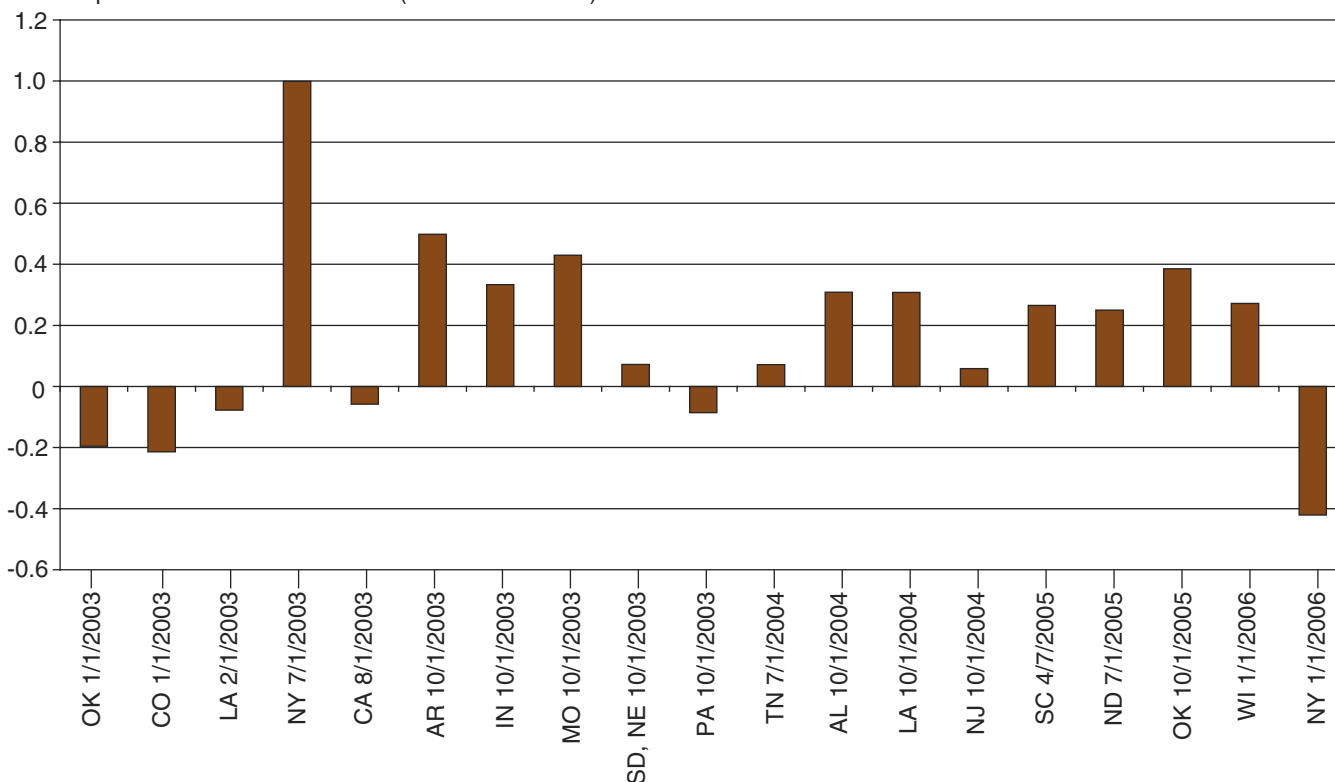
<sup>47</sup>There were very few cases where real wholesale prices decreased. Oklahoma (January 2003) shows a decrease in real wholesale price for powder and liquid concentrate, but the difference in price was measured between two different contract holders (the more recent contract was held by Nestlé, while the prior contract was held by Mead-Johnson, and Nestlé had lower wholesale and retail prices than Mead-Johnson and Ross during that time period). The only other real wholesale price decrease occurred in powder for the Arkansas, New Mexico, and North Carolina alliance of States (October 2003). This decrease was very small, and coincided with a change in the can size of Mead Johnson’s powdered formula.

<sup>48</sup>Many States have chosen to offer the supplemented formulas to their participants even though they were not required to do so until their next contract.

Figure 12

**Change in State's real net wholesale price for milk-based liquid concentrate contracts awarded since 2003 compared with prior contract**

Dollars per 26 reconstituted ounces (Jan. 2006 dollars)



Source: USDA’s Economic Research Service based on formula manufacturers’ bids.

