
# *Understanding the Consumer through Technology: Scanner Data, Consumer Panels, and Analysis*

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***Presented at the 2007 Agricultural Outlook Forum 'Agriculture at the Crossroads: Energy, Farm, and Rural Policy'***

March 2, 2007

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United States Department of Agriculture
*The Economics of Food, Farming, Natural Resources, and Rural America*

# Economic Research Service (USDA)

- Conducts policy-relevant economic research related to agricultural and food issues
  - From farm to consumer and everything in between
  - Research results inform decisionmakers in government and industry
- Consumer-Retailer Data Initiative
  - Policy-relevant research requires good data
  - Variety of sources
  - Linking data improves insights

# Government Data Resources

- Store-based Data
  - Consumer Price Index (CPI)
  - Producer Price Index (PPI)
  - Census of Retail Trade
- Consumer-based Data
  - Consumer Expenditure Survey (CE)
  - American Time Use Survey (ATUS)
  - National Health and Nutrition Survey (NHANES)

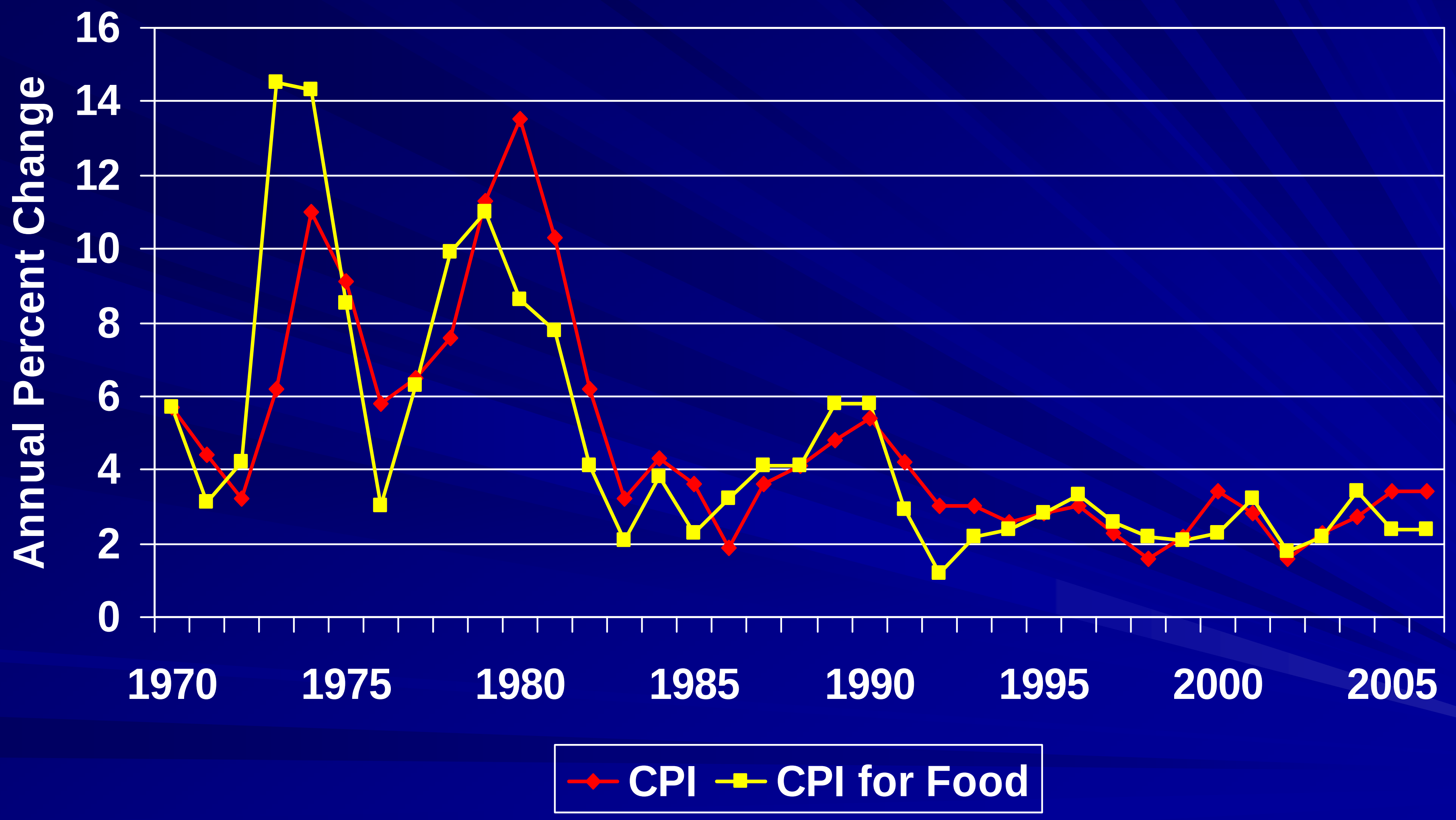
# Proprietary Data Resources

- Store Data
  – Scantrack (Nielsen) , Infoscan (IRI)
  – FreshWorks (The Perishables Group)
- Consumer Data
  – National Eating Trends (NPD)
  – CREST (NPD)
  – Homescan (Nielsen)

# Food Price and Expenditure Research

- National CPI and PPI prices and price change
- Other measures of prices and price change
  - by market/region
  - by store format
  - by income group
- Consumer expenditures by store type
- Cost pass-through: commodity-retail connection

