

THE GREAT DECOUPLING:
MACROECONOMIC PERCEPTIONS, REAL WAGES, AND COVID-19*

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Abstract: The American public's perceptions of macroeconomic conditions changed dramatically during the Covid-19 pandemic, in seemingly-perplexing ways. To document this phenomenon and better understand it, this paper analyzes forty-seven years of surveys on the state of the U.S. economy. The effect of unemployment on these perceptions has moderated steadily over time, but the effect of inflation has changed little. Rather, nominal wages moved sluggishly during the pandemic despite low unemployment and rising prices, driving down optimism substantially. To a significant degree, the American public assesses the economy by the purchasing power it delivers to households; when that falls pessimism rises.

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** This paper has several figures that are best viewed in color. **

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Traditional macroeconomics evaluates the health of the economy through objective fundamentals like unemployment, inflation, and output growth. Theoretical models and policy prescriptions are also expressed in these terms, and are typically unshaped by the public's perception of economic conditions. For the most part, economists have concerned themselves with these perceptions only insofar as they predict future values of macroeconomic fundamentals.

Until recently, there has been little cost to doing so, because these perceptions have evolved in line with these fundamentals. During recessions, slowdowns in output and increases in unemployment raise consumers' pessimism about the economy; high inflation does the same thing. The reverse happens when these variables move in the opposite direction.

The last three years have stood this pattern on its head. As the economic recovery from the Covid-19 pandemic gathered steam in 2021 and progressed the following year, a perplexing pessimism about the economy set in, with the American public seemingly ignoring large gains in output and employment to despair over a more modest (yet genuine) increase in inflation. This pessimism was widely noted in the media, as discussed below, and a variety of explanations for it postulated, none conclusively.

This phenomenon reveals a major gap in our understanding of economic perceptions, with both economic and political consequences. The goal of this paper is to fill that gap, helping explain this unusual bout of pessimism in the process. Creating two comprehensive summary indices of economic perceptions and documenting their behavior before, during, and after the onset of Covid, we affirm that the public has been strikingly negative about the economy when judged by traditional measures, a phenomenon we call "The Great Decoupling." We then consider several factors that have been postulated to explain this decoupling. All are rejected but one: real wage growth.

We show that this factor has influenced perceptions of the economy for decades, and that its

effect explains a sizeable portion of the current anomaly. A rapid spike in inflation in 2021 and 2022, coupled with sluggish nominal wage growth, led to almost two years of real wage declines. In response, the public consistently viewed the economy as getting worse and rated current economic conditions increasingly negatively. To a significant degree, the American public judges the economy by the purchasing power it delivers to households; when that falls pessimism rises.

Section I. Measuring Economic Perceptions: Two Indexes

Summary of Data and Methods. Most studies of economic perceptions in the U.S. utilize longstanding indexes produced by the University of Michigan and the Conference Board. These are created by asking the public about “business conditions,” personal finances, “available jobs,” etc., and applying prescribed weights to the responses. This is problematic for our purposes, because respondents cannot determine for themselves how much to (implicitly) weight one macroeconomic factor vs. another in assessing the state of the economy.

This problem can be solved by asking Americans to assess economic conditions directly. There are many such surveys, conducted by reputable pollsters and news organizations, including Gallup, the *New York Times*, and the *Washington Post*. Two types of questions are posed: “good economy” (GE) questions that ask about the current state of the economy, and “better/worse” (BW) questions that inquire about the change in economic conditions. Grant (2014) analyzed these surveys and concluded that they are statistically distinct from the Michigan and Conference Board indices, informative about current values of macroeconomic variables (which are reported with a lag), and related to these variables and to each other in consistent and sensible ways. This work is the natural

starting point for understanding what happened to consumer perceptions during the pandemic.

Each type of question (GE, BW) is asked by several pollsters, often at irregular intervals, and always with slight differences in phrasing. All offer multiple response options (“the economy is good,” “the economy is fair,” and so on). For each question type, we wish to amalgamate this information into a single index that runs continuously for the full time span of the data. This technical matter is worked out by Grant (2014) using a generalization of a standard ordered probit model, and we employ these methods here. The methods, survey questions, and data are described in full in Appendix A. The GE index runs from 1985 through mid-2023, while the BW index runs from 1976 through mid-2023. Each serves as the summary measure of economic perceptions for that question type, with higher values representing greater positivity.

Results. Figure 1 presents both indexes, along with the thresholds that distinguish the response options (“good,” “fair,” etc.) for each survey included in the data (*New York Times*, Gallup, etc.). Neither index has natural units (these are governed by technical factors), but because each survey’s thresholds lie about one unit apart, interpretation is simple. A one unit increase in either variable is akin to each respondent choosing the next best response option: a “good” economy instead of a “fair” economy, or an economy that is “getting better” instead of “staying the same.”

Both indexes largely adhere to the business cycle, with less favorable perceptions during acknowledged recessions. The Covid-era trough is comparable to those experienced previously, but extends far beyond the formal recessionary period, which ended in April 2020. This phenomenon had not been previously experienced.

Further insight is afforded in Figure 2, which shows that the BW variable is similar to the

difference of the GE variable, as would be expected. Thus, as the BW index remained low during 2021-22, the GE index continually declined, approaching the negativity experienced during recessions in the early 1990s and late 2000s. Given the generally strong post-Covid economy, this was surprising, as our estimates in Section II will confirm.

Media Coverage. This divergence between objective and subjective measures of macroeconomic conditions was not widely recognized until early 2022, when it attracted substantial media attention.

There's something very peculiar going on with how Americans perceive the economy...there's a huge disconnect between economic reality, which is mixed—inflation is a big concern, but job growth has been terrific—and public perceptions, which are weirdly dismal. (Paul Krugman, *New York Times*, Mar. 3, 2022)

Once this was recognized, the search for explanations began. Some were founded in under-appreciated economic factors:

One theory...goes like this: When voters secure a raise or new job, they tend to interpret that as a product of their own efforts and abilities; when they go to the store and see that prices are up, they blame “the economy” and the politicians who manage it (Eric Levitz, “Five Reasons Voters Underrate the Biden Economy, *New York Magazine*, Feb. 2022).

In the long run we are all dead, Keynes famously said. What he didn't say, but I will, is that in the medium run our wages have not yet caught up with inflation...Right now it is the medium run that is more vivid in the eyes of most Americans. (Tyler Cowen, “Economic Pessimism Makes Sense Right Now,” Bloomberg, Nov. 10, 2021)

Even though gas prices have retreated significantly over the past couple of months, behavioral economists say much of the nation's collective angst can be chalked up to prices at the pump. (Martha White, “Consumers Still Don't Feel Great about the Economy, Despite Lower Gas Prices,” *CNN Business*, Aug. 12, 2022)

Others were rooted in behavioral factors, namely, psychology or politics:

People are not responding rationally to objective data right now. We are living in

polarized, partisan times. Questions about consumer confidence or the country being on the right or wrong track are meant to get at people's views of the world outside of politics. But nothing lies outside of politics anymore. (Fareed Zakaria, *Washington Post*, Feb. 10, 2022)

[The] media have accentuated the negative. One liberal think tank analysis found that CNN and MSNBC devoted 50 percent more screen time in November to inflation than to all other economic developments combined....Fox News has devoted three times as much screen time to inflation as CNN. (Paul Krugman, *New York Times*, Feb. 3, 2022)

Soon after President Biden took office—and as the pandemic seemed to be winding down—[economic] optimism returned. Until it didn't. An inextricable part of this is partisanship... Partisanship is part of what's driving pessimism. (Philip Bump, *Washington Post*, June 7, 2022)

Still others were based on tangible non-economic factors:

The *Times's* Nate Cohn makes a persuasive case [for] two causes—the delta variant and the withdrawal from Afghanistan... Life was getting messy, and the president who had promised normalcy...was not delivering. (Fareed Zakaria, *Washington Post*, Feb. 10, 2022)

I would be surprised if a media narrative were the full story. What else might explain the dissatisfaction? Even if you forget about inflation, the experience of living and working in the U.S. economy is often unpleasant right now... Public buses and subways are unreliable...after-school activities are unreliable, creating child-care gaps. Grocery stores are routinely out of items. Retail lines are long. Doctor's appointments can be hard to get... By many measures—mental health, suicide attempts, blood pressure, violent crime, vehicle crashes, student learning—society is not functioning very well. (David Leonhardt, *New York Times*, Feb. 1, 2022)

The common thread in these wide-ranging explanations is that they attempt to *humanize* economic perceptions. To some degree, macroeconomic fundamentals stand at arm's length from households' quotidian concerns: unemployment, output growth, and inflation influence but do not fully determine a household's ability to pay its bills. Thus, when economic perceptions diverge from these fundamentals, it is natural to try to close that distance. As we will see, one can do so without abandoning public "rationality" or the primacy of economic factors.

Section II. Macroeconomic Factors Influencing Assessments of the National Economy

Methods. Historically, these perceptions have been closely related to macroeconomic fundamentals. To illustrate, we regress our indices on inflation, the unemployment rate, output growth, a medium-term interest rate (the seven-year Treasury bill), and an index of the strength of the dollar.¹ All are graphed in Figure 3.

The first three variables in this list are not instantaneously reported with perfect accuracy. Preliminary values for the unemployment rate and output growth are reported with a lag and subsequently revised, while the Consumer Price Index, used in calculating inflation, is reported with a one month delay. Grant (2014) shows that the revised values better explain these survey responses, implying that economic assessments are based on the public's genuine perceptions of macroeconomic conditions, not reported statistics. We end our estimation period in Dec. 2022, to allow revisions to all variables, and use the most recent values available.

