HOW RESILIENT ARE SHARING ECONOMY PLATFORMS DURING PANDEMIC TIMES?

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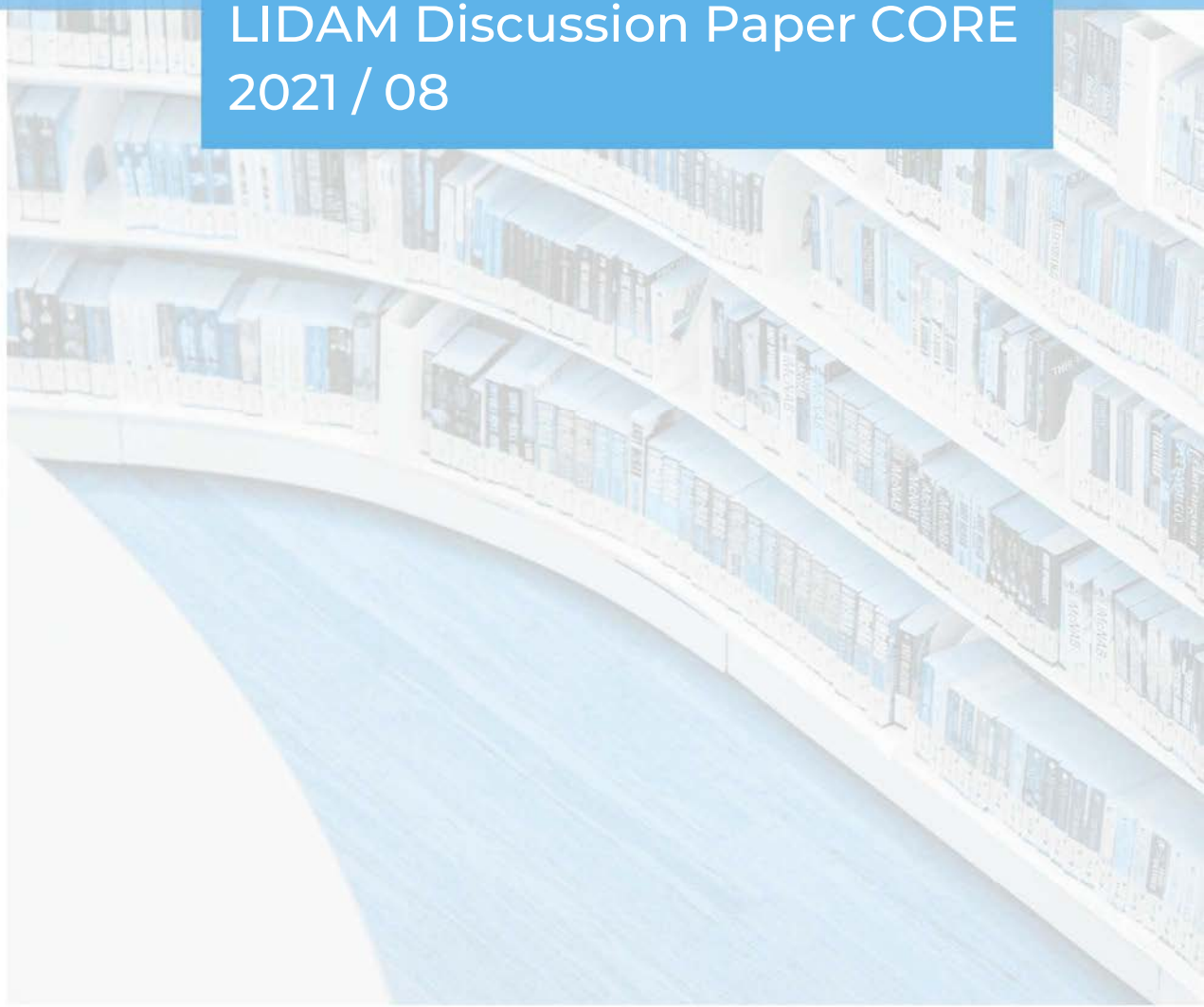

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How resilient are sharing economy platforms during pandemic times?

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Abstract

We contribute to the discussion on the resilience of sharing economy platforms (SEPs) in pandemic times. We distinguish SEPs according to how the pandemic affects their respective supply and demand sides (both sides contract, sides get unbalanced, or both sides expand). Within each category, we discuss how SEPs (both for-profit and prosocial) bear up against the threats and/or exploit the opportunities raised by the pandemic; we also compare SEPs to "pipelines" (integrated firms). Analyzing specific examples through the lens of management science, economics and legal studies, we formulate three conjectures: (1) although SEPs may benefit from lower operating costs in the short run, network effects might accelerate their decline in the long run; (2) yet, network effects also make SEPs better-equipped than pipelines to seize new opportunities emerging in pandemic times; (3) prosocial SEPs are more flexible than profit-oriented SEPs in responding to social needs during difficult times.

Keywords: Digital platforms, resilience, sharing economy, Covid-19
JEL-Classification: L21, L31, L86, M13, M14, K24

1 Introduction

Since early 2020, the world economy has been seriously affected by the pandemic caused by the COVID-19. Some short term effects of the pandemic are already known and documented, such as the steep decrease in GDP generated by the strict lockdown imposed in many countries.[1] The unprecedented shock to the economy, which triggered what was presented as the deepest global recession in decades, affects all sectors of activity, but not with the same intensity as shown in a recent report of The World Bank.[2] This article focuses on the so-called sharing (or collaborative) economy, which "refers to business models where activities are facilitated by collaborative platforms that create an open marketplace for the temporary usage of goods and services often provided by private individuals."[3]

At first sight, the sharing economy is expected to get a more severe blow, which seems to be confirmed by some early data.[4] On the one hand, the activities in the mobility and hospitality sectors, in which sharing economy platforms (SEPs) have flourished (think of the growth of Uber and Airbnb), have se-

[1] See `tinyurl.com/3d8ckmjz` (statista.com); this website and all other websites quoted in this paper were last accessed on June 30, 2021.

[2] See `tinyurl.com/zv5tpzms` (worldbank.org).

[3] Giorgio Beretta, "The European Agenda for the Collaborative Economy and Taxation," *European Taxation* 56, no. 9 (2016).

[4] "The sharing stopped. Uber witnessed an 80% decline in business, and Airbnb rentals were cancelled en masse. In response, Uber laid off 6,700 employees, not counting its drivers, and closed 45 offices. Airbnb similarly cut 1,900 jobs". See `tinyurl.com/9f8xu6ce` (worldpoliticsreview.com).

riously slowed down because of the various policies that reduce the movements and traveling of people, at least within and to cities. Yet, it is precisely in urban areas that SEPs concentrate their activities, as both users and providers of services are numerous, and demand and supply of services are high. On the other hand, the pandemic may erode trust – which is sometimes dubbed "the currency of the sharing economy."[5] For instance, even if people start traveling again, they may become more reluctant to go into another individual's car or flat for sanitary reasons.

However, this first impression must be nuanced. First, platforms are not the only firms that suffer in the travel and hospitality sectors: integrated firms (or "pipelines")[6], such as hotel chains or taxi companies, are also badly hit.[7] Second, every cloud has a silver lining (even the COVID-19 crisis): some SEPs benefited from increased participation both on the demand side (because stay-at-home policies boosted online commerce) and on the supply side (because workers who lost their job tried their luck as independent sellers or service providers). Many online resellers and, to some extent, service providers also took advantage of these circumstances. Finally, although the pandemic may endanger trust among strangers (that is, people without pre-existing relationships based on face-to-face interactions), it may, at the same time, strengthen ties among members of existing communities, thereby favoring the emergence of new community-focused (or prosocial) platforms.