# CPI vs CPI for Food 1970-2006



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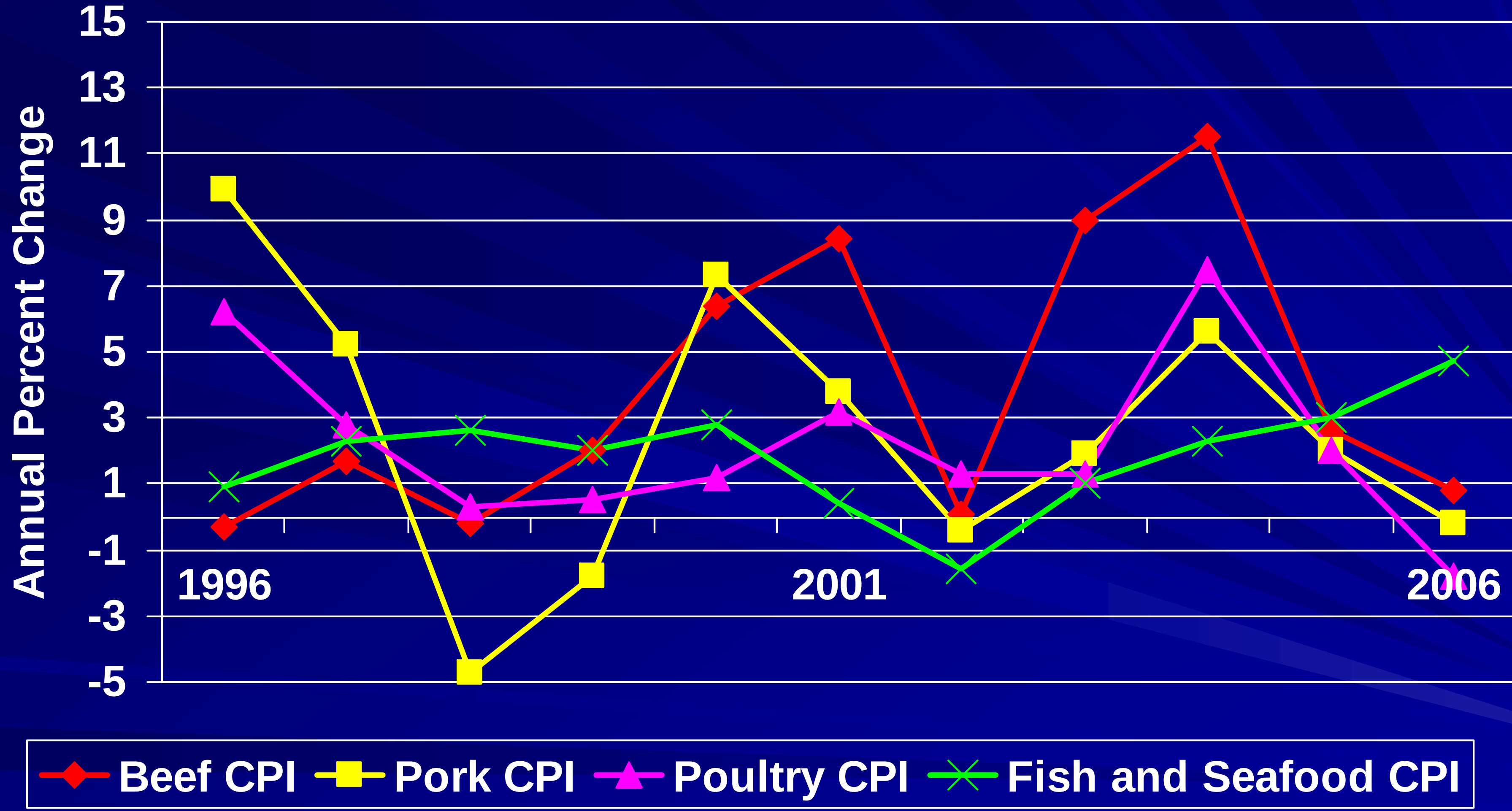
# CPI for Meat, Poultry, Pork, and Fish 1996-2006

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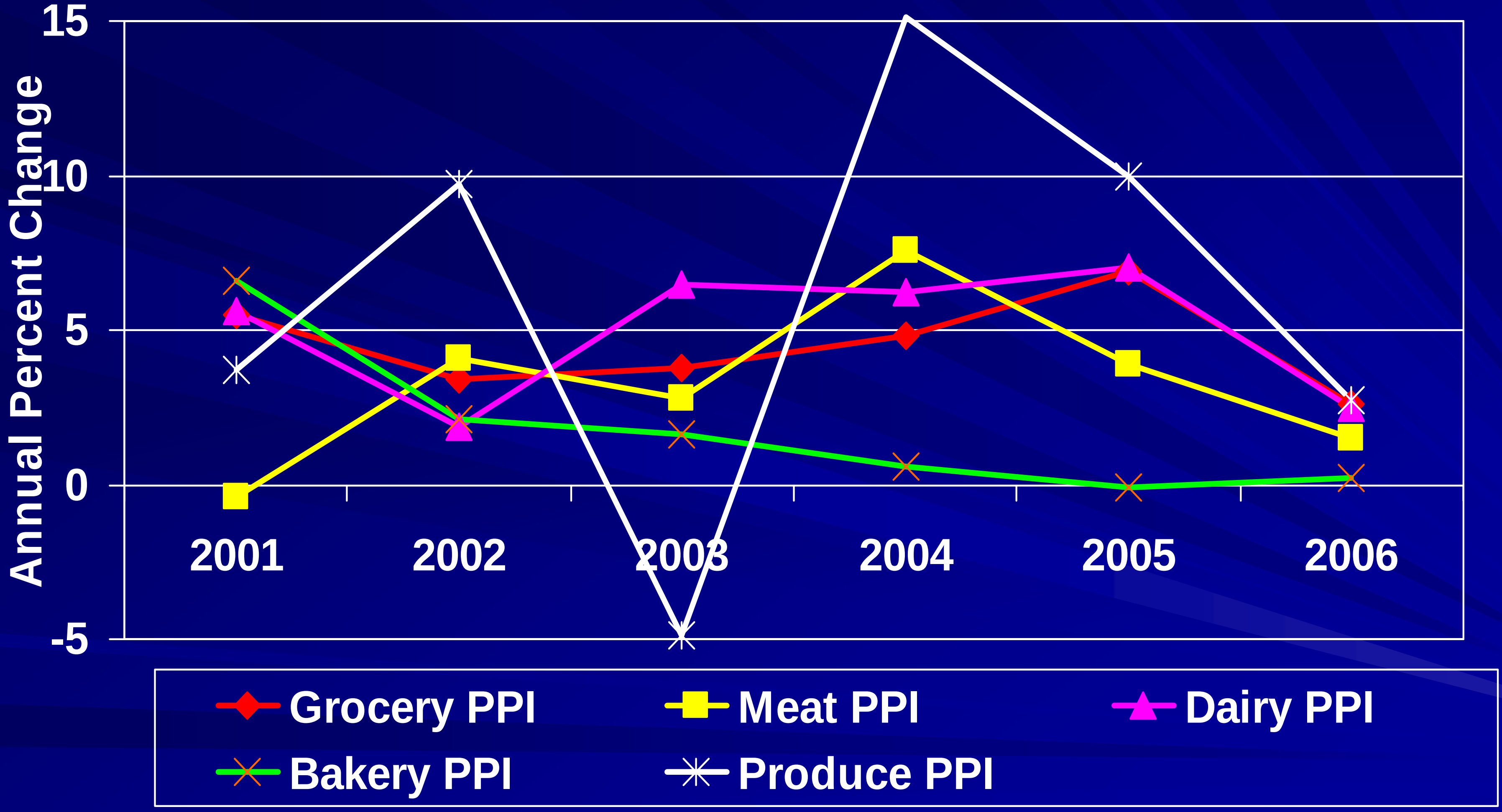
# PPI for Retail Grocery Departments, 2001-2006



