

# Dairy Foods: What do we eat and why, including the role of science in shaping consumer choice. The Case of Beverage Milks

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November 2017

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# Outline

Putting Fluid Milk into its economic context

- Food within all expenditures, dairy within food, fluid within dairy
- The economic scope of the fluid milk sector

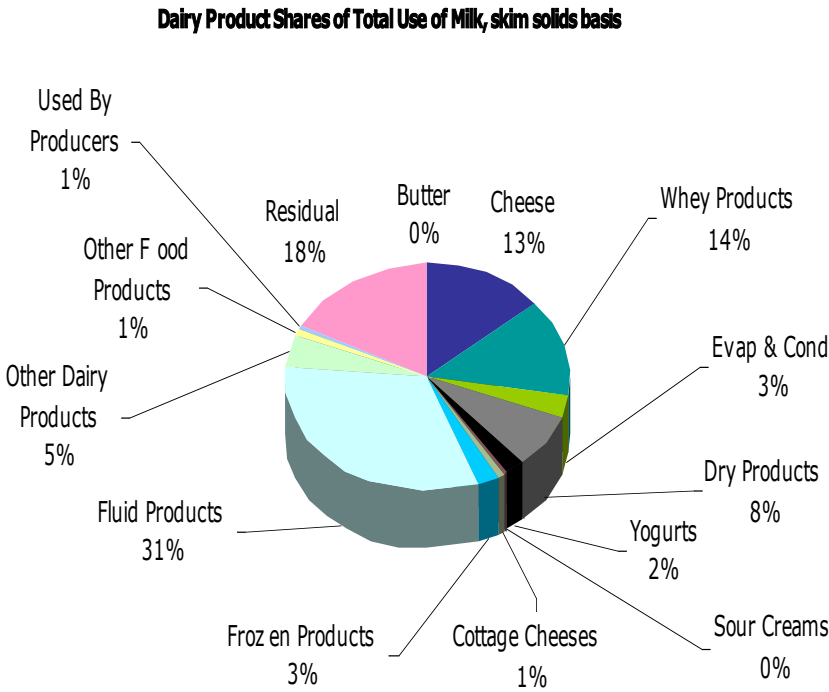
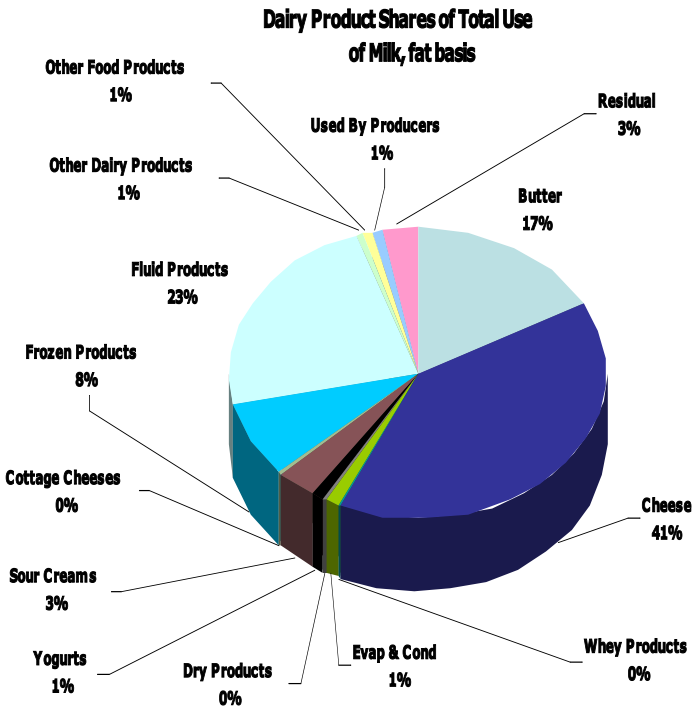
Factors Driving Sales and Product Selection

Product Development

Market Development

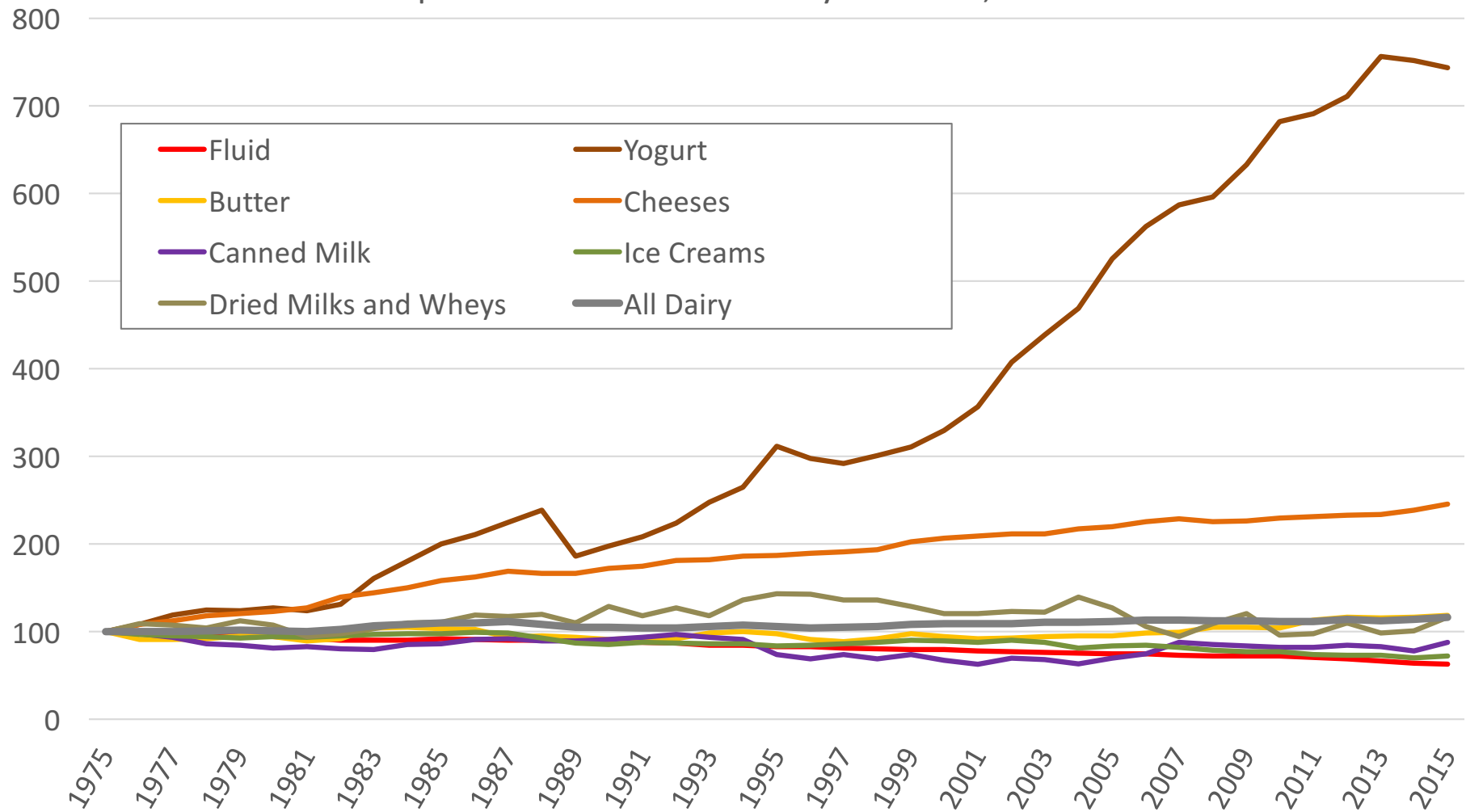


Utilization of the US milk supply is counted on a component basis. Allowing for the fact that some dairy foods are higher in milkfat and others in skim solids, it is generally true that: 1) the cheese and whey sector represents about 35-40% of the US milk supply, 2) fluid milk represents about 25-30%, and 3) butter and nonfat dry milk account for about 15-20% (Yogurt is about 2%)

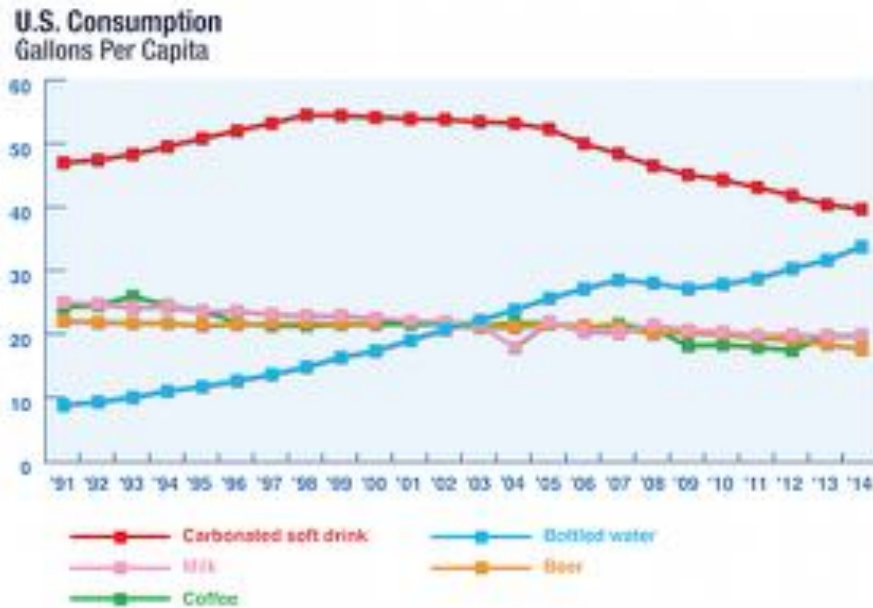


**All dairy up about 1.8 pounds per year. Cheese provided spectacular volume growth at a healthy percentage. Yogurt has the steepest trend. Butter and associated powders and wet solids holding their own. Fluid (-2.1 lbs.) and Ice cream in decline.**

