



Tariffs and the Philadelphia Housing Market

Kevin C. Gillen Ph.D., June 2025

OVERVIEW

Presentation Structure

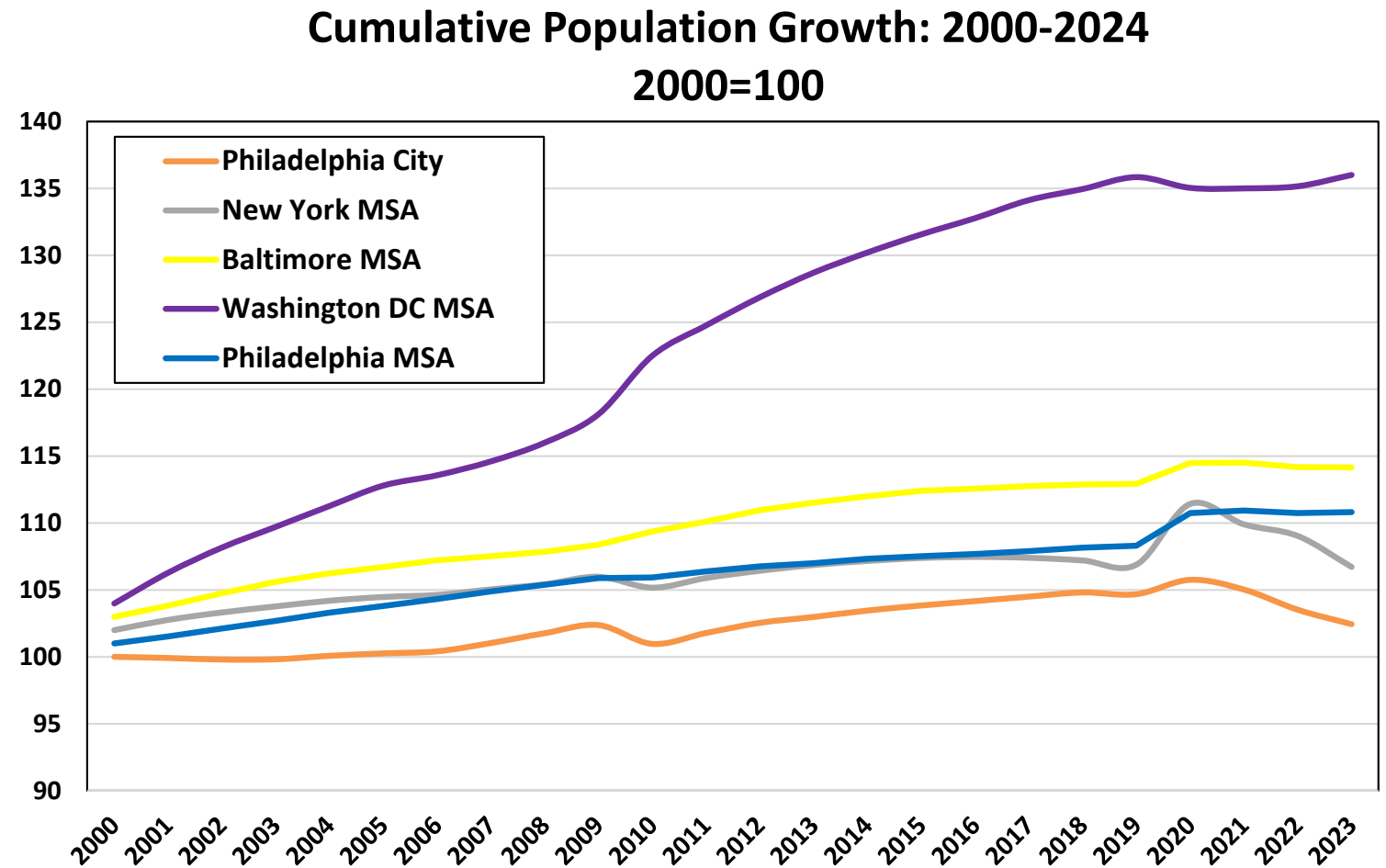
- Market Overview
 - Macro Drivers
 - Micro (Market-specific) Outcomes
- Tariff Overview
- Mathematically Modeling Tariffs
- Forecast of Results
- Summary and Takeaways

COVID HAS LEVELLED OFF URBAN POPULATION GROWTH

Cumulative Population Growth: 2000-2024

Source: US Census

- Unlike the previous (Great) recession, the COVID recession has had a longer-lasting impact on urban population growth.

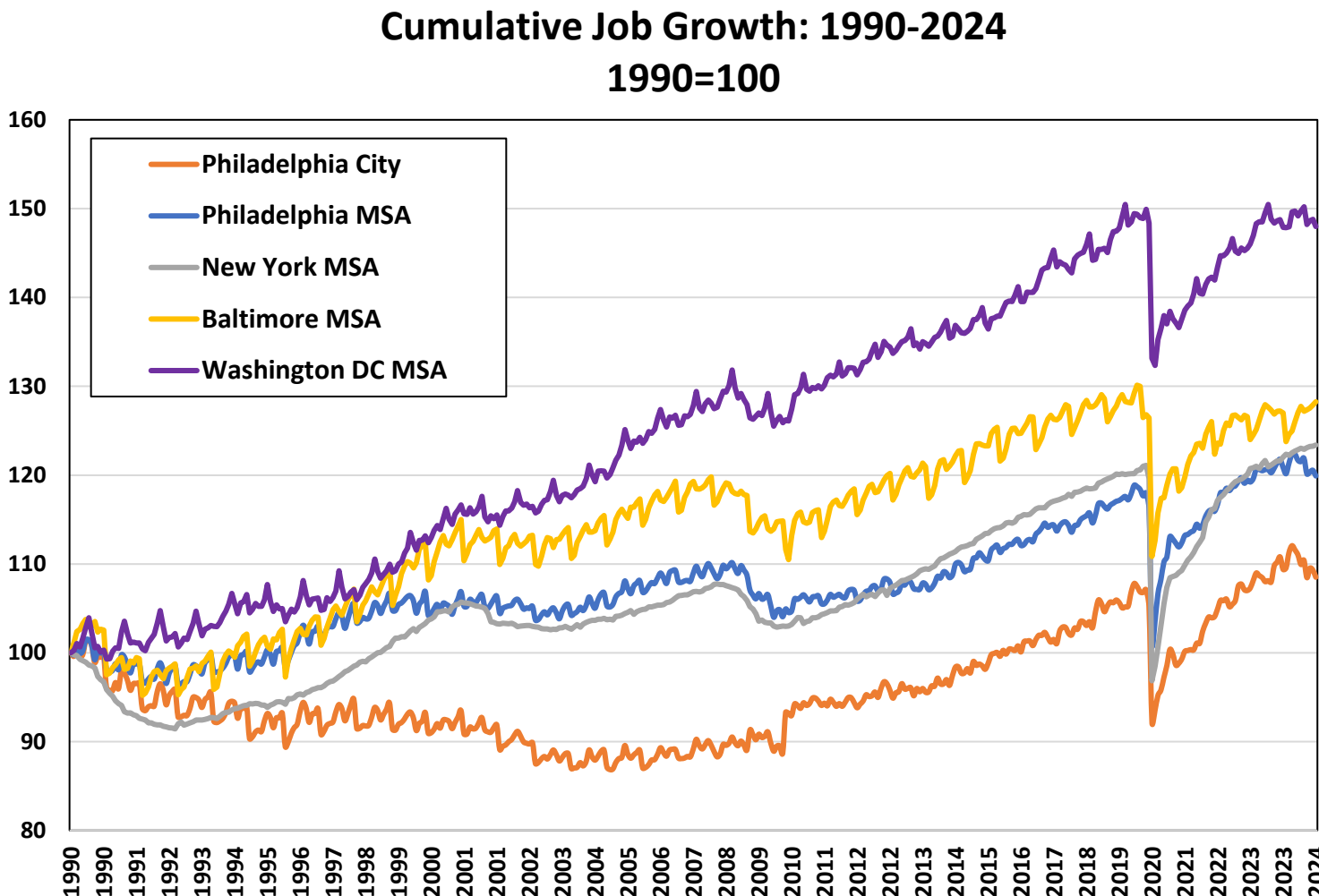


JOB GROWTH HAS BEEN RECOVERING FROM COVID

Cumulative Job Growth: 1990-2024

Source: US BLS

- Philadelphia has resumed its pre-COVID path of job growth.



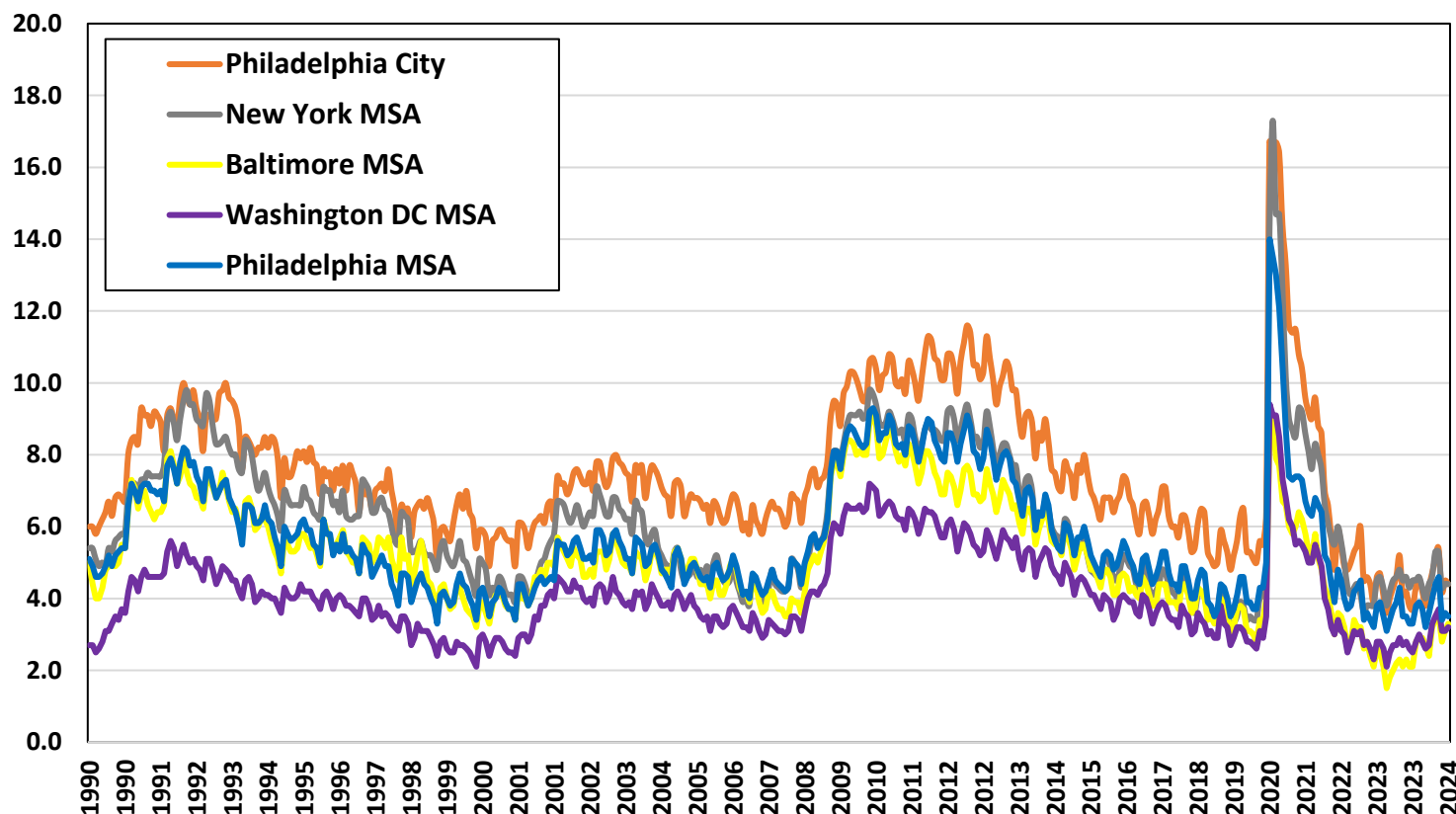
CURRENT EMPLOYMENT REMAINS STRONG

Unemployment Rate: 1990-2024

Source: Public Records, Bright MLS

- Unemployment remains near record lows.
- Underemployment or chosen unemployment are reasons.
- But, is not providing any reason for the Fed to lower rates.

Unemployment Rate: 1990-2024



INTEREST RATES REMAIN ABOVE THEIR COVID-LEVEL LOWS

30-Year FRM: 2015-2025

Source: Freddie Mac



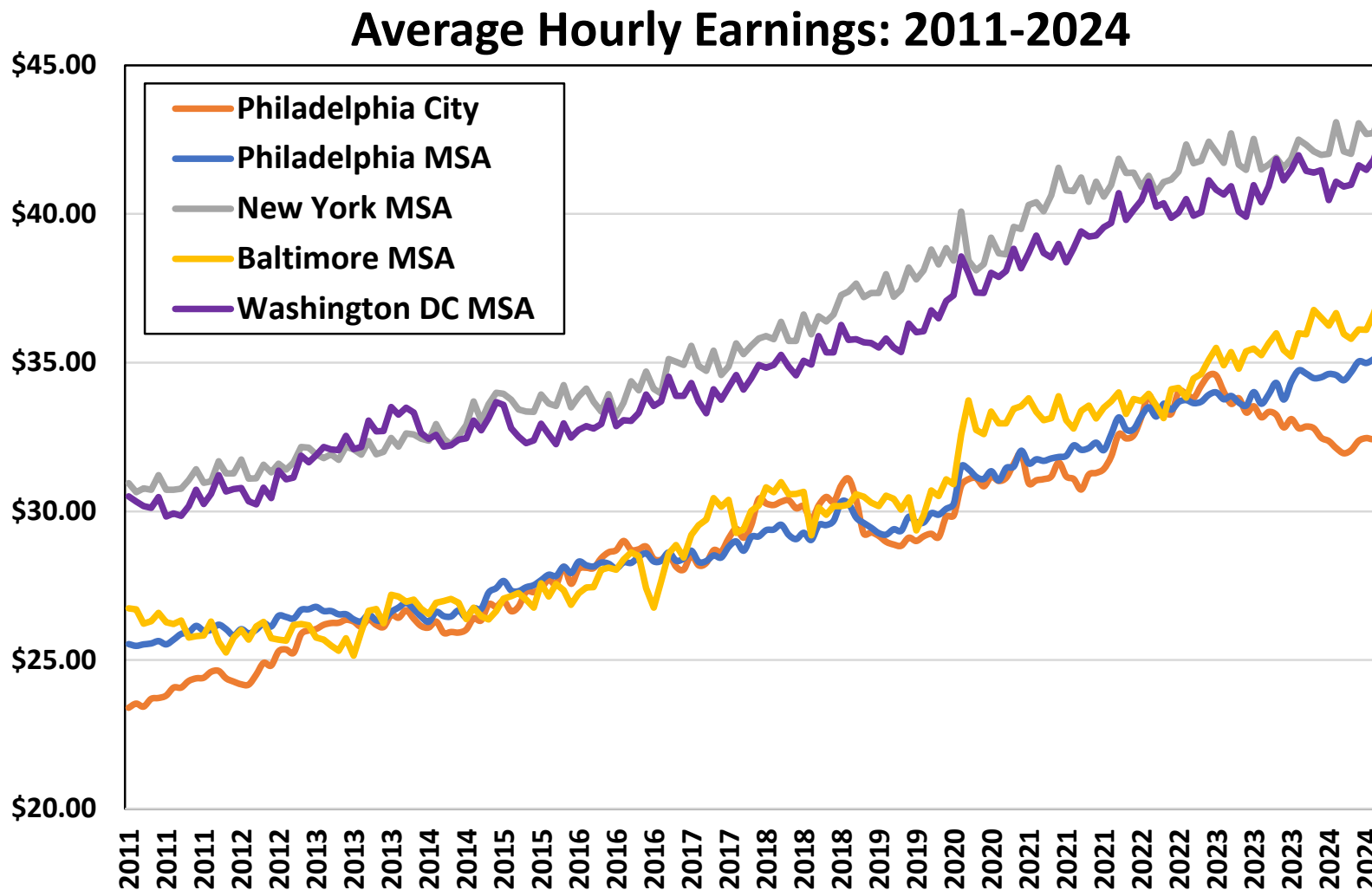
- The 30-year FRM has persistently hovered ~6-7% for several years now.

INCOME GROWTH

Average Hourly Earnings: 2011-2024

Source: US BLS

- Philadelphia (City) still struggles to recover from Covid.



