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**Onion governance:
Securing drug transactions in dark net market platforms**

Abstract

In public debates, the dark net is usually demonized as a trafficking platform and occasionally praised as a free haven for whistleblowers and dissidents from authoritarian regimes. The highly normative debate, however, obfuscates that the dark net is a space in which property rights are effectively enforced without and often against the will of state authorities.

In our paper, we take this observation as a starting point. We show that drug transactions within the dark net are regulated by a combination of several distinguishable, yet interacting modes of governance. Market mechanisms play an important role to motivate participants to engage in dark net drug trafficking. The functionality of markets, however, is sustained by hierarchical steering modes, including subjectively legitimate monopolies of (virtual) violence and fee collection for the forum hosts and administrators. Both the authority of hierarchical steering and the uncertainties of market transactions are counterbalanced by network governance, which allows for the mutual exchange of information about the behavior of the actors involved. At the same time, the interplay between markets, hierarchies, and networks is facilitated by community governance, which helps to maintain a common identity and shared beliefs among all participants.

In our paper, we illustrate the interplay of the different governance modes by an ethnographic “thick description” which is based on our observations and online chats with forum providers, administrators, and users of dark net drug platforms.

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Introduction¹

In public debates, the dark net is often demonized as societally harmful exchange forum for illegal goods. Apart from the sale of weapons, stolen credit cards, and child pornography, drug trafficking is most vibrantly discussed both in the media and in academic writings, especially those of criminology and related disciplines (Broadhead 2018; Graham / Pitman 2018; Pace 2017). In our paper, we refrain from these normative debates and instead focus on an often overlooked phenomenon: Drug trafficking in the dark net has gained a stable and even expanding market position in the international trade of narcotic substances. Despite spectacular police raids and cases of fraud, both vendors and buyers appear sufficiently satisfied with the quality and reliability of the market functioning, and ever more market platforms are mushrooming at the deepest level of the world wide web (Tzanetakis 2018). It seems that the property rights of all market participants (buyers, vendors, intermediaries) are protected to an extent that at least does not discourage them from engaging in commercial transactions.

The more recent research of economic sociologists indirectly addresses this phenomenon and makes use of rational choice based models to explain the relative stability of interactions as a function of signaling devices (e.g. vendor reputation scores, Przepiorka et al. 2017). We concur that these mechanisms play an important role, but our paper is concerned with a more fundamental question. The functioning of dark net drug platforms as such, despite all its shortcomings, is completely at odds with the basic assumptions of modern liberal theory in philosophy, law, and institutional economics. Here it is argued that the exchange of goods and services crucially depends on the definition and enforcement of property rights by public authority as a guarantor of last resort (Fligstein / Calder 2015). Some libertarian authors go a step further and proclaim that the protection of property rights is the only justification of states to exist (Nozick 1974). So, how can we explain that property rights within dark net drug platforms are sufficiently protected in the absence and partially even against the state? Which mechanisms are able to substitute public law enforcement? And what does this mean for the role of state authority in a digitalizing world?

¹ Some of the arguments mentioned in this paper have been inspired by the discussions on a joint project proposal with Marcel Wissenburg and Jochem Tolsma (both Radboud University). We would like to thank our colleagues for sharing their ideas with us. While having said this, all interpretations suggested in this paper are solely those of the authors.

To answer these questions, we put forward three interrelated propositions. First, we assume that the stability of property rights enforcement is a function of the ecosystem of all dark net platforms in this market segment. Thus, our unit of analysis is not a single digital drug market but comprises the interactions both within and across platforms. Second, we aim to illustrate that the role of the state or international public authorities as a law-enforcing agencies can be replaced by the combination of several “modes of governance”. Apart from non-state hierarchical steering, we assume that market, network, and community governance explain the relative stability of property rights protection within the ecosystem of dark net drug platforms. Third, and concluding, we state that the liberal portrayal of the state as the only possible guarantor of effective market transactions is flawed or at least outdated. Instead of a necessary prerequisite, public interventions should be perceived as a sufficient and thus substitutable condition for the enforcement of property rights.

Our analysis reviews the existing literature on dark net drug platforms in criminology, economic sociology, and adjacent fields in the light of our research questions. Moreover, we draw on the first results of our ethnographic research, which is based on participant observations and online chats with platform hosts, administrators, and users of dark net drug platforms. Our paper does neither aim at a meticulous analysis of specific interactions nor does it envisage a quantitative assessment of the efficiency of particular mechanisms. Rather, we understand our paper as a conceptual suggestion to engage in further interdisciplinary research on the functioning of non-state governance in an adversarial environment.