Table 3

**Summary of changes in milk-based powder contracts awarded after 2002**

State agencies	Change in real:		
	Net wholesale price	Wholesale price	Rebate
<i>January 2006 dollars</i>			
OK 1/1/2003	-0.074	-0.501	-0.427
CO 1/1/2003	0.011	0.151	0.140
LA 2/1/2003	-0.025	0.087	0.111
NY 7/1/2003	0.199	0.077	-0.122
CA 8/1/2003	-0.033	0.289	0.322
AR, NM, NC 10/1/2003	0.122	-0.054	-0.176
IN 10/1/2003	0.164	0.292	0.128
MO 10/1/2003	0.259	0.334	0.075
SD, NE 10/1/2003	0.060	0.292	0.232
PA 10/1/2003	-0.397	0.137	0.534
TN 7/1/2004	-0.316	0.315	0.631
AL 10/1/2004	-0.154	0.231	0.385
LA 10/1/2004	0.186	0.185	-0.001
NJ 10/1/2004	0.048	0.773	0.726
SC 4/7/2005	-0.050	0.307	0.357
ND 7/1/2005	0.243	0.725	0.481
OK 10/1/2005	0.203	0.721	0.518
WI 1/1/2006	0.137	0.211	0.074
NY 1/1/2006	-0.355	0.230	0.585

Source: USDA's Economic Research Service based on formula manufacturers' bids.

Table 4

**Summary of changes in milk-based liquid concentrate contracts awarded after 2002**

State agencies	Change in real:		
	Net wholesale price	Wholesale price	Rebate
<i>January 2006 dollars</i>			
OK 1/1/2003	-0.196	-0.772	-0.576
CO 1/1/2003	-0.214	0.155	0.369
LA 2/1/2003	-0.077	0.086	0.163
NY 7/1/2003	0.999	0.107	-0.892
CA 8/1/2003	-0.058	0.389	0.447
AR, NM, NC 10/1/2003	0.498	0.337	-0.162
IN 10/1/2003	0.333	0.351	0.017
MO 10/1/2003	0.430	0.394	-0.036
SD, NE 10/1/2003	0.072	0.351	0.279
PA 10/1/2003	-0.086	0.386	0.472
TN 7/1/2004	0.072	0.395	0.324
AL 10/1/2004	0.308	0.392	0.084
LA 10/1/2004	0.308	0.286	-0.022
NJ 10/1/2004	0.059	1.126	1.068
SC 4/7/2005	0.265	0.385	0.120
ND 7/1/2005	0.250	0.998	0.747
OK 10/1/2005	0.386	0.989	0.604
WI 1/1/2006	0.272	0.274	0.003
NY 1/1/2006	-0.421	0.249	0.670

Source: USDA's Economic Research Service based on formula manufacturers' bids.

Although wholesale prices usually increased in real terms, so did real rebates. Looking at powder and liquid concentrate combined, only 9 of the 38 changes in real rebates (24 percent) were negative (tables 3 and 4). In 29 of the 38 total cases (76 percent), both real rebates and real net wholesale prices increased from one contract to the next. In these cases, the change in net wholesale price is determined by the increase in the real rebate relative to the increase in the real wholesale price. For example, New Jersey's October 2004 powdered contract saw a 60-cent increase in the rebate amount per 26 reconstituted ounces, but a 64-cent increase in the wholesale price. As a result, the net wholesale price increased by 4 cents. In 16 of these 29 (55 percent) cases, the increase in real wholesale price exceeded the increase in real rebates, resulting in an increase in the real net wholesale price.

## Trends in Bids

The discussion so far has focused on net wholesale prices for the “winning” infant formula manufacturer. Arguably, this is the price most important to WIC. However, patterns in bidding—losing bids as well as winning bids—may contain information about trends in the bidding process and the incentives of all manufacturers—not just the contract winner—to participate and offer bids to obtain a WIC contract. For example, if bids by the “losing” manufacturer appear less aggressive over time as evidenced by relatively high net wholesale prices, then winning bidders may adjust their behavior and offer higher net wholesale prices on future contracts.