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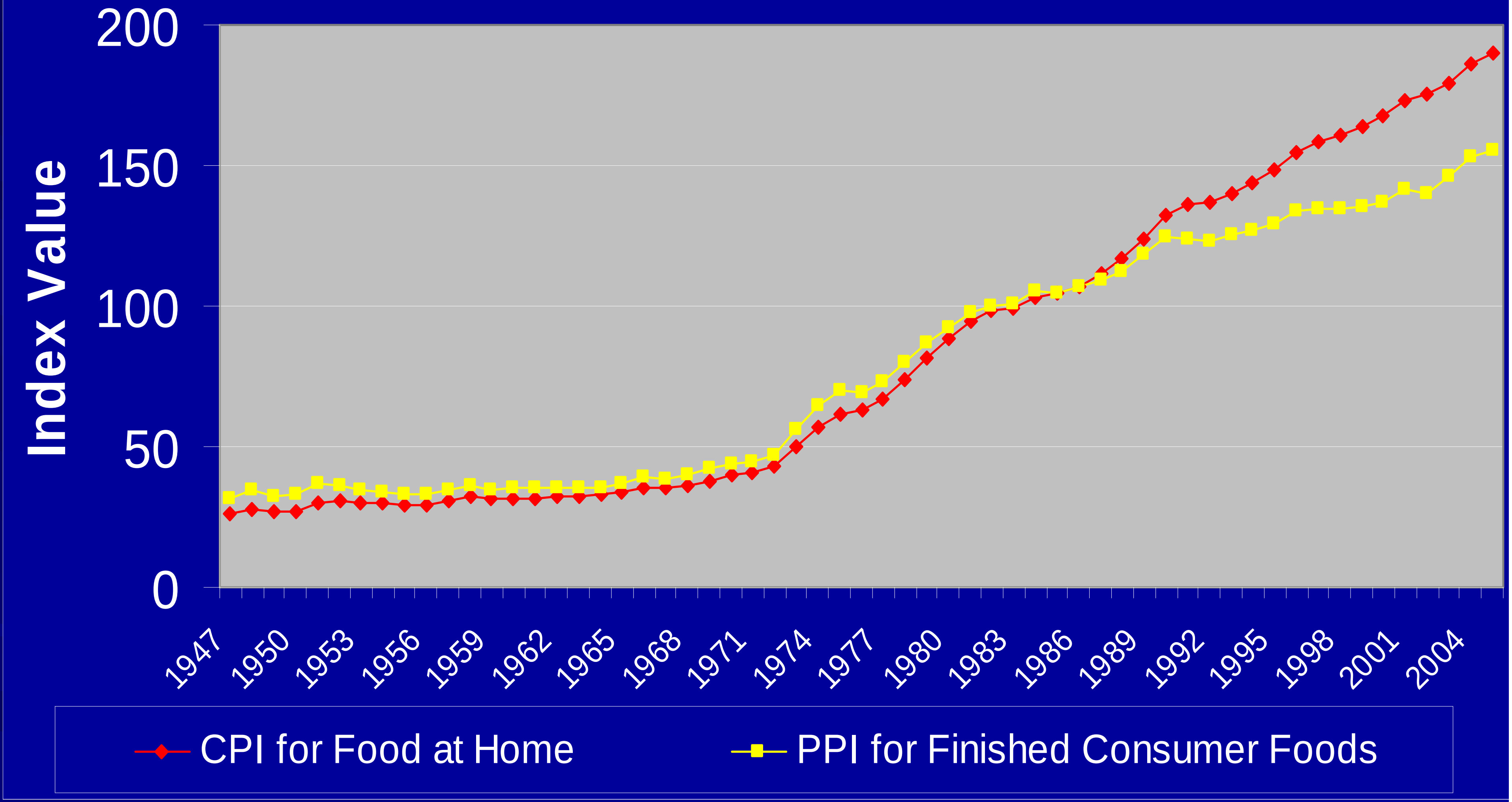
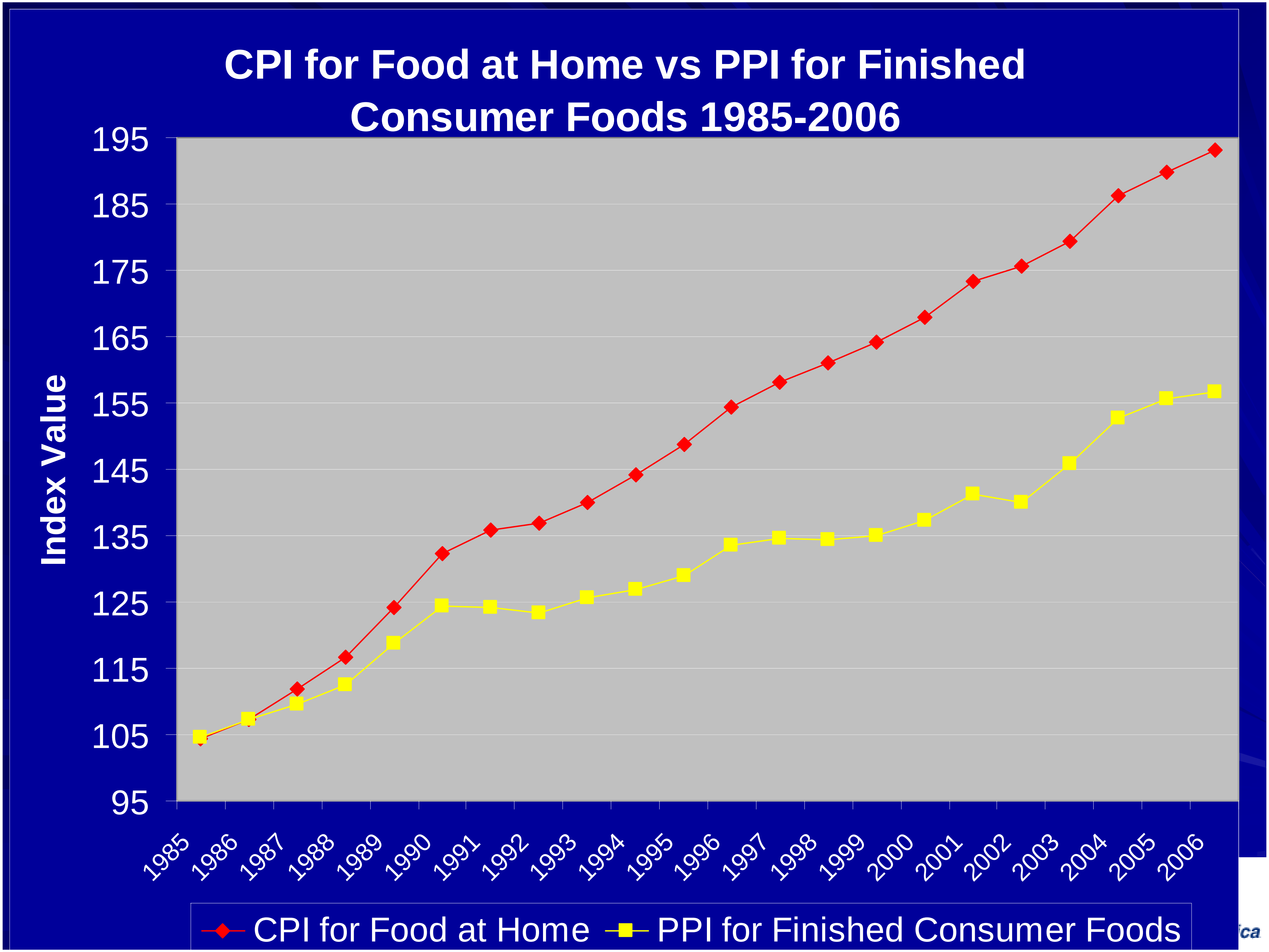
# CPI for Food at Home vs PPI for Finished Consumer Foods 1947-2006





