
Mobilità, infrastrutture trasportistiche e digitalizzazione: quali sfide per la regolazione

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Due considerazioni sul trasporto aereo

1. La digitalizzazione può migliorare gli impatti ambientali tramite
 - a. Un regolazione delle tariffe aeroportuali con incentivi rispetto agli impatti ambientali
 - b. una maggiore consapevolezza nelle scelte dei passeggeri dei livelli di inquinamento prodotti dal settore
 - c. un più efficiente controllo del traffico aereo
2. La digitalizzazione può migliorare il benessere dei consumatori
 - a. incrementando la varietà delle scelte a disposizione
 - b. soprattutto mediante una integrazione tra trasporto aereo e treni ad alta velocità per tratte in connessione



Regolazione delle tariffe aeroportuali

- Modello di regolazione per incentivi delle tariffe aeroportuali includendo gli impatti ambientali
 - Rumore
 - Inquinamento locale

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Airport noise assessment and mitigation: A simple and flexible methodology

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Airport noise
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Social cost
Abatement policy

ABSTRACT

Airport noise assessment and mitigation have been recognized as major challenges in the current civil aviation context. This paper aims to provide a general, simple, and flexible methodology to approximate airport noise-influenced zones and quantify the social cost of noise pollution. The proposed methodology performs this assessment without the need for specific software, monitoring stations, and sophisticated data. Airport noise-influenced zones are estimated by relying on publicly available aircraft certification data, while the social cost of such estimation is computed by taking into account the distribution of residential units located within zones affected by noise. We present an application of this method to a group of Italian and Spanish airports, as well as possible beneficial policy interventions in terms of minimization of noise impact on the population living in the airport neighborhoods. In addition, possible mitigation policies are presented in the form of noise surcharges applied to different aircraft categories.



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Regolazione delle tariffe aeroportuali

Rumore

Table 3
Estimated noise social costs and noise surcharge by airports and years.

Year (1)	NSC(€) (2)	NSC ₂₀₁₈ (€) (3)	Diff. (€) (4)	% Diff. (5)
BGY				
2009	11,020,296	8,426,031	2,594,265	24
2010	12,627,277	10,272,103	2,355,174	19
2011	13,337,112	11,240,151	2,096,961	16
2012	14,292,022	12,103,392	2,188,630	15
2013	13,437,236	11,346,515	2,090,721	16
2014	10,751,264	9,731,301	1,019,963	9
2015	13,431,792	12,558,061	873,731	7
2016	16,610,418	15,019,317	1,591,101	10
2017	21,047,946	21,724,045	-676,099	-3
2018	23,634,543	23,634,543	0	0
LIN				
2009	4,618,107	5,251,537	-633,430	-14
2010	4,765,624	5,284,768	-519,144	-11
2011	4,407,806	4,753,541	-345,735	-8
2012	4,301,070	4,631,037	-329,967	-8
2013	3,550,904	4,130,169	-1,080,133	-30
2014	4,144,876	4,188,045	-43,169	-1
2015	4,998,363	5,178,817	-180,454	-4
2016	5,070,880	5,055,268	15,612	0
2017	4,257,547	4,358,048	-100,501	-2
2018	5,003,279	5,003,279	0	0

		MXP			
2009	5,288,256	5,852,291	-564,035	-11	
2010	6,945,804	7,998,905	-1,053,101	-15	
2011	9,104,882	10,578,907	-1,474,025	-16	
2012	7,709,554	9,051,119	-1,341,565	-17	
2013	6,779,246	7,962,869	-1,183,623	-17	
2014	8,801,660	9,227,981	-426,321	-5	
2015	11,574,241	12,140,007	-565,766	-5	
2016	11,727,877	12,302,557	-574,680	-5	
2017	14,962,940	15,678,104	-715,164	-5	
2018	12,908,087	12,908,087	0	0	
		BCN			
2009	3,075,955	2,431,501	644,454	21	
2010	3,012,785	2,710,178	302,607	10	
2011	3,896,027	3,303,081	592,946	15	
2012	3,530,532	3,148,750	381,782	11	
2013	2,356,118	2,917,294	-561,176	-24	
2014	2,450,159	3,277,258	-827,099	-34	
2015	3,480,591	3,788,210	-307,619	-9	
2016	4,255,363	4,769,247	-513,884	-12	
2017	4,464,867	5,008,718	-543,851	-12	
2018	5,061,298	5,061,298	0	0	
		GRO			
2009	375,217	674,210	-298,993	-80	
2010	323,974	560,054	-236,080	-73	
2011	158,218	251,895	-93,677	-59	
2012	187,088	297,459	-110,371	-59	
2013	193,633	259,693	-66,060	-34	
2014	146,358	119,188	27,170	19	
2015	64,184	56,576	7,608	12	
2016	59,895	47,471	12,424	21	
2017	100,298	90,945	9,353	9	
2018	115,480	115,480	0	0	

Table 5
Selected charges by noise category for day departures in 2018.

Aircraft	Category	Airport				
		BGY	LIN	MXP	BCN	GRO
Airbus 321Neo	S6	289	95	117	37	23
Boeing 737-800	S6	246	81	100	31	19
Airbus 318	S3	-	45	55	17	-
Embraer 170/175	S2	-	62	76	24	-
Boeing 777	S2	-	-	351	111	-
Airbus 380	S6	-	-	348	110	-



Regolazione delle tariffe aeroportuali

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Inquinamento dell'aria

Including local air pollution in airport efficiency assessment: A hyperbolic-stochastic approach

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Desirable/undesirable outputs
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ABSTRACT

We examine data from Italian airports covering 2005–2008 to include local environmental effects in airport efficiency assessment. We consider both desirable outputs such as aircraft, passengers, and freight movements and some undesirable outputs of airport operations associated with local air pollution. We estimate both a classical distance function with no undesirable output, and a hyperbolic distance function. By comparing the estimated efficiency scores with these two frontiers we show that airport efficiency increases when local air pollution is included in the analysis. Moreover, we show a fleet-mix effect because airports with similar aircraft movements exhibit large variations in the amount of pollution per flight. Last, we find that there is complementarity between desirable and undesirable output: a 1% decrease in pollution has an opportunity cost of a 0.67% reduction in both passenger and freight traffic.

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Table 1

Average yearly values of pollutants produced by airport (kg).

Airport	HC	CO	NO _x	Airport	HC	CO	NO _x
Alghero	3892	45,247	55,139	Olbia	6798	62,401	74,743
Ancona	877	11,949	14,095	Palermo	15,467	164,305	197,459
Bari	8975	96,925	101,426	Pantelleria	210	5712	5567
Bergamo	15,959	165,091	232,956	Parma	441	4888	5875
Boulogne	18,948	183,283	165,914	Pescara	1701	16,858	16,114
Brescia	4612	24,336	22,541	Pisa	10,288	112,269	132,920
Brindisi	3327	34,453	43,561	Reggio Calabria	2303	22,596	27,539
Cagliari	9770	96,469	120,726	Rimini	523	5738	5884
Catania	18,223	192,436	240,694	Rome Ciampino	13,169	131,270	187,176
Florence	13,325	109,064	79,231	Rome Fiumicino	145,583	1,350,748	1,844,126
Forlì	1787	18,643	29,117	Trapani	1321	18,656	20,079
Genoa	3831	49,672	53,733	Treviso	3967	38,467	58,366
Lamezia Terme	4482	46,064	55,574	Trieste	2338	26,957	32,209
Lampedusa	293	5833	5897	Turin	16,921	175,923	165,520
Milan Linate	36,867	385,55	498,737	Venice	33,009	314,971	311,884
Milan Malpensa	112,569	944,858	1,250,709	Verona	10,426	100,409	94,540
Naples	21,141	223,346	229,965				

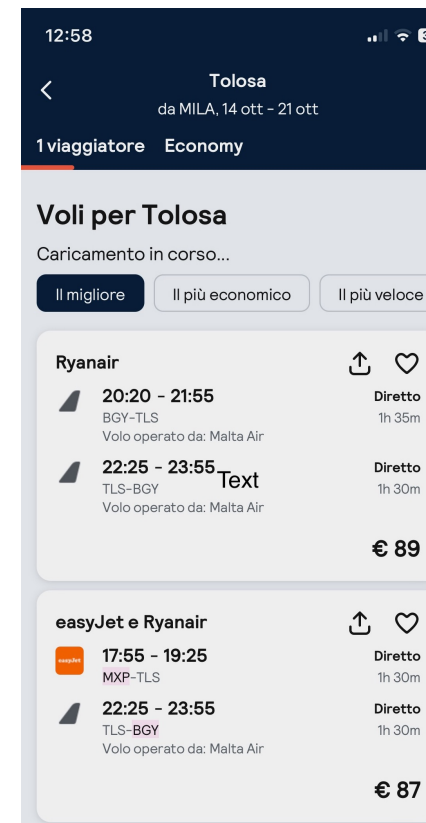


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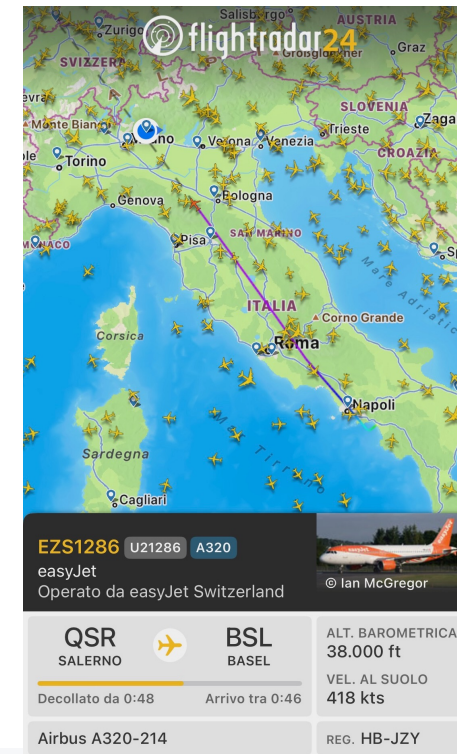
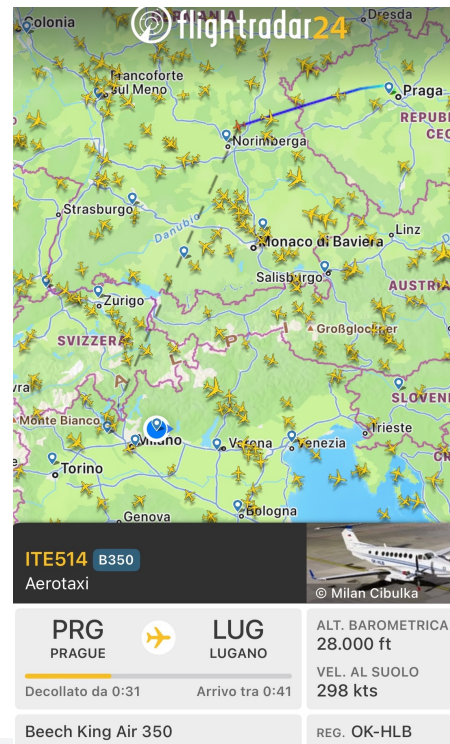
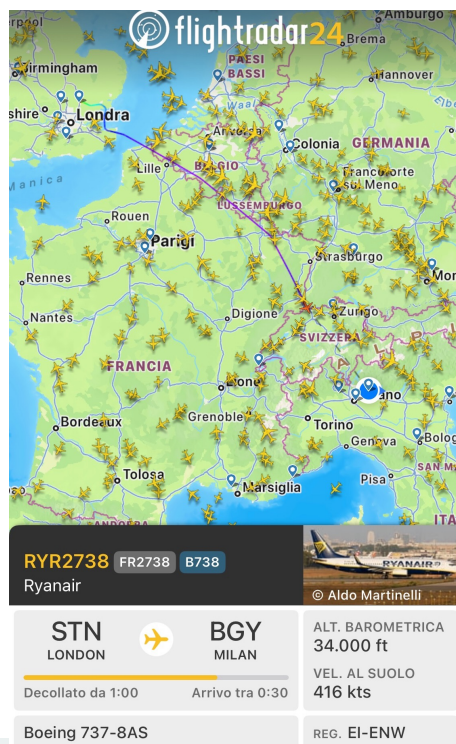
Consapevolezza degli impatti nelle scelte

- Divulgazione di informazioni sugli impatti ambientale nella scelta dei voli, per maggiore consapevolezza nelle scelte
- Inserire “il meno inquinante”
- Il Performance Review Board – PRB di Eurocontrol sta lavorando per incentivare lo sviluppo di questi sistemi



Controllo del traffico

- Gli ANSP (Air Navigation Service Providers) in Europa sono organizzati con logiche non da mercato unico → traffico inefficiente



Controllo del traffico

- Modello di regolazione degli ANSP con inclusione degli impatti ambientali
- Attualmente frammentazione su circa 30 ANSP

PRB Advice on the Union-wide target ranges for RP4

Annex II

Advice on benchmarking of ANSPs and Union-wide cost inefficiency

Academic Group

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Digitalizzazione e benessere dei consumatori

1. Le app sono in continuo miglioramento e consentono di fornire informazioni in tempo reale e di rendere più efficienti i tempi di viaggio
2. Dimensioni importanti:
 - a. App per la scelta
 - b. Integrazione tra TPL e aeroporti
 - c. Monitoraggio bagagli
3. Design del network con collegamenti integrati O-G-D alta velocità (HSR) e volo
 - a. Leg O-G (città di origine → Aeroporto) operato da HSR provider
 - b. Leg G-D (Aeroporto → città di destinazione) operato da compagnia aerea