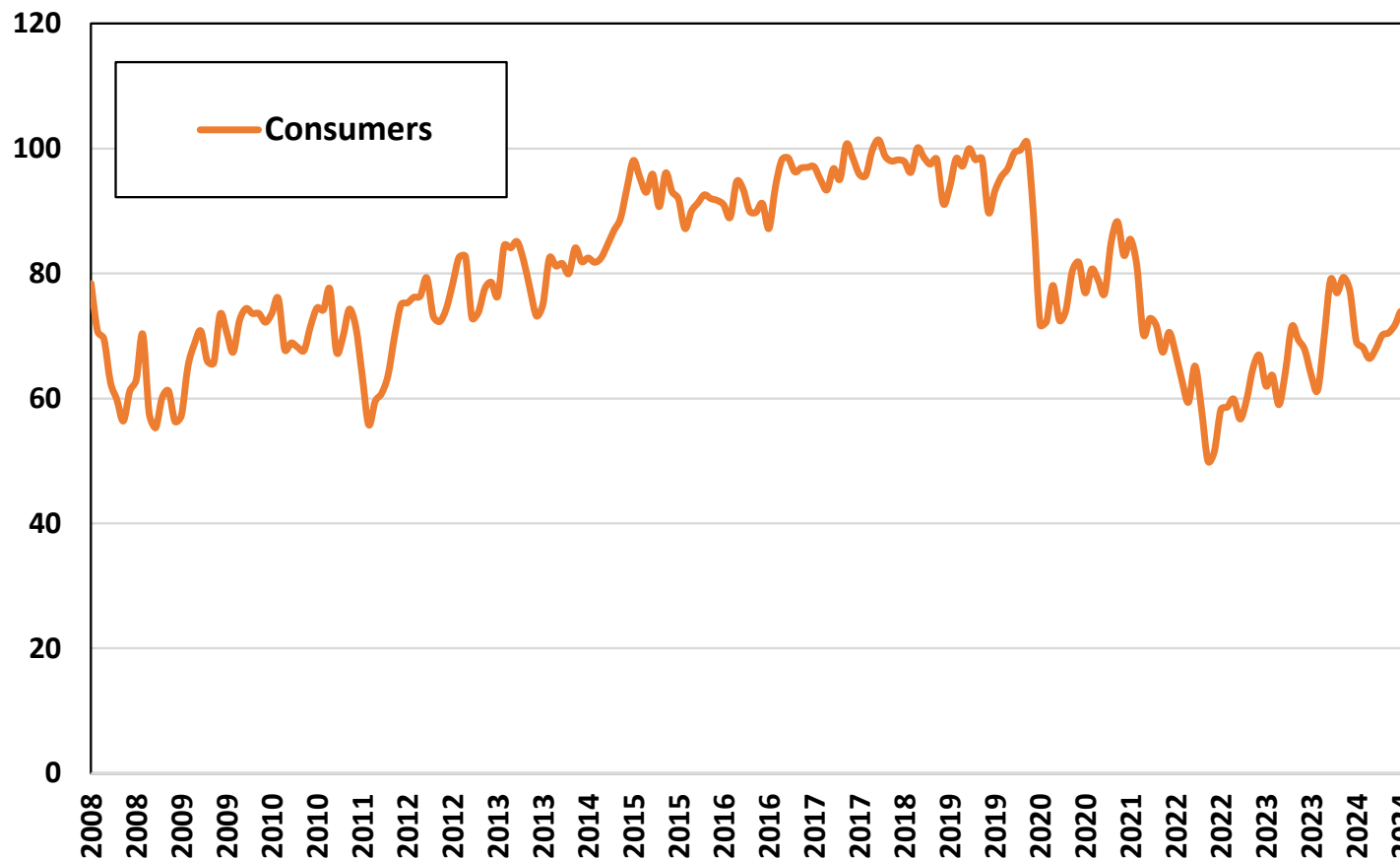
CONSUMER SENTIMENT

Consumer Sentiment: 2008-2025

Source: U Michigan

- After trending upwards for years, consumer sentiment fell by 50% during Covid.
- It has since recovered only ~1/3 of its loss.

Consumer Sentiment: 2008-2025



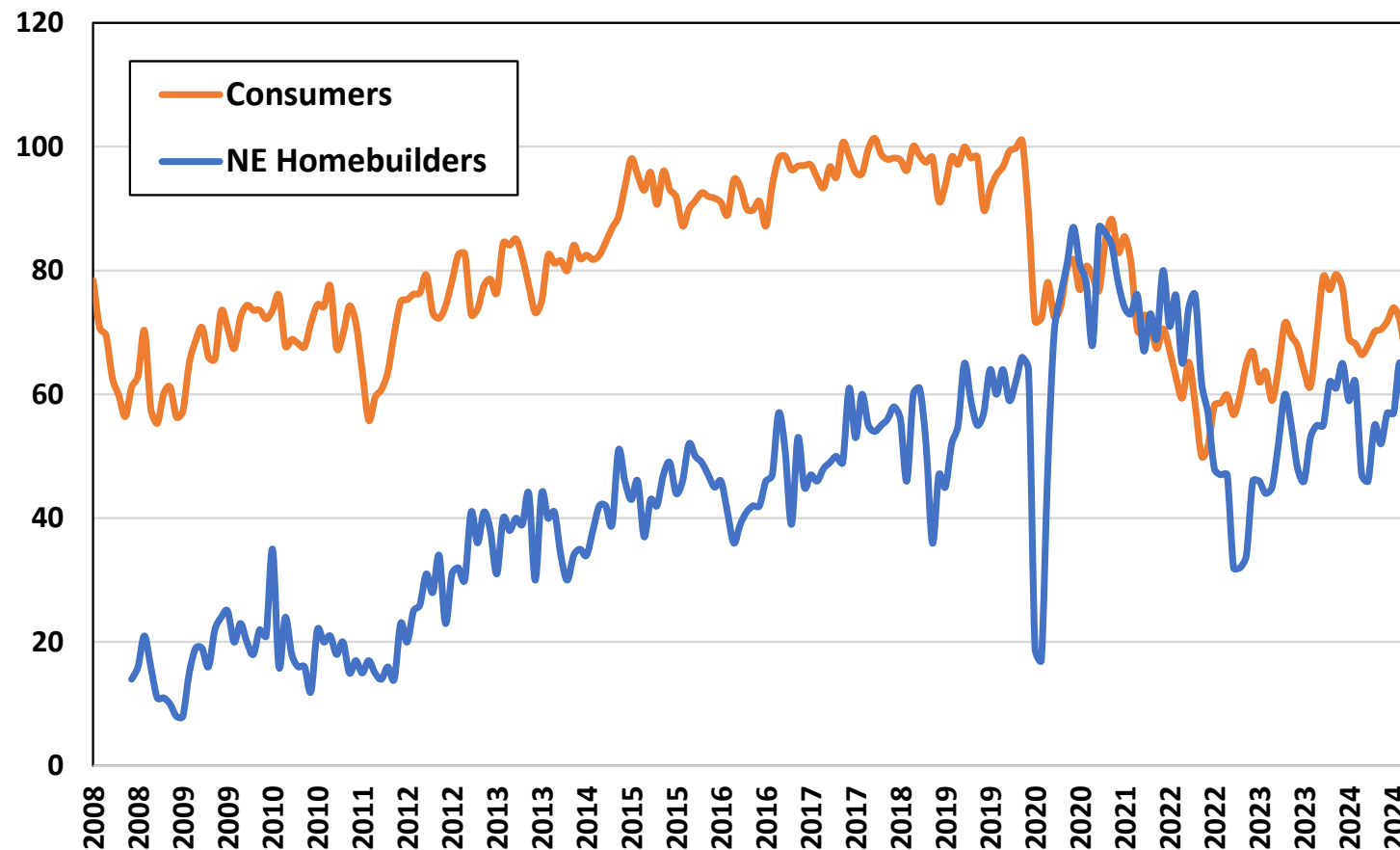
CONSUMER V. HOMEBUILDER SENTIMENT

Consumer v. Homebuilder Sentiment: 2008-2025

Source: U Michigan, NAHB

- Homebuilders had a stronger reaction to Covid than Consumers.

Consumer v. Homebuilder Sentiment: 2008-2025



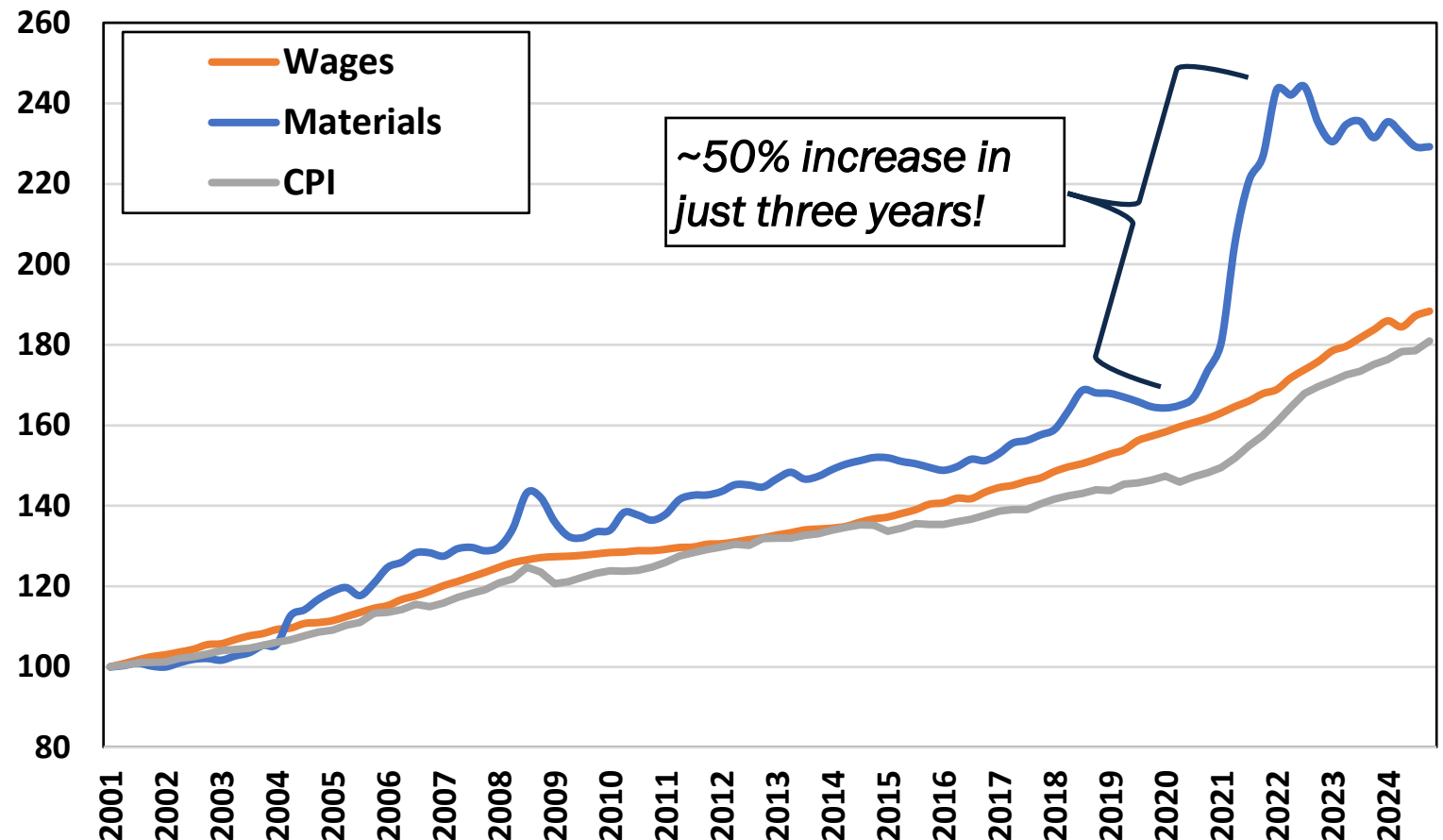
CONSTRUCTION COSTS

Construction Costs v. Inflation: 2001-2024

Source: US BLS

- Labor costs have historically tracked inflation.
- But materials costs have skyrocketed!
- ***Why??***

Construction Costs v. Inflation: 2001-2024



CONSTRUCTION COSTS

Remember all those cargo ships parked off Long Beach, CA during Covid?!?



CONSTRUCTION COSTS

They were filled with:

Chinese Steel (framing and plumbing)

Canadian Lumber (framing, flooring, cabinets, molding)

Mexican Gypsum (the main ingredient in sheetrock)

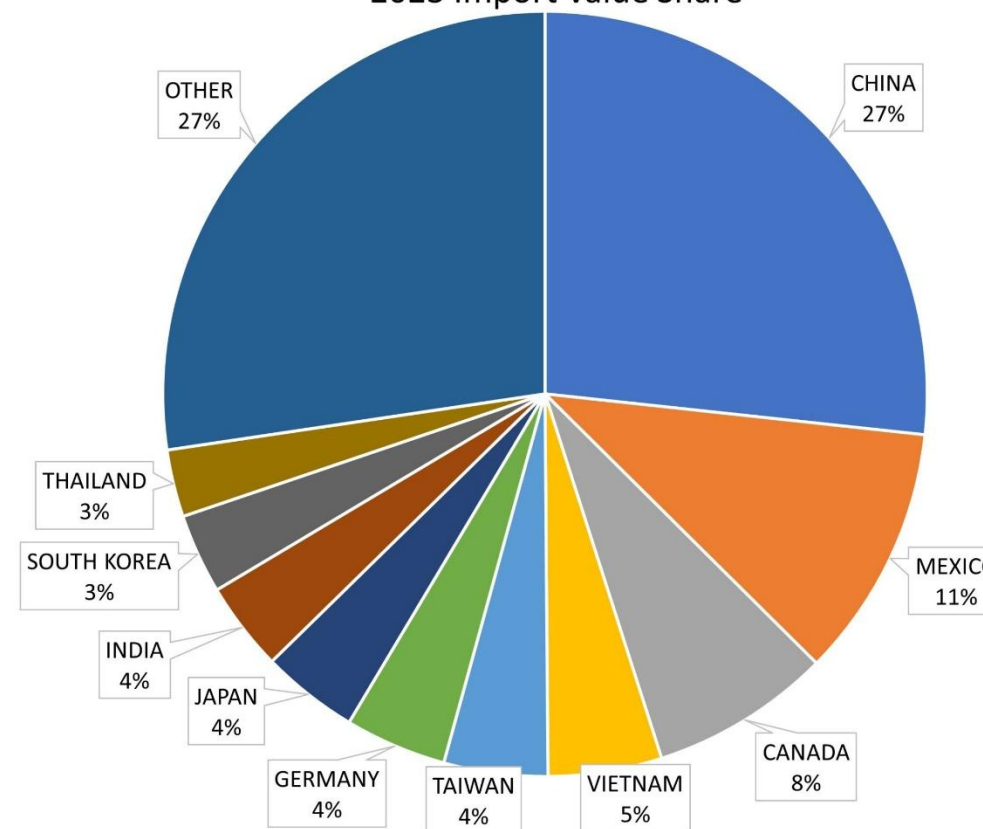
Indian, Italian and **Spanish** Tile (bathrooms, backsplashes, decorative work)

Chilean and **Peruvian** Copper (wiring)

German and Korean Appliances (washers, dryers, dishwashers)

Swedish Furniture (ever heard of “Ikea”?!?)

Share of Imports that are Used in Residential Construction
2023 Import Value Share



