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PRIVACY RIGHTS IN ONLINE INTERACTIONS AND LITIGATION DYNAMICS: A SOCIAL CUSTOM VIEW

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Privacy rights in online interactions and litigation dynamics:

a social custom view

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Abstract: We develop a social custom model where a population of consumers interact through a social media supplied by a single provider, who optimally selects the quantity of information she gathers from her users. In the economy, privacy rights in online-interactions are incomplete, and so are the notice-and-consent contracts regulating the terms and conditions of service. Hence, the lawfulness of data-gathering activities is unclear, so that users may decide to litigate for privacy violations. The provider's policy has an ambiguous effect on the consumers' willingness to litigate. On the one hand, it improves customer experience, thereby creating an "enthusiasm effect" which alters the customers' perception of the provider's policy. On the other hand, it modifies the belief distribution concerning privacy-related issue, thus increasing the number of subscribers who are willing to ask for compensation. In this framework, the litigation dynamics may lead to multiple equilibria depending on the initial distribution of types in the users' population.

KEYWORDS: Social Media; Privacy Rights; Litigation Dynamics; Social Custom

JEL CODES: K24, K41, O30

1. Introduction

Markets are important places of knowledge generation and change and co-evolve with their framing institutions (Hayek, 1945; Metcalfe, 2003). Human action, entrepreneurship and ingenious behavior «produce patterns of growth and development in the economy» (Metcalfe, 2003: 408) that reverberate onto the law (Rizzo, 1999). As new services and goods create systems of jural relations that may be incompatible with the prevailing order of rights (Sajo and Ryan, 2016; Lessing, 1996), all periods of technological change stimulate processes of institutional adaptation, where rule-makers, innovators and consumers interact to edify the market's legal foundations (Pistor, 2019, Harnay and Marciano, 2009). Myopia and radical uncertainty is usually at the core of this transitional phase. Indeed, not only entrepreneurs decide to introduce innovations without knowing their effects on consumer behavior and well-being, but policy-makers regulate the use of the latter without foreseeing their implications in terms of fundamental rights and policy preferences. In doing so, they may choose to abstain from massive intervention and encourage technological development or tighten regulation to deter future litigations (Sajo and Ryan, 2016; Lessing, 1996).

In this framework, the construction of legal practices around new technologies is a multi-stage process. First, regulators provide a more or less cautious interpretation of the compatibility between new and existing rights. Second, innovators decide how "aggressively" to implement the technology at their disposal, usually following "social mirror rules" that convey simplified expectations on the legal consequences of their choice (Engel, 2008; Engel et al, 2017). Third, consumers form ideas on the above compatibility and eventually decide if litigating in courts. The more aggressive the innovators' strategy, the more likely litigations will escalate. Legal incompleteness, in this case, may distort the choices of both buyers and sellers, as both parties may expect the judiciary to side with their position (Nicita, 2007). In this case, mass-behavior effects may have a role in affecting the customers' choice, as the perception of the above compatibility may emerge as a social construction (Johnson and Covello 1987; Jolls, 1998).

To model this ideas, we develop a social custom model where a population of consumers interact through a social media supplied by a single provider, who optimally selects the quantity of information she gathers from her users. The social custom model has been first developed by Akerlof (1980) and widely applied in several contexts, such as consumer behavior (Corneo, and Jeanne, 1997), organizational corruption (Chang and Lai, 2002) worker effort (Chang and Lai, 1999), union membership (Booth, 1985) and so on. More broadly, it has been proposed as

a framework to analyze the influence of peer pressure and social norms on individual behavior. Methodologically, our model combines insights from the work of Chang and Lai (1999) on social customs, from that of Gabszewicz and Grilo (1992) on credence goods and from that of Ichino et al. (2003) on the alternative reasons for the occurrence of a trial. The driving idea behind our modelling strategy is that institutional incompleteness creates room for radical uncertainty. In this framework, the user's perception of the provider's activities evolves as a social construction and the dynamics of litigation may lead to multiple equilibria.

We mean this contribution as a preliminary attempt to apply the notion of the market as a discovery process to the emergence of its legal foundations. In doing so, we avoid reducing the formation of the law to a positivist top-down process (Nicita, 2007) and emphasize the mechanisms whereby individuals (i.e., citizens, customers) stimulate processes of institutional change via knowledge-mediated actions (Graziadei, 2009). Despite we present our framework with respect to privacy issues in online interactions, we believe that it may be viewed as a general model of technology adoption in contexts of legal uncertainty. To some extent, the framework is also reminiscent of the work of Kuran (1989) on unanticipated revolution, as it provides with a rationale to explain sudden behavioral changes within groups of individuals who influence each other.

The remainder of the paper is organized as follows. In section 2, we provide an overview of the stylized facts related to privacy-issues in online interactions, paying particular attention to the co-evolution of the providers' and customers' behavior. In sections 3 and 4, we develop a social custom model inspired by these facts. Section 5 concludes.

2. Background

2.1 Web-mediated interactions in a context of legal uncertainty

Since the internet 2.0 revolution, the digitization of nearly all media and the continuing migration of social and economic activities to the internet is generating petabytes of data every second (OECD, 2014: 9). With the diffusion of broadband access and internet enabled devices, consumers are actively and passively divulging personal information in exchange for services. The main example are social media. In 2014, for instance, Facebook connected already 1.3 billion people around the world, who generated an average of 1500 status update every second, but similar phenomena characterize other social media platforms (Stucke and Grunes, 2016 Klonick, 2017). Today, Facebook showcases more than two billion users (Stucke and Grunes 2016: 18).

Over the same period, customer-provided information has become increasingly valuable, up to the point where data has been defined as the "new oil" fueling up the digital and non-digital economy alike. Improving customer experience through the access of their online information has become a mantra for strategists, as witnessed by the tremendous growth of data markets worldwide. According to the Data Market Study of the European Commission[1] the value of the European and US data economy (which measure the overall impact of data markets on the economy as a whole) exceeded the threshold of 300 billion euros and155 billion dollars in 2018, with a year-on-year growth of 12% and 10.3% respectively.

Legal uncertainty surrounding data-driven services like Facebook, however, has long been on the table. As legislative branches have abstained from regulating internet-related activities in full (Lessing, 2006; Chander, 2014), privacy rights in online interactions are poorly defined and the providers' entitlement to collect, use and monetize their customers' personal information remains largely unclear. The "newness" of web-related technology has long been emphasized to buttress the "internet exceptionalism" (Wu, 2010) and discourage most legislative interventions in internet-mediated interactions (Balkin,2004, Johnson and Post, 1996). As a result, data protection and privacy laws remained largely incomplete, and to be tested in courts. A comprehensive federal law governing data ownership in the US, for instance, is still missing, while the General Data Protection Regulation (GDPR) was recently introduced in the EU to amend a similar long-lasting institutional void (DeMarco and Fox, 2019).

In this framework, social media companies have been long left alone to play the role of "quasi-rulers", «being responsible for educating a submissive public into wanting new products and accepting the necessity for economic change» (Horton, 1999: 113). Remarkably, Bygrave (2015) uses the term "Lex Facebook" to refer to the platform's terms and conditions, as to underline their key role in shaping the general norms of web-mediated interactions.

The institutional form of this rule-making effort was twofold. On the one hand, platforms introduced novel legal solutions to define their entitlements over the subscribers' personal information, therefore proposing a balance «between informational privacy and the benefits of information processing» (Sloan and Warner, 2014: 383). For almost two decades, the business model of social media has been a sort of barter between personal data and services (Belleflamme and Vergote, 2018). On the other hand, they supported a narrative whereby customers could have felt comfortable with the use of their personal information, as conflicting perceptions over privacy-related issues could have led to massive litigations in courts.