For this purpose, we proceed as follows. The subsequent section (1) shows in more detail why we think the existence of effectively working drug platforms is completely at odds with prevailing understandings of the relationship between states and markets. Section 2 draws on the governance literature to show how political scientists have already made important steps to enhance our understanding of law-making and enforcement in the absence of state authority. Section 3 is devoted to the description of our object of study and our methodology. In section 4, we show how various governance mechanisms in the dark net drug platform ecosystem are able to ensure the admittedly precarious, still sufficiently functioning protection of property rights. Moreover, we show how the different governance mechanisms complement each other. In the concluding section, we summarize our findings, elaborate on some suggestions for fur-

ther research, and discuss the implications of our results for the debate on the role of the state in a digitalizing world.

1 Property protection and market proliferation against the state

Already in the 1970s, the notion of the “dark net” was used as a metaphor to describe digital networks which operated independently from the ARPANET, i.e. the government-sponsored precursor of the internet. However, it took another twenty years for such dark nets to attract the attention of the wider expert community. In 2002, engineers from Microsoft hinted to the risk that copyrighted content might be illegally distributed in uncontrolled networks (Currah 2007). Generally, the term dark net can be utilized to describe any portion of the internet that is not open to public view². The facilitation of untraceable interactions makes dark net platforms attractive for all kinds of communications which aim at remaining out-of-sight of public authorities (Graham / Pitman 2018). While these anonymized forms of communication are increasingly used by whistleblowers and dissidents in authoritarian states, the anonymity makes it also conducive to the exchange of illegal goods and services. Apart from weapons, pornographic content, stolen visa cards and sensitive information such as passwords, drug trafficking is an important activity and focus of a specific set of dark net platforms.

Occasionally, police forces have succeeded in raiding prominent market platforms. The closure of the Silk Road in 2014 (an eBay-like platform facilitating the world-wide sourcing of illegal narcotics) is the most prominent example of an effective shutdown, probably because of the astonishingly high trade volume (estimated 45 million US\$) which had been processed on this platform. Nevertheless, it only took a couple of weeks for the first alternative platforms to go online (Chertoff 2017). Despite continuous and partially internationally coordinated police operations, and regardless of occasional spectacular shutdowns, it seems that dark net platforms designed for the buying and selling of narcotics gain rather than loose attractiveness for the buyers and vendors of illegal drugs (Tzanetakis 2018). In 2018 alone, it is estimated that the overall trade volume of such dark net drug platforms amounts to 150 million US\$ worldwide.

Of course, one might argue that the attractiveness of dark net drug trafficking can be explained by the comparably high opportunity costs for all market participants (e.g., physical

² In practice, this means websites which are not indexed by search engines.

violence) in like offline transactions (Bakken et al. 2018). However, the increased preference for dark net transactions despite a considerable level of upfront costs (e.g., acquiring the technological knowledge necessary to both locate and safely use the platforms) also shows that buyers, sellers, and intermediaries are sufficiently satisfied with the functioning of their business models. While it is difficult to ascertain solid figures, it seems fair to say that most commercial transactions run rather smoothly. Most buyers receive the ordered drugs in good quality, and sellers can reasonably rely on an effective payment for their goods and services. In consideration of all circumstances, the property rights of all market participants are comparably well secured (Morselli et al. 2017).

It is this feature that makes drug trafficking through the dark net platforms so interesting from an academic perspective. Since the modern ages at the latest, there is a widespread, though not unanimous consensus in the scholarly literature that market effectiveness, i.e. “the functioning of social institutions in which a large number of commodity exchanges of a specific type regularly take place” (Hodgson 1988: 174) depends upon the enforcement of property rights by state authorities. Various Enlightenment philosophers have portrayed the state as the guarantor for the enforcement of property rights, because it is the only legitimate institution to decide upon collectively binding rules (Grotius 1950 [1625]; Kant 1966 [1788]). Especially for Locke (1978 [1960]), the authoritative definition and enforcement of property rights distinguishes the modern state from “uncivilized” communities and justifies the alleged superiority of white settlers over the indigenous population of the Americas.

