ESG in Platform Markets

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1 Introduction

Platforms have radically transformed many markets. Initially perceived as the harbinger of a new economy, platforms today can no longer ignore their impact on the triple bottom line of profit, planet, and people (Kim et al., 2024; Huang and Rust, 2011; Elkington, 1999), as their adverse effects on the environment (e.g., massive energy consumption and carbon emissions) and society (e.g., misinformation, hate speech, discrimination, degradation of mental health, and privacy violations) become increasingly evident (Aridor et al., 2024; Haidt, 2024; Parmar et al., 2023). As a result, consumers, regulators, and even business leaders demand greater transparency along the *environmental* (E), *social* (S), and *governance* (G) pillars of a platform's activities.

Sustainability captured by the triple bottom line and ESG considerations can be viewed as two sides of the same coin. Figure 1 illustrates our framework and how we integrate the triple bottom line perspective augmented by *probity* with the perspective of ESG. The inside-out view of sustainability and the outside-in view of ESG regulation is in line with the notion of double materiality in the ongoing ESG debate (Eccles, 2024).[1] Note that our framework adds probity as an additional dimension to the standard triple bottom line. In a nutshell, probity captures *how* the triple bottom line is reached. For instance, a digital

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[1]For a European perspective, see the Corporate Sustainability Reporting Directive (CSRD) issued by the European Union (see `https://bit.ly/4dATg4j`).

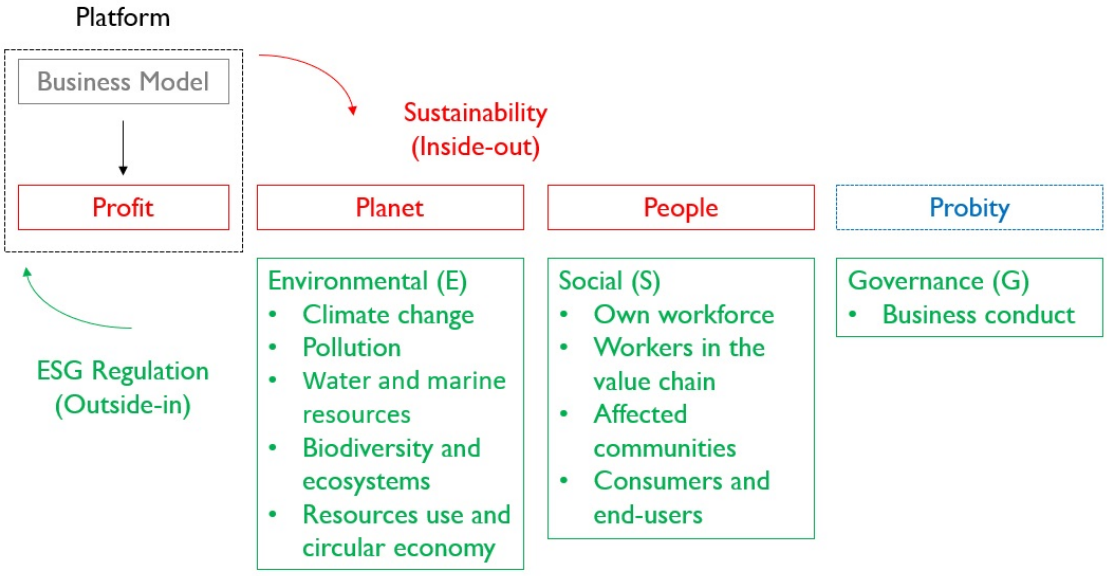

Figure 1: Sustainability captured by the triple bottom line of profit, planet, and people augmented by probity, and the environmental, social, and governance pillars of the ESG framework (the ESG indicators are taken from the European Regulation 2023/2772 regarding sustainability reporting standards).

platform can use self-preferencing to manipulate the rankings of search results in favor of the platform's own products and services. From a governance perspective, this type of business conduct may trigger regulatory or antitrust intervention.[2]

This chapter first introduces a simple framework to organize the literature on ESG in platform markets. We then discuss key papers and point out avenues for future research.

