

Agriculture/Rural Economy

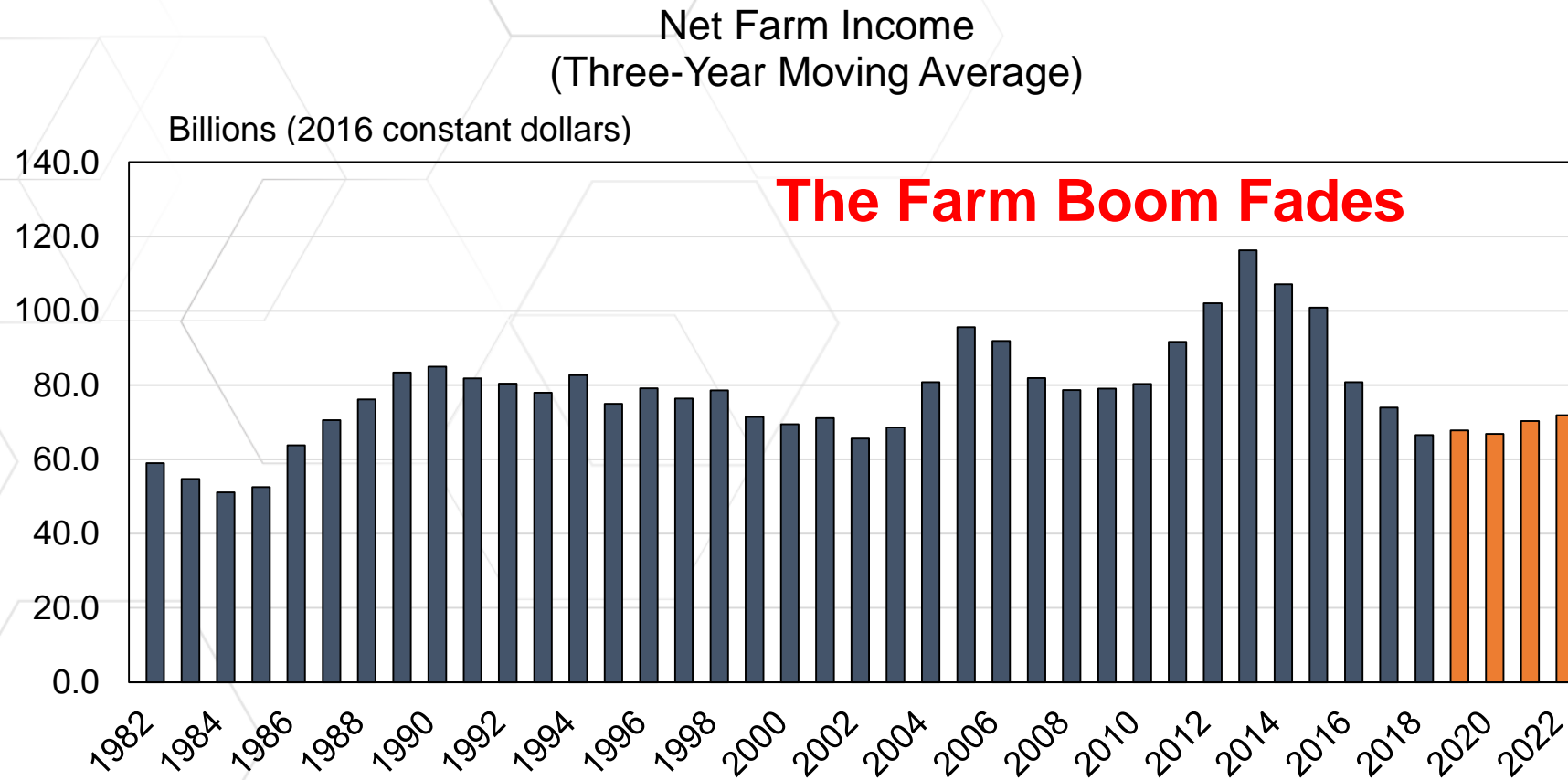
Dr. Jason Henderson

Senior Associate Dean and Director of Extension

Purdue University

July 10, 2019

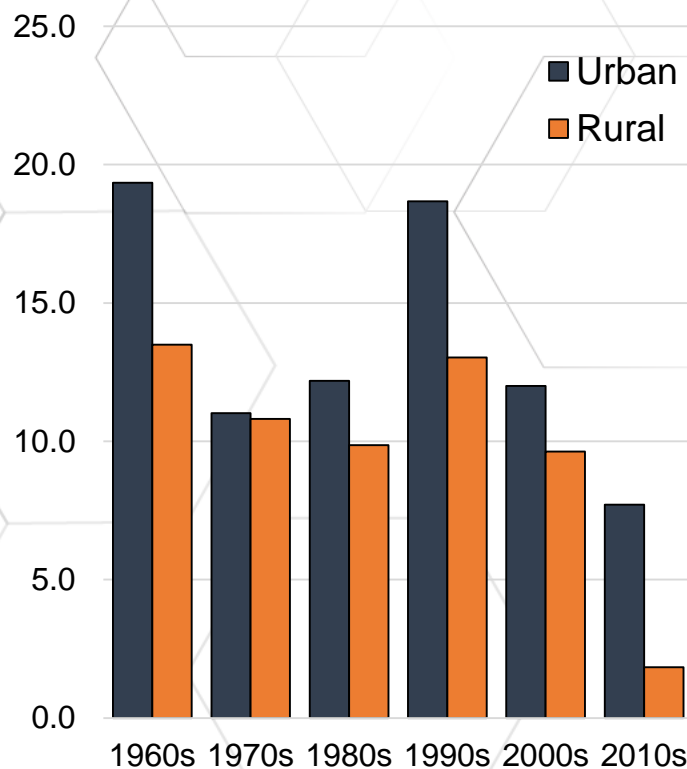
The Past Decade was a Mixed Bag for Ag and Rural Economies