CPI for Food at Home vs PPI for Finished Consumer Foods 1985-2006
Index Value
195
185
175
165
155
145
135
125
115
105
95
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
CPI for Food at Home
PPI for Finished Consumer Foods

# Nontraditional Retailers Increase their Market Share



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# Wal-Mart Supercenter Store Count


Source: Wal-Mart Annual Reports 1997-2004

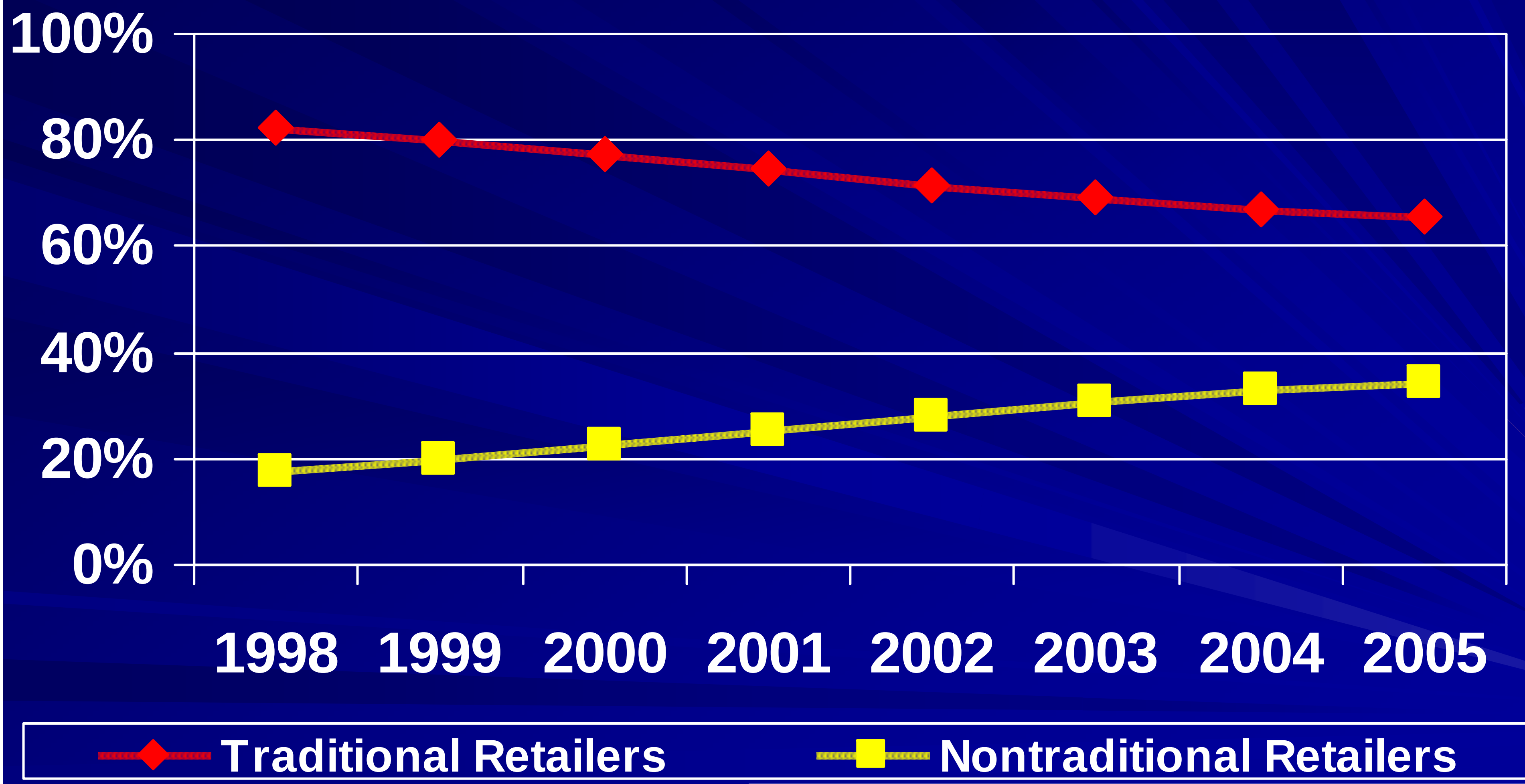
# Nielsen Fresh Foods Homescan Panel 1998-2005

- 65,000 unique household-by-year observations
- About 8,500 households per year