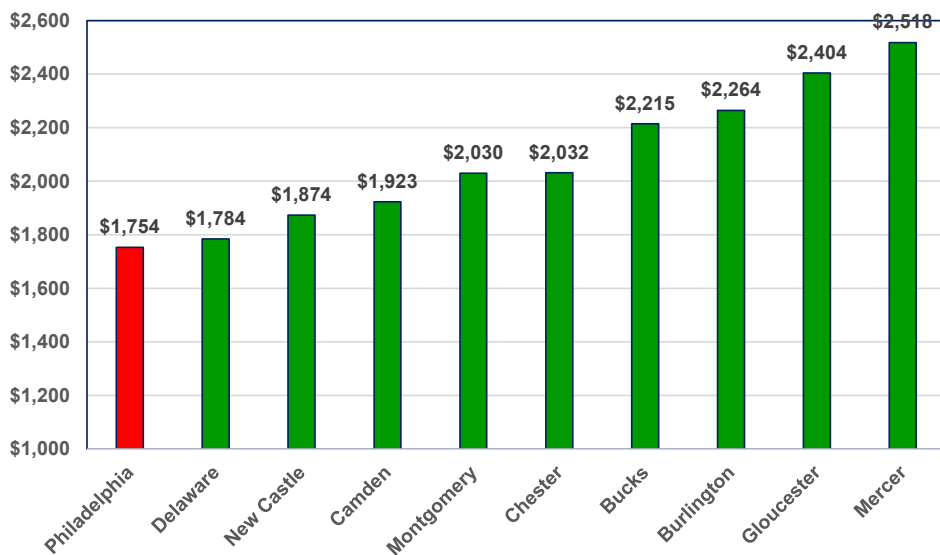
Source: NAHB

RENTS HAVE JUMPED SUBSTANTIALLY SINCE COVID

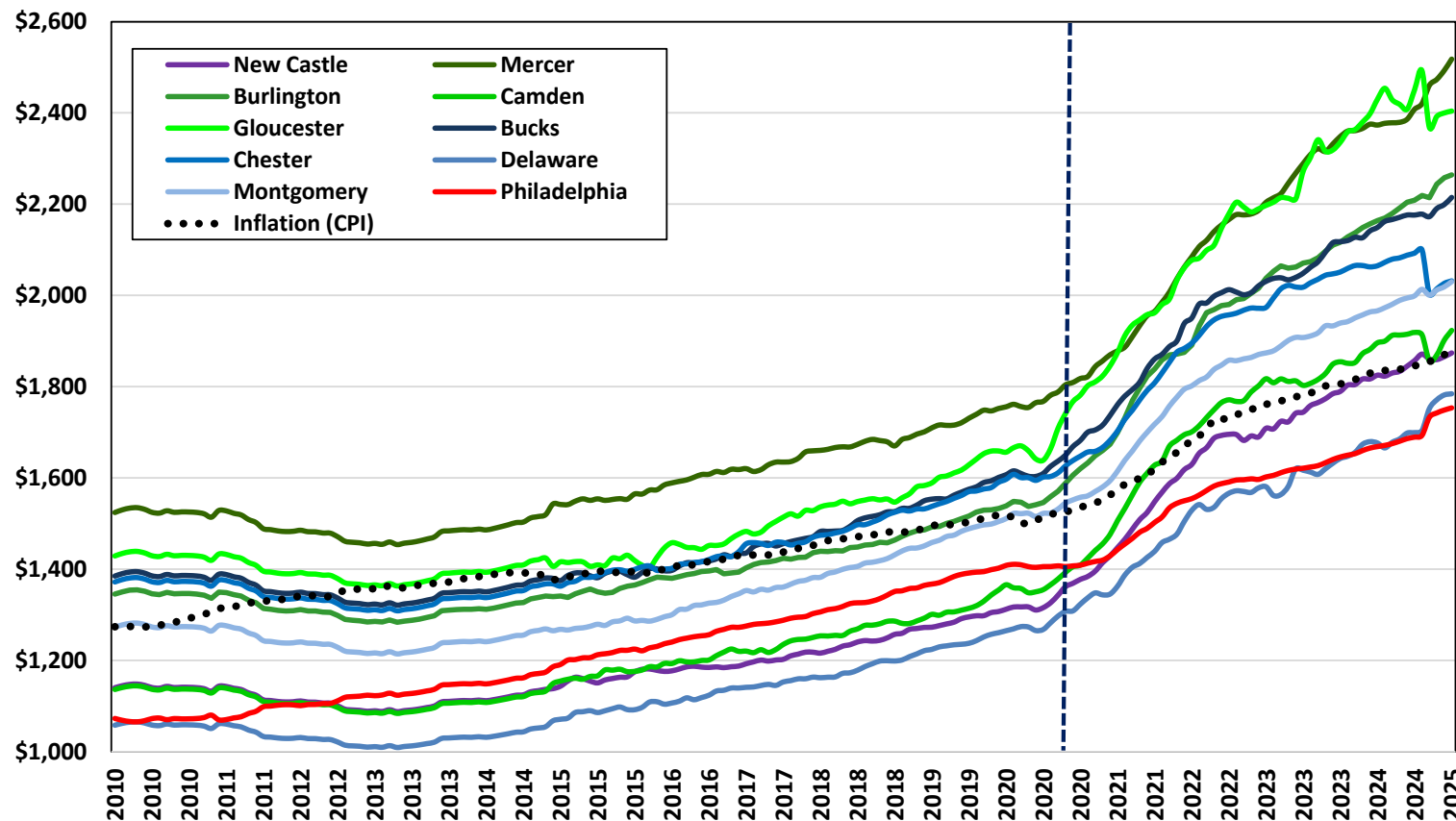
Median Rents by County: 2010-2025

Source: Zillow

Median Rent by County 2025



Median Monthly Rent by County: 2010-2025



Source: Zillow.com, U.S. BLS

SINCE COVID, HOUSE PRICES HAVE RISEN DRAMATICALLY BOTH LOCALLY AND NATIONALLY

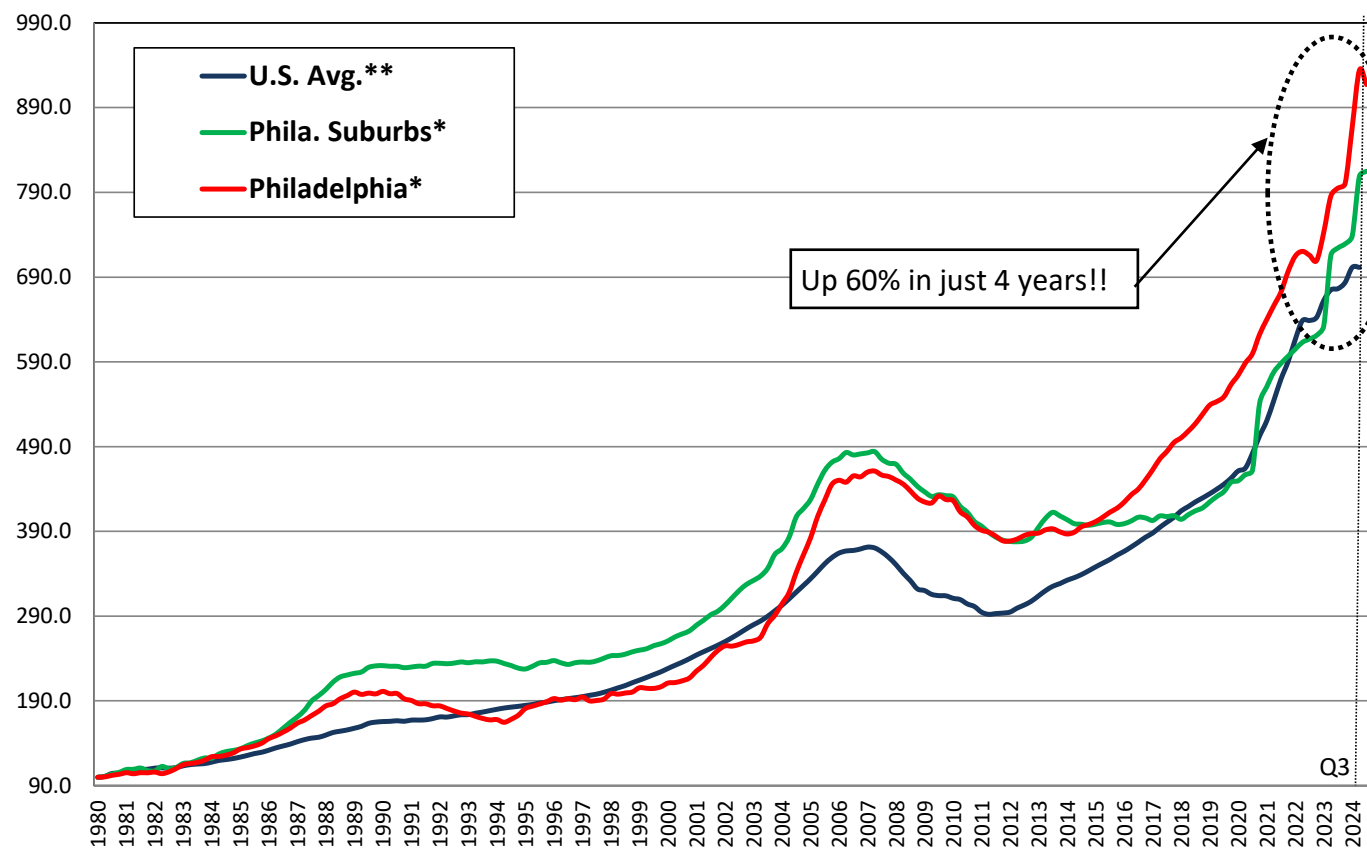
House Price Indices: 1980-2024

Source: Public Records, Bright MLS

- House prices have risen dramatically since Covid:
- Low interest rates (price of credit)
- Low inventories (supply)
- Shift to work-from-home (demand)

Philadelphia Regional House Price Indices 1980-2024

City v. Suburbs v. U.S. Average.: 1980Q1=100



*Empirically estimated by Kevin C. Gillen, Ph.D.

**Courtesy Federal Housing Finance Agency (FHFA)

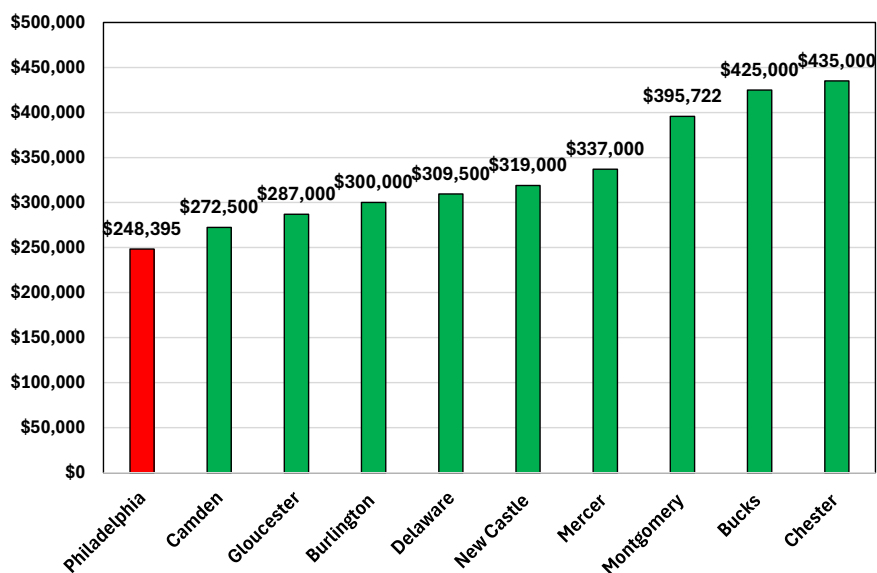
Note: The suburban index includes all counties in the regional index, except for Philadelphia county.

THE PENNSYLVANIA COUNTIES HAVE GENERALLY OUTPACED THE NJ AND DE COUNTIES

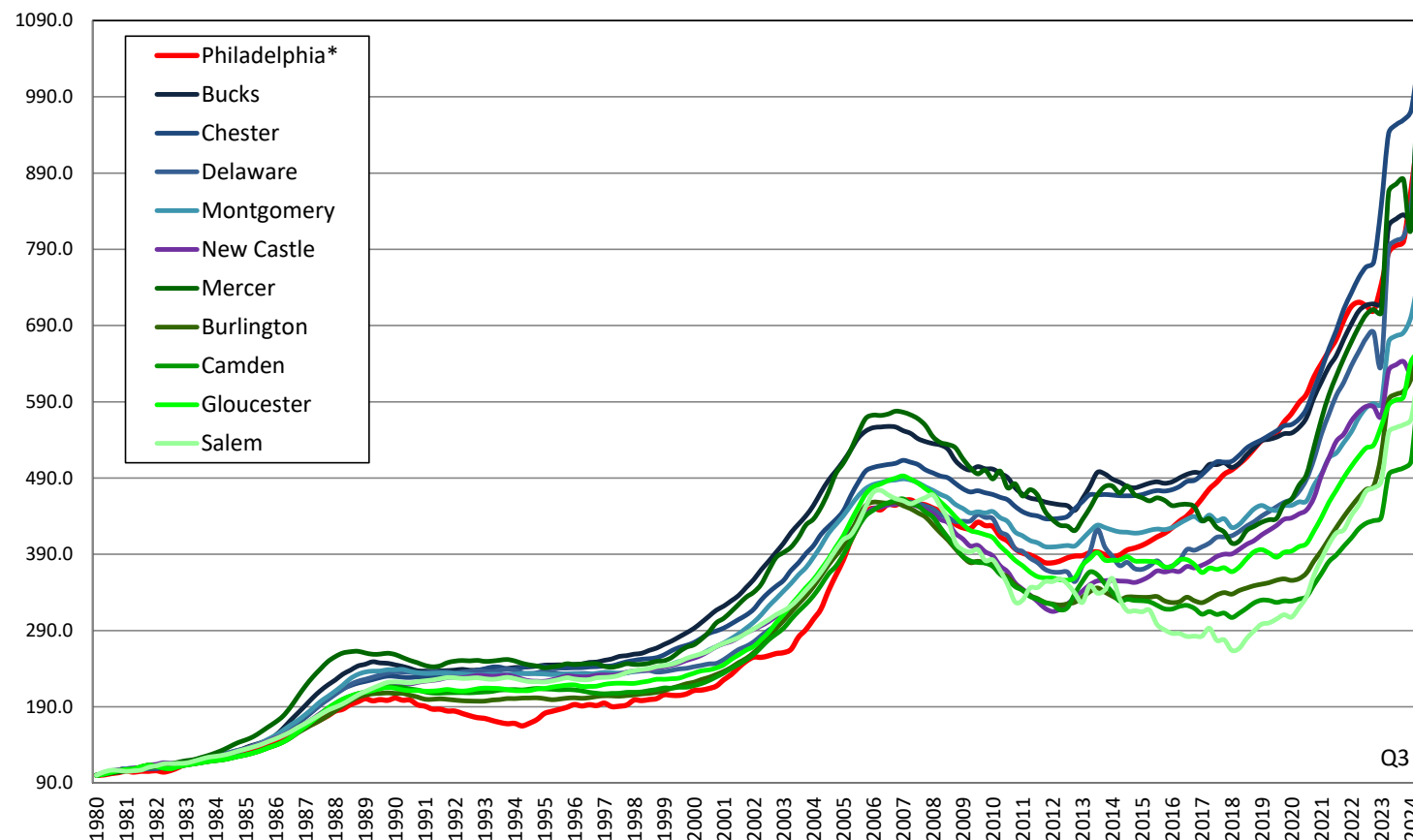
House Price Indices by County: 1980-2024

Source: Public Records, Bright MLS

Median House Price by County 2024



Philadelphia Regional House Price Indices 1980-2024, by County
1980Q1=100

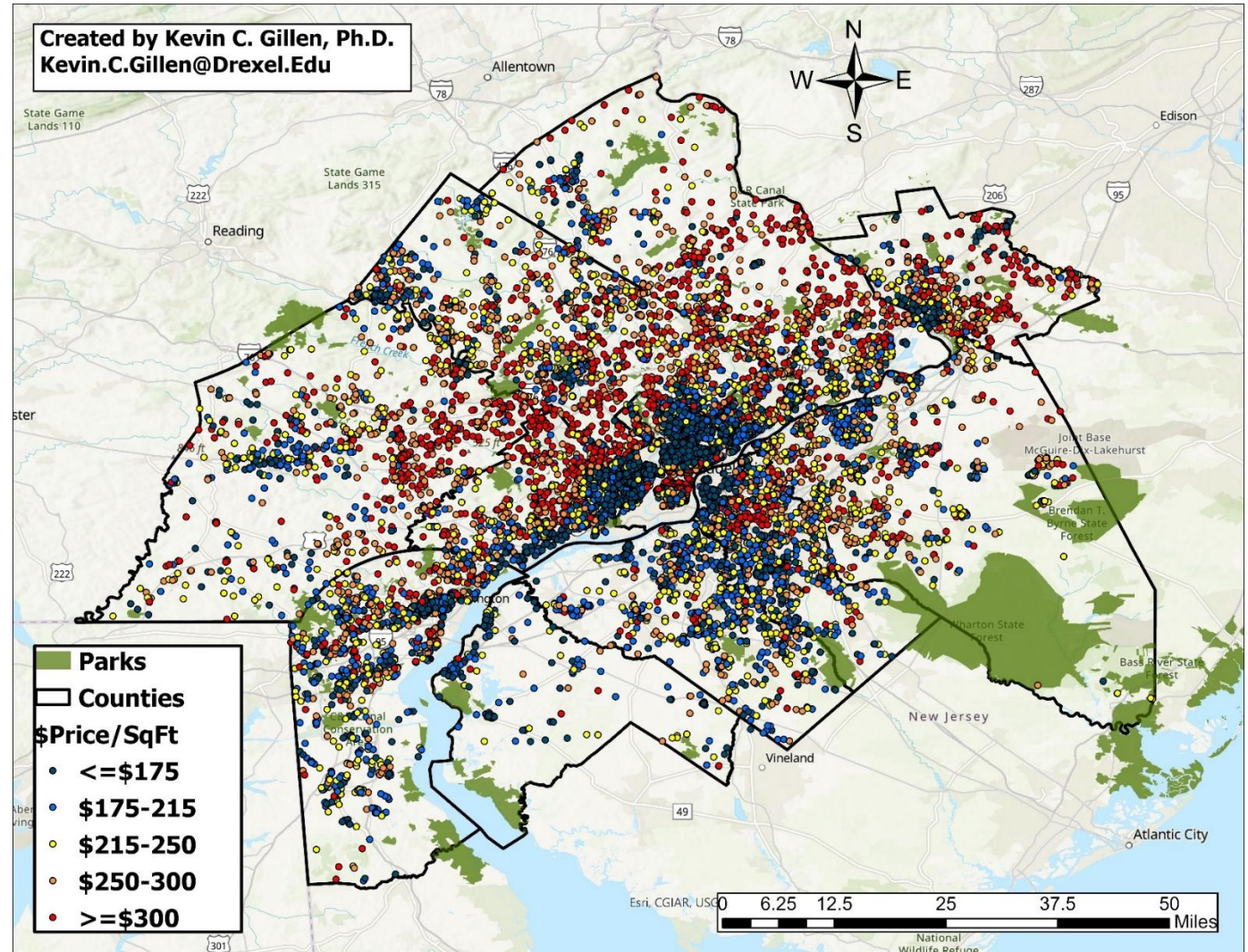


*All indices empirically estimated by Kevin C. Gillen, PhD

SIGNIFICANT SPATIAL VARIATION IN HOUSE PRICES

Regional Home Sales in 2025 Q1 Color-Coded by \$Price/SqFt

Source: Kevin C. Gillen, Ph.D.

