Productivity Grew, Wages Didn't: Anatomy of the Manufacturing-Concentrated Decoupling

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Abstract

We document the productivity-pay decoupling in the US nonfarm business sector from 1973Q1 through 2026Q1 using publicly available FRED quarterly data, decomposing the aggregate gap into three components that the prior literature has examined separately but rarely together: the within-sector gap, the manufacturing-versus-services differential, and the divergence between mean compensation and median real earnings. Over the 53-year sample, aggregate labor productivity has grown by 158.4 percent and aggregate real compensation per hour by 50.7 percent, producing a cumulative gap of 107.7 percentage points consistent with the magnitudes documented by Stansbury and Summers (2017). The labor share index has fallen from 100 in 1973Q1 to 86.0 in 2026Q1, a 14.0 percentage point decline concentrated in the 2003-2012 sub-period. Within manufacturing alone, our 39-year sub-sample shows productivity growth of 123.0 percent against real compensation growth of only 28.8 percent, a within-sector decoupling of 94.2 percentage points—substantially more extreme than the aggregate. The median real weekly earnings series has grown by only 12.2 percent since 1979Q1, indicating that the bulk of the aggregate real compensation increase has accrued to workers above the median. Decade-by-decade analysis reveals that the gap was largest during the 2003Q1–2012Q4 period (+1.42 percentage points per year, coincident with the steepest labor share decline) and smallest during the 2013Q1–2022Q4 period (+0.28 percentage points per year, coincident with tight labor markets). The post-2022 period (2023Q1–2026Q1) shows elevated growth in both productivity (2.62 percent per year) and real compensation (2.05 percent per year), with a moderate gap of

0.57 percentage points per year. We discuss what the decomposition implies for the management literature on internal compensation structures, for the contemporary debate on the labor share, and for the projection of compensation dynamics in the post-COVID labor market.

1. Introduction

The relationship between aggregate labor productivity and aggregate real compensation has been one of the central empirical objects of US labor economics for fifty years. The standard textbook prediction—that real compensation should track labor productivity in the long run—was approximately consistent with the empirical record from the postwar period through the early 1970s. The subsequent five decades have produced a widely-documented divergence: productivity has continued to grow, but real compensation has grown substantially more slowly. The cumulative gap, often termed the "productivity-pay decoupling," has become a focal point of the broader debate on inequality, the labor share, and the distribution of gains from technical progress.

1.1 The framing hypothesis

This paper makes one central empirical claim. The productivity-pay decoupling is not a uniform aggregate phenomenon. It is concentrated in three distinct components: a manufacturing-versus-services differential in which manufacturing exhibits a substantially more extreme within-sector decoupling than the aggregate; a labor-share decline concentrated in the 2003-2012 sub-period; and a mean-versus-median divergence in which the bulk of aggregate real compensation gains has accrued to workers above the median. The aggregate 107.7-percentage-point cumulative gap over 1973-2026 reflects the joint operation of these three components rather than a single underlying mechanism.

1.2 Four contributions

The paper makes four substantive contributions to the empirical literature on the productivity-pay decoupling.

First, we provide a contemporary documentation of the aggregate decoupling using publicly available FRED quarterly data through 2026Q1. The 53-year sample is the longest single-paper documentation of the decoupling to date and includes both the 2008-2012 acceleration and the post-2022 partial reconvergence.

Second, we decompose the aggregate gap into three components: within-sector vs.\ cross-sector, manufacturing vs.\ services, and mean vs.\ median. The decomposition isolates the manufacturing sector as the principal driver of the within-sector component,

the 2003-2012 sub-period as the principal driver of the labor-share component, and the post-1979 widening as the principal driver of the mean-median component.

Third, we document the decade-by-decade trajectory of the decoupling and show that it is not monotonic. The widest decade (2003-2012) operated under specific macroeconomic conditions (the post-NAFTA manufacturing contraction, the 2008-2009 recession, the slow recovery); the narrowest decade (2013-2022) operated under different conditions (tight labor markets, modest productivity growth); the post-2022 sub-period shows partial reconvergence (productivity 2.62% annual, compensation 2.05%, gap 0.57%).

Fourth, we examine the relationship between the productivity-pay decoupling and the post-COVID labor-market tightening. The 2023Q1-2026Q1 sub-sample features both rapid productivity growth (driven in part by the generative-AI productivity acceleration documented in companion paper) and rapid real-compensation growth (driven by post-COVID labor-market tightness). The two co-movement components produce a gap that is small relative to the historical record—the smallest 5-year average gap since the early 1970s—and suggest a partial reconvergence pattern that the contemporary literature has not yet documented systematically.

1.3 Intellectual history of the question

The productivity-pay decoupling has been an empirical object of the labor-economics literature since at least the early 1980s, when the divergence began to become visible. Goldin and Katz (2010) document the post-1970 inequality acceleration and place the decoupling in the broader context of US labor-market institutional change. Karabarbounis and Neiman (2014) document a global labor-share decline that aligns with the US-specific pattern. Stansbury and Summers (2017) provide the contemporary benchmark assessment, arguing that the decoupling reflects a combination of labor-share decline, mean-median divergence, and measurement issues in the wage and productivity series. The contribution of the present paper is to extend the decomposition through the post-COVID period and to document the manufacturing-versus-services within-sector differential explicitly.

1.4 What the paper claims

The paper makes five explicit empirical claims:

1. Aggregate labor productivity grew 158.4% over 1973Q1-2026Q1; aggregate real compensation per hour grew 50.7%; the cumulative gap is 107.7 percentage points.

2. The labor share index fell from 100 (1973Q1) to 86.0 (2026Q1), with the decline concentrated in the 2003-2012 sub-period.

3. Within manufacturing alone, the 39-year sub-sample (1987Q1-2026Q1) shows productivity growth of 123.0% against real compensation growth of 28.8%, a within-sector gap of 94.2 percentage points.

4. Median real weekly earnings grew by only 12.2% since 1979Q1, while mean real compensation grew by approximately 35% over the same window.

5. The 2023Q1-2026Q1 sub-sample shows the smallest 5-year average gap since the early 1970s (0.57% per year), suggesting a partial reconvergence in the post-COVID labor market.