Per Capita Sales of Selected Dairy Products, 1979 = 100



# All major beverage categories are declining in favor of good, old water



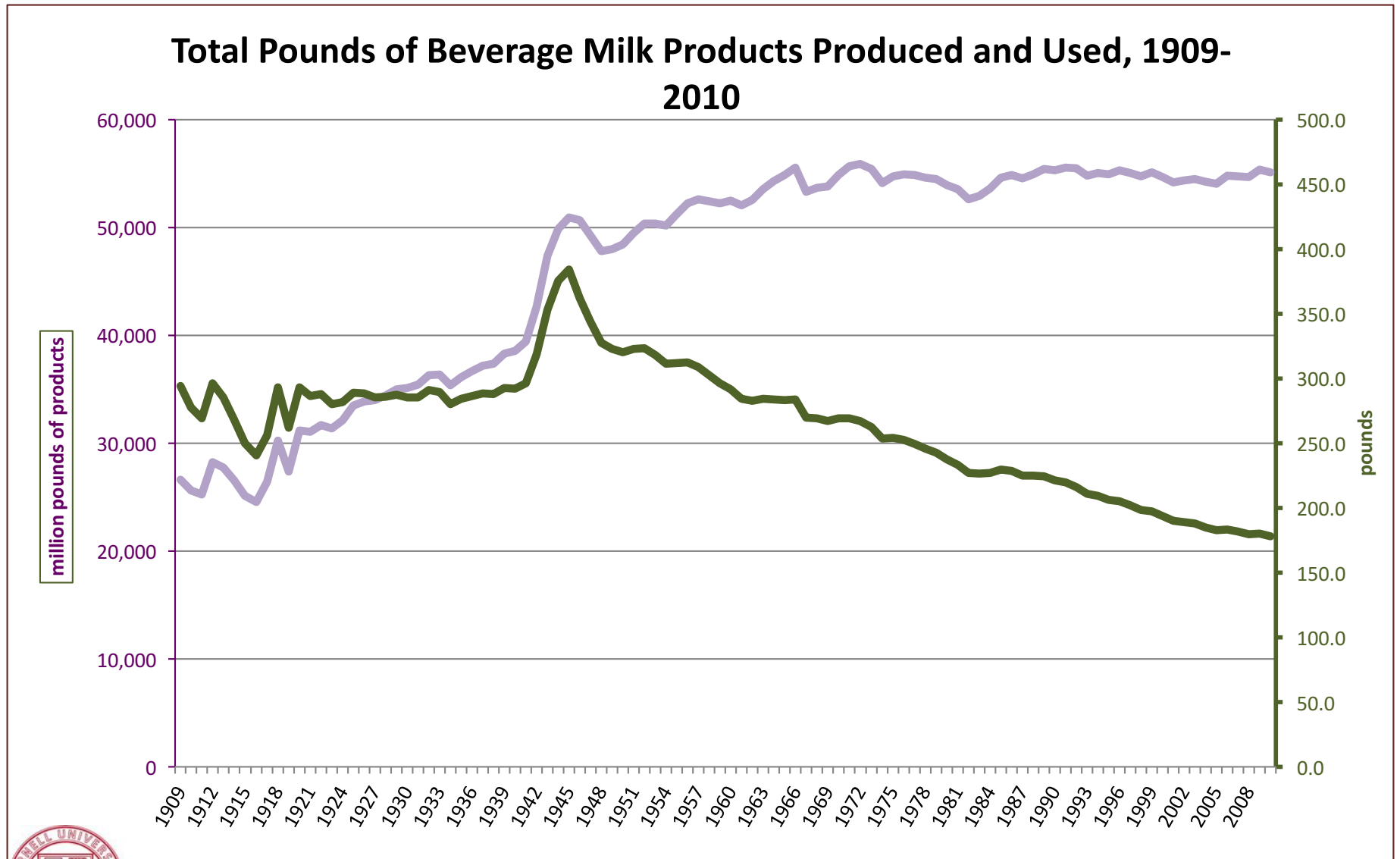
## Annual Per Capita Beverage Consumption

Beverage	Gallons per capita
Soda	40.1
Bottled Water	34.2
Coffee	20.3
Beer	20.2
Milk	18.1

- Milk ranks fourth in purchased beverage consumption (excluding tap water), about tied with beer and ahead of coffee.
- Milk represents about 12% of total purchased beverages
- Per capita sales of all milk beverages, regardless of fat content, has drifted downward since late 1940s. It is about 50% of its peak.
- People who don't drink milk consume a greater share of soft drinks and bottled water (substitutes), but a smaller share of coffee, tea, and fruit juices (complements?).

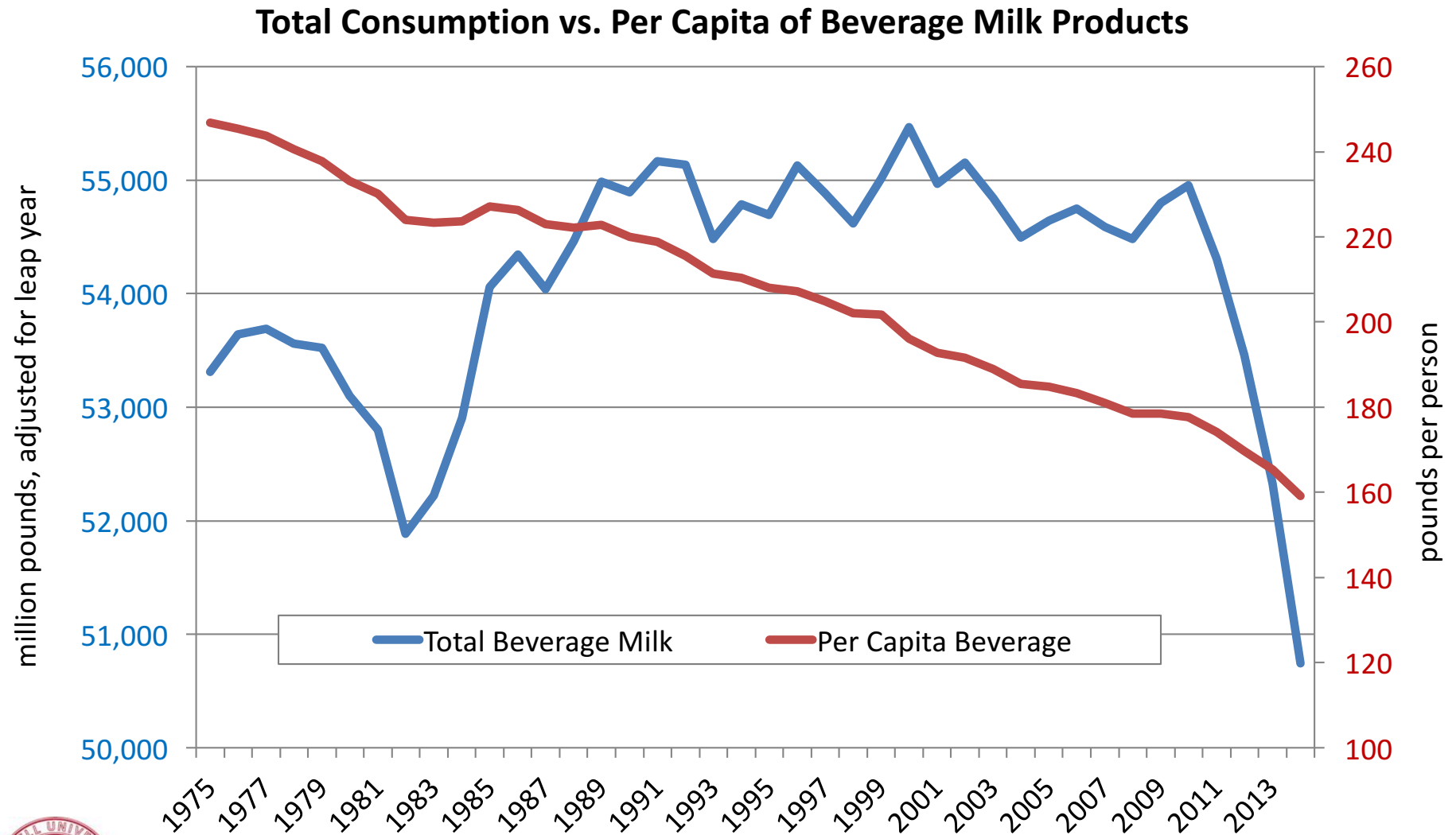


**Population drove total beverage milk sales upward until the 1970s, even with per capita use declining since the 1940s; then it flattened, until about 2010**



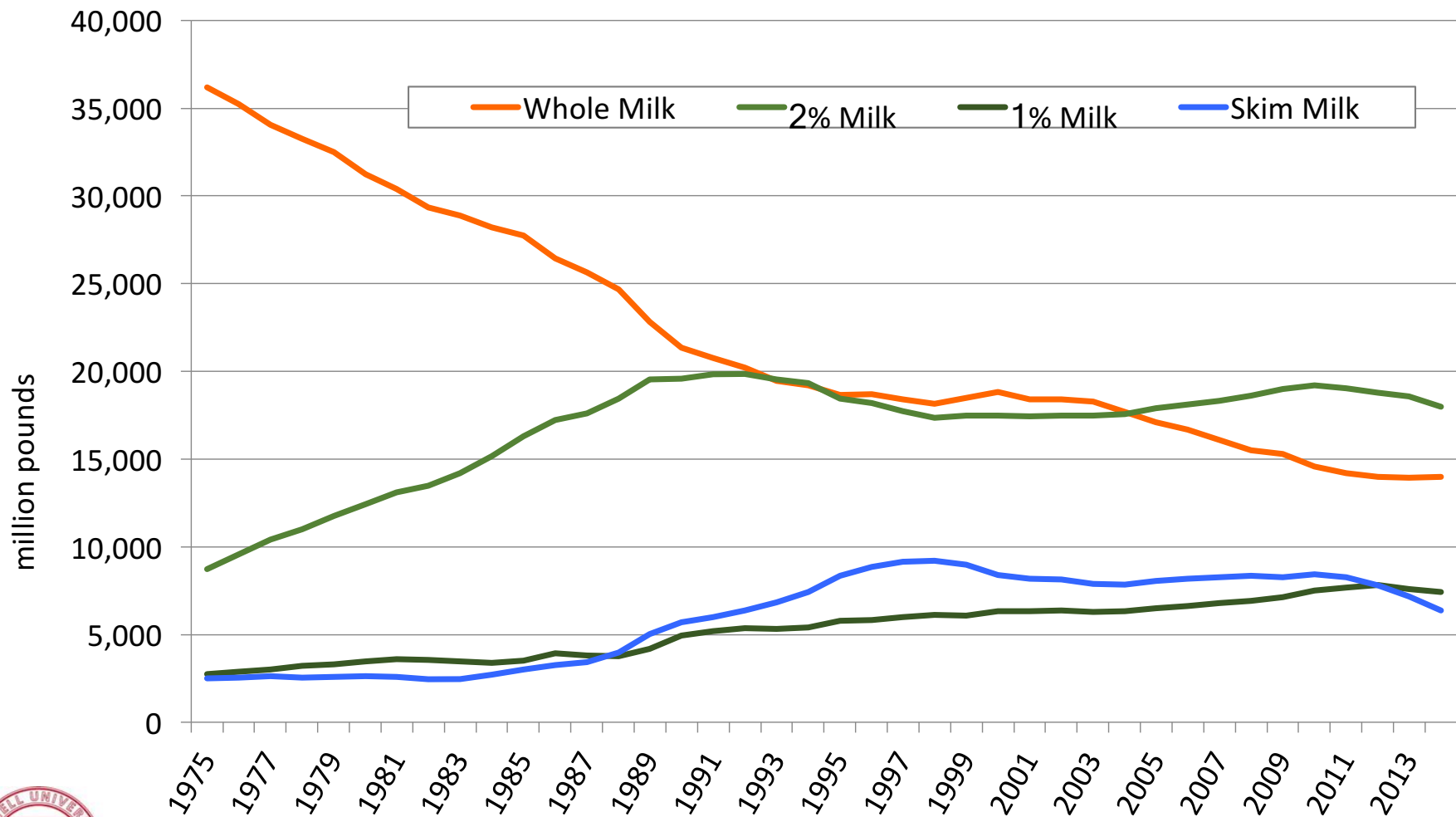
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**Increasing population and declining per capita sales of beverage milk were at about a standoff in 1990s and 2000s, but a dip in per capita has pushed total sales down dramatically since 2010**