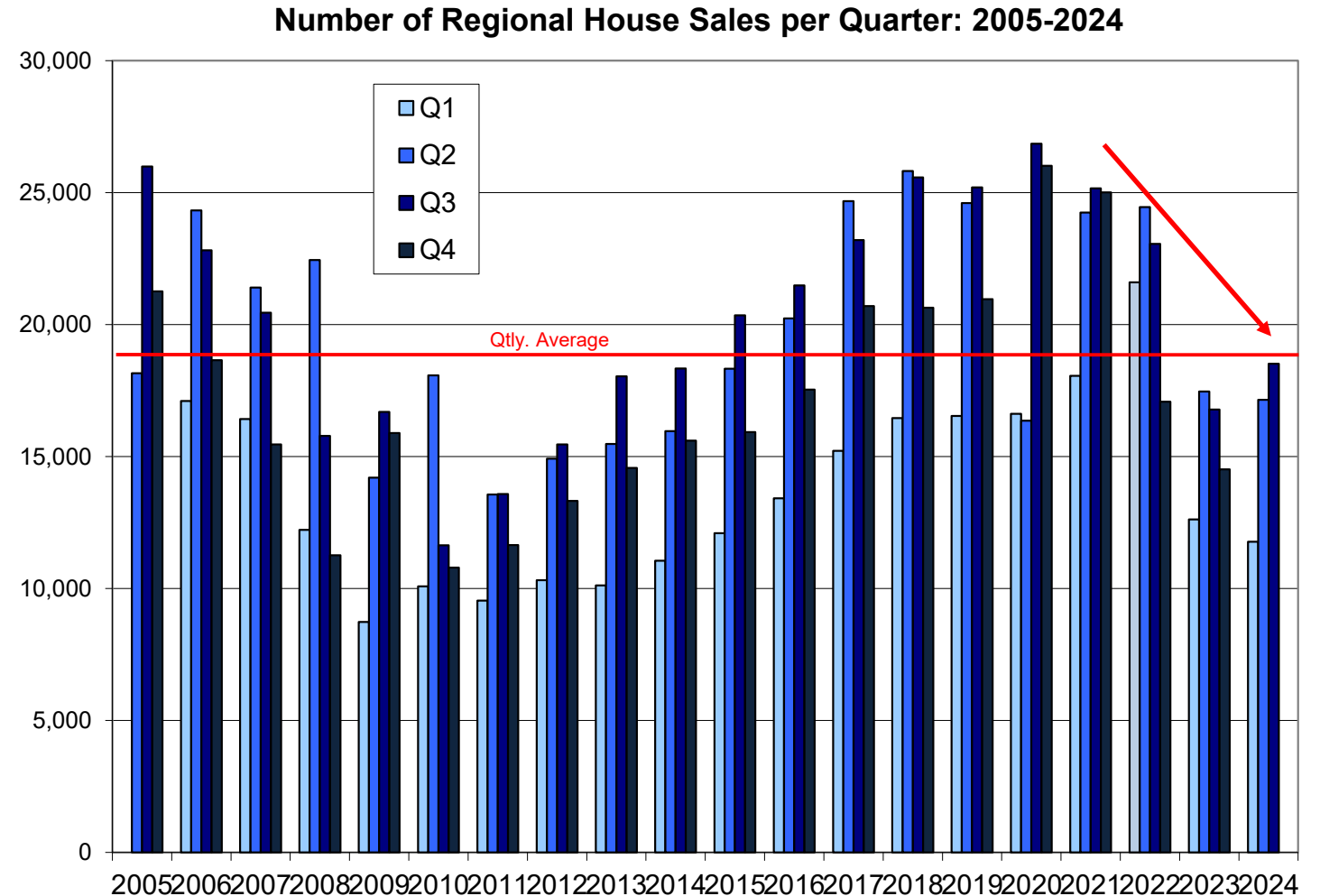


HOME SALES ARE TRENDING DOWN

Arms-Length Home Sales in the Philadelphia Region: 2005-2024

Source: Public Records, Bright MLS

- Even though prices have risen significantly since Covid, sales have been trending down, for two reasons:
- For first-time homebuyers, affordability is a challenge.
- For move-up buyers, the “lock in” effect of higher i-rates is a challenge.

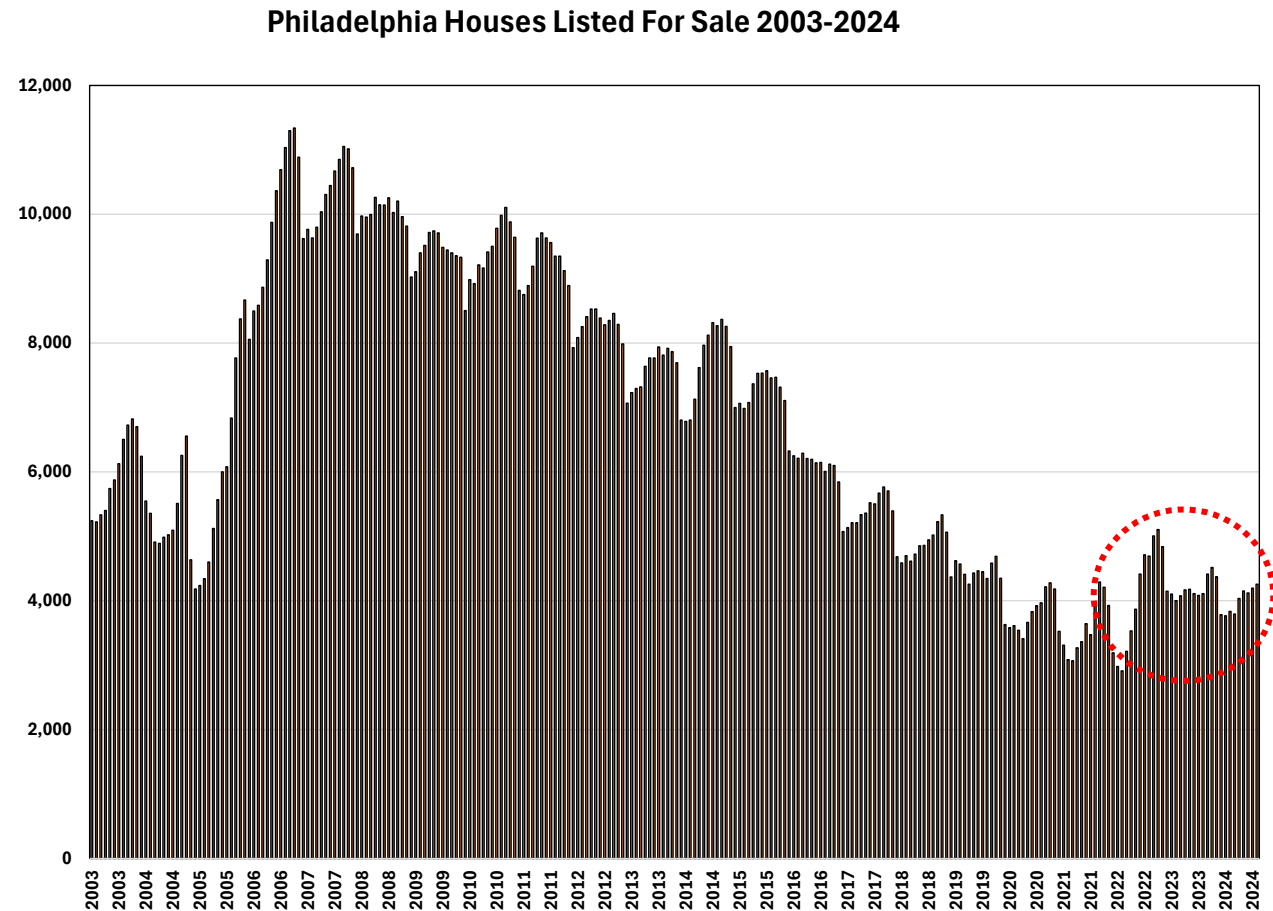


INVENTORIES ARE AT ALL-TIME LOWS

Number of Houses Listed “For Sale” in Philadelphia 2003-2024

Source: Bright MLS

- After bottoming out in 2021, inventories have since risen 39%.



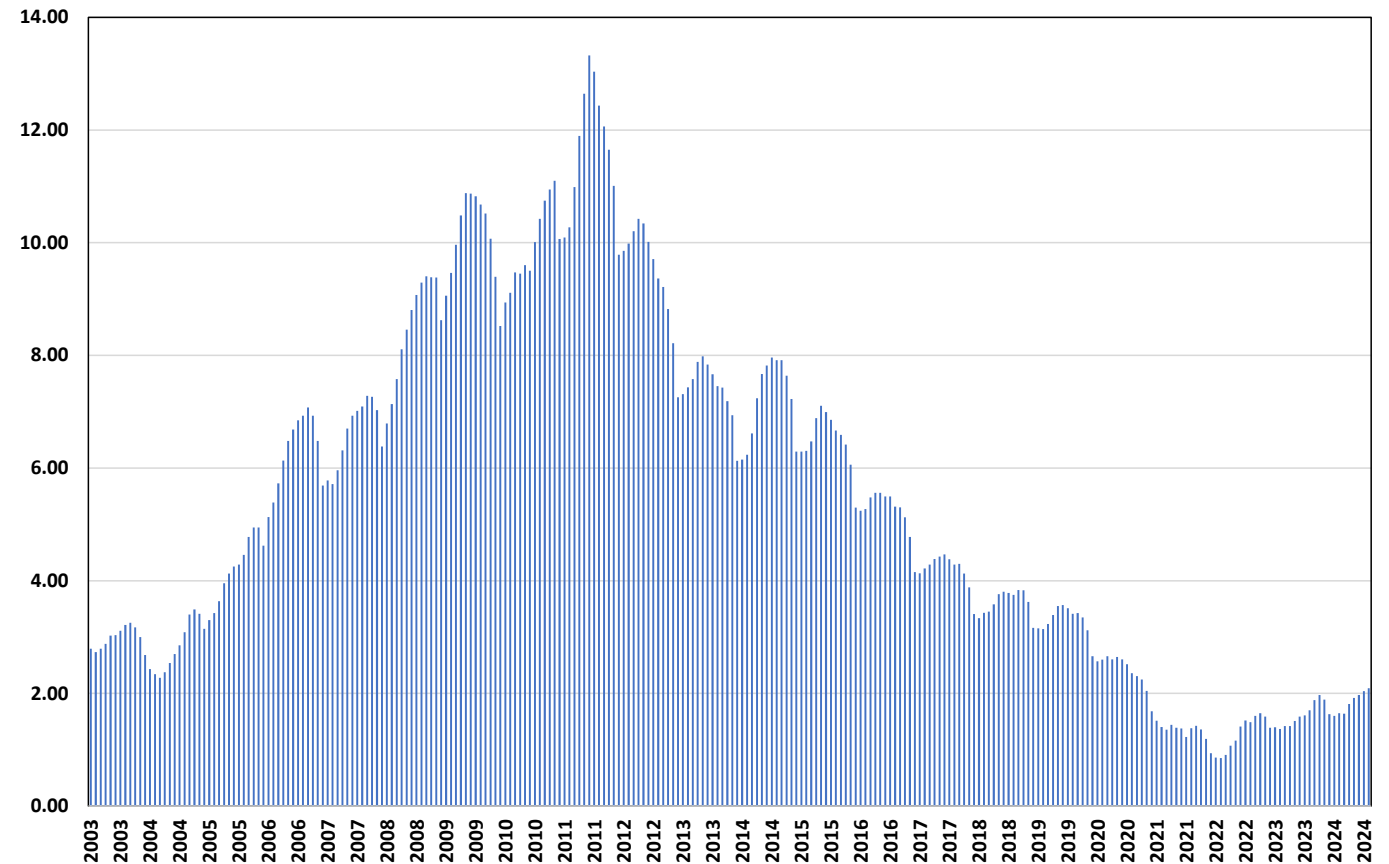
IMSI IS TICKING UP, BUT IT STILL REMAINS A “SELLER’S MARKET”

Months’ Supply of Inventory in the Philadelphia Region 2003-2024

Source: Bright MLS

- At the current pace of sales, the current supply of homes for sale would be gone in just over 2 months.
- Anything less than 5 months is considered a “Seller’s Market” by the industry.
- Even though inventories are finally rising, they have been offset by falling sales.

Months Supply of Inventory in the Philadelphia Region



WHAT ABOUT TRUMP'S TARIFFS?

That's Where We Currently Are...

...So, What Impact Could Trump's Tariff's Have, Going Forward?

- Let's have a quick review:

WHAT ABOUT TRUMP'S TARIFFS?

What Impact Could Trump's Tariff's Have, Going Forward?

- March 12, 2025: 25% Tariffs Implemented on Steel and Aluminum
- April-June 2025: Extended to Other Materials; e.g. by-products
- June 4, 2025: Tariffs Increased to 50%
- June 2025: Extended to Lumber

WHAT ABOUT TRUMP'S TARIFFS?

What Impact Could Trump's Tariff's Have, Going Forward?

- Let's look at what history can tell us:

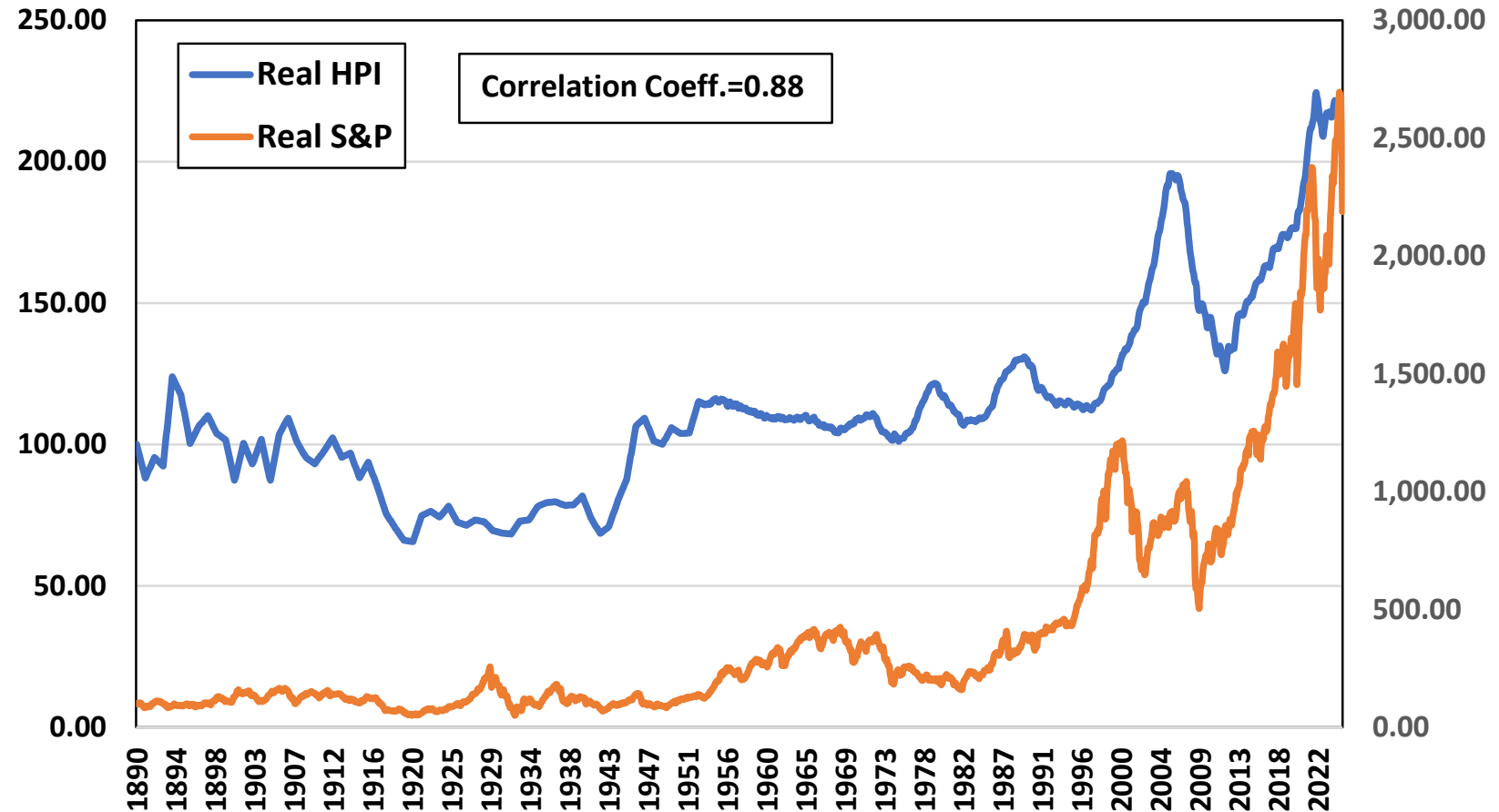
STOCK MARKET V. HOUSING MARKET

S&P 500 and U.S. HPI: 1890-2025

Source: Standard & Poor, Case-Shiller

- This chart compares the (real) S&P 500 to the (real) U.S. House Price Index from 1890-2025.
- The two indices are correlated, with a correlation coefficient of 0.88.
- => Every 1-point movement in the stock market is associated with a 0.88 movement in house prices.

