

Monday Monetary Thoughts

On AI, economists shouldn't cosplay as accountants

Neil Dutta

Don't get too cute with the accounting gimmicks

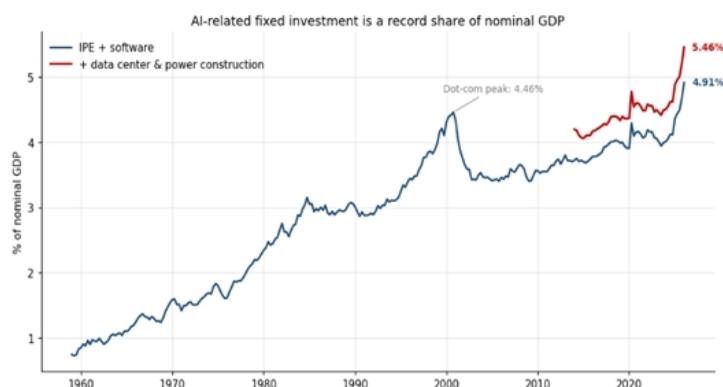
Information technology investment has been an important driver of growth over the last year — or has it? A popular argument holds that the measured impact of AI on GDP growth is quite modest, since the surge in investment leaks abroad in the form of higher imports. (In this piece, I use “tech” and “AI” interchangeably).

I understand the growth accounting, but I think this analysis leaves out several channels through which AI is affecting the broader economy. In the absence of the AI boom, economic growth would likely be meaningfully weaker in the aggregate.

A modest GDP impact — on the surface

Start with the obvious: **business investment in information processing equipment, software, non-residential data centers, manufacturing, and power facilities now totals nearly six percent of US GDP — well beyond the dot-com era.** This is a significant share of nominal output overwhelmingly tied to AI — before any judgement on whether the capex translates productivity to output.

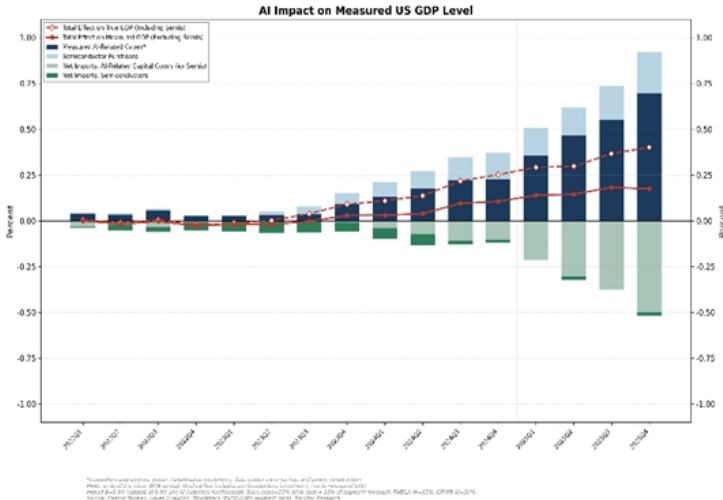
But how much has this been contributing to growth in GDP? Imported parts do not directly add to GDP growth, even though they are still represented in final demand. When we tally up the quarterly contributions from tech-related spending components, the strong growth in capital goods imports meaningfully weakens the short-run impact on aggregate demand.



Note: "IPE + software" = private nonresidential fixed investment in information processing equipment plus private investment in software, as a share of nominal GDP. The broader bundle adds private nonresidential construction in data centers and in electric power generation, available from 2014. All series are seasonally adjusted at annual rates. Source: BEA NIPA, Census Bureau Construction Spending.

Doing the math, we estimate that tech spending has provided a modest lift to US GDP growth per quarter, on average, over the last four quarters.

See our nearby figure. We constructed four components: measured AI capex from NIPA equipment investment and Census construction spending, semiconductor purchases proxied from NVIDIA and AMD segment revenue, and the corresponding import offsets for capital goods. The decomposition implies AI investment contributed roughly 0.4pp to a “true GDP” measure that treats semiconductor purchases as final output, but only 0.2pp to officially measured GDP that follows BEA’s intermediate-good treatment.

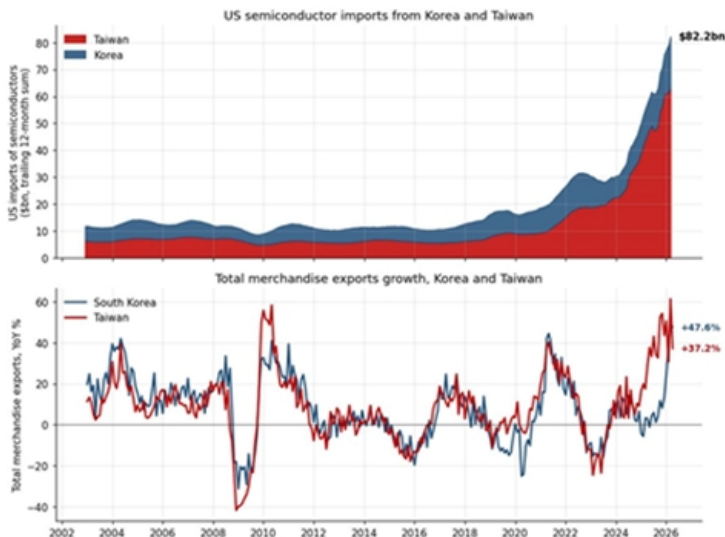


The macroeconomic question is what this is doing to growth. The net-of-imports critique points out, correctly, that much of the equipment is sourced from Taiwan and Korea, so the direct GDP contribution after subtracting imports is modest.

Growth leaks abroad

The fact that the growth leaks abroad is a reminder that the capital spending boom is an important driver of global growth, especially in emerging Asia. **Even as the political winds shift against trade, international trade persists nonetheless.**

Indeed, we’ve seen a remarkable run in Korean and Taiwan exports. **AI capex dollars do not vanish when they are spent on imports. They finance a real-economy boom in Asia, and the cycle loops back to US corporate earnings** — NVIDIA, AMD, Broadcom, and Micron book substantial revenue.

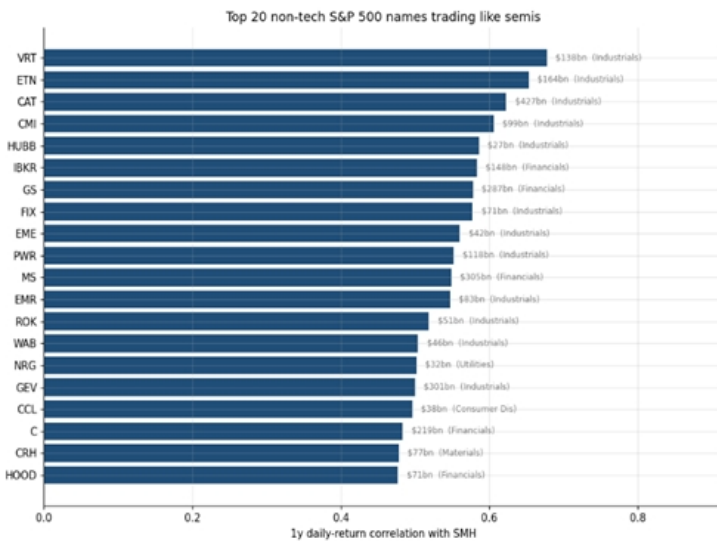


Treating the capex story as a closed-economy GDP-accounting exercise understates how much it is driving, both abroad and, through the earnings channel, back home – US equity prices as a result. In turn, the surge is providing a meaningful tailwind to non-tech firms and US households in the form of an equity wealth effect, supporting household consumption.

