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Integrating Consumer Behaviour Insights in Competition Enforcement – Note by New Zealand

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This document reproduces a written contribution from New Zealand submitted for Item 9 of the 138th OECD Competition Committee meeting on 22-24 June 2022.

More documents related to this discussion can be found at https://www.oecd.org/daf/competition/behavioural-insights-in-competition-enforcement.htm

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1. Introduction and Summary

1. In November 2020, the New Zealand Government asked the New Zealand Commerce Commission (NZCC) to carry out a market study into whether competition in the grocery sector in New Zealand is working well and, if not, what can be done to improve it. The NZCC published its final report on 8 March 2022.[1]

2. During the study, the NZCC identified several features of the grocery sector which indicated that competition is not working well for consumers. One of these features was that certain pricing, promotional and loyalty practices are limiting consumers' ability to make informed decisions. One of these practices is the use of multiple and complex promotional mechanisms, which make it harder for consumers to make comparisons.

3. To assist its understanding of consumer decision making under complexity, the NZCC commissioned a behavioural economic research experiment which was conducted by researchers at the University of Waikato.[2] This research tested how complexity around promotional mechanisms affects consumer decision making, using laboratory experiment data from 180 participants. The study found that the use of multiple promotional mechanisms caused participants to make sub-optimal purchasing decisions. This means participants were less likely to choose the offer providing the best value (i.e. the pricing mechanism and product quantity combination that offered the greatest benefit) when faced with multiple pricing mechanisms, compared with when faced with one, simple mechanism such as a "Special".

4. Therefore, the NZCC was able to use this research to formally test what was previously intuitive speculation by the NZCC, and to further support its overall finding that competition in the grocery sector was not working well.

2. The Role of Behavioural Analysis in Competition Matters

5. Competition agencies use many different types of quantitative analysis in their investigations and analysis. Common examples include merger simulation, price-concentration modelling and margin/profitability analysis. These are high-level assessment tools that draw on aggregated data and are not capable of analysing the specific influences on decisions made by individual economic agents/actors, from which the aggregated data are drawn. In some cases, it is helpful to understand how certain conduct affects these agent-level decisions.

6. There are two main categories of agent-level data: stated preference and revealed preference. Survey data often asks choice-specific questions, from which the (stated) preference of decision-makers can be inferred. It is well known, however, that people are liable to act in ways that differ from these stated preferences, so there is further merit in seeking information on revealed preferences. The primary barrier to getting robust insight

1 Final Report available at https://comcom.govt.nz/__data/assets/pdf_file/0024/278403/Market-Study-into-the-retail-grocery-sector-Final-report-8-March-2022.pdf

2 Report available at https://comcom.govt.nz/__data/assets/pdf_file/0023/260375/The-University-of-Waikato-Consumer-decision-making-under-complexity-May-2021.pdf

into revealed preferences is the fact that, in the real world, decision-makers are influenced by a potentially large number of contextual factors (age, income, demographic status, personal views). Unless we can control for the influence of such factors it is challenging to isolate the specific impact on any single factor.

7. One way to proceed is by conducting controlled experiments. This is a research form that offers the potential for quantitative insight into agent-level decision-making. It is frequently used in the field of behavioural economics.

8. Behavioural economics refers to a mode of analysis in which decision makers are not assumed to be fully rational. Rather, decisions are influenced by a range of cognitive biases and the framing of questions. For example, the effort required to calculate the "optimal" choice from a financial perspective may lead decision makers to adopt simpler heuristics as a guide to choice. Behavioural economics emerged from collaboration between psychologists and economists and is now widely used by firms and government agencies.

9. For competition authorities, the tools and methods of behavioural economics offer the prospect of better understanding the impact on consumers of different competitive strategies. This can enhance analysis of whether certain conduct does reduce competition and inform assessments of consumer harm. In the grocery market study, the NZCC used behavioural economics methods to investigate the impact on consumer decision-making of different forms of in-store price promotions.

3. Overview of the Research Experiment

10. The NZCC posed two questions to the researchers:

- How are consumer purchasing decisions (or outcomes) in a retail grocery context (i.e., supermarkets) influenced by the existence of multiple discounting schemes, and does the existence of different schemes lead to a reduction in consumer welfare compared to pricing with fewer, or no schemes?
- When consumers compare the same product across pack sizes, is their ability to compare affected by whether one is on promotion or not (and the other option is not)?

11. These questions were addressed in work undertaken by a specialist team based at the University of Waikato and involved a series of experimental scenarios that were tested on 180 university students in a decision laboratory. The concept underlying these experiments is bounded rationality, which occurs when a person effectively decides how much effort to devote to solving a puzzle.