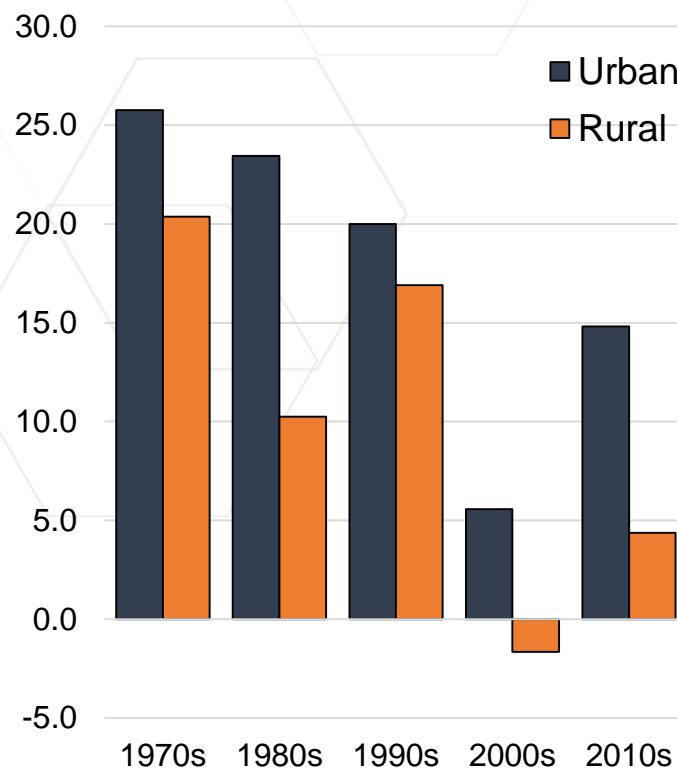
Calculations based on USDA data deflated with Consumer Price Index

Rural Communities Struggle with Population, Employment, and Income Growth

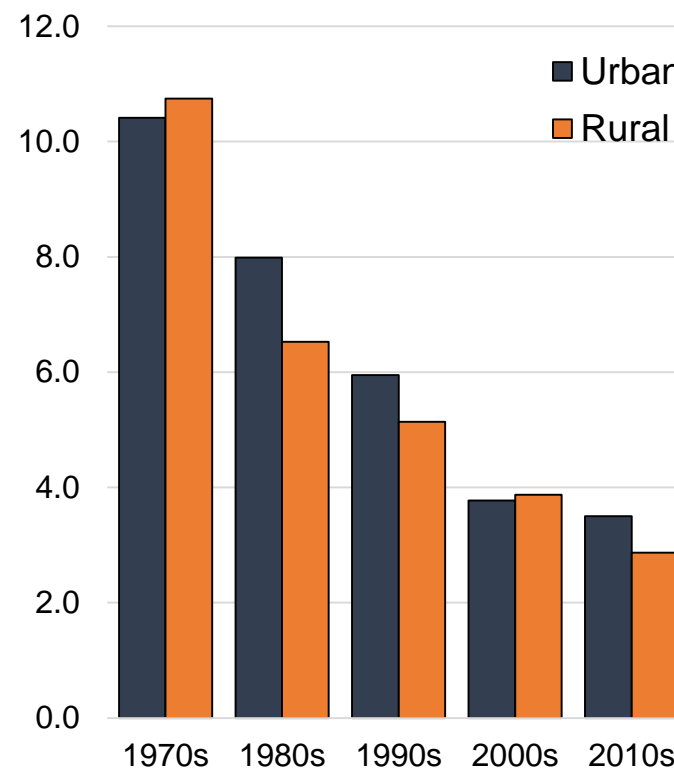
US Population Growth
(Percent Change)



US Employment Growth
(Percent Change)



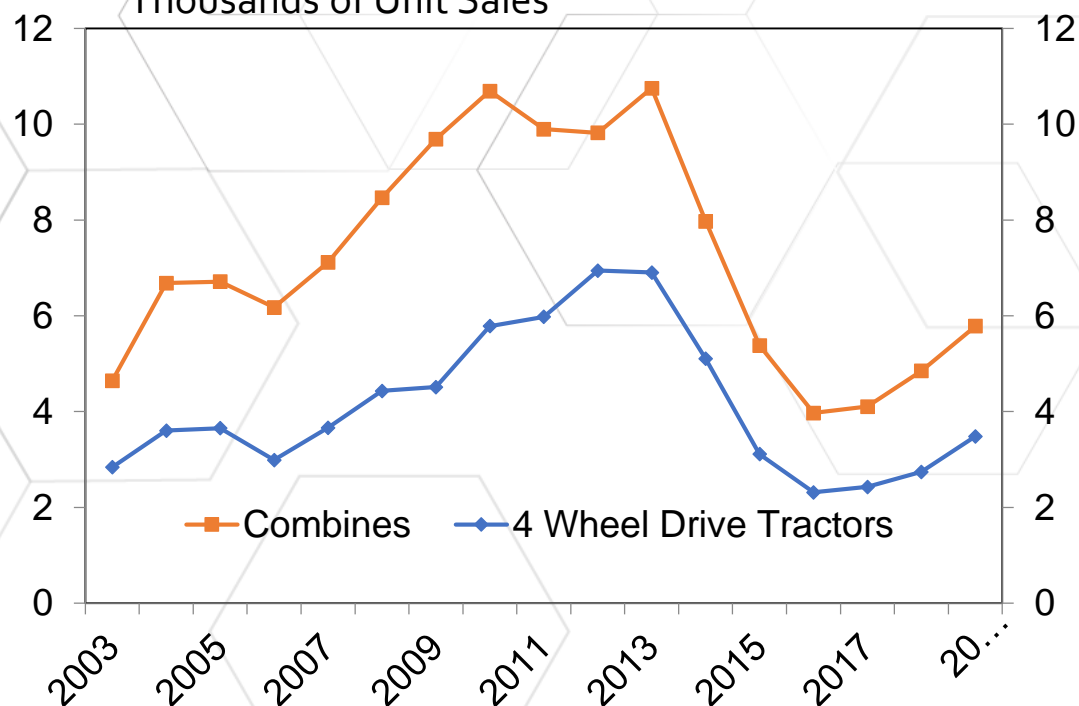
US Income Growth
(Annual Percent Change)



Farmers are pessimistic. But, how bad is it if they buy steel and land?

U.S. Tractor and Combine Sales

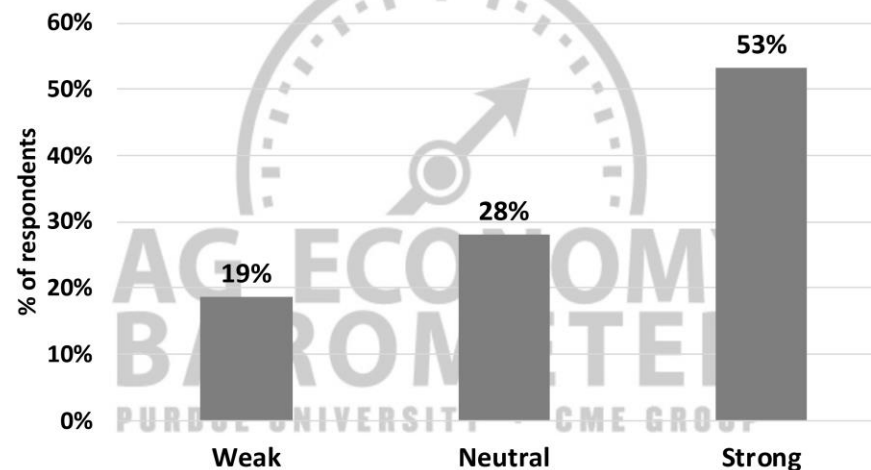
Thousands of Unit Sales



Source: Association of Equipment Manufacturers
2019 projection based on data through April 2019

Demand for Farmland, May 2019

On a scale of 1 to 9, where 1 is very weak and 9 is very strong, how would you describe demand for farmland in your area?



