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Session 6: Challenges of “big data”

Enhancing the Australian CPI: making greater use of transactions data to compile the Australian CPI

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The environment in which statistical agencies operate is changing. The statistical landscape is becoming more complex, expectations of decision makers are growing, and National Statistical Offices (NSOs) are being challenged to deliver the best possible statistical program in more efficient and innovative ways. To remain relevant and to capitalise on these opportunities of the dynamic information environment, the Australian Bureau of Statistics (ABS) has undertaken a research program to enhance the Australian CPI.

This paper discusses one aspect of this enhancement program, that being to make greater use of transactions data to compile the Australian CPI. Over the past decade, the international price statistics community has reached a consensus that multilateral methods are the most appropriate approach to produce temporal price indexes when using ‘big data’. To date only a handful of countries have implemented transactions data for use in their CPI, each using different methods and practices. This divergence in implementation is in part due to a lack of consensus amongst leading NSOs on the best aggregation method when using ‘big data’, as well as differences in circumstances of each NSO in producing their CPI. This paper will use the ABS Data Quality Framework (DQF) and empirical evidence to demonstrate support for a multilateral aggregation method that is suitable for the Australian CPI.

Whilst multilateral methods have strong theoretical and practical properties to provide NSOs with opportunities to enhance their CPI, they also create methodological challenges for price index practitioners. The ABS has investigated, in an Australian context, a selection of popular matched-model multilateral methods that are being considered for temporal aggregation in the CPI. The ABS will address some of the challenges through the examination of academic literature and its own research.

This paper concludes by outlining an implementation plan for using multilateral methods in the Australian CPI.