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De l'économie numérique à la transformation numérique de l'économie

Introduction to the Special Issue: "From The digital economy to the digitalization of the economy"

Introduction au numéro spécial

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Texte intégral

- 1 The Covid crisis has accelerated the digitalization of the economy. Many businesses have been forced to reorganize their production and distribution channels. In response to the Covid-related restrictions (curfew, lockdown, etc.), firms have increased their investment in information technology to facilitate video calling, teleworking, or online ordering and payments. New digital businesses such as Zoom have boomed with the pandemic. These digital transformations are an irreversible process which is affecting both high tech and more traditional sectors.
- 2 The digitalization of the economy reduces the costs of economic activity—e.g., search costs replication costs, transportation costs, tracking costs, and verification costs (Goldfarb and Tucker 2019). However, these efficiency gains are shared unequally among firms and consumers. Companies such as Google, Apple, Facebook, and Amazon

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gatekeepers could be subject to more obligations and more severe behavioral and structural remedies in the case of infringements. However, achieving regulation of the digital economy that is fine-tuned to preserving both competition and consumer privacy without hindering innovation is difficult, if not impossible. The prerequisite for any regulation is a comprehensive view of the impacts of digitalization on the market structure, intensity of competition, and consumer welfare. Achieving such a comprehensive assessment can be complex and can have ambiguous outcomes. Digital technologies may stimulate innovation, increase productivity, and improve market efficiency but they also induce greater market concentration and higher barriers to entry which may be detrimental to consumers. The wide diffusion of the Internet also has social and political outcomes. Zhuravskay *et al.* (2020) highlights the ambivalent effects of broadband Internet and social media on democracy. Street protests against autocratic governments are growing alongside greater political polarization and greater mistrust of politicians which weaken democracy.

3 **The objective of this Special Issue is to show how theoretical and empirical research conducted in Industrial Organization can provide a better understanding of the digital economy and the impact of digitalization on markets, competition, and public policy. It also aims to provide some guidance about the regulation of digital markets.**

4 The main feature of digitalization is the decreasing costs of data collection and storage, and advances in business analytics that allow retrieval and analysis of unprecedented amounts of data (Acquisti *et al.*, 2016). A large strand of marketing and industrial organization literature investigates how the exploitation of massive and personal data can generate new business models and innovative services. The economics of privacy is gaining relevance in antitrust as data become the key to competitive advantage and insurmountable barriers to entry. In many markets, services are provided in exchange for data with no payment involved between consumers and firms. This poses a major challenge for competition policy which uses prices to delimit relevant markets. In addition, some recent mergers have underlined that sharing and monetizing data can be a strong motivation for mergers and acquisitions.

5 Another feature of digital markets is the increasing use of algorithms to process these huge amounts of data. Algorithms are defined as a general purpose technology which can be applied to any sector and any domain and can generate increasing returns to scale (Agarwal *et al.*, 2016). Machine learning algorithms are used to obtain insights from big data analysis to provide managerial and strategic advice for companies, and policy recommendations for regulators and policy makers (Varian 2014). Algorithms allow firms to exploit very large amounts of data in real time, and can be used to set dynamic pricing (Uber), to provide product recommendations (Amazon) and to offer personalized ads (Snapchat). They help firms to anticipate consumer demand in order to better allocate products and activities in a finer, more segmented market. Use of algorithms in the economy undoubtedly increases efficiency which can benefit firms and consumers in terms of new, more effective, and better-adapted products and services (Milgrom and Tadelis 2018). However, they can generate unintended discrimination against some groups of individuals (Lambrecht and Tucker 2019). From a competition perspective, if algorithms lead to lower prices and better matching, they can improve social welfare (Miklós-Thal and Tucker 2019). However, algorithms can promote collusive behavior in the absence of any formal agreements or human interaction, and lead to anti-competitive outcomes (Calvano *et al.*, 2020; OECD, 2017).

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businesses. A multi-sided platform “has (a) two or more groups of customers; (b) who need each other in some way; (c) but who cannot capture the value from their mutual attraction on their own; and (d) rely on the catalyst to facilitate value creating interactions between them.” Platforms rely on price and non-price instruments which serve to achieve critical mass (i.e. to attract enough users on both sides, in the right proportions) and stimulate network externalities. There is a large body of research on the pricing and non-pricing strategies of platforms under monopoly and competition settings. The launch and development of platform-based businesses and mergers between platforms have also received much attention. The economics of platforms is focused strongly on competition policy (Jullien and Sand-Zantman, 2020). The first part of this Special Issue contributes to this literature.

