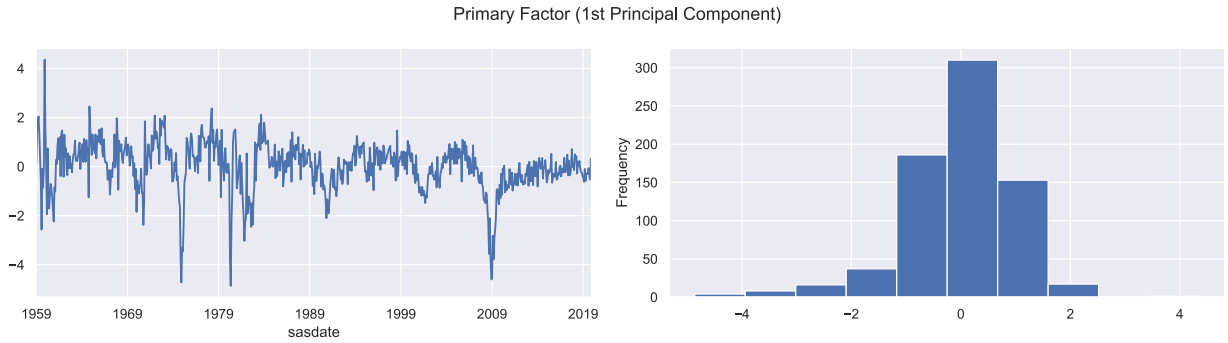
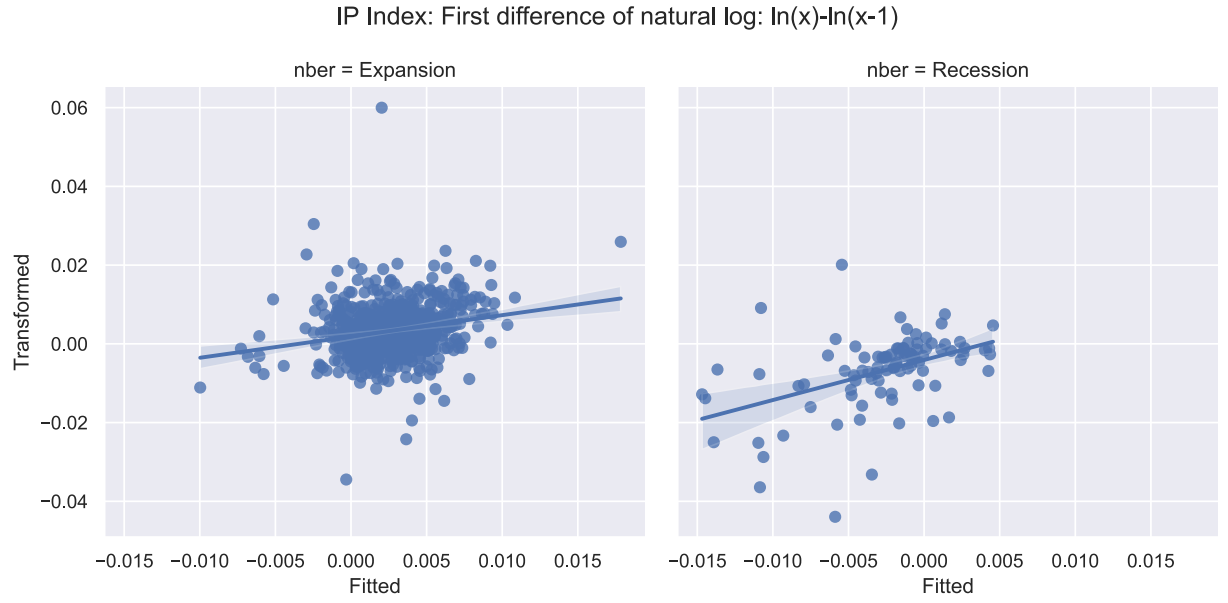
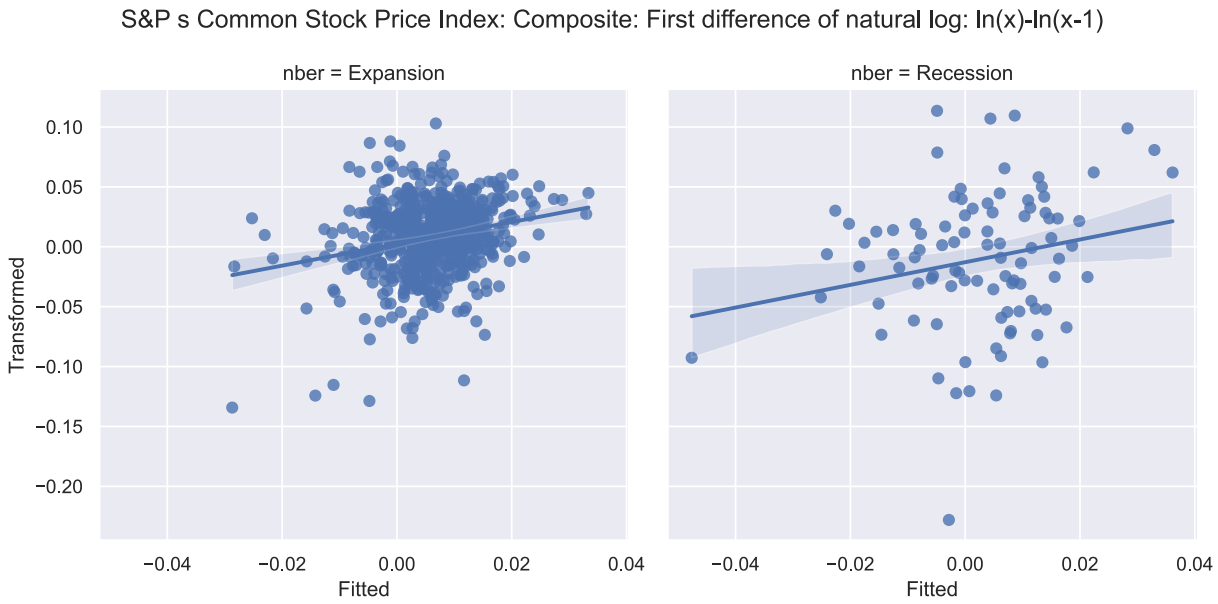
## Analytical Results