Stock Market v. Housing Market: 1890-2025



WORLD TRADE VOLUME: 1929-1933

Smoot-Hawley Act of 1930

Source: ResearchGate

- In response to the stock market crash and subsequent economic contraction, Congress passed the Smoot-Hawley Tariff Act of 1930.
- Levied tariffs of nearly 60% on most U.S. imports.
- “An economic stupidity” —Henry Ford

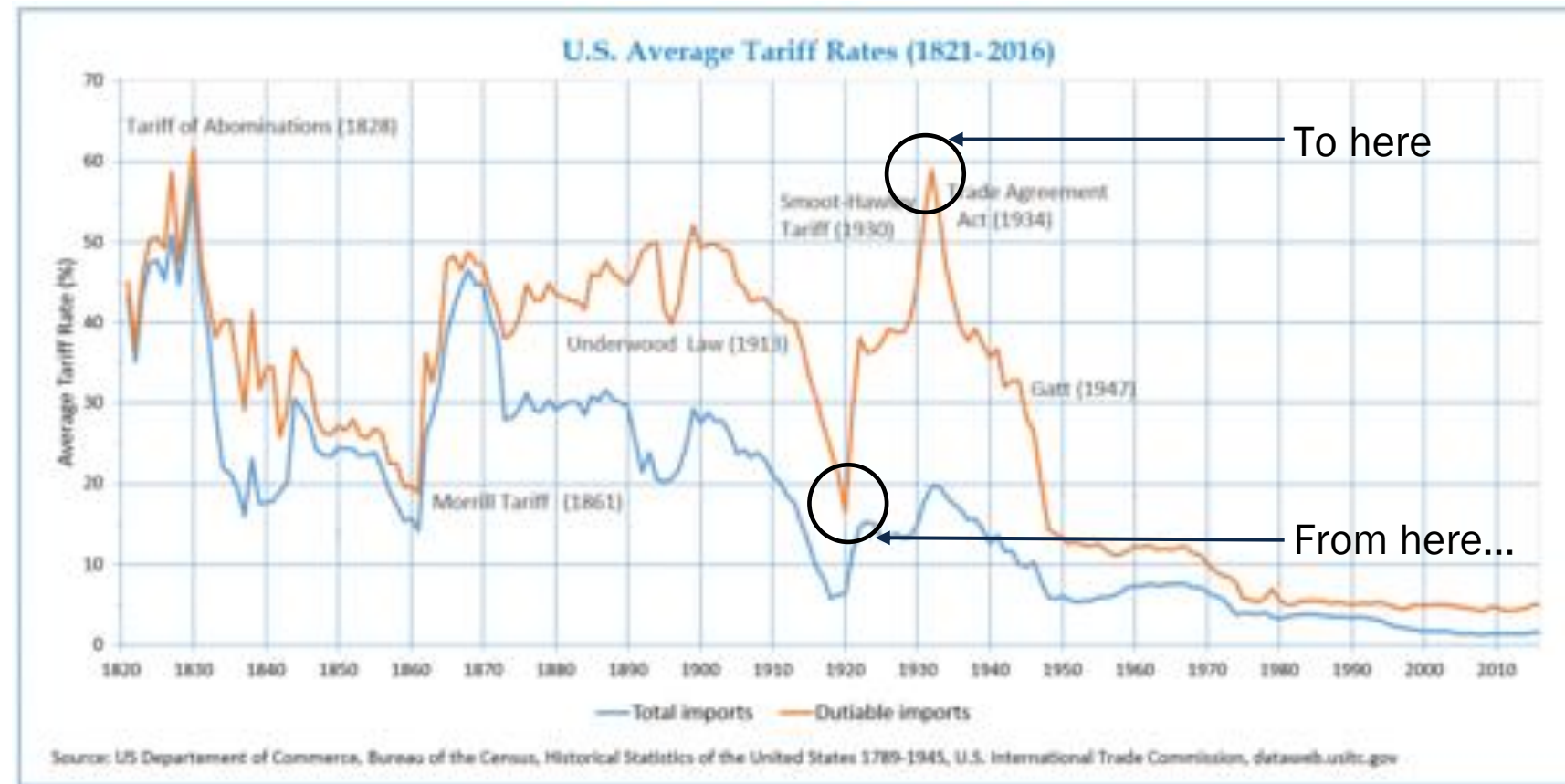


WORLD TRADE VOLUME: 1929-1933

Smoot-Hawley Act of 1930

Source: ResearchGate

- Average tariff rate on U.S. imports rose from 17% to nearly 60%.

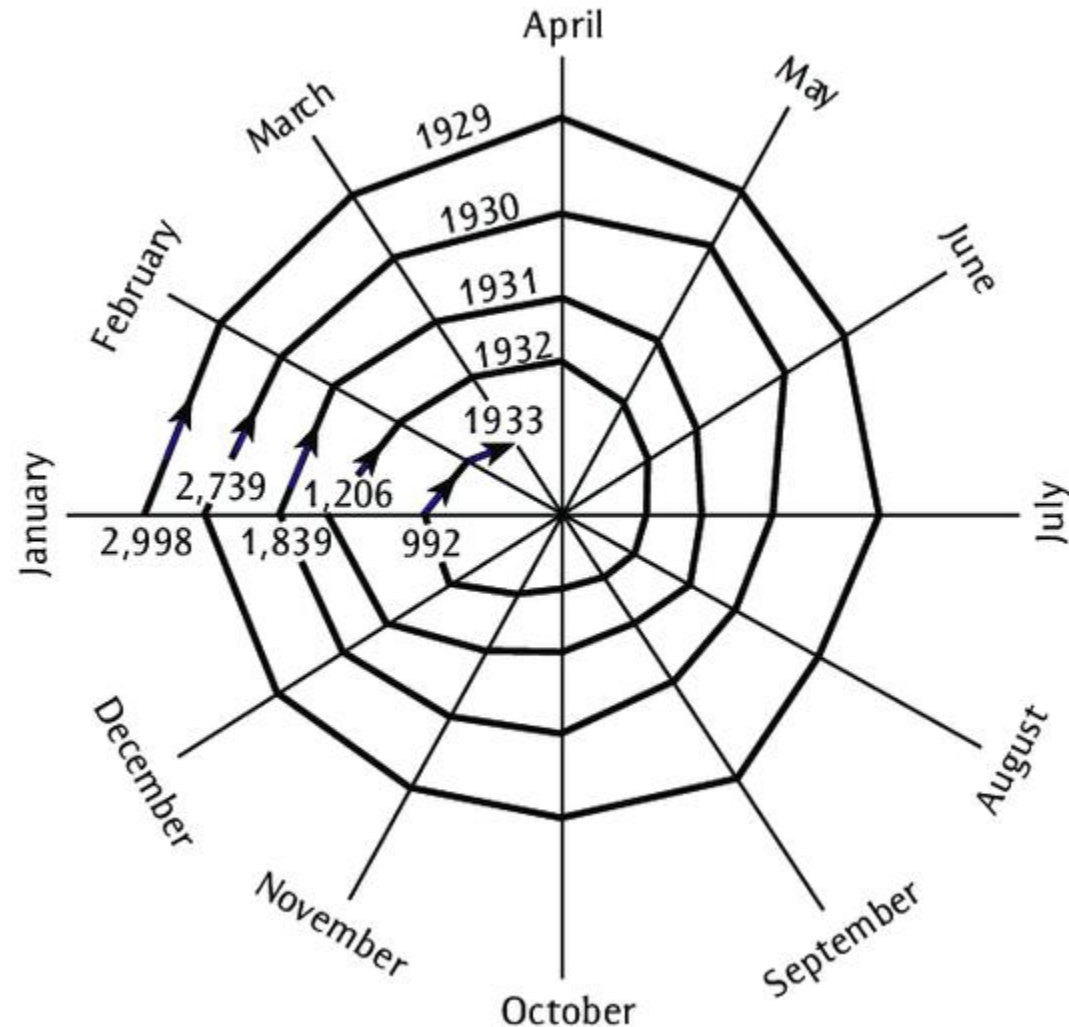


WORLD TRADE VOLUME: 1928-1933

The Kindleberger Spiral: 1929-1933

Source: ResearchGate

- Within months of the Bill's passage, 23 of the U.S.'s trading partners vowed to respond with retaliatory tariffs.
- Within one year, U.S. exports fell by 31%
- By 1933, world trade volume had contracted by 66% (2/3)...causing the Great Depression.



**Many people see a spider web when they look at this infographic. But I see the global economy swirling down the drain!*

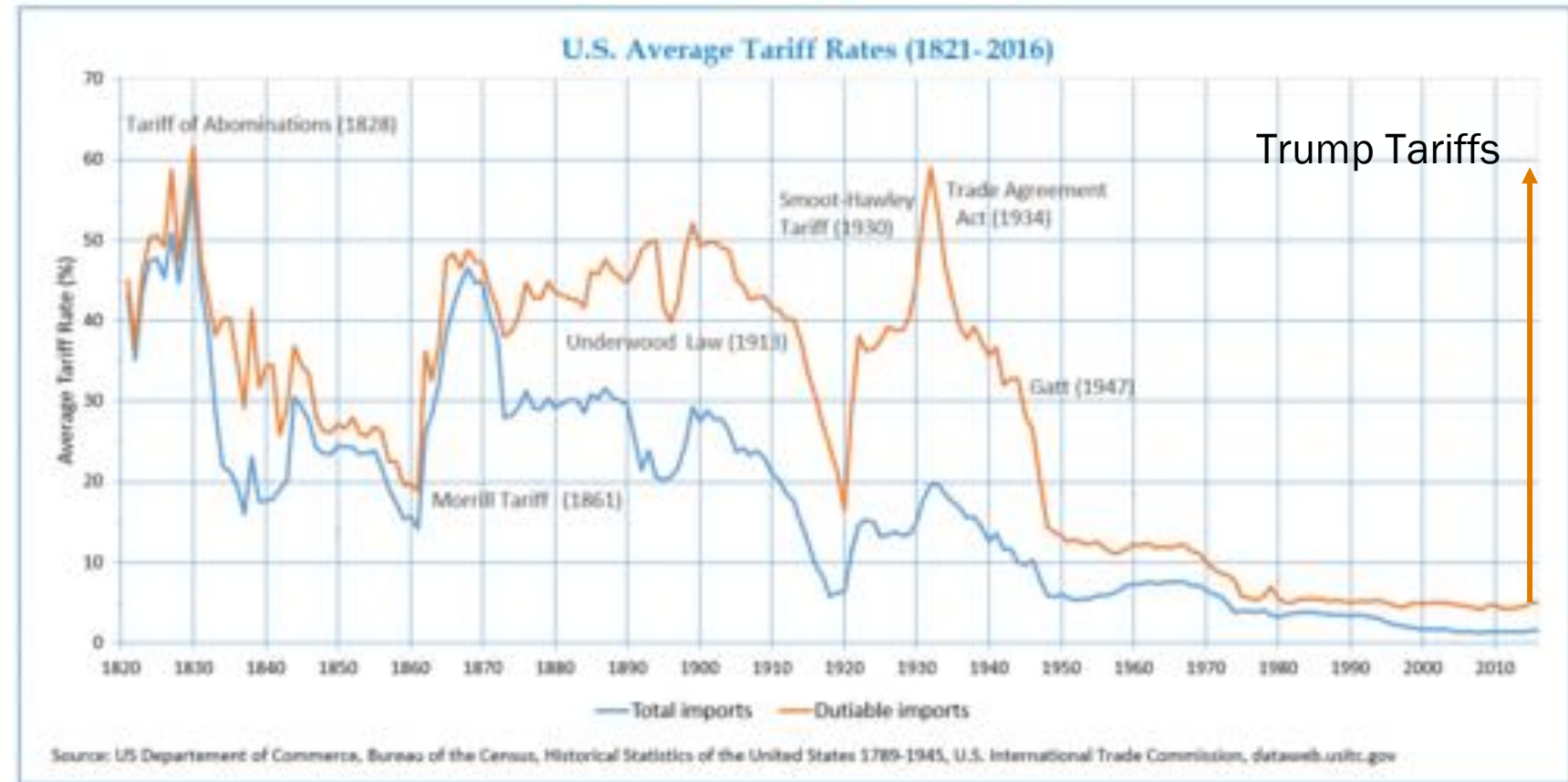
TARIFFS V. BUILDING COSTS

U.S. Tariff Rates: 1821-2025

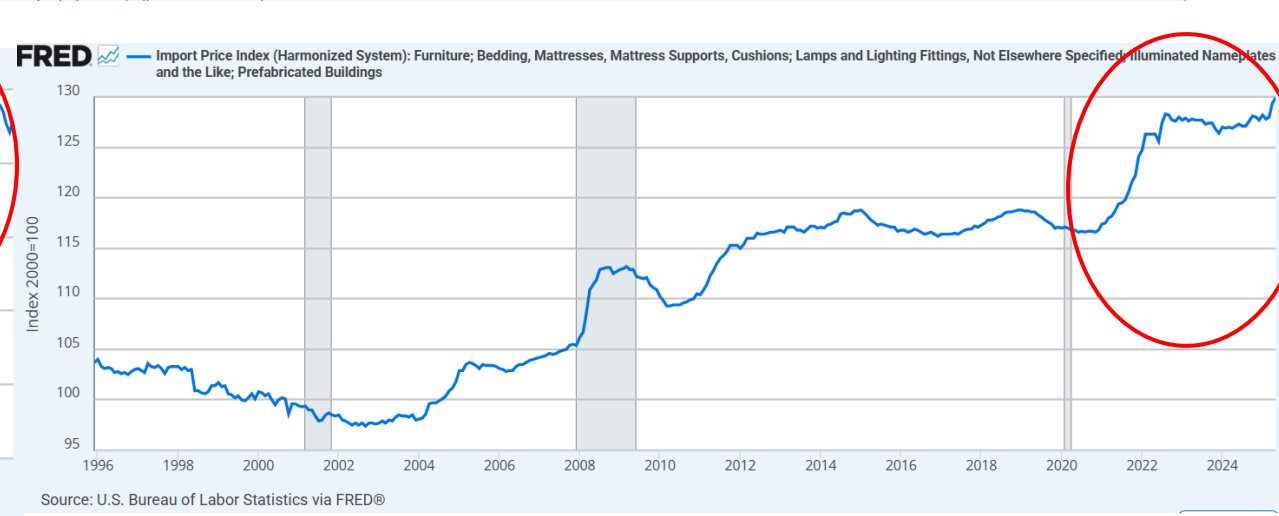
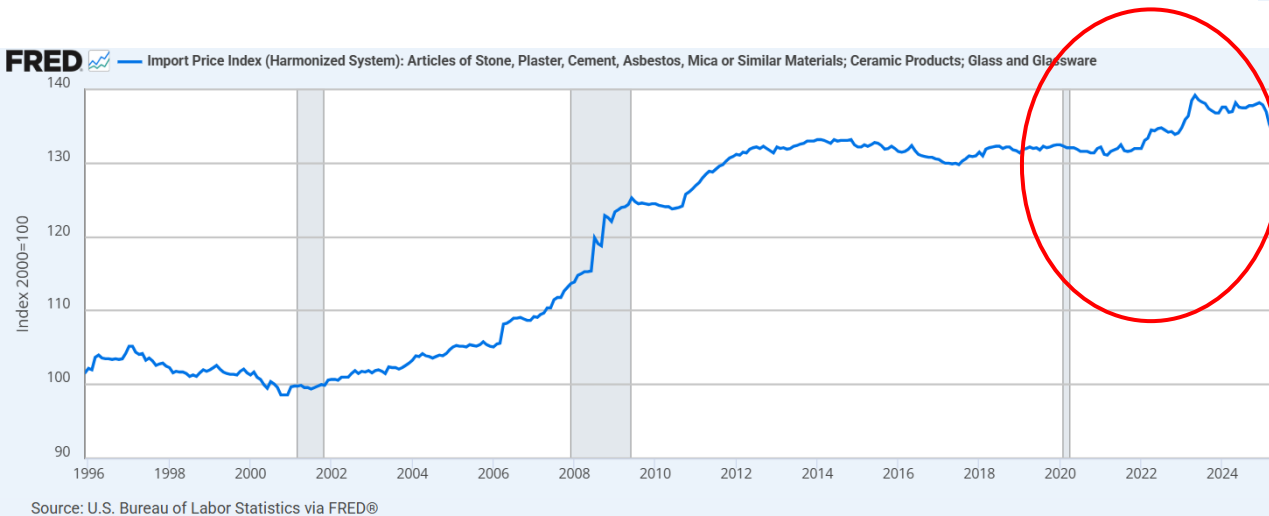
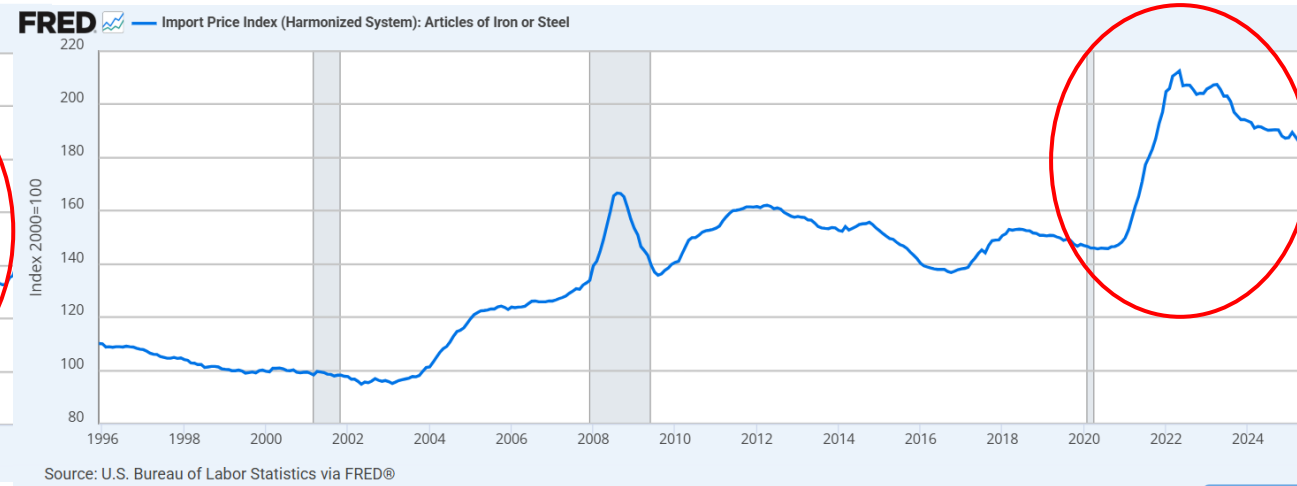
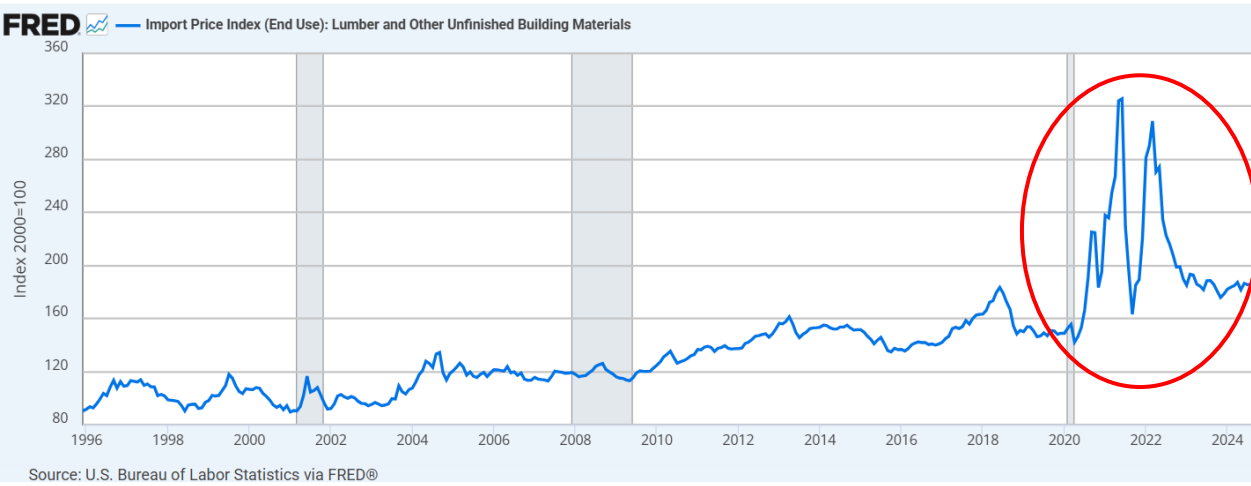
Source: US DoC