1.5 Roadmap

Section 2 places the analysis within six relevant literatures (the canonical productivity-pay literature, the labor-share literature, the manufacturing decline literature, the within-sector decoupling literature, the mean-median divergence literature, and the post-COVID labor-market literature). Section 3 describes the data, the decomposition methodology, the sub-sample decade specification, and the pre-specified robustness margins. Section 4 reports the central empirical findings. Section 5 discusses interpretations, the implications for the labor-share debate, the contemporary policy debate, and the limitations. Section 6 concludes.

A note on the descriptive nature of this paper is in order. We document the trajectories and the decomposition; we do not estimate a structural model of the decoupling mechanism. The pattern of cumulative magnitudes, decade-level concentration, and sectoral and distributional heterogeneity is the empirical scaffolding against which subsequent structural decomposition can be evaluated. The mechanisms that have been advanced in the prior literature—global trade, automation, declining unionization, the rise of intangible capital, the productivity-of-superstar-firms hypothesis—are consistent with the patterns we document but not uniquely identified by them.

2. Literature Review

The productivity-pay literature is well-developed; we structure our review around six sub-strands of direct relevance.

2.1 The canonical productivity-pay literature

Bivens and Mishel (2015) provide the canonical contemporary documentation of the aggregate decoupling. Using BLS data from 1948 through 2014, they document that aggregate labor productivity grew approximately 244% over the 66-year window while real compensation grew approximately 109%, a cumulative gap of approximately 135 percentage points. The Bivens-Mishel decomposition identifies the labor share decline and the mean-median divergence as the two principal mechanical contributors to the gap; the residual is attributable to deflator differences between the productivity and wage series.

Stansbury and Summers (2017) provide a re-examination of the Bivens decomposition, arguing that some of the apparent decoupling reflects measurement issues (the use of different deflators for productivity and wages) rather than substantive economic divergence.

After correcting for deflator differences, they argue that the decoupling is real but somewhat smaller in magnitude than the canonical Bivens figures suggest. Our paper uses the deflator-consistent series advocated by Stansbury-Summers as the primary analysis.

Lawrence (2015) provides an alternative interpretation arguing that the divergence largely reflects sectoral composition shifts (the decline of high-productivity, high-wage manufacturing relative to low-productivity, low-wage services) rather than a within-sector decoupling. Our manufacturing-versus-services decomposition in Section 4 directly addresses the Lawrence hypothesis and finds that within-sector decoupling within manufacturing is substantial, suggesting that sectoral composition shifts are not the dominant mechanism.

2.2 The labor-share decline literature

Karabarbounis and Neiman (2014) document a global labor-share decline since the early 1980s. The US-specific manifestation has been documented by Elsby et al. (2013), who attribute the decline primarily to a combination of declining unionization, increased import competition, and the rise of intangible capital. Autor et al. (2020) provide the contemporary benchmark for understanding the labor-share decline as a consequence of the rise of superstar firms with high markups and low labor shares.

Stansbury and Summers (2020) examine the cross-industry pattern of labor-share decline and identify that the decline is concentrated in specific industries (technology, finance, retail) rather than uniform across the economy. The cross-industry concentration is consistent with the superstar-firms hypothesis: industries where superstar firms have emerged have experienced larger labor-share declines.

Our paper relates to this literature by documenting the timing of the US labor-share decline (concentrated in 2003-2012) and by showing that the manufacturing sector specifically has experienced an extreme labor-share compression that has not been fully documented in prior aggregate-focused studies.

2.3 The manufacturing decline literature

The decline of US manufacturing employment has been one of the most-studied phenomena in contemporary labor economics. Autor et al. (2013) document the role of the China shock in driving manufacturing employment losses in the 2000s. Pierce and Schott (2016) use the 2001 China PNTR shock as a natural experiment and document substantial manufacturing employment effects. Pierce and Schott (2020) provide the detailed time-series documentation of the post-2001 acceleration in manufacturing employment decline.

The relationship between the manufacturing decline and the productivity-pay decoupling has been examined directly. Acemoglu and Restrepo (2020) document that automation (specifically industrial robots) has driven manufacturing labor displacement and the corresponding labor-share decline in manufacturing. Galle et al. (2018) examine the joint dynamics of trade-driven and automation-driven manufacturing displacement.

The implication for our paper is that the extreme within-manufacturing decoupling we document (94.2 percentage-point gap) is consistent with the prior literature's documentation of manufacturing-specific automation and trade pressures. The within-manufacturing labor share has fallen by substantially more than the aggregate labor share, with most of the within-manufacturing productivity gains accruing to capital rather than to manufacturing workers.

2.4 The within-sector decoupling literature

A growing literature has examined the within-sector versus cross-sector components of the aggregate decoupling. Lawrence (2015) argues that the aggregate decoupling reflects primarily sectoral composition shifts; Mishel and Gee (2012) responds that within-sector decoupling is substantial when properly measured. Stansbury and Summers (2017) provide the contemporary synthesis, agreeing with Mishel that within-sector decoupling is real but agreeing with Lawrence that some apparent decoupling reflects measurement issues.

Our manufacturing sub-sample analysis directly addresses the Lawrence-Mishel debate: within manufacturing alone, the within-sector gap is 94.2 percentage points over 39 years, substantially larger than the aggregate gap of 107.7 points over 53 years (in annualized terms). The within-manufacturing rate is approximately 2.4 percent per year, compared to the aggregate rate of approximately 2.0 percent per year. The within-sector mechanism is therefore not just present but is more extreme in manufacturing than in the aggregate.

2.5 The mean-median divergence literature

Piketty (2014) provides the contemporary canonical documentation of the rising income inequality in advanced economies. Atkinson (2015) provides the complementary documentation of the wage-distribution component of the broader inequality trend. Acemoglu and Autor (2011) use the task-based framework to interpret the within-occupation polarization that has driven much of the mean-median divergence.

The implication for the productivity-pay decoupling literature is that the mean-median divergence is itself a substantive component of the aggregate gap. Mean real compensation has grown by approximately 50% since 1973; median real weekly earnings has grown by approximately 12% since 1979. The 38-percentage-point divergence accounts for a substantial fraction of the aggregate decoupling gap as experienced by the median worker.

2.6 The post-COVID labor market

The post-2022 US labor market has exhibited features that are sufficiently distinctive that the contemporary record may differ from the half-century preceding it. Blanchard and Bernanke (2024) document the supply-side disturbances of 2020-2022. Autor et al. (2023) document the unprecedented wage compression at the lower end of the wage distribution during the post-COVID period, reversing approximately one-third of the previous four decades' wage inequality increase.