Against this backdrop, an important research question is to compare the respective *business resilience* of profit-oriented SEPs, prosocial SEPs and pipelines during the current pandemic. Business resilience addresses the "capacity for an enterprise to survive, adapt, and grow in the face of turbulent change".[8] The question is thus to assess how these different types of organizations face the threats and/or seize the opportunities that the pandemic is raising. More generally, we examine whether there is a (long-lasting) crisis in the overall sharing economy or whether it is only certain industries (such as travel and hospitality) or certain types of business models (such as capitalistic platforms offering services outside close communities) *within* the sharing economy that are affected.

Our insights are based on integrated perspectives from management science, economics and legal studies; of special interest for our purpose is the literature on the strategies and regulation of SEPs that has recently mushroomed in these three disciplines. We use a two-step methodology: first, we classify SEPs according to how their respective supply and demand sides are affected by the COVID-19 crisis. Then, relying on specific examples, we assess how these platforms in each category bear up against the threats and/or exploit the opportunities raised by the pandemic.

Our analysis allows us to formulate the following conjectures. First, we argue that although SEPs may benefit from lower operating costs and flexibility of deployment in the short run (which allows them to adjust more quickly), network effects might accelerate their decline in the long term. Next, we contend that network effects make SEPs more adaptable and better equipped than pipelines in seizing the new opportunities that emerged during the pandemic. Lastly, we contend that prosocial SEPs are more flexible and apt than profit-oriented SEPs in responding to people's emerging social needs during difficult times.

2 Background

2.1 Sharing economy

The "sharing economy" is usually presented as comprising activities that involve the sharing of resources, in the sense that owners of underused resources (the "providers") make these resources available to other individuals (the "consumers"). Even if this definition remains vague (there are many nuances in the terms "sharing" and "under-

[5] Rachel Botsman and Roo Rogers, "What's Mine Is Yours," *The Rise of Collaborative Consumption*, 2010.

[6] We compare pipelines to platforms in the next section.

[7] See `tinyurl.com/azz2xu97` (bizjournals.com).

[8] Joseph Fiksel, "Sustainability and Resilience: Toward a Systems Approach," *Sustainability: Science, Practice and Policy* 2, no. 2 (October 2006): 14–21.

used resources"), observers agree that activities in the sharing economy show four important features. First, a new breed of intermediaries, called SEPs, is pivotal in the large-scale development of these activities. By leveraging digital technologies and data analysis techniques, these *digital platforms* reduce transactions costs and make it viable for providers and consumers to interact; prominent examples are global, for-profit, SEPs such as Uber or Airbnb, but all sorts of SEPs exist, which differ in their size, scope, ownership structure or business model (as we discuss later). Second, as activities in the sharing economy are decentralized (and sometimes informal), their organization requires *innovative governance modes*, with digital mechanisms (e.g., online rating and review systems) replacing usual social interactions (e.g., face-to-face contacts) that traditionally reassure and diffuse confidence. Third, as a consequence of the first two features, SEPs are *data-intensive*, insofar as they rely to a great extent on (big) data to deliver targeted services. They are also *algorithms-powered* so as to constantly adjust to the evolving environments and consumers' preferences. Finally, as the sharing economy is *gaining momentum* in various sectors of activity, it is increasingly perceived as *disruptive*, as it proposes a substitute offering in many industries, and raises various conflicts and tensions (with the traditional integrated firms, with their own platform workers, and also between a profit-oriented and a prosocial model).

Regarding the last point, the sharing economy exposes many operators and stakeholders to new types of risks.[9] Not only taxi companies, hotels, restaurants, retailers, but also insurers, banks, traveling services (beyond the reservation services), operators in the agri-food chain or electric power industry,[10] etc. are likely to be challenged, with many more sectors thereafter. SEPs are also intrinsically disrupting the rules in place (some of which protect vested interests).[11] Legal disruption should be viewed as a core feature, rather than an accident in the development of (capitalistic) SEPs.[12] Many global platforms are challenging specific laws (market access, data protection, labor law, housing regulations, competition law, copyright, etc.) and are caught in disputes with, or are under investigations by, multiple authorities (data protection authorities, transport authorities, city planning councils, labor boards, competition authorities, the judiciary, etc.).

Our perception is that, since the beginning of the COVID-19 crisis, the public in Europe became more aware of the pivotal social role of proximity workers, in particular in the (health)care sector (hospitals, care homes), but also in the transport or hospitality sectors. This has motivated public authorities to focus on their status and protection. We thus expect more initiatives to strengthen their social protection and bargaining position in the months (years) to come and, concomitantly, a lot of push back from the platforms which heavily rely on their workers (Uber and Deliveroo are good examples of platforms using less educated workers).[13] "Welcome back to human capital" might be the post-COVID rallying mantra – and the targeted SEPs might play in Europe similar tactics as those deployed in the USA by Uber and Lyft against the California "AB5" law (the Assembly Bill 5 which aims at protecting plat-

[9] See `tinyurl.com/2ftffvcn` (eea.europa.eu).

[10] See `tinyurl.com/3hb7j64u` (weforum.org).

[11] For instance, the number and variety of court cases involving Uber indicate that it is one of the main disrupters. The barrage of lawsuits comprises action brought by drivers, passengers, (local) governments and competitors, they involve various issues such as employee benefits, terminations of contract, accessibility and safety, failures of background checks of drivers, breach of taxi rules, etc. See `tinyurl.com/2s3tfym2` (money.cnn.com).

[12] Alain Strowel and Wouter Vergote, "Digital Platforms: To Regulate or Not to Regulate? Message to Regulators: Fix the Economics First, Then Focus on the Right Regulation," mimeo (2018); Orly Lobel, "The Law of the Platform," Minnesota Law Rev. 101 (2016): 87.

[13] For more intellectual jobs (e.g., web design, legal advice, translation, accounting, etc.) offered by what could be called the "task platforms," the localization of the provider and the user is not relevant as the work can be provided from far away over the Internet. This indicates that "task platforms" focusing on intellectual work are probably even more challenging than other platforms: the new competition created by those platforms is truly global (while Uber challenges the local taxi companies in all the cities where it operates). But at the same time, linguistic or cultural differences might put a brake on the possibility to outsourcing online most of those more intellectual or more creative jobs.

form workers entered into force in early 2020 just before the COVID-19 pandemic spread).

Existing analyses show that the sharing economy is a land of promises but also of great perils (including from the legal side). As far as for-profit SEPs are concerned, economic viability is elusive: fast-growing and global platforms like Uber are still struggling to make a profit, while the failure rate of startups is higher than in other sectors. As for non-profit SEPs, many also fail to reach their objectives, experiencing mission-drift or stopping their activity.[14] For both types of platforms, the road to success is paved with a number of operational, economic and legal challenges, which directly stem from their innovative business models.[15]

2.2 Platforms vs. Pipelines

Platforms can be defined as undertakings whose core mission is to enable and to generate value from interactions between users and, therefore, be seen as "managers of network effects."[16] Roughly put, network effects mean that the more agents participate in the interaction, the more valuable the interaction is for every participant. Hence, network effects increase the value of the interaction. For example, the more drivers join a ride-hailing platform, the better off the riders, and vice versa. Yet, network effects also make the interaction harder to organize because, when making their decisions, users fail to take into account the effects that their decisions have on other users. So, even if all users would find the interaction valuable if it were to take place, none of them is sufficiently keen to set it in motion. A business opportunity exists then for a platform, as it can facilitate the coordination of the users' needs and, thereby, create value from their interaction. That is, by bringing users on board, the platform makes them recognize the value that they generate for and from one another.