- 7 The first paper discusses competition and cooperation among digital platforms. Adrien Raizonville explores the price and welfare effects of cooperation between two platforms in the context of a competitive bottleneck which occurs when the users on one side of the market single-home, while the users on the other side multi-home. His paper shows that when platforms coordinate their pricing on the multi-homing side of the market and compete on the single-homing side, the multi-homers are worse off and the single-homers are better off. Moreover, cooperation may be detrimental for platforms, but may be welfare-increasing compared to full competition. This model shows that cooperation between platforms can have ambiguous effects on prices, and suggests that the antitrust authorities must exercise caution when dealing with such cases.
- 8 Dominique Torre and Qing Xu’s paper on “Digital payment in China: adoption and interactions among application” examines competition between two Chinese payment platforms: Alipay and WeChat Pay. These mobile payment services provided by Alibaba and Tencent have spread rapidly throughout China in the last ten years. The theoretical model seeks to explain why the incumbent platform did not prevent the entry of the second payment platform. The article develops an adoption model which mimics the competition between these two service providers. The authors point out that complementarities between the two solutions (differentiated services offered to clients, decreasing adoption costs, and contrasting business models) may explain why these two service providers have avoided fierce competition.
- 9 The article by Arrah-Marie Jo describes the phenomenon of crowdsourcing platforms which use the crowd to find new ideas or solve problems, and analyses the conditions of their success. She focuses on a bug bounty program platform. Bug bounty or vulnerability rewarding programs are used by companies to improve their system security. They offer monetary rewards to individuals who find and disclose bugs or flaws in pieces of software or software systems. Arrah-Marie Jo explains that a major challenge when designing these programs is being able to attract high-skilled and talented participants, so-called hackers. She examines the motivations for hackers to participate in these programs and finds that information provision and compensation schemes are important, with some trade-off between inducing higher rates of participation and attracting more valuable participants.
- 10 Traditional industries are being challenged by the digital revolution. The relations of hotels with platforms such as Booking.com and Airbnb show that digitalization can be both a threat and an opportunity in sectors such as tourism. Also, the financial sector is being strongly affected by the rise of finTechs which provide innovative services which may be complementary to or substitute for existing bank and insurance company

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related to 31 events that occurred between 2015 and 2019, published by 55 representative French journals, and they provide a mapping of French media based on their different representations, and classify them according to content and quality.

12 The article by Blayac, Reymond, and Stéphan, entitled "Can digital technologies induce behavioral changes in transportation habits? Evidence based on user experience of the SmartMoov application" shows how the use of mobile applications could change transportation behavior. The researchers conducted a three-month experiment in the Montpellier area based on the smartphone application SmartMoov. The empirical evidence provided by the data observed during the field test shows that consumers were sensitive to the information provided by the mobile application, and were likely to modify their mobility behavior in terms of changing their routes and departure times. The authors highlight a gender effect in their results as women are more likely to adapt their behavior in response to the suggestions of the mobile app.

13 The final article is by Omrani and Soulié and is entitled "Privacy experience, privacy perception, political ideology and online privacy concern: The case of data collection in Europe." This article is motivated by the fact that consumers with privacy concerns might choose not to share their personal data or use services that collect too much data. The authors investigate the link between consumers' privacy concerns and political ideology. They exploit a rich data set which includes more than 14,000 Internet users from 26 European countries. They examine which individual, social, and contextual factors affect privacy concerns. The evidence shows that most individuals consider health and financial data to be sensitive information. They find also that individuals who have experienced privacy intrusions in the past tend to be less concerned about privacy. They show that the individuals with politically-left leanings are more concerned about privacy than their right-oriented counterparts. This article offers some important insights into how privacy concerns can constrain business models and regulation.

14 This Special Issue does not cover all of the topics related to the digital economy but it does allow a better understanding of the competition and regulation issues in digital markets. There is no doubt that digital economics is more than a new economic research field; it is entailing a renewal of industrial economics. The research questions and challenges linked to the digitalization of the economy are so numerous that they should capture the attention of many scholars in the immediate future.

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