2 A simple framework

This section provides a first attempt to introduce ESG considerations into the canonical platform model by Rochet and Tirole (2003). Specifically, we consider a setting where buyers care about the ESG footprint created by the platform whereas the platform focuses on profit maximization (Buehler et al., 2024; Bertini et al., 2022). This allows us to

[2]For example, see the *Google Shopping* judgment of the Court of Justice of the European Union (ECLI:EU:C:2024:726 Google LLC & Alphabet Inc v European Commission, September 10, 2024).

illustrate the impact of ESG considerations on the market outcome in the simplest possible setting and highlight multiple avenues for future research.[3]

The profit-maximizing monopoly platform mediates transactions between buyers B and sellers S at respective transaction fees f_B and f_S. In addition to the transaction fees, the platform chooses the ESG footprint $\phi \in \mathbb{R}$ per transaction, disclosed in its corporate sustainability reporting.[4] If $\phi > 0$, a transaction on the platform creates a negative impact, whereas it creates a "net-positive" impact (Polman and Winston, 2021) if $\phi < 0$. The unit cost of a transaction with footprint ϕ is $c(\phi)$, with $c(\phi) \geq 0$, $c'(\phi) \leq 0$, and $c''(\phi) \geq 0$.

Sellers are active on the platform if the surplus $b_S - f_S$ of a transaction is nonnegative. Buyers purchase one unit from each seller and are active if the surplus of a transaction satisfies $b_B - f_B - z(\phi) \geq 0$, where $z(\phi)$ measures the disutility from the footprint per transaction ϕ, with $z(0) = 0$, $z'(\phi) \geq 0$, and $z''(\phi) \geq 0$. This means that buyers prefer a lower footprint and perceive a *cold prickle* if $\phi > 0$ and a *warm glow* if $\phi < 0$ (Andreoni, 1995). Assuming that the heterogeneous benefits b_B and b_S drawn independently from the distributions $F(b_B)$ and $G(b_S)$, the quasi-demands of buyers and sellers are

$$D_B(f_B + z(\phi)) = 1 - F(f_B + z(\phi)) \quad \text{and} \quad D_S(f_S) = 1 - G(f_S),$$

and the transaction volume on the platform is $V(f_B + z(\phi), f_S) \equiv D_B(f_B + z(\phi))D_S(f_S)$.

The platform chooses the fees and the footprint per transaction to maximize the profit

$$\max_{f_B, f_S, \phi} \pi(f_B, f_S, \phi) = [f_B + f_S - c(\phi)]V(f_B + z(\phi), f_S).$$

Because a buyer's perceived transaction fee $f_B + z(\phi)$ is additively separable in f_B and $z(\phi)$, the following result holds.

[3] Aridor et al. (2024) survey the burgeoning literature on the economics of social media and provide a stylized economic framework of the life cycle (production, distribution, and consumption) of social media content.

[4] If the ESG footprint encompasses multiple dimensions, ϕ should be interpreted as a real-valued index summarizing the various ESG dimensions.

Result 1 (**Inside-out**). *The platform's profit-maximizing footprint per transaction* ϕ^* *solves* $-c'(\phi^*) = z'(\phi^*)$*, its overall ESG metric is* $\Phi^*(f_B^*, f_S^*, \phi^*) = \phi^* \, V(f_B^* + z(\phi^*), f_S^*)$*, and the transaction fees* f_B^* *and* f_S^* *satisfy*

$$\frac{f_B^* + z(\phi^*)}{f_S^*} = \frac{\eta_B}{\eta_S},$$

where η_B *and* η_S *denote the elasticities of the quasi-demand functions.*

Intuitively, the profit-maximizing footprint per transaction ϕ^* is characterized by balancing the marginal changes in the unit cost and the disutility perceived by buyers, irrespective of the transaction fees set on the platform.[5] The overall ESG metric of the platform Φ^* in turn results from multiplying the footprint per transaction by volume. The next result addresses regulation to limit the overall ESG metric $\Phi^* > 0$.