Source: Purdue Center for Commercial Agriculture, Producer Survey, May 2019

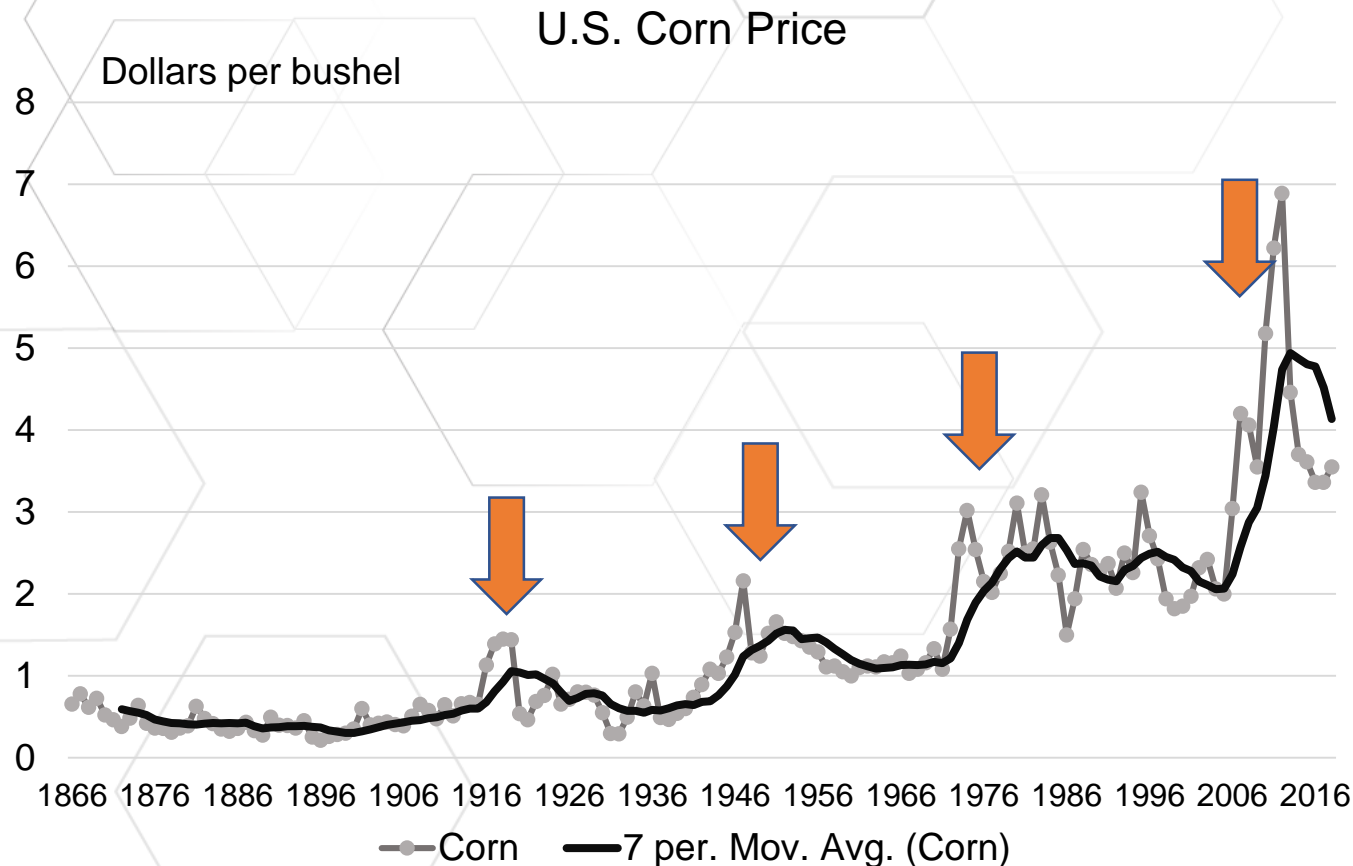
Source: Ag Economy Barometer, Purdue Center for Commercial Agriculture and CME,
<https://ag.purdue.edu/commercialag/ageconomybarometer/>
purdue.edu/extension

The Big Picture of Agriculture

- Ag Booms ...
- Then Ag Plateau's.
- What's the New Plateau?



Every Cycle Leads to a New Plateau

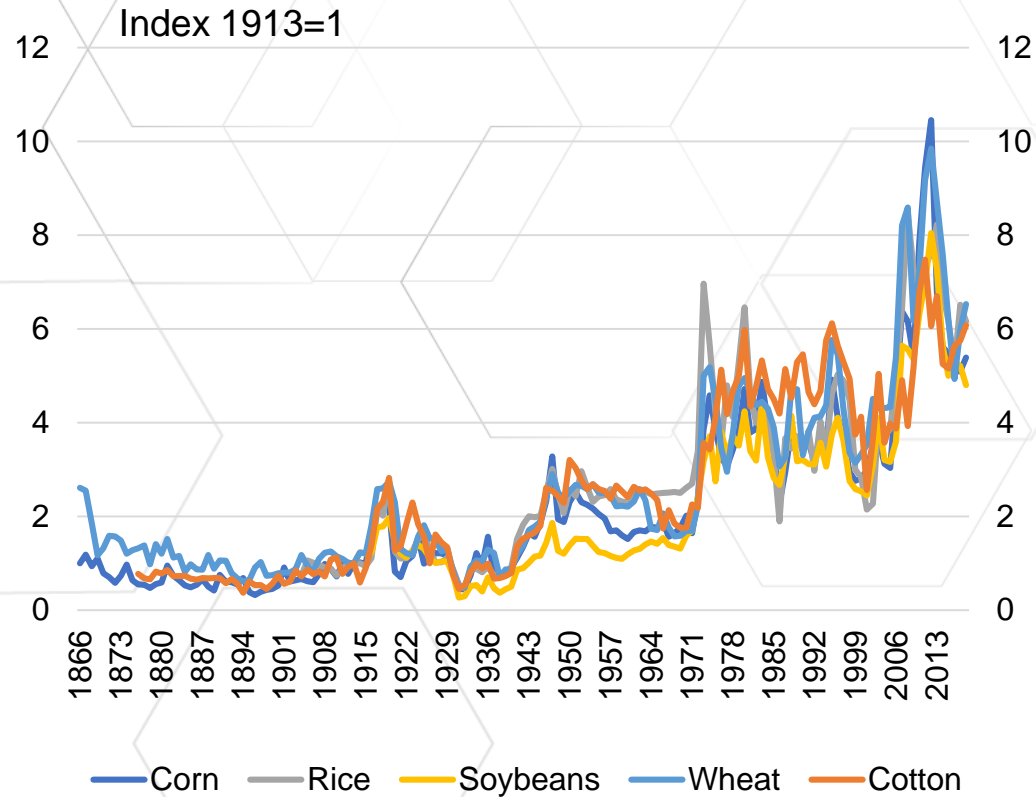


Corn Price – Dollars per Bushel

Pre-WWI:	\$0.46
WWI to WWII:	\$0.75
WWII to 1972:	\$1.25
1972 to mid-2000s:	\$2.36
Mid-2000s to Today:	\$4.24