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[1] European Commission, "Towards a Common European Data Space", (April 25, 2018). Accessed at: https://ec.europa.eu/digital-single-market/en/news/communication-towards-common-european-data-space.

The "notice and consent" (N&C) framework was the legal innovation introduced to lessen consent requirements for electronic commerce and give a legal basis to a series of otherwise unregulated activities (Sloan and Warner, 2014). Its private ordering served to «progressively reduce ex-ante sector specific rules» (Comparado et al, 2016: 54) and transfer «the protection of privacy from the legal realm [...] to the marketplace» (Rotenberg, 2001: 2), leaving courts to solve the conflicts between contractual rights and fundamental right to privacy (Pollicino, 2013, Klonick, 2017). The idea is that the N&C scheme «ensures that website visitors can give free and informed consent to businesses' data collection and use practices [...][thus revealing]an acceptable overall tradeoff between privacy and the benefits of information processing» (Sloan and warner, 2014: 374; see also Posner, 1981, Stigler, 1980). In this framework, platforms can present consumers with a notice explaining the terms and conditions of service, while consent is inferred from the consumers' decision of using the service. The mere opportunity to read the notice would make the contract valid and binding (Ben-Shahar, 2009, White, 2000)

Both legal and economic literature offer compelling critiques of such claims. As to legal scholarship, it has been argued that the mere opportunity to read the notice does not guarantee the users' consent, as most consumers simply avoid reading the latter (Ben-Shahar, 2009, Sloan and Warner, 2014, Tene and Polonetsky, 2014). And even if they did, it would take on average 244 hours per year to read all the privacy policies presented by the websites an average consumer visits, which amounts to more than 50 per cent of the time she spends on the internet. Moreover, contracts are often strategically vague, as they allow service provider to extend or modify the use she makes of her customers' information. To legitimate future behaviors, flexible terms like "improving customer experience" (EDPS, 2014: 35) are often included in the N&C contract. In addition, lack of contextuality between consent and waiver of fundamental rights of privacy over sensitive data may undermine the legitimacy of these data collection practices (Jolls, 2013).

As to economics, the assumptions that the consumers' 'true' preferences over privacy issues are revealed through their online activity has also been contested (Stucke and Grunes, 2016: 58). Unawareness of the platforms' practices—including who have access to the users' personal information, what, when and how these data are being used and the privacy implications of the data debase—may lead to several biases in consumer behavior (Acquisti et al, 2015). Hermstrüwer and Dickertb (2017), Jolls (2013) Willis (2014) and Schudy and Utikal (2015), for instance, provided empirical evidence that users are unable to anticipate the platforms' uses of their personal data and are often affected by optimism bias, status quo bias and hypothetical bias.

2.2   The social norm and the data-driven economy

Initially, the twofold attempt described above created what seemed to be a stable consensus, as users were more interested in social media services then in their legal implications (Ben-Shahar, 2009). Boosted by growing hype for social media and little consumer's interests for terms and conditions (Rubenstein and Good 2013; Bygrave, 2015), companies have been collecting information for more than a decade. Moreover, even in the face of controversial uses of personal data, public enforcers like the Federal Trade Commission (FTC) in the US, courts, as well as class actions' lead counsels, did not "sanction" them severely. Remarkably, early litigators which contested Facebook for unlawful uses of their data have often felt the need to clarify that their intent was not to oppose the platform's innovative activity per se, but to limit what seemed to be an abuse of their personal information. As an important petition called "Facebook, stop invading my privacy" stated on its page, «a lot of us love Facebook—it's helping to revolutionize the way we connect with each other. But they need to take privacy seriously» (Srinivasan, 2019: 58). Yet, even those who perceived the platform's practice as unfair could not but celebrate its positive effect on socialization opportunities.

The softness of early reactions of this sort encouraged platforms to increment their data-gathering policies, showing little concern for legal consequences (Rubinstein and Good, 2013). For instance, despite the multibillion size of the emergent targeted advertising market, the FTC imposed fines in the order of 22 million dollars in cases of major violations by Google (Miller, 2012). Similarly, class actions were settled for a fist of millions of dollars in cases otherwise characterized as «textbook examples of how to violate the principle of privacy by design»[2]. Courts themselves, when asked to decide on the matter of civil lawsuits, systematically dismissed the plaintiffs' claims on the ground of lack of e.g. tangible harm, users' consent to second uses of personal data[3], as well as lack of expectation of privacy.

Enthusiasm for social media reached an acme in 2010, when Zuckerberg was celebrated "person of the year" and the New York Times recognized the existence of a "Zuckerberg Law," whereby, each year, people «share twice as much information as they share ... the year before»

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[2] See Saint (2010) and the settlements reported by Ballon (2016: 336). "Fraley v. Facebook, Inc., 638 F. App'x 594 (9th Cir. 2016) (affirming approval of cy pres class action settlement); Lane v. Facebook, Inc., 696 F.3d 811 (9th Cir. 2012) (approving an attorneys' fee award of $2,364,973.58 and a $9.5 million cy pres class action settlement in a suit over Facebook's beacon program brought under the Electronic Communications Privacy Act, Video Privacy Protection Act, Computer Fraud and Abuse Act, the California Consumer Legal Remedies Act, and California Computer Crime Law (Cal. Penal Code § 502), and for remedies for unjust enrichment), cert. denied, 134 S. Ct. 8 (2013); In re Yahoo Mail Litigation, No. 13-cv-4980-LHK, 2016 WL 4474612 (N.D. Cal. Aug. 25, 2016) (granting final approval of a class action settlement); Perkins v. LinkedIn Corp., Case No. 13-CV-04303-LHK, 2016 WL 613255 (N.D. Cal. Feb. 16, 2016) (granting final approval of a class action settlement)".

[3] See, e.g., Cain v. Redbox Automated Retail, LLC, No. 12-CV-15014, 2015 WL 5728834 (E.D. Mich. Sept. 30, 2015).

(Chandler, 2012: 1808)[4]. At that time, Zuckerberg himself proclaimed to have changed the social norm: «people have really gotten comfortable not only with sharing more information and of different kinds, but more openly and with more people». In this framework, the platforms' assumptions about the adequate trade-off between informational privacy and the benefits of information processing became to crystallize and partially affected the judicial positions in the field (Bygrave, 2015; Chander 2012; Klonick, 2017; Srinivasan, 2019). Interestingly and perhaps counterintuitively, already at that time individuals expressed some concerns about privacy protection in online interactions. According to the surveys conducted by Pew, consumers voiced concern about the fact of being «unaware of who has access to their personal information, what data is being used, how and when their data is being used, and the privacy implications of the data's use» (Stucke and Grunes, 2016: 5). In 2014, the Pew research centre found that the majority of American citizens «feel that their privacy is being challenged along such core dimensions as the security of their personal information and their ability to retain confidentiality»[5]. While responding the survey, more than 90 % of the interviewed agree that consumers have lost control over how personal information is collected and used by companies (Stucke and Grunes, 2016: 5) Similarly in the EU, 72 % of European Internet users «still worry that they are being asked for too much personal data online»[6].

