



**Are some prices more equal than others?
Spoiler: yes.**

Hugo Jonker

Joint work with Godfried Meesters, Benjamin Krumnow

Team effort

- Benjamin: concept, experiment design, supervision, data analytics
- Godfried (his MSc project): PoC implementation, data acquisition

TEST

Flugbuchung per Smartphone

Achtung! Neue Abzocke!



Fotos: Depo/photostock, Oman, Mr., 123rf/raupaxel, pixelbay

Flugtickets mit dem Smartphone zu buchen, kann richtig teuer werden. Clever reisen! fand Preisunterschiede von bis zu 160 Euro gegenüber Buchungen mit dem PC.

Große Preisunterschiede bei Ticketpreisen

Für unseren Stichproben haben wir online die Ticketpreise von Airlines, Reise-, sowie von Flugportalen abgefragt. Für die Tickets

Auch die Smartphone-Abfragen für Economy-Tickets förderten deutliche Unterschiede zutage. Sie waren bei Bravofly bis zu 19,50 Euro teurer, als die mit dem heimischen PC ermittelten.

Daneben gab auch die Preisabfrage beim Reiseportal Ebookers zu denken. Hier war

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Foto: Depositphotos, Oman Al, 12181809901, pixabay

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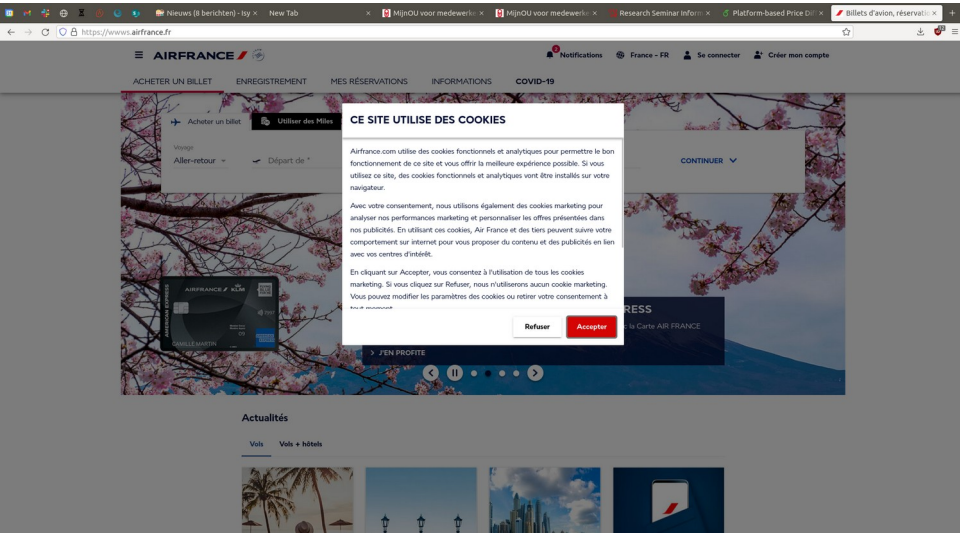
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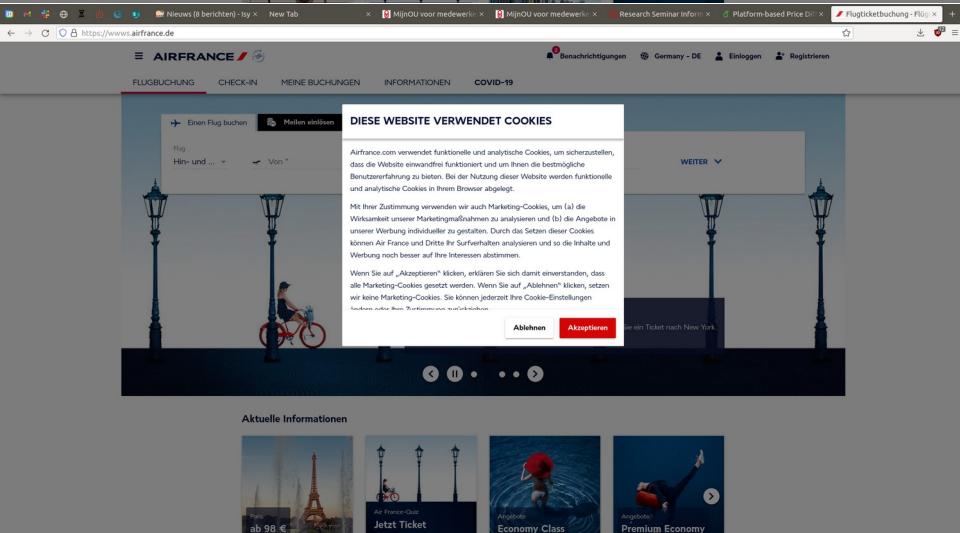
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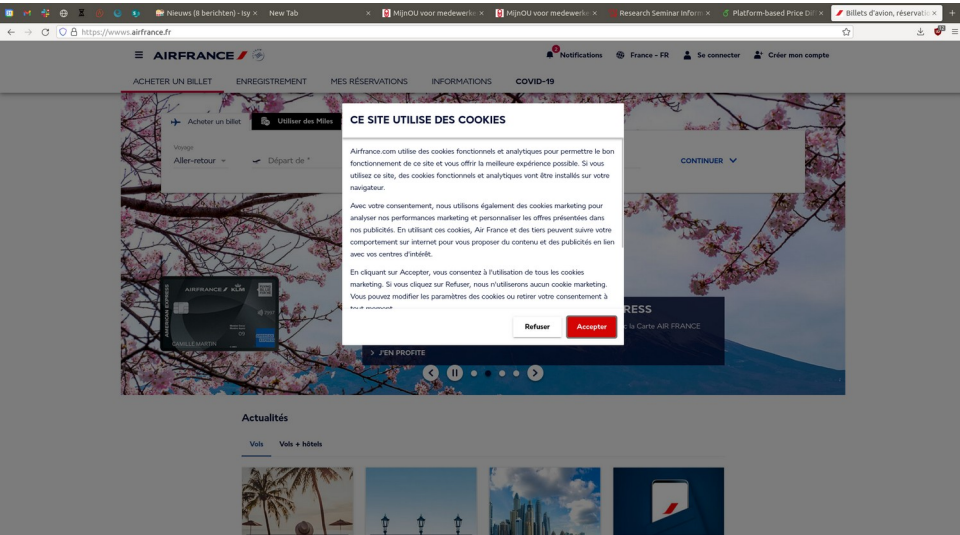