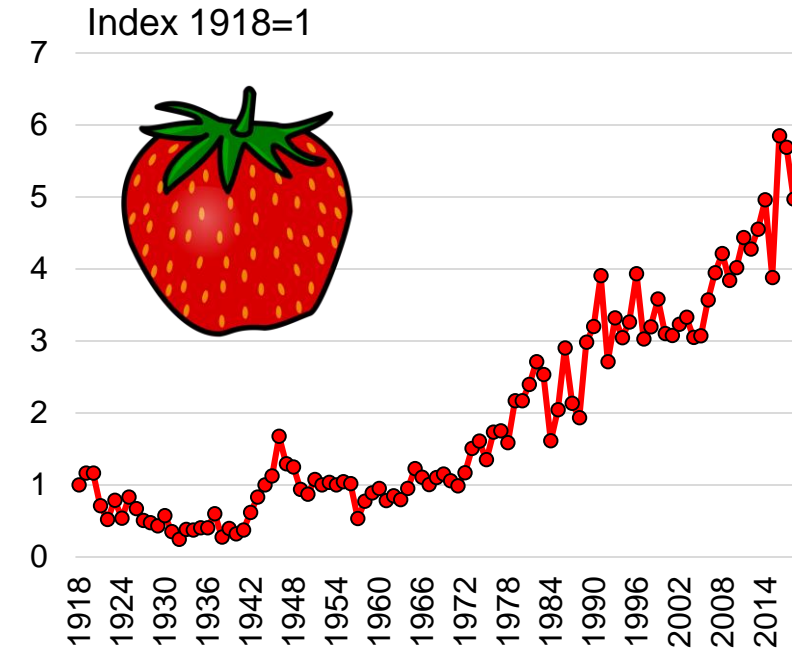
It Happens in All Big 5 Commodity Crops

U.S. Crop Prices

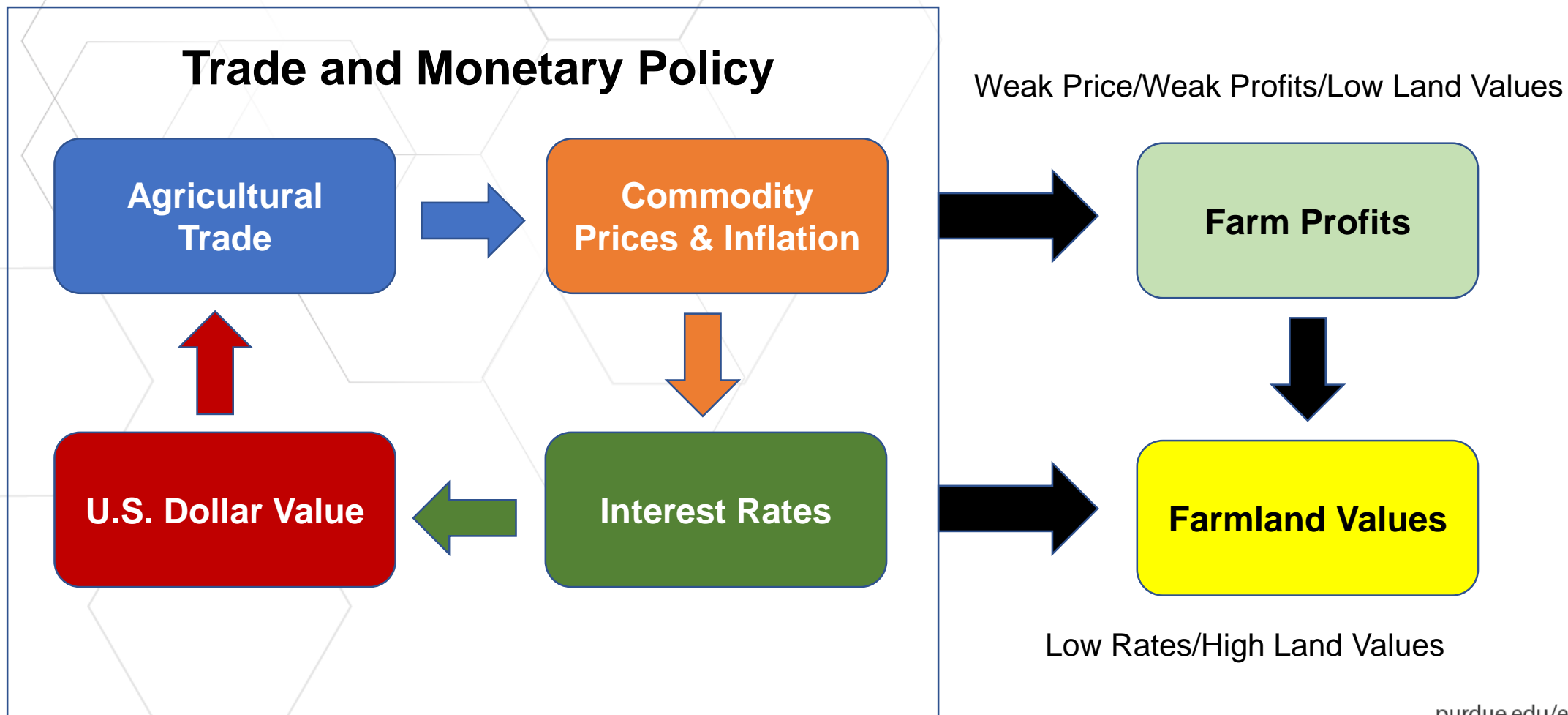


Even Specialty Crops

Strawberries

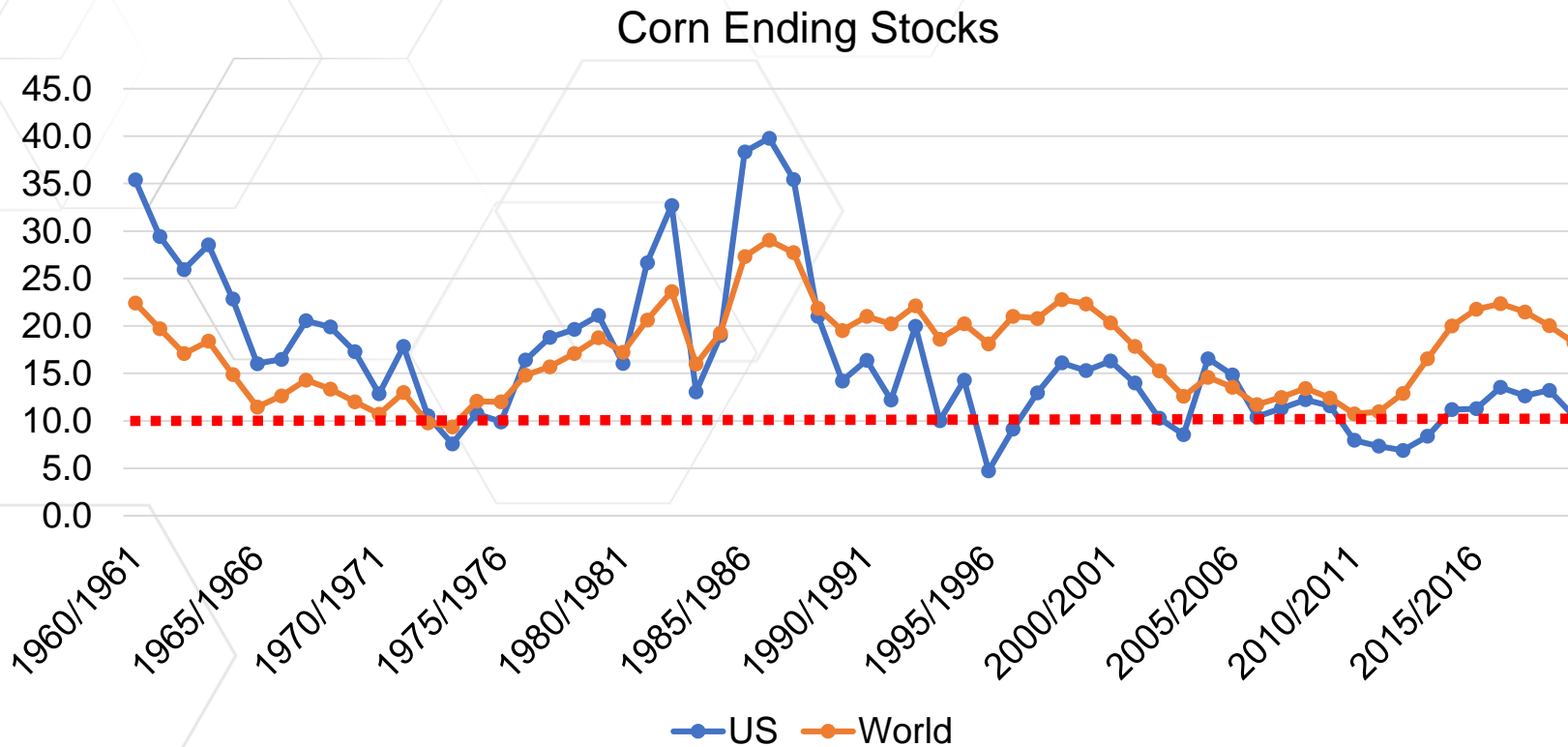