By contrast, the platforms' foreseeing capacity in implementing their strategy is largely contestable. As Amazon CEO Jeff Bezos recalled, the current mode of operation in the tech sector involves a substantial degree of guess, as «most decisions should probably be made with somewhere around 70% of the information you wish you had. If you wait for 90%, in most cases, you're probably being slow»[7]. The competitive pressure at the technological frontier is such that entrepreneurs must race to the market with little information about the implications of their actions. The Price Westerhouse Cooper LLP, which was the audit company charged with the assessment of Facebook internal compliance with data protection laws, commented on the company's legal aloofness in the following terms: «they've devised business models […] without much concern about social, economic, or *legal* consequences […] As the saying goes, it was better to ask for forgiveness than permission» (Chitkara et al., 2018: 8, edit is ours).

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4 Lev Grossman, Person of the Year 2010: Mark Zuckerberg, TIME (Dec. 15, 2010), available at http://content.time.com/time/specials/packages/article/0,28804,2036683_2037183,00.html.
5 'Public Perceptions of Privacy and Security in the Post-Snowden Era', Pew Research Center, Washington, D.C. (12 November 2014) retrieved from https://www.pewresearch.org/internet/2014/11/12/public-privacy-perceptions/.
6 European Commission, Why We Need a Digital Single Market (May 6, 2015) retrieved from https://ec.europa.eu/commission/publications/why-we-need-digital-single-market_en.
7 Jeff Bezos, (April 17, 2017) 2016 Letter to Amazon shareholders. AmazonBlog, retrieved from: https://blog.aboutamazon.com/company-news/2016-letter-to-shareholders.

Retrospectively, this created room for a sort of "legal hazard" that generated what the head of the European data protection watchdog described as «lack of accountability for millions of micro decisions in a system that nobody could understand anymore»[8].

The consequences of such legal hazard eventually started to emerge. Scandals like the Snowden revelations and Cambridge Analitica[9] have started to unravel the privacy implications of the platforms' data gathering policies and spurred users to ask for compensation in courts. In response to the increasing number of class actions that was being filed, judges started to enforce the legislation on consent requirements with unseen severity (Rubenstein, 2013; Bygrave, 2015; Klonick 2017). On July 24th 2019, the FTC fined Facebook with a five billion penalty for violating the Consent Order of 2012[10]. In the announcement, the commissioners emblematically wrote, «if you've ever wondered what a paradigm shift looks like, you're witnessing one today»[11]. Google reached a similar agreement with the FTC to pay 170 million dollars for illegally collecting data on children (Copeland, 2019). Similar decisions have also challenged the legal foundations of major social media in the EU. The Italian Competition Authority (AGCOM), for instance, imposed a fine to Facebook Ireland and Facebook Inc. for a total of 10 million euros[12], while the French Conseil National Informatique et Libertés (CNIL) fined Google LLC with fifty million euros for «violations of obligation of transparency and information under the GDPR, which provide obligation to have a legal basis for personalized ads Processing. In the specific case consent was lacking». In Germany, the Bundeskartellamt prohibited Facebook to combine the data collected by other Facebook-owned services like WhatsApp and Instagram unless subscribers give the platforms their explicit consent to do so.

In September 2019, a massive multidistrict litigation consolidated numerous legal actions across the USA[13]. In the associated decision, Judge Chabria wrote «Facebook's motion to dismiss

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[8] Buttarelli, G. (Speech, Brussel, March, 20, 2018) Speech to LIBE on Annual Report 2017 www.edps.europa.eu/sites/edp/files/publication/20-03-18_speech_to_libe_on_ar2017_published_en.pdf.
[9] See Graham-Harrison and Cadwalladr (2018).
[10] Cecilia Kang, (July 12, 2019) F.T.C. Approves Facebook Fine of About $5 Billion. The New York Times, retrieved from https://www.nytimes.com/2019/07/12/technology/facebook-ftc-fine.htm.
[11] The FTC declared the data transfer to third parties incompatible with the consent order «one specific count alleged that Facebook allowed users to choose settings that supposedly limited access to their information just to "friends" without adequate disclosures that another setting allowed that same information to be shared with the developers of apps those friends used». To settle the case, Facebook agreed to an order that, among other things,: 1) prohibited the company from making misrepresentations about the privacy or security of consumers' information, 2) prohibited the company from misrepresenting the extent to which it shares personal data, and 3) required Facebook to implement a reasonable privacy program.
[12] According to the AGCOM, Facebook misled «users in the sign-up process about the extent to which the data they provide would be used for commercial purposes», avoiding to fully disclose the «profitable ends that underlie the provision of the social network» and «forcing an "aggressive practice" on registered users by transmitting their data to third parties, and vice versa, for commercial purposes».
[13] In re Facebook, Inc., Consumer Privacy User Profile Litig., MDL No. 2843 N.D. Cal. Sep. 9, 2019.

is littered with assumptions about the degree to which social media users can reasonably expect their personal information and communications to remain private ... Facebook argues that people have no legitimate privacy interest in any information they make available to their friends on social»[14]. As the deciding judges emphasized «Facebook's view *could not be more wrong*» (the italics is our)[15]. While the claims are still pending and the stakes are very high[16], we believe that the case is worth mentioning as a good example of the current shift in the judges' perception of platforms' data-gathering activities. The claim of the action is that Facebook «illegally collected and stored biometric data from millions of users without their consent» which is explicitly prohibited by the Illinois Biometric Information Privacy Act. In case of unfavorable verdict, the defendant may be liable to pay a compensation from 1000 to 5000 dollars for each violation, depending on whether the latter will be considered intentional or reckless[17]. The Illinois action involves more than seven million users. At the time of writing this article, Facebook announced the settlement of the Illinois class action for 550 million dollars. One of the lead attorney emblematically claimed «I hope and expect that other companies will follow Facebook's lead»[18].

In addition to these contractual and private law infringements, apex constitutional courts and independent authorities underwent a deep scrutiny of the compatibility between fundamental rights and the platforms' business model based on profiling activities (Hijmans, 2016, Cherednychenko, 2016). Pivotal role has been played by the European Court of Justice, which adopted a series of ground-breaking decisions to integrate the digital and the analog world into the unifying framework of the European law of fundamental rights. Digital Rights Ireland[19], Google Spain[20] and Schrems[21] are other exemplar cases to "see" the shift in the lawyers' understanding of the digital world.

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[14] Stempel Jonatan (September 9, 2019) Judge lets Facebook privacy class action proceed, calls company's views 'so wrong'. Reuters. Retrieved at: https://www.reuters.com/article/us-facebook-lawsuit-privacy/judge-lets-facebook-privacy-class-action-proceed-calls-companys-views-so-wrong-idUSKCN1VU2G2

[15] In re Facebook, Inc., Consumer Privacy User Profile Litig., MDL No. 2843 N.D. Cal. Sep. 9, 2019

[16] To provide a measure of such stakes, consider e.g. Patel et al v Facebook Inc, 9th U.S. Circuit Court of Appeals, No. 18-15982 as a unit measure of the consolidation case.

[17] See, Jonathan Stempel (August 8,2019) Facebook loses facial recognition appeal, must face privacy class action. Reuters. retrieved from https://www.reuters.com/article/us-facebook-privacy-lawsuit/facebook-loses-facial-recognition-appeal-must-face-privacy-class-action-idUSKCN1UY2BZ

[18] Jeff Horwitz, (January 30, 2020) Facebook Reaches $550 Million Settlement in Facial-Recognition Lawsuit. The Wallstreet Journal, retrieved https://www.wsj.com/articles/facebook-reaches-550-million-settlement-in-facial-recognition-lawsuit-11580347594

[19] EUCJ, Joined Cases C-293/12 and C-594/12 Digital Rights Ireland and Others (2014) ECLI:EU: C:2014:238

[20] Case C –131/12, Google Spain SL, Google Inc v Agencia Espanola de Proteccion de Datos (AEPD), Mario Costeja Gonzalez [2014]

[21] EJEU, Case C-362/14 Maximillian Schrems v Data Protection Commissioner (2015) ECLI:EU: C:2015:650.

