Utilizing A Price Comparison Website to Produce Hedonic Price Indices for Mobile Phone

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LIFE AFTER COVID19:

Never thought that data collection could be this hard
What can we do?*
*(from home is preferred)

❖ Gather the data online
❖ Online data will be different from the samples used current CPI
❖ But it might works!

Yeah, I order some data for compiling price index please
It is another preliminary study

We focused on one commodity we couldn’t live an hour without

- Mobile phone is one of the commodities calculated in CPI
- One of the commodities most frequently bought online
- undergo rapid quality change
  -> Hedonic method
Data scraping
Research Method

Web Scraping → Cleaning and Compiling → Constructing Price Index

- iprice
- gsmarena

- Matched Model
- Double Imputation
- Time Dummy
- Fixed Basket
Dataset

Period: January-March 2020

Average of clean records each week:

≈1073 records

Time needed:
± 30 minutes
Methods

Pure price comparison

**Fixed Basket**
Price comparison for exact fixed basket for all periods

**Matched Model**
Pure price comparison for Matched products in two successive periods

With hedonic model

**Time Dummy**
Hedonic regression with period as dummy variable

**Double imputation**
Combination of matched model and hedonic regression to measure price movements
Mobile phone weekly price indices

- The time dummy model gave the most distorted results.
- Matched model and double imputation are almost in a squeezed line because of the small proportion of unmatched data.
Comparison to CPI

- The index produced seemed more volatile
- Series is still too short to derive a conclusion
Conclusion

- Data scraping was reliable for collecting a large amount of data in a short time with minimal resources.
- The indices calculated using online price seemed to be more volatile than CPI.
- Possible bias in data collection due to the algorithm used in price comparison website.
Discussion

1. BPS has done the mapping and identified the opportunity and priorities for change generally, but not yet specifically for the use of big data in CPI.

2. Generally, big data tools has been used and beneficial for BPS, such as Hadoop, data stage, IBM cloud and IBM 2 to some statistics from big data. However, for CPI it is still in the stage of research and have not use the tool regularly.
THANK YOU