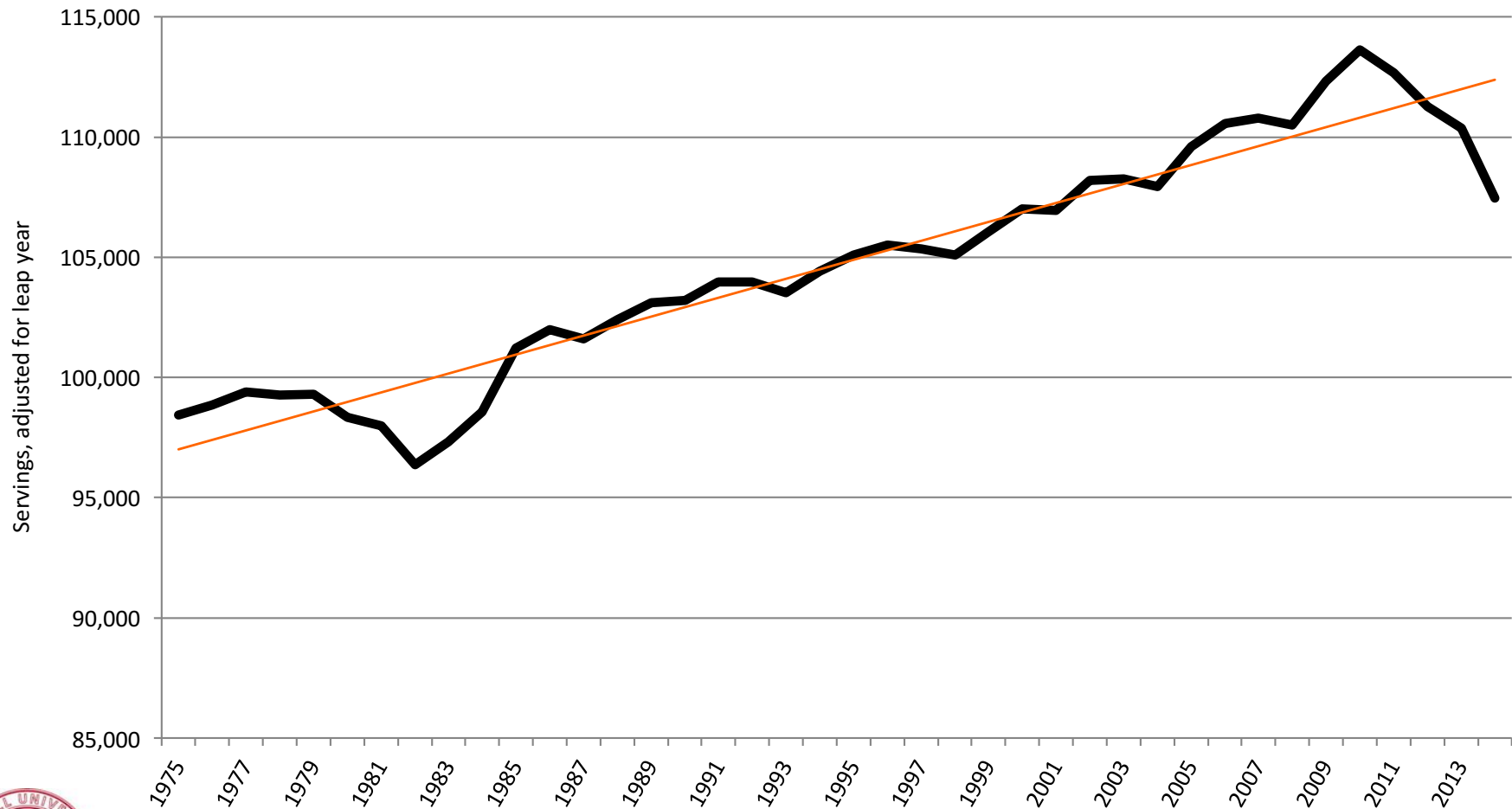
Fluid milk product sales have been characterized by switching from higher fat to lower fat milks since the 1960s. Reduced and lowfat milks (2% and 1%) peaked in 1992. Nonfat or skim milk peaked in 1998. **In last five years, consumers are switching back to whole milk, probably at the expense of 2%, and 1% probably at the expense of skim.**

**US Production of White Milks by fat content, 1975 to present**



# Even allowing for some substitution for Milk by Yogurt, the number of servings has declined dramatically since 2010.

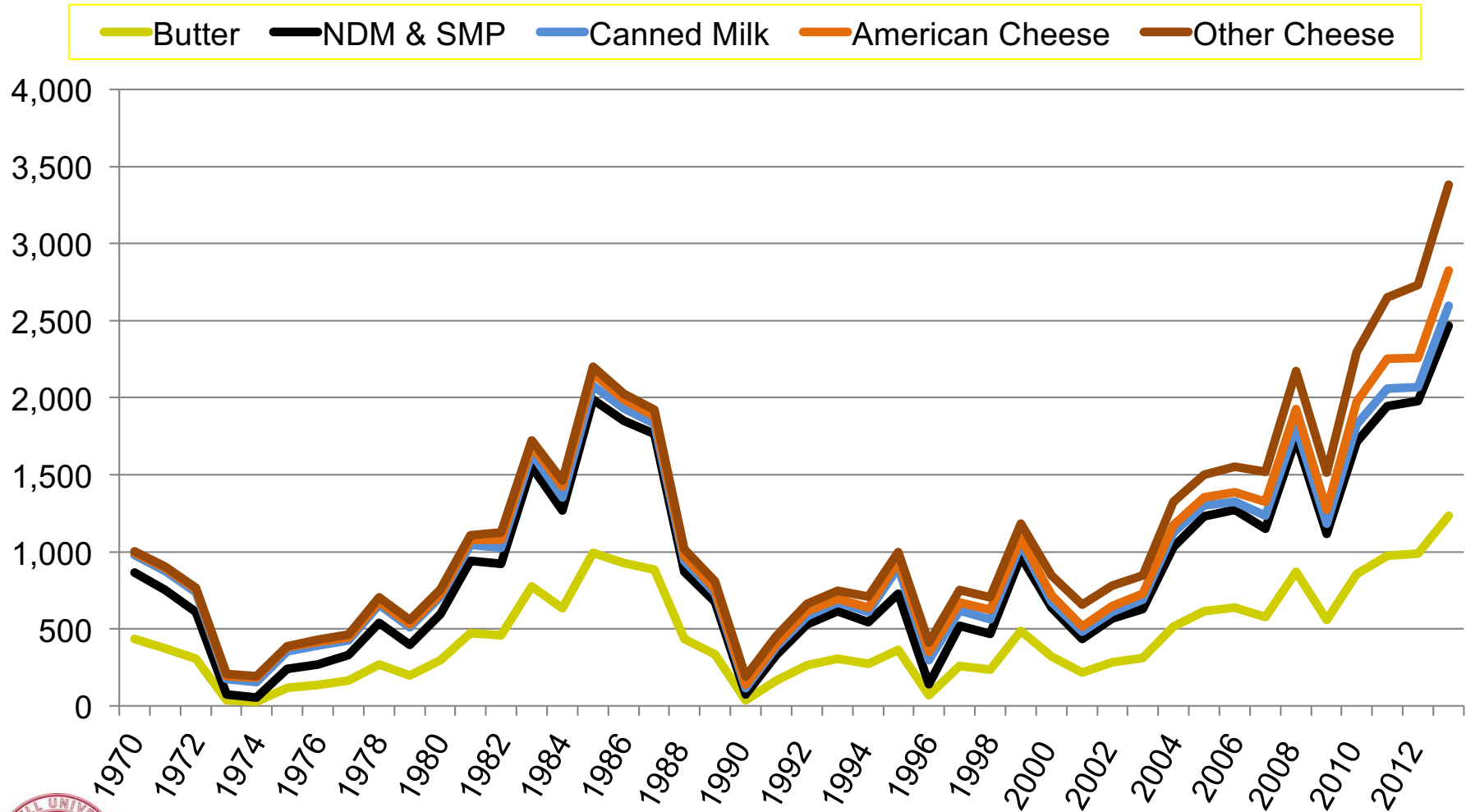
**Approximate Number of Servings of Beverage Milk Plus Yogurt**  
(8 oz. of milk and 5.3 oz. of yogurt by volume)



*prepared by A.M. Novakovic, permission to use with attribution*

# Exports are growing across the board, replacing 1980s foreign donations with commercial exports

Exports of Major Dairy Products, 1970 to 2013, pounds



# What's Driving These Patterns, Up or Down?

Population growth is a major driver and world trade is basically accessing a larger population

A lot of dairy consumption has been impacted by changing lifestyle

- The car economy and cheap fuel has driven cheese sales (burgers and pizza)
- Eating away from home has helped some products (cheese, creamers, maybe butter) but hurt others (fluid milk, condensed milk, cottage cheese)
- Eating on the run pushes for individual servings, non-spillable, non-perishable



# What's Driving These Patterns, Up or Down?

## How we think about dairy foods

- 100 years ago the public attitude towards dairy foods was reverential
- Around the 1980s, we began to doubt the nutritional and health merits of dairy foods
- Today, science is confirming that dairy foods are good for us but a lot of damage has been done that will be hard to repair – think about the School Lunch Program