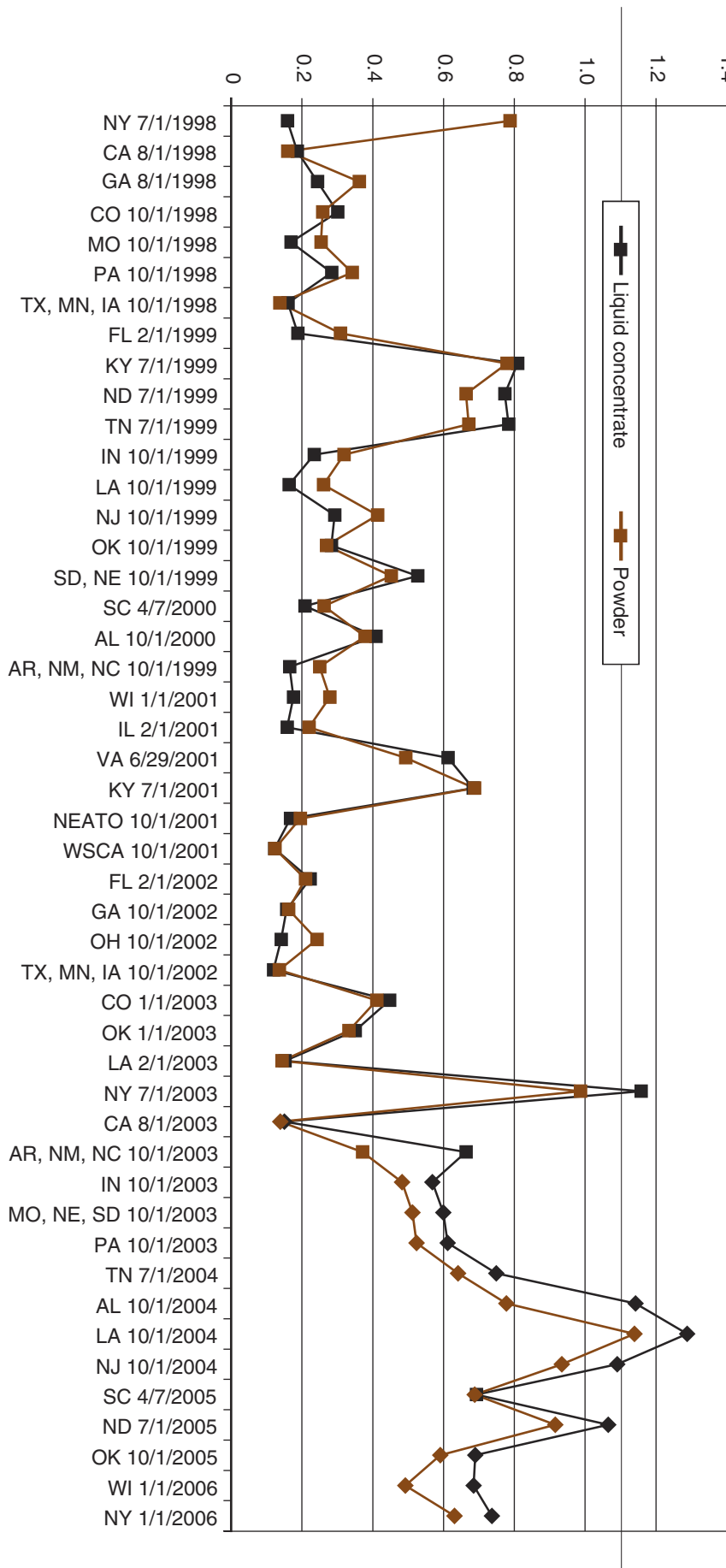
Each manufacturer's real net wholesale price bids for powder and liquid concentrate are represented in figures 13-15.<sup>49</sup> Real net wholesale prices for both of Mead Johnson's product types—powder and liquid concentrate—generally move together (correlation coefficient equals .91) (fig. 13). In addition, real net wholesale prices bid by Mead Johnson appear to increase beginning in 2003, about the time that the bids based on the DHA- and ARA-supplemented formulas appeared.

Nestlé's bids (fig. 14) follow a similar trend—real net wholesale prices for powder and concentrate move together closely (correlation coefficient equals .95) and bids in later periods are higher than those for earlier contracts. (There are fewer data points for real net wholesale price since Nestlé bid for fewer contracts than the other manufacturers during this period.)

Real net wholesale price bids for Ross's powder and liquid concentrate also move together, but to a lesser degree (correlation coefficient equals 0.74) (fig. 15). In contrast to Mead Johnson, real net wholesale prices are less for liquid concentrate than powder for many of Ross's bids. Prices bid by Ross trend up slightly for the later contracts, although less strongly than bids by Mead Johnson and Nestlé.