“Equal weight” might be a derivative of AI

Let’s look at the stock market first.

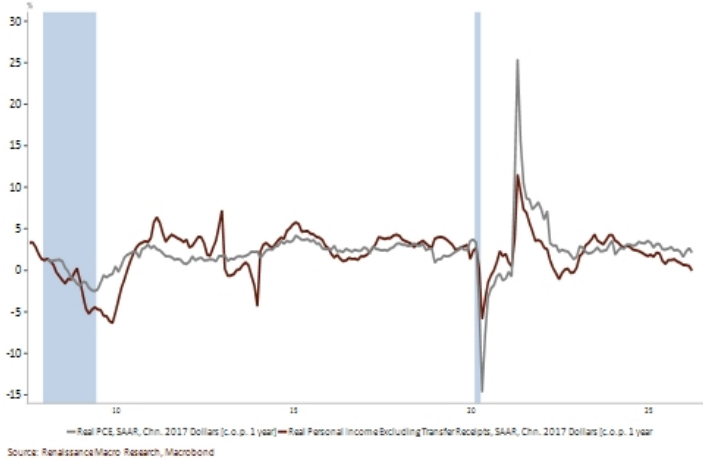
We ran a 1-year daily-return correlation between every S&P 500 name and the SMH semiconductor ETF. Fifteen non-tech S&P 500 companies, collectively worth roughly \$2.0 trillion in market cap, now move with semis at correlations of 0.50 or higher. Twelve of those fifteen are Industrials: Vertiv (0.68), Eaton (0.65), Caterpillar (0.62), Cummins (0.61), Hubbell, Comfort Systems, EMCOR, Quanta, Emerson, Rockwell, Wabtec, and GE Vernova. Capital Markets fills out the rest — Goldman, Morgan Stanley, Interactive Brokers, BlackRock, Robinhood, Citi.



These are not tech stocks. They trade like semis because their order books have become AI capex order books. Caterpillar sells backup gensets and engines into hyperscaler data centers. Vertiv sells cooling and power management. Eaton sells electrical components. GE Vernova sells gas turbines for data center power. The GICS sector classification has not caught up with the economic exposure.

The implication is straightforward. If the AI cycle ever cools off, the wealth-effect drag on consumption is not confined to the Mag 7. A ~\$2T slice of the industrial economy's equity value is moving as a derivative of AI capex.

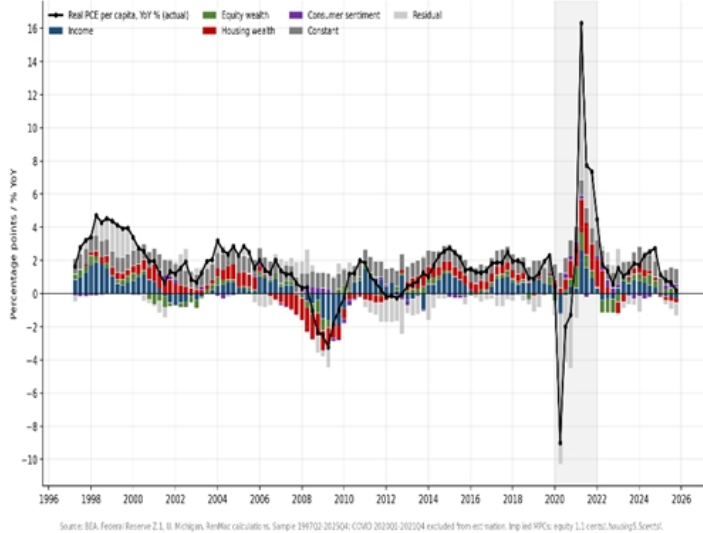
Consumer spending outpaces income growth, suggesting future slowdown



Consumption not well supported

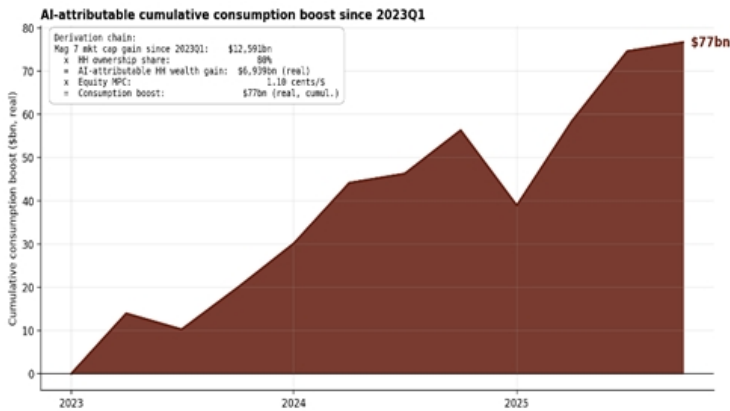
Next, GDP growth accounting fails to capture how the boom in equity wealth is juicing household consumption. Indeed, the pace of real personal consumption expenditures is running more than twice the pace of real disposable income over the last year. Given the sluggish growth in home prices in recent years, equity wealth is doing much of the heavy lifting for household consumption.

Decomposing real PCE per capita growth into income, wealth, and sentiment contributions



To investigate, we estimate a consumption function in which real per-capita PCE growth is driven by real per-capita personal income excluding transfers, the YoY change in real per-capita household equity wealth, and the YoY change in real per-capita owners' equity in real estate (each scaled by lagged real per-capita PCE so the wealth coefficients read directly as marginal propensities to consume). The sample runs from 1997Q1 through Q4 2025, excluding 2020Q1–2021Q4 to avoid the transfer-driven structural break.

The equity coefficient implies an MPC of 1.1 cents per dollar of equity wealth, sitting at the lower end of the academic range — broadly consistent with equity ownership tilting further into the top decile, where MPCs are structurally lower.



Note: AI-attributable household wealth gain = (cumulative change in Mag 7 market cap since 2023Q1) * 80% household ownership share (Federal Reserve Distributional Financial Accounts)
 AI-attributable consumption boost = wealth gain * equity MPC from per-capita consumption regression. Both series real (deflated by PCE price index).
 Source: Bloomberg, Federal Reserve Z.1, BEA, RenMac calculations.