Modern institutional economists (Barzel 1989; North 1990; Greif 2006) agree that the existence of a state is prerequisite for the protection of property as a precondition for effective market transactions. While the early writings of Elinor Ostrom suggest that property rights can be enforced in small communities without state intervention (Schlager / Ostrom 1992), her later publications argue that the sustainable exchange of resources ultimately depends on “polycentric governance”, in which the anticipation of possible state intervention facilitates transactions within and across different scales (Ostrom / Cox 2010). The “legitimate monopoly of violence” of the state (Weber 1925) is assumed to create a “shadow of hierarchy” (Scharpf 1992) which ensures that buyers and vendors can rely on the enforceability of property rights (North 1990, Furubotn / Richter 2008). Even libertarian scholars are deeply divided between those convinced that property rights need enforcement by the state or

state-like institutions (Machan 1998; Nozick 1974), and those who believe the state to be superfluous (Rothbard 2002).

Although the assumed nexus between states, property rights enforcement, and market functioning is widely used to justify the institutional structure of modern societies (Carroll et al. 1979), this relationship has hardly been empirically tested. The ubiquity of the state may have enticed theoretical scholars to see the state as a necessary condition for effective market functioning. However, the relative stability of property rights protection without or even against the state in dark net drug platforms challenge this conventional wisdom. It seems that we would have to look for and theorize about alternative mechanisms which can substitute the role of the state in a world in which state authority is absent or even perceived as a menace that should be avoided at all costs.

2 Modes of governance without (or against) the state

During the last thirty years, the question of effective collective decision-making and law enforcement without or against the state has been most prominently discussed in the disciplines of international relations, economics and law (Levi-Faur 2012). Real world phenomena have been the point of departure for these debates. In an era of intensified international trade relationships, accelerated transnational communication, and border-transgressing environmental problems, many scholars assume that the most pressing problems of our times cannot be solved anymore at the level of the nation state (Fukuyama 2016). Regardless of their countervailing normative assessments, most liberal and critical scholars agree that the provision of public goods (welfare, economic growth) and the avoidance of public bads (environmental harm, spread of epidemics) overstrains the capacities of even the most powerful states under the conditions of globalization (Beck 1986). They recognize an intensified institutionalization of decision-making and enforcement structures at the international level, which also enhances the participation of non-state actors (corporations, experts, civil society groups) at the debates within the “global agora” (Stone 2008).

The delegation of substantial political prerogatives to inter- and transnational “spheres of authority” (Rosenau 1997) goes hand in hand with declining steering capacities on the domestic level (Fukuyama 2016). This tendency can be most prominently observed in the European

Union, where substantial decision-making and adjudication powers are transferred to supranational organizations (Börzel 2018). For better or worse, state institutions both in industrialized countries and in the Global South are “hollowing out” (Rhodes 1994), cease to exist, or (in the case of the latter) are never even established. Instead, collectively binding decision-making competences are increasingly delegated to fragmented regulatory networks consisting of disembedded bureaucrats and experts, while the enforcement of transnationally agreed norms is assigned to “private authorities” such as transnational dispute settlement bodies, corporations, and civil society actors (Hall / Biersteker 2002).

While critical scholars assume that the emerging “new constitutionalism” with its overly complex and intransparent procedures exclusively serves the interests of a transnational capitalist class and leads to the oppression of the broader population (Gill / Cutler 2014), global governance advocates are convinced that the new world order remains manageable, albeit by other means. They are aware of potentially deficient input-legitimacy, i.e. diminishing participatory rights of individual citizens and marginalized groups. In view of the imperatives of globalization, however, they argue that new institutional arrangements beyond the state are inevitable to maintain acceptably high levels of output-legitimacy, i.e. stable capacities to generate “public goods” in a world of complexly intertwined interdependencies (Fukuyama 2016; Abbott / Snidal 2010).

To reach this goal, global governance authors think that political steering cannot be based anymore on state authority alone. Most notably with regard to the European Union, but also in other contexts, they discuss the emergence of “new modes of governance” (Börzel et al. 2007) which are able to ensure the enforcement of collectively binding decisions in a post-Leviathan world. The term “modes” is used to circumscribe the basic rationales of distinct policy instruments (Börzel 2018). Although the definition of particular governance modes is controversially discussed, four different types can be distinguished.

