Consumer Trends Inc: Briefing on Consumer Sentiment and PCE

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Introduction: Framing the Analysis + Context

Here at **Consumer Trends Inc**, we strive to deliver our clients the keenest insight into consumer spending behavior. Our clients demand the best and are able to go in a direction away from our company if we don't deliver results. Our clients rely on our insight for their own financial planning, to compete in red spaces and move into blue (untapped), increase that movement's speed, and concisely deliver well organized information. Here at The Firm, we use personal consumption expenditures (PCE) to bedrock the analysis we complete for our clients. Today, we evaluate whether a major drop in PCE is imminent. To provide the best quality service for our clients, let's evaluate a possible change for our PCE metric of which we base so much of our service.

We are faced with information that consumer sentiment has sharply declined and this may signal a recession. The preliminary release of consumer sentiment has January sliding to a low not seen since 2011 at 68.8, a 12.9% decline year-over-year[1]. The first question therefore is whether there is a causal link between these two things? Of course, our real goal is to see the end impact on PCE so we will split the next question into two parts. First, by how much will lower consumer sentiment directly impact consumer expenditures and second, indirectly, how would a recessionary by-product affect it as well?

According to a new research paper, every recession since the 1980's has been preceded by at least a ten-point drop in consumer confidence[2]. The foreshadow came 18 months in advance each time. Notice however, that does not mean every dip in confidence by ten points was proceeded with recession. To clarify, the largest dips were always followed by recession, however, some dips of that magnitude are not. The index that was mentioned and that we use is the index produced by the University of Michigan Consumer Sentiment Survey. They phone 500 people and sample 5000 more to send the survey. In practice they get 3500 back. As you may be thinking, this response ratio could create some issues, which is why it is more important to look at the scale of the change as large fluctuations are inevitable. Of course, we are looking at future paths of PCE and thankfully, the survey is also split into current and future expectations.

In the past, there have been studies on the predictive power of the future expectations part of the survey. In 2004, in a paper published in the Journal of Economic Perspectives, they found there to be about a 16% correlation between consumer expectations and PCE growth the following quarter[3]. Please be cautious that since the Bush Administration, there has been an increasing partisan gap in both overall consumer sentiment, but especially expectations. In Fact, Richard Curtain, the director of the survey

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[1] Surveys of Consumers (umich.edu)
[2] What's Happening in the World Economy: The U.S. Recession Risk - Bloomberg
[3] Consumer Confidence and Consumer Spending on JSTOR (uoregon.edu)

wrote a memo detailing the extent of the partisan divide. Looking at the chart the team put together shows a lessening of causal inference from this survey. He puts it best...

> "While there have always been partisan differences in preferred policies, the overwhelming size and persistence of the partisan gap has generated substantial economic uncertainty… The gap between Democrats and Republicans in the Index of Consumer Expectations rose from 21.3 for Bush and 25.0 for Obama, and then doubles to 53.1 for Trump and 52.3 for Biden.[4]"

There were even some categories where the partisan gap under Trump and Biden were even larger than the variation in the entire time-series previously.

In summary, the analysis of the causal relationship has a long history of being studied. While it seems a necessary condition for a recession that a large dip in consumer sentiment occurs, the other side is not true. A dip in consumer sentiment does not guarantee a recession, and furthermore, the reliability in projections from reality within the survey is getting weaker. We should use this measure as more of an indicator of possibility rather than certainty. With that being said, we can get some confidence interval of what the future holds by looking at a couple of relationships.

Methodology: Framework for Organizing Results

We will examine our PCE forecast if consumer sentiment holds at its current point of around 70. We will use a time series to show the historical path of the year over year log change in PCE. We will then explore the projected path of PCE from quarter 4 of 2021 to Q4 of 2022. In this regression, PCE is our dependent variable i.e. the value of the line (y-axis measure). The horizontal axis is consumer sentiment as the independent variable. We will set it constant at 70 for the forecast. From the regression our forecast will be able to project this with a confidence interval of 95%. Below are the visuals and results.