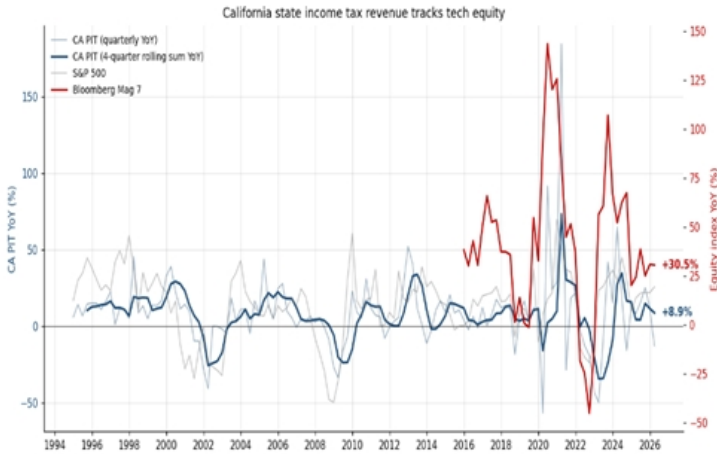
At any rate, **combined direct equities and mutual fund shares now account for 42% of total US household financial assets — the highest share since the Federal Reserve’s household balance sheet series began in 1945**, well above the dot-com peak of 38%. Importantly, the aggregate equity wealth effect on consumption has effectively become an AI wealth effect, which makes any future correction more symmetrically dangerous than the headline market beta would suggest.

None of this leaves us comfortable about the consumption outlook. Real per-capita earned incomes are declining — nominal wages and salaries have eased and price inflation has perked up due to a negative supply shock. Home price appreciation has flattened out over the last year; there is not much of a consumption boost tied to housing appreciation. **Thus, if the marginal dollar of consumption growth is increasingly tied to equity prices, an abrupt shift in market sentiment can have outsized effects on spending.**

State governments helped

The record equity run is also boosting state government revenue — entirely invisible to investment-side accounting.

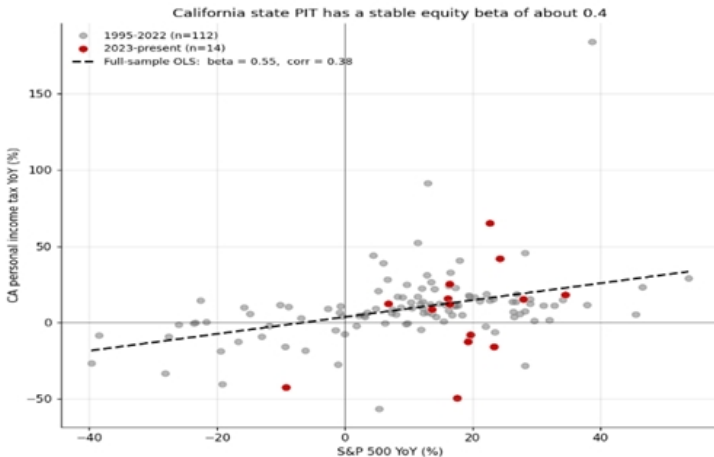
When an employee's Restricted Stock Units vest, each RSU becomes one share of the company's stock, valued at the share price on the day of vesting. Because RSU income is treated as ordinary income, employers must withhold a portion to meet state and federal tax obligations — typically by selling a portion of the vested shares and remitting the proceeds as a withholding payment.



Note: Year-over-year percent change in California state personal income tax revenue (left axis) and equity indices (right axis), quarterly. The 4-quarter rolling sum smooths through tax-filing deadline distortions, including Cal Source: US Census Bureau Quarterly Summary of State & Local Tax Revenue, Bloomberg

This means equity price appreciation directly inflates the dollar value of withholding on every vest. California's five largest tech companies — Apple, Google, Nvidia, Broadcom, and Meta — are currently worth \$15 trillion, and California's tech firms make up more than 60 percent of the total value of the Nasdaq 100. **As the AI boom has supercharged stock prices, the market value of stock pay options and the state income tax withheld on those options has grown commensurately.**

According to one estimate from California's Legislative Analyst's Office, one-third to one-half of the growth in the state's tax withholdings can be attributed to equity withholding. Indeed, our own work shows a statistically significant relationship.



Note: Each point is a quarterly observation since 1995Q2. The regression line is a single OLS fit over the full sample. The 2023-present (AI era) points Source: US Census Bureau Quarterly Summary of State & Local Tax Revenue, Bloomberg

See our nearby figure. California's quarterly personal income tax (PIT) is regressed on changes in the S&P500 from 1995 to 2006. Every 10pp gain in equities translates into roughly 5.5pp of California tax revenue growth. The relationship has not structurally tightened in the AI era; what has changed is the magnitude. The Bloomberg Mag 7 has delivered 30.5 percent year-over-year growth in the most recent quarter against an S&P 500 historical median of 8 to 10 percent, so the same beta is being applied to a much larger return.

Since the start of 2024, California has collected \$262 billion in personal income tax. Had revenue grown at its pre-AI 2018-19 pace, the state would have collected \$196 billion over the same eight quarters — a gap of \$66 billion. **In short, California has collected quite a bit more revenue than it would in the absence of the AI equity rally. Importantly, this windfall operates entirely outside the investment-side accounting framework.**

New York, Washington, Massachusetts, and Texas all have variants of the same channel. The aggregate state-and-local fiscal lift is meaningfully larger than California alone. **Thus, I think it is fair to assume that at least some of the tech boom is leaking into growth via stronger state government spending and investment.**

The real question: what is the payoff?

One might then conclude that, in the absence of the AI boom, the economy would be in recession. I don't think I would go that far. Resources would likely flow elsewhere — we'd probably have somewhat lower interest rates and somewhat better residential investment. But that framing misses the point. **Corporate earnings would almost certainly be much lower, and the fact that rates would be lower in the counterfactual is itself an admission that growth likely would be too.**

Stepping back, **GDP accounting is probably less relevant than the question of whether the investment itself will deliver a meaningful return. High capital spending tells you the capital stock is growing — and therefore productivity should follow.** The real question is whether returns on this will be unusually high.

For now, rapid productivity growth remains more forecast than present-day reality. Labor productivity has stalled in recent quarters. **It is historically unusual to see prices for IT commodities rising while real incomes are falling in the context of a supposed productivity boom.**

To the extent markets are already pricing in a favorable productivity backdrop, there is a risk that the equity market response is muted even if the productivity gains materialize. Equity markets are already forecasting company profitability to rise to near-record highs over the next twelve months, despite higher energy prices. Projected return on equity for the equal-weight S&P has been moving higher.

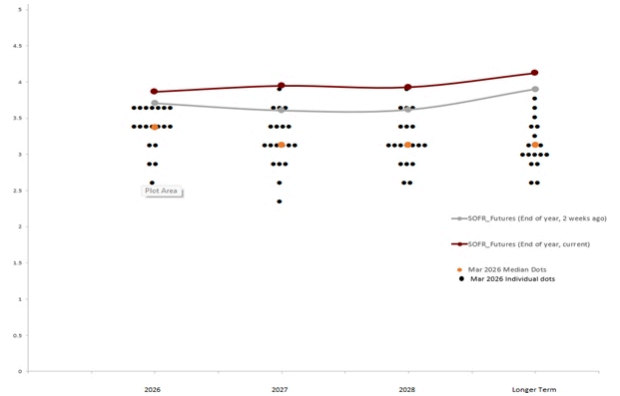
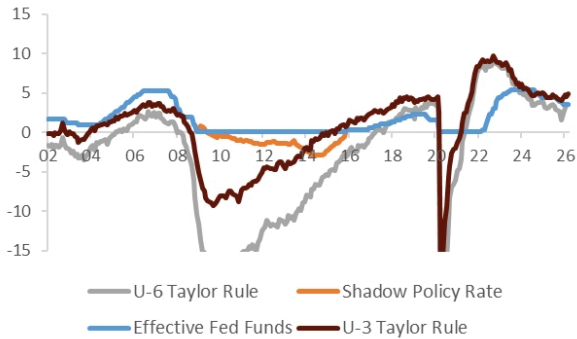