Result 2 (**Outside-in**). *If the regulator limits the overall ESG metric to* $0 \leq \Phi^R < \Phi^*$*, then the platform must choose the profit-maximizing fees* (f_B^R, f_S^R) *and the footprint per transaction* ϕ^R *to satisfy the constraint* $\phi \; V(f_B + z(\phi), f_S) \leq \Phi^R$*. The cost of ESG regulation for the firm is* $\pi^* - \pi^R > 0$*.*

Although we are agnostic about the choice of Φ^R, ESG regulation ideally results from the maximization of welfare, which can be decomposed into the triple bottom line of profit, people, and planet (Buehler et al., 2024; Bertini et al., 2022). Because the platform focuses on profit rather than welfare, it ignores the impact on people and planet, and ESG regulation aims to close this gap.[6]

Clearly, if a positive ESG metric is unacceptable from the regulator's point of view ($\Phi^R = 0$), the platform must either reduce the footprint per transaction or the transaction volume to zero (i.e., "clean up its act" or "shut down"). If regulation allows for a positive ESG metric, the question of who pays for the resulting monetary cost remains. Assuming

[5] Note that the profit-maximizing fee structure accounts for the disutility $z(\phi^*)$ perceived by consumers. Specifically, the ratio of the perceived (rather than nominal) fees equals the ratio of elasticities.

[6] An alternative approach is to assume that the platform has social preferences and makes an ethical choice by considering welfare (Dewatripont and Tirole, 2024).

that the monetary cost of the footprint per transaction is given by $\delta > 0$, the externality per transaction is $e(\phi) = \delta\phi - z(\phi)$. The regulator can make buyers pay for the externality by imposing a unit tax $t = e(\phi)$ on buyers. Alternatively, one can hold the platform responsible and make it pay for the externality.

Our framework provides a formal description of the double materiality principle by showing how the platform's choices impact its overall ESG metric and how ESG regulation may put a constraint on these choices. Future research in this area could explore how ESG considerations affect the pricing of products and services sold on the platform, and how the platform can incentivize sellers to improve the overall ESG metric.[7] Alternatively, one could study the implications of innovation, dynamics, and competition on platforms' ESG metrics. By assuming that the platform truthfully reports the footprint, we abstract from greenwashing (Wu et al., 2020) in platform markets, which is another under-researched topic.

3 ESG research on platform markets

This section uses our framework presented in Figure 1 to organize the existing literature on platform markets around the three pillars of ESG.

3.1 The environmental pillar

3.1.1 Environmental footprints

The scant management literature on environmental footprints has focused on carbon (Roemer et al., 2023; Bertini et al., 2022; Meinrenken et al., 2012), water (Hoekstra, 2015), waste (Atasu and Subramanian, 2012), and biodiversity (Bull et al., 2022) footprints but abstracted from multi-sided markets. In platform markets, carbon footprints are often caused by massive energy consumption, for example to power data centers or deploy large

[7] For example, Amazon claims to drive climate solutions, reduce waste and packaging, protect natural resources, and advance human rights. Similarly, Uber strives to be a zero-emission and low-packaging-waste platform by 2040, and Airbnb encourages its hosts to reduce their listings' environmental footprint.

language models (LLMs).[8] Naumov and Keith (2023) provide evidence that ride-hailing platforms can have negative environmental consequences through increased greenhouse gas emissions if consumers are switching to ride-hailing from lower-carbon transportation modes. This effect may be exacerbated if the decline in public transit ridership reduces service quality and thus makes public transit even less attractive. Water footprints in platform markets often result from cooling data centers. Waste footprints typically result from packaging materials (e.g., cardboard, plastics) used to ship goods to customers. Finally, the impact of platforms on biodiversity has not been addressed in the literature but is increasingly important for practitioners, as highlighted in the Corporate Manual for setting science-based targets for nature (Science Based Targets Network, 2024).

3.1.2 Resources use and circular economy

There is a substantial literature on closed-loop supply chains and circularity in operations management (Agrawal et al., 2021, 2019; Souza, 2013; Guide Jr and Van Wassenhove, 2009) and marketing (Buehler et al., 2024; Atasu et al., 2008). In a nutshell, circularity has two levers: product design and *end-of-life recycling* to reduce waste and resource footprints, and *product life extension* through sharing, repairing, and re-manufacturing to keep products in use for longer. Neither of these levers has been studied in platform markets. Participation in end-of-life product recycling can be boosted through financial incentives (such as deposit-refund schemes or product buyback) and retaining product ownership (such as renting or leasing) (Buehler et al., 2024; Agrawal et al., 2021). Remanufacturing extends product life but may cannibalize new product sales (Watkins, 2024; Atasu et al., 2008). Similarly, sharing platforms—as part of the broader sharing economy—have the potential to improve environmental outcomes by sharing assets, such as cars, homes, or tools, instead of producing new ones (Stahel, 2016).

