

A multiple regression approach to estimating tourist spending – per person per night at Danish destinations

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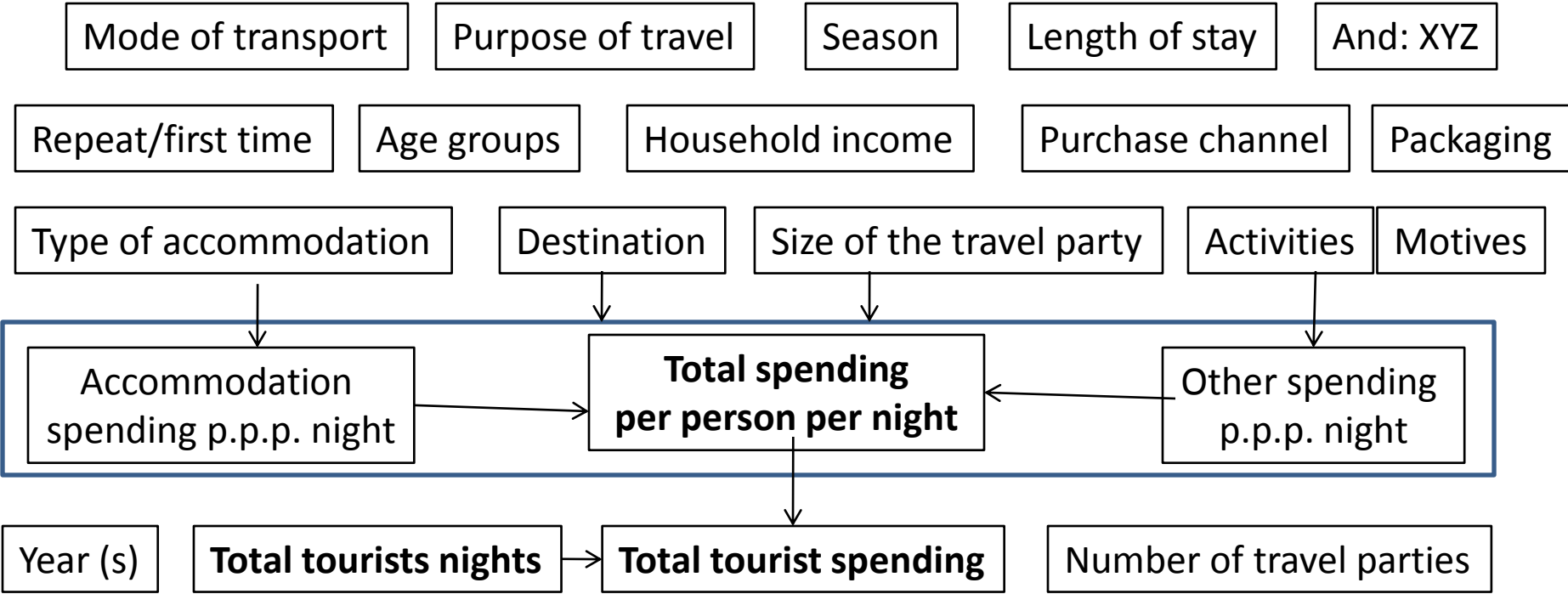
Aalborg, 26-28 November, 2008

Research questions

What are the determinants of accommodation spending, other spending and **total spending** per person per night – at the 10 Danish destinations?

And: What marketing and policy implications can be drawn from the findings?

Determinants of tourist spending - Factors of possible importance



Data and method

1. A survey commissioned by VisitDenmark in 2004 – with 7800 leisure tourists --- plus 3000 business travellers.
2. Method: Multiple regression analysis – results illustrated by MDS

Determinant of accommodation spending per person per night (in DKK and EUR)