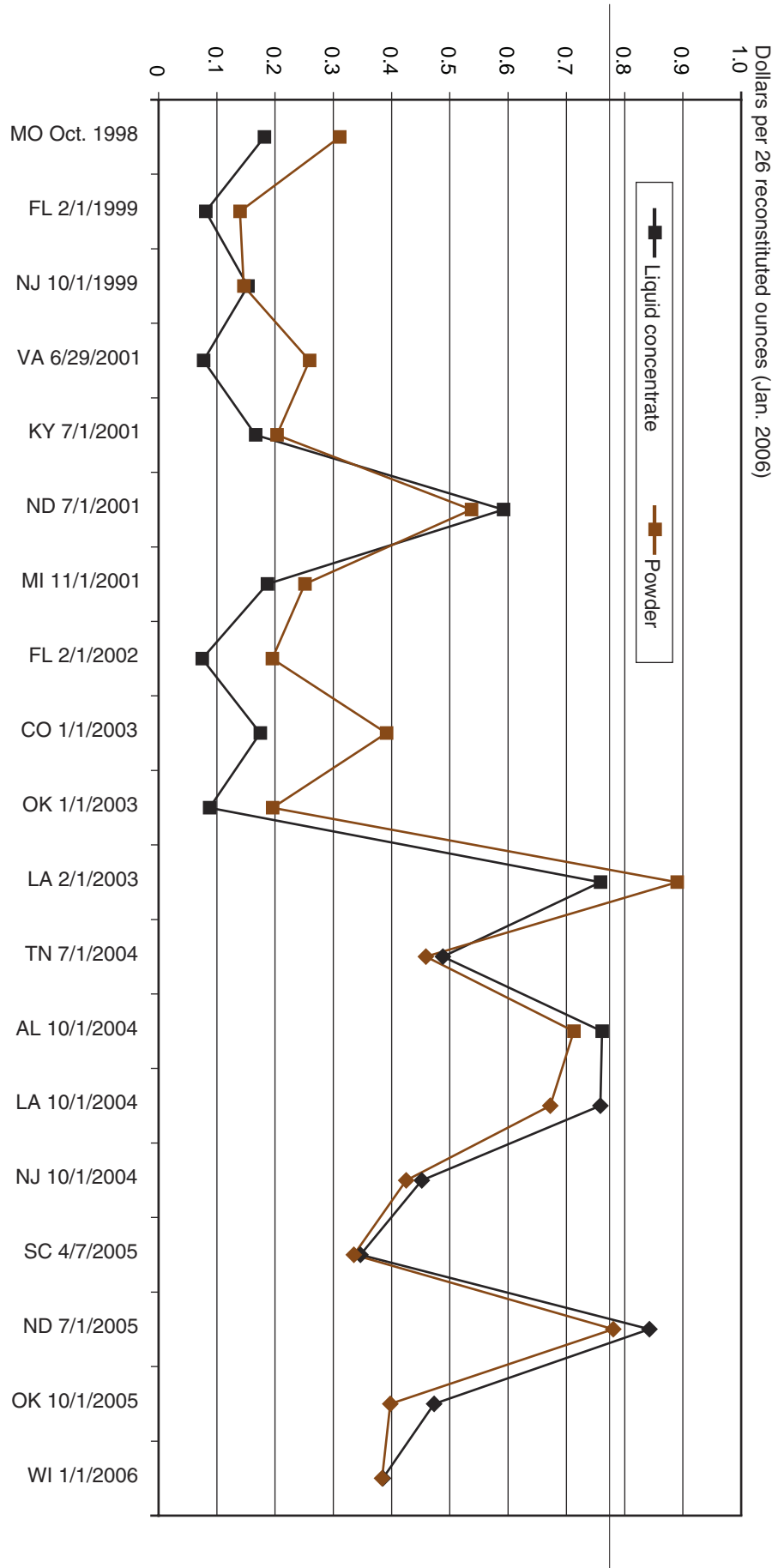
<sup>49</sup>The time intervals between the data points in the figures are not equivalent.

Figure 13  
**Real net wholesale prices bid by Mead Johnson for milk-based infant formula contracts by physical form, 1998-2006**  
 Dollars per 26 reconstituted ounces (Jan. 2006)



Note: Squares represent bids based on unsupplemented formula and diamonds represent bids based on DHA- and ARA-supplemented formula.  
 Source: USDA's Economic Research Service based on formula manufacturers' bids.

