What motivates airplane leisure travelling among Norwegians?

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Introduction

Aviation is identified as a rapidly growing contributor to CO_2 emissions. This study aims at expanding our understanding of what motivates leisure travels by plane by including the role of norms and beliefs about climate change.

Method

We developed a framework based on institutional and social-psychological theories and concepts as a basis for the study. Data was gathered through a web-based survey among Norwegians above 17 years, collected in 2018. We employ structural equation modeling estimating direct and indirect effects of the defined explanatory variables on the frequency of leisure travels by plane.

Results

The final structural model is reported in Table 1. The strongest immediate antecedent is habit. This may seem surprising given that for most people flying is rather infrequent, but 10 percent of the sample reported more than six flight trips for leisure purposes in 2017. The second strongest predictor is leisure traveling by public transport and electric car. The various means of traveling for leisure purposes are positively correlated.

Flying increases with income and with the belief that flying is cheap. Other antecedents are education (positive), age (negative) and place of residence (urban residence→ more flights).

Table 1: Structural model of flying for leisure purposes and its antecedents, N = 4081

Dependent variables		Independent variables	B	S.E.	*beta*	C.R.	*p*	Total effect[1]	R^2
Flying	<--	Habit	.46	.03	.40	16.446	<.001	.40	.34
-	<--	Leisure traveling by train, bus, or electric car	.29	.02	.26	15.072	<.001	.22	
-	<--	Believe flying is cheap	.16	.03	.15	5.578	<.001	.19	
-	<--	Income	.05	.01	.12	7.101	<.001	.14	
-	<--	De-centrality	-.08	.01	-.10	-6.309	<.001	-.14	
-	<--	Leisure traveling by boat	.12	.02	.08	5.214	<.001	.08	

-	<--	Basic education = 1 else 0	-.18	.05	-.05	-3.375	<.001	-.05	
-	<--	Age	-.05	.02	-.05	-2.846	.004	.02	
-	<--	Conservatism	-.06	.02	-.05	-2.714	.007	-.06	
-	<--	Social attention, climate change	-.04	.02	-.04	-2.588	.010	-.05	
-	<--	Practical education = 1 else 0	-.08	.03	-.04	-2.367	.018	-.03	
Habit	<--	Social norms, flying for leisure purposes	.60	.07	.48	9.048	<.001	.19	.31
-	<--	Self-enhancement	.26	.05	.18	4.969	<.001	.12	
-	<--	Age	.15	.03	.18	4.881	<.001		
-	<--	Leisure traveling by train, bus, or electric car	-.09	.03	-.10	-3.554	<.001		
-	<--	Climate change denial	-.09	.03	-.09	-2.934	.003	-.01	
-	<--	Believe flying is comfortable	.12	.05	.09	2.120	.034	.12	
Social norms, flying for leisure purposes	<--	Believe flying is comfortable	.41	.05	.41	7.957	<.001		.34
-	<--	Believe flying is cheap	.16	.03	.21	5.462	<.001		
-	<--	Climate impact of flying	.17	.04	.19	4.428	<.001	.052	
-	<--	Age	-.10	.03	-.16	-4.092	<.001		
-	<--	Personal norms climate change	-.08	.03	-.10	-2.406	.016		
-	<--	Income	.02	.01	.08	2.063	.039		
Leisure traveling by train, bus, or electric car	<--	Member of an environmental NGO	.27	.06	.07	4.466	<.001	.01	.04
-	<--	Social attention, climate change	-.06	.02	-.07	-4.108	<.001		
-	<--	Self-enhancement	.11	.03	.07	3.821	<.001		
-	<--	De-centrality	-.04	.01	-.06	-4.147	<.001		
-	<--	Studying = 1 else 0	.16	.05	.05	3.211	.001	.03	
-	<--	Personal norms climate change	.05	.02	.05	2.574	.010	-.01	

Leisure traveling by boat	<--	Household size	.05	.01	.08	5.507	<.001	.01	.02
-	<--	Age	.05	.01	.08	4.098	<.001		
-	<--	Climate change denial	.05	.01	.07	3.845	<.001		
-	<--	Self-enhancement	.08	.03	.07	3.063	.002		
-	<--	Conservatism	.04	.01	.05	2.589	.010		
-	<--	Practical education = 1 else 0	.06	.02	.04	2.489	.013		
Leisure traveling by fossil car	<--	Household size	.11	.02	.11	7.302	<.001		.03
-	<--	Age	.09	.02	.09	4.503	<.001		
-	<--	Self-enhancement	.15	.04	.09	3.928	<.001		
-	<--	Personal norms climate change	-.10	.02	-.08	-4.602	<.001		
-	<--	Social attention, climate change	-.08	.02	-.07	-4.442	<.001		
-	<--	Practical education = 1 else 0	.10	.04	.04	2.666	.008		
-	<--	Income	.02	.01	.03	2.038	.042		
Believe flying is cheap	<--	Age	.18	.04	.19	4.479	<.001		.06
-	<--	De-centrality	-.12	.02	-.16	-5.003	<.001		
-	<--	Self-enhancement	.19	.07	.12	2.618	.009		
-	<--	Studying = 1 else 0	.37	.12	.11	3.205	.001		
-	<--	Conservatism	-.10	.05	-.09	-2.153	.031		
-	<--	Climate impact of flying	.10	.04	.08	2.403	.016		
Believe flying is comfortable	<--	Climate change denial	.11	.03	.14	3.407	<.001		.04
-	<--	Age	-.07	.03	-.10	-2.682	.007		
-	<--	Income	.03	.01	.10	2.529	.011		
-	<--	Conservatism	.07	.04	.09	1.997	.046		

Note: Model fit: Chi-square = 2223.215, 468 df., $p < .001$. TLI = .91, CFI = .94, RMSEA = .030 (CI_{10} = .029 - .032).

Supportive social norms do not affect flying directly, but being the strongest antecedent of habitual flying, they are among the most important antecedents of flying for leisure purposes.

Most surprising result is the positive relationships between social norms and believing that flying leads to GHG emissions. This relationship suggests a cognitive dissonance in Norwegians' thinking about flying.

Discussion

These results indicate that leisure travels by flight is part of a climate concerned cultural middleclass' lifestyle. Our findings suggest that the scope for changes will not come without strong intervention or normative change.

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