The bottom line

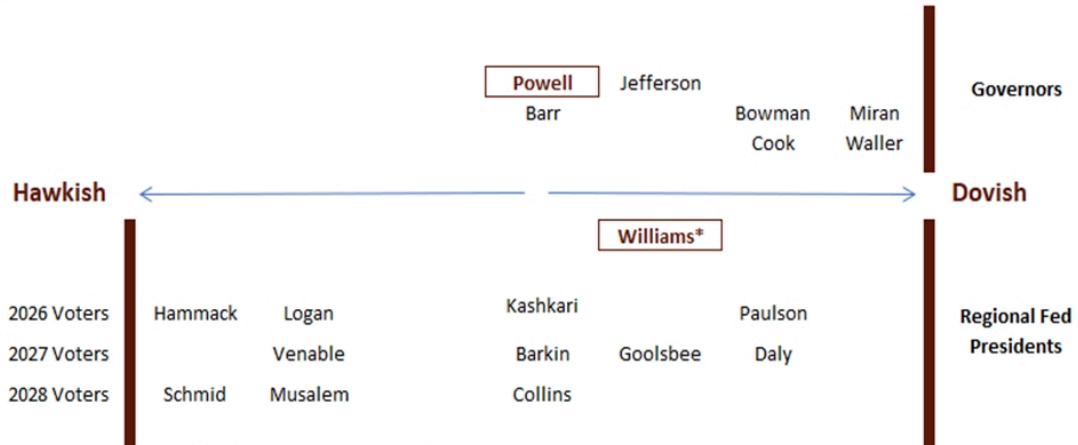
Standard GDP accounting glosses over several channels through which the tech capital spending boom is affecting the economy: equity wealth supporting consumption, and equity-driven tax windfalls supporting state government budgets. Put differently, if all the AI capex boom were doing is adding half a percentage point to quarterly GDP growth, one might expect little blowback to the rest of the economy when the cycle slows.

Something tells me that view is too sanguine — **the rough equivalent of declaring that “AI is contained.”**

Monetary metrics



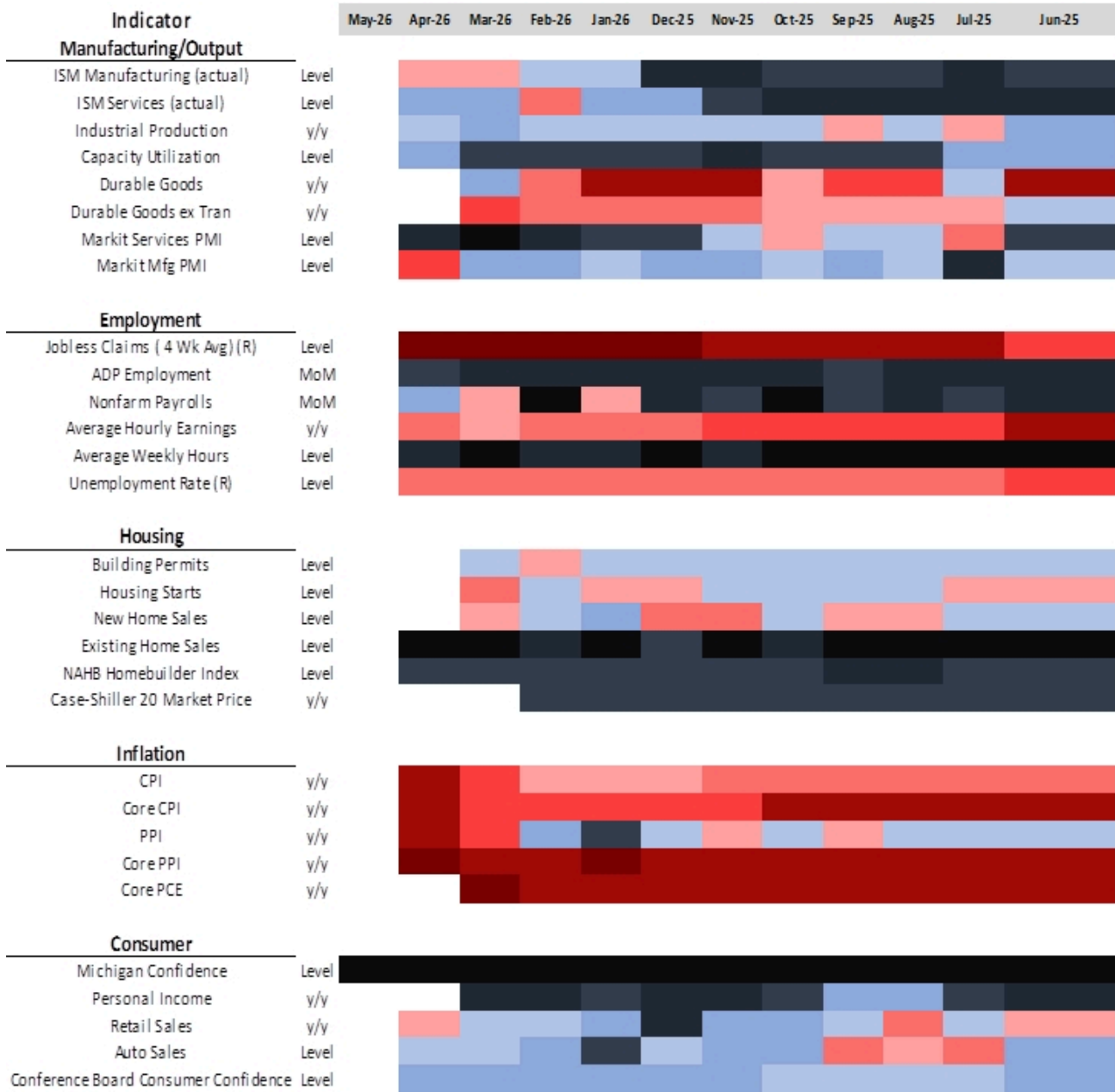
Hawks and Doves



*Federal Reserve Bank of NY President always votes
Boxed individuals represent FOMC core

FOMC Forecasts	Median				Central Tendency			
	2026	2027	2028	Longer run	2026	2027	2028	Longer run
Change in real GDP	2.4	2.3	2.1	2.0	2.2–2.5	2.0–2.4	2.0–2.3	1.8–2.0
December projection	2.3	2.0	1.9	1.8	2.1–2.5	1.9–2.3	1.8–2.1	1.8–2.0
Unemployment rate	4.4	4.3	4.2	4.2	4.3–4.5	4.2–4.4	4.0–4.4	4.0–4.3
December projection	4.4	4.2	4.2	4.2	4.3–4.4	4.2–4.3	4.0–4.3	4.0–4.3
PCE inflation	2.7	2.2	2.0	2.0	2.6–3.1	2.0–2.3	2.0	2.0
December projection	2.4	2.1	2.0	2.0	2.3–2.5	2.0–2.2	2.0	2.0
Core PCE inflation	2.7	2.2	2.0		2.5–2.8	2.0–2.4	2.0	
December projection	2.5	2.1	2.0		2.4–2.6	2.0–2.2	2.0	
Projected policy path								
Fed funds rate	3.4	3.1	3.1	3.1	3.1–3.6	2.9–3.6	2.9–3.6	2.9–3.5
December projection	3.4	3.1	3.1	3.0	2.9–3.6	2.9–3.6	2.8–3.6	2.8–3.5