[8] https://adasci.org/how-much-energy-do-llms-consume-unveiling-the-power-behind-ai/

3.2 The societal pillar

This pillar organizes the large body of work on societal issues in platform markets, with a focus on the literature in management and economics.

3.2.1 Own workforce

Platforms have faced ongoing criticism on how they treat their workforce, particularly regarding working conditions, wages, training, health, and safety. For example, Uber drivers are classified as independent contractors rather than employees, which exempts the company from providing traditional benefits such as health insurance, paid leave, and retirement plans (e.g., Muller, 2019; Rosenblat et al., 2017). Additionally, Uber's dynamic pricing algorithms and commission structures can sometimes result in unpredictable earnings for drivers. Amazon has also faced significant scrutiny about the treatment of its workforce. Recently, Amazon workers across 20 countries were striking on Black Friday against "anti-worker" practices.

An important aspect of workforce management on platforms is the widespread use of algorithms, often with minimal human oversight, which can lead to unpredictable workloads, long hours, and unreasonable performance expectations (e.g., Tan and Gong, 2024; Jarrahi et al., 2023; Bai et al., 2022; Cardenas, 2021; Kresge, 2020). For example, Wu et al. (2023) explore coping strategies of workers under algorithmic management on a food delivery platform.

3.2.2 Workers in the value chain

The working conditions of individuals on the seller side of the platform have often been criticized by various stakeholder groups. For example, the fast-fashion platform Shein has been accused of serious labor abuses in its supply chain. Investigations revealed that some workers making Shein clothes work 75 hours a week in unsafe environments, with little pay or protection (Chakrabarti and Yadav, 2024; Oksnes, 2024). Migrants making the dangerous journey to the US are overwhelmingly dependent on platforms such as Facebook

and WhatsApp, which nevertheless have done little to stop the dangerous misinformation targeting them (MigrantMisinfo, 2022). Ramchandani et al. (2021) leverage massive deep web data to identify suspicious recruitment-to-sales pathways and provide a network view of commercial sex supply chains. For human trafficking, advertisement or job posting on legitimate platforms can be used to recruit victims. Kessler (2018) reports a significant drop in ads after the government shut down Backpage, a major platform that is heavily used to advertise sex services. However, advertising for sex services seems to have rebounded on new websites.

3.2.3 Affected communities

Platform-based businesses such as Uber and Airbnb have the potential to significantly impact communities. Although studies have reported a significant growth in ride-hailing services worldwide and related benefits, there has been growing evidence of their negative externalities (Athey et al., 2024; Frechette et al., 2019; Shaheen and Cohen, 2019; Hang et al., 2019). Agarwal et al. (2023) find that ride-hailing vehicles can provide sustainable means of transport and contribute to congestion in cities. Cairncross et al. (2024), in turn, do not find a significant negative long-term effect of ride-hailing on public transit ridership, traffic congestion, and traffic fatalities.

Similarly, Airbnb has mixed effects on communities. On the positive side, it provides homeowners with an opportunity to earn additional income by renting out their spaces, fostering a more decentralized tourism economy, and boosting local businesses (Gold, 2019). However, Airbnb's presence can also increase housing costs in popular areas, reducing the availability of long-term housing and contributing to gentrification (Cheng et al., 2022; Chen et al., 2022). In addition, some communities have raised concerns about disturbances in neighborhood dynamics, with transient guests that can cause noise or safety concerns (Caldicott et al., 2020; Gold, 2019). Airbnb regulations vary significantly between different cities and states, and many local governments implement laws to address concerns about housing shortages, safety, and neighborhood impacts.