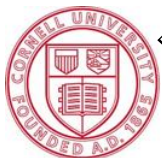
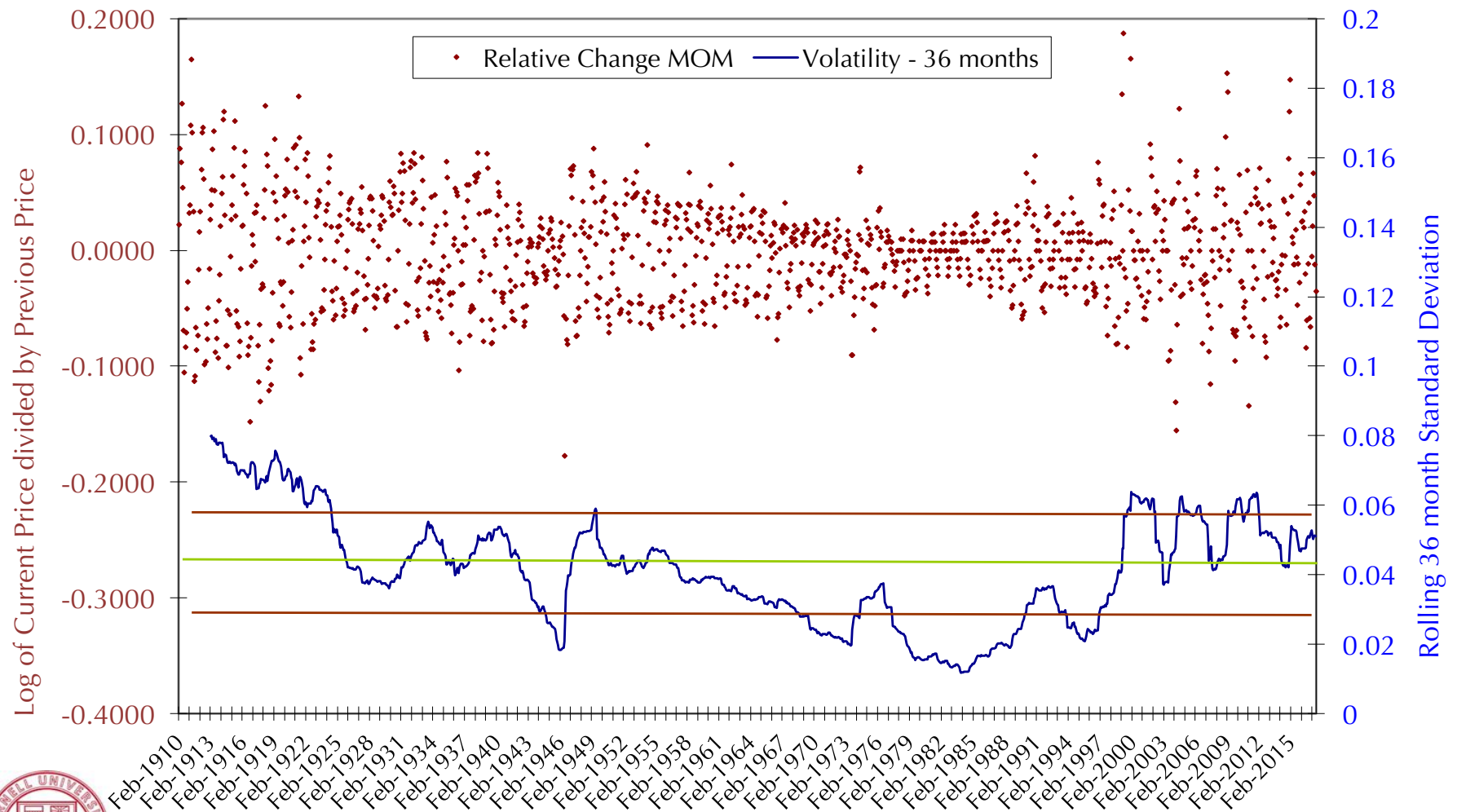
# The Impact of Basic Economics of Price and Income



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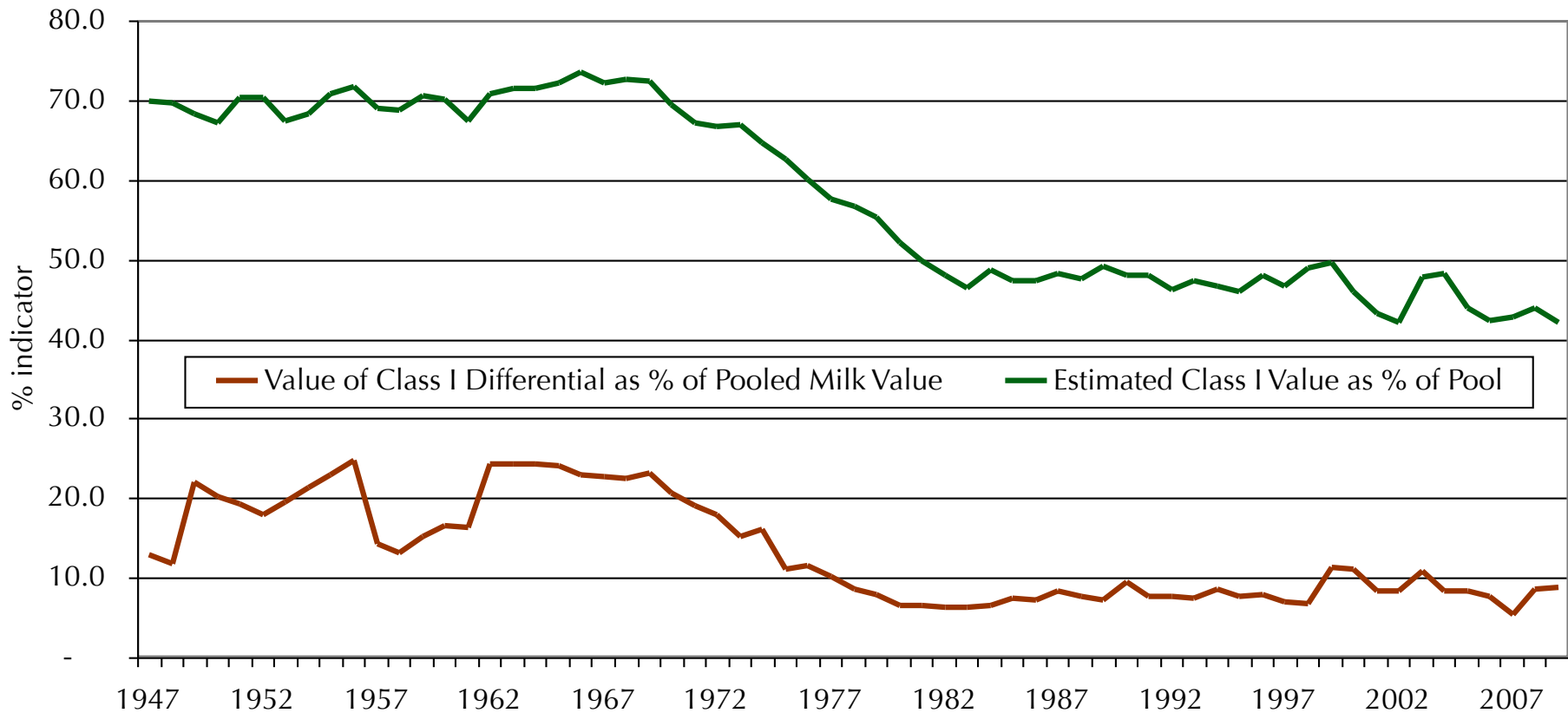
# Milk prices have become more volatile with 1) elimination of price support program, 2) trade liberalization, and 3) product price formulas

## All Milk Price, relative monthly variation, 1910 to present



# Value of Differential Has Not Kept Pace With Basic Formula Values

Indicators of Importance of Class I Differentials, 1947-2009..