Markets

Based on the Scottish moral philosophy (A. Smith, B. Mandeville) and neo-liberal writings (F. Hayek), many governance scholars perceive the market not only as an exchange platform but also highlight its coordinating function for social orders (Fligstein / Calder 2015; Fligstein 1996). Departing from utility-maximizing individuals, they assume that personal goals moti-

vate social actors to search optimal solutions for the fulfillment of their desires (Pahl-Wostl 2019). In a process of mutual adjustment (or even equilibrium), individual demands and available or producible supplies are spontaneously coordinated, quite frequently under the condition of scarce resources (Martinelli 2003). The search project as such is performative to the extent that the institutionalization of demand and supply constitutes the structure of a market (Coase 1960). Driven by egoistic concerns, market actors unintendedly create institutions in which diverging interests are often innovatively reconciled, while the “invisible hand” (Smith) of the market simultaneously directs them towards the production of public goods. Governance scholars are well aware that the frictionless working of this governance mode is often impeded by market imperfections (e.g., incomplete knowledge, high entry or exit costs), but they also assume that these hindrances are at least partially absorbed by the inherent dynamics of markets themselves (Bekert 2009).

Hierarchies

Although governance scholars are very skeptical about the state’s capacity to steer societal processes and outcomes, that does not mean that they would completely deny the existence of hierarchical coordination modes (Streeck / Crouch 1996). Quite to the contrary, they draw on Coase’s transaction cost economics to show that the establishment of command and control structures is not a privilege of the state. Instead, large (multinational) companies can be understood as a system of centralized decision-making, monitoring institutions, and effective sanctioning instruments (Coase 1960). It can still be argued that a firm’s capacity to steer hierarchically is ultimately rooted in the legal context of the state (e.g., labor and contract law). However, this argument is not applicable to extra-legal actors which make effective use of coercive means to ensure cooperation among their subalterns. Especially in “areas of limited statehood”, warlords and bandit chiefs can reasonably expect that their commands are obeyed (Börzel / Risse 2015). Strictly speaking, governance scholars equate hierarchy with power in a Weberian sense, i.e. the “probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests” (Max Weber, quoted in Coleman, 1997: 31).

Networks

Market governance is particularly suited for spontaneous coordination, and hierarchies are highly cost-efficient in the case of routine decisions and oversight. Both governance modes, however, do not function well in the case of knowledge-intensive decision-making and enforcement processes (Watson et al. 2005). Acting in a market governance mode, social actors are not able to collect sufficient information to formulate their preferences and strategies, and hierarchies cannot completely control the implementation of centrally pre-defined priorities by subordinated units. It is against this background that governance scholars assume that network governance is a superior mechanism of coordination in a knowledge-dependent environment (Adler 2001). In essence, network governance consists of semi-institutionalized interactions between various actors with a shared interest in a coordination problem (Portnoy 2000). The members of a network may not necessarily agree on a single preferred solution, but they are aware that any possible approach crucially depends upon collaboration (Kapucu et al. 2017). Given the mutual dependency of their participants, networks are characterized by a relatively egalitarian status of their members, regardless of their institutional position and power resources in other contexts. For the purposes of network governance, potential contributions to the shared problem are the currency of exchange, and network members are willing to share information and to pool their resources in order to reach a common goal (Börzel / Heard-Lauréote 2009).

Communities

Quite frequently, community governance is equated with network governance. Both modes have in common that they rest on the voluntary collaboration of the members of a social group. The voluntariness distinguishes both network and community governance from hierarchical governance, and the focus on intentional collaboration makes them distinguishable from market governance (Börzel 2002). However, network and community governance can be differentiated with regard to the underlying motivations for cooperation (Watson et al. 2005). While the participation at networks is ultimately instrumentally motivated and follows a “logic of consequentiality” (Kapucu et al. 2014), community governance is inspired by a “logic of appropriateness” (Atkinson / Coleman 1992). Shared moral values, worldviews and identities lead to commonly accepted forms of behavior. This is why “codes of conduct” and other informal norms play an important role for the formation and maintenance of community gover-

nance, whose ultimate goal is the preservation and stability of the group itself (Djelic / Quack 2010). In terms of their status, community members may be highly differentiated and unequal, but the shared identity assures that all of them have the subjective impression to be superior to those who are not part of their community (Mayntz 2010). The (group-centered) altruism enables community governance to overcome the limits of short-term egoistic behavior, which lowers transaction costs and thereby helps to solve collective action problems (Watson et al. 2005).

