Ben - Joe Consumer Price Index

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Abstract

This study is based on observation of fluctuations in the Ben-Joe Index during the recent times of economic turbulence. The Ben-Joe Index is based on the monthly market basket for a typical ERAU student. While comparing the Ben-Joe index with the nation's CPI (Urban) some differences were noted. The US CPI has been witnessing inflation over the Federal Reserve's target rate since April 2021. However, this has not been observed as yet on the ERAU-DB campus. Two major driving factors behind this are housing costs and the retailer most student prefer to shop at: Walmart. Based on this analysis, it is expected to see inflation in July 2022 as the campus enters new fiscal year. This is because student housing prices are sticky. Inflation is also expected due to increase in tuition, meal plans, parking, and eventually good sold at Walmart. While this can be offset by substitution effects and adjustment in student budgets, the magnitude of adjustments and substitutions would not be captured as yet. This will likely cause student spending patterns to remain below the anticipated inflation captured by CPI Urban. The outcome of this study illustrates how measurement of Ben-Joe index is important for the campus community.

Methodology

The importance of gauging overall well-being of students on campus can not be emphasized enough. As a part of that, the Ben-Joe Consumer Price Index creates a reliable measure of what students pay on campus for typical goods and services. Thus, level of prices can track expenses paid for by students and measure the level of inflation targeted to the students. This can have impact on the economic development of resources at the campus. A number of items are surveyed from students that are both considered as essential consumption items as well as non-essential but important for development. Sizeable fluctuations create shock in consumption patterns and thereby have psychological and socioeconomic impacts. Data collected need to be from standardized sources and some idiosyncratic sources that may be used by students are not included in these calculations. The method used for creation of this index is survey based, which determines the consumption pattern of students and therefore budget share, which then helps create a cost of basket. When a new item is added or old item deleted, then the budget shares are scaled up or down to equalize the cost of basket for the point in time when the change was introduced. This enables continuity in the basket. Some limitations of this study are that just like CPI, this index cannot measure quality changes, wealth effects and substitution effects. The Ben-Joe Consumer Price Index thus computed has been compared to the Urban CPI reported by the Bureau of Labor Statistics (BLS) to compare and contrast patterns between the two indices.

Theory

The cost of the basket at time 't' is equal to the summation of the products of budget shares (weight) and the price of the individual items. Consumer price index for the year 't' is defined as $CPI(t) = Ct/CB$ where Ct is the cost of the basket in year 't' and CB is the cost of the basket in the base year. Inflation is the rate of change of CPI defined as $(CPI(t) - CPI(t-1)) / CPI(t)$ where $CPI(t)$ is the current period CPI and $CPI(t-1)$ is the CPI for the previous period.

Monthly Basket Costs

Base Basket Cost: $10,153 (March 2020)
Average Basket Cost: $9581.95 (FY2022)
Minimum Basket Cost: $8435 (July 2021)
Maximum Basket Cost: $10147 (April 2020)

Monthly CPI Values

Base CPI Value: 100 (March 2020)
Average CPI: 94.37 (FY2022)
Minimum CPI: 83.1 (July 2021)
Maximum CPI: 99.9 (April 2020)

Contributing Factors

Many goods did not see a substantial fluctuation in their monthly prices. Typically each month there were one or two items that saw a significant change and others either remained stable or had only a slight change of less than 0.5%. The one thing that does change over from one academic year into the next (over each summer) is student housing and meal plans. Currently this shock has been smoothed because of no intermediate revisions. With the gradual return of the economy from shocks from pandemic, a shift has been observed in the purchase of cleaning and protective goods back to the more expected ones such as food and other supplies. Supply logistics also have played a part in the distribution of the prices recorded in this index and the extent of this is still not yet fully felt. The last but certainly not the least contributing factor in CPI is the cost of campus itself such as meal plans, housing and tuition. While these do not generally have a sudden massive spike, a rise in housing would have a substantial increase on the CPI number, while the raise in the price of canned fruit at Walmart would not necessarily have the same impact.

Results

From the research conducted and data obtained, the second year of the Ben-Joe Index has come to a close and a model has been generated for the consumer price index for the Daytona Beach campus. This index has managed to track prices and availability of products throughout two years of the COVID-19 pandemic, beginning right before the initial campus closure, through the return to the "new normal", and to present day. This index has allowed the campus to see how the data varies month to month, how the cost of living shifts for both students and faculty on campus, and how COVID-19 and other logistical matters have shifted prices, products and availability for the local area.

Ben-Joe vs BLS Urban CPIs

Inflation and Inflation ex-hsng
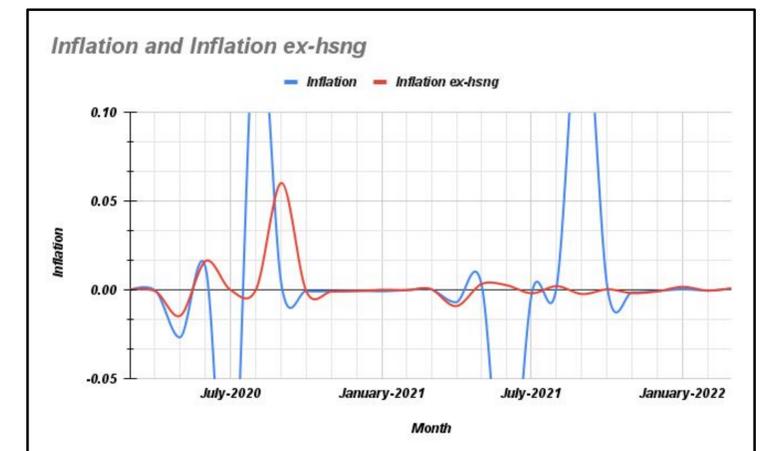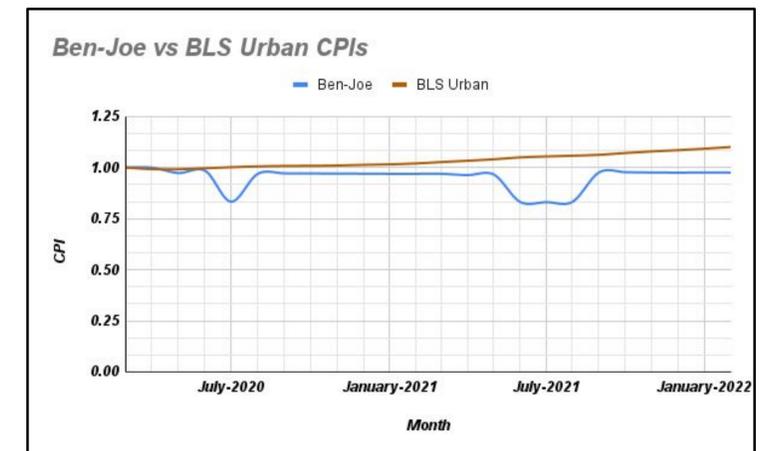
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