

Seasonality in tourism – Separating the natural and institutional causes

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Overview

1. Introduction
2. Literature on seasonality / causes of seasonality
3. Seasonality in the European accommodation sector
4. Seasonality in tourism to Danish destinations
5. Summary / Discussion

Purpose

The purpose of the paper is to investigate the causes of seasonality in tourism, specifically seasonality in bed nights in Europe.

Also, with Denmark as an example, it should be demonstrated how moving holidays can be modeled.

Causes of seasonality (~Bar-On, 1975)

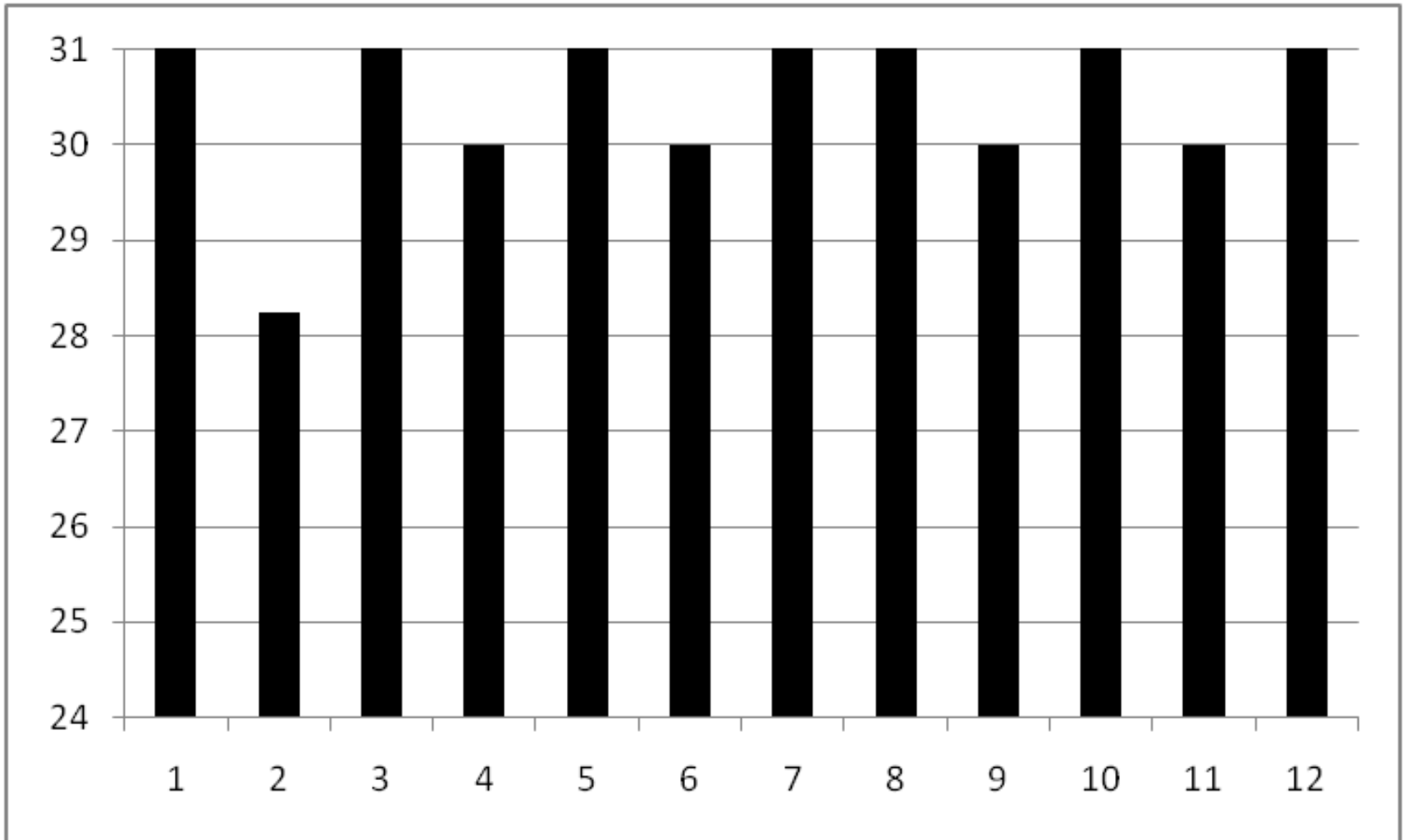
Natural:

- Temperature (normal rather than actual)
- Hours of sunshine (rather than hours of daylight)
- Latitude and altitude
- Climate, rain/snow fall
- Snow depth

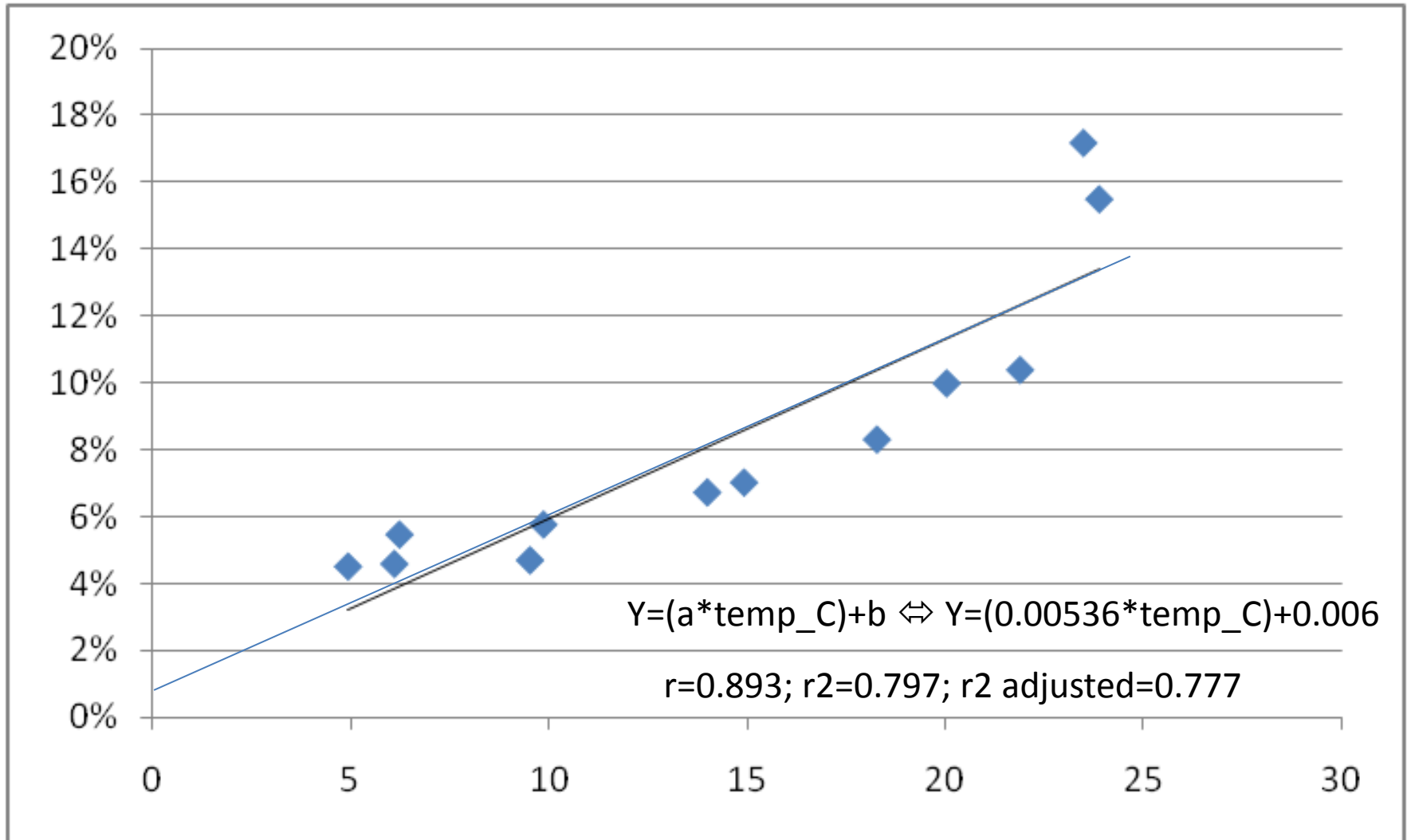
Institutional:

- School holidays (moving, in some key markets)
- Religious holidays (moving, in the spring)
- Calendar effects (number of days per month)
- Business seasons

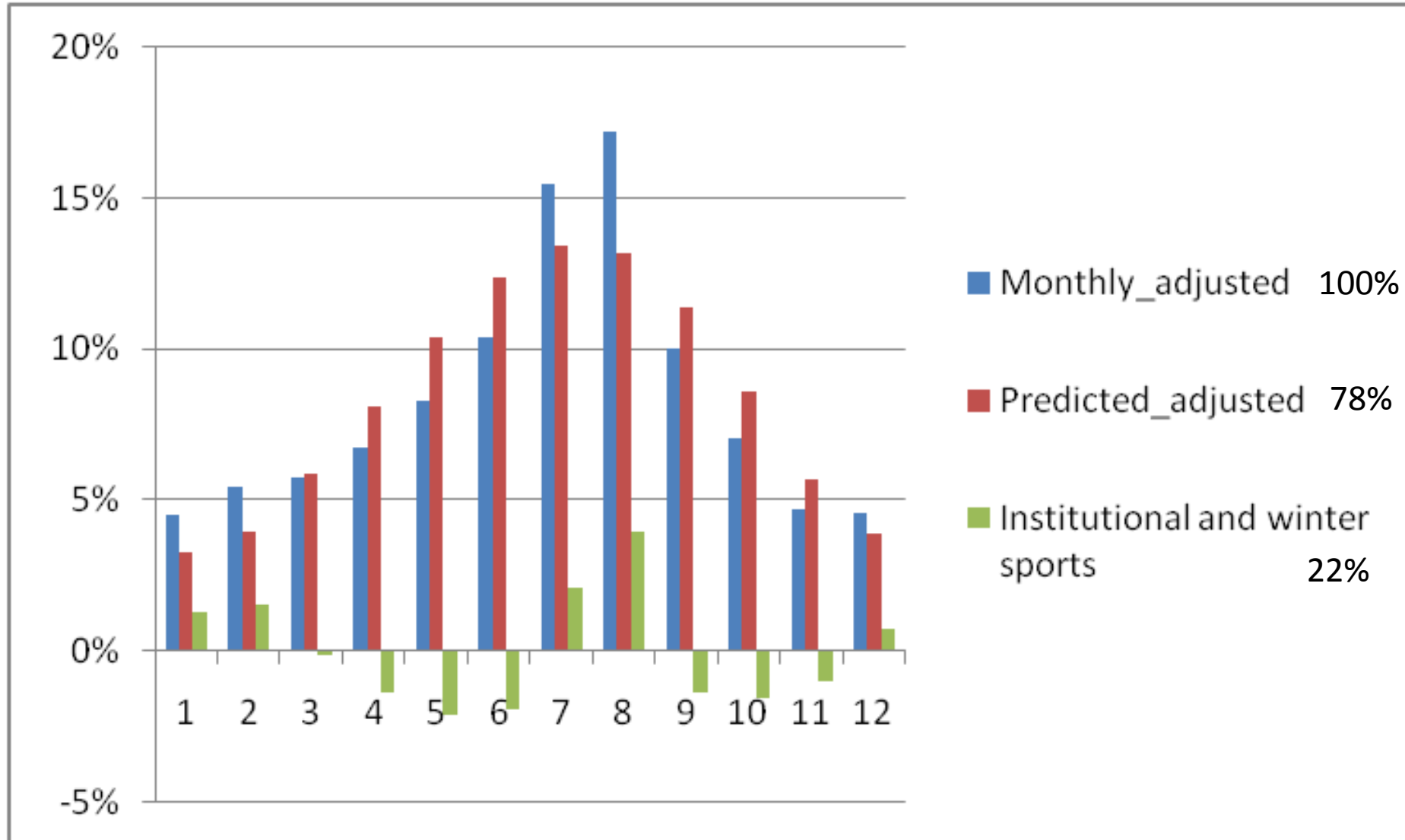
Days per month



Bednights per month (%) as a function of mean highest temperature per month in Europe (EU27 + EFTA4 + 2)

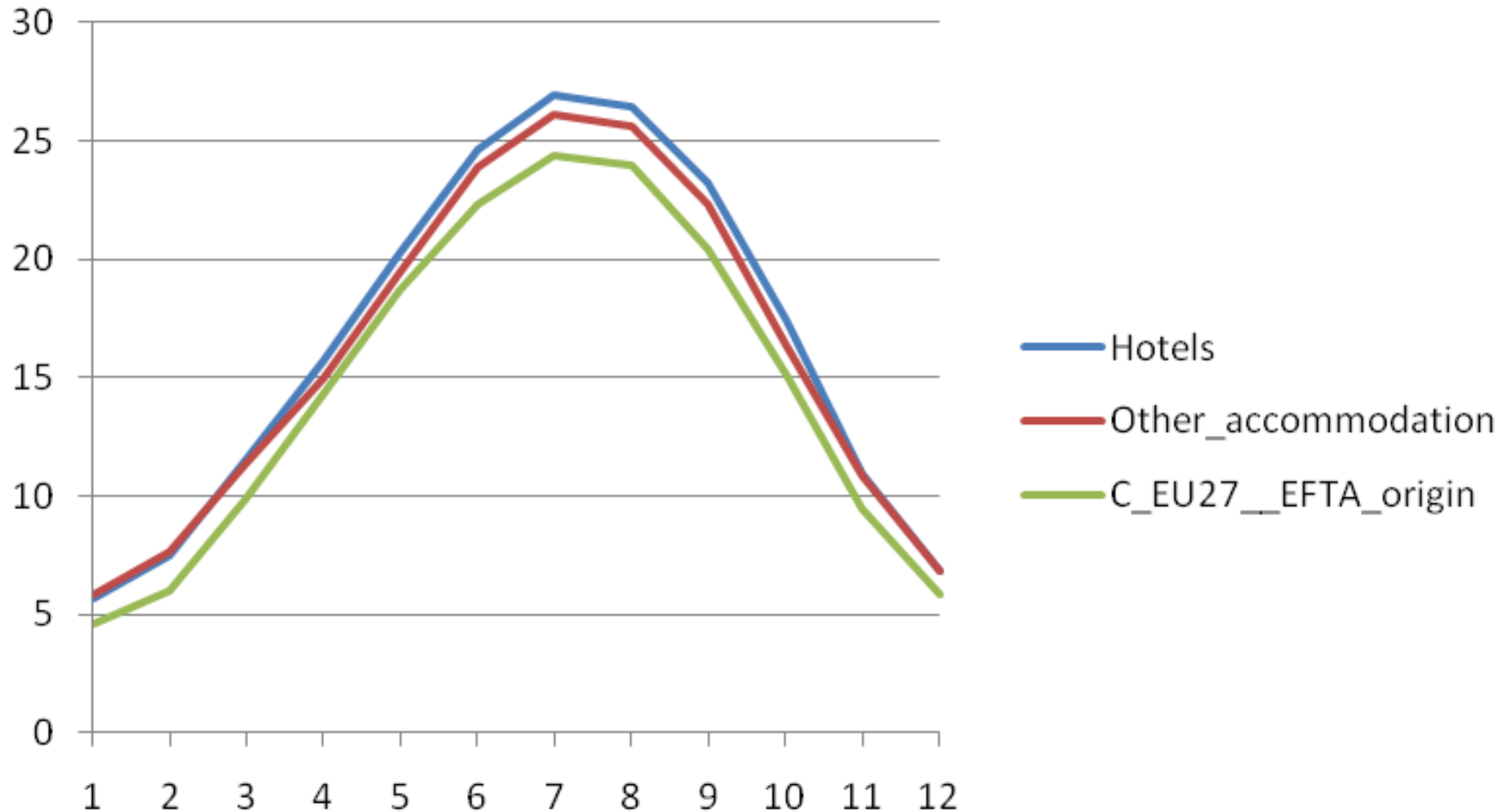


Natural causes (in red, predicted by temp.) and institutional causes (residual, in green) of seasonality



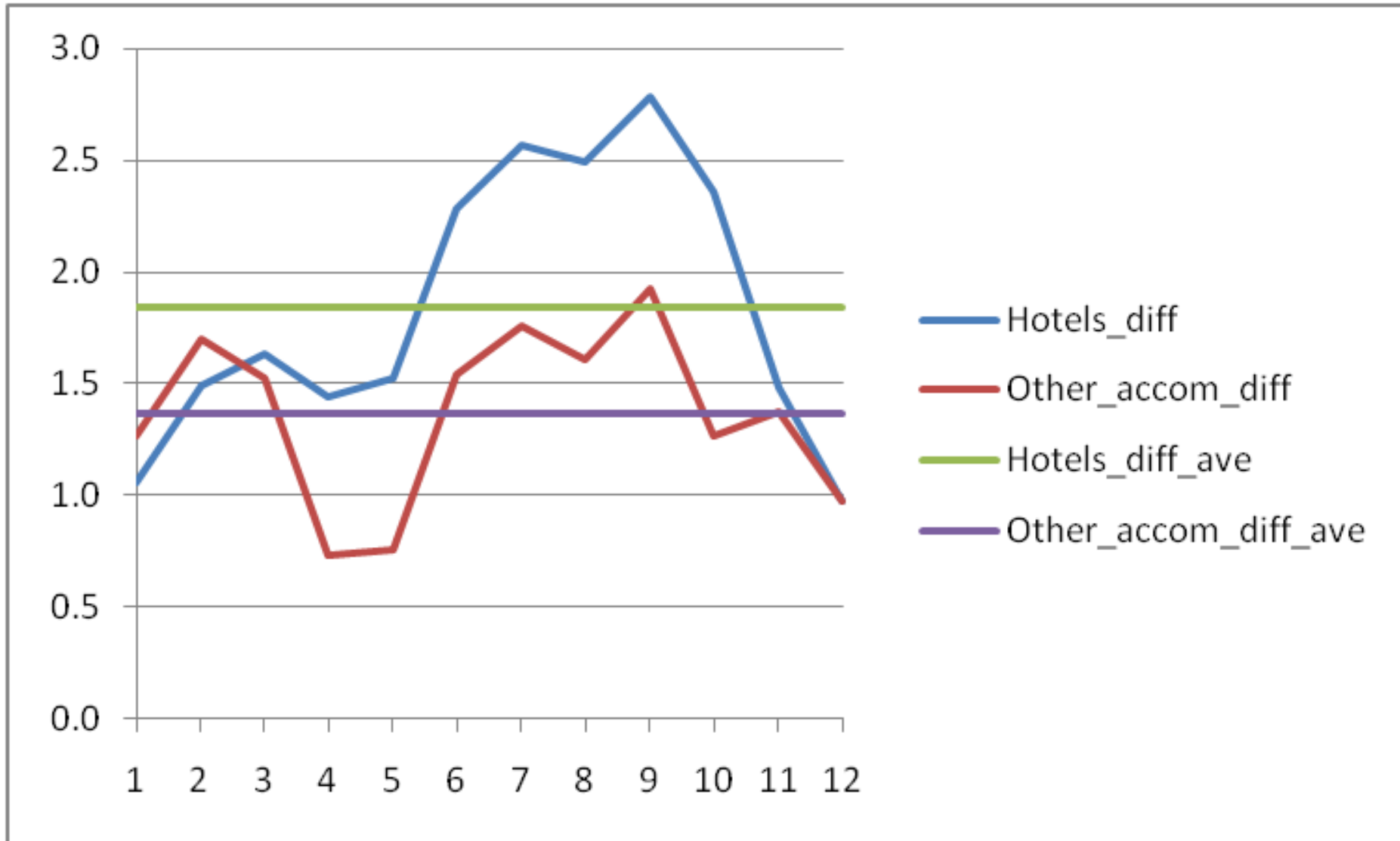
A craving for warm/sunny destinations

– Degrees C (normal) at international destinations vs. origins by month of year (ave. 1998-2009)

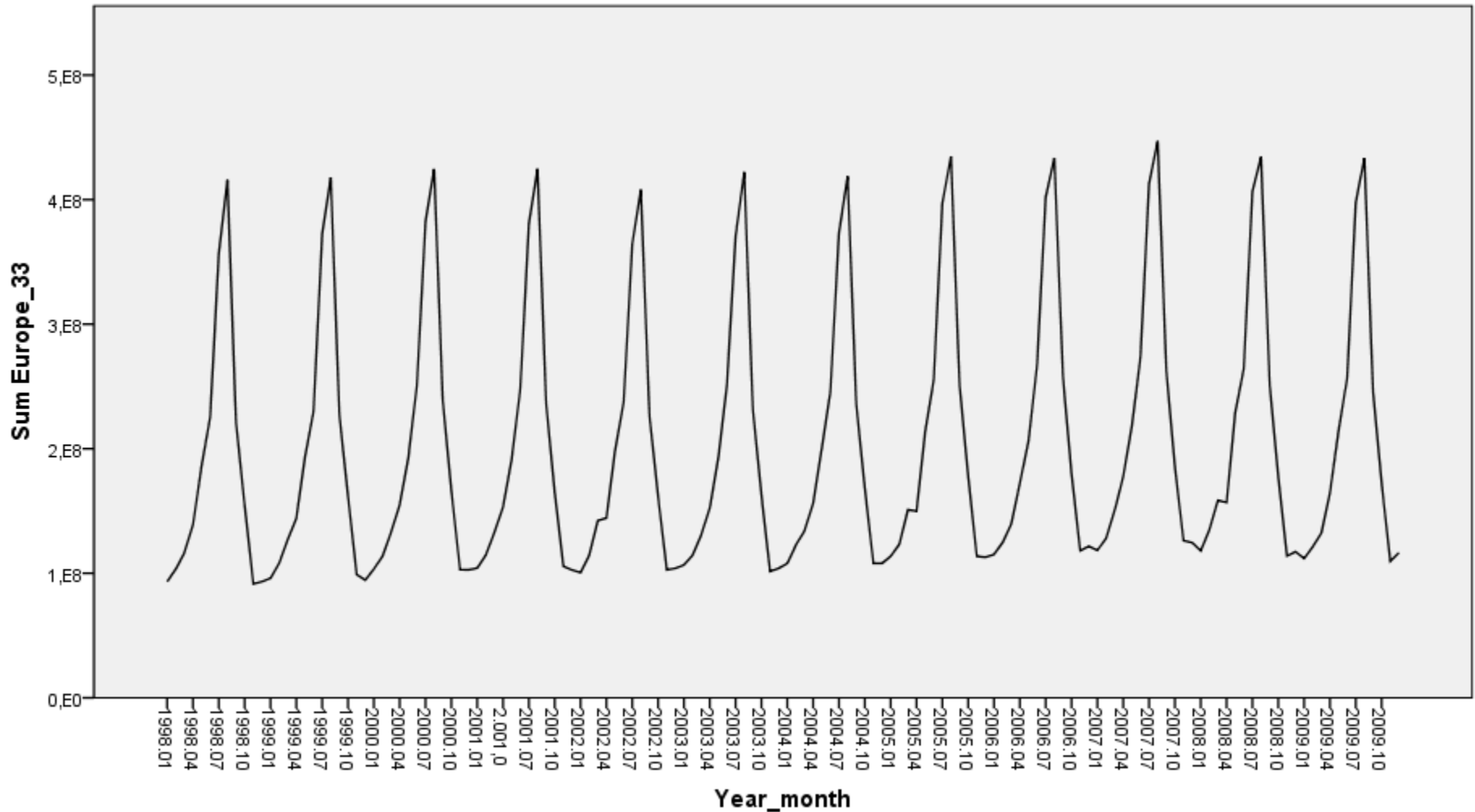


A craving for warm/sunny destinations (2):

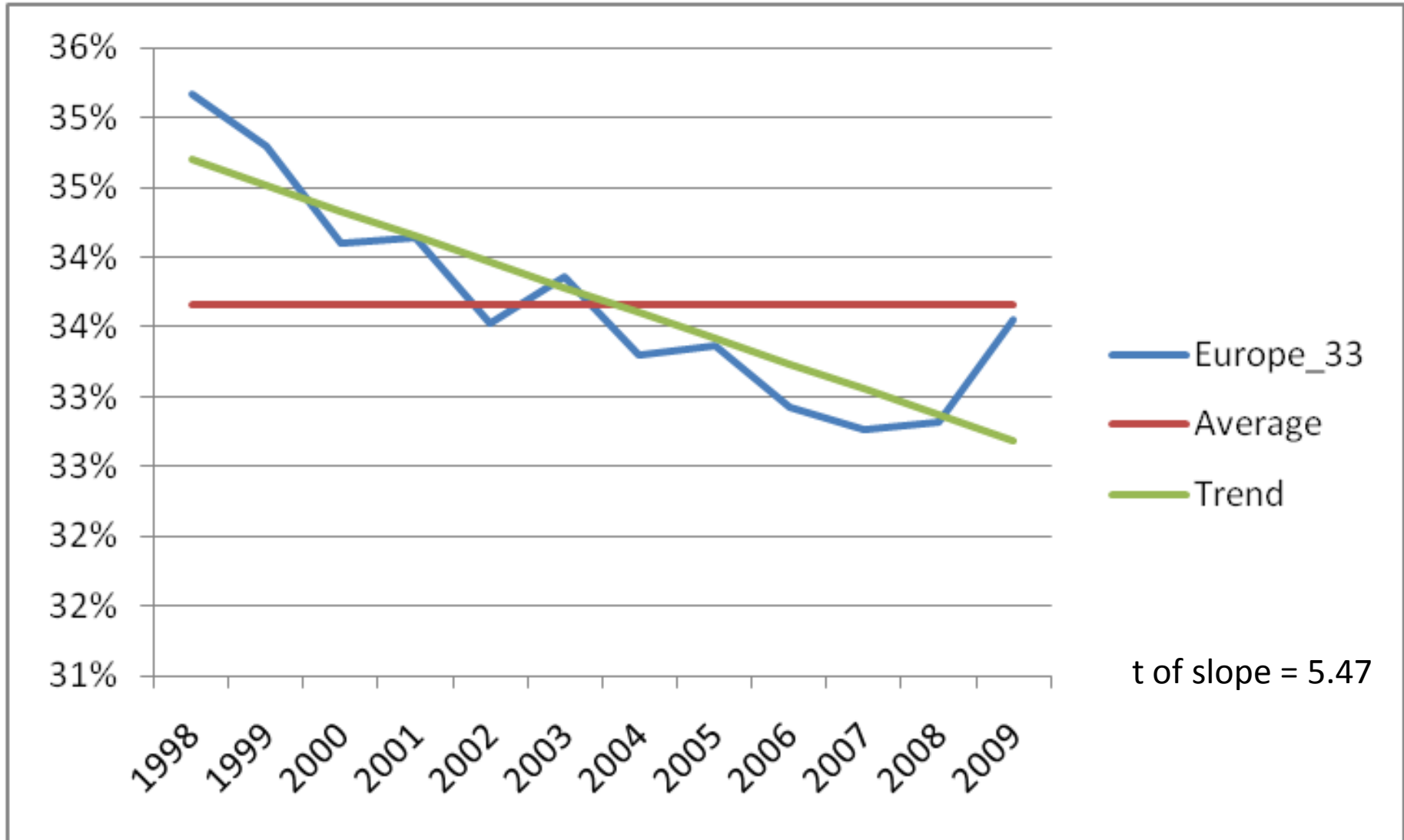
International hotel destinations 2.5 degrees C higher than origins in July and August



Absolute no. of bednights per month, 1998-2009, EU27+EFTA4+2



July+August in percent of all bednights



Correlation of bednights and temp

	Destination	Temp_corr	Nearest_corr_cc	Nearest_corr
1	Italy	0,70	France	0,84
2	Europe_33	0,69	Italy	0,92
3	Spain	0,62	Luxembourg	0,88
4	Iceland	0,61	Slovenia	0,86
5	Croatia	0,59	Luxembourg	0,81
6	Denmark	0,58	Sweden	0,85
7	Hungary	0,57	Portugal	0,88
8	Belgium	0,56	Czech_Rep	0,81
9	France	0,56	Italy	0,84
10	Norway	0,54	Sweden	0,86
11	United_King	0,53	Germany	0,85
12	Slovenia	0,50	Hungary	0,87
13	Netherlands	0,48	Poland	0,92
14	Sweden	0,48	Norway	0,86
15	Slovakia	0,46	Czech_Rep	0,87
16	Turkey	0,44	Greece	0,97
17	Ireland	0,44	Portugal	0,92

	Destination	Temp_corr	Nearest_corr_cc	Nearest_corr
18	Czech_Rep	0,44	Slovakia	0,87
19	Portugal	0,44	Ireland	0,92
20	Greece	0,43	Turkey	0,97
21	Lithuania	0,42	Hungary	0,69
22	Luxembourg	0,39	Croatia	0,81
23	Bulgaria	0,38	Turkey	0,93
24	Germany	0,35	United_Kingdo	0,85
25	Poland	0,35	Netherlands	0,92
26	Latvia	0,32	Ireland	0,87
27	Switzerland	0,31	Slovakia	0,66
28	Romania	0,30	Finland	0,88
29	Cyprus	0,28	Malta	0,96
30	Estonia	0,28	Latvia	0,94
31	Finland	0,27	Romania	0,88
32	Malta	0,18	Cyprus	0,96
33	Liechtenstei	0,15	Malta	0,84
34	Austria	0,06	Liechtenstein	0,84

Note: All correlations between bednights and temperature are significant, with the exception of Austria, before taking into account the effects of winter tourism. - These correlations are not based on bednights per day but bednights per month. Therefore the difference between the earlier shown $r=0.78$ and this $r=0.69$ is the effect of differences in length of month. - - - Correlations to the right are those destinations with the highest correlation with each of destinations 1-34 based on total monthly bednights during the period 1998-2009.

How to identify winter tourism destinations

1. More bednights are registered in **February** than in March.
2. More bednights are registered in **January** than in December.
3. More bednights are registered in **March** than in April.
4. More bednights are registered in 1st quarter than in 2nd quarter.
5. **(February-March)+(January-December)+(March-April) is positive**
6. $(\text{February-March})+(\text{January-December})+(\text{March-April}) / \text{all year}$
7. $(\text{February-March})+(\text{January-December})+(\text{March-April}) / 2^{\text{nd}}$
quarter
8. 1st quarter / all year
9. **The share of Q1 for the given destination is above the European average.**
10. The country has winter sport tourism at all.

Segmenting destinations using factor analysis

Long/dual season, international	Summer destinations	Domestic dominated	PEAK season
Malta	Netherlands	Romania	Croatia
Cyprus	Poland	Finland	
Ireland	Denmark	Germany	
Greece	Czech_Rep	Norway	
Portugal	Belgium_Lux	United_Kingdom	
Turkey	Slovakia	Italy	
Est_Lat_Lit	Switzerland_Liecht	France	
Bulgaria	Sweden		
Spain			
Slovenia			
Austria			
Hungary			
Iceland			
38,337	22,635	21,310	5,950
38,337	60,972	82,282	88,232
% of variance explained, by principal component and accumulated.			

Moving holidays, spring. DK

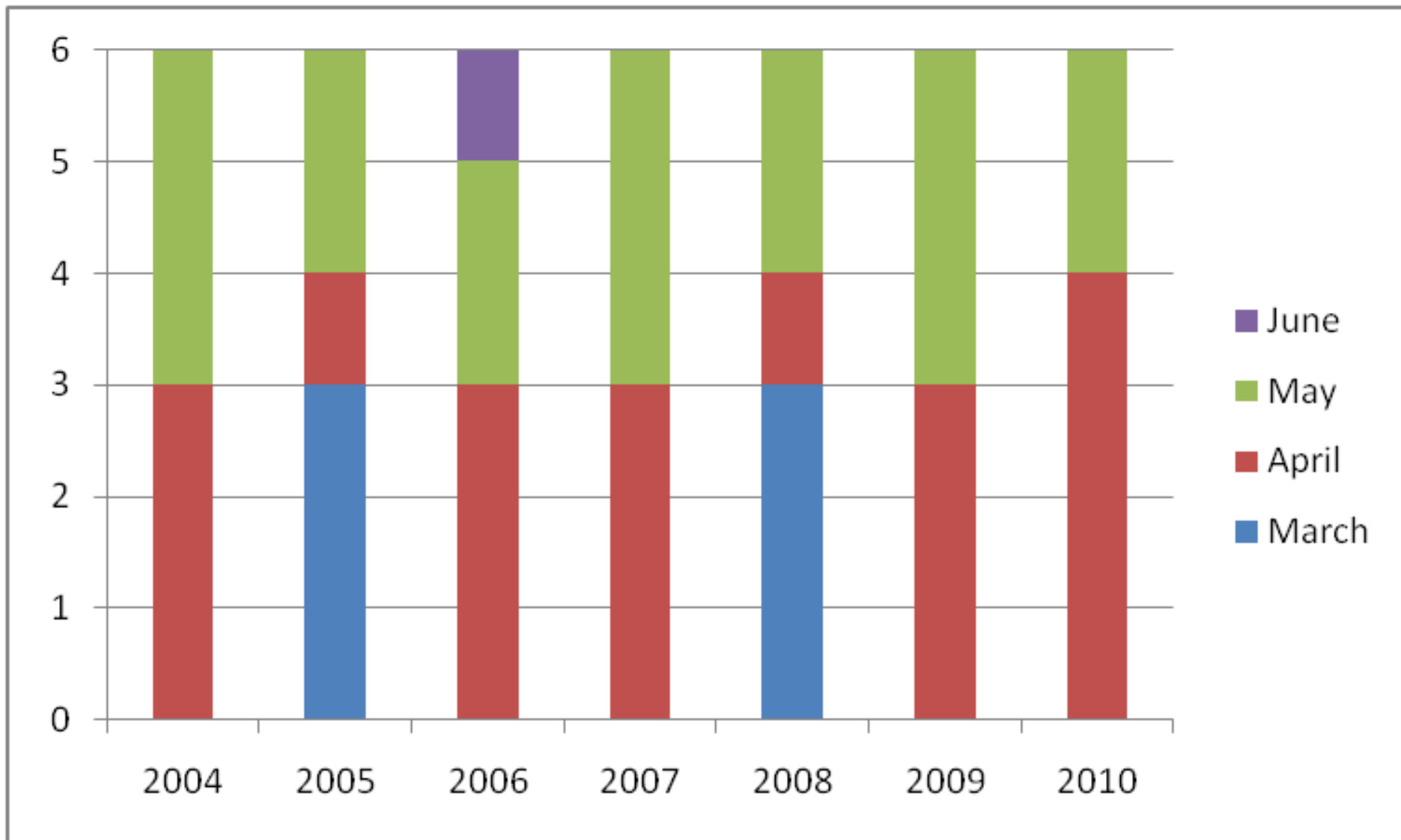
Easter:

1. (Wednesday before) **Maundy Thursday**
2. (Maundy Thursday before) **Good Friday**
3. (Easter Sunday before) **Easter Monday**

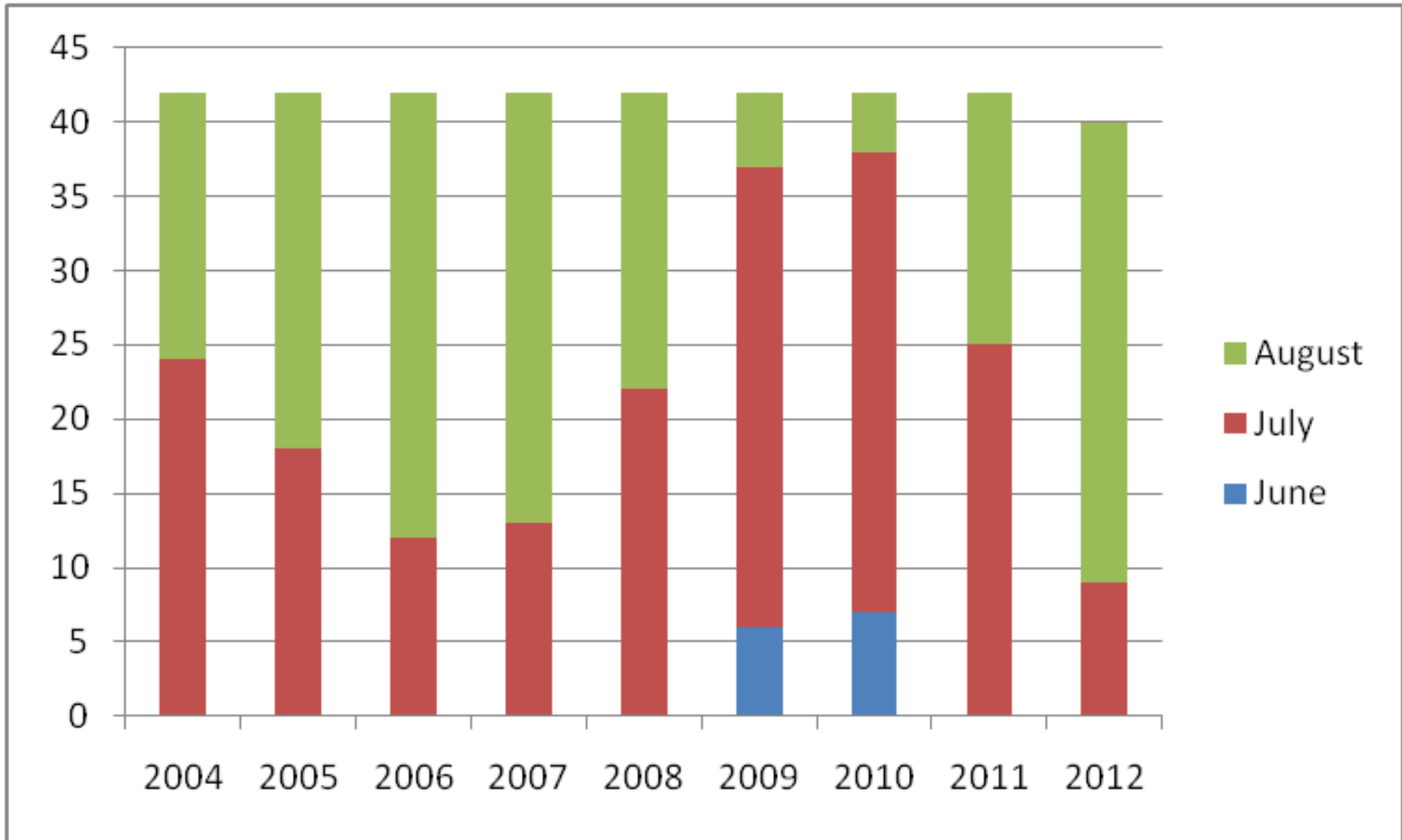
4. (Thursday before) **Prayer Day** (Friday) *
5. (Wednesday before) **Ascension Day** (Thursday)
6. (Whit - Sunday - before) **second Whit** (Monday)

* Prayer Day is an official Danish public holiday that falls on the fourth Friday after Easter, and thus three weeks before Pentecost (a.k.a. Whit)

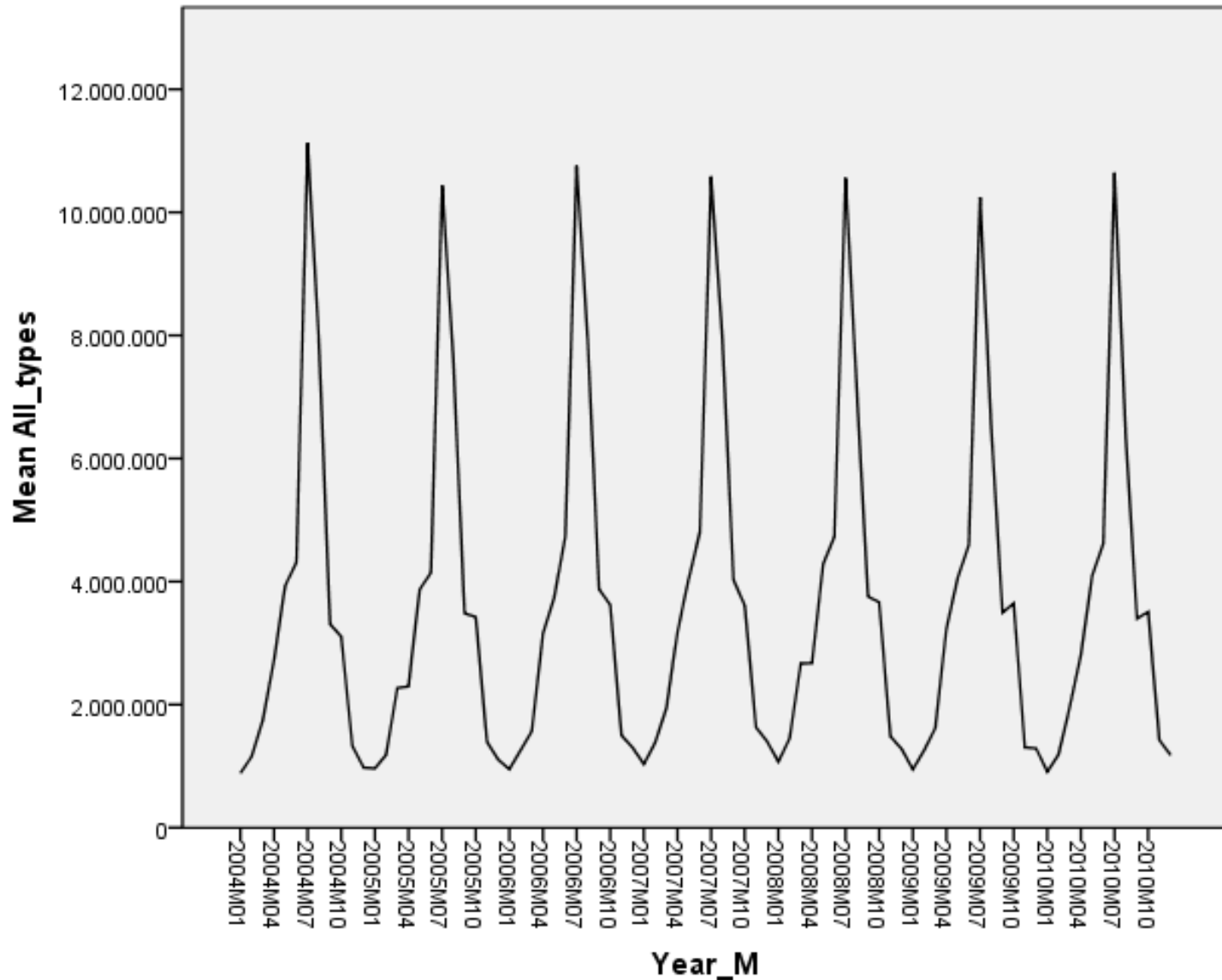
Moving holidays, spring. DK



Summer holidays in selected states in Germany: Niedersachsen/Bremen



Monthly bednights in Denmark



Regression results, Denmark, with effect of moving holidays

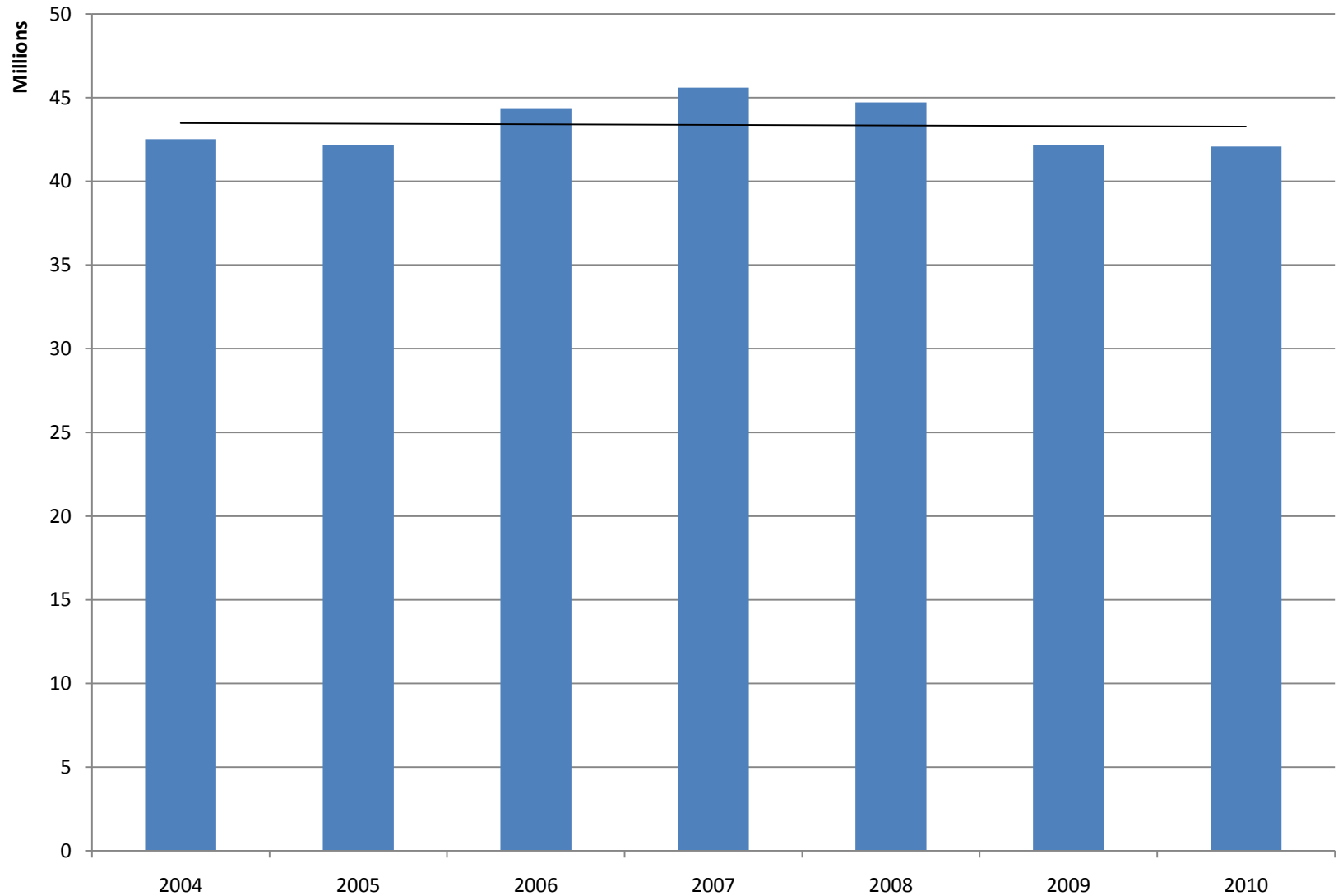
Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	3703605,871	103431,618		
	A2004	-156147,255	92564,495	-,020	-1,687
	A2005	-182476,917	91126,113	-,023	-2,002
	A2007	103264,500	91126,113	,013	1,133
	A2008	27041,995	92564,495	,003	,292
	A2009	-182096,583	91126,113	-,023	-1,998
	A2010	-190707,833	91126,113	-,024	-2,093
	M1	-2655465,714	119312,089	-,266	-22,256
	M2	-2359673,304	131686,273	-,236	-17,919
	M3	-1822645,054	125690,546	-,183	-14,501
	M4	-1257793,876	168226,108	-,126	-7,477
	M5	-65884,668	159211,129	-,007	-,414
	M6	823069,405	120672,795	,082	6,821
	M7	6262626,516	188425,551	,628	33,237
	M8	3081788,568	173204,287	,309	17,793
	M10	-110563,714	119312,089	-,011	-,927
	M11	-2185070,429	119312,089	-,219	-18,314
	M12	-2402669,286	119312,089	-,241	-20,138
	Holiday_Germany_NS_Bremen	34280,208	6760,717	,103	5,070
	Moving_holidays	196522,230	46120,073	,074	4,261
	Leap_day	22427,064	195057,104	,001	,115

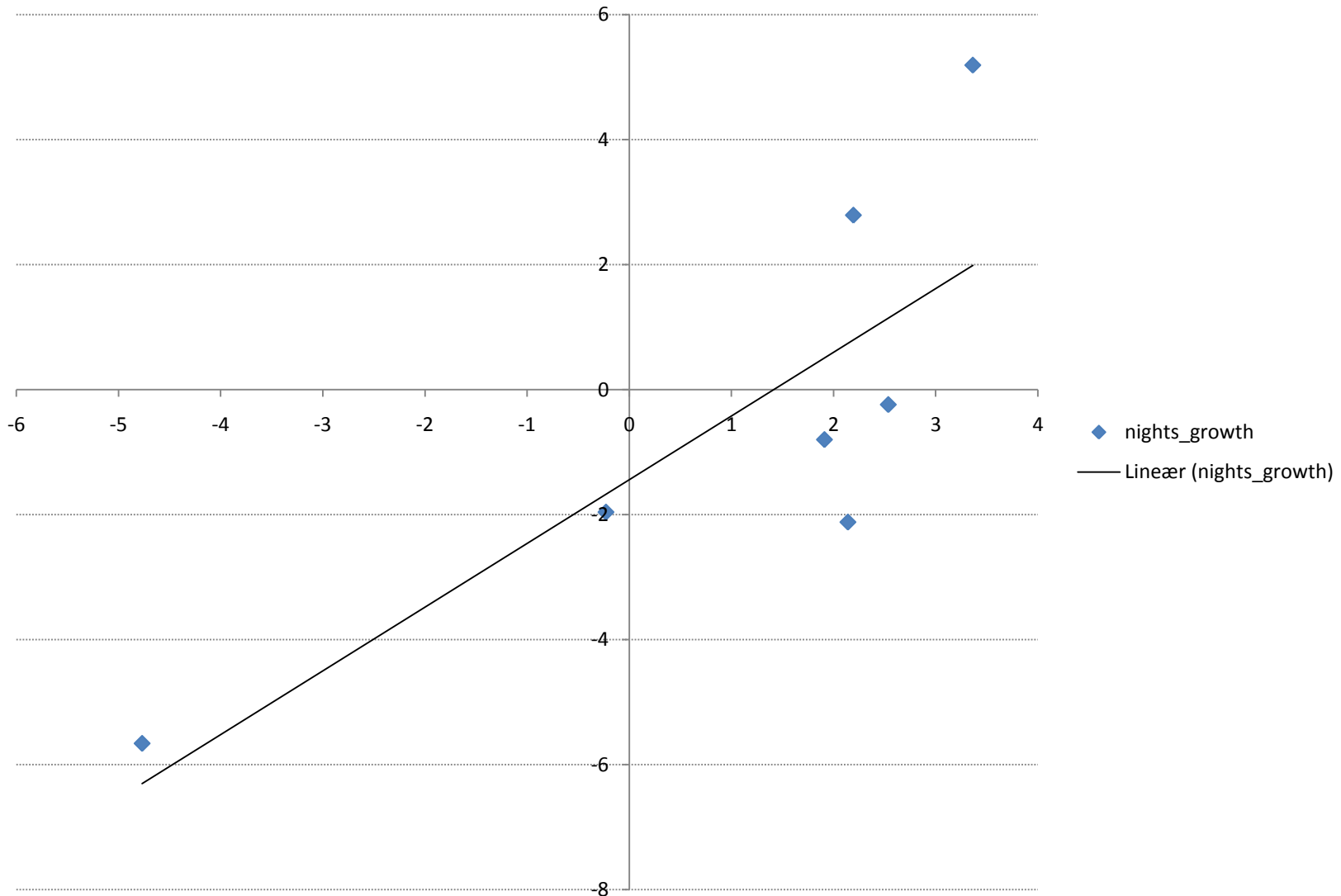
Adjusted
R Square
= 0.994

a. Dependent Variable: All_types

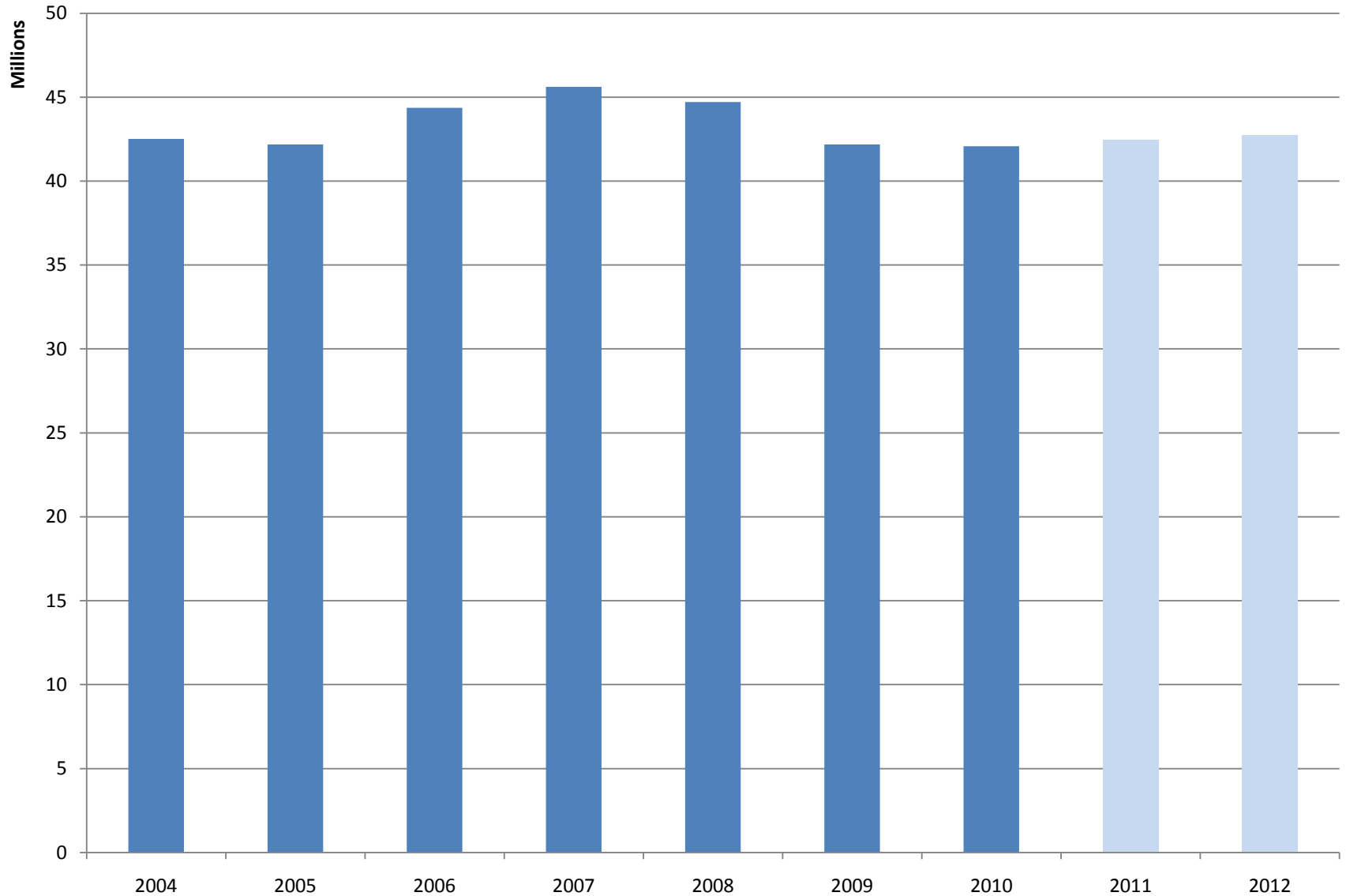
Bednights, trend, Denmark



Bednights growth (Y) as a function of weighted average real GDP growth (DK)



Forecast in bed-nights, Denmark



Conclusions / Summary of finding

- **Temperature is a key driver of leisure tourism**

both temporally over the year (also relating to domestic tourism) and internationally (in combination with prices at the destination), since European tourists generally go south for their vacations.

- **Moving holidays should be taken into account.**

Certainly no conclusions about the instability of seasonal patterns for leisure tourism demand can be made without controlling for the effect of moving holidays.

- **Causal forecasts are rare in studies on seasonality.**

Although time-series studies on seasonality are sophisticated they typically fail to make use of generally available aggregate real income forecasts. This study relies on official real GDP forecasts, and thereby relate expected income change to change in tourism demand.