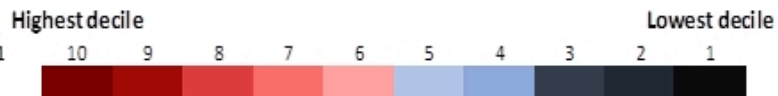
High frequency data heat-map



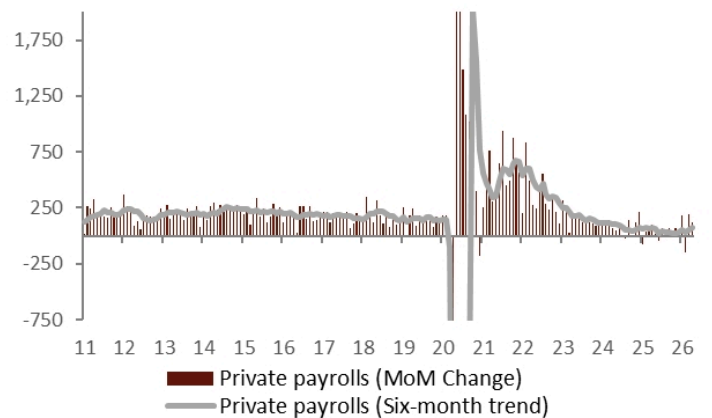
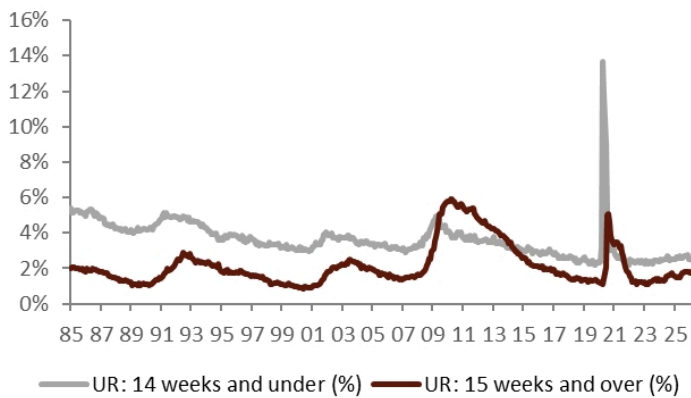
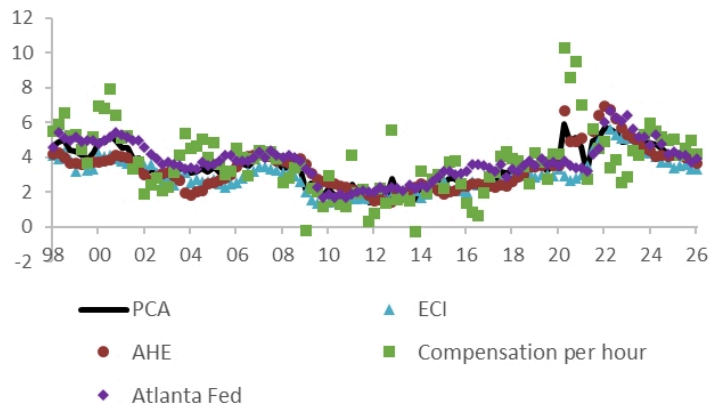
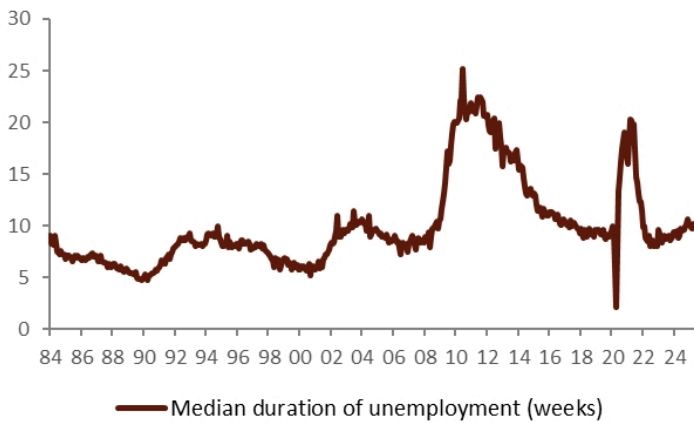
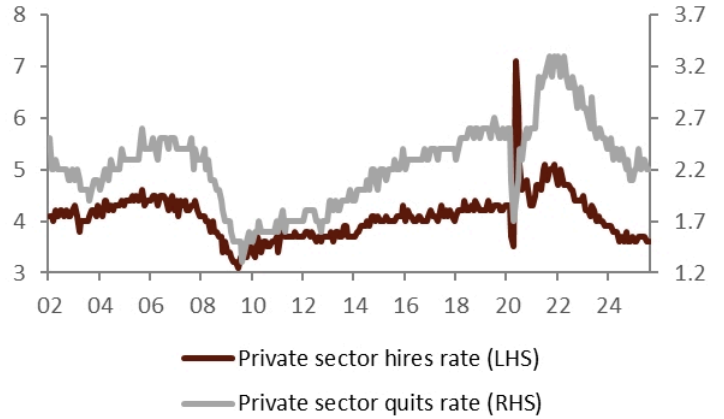
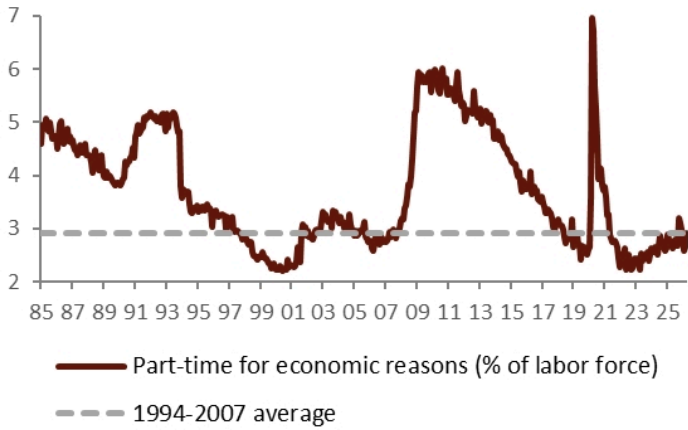
Notes