Although platform-like intermediaries have existed for a long time,[17] the rapid development of digital technologies has vastly expanded the scope of value creation for platforms. On the one hand, digital technologies allow platforms to decrease considerably the transaction costs that users must bear to interact (costs related to, e.g., search, matching, screening, contracting, trust, reputation, dispute resolution, booking management, etc.). On the other hand, platforms can rely on digital technologies to manage network effects more actively and add value to the interactions (through, e.g., recommender and rating systems, payment systems, data analytics, transaction monitoring, etc.). It is thus fair to talk of *digital platforms*. As mentioned above, digital platforms are at the core of the sharing economy.

The process of value creation on platforms has a circular nature: value is co-created by independent users, with the help of the platform that coordinates their interaction. In contrast, traditional firms create value in an integrated and linear way, by using their own staff and assets: they control a series of activities and add value by transforming inputs into finished products or services. They can thus be compared to "pipelines."[18]

Platforms and pipelines coexist within the various sectors of the economy. Typical examples are Airbnb versus hotel chains for short-term accommodation, or Uber and Lyft versus taxi companies for mobility services. When comparing the two modes of organization, one observes that platforms enable transactions (i.e., they set up an infrastructure through which service providers and consumers can interact directly to exchange goods and services), whereas pipeline firms control transactions (i.e., they produce the goods or perform the services themselves). Platforms give independent suppliers greater control and, thus, they adapt their

[14] Uday M. Apte and Mark M. Davis, "Sharing Economy Services: Business Model Generation," *California Management Review* 61, no. 2 (2019): 104–31.

[15] Friedrich Chasin, Moritz von Hoffen, Benedikt Hoffmeister, and Jorg Becker, "Reasons for Failures of Sharing Economy Businesses," *MIS Quarterly Executive* 17, no. 3 (2018): 185–99.

[16] Paul Belleflamme and Martin Peitz, "Ratings, Reviews and Recommendations," in *Handbook of Cultural Economics*, Third Edition (Edward Elgar Publishing, 2020).

[17] See `https://tinyurl.com/88wbwm86` (hbr.org).

[18] Marshall W. Van Alstyne, Geoffrey G. Parker, and Sangeet Paul Choudary, "Pipelines, Platforms, and the New Rules of Strategy," *Harvard Business Review* 94, no. 4 (2016): 54–62.

offering to the consumers' needs more easily than pipelines.[19] However, pipelines maintain direct control over important aspects, such as product variety, advertising, prices, or responsibility for order fulfillment.[20] This allows them to coordinate better decisions that generate spillover across professionals[21] and to fend off challenges from unfavorable expectations about supplier participation.[22] Furthermore, they have the advantage in implementing rules, and thus are more reliable in satisfying standards, especially health standards, in the pandemic.

Regarding the last point, network effects can be a double-edged sword for platforms. As shown in recent research,[23] platforms are not immune to extreme demand fluctuations, but there are bright spots. While network effects may enable their rapid development, they also raise the so-called "chicken-and-egg problem": in order to attract buyers or users, the platform must have a large enough base of registered sellers or providers, but these will be willing to join only if they expect many users to show up.[24] To solve this problem and fuel optimistic expectations, platforms must often spend considerable resources (in advertising and in various forms of subsidies) to convince the first users to join. At a later stage, platforms will mostly face coordination costs. On the other hand, pipelines incur production and distribution costs.

2.3 Profit-oriented versus prosocial platforms

The platforms we took as examples so far are all large, global, and profit-oriented platforms. Although these platforms capture most of the attention, there is also an abundance of much smaller platforms that do not aim to generate financial benefits, especially in the sharing economy.[25] The users of such platforms are not driven by purely extrinsic motivations, such as potential financial rewards, but by intrinsic and/or prosocial motivations. Prosocial motivations are the desire to make an effort to help others; they are influenced by values and ethical dimensions.[26] In contrast with the profit-oriented platforms, most of the prosocial platforms are non-profit and adopt democratic and participative governance. They are also generally smaller and greatly rely on their local community.[27]

Some observers have argued that the great recession of 2008 (combined with the penetration of smartphones since the first decade of the century) led to the development of many free services to share the harvests of private gardens, to borrow clothes, to use the spare time of neighbors, the expertise of citizens or the couch of foreigners, etc.[28] It remains to be seen whether the more recent down-

[19] As we discuss it later, those platforms are probably better at seizing new market opportunities. Airbnb, for example, shifted its focus on long-term stays, which may be less affected by lockdowns and travel restrictions. See `tinyurl.com/5adhh7b5` (adweek.com).

[20] Andrei Hagiu and Julian Wright, "Controlling vs. Enabling," *Management Science* 65, no. 2 (February 2019): 577–95.

[21] Andrei Hagiu and Julian Wright, "Multi-Sided Platforms," *International Journal of Industrial Organization* 43 (November 1, 2015): 162–74.

[22] Andrei Hagiu and Julian Wright, "Marketplace or Reseller?," *Management Science* 61, no. 1 (January 2015): 184–203.

[23] See `tinyurl.com/64pdvpcs` (medium.com).

[24] Bernard Caillaud and Bruno Jullien, "Chicken & Egg: Competition among Intermediation Service Providers," *The RAND Journal of Economics* 34, no. 2 (2003): 309–28.

[25] Louise Lambert, Tom Dedeurwaerdere, Marthe Nyssens, Elisabetta Severi, Olivier Brolis, "Unpacking the Organisational Diversity within the Collaborative Economy." *Ecological Economics*, 164 (2019): 106343.

[26] Adam M. Grant, "Relational Job Design and the Motivation to Make a Prosocial Difference," *Academy of Management Review* 32, no. 2 (April 2007): 393–417; Hadar Gafni, Marek Hudon, and Anaïs Prilleux, "Business or Basic Needs? The Impact of Loan Purpose on Social Crowdfunding Platforms," *Journal of Business Ethics*, May 21, 2020; Richard M Ryan and Edward L. Deci, "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being," *American Psychologist*, 2000, 67.

[27] Pablo Muñoz and Boyd Cohen, "A Compass for Navigating Sharing Economy Business Models," *California Management Review* 61, no. 1 (2018): 114–47.

[28] The community exchanges for content (digital goods) such as Wikipedia predate the more recent community services (involving various tangible goods and services). There exist many local community exchanges that might vary from city to city and have different models of interactions. For an analysis and typology of those services, see the 2016 *Innoviris Anticipate* project involving researchers of UCLouvain, USL-B and KULeuven, as presented on `www.rosels.eu`.

turn caused by the COVID-19 has similarly given a long-lasting boost to those prosocial platforms; at the very least, the lockdowns imposed because of COVID-19 have freed a lot of time for many citizens, which has driven a share of them to engage in community-focused projects, often facilitated by the use of platforms.

The community services differ from the profit-oriented platforms in several aspects: the profit-oriented platforms, contrary to the community exchanges, clearly monetize the use of the under-exploited resources of the providers (for example, the car drivers) to the benefit of those providers and of the platform's shareholders; the value of the resource to which the platform grants access usually requires some relatively important investment from the supplier; this is not the case with prosocial community services.[29]

3 Impacts of the pandemic on the sharing economy

3.1 Methodology

SEPs facilitate the interaction between two groups of users, which can generically be called "sellers" or "providers" (e.g., Airbnb hosts, Uber drivers, Etsy craftspeople or Prosper lenders), and "buyers" or "customers" (e.g., Airbnb guests, Uber riders, Etsy customers or Prosper borrowers). SEPs can also be seen as 'peer-to-peer marketplaces' that intermediate between a supply side and a demand side. To assess the impacts of the pandemic on SEPs, we use a two-step methodology.