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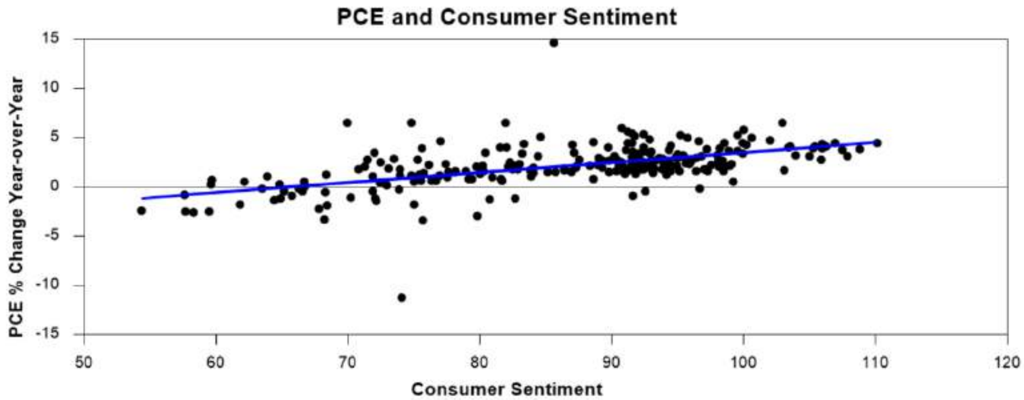
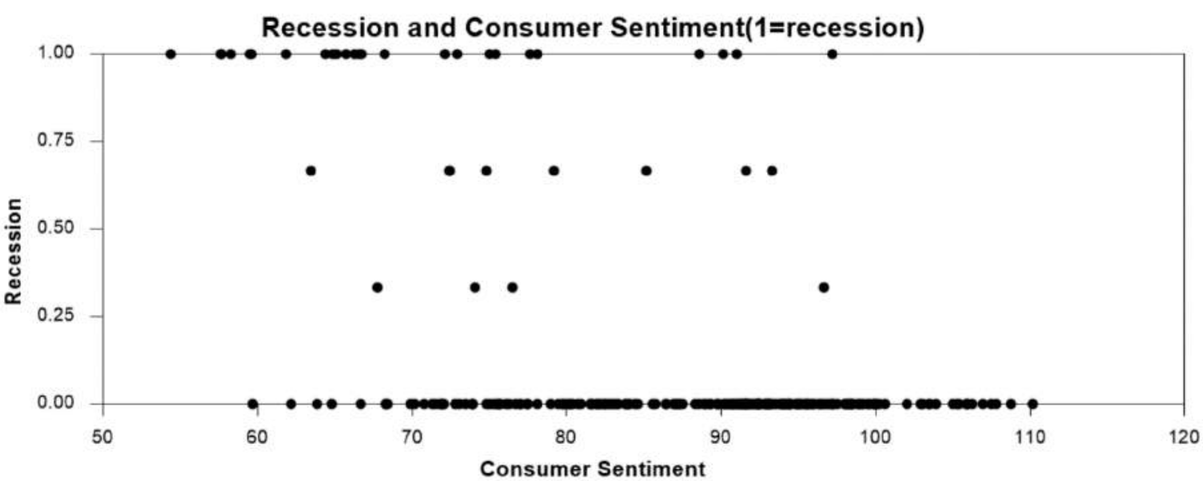
[4] WordPerfect Office Document (umich.edu)

Results:

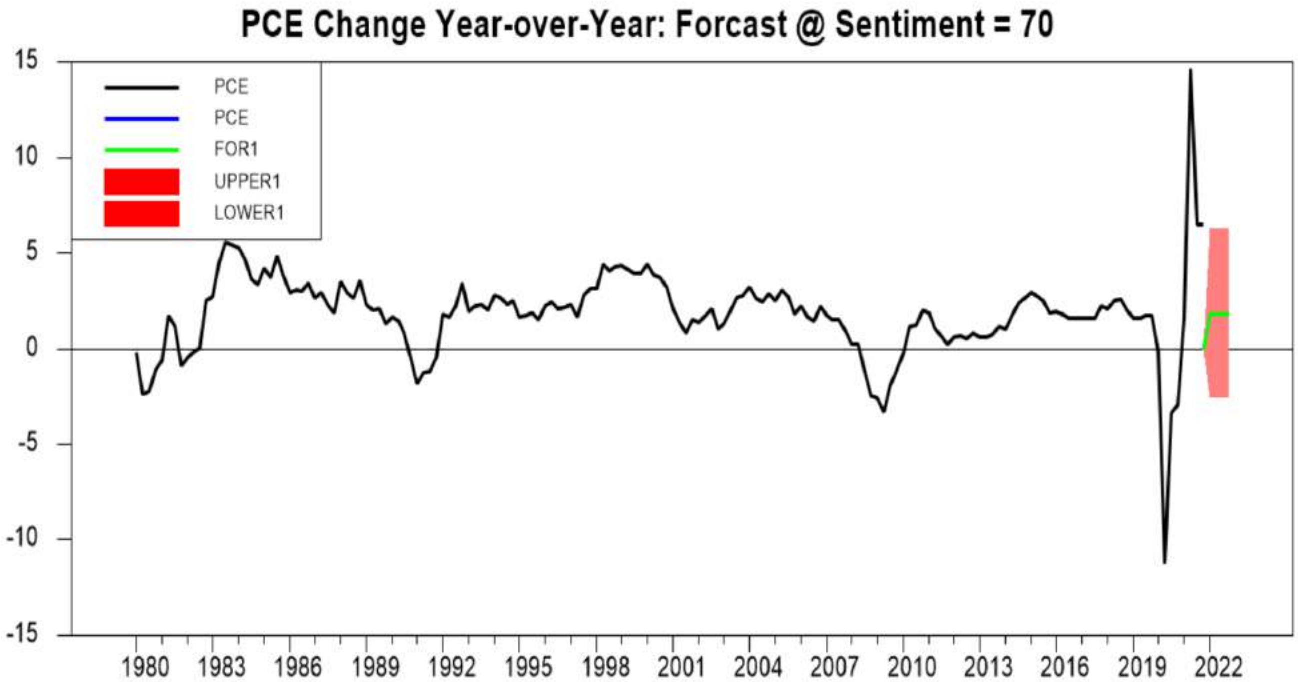


	Variable	Coeff	Std Error	T-Stat	Signif
1.	Constant	-6.658253577	0.870302187	-7.65051	0.00000000
2.	CS	0.101710815	0.009965721	10.20607	0.00000000

As seen above I can replicate the findings that there is a relationship between PCE and Consumer Sentiment. Here, our regression (1980 Q1-now) yields that consumer sentiment is statistically significant. Let's now evaluate how strong the relationship between consumer sentiment and recession is.



As we can see, if there is a recession, consumer sentiment is almost always below 80 and the median of consumer sentiment in a recessionary state is slightly above 65. Consumer sentiment spans very wide in expansion states however, and this is what makes analysis tricky and its necessary to cut the box a little more. Take a vertical slice of all observations below consumer sentiment of 70 and it is also clear that a recession is most likely to be happening, but not guaranteed. Recessions clearly don't universally rely on low consumer sentiment either. Almost half of all recessionary states were occurring with above 70 consumer sentiment. Now let's evaluate our forecast for the next four quarters with consumer sentiment staying at 70.



In black is the actual year-over-year growth rate for PCE. After using the previous regression to account for the empirical evidence consumer sentiment has on PCE, I have set it to 70 and our model will project what it anticipates is the most likely path in green. In red we have our 95% confidence interval. We see that the anticipated path falls to 0 but not below. Our confidence interval is much more on the upside than down.

Conclusion:

As demonstrated by the scatter plot between the state of the economy and consumer sentiment, low consumer sentiment (CS) does not indicate a recession. I would be very wary of advising our clients of anything based upon this chain of reasoning. If anything, a recession indicates low consumer sentiment. Fundamentally, the partisan gap in consumer sentiment throws off a lot of its predictive power. Overall basis in reality of these responses is dwindling as nominal income and prices are the only agreed upon expectations. Strengthening this argument is the fact that real income is based on a literal multiplication of nominal and prices. There is agreeance on the two inputs for calculation, yet there is a massive partisan gap on the mathematical outcome. The best interpretation based upon the literature and empirical evidence is that a CS of lower than 60 is a huge red flag but one with a grain of partisan salt.

While the indirect effect on consumer spending due to a recession is unlikely to transpire, there is certainly a direct effect worth looking into. Consumer spending is a statistically significant input for PCE change. There is a modest correlation and like the literature suggests probably some prediction power. Major downturns in this metric have directional predictive power when large. This is why in our forecast; we expect some drop in the year over year change in PCE spending. The projections confidence interval is fully below where the number is now. Using the evidence, theory, and underlying biases we've discussed, it is most likely correct to say that consumer spending will drop from where it is now into the confidence interval. Especially as the partisan gap continues to get larger, we can’t take all the past data as equally well correlated to now. It seems that a fall in PCE change would land somewhere near the top of the confidence interval as the bias seems to be pressing upwards. Our projections based entirely off regression would have it in the next quarter being at 0% but like I stated we should be confident that the actual result will come to the upside. The three subsequent quarters are projected at 2% but that again would seem low given the analysis we’ve conducted.