The governance modes of hierarchies, markets, networks, and communities should be understood as ideal-types (Tenbesel 2018). In real world settings, most steering and coordinating tasks are fulfilled by an issue-specific “governance mix” or particular forms of “hybrid governance”. However, as the subsequent sections will show, the distinction between the different rationales of collaboration is helpful to understand the functioning of property rights enforcement in the ecosystem of dark net drug markets, even if we can assume that most governance scholars would never have thought about this field of application.

3 Case description and methodological overview

For our study, we observed a specific subset of the dark net. We focused on platforms (websites) hosted within the Tor network, which we accessed utilizing the Tor browser. The Tor network consists of a group of volunteer operated servers that operate between a user and a server. Instead of a user directly connecting to a server, the user’s requests to a server are routed through multiple relays. This multistep routing, coupled with a routing protocol that ensures that every relay in along the route only has access to where the data came from, and where the data must go next, ensures that no single point of the route has knowledge regarding the entire connection (Dordal 2018). As such, the link between the user and the server is obfuscated. Without providing the server additional identifying information, the server (or a third party listening in on the connection) cannot deduce the user’s true identity (IP-address). Effectively, this means that the communication between user and server is anonymized. Note that this routing only secures the transport of the data. If the transported data still contains identifying information that is openly accessible, the routing does not ensure anonymity. This process can be utilized to access specific websites anonymously.

Within the Tor network, services such as marketplace platforms are offered without providing information usable to deduce the location of the service. Such services are termed onion services. Onion services operate by advertising their existence to random relays within the Tor network, which serve as introduction points. The relays do not know the onion service's true location, as this advertisement occurs along circuits that operate in a fashion similar to the above illustrated connection protocol. Following the locating of introduction points, the onion service generates a descriptor utilizing a public key and summary of the introduction points, resulting in a generated address (e.g., XYZ.onion). A user needs to learn this onion address. The connection between the user and the server is established through the Tor network, that retains the obfuscated properties that exist when utilizing the Tor network. Obfuscation of user and server location facilitates the existence of the dark net drug platforms that we observed; third parties cannot easily deduce the physical location of the communicating machines, and thus not link any specific platform or user of a platform with real-world people, as long as users take care not to (accidentally) share information that negates the established obfuscation³.

It is imperative to note once again that we only observed platforms (markets, related discussion forums and third party discussion forums) within the Tor network which are openly accessible, i.e. the addresses of these services are widely circulated. All in all, we were able to observe 14 active market platforms for the trade of narcotic substances which are declared to be illegal in most jurisdictions of the analogue world. This ecosystem is not the entirety of the "dark net", it is merely a subset, a collection of platforms that facilitate the communication between individuals with similar goals; purchasing and selling often illegal narcotics whilst protecting information that can be used to identify them and link them to illegal activities. In addition to these platforms, we also analyzed the communication in dreaddit, a social news generator which can be functionally compared to Reddit⁴.

³ For instance, person A could be trying to buy illegal substances from person B. Person A locates person B on a dark net market platform. When person A and B reach a deal, person A sends a message to person B containing shipping information. Even though the physical locations of person A and B and the physical location of the platform that facilitates their transaction is also obfuscated, if person A sends the shipping information carelessly (i.e., by not encrypting the message), a person C who is listening in on the obfuscated connection might still gain identifying information of person A.

⁴ See dreadditevelidot.onion.

Our research strategy was essentially based on participant observations, which took place between July 2018 and January 2019. We read the posts in the dark net market discussion forums and interpreted the ongoing communication streams with regards to their implications for our research question. Occasionally, we also participated in the conversations of the forum users by asking questions, commenting on certain posts, or providing recommendations on literature, movies, and social science theories, as these issues were frequently discussed within various forums. Thanks to our active engagement, we won sufficiently trust to also conduct some short chat interviews with forum hosts and community managers in private chats. Throughout the whole observation period, we operated openly by identifying ourselves as social scientists. Interested dark net users were enabled to get an overview on our research purposes through our own internet presentation.⁵ Obviously, our research strategy does not enable us to generate systematic data which could be used for standardized (comparative) analyses. However, at least in this stage, our ambition was more moderate. We attempted to generate a “thick description” (Geertz 2008) of social dynamics in order to explore those mechanisms which can substitute the role of the state for the enforcement of property rights. The results of our ethnographic research are described in the subsequent section.