- Scan all food products purchased for food-at-home consumption:
  - Traditional supermarkets and grocery stores
  - Nontraditional retailers
  - Drug and convenience stores

# Nielsen Fresh Foods Homescan Panel 1998-2005 (b)

- Price and quantity purchased recorded on a daily basis
- Market level data with 50 U.S. markets

# Expenditure Shares for Nontraditional Food Stores Continue to Rise




Source: ERS Calculations of ACNielsen Homescan Data

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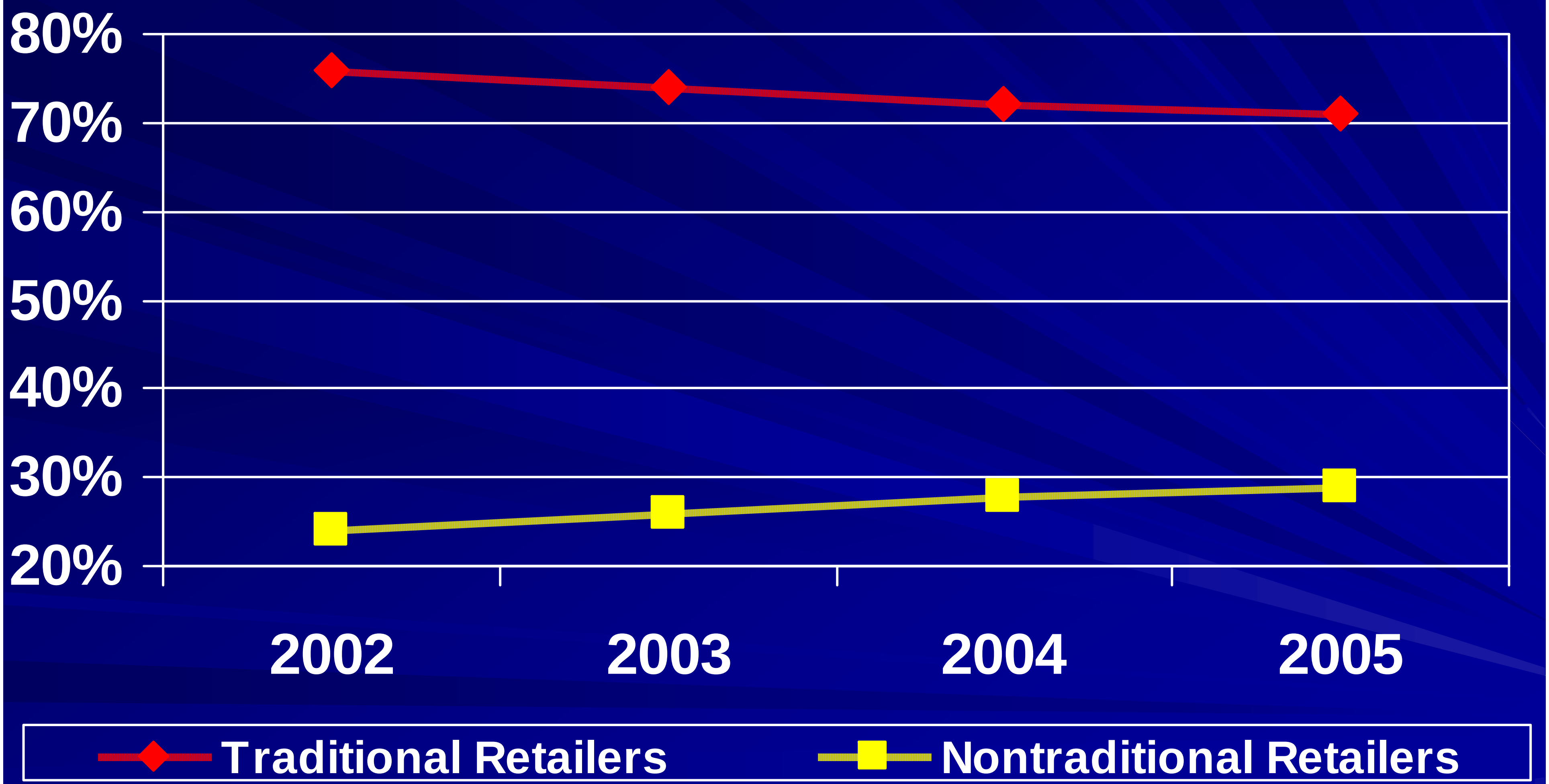
# Expenditure Shares for Meat Purchases