Airfrance.fr

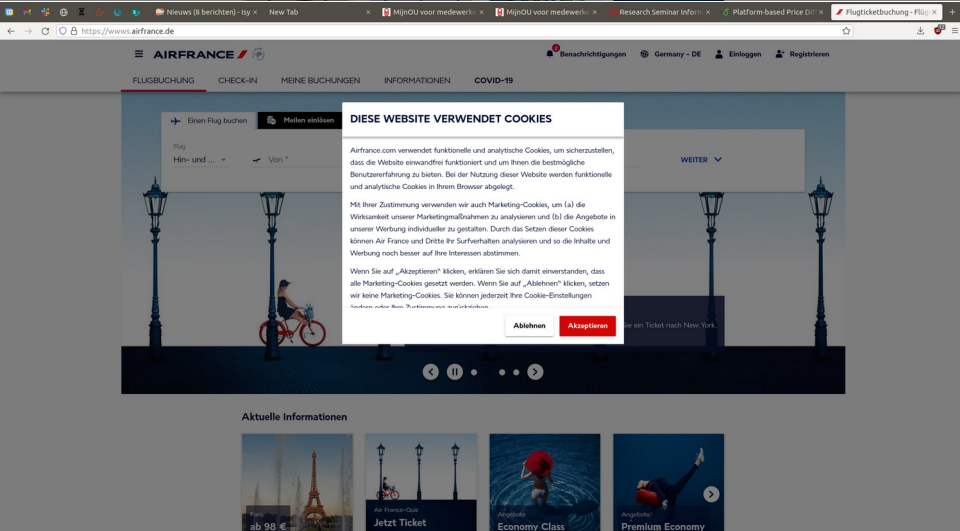


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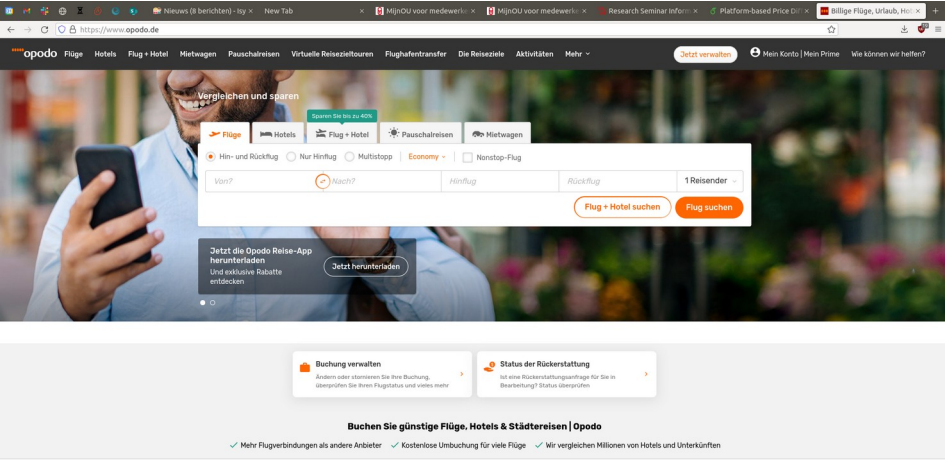


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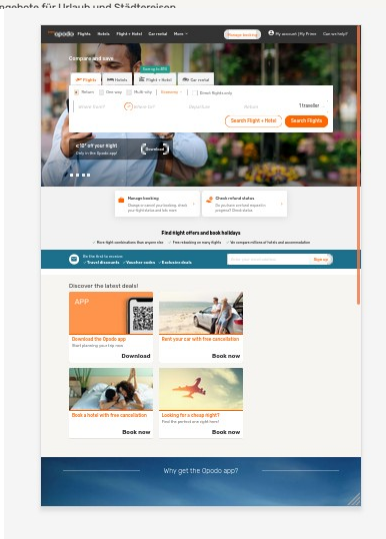
SAME PRICE?



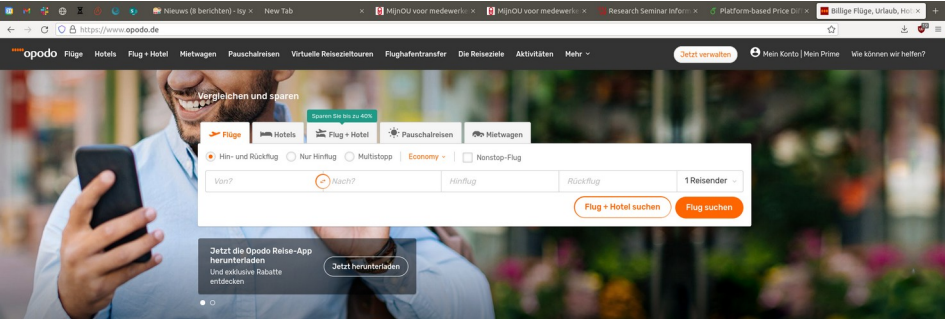
Airfrance.de



Opodo.de



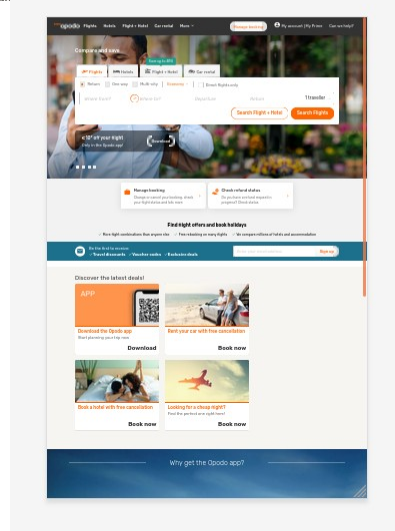
Opodo.com, mobile layout



Opodo.de

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 - Code share flights (e.g., MH17 = KL4103)
 - Attribute selection

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High-level PoC concept

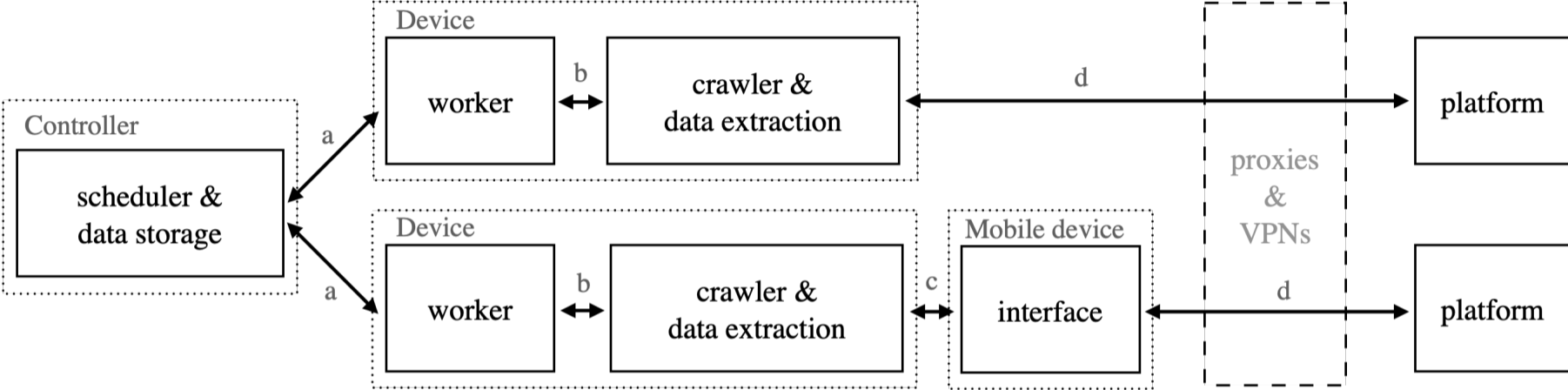


Figure 1: System architecture

Scraping data from phones

- Godfried Meesters
 - Based on work by TH Köln students (supervised by Benjamin)
- + Versatile
 - Requires per-app script...
 - ...which may be broken by updates



Data acquisition

AIRFRANCE 

Eurowings 

 Expedia[®]

K A Y A K

 opodo

Data acquisition

AIRFRANCE 



Eurowings 



 Expedia[®]



K A Y A K



 opodo



Data acquisition

AIRFRANCE 



Eurowings 



 Expedia

Thrice per day



KAYAK



 opodo



Data acquisition

AIRFRANCE 



Eurowings 



 Expedia



KAYAK



 opodo



**Thrice per day,
25 May - 2 July 2021**

Data set

company	crawlers	date		orig-dest	#items	#comps.
<i>Air France</i>	app/web	July	01	FRA-CDG	2 (2)	73
		August	01	FRA-CDG	2 (2)	72
		August	09	VIE-AMS	3 (3)	72
<i>Eurowings</i>	.fr/.de	July	01	FRA-CDG	2 (2)	68
	app/web	July	11	AMS-HAM	1 (1)	8
		August	12	CGN-LON	3 (0)	7
	.fr/.de	July	11	AMS-HAM	1 (1)	11
<i>Expedia</i>	app/web	July	01	BRU-AMS	24 (3)	29
		August	10	AMS-ARN	7 (6)	95
		August	18	OPO-BRU	20 (6)	101
	.fr/.de	July	01	BRU-AMS	5 (4)	74
		August	01	BRU-AMS	4 (4)	83
<i>KAYAK</i>	app/web/mob.	August	18	OPO-BRU	154 (4)	71
	app/web	August	07	MAD-FCO	247 (13)	109
		August	13	BER-BCN	273 (6)	101
<i>Opodo</i>	app/web	July	01	FRA-CDG	9 (9)	99
		August	01	FRA-CDG	18 (7)	90
		August	23	CGN-PRG	16 (1)	103
		August	18	OPO-BRU	17 (4)	101
	.fr/.de	July	01	FRA-CDG	9 (9)	101

Results: high-level view

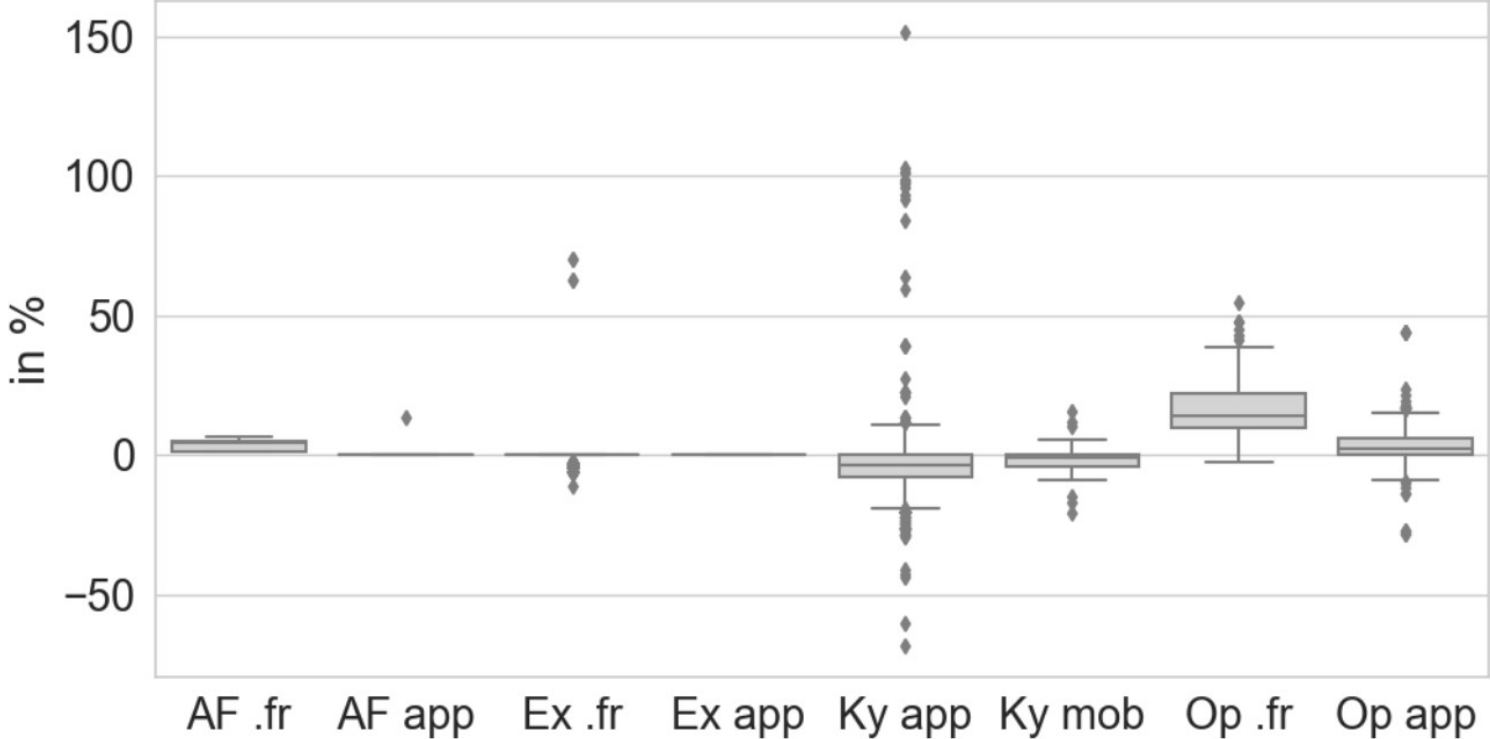


Figure 2: Relative difference vs .de desktop site

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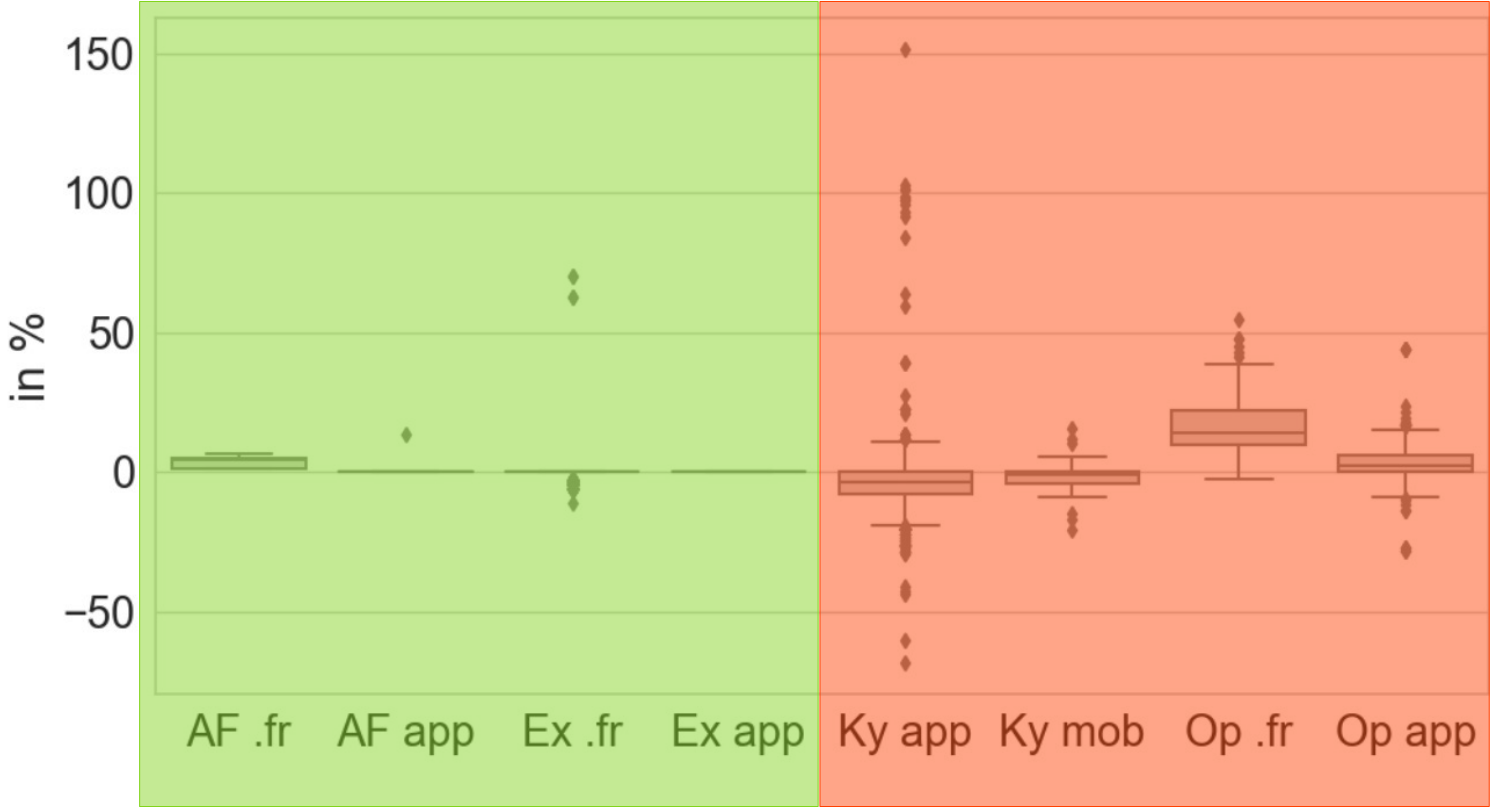


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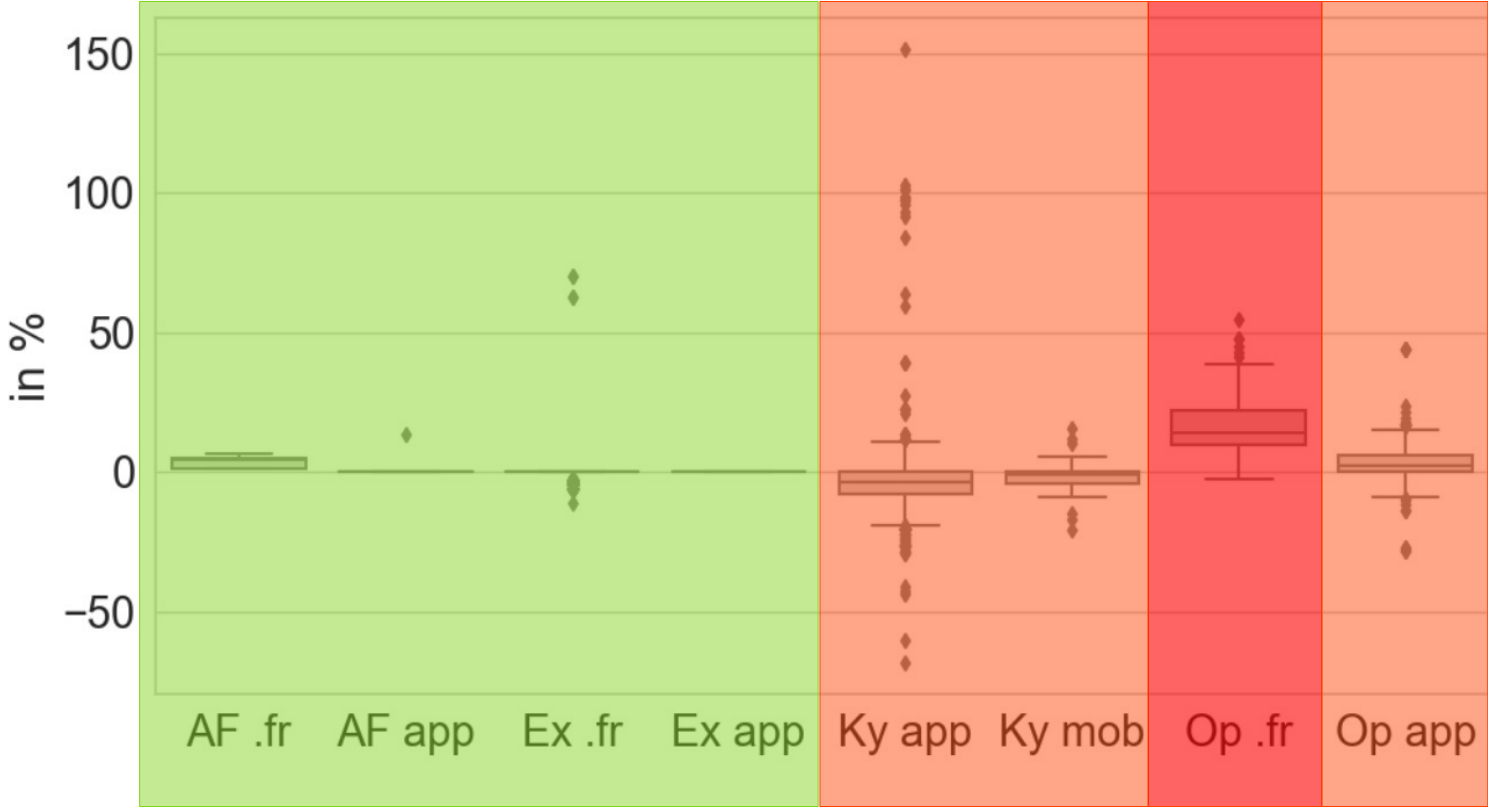
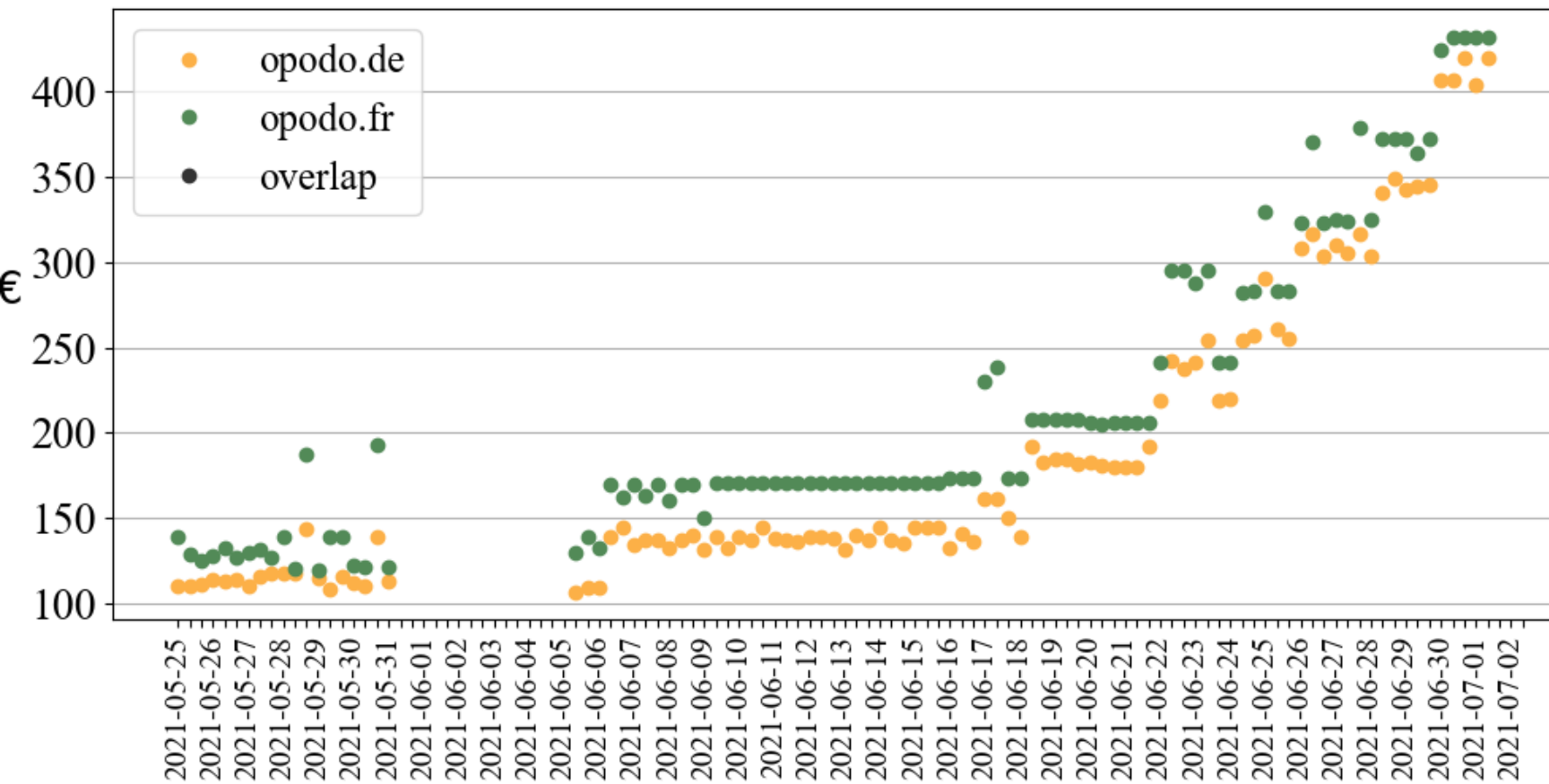


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Takeaway 1: avoid Opodo's french site

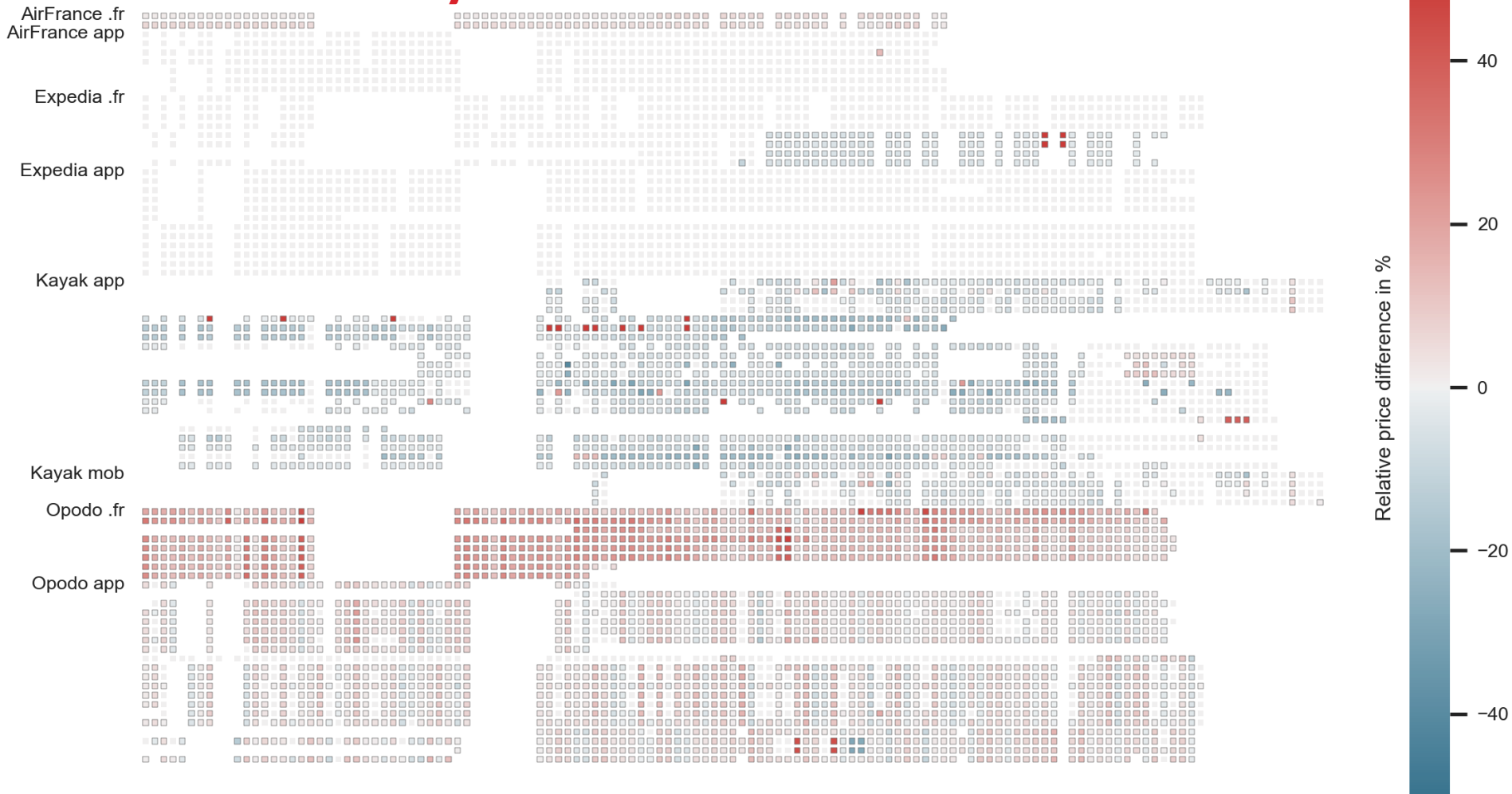
- A coauthor, paraphrased:
“€87 vs €100? I'd choose the cheaper – that's sufficiently significant.”

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More results!
Any patterns?

Pattern analysis

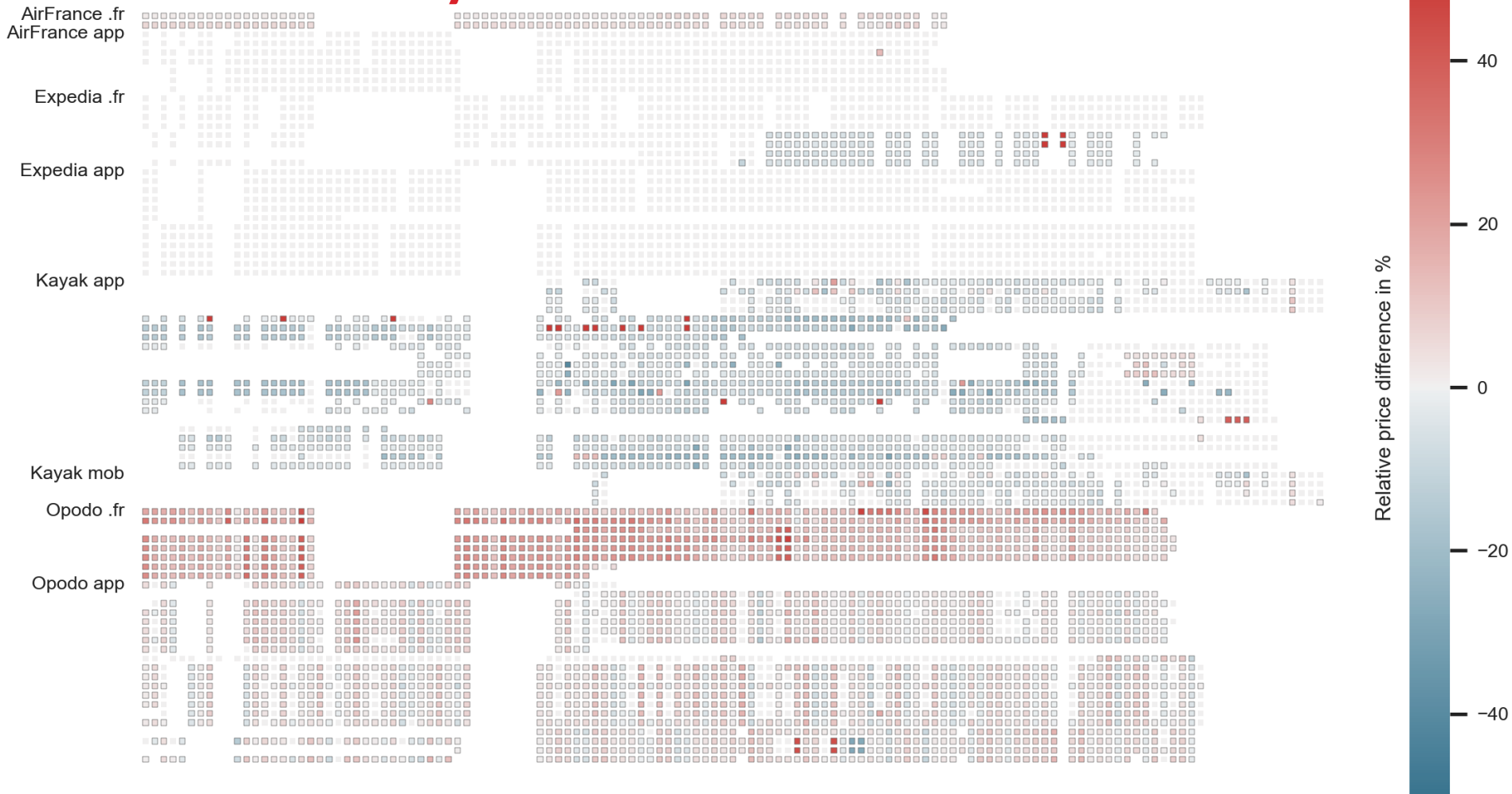


Sidenote: eliminating confounding factors

- Tax differences    would show up for multiple vendors, across the heatmap
- They don't.

- Ditto: temporal effects.