4 Property rights enforcement in dark net drug platforms

In dark net platforms, the enforcement of property rights is a local public good which is produced by a complementary combination of all four modes of governance as described in section 2. To a certain extent, the governance structure in the ecosystem of dark net drug platforms can be compared to a Russian doll: While the core of commercial activities is sustained by market governance and hierarchical means, the functioning of the exchange is facilitated by network and community governance. In contrast to the Russian doll model, however, the different layers with their different predominant governance modes do not configure hermetically closed spheres but permeate each other.

Market and hierarchical governance

In the inner spheres, i.e. within individual dark net platforms that function as the market where a buyer and vendor meet, arrange and conduct transactions, we can observe the prom-

⁵ See <https://oniongovernance.com/>.

inent use of market governance, sustained by hierarchical means. Individual sellers advertise their goods (drugs), describe their services (i.e. packaging, shipping, and delivery modalities), and indicate their prices and the accepted (crypto-)currencies. Quite often, they offer links to more detailed information on their individual websites. While some vendors' business models rely on the offer of a broad range of different drugs, others decide to specialize in market niches. Interested consumers can scroll through the listings to make a choice (Bakken et al. 2018). If they have decided for a certain vendor, they can contact her⁶ and order their goods. Both the delivery and the payment handling is often supported by intermediary escrow services, which are typically offered by the platform where the vendor listings are hosted. The buyer transmits the outstanding payment to the escrow, who sends an acknowledgement of receipt to the vendor. Thereafter, the vendor ships the goods to the buyer. Once the buyer has informed the escrow that she has received the products in good order, the money is transferred to the vendor. PurityRing, one of our interlocutors, describes these transactions as follows:

“It works through the coin. Just like any other economy, however socially conscious it may or may not be. Show me the goods -->> Show me the money, Jerry” (PurityRing 2018).

Until this moment, the exchange of goods on dark net market platforms does not substantially differ from transactions in other, non-illegal market places. Quite to the contrary, the described transactions can be understood as a textbook example for market governance. Admittedly, large online forums like Amazon or eBay do not rely on escrows, but it is not unusual to involve fiduciary intermediaries (e.g., notaries) with commercial transactions. What makes dark net drug market platforms different is the fact that none of the involved parties (buyers, vendors, intermediaries) can rely on legally backed contract enforcement procedures in the case of fraud or other forms of defecting behavior⁷.

It is at this point that non-state hierarchical governance steps in. In order to engage in commercial transactions, all market participants have to register on the platforms. The owner of the platform hereby regulates the entry of market participants. While the requirements of market entrance are comparably low for potential buyers (in the platforms that we observed,

⁶ For the sake of readability, we consistently use feminine pronouns. Kindly note, however, that the anonymity of the conversations prevent us from determining the gender of dark net participants.

⁷ Further, typical forms of enforcement found in other extra-legal markets (such as the latent threat of physical violence that can be directed at defectors) are also not present within dark net market platforms, as the parties involved within a transaction can only identify each other within the context of that platform that facilitates the transaction at hand (i.e. party A knows the platform specific username or handle of party B, but this does not translate directly to any real person).

buyers can register for free), vendors (and intermediaries) can only start their activities if they are licensed by the platform owner. Depending on the specific platform that a potential vendor wishes to enter, she is required to pay a considerably high fee for a ‘vendor badge’, i.e. the right to post listings within the market platform for buyers to peruse. Moreover, vendors are requested to pay a provision to the platform owner for each successful transaction. Vendor badges serve as an important source of income for the market platform provider. To a certain extent, the sale of vendor badges and the charging of provisions can be compared to early forms of customs collection in medieval municipalities and fiefdoms (Elias 1969). As in the European middle ages, the amount of taxes (fees and provisions) is highly contested, but eventually, vendors have to accept the decision of the platform owner if they want to remain active in a specific market.

While platform owners are interested in attracting both vendors and buyers, they also make use of their prerogatives to prevent the entry of market participants of ill reputation, e.g. by the decline of vendor badges or the deletion of user accounts. Of course, the anonymity of communication makes it impossible to prevent interested parties from using different aliases in order to circumvent these sanctions. However, the establishment of a well-known and trusted alias requires a lot of time and work (Wegberg / Verburch 2018) and is considered as “social capital (...), maybe as important as the crypto in your wallet” (PurityRing 2018). That is why the credible threat to exclude a vendor’s alias from a market has a highly effective deterring effect.