Firstly, we classify SEPs according to how their respective supply and demand sides are affected. Three typical patterns emerge:

1. *Both sides contract* (fewer sellers and fewer buyers participate to the platform). Ride-hailing platforms (Uber, Lyft, Didi Chuxing, Ola) certainly fall in this category when both drivers and riders are forced to stay at home. So do short-term accommodation platforms (Airbnb, Xiaozhu) because of traveling restrictions and hosts seeking better prospects for their properties on other markets.

2. *The sides become unbalanced* (participation increases on one side but decreases on the other side). This is the case, for instance, for crowdlending platforms (such as Prosper): because of the rise of unemployment and the accompanying uncertainty, borrowers have largely outgrown lenders; that is, the pandemic has caused excess demand. In contrast, excess supply is observed on freelancing platforms (TaskRabbit, Freelancer, Mechanical Turk), as more unemployed workers turn to freelancers, while the local demand for services is, at best, unchanged.

3. *Both sides expand* (more sellers and more buyers participate to the platform). An illustrating example could be Etsy,[30] which benefited from an inflow of freelancers and of an increased demand for some goods (in particular, handmade face masks). Food-delivery platforms (Deliveroo, Uber Eats, Meituan) also belong to this category; here, increased participation is observed on three sides: restaurants, couriers and diners. Naturally, SEPs that emerged to address specific needs resulting from the pandemic can be ranked in this category as well.

Secondly, we follow past literature to assess how the platforms in each category bear up against the threats and/or exploit the opportunities raised by the pandemic through the analysis of case examples.[31] Given the contemporaneity of our research

[29] A service provider needs some capital to, for example, own a car or a house. In contrast, online marketplaces are profit-oriented platforms offering all sorts of goods, but do not necessarily require investments from providers.

[30] Etsy (`www.etsy.com`) is an American e-commerce website focused on handmade or vintage items and craft supplies. These items fall under a wide range of categories, including jewelry, bags, clothing, home dcor and furniture, toys, art, as well as craft supplies and tools.

[31] See, e.g.,Adam M. Kleinbaum and Toby E. Stuart, "Network Responsiveness: The Social Structural Microfoundations of Dynamic Capabilities," *Academy of Management Perspectives* 28, no. 4 (2014): 353–67.

question, the availability of data dictated our selection of illustrations. More specifically, we followed a three-pronged strategy to access the data: first, we considered large international platforms (such as Airbnb, Uber, or Etsy), as they are scrutinized in the business press; second, we used the privileged access that our previous research gave us to some prosocial SEPs that operate in our direct environment (namely, Belgium); third, we exploited data from an in-depth case study that we developed specifically for this research.

In the rest of this section, we consider the resilience of SEPs in the three categories that we have identified.

3.2 SEPs contracting on both sides

We focus here on the travel and hospitality sectors, as they provide a useful environment for our research question (pipelines and different types of platforms coexist, and all of them were badly hit by the pandemic).

3.2.1 Short-term accommodation sector

Let us start with some numbers to illustrate the damages that the pandemic has imposed on this sector. As far as the main platform is concerned, we observe that the booking of Airbnb in Beijing alone dropped by 96% from January to March 2020; in April 2020, Airbnb reported that its internal valuation fell from $31 billion to $26 billion. Pipelines were also badly affected. For instance, according to Marriott, one of the leading hotel chains around the world, the impact of COVID-19 is more severe than the 9/11 and the 2008 financial crisis combined. In addition, the company predicts that the prior levels of business will not return until beyond 2021.[32]

Let us now investigate which firms, between platforms and pipelines, are likely to be more resilient, that is, to recover more quickly once the crisis is over.[33] As explained previously, platforms own much fewer assets than pipelines. In the hospitality sector, we could thus think, at first glance, that SEPs are less at risk than competing pipelines; indeed, they do not own any properties and therefore do not, unlike hotel chains, have to pay the fixed costs relating to these properties. Platforms like Airbnb should therefore get away with less damage. But this is quickly forgetting that Airbnb hosts are suffering the full brunt of the crisis and, in particular, those who have invested in the development of properties for the sole purpose of renting them for short stays on the platform.[34] To recoup their stake, these hosts have no choice but to put their property on the long-term rental or the sales markets. And it is easy to understand that prices tend to fall on these two markets because of the sudden increase in supply that these decisions cause.

Hence, it is a safe bet that these hosts (whose properties are often highly valued by guests) will not try the Airbnb experience again anytime soon. It is also likely that candidate hosts will now be more reluctant to embark on entrepreneurial projects related to Airbnb. But if hosts are becoming scarce, the platform becomes less attractive for guests; and if fewer guests use it, it becomes less attractive to hosts. In short, the very same network effects that facilitate the rapid growth of a platform can also accelerate its decline. Hotel chains, in contrast, are not subject to such a vicious circle (or negative feedback loop); for those chains that will withstand the crisis, their properties are just waiting for travelers to come back.[35]

[32] See `tinyurl.com/27pvuby5` (news.marriott.com).

[33] We follow here Paul Belleflamme et Huan Ha, "Sharing Economy and Tourism: Who Wins and Who Loses?", IPdigIT, 2 July 2020; `tinyurl.com/ymjxnavw`.

[34] The pandemic resulted in 70% income loss for Airbnb hosts – that is, about eight times more than the platform itself. One reason behind the latter finding is that many Airbnb hosts do not qualify for financial aids from their government. This is the case, for example, in Australia, as reported by Guangwu Chen, Mingming Cheng, Deborah Edwards and Lixiao Xu, "COVID-19 Pandemic Exposes the Vulnerability of the Sharing Economy," *Journal of Sustainable Tourism*, 2021, DOI: `10.1080/09669582.2020.1868484`.

[35] However, those hotels that were forced to lay off experienced workers will probably not be able to hire back these workers once the pandemic is over; they will thus incur extra costs, for instance to train new recruits.

3.2.2 Ride-sharing sector

The pandemic has also ravaged the ride-sharing sector. As far as pipelines are concerned, the number of taxi companies filing for bankruptcy has soared throughout the world. The rental-car giant Hertz has also declared bankruptcy, blaming COVID-19.[36] As for platforms, Uber's and Lyft's main ride business were down around 70-80% in April 2020.[37] Naturally, the prosocial platforms in this sector also saw their activities drastically reduced by the pandemic. Were the impacts worse for them than for profit-oriented platforms? Not necessarily, as we now discuss.

Compared with mainstream platforms, prosocial platforms seem to face more severe challenges during the COVID-19 crisis, but they also seem to recover more easily. Three main specificities of these platforms could explain why they tend to differ in the ways they are affected by and react to the crisis: (i) their explicit search for interaction, (ii) the community-based management of these platforms, and their lack of control mechanisms, and (iii) the type of resources they can mobilize.

First, it is more difficult for prosocial platforms to implement social distancing as most of them explicitly focus on direct interaction among users. To illustrate, we compare Uber with the prosocial ride-sharing platform TaxiStop (`www.taxistop.be`), which provides free ride-sharing services for drivers and riders.[38] In terms of pricing, the platform is free of charge for all users, but it regulates the fee that drivers can charge to riders. In particular, the platform enforces a strict policy that prevents drivers from making profits on the rides.[39] Looking for interaction and a reduced bill, TaxiStop users usually plan longer trips and share them with more passengers than Uber users would do. TaxiStop trips expose thus passengers to higher contagion risks than Uber trips.