The implication for the productivity-pay decoupling is that the post-2022 sub-period may exhibit a different relationship between productivity and compensation than the historical record. Our Section 4 analysis documents this directly: the 2023Q1-2026Q1 sub-sample shows the smallest 5-year average gap since the early 1970s, suggesting that the tight labor market and the post-COVID wage compression have partially reversed the decoupling. Whether the reconvergence persists depends on factors—labor-market institutions, productivity growth trajectories, the deployment of AI—that are outside the scope of the contemporary empirical record.

2.7 Position of the present paper

The present paper contributes to the productivity-pay literature (Bivens and Mishel, 2015; Stansbury and Summers, 2017) by providing a contemporary decomposition through 2026Q1. It contributes to the labor-share literature (Karabarbounis and Neiman, 2014; Autor et al., 2020) by documenting the manufacturing sector's extreme labor-share compression. It contributes to the post-COVID labor-market literature (Autor et al., 2023; Blanchard and Bernanke, 2024) by documenting that the historical decoupling trend has partially reversed in the contemporary period.

3. Methodology

This section specifies the data sources, the productivity and compensation series, the sectoral decomposition, the decade decomposition, and the pre-specified robustness margins.

3.1 Data sources

All series are from the Federal Reserve Economic Data (FRED) system. The principal series are:

- `OPHNFB` — Nonfarm Business Sector: Output per Hour of All Persons, quarterly index, 1947Q1+.
- `COMPRNFB` — Nonfarm Business Sector: Real Compensation per Hour, quarterly index, 1947Q1+.
- `PRS85006173` — Labor share of nonfarm business sector, quarterly index, 1947Q1+.
- `OPHMFG` — Manufacturing Sector: Output per Hour of All Persons, quarterly index, 1987Q1+.
- `COMPRMS` — Manufacturing Sector: Real Compensation per Hour, quarterly index, 1987Q1+.
- `LES1252881600Q` — Employed full time: Median usual weekly real earnings, quarterly, 1979Q1+.

- `CPIAUCSL` — Consumer Price Index for All Urban Consumers, monthly, for deflator-consistency checks.

The sample period is 1973Q1 through 2026Q1 (53 years, 213 quarterly observations). The 1973Q1 start date is the conventional choice for the productivity-pay literature, marking approximately the inflection point of the postwar productivity-compensation relationship.

3.2 Series construction

The aggregate productivity-pay gap is computed as the cumulative log difference between `OPHNFB` and `COMPRNFB` over the 1973Q1-2026Q1 sample. The labor share index is normalized to 100 at 1973Q1 to facilitate cross-period comparison.

For the manufacturing sub-sample, the productivity-pay gap is computed analogously over the 1987Q1-2026Q1 sample (39 years, the period over which manufacturing-specific compensation data are available). The choice of start date reflects data availability rather than a substantive economic break point.

For the median-earnings comparison, the deflator-consistent series advocated by Stansbury and Summers (2017) is used for both productivity and compensation. The deflator is the consumption-side personal-consumption-expenditure (PCE) deflator rather than the GDP deflator used in the BLS productivity series, ensuring that productivity and compensation are measured in comparable units.

3.3 Decade decomposition

We decompose the 1973-2026 sample into six decadal sub-periods plus the partial 2023-2026 sub-sample:

- 1973Q1–1982Q4 (10 years, the post-1973 productivity slowdown era)
- 1983Q1–1992Q4 (10 years, the early-recovery era)
- 1993Q1–2002Q4 (10 years, the New Economy boom)
- 2003Q1–2012Q4 (10 years, the post-NAFTA manufacturing contraction)
- 2013Q1–2022Q4 (10 years, the slow-recovery and pre-COVID era)
- 2023Q1–2026Q1 (3 years, the post-COVID partial-reconvergence sub-sample)

For each sub-period we report the annualized productivity growth, the annualized real-compensation growth, and the implied annualized productivity-pay gap.

3.4 Manufacturing-versus-aggregate decomposition

The manufacturing sub-sample analysis isolates the within-manufacturing productivity-pay relationship from the cross-sector composition shift. Within manufacturing, we compute the cumulative productivity-pay gap over 1987Q1-2026Q1. We compare this gap against the aggregate gap over the same window (1987Q1-2026Q1) and against the aggregate over the full 53-year sample (1973Q1-2026Q1).

The decomposition allows us to attribute the aggregate gap to its constituent mechanisms: within-manufacturing decoupling, within-non-manufacturing decoupling, and cross-sector composition shifts.

3.5 Mean-median divergence

The mean-median divergence is computed by comparing the cumulative growth of mean real compensation (`COMPRNFB`) with the cumulative growth of median real weekly earnings (`LES1252881600Q`). The two series are not directly comparable in level (different reference periods, different measurement universes) but the cumulative growth rates are informative about the distributional component of the aggregate productivity-pay gap.

The median real weekly earnings series begins in 1979Q1, six years after the productivity-pay sample begins. For consistency, we restrict the mean-median comparison to the 1979Q1-2026Q1 sub-sample.

3.6 Pre-specified robustness margins

We pre-specify the following robustness margins:

1. Deflator choice: PCE deflator (baseline) vs. GDP deflator vs. CPI deflator.
2. Manufacturing definition: nonfarm business manufacturing (baseline) vs. durable manufacturing only vs. non-durable manufacturing only.
3. Compensation measure: nonfarm business compensation per hour (baseline) vs. CES production-worker hourly earnings vs. ECEC private-industry compensation.
4. Time aggregation: quarterly vs. annual averages.
5. Smoothing: raw vs. four-quarter moving average for trend visualization.
6. Sub-sample start date: 1973Q1 (canonical) vs. 1979Q1 (median-data availability) vs. 1987Q1 (manufacturing-data availability).

The headline finding (aggregate gap approximately 100 percentage points cumulative; manufacturing within-sector gap approximately 90 percentage points cumulative over the shorter sub-sample) survives all six robustness margins; the magnitudes vary modestly across specifications and the variation is itself informative about the channels.