Model	Unstandardized coefficients			Standardized coefficients		
	B (DKK)	B (EUR)	Std. error	Beta	T	Sig.
Constant	174,25	23,36	8,17		21,328	0,000
Hotels	331,91	44,49	6,33	0,688	52,455	0,000
Centers	155,75	20,88	5,45	0,276	28,601	0,000
Y_Hostels	48,28	6,47	7,41	0,058	6,518	0,000
Cottages	85,72	11,49	4,62	0,183	18,551	0,000
Restaurants_always	13,77	1,85	5,10	0,025	2,697	0,007
Cooking_always	-21,62	-2,90	3,99	-0,048	-5,424	0,000
Shopping_always	17,75	2,38	5,34	0,026	3,326	0,001
Party_size	-34,64	-4,64	1,33	-0,208	-26,145	0,000
Income level, household	13,63	1,83	1,98	0,054	6,885	0,000
Copenhagen	41,69	5,59	5,66	0,07	7,367	0,000
North_Jutland	-19,15	-2,57	4,34	-0,035	-4,415	0,000
North_Sealand	26,35	3,53	9,38	0,021	2,808	0,005
Nights	-0,91	-0,12	0,13	-0,053	-6,8	0,000

Note: Dependent Variable: Per_night. R squared, adjusted: 0.558. F-value: 768. 1 EUR = 7.46 DKK.

Determinant of total spending per person per night

Model	Unstandardized coefficients			Standardized coefficients		
	B (DKK)	B (EUR)	Std. error	Beta	t	Sig.
Constant	436,02	58,45	28,68		15,201	0,000
Hotels	640,81	85,90	22,47	0,426	28,514	0,000
Centers	153,79	20,61	18,67	0,087	8,239	0,000
Y_Hostels	93,64	12,55	25,10	0,036	3,731	0,000
Cottages	93,80	12,57	15,58	0,064	6,022	0,000
Restaurants_always	111,35	14,93	17,43	0,065	6,389	0,000
Cooking_always	-64,95	-8,71	14,04	-0,047	-4,625	0,000
Shopping_always	253,19	33,94	18,16	0,119	13,94	0,000
Relax_always	-56,29	-7,55	12,00	-0,042	-4,692	0,000
Party_size	-107,36	-14,39	4,66	-0,207	-23,024	0,000
Package tour	238,51	31,97	17,51	0,132	13,625	0,000
Income level, household	56,60	7,59	6,77	0,072	8,359	0,000
Copenhagen	165,44	22,18	19,65	0,088	8,419	0,000
North_Jutland	50,78	6,81	15,27	0,029	3,326	0,001
North_Sealand	99,29	13,31	31,78	0,026	3,124	0,002
W_S_Sealand	82,80	11,10	19,60	0,037	4,225	0,000
Swedes	50,26	6,74	19,52	0,022	2,574	0,010
Norwegians	58,49	7,84	19,19	0,026	3,048	0,002
Age_30_59	39,75	5,33	12,26	0,028	3,241	0,001
Nights	-1,27	-0,17	0,45	-0,024	-2,814	0,005

Note: Dependent Variable: Daily_total. R squared, adjusted: 0.485. F-value: 393. 1 EUR = 7.46 DKK.

Ranking of the determinants by percentage of variation in spending per person per night explained