Second, prosocial platforms are generally community-managed and, consequently, have fewer control mechanisms than their for-profit counterparts. For instance, the pricing mechanisms on TaxiStop and Uber are quite different: TaxiStop lets users negotiate the price so as to cover the driver's cost, while Uber's regulates the price via its "surge pricing" algorithm. Consequently, Uber's role includes the control of several elements of the service and, in particular, the setting of prices, so as to maximize its profit. In general, the democratic community-based management of prosocial platforms makes them slower in responding to a crisis. To introduce changes, prosocial platforms must obtain the agreement of their local communities; they must check, in particular, that the proposed changes are consistent with the social mission of the platform. This process is time-consuming because of the many interactions needed to obtain the approval of the participants. For-profit platforms do not face such constraints; they can develop new services and change their modes of operation rather quickly by modifying unilaterally their Terms of Use (ToU).[40] Similarly, for-profit platforms can implement new guidelines or requirements more easily than prosocial platforms. For instance, soon after the coronavirus outbreak, Uber requested drivers to follow specific social distancing rules (wear a mask, use hand sanitizer) and enforced

[36] See `tinyurl.com/7frupj6w` (cnet.com).

[37] See `tinyurl.com/4t7exjy4` (mercurynews.com) and `tinyurl.com/d9cjzf42` (theverge.com).

[38] Louise Lambert *et al.* (2019); *op. cit.*

[39] The fee for a ride is jointly determined by the parties and is just meant to cover the driver's costs. TaxiStop does not allow the total amount paid to the driver by all the passengers to exceed 0.36 euros per kilometer. The platform imposes penalties on drivers who violate this rule.

[40] Yet, in order to ensure some level-playing field between platforms and their business providers, the European legislator has started to limit the possibility of platforms to adjust those ToU. In the relations between platforms and business, the 2019/1150 EU Regulation on promoting fairness and transparency for business users of online intermediaries (which entered into force in July 2020) imposes in its Articles 3 and 4 several constraints for the ToU. In particular, the providers of online intermediation services (the platforms) shall notify the business users concerned any change of their ToU and respect a reasonable notice period (of minimum 15 days, but longer if this is necessary for business users to make technical or commercial adaptations). Also, the business users can terminate the contract with the platform. Similar restrictions exist in the P2C context and are imposed by the consumer protection legislation. In sum, legal constraints can thus somewhat impact the ability for profit-oriented platforms to impose changes in their business models and conditions.

these rules through a system of close monitoring and penalties. In contrast, TaxiStop, which is not directly involved in the interaction with users, faced more difficulties in guaranteeing the hygiene standard of trips.

Third, the type of resources that prosocial platforms are able to mobilize represents an important asset, which can affect their recovery from the crisis. Indeed, prosocial platforms can generally rely on voluntary resources. BeWelcome (`www.bewelcome.org`), a prosocial platform in the short-term accommodation sector, nicely illustrates this point. BeWelcome is exclusively run by volunteers. Consequently, although BeWelcome's activity declined drastically during the crisis, the return to normalcy seems easier. On their website, statistics show that the weekly average of daily demands for accommodation and host acceptances nosedived during the pandemic period (for instance, there was not a single host acceptance in early May 2020). But both demands and acceptances were back to normal in July and August 2020, when health standards were relaxed in many European countries. In addition, since the objective of prosocial platforms is to share existing assets for free or without making a profit, service providers do not make specific investments to participate in the platforms. Conversely, service providers on global for-profit platforms are likely to invest in specific assets to increase their profits on the platform (for example, renovating properties to rent them on Airbnb). Service providers experiencing losses during a crisis may leave the platform for good. In contrast, service providers on prosocial platforms face little sunk costs and keep their intrinsic motivation intact.

In sum, although prosocial platforms tend to be more severely affected by the COVID-19 crisis in the very short term, we can expect them to recover more easily.

3.3 SEPs with unbalanced sides

To solve the chicken-and-egg problem and to leverage network effects, platforms must attract a critical mass of users on both sides. Yet, besides the size of the groups of users, the platform must also worry about the *composition* of each groups and about the *balance* between the two groups. This is particularly crucial on crowdlending platforms, which facilitate peer-to-peer loans and play a critical role in sharing economy. Compared with the traditional banking system, crowdlending platforms allow individuals to receive loans directly from other individuals through easier, quicker, and possibly cheaper processes. However, the asymmetric information problems on crowdlending platforms also make it essential to attract borrowers who are sufficiently creditworthy and lenders who are sufficiently experienced, while maintaining a good balance between the size of the two groups.[41] Yet, the pandemic has made this much harder to achieve because of the negative impacts of rising unemployment and economic uncertainty.[42] On the one hand, some current borrowers became unable to repay their loans, thereby impairing existing lenders' confidence in crowdlending. On the other hand, more borrowers (and with higher default risks) were induced to join the platforms, while new lenders were shying away.

To shed light on this issue, we study the case of Prosper Marketplace (referred to hereafter as Prosper), the largest peer-to-peer lending platform in the USA. Since its establishment in 2006, Prosper has attracted more than one million users and has generated more than $4 billion in loan volumes. The aim of the platform is to match potential borrowers with lenders through a simple process. Once joining Prosper, a candidate borrower must provide relevant background information, including income, employment, credit history, and so on. The borrower can then propose a "listing", specifying the desired amount (between $2,000 and $35,000), the term (3-year or 5-year), and personal information. Based on the borrowers' information, the platform

[41] See Paul Belleflamme, Nessrine Omrani, and Martin Peitz, "The Economics of Crowdfunding Platforms," *Information Economics and Policy* 33 (December 1, 2015): 11–28.

[42] By May 2020, the number of unemployed people in the USA reached 22 million. The same trends are observed in many other countries. The number of unemployed people in the OECD area has reached 55 million in April 2020. See `tinyurl.com/2he2z95s` (oecd.org).

estimates the borrower's loss rate and assigns them a "Prosper rating" on a scale with seven grades: A.A (lowest risk) A, B, C, D, E, and H.R. (highest risk). On the basis of this information, lenders (on the other side of the platforms) can invest any amount above $25 in any listing that is proposed. Listings remain on the platform for a period of 14 days. If a listing is funded over 70% before then end of this period, then a loan is successfully originated.

To examine how Prosper has been affected by the pandemic and how it reacted, we examined the listing data of Prosper between August 2019 and May 2020.[43] Our first finding is that the pandemic sharply reduced the borrowers' capacity to obtain loans on Prosper. This finding is based on two observations. First, we calculate the percentage of listings that switched to loans in each week between August 2019 and May 2020. We observe a clear reduction in the ratio of successful listings in March, as shown in Figure 1. Before the pandemic, over 95% of the listings on Prosper were able to receive loans. However, the success rate decreases to around 75% during the pandemic.

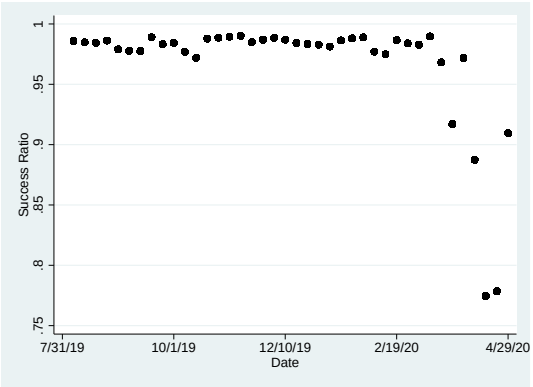

Figure 1: Success Ratio

The second observation concerns those listings that were successfully funded. We measure the number of days it took these projects to get converted into loans (i.e., to reach the funding threshold of 70% of the sum asked). In Figure 2, we report, week per week, the average "funding time" for 3-year loans and 5-year loans . We find that both types of loans require longer time to gather investments. Before the pandemic, most funded borrowers were able to gather sufficient funding in one day. In contrast, it takes up to four days on average for borrowers to gather enough funding in April.