12. Prior to the experiments, all subjects were given a Cognitive Reflection Test (CRT) comprising three questions, designed to assess the subjects' propensity to take time to find the correct answer, known as system 2 thinking, rather than use a faster more intuitive (system 1) method.

13. For each question there is an answer that sounds plausible but is incorrect. For example, the first question was "a bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost". A response with a low propensity for cognitive reflection may perceive this as a subtraction sum and answer 10 cents, rather than the correct answer. Participants' scores on the CRT were used as a control variable in the analysis of the substantive experimental results.

14. Over multiple rounds, participants were asked to decide how much of a single fictitious good to purchase. The good was offered in many ways, including at a flat price, in multipacks of three, and in some rounds participants could select from two or three different pricing schemes (e.g. a multipack and/or single units). Pricing was defined in experimental currency units (ECUs) and participants were offered a (linear, downward-sloping) buy-back schedule, also denominated in ECUs.

15. The underlying economics were that the buy-back schedule was effectively the demand curve for all participants, and the consumer surplus earned in each trading round would accrue to the benefit of each participant. It was announced in advance that two trading rounds would be randomly selected for each participant and the surplus they earned in those rounds would be converted to New Zealand dollars and paid to them.

16. A major advantage of this set-up is that the experimenter knows the purchases that will optimise consumer surplus in each round and can therefore identify the un-collected surplus. When compared across trading rounds (and conditioned on the CRT scores) these un-collected surpluses can be interpreted as indicators of the extent to which different pricing strategies induce choices that shift welfare from consumers to retailers.

4. Findings from the Research Experiment

17. To answer the two research questions mentioned above, the experiments ran in three stages using a number of different pricing schemes. In stage 1, participants were offered just one pricing scheme. In stage 2, there were four pricing schemes offered and participants were asked to choose just one pricing scheme and to choose their desired quantity. In stage 3, there were also multiple pricing schemes offered and participants were invited to choose items from any of them.

18. The results from stage 1 are shown below. Scheme 1 is the simplest of all pricing schemes, so the average welfare loss of 6.5% can be viewed as a baseline for this group of participants. For all other pricing schemes shown below there are two extra values reported (in the right-most columns). These are the average deviations from Scheme 1 results when CRT scores are used as a control. The third column shows how much more likely participants were to choose optimally in the other pricing scheme than in Scheme 1, on average. Negative numbers show that participants were less able to choose optimally in the other pricing scheme than in Scheme 1. The final column shows how much greater the welfare loss was in each pricing scheme than in Scheme 1. A negative number in the final column represents a greater welfare loss in the other pricing scheme than for Scheme 1.

Table 1.

Pricing Scheme	Proportion of Optimal Choices	Average Welfare Loss	Comparison with Most Optimal	
			Optimal Choice	Welfare Loss
Scheme 1: "Good Value" *(Anchor, full price)*	81.7%	6.5%	N/A	N/A
Scheme 2: "Special" (*20% discount from anchor price*)	76.7%	6.5%	0.003	2.556
Scheme 3: "Extra Saver" (*5-unit block pricing with 25% discount*)	26.7%	21.9%	-0.852	-16.43
Scheme 4: "Great Prices" (*Buy 3 get 1 free*)	26.1%	18.5%	-0.592	-13.72
Scheme 6: "Club Discount" (*Two-part pricing with 15% discount*)	32.8%	11.6%	-0.456	-17.89
Scheme 7: "Good Value" for 3-packs (*Anchor, full price for 3-packs*)	50.6%	18.6%	-0.614	-13.68

19. It is clear from the above that even relatively minor additions of pricing complexity have materially reduced consumer welfare on average.

20. Broadly similar results were obtained in stage 2 where participants were asked to select a pricing scheme and the number of units. The proportion of optimal choices in both experimental rounds were below 50% and the average welfare losses were 13% to 15%. In stage 3, consumer welfare was further reduced with optimal choice percentages ranging from 10% to 36% and welfare losses from 14% to 21%.

5. Outcome and Lessons Learned

21. This work contributed a unique dimension to the evidence base the NZCC collected during the grocery market study. It allowed the NZCC to formally test what was previously intuitive speculation, namely that the complexity and proliferation of pricing methods inside supermarkets was having an adverse effect on consumer welfare. Accurate and well-informed consumer choice is an important contributor to competition, so the findings of significant welfare loss provided further support to our overall finding that competition in the grocery sector was not working well.

22. The main lesson from this work was that this mode of research can be of real value. We also suspect (but do not know) that the experimental setting may have reduced the size of the estimated welfare losses relative to the real-world experience of consumers in a supermarket. This is because the experimental setting lacked many distracting features present in a supermarket such as other people, music, and choice options with categories.