

# **Who benefits from Google's SERP?**

## **The impact of the DMA on the Air Travel Market**

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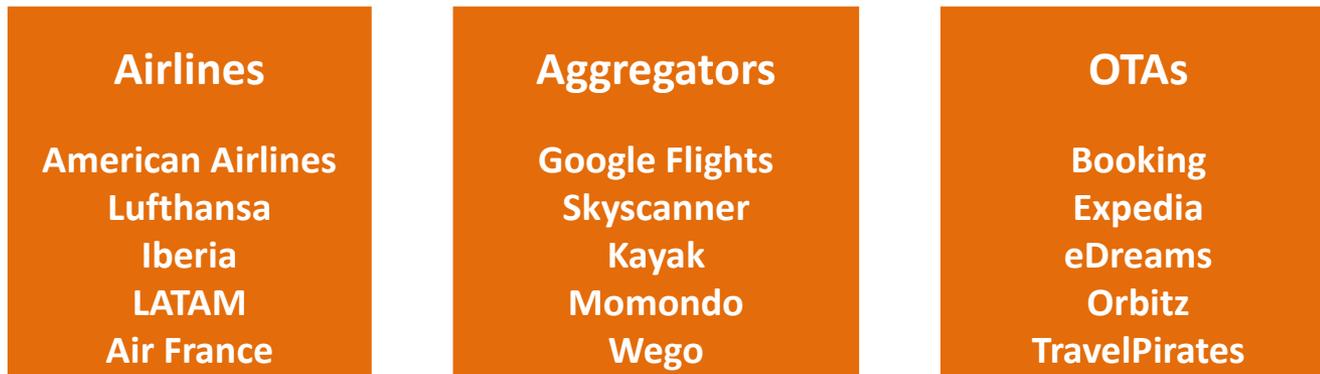
Digital Competition Conference 2026  
Washington, DC, February 5-6, 2026

# Digital Markets Act (DMA)

- EU regulation to keep digital markets fair and contestable
  - Approved EU: Sep 2022
  - Start Applying: May 2023
  - Enforced: **March 6, 2024**
- Targets large digital platforms (gatekeepers) with strong economic position, significant user base in the EU, and durable market power: Amazon, Apple, Booking, Facebook, Google or Microsoft
- Imposes obligations: no self-preferencing, interoperability, data portability, no unfair lock-in
- We focus on **Art. 6(5)**, which bans self-preferencing in ranking, indexing, and results display. This directly affects Google: Google Shopping; Google Hotels; Google Maps; **Google Flights**
- **Response:** Google changed its **SERP (Search Engine Results Page)** on March 7, 2024

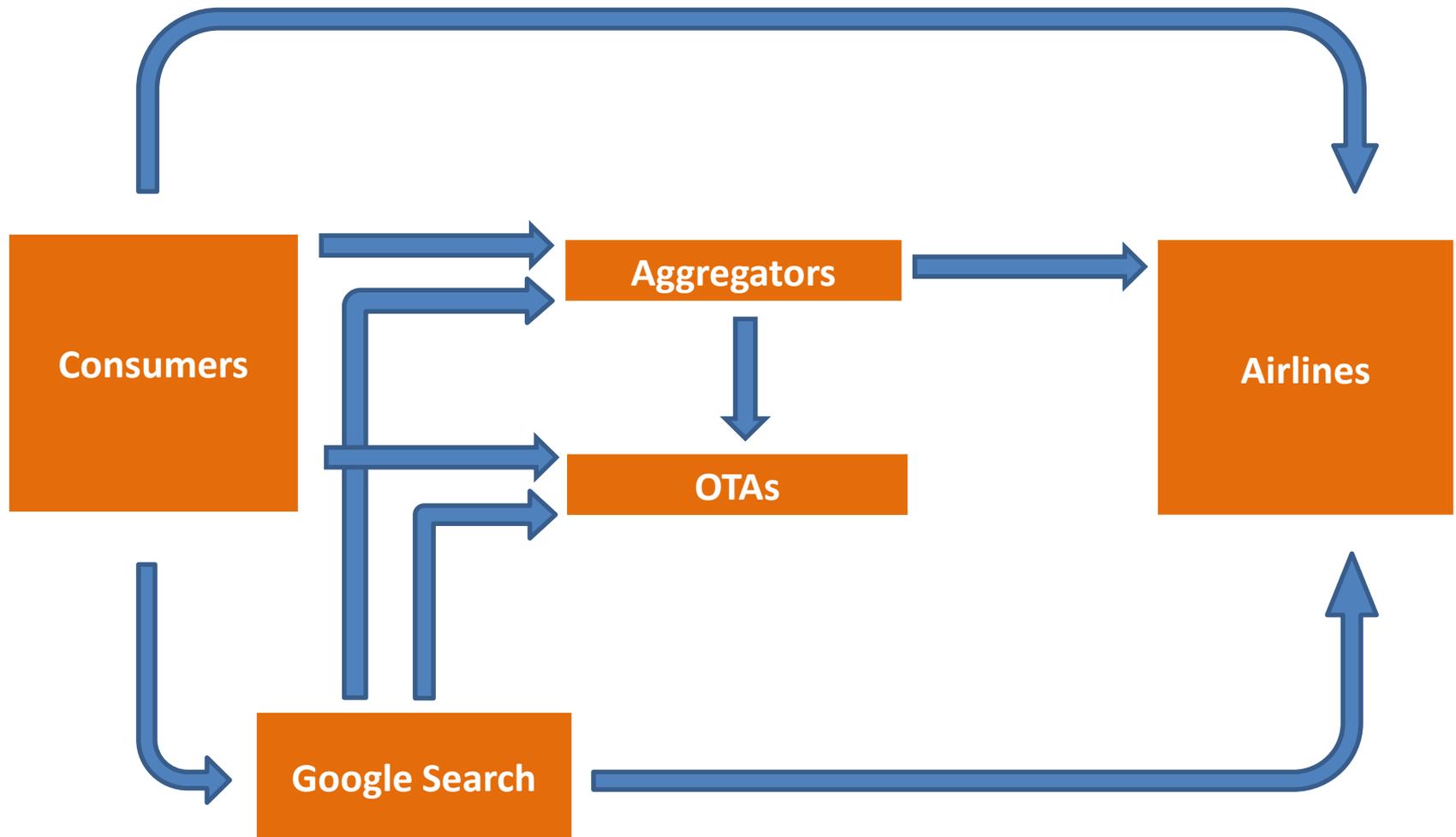
# What do we do?