Our regression specifications were all used and justified in Grant (2014), making the current study “pre-registered” of a sort. We estimate level and difference specifications for the GE question and regress the BW index on differences of the independent variables. Backward differences of twelve months are used in the differenced GE specification and eight months in the BW specification (which maximized explanatory power in that paper). Estimation is conducted using ordinary least

¹ Inflation is calculated using the all-urban Consumer Price Index, and the unemployment rate is seasonally adjusted. Each quarterly observation of the real, chain-weighted, seasonally-adjusted Gross Domestic Product is assumed to pertain to the middle month of each quarter; the other months are calculated by linear interpolation. The trade-weighted index of exchange rates of the U.S.'s most important trading partners is from the Federal Reserve Bank of St. Louis, and is scaled by a factor of ten so its standard deviation is comparable to those of the other variables. Inflation and output growth are calculated using twelve month backward differences. See Grant (2014) for more detail.

squares (OLS), with the standard errors adjusted using the Newey-West correction.

We acknowledge that factors other than macroeconomic fundamentals could affect assessments of the economy. An obvious suspect is media coverage. Disentangling causation from correlation here is tricky, and even recent, methodologically sophisticated studies disagree (Hopkins et al., 2017; Boydston et al., 2018). However, even when media coverage is found to matter, “the lion’s share of consumer sentiment is explained by economic fundamentals...economic performance accounts for...much of the variance in economic media tone” (Boydston et al., 2018, p. 997). Our operative assumption, in line with these findings, is that one can form meaningful inferences about changes in consumer perceptions without accounting for secondary factors such as media coverage.

Baseline Results. Descriptive statistics and estimates are given in Table 1. As each independent variable’s standard deviation is comparable, relative coefficient magnitudes are meaningful. We begin with the pre-Great Recession time frame, found in the leftmost column(s) of each panel of the table. Here, as in Grant (2014), economic assessments are most strongly influenced by unemployment. Increasing this by three percentage points would cause all respondents to select the next worse response option. Significant but smaller effects, in the expected direction, are observed with inflation and GDP growth, with positive effects for the exchange rate and mixed, often small effects for the interest rate. Except for this last variable, the estimates are fairly consistent across specifications, in part because assessments of the macroeconomy adjust rapidly (see Grant, 2014).

Overall, that paper concluded that one percentage point of unemployment was “worth” two to five percentage points of inflation, in terms of perceptions. This ratio is duplicated in studies that relate measures of happiness or life satisfaction to unemployment and inflation (DiTella,

MacCulloch, and Oswald, 2001, 2003; Wolfers, 2003; Malasevic-Perovic, 2008; Blanchflower et al., 2014); with other such studies duplicating our generally small effects of long-term interest rates and economic growth (Oswald, 1997; Welsch, 2007, 2011). The same ratio appears when relating post-1970 presidential approval to economic conditions (Berlemann and Enkelmann, 2014).

This widespread ratio aligns with the “costs” of each factor, as they were experienced by the public. The cost of inflation is straightforward: a loss of purchasing power. An unanticipated, general price increase of one percent lowers purchasing power by one percent in the short run (less in the long run, as the labor market adjusts). In contrast, the costs of unemployment are multifaceted and large (Helliwell and Huang, 2014). During this time frame, a one percentage point decrease in unemployment raised U.S. men’s wages by about 1.5% (Coleman, 1984; Bils, 1985; Rayack, 1987; Solon, Barsky, and Parker, 1994; see also Barlevy, 2001). In addition, the unemployed lose earnings and the opportunity to gain valuable work experience and suffer from reduced mental health, while the employed are less able to switch jobs and have fewer weekly hours. This logic supports the 2:1-5:1 ratio observed in the literature.

Updated Results. These baseline estimates are dominated by data from the late twentieth century (as is true for the happiness, presidential approval, and wage cyclicity studies we cited). How do things change when more recent data is incorporated?

To investigate, we extend the sample period through December 2022, in the rightmost column of each panel of Table 3. The unemployment estimate falls dramatically in all specifications, with the others exhibiting smaller, unsystematic changes. The macroeconomic underpinnings of consumer perceptions have indeed changed—but they involve unemployment, not inflation.

This change is only partly pandemic-related. To illustrate, we re-estimate the BW and differenced GE specifications over a successive sequence of time periods, ending in Dec. 2022, Dec. 2021, and so on, yielding a sequence of coefficient estimates on each independent variable. Those for unemployment, output growth, and inflation are shown in Figure 4. Substantial moderation in unemployment's effect predated the pandemic, as did an increase in the effect of GDP growth. But the inflation estimates remain relatively stable, at least since 2000 (as do those for the remaining variables).

Is this moderation also reasonable? Two strands of evidence suggest that it is. One argues that labor market fluidity, as expressed in worker flows between jobs and/or employment, has declined in recent decades (Molloy et al., 2016; Davis and Haltiwanger, 2014). Both studies show that this labor market ossification is partly attributable to an aging workforce; beyond that, the explanations are multifaceted but less conclusive.

Such ossification should dampen the wage impact of business cycle fluctuations. The second strand of evidence confirms this point. Two studies find direct evidence of reduced wage cyclicality over time, though the details differ.² These are accompanied by a sequence of panel studies that relate individuals' real wage changes to the contemporaneous change in the unemployment rate.³

² Grant (2001) compares the 1975-81 period with 1983-93 and finds dramatically reduced cyclicality among union workers. Molloy et al. (2016) estimates Beaudry and DiNardo's (1991) implicit contract model for three different decades—the 1980s, 1990s, and 2000s—and obtains markedly lower estimates for the 2000s. Grant (2003) affirms Beaudry and DiNardo's estimates for the 1976-1984 and extends them to a variety of data sets spanning the mid 1960s to the late 1990s.

³ The only other common approach relates wage levels to unemployment levels and individual fixed effects. However, no early studies (with 1960s-1980s data) employ this approach, and the two specifications yield quite different estimates (Ballou and Kaymak, 2021). Thus these estimates cannot be informative about changes in wage cyclicality over time.

Earlier studies of this type, cited above, found that a one percentage point decrease in national unemployment raised men's wages by about 1.5%; the two studies analyzing later time periods obtain smaller estimates.⁴ If pay has become less responsive to unemployment, one can suspect benefits, hours, and working conditions have become less responsive as well. This evidence all supports a moderation of the unemployment coefficient over time.

The Great Decoupling. Figure 4 also shows sudden changes in most coefficient estimates during the pandemic, with varying degrees of magnitude. Therefore, to ascertain how “unexpected” perceptions are during that time, it is best to use coefficients estimated from pre-Covid data only. We therefore use coefficients estimated through Dec. 2019 to predict values of each index through mid-2023.⁵

Figure 5 contains the actual and predicted values of each index, whose difference equals the residual. Prior to the Covid era, residuals were occasionally sizeable, generally at the onset of and emergence from recession, with a magnitude of about one half unit. These residuals are dwarfed by those in the pandemic's early stages, first positive, then negative, as perceptions under-reacted to large swings in unemployment and GDP. This is plausibly the result of two large income supports that took effect during that period: Economic Impact Payments (EIP) and expanded unemployment insurance (UI) benefits. These were both well-timed to offset negative swings in sentiment, as shown in the top graph of the figure. Then, having not fallen as much as predicted, perceptions had

⁴ Gertler et al. (2020; data from 1990-2012) find that a one point reduction in unemployment raises men's wages by 0.5% for job stayers and 1.6% for job switchers. In the earlier studies cited above, the analogous values are 0.5% and 3-4%. Bellou and Kaymak (2021; data from 1979-2008) find that a one point drop in unemployment raises overall wages by only 0.2%, well below early studies' 1.5% average for men, and less than half of Solon et al.'s (1994) estimate for women.

⁵ The estimates can be seen in Figure 4 and the first column of Table 2. All are significant.

less ground to recover as the economy stabilized.

After these swings the deviation between predicted and actual values takes a different character. Throughout 2021 and 2022, the BW index remains unusually negative. Consistent with this continuing sense of economic decline, the GE index falls increasingly below its high predicted value, eventually achieving a yawning gap of more than one unit. This is the Great Decoupling that has so perplexed onlookers.

Section III. Real Wages, Economic Perceptions, and the Great Decoupling

Preliminary Exploration. To uncover reasons for this decoupling, we begin with a preliminary exploration of several possibilities, adequately represented by the quotes in Section I. Throughout, we determine if pre-Covid perceptions show an appropriately strong relationship with the postulated factor. This approach has shed light already. Table 1 contradicts the notion that the public values low inflation more than low unemployment; historically, the opposite has been true. Similarly, research cited above rules out a dominant role for media coverage, which responds to the events driving perceptions far more than it influences those perceptions.

We now consider four more possibilities:

- *Gas Prices.* High gas prices increase pessimism, beyond their contribution to general inflation, perhaps because they are highly visible.
- *Political Partisanship.* The public is viewing the economy through a partisan lens, “irrationally” generating pessimism.
- *Mismeasurement of Labor Market Slack.* Headline unemployment doesn’t adequately reflect the state of the labor market, perhaps because of changes in labor force participation.

- *Real Wages.* Inflation, coupled with sluggish nominal wage adjustment, has lowered workers' purchasing power, despite a strong economy.

Appendix B graphs some of these factors and the residuals for each index. A sizeable pre-Covid factor-residual correlation suggests the relevance of that factor for that index.⁶

Gas Prices. This factor has been examined in the literature, though inadequately for our purposes.⁷ Recently, low gas prices did not prevent unexpectedly low GE assessments in 2015-2016, nor did higher prices prevent unexpectedly high BW assessments in 2017-2019. Relating the twelve month change in gas prices to our two residuals, each correlation is, perversely, positive (though small). Gas prices are not the answer.

"Unmeasured" Labor Market Conditions. If the headline unemployment rate overstated labor market strength, predicted values of the indexes would be unexpectedly high and the residuals unexpectedly low.