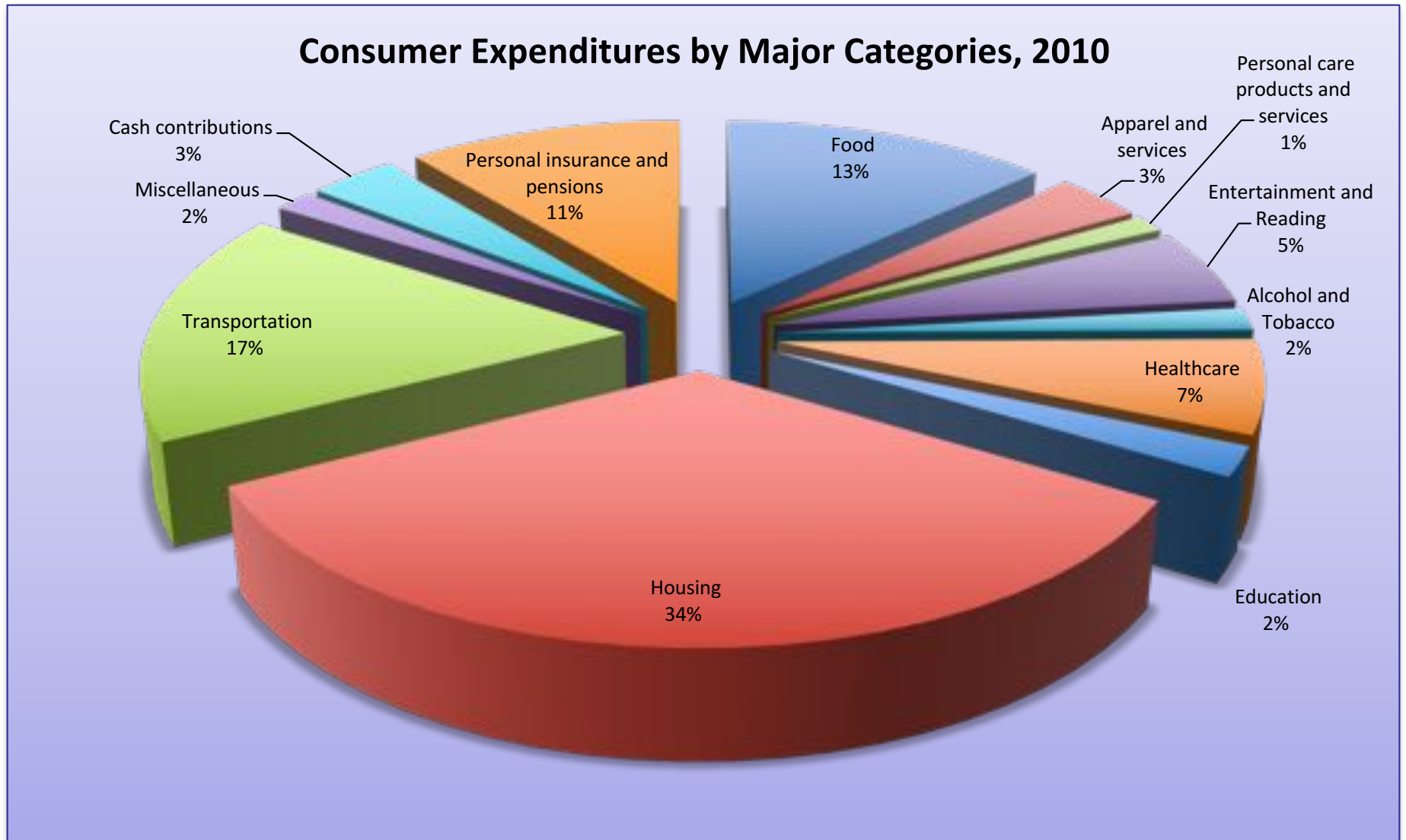


# Does This Concept Still Make Sense? – the Elasticity of Demand for Fluid Milk...

**Comparison of YOY Monthly Percentage Changes in Fluid Milk  
Sales and Retail Price of Whole Milk Gallons**

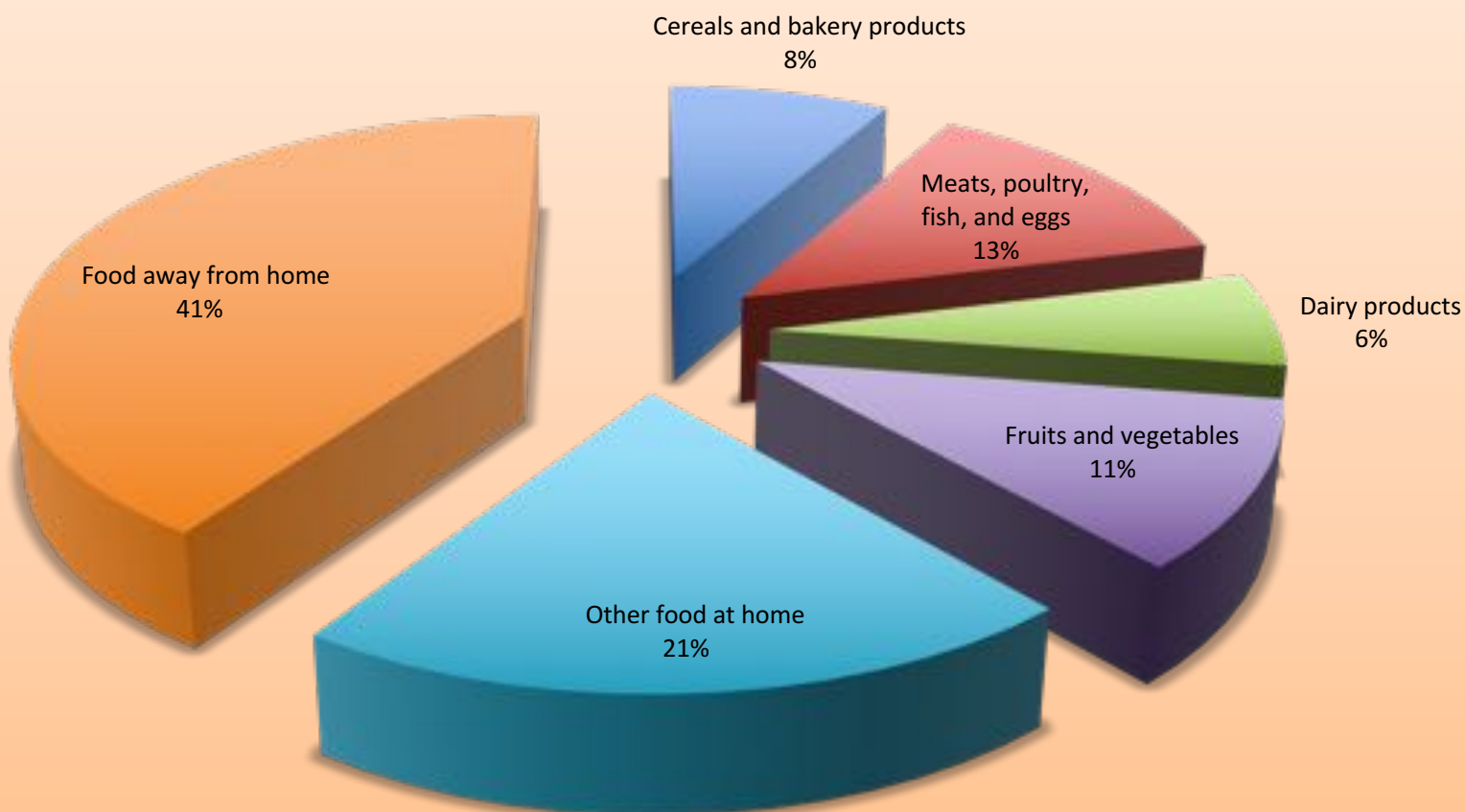


Food accounts for 13% of total consumer expenditures, making it's share one of the lowest in the world. This is more a reflection of our wealth than how cheap our food is. Only Housing and Transportation rank higher in share of expenditures. Health care is almost half of food expenditures, although it is growing faster. As a percent of Disposable Personal Income, food expenditures were as follows over time: 24% in 1930, 20% in 1950, and 10% in 2000.



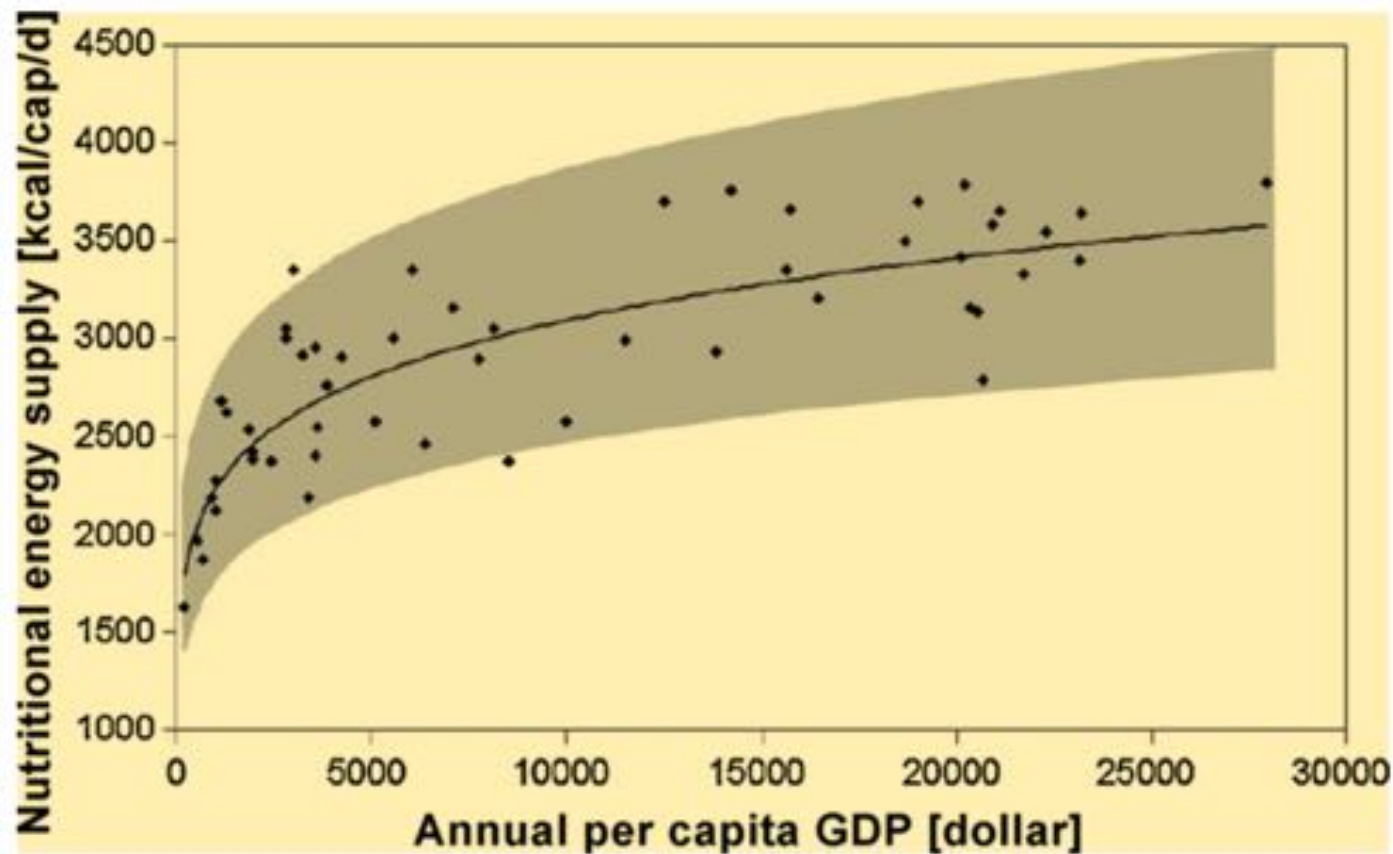
\$4 of every \$10 spent on food is for food prepared and consumed outside of the home. Dairy products are the smallest expenditure share of the major categories, but keep in mind that butter is included in “other” and so are many foods containing dairy products (e.g., frozen pizza, mac and cheese, etc.)

### Consumer Expenditures on Food, by major categories, 2010



## Per Capita Income Impacts Food Consumption

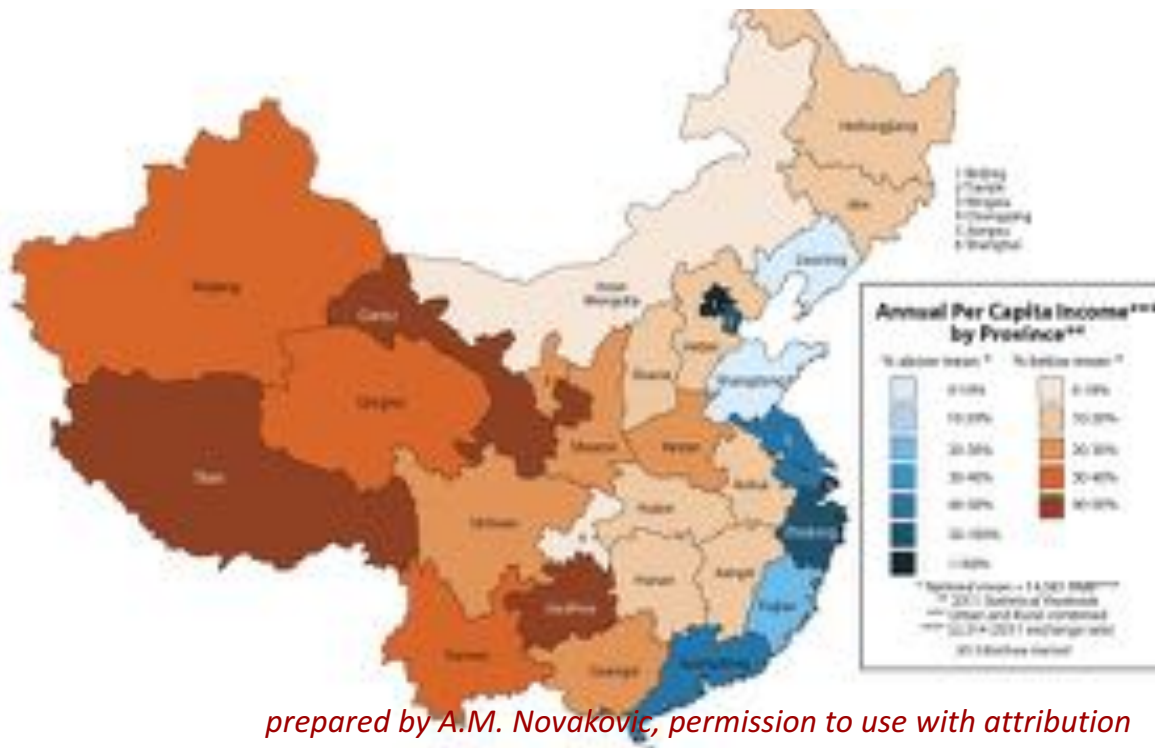
Gerbens-Leenes, P. W., et al. Food consumption patterns and economic growth. Increasing affluence and the use of natural resources. *Appetite* (2010)



**Fig. 2.** Relationship between annual per capita GDP (dollars) and nutritional energy supply (kilocalories per capita per day) based on data from 57 countries in 2001. The solid line shows the power-law regression (income elasticity 0.14,  $R^2 = 0.71$ ), the shaded zone is the 90% confidence band.