- Analyze effects of Google SERP's redesign in the EU air travel market
- Three players compete for search traffic

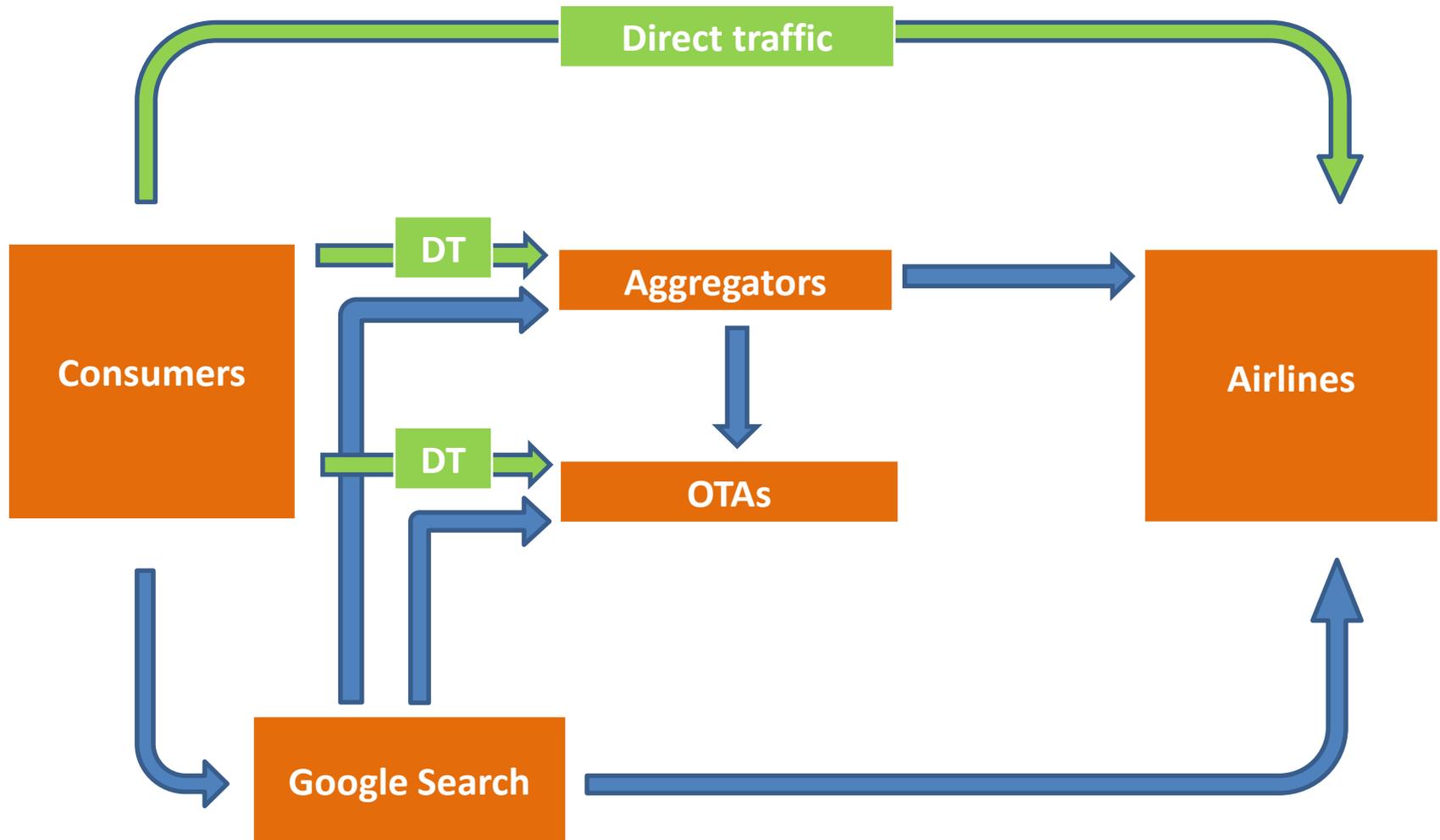


- **What do we do?** DiD model comparing organic search traffic in the EU (France, Germany, Italy and Spain) and in UK/US, before and after the redesign of Google's SERP on March 6<sup>th</sup>, 2024.
- **What do we find?** Small low cost airlines and Aggregators/OTAs sites receive more organic search traffic. No effect on large Aggregators/OTAs.