There is no evidence for this. Except for early 2020, the six unemployment measures created by the Bureau of Labor Statistics, U1-U6, move in concert during the Covid era. Establishment-level data indicates slightly *more* job creation than the household survey on which the unemployment rate is calculated. (In a similar vein, Gross National Income has risen more than GDP.) Pre-Covid changes in the labor force participation rate are weakly related to our two residuals, with correlations

⁶ Gas price correlations begin in 1991, when the data become available from the Federal Reserve Bank of St. Louis; the others begin in 1983, when the relevant wage series begins. All end in Dec. 2019, in order to predate Covid.

⁷ Edelstein and Kilian (2009) and Johnson and Lamdin (2012) examine how gas prices affect the Index of Consumer Sentiment, controlling for purchasing power and real consumption in the former paper and for income in the latter paper. This index is a combination of current and future conditions—the former paper is especially expectations-focused—and subject to the limitations pointed out in the introduction. Furthermore, neither study accounts for unemployment, the most important control of all. Under these circumstances their findings have limited applicability here.

below 0.10 in magnitude.

Political Factors. A sizeable political science literature has shown that assessments of the current economy are formed through a partisan lens. (See Gerber and Huber, 2010, and the references therein; the associated economic literature focuses on future expectations instead.) However, this work is conducted at the individual level. When party preferences are nearly evenly split, as they are in the U.S., individual-level partisan influence need not have aggregate-level effects. Indeed, with one exception, our GE and BW indices show no sign of perturbations associated with federal elections or a change in presidents.

To probe further for aggregate-level effects, we use Fair's (2018) analysis of economic factors on electoral outcomes. We took the pre-election (October) residuals from all three of his specifications (President, Congress in presidential election years, Congress in off-years) and related them (independently) to both indices and their residuals. The resulting correlations were small and dispersed around zero. The evidence for a causal link from *national-level* political sentiment to consumer perceptions is tenuous at best, and there is no evidence that such a link has continuously diminished economic optimism throughout the Biden administration's first two years.

Real Wages. A final possibility is that survey respondents are reacting to a loss of purchasing power generated by sluggish wage growth in the presence of rising inflation.

If wages respond to unemployment and inflation in a consistent way over time, they would have no independent effect on economic perceptions (beyond that generated by those other two variables). This consistency may not hold, however, because of labor market ossification over time, coupled with the particularly rapid rise of post-Covid inflation. Then, an unusually large decline in real wages could generate economic pessimism.

To probe further, we relate real wages to pre-Covid residuals in each index. This is not a trivial exercise to conduct. The skill composition of the workforce varies countercyclically (Solon et al., 1994), preventing the use of aggregate wage statistics for this purpose. Instead, to account for skill via individual fixed effects (explicitly or implicitly, through differencing), economists use microdata that follows individuals across time. Suitable U.S. data is limited, but we found two published sources of average individual-level wage growth over time. Solon et al. (1992) report mean annual wage changes among males from 1967-1987, while the Federal Reserve Bank of Atlanta publishes a monthly wage growth series from 1983 forward.⁸ The annual real wage changes implied by both are graphed in Figure 6.

For real wages to account for recent economic pessimism, they must correlate with economic sentiment pre-Covid and take unusually low values post-Covid. Both conditions hold. Though correlations with the GE residual are small, those for the BW residual are not. Pre-Covid correlations with the annualized BW residual in Figure 6 are 0.53 for the earlier series and 0.42 for the later one (through 2019). Meanwhile, real wage losses in 2021 and 2022 are substantial.

Further insight can be gained from age-level breakdowns, which are provided by the Atlanta

⁸ Solon et al. utilize the Panel Study of Income Dynamics (PSID), while the Atlanta Fed utilizes matched panels from the Current Population Survey (CPS), as in Grant's (2001) and Daly et al.'s (2012) wage cyclicity analyses. Each data source has limitations: the PSID is relatively small, while the CPS has temporal gaps during part of 1985-6 and 1995-6 and loses everyone who changes residence in the twelve months between their first and second interview. However, Kim (2009) and Nekarda (2009) both show that bias from this sample attrition is small. Median wage growth in the Atlanta Fed series closely follows that of average hourly earnings, with larger values near the end of expansions and smaller values during contractions, as would be expected from countercyclical variation in the skill composition of the workforce. The analysis in the text uses values that are "weighted to be representative of each month's population of wage and salary earners..." and smoothed using a three month centered moving average (to reduce noise). The data and more detail can be found at <https://www.atlantafed.org/chcs/wage-growth-tracker>.

Fed and by YouGov for the BW question. We identify three age groups: Young (teens and 20s, roughly speaking), Middle-Aged (30s and 40s), and Older (50s and 60s—see the note to Figure 6 for more detail). The bottom panel of Figure 6 presents a scatterplot of real wages against the net positivity of sentiment for all three groups, with pre-Covid trendlines provided.

Of these three groups, labor force participation is lowest among the Young and highest among the Middle-Aged. The correlations with sentiment are similarly arranged: almost zero for the Young, 0.37 for the Older, and 0.67 for the Middle-Aged. This suggests sentiment is based on lived experience, and reflects real wage growth more closely when one encounters it directly as a labor market participant. Furthermore, for the two older groups, *post-Covid* sentiment in 2021 and 2022 falls on or near the *pre-Covid* trendline, implying that wage growth strongly influences economic perceptions over this period (with 2020 as an outlier). These findings all recommend this factor for formal analysis.

Formal Analysis of Real Wage Effects. Following the results of our preliminary investigation, we add real wage growth as an explanatory variable in our BW regressions. The results are placed in Table 2. Two time periods are included: pre-Covid, ending in Dec. 2019, and the full sample period through Dec. 2022, omitting 2020 as an outlier. The two periods' estimates are similar.

Several notable findings emerge from this table. Most fundamentally, the effect of real wage growth is large, and this variable substantially increases the regression's fit. With a pre-Covid R^2 value of 0.47, almost half of the variance in the relatively volatile BW index is explained.

Equally notable is the inflation coefficient's response to the inclusion of real wages: its estimate collapses to zero. In forming perceptions, inflation is penalized because it destroys the

purchasing power of earnings, with residual effects on the value of assets or debt being secondary at best. The real wage coefficient is double the previous regression’s inflation estimate, implying that (in the short term) nominal wages increase half as much as prices rise. In contrast, unemployment remains important even after accounting for wage changes, consistent with its “multifaceted and large” costs.

The estimates across the first three columns of the table conform to our previous claims about wages, unemployment, and inflation. Moving from the first to the second column, the first seven sample years are excluded (as they lack wage data). In response, the unemployment estimate falls by half, consistent with unusually strong wage cyclicality during that period, which has since moderated. This theme is further developed by comparing the table’s second and third columns (and fourth and fifth), where the inclusion of real wages leaves the unemployment coefficient undiminished. This indicates at best mild procyclicality in this later period—which is just what we obtain when regressing real wage growth on unemployment and inflation.⁹

These findings, along with those in Figure 4, necessitate a downward revision of the weight the public places on unemployment—even without accounting for wages. The “initial,” or leftmost, estimates in all three Table 1 regression specifications were at least -0.35. However, those estimates were based on data through 2008 and (for the BW index) were bolstered by unusual procyclicality during the 1970s and early 1980s. When this early data is disregarded and the sample lengthened to 2019, all three estimates fall by more than half.¹⁰

⁹ This small estimate is not unprecedented—see Ballou and Kaymak (2021). Inflation’s coefficient estimate is modestly more negative than the -0.5 implied in the previous paragraph.

¹⁰ The GE estimate is -0.17 in levels (1985-2019) and -0.16 in differences (1986-2019, see Fig. 4); the BW estimate is -0.15 (1983-2019, see Table 2). These regressions omitted real wages.

Perceptions during the Covid Era. These facts and others established previously leave us better equipped to understand Covid-era movements in economic perceptions.

The first fact comes from the bottom graph of Figure 1. The midpoint of each pollster's two thresholds is the point at which the American economy is viewed as getting neither better nor worse. It ranges from 0.4 to 0.5, depending on the pollster. The BW index lies below this range most of the time. Pessimism about economic conditions is the rule, not the exception (the same is true for the GE question as well).

Second, even if wages hadn't fallen, the public would not find the recent economy to be especially strong, as shown in the top graph of Figure 7. Had real wages been static during 2021-22, the BW index would be near zero, which is slightly above its overall average. This is partly because unemployment and GDP growth improved only modestly during this period, and partly because low unemployment means less to the public than it used to.

Third, compared to this baseline, real wage growth is quite helpful in explaining the BW index—both its relatively high value in 2018 and 2019, when wage growth was strong, and its relatively low value in 2021 and 2022, when wage growth was weak. An unusually anemic Covid-era wage response to low unemployment and rapid inflation lowered economic perceptions accordingly. At the turn of this last year, nominal wages finally began to outpace inflation; these real wage increases presaged the BW index's rise in mid-summer 2023.¹¹

Fourth, differences in the GE index accord even more closely with these predictions, as shown in the bottom graph of Figure 7. The BW and GE indexes are related, as has historically been

¹¹ The importance of wages would be higher had the baseline been mean pre-Covid wage growth of 1.5% instead of zero. In this sense the comparison in the text is conservative.

the case; recent real wage declines imply low values of the former and decreasing values of the latter. These declines do not fully explain The Great Decoupling, but they contribute substantially to it.

Our decision to account for wages specifically, instead of household income generally, was not haphazard. Had only income mattered, no matter its source, perceptions should have risen during Covid, as government stimuli made households more than whole. Indeed, in the Federal Reserve's Survey of Household Economics and Decisionmaking, respondents assessed their own financial condition quite positively during the pandemic—but they were dismal about the economy (as noted by Thompson, 2022, and many others). The American public distinguishes the strength of the economy from their own personal finances; the former is good only when earnings are strong.

Section IV. Conclusion

During the later part of the 20th century, the public's assessment of the macroeconomy was fundamentally "rational." Different surveys of economic conditions related coherently to each other, to related surveys, and to macroeconomic fundamentals in a way that was sensible and fairly stable over time. A point of unemployment mattered much more than a point of inflation, in line with a contemporaneous literature demonstrating the sizeable procyclicality of real wages.