3. The model

3.1 Setup

In this section, we develop a social custom model inspired by the stylized fact reported in the above. The idea is to provide a framework with which to analyze the co-evolution of technological and institutional change in contexts of legal uncertainty, where the dynamics of individual decisions is affected by peer pressure and network effects. Despite we present our model with respect to privacy-issues in online interactions, we believe that the core message carries over for more general cases.

Consider a unit-mass of heterogenous individuals who interact through a social media supplied by a single provider. In the economy, privacy rights in online interactions are incomplete, and so is the notice-and-consent contract regulating the terms and conditions of service. In addition, the use of personal data is imperfect information between the platform and her users, who may form different beliefs concerning the fairness of the provider's policy. Our working hypothesis is that consumers may decide to litigate when these beliefs are sufficiently low. Hence, from the provider's viewpoint, the decisions to intensify her data-gathering activity is a double-edged sword: on the one hand, it raises profitability, while, on the other hand, it increases the possibility of being sued for privacy violations. As we are not interested in studying the drivers of non-participation in social-media[22], we rule out the possibility that individuals may decide to opt-out when offered a notice-and-consent contract. Put differently, we deliberately ignore the effect of the provider's behavior on the individuals' willingness to subscribe ex-ante and focus on that on their willingness to litigate ex-post. In addition, we do not specify whether the provider is actually violating the terms and conditions of service. We think this point is worth raising for the following reason. If the platform willingly violates the privacy of her subscribers, the fraction of litigators proxies the level of consumer awareness and the market resembles a credence good one—see e.g., Gabszewicz, Grilo 1993. Conversely, if the platform is unaware of the incompatibility between her activities and the existing order of privacy rights, the problem is quite different from a classic moral hazard, as the effects of legal uncertainty loom on both sides of the market.

The interaction between the platform and her users can be sketched as a two-stage game (see fig. 1 for a visualization).

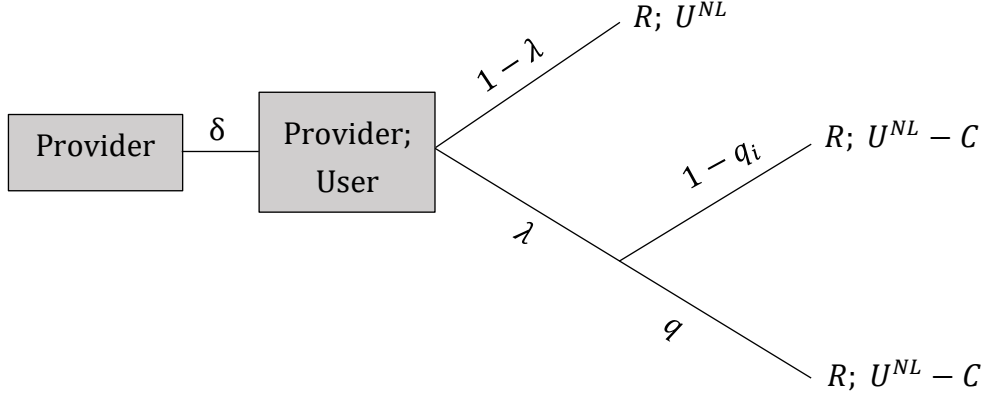[22] For analyses of this sort see for instance, Antoci et al. (2018).

Fig. 1: Game tree, $i = P, U$

3.2   The policy decision

In the first stage, the provider designs her data-gathering policy on the basis of her imperfect expectations on how judges and users will react to the latter. To keep things simple, we consider a single decision variable $\delta > 0$ which measures the intensity of her data-gathering activities, which include both the quantity and sensitivity of information and the extent to which such information are processed and monetized. Denoting the provider's subjective probability of losing the trial as $0 \leq q^P \leq 1$ and the expected damage compensation as $F > 0$, the provider's expected losses from going to court are given by $-Fq^P$[23]. In addition, such losses must be weighted for the fraction of users who decide to file a case for privacy violations, denoted as $0 \leq \lambda \leq 1$—for the derivation of the equilibrium density of litigators, see section 1.3. Without loss of generality, we assume that λ is uniformly distributed over [0, 1] according to the probability density function $h(\lambda)$. Defining $R = R(\delta)$ as the revenue-generating function that converts data into profits, with $\partial R / \partial \delta > 0$, the provider's problem writes:

$$\max_{\delta > 0} \Pi = \lambda(R - Fq^P) + (1 - \lambda)R \tag{1}$$

To study (1), we first need to analyse the effect of δ on the subscribers' decision to litigate, which will be done in the following section. Under reasonable assumptions, we shall indeed

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[23] Instead of taking the provider's perception as exogenously given, we may specify q^P as a decreasing function of δ, as the provider likely anticipates that an increase in her data-gathering activities raises the probability of being convicted for privacy violations. By doing so, the double-edged characteristic of the provider's decision could be reinforced. However, even if this channel is taken into account, our main results are not altered qualitatively.

specify λ as a function of δ, thus providing a channel that allows the platform to take into the account the "double-edge" characteristic of her decision.

3.3 The litigation decision

In the second stage, subscribers form ideas on the fairness of the provider's policy and decide whether to sue to the latter for privacy violations. As in Gabszewicz and Grilo (1993), we identify consumers by the subjective probability α_i (belief) they assign to the event: "the provider's policy is unfair". Hence, $1 - \alpha_i$ is the subjectivity probability they associate to the event: "the provider's policy is fair". Without loss of generality, we assume that α is uniformly distributed over 0 and an upper bound $\overline{\alpha} \leq 1$ according to the probability density function $g(\alpha)$. To reflect the linkage between the provider's policy and the users' perception of the latter, we follow Chang and Lai (1999) and assume that the upper bound of the belief distribution varies with the level of δ via:

$$\overline{\alpha}(\delta) = \alpha_0 + \gamma\delta \tag{2}$$

where α_0 is a constant and $\gamma > 0$ is the coefficient of erosion due to an increase in data-gathering by the provider. Observe that γ depends on several factors that are left outside the model. Scandals like the Snowden revelations and Cambridge Analitica recalled in section 2, for instance, may draw attention on the privacy implications of the provider's policy and thus exacerbate the effect of data-gathering on the users' willingness to litigate. Similarly, if consumer protection agencies and communication authorities fine the platform for privacy-related issues, the perceived unfairness of the provider's policy increases. To refer to this mechanism in an intuitive way, we call it the "unfairness effect".

The psychological utility of receiving a fair (resp., unfair) treatment in terms of data protection is given by V^F (resp., V^U), where $V^F - V^U \geq 0$ turns out to be a measure of the provider's misconduct. As we shall see, the greater this measure, the greater the users' *intrinsic motivation* to litigate. To include an element of mass-behavior in the model, we specify $V^F - V^U$ as an increasing function of λ, as the individuals' assessment of the provider's policy deteriorates with the growth of litigations on privacy-related issues. Because of legal uncertainty, in fact, consumers are unable to evaluate the platform's violations and are influenced by their peers in their perception of the latter. To some extent, this is consistent with the sociological notion of the "social construction of risk", whereby «risk and safety are not objective conditions "out there" [but] exist in and through social organization» (Stallings, 1980: 80; see also Covello, Jhonson, 1987). To keep things simple, we assume $V^F - V^U = \lambda$.

