Online Shopping and the Threat of Deflation

The Problem

I want to investigate whether there is a relationship between the prevalence of online shopping and inflation rates in the US. I will use monthly time series data from 2008 through 2014 that includes the Billion Prices Project, Google Trends, BEA's Personal Consumption Expenditures, the Census Bureau's Retail Sales data, and internet connectivity data across the nation.

Why?

The question spurring this investigation is Amazon's plans to launch in Australia, with concerns rising that this will put downward pressure on inflation readings in the country as Amazon's pricing power and scale allows it to undercut the competition.

Literature

There have been several studies on the subject already, though I have found none yet that employ a combination of these datasets. Research in the EU suggests increased online shopping has a downward effect on price indices, while in other studies the use of online price data raises the inflation estimate likely due to suspected government manipulation of official sources.

Hypothesis

I suspect that the rise in internet connectivity will have led to greater online shopping as a share of total retail spending, with online prices generally lower than brick and mortar comparables driving a downward trend on underlying US CPI. Given CPI includes a broader measure of good than available online, the relationship may be limited to specific subsectors of the index.

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Online Behavior and Consumer Sentiment

The Problem

I would look to investigate the relationship between specific online actions and the level of US consumer sentiment surveys. My variables would be time series data from 2008 through 2016 for Google Trend searches on specific terms/phrases associated with leisure activities, online social media usage, and online video consumption from Statista. The independent variable would be Conference Board consumer sentiment.

Why?

Consumer sentiment can vary month to month, but is typically estimated based on stock price performance and labor market data. More real time data available from online activity could indicate a future path for investigating consumer sentiment – a number tracked closely by both policymakers and politicians.

Literature

The literature suggests google trends data, and sentiment analysis on such data alongside Twitter feeds or online posts, can have some relation to consumers' opinions or behavior towards a product or event. It remains unclear how to best capture underlying sentiment or confidence from more generic search frequency and online social media use.

Hypothesis

I believe that the frequency of search terms for leisure activity, alongside higher social media usage will coincide with higher consumer confidence data, while increased online video may be positively or negatively correlated since greater video consumption may be a sign of less employment.

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