Recent decades have upended those patterns in the same way that Hemingway described the onset of bankruptcy: gradually, then suddenly. The importance of unemployment waned as wage cyclicality tempered. Then came Covid. It, and its aftermath, blew apart the tightly linked triangle of labor market tightness, real wage growth, and economic perceptions—first (probably) through mammoth government transfers, then through the inability of pay to keep pace with inflation despite

a tight labor market. This helped cause economic perceptions to decouple from the unemployment rate, generating unusually pessimistic responses to “better/worse” questions and increasingly pessimistic (and negative) responses to “good economy” questions. As of mid-2023, this process has just begun to reverse, as nominal wage growth has finally surpassed inflation.

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Table 1. Regression Results (coefficient estimates, with robust standard errors in parentheses).

Independent Variable	Mean, Standard Deviation, June '76-Dec. '22	"GOOD ECONOMY" INDEX				"BETTER/WORSE" INDEX		
		Levels		Differences		(on differences of)		
		Dec. '85-Aug. '08 (N=273)	Dec. '85-Dec. '22 (N=445)	Dec. '86-Aug. '08 (N=261)	Dec. '86-Dec. '22 (N=433)	June '76-Aug. '08 (N=387)	Dec. '85-Aug. '08 (N=273)	June '76-Dec. '22 (N=559)
Unemployment (percentage points)	6.25 (1.73)	-0.39* (0.03)	-0.15* (0.04)	-0.35* (0.05)	-0.08* (0.03)	-0.39* (0.06)	-0.31* (0.08)	-0.06 (0.04)
One Year Output Growth (percent)	2.68 (2.17)	0.06* (0.02)	0.05 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.06 (0.03)	0.05* (0.02)
Twelve Month Inflation (percent)	3.65 (2.67)	-0.08* (0.02)	-0.13* (0.03)	-0.06* (0.02)	-0.07* (0.02)	-0.09* (0.04)	-0.09 (0.05)	-0.05 (0.03)
Exchange Rate (Fed series, scaled by 0.1)	9.38 (1.37)	0.13* (0.02)	0.15* (0.05)	0.08* (0.03)	0.02 (0.04)	0.10* (0.05)	0.10 (0.07)	0.07 (0.06)
Seven Year T-Bill Rate (percentage pts)	5.81 (3.41)	-0.00 (0.02)	0.11* (0.04)	0.02 (0.02)	0.09* (0.03)	-0.12* (0.04)	-0.02 (0.05)	-0.07 (0.05)
Time in Years / Constant Term	----	-0.02* (0.01)	0.02 (0.01)	-0.03 (0.03)	-0.00 (0.03)	----	----	----
R ²	----	0.91	0.72	0.69	0.35	0.43	0.30	0.20
standard deviation of dependent variable	----	0.42	0.49	0.31	0.32	0.43	0.35	0.39

Note: Final revised values of each independent variable are used in the regressions reported in the table. Each regression also includes a constant. As discussed in the text, differences are taken over twelve months for the "good economy" regressions and over eight months for the "better/worse" regressions. * = $p < .05$.

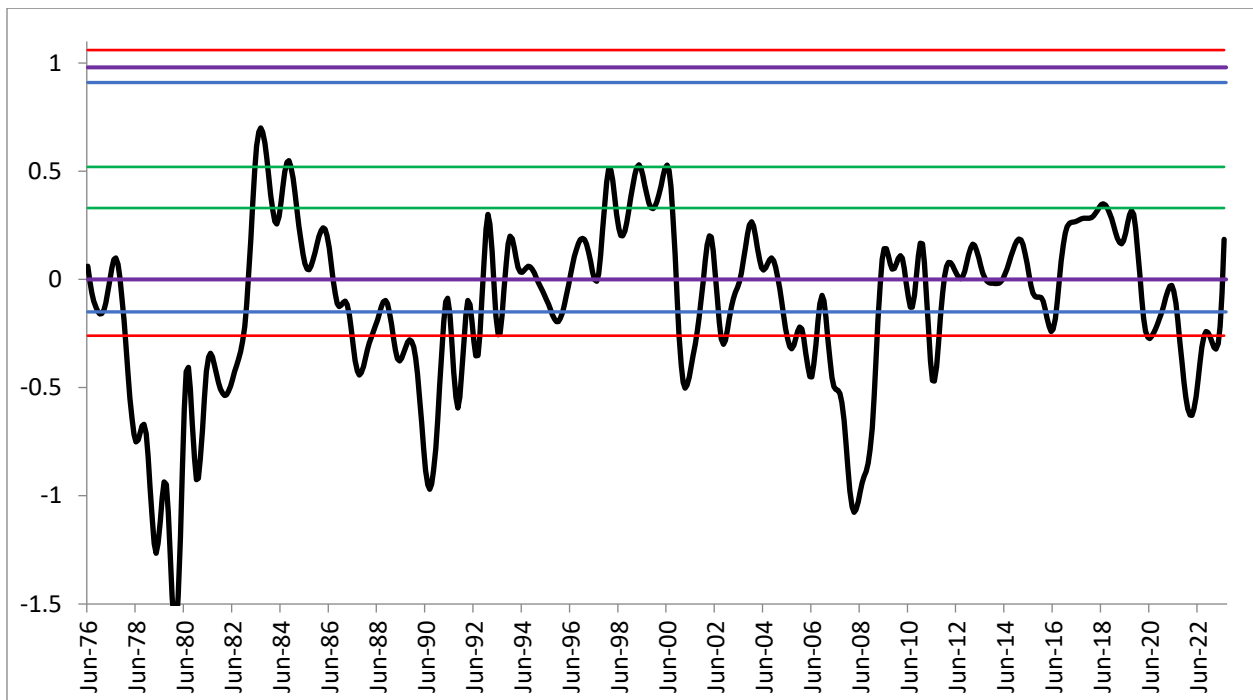
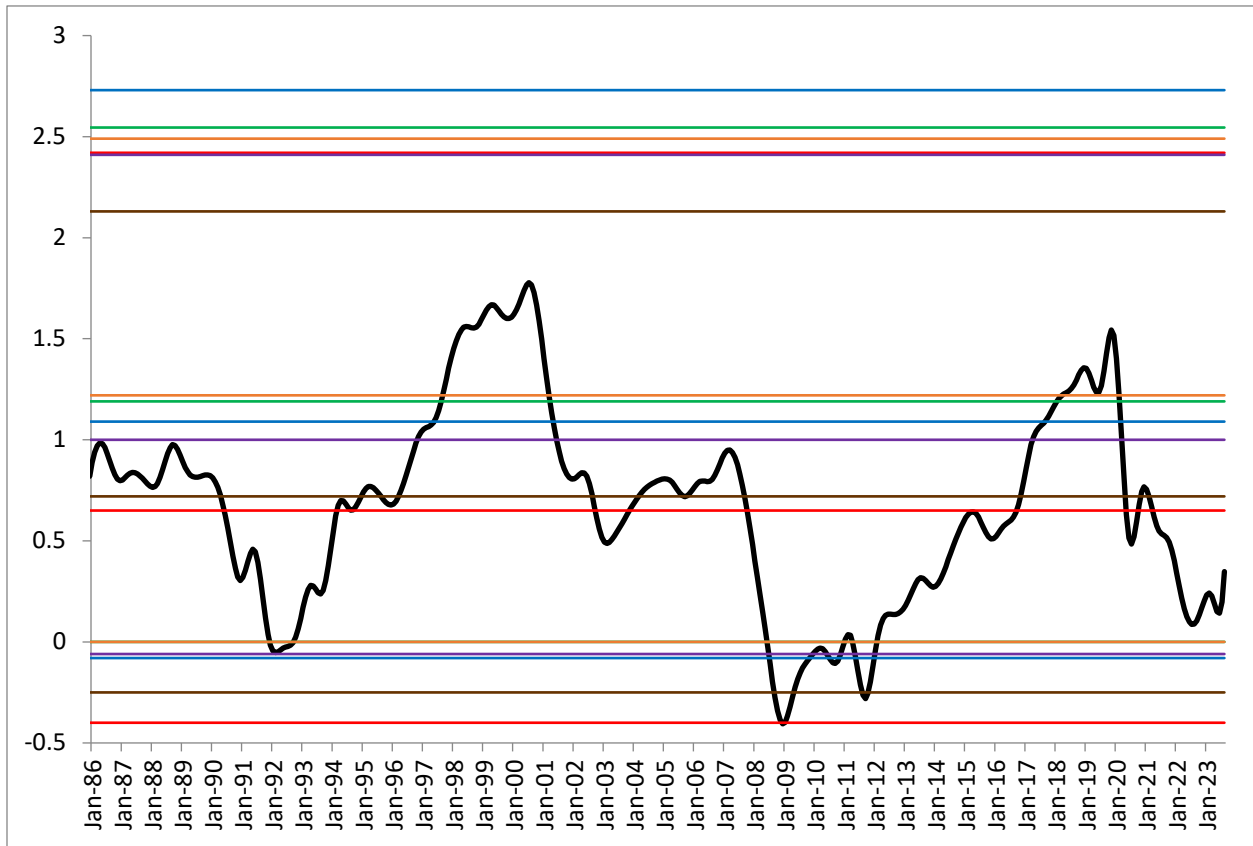
Table 2. Regression Results Incorporating Real Wages (coefficient estimates on the “Better/Worse” Index, with robust standard errors in parentheses).