Turning to the other determinants of the users' perception, we may have normalized $V^F = 0$ to reflect the fact that the provider's compliance with the terms and conditions of service imposes no psychological gain (nor losses, for what matters) upon the individual subscriber. However, processing personal information improves customer experience in web-mediated interaction, and this, in turn, may create an "enthusiasm" effect which indirectly distorts the users' perception of the policy's fairness. As social media services are usually free of charge, in fact, when individuals underestimate the hidden costs of privacy violations, they may perceive the increases in customer experience as a "free lunch" and this may generate the enthusiasm effect described in the above. To model this idea, we assume that V^F adjusts in the following manner:

$$\dot{V^F} = \beta\delta - \theta V^F \tag{3}$$

where an overdot indicates the rate of change with respect to time, $\beta > 0$ is a scaling parameter and $\theta > 0$ is the decay rate of V^F. With these facts in mind, we can specify the utility of a non-litigator (strategy NL) as a function of her assessment of the provider's policy, so that:

$$U^{NL} = \alpha_i V^U + (1 - \alpha_i)V^F \tag{4}$$

Since the effects of data-gathering are evaluated *ex-post*, the fairness-derived utility expressed in (4) refers to events that have no influence on the present well-being of individuals. Denoting the users' subjective probability of winning the trial as $0 \leq q^U \leq 1$, the cost of litigating as $C > 0$ and the expected damage compensation as $F > 0$, the expected utility of litigating (strategy L) writes[24]:

$$U^L = Fq^U - C \tag{5}$$

At each moment in (continuous) time, individuals compare the expected benefits of filing a case for privacy violations, measured by (5), with the perceived gravity of the provider's misconduct, measured by (4). As the *ith*-consumer will join the litigious group if and only if $U^L > U^{NL}$, we can find an idiosyncratic belief α^* which makes the subscriber just indifferent between litigating and not, that is:

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[24] As for the provider's perception, we may specify q^U as an increasing function of δ, as the users' expectations of winning the trial may likely improve when the provider intensifies her data-gathering activities. However, this would do nothing but strengthening the mechanism expressed in (2) and leave our results qualitatively unvaried.
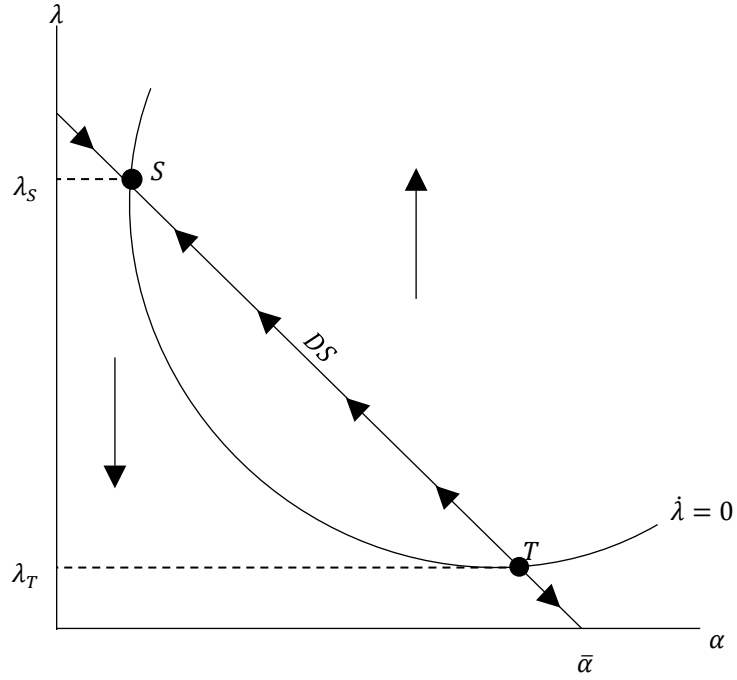
Fig. 2: Multiple equilibria of litigation

$$\alpha^*(V^F - V^U) + Fq^U = V^F + C \tag{6}$$

As anticipated, the first term on the l.h.s. of (6) measures the users' *intrinsic motivation* to litigate and it is positively correlated with the perceived gravity of the provider's misconduct, while the first term on the r.h.s. of (6) captures the distortion from the enthusiasm mechanism described in the above. From (6), it is clear that the density of the litigious group is closely related to the distribution of α. In formal terms, we have that:

$$\lambda = \int_{\alpha^*}^{\overline{\alpha}} g(\alpha)\mathrm{d}\alpha = 1 - \alpha^*/\overline{\alpha} \tag{7}$$

Condition (7) is a definite relationship and at no time the economy is allowed to deviate from it. With this, we have completed the static specifications of the economy at any moment in time. The next task is to derive the equilibrium density of litigators and inquire further into the relationship between the provider's policy and the consumers' decision to litigate.

4. Results

4.1 Litigation dynamics and multiple equilibria

Using equations (6) and recalling that $V^F - V^U = \lambda$, we follow previous contributions in the literature on social customs—see e.g. Naylor (1990), Chang and Lai (1999)—and assume that the equilibrium density of litigators adjusts according to:

$$\dot{\lambda} = k(\alpha\lambda + Fq^U - B - C) \tag{8}$$

where $k > 0$ is the speed of adjustment and $B \equiv \beta\delta/\theta$ is the stationary value of V^F solving $\dot{V}^F = 0$ in (3). Following Naylor (1990) and Chang and Lai (1999, 2000), we visualize the relationship between condition (6) and equation (8) in figure 2. Where the $\dot{\lambda} = 0$ locus depicts the pairs λ and α that satisfies $\dot{\lambda} = 0$ in equation (8) and the DS locus visualizes the pairs λ and α that satisfies the distribution schedule derived in (7). From fig. 2, we see that the graphs of (7) and (8), intersect twice, at T and S. Hence, there are two possible equilibria, whose stability properties are analyzed in the following Proposition:

Proposition 1—*dynamics* (8) *has two boundaries, at $\lambda = 0$ and $\lambda = 1$, and two stationary points, at $\lambda_S = 1/2 + \varepsilon$ and $\lambda_T = 1/2 - \varepsilon$, $\varepsilon \equiv \{[\alpha_0 + \gamma\delta + 4(Fq^U - B - C)]/4(\alpha_0 + \gamma\delta)\}^{1/2}$. The equilibrium densities $\lambda = 0$ and λ_S are stable equilibria, while $\lambda = 1$ and λ_T are unstable. In particular, λ_T can be viewed as a threshold level for consumer litigation to escalate: if initially $0 < \lambda < \lambda_T$, the equilibrium density of litigators will be pushed to $\lambda = 0$, while, if $\lambda_T < \lambda < 1$, it will converge to λ_S.*

Proof: to prove the stability properties of $\lambda_i, i = T, S$ we need to take a closer look at fig. 2. As the relationship $\partial\dot{\lambda}/\partial\alpha > 0$ implies that the density of litigators will rise (resp., fall) in the region at the right (resp., left) of the $\dot{\lambda} = 0$ locus, it is clear that density λ_S is attractive while density λ_T is repulsive. In addition, observe that the $\dot{\lambda} = 0$ locus is steeper than the DS schedule at S. As the slope of the $\dot{\lambda} = 0$ curve is given by $-\lambda/\alpha^*$ and that of DS is given by $-1/\overline{\alpha}$, the stability requirement involves $\lambda > 1/2$, which is always (resp., never) satisfied at S (resp., T) ∎

Proposition 1 highlights the snowballing characteristic of our model and draws attention on the relationship between legal uncertainty and the individuals' decision to litigate. When both the regulatory framework and contractual agreements are incomplete, the perceived

gravity of the provider's misconduct depends on the initial density of litigators, which potentially generates a critical-mass for litigation to become widespread. Due to the assumption $V^F - V^U = \lambda$, in fact, the more cases are filed against the provider, the more serious the perceived violations and the stronger the users' *intrinsic motivation* to go to court. The next task is to analyze how changes in the parameters' value affect litigation dynamics (8).