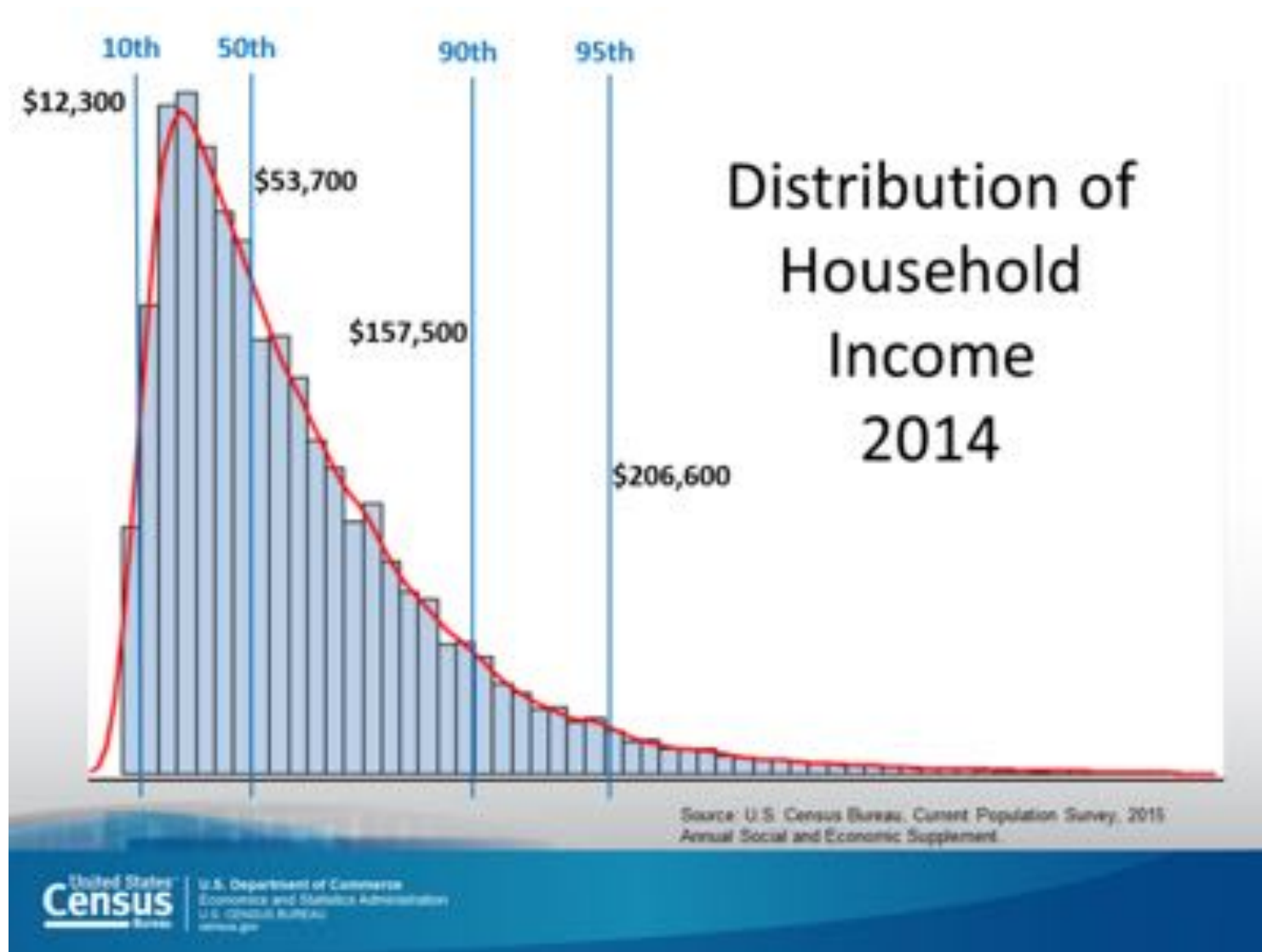


Economic Growth is a general indication of a country's ability to afford food but more detailed information is necessary to make inferences for dairy product demand. Household income is the key. Averages begin the story but the distribution of income is critical.



Country	Gini
South Africa	63.1
Haiti	59.2
Brazil	51.9
Mexico	48.3
China	47.3
Bulgaria	45.3
United States	45.0
Russia	42.0
Japan	37.6
New Zealand	36.2
European Union	30.6
Germany	27.0
Montenegro	24.3
Sweden	23.0

# The US is a rich country, but we have a lot of families who are poor or have low incomes



# The Role of Science in Shaping Food Choices



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# U.S. Food & Nutrition Policy



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# Children's Nutrition, Childhood Obesity, Subsidized Food Consumption, and Consumer Choice

First Lady, and First Mom, spearheaded the Obama Administration's effort to shape how kids eat by what schools had to serve them (to qualify for federal cafeteria subsidies). Kids were served healthier meals, but were they eating them?

**What you eat vs. how much you eat.**

Secretary Perdue relaxed several requirements, permitting lowfat chocolate milk and white bread. He argues feeding kids is the first priority, then what you feed them.



# Food Attitudes and Science (what should you eat)

The latest Scientific Report of the 2015 Dietary Guidelines Advisory Committee

Under-consumption : vitamin D, calcium, potassium and fiber.  
Dairy products are good sources of vitamin D, calcium and potassium, and can be paired with fiber.

Over-consumption: *Saturated* fat and sodium, but removed restrictions on fat consumption and dietary cholesterol.

Dairy is associated with lower risk of a number of chronic diseases and conditions, such as heart disease, diabetes and obesity

Attempting to link environmental sustainability with food choices (very Millennial)

*Perdue critics cite the 2009 Study, on which M. Obama's policy recommendation was based.*



# Food Policy Objectives Over Time

## Early 1900s

- ensure that people had enough (caloric intake)
  - Food security, undernourishment

## Mid 1900s

- Ensure that people get the right kind (caloric content)
  - malnourishment
  - RDA - Recommended Dietary Allowance (1940s +)
  - RDI - Reference Daily Intake (1960s) used in food labeling based on highest in RDA range

## Late 1900s

- Ensure that people don't get too much of the wrong stuff or even the good stuff (obesity and other health issues)
  - DRI - Dietary Reference Intake (1990s), replaced RDI

## Early 21<sup>st</sup> Century

- Eat what YOU need, what is good for YOU



# The Food Pyramid 1992

Developed at Tufts for  
USDA

Cater to the least  
controversial science

Dairy and meat  
thought it too  
restrictive

Many nutritionists, etc.  
thought it too timid

Hard enough to get it  
this far

Even the graphic was  
criticized

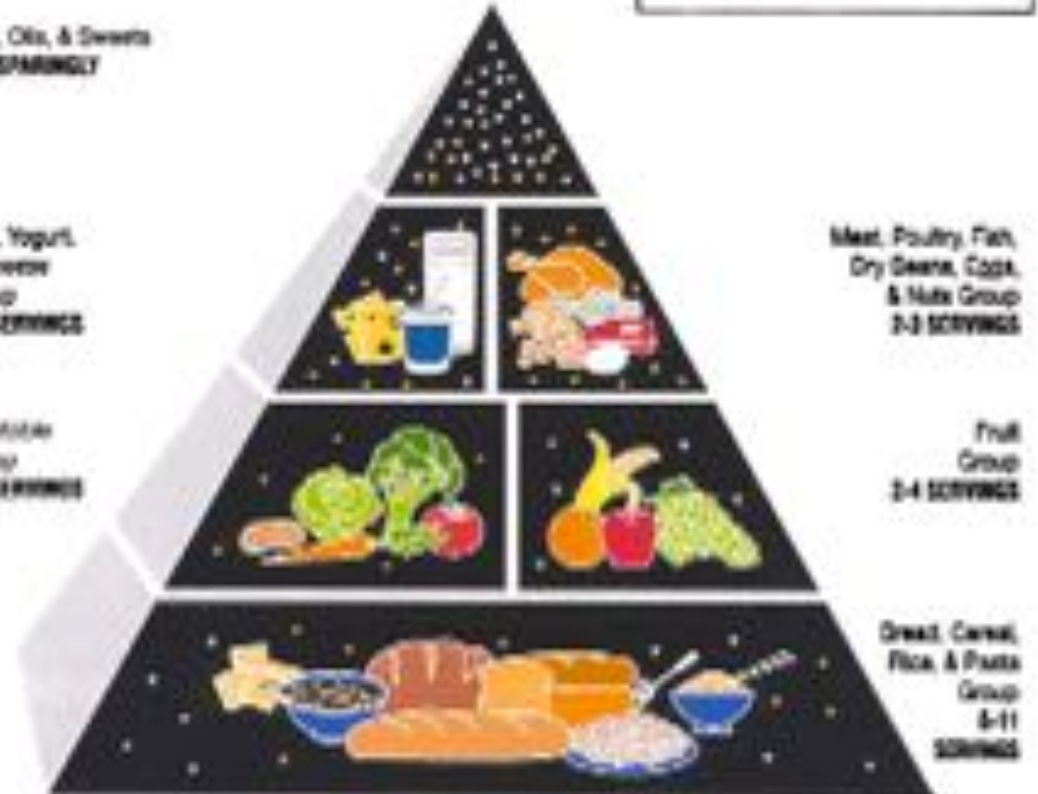
## The Food Guide Pyramid

A Guide to Daily Food Choices

Fats, Oils, & Sweets  
USE SPARINGLY

Milk, Yogurt,  
& Cheese  
Group  
2-3 SERVINGS

Vegetable  
Group  
3-5 SERVINGS

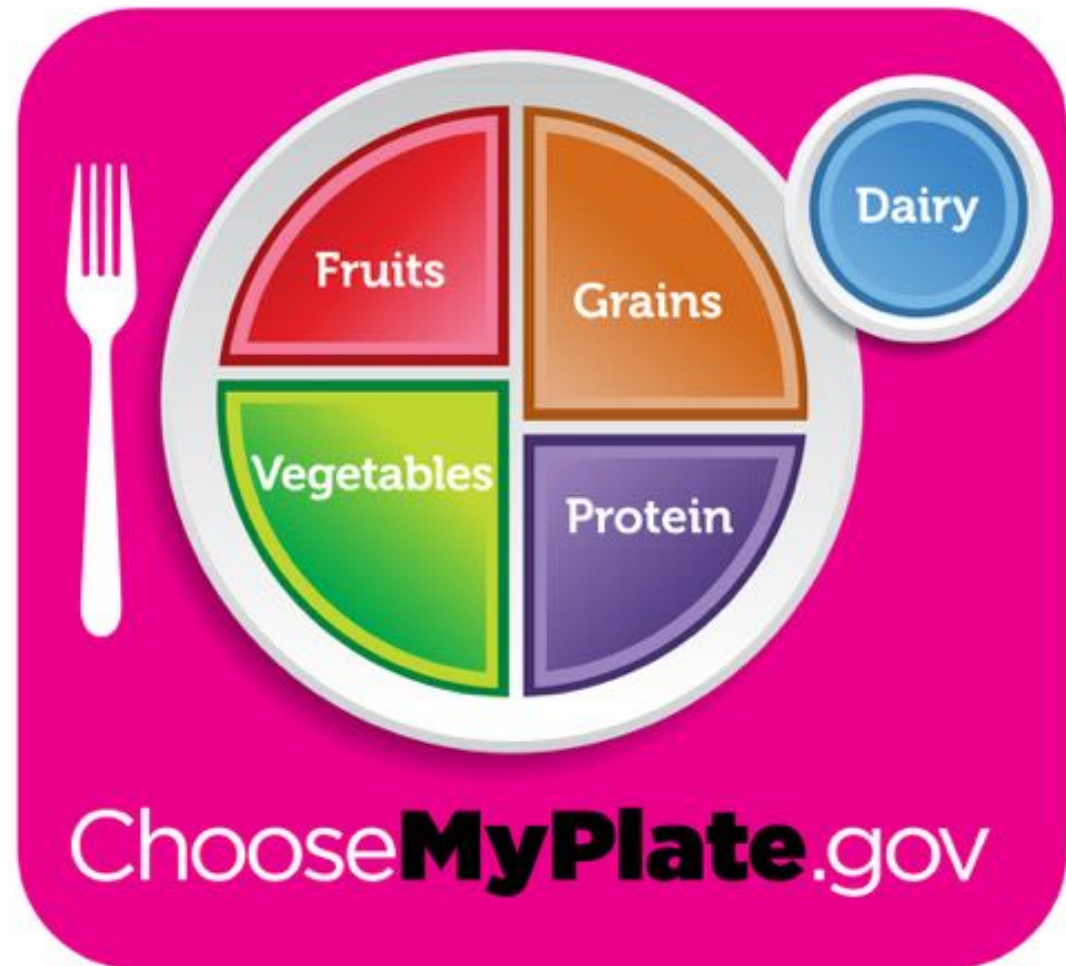


# 2016 – USDA's My Plate

“MyPlate is a reminder to find your healthy eating style and build it throughout your lifetime. Everything you eat and drink matters. The right mix can help you be healthier now and in the future.”