Independent Variable	Pre-Covid, all years	Pre-Covid, months with wage data		months with wage data, exclude 2020 only	
	June ‘76 - Dec. ‘19 (N=523)	Jan. ‘83 - Dec. ‘19 (N=414)		Jan. ‘83 - Dec. ‘22 (N=438)	
Δ Unemployment (percentage points)	-0.27* (0.07)	-0.15* (0.06)	-0.16* (0.04)	-0.08 (0.06)	-0.08 (0.05)
Δ One Year Output Growth (percent)	0.05* (0.02)	0.06* (0.01)	0.05* (0.01)	0.05* (0.02)	0.04* (0.01)
Δ Twelve Month Inflation (percent)	-0.07* (0.03)	-0.05* (0.02)	0.00 (0.02)	-0.06* (0.02)	0.00 (0.02)
Δ Exchange Rate (Fed series)	0.06 (0.05)	0.17* (0.06)	0.15* (0.06)	0.16* (0.06)	0.15* (0.06)
Δ Seven Year T-Bill Rate (percentage pts)	-0.08 (0.05)	0.05 (0.04)	0.04 (0.03)	0.05 (0.03)	0.06* (0.03)
Real Wage Growth (percentage)	-----	-----	0.11* (0.03)	-----	0.12* (0.02)
R ²	0.33	0.35	0.47	0.26	0.40

Note: Final revised values of each independent variable are used in the regressions reported in the table. Real wage growth is (by necessity) taken over the previous twelve months; the other differences over the previous eight months. Each regression also includes a constant.

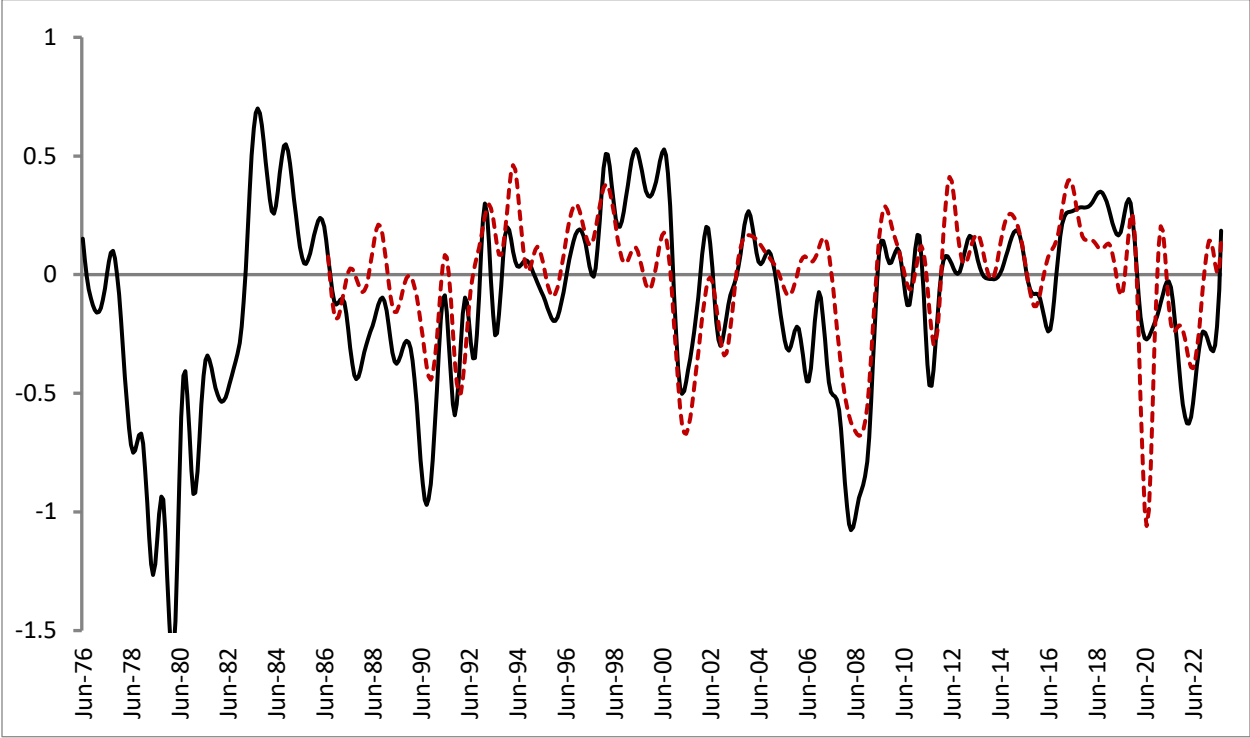
* = $p < .05$.

Figure 1. Indices and Associated Thresholds, Good Economy (top) and Better/Worse Questions



Note: ABC/Washington Post Thresholds are in Blue, CBS/New York Times in Red, Gallup in Green, QU (good economy) and YouGov (better/worse) in Purple, Pew in Orange, CNN in Brown.

Figure 2. Better/Worse (in black) and Differenced Good Economy (dashed, in red) Indices, 1976-2023



Note: Following Grant (2014), eight-month backward differences are applied to the Good Economy index.

Figure 3. Graphs of All Macro Variables

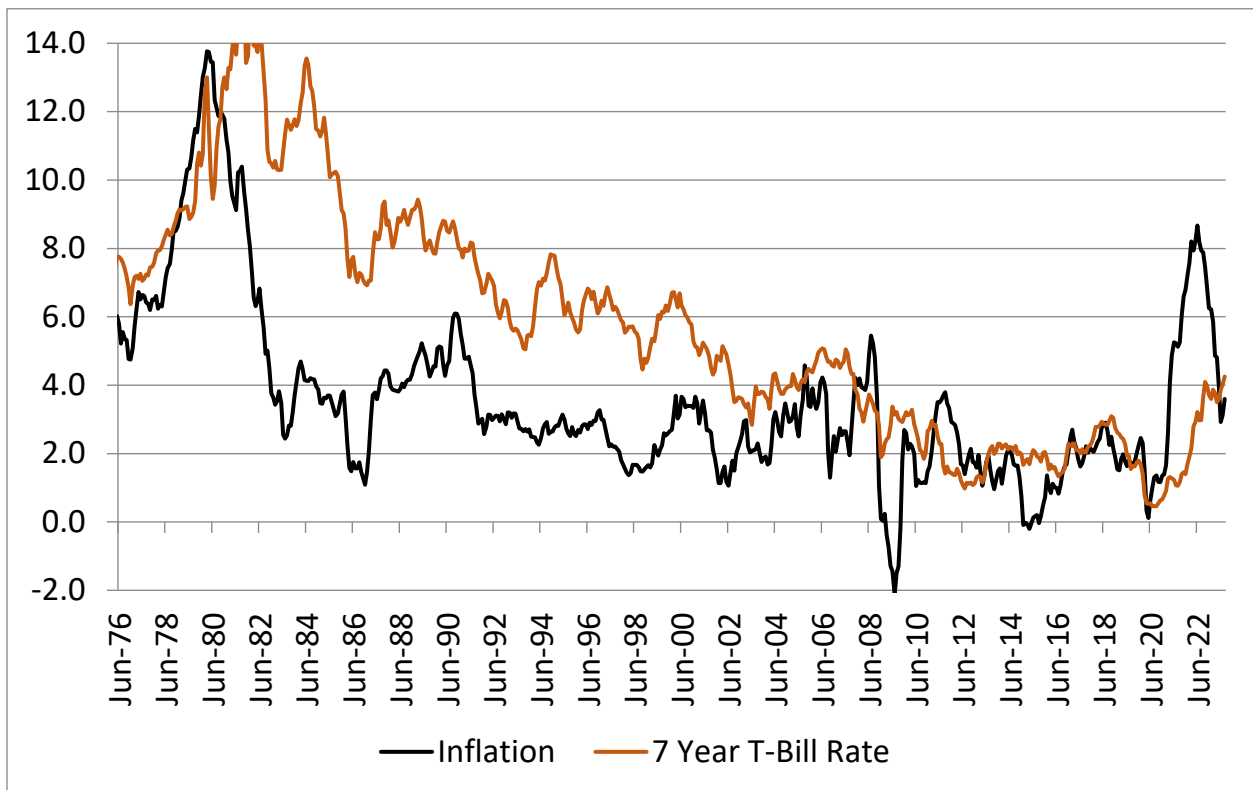
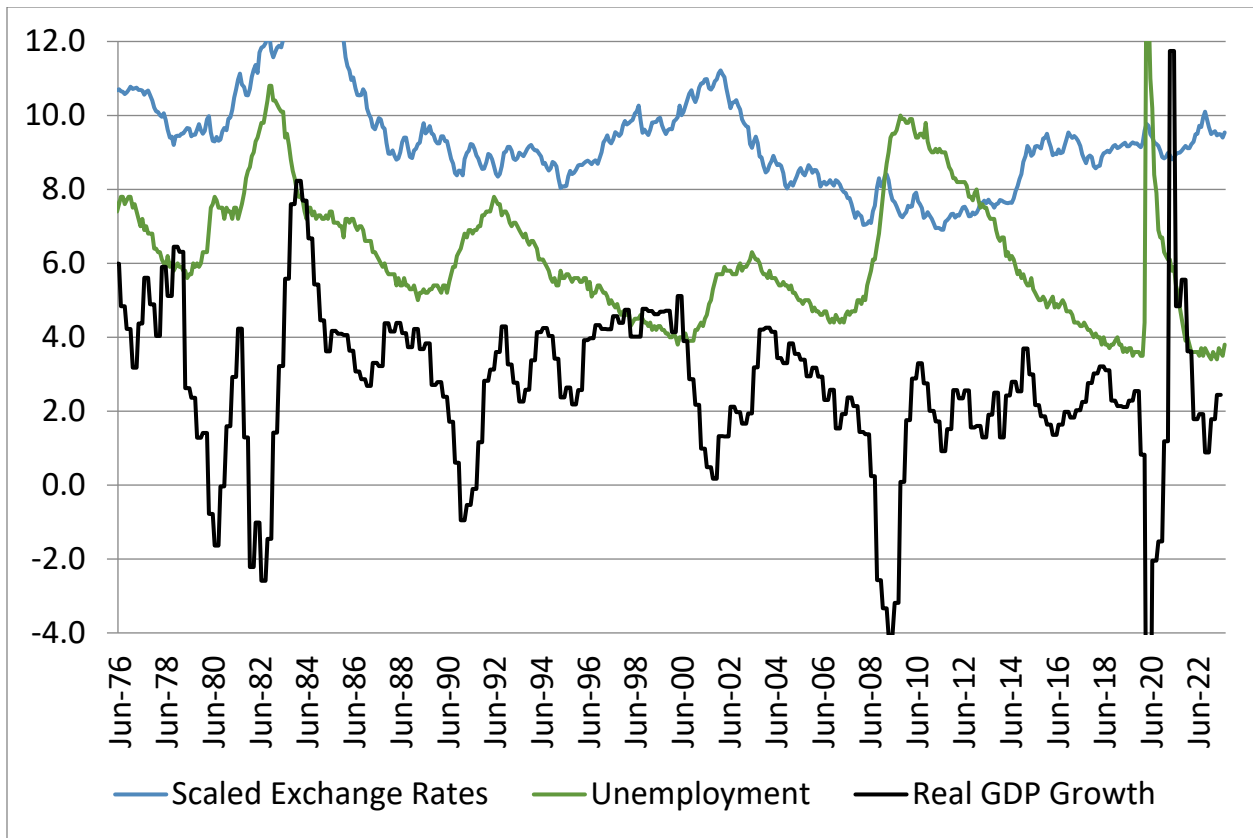