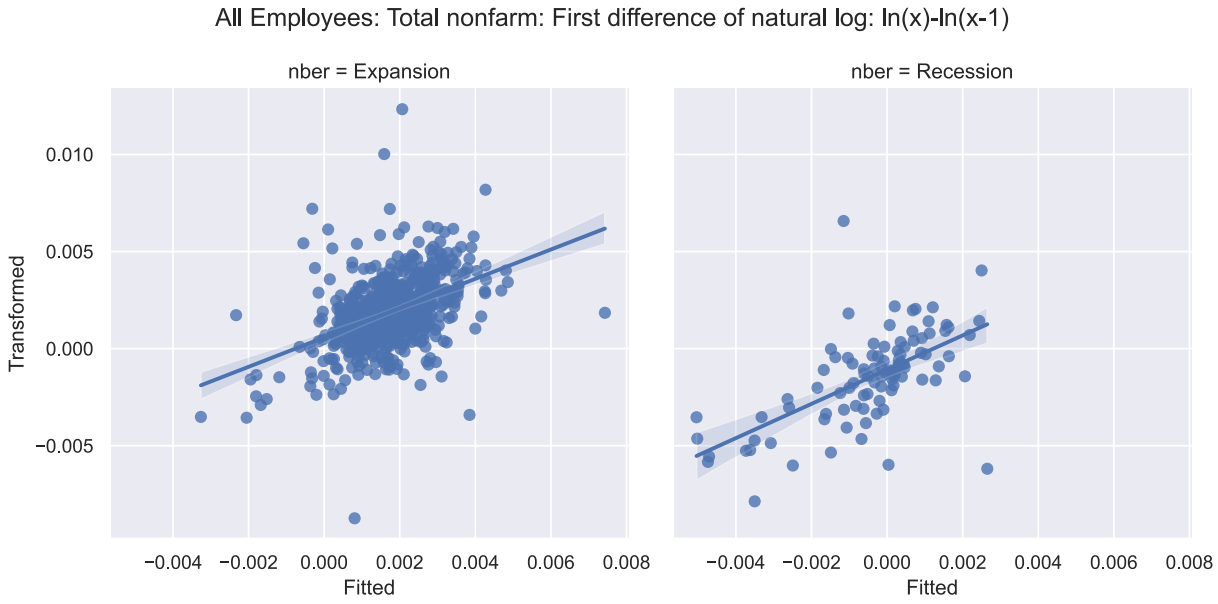

It is clear to see that the values of the first principal component range from -4 to 4, which are concentrated in the range of -1 to 1. These values represent the properties of all variables so that they correlated with the volatility of the market. For example, the very low values are compatible with some financial crises such as The Financial Crisis of 2007–08 or The OPEC Oil Price Shock of 1973.