Source: ERS Calculations of ACNielsen Homescan Data

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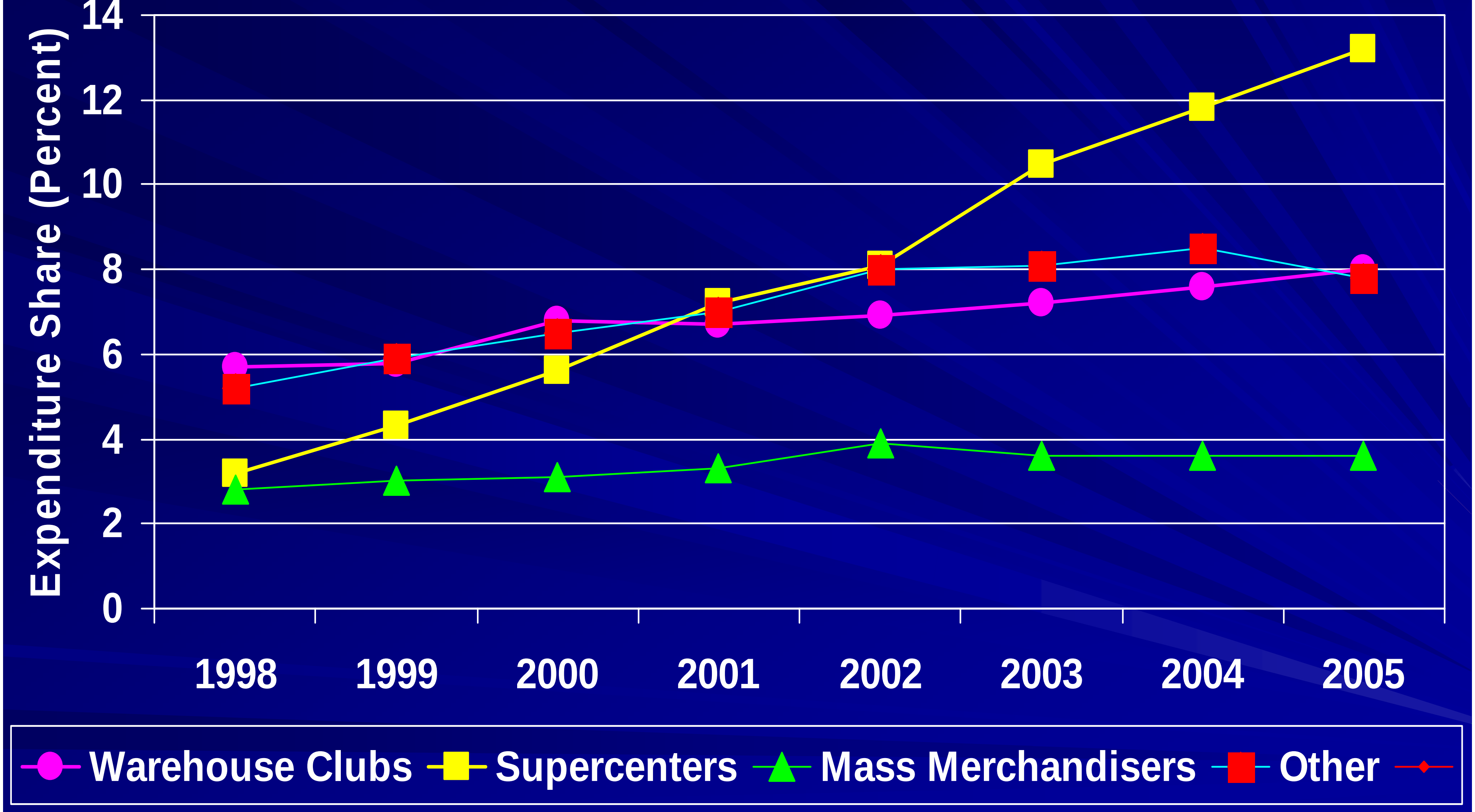
# Expenditure Shares for Nontraditional Formats 1998-2005