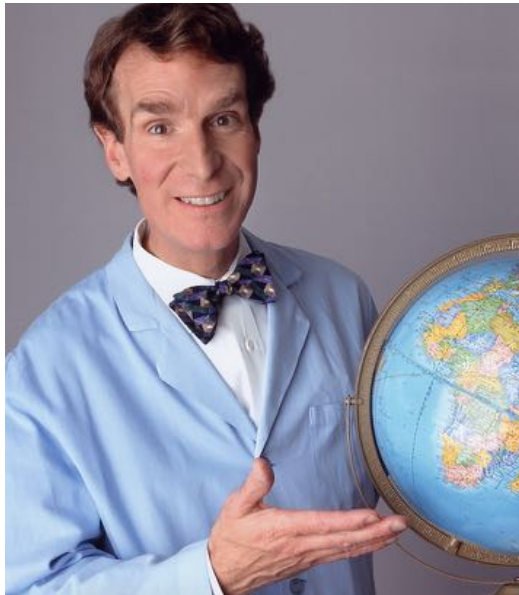
The central message is MY Plate, in other words, one size does not fit all.

This revision was motivated by the Scientific Report of the 2015 Dietary Guidelines Advisory Committee, but represents only a partial response to their rather sweeping rejection of the conventional wisdom that had developed regarding dietary fats and cholesterol, and the importance of dairy in the diet.



# Can I Figure It Out?

## Knowing vs. Understanding



How do we communicate our stories, our rationale, our arguments to the general public?

Are we transmitting science to a receiver tuned to values?

Does science prove a truth?  
Is there a truth?

Is it all just too complicated?  
(Type I vs. Type II thinking)  
=> “Therefore, everything in moderation!”



# Can Science Save Milk? The Case of “Super Milks”



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# Traditional Milk Marketing Plan

Premise: Milk is nature's (God's) most nearly perfect food – it's good for you and you know it.

Plan: consistently produce the highest quality product in an efficient manner (affordable), and the rest will take care of itself.

Outcome?: pretty good plan, until the premise falters.



# What Can We Do to Bring Back Milk?

Double down on the old premise:

Quality?

Re-establish the old premise:

Education?

Identify and work with the new premise:

Product Performance?

Convenience?

Life Style?

Excitement and/or indulgence?

Cost/Price?



# Disruptive Technologies and Creating Value

Henry Ford said, “if I had asked people what they wanted, they would have said faster horses.”

Steve Jobs said, "The customer never knows what they want until we show them”.

Marketing: Creating Value,  
Capturing Value,  
Sustaining Value

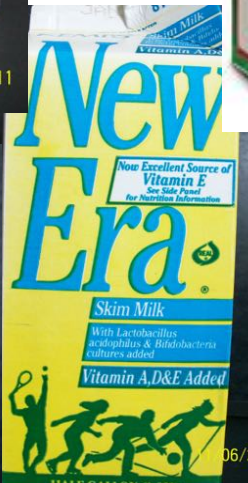
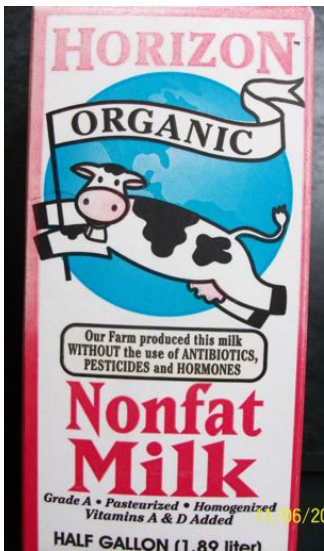
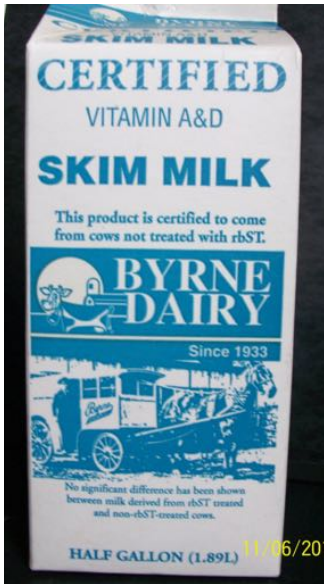


# What do you think?

Honey, get some milk when you go to the store,  
please!



# The Disruptive Technology has been what we define as “milk”



# What is Super Milk? (my term)

## “Believe in better”

### 2% REDUCED FAT *ultra-filtered milk*

fairlife® 2% reduced fat ultra-filtered milk has 50% more protein and 50% less sugar than typically found in milk while still being incredibly delicious and satisfying. Also available in 11.5 ounce single serve size.



### NUTRITION COMPARISON

Per Serving	Protein	Calcium	Sugar	Lactose
<b>fairlife® 2%</b>	<b>13g</b>	<b>370mg</b>	<b>6g</b>	<b>NO</b>
organic milk	8g	276mg	12g	YES
almond milk*	1g	451mg	15g	NO
soy milk*	7g	299mg	6g	NO

\*compared to the leading brand of almond and soy milk

### NUTRITION FACTS

Serving Size 1 cup (240ml)

Servings Per Container About 7

Amount Per Serving

Calories 120    Calories from Fat 40

% Daily Value\*

**Total Fat** 4.5g    7%

Saturated Fat 3g    15%

Trans Fat 0g

**Cholesterol** 20mg    7%

**Sodium** 120mg    5%

**Total Carbohydrate** 6g    2%

Dietary Fiber 0g    0%

Sugars 6g

**Protein** 13g    26%

Vitamin A 10%    Vitamin C 0%

Calcium 40%    Iron 0%

Vitamin D 25%

\*Percent Daily Values are based on a 2,000 calorie diet.

**Ingredients:** Reduced Fat Ultra-Filtered Milk, Lactase Enzyme, Vitamin A Palmitate, Vitamin D3

**Contains Milk.**



# What is your price point?

	Wegmans Food You Feel Good About 2% Reduced Fat Milk	1 gal.	<b>\$2.29*</b>
			
	<a href="#">Read all 5 reviews</a>		

Fairlife – \$4.91 per gal.

	Fairlife Milk, Ultra-Filtered, Fat Free	52 fl. oz.	<b>\$3.99</b>
			
	<a href="#">Read 1 review</a>		

	Wegmans Food You Feel Good About Milk, Organic, Fat Free	1 gal.	<b>\$5.99</b>
			
	<a href="#">Read all 3 reviews</a>		



# Super Milks Aren't New (Is this the time they break through?)



# Imitation is the Sincerest Form of Flattery



Like

## SIMPLY SMART FAT FREE MILK

INFO

NUTRITION

Using an innovative, natural technique called ultra-filtration, we remove some of the water that makes low-fat milk look and taste watery. The result is delicious milk, rich in nutrition and taste. Our Simply Smart® Fat Free Milk tastes like 2% milk, without the fat. It also provides 25% more protein and 20% more calcium than whole milk, is low in cholesterol and is an excellent source of vitamin D. All Hood Milk comes from farmers who pledge not to use artificial growth hormones.

Available Sizes: half gallon



# Is it Milk? Contains Milk vs. Is Milk.

Are you buying it because it's milk, or because it isn't?

## Smart Balance® Low Fat Milk and Omega-3s

- ▶ 1% milk
- ▶ Tastes rich and creamy like whole milk
- ▶ Excellent source of Omega-3s EPA/DHA  
(32mg per serving, 20% of the 160mg daily value)
- ▶ 30% more calcium than whole milk  
(380mg per serving versus 285mg per serving in whole milk)<sup>1</sup>
- ▶ 30% more protein than whole milk  
(12g per serving versus 8g per serving in whole milk)<sup>2</sup>
- ▶ Vitamins A & D added
- ▶ Good source of potassium



Nutrition Label

Cooking & Refrigeration



# Milk Beverages – Is Milk vs. Contains Milk (cf. almond)

HP Hood launched MilkWise in September 2015. Described as a “milk beverage” because it doesn’t fit the standard identity for fluid milk, the product claims to be “turning milk on its head”.

The blend of low-fat milk, sugar, water, and other ingredients is designed to optimise taste while delivering lower sugar, fewer calories and more calcium than traditional milk.

MilkWise is available in three varieties: original, vanilla and reduced sugar vanilla. An 8oz serving of the original and vanilla versions contains 70 calories, 2.5g of fat, 8 or 10g of sugar and 3 or 2g of protein, respectively. An 8oz serving of the reduced sugar vanilla version contains 40 calories, 1.5g of fat, 4g of sugar and 2g of protein.

Fortified with 25% of the daily value for vitamin D, it also contains 45% of the daily value for calcium, which comes from the milk and through fortification with calcium carbonate.