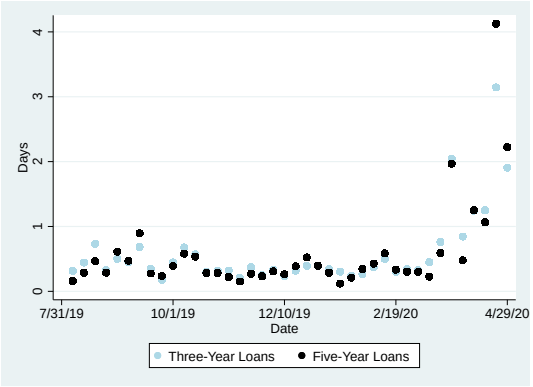

Figure 2: Funding Time in Days

A common explanation behind both the reduction in successful loans and the growth in funding time is the unbalance between the two sides of the platform: because of the pandemic, more borrowers (and more risky ones) joined the platform while, at the same time, fewer lenders did. Such unbalance may damage the platform's ability to retain existing users, as well as to attract new users. As indicated by a recent quarterly report by Prosper,[44] the pandemic has decreased the platform's net revenue by $26.8 million, which is an 89% reduction compared to last year. In order to minimize the adverse effect from the shortage of lenders, the platform has made several changes recently to improve the reliability of its marketplace. Specifically, the platform's action can be summarized as follows:[45] (i) Prosper tightened its credit policies and loan amount; (ii) Prosper improved income verification requirements; (iii) Prosper increased the borrower rates by ap-

[43]The data set is publicly accessible and directly downloaded from Prosper website (see `tinyurl.com/txb77nzh`). The data cover detailed characteristics of borrowers who apply for loans on the platform, including their credit history, homeownership, income, occupations, and so on. When we downloaded the data on June 19, 2020, the most recent listing was April 30, 2020 (due to a delay of system updates).

[44]See `tinyurl.com/u6mv6jdd` (crowdfunderinsider.com).

[45]See `tinyurl.com/8tjcvacc` (prosper.com).

proximately 2% for all ratings, except AA and HR. (This is because there is an increase in AA rated loans in January 2020 by 1%, and the APR on HR rated loan has already reached 36% on the platform rate cap.) (iv) Prosper offered up to three months of payment relief; in addition, the platform will be offering payment reduction and loan extension options to the borrowers.

Prosper's new policies aimed at retaining lenders' confidence in its system and in restoring some balance between demand and supply for funds. Our observations suggest that the platform was successful. According to the performance update released by Prosper in June 2020,[46] its tightened credit policy greatly affected the composition of the pool of borrowers. To illustrate this, we draw the weekly Prosper rating distribution of three-year and five-year loan borrowers in Figure 3 and Figure 4 respectively. More precisely, we use the size of each circle to represent the percentage of borrowers in each Prosper rating (the larger the circle, the larger the number of borrowers falling into this specific Prosper rating). By the end of April 2020, almost all the listings in three-year loans had a Prosper rating equal or higher than B (as shown in Figure 3) and almost all the listings in five-year loans had a Prosper rating equal or higher than C (as shown in Figure 4). This suggests that Prosper prevented high-risk borrowers from posting listings on the platform and, thereby, controlled its market risks.

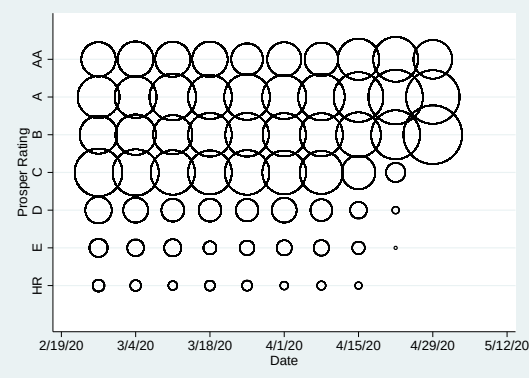

Figure 3: Rating Distribution (3-Year Loans)

[46] See `tinyurl.com/3bc72p3j` (prosper.com).

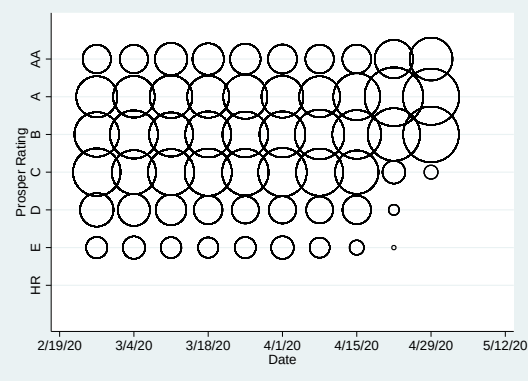

Figure 4: Rating Distribution (5-Year Loans)

To verify, we also compare the weekly median of borrowers' estimated loss rate on the platform before and after the start of the pandemic.[47] For 3-year loans (5-year loans), the borrowers' estimated loss rate decreased from 5% to 3% (6% to 3%) in April 2020, as shown in Figure 5. It also appears that Prosper's payment relief policy is highly used by its users: since March 2020, the platform has received nearly 40,000 requests for relief and 99.9% of them have been eligible for hardship benefits and relief.[48]

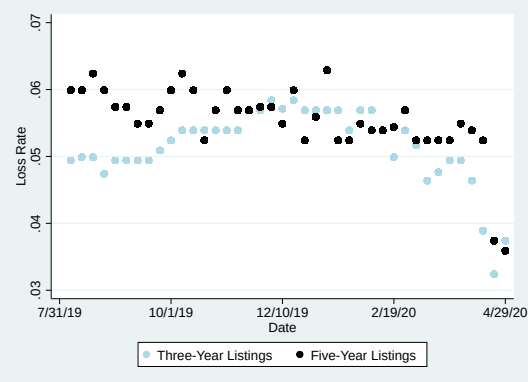

Figure 5: Estimated Loss Rate

In sum, the pandemic significantly affected the

[47] Prosper provides estimated average annualized loss rates on its platform for lenders' information; the rates are a critical indicator of default risk and are based on the historical performance of borrower loans originated on the platform with similar characteristics.

[48] See `tinyurl.com/mw5anfe2` (prosper.com).

balance between the two sides of the platform, creating an excess demand of funds and, thereby, endangering the sustainability of the platform's business model. However, Prosper managed to reverse this vicious circle by enacting a series of adequate policies.

3.4 SEPs expanding on both sides

As indicated in a recent report,[49] the pandemic has hurt industries that require face-to-face interactions while benefiting those that can be performed remotely or provide solutions to the challenges of reduced personal interactions. Social distancing measures (imposed because of the highly contagious nature of the coronavirus) led to an immense switch from offline to online activities. In addition to the video meetings and social media platforms that enable people to work or get connected during lockdowns, there also has been a pike in online entertainment platforms, like YouTube, Steam, and Netflix. Globally, Internet use has increased significantly.[50]

The possible surge and the relative adaptability of some SEPs during a crisis is probably indexed on the change in social interactions caused by the sanitary measures. Social distancing, including the rules on social bubbles (allowing a maximum number of people to be in contact during a certain period),[51] has promoted more intense relations within smaller groups (in particular the family or some close relatives, as well as neighbors) while other social relations, for instance in a working or educational environment, have flourished online or ... dried up (depending on the situations and viewpoint of the observer).[52] There is a risk that the sanitary requirements propel us towards a technology-engineered no-touch future, where, as put by some vocal detractors of capitalism, such as Naomi Klein, "for the privileged, almost everything is home delivered, either virtually via streaming and cloud technology, or physically via driverless vehicle or drone, then screen 'shared' on a mediated platform".[53] The relative success of the digital platforms (whether big or small) during the COVID-19, in particular Netflix, Zoom or Amazon, might indicate – and precipitate – a digital transition in favor of the (big) tech industry. But such vision is one-sided too as the crisis has also helped to realize that telehealth or online classrooms, not to speak of social networks, are not the panacea. Meanwhile, the economic and social relations based on close proximity have also benefited from the distancing measures. By the same token, the crisis has permitted to strengthen the attraction of the non-profit oriented platforms which, relying on similar digital tools (such as apps and smartphones), have facilitated new social interactions within local communities, while being enhanced by true aspirations to a more cooperative style of living, away from the market forces and constraints.

