To be(tween) or not to be(tween)? Combining between- and within-subjects design characteristics in experimental auctions

Marija Cerjak,[1] Josip Juračak,[1] Damir Kovačić,[1] and Andreas C. Drichoutis[2]

[1]University of Zagreb Faculty of Agriculture, [2]Agricultural University of Athens

In the beginning ...

- Why?
- Because of Twinning H2020 project AgriFoodBoost: reduce disparities in country research and innovation performance in the EU
- Enhance networking activities between the research institutions of the Widening countries and internationally-leading counterparts at EU level
- Twinning aims at significantly strengthening a defined field of research in a university or research organisation from a Widening country by linking it with at least two internationally-leading research institutions from two different Member States or Associated Countries

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- Production of dessert and club varieties of organic apples is increasing in Croatia
- The opening of the EU market and extensive support from CAP led to an increase in acreage and production of organic apples in 2013-2022.
- Although domestic consumers (state they) prefer apples produced in Croatia, most organic apples are exported.
- Little we know about consumer preferences for organic/local apples in Croatia.

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- The Zagreb market is the largest regional market in Croatia.
- The primary objective of the study was to examine how much consumers in this market are willing to pay for an apple from organic farming compared to an apple from conventional farming and . . .
- We also investigated the influence of origin on the WTP for organic and conventional apples for the following reasons
  - to test the hypothesis that consumers prefer a domestic apple over a non-domestic apple and
  - to obtain more accurate information for domestic growers.
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Experimental design

	Bid for ...	Bid for ...	Within subject effect	N
Treatment 1	Organic - Local	Conventional - Local	{Organic | Local}	56
Treatment 2	Organic - Nonlocal	Organic - Local	{Local | Organic}	48
Treatment 3	Conventional - Local	Conventional - Nonlocal	{Local | Conventional}	55
Treatment 4	Conventional - Nonlocal	Organic - Nonlocal	{Organic | Non-local}	47
Total				**206**

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- Three auction rounds of a SPA
  - visual treatment: only photos of the apples shown to subjects when they bid
  - information treatment: information about whether the apples were organic/conventional or local/non-local were provided to subjects
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- 206 participants from the wider area of Zagreb city
- 8 subjects per session, 26 sessions in total (two sessions conducted with four subjects)
- Morning and afternoon sessions over weekdays (53.88% in afternoon)
- Computerised experiment using zTree