In addition, platforms that enable user engagement in sex trade can harm communities by increasing crime rates, facilitating human trafficking and sexual exploitation, eroding social values, and enabling other illegal activities such as spreading malware, phishing, and fraud (Zeng et al., 2022; Oddone-Paolucci et al., 2017).

3.2.4 Consumers and end-users

Platforms can have detrimental effects on the welfare of consumers and end-users (Aridor et al., 2024):

(1) *Well-being and mental health*. Social media platforms such as Instagram, TikTok, and Facebook facilitate the creation and consumption of digital content. Their algorithms often prioritize highly curated, idealized content, leading to anxiety, low self-esteem, and fear of missing out among users (Braghieri et al., 2022; Allcott et al., 2020; Mosquera et al., 2020). Online platforms may also foster cyberbullying, which can be overwhelming due to the anonymity and public nature of posts. Haidt (2022, 2024) extensively studies the negative impact of social media on the mental health of teenagers from a social psychology perspective. Donati et al. (2022) find that access to high-speed internet has a harmful effect on mental health for young cohorts. Twenge et al. (2020) argue that the recent mental health crisis coincides with the widespread adoption of smartphones around 2011, supporting the idea that social media platforms have played a central role in worsening teen mental health outcomes.

    Furthermore, platform algorithms are designed to maximize user engagement, potentially leading to addiction and negatively impacting productivity (Allcott et al., 2022). Hoong (2021) find evidence that individuals may be overusing social media platforms due to their limited ability to exercise self-control. Rosenquist et al. (2021) examine whether different design features such as content format and algorithms exacerbate addiction. Ichihashi and Kim (2023) show that under

competition, platforms may sacrifice service quality by increasing addictiveness for attention.

Different regulations have been proposed to deal with the challenges from digital platforms. Montana became the first U.S. state to officially ban TikTok in 2023. As of October 2024, 13 U.S. states and the District of Columbia have filed lawsuits against TikTok, accusing the platform of harming young users. In November 2024, Australia passed a social media ban for children under 16.

(2) *Platform bias.* Platforms like ebay, Uber, Airbnb and LinkedIn have faced scrutiny for biases that may arise from the platform's design and/or the behavior of its users. Although the platforms themselves may not intentionally promote discrimination, the way they are structured and used can sometimes reflect or amplify racial, gender, and other forms of bias in society. Airbnb has been criticized for enabling discrimination in the booking process, particularly against people from marginalized communities (Fisman and Luca, 2016; Edelman et al., 2017). Bias on LinkedIn is often associated with how recruiters, hiring managers, or users interact with the platform (Ruparel et al., 2020).

Companies like Airbnb and LinkedIn have taken steps to address these challenges. Airbnb implemented policies such as removing guest photos before bookings and enforcing an anti-discrimination pledge for hosts. LinkedIn has introduced tools to hide names and photos during candidate reviews. The platform is also working on improving fairness in its recommendation algorithms and providing diversity insights to recruiters. The effectiveness of these efforts is still debatable. On the other hand, platform design changes can increase demand to help marginalized groups. Aneja et al. (2023) show that even in a world with anti-Black bias on average, making it easy to identify Black-owned businesses can increase demand.

(3) *Platform algorithm.* There are several ways in which a platform's algorithm design can impact the society:

(i) Algorithmic bias. Aridor et al. (2024) provides a comprehensive review of how algorithms may yield biased outcomes for different demographic groups. If search or pricing algorithms prioritize properties in wealthier neighborhoods, minority users may be disadvantaged. Yuan et al. (2021) point out that some groups, e.g., females, are less likely to see employment ads or education degree program ads, due to the design of ad-auctions on advertising platforms. Fu et al. (2022) study how home sellers and buyers interact with Zillow's Zestimate algorithm throughout the sales cycle of residential properties. They identify the human-algorithm feedback loop in an important real-world setting, but dismiss the concern that such a feedback loop generates persistent error propagation. Malik and Fu (2023) show that a platform in the housing market prefers to induce excess market entry and sales volume by creating an over-fitted machine learning model and excessive fluctuations in the algorithmic prices.