	$/\partial F$	$/\partial q^U$	$/\partial B$	$/\partial C$	$\partial \lambda_S / \partial \delta$
$\partial \lambda_S$	> 0	> 0	< 0	< 0	$\gtreqless 0 \Leftrightarrow \lambda(1-\lambda)\gamma \gtreqless \beta/\theta$
$\partial \lambda_T$	< 0	< 0	> 0	> 0	$\gtreqless 0 \Leftrightarrow \lambda(1-\lambda)\gamma \lesseqgtr \beta/\theta$

4.2 Enthusiasm and unfairness: an ambiguous effect

To inquire further into the features of the threshold and equilibrium densities $\lambda_i, i = T, S$, we insert equations (2) and (7) into (8) and rewrite our litigation dynamics as:

$$\dot{\lambda} = k[\lambda(1-\lambda)(\alpha_0 + \gamma\delta) + Fq^U - B - C] \qquad (9)$$

The results of the comparative statics are reported in table 1. Considering the effect of changing the parameter's value on the threshold level λ_T may perhaps sound counterintuitive, as at no time the economy will converge to such point. Due to the pervasiveness of legal uncertainty, however, the effects on λ_S and λ_T conveys two kinds of relevant information. The first measures the *intensity* of the litigation stage, while the second quantifies the *likelihood* of reaching the latter. In other words, λ_S can be viewed as a proxy of the *conflict* between the platform and her users, while λ_T measures the *probability* that this conflict outbursts. When the equilibrium share of litigators λ_S increases, the conflict intensifies; when the threshold share of litigators λ_T increases, the conflict becomes less likely. The sign of the comparative statics are intuitive and deserve no further attention, but for the cases reported in the last column of table 1. Due to the interplay between the unfairness and the enthusiasm mechanisms described in equations (2) and (3), in fact, the effect of the provider's decision is ambiguous. Hence we can formulate the following Proposition:
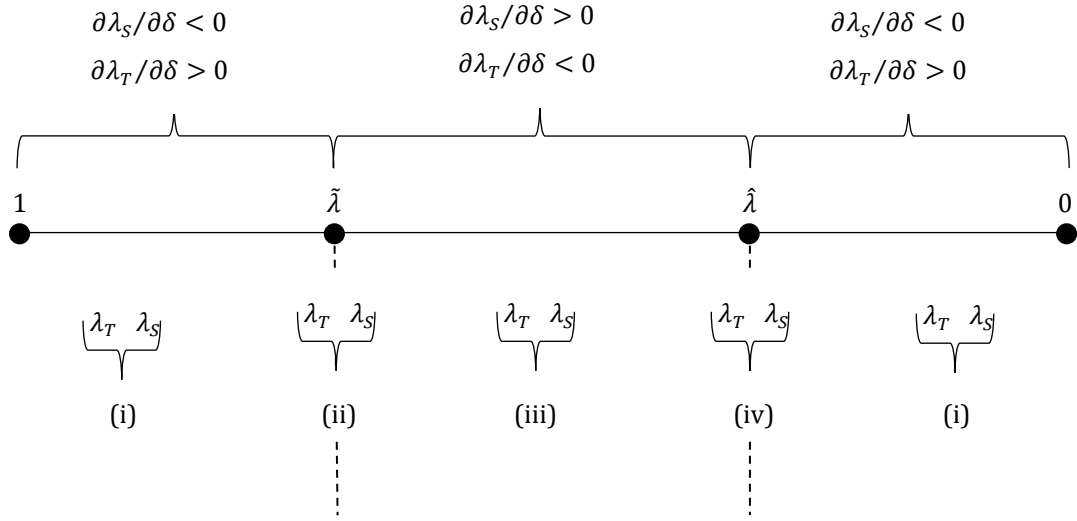
Fig. 3: effects of δ on λ_S and λ_T when $\gamma > 4\beta/\theta$

Proposition 2—*the effect of the provider's policy on the intensity and the likelihood of the litigation stage is ambiguous and depends on the interplay between the enthusiasm and the unfairness effect. When the former is relatively stronger than the latter—$\beta/\theta \geq \gamma/4$—intensifying data-gathering decreases both the intensity and the likelihood of the litigation stage—$\partial\lambda_S/\partial\delta < 0$ and $\partial\lambda_T/\partial\delta > 0$. Conversely, when the former is relatively weaker than the latter—$\gamma > 4\beta/\theta$—the effect of the platform's policy is mediated by the values of the equilibrium and threshold densities λ_S and λ_T. Defining $1/2 + [(\gamma + 4\beta/\theta)/4\gamma]^{1/2} \equiv \hat{\lambda}$ and $1/2 - [(\gamma + 4\beta/\theta)/4\gamma]^{1/2} \equiv \tilde{\lambda}$, we see that:*

(i) *If $\lambda_T < \lambda_S < \tilde{\lambda} < \hat{\lambda}$ or $\tilde{\lambda} < \hat{\lambda} < \lambda_T < \lambda_S$, intensifying data-gathering decreases both the intensity and the likelihood of the litigation stage—$\partial\lambda_S/\partial\delta < 0$ and $\partial\lambda_T/\partial\delta > 0$.*

(ii) *If $\lambda_T < \tilde{\lambda} < \lambda_S < \hat{\lambda}$, intensifying data-gathering increase the intensity of the litigation stage but decreases its likelihood—$\partial\lambda_S/\partial\delta > 0$ and $\partial\lambda_T/\partial\delta > 0$.*

(iii) *If $\tilde{\lambda} < \lambda_T < \lambda_S < \hat{\lambda}$, intensifying data-gathering increases both the intensity and the likelihood of the litigation stage—$\partial\lambda_S/\partial\delta > 0$ and $\partial\lambda_T/\partial\delta < 0$.*

(iv) *If $\tilde{\lambda} < \lambda_T < \hat{\lambda} < \lambda_S$, intensifying data-gathering decreases the intensity of the litigation stage but increases its likelihood—$\partial\lambda_S/\partial\delta < 0$ and $\partial\lambda_T/\partial\delta < 0$.*

Proof: the exact expressions for comparative statics concerning the effect of δ on λ is given by $\partial\lambda/\partial\delta = [\lambda(1-\lambda)\gamma - \beta/\theta]/(2\lambda - 1)$. Given the stability requirement $\lambda > 1/2$, the denominator is always positive (resp., negative) at λ_S (resp., λ_T). Hence, the sign of $\partial\lambda_S/\partial\delta$

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(resp., $\partial\lambda_T/\partial\delta$) can be studied by imposing $\lambda_S(1-\lambda_S)\gamma - \beta/\theta > 0$ (resp., $\lambda_T(1-\lambda_T)\gamma - \beta/\theta < 0$) and solving for λ_S (resp., λ_T). The rest of the proof follows from the fact that $\lambda_S(1-\lambda_S)\gamma - \beta/\theta > 0$ if $\tilde{\lambda} < \lambda_S < \hat{\lambda}$ and $\gamma > 4\beta/\theta$, while $\lambda_T(1-\lambda_T)\gamma - \beta/\theta < 0$ always if $\beta/\theta \geq \gamma/4$ or if $\lambda_T < \tilde{\lambda}$ or $\lambda_T > \hat{\lambda}$ and $\gamma > 4\beta/\theta$—fig. 3 depicts the pairs λ_S and λ_T in the space $0 < \tilde{\lambda} < \hat{\lambda} < 1$ corresponding to the cases (i)-(iv) of Proposition 2 ∎