Even if it remains unclear whether these changes will be confirmed in the near future, they have raised opportunities for new business activities that meet the needs resulting of the pandemic. In this respect, platforms seem to be better equipped than pipelines. Although network effects may expedite negative feedback loops once users form pessimistic expectations about the participation of other users, they also work as effectively in the opposite direction when users form optimistic expectations. This may give platforms better ability to take advantage of favorable circumstances and to develop quickly.

In the rest of this section, we test this hypothe-

[49] Kibrom A. Abay, Kibrom Tafere, and Andinet Woldemichael, *Winners and Losers from COVID-19: Global Evidence from Google Search*, Policy Research Working Papers (The World Bank, 2020).

[50] There has been a 7% increase in Internet users and an 8% increase in social media users globally. Furthermore, about 76% of internet users spend more time surfing online and the data usage time in the first quarter of 2020 moves up by 47% compared to 2019. See `tinyurl.com/y7ekvv63` (slideshare.net).

[51] Only certain countries, such as Belgium, have imposed to limit one's relations to a small bubble of relatives and friends. Because the measures affecting social relations sometimes substantially diverge (compare the sanitary measures adopted in Sweden or the Netherlands with those in France or Spain), their economic impacts also vary.

[52] In an educational context, at least for elementary school, a pure online experience has many downsides, compared to an advanced executive program that might generate quite rich interactions even if online.

[53] See `tinyurl.com/vbab93au` (theguardian.com).

sis through three case studies. We first look at a food-delivery platform and examine how it managed to grow its activities during the pandemic. Then we study how a representative online platform responds to the surge demand in medical devices during pandemic times. Lastly, we consider prosocial platforms that emerge to address specific needs raised by the pandemic.

3.4.1 The boom in food delivery

A case in point is Uber Eats, an online food ordering and delivery service launched by Uber in 2014. Although Uber's main riding service is affected negatively by the coronavirus (as people are concerned about hygiene issues), its business in food delivery, which does not involve direct contact, had a sizable surge during the pandemic.[54] There was indeed an increased demand for participation to the platform coming from all groups of users. First, more *consumers* turned to online order and delivery to avoid potential risks in the shopping process or because dining out was simply no longer an option.[55] Second, more *restaurants* and *grocery stores* were also willing to leverage online delivery, as lockdown policies forced the vast majority of them to shut down.[56] Uber Eats, which is one of the representative online food delivery services globally, became a popular choice. Besides small businesses, more established brands like Chipotle, Shake Shack, and Dunkin, also signed up on the platform during the pandemic. In addition to the expansion in the number of signed up restaurants on Uber Eats, more supermarkets and convenience stores established partnerships with Uber Eats due to their inability to handle the high delivery demand caused by stay-at-home policies and a significant increase in the demand for groceries.[57] Third, to meet this larger demand from both consumers and restaurants, the platform had to mobilize extra work from *couriers*, which the pandemic also made possible (because of unemployed people looking for other sources of revenues). Naturally, Uber Eats took appropriate measures to guaranty the couriers' safety.

In summary, the lockdown policy during the pandemic accelerates users' switch from in-person activities to online surfing. People are concerned about the potential risks involved in daily activities and search for alternatives. As a consequence, online services become popular during the pandemic. More people get familiar with Uber Eats and generate a surge in demand for the company's food delivery service. Meanwhile, the increase in demand also makes Uber Eats a more valuable potential market for most restaurants and grocery stores. With the network effects, those changes are likely to form a positive feedback loop for the company and accelerate its development. The increase in demand attracts more partnerships to the platform. Furthermore, the expansion in the partnerships and services also moves up the product diversity on the platform and makes the platform even more attractive for end users. Although the market expansion represents a large volume of transactions and great challenges at the same time, Uber Eats makes good use of unemployed labor during the pandemic and experience rapid growth.

However, it is not clear whether the current virtual circle will endure; many restaurants only joined food-delivery platforms out of necessity and complain now about their high commissions rates. It is thus likely that they will leave these platforms once the pandemic is over. When the coronavirus pandemic forced restaurants to stop dine-in service, delivery apps released statements of concern and support for local businesses. But most of them did not significantly lower their commissions or fees.[58]

[54] Manav Raj, Arun Sundararajan, and Calum You, "COVID-19 and Digital Resilience: Evidence from Uber Eats," *ArXiv:2006.07204 (Cs, Econ, q-Fin)*, June 12, 2020.

[55] According to the report published by Uber in March 2020, there was almost a 100% increase in users who signed up for the delivery services on that month. See `tinyurl.com/2cfhmnnf`(reuters.com).

[56] "It appears that the restaurants that registered with delivery platforms were less negatively affected by the pandemic than those that did not". Zhuoxin Li and Gang Wang, "The Role of On-Demand Delivery Platforms in Restaurants during Disruption: Evidence from the Coronavirus Pandemic," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, August 13, 2020).

[57] See `tinyurl.com/2tscutmy` (self.inc).

[58] See `tinyurl.com/4n2f7ya5` (laist.com).

3.4.2 Booming demand for medical devices

Besides accelerating the transition to online markets, Covid-19 has also generated a surge in demand for particular products during the pandemic. One illustrating example is the dramatic increase in the demand for face masks. Since the coronavirus is highly contagious and is transmitted mainly via nose or mouth fluid, face masks are believed to be essential in preventing the spread of the coronavirus. Indeed, people need to have this protective equipment for daily and outdoor activities. Thus, it is not a surprise that there is a sharp increase in the demand for masks globally since the beginning of the pandemic.

Before the epidemic, about half of the world's face masks were produced in China and the daily production was about 20 million units. Although most factories have boosted their production more than five-fold and in a short period of time, there was a huge shortage in the early stage of the pandemic. As a consequence, platforms also started participating in the market and operated as market-makers for this new demand. Returning to the case of Etsy, we observe that the platform successfully managed to handle the emerging demand for face masks: during the second quarter of 2020, about $346 million worth of masks were sold through the platform; masks became one of the main products sold on Etsy and accounted for more than 10% of its transactions.

The success of Etsy not only comes from its rapid reaction to the emerging demands but also from its strong ability to efficiently accommodate both sides of the market. First, Etsy optimized its website to better fit the buyers' needs. The platform upgraded its search system and enabled buyers to quickly distinguish fabric masks from other types of masks (like Halloween or cleaning masks). At the same time, the platform also moved quickly in keeping sellers informed about the market shortage and the demand surge. The smooth and rapid communication motivated sellers to respond immediately to the changing environment. Soon after the Centers for Disease Control and Prevention issued new guidance on the recommendation of face masks, the platform sent out push notifications and emails to sellers indicating the high demand for face masks on the platform. In addition, subsidies were also provided for early sellers to attract more supplies to the platform. The effective strategies, together with the possibility to tap a larger pool of workers, because of high unemployment, prompted a huge increase in mask supply during the pandemic. Specifically, more than 100,000 sellers started offering masks on Etsy between April and June 2020 and most of them made great profits.[59]

3.4.3 The rise of prosocial platforms

As explained in Section 2, prosocial platforms differ from profit-oriented platforms (like Airbnb, Uber, or Prosper) along several of the following dimensions: (i) they pursue prosocial motivations, (ii) they are non-profit, (iii) they rely on local communities, and (iv) they adopt democratic and participative governance. As a result, users of prosocial platforms also differ from users of profit-oriented platforms; in particular, those users who provide products or services (that is, who act on the 'supply side') are not looking for any monetary compensation but are motivated by intrinsic and prosocial motivations (mainly, the desire to expend effort to help others).

These features may make prosocial platforms more apt to address people's needs in difficult times, as their mission is to promote solidarity and help their users stand together against the challenges of the crisis. In particular, the pandemic raised a number of specific material and social needs: exposed groups, such as nurses and doctors, needed facial masks and other protections, elderly people requested additional help in their daily activities, isolated people required social interaction and additional care.

Compared with mainstream platforms, prosocial platforms are more able to raise volunteer resources, which relaxes their financial constraint, and create a more flexible way to respond more quickly to these emerging needs. In particular, prosocial platforms can generally rely on volunteers and pro-socially

[59] See `tinyurl.com/5yxej5z2` (theverge.com).

motivated employees, who may agree to work extra hours. Once the local community agrees with its social mission, a new platform can develop at a rapid speed.

We observe indeed that many platforms that emerged soon after the start of the pandemic fall into the prosocial platform category. This is, for instance, the case of the Belgian platform COVID-Solidarity, which connects volunteers and isolated people who have problems in their basic needs. The platform is a purely non-profit citizens' initiative and aims to create social links in a benevolent approach during the COVID-19 crisis. The platform allows people who need assistance in their daily activities to register their needs either online or through a telephone call. Specifically, the platform handles varied aspects of activities including essential shopping, communications, walking the dog, and watering the plants. Once a person registered her specific needs, a volunteer living close by is assigned and provides corresponding assistance. Through the interactions, the platform connects volunteers with isolated people from the same neighborhood and solves emerging needs. In January 2021, the platform had 7,000 registered volunteers and had helped 800 people. The platform provides complete sanitary rules for users to follow. For instance, it asks volunteers to put on gloves and touch only the products they want to buy; it also suggests volunteers do shop alone and avoid unnecessary contact with door handles, lift knobs, etc.

Enpremiereligne.fr is another example of such platforms. Initiated by French citizens in March 2020, this platform was bringing, in January 2021, more than 80,000 volunteers together to help Covid-fight front-line professionals, such as medical and emergency staff, with their daily tasks (e.g., essential shopping and babysitting). In New York City, in response to the Covid crisis, citizens launched the platform *invisiblehandsdeliver.org* to deliver food, medicine and other first necessity goods to people in need. Many other examples exist all over the world. All these examples have one feature in common: driven by prosocial motivations, their users want to help others, not to make profits.

In addition, these citizens' initiatives were sometimes seconded by (local) public authorities, which have also developed solidarity platforms.[60] Individual users also started to use for-profit platforms to express prosocial behaviors. For example, some Airbnb hosts started to make their apartment available to medical staff free of charge. To support these individual initiatives, Airbnb created in France (in partnership with the French government) *AppartSolidaire*, a specific service dedicated to this solidarity rentals. Other mainstream for-profit platforms developed specific assistance services, blurring the frontiers between profit-making and prosocial platforms. For example, *Blablacar* developed *Blablahelp*, a new ride-sharing service to strengthen help between neighbors during the Covid crisis. This was an easy way, for this platform, to stay in touch with its users and foster a positive image.

Moreover, as a recent study by Fair Trade Belgium shows, environmental awareness and prosocial preferences seem to have increased with the COVID-19 crisis.[61] This suggests that prosocial platforms could become more prominent in the long run, thanks to the business adaptability that they demonstrated throughout the crisis.

4 Conclusion

Our study contributes to the discussion on the resilience of platforms in pandemic times, with a specific focus on the sharing economy. To organize our analysis, we classify platforms according to how their respective supply and demand sides are affected and then assess how platforms in each category bear up against the threats and/or exploit the opportunities raised by the pandemic. We argue that SEPs are less at risk than pipelines at the beginning of the pandemic because they do not claim legal possession of products or properties. However,

[60] We can mention, for example, platforms, such as *JeVeuxAider* and *HelpNowNYC*, respectively initiated by the French Government and the NY City Government, to match people who wants to help with people who need help during the COVID crisis.

[61] See `tinyurl.com/3ffw4v9b` (fairtradebelgium.be).

platforms may fail to retain sufficiently large groups of users, which endangers their capacity to leverage network effects and, thereby, their long-run sustainability. We also find that social distancing measures during the COVID pandemic led to an immense switch from offline to online activities, which generated great opportunities for companies (despite some new risks such as the increase of cybersecurity incidents during the COVID-19 period).[62] Compared with pipelines, platforms show better ability to take advantage of the favorable circumstances. With appropriate operations, platforms may endow users with confidence in the system and develop rapidly through the positive feedback loops induced by network effects. Lastly, we argue that prosocial platforms are better equipped to address people's needs in difficult times. They are less constrained by short term financial targets and are more flexible in responding to emerging needs.

To conclude, let us stress that our study does have limitations and that we should remain careful with our conclusions. The paper mainly combines insights from the economic, management and legal studies literature with observations of how the sharing economy evolved during the pandemic. Although instructive empirical analysis is provided in the case study of Prosper, we are not able to present thorough empirical results due to the delay of data updates. Several potential questions are left for future research. First, it would be interesting to check if current changes in behavior will be long-lasting. Although we observe a surge in demand for online platforms, it is uncertain whether those new users will remain in the future once the lockdown and social distancing measures end. This is especially crucial for platforms that respond to new emerging needs during the pandemic, like social solidarity and medical resources coordination. More broadly, we could wonder how SEPs will contribute to the development of the new normal.[63] Second, we must understand how platforms adjust their business strategies and learn from this crisis. The COVID-19 crisis demonstrated the importance of business resilience for individual companies, but also the great vulnerability of platform workers. Consequently, one can expect that the regulations and policies surrounding SEPs will be adjusted in the future. The European Commission is likely to take some measures for regulating the sharing economy. At least, the Commission has tabled two new pieces of EU legislation, the Digital Services Act and the Digital Markets Act on December 15, 2020.[64] This legislation will impose additional obligations (in terms of transparency for instance) and increase the liabilities of online platforms, at least of those having a "gatekeeper" role.[65] Additional regulatory measures that could affect the behavior of all platforms operating in the EU, including American companies, are not excluded.

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[62] See `tinyurl.com/p948ayan` (who.int) and `tinyurl.com/25p2an96` (interpol.int).

[63] Dean A. Shepherd, "COVID 19 and Entrepreneurship: Time to Pivot?," *Journal of Management Studies* 57(8), 1750-1753.

[64] See `tinyurl.com/7ckzzkb8` (ec.europa.eu).

[65] This legislation could amend the "safe harbor rules" (Art. 12 to 15) of the 2000/31 e-Commerce directive that can be compared to section 230 of the U.S. Communications Decency Act which is nowadays the object of much attention in the U.S. debate on the responsibility of online platforms. Enguerrand Marique and Alain Strowel, "La régulation des fake news et avis factices sur les plateformes," *Revue internationale de droit économique* t. XXXIII, no. 3 (2019): 383–98.