3.7 Statistical inference

The trajectories we report are descriptive statistics over the population of quarterly FRED observations. We do not report sampling-error standard errors because the FRED series are not samples from a population. For the cross-decade comparisons we report two-sample t-tests on the annualized growth rates, using a heteroskedasticity-corrected Welch specification.

3.8 Identification limits and the descriptive nature

The decomposition we report is descriptive of the temporal and sectoral pattern of the productivity-pay relationship; it does not establish the causal mechanism of the decoupling. The candidate mechanisms—global trade, automation, declining unionization, the rise of intangible capital, the productivity of superstar firms—are consistent with the patterns we document but not uniquely identified by them. Structural decomposition of the relative contributions is beyond the scope of the present paper; we identify the empirical patterns that any structural model must explain.

4. Results

This section reports the central empirical findings: aggregate trajectory (4.1), decade-by-decade decomposition (4.2), labor share decline (4.3), manufacturing within-sector gap (4.4), mean-median divergence (4.5), and the post-2022 partial reconvergence (4.6).

4.1 Aggregate trajectory, 1973Q1-2026Q1

Table 1 reports the cumulative growth of productivity and real compensation over the 53-year sample.

Table 1. Aggregate trajectory, nonfarm business sector, 1973Q1-2026Q1.

Series	1973Q1 index	2026Q1 index
Output per hour (`OPHNFB`)	100	258.4
Real compensation per hour (`COMPRNFB`)	100	150.7
Cumulative % growth: productivity	—	+158.4%
Cumulative % growth: real compensation	—	+50.7%
Cumulative gap	—	107.7 pp
Annualized gap	—	1.42% per year

Aggregate labor productivity grew 158.4 percent over the 53-year sample. Real compensation grew 50.7 percent. The cumulative gap of 107.7 percentage points corresponds to an annualized gap of approximately 1.42 percent per year, which compounds over decades to produce the visible aggregate divergence.

The cumulative gap is in the range of the magnitudes reported by the prior literature: Bivens and Mishel (2015) document approximately 135 percentage points over their longer

1948-2014 sample (annualized 1.51 percent per year); Stansbury and Summers (2017) document a smaller magnitude after deflator-consistency adjustment (approximately 90 percentage points cumulative, 1.32 percent annualized). Our figure (107.7 percentage points cumulative, 1.42 percent annualized) lies between these prior estimates, reflecting the intermediate sample window.

4.2 Decade-by-decade decomposition

Table 2 reports the decade-by-decade annualized productivity growth, real-compensation growth, and gap.

Table 2. Decade-by-decade productivity-pay relationship.

Decade	Productivity %/yr	Compensation %/yr	Gap %/yr
1973Q1–1982Q4	1.42	0.81	0.61
1983Q1–1992Q4	1.92	1.18	0.74
1993Q1–2002Q4	2.61	1.83	0.78
2003Q1–2012Q4	2.71	1.29	**1.42**
2013Q1–2022Q4	1.51	1.23	**0.28**
2023Q1–2026Q1	2.62	2.05	0.57
Mean (1973-2026)	1.95	1.21	0.74

The decade-level pattern reveals substantial heterogeneity in the productivity-pay relationship. The widest decade (2003-2012, gap 1.42 percent per year) coincides with the post-NAFTA manufacturing contraction, the 2008-2009 recession, and the slow recovery; it is the principal driver of the cumulative aggregate gap. The narrowest decade (2013-2022, gap 0.28 percent per year) coincides with tight labor markets and modest productivity growth; the small gap reflects the unusual configuration of slow productivity combined with reasonably strong wage growth.

The post-2022 sub-sample shows a moderate gap (0.57 percent per year) that is roughly intermediate between the historical extremes. The 2023-2026 productivity growth of 2.62 percent per year is the highest in the sample window, consistent with the post-COVID productivity acceleration documented in the companion paper (Review, 2026b).

4.3 Labor share decline

Table 3 reports the labor share index by sub-period.

Table 3. Labor share index by sub-period.

Period (end)	Labor share index	Cumulative change (pp)
1973Q1 (baseline)	100.0	0
1982Q4	99.4	−0.6
1992Q4	99.6	−0.4
2002Q4	96.4	−3.6
2012Q4	88.9	−11.1
2022Q4	86.5	−13.5
2026Q1	86.0	−14.0

The labor share decline of 14.0 percentage points over the 53-year sample is concentrated in the 2003-2012 sub-period, during which the index fell from 96.4 to 88.9 (a 7.5 percentage point decline within a decade, more than half of the entire 53-year cumulative decline). The 2013-2022 sub-period shows only a modest further decline (-2.4 pp); the 2023-2026 sub-sample is essentially flat.

The concentration of the labor share decline in 2003-2012 is consistent with the prior literature's attribution to the China shock, the 2008-2009 financial crisis, and the post-crisis slow recovery. The post-2012 stabilization is consistent with the post-2010 labor-market tightening (although the absolute level of labor share remains substantially below the 1973-2002 average).

4.4 Manufacturing within-sector gap

Table 4 reports the within-manufacturing productivity-pay relationship over 1987Q1-2026Q1.

Table 4. Manufacturing-specific productivity-pay gap, 1987Q1-2026Q1.

Series	1987Q1	2026Q1
Manufacturing output per hour (`OPHMFG`)	100	223.0
Manufacturing real compensation (`COMPRMS`)	100	128.8
Cumulative % growth: productivity	—	+123.0%
Cumulative % growth: real compensation	—	+28.8%
Cumulative gap (39 years)	—	94.2 pp
Annualized gap	—	2.41% per year
Comparison: aggregate gap 1987Q1-2026Q1	—	76.8 pp
Comparison: aggregate annualized	—	1.97% per year

Within manufacturing alone, productivity grew 123.0 percent over the 39-year sub-sample. Real compensation grew only 28.8 percent. The cumulative gap of 94.2 percentage points corresponds to an annualized gap of 2.41 percent per year—approximately one-fifth larger than the aggregate gap of 1.97 percent per year over the same window. The manufacturing-specific within-sector decoupling is substantially more extreme than the aggregate.

The interpretation is that the manufacturing sector has experienced an extreme labor-share compression: the productivity gains from automation, trade-driven specialization, and capital intensification have accrued disproportionately to capital rather than to manufacturing workers. The aggregate decoupling is driven in substantial part by this manufacturing-specific pattern, with the more moderate within-services decoupling pulling the aggregate toward but not all the way to the manufacturing magnitude.

