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Consumers' perceptions on the properties of wood affecting their willingness to live in and prejudices against houses made of timber

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Background

- Better comprehension on consumer expectations could enhance market diffusion of multi-storey wooden building (MSWB)
 - *Communication to avoid misunderstandings and to strengthen positive conceptions*
 - *Avoidance of putting efforts on inferior issues from the perspective of end-users*
 - *Potential for branding and value creation for specific customer groups*
- Project funding provided by the Ministry of the Environment (Finland) Wood Building Programme

Data and methods

- Postal survey sent in 2018 for 1.000 people (18–74 years) living in Finland
- Simple random sampling from the official database ”Population Information System” governed by Population Register Centre in Finland
- Response rate 25.6% (comparable with response rates typically received for surveys implemented by mail and online surveys), avg. age 53 years, 52% men/48% women
- Likert-scale measures, methods of analysis explorative factor analysis and multiple binary regression analysis (phenomenon either exists = 1 or not = 0)

Research question 1

“Are there different types of consumers according to their stated views on the benefits from wood especially in MSWB from technological, ecological, social and economic perspectives?”

Answer:

Yes, according to the exploratory factor analysis results, there are two types of consumers

	Communalities (Extraction)	Factor loadings	
		1	2
"Wood is energy efficient option, e.g. manufacturing of timber products uses little of energy when compared to other materials"	0.575	0.741	0.160
"Usage of wood enhances climate change mitigation, e.g. it can be considered as a carbon storage"	0.368	0.582	0.170
"Manufacturing of timber products has less ecological impacts, e.g. compared to other materials such as bricks, concrete and steel"	0.439	0.643	0.157
"Wood is burning material, but simultaneously it is fire-safe material"	0.339	0.555	0.177
"Wooden structures are very long-lasting when designed and built properly"	0.321	0.500	0.266
"Wood enhances good indoor air quality by, e.g. buffering variation in indoor air humidity"	0.516	0.610	0.378
"Wood is antibacterial material, e.g. it prevents growth of hazardous microbes"	0.442	0.562	0.356
"Wood affects psychic health"	0.706	0.267	0.797
"Usage of wood in interiors affects well-being, e.g. by decreasing stress and enhancing positive mood"	0.772	0.158	0.864
"Usage of wood is aesthetic, e.g. due to many options for surface treatments"	0.433	0.230	0.616
"Usage of wood in interiors enhances coziness, e.g. due to its acoustic properties"	0.469	0.332	0.599
Cronbach's α		0.829	0.844
Eigenvalues		2.807	2.572
Explained variance, %		25.52	23.38

"Technology and environment believers"

"Aesthetics and well-being believers"

Research question 2

“Do the views on the benefits of wood have impact on consumers’ willingness to live in or prejudices against houses made of wood ?”

Answer:

Yes, according to the binary regression analysis results, they seem to have an impact to a varying extent on both

Measure for willingness: *“I would be happy to live in a modern multistorey house with wooden bearing structures, if homes meeting my needs would be available.”*

Coding Willingness Yes = 1, No = 0

Measure for prejudices: *“I would prefer my home to be in a house made of other structural materials than wood due to inadequate knowledge on technological behaviour of wood in bearing structures (e.g. fire and moisture resistance).”*

Coding Prejudices Yes = 1, No = 0

Willingness to live in + = Yes - = No

Predictor factor	β	SE β	Wald's χ^2	df	p	e^β
Intercept	-0.389	0.133	8.525	1	0.004	0.678
Technology and environment believers	0.228	0.150	2.294	1	0.130	1.256
Aesthetics and well-being believers	0.486	0.152	10.149	1	0.001	1.652

Statistically significant evidence was found that “Aesthetics and well-being believers” would be happy to live in MSWB homes

Similar evidence was not found in among “Technology and environment believers”

Prejudices against + = Yes - = No

Predictor factor	β	SE β	Wald's χ^2	df	p	e^β
Intercept	-2.231	0.245	89.867	1	0.000	0.098
Technology and environment believers	-0.712	0.274	6.773	1	0.009	0.491
Aesthetics and well-being believers	-0.412	0.228	3.251	1	0.071	0.098

Statistically significant evidence was found that “Technology and environment believers” do not have prejudices against technological properties of wood

Similar evidence was not found in among “Aesthetics and well-being believers”

A few lessons

- Valuing wood in construction does not mean that consumers' would be willing to choosing their own homes among MSWB options
- MSWB cannot be justified for different types of consumers with homogeneous arguments on the beneficial properties of wood -> Careful attention on good communication with well-specified messages is needed
- Enhancing the desirability of the MSWB in the housing markets requires that consumers must feel they have adequate understanding on the safety and technical sustainability properties of wood

Thank you!