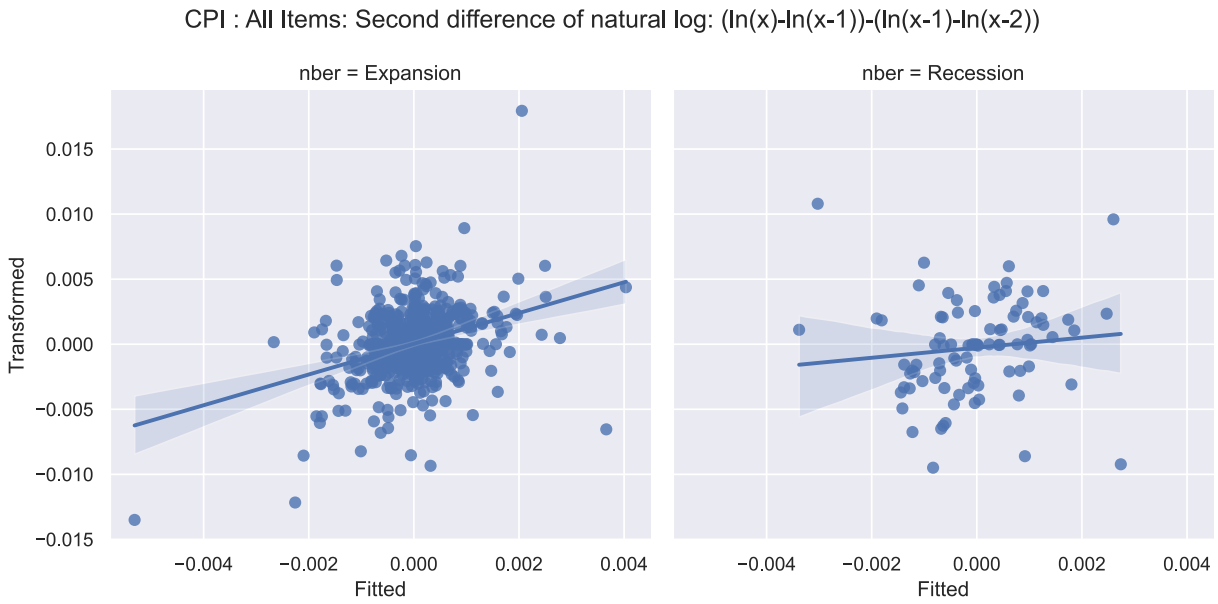

The model of IP Index is quite fitted the variable. The fitted values are appropriate in both expansion (mostly bigger than 0) and recession condition (mostly smaller than 0).



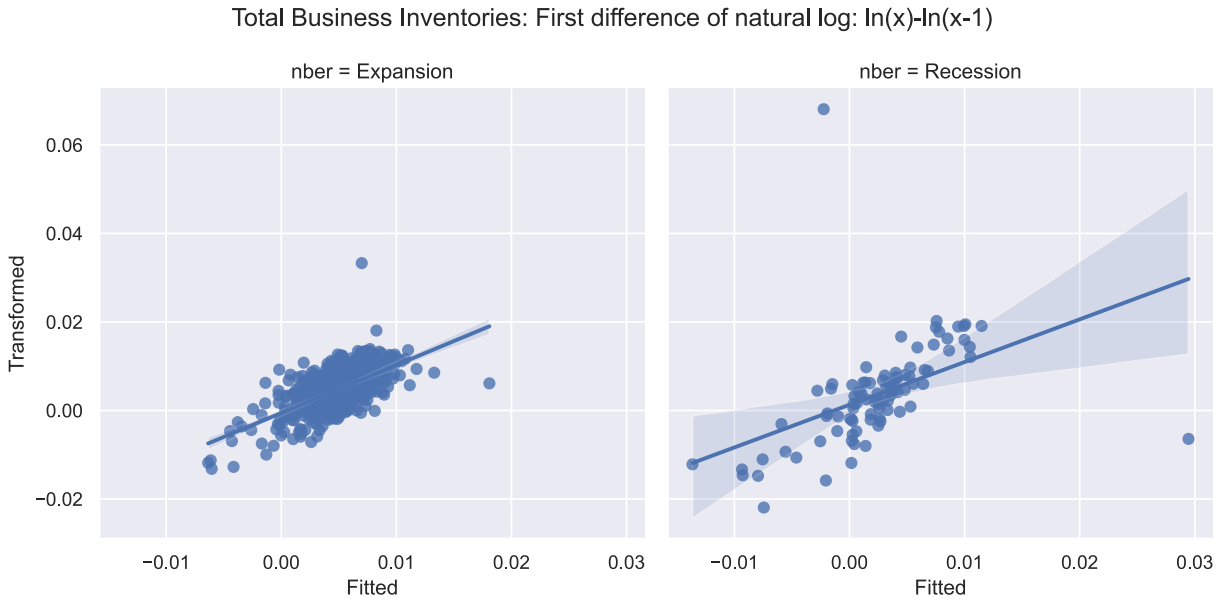

The model of S&P 500 is quite fitted the variable in expansion market. However, in the recession market, the model is not reasonably fitted the variable.




The model of All Employees: Total nonfarm is quite fitted in both markets. However, there are some observations which are extremely far from the regression line in expansion condition.




The model of CPI is quite fitted the variable in expansion market. However, in the recession market, the model is not reasonably fitted the variable.




The model of IP Index is the most fitted among 5 variables in both conditions.

Inconclusion, all models for 5 variables have upward slope, and the models in expansion market are well fitted than the model in recession market.