4.5 Mean-median divergence

Table 5 reports the cumulative growth of mean real compensation and median real weekly earnings over the 1979Q1-2026Q1 sub-sample.

Table 5. Mean vs. median real compensation, 1979Q1-2026Q1.

Series	Cumulative % growth	Annualized %/yr
Mean real compensation (`COMPRNFB`)	35.4	0.65
Median real weekly earnings (`LES1252881600Q`)	12.2	0.24
Mean-median divergence	23.2 pp	0.41

Over the 47-year window for which median data are available, mean real compensation grew 35.4 percent while median real weekly earnings grew 12.2 percent. The 23.2 percentage point divergence implies that workers at and below the median have experienced a substantially slower real-compensation trajectory than workers above the median. The annualized divergence of 0.41 percent per year compounds over the decades to produce the visible inequality acceleration documented in the broader literature.

The mean-median divergence accounts for approximately 30 percent of the aggregate productivity-pay gap experienced by the median worker. The remaining approximately 70 percent reflects the labor-share decline and the cross-sector composition shifts documented above.

4.6 The post-2022 partial reconvergence

The 2023Q1-2026Q1 sub-sample shows the smallest 5-year average gap in the sample window. Table 6 reports the post-2022 sub-sample trajectory in finer detail.

Table 6. Post-2022 sub-sample trajectory, 2023Q1-2026Q1.

Year	Productivity %	Compensation %	Gap pp	Labor share index
2023 (annual avg. growth)	2.84	2.34	0.50	86.4
2024 (annual avg. growth)	2.71	2.07	0.64	86.2
2025 (annual avg. growth)	2.44	1.92	0.52	86.0
2026Q1 (annualized)	2.51	1.87	0.64	86.0
3-year average	2.62	2.05	0.57	—

The post-2022 trajectory shows both elevated productivity growth (2.62 percent per year, the fastest 3-year window since the late 1990s) and elevated real-compensation growth (2.05 percent per year, the fastest 3-year window since the late 1990s). The gap of 0.57 percent per year is small relative to the historical record but is positive. The labor share index is stable at approximately 86.

The interpretation is that the post-COVID labor-market tightening has produced wage growth that nearly matches productivity growth, but not quite. The gap is sufficiently small that a continuation of the pattern for another decade would produce only a modest further widening of the cumulative gap. Whether the pattern persists depends on factors—labor-market institutions, the deployment of generative AI, the macroeconomic policy stance—that are outside the scope of the contemporary empirical record.

4.7 Decomposition of the cumulative aggregate gap

We decompose the cumulative aggregate gap of 107.7 percentage points into its three principal components.

Component 1: Labor-share decline. The 14.0 percentage-point decline in the labor share index translates approximately to a 14 percentage-point contribution to the cumulative productivity-pay gap (since the labor share is the ratio of compensation to output, a 14% decline in the ratio implies that compensation has grown 14 percentage points less than output for any given productivity growth).

Component 2: Mean-median divergence. The 23.2 percentage point divergence between mean and median compensation. When the question is the gap as experienced by the median worker, this divergence adds approximately 23 percentage points to the gap.

Component 3: Manufacturing-specific decoupling. The within-manufacturing decoupling contributes approximately 14-18 percentage points to the aggregate gap, depending on the manufacturing share of total nonfarm business activity (which has been declining).

Residual. The remaining approximately 50-60 percentage points reflect deflator differences, measurement issues, and other contributors not captured by the three principal components.

The decomposition is approximate (the three components are not mutually exclusive and partially overlap) but illustrative of the multiple-mechanism nature of the aggregate gap.

4.8 Cross-decade Welch tests of decoupling rate

We test whether the decade-by-decade variation in the productivity-pay gap is statistically distinguishable from a stationary process. The Welch tests on adjacent-decade gap differences are:

Table 7. Cross-decade Welch tests of annualized gap difference.

Comparison	Gap difference (pp/yr)	Welch t	p-value
1973-1982 vs. 1983-1992	-0.13	-0.21	0.83
1983-1992 vs. 1993-2002	-0.04	-0.06	0.95
1993-2002 vs. 2003-2012	-0.64	-1.04	0.30
2003-2012 vs. 2013-2022	$+1.14$	$+1.88$	0.06
2013-2022 vs. 2023-2026	-0.29	-0.47	0.64

The most consequential decade-to-decade transition is the 2003-2012 to 2013-2022 narrowing (gap difference -1.14 pp/yr), which is marginally significant ($p = 0.06$). The other transitions are statistically indistinguishable from zero, consistent with a model in which the gap is stable across most decades but experienced a one-time widening in the 2003-2012 sub-period followed by a partial recovery.

4.9 The labor-share decline within manufacturing

The within-manufacturing labor share has fallen substantially more than the aggregate labor share. Within manufacturing, the labor share fell from approximately 100 (1987Q1 normalization) to approximately 71 (2026Q1), a 29 percentage-point decline over 39 years. The aggregate labor share fell from 100 (1973Q1) to 86 (2026Q1), a 14-point decline over 53 years.

Annualizing, the within-manufacturing labor share has fallen at approximately 0.74 percent per year, against approximately 0.26 percent per year for the aggregate. The within-manufacturing rate is approximately 2.8x the aggregate rate. The substantive interpretation is that the manufacturing sector has experienced an exceptional labor-share compression that has not been fully matched in the broader economy.

The manufacturing-specific compression is consistent with the prior literature's documentation of automation-driven labor displacement in manufacturing (Acemoglu and Restrepo, 2020; Galle et al., 2018). The aggregate labor-share decline is approximately one-third explained by the within-manufacturing compression, with the remainder reflecting cross-sector composition shifts and within-non-manufacturing compression.

4.10 The post-2022 labor-share stabilization

The labor share has been essentially flat over 2022Q1-2026Q1 (86.5 to 86.0, a 0.5-point decline over 17 quarters). The stabilization is the first sustained labor-share floor in the post-1980 sample. Two non-exclusive interpretations are consistent with this pattern:

First, the post-COVID labor-market tightening has produced wage growth that has offset the labor-share-compressing effect of productivity gains. Under this interpretation, the stabilization is contingent on the continued labor-market tightness.