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- Fixed participaton fee: €20 voucher
- Subjects earned an additional endowment: zero counting task; relatively easy (subjects earned an average of €4.82 ; sd = 0.38)
- All instructions were shown on screen during the experiment
- Detailed instructions on the auctions were given by the experimenter just before the auction started using onscreen slides
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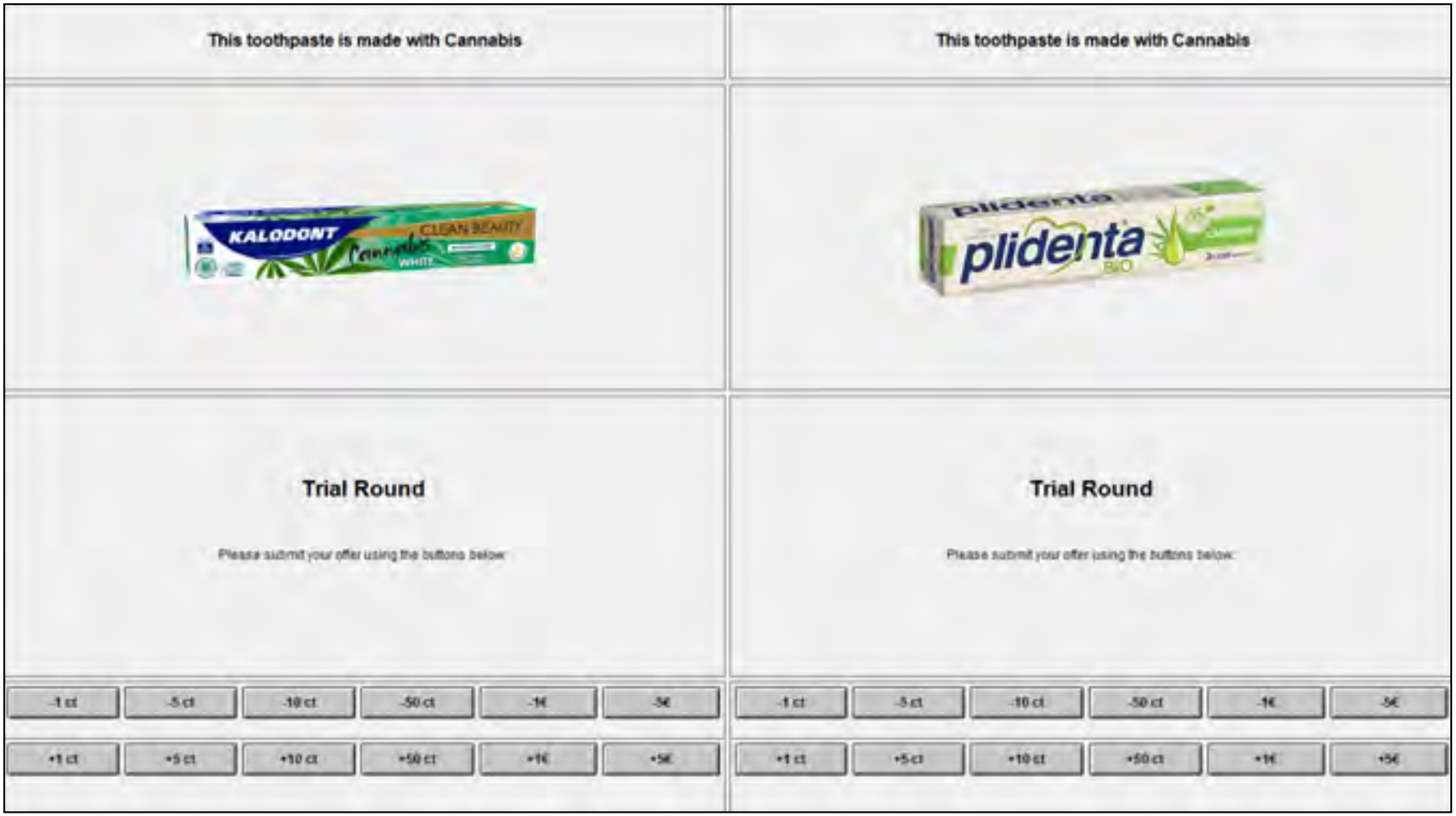
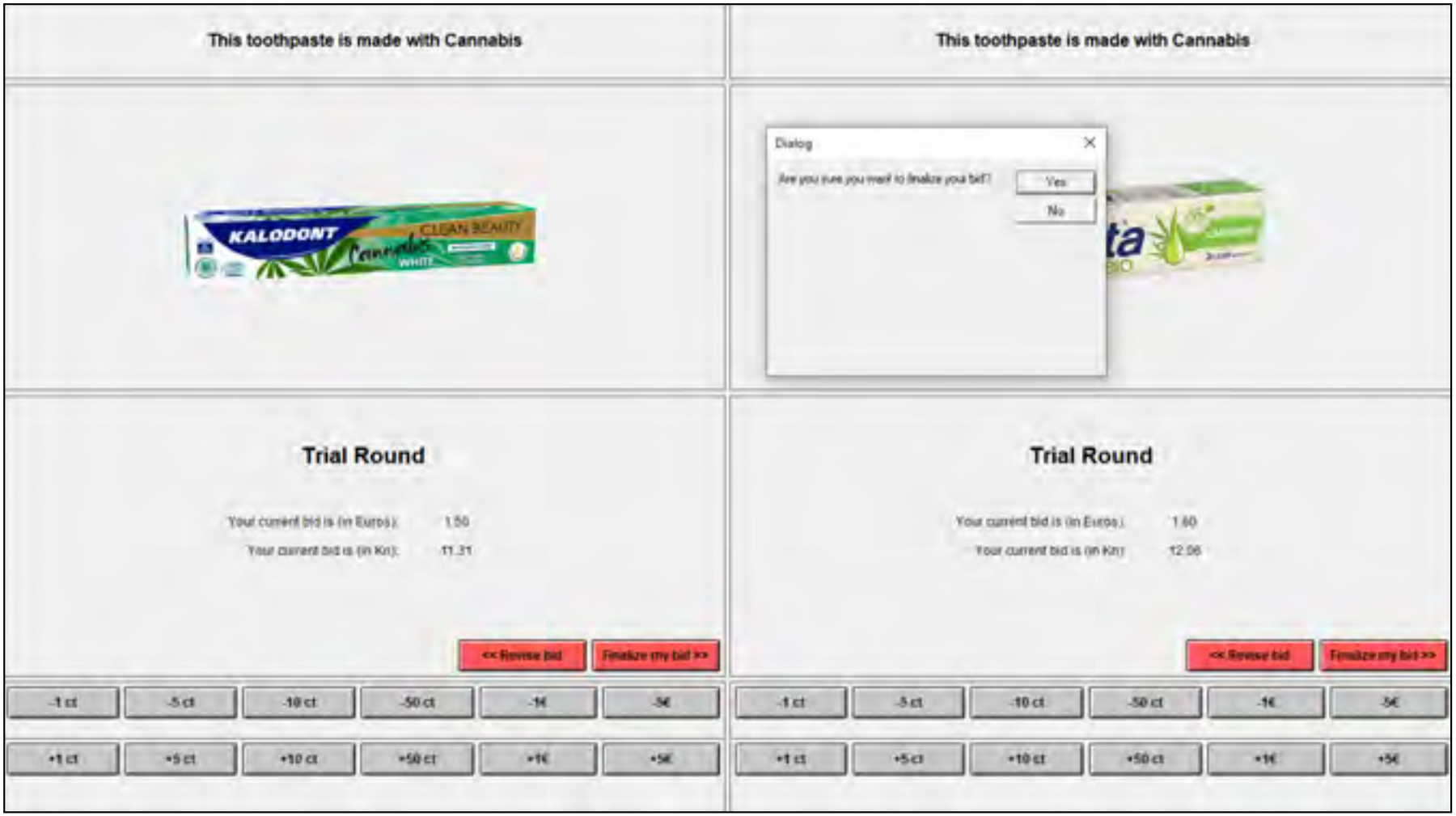
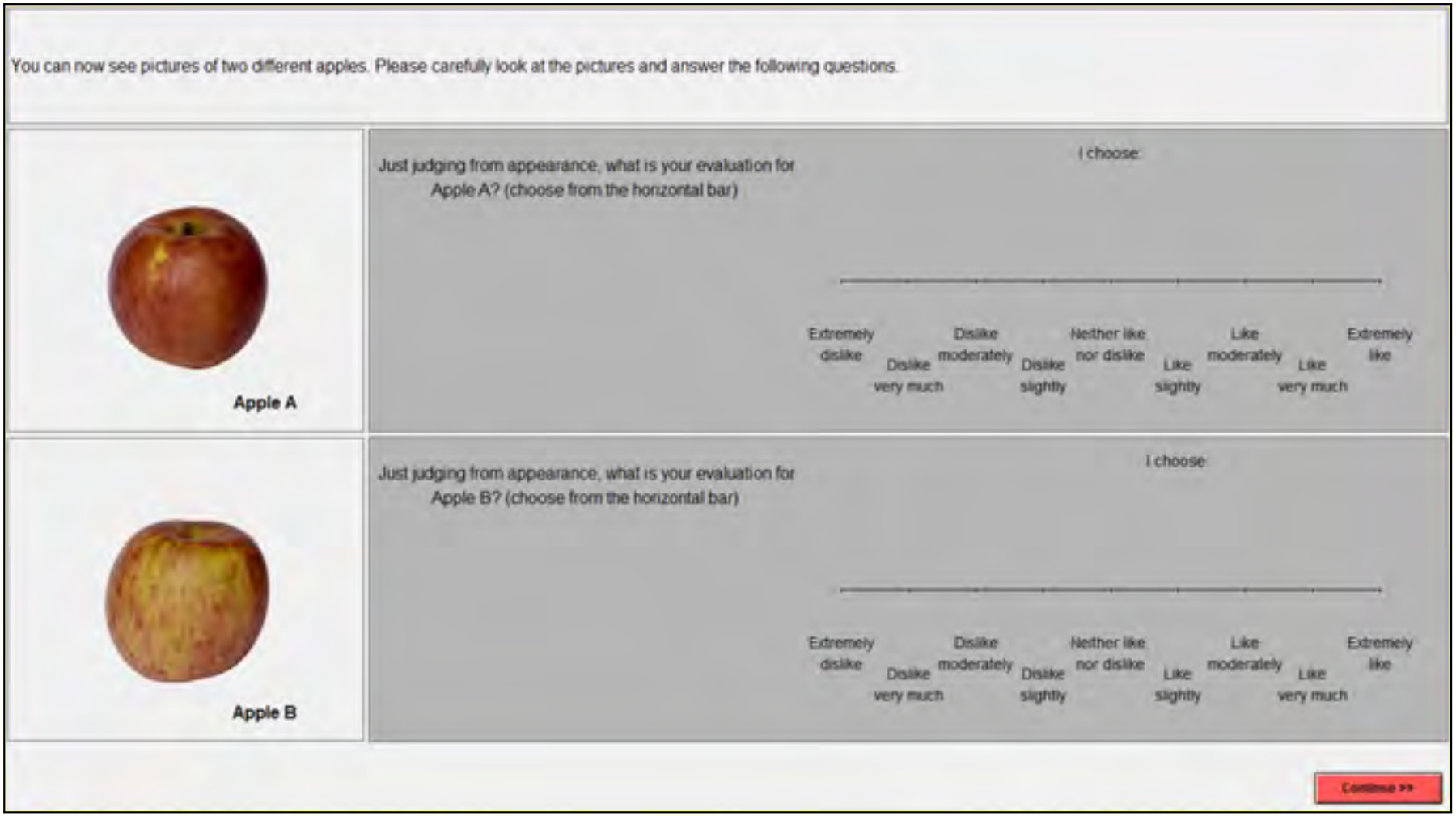
Methods: Practice auction



