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Title: Stress testing multilateral price index methods: Transactions data and stockpiling during the COVID-19 pandemic

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Abstract

The COVID-19 pandemic caused significant short-term shifts in consumer behaviour around the world, including stockpiling of grocery items by consumers. This behaviour is captured in Australian supermarket scanner data, obtained for the production of the Australian Consumer Price Index (CPI).

Globally, National Statistical Offices (NSOs) are increasing their use of scanner data. Multilateral index methods are generally accepted as more suitable than bilateral methods for use with scanner data in the production of price indexes. Multilateral methods are theoretically well-equipped to account for extreme changes in expenditure shares and product substitution, and scanner data from the COVID-19 pandemic provides the opportunity to test this empirically.

In this paper, four multilateral methods are applied to Australian scanner data from 2020. This real-world scenario captures extreme consumer behaviours such as panic buying and stockpiling, as well as market responses such as temporary product range reduction and halting of typical discounting cycles, all of which are not easily simulated by synthetic data. The resulting indexes provide evidence of each method's robustness, a consideration for NSO's looking to adopt a multilateral method.

Overall, the alternative multilateral index methods react similarly to the unusual consumer behaviour, and differences are largely attributable to one product class which exhibited particularly extreme behaviours. This paper uses the decomposition methods in Webster and Tarnow-Mordi (2019) to measure product level contributions and explore how price and quantity changes for individual products affect the behaviour of each multilateral method.

REFERENCES

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