Fig. 4 serves as a supplementary tool to analyze the relationship between the threshold and equilibrium values $\lambda_i, i = T, S$ and the intensity of data-gathering δ. Consider a platform who initially sets $\delta = \delta_0$. In this case, if $0 < \lambda < \lambda_T(\delta_0)$, the equilibrium density of litigators will be pushed to $\lambda = 0$; conversely, if $\lambda_T(\delta_0) < \lambda < 1$, the equilibrium density will converge to $\lambda_S(\delta_0)$. In response to an increase in data-gathering by the provider from δ_0 to δ_1, both DS and $\dot{\lambda} = 0$ shift rightwards[25], while both λ_S and λ_T shift downwards. In this case, the intensity of the litigation stage decreases, but its likelihood increases. This situation corresponds to case (iv) of Proposition 2.
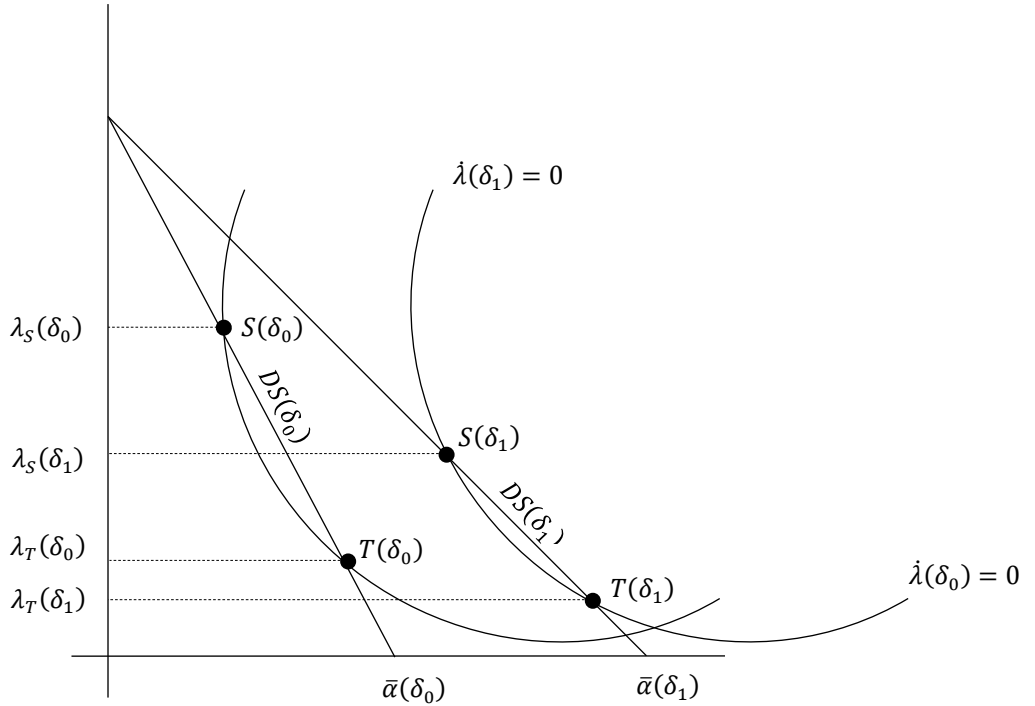

Fig. 4: diagram of case (iv) of Proposition 2

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[25] From equations (7) and (8) we have that $\left.\frac{\partial\alpha}{\partial\delta}\right|_{DS} = \frac{\beta}{\lambda\theta} > 0$ and $\left.\frac{\partial\alpha}{\partial\delta}\right|_{\lambda=0} = (1-\lambda)\gamma > 0$. Observe that the shifts of the $\dot{\lambda} = 0$ locus are governed by the unfairness effect, while those of the DS curve are governed by the enthusiasm effect.

Combining the insights from Proposition 1 and 2, we provide with a rationale to interpret the sudden behavioral change in the user's decision to litigate. In the early stage of platforms diffusion, individuals seemed more interested in the service than in the terms and condition of use. Over the same period, the number of legal actions against social-media companies was relatively low—see the introduction. Conversely, when the hype for web-mediated interactions started to wane, the number of litigations became to increase. The model provides with different explanations for this which such a change may have occurred. First, scandals like the Snowden Revelations and Cambridge Analitica may have modified the ratio between the enthusiasm and the unfairness effect. Second, when consumer protection agencies and communication authorities started to fine platforms for privacy-related issues, not only the above ratio, but also the subjective probability of winning the trial may have started to change. Third, interpreting the low level of previous litigations as a "green light" for her data-gathering activities, the provider may have modified her policy, with all the possible implications listed in Proposition 2. In all these case, little mutations in the population's composition may have sufficed to transport an economy originally established at $\lambda = 0$ to λ_S[26].

4.3 The provider's policy and the role of legal uncertainty

To study the provider's decision in the context of the enthusiasm/unfairness ambiguity analyzed in the previous section, we re-write the platform's problem as:

$$\max_{\delta > 0} \Pi = P(\lambda_T < \lambda \leq 1)(R - \lambda_S F q^P) + P(0 \leq \lambda < \lambda_T)R \tag{9}$$

Where $P(\lambda_T < \lambda \leq 1) = (1 - \lambda_T)$ and $P(0 \leq \lambda < \lambda_T) = \lambda_T$ is due to the uniform distribution of λ on $[0,1]$. In words, we assume that the provider knows the values of $\lambda_i, i = T, S$ and the effects of the comparative statics reported in table 1, but cannot anticipate whether a critical mass of plaintiffs will form for the system to reach the litigation stage. Hence, she adjusts her policy considering both the likelihood of reaching the litigation statge, measured by $1 - \lambda_T$, and the intensity of the latter, measured by λ_S. The first order condition for optimal profits writes:

$$\frac{\partial R}{\partial \delta} - \left[\frac{\partial \lambda_S}{\partial \delta}(1 - \lambda_T) - \frac{\partial \lambda_T}{\partial \delta}\lambda_S\right]F q^P = 0 \tag{10}$$

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[26] On the role of mutations in dynamic models, see Aoki (1995: 417-420).

Where we have already established that both $\partial\lambda_S/\partial\delta$ and $\partial\lambda_T/\partial\delta$ are ambiguously signed. Interestingly, when the providers' policy decreases both the intensity and likelihood of the litigation stage—i.e., $\partial\lambda_S/\partial\delta < 0$ and $\partial\lambda_T/\partial\delta > 0$—the first order condition is violated. In this case, the platform should gather infinite data. Conversely, there may exist parametrizations for which (10) is negatively signed and the platform should avoid collecting her users' personal information at all. In all other cases, we assume that an interior solution exists, is unique, and that the second order conditions are satisfied.