(ii) Polarization and echo chambers. Algorithms typically prioritize content that generates high user engagement. Content that evokes strong emotional reactions, such as politically charged or polarizing messages, often gets amplified (Marino et al., 2024). This can create an environment where controversial or extreme political statements gain more visibility, intensifying partisan divides (Sagbakken, 2022). Also, algorithms can contribute to the creation of echo chambers, where users are more likely to see content that aligns with their own beliefs while being less exposed to opposing viewpoints (Ross Arguedas et al., 2022; Levy and Razin, 2019). This reinforcement of political beliefs can lead to a more polarized electorate.

(iii) Spread of misinformation. Research showed that social media platforms can amplify fringe ideas, fake news, and misinformation during election season (Aïmeur et al., 2023). Their algorithms sometimes failed to effectively curb the reach of misleading political content before it went viral. Although platforms introduced fact-checking measures, misinformation still spread widely, influencing political narratives and campaign strategies. Ng and Taeihagh (2021) examines the pathways

for spreading disinformation through application programming interfaces (APIs) provided by social media platforms.

(4) *Misinformation.* Platforms facilitate the creation and sharing of misinformation (Chaudhuri et al., 2024), raising concerns about the dissemination of fake news. For instance, misinformation related to public health lead to erosion of trust and put public health at risk. Melchior and Oliveira (2022) provide a thorough review on the challenges and recommendations for combating fake news. Schoenmueller et al. (2024) propose that social-media users' own post histories can be used to identify fake-news sharers.

Zhuravskaya et al. (2020) provide a comprehensive review of how social media affects political outcomes. Misinformation undermines democratic processes and is exceedingly difficult to correct (Kuklinski et al., 2000; Jerit and Zhao, 2020). Ahmad et al. (2024) argue that online misinformation is largely financially sustained via advertising, and examine how financing misinformation affects the advertisers and ad platforms involved. De Blasio and Selva (2021) examine counter disinformation policies to investigate how European countries are shaping the meaning and boundaries of social platforms' accountability. After examining key attributes of fake news and of current solutions, Alstyne (2023) presents design trade-offs for curbing misinformation.

3.3 The governance pillar

This pillar considers data privacy, regulation and antitrust, and content accountability.

3.3.1 Data privacy

As platforms become more integrated into people's everyday life, concerns surrounding data security, unauthorized access, and misuse of personal information have become increasingly relevant. For example, in the 2010s, British consulting firm Cambridge

Analytica collected personal data from tens of millions of Facebook users without their consent for targeted political advertising. Many companies behind the most popular mobile apps for Apple and Android devices, including Twitter and Instagram, have been reported to routinely gather private information from users' personal address books without the phone owner's knowledge.

Acquisti et al. (2016) provides an excellent survey of the economics of privacy. Acemoglu et al. (2022) show that there can be "too much data" when private user data is correlated, such that by sharing private information with a platform, a user reveals information about other users. Such externalities depress the price of data and lead to excessive data sharing. It might even be welfare-increasing to shut down data markets. As platform competition cannot address the problem, they propose a regulation scheme where data transactions are mediated to reduce the correlation of user data. Heidhues et al. (2023) show that a platform's steering of 'fallible' consumers (who make mistakes in evaluating offers) towards products that they are more likely to buy is typically harmful and argue that there is a case for regulating such steering practices.

To safeguard the privacy and personal data of individuals, various jurisdictions have implemented privacy regulations governing how companies collect, use and share personal information, including EU's General Data Protection Regulation (GDPR), widely regarded as the toughest privacy and security law globally, the California Consumer Privacy Act (CCPA) and the California Privacy Rights Act (CPRA). These laws, establishing stringent standards for transparency, consent, and accountability in handling personal data, are aimed to ensure that users have greater control over their personal information. These regulations have lead to improvements in protecting user data and enhancing security in business practices (Zaeem and Barber, 2020). Nevertheless, Kesler et al. (2024) find that more than 20% of the mobile apps across Apple's App store and Google's Play store do not comply with their disclosed data usage.