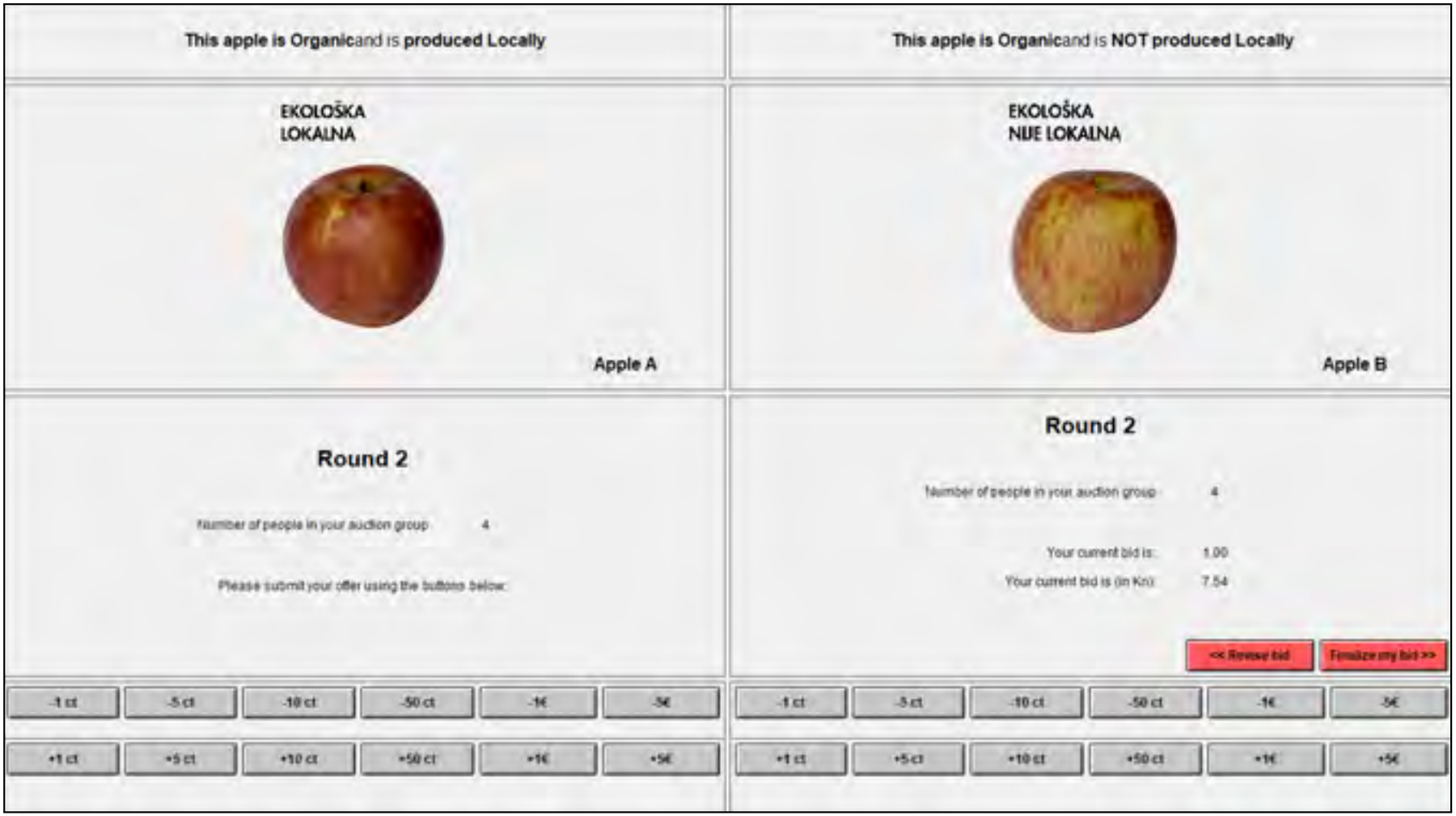
Methods: Practice auction



Methods: Hedonic evaluation

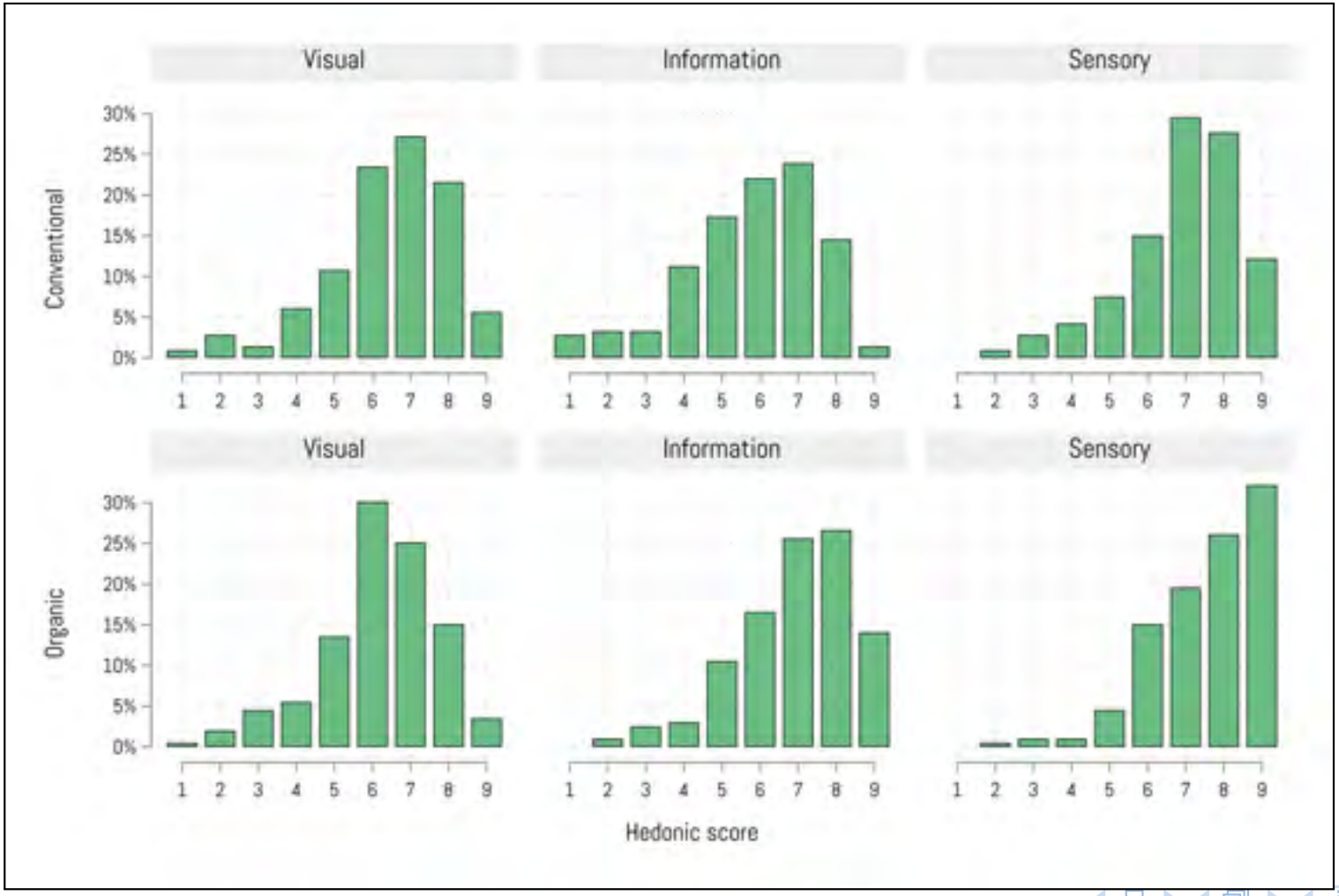


Methods: Bidding