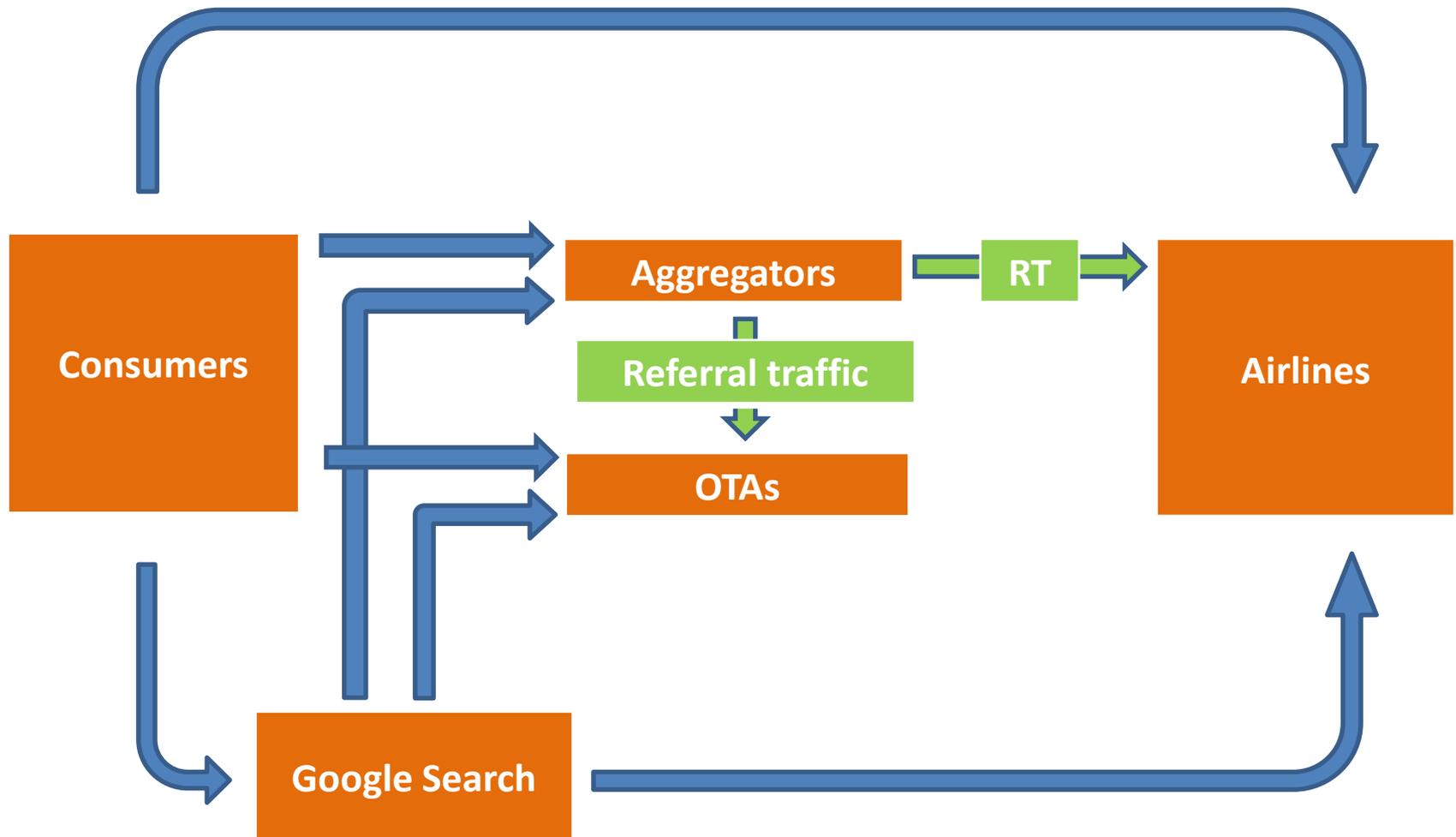
# Visits to Airlines Websites



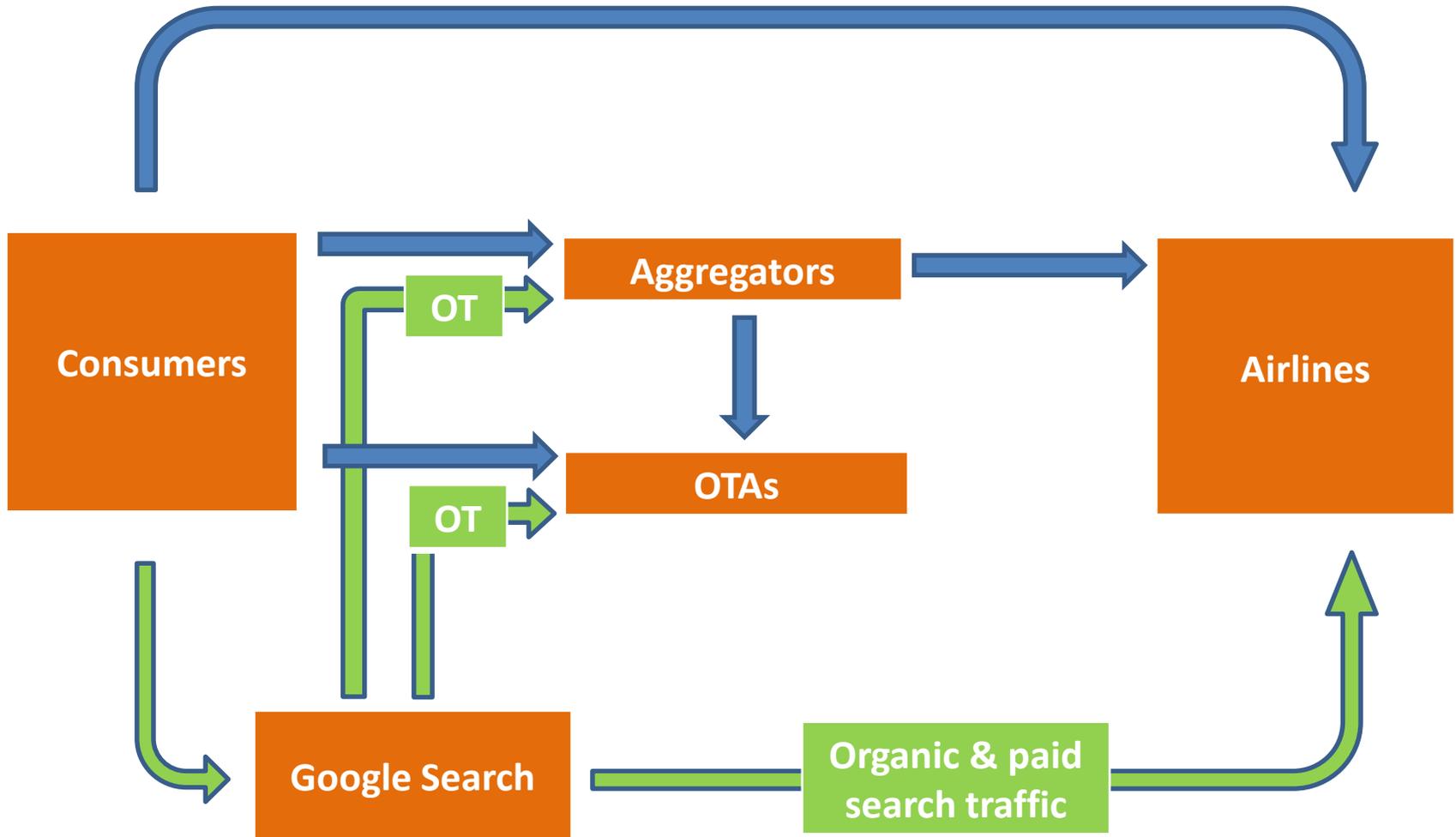
# Visits to Airlines Websites



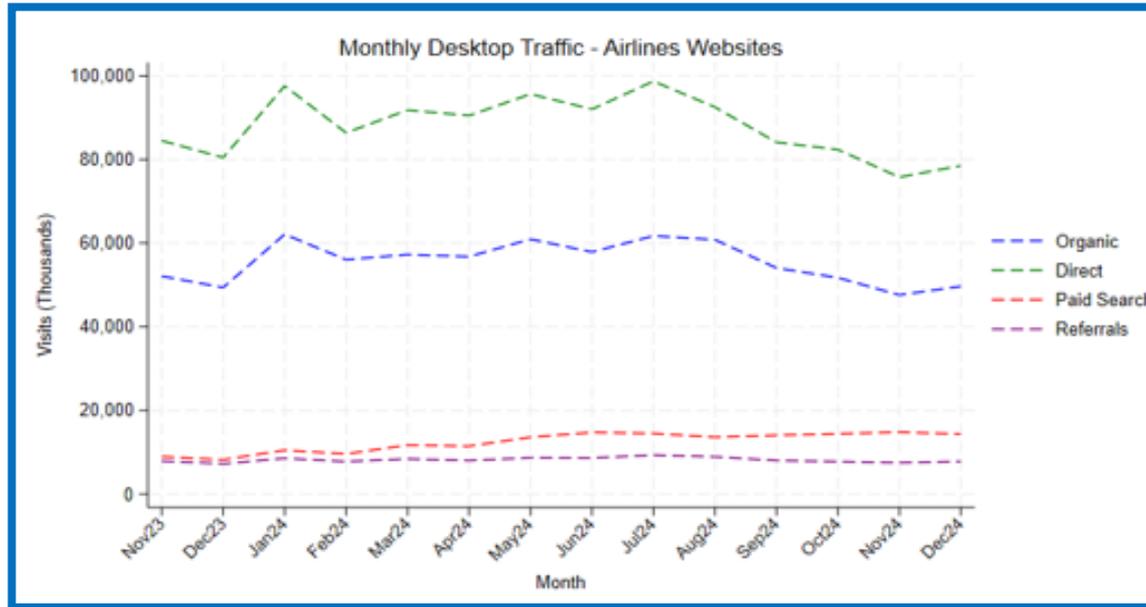
# Visits to Airlines Websites



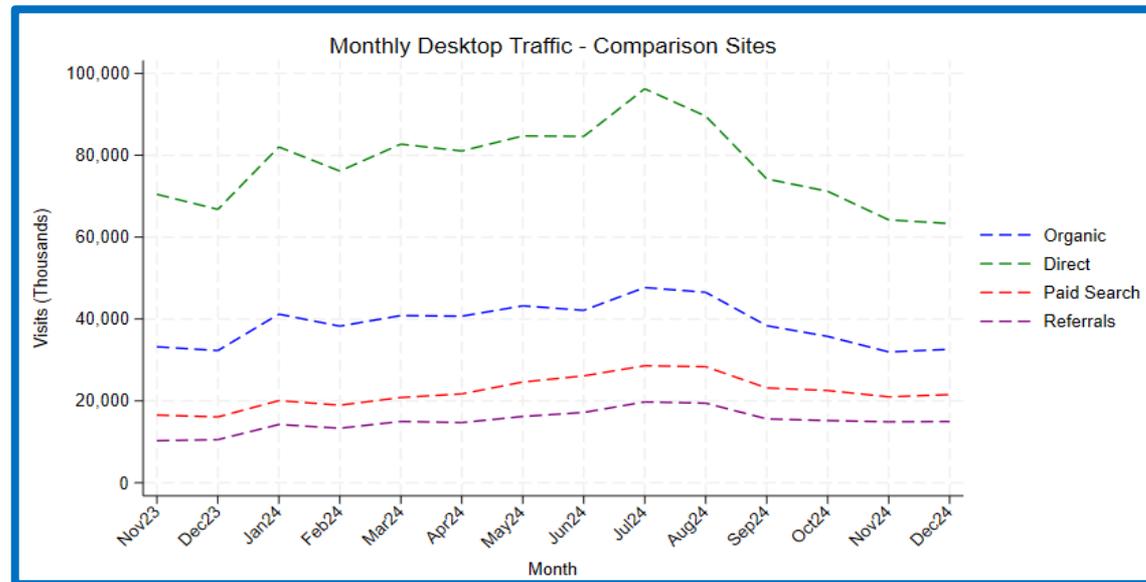
# Visits to Websites



# Desktop Traffic to Airline and Comparison Sites



**Desktop – Airlines:**  
**1/3 is organic search traffic**



**Desktop – Comparison Sites**  
**1/4 is organic search traffic**

# Google's SERP

- Google's SERP determines how organic (and paid) search results are shown to answers users' queries
- Google implemented more than 20 changes in its SERP after DMA:

## Before March 2024

- Google Flight dominates the screen
- Traffic (links) redirected to Google Flight and not to the airline websites
- SERP still applicable outside the EU

## After DMA, March 2024

- Google Flight module removed
- New Airline Options section
- New Flight Sites section
- The order changes

- Google's own explanations: it has tried to balance the interests of users and businesses. It acknowledges the redesign entails trade-offs over which parties gain more visibility.

# Google's SERP Before March 7<sup>th</sup>, 2024

Flight London - Barcelona

All Flights News Images Videos Short videos Shopping More

### Flights to Barcelona

Flights Flight status Airports

Find flights on

Skyscanner Kayak

London (all airports) Barcelona, Spain (BCN)

Sat 12 Jul Mon 14 Jul

Economy Round trip Nonstop Less emissions

Jul

Airline	Duration	Stops	Price
Multiple airlines	2h 10m	Nonstop	from £69
Ryanair	2h 10m	Nonstop	from £79
Vueling	2h 10m	Nonstop	from £88
easyJet	2h 10m	Nonstop	from £115

Save £19 – Non-stop flights from £50 if you fly to (GSO)

Show flights >

Skyscanner  
<https://www.skyscanner.net> · United Kingdom · London

#### Cheap Flights from London (LOND) to Barcelona (BCN)

The cheapest time to fly from London to Barcelona is typically in January. This period is usually best for the cheapest fares.  
Starting from £28.00

#### People also ask

- How long is the flight from the UK to Barcelona?
- Which UK airports fly directly to Barcelona?
- Is it cheaper to fly or train from London to Barcelona?
- How long is the flight from Gatwick to Barcelona?

Feedback

Google  
<https://www.google.com> · Flights · From London

#### Find cheap flights from London to Barcelona

Popular airlines from London to Barcelona - Vueling, Non-stop, from £67. Typical price: £45–165 - British Airways, Non-stop, from £161. Typical price: £110–255. Starting from £67.00

#### Flight status

Sat 31 May Sun 1 Jun Mon 2 Jun Tue 3 Jun

Time	Flight	Status
18:20	VY 7825 to Barcelona BCN	ARRIVED
19:20	BA 482 to Barcelona BCN	ARRIVED

Show all flight updates >

EasyJet  
<https://www.easyjet.com> · cheap flights · barcelona

#### Cheap flights from London Gatwick to Barcelona ...

Check out our low fare finder to book cheap flights from London Gatwick to Barcelona. Tickets start at £35.99! Compare daily airline departures, our best value ...

# Google's SERP Before March 7<sup>th</sup>, 2024 (still in use in the UK and US)

The screenshot shows a Google Flights search interface for a round trip from London to Barcelona. The search parameters are: London (all airports) to Barcelona, Spain (BCN), departing on Saturday, July 12, and returning on Monday, July 14. The flight class is Economy, and the trip type is Round trip. The search results show four options: Multiple airlines (from £69), Ryanair (from £79), Vueling (from £88), and easyJet (from £115). A calendar view shows the selected dates highlighted in blue. A note at the bottom indicates a potential saving of £19 by flying to GRO.