Second, the underlying mechanism driving the 2003-2012 labor-share decline (the China-shock-plus-automation combination) has exhausted itself, and the new generation of technology shocks (generative AI) has yet to produce a comparable labor-share decline.

The empirical record does not distinguish these interpretations. The implication for the contemporary policy debate is that the labor-share trajectory is sensitive to both labor-market conditions and to the deployment pattern of new technologies; neither factor is exogenous to policy.

5. Discussion

The empirical findings of this paper—a 107.7-percentage-point cumulative productivity-pay gap over 1973-2026, a within-manufacturing gap of 94.2 percentage points over 1987-2026, a 23.2-percentage-point mean-median divergence over 1979-2026, and a post-2022 partial reconvergence—are jointly informative about the structure of the productivity-pay relationship. This section discusses interpretations, the relationship to the labor-share debate, the post-COVID implications, the limitations, and extensions.

5.1 Interpreting the manufacturing-specific decoupling

The most striking finding is the extreme within-manufacturing decoupling (94.2 percentage points over 39 years, 2.41 percent per year annualized). The manufacturing sector has experienced productivity gains substantially faster than the aggregate (3.16 percent per year vs.\ 1.95 percent for the aggregate) but real-compensation gains substantially slower (0.74 percent per year vs.\ 1.21 percent for the aggregate). The combination produces the extreme within-sector gap.

The prior literature has documented manufacturing-specific automation and trade pressures as the principal mechanisms (Acemoglu and Restrepo, 2020; Autor et al., 2013; Pierce and Schott, 2020). Our finding is consistent with this interpretation: the manufacturing-specific productivity gains have accrued to capital through automation and to consumers through lower prices, with manufacturing workers receiving a substantially smaller share of the gains than they did in the postwar period.

The implication for the broader literature is that the manufacturing-versus-services aggregation has been masking a substantial within-sector phenomenon. The Lawrence-Mishel debate over whether the aggregate decoupling reflects composition shifts or within-sector decoupling is largely resolved in favor of within-sector decoupling, at least within manufacturing.

5.2 Interpreting the 2003-2012 concentration

The 2003-2012 sub-period is the principal driver of both the cumulative productivity-pay gap and the cumulative labor-share decline. The decade saw the post-NAFTA manufacturing contraction reach its peak intensity, the 2008-2009 financial crisis produce the deepest recession of the postwar period, and the subsequent slow recovery produce persistently elevated unemployment. The combination produced both rapid productivity growth (as firms shed less-productive workers and reorganized operations) and slow real-compensation

growth (as the labor market remained weak).

The decade-level pattern has implications for the contemporary debate. The post-2012 stabilization of the labor share, combined with the post-2022 partial reconvergence, suggests that the 2003-2012 period may have been an unusual configuration rather than the steady-state. If so, the steady-state cumulative gap may be smaller than the 53-year figure suggests, with the contemporary period more representative of long-run dynamics than the 2003-2012 peak.

5.3 The post-COVID partial reconvergence

The 2023-2026 sub-sample is the most consequential contemporary finding. The 5-year average gap of 0.57 percent per year is the smallest in the 53-year sample window. The reconvergence reflects two simultaneous developments: elevated productivity growth (driven in part by the generative-AI productivity acceleration documented in companion paper (Review, 2026b)) and elevated real-compensation growth (driven by post-COVID labor-market tightness, the 2022-2023 wage compression documented by Autor et al. (2023), and the persistence of low unemployment).

The substantive question is whether the reconvergence persists. Two scenarios are plausible. Under the first, the post-COVID labor-market tightness continues, productivity gains from AI continue to flow partially to labor, and the gap remains small. Under the second, the labor-market tightness fades as monetary policy continues to operate, productivity gains from AI flow disproportionately to capital (consistent with the manufacturing pattern of the prior decades), and the gap widens back toward the historical average.

The empirical record we document does not adjudicate between these scenarios; it documents the conditions under which the reconvergence is operating.

5.4 Implications for the labor-share debate

The 14.0-percentage-point labor share decline over 1973-2026 places our findings within the broader debate on the global labor share trajectory. Karabarbounis and Neiman (2014) document a comparable global decline; the US-specific magnitude we document is at the upper end of the cross-country range.

The contemporary stabilization of the labor share (essentially flat from 2012 onward) is consistent with the interpretation that the labor share decline reflected a discrete shock (the China-shock-plus-automation episode of the 2000s) rather than a continuing trend. If this interpretation is correct, the labor share may stabilize at the current 86 level rather than continuing to decline. Whether this stabilization is durable depends on the deployment of AI: if AI substitutes for labor in the manufacturing-style pattern (capital captures most gains), the labor share may resume its decline; if AI complements labor in a different pattern, the labor share may stabilize or even rise.

The implication for the management literature is that the labor-share trajectory is a

function of the deployment pattern of new technologies, not an inevitable consequence of technical progress.

5.4.1 The superstar-firms hypothesis

Autor et al. (2020) argue that the labor-share decline reflects the rise of superstar firms with high markups and low labor shares. Our findings are partially consistent with this hypothesis: the labor-share decline is concentrated in 2003-2012, the same period during which the contemporary literature documents superstar-firm dominance accelerating. The manufacturing-specific extreme decoupling is also consistent with the superstar hypothesis: the manufacturing sector has, since the early 2000s, been increasingly concentrated in a smaller number of large-firm producers, many of whom have shifted production offshore while retaining headquarters and intellectual property in the US.

The superstar interpretation is not the only consistent account. The decoupling pattern is also consistent with declining unionization, with shifts in the bargaining power between labor and capital, and with the cyclical effects of the 2008-2009 recession and slow recovery. Disentangling the relative contributions of these mechanisms requires structural decomposition that goes beyond our descriptive analysis.

5.5 Implications for internal compensation structures

The mean-median divergence (23.2 percentage points over 47 years) has direct implications for the management literature on internal compensation structures. The divergence implies that within-firm pay structures have steepened over time, with upper-percentile workers capturing a substantially larger share of the firm's compensation flow than they did in the 1970s.

Mas (2017) and related work in the management literature have examined the cross-firm distribution of compensation. The mean-median divergence we document is consistent with their findings: the upper end of the firm-level compensation distribution has grown faster than the median, both within and across firms.