# The Role of Choice in Consumer Food Selection - Beliefs, Values, Information



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## Some emerging lessons

Household income remains a key constraint, but targeted opportunities exist for

- Indulgence
- Good for me
- Good for us

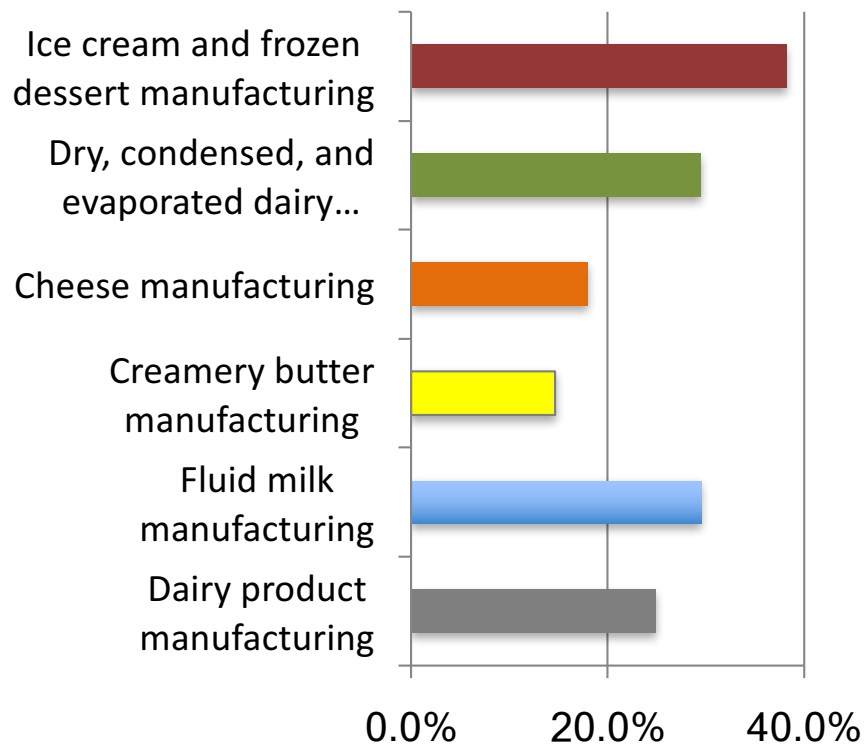
Food is more than nourishment or even a sensory experience. It is increasingly a story.

We are challenged to think about what the story is as well as how we tell it.

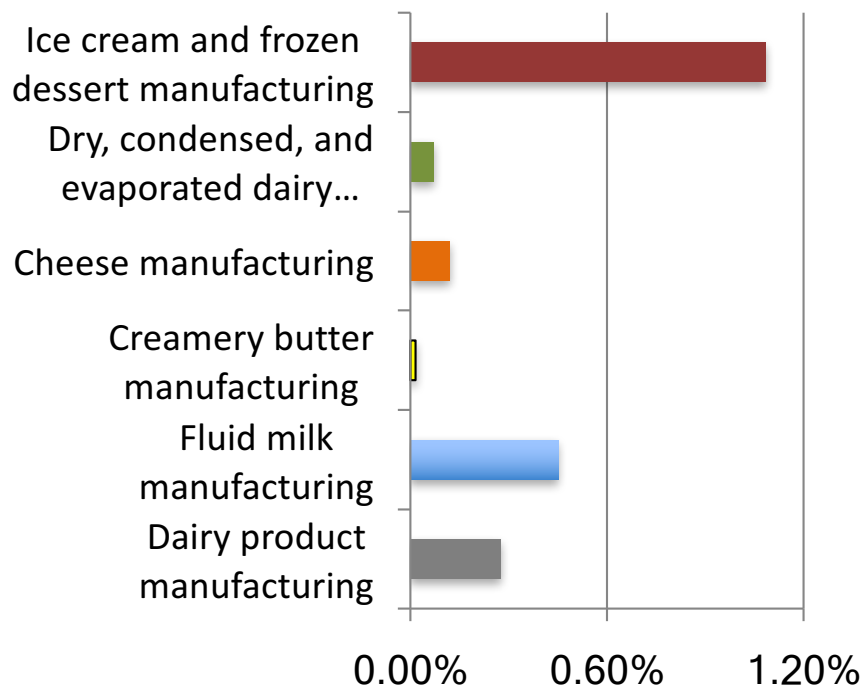


# Advertising is Tiny Dairy Sector but Correlates with Value Added and/or Consumer Products

**Value Added as a Percent of the Total Value of Shipment, by major dairy sector**



**Advertising and Promotion Expenses as a Percent of the Total Value of Shipment, by major dairy sector**

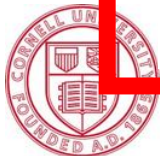




## Average Percentage of Volume Sold with Any Merchandising

Container size: gallons, half gallons  
 Region: US  
 Weekly Data from 9/16/2001 to 9/7/2003

	Container size: gallons Average percentage of volume sold with any merchandising %	Container size: half gallons Average percentage of volume sold with any merchandising %
CSDS	74.46	74.46
Bottled Water	33.90	33.90
Juices/Drinks	49.27	49.27
Milk	25.53	18.40
White Milk	25.36	17.42
Flavored Milk	36.57	33.19
Brand Milk	19.42	13.78
Private Label Milk	27.55	21.81
Whole Milk	20.56	15.88
Reduced Fat Milk	29.14	21.42
Low Fat Milk	27.68	18.60
Fat Free Milk	25.87	17.17



# It's not just about the Product. It's also about the Consumer.

## 1) Direct to Consumer

- Demographic – age, ethnicity, gender, household
- Economic – income, value of time
- Geographic – culture, cuisine
- Psychographic – active, indulgent, connoisseur
- Behavioral – local, natural, sustainable, brand loyal

## 2) Business (e.g., food service, food mfg.)

- Price
- See above: my customer's customer



# The Roles of Data, Information, Knowledge, and Beliefs in Shaping Food Consumption

## How Do I Know?

- Consumer choices are driven by a combination of
  - Personal values
  - Information that identifies and translates attributes that I can translate to my values
- Values are impacted by culture
- Information is impacted by
  - Knowledge
  - Interpretation of knowledge
  - Access to knowledge
- Dairy tends to focus on knowledge (dairy products are good for you) not values (dairy producers are good)



# Traditional Milk Marketing Plan

Premise: Milk is nature's (God's) most nearly perfect food – it's good for you and you know it.

Plan: consistently produce the highest quality product in an efficient manner (affordable), and the rest will take care of itself.

Outcome?: pretty good plan, until the premise falters.



# Emerging Populations. The Impact of Demographics and Culture

## Demographics

- The U.S. population is increasingly less white/European, younger.
- Middle income families are falling behind

## Cultural shifts

- See less European
- Let's talk a bit about Generations



# The Impact of Generations (beyond life stage)

Digitals/Homelanders: 2005-....; 12 and younger

Tomorrow's market drivers, shaping attitudes

Millennials: 1982-2004, or 13-35 years old

Today's young adults, becoming young parents, entering their "buying years"

Gen Xers: 1965-1981, or 36-52 years old

Today's parents with children at home, peak buying years

Boomers: 1946-1964, or 53-71 years old

Today's senior executives and leaders

Silents: 1925-45, or 72-92 years old. Today's elders

GI Generation: 1901-24. Today's legends



# Marketing to Boomers (~ 75 M)

Keep messages and media simple, build trust, focus on “me”, don’t talk about “getting older”

Bargain hunters. Discounts and deals appeal to them more than to Silents or younger generations (they have more patience or time to shop than younger)

They will search for product information online, calls and emails. However, they place higher faith in face-to-face communication. They can be very loyal (trust) but loyalty is built on company and service, as well as product, attributes.

Marketing challenge: convince me

Purchase question: Can I afford it?



# Millennials (~ 80 M)

Key attributes: cf. GI, empowered, builders, community, selfless, unreflective

Millennials are young but driving marketing strategies.

Technology savvy, but familiarity is not the same as expertise. It is imperative to place ads in the right places. If great information is there and the target audience doesn't see it, it won't have an impact. Think Pandora, think YouTube, think social media.

Millennials don't want to be shouted at by advertisements. They want to engage and they want to laugh. Try an online video campaign hosted through YouTube or challenge them to get involved in a campaign. Don't lecture them, engage them.

Rely on information from digital sources which lack filters for accuracy but are perceived as authentic. Makes them more unpredictable, not always brand loyal.



## It's not just about Twitter, Facebook, Instagram, or Vimeo. It's about who's doing the talking. (e.g., Corrina)

The most relied upon and trusted source of information for Millennials is “Friends and Family”. Millennials use the internet to get information but they are getting it from Facebook and YouTube, not the New York Times, the American Medical Association, or USDA. (note: accuracy is obviously not as important as being “genuine”)



# Millennials (~ 80 M)

More educated and have more choices than any other generation before them. Dual Focus related to food

- Healthfully (for me)
- Sustainably (for us)

Millennials will easily see through inauthentic, self-serving marketing tactics.

Team up with a cause. Stress social responsibility. They want to like the company, not just the product.

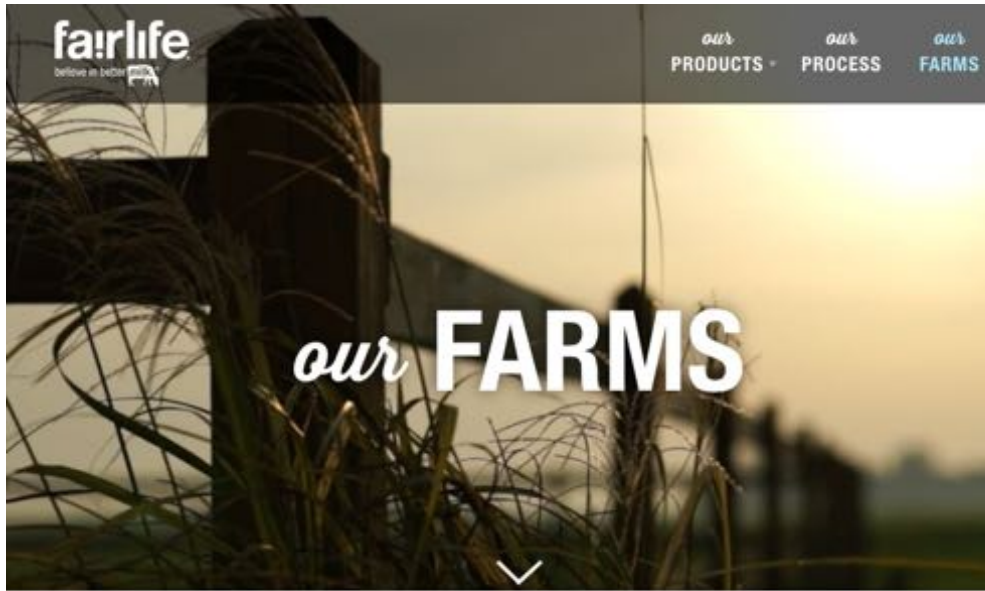
The seek experiences not things.

In early stage of life cycle earnings, incomes push in the direction of Fast Casual restaurants and Convenience Stores. More susceptible to impulse buying - POP and purchase at checkout point.

Marketing question: What else you got? Who are you?

Purchase question: I deserve it!





[OVERVIEW](#) [OUR FARMERS](#) [TRACEABILITY](#) [ANIMAL CARE](#) [SUSTAINABILITY](#)



**It's not about the product. It's about who makes the product.**



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# Dairy business challenges

## Bound to tradition

- Milk is good for you
  - Science is persuasive
- Milk is a good deal
  - Engineered to be efficient

## Struggling with change

- Is milk Good? Am I Good?
- Value not price
- Authenticity not authority
- Variety not consistency



# Dairy Foods: What do we eat and why, including the role of science in shaping consumer choice. The Case of Beverage Milks

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November 2017

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