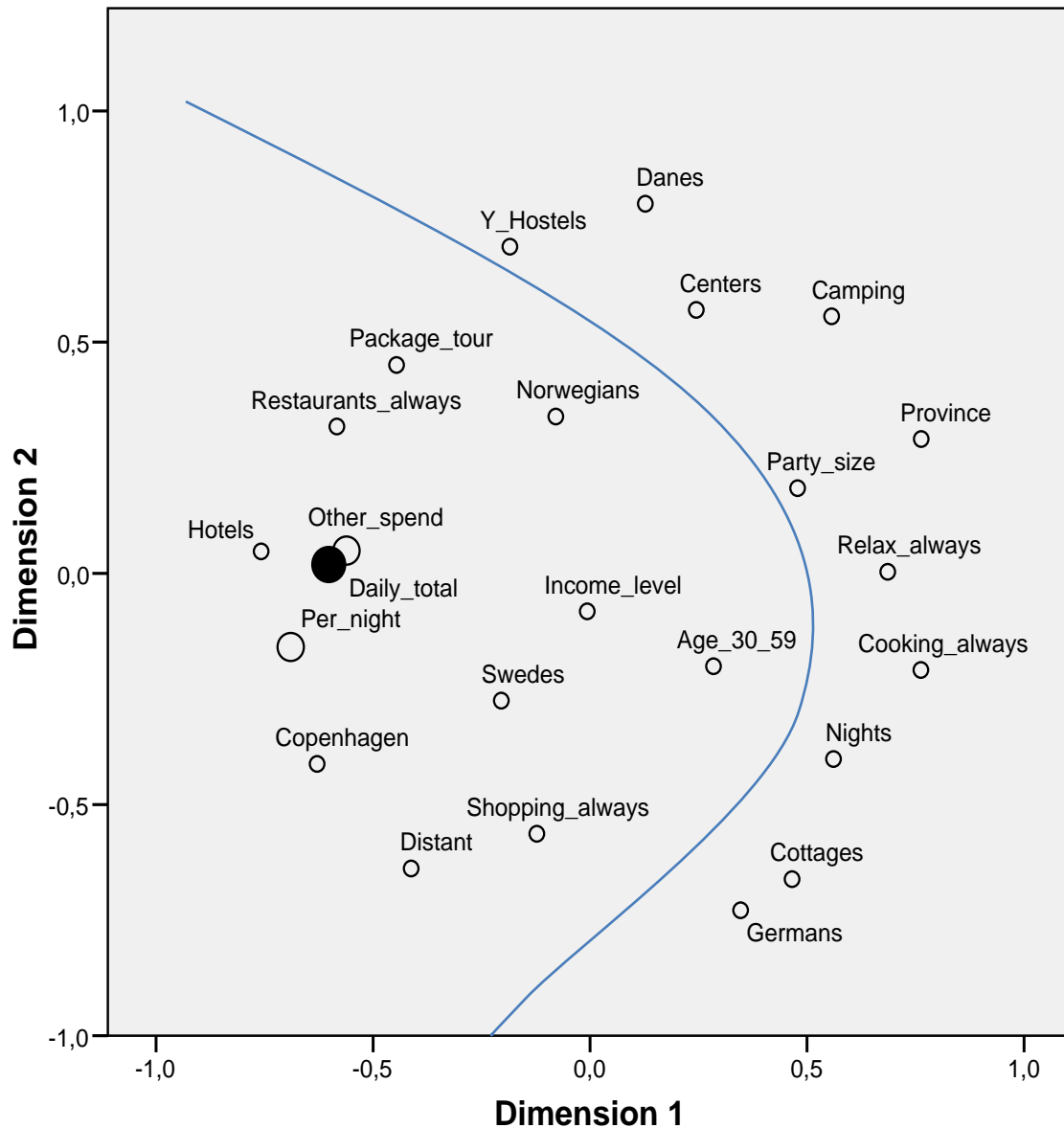
Determinant	R squared, adjusted			Ranking of determinants		
	Accom. spending	Other spending	Daily total	Accom. spending	Other spending	Daily total
Type of accommodation	0,504	0,244	0,389	1	1	1
Activities	0,269	0,226	0,300	2	2	2
Destination	0,203	0,122	0,180	3	4	3
Package tour	0,089	0,130	0,151	5	3	4
Party size	0,111	0,068	0,102	4	6	5-6
Market	0,079	0,080	0,102	6	5	5-6
Nights, lenght of stay	0,051	0,019	0,034	7	8	7
Income level	0,017	0,018	0,023	8	7	8
Travel agent involved	0,008	0,010	0,012	10	9	9
Age group	0,010	0,002	0,004	9	10	10

Pct. of variation in spending per person per night explained by significant determinants
accumulated

Determinants	R squared, adjusted			Percentage explained		
	Accom. spending	Other spending	Daily total	Accom. spending	Other spending	Daily total
Type of accommodation	0,504	0,244	0,389	50,4%	24,4%	38,9%
Type of accommodation + activities	0,518	0,298	0,438	1,4%	5,4%	4,9%
Type of accommodation + activities + party size	0,548	0,312	0,461	3,0%	1,4%	2,3%
Type of accommodation + activities + party size + packaging	0,548	0,332	0,472	0,0%	2,0%	1,1%
Type of accommodation + activities + party size + packaging + income level	0,550	0,335	0,477	0,2%	0,3%	0,5%
Type of accommodation + activities + party size + packaging + income level + destination	0,555	0,341	0,483	0,5%	0,6%	0,6%
Type of accommodation + activities + party size + packaging + income level + destination + market	0,555	0,342	0,484	0,0%	0,1%	0,1%
Type of accommodation + activities + party size + packaging + income level + destination + market + age group	0,555	0,343	0,484	0,0%	0,1%	0,0%
Type of accommodation + activities + party size + packaging + income level + destination + market + age group + lenght of stay	0,558	0,343	0,485	0,3%	0,0%	0,1%