3.3.2 Antitrust and regulation

Antitrust interventions and regulation in platform markets aim to ensure fair competition, prevent monopolistic practices, and protect consumers in the digital marketplace. Card payment systems were the first platforms to come under antitrust scrutiny, often due to presumably "excessive" interchange fees for executing transactions.[9] With the rise of large tech companies dominating areas like online search, social media, and e-commerce, antitrust and regulatory bodies around the world are increasing scrutiny to curb practices that may stifle competition (Pan and Song, 2024; Parker et al., 2021; Sokol and Van Alstyne, 2021). Key regulatory measures involve preventing anti-competitive mergers, requiring transparency in algorithms and data use, and imposing restrictions on self-preferencing, where a platform might favor its own products over those of its competitors.

Khan (2016) argues that the traditional antitrust approach is insufficient to address the monopolistic practices of modern tech giants like Amazon. Farronato et al. (2024) study the role of network effects and platform differentiation in the context of a merger between two platforms for pet-sitting services. They show that although users of the acquiring platform benefit from the merger thanks to network effects, those of the acquired platform are comparatively worse off because of the removal of their preferred option. Farronato et al. (2023) reveal that Amazon-branded products (e.g., Amazon Basics) are indeed ranked higher than similar products in consumer search results. However, there appears to be no evidence of self-preferencing. Currently, the Federal Trade Commission (FTC) and 17 states allege that Amazon engages in tactics that harm competition, inflate prices, degrade service quality, and stifle innovation.

Few studies have examined the impact of antitrust intervention in platform markets. Rong et al. (2024) show that China's Platform Guidelines did not increase competition in platform markets, with less venture capital investment flowing into them and fewer startups entering these markets.

[9] Garces and Lutes (2019) provide an assessment of the regulatory goals and impact of interventions in card payment systems.

In 2024, the U.S. Department of Justice (DOJ) has proposed that Alphabet, Google's parent company, divest its Chrome web browser as part of measures to address its alleged monopoly in online search. A federal judge previously found that, with Chrome, Google had illegally maintained its dominance, processing over 90% of U.S. internet searches. Beyond the divestiture of Chrome, the DOJ may also seek additional remedies, including ending Google's payments to device manufacturers like Apple to set its search engine as the default, requiring Google to share data and algorithms with competitors, and limiting agreements that hinder competition. Prosecutors aim to prevent Google's dominance from spreading to emerging technologies while promoting competition in the broader tech ecosystem.

Ticketmaster holds a near-monopoly in the live entertainment ticketing market, controlling an overwhelming share of ticket sales for concerts, sporting events, and theater in the US. This dominance is bolstered by its 2010 merger with Live Nation, forming Live Nation Entertainment, which controls a vast portion of both ticketing and event promotion. This consolidation harms both artists and consumers (Holmstrom, 2019). Recently, Ticketmaster has entered the resale market by prohibiting consumers from reselling on competing resale platforms. Zou and Jiang (2020) develop a game-theoretic framework and argue that platform integration—Ticketmaster controlling both the primary and the resale platforms—may lower the service fees in both markets, alleviating double marginalization in the primary market. Recently, Ticketmaster and its parent company are facing significant legal challenges over alleged monopolistic practices.[10]

3.3.3 Content accountability

Digital platforms have generated various negative effects on society, including facilitating drug trafficking, sex trafficking, money laundering, terrorist recruitment, and other forms of harmful content. For more than a quarter of a century, digital platforms in the U.S. have been protected by Section 230 of the 1996 Communications Decency Act, which provides

[10] See `https://www.pymnts.com/legal/2024/lawsuit-accuses-ticketmaster-and-live-nation-of-racketeering-activity/` for details.

a "safe harbor" for social-media platforms by shielding them from liability for any illegal content generated by their users. In a "laissez-faire" regime under Section 230, where platforms face minimal liability, they may take some proactive measures to address online misconduct but often adhere to a minimal standard of care to maximize platform profits. These actions, such as content moderation or monitoring user activities, are often motivated by private incentives like protecting their reputation or mitigating harm to participants within the platform environment (Lefouili and Madio, 2022). However, research suggests that consumers are often more drawn to negative and novel information.[11] As a result, platform operators that prioritize user engagement may have insufficient incentives to respond proactively to certain harmful content. This highlights the potential need for external forces, such as government regulations, to realign the interests of the private sector with the broader goals of societal well-being. Below, we discuss recent initiatives in government-enforced platform governance.