Trade and Monetary Policy Drive Cycles and Plateaus



In the 1980s, surpluses were the challenge.

Is 10% Still the Magic Number?

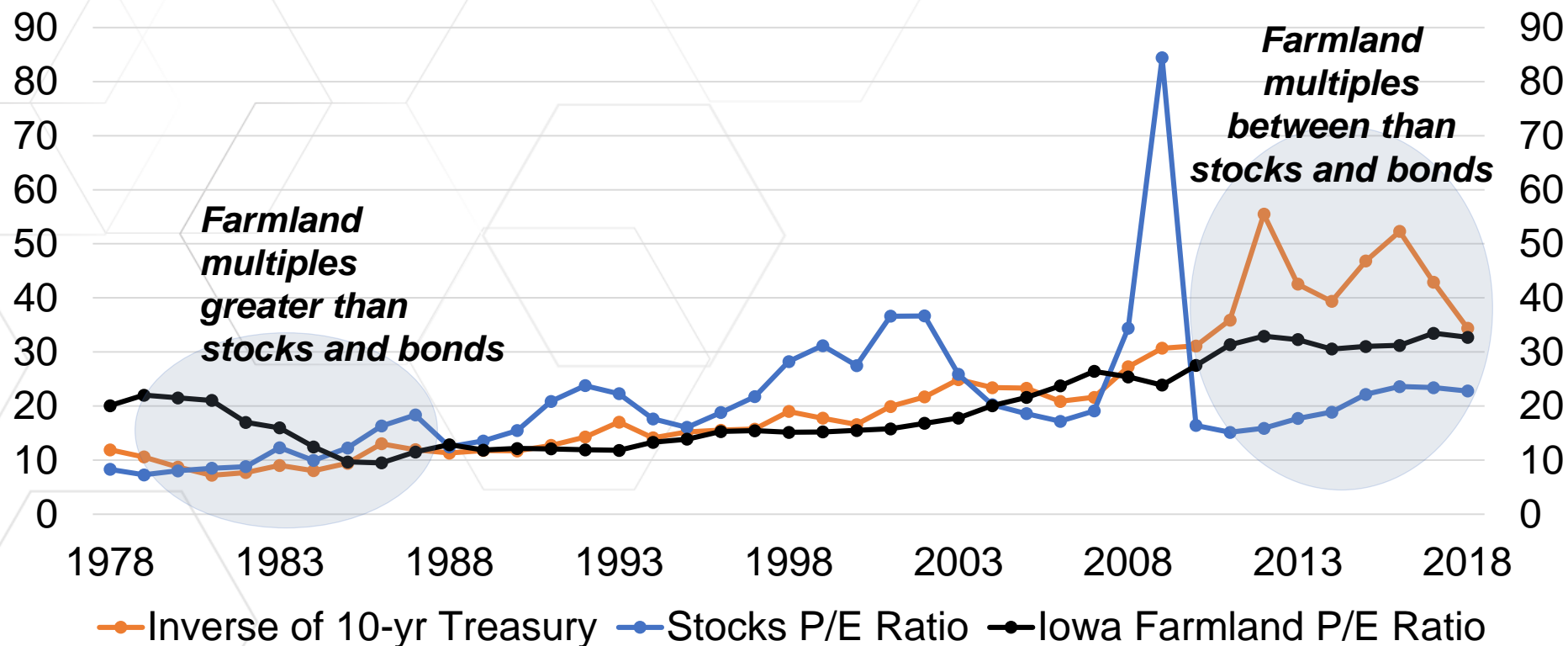


Source: USDA



Is this a 1980s Scenario?