But hierarchical governance is not limited to the regulation of market entry barriers. If vendors are accused of misbehavior (fraud, unreliability, bad quality of the sold drugs), platform administrators intervene via specialized dispute settlement procedures (Bakken et al. 2018). Market participants who feel unfairly treated may submit a “ticket”, which serves as a warrant to open formal procedures. Whenever possible, platform administrators or their representatives try to mediate between the conflicting partners and to find a compromise between rivaling interests (Morselli et al. 2017). Market exclusion, the severest form of punishment, only serves as an ultima ratio (Holt 2013). While the procedures of mediation processes remain undisclosed, their initiation is often times announced on the forums accompanying the market platforms, which can be assumed to enhance their deterrence effect. Further, although closed door mediation is often times facilitated, most observed market platforms have accompanying

forums, where users (both buyers and vendors) can engage in open debate concerning such complaints (Morselli et al. 2017; Rolando / Beccaria 2018).

Apart from entry and adjudicated exit regulations, platform administrators also frequently intervene into those interactions which might endanger the very existence of their platforms or put their users' anonymity at risk. Most notably, links to non-anonymized websites which might be posted within forum platforms are immediately sanctioned, because the use of these links would make it possible for invaders (police and intelligence forces or other third parties) to trace the users of the market and forum platforms and endanger the anonymity of market participants. Usually, these links are deleted and a warning is issued. But the platform administrator can also apply more far-reaching sanctions, up to the deletion of a user account (Holt 2013). Once again, these sanctions can be quite costly, because they destroy the virtual identities of "convicted" market platform participants. Apart from the prevention of existential threats, platform owners also intervene by hierarchical means if market users behave inappropriately, e.g. by insulting each other (Wehinger 2011). From the side of market participants, these sanctions are generally perceived as to be legitimate. As PurityRing, one of our interlocutors, puts it:

"People govern themselves to a degree and if the emperor needs to be called upon to settle disputes, his final decision is accepted. Heavy lies the crown, whether one is King Xerxes or 'just' King Leonidas" (PurityRing 2018).

Given the intensity of communications and transactions, however, platform owners would be overstrained with the oversight of all possible forms of misbehavior. While some platform owners strive for a software-driven automatization of enforcement procedures (Earthling 2018), most of them engage several community or forum managers, whose oversight is limited to particular segments or functionalities of the platform. Community or forum managers (the titles differ across several platforms) are usually paid for their collaboration. They are appointed by the platform owner on the base of meritocratic principles and receive a share out of the fees which are collected for vendor badges. However, they remain subordinated to the superior decision-making competences of the platform owner. They may complain about (allegedly) unfair treatment, but eventually, they have to accept the hierarchical power of the platform owner:

"After working with SpeedStepper [platform owner of Dream Market] for years and years for a humble salary, recently we realized he has become crooked (...). We said fuck this and resign from all support services. A day after, his alter ego couldn't resist to ban us and blame it all on us" (6Lack 2018).

To a certain extent, the role of community managers can be compared to the nobility of the sword in the late-medieval fiefdoms on the French territories (Elias 1969). They partake and simultaneously contribute to the hierarchical governance of dark net drug markets. However, unless they decide to establish their own fiefdom, they remain subject to the superior prerogatives of the monarch.

Network and community governance

While all market platforms within the observed ecosystem of dark net drug platforms are operating autonomously, they do not act independently from each other. Two reasons speak in favor of at least indirect interaction effects. First, potential buyers can freely move from one market to the other. Their choice of particular platforms seems to be informed by the quality of the offered services, including the secure handling of their payments. Second, platform owners depend on the attention of a sufficient number of possible buyers to attract vendors, whose license fees are needed for the financing of the platform, payments for the bureaucratic apparatus (see above) and as a source of income for the platform owner himself. As vendors can also choose among the different platforms, they decide for those market platforms which are likely to guarantee reliable income streams. Taken together, this means that the different market platforms compete with each other. The indirect market governance also motivates platform owners to ensure the protection of property rights within their platform, because both vendors and buyers consider this to be a deciding factor when choosing among the available platforms.

However, the market mechanism of competing platforms is not exclusively established by the “invisible hand” of mutually expected behaviors. Quite to the contrary, market governance only appears feasible if it is sustained by network governance, which allows the exchange of relevant information among all interