



**Politecnico
di Torino**

Politecnico di Torino

Master of Science Course in Management Engineering
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Algorithmic Pricing in the digital age

“Ethical considerations on its economic and social implications,
and an analysis of possible solutions to overcome its critical issues”

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Outline

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- History and Evolution of Algorithmic Pricing
- Definition of Algorithmic Pricing
- Types of Algorithmic Pricing
- Sectors of application of Algorithmic Pricing
- Dynamic Pricing
- Personalized Pricing
- Ethical aspects
- Ethical considerations
- Potential Solutions

History and Evolution of Algorithmic Pricing

- Pre-computer era → 1870s
- Airlines period → raise of Dynamic Pricing (1980s)
- E-commerce and online retail → 1990s – 2000s
- Algorithmic pricing today → 2010s – to present

Definition of Algorithmic Pricing

- *“Algorithmic pricing is a pricing mechanism, based on data analytics, which allows firms to automatically generate dynamic and customer-specific prices in real-time. Algorithmic pricing can go along with different forms of price discrimination (in both a technical and moral sense) between individuals and/or groups. As such, it may be perceived as unethical by consumers and the public, which in turn can adversely affect the firm.”¹*

¹ Seele, P., Dierksmeier, C., Hofstetter, R., & Schultz, M. D. (2021). Mapping the ethicality of algorithmic pricing: A review of dynamic and personalized pricing. *Journal of Business Ethics*, 170, 697-719.

Types of Algorithmic Pricing

Dynamic Pricing	Personalized Pricing
Supply and Demand	Customer Segmentation
Time	Targeted Offers
Competition	Willingness to Pay
Dynamic Value Orientation	Price Discrimination

Sectors of application of Algorithmic Pricing

➤ Retail & e-commerce

➤ Financial services

➤ Airlines & Transport

➤ Technology and Software

➤ Hospitality

➤ Health Industry (?)

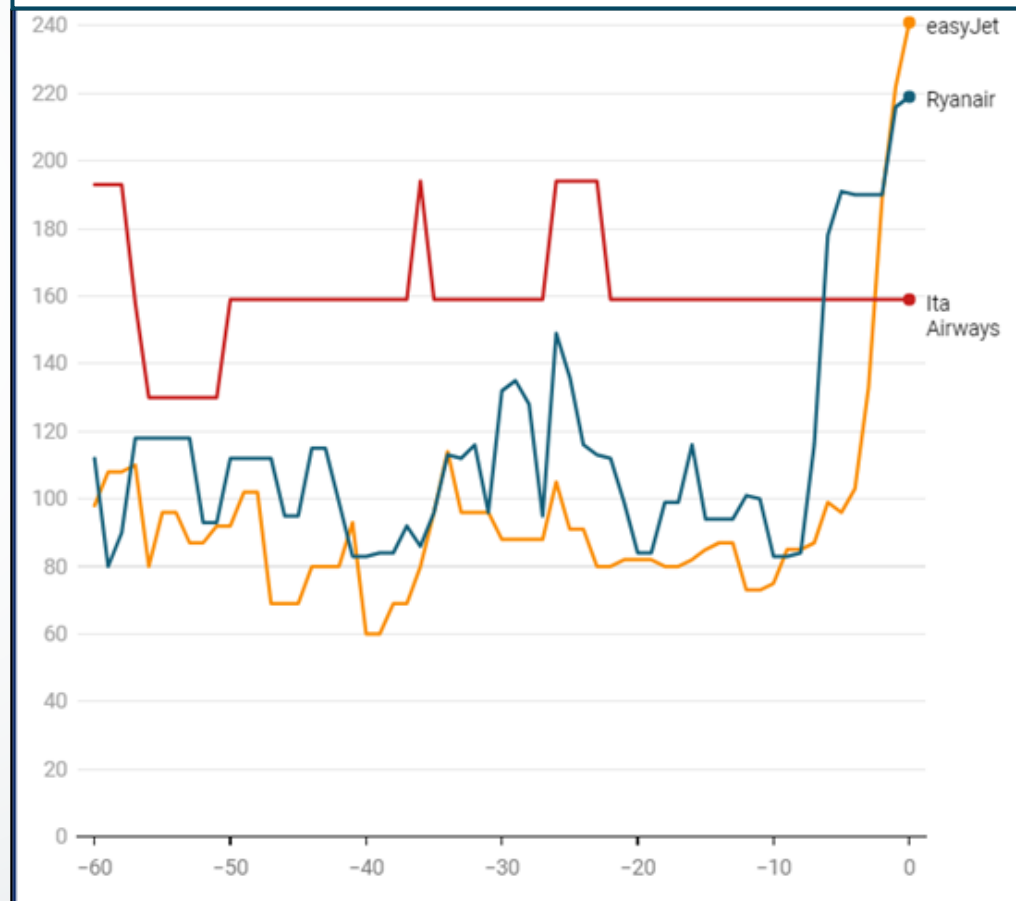
Dynamic Pricing

- Flexible prices
- Multiple pricing points
- Pre - established pricing rules
- Cost reduction

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The evolution of fares 2 months before the Milan – Palermo flight

(values in euros, extras excluded)



Source: Corriere della Sera

Personalized Pricing

- The algorithms aim to in-depth understand the profile of each consumer
- Pricing personalization tends to be seen negatively by consumers



Ethical aspects

- Price discrimination
- Concerns about corporate goals vs public interest
- Transparency



Ethical considerations

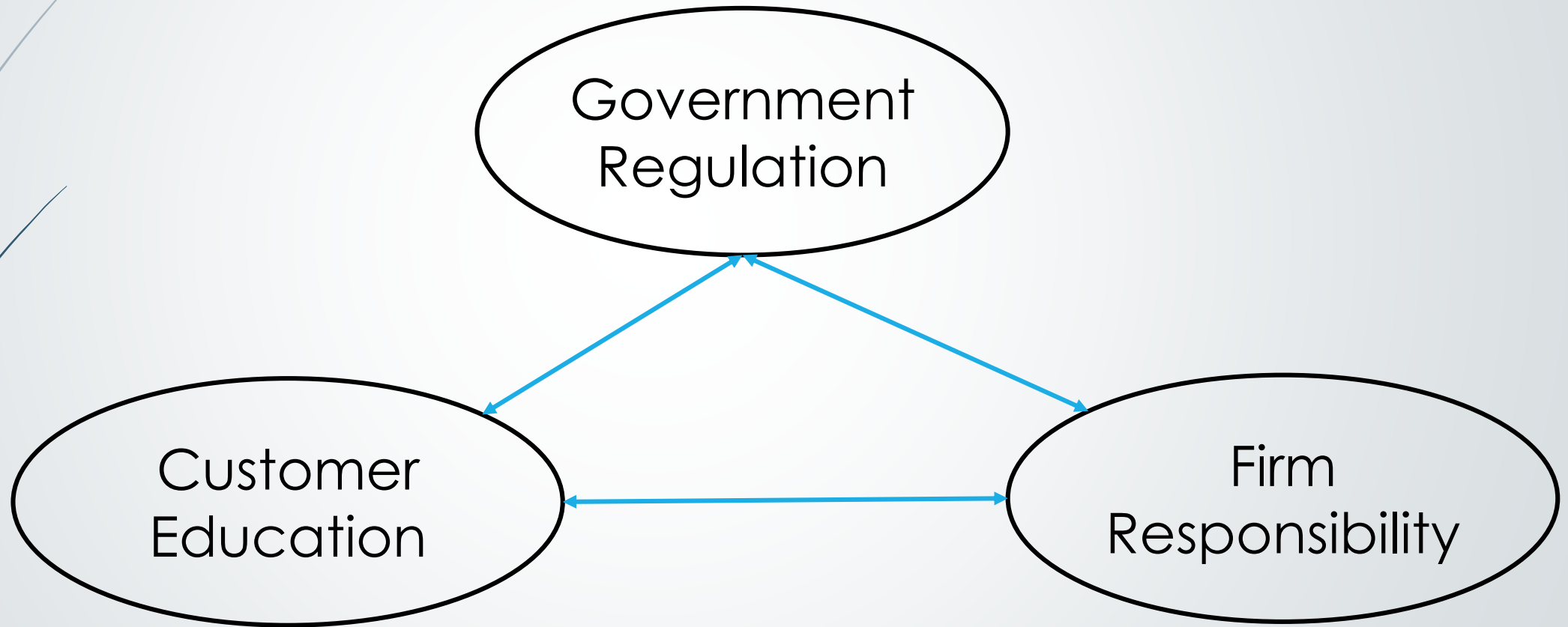
➤ Price discrimination and Fairness

- Customers feel betrayed
- Algorithmic pricing is seen as unfair and discriminatory

➤ Transparency and Explainability

- Machine learning models are perceived as «black boxes»

Potential Solutions





Thanks for your attention !