9 significant determinants of total tourist spending p.p.p. night

1. Type of accommodation
2. Activities
3. Party size
4. Packaging
5. Income level
6. Destination
7. Market
8. Age group
9. Length of stay



Determinants of tourist spending. An illustration of the results – using multidimensional scaling

Extending the study

Adding business travellers: Business travellers spend more per night. But when controlling for size of the travel party, purpose of visit becomes insignificant.

Splitting up length of stay and size of the travel group into sets of dummy variables in stead of continuous variables: e.g. 1, 2, 3, 4-6, 7+ nights

Accommodation spending only

Coefficients(a)

Model		Unstd. Coefficients			Std. Coefficients		
		B (DKK)	B (EUR)	Std. Error	Beta	t	Sig.
21	(Constant)	38,50	5,16	8,67		4,44	0,0000
	Hotels	308,21	41,32	9,30	0,41	33,16	0,0000
	Centers	153,45	20,57	8,75	0,14	17,54	0,0000
	Cottages	92,62	12,42	8,39	0,11	11,03	0,0000
	Y_Hostels	-48,41	-6,49	11,17	-0,03	-4,33	0,0000
	Business_or_mix	230,02	30,83	8,11	0,26	28,35	0,0000
	Danes	-33,93	-4,55	6,18	-0,04	-5,49	0,0000
	Distant	-9,79	-1,31	8,06	-0,01	-1,22	0,2244
	Copenhagen	76,97	10,32	7,74	0,09	9,94	0,0000
	East_Sealand	99,07	13,28	24,31	0,03	4,08	0,0000
	South_E_Jutland	28,86	3,87	9,76	0,02	2,96	0,0031
	North_Sealand	49,27	6,60	14,60	0,02	3,37	0,0007
	Ribe	15,17	2,03	8,62	0,01	1,76	0,0784
	1_person	162,05	21,72	7,85	0,20	20,64	0,0000
	2_persons	43,33	5,81	6,48	0,06	6,69	0,0000
	3_persons	14,03	1,88	8,72	0,01	1,61	0,1076
	Night_1	159,84	21,43	9,75	0,14	16,40	0,0000
	Nights_2	78,03	10,46	8,15	0,08	9,58	0,0000
	Nights_3	75,07	10,06	8,65	0,07	8,68	0,0000
	Nights_456	52,01	6,97	7,02	0,06	7,41	0,0000
	Flying	63,00	8,45	9,69	0,06	6,51	0,0000
	29a.Package tour	-25,59	-3,43	8,17	-0,02	-3,13	0,0017

a **Dependent Variable: Per_night**

Total spending p.p.p. night

Coefficients(a)

Model		Unstd. Coefficients			Std. Coefficients		
		B	B (EUR)	Std. Error	Beta	t	Sig.
15	(Constant)	212,51	28,49	22,44		9,47	0,0000
	Hotels	906,95	121,57	20,93	0,57	43,33	-
	Centers	182,88	24,51	22,53	0,08	8,12	0,0000
	Y_Hostels	166,67	22,34	27,97	0,05	5,96	0,0000
	Cottages	137,25	18,40	22,73	0,07	6,04	0,0000
	Business_or_mix	170,55	22,86	16,40	0,09	10,40	0,0000
	Norwegians	170,75	22,89	26,16	0,06	6,53	0,0000
	Swedes	126,76	16,99	26,26	0,04	4,83	0,0000
	Distant	39,16	5,25	22,26	0,02	1,76	0,0786
	Danes	65,04	8,72	19,80	0,04	3,28	0,0010
	Copenhagen	277,20	37,16	19,16	0,14	14,47	0,0000
	North_Jutland	122,90	16,47	17,81	0,06	6,90	0,0000
	Storstroem	113,65	15,23	25,63	0,04	4,43	0,0000
	East_Sealand	159,63	21,40	56,95	0,02	2,80	0,0051
	Funen	65,55	8,79	23,09	0,02	2,84	0,0045
	North_Sealand	83,68	11,22	37,09	0,02	2,26	0,0241

a **Dependent Variable: Daily_total**

Total spending p.p.p. night

Coefficients(a)

