

Can Regulation Improve Service Quality?

Evidence from European Air Passenger Rights

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Leibniz
Universität
Hannover

Hinnerk Gnutzmann¹, Piotr Śpiewanowski²

¹Leibniz University, Hanover, Germany ²Vistula University, Warsaw, Poland

Introduction

We study the impact of the pioneering EU Air Passenger Rights legislation (“EC261”) on flight delay. Under the regulation, carriers must provide assistance and cash compensation to passengers in case of long delay. We find that flights are 5% more likely to arrive on time, and mean arrival delay is reduced by almost 4 minutes. The effect is strongest on routes with little competition, and for legacy carriers. Our results show that consumer protection law can improve product quality when incentives from competition or entry are weak.

Flight delay is a persistent quality problem in the airline industry, which has not been resolved by competition (Ater and Orlov, 2015). Soft-touch regulations, such as the US delay disclosure program, appear to have encouraged gaming (Forbes et al., 2015) rather than service improvement. But airline policies – such as baggage fees – can considerably reduce delay (Nicolae et al., 2016), raising the question how policy-makers can encourage airlines to reduce delay.

EU Air Passengers Rights

	Intra-EU	Outbound from EU	Inbound to EU
EU Carrier	✓	✓	✓
non-EU Carrier	✓	✓	✗
EU Passenger Rights Apply			No Coverage
Right to care (including meals and accommodation) Re-routing (to reduce delay) Cash compensation (from €250 to €600 for delays over three hours at final destination)			

- US: Market transparency program but “there are no federal requirements” (DoT) for assistance or compensation.
- Voluntary approaches: “distressed passenger rates”, “delay insurance”.
- Some uptake of passenger rights in smaller aviation markets (e.g. Israel, New Zealand), but globally the potential is largely untapped.

Identification

$$y_{ft} = \beta \text{EU Carrier}_f \times \text{EU-Bound}_f + \text{Route}_{ft} + \text{Airline}_f + \gamma \text{From Hub}_f + \epsilon_{ft}$$

- Exploit variation in coverage on extra-EU aviation markets: within the route-time dimension by carrier nationality. On routes headed for EU, EU-Bound only EU Carriers are covered. When flying out of EU, both EU and foreign carriers covered.
- Fixed Effects. Control for route-time (from weather to airport congestion) and airline fixed effects.
- Airline Hub Status. Airlines have more delay when departing from a hub where they operate connecting flights (Mayer and Sinai, 2003).
- Challenge: On the main extra-EU routes, airlines (almost) always depart from hub in their own home country and never from hub in foreign country → Multicollinearity of treatment, from hub and FEs.
- Solution: Include domestic US flights, which are not treated.

Data

- Extra-EU: Top 15 aviation markets according to Eurostat. Sample Period: November 2016 - July 2017. Flight Data: All available flights, scheduled and actual gate departure and gate arrival times. Sourced from FlightAware.
- US Domestic: For all airlines and US airports in the extra-EU sample, all US domestic flights among them during the sample period. Same flight level data, from the US Department of Transport.
- In total, 137157 individual flights, operated by 15 different carriers.

Delay Impact

The EC261 regulation has an economically important and statistically significant effect on several measures of flight quality. For flights covered by the regulation, departure delay is reduced by 4.9 minutes, arrival delay by 3.9 minutes and the probability of on-time arrival rises by 5% – after controlling for airline-hub status, route-time fixed effects and airline fixed effects. This effect is large, compared to 10 minutes of average delays on long-haul flights. There is mild evidence of a reduction in extreme delays, which are rare events. EU carriers do not have longer scheduled flight times.

Dependent Variable	Departure Delay (minutes) (1)	Arrival Delay (minutes) (2)	Arrival On time (3)	Arrival Delay >180 min (4)
EU-bound _f × EU Carrier _f	-4.92 (1.11)	-3.90 (1.20)	0.054 (0.014)	-0.004 (0.003)
From Hub _f	3.60 (0.53)	3.31 (0.58)	-0.046 (0.006)	-0.002 (0.002)
Num. obs.	137157	137157	137157	137157
R ² (full model)	0.25	0.31	0.28	0.31

Heterogeneity of Impact

EC261 is concerned with delay “at final destination”, and has a weaker impact on carriers operating only point-to-point connections. On concentrated transportation markets, as measured by the Herfindahl-Hirschman index, the regulation has a stronger effect. The EC261 delay reduction is strongest in North American markets, and there is no evidence of heterogeneity between EU destination states.

Dependent Variable	Departure Delay				
	(1)	(2)	(3)	(4)	(5)
EU-bound _f × EU Carrier _f	-5.56 (1.35)	-0.34 (2.09)	-3.79 (1.24)	-4.58 (2.00)	-2.20 (1.29)
× Point-to-Point Carrier _f	1.46 (1.05)				
× Route HHI _f		-11.51 (4.45)			
× (Route HHI > Median HHI) _f			-2.31 (1.08)		
× (UK Market) _f				-0.37 (1.81)	
× (North Am. Market) _f					-4.12 (1.15)
From Hub _f	3.40 (0.60)	3.54 (0.53)	3.57 (0.53)	3.61 (0.53)	3.65 (0.53)

Conclusion

Consumer rights legislation has rapidly proliferated in Europe. From minimum warranties for goods through early credit repayment to the “cooling off period” for on-line purchases, this legislation increasingly affects contracts between firms and consumers. But little is known about the impact of these laws, whether directly on consumers with a grievance or indirectly through changes in industry service quality.

Air passenger rights improve service quality. In this setting, delay is an easily measurable quality indicator, and the partial extra-territorial application of EU law makes identification possible. Comparing flights on the same route and day, those covered by the regulation have substantially better on-time performance – even after controlling for airline fixed effects and airline hub status.

References

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