Despite we have assumed that the provider knows the values of the threshold and equilibrium densities $\lambda_i, i = T, S$, it should be noted that a key element of myopia in the platform's decision is given by q^P, which measures her subjective probability of losing the trial. As recalled in the introduction through the words of Amazon CEO J. Bezozs, in fact, the interplay between imperfect expectations and intense competition have pushed strategists in the tech sector to manage the decision-making process according to a substantial degree of guess. As a similar bounded rationality feature also affect the choice of the users, it is worth analyzing the effect of legal uncertainty on the equilibrium outcomes of the game. When q^P and q^U take different values, in fact, the parties' have diverging expectations on the outcome of judicial decisions. Such divergence has been widely acknowledged in the law and economics literature as a key reason for the occurrence of trials—see e.g., Waldfogel, 1998.

Denoting as $\overline{q^P}$ the cutoff value of q^P solving (10) and as $\overline{q^C}$ the cutoff value of q^C solving $\lambda > \lambda_T$, we hence formulate the following Proposition:

Proposition 3—*for any given set* $\{\lambda, \alpha_0, \gamma, \beta, \theta, F, B, C, R\}$:

(i)   *If* $q^P > \overline{q^P}$, *the platform collects no data;*

(ii)   *If* $q^P \leq \overline{q^P}$ *and* $q^C < \overline{q^C}$, *the platform collects a positive amount of data and the users do not litigate;*

(iii)   *If* $q^P \leq \overline{q^P}$ *and* $q^C > \overline{q^C}$, *the platform collects a positive amount of data and the users litigate.*

Borrowing from Ichino et al. (2003), we visualize the equilibrium outcomes of the game in fig. 5, which clarifies that the possible divergence of expectations is not the only reason for the occurrence of a trial. Indeed, we see that there exists an area along the 45° diagonal where the parties' have converging expectations and, nevertheless, litigations escalate. As recalled by

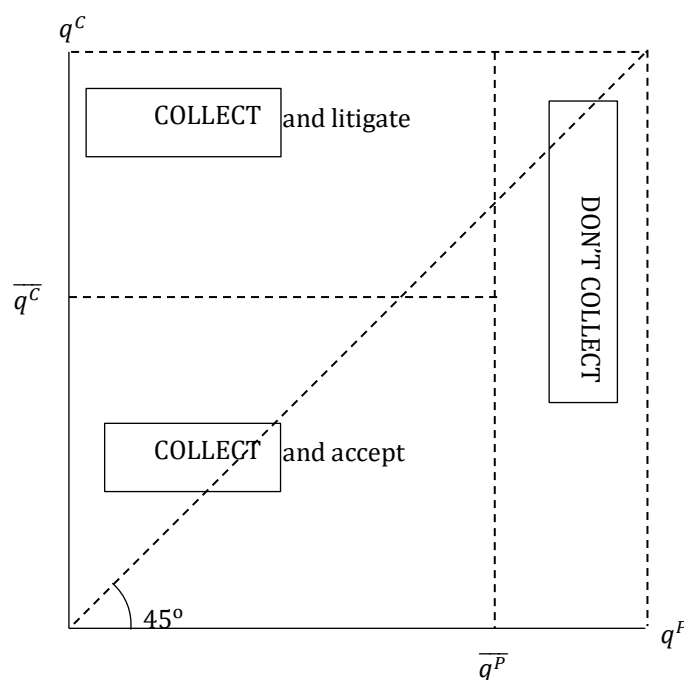Ichino et al. (2003), the existence of asymmetric stakes, in this case, is the reason why a trial occurs.

Fig. 5: The role of legal uncertainty

Regardless of which explanation does prevail, the role of legal uncertainty plays a key role in determining the equilibrium outcome of the game. While some degree of institutional unclarity is congenital to the market economy, exceptional levels of legal incompleteness may create room for alternating periods of enthusiasm and opposition towards technological innovations, with welfare-depressing implications for both buyers and sellers. As a solution, innovators may propose contractual agreements over the use of novel goods and services which minimize the *ex-ante* incompatibility between new and existing rights, rather than making a bet on the future evolution of consumer's beliefs. However, hindsight is 20/20, as they say, and the mere possibility of "trying their luck" may induce myopic sellers to choose strategies that are more lucrative, but also more hazardous or, conversely, to avoid investing in the newborn technologies because of the fear of their unforeseeable implications. In addition, when the law is incomplete, innovators may find it hard to minimize the above incompatibility. This allows for situations where buyers, despite acting in good faith, may be convicted for malfeasances that were impossible to be recognized as such *ex-ante*. As anticipated at the beginning of section 2, this highlights a key difference between the introduction of radical innovations and credence goods. While sellers of the latter are usually aware of the harmful

effects of their products, innovators dealing with new technologies may honestly ignore the *ex-post* incompatibility between the rights created by the novel goods and services and the existing ones. In this case, policy-makers may tighten regulation to anticipate the possibility of legal conflicts, as to discourage "aggressive" behaviors from the part of innovators which may eventually backfire on the latter.

5. Conclusions

This article analyzes the effect of data-gathering by social medias on their subscribers' willingness to litigate for privacy violations. More broadly, it presents a model on the co-evolution of technological and institutional innovation in contexts of legal uncertainty. In such frameworks, the introduction of novel goods and services may create incompatibilities between new and existing rights, that may be further misperceived by the transacting parties. Both buyers and sellers, indeed, may develop diverging expectations on the "fair" use of the innovative products (in our case, on the amount of data collection and processing) and on the outcome of judicial decisions when controversies arise. Hence, radical uncertainty looms on both side of the markets.

In this framework, our working hypothesis is that the customers' perceptions of the proper legal practice and litigation level emerge as a social construction. The snowballing characteristic of this dynamics have offsetting implications for both buyers and sellers. The former, on the one hand, may be eventually convicted for activities that seemed fully accepted by both customers and judges at time of service provision. The latter, on the other hand, may find themselves going to courts against services that they perceived as fair at the time of their reception. Unexpected processes of this sort may have a substantial impact on both profitability and customers' well-being, thus highlighting the economic and social fallout in the institutional construction of the emerging market.

In the face of such instability, a policy choice has to be done. It is that of deciding whether to delegate the edification of the industry's legal foundations to innovators (decentralized regulation), or to resort to more comprehensive intervention with stronger recourse to top down solutions (centralized regulation).

Centralized regulation reduces legal uncertainty, but it may impose excessive limitations on innovators and thus hinder the process of technological change. Decentralized regulation, on the other hand, is innovation-enhancing, as it allows entrepreneurs to use their "Hayekian" knowledge (Hayek, 1945) and find a balance between their customers' wants and theirs. In the

context of our study, the "quasi-rule making power" that social media companies have been temporarily enjoying within the context of the N&C model should have led to a stable compromise «between informational privacy and the benefits of information processing» (Sloan and Warner, 2014:383).

The presence of "technological enthusiasm" on both sides of the market, however, may distort early perceptions of the proper equilibrium between the interests involved or even tempt sellers to undertake patent fraudulent behaviors. In both cases, if customers revise their early frenzy for the newly emerged activities, hazardous choices may backfire on innovators for underestimating the probability of undesired outcomes. Conversely, if judicial decisions declare *ex-post* that the above incompatibility does not withstand, it is on consumers to pay the price of legal uncertainty. When judges deny the right to compensation, in fact, litigation costs burden plaintiffs with deadweight losses. Moreover, trials imposes social costs on the collectivity as a whole that may be saved under more cautious and active regulation.

Acknowledging the emergence of the law as a discovery process ultimately results in a word of caution. When deciding on the constraints to impose on novel goods and services, policy-makers should consider the ups and downs of a "laissez-faire" mode of regulation and avoid overemphasizing the temporary waves of technological hype. The revision process of previously accepted legal practices, in fact, can be both rapid and sudden, with disruptive implications for both profitability and customers' well-being.

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