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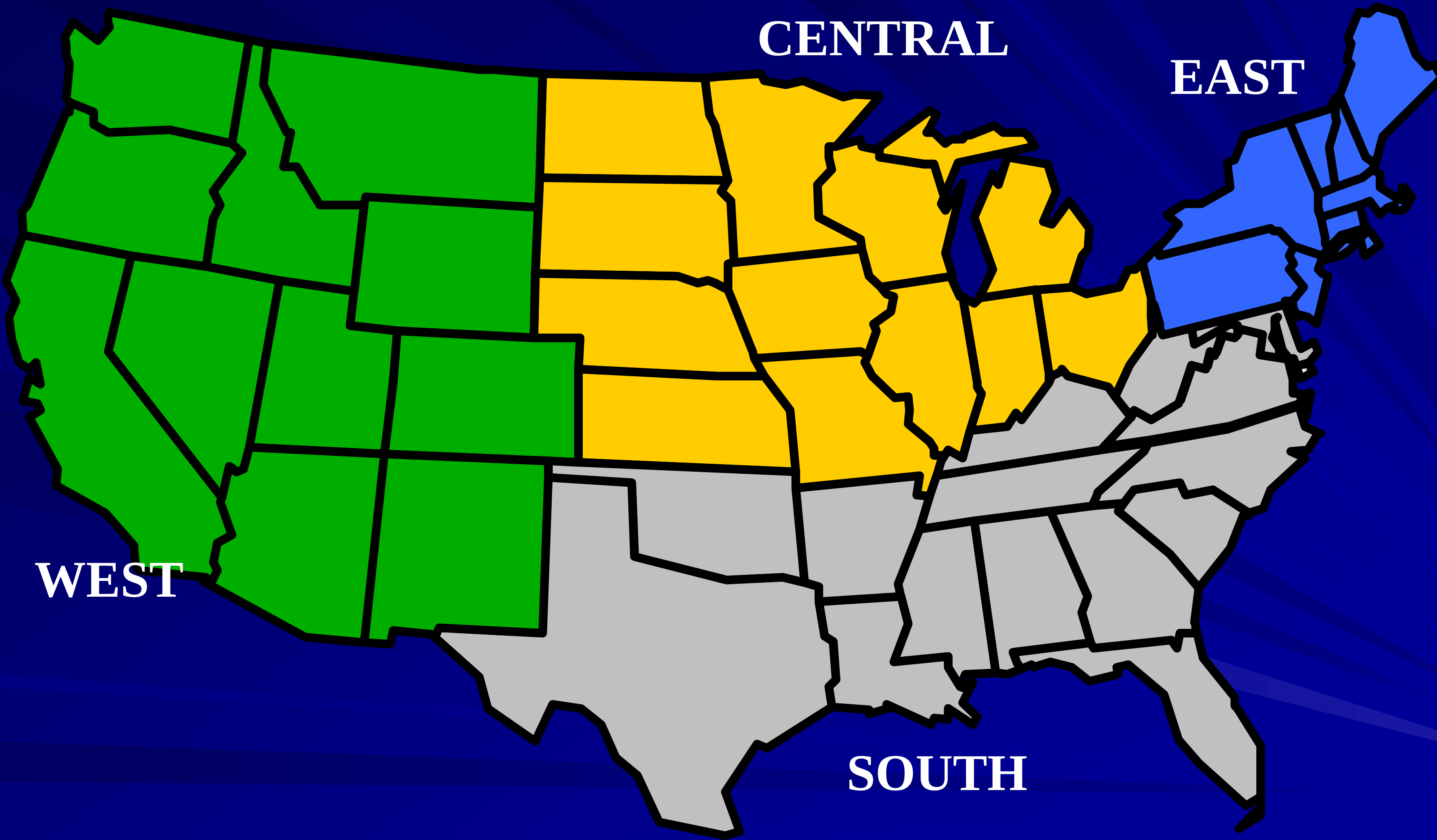
# Expenditure Shares for Nontraditional Formats 1998-2005

| | Warehouse Clubs | Supercenters | Mass Merchandisers | Other |
|---|---|---|---|---|
| **1998** | 5.7% | 3.2% | 2.8% | 5.2% |
| **1999** | 5.8% | 4.3% | 3.0% | 5.9% |
| **2000** | 6.8% | 5.6% | 3.1% | 6.5% |
| **2001** | 6.7% | 7.2% | 3.3% | 7.0% |
| **2002** | 6.9% | 8.1% | 3.9% | 8.0% |
| **2003** | 7.2% | 10.5% | 3.6% | 8.1% |
| 2004 | 7.6% | 11.8% | 3.6% | 8.5% |
| 2005 | 8.0% | 13.2% | 3.6% | 7.8% |

Source: ERS Calculations using Nielsen Homescan Data

# Census Regions

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# Expenditure Shares for Nontraditional Retailers by Region

| | East | Central | South | West |
|---|---|---|---|---|
| 1998 | 16% | 16% | 20% | 19% |
| 1999 | 17% | 18% | 23% | 20% |
| 2000 | 18% | 20% | 27% | 23% |
| 2001 | 20% | 22% | 30% | 24% |
| 2002 | 21% | 26% | 34% | 28% |
| 2003 | 22% | 28% | 35% | 30% |
| 2004 | 23% | 30% | 39% | 34% |
| 2005 | 24% | 32% | 41% | 34% |

Source: ERS Calculations using Nielsen Homescan Data

# Average Price Calculation

- Similar products
  - Product description
  - Package size
- Price per unit
  - Expenditure/Quantity
- Projection Factors
  - Account for household demographics


6
CANNED MICROWAVE
CANNED PASTA
RAMEN NOODLES
CANNED SOUP
RICE
TUNA
Save Even More!
Was $2.38
$1.86
WE GUARANTEE IT.
We'll Match It!
2 for $1
Crisco

# Milk Prices – 5.7% Lower

| Milk Type | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| **Skim Milk** | | | | | | |
| Grocery Stores | 2.27 | 2.41 | 2.39 | 2.42 | 2.30 | 2.32 |
| Drug and Convenience Stores | 2.38 | 2.55 | 2.45 | 2.54 | 2.40 | 2.33 |
| Nontraditional Retailers | 1.99 | 2.29 | 2.27 | 2.20 | 2.17 | 2.07 |
| **Lowfat Milk** | | | | | | |
| Grocery Stores | 2.34 | 2.51 | 2.45 | 2.54 | 2.38 | 2.41 |
| Drug and Convenience Stores | 2.35 | 2.49 | 2.58 | 2.54 | 2.45 | 2.36 |
| Nontraditional Retailers | 2.18 | 2.34 | 2.24 | 2.33 | 2.25 | 2.28 |
| **Whole Milk** | | | | | | |
| Grocery Stores | 2.55 | 2.67 | 2.60 | 2.73 | 2.57 | 2.63 |
| Drug and Convenience Stores | 2.66 | 2.73 | 2.75 | 2.82 | 2.76 | 2.55 |
| Nontraditional Retailers | 2.45 | 2.58 | 2.59 | 2.71 | 2.52 | 2.53 |