Figure 4. Coefficient Estimates, Rolling Estimation Windows (95% confidence intervals included)

“BETTER/WORSE” INDEX

DIFFERENCED “GOOD ECONOMY” INDEX

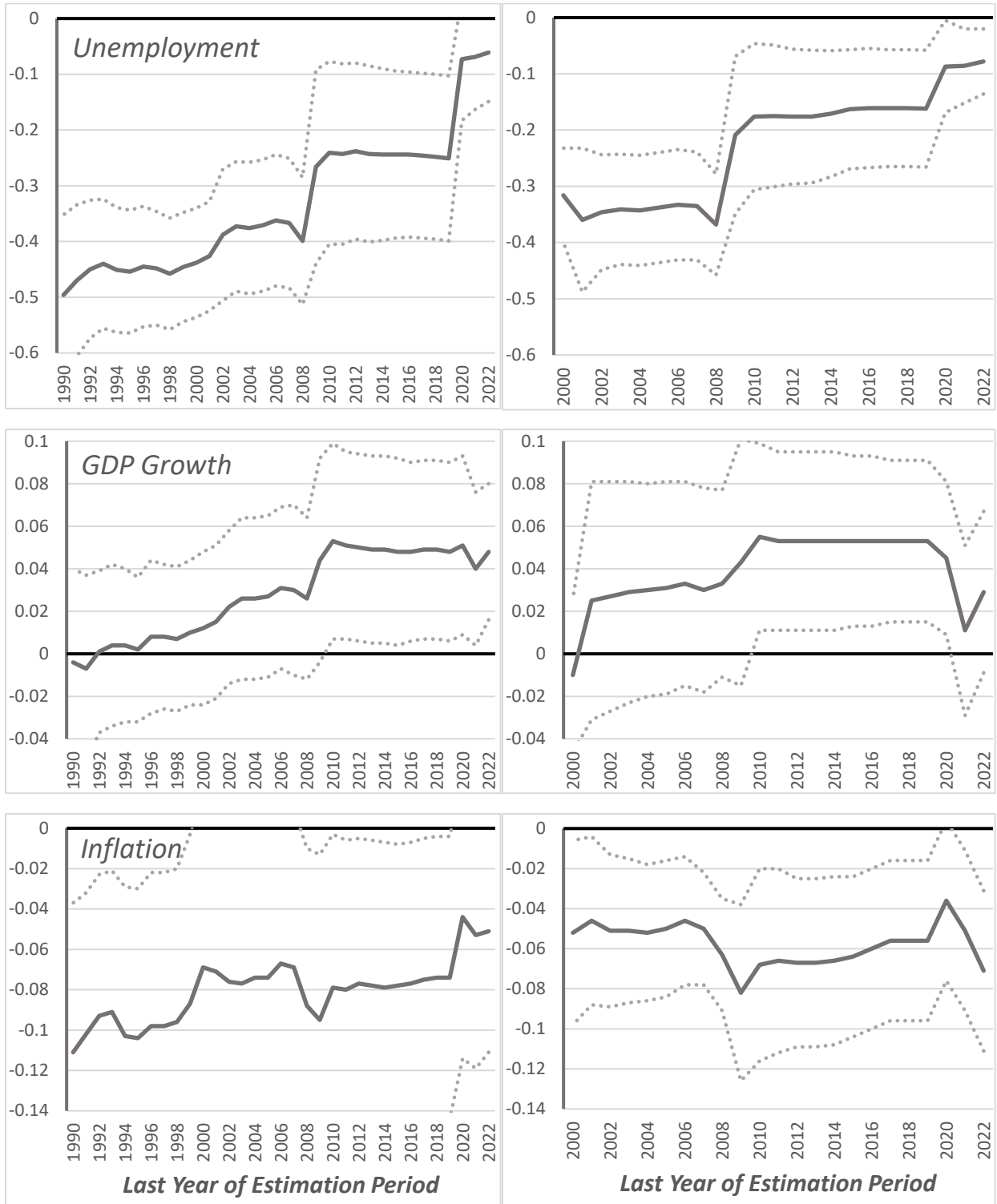


Figure 5. Predicted and Actual Values of the Dependent Variable, All Three Specifications, using Pre-Covid Coefficient Estimates (data through Dec. 2019, predictions through June 2023)