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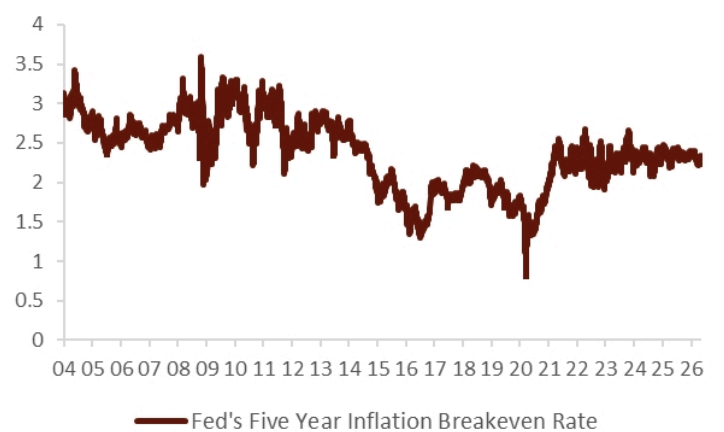
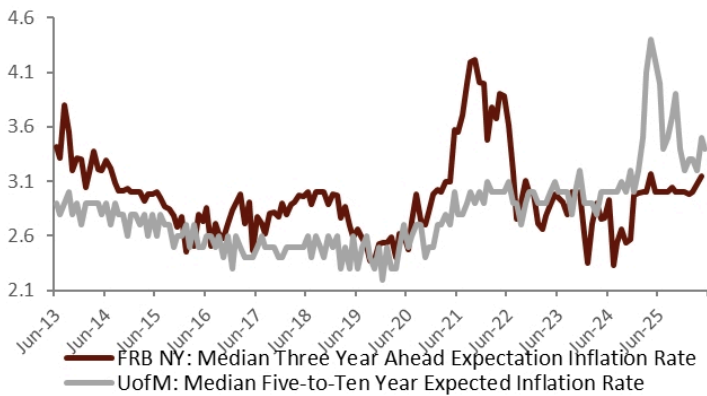
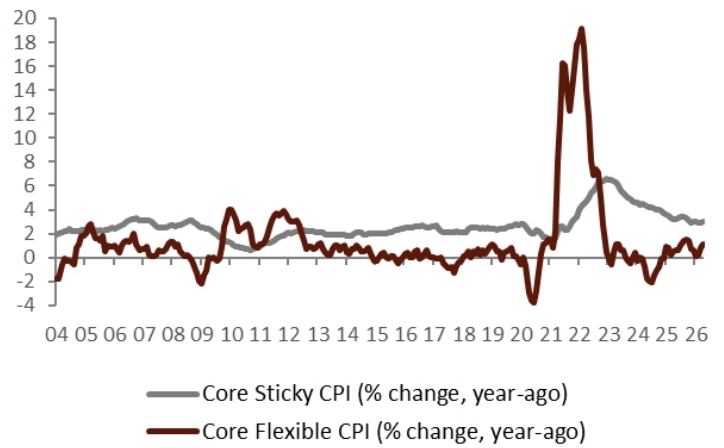
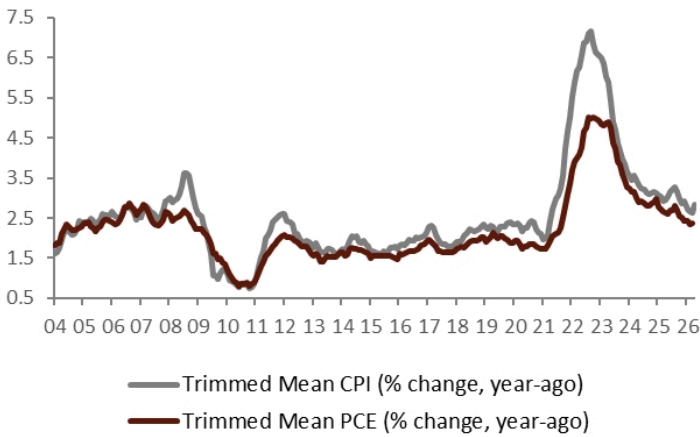
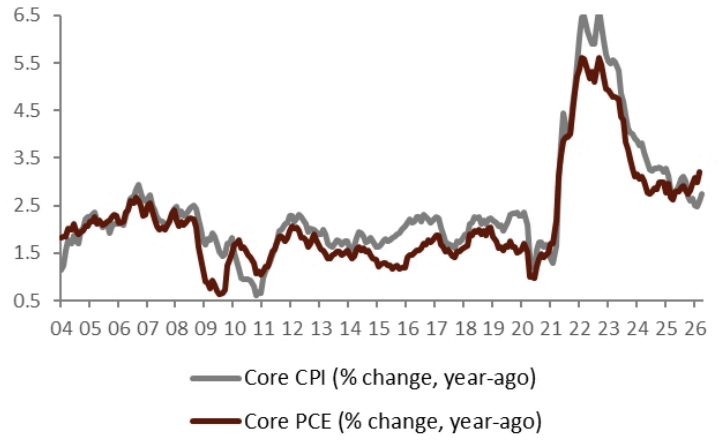
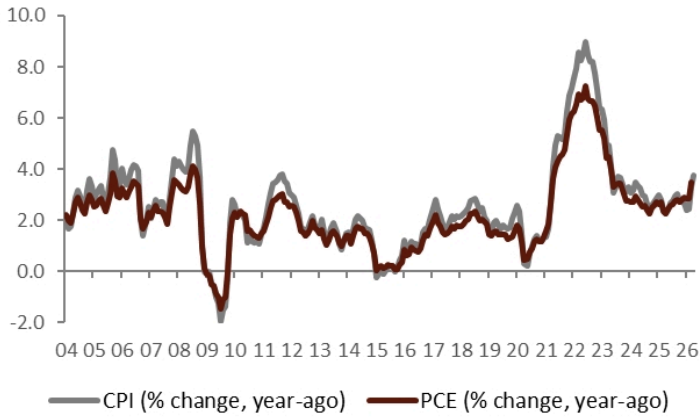
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Labor market indicators