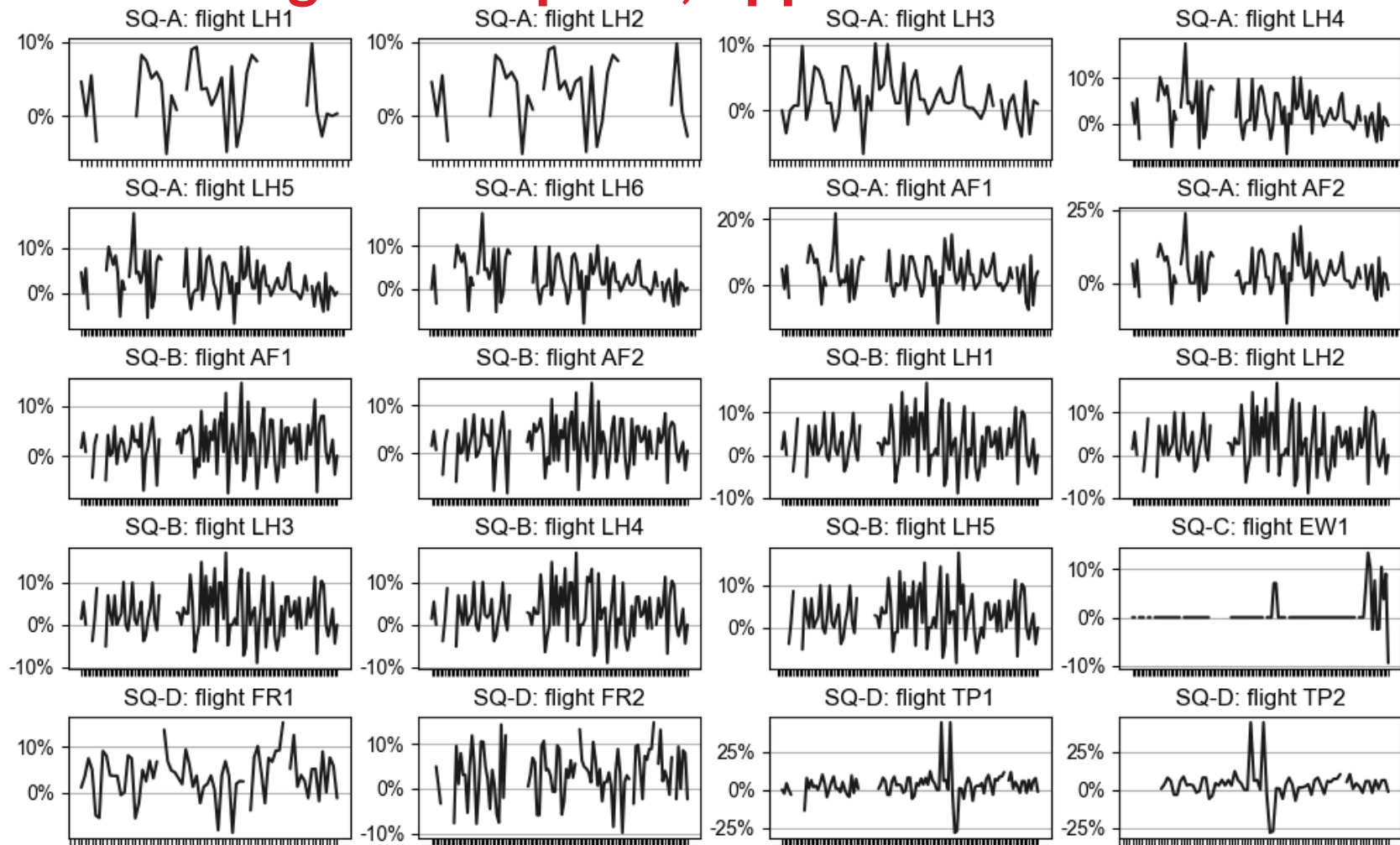
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Pattern analysis



Zooming in on Opodo, app vs website



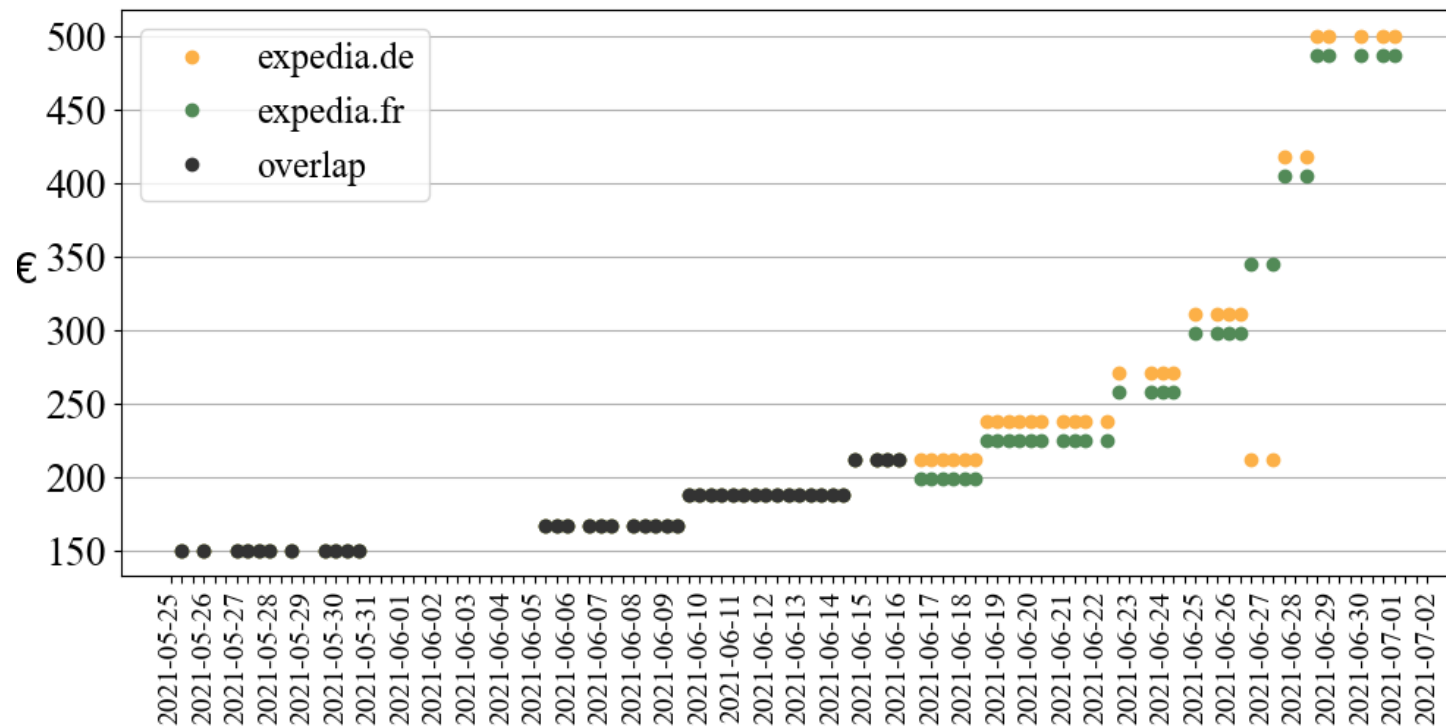
Takeaway #2: Opodo: check other platform

- Can save up to 50%

Takeaway #3: last minutes on Expedia



Takeaway #3: last minutes on Expedia



Conclusions

- Price differences do occur frequently
- Strong indications of platform-specific pricing
 - Strangely, not per se rewarding customer loyalty (installing app)
- More data needed!
 - Data acquisition is hard
 - Many variables → moving target
- Paper writing is fun!

Thanks for your attention!