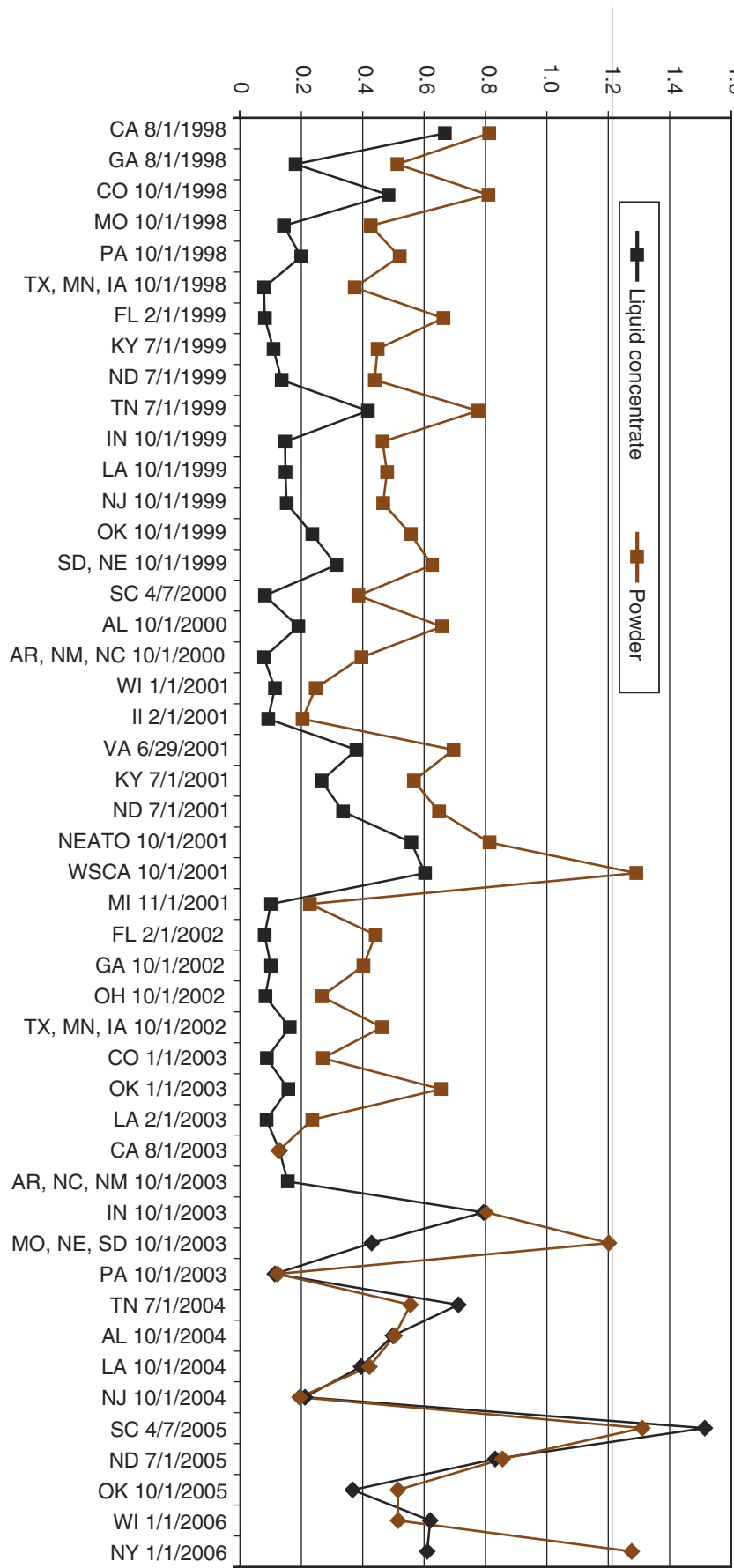
Figure 14  
**Real net wholesale prices bid by Nestlé for milk-based infant formula rebate contracts by physical form, 1998-2006**



Note: Squares represent bids based on unsupplemented formula and diamonds represent bids based on DHA- and ARA-supplemented formula.  
 Source: USDA's Economic Research Service based on formula manufacturers' bids.

Figure 15  
**Real net wholesale prices bid by Ross for milk-based infant formula contracts by physical form, 1998-2006**

Dollars per 26 reconstituted ounces (Jan. 2006)



Note: Squares represent bids based on unsupplemented formula and diamonds represent bids based on DHA- and ARA-supplemented formula.  
 Source: USDA's Economic Research Service based on formula manufacturers' bids.