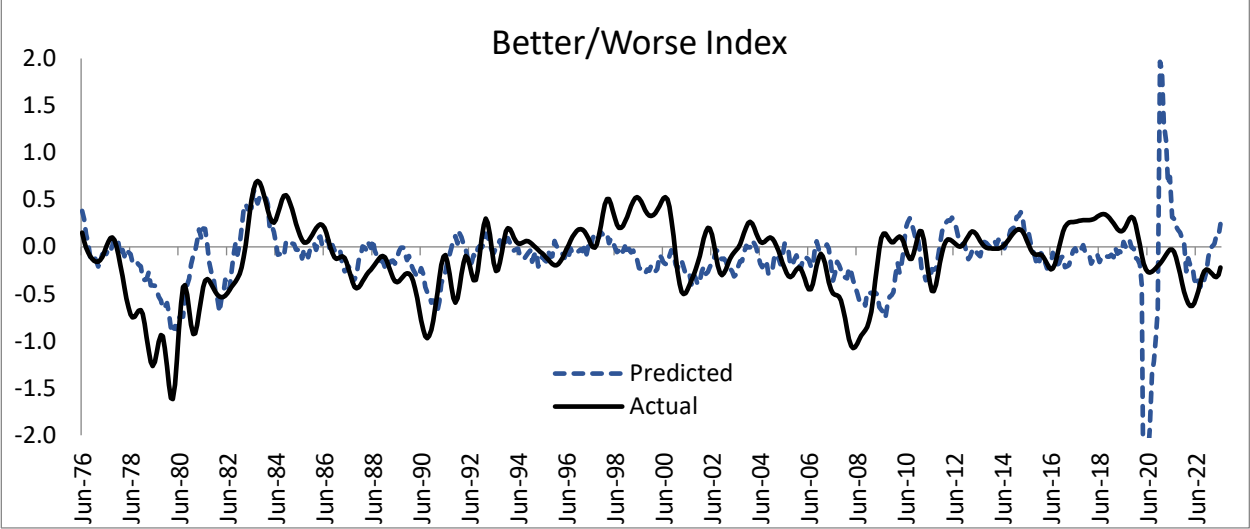
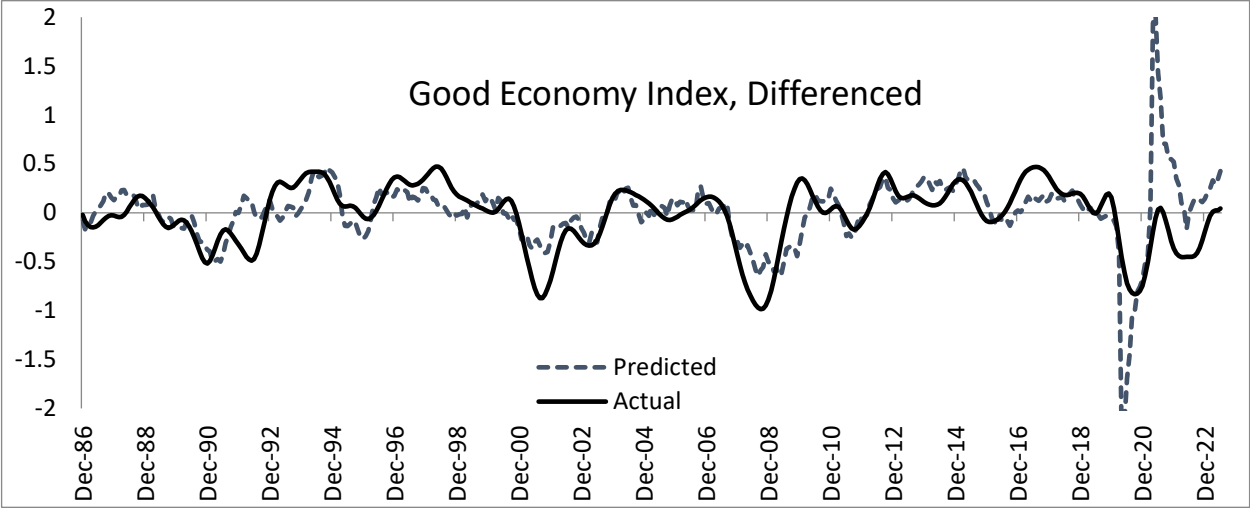
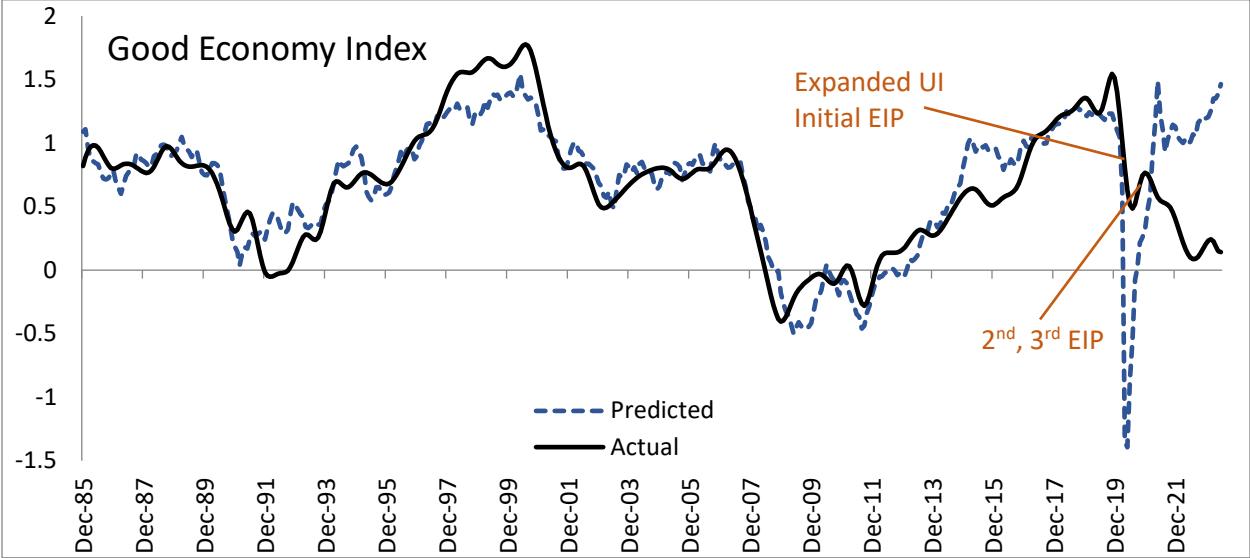
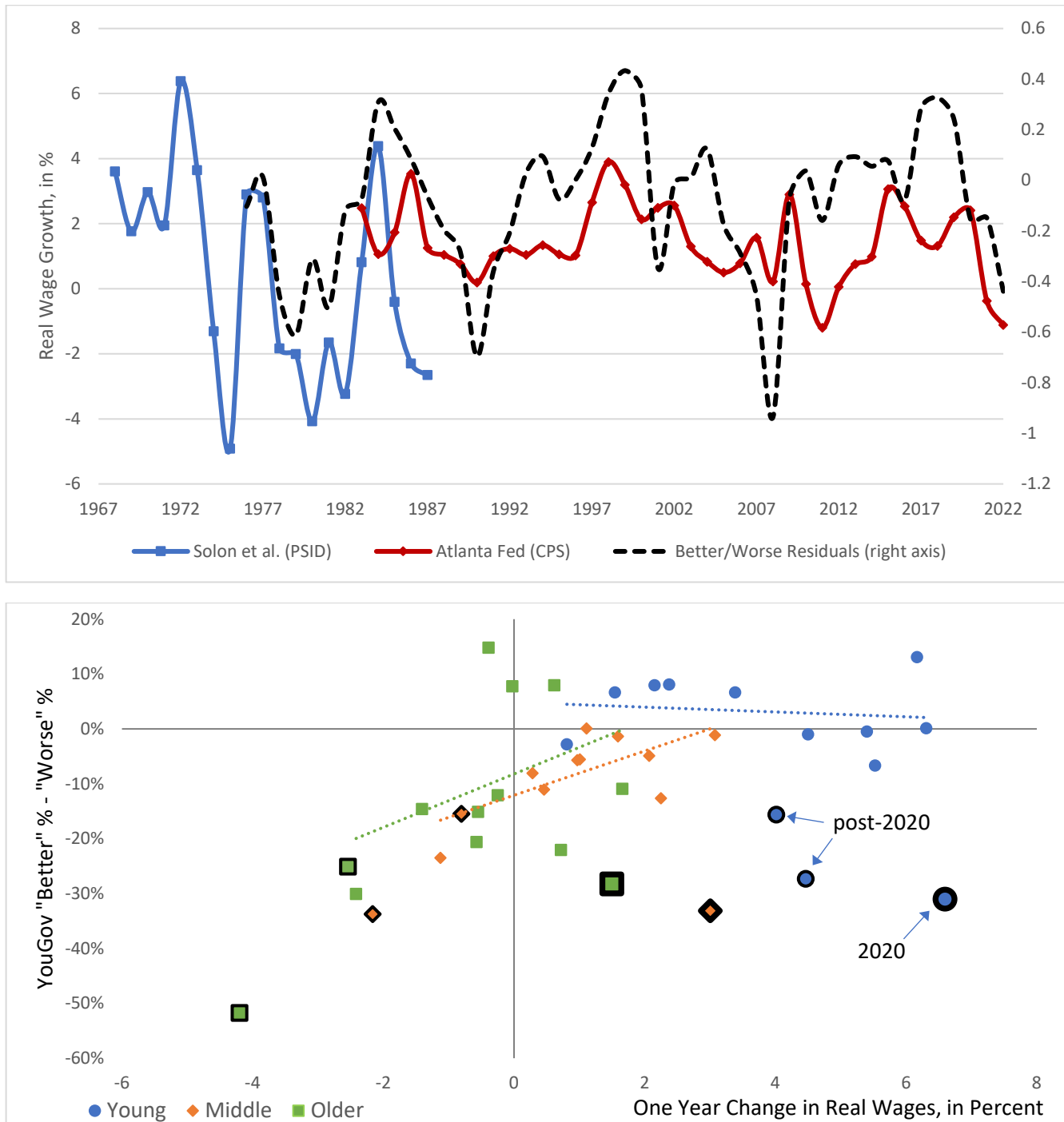
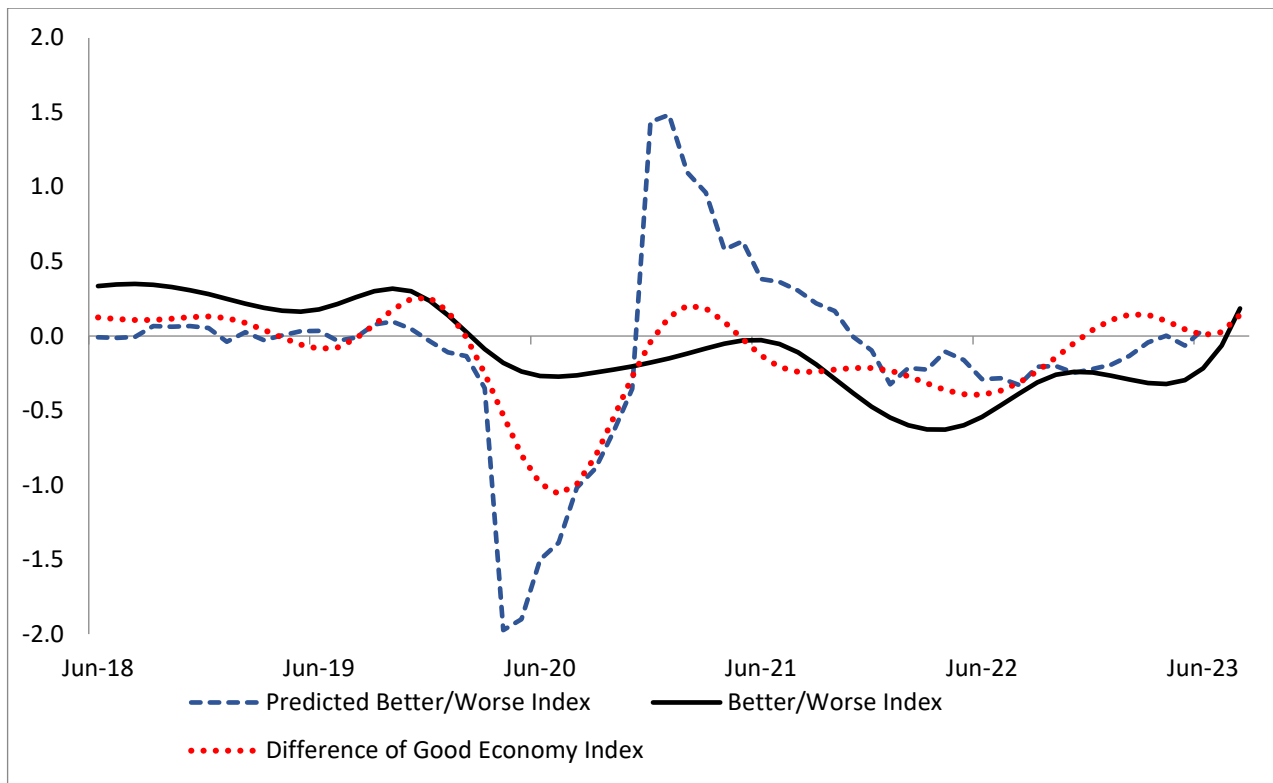
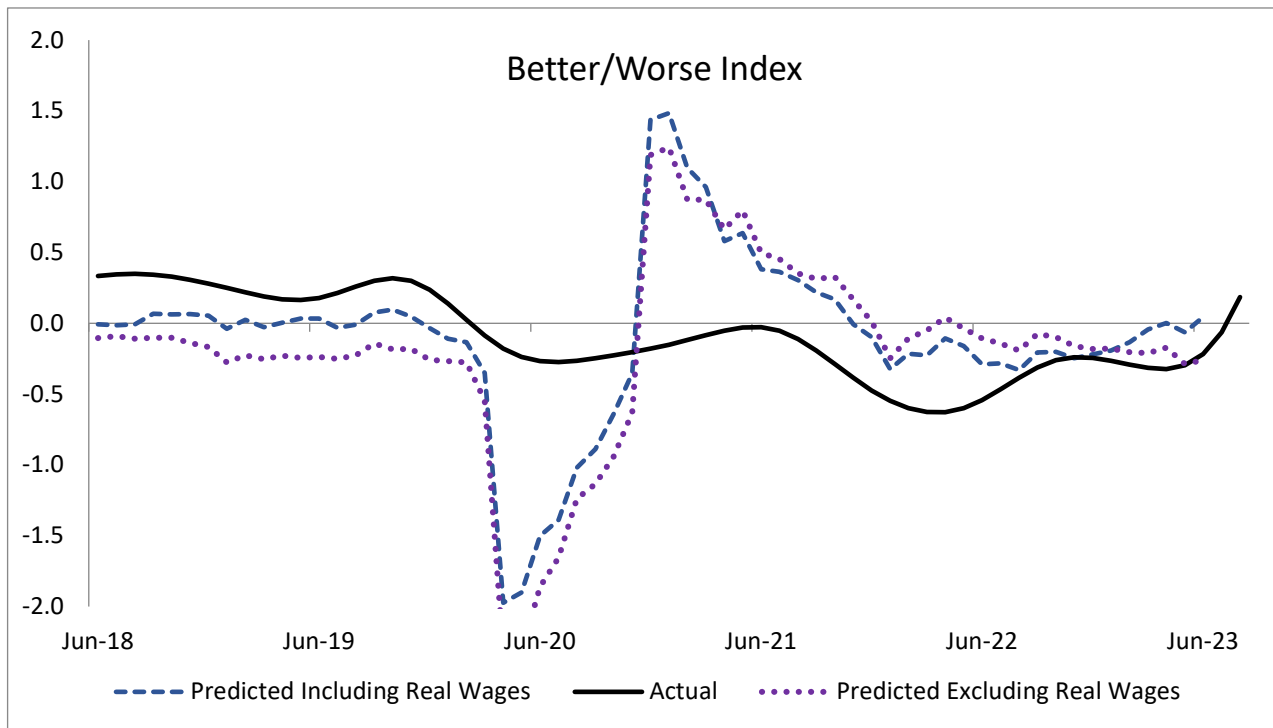