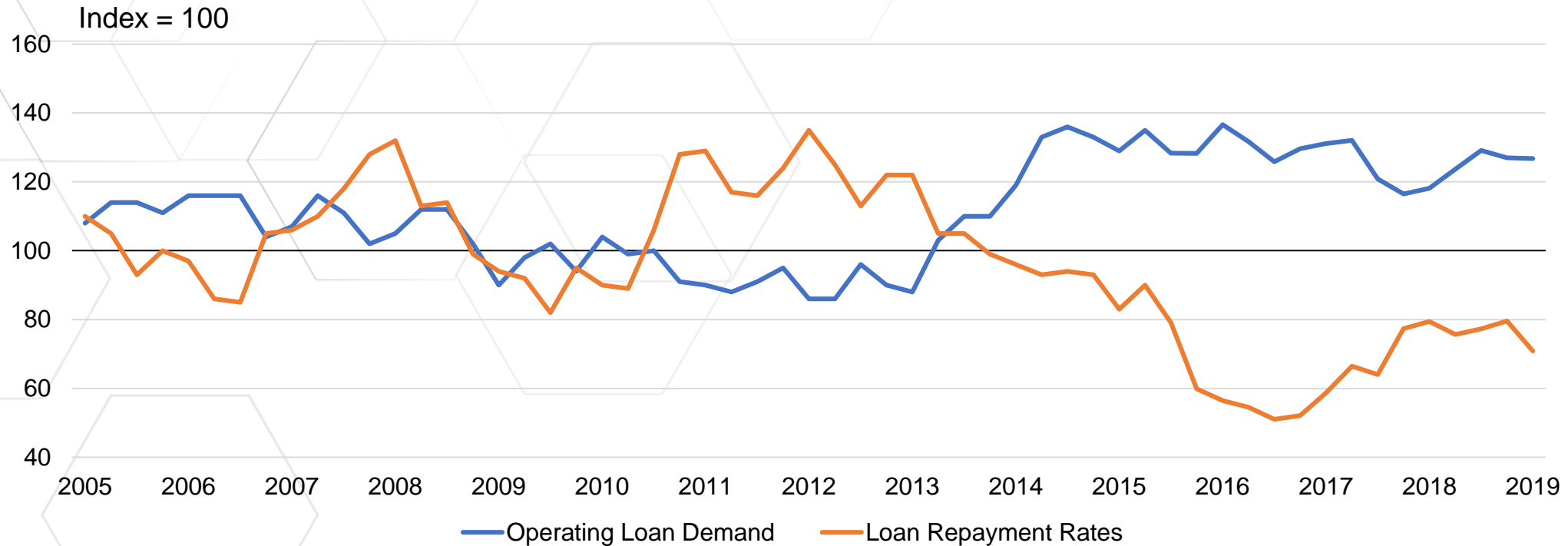
Earnings Multiples on 10-Year Treasury, Iowa Farmland, and U.S. Stocks



Calculations based on data from CARD, Iowa State University and FRED, Federal Reserve Bank of St. Louis.

What are Bankers Seeing? Liquidity Disappears

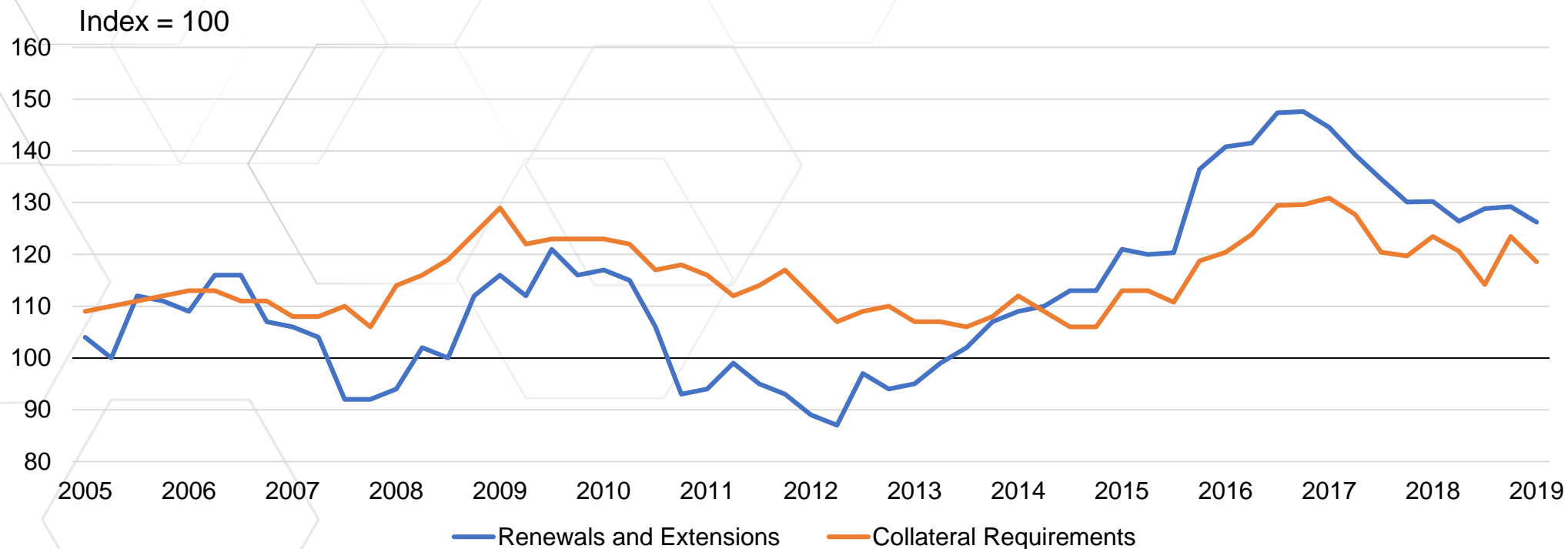
Loan Demand and Repayment Rates
(Tenth Federal Reserve District)