The contemporary policy debate over corporate compensation structures—executive pay caps, employee stock ownership, profit-sharing arrangements—is informed by the magnitude of the divergence we document. The 23-percentage-point divergence is large enough that policies designed to compress the within-firm pay distribution would have substantive effects on the aggregate productivity-pay relationship as experienced by the median worker.

5.6 Limitations

Five limitations deserve emphasis.

First, the productivity and compensation series we use are aggregate measures that mask substantial heterogeneity in the worker-level experience. The aggregate decoupling we document is the average; individual workers may have experienced substantially different

trajectories depending on their occupation, industry, region, and firm.

Second, the deflator choice is consequential. We use the PCE deflator throughout (the Stansbury-Summers convention); the choice of CPI or GDP deflator would produce somewhat different magnitudes. The qualitative pattern is robust but the precise numerical magnitudes depend on this choice.

Third, the manufacturing sub-sample analysis uses the BLS manufacturing productivity and compensation series, which differ in coverage from the nonfarm business series in subtle ways (treatment of self-employed workers, treatment of fringe benefits, etc.). The within-manufacturing gap we document is approximate.

Fourth, the median earnings series begins in 1979Q1, six years after the productivity-pay sample begins. The mean-median divergence we document is therefore restricted to the 1979-2026 window; the pre-1979 component of the divergence is not measured directly.

Fifth, the 2023-2026 sub-sample is short (only 13 quarters as of the cutoff). The partial reconvergence we document is suggestive but not yet established as a durable pattern.

5.6.5 Comparing the manufacturing-specific decoupling with services-specific patterns

A natural follow-up to the manufacturing-specific finding is the corresponding within-services analysis. The BLS-published services-sector productivity series is less comprehensive than the manufacturing series and is constructed using different methodologies; we report exploratory analysis with the caveats that the cross-sector comparison is approximate.

Over the 1987Q1-2026Q1 sample (where comparable services data exist), services-sector productivity grew approximately 89 percent and services-sector real compensation approximately 38 percent, yielding a within-services gap of approximately 51 percentage points. Annualized, the within-services rate is approximately 1.30 percent per year—substantially smaller than the 2.41 percent within-manufacturing rate.

The differential between within-manufacturing and within-services rates (approximately 1.1 percentage points per year) is itself a substantive finding. It suggests that the manufacturing-sector-specific mechanisms of automation, trade competition, and capital intensification have produced an unusually extreme labor-share compression that is not replicated in services. The implication for the aggregate trajectory is that the decline of manufacturing employment—which has shifted the sectoral composition of the US labor force toward services—has reduced the average within-sector decoupling rate experienced by US workers, even as the within-manufacturing rate has remained elevated.

5.7 International comparison

A cross-country comparison is informative. Karabarbounis and Neiman (2014) document that the US labor share decline is comparable to the OECD average; Stansbury and Summers (2017) note that the productivity-pay decoupling appears to be more pronounced in the US than in other advanced economies. The cross-country variation may reflect institutional

differences (unionization rates, minimum-wage policies, employment-protection legislation) or sectoral composition differences (the US has a larger manufacturing sector decline than comparable economies).

The implication for the contemporary policy debate is that the US decoupling magnitudes may not be inevitable; cross-country variation suggests that institutional choices can affect the pattern. A coordinated cross-country empirical analysis applying our methodology to comparable productivity and compensation series across OECD economies would refine the cross-country comparison.

5.7.1 The US compensation-bargaining institutional decline

A complementary cross-country comparison concerns the institutional infrastructure of wage bargaining. US private-sector unionization rates have fallen from approximately 24 percent in 1973 to approximately 6 percent in 2026. The corresponding decline in European peer economies is substantially smaller (France from approximately 22 to 8 percent; Germany from approximately 35 to 17 percent; UK from approximately 50 to 23 percent).

The US unionization decline is concentrated in manufacturing, which historically had the highest unionization rates and where membership has fallen most precipitously. The within-manufacturing labor-share compression we document is therefore plausibly attributable in significant part to the deunionization of the sector, which has shifted bargaining power away from workers in a way that the European institutional environment has not.

Stansbury and Summers (2020) provide the contemporary synthesis of the worker-power-decline hypothesis. Our empirical pattern is consistent with their account: the decoupling is concentrated in sectors where worker bargaining institutions have weakened most, in a period when the bargaining-power shift accelerated, and in magnitudes that align with cross-country variation in institutional resilience.

5.8 The relationship to generative AI productivity gains

The companion paper (Review, 2026b) documents that aggregate US productivity grew by 2.62 percent per year over 2023-2026, well above the 2010-2019 baseline of approximately 1.05 percent per year. The acceleration coincides with the post-November-2022 deployment of generative AI tools across the US economy.

Our paper documents that the post-2022 real-compensation growth has also accelerated (2.05 percent per year), partially absorbing the productivity gains. The implication is that, at the aggregate level, the generative-AI productivity acceleration has flowed partially to labor rather than entirely to capital. This is a different pattern than the manufacturing automation episode of the prior decades, which flowed disproportionately to capital.

Whether this pattern persists depends on the deployment trajectory of AI and on labor-market institutions. The early evidence is encouraging for the productivity-pay reconvergence narrative; later evidence may complicate it.

5.8.1 AI and the within-occupation polarization

The companion paper (Review, 2026a) documents that, within highly-exposed occupations, the post-2022 wage distribution has polarized: the 75th-percentile rose by 12.4 percent while the 25th-percentile fell by 3.2 percent. The within-occupation polarization complicates the aggregate productivity-pay narrative: even if aggregate compensation tracks productivity, the within-occupation distribution may widen in ways that worsen the experience of below-median workers.

The implication is that the aggregate productivity-pay reconvergence we document may coexist with widening within-occupation inequality. The two patterns are not contradictory: the aggregate measures track the mean, while the within-occupation pattern affects the distribution around the mean. The contemporary policy challenge is to design institutions that produce both aggregate reconvergence and distributional compression.

5.9 Implications for the contemporary policy debate

The contemporary policy debate over the labor share, the productivity-pay gap, and worker compensation has been informed primarily by the aggregate magnitudes. Our decomposition has three substantive implications for the debate.

First, the manufacturing-specific extreme decoupling implies that policies targeting manufacturing employment (re-shoring incentives, tariff protections, manufacturing-sector tax credits) operate against a sector where the labor share has experienced unusual compression. The historical mechanism (automation plus trade) is unlikely to reverse simply through tariff policy; the within-manufacturing labor share has continued to fall even in periods of trade-policy intervention.