When governments seek to address the societal harms generated by digital platforms, two regulatory approaches are commonly employed (Henry et al., 2022): market withdrawal, including site shutdowns, blocking, or enforcement actions, and the imposition of platform liability for associated harms. The effectiveness of site disruptions varies across different contexts. While some studies suggest that shutting down or blocking a limited number of major sites primarily displaces illegal activities, such as piracy (Poort et al., 2014; Aguiar et al., 2018), drug trafficking (Soska and Christin, 2015; Décary-Hétu and Giommoni, 2017), and commercial sex advertising (Zeng et al., 2022), other research indicates that targeting a sufficiently large number of sites can result in a significant reduction in illicit activities, including piracy (Danaher and Smith, 2014; Reimers, 2016; Danaher et al., 2020) and illegal drug transactions (Chan et al., 2019).

Regarding the liability regime, theoretical research has examined the economic implications of holding platforms accountable for content hosted on their sites (Lefouili and Madio, 2022; Buiten et al., 2020; Hua and Spier, 2020), but empirical evidence remains

[11] See Dissenting Statement of Federal Trade Commissioner Rohit Chopra, In re Facebook, Inc., Commission File No. 1823109, at 2 (July 24, 2019).

scarce. As illegal and harmful content continues to grow in impact, many countries are adopting regulatory measures to hold platforms accountable. Germany, for instance, enacted the NetzDG law, requiring social media companies to promptly remove illegal content or face fines (Gorwa, 2021). In the United States, where free speech protections complicate regulation, agencies like the Federal Communications Commission (FCC) and the Cybersecurity and Infrastructure Security Agency (CISA) have collaborated with platforms to encourage voluntary measures such as labeling false claims or downranking misleading content. In 2018, the U.S. Congress passed the "Stop Enabling Sex Traffickers Act" (SESTA) and the "Allow States and Victims to Fight Online Sex Trafficking Act" (FOSTA), removing Section 230 liability protections for platforms that knowingly facilitate sex trafficking. Research by Zeng et al. (2024) shows that such regulations have prompted platforms to adopt stricter policies against child sexual exploitation, reducing trafficking of minors. More recently, in October 2023, the United Kingdom enacted the Online Safety Act, holding platforms accountable for hosting illegal content and material harmful to children. Similarly, the European Union introduced the Digital Services Act, which strengthens platform liability for illegal content. Although government-imposed liability has been utilized as a regulatory approach to address online harms in various jurisdictions, its impact and effectiveness continue to be widely debated.

4 Promising areas of future research

Even though platforms are essential for trade in many markets, their impact on the ESG pillars is not well understood. First, along the *environmental* pillar, future research could explore the drivers of carbon, water, and biodiversity footprints in platform markets. Platforms not only need to find ways to reduce their own footprint, but also motivate sellers to reduce their environmental impact. Similarly, it could be interesting to look into circular initiatives, both for platform operations and the products and services sold over the platform. For example, digital marketplaces could use bio-degradable packaging for delivery and collaborate with sellers to improve the recyclability of products.

Second, along the *social* pillar, future research could investigate how platforms affect people who work for them, as well as people in the supply chain on the seller side. By shaping consumer behavior, in particular through mechanisms to increase engagement, platforms create adverse impacts on users and society at large. Future research could examine the effectiveness of self-regulation by platforms and government intervention to protect consumers and communities.

Third, along the *governance* pillar, future research could explore regulations on data privacy, content accountability, and business transparency, examining how platforms respond to these regulations and adapt their governance practices. Additionally, it would be valuable to investigate antitrust measures and regulatory frameworks aimed at defining boundaries for platform behavior, as well as their implications for the environmental and social pillars. Key questions for future studies include assessing the effectiveness of platform liability in addressing various types of harmful and illegal content and understanding whether such content may migrate from highly regulated regions to those with less stringent regulations.

More broadly, under an ESG perspective, research on how platforms can internalize their negative externalities into business model design will be fruitful. This requires not only new analytical approaches, but also new metrics on how to measure ESG footprints in platform markets.

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