Model	Unstd. Coefficients			Std. Coefficients		
	B	B (EUR)	Std. Error	Beta	t	Sig.
18 (Constant)	74,43	9,98	24,60		3,03	0,0025
Hotels	826,17	110,75	20,75	0,52	39,82	-
Centers	191,45	25,66	22,12	0,08	8,66	0,0000
Y_Hostels	88,40	11,85	27,58	0,03	3,21	0,0014
Cottages	142,36	19,08	22,23	0,08	6,40	0,0000
Business_or_mix	-9,17	-1,23	18,59	-0,01	-0,49	0,6219
Norwegians	205,57	27,56	25,66	0,07	8,01	0,0000
Swedes	155,35	20,82	25,69	0,06	6,05	0,0000
Distant	56,73	7,60	21,76	0,03	2,61	0,0091
Danes	67,28	9,02	19,34	0,04	3,48	0,0005
Copenhagen	255,45	34,24	18,75	0,13	13,62	0,0000
North_Jutland	98,12	13,15	17,47	0,05	5,62	0,0000
Storstroem	122,89	16,47	25,04	0,04	4,91	0,0000
East_Sealand	131,59	17,64	55,64	0,02	2,36	0,0181
Funen	45,96	6,16	22,57	0,02	2,04	0,0418
North_Sealand	83,85	11,24	36,23	0,02	2,31	0,0207
1_person	434,55	58,25	19,70	0,26	22,05	0,0000
2_persons	184,72	24,76	16,41	0,11	11,26	0,0000
3_persons	59,62	7,99	21,97	0,02	2,71	0,0067

a Dependent Variable: Daily_total

Total spending p.p.p. night

Coefficients(a)

Model	Unstd. Coefficients			Std. Coefficients		
	B	B (EUR)	Std. Error	Beta	t	Sig.
24 (Constant)	65,74	8,81	24,32		2,70	0,0069
Hotels	674,47	90,41	22,56	0,42	29,90	0,0000
Centers	173,57	23,27	21,91	0,08	7,92	0,0000
Y_Hostels	11,00	1,48	27,46	0,00	0,40	0,6886
Cottages	153,37	20,56	21,93	0,08	6,99	0,0000
Business_or_mix	-23,75	-3,18	18,53	-0,01	-1,28	0,1999
Norwegians	188,08	25,21	25,40	0,07	7,40	0,0000
Swedes	105,79	14,18	25,69	0,04	4,12	0,0000
Distant	53,30	7,14	23,28	0,03	2,29	0,0221
Danes	10,70	1,43	19,66	0,01	0,54	0,5862
Copenhagen	226,61	30,38	19,58	0,12	11,58	0,0000
North_Jutland	81,61	10,94	17,21	0,04	4,74	0,0000
Storstroem	142,91	19,16	24,56	0,04	5,82	0,0000
East_Sealand	160,42	21,50	54,54	0,02	2,94	0,0033
Funen	31,44	4,21	22,14	0,01	1,42	0,1557
North_Sealand	98,97	13,27	35,48	0,02	2,79	0,0053
1_person	404,76	54,26	19,38	0,24	20,89	0,0000
2_persons	182,94	24,52	16,08	0,11	11,38	0,0000
3_persons	57,13	7,66	21,52	0,02	2,65	0,0080
Night_1	462,59	62,01	23,69	0,19	19,53	0,0000
Nights_2	145,64	19,52	19,97	0,07	7,29	0,0000
Nights_3	92,86	12,45	21,26	0,04	4,37	0,0000
Nights_456	45,00	6,03	17,32	0,02	2,60	0,0094
29a.Package tour	84,44	11,32	16,95	0,04	4,98	0,0000
Flying	91,86	12,31	23,93	0,04	3,84	0,0001

a **Dependent Variable: Daily_total**

Implications – let's discuss them

1. Marketing implications
2. Policy implication

Thank you !

Questions?

Comments!