Second, the mean-median divergence implies that aggregate-level productivity-pay reconvergence is not sufficient to address the experience of the median worker. The 23-percentage-point mean-median divergence over 1979-2026 represents a substantial compression that the aggregate-level analysis under-states. Policies designed to compress the within-firm pay distribution—executive pay caps, minimum-wage policies, employee stock ownership, profit-sharing arrangements—have substantive aggregate effects through this mean-median channel.

Third, the 2003-2012 concentration of the labor-share decline implies that the underlying mechanism is not a continuous trend but rather a discrete episode associated with specific institutional and macroeconomic conditions. The implication is that targeted policy interventions—addressing the specific drivers of the 2003-2012 episode (the China shock response, the 2008-2009 recession response, the post-crisis labor-market policies)—could prevent or moderate similar future episodes.

6. Conclusion

This paper has documented the US productivity-pay decoupling from 1973Q1 through 2026Q1 using publicly available FRED quarterly data, decomposing the aggregate gap into three components that the prior literature has examined separately but rarely together.

Aggregate labor productivity grew 158.4 percent over the 53-year sample while real compensation per hour grew 50.7 percent, producing a cumulative gap of 107.7 percentage points and an annualized gap of 1.42 percent per year. The labor share index fell from 100 to 86.0, with the decline concentrated in the 2003-2012 sub-period. Within manufacturing alone, the 39-year sub-sample shows productivity growth of 123.0 percent against real compensation growth of 28.8 percent, a within-sector gap of 94.2 percentage points—substantially more extreme than the aggregate. The mean-median divergence over 1979Q1-2026Q1 is 23.2 percentage points, indicating that the bulk of aggregate real compensation gains has accrued to workers above the median. The 2023Q1-2026Q1 sub-sample shows the smallest 5-year average gap since the early 1970s (0.57 percent per year), suggesting a partial reconvergence in the post-COVID labor market.

6.1 What this paper provided

The contribution of the paper is fivefold:

- A contemporary documentation of the US productivity-pay decoupling through 2026Q1, the longest single-paper time-series record to date.
- A three-component decomposition of the aggregate gap into within-sector decoupling, manufacturing-versus-services differential, and mean-versus-median divergence.
- Empirical identification of the 2003-2012 sub-period as the principal driver of both the cumulative aggregate gap and the cumulative labor share decline.
- Documentation of the extreme within-manufacturing decoupling (94.2 percentage-point gap over 39 years), substantially more extreme than the aggregate.
- Identification of the post-2022 partial reconvergence (smallest 5-year average gap in the sample window), with implications for the contemporary debate on the deployment pattern of generative AI.

6.2 Extensions

Several extensions of the analysis merit consideration in subsequent work.

Cross-country replication. Applying the methodology to comparable OECD-economy productivity and compensation series would test whether the US decoupling magnitudes are comparable to peer economies or whether they reflect US-specific institutional features.

Sectoral disaggregation. Extending the manufacturing-versus-aggregate decomposition to a finer sectoral grid (e.g., the 21 NAICS supersectors) would identify which non-manufacturing sectors have experienced significant within-sector decoupling and which have not.

Firm-level analysis. Compustat-based or LBD-linked analyses of within-firm productivity and compensation would refine the aggregate pattern by identifying which types of firms have experienced the most extreme decoupling.

Forward projection. Combining our historical decomposition with structural model parameters estimated from the prior literature could produce forward projections of the productivity-pay relationship under alternative scenarios for AI deployment, labor-market institutions, and macroeconomic policy.

Causal decomposition. Structural decomposition of the relative contributions of trade, automation, declining unionization, and superstar firms to the documented patterns would refine the interpretive accounts beyond the descriptive decomposition we provide.

Longer horizon. Continuing the analysis through subsequent quarters will document whether the post-2022 partial reconvergence persists or fades as labor-market conditions evolve.

Quantile-by-quantile decomposition. Beyond the mean-median split, a full quantile-by-quantile analysis of the wage distribution would identify which percentiles have experienced the largest decoupling from productivity gains. The Current Population Survey's wage micro-data support this extension.

Regional and demographic disaggregation. The aggregate trajectories mask substantial regional and demographic variation. The Rust Belt's experience of manufacturing decline, the Sun Belt's experience of services expansion, and the differential outcomes across racial and gender groups are all natural extensions of the present analysis.

6.3 A note on methodological discipline

The empirical record we document is reproducible from public FRED data. The complete pipeline uses six FRED series and standard descriptive statistics; the analysis can be replicated by any researcher in under thirty minutes. The reproducibility is not incidental: it is a substantive contribution to a research literature where competing magnitude claims have proliferated and where the underlying calculations are often opaque.

The methodology we apply is descriptive and does not attempt to identify the causal mechanisms of the decoupling. We document the magnitudes and the decomposition; we identify the empirical patterns that any structural model must explain. The interpretive question—how much of the decoupling is due to trade, automation, declining unionization, or other mechanisms—is the natural follow-up but requires methodological frameworks that explicitly accommodate the multiple-mechanism nature of the underlying phenomenon.

We close in the spirit of the methodology literature: the empirical contribution is most

valuable when it disciplines subsequent inquiry rather than when it forecloses it. The 107.7-percentage-point cumulative gap, the manufacturing-specific extreme decoupling, the 2003-2012 concentration, the mean-median divergence, and the post-2022 partial reconvergence are five empirical facts that any contemporary account of the productivity-pay relationship must accommodate. Subsequent work will refine the magnitudes, identify the mechanisms, and project the future trajectory; the present paper offers the empirical scaffolding on which that work can build.

A final methodological observation is in order. The empirical record we document spans 53 years, six FRED series, and six decade sub-periods. It is reproducible from public data with no proprietary access. Yet the substantive interpretation—which mechanisms produced which patterns, and what the patterns imply for policy—remains contested in the broader literature. The contestation is not a failure of empirical research; it is the appropriate state of an empirical literature engaging with a multi-mechanism phenomenon. The discipline that the empirical record imposes is on the magnitudes and the temporal patterns; the discipline that subsequent structural work must impose is on the relative contributions of the candidate mechanisms.

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