

## **REPORT ON APPRAISSAL STEP SSA12 – BARCELONA For deliverable 7.4.**

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How to perform both validation and hindcasting when there are no data to do it?

We can at least compare with other studies and use common sense.

Nombre	Longitud	Ancho	Superficie (m2)	persona/m2	Personas
Sant Sebastiá	1.100	81	89.100	9,2	819.720
Barceloneta	1.100	89	97.900	9,2	900.000
Nova Icaria	400	63	25.200	17,2	432.600
Bogatell	640	39	24.960	13,2	329.472
Mar Bella	500	42	21.000	13,2	277.200
Nova Mar Bella	500	45	22.500	13,2	297.000
Llevant	380	59	22.420	13,2	295.944
<b>TOTAL</b>					<b>3.351.936</b>

<b>Barcelona</b>	<b>0,76</b>	<b>2.550.823</b>
<b>AMB</b>	<b>0,09</b>	<b>301.674</b>
<b>Resto CAT</b>	<b>0,08</b>	<b>261.451</b>
<b>Resto ESP</b>	<b>0,03</b>	<b>100.558</b>
<b>Extranj</b>	<b>0,04</b>	<b>120.670</b>

Zone	Population	Population (1000)	Visitors	Visitors per 1000 population (V)	Travel cost per person (TC) X
Barcelona	1.595.110	1.595	2.550.823	1.599,2	5
AMB	1.617.933	1.618	301.674	186,5	15
Cataluña (sin AMB)	3.782.163	3.782	261.451	69,1	100
España (sin Cataluña)	37.113.324	37.113	100.558	2,7	200
			3.214.507	Totals	320
				N	4

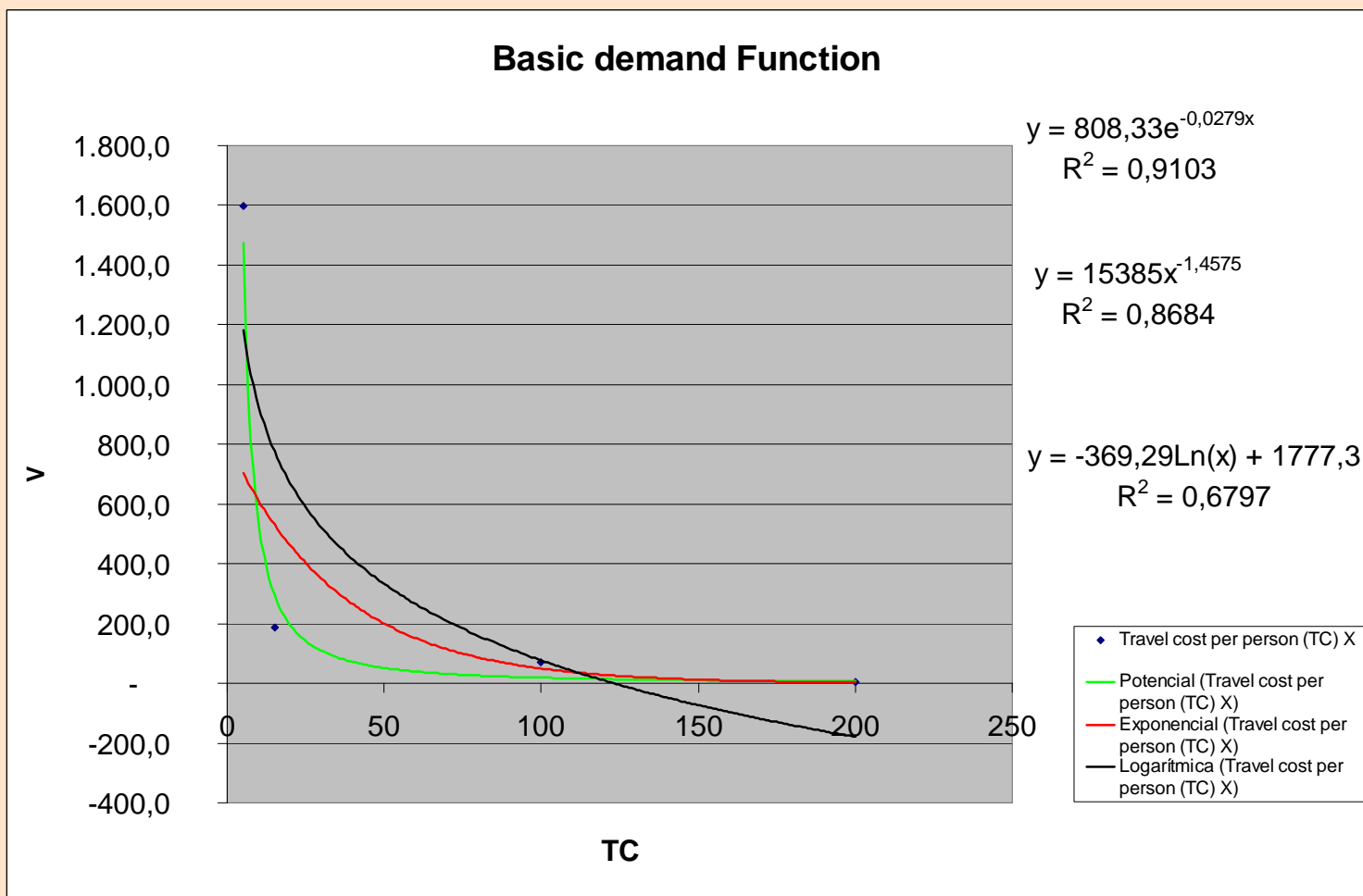
LN V y	X*Y	X^2	Y^2		
7,37722875	36,8861437	25	54,423504	<b>b</b>	<b>-0,027943</b>
5,22819835	78,4229753	225	27,334058	<b>A</b>	<b>6,694974183</b>
4,23595085	423,595085	10000	17,9432796	<b>a</b>	<b>808,3330654</b>
0,99675943	199,351886	40000	0,99352936		
17,8381374	738,256089	50250	100,694371		

Q	Ln Q (X)	P (Y)	X*Y	X^2	Y^2		
2.283.036	14,6410169	0	0	214,359375	0		
1.727.208	14,3620169	10	143,620169	206,267528	100		
1.306.702	14,0830169	50	704,150843	198,331364	2500	B	-64,246163
565.812	13,2460169	80	1059,68135	175,456963	6400	A	936,702874
245.001	12,4090169	100	1240,90169	153,983699	10000		
140.227	11,8510169	150	1777,65253	140,446601	22500		
34.753	10,4560169	300	3136,80506	109,328289	90000		
8.613	9,06101686	400	3624,40674	82,1020266	160000		
2.135	7,66601686	450	3449,70759	58,7678145	202500		
529	6,27101686	500	3135,50843	39,3256525	250000		
Totals	114,046169	2040	18272,4344	1378,36931	744000		

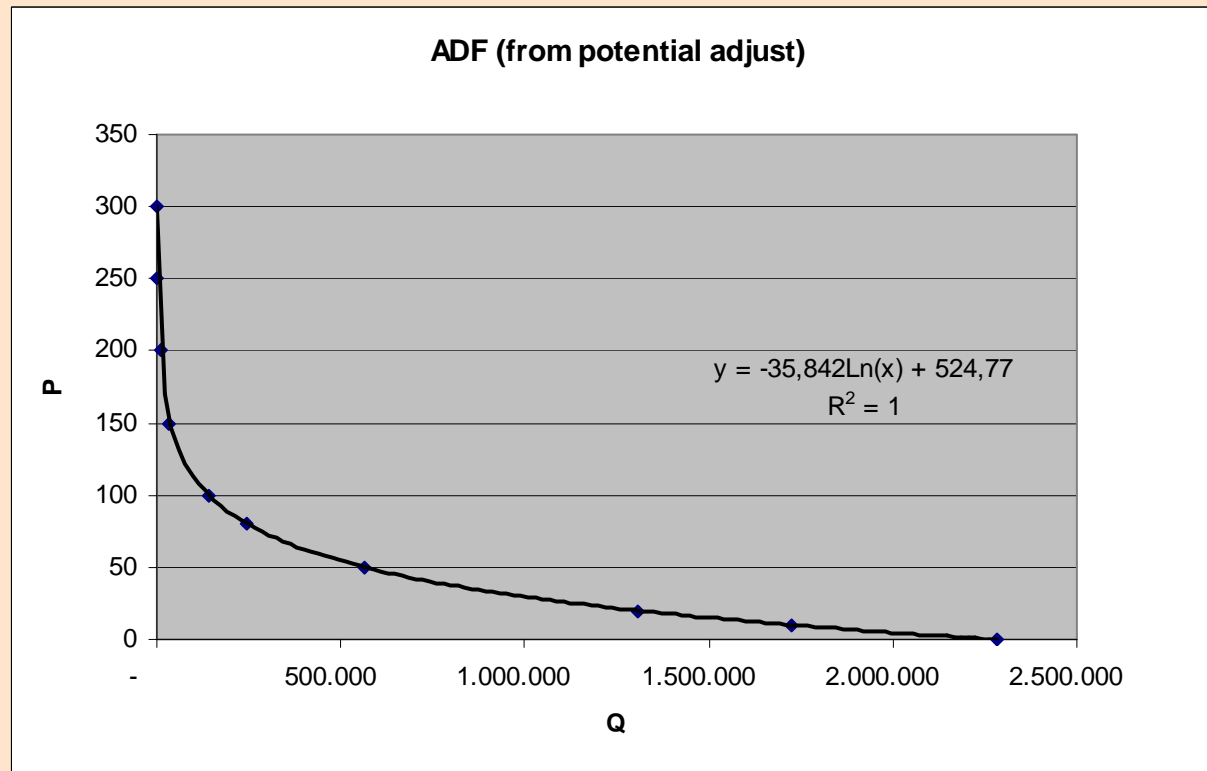
$$A = \frac{\sum y_i - b \sum x_i}{n} = \frac{2,150363 - 0,5085 \times 0,686636}{6} = 0,3002$$

$$B = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{n \sum x_i^2 - (\sum x_i)^2} = \frac{6 \times 1,740235 - 0,686636 \times 2,150363}{6 \times 3.01745009 - (0,686636)^2} = 0,5085$$









Transport:	Car	Moto	Bicycle	Metropolitan public transport	Bus and intercity transport	Walking	Taxi
Percentage	25%	8%	7.5%	36%	1.5%	21%	1%
Cost	3€	1.5€	0€	1.5€	2.5€	0€	10€

David Ceballos, 2007.

In 2006 3.67 millions of beach's users in 5 months (estimation 70% of total demand)

Estimated Demand Curve: Demand = 3,875,850 – 442,964 Cost

Consumer surplus (maximum price 8.75 and minimum price 0 Euros)

TOTAL surplus: **17 millions Euros**

Present value in 5 years and 3% of social discount rate: **77.5 millions Euros**

## Results NPV (5 years, 3%):

Travel Cost: **77.5 millions Euros**

Hedonic prices: 32.8 millions Euros

Effects on health: 47 millions Euros

The estimated economic values are:

<b>+ Use values:</b>	<b>129.1 millions €</b>
Direct use:	<b>47.0 millions €</b>
Consumptive (travel cost, hedonic pr)	<b>50.7 millions €</b>
Non-consumptive(health)	-3.7 millions €
Indirect use:	55.2 millions €
Option:	26.9 millions €
Individual: (payments NGO's)	0.4 millions €
Collective: (replacement and regeneration)	26.5 millions €
<b>+ Non-use values:</b>	<b>37 millions €</b>
Contingent valuation: (Taxes)	33.4 millions €
Ecological value without humans:	3.6 millions €
<b>- Adjust:</b>	<b>-13.2 millions €</b>
<b>(50% possibility of beach regeneration in 5 years from non-use value)</b>	

= TOTAL TEV:

## 153 million Euros

## Benefit transfer from case study in California

The estimated economic value for a Benefit Transfer method is:

+ Use value:	79.5 millions €
+ Non-use Value:	50.7 millions €

**TOTAL: 130.2 millions Euros**

282 million €

INVESTMENT FOR THE WHOLE CITY OF BARCELONA FOLLOWING "PLAN E"  
(CRISIS PLAN TO ACTIVATE EMPLOYMENT)