- Trump's Tariffs will return the U.S. to Smoot-Hawley's levels!
- This is on top of the previous Covid-driven increase of 50%.

=> What will the effect be on the cost of building materials?



IMPORT PRICES OF CONSTRUCTION MATERIALS: 1995-2025



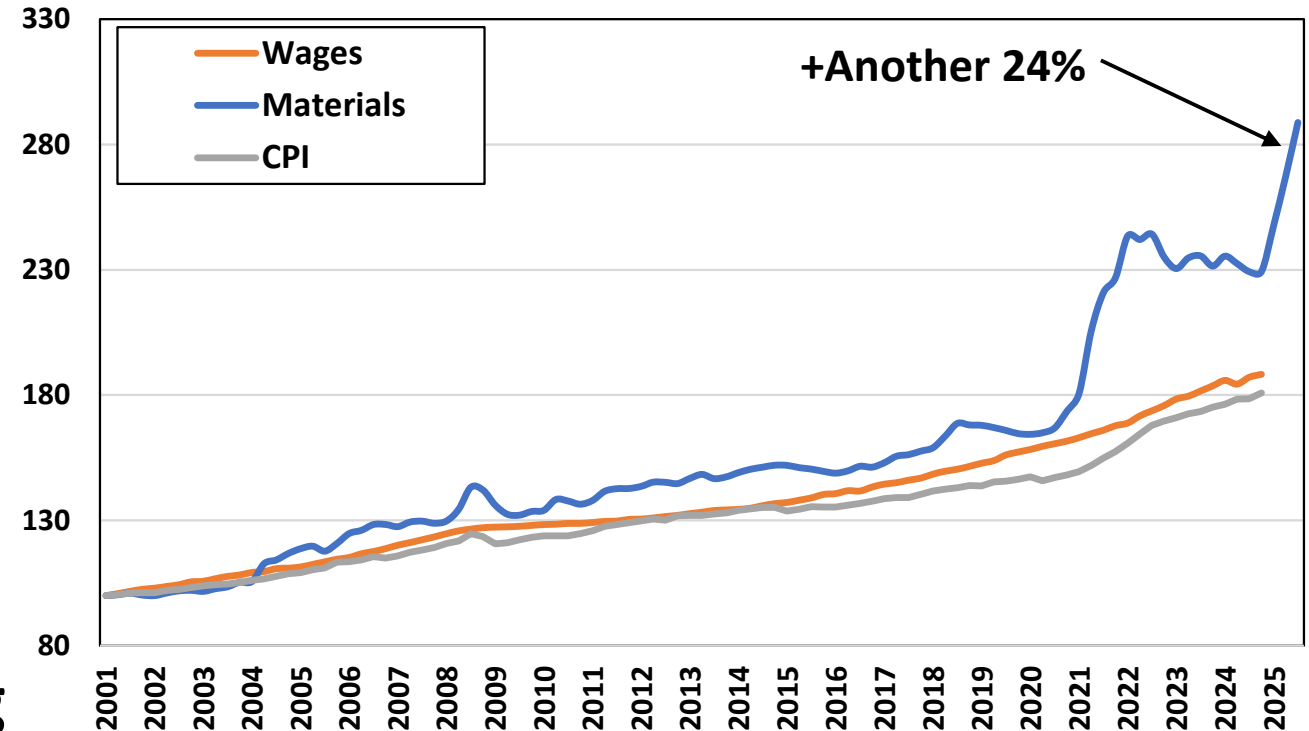
NEW CONSTRUCTION V. BUILDING COSTS

The flow of causality:

- Increase in tariffs
- > Increase in costs of construction materials
- > Increase in the cost of homebuilding
- > Decrease in the profitability of homebuilding

=> A reduction in new homebuilding and/or decrease in housing affordability in the Philadelphia region

Construction Costs v. Inflation: 2001-2025



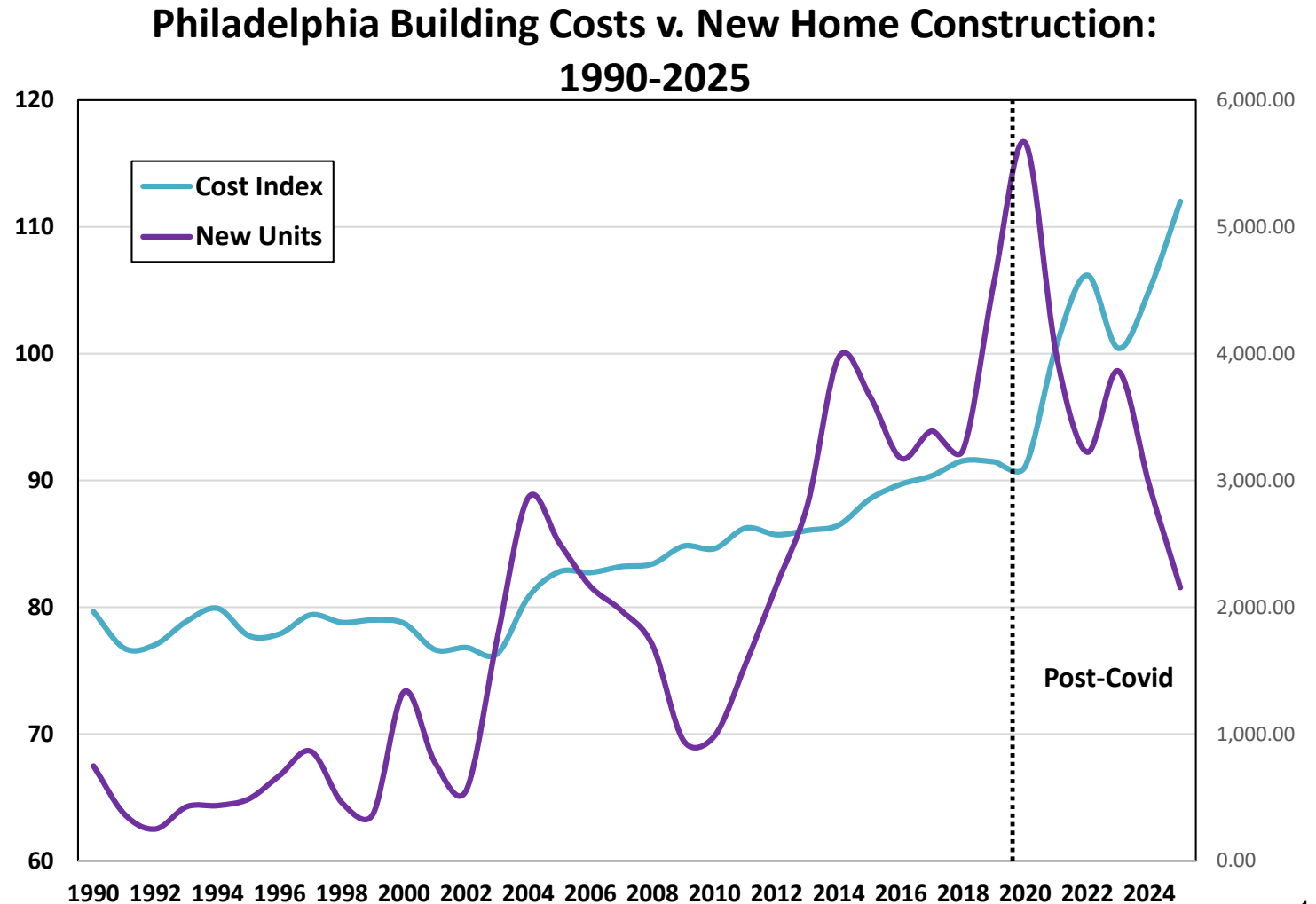
But: *how much?*

NEW CONSTRUCTION V. BUILDING COSTS

New Construction v. Building Materials Costs: 1990-2025

Source: US BLS, L&I

- Prior to Covid, population growth in Center City drove new construction.
- **WHY???**

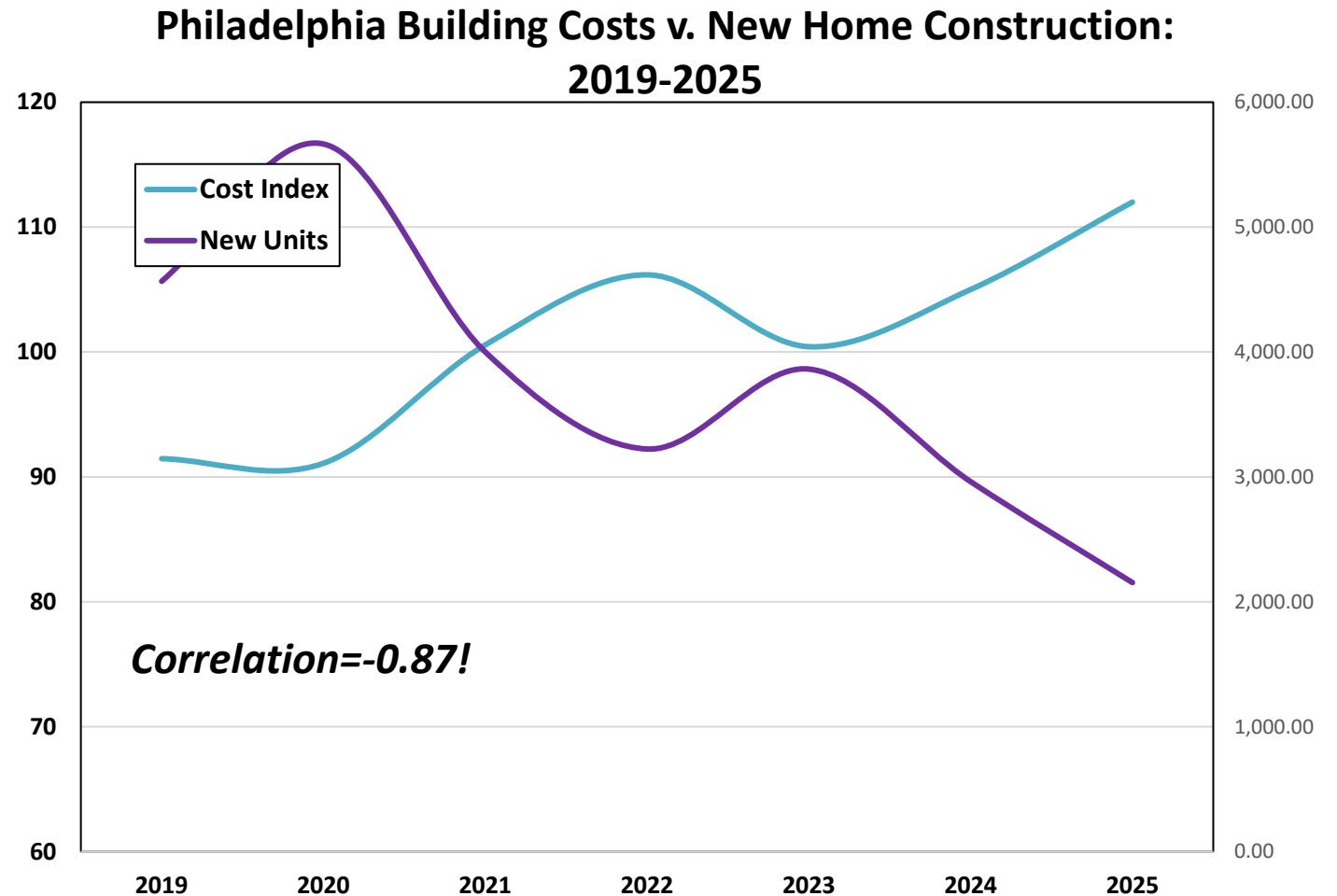


NEW CONSTRUCTION V. BUILDING COSTS

New Construction v. Building Materials Costs: 2019-2025

Source: US BLS, L&I

- Because Philadelphia's population dropped during Covid, and only after this happened did it reveal the true effect of materials costs on the amount of new construction.
- Negative Correlation of -0.87!
- What does this mean for the future of the housing market in the Philadelphia metro region?



MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

What Impact Could Trump's Tariff's Have, Going Forward?

- Let's examine the impact on homebuilding first:

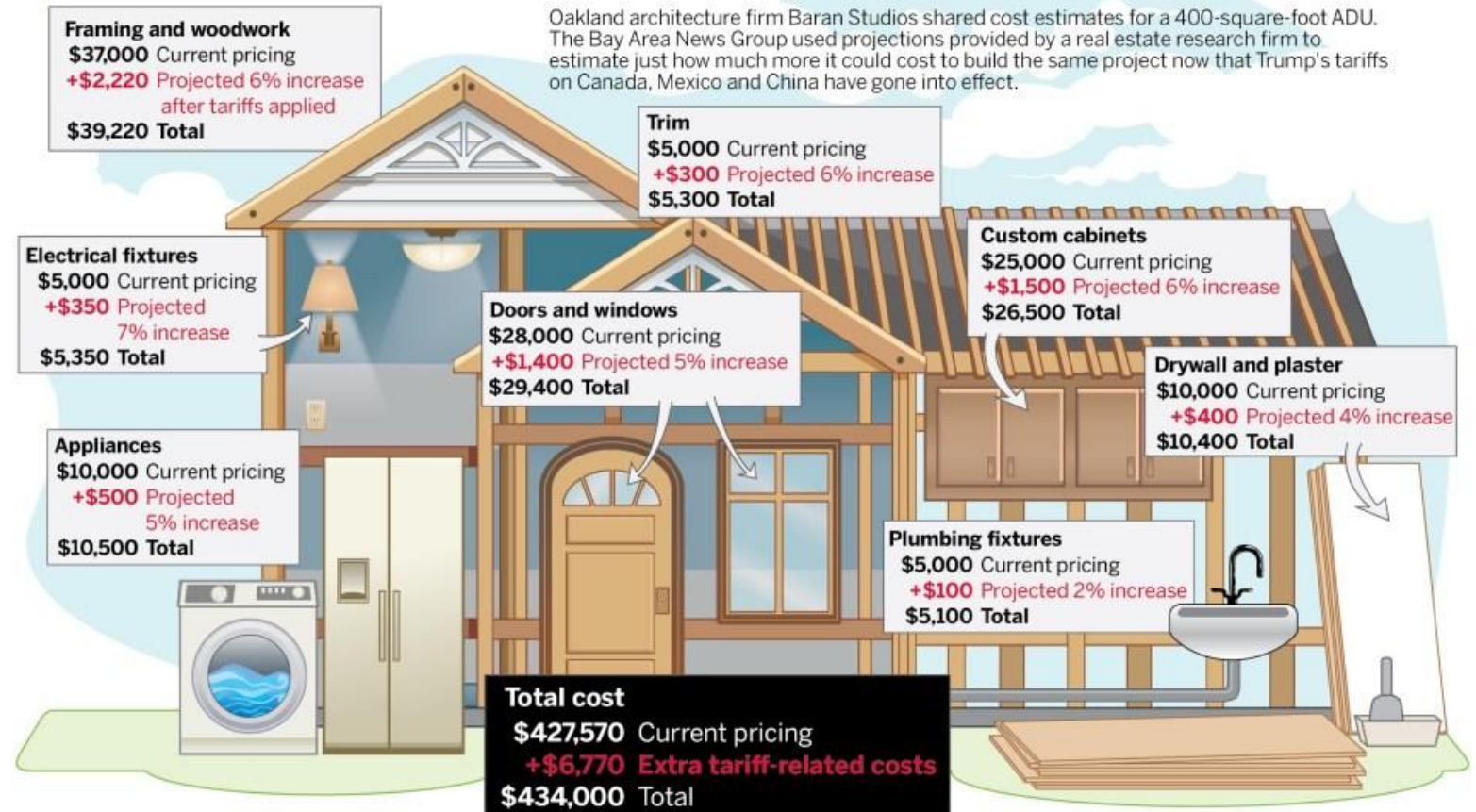
MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Effect of Tariffs on Homebuilding Costs: An Example

Source: San Jose Mercury News

- This infographic shows what components of a new home are typically imported, and how much the tariffs will raise their cost.

TRUMP'S TARIFFS ESTIMATED TO INCREASE BUILDING COSTS BY 5%



Source: Baran Studios, staff research

JEFF DURHAM/BAY AREA NEWS GROUP
WITH IMAGES FROM GETTY IMAGES

MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Two Ways That Homebuilders Can React To Higher Materials Costs:

- Pass the increased cost onto homebuyers in the form of higher sales prices
- Absorb the increased cost into a lower profit margin
- Both of these will adversely affect future new home construction.

MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Elasticity 1: Measures the % Change in Quantity Supplied to the % Change in Price:

$$\epsilon_s = \frac{\Delta Q_s / Q_s}{\Delta P_h / P_h} \quad \Delta Q_s / Q_s = -\epsilon_s \times (\Delta P_h / P_h)$$

The tariffs are projected to increase the average cost of constructing a new home in the Philadelphia region by \$20,000, or ~4%.

$$\Rightarrow -\epsilon_s := -0.8 \times 0.04^*$$

=3.2% decline in annual new home construction, or -440 units/year

MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Elasticity 2: Measures the % Change in Quantity Supplied to the % Reduction in Homebuilding Profit

The typical homebuilder's profit margin on the sale of a new home is 11%*.

The post-tariff increase in materials costs will reduce this to 7%, which is projected to render nearly 64% of current homebuilding projects either unprofitable or insufficiently profitable*.

=1,596 decline in units of annual new home construction*

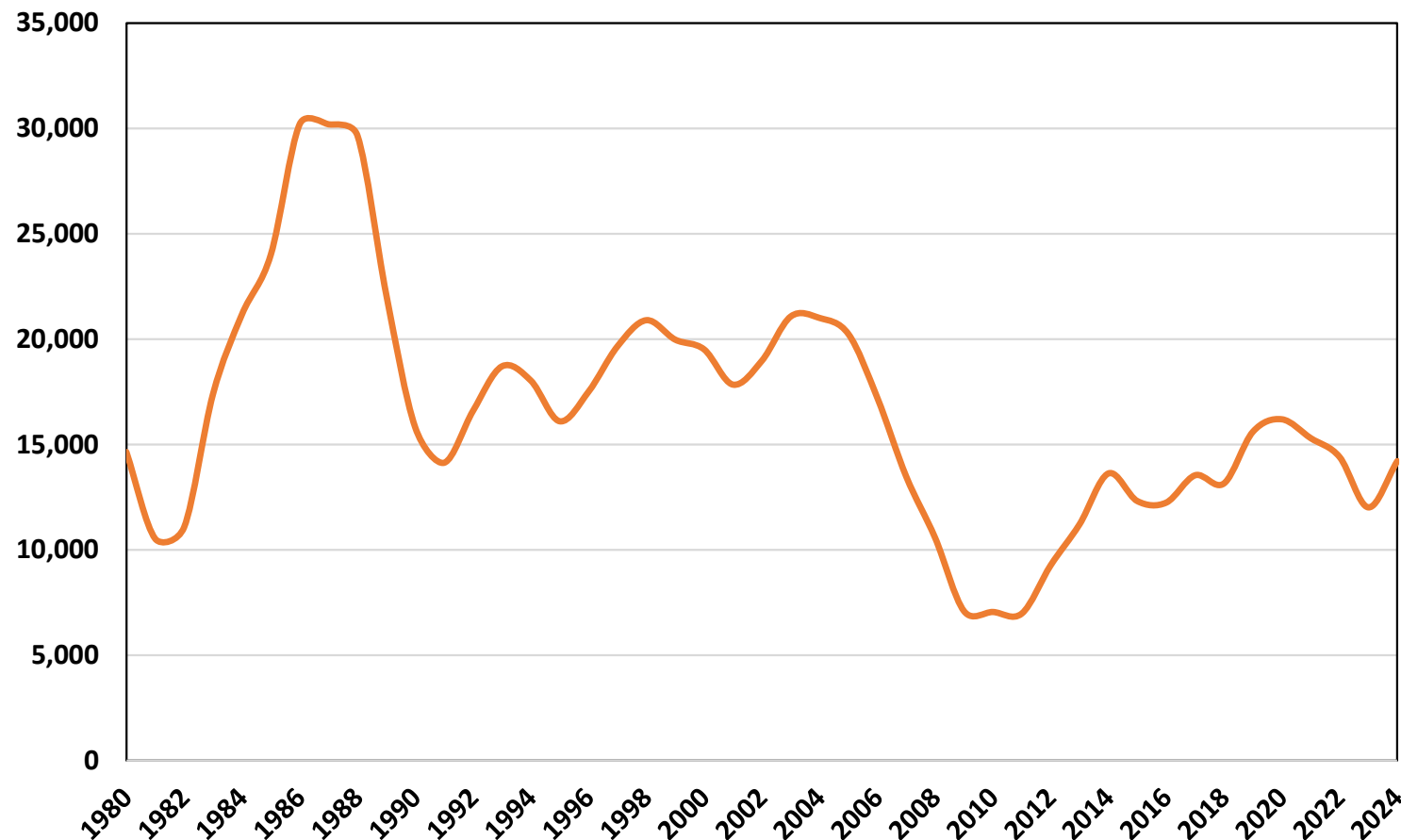
MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

New Homebuilding (#Units) in the Philadelphia Metro Region: 1980-2024

Source: US Dept. of HUD

- Since 1980, our region has averaged 16,504 new housing units per year.

Philadelphia MSA Housing Starts (#Units): 1980-2024



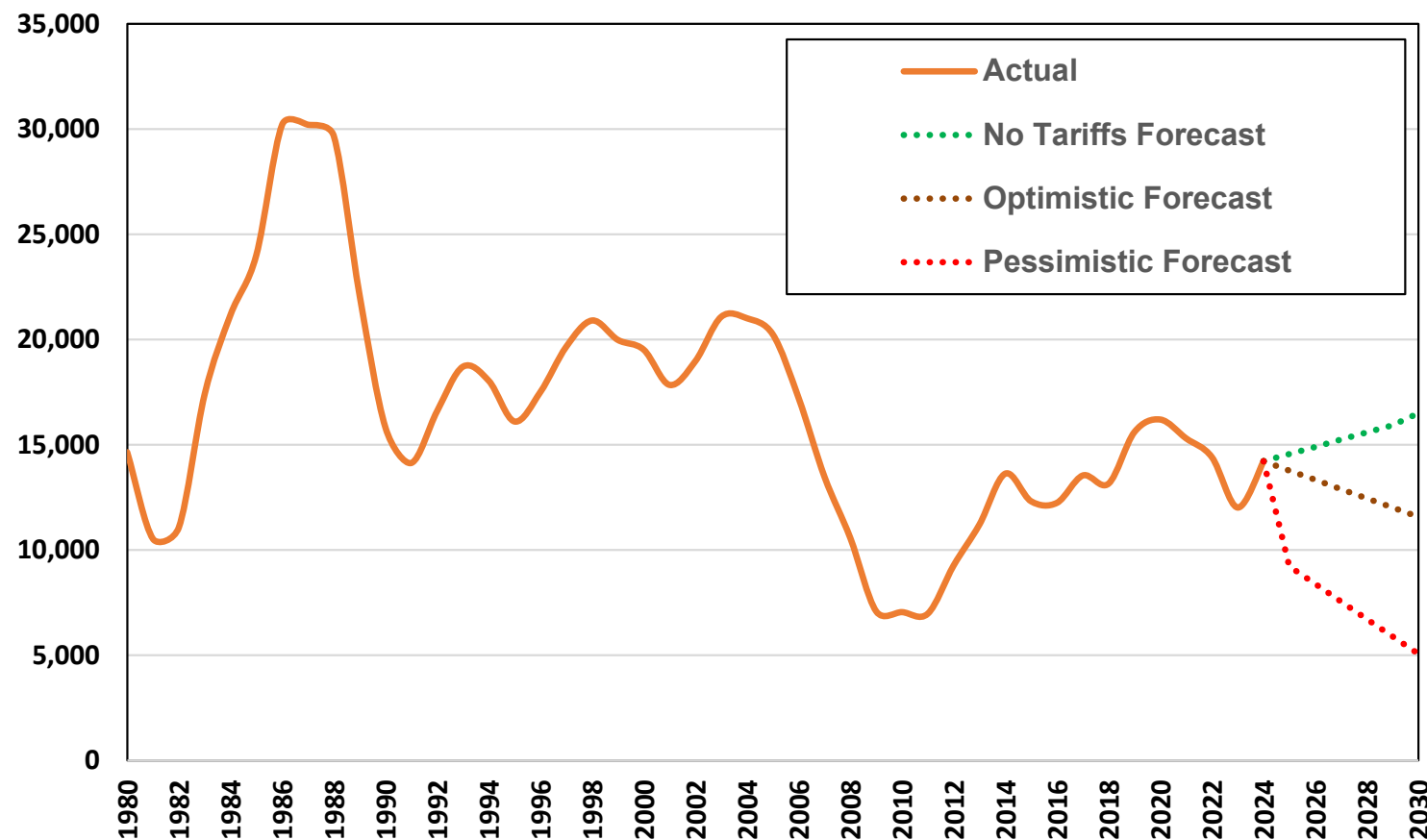
MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

New Homebuilding (#Units) in the Philadelphia Metro Region: 1980-2030

Source: US Dept. of HUD, Kevin C. Gillen

- If the current tariffs are repealed in the next few months then regional homebuilding is projected to revert back to its long-run average by 2030.
- If builders are able to pass on their additional costs, homebuilding is projected to decline to 11,577 units/year by 2030.
- If builders absorb the additional costs, homebuilding is projected to decline to 5,058 units/year by 2030.

Philadelphia MSA Housing Starts (#Units): 1980-2030



MEASURING EFFECT OF TARIFFS ON HOMEOWNERSHIP

Two Ways That Homebuyers Can React To Higher House Prices (Due to Higher Homebuilding Costs):

- Pay the higher prices, subject to their personal income limits
- Defer their home purchase, until either their incomes catch up or tariffs are eliminated
- Both of these will affect the rate of future homeownership.

MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Elasticity 3: Measures the % Change in Homeownership to the % Change in House Prices:

Based upon current interest rates (6.8%), the region's typical household income (\$78,761), the region's typical price of a new home (\$555,000) and a downpayment of 15%, the typical mortgage payment is \$3,075 per month.

If the total cost of tariffs is passed on to households, the typical mortgage payment will increase to \$3,198 per month*.

=>The region's homeownership rate will fall from 62.1% to 58.4%*

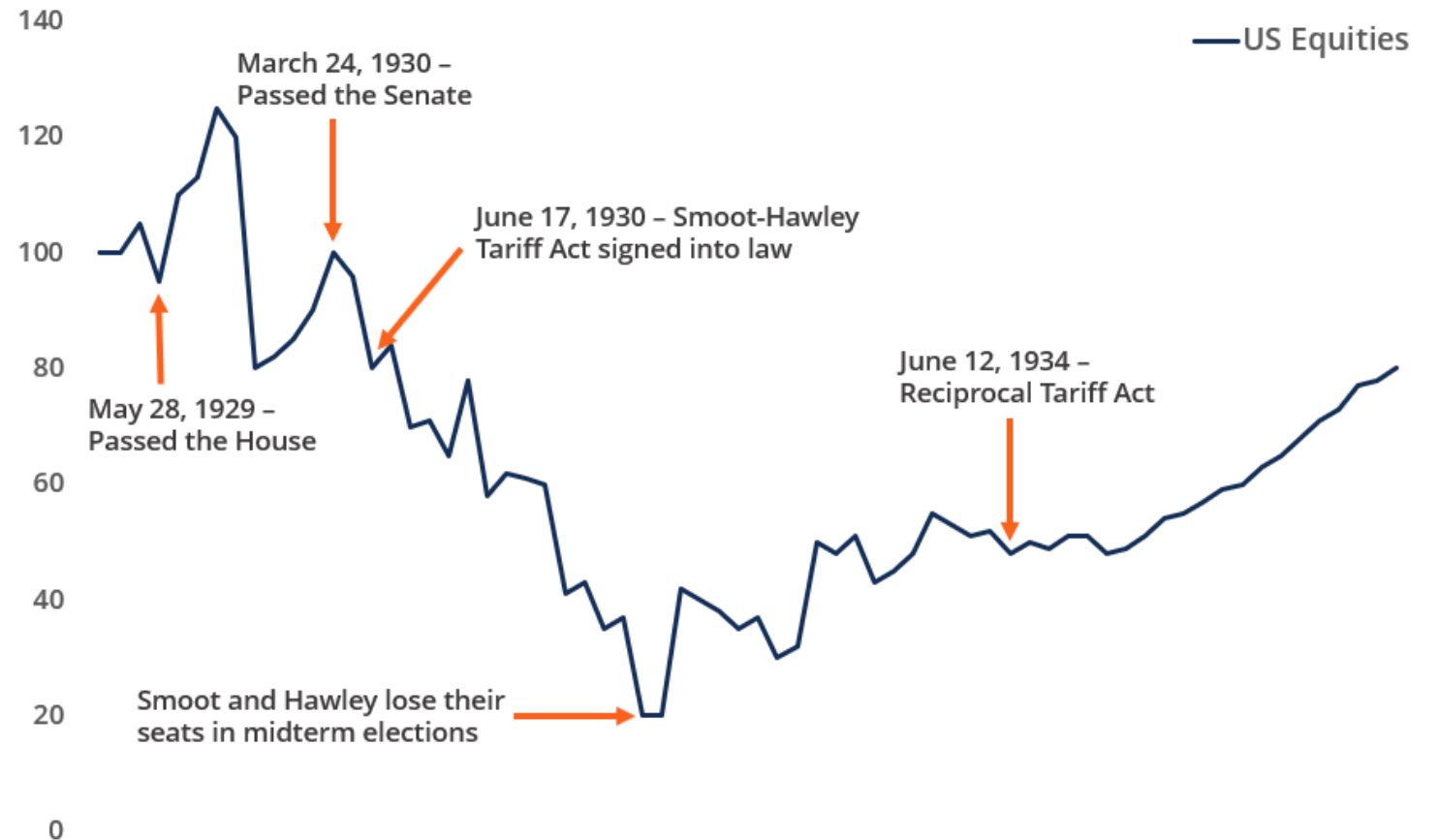
STOCK MARKET V. HOUSING MARKET

U.S. Tariff v. S&P 500: 1929-1937

Sources: Standard & Poor, ResearchGate

- Following its passage, the stock market entered a prolonged slump, and fell by 80%.
- The U.S. economy contracted by 50%.
- Unemployment hit 25%.
- The recession became The Great Depression.