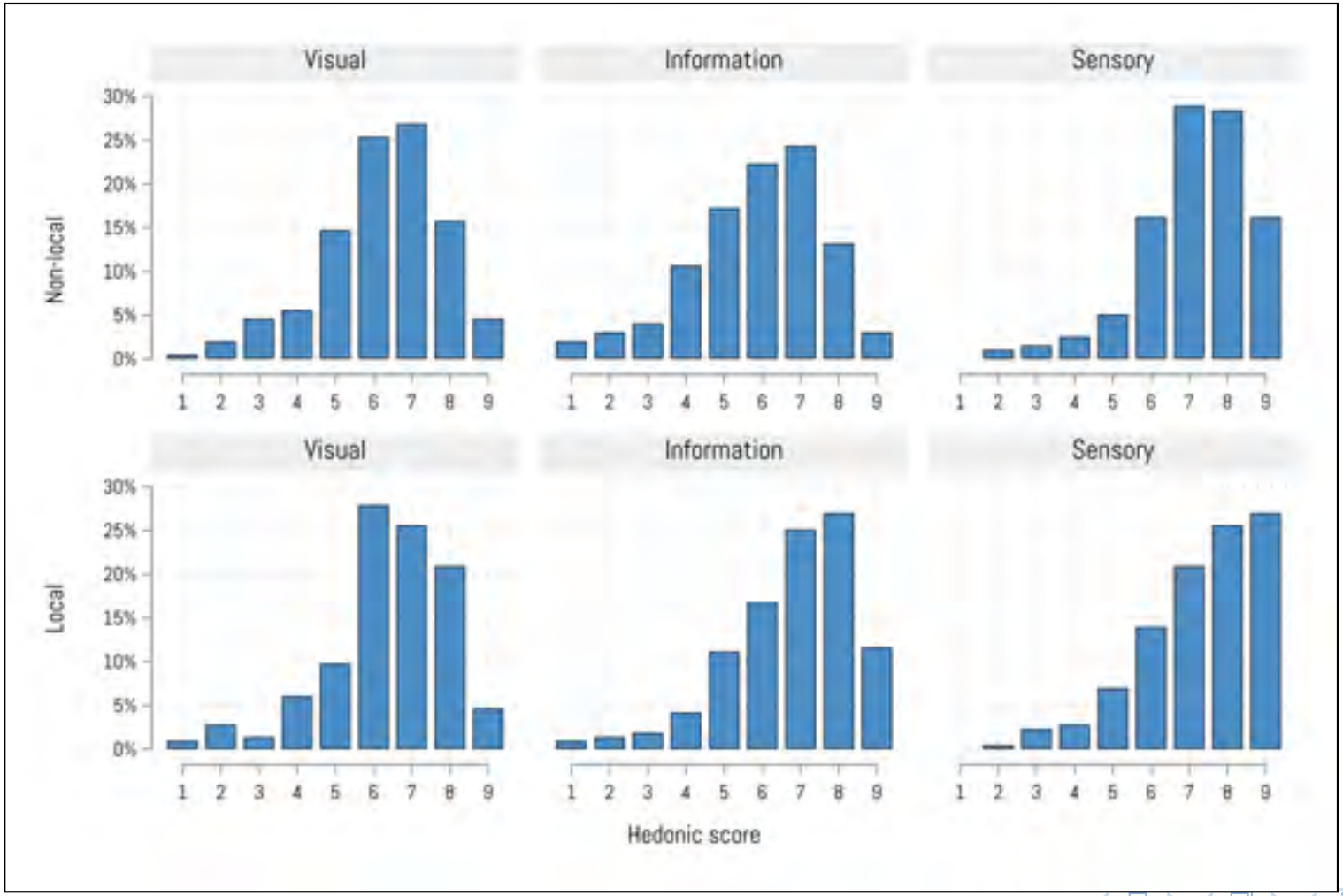
Hedonic evaluations

Organic vs. conventional



Hedonic evaluations

Local vs. nonlocal



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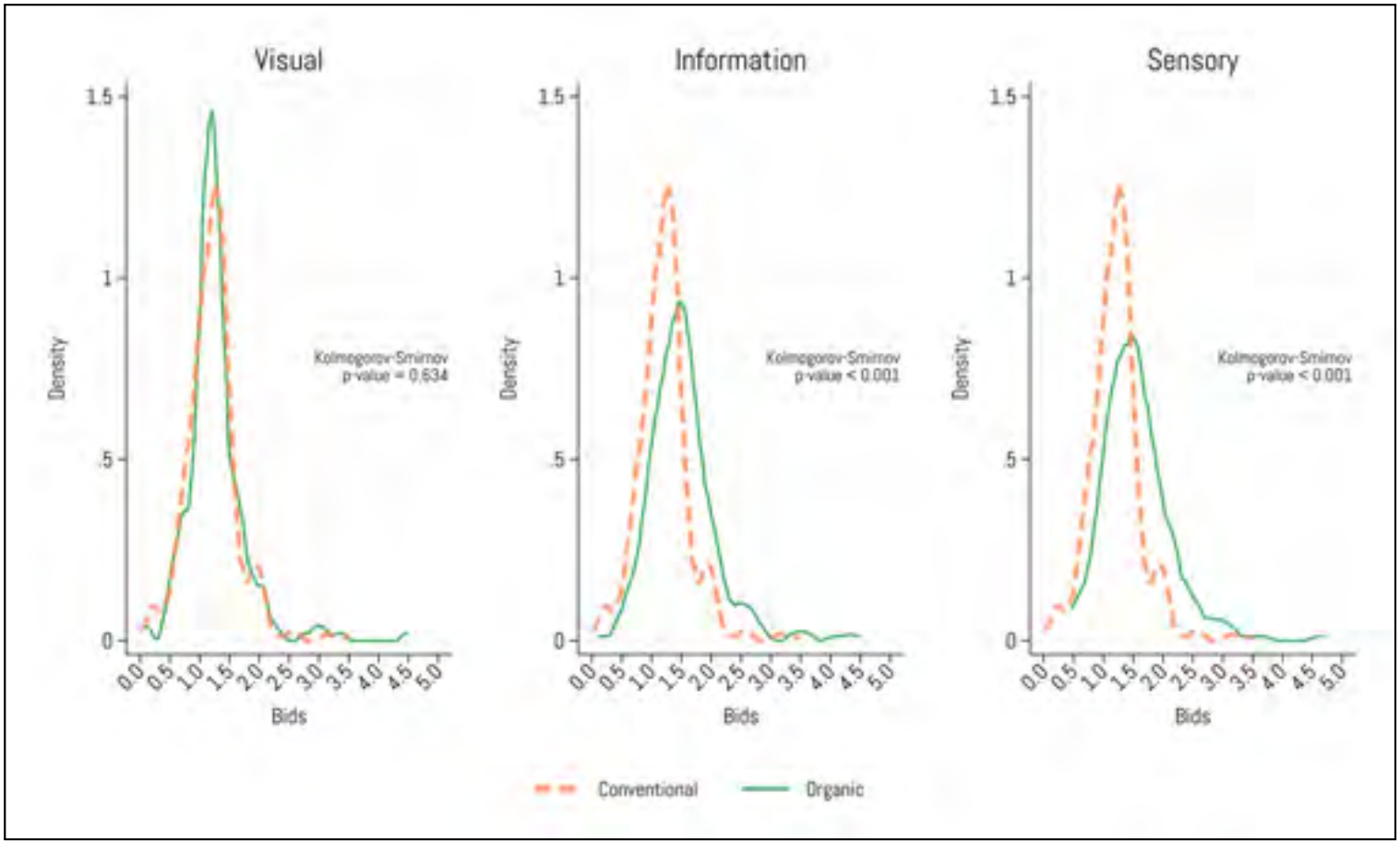

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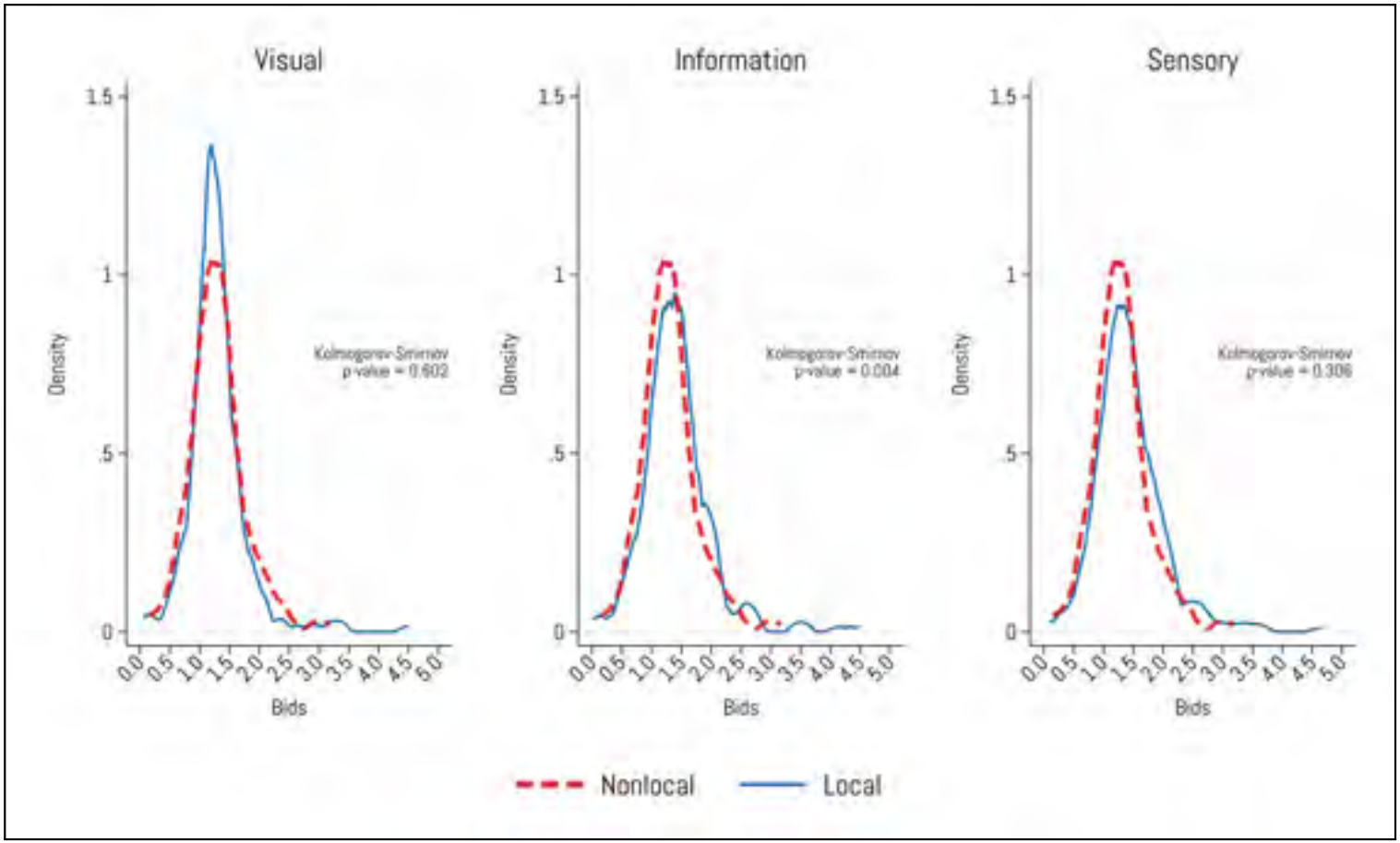


Econometrics: Within-subjects

	Treatment 1 (Organic | Local) (1)		Treatment 4 (Organic | Nonlocal) (2)		Treatment 2 (Local | Organic) (3)		Treatment 3 (Local | Conventional) (4)	
Constant	0.212	(0.596)	-1.345*	(0.685)	1.330	(1.112)	1.118*	(0.575)
Local					0.052	(0.037)	-0.079***	(0.029)
Organic	0.017	(0.038)	-0.071**	(0.031)				
R2: Information	-0.113	(0.075)	-0.055	(0.055)	0.144*	(0.081)	-0.063	(0.066)
R3: Taste	-0.037	(0.083)	-0.136**	(0.054)	0.110	(0.101)	-0.103	(0.065)
Organic × R2	0.303***	(0.072)	0.213***	(0.065)				
Organic × R3	0.199***	(0.067)	0.269***	(0.062)				
Local × R2					0.068	(0.060)	0.137***	(0.046)
Local × R3					0.011	(0.050)	0.129***	(0.048)

Econometrics: Between-subjects

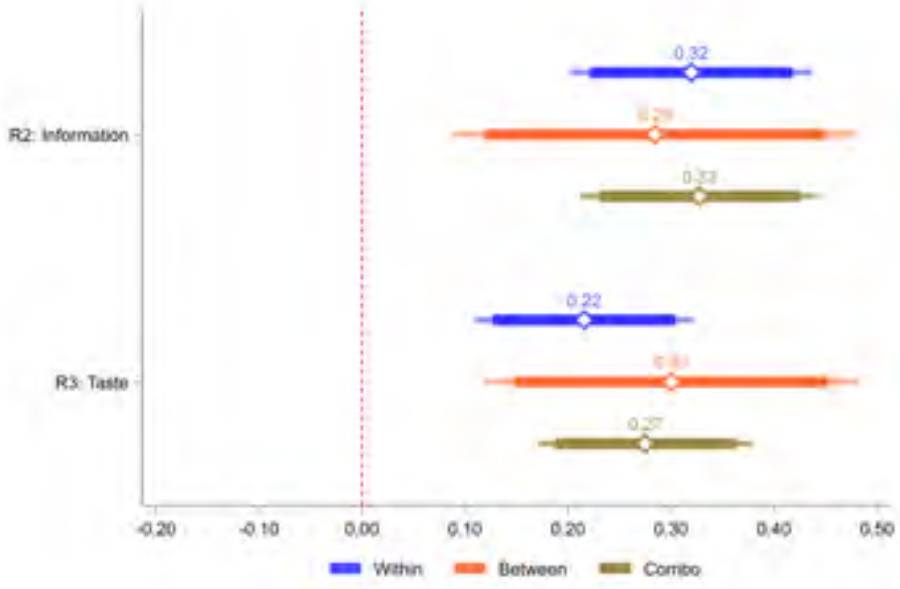
	Treatment 2 vs. 3 (Organic | local) (1)		Treatment 2 vs. 3 (Organic | Nonlocal) (2)		Treatment 1 vs. 4 (Local | Organic) (3)		Treatment 1 vs. 4 (Local | Conventional) (4)	
Constant	0.693	(0.576)	0.562	(0.522)	-0.547	(0.536)	0.126	(0.482)
Local					0.162*	(0.092)	0.029	(0.077)
Organic	0.128	(0.085)	0.007	(0.093)				
R2: Information	0.056	(0.071)	-0.059	(0.070)	0.190**	(0.081)	-0.109	(0.069)
R3: Taste	-0.033	(0.073)	-0.102	(0.072)	0.210**	(0.086)	-0.136**	(0.068)
Organic × R2	0.156	(0.131)	0.209*	(0.114)				
Organic × R3	0.172	(0.120)	0.292**	(0.122)				
Local × R2					-0.003	(0.130)	-0.002	(0.100)
Local × R3					-0.050	(0.131)	0.100	(0.110)

Econometrics: Pooled model

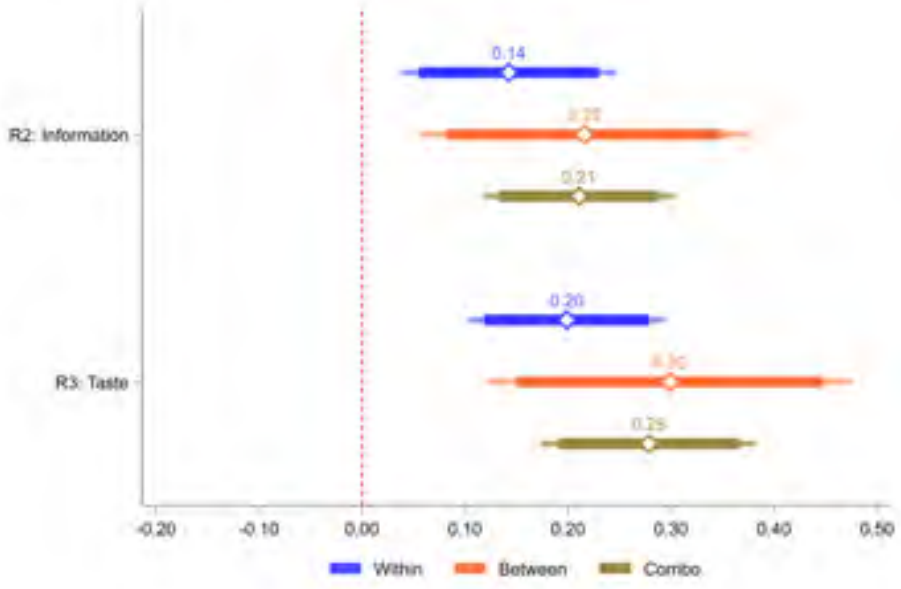
Constant	-0.078	(0.369)
Local	-0.009	(0.042)
Organic	-0.018	(0.048)
R2: Information	-0.069	(0.051)
R3: Taste	-0.117**	(0.050)
Organic × R2	0.229***	(0.069)
Organic × R3	0.296***	(0.073)
Local × R2	0.056	(0.056)
Local × R3	0.108*	(0.062)
Organic × Local	0.125***	(0.035)
Organic × Local × R2	-0.008	(0.057)
Organic × Local × R3	-0.129**	(0.056)

Econometrics: Marginal effects

Organic (given local)

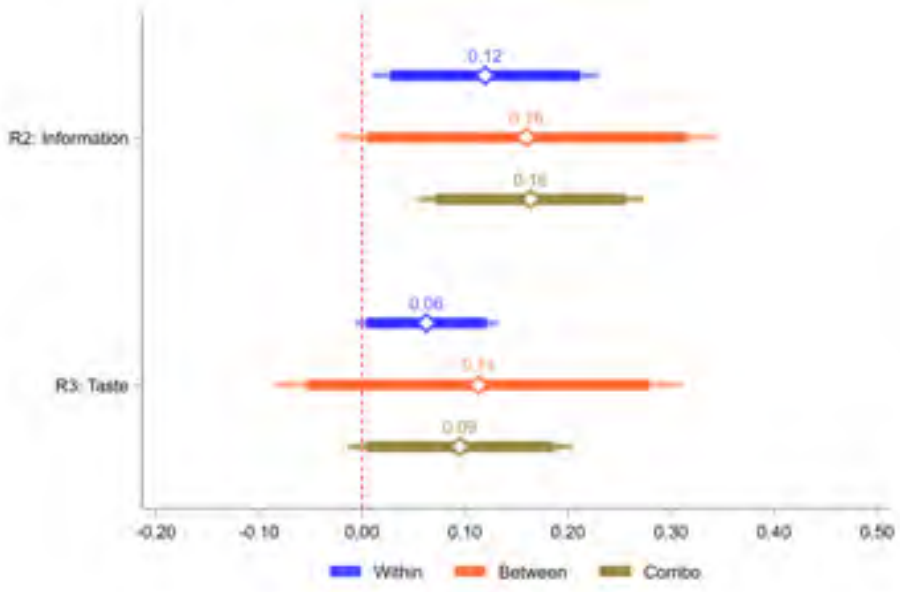


Organic (given non-local)

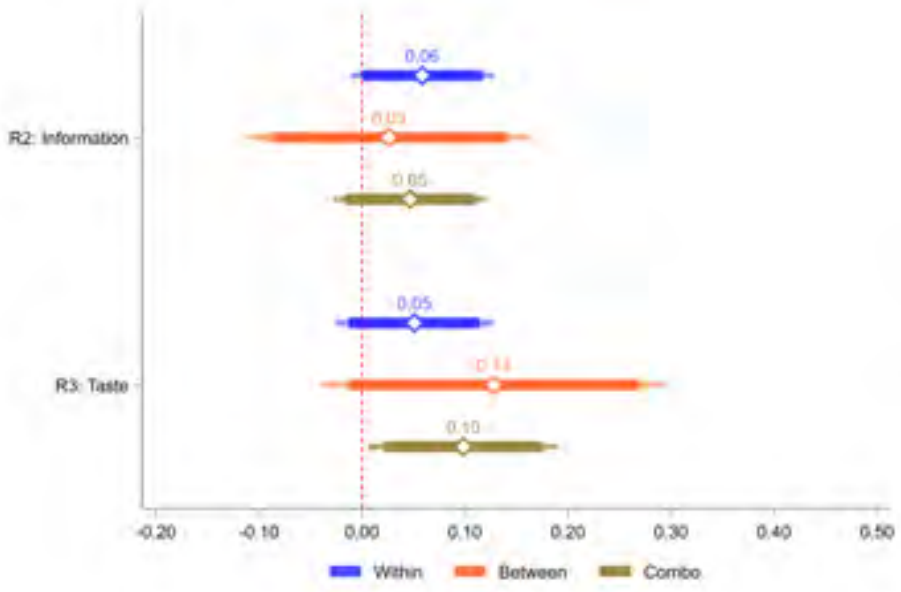


Econometrics: Marginal effects

Local (given organic)



Local (given conventional)



Conclusions

- Between-subjects comparisons produce marginal effects of higher imprecision
- Within-subjects effects are smaller in magnitude with narrower confidence intervals
- Pooled model produces MEs comparable to the within subjects effects
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