Figure 6. Real Wage Growth and Economic Perceptions. Top: Time Series of Real Wage Growth and Better/Worse Residuals. Bottom: Scatterplot of Real Wage Growth (Atlanta Fed) against YouGov “Better/Worse” Sentiment, by Age, 2010-2022 (with 2010-2019 trend lines included).



Note: The better/worse residuals are those in Figure 6, averaged by year. Annual wage growth is adjusted for inflation using the CPI. “Young” includes ages 16-24 for wage growth and 18-29 for YouGov; “Middle” includes ages 25-54 for wage growth and 30-44 for YouGov; “Older” includes ages 55+ for wage growth and 45-64 for YouGov. In the bottom graph, the larger points represent 2021-2022 and largest represent Apr. – Dec. 2020.

Figure 7. Actual and Predicted Values of the Better/Worse Index and Differenced Good Economy Index.



Note: An eight month, backward difference of the Good Economy index is presented. All predictions are formed from the pre-Covid estimates given in the third column of Table 2. "Excluding Real Wages" assumes real wage growth is always zero.

Appendix A. Construction of Indexes.

Data. Tables A1 and A2 describe all American “Good Economy” (GE) and “Better/Worse” (BW) surveys with any material temporal coverage, all of which are employed here. Grant (2014) utilized a subset of this data through 2010; here it has been expanded and updated through mid-2023. Each survey typically contains about one thousand respondents in each month that it is conducted, so little variation comes from sampling error.

While any given GE survey has significant temporal gaps, these are largely filled in by other surveys. Only nine of the 453 months from Dec. 1985 to Aug. 2023 are left uncovered. Larger gaps occur for the BW surveys. Of the 567 months from June 1976 to Aug. 2023, 146 are uncovered, mostly in the earlier years of this period. After 2000, only two months are not covered. Furthermore, every year of the sample period has at least three months of data, enough to detect changes in sentiment over the business cycle.

Methods. For each question type (GE, BW), we wish to amalgamate the information from all surveys, accounting for the differences in phrasing (and associated differences in response frequencies) noted in Tables A1 and A2, and allowing for the temporal gaps in each survey. Since each survey—Gallup, the *Washington Post*, and so on—measures the same construct, their responses should and do have a strong underlying commonality. This commonality is expressed as a latent variable and estimated nonparametrically.

We let each individual’s survey response be governed by three terms: a time-varying latent variable, L , common to all respondents of all surveys (within a class); a random variate, α , that generates cross-section variation in individual responses at any given point in time; and a time-invariant, survey-specific set of thresholds, μ , that distinguish an “excellent” response from a “good” response, and so on. One can treat L as a scalar index of perceived macroeconomic conditions.

The latent variable and associated thresholds are estimated by relating all surveys’ responses nonparametrically to time. This is done by expressing time as a series of splines, which are used as independent variables in an ordered probit model in which the response is the dependent variable. Applying the estimated coefficients to the splines yields a smoothed, amalgamated, unrestricted estimate of the latent variable that extends for the full time span of that class of surveys, filling in any survey-less months.

Following Grant (2014), this model is formally stated as follows. Let j index individuals, t time in months, s splines, and z surveys (within a class). For each survey z , the individual-level latent variable, I , governing each individual’s response equals the sum of L and α , as follows:

$$I_{j,t} = L_t + \alpha_{j,t} = \sum_s \beta_s S_{s,t} + \alpha_{j,t} \quad , \quad \text{with} \quad \sum_s S_{s,t} = 1 \quad \forall t \quad \text{and} \quad \alpha_j \sim N(0,1) \quad \forall t$$

Least Favorable Response iff $I_{j,t} < \mu_0^z$

Next More Favorable Response iff $\mu_1^z > I_{j,t} \geq \mu_0^z$

.....

Most Favorable Response iff $I_{j,t} \geq \mu_{MAX}^z$

$\mu_0^1 = 0$

where S is a set of “B-splines,” determined according to the method of deBoor (1978), which sum to one at each point in time, and the μ 's are the thresholds that $I_{j,t}$ must exceed in order for that respondent to report that economic conditions are “excellent” instead of “good,” and so on.¹² The predicted value of L at any time T is $\sum \hat{\beta}_s S_{s,T}$.

This ordered probit model is applied separately to each question type (GE, BW), and an associated latent variable estimated for each. Each latent variable amalgamates the information contained in that set of surveys into a single time series, which serves as the summary index of economic perceptions for that question type, and is referred to as the “index” in the text. Each latent variable's units are defined by the standard probit identification condition that the errors have unit variance, and thus have no intrinsic meaning.

¹² Following the original study, about 2.5 splines per year are employed, in order to preserve all but the highest frequency variation. For simplicity, 1,000 people are assumed to respond to any given survey in any given month (to which the reported percentages responding “excellent,” etc., are applied). This is generally accurate (and an understatement otherwise).

Table A1. Survey Details: “Good Economy” Questions.

Survey Organization / Sponsor	Question Asked of Respondents	Temporal Span	Observations / Months in Survey Period
ABC News / <i>Washington Post</i>	“Would you describe the state of the nation’s economy these days as excellent, good, not so good, or poor?”	Monthly, Dec. 1985 - Feb. 2010, and irregularly thereafter up to the present.	320 obs. in the 453 months from Dec. 1985 to Aug. 2023
CBS News / <i>New York Times</i>	“How would you rate the condition of the national economy these days? Is it very good, fairly good, fairly bad, or very bad?”	Oct. 1986 - Jan. 2015, at irregular intervals.	208 obs. in the 340 months from Oct. 1986 to Jan. 2015
Gallup / <i>USA Today</i>	“How would you rate economic conditions in this country today—as excellent, good, only fair, or poor?”	Feb. 1997 - present, at irregular intervals, with monthly coverage since Dec. 2017.	213 obs. in the 380 months from Jan. 1997 to Aug. 2023
Quinnipiac University	“Would you describe the state of the nation’s economy these days as excellent, good, not so good, or poor?”	Dec. 2001 - present, at irregular intervals.	92 obs. in the 260 months from Dec. 2001 to Aug. 2023
Pew Research	“How would you rate economic conditions in this country today—as excellent, good, only fair, or poor?”	Feb. 2004 - present, at irregular intervals.	101 obs. in the 235 months from Feb. 2004 to Aug. 2023
CNN	“How would you rate the economic conditions in the country today—as very good, somewhat good, somewhat poor, or very poor?”	Aug. 1997 - present, at irregular intervals.	126 obs. in the 373 months from Aug. 1997 to Aug. 2023

Table A2. Survey Details, Better/Worse Questions.

Survey Organization / Sponsor	Question Asked of Respondents	Temporal Span	Observations / Months in Survey Period
ABC News / <i>Washington Post</i>	“Do you think the national economy is getting better, getting worse, or staying about the same?”	Reported in 49 of the 110 months between Sept. 1981 and Oct. 1990, and sporadically afterward through Oct. 2010.	62 of the 350 months from Sept. 1981 - Oct. 2010
<i>New York Times</i> / CBS News	“Do you think the economy is getting better, getting worse, or staying about the same?”	June 1976 - Jan. 2015, at irregular intervals.	207 of the 464 months from June 1976 to Jan. 2015
<i>USA Today</i> / Gallup	“Right now, do you think that economic conditions in the country as a whole are getting better or getting worse?” (the percent <i>volunteering</i> the response “same” also reported)	July 1991 - present, at irregular intervals, with monthly coverage since Dec. 2017.	194 of the 386 months from July 1991 to Aug. 2023
YouGov / <i>The Economist</i>	“Overall, do you think the economy is getting better or worse?” (“same” also offered as a response option)	Monthly from Dec. 2009 to the present.	165 of the 165 months from Dec. 2009 to Aug. 2023

Appendix B. Residuals for Both Indices and Potential Explanatory Factors, 1983-2023.