Source: Federal Reserve Bank of Kansas City

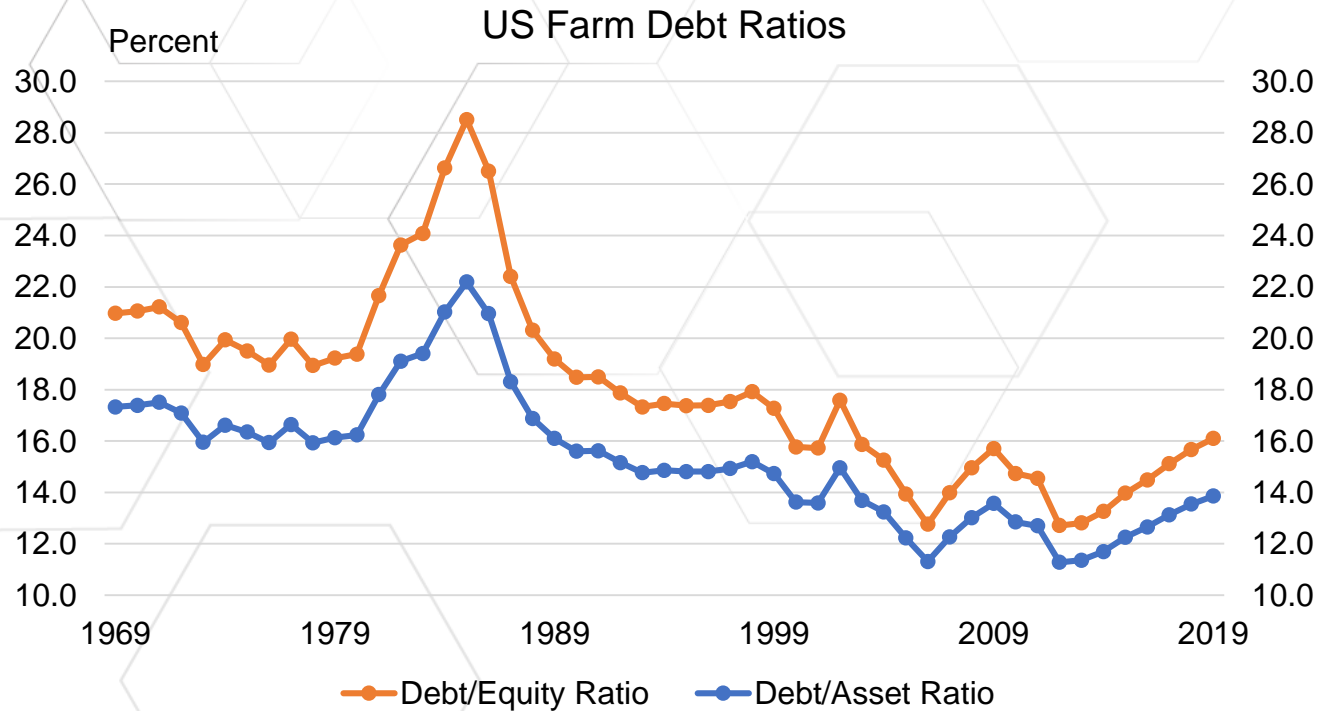
How Are Bankers Responding? Rolling Loans with Higher Collateral Requirements

Collateral Requirement and Renewals and Extensions
(Tenth Federal Reserve District)



Source: Federal Reserve Bank of Kansas City

It will take large shifts to get to the 1980s.



Source: USDA, Economic Research Service

What would it take
to reach 1980 levels?
(Debt/Asset Ratio > 18)
(Debt/Equity Ratio > 22)

Farmland Values Drop 30%

Or

Farm Debt Rises 30%

Time is Ripe for Agriculture and Rural Communities to Blaze a New Trail ...

Based on a Traditional Concept — Productivity Growth.



Tomorrow's economic battle is over productivity.

US Potential GDP
(Average Annual Growth)

	1950 - 1973	1974- 1981	1982- 1990	1991- 2001	2002- 2007	2008- 2017	2018- 2022	2023- 2027
Potential GDP	4.0	3.3	3.2	3.2	2.8	1.4	2.0	1.8
Potential Labor Force	1.6	2.5	1.6	1.3	0.9	0.5	0.6	0.4
Potential Labor Force Productivity	2.4	0.8	1.6	1.9	1.9	0.9	1.4	1.4

Source: Congressional Budget Office, "The Budget and Economic Outlook 2018-2028" April 2018
<https://www.cbo.gov/system/files?file=115th-congress-2017-2018/reports/53651-outlook.pdf>

- Economic Potential Shrinks from 3% to 2%
- Need Higher Productivity to Offset Slower Labor Force Growth

Agriculture has two ways to increase productivity.

$$\begin{array}{ccccc} \text{Productivity} & & \text{Efficiency} & & \text{Value-added} \\ \text{(Dollars per input)} & = & \text{(Output per input)} & \times & \text{(Dollar per Output)} \end{array}$$

Efficiency: Producing the same products with less inputs

Value-added: Producing higher valued products

Supply-oriented vs Demand-oriented



Demand-Oriented Agriculture

Who is a “Foodie”?

- International Food Information Council Foundation survey
- In 2017, 1 out of 7 people were identified as a “Foodie”

Demographic Characteristics

- Older
- Female
- Wealthy

3 Attributes of Healthy Food

- No artificial ingredients or additives
 - High in healthy components
 - Minimally processed

60% can name a food or nutrient associated with their most desired health benefit.



Value-Added: Why Now? Millennials: What do they eat?

U.S. Generations

How are the Different Generation Perceived?

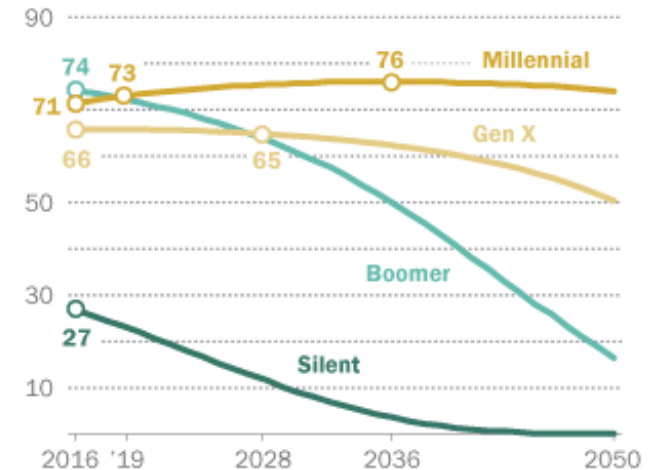
What Shaped their Formative Years?

<https://www.purdue.edu/vpsl/resources/GenZ.html>

Birth Year	Generation	Age Today
1928 – 1945	Silent Generation	73 to 90 years old
1946 – 1964	Baby Boomers	54 to 72 year old
1965 – 1980	Generation X	38 to 53 years old
1981 – 1995	Millennials	23 to 37 years old
1996 -	Generation Z	22 and younger
Source: Pew Research Center		

Projected population by generation

In millions



Note: Millennials refer to the population ages 20 to 35 as of 2016.

Source: Pew Research Center tabulations of U.S. Census Bureau population projections released December 2014 and 2016 population estimates.

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How are Millennials Changing U.S. Food Consumption Patterns?

1. Truth from Food Manufacturers
2. Love customization
3. Want easy
4. Redefining “Healthy”
5. Better baby food
6. Value the planet
7. Love to snack
8. Love the keto diet
9. Will try anything

Transparency

Individual foods

Convenience vs Taste

Organic or Locally-Grown

Gourmet baby food

Sustainable

Small, resealable packaging

Animal protein is healthy

Curious about different foods

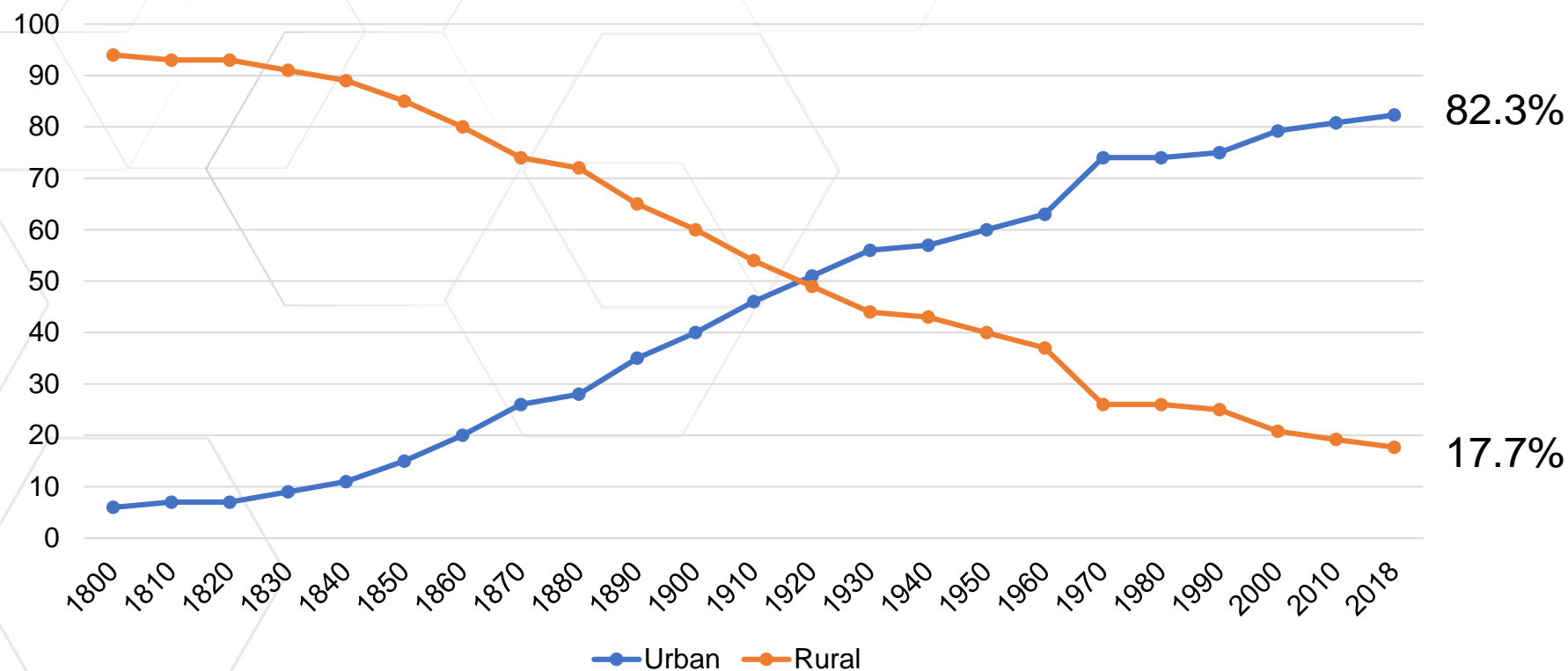
Friends and family influence food choices

Sources: International Food Information Council and
Cara Rosenbloom, “9 ways millennials are changing the way we eat.” Washington Post, Feb. 2018.



US consumers live in urban areas.

U.S. Urban and Rural Population
(Percent of U.S. Population)



Source: US Census Bureau

Who Receives the Value of Agriculture?

2017 Food dollar: Industry Group (nominal)



92% of the Food Dollar Reaches
Beyond the Farm Gate

Rural communities need to think regionally.

Agricultural Demand

Urban consumers want to know more about their food.

Consumers want individualized products.

Tight labor markets will lead to wage increases.

Agricultural Supply

Flat farm incomes trigger the search for value-added activity.

Shrinking rural populations mean more urban labor for agriculture.

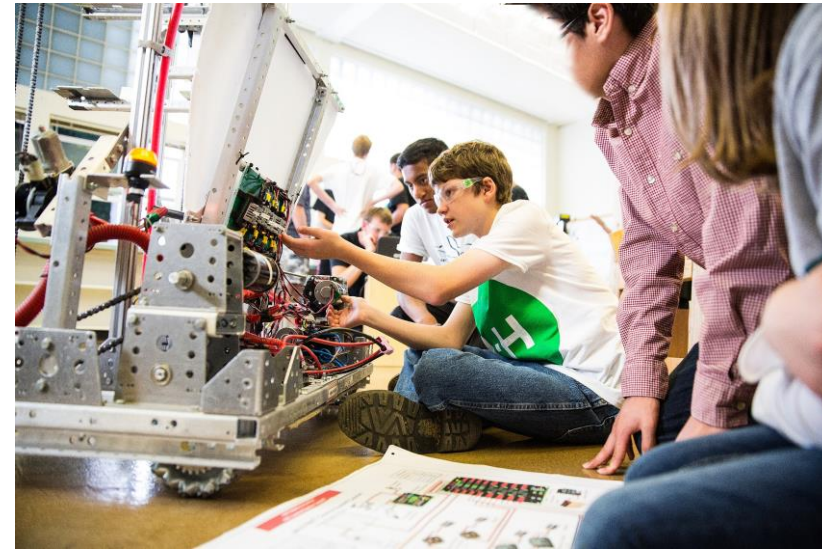
Increased interdependence of rural and urban communities.



Workforce and Career Development Technical, Professional, and Life Skills



- Urban farm
- Commercial kitchen
- Create space for youth and adults



Two Agricultures are Emerging, Does your region have the ecosystem prepared?

Commodity Agriculture

- Tight margins: low cost
- Consolidation and large scale

Value-Added Agriculture

- High margins: higher cost
- Small, medium scale

Supply or Demand Oriented?

Marketing: Commodity Prices or Business Marketing?

Risk Management: Price and Production Risk or Business Relationship/Contract Risk?

Lending: Credit Scoring or Relationship-based Lending?

Infrastructure: Transportation and/or Communications (Broadband)?