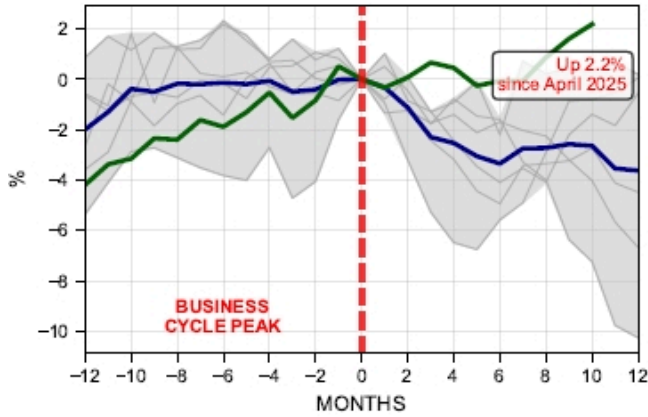


Inflation indicators

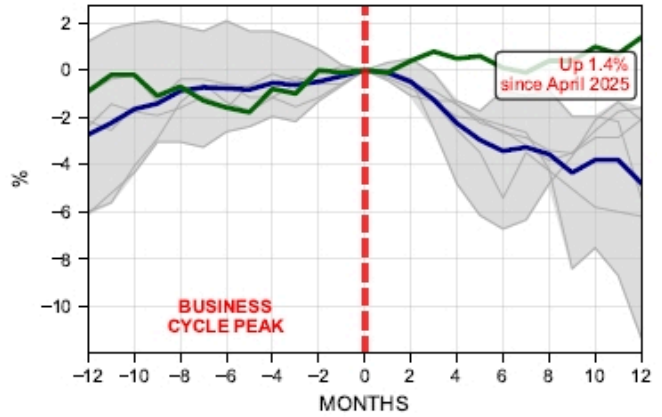


NBER RECESSION INDICATORS DASHBOARD

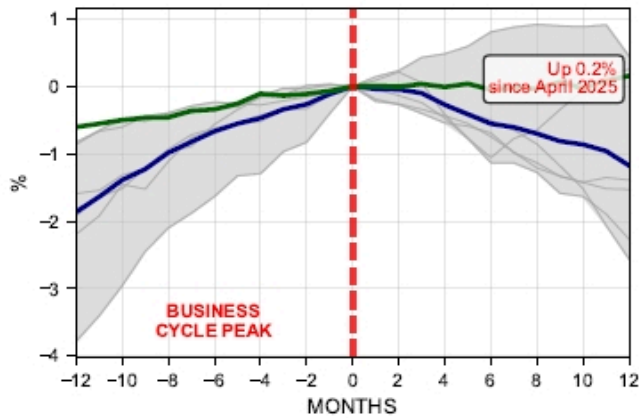
REAL SALES: MANUFACTURING AND TRADE INDUSTRIES



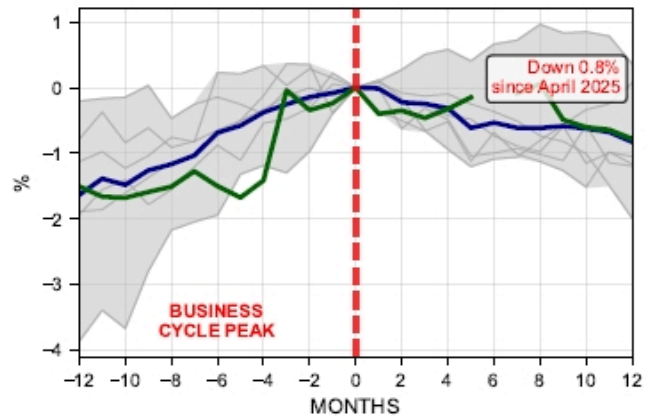
INDUSTRIAL PRODUCTION



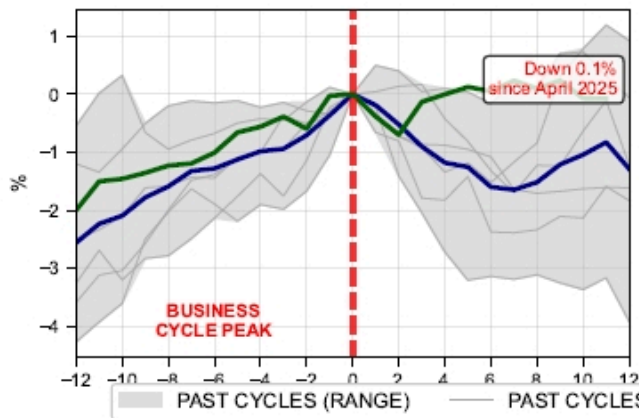
US NONFARM PAYROLLS



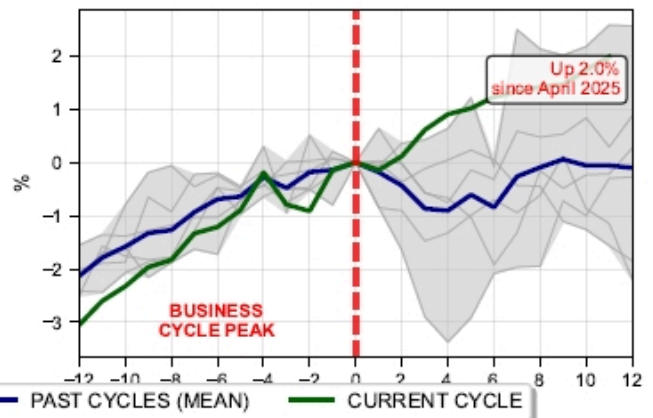
CIVILIAN EMPLOYMENT



REAL PERSONAL INCOME MINUS CURRENT TRANSFER RECEIPTS



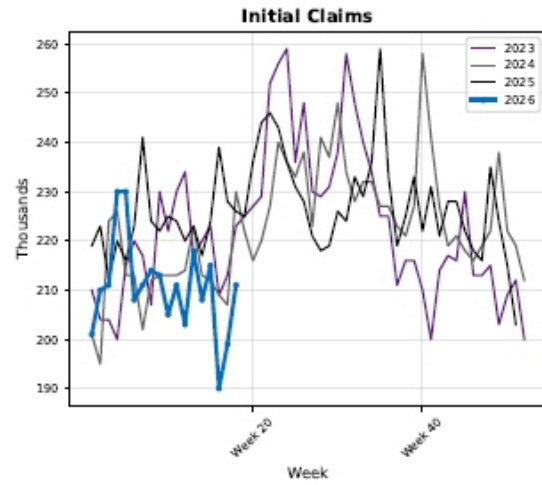
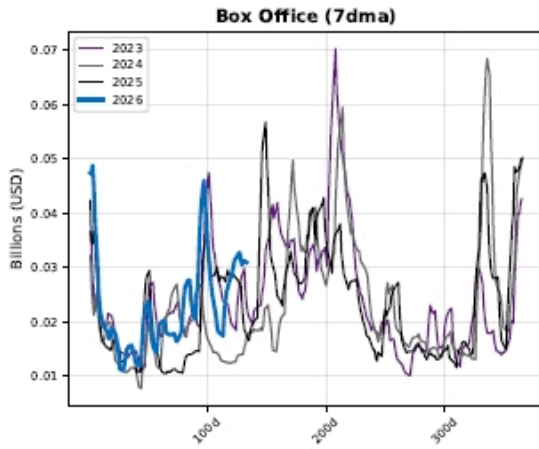
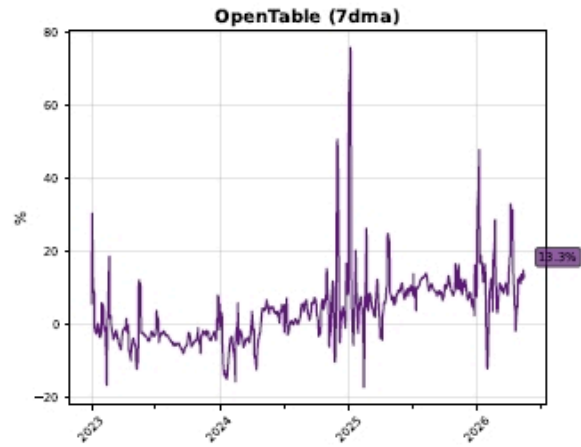
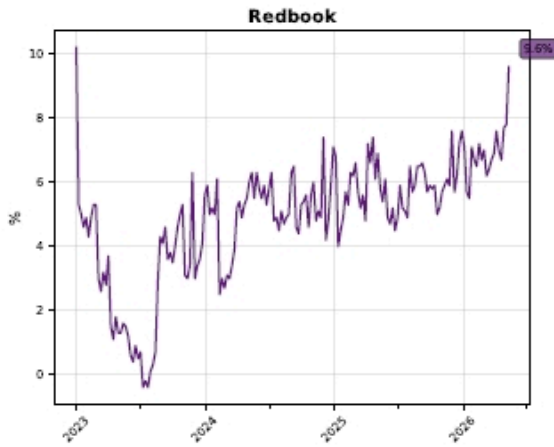
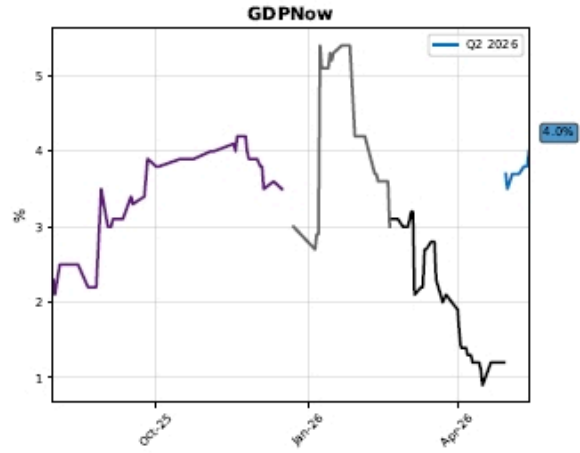
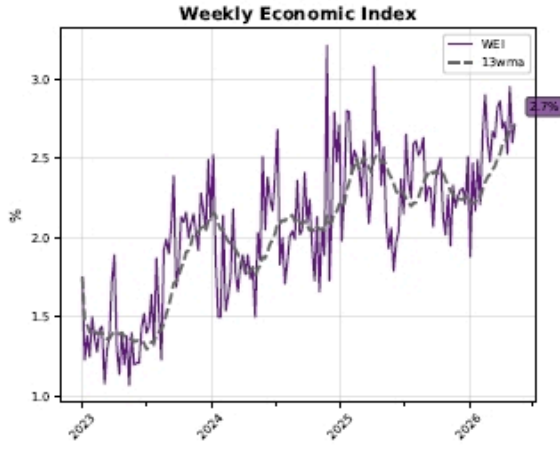
REAL PCE



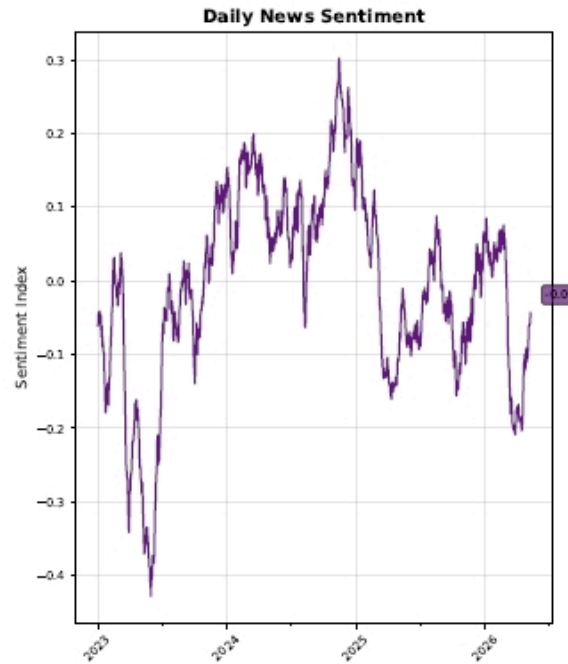
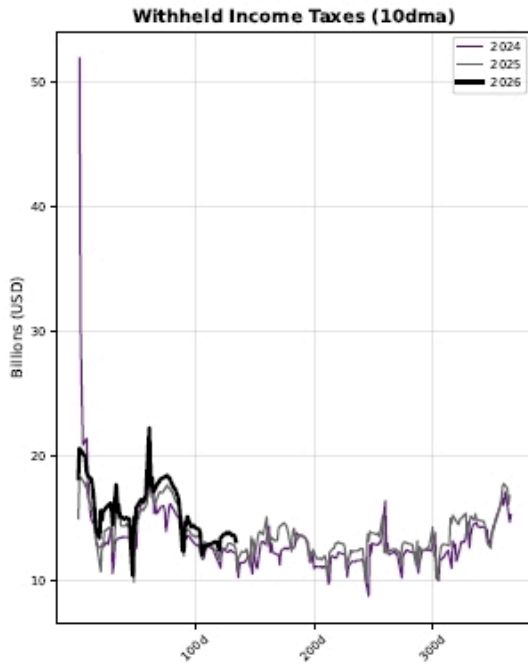
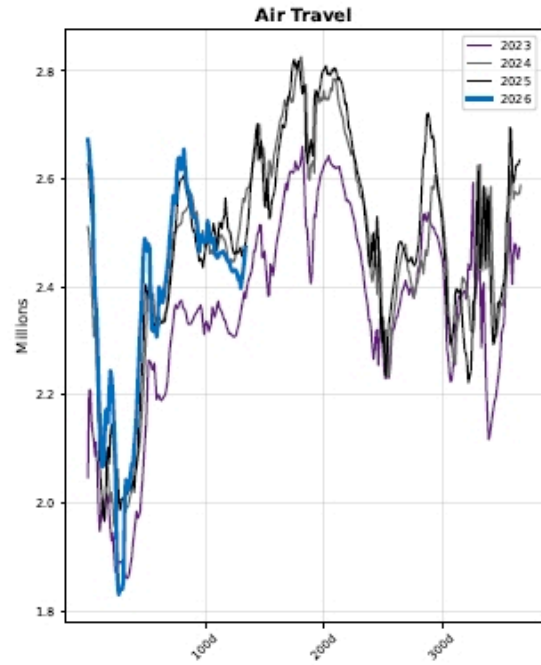
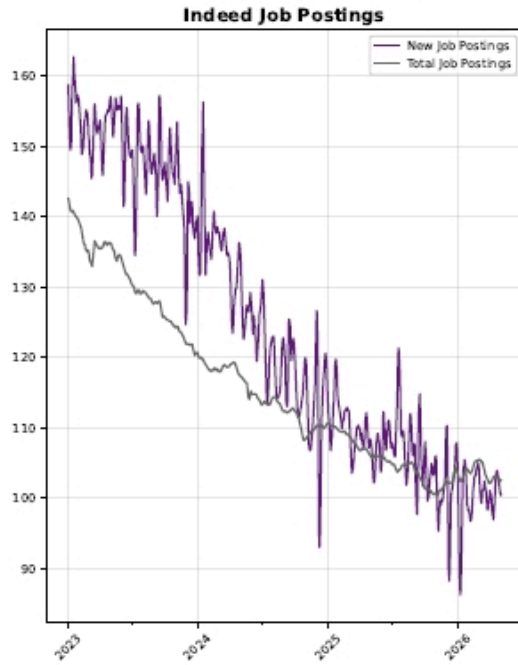
PAST CYCLES (RANGE)
 PAST CYCLES
 PAST CYCLES (MEAN)
 CURRENT CYCLE

Past 7 cycles excluding Covid-19 period

High Frequency Economic Dashboard



High Frequency Economic Dashboard



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