Flight London - Barcelona

All Flights News Images Videos Short videos Shopping More -

Flights to Barcelona : Flights Flight status Airports

Find flights on Skyscanner Kayak

London (all airports) Barcelona, Spain (BCN)

Sat 12 Jul Mon 14 Jul

✓ Economy ✓ Round trip Nonstop Less emissions

Jul

30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

M T W T F S S M T W T F S S M T W T F S S M T W T I

Multiple airlines	2h 10m	Nonstop	from £69
Ryanair	2h 10m	Nonstop	from £79
Vueling	2h 10m	Nonstop	from £88
easyJet	2h 10m	Nonstop	from £115

Save £19 – Non-stop flights from £50 if you fly to [\(GRO\)](#)

# Google's SERP After March 7<sup>th</sup>, 2024

Flight London - Barcelona

All Airline options Flight sites News Images Videos Short videos More -

Round trip Dates Tracker Today Airports Flight Status Price Ryanair

### Flights to Barcelona

#### Airline options

Round trip prices from London - 12-14 Jul

- Ryanair** Nonstop from €94 >
- Vueling** Nonstop from €104 >
- easyJet** Nonstop from €137 >

More airline options >

#### Flight sites

Round-trip prices from London - 12-14 Jul

- Cheap Flights from London (LOND) to Barcelona...** Skyscanner From €77
- Find Cheap Flights from London to Barcelona...** Google From €82
- Cheap Flights from London to Barcelona (LON-BCN) -...** Kayak From €75
- Book cheap flights from London to Barcelona...** Booking.com From €104

More flight sites >

#### Flight Status

Sat, 31 May Sun, 1 Jun Mon, 2 Jun Tue, 3 Jun

Time	Flight	Status
16:55	VY 6026 to Barcelona BCN	ARRIVED LATE
17:20	BA 2339 to Barcelona BCN	ARRIVED

Show all flight updates >

Skyscanner  
<https://www.skyscanner.net> - United Kingdom - London

### Cheap Flights from London (LOND) to Barcelona (BCN)

The cheapest time to fly from London to Barcelona is typically in January. This period is usually best for the cheapest fares.

12-14 Jul  
London to Barcelona - Non-stop - Round trip from €77 >

#### People also ask

- How long is the flight from London to Barcelona today? >
- Is it cheaper to fly or train from London to Barcelona? >
- How far is Barcelona from London by flight? >
- How far is Barcelona to London by plane? >

Feedback

Google  
<https://www.google.com> - Flights - From London

### Find Cheap Flights from London to Barcelona (LON - BCN)

Use Google Flights to find cheap flights from London to Barcelona starting at €84, and book tickets for your next trip.

12-14 Jul  
London to Barcelona - Non-stop - Round trip from €82 >

# Google's SERP After March 7<sup>th</sup>, 2024

The screenshot displays the Google search results for "Flight London - Barcelona". At the top, the search bar contains the text "Flight London - Barcelona". Below the search bar, there are navigation tabs: "All", "Airline options", "Flight sites", "News", "Images", "Videos", "Short videos", and "More". The "Airline options" tab is circled in orange. Below these tabs are filters: "Round trip", "Dates", "Tracker", "Today", "Airports", "Flight Status", "Price", and "Ryanair".

The main heading is "Flights to Barcelona". Below this, the "Airline options" section is circled in orange. It shows "Round-trip prices from London - 12-14 Jul" and lists three airlines: Ryanair (Nonstop, from €94), Vueling (Nonstop, from €104), and easyJet (Nonstop, from €137). A button labeled "More airline options" is also circled in orange.

The "Flight sites" section is circled in orange. It shows "Round-trip prices from London - 12-14 Jul" and lists four search engines: Skyscanner (From €77), Google (From €82), Kayak (From €75), and Booking.com (From €104). The "Google" entry is circled in orange.

# Data

- Traffic source: Similarweb
- Devices: Desktop (weekly data) and Mobile (monthly data)
- Channels: direct; **organic search**, paid search and referrals
- Period: November 2023 – Dec 2024
- **Treated sites:** 4 EU countries (France, Germany, Italy and Spain)
- **Control sites:** United Kingdom and the United States
  
- **Classification for Airlines:**
  - Pricing Strategy: Low Cost Carriers (LCC) & Network Carriers (NC)
  - Market Share: Top 5 National Airlines (TNA) & Bottom National Airlines (BNA)
  - Visibility: Top Ranking Airlines (TRA) and Bottom Ranking Airlines (BRA)
  
- **Classification for Comparison Sites:**
  - Top 3, Top 5, and Non-Top
  - Aggregators & OTAs

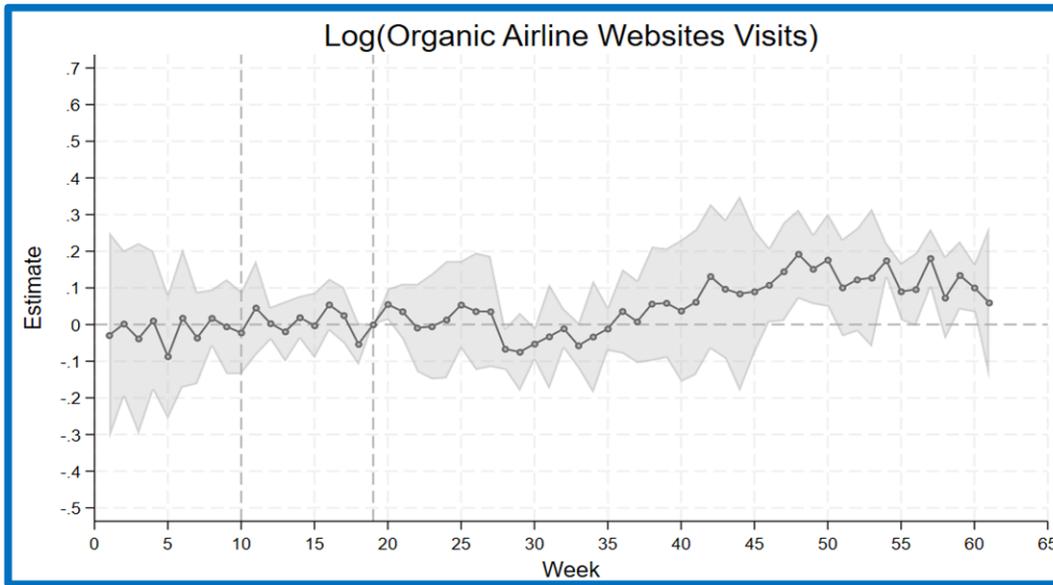
# Empirical strategy

Difference-in-Differences (DiD) at the domain-week level

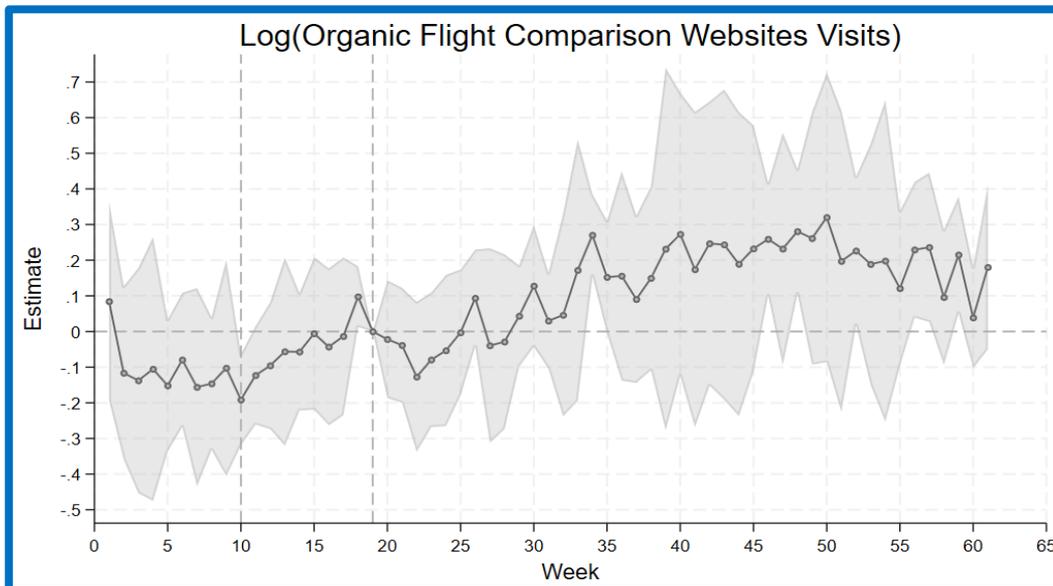
$$\ln(Y_{dct}) = \beta EU_{dc} \times Post_t^{DMA} + \alpha_c + \delta_d + \theta_{cd} + \gamma_t + \varepsilon_{dct} \quad (1)$$

- $Y_{dct}$  is the number of visits -including total, **organic search**, direct, paid search and referral visits - received by the **desktop and mobile websites** of domain  $d$  in country  $c$  during week  $t$ .
- We include fixed effects per country ( $\alpha_c$ ), domain ( $\delta_d$ ), country-domain ( $\theta_{cd}$ ) and week ( $\gamma_t$ ).
- Treated group: EU countries (France, Germany, Italy and Spain)
- Control group: United Kingdom and United States
- DMA: March 7, 2024

# Pre-Treatment Trends for Desktop Organic Traffic



**Parallel pre-trends**



**Parallel pre-trends**

# Main Results: desktop

	Airlines Websites					Flight Comparison Websites				
	Total	Organic	Direct	Paid Search	Referrals	Total	Organic	Direct	Paid Search	Referrals
<b>EU x PostDMA</b>	0.0058 (0.0188)	0.0652** (0.0203)	0.0096 (0.0345)	-0.0692 (0.0444)	0.0456 0.1125	0.1487*** (0.0324)	0.2128*** (0.0509)	0.1048** (0.0312)	0.1171 (0.0931)	0.2483*** (0.0167)
<b>Country FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Week FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9682	0.9536	0.9663	0.8674	0.9123	0.9651	0.9459	0.9615	0.9099	0.9411
<b>N</b>	20,069	20,069	20,069	17,737	19,917	8,966	8,966	8,966	6,470	8,771

# Heterogenous effects: airlines, desktop & organic

	Low Cost Carriers					Network Carriers				
	Total	TNA	BNA	TRA	BRA	Total	TNA	BNA	TRA	BRA
<b>EU x PostDMA</b>	0.1427** (0.0410)	0.0741 (0.1042)	0.1621** (0.0551)	0.0667 (0.0659)	0.2739* (0.1231)	0.0388* (0.0152)	0.1145 (0.0753)	0.0340* (0.0161)	0.0629** (0.0235)	0.0004 (0.0277)
<b>Country FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Week FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9625	0.9778	0.9332	0.9807	0.8551	0.9474	0.9915	0.9264	0.9704	0.7879
<b>N</b>	6,222	1,159	5,063	3,294	2,928	13,847	671	13,176	6,832	7,015

- Pricing Strategy: Low Cost Carriers (LCC) and Network Carriers (NC)
- Market Share: Top National Airlines (TNA): 5 domains, 60-85% seats in the country; Bottom National Airlines (BNA)
- Visibility: Top Ranking Airlines (TRA): domains above the median of visits

# Heterogenous effects: airlines, desktop & organic

	Low Cost Carriers					Network Carriers				
	Total	TNA	BNA	TRA	BRA	Total	TNA	BNA	TRA	BRA
<b>EU x PostDMA</b>	0.1427** (0.0410)	0.0741 (0.1042)	0.1621** (0.0551)	0.0667 (0.0659)	0.2739* (0.1231)	0.0388* (0.0152)	0.1145 (0.0753)	0.0340* (0.0161)	0.0629** (0.0235)	0.0004 (0.0277)
<b>Country FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Week FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9625	0.9778	0.9332	0.9807	0.8551	0.9474	0.9915	0.9264	0.9704	0.7879
<b>N</b>	6,222	1,159	5,063	3,294	2,928	13,847	671	13,176	6,832	7,015

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# Heterogenous effects: comp. sites, desktop & organic

	General	Top 3	Top 5	Non-Top
<b>EU x PostDMA</b>	0.2128*** (0.0509)	0.0217 (0.0346)	0.0798 (0.1147)	0.2444*** (0.0429)
<b>Country FE</b>	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓
<b>Week FE</b>	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9459	0.9872	0.9836	0.8546
<b>N</b>	8,966	1,037	1,830	7,136

# Heterogenous effects: comp. sites, desktop & organic

	General	OTA	Agregator
<b>EU x PostDMA</b>	0.2128*** (0.0509)	0.1544* (0.0664)	0.2885*** (0.0723)
<b>Country FE</b>	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓
<b>Week FE</b>	✓	✓	✓
<b>R2 Adjust</b>	0.9459	0.9414	0.9514
<b>N</b>	8,966	5,001	3,965

# Main Results: Mobile

	Airlines Websites					Flight Comparison Websites				
	Total	Organic	Direct	Paid Search	Referrals	Total	Organic	Direct	Paid Search	Referrals
<b>EU x PostDMA</b>	-0.0004 (0.0366)	0.0408 (0.0441)	-0.0180 (0.0438)	-0.0758 (0.0420)	0.0155 (0.0698)	0.2039*** (0.0398)	0.1875** (0.0641)	0.2093*** (0.0375)	0.1084* (0.0459)	0.3008** (0.0930)
<b>Country FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Month FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9634	0.9575	0.9601	0.9877	0.9400	0.9496	0.9228	0.9408	0.9762	0.9432
<b>N</b>	6,244	6,237	6,244	5,340	6,244	3,780	3,757	3,780	2,829	3,780



# Heterogenous effects: airlines, mobile & organic

	Low Cost Carriers					Network Carriers				
	Total	TNA	BNA	TRA	BRA	Total	TNA	BNA	TRA	BRA
<b>EU x PostDMA</b>	0.0809 (0.0718)	0.1063 (0.0600)	0.0835 (0.0863)	-0.0866 (0.1117)	0.2193** (0.0759)	0.0200 (0.0397)	0.1338* (0.0544)	0.0158 (0.0423)	-0.0659** (0.0172)	0.1191 (0.0703)
<b>Country FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Week FE</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9637	0.9799	0.9417	0.9834	0.7998	0.9519	0.9921	0.9394	0.9642	0.8591
<b>N</b>	2,239	280	1,959	994	1,245	3,998	140	3,858	2,236	1,762

- Pricing Strategy: Low Cost Carriers (LCC) and Network Carriers (NC)
- Market Share: Top National Airlines (TNA): 5 domains, 60-85% seats in the country; Bottom National Airlines (BNA)
- Visibility: Top Ranking Airlines (TRA): domains above the median of visits

# Heterogenous effects: comp. sites, mobile & organic

	General	Top 3	Top 5	Non-Top
<b>EU x PostDMA</b>	0.1875** (0.0641)	0.0402 (0.0632)	0.0587 (0.0232)	0.2032** (0.0726)
<b>Country FE</b>	✓	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓	✓
<b>Week FE</b>	✓	✓	✓	✓
<b>R2 Adjust</b>	0.9228	0.9779	0.9883	0.8481
<b>N</b>	3,757	238	420	3,337

# Heterogenous effects: comp. sites, mobile & organic

	<b>General</b>	<b>OTA</b>	<b>Agregator</b>
<b>EU x PostDMA</b>	0.1875** (0.0641)	0.1896* (0.0893)	0.1824** (0.0697)
<b>Country FE</b>	✓	✓	✓
<b>Domain FE</b>	✓	✓	✓
<b>Country-Domain FE</b>	✓	✓	✓
<b>Week FE</b>	✓	✓	✓
<b>R2 Adjust</b>	0.9228	0.9137	0.9355
<b>N</b>	3,757	2,077	1,680

# Summary of results

- **Airlines: Redistribution towards LLCs and low visible players**
  - **LCCs:** +14% desktop, +8% mobile (significant for less visible carriers)
  - **NCs:** +4% desktop, +2% mobile (significant for larger carriers)
  - Small national airlines (BNA, BRA): significant increases
- **Comparison sites: Promotion smaller platforms via visibility boost**
  - Non-Top platforms: +18-29% (more clear effects for aggregators)
  - Top 3 & Top 5: no significant effect
  - Important increase in referral traffic
- **Country Heterogeneity:** main results consistent across countries

# Conclusions

Google Flights is not neutral for the market

SERP design affects competition

**Thanks!**