# Egg Prices – 18.6% Lower

| Egg Type | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| **Medium** | | | | | | |
| Grocery Stores | 0.77 | 0.70 | 0.74 | 0.80 | 0.73 | 0.94 |
| Drug and Convenience Stores | 0.75 | 0.82 | 0.88 | 0.86 | 0.61 | 1.05 |
| Nontraditional Retailers | 0.67 | 0.58 | 0.63 | 0.62 | 0.61 | 0.87 |
| **Large** | | | | | | |
| Grocery Stores | 1.01 | 0.93 | 0.94 | 0.97 | 0.99 | 1.18 |
| Drug and Convenience Stores | 1.04 | 0.94 | 0.92 | 1.05 | 1.02 | 1.02 |
| Nontraditional Retailers | 0.85 | 0.72 | 0.80 | 0.82 | 0.82 | 1.07 |
| **Extra Large** | | | | | | |
| Grocery Stores | 1.12 | 1.03 | 1.03 | 1.07 | 1.08 | 1.29 |
| Drug and Convenience Stores | 1.11 | 1.10 | 1.07 | 1.11 | 0.97 | 1.10 |
| Nontraditional Retailers | 0.90 | 0.79 | 0.79 | 0.82 | 0.86 | 1.11 |
| **Jumbo** | | | | | | |
| Grocery Stores | 1.22 | 1.11 | 1.14 | 1.21 | 1.19 | 1.41 |
| Drug and Convenience Stores | 1.40 | 1.28 | 0.89 | 1.21 | 1.12 | 1.21 |
| Nontraditional Retailers | 1.00 | 0.85 | 0.89 | 0.89 | 0.90 | 1.11 |

# Butter and Margarine – 8.9% Lower

| Product | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|
| **Butter (Pound)** | | | | | | |
| Grocery Stores | 2.63 | 2.37 | 2.16 | 2.79 | 2.28 | 2.14 |
| Drug and Convenience Stores | 2.61 | 2.35 | 2.30 | 2.04 | 2.52 | 2.39 |
| Nontraditional Retailers | 2.63 | 2.61 | 2.39 | 2.41 | 2.32 | 2.09 |
| **Margarine (Pound)** | | | | | | |
| Grocery Stores | 0.84 | 0.84 | 0.84 | 0.86 | 0.81 | 0.84 |
| Drug and Convenience Stores | 0.91 | 0.89 | 0.83 | 0.75 | 0.80 | 0.68 |
| Nontraditional Retailers | 0.68 | 0.70 | 0.71 | 0.68 | 0.65 | 0.66 |

# Other Dairy Prices

- Hard Cheeses — 8.6% Lower
- Soft Cheeses — 16.5% Lower
- Random Weight Cheeses —12.6% Lower
- Yogurt — 16.2% Lower
- Ice Cream — 3.8% Lower

# Price Comparisons

- On average, nontraditional retailers have 5% to 25% lower dairy food prices than traditional food stores.

- Nontraditional retailers do not change their prices at a faster or slower rate than traditional supermarkets and other retail outlets.

# Average Annual Price Change
# CPI vs Scanner Data

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| ACN Dairy Total | 6.0 | -1.6 | 3.5 | -1.2 | -0.1 |
| BLS Dairy Total | 5.8 | 0.7 | 4.0 | 0.6 | -0.1 |
| ACN Milk | 2.3 | -0.8 | 1.0 | -1.9 | 0.2 |
| BLS Milk | 6.2 | 0.2 | 4.5 | -1.9 | 0.8 |
| ACN Cheese | 3.0 | -0.8 | 1.9 | 0.3 | 0.3 |
| BLS Cheese | 6.8 | 0.1 | 2.9 | 1.4 | -0.4 |
| ACN Other Dairy | 0.0 | 0.1 | 0.0 | 0.2 | -0.3 |
| BLS Other Dairy | 5.2 | 2.1 | 2.8 | 1.8 | 0.4 |
| ACN Ice Cream | 0.6 | -0.2 | 0.5 | 0.0 | -0.3 |
| BLS Ice Cream | 4.0 | 1.7 | 5.5 | 3.3 | -2.0 |
| ACN Eggs | -0.4 | 0.1 | 0.2 | 0.0 | 1.1 |
| BLS Eggs | -5.4 | 3.0 | 3.4 | 1.3 | 13.8 |
| ACN Butter and Margarine | -0.3 | -0.3 | 1.0 | -0.7 | -0.2 |
| BLS Butter and Margarine | -0.1 | -3.1 | 14.9 | -2.6 | -1.2 |

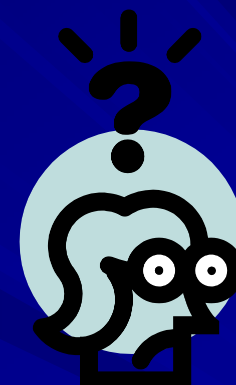
# Conclusion

- Changes in food retailing affect food prices, as well as the variety of products and services available to consumers.

- Average dairy food prices 5-25 percent lower at nontraditional retailers
  – Comparisons are made for similar package sizes and product characteristics.

- The CPI for dairy products overstates food price inflation.

# Questions



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and
http://www.ers.usda.gov/publications/err33/