Impact of Smoot-Hawley Tariff Act on US Equities



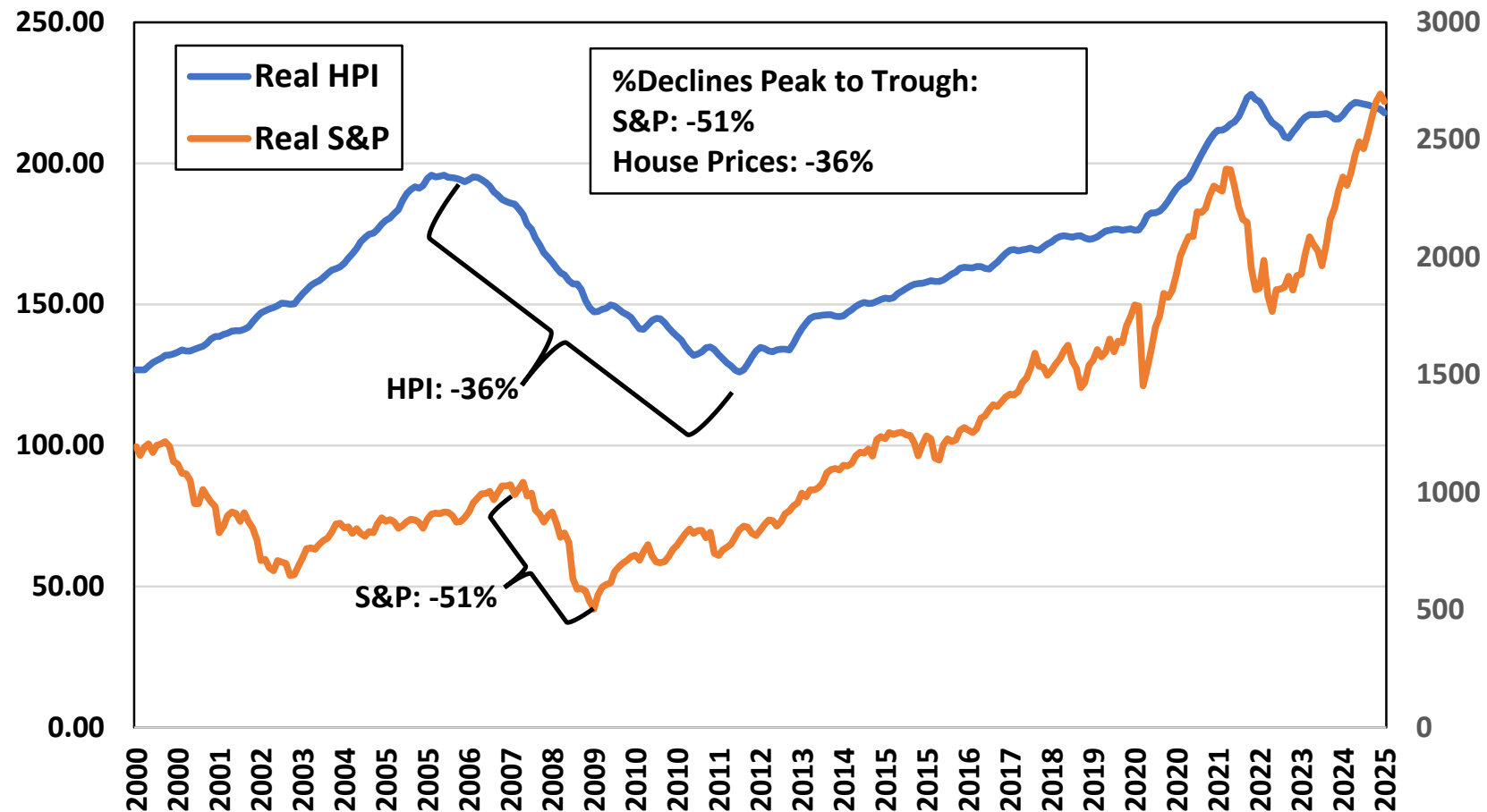
STOCK MARKET V. HOUSING MARKET

S&P 500 and U.S. House Prices: 2000-2025

Source: Standard & Poor, Case-Shiller

- During the Great Recession, house prices fell an average of 36% while household wealth (the S&P) fell 51%.
- If regional household wealth falls by the same amount, only 31% of the region's households would still be able to afford the purchase of a new home*.
- **=> Based upon this result and current HUD affordability guidelines, regional homeownership would decline by 18.5% points*.**

Stock Market v. Housing Market: 2000-2025



MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Elasticity 4: Measures the % Change in Homeownership to the % Change in Incomes:

If household wealth declines by the same % as the stock market did during the last housing downturn (2008-2012), only 31% of the region's households will still be able to afford to purchase a new home.

=>The region's homeownership rate will fall from 62.1% to 43.6%*

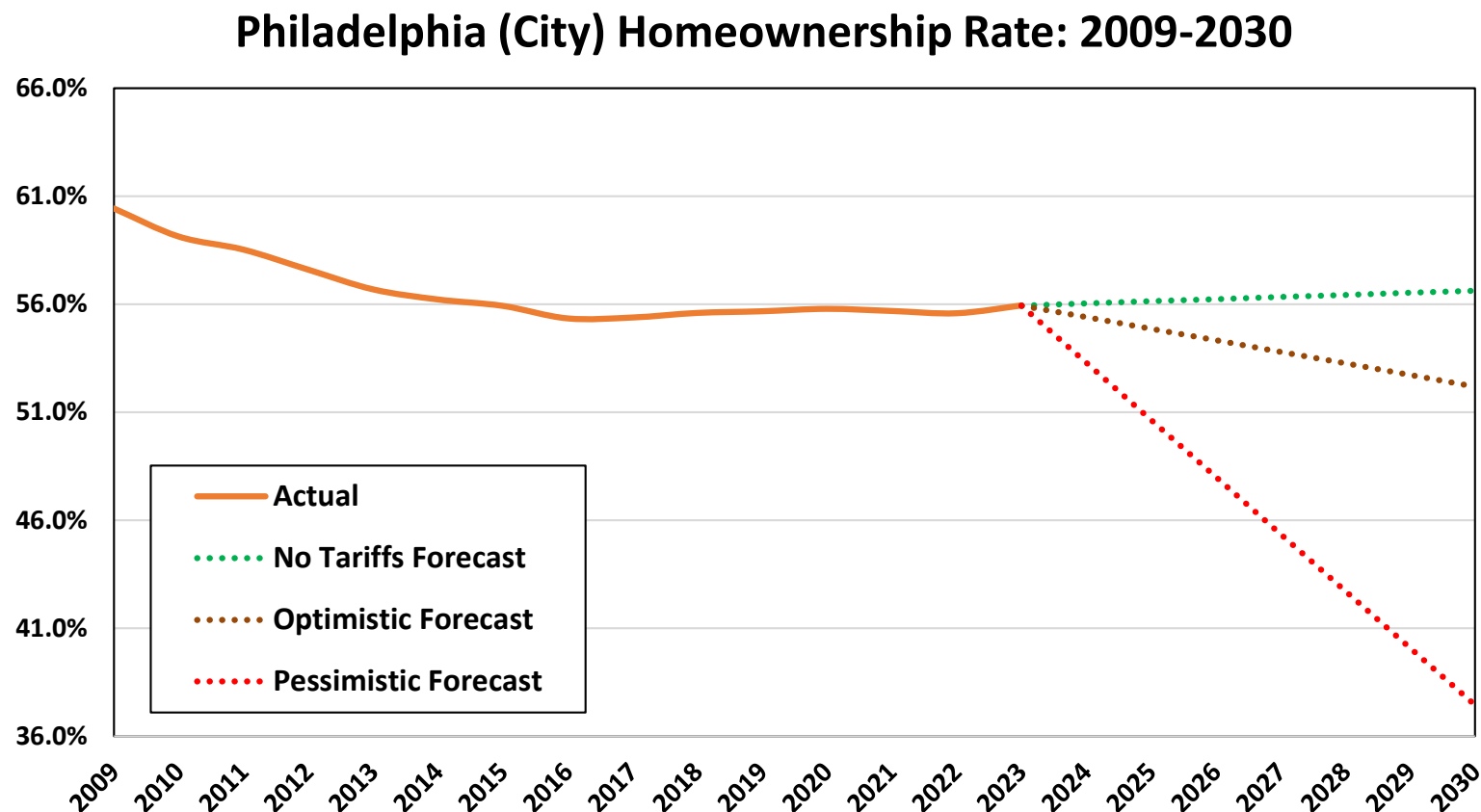
This change is computed separately for Philadelphia v. its suburbs, since both house prices and household incomes are substantially different between these two markets.

MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Homeownership in the Philadelphia Metro Region: 2009-2030

Source: US Census

- Since 2009, Philadelphia has averaged a homeownership rate of 56.6% per year.
- If homebuyers are willing and able to absorb the higher cost of new homes, this will decline to 52.2% by 2030.
- If homebuyers' wealth and incomes take the same hit as during the last recession, this will instead decline to 37.4%.

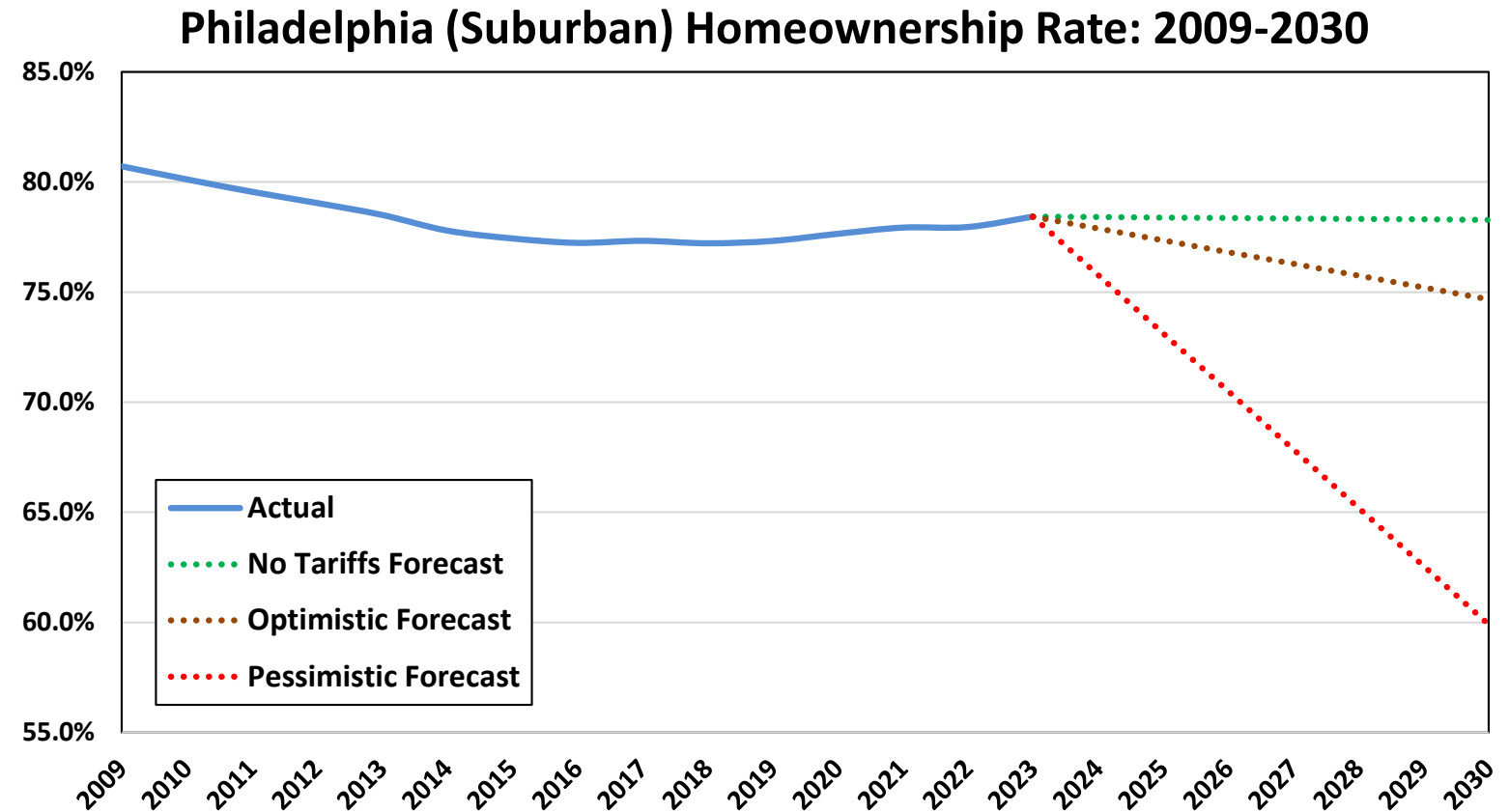


MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

Homeownership in the Philadelphia Metro Region: 2009-2030

Source: US Census

- Since 2009, Philadelphia's suburbs have averaged a homeownership rate of 78.3% per year.
- If homebuyers are willing and able to absorb the higher cost of new homes, this will decline to 74.7% by 2030.
- If homebuyers' wealth and incomes take the same hit as during the last recession, this will instead decline to 59.9%.



MEASURING EFFECT OF TARIFFS ON HOMEBUILDING COSTS

What Does This Mean for You and Your Business?

- The current average sale price of a new home in the region is \$555,000.
- If housing starts and homeownership decline by the amounts predicted in the **optimistic** scenario, that is a total \$dollar decline in sales revenue of \$1.1bn per year (~\$34m in total annual sales commissions).
- If housing starts and homeownership decline by the amounts predicted in the **pessimistic** scenario, that is a total \$dollar decline in sales revenue of \$2.2bn per year(~\$65m in total annual sales commissions).

SUMMARY

What Should You Keep in Mind and Expect, Going Forward?

- The projected effects of the tariffs are for the intermediate-to-long run.
- The economic dynamics of tariffs are analogous to a glacier: very slow moving, but also very difficult to stop or turn around once some momentum is achieved.
- Therefore, expect only small changes in the short run but larger changes as more time passes.
- Builders and suppliers have been stockpiling materials for several months now. So, most effects won't begin to really appear until after this summer.
- If the tariffs are repealed between now and then, their adverse effects will be relatively small and temporary. So: Worry more about a recession and/or interest rates!

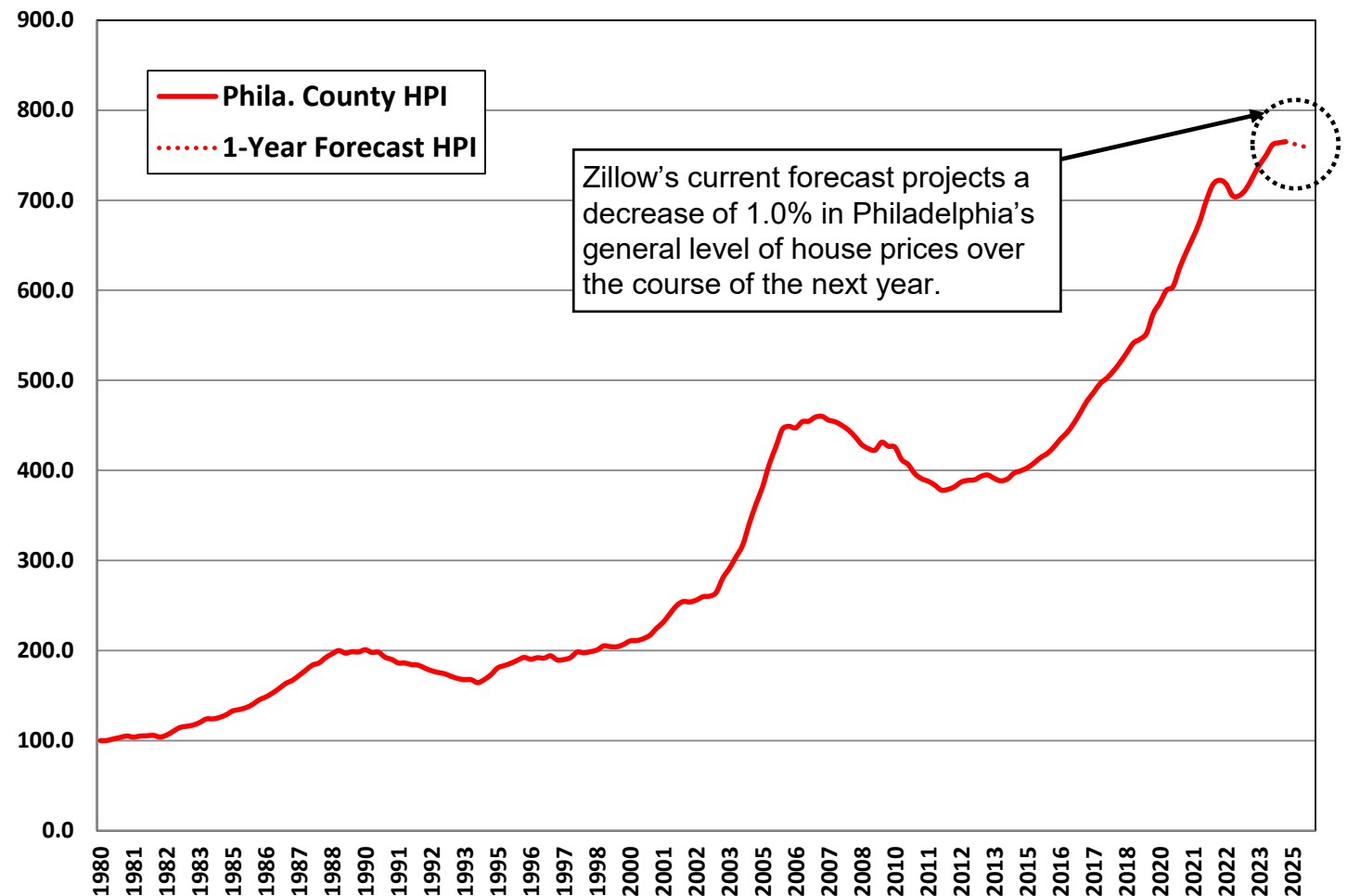
FORECAST

House Price Forecast

Source: Zillow

- Earlier this month, Zillow revised their Philadelphia region forecast to project negative growth.
- Its current forecast is for a -1% decline in house prices over the next 12 months.
- This is the first forecast for negative growth since the Housing Bubble of 2007-2012.
- **=>Current housing forecasts are beginning to incorporate the negative effects of the tariffs!**

Philadelphia House Price Index: Actual v. Forecast



SUMMARY

What Should You Do, Going Forward?

- The Bottom Line: *Pray for a speedy and successful conclusion to the trade war!*
- *Or prepare for your bottom line to get a haircut!!*



Thank You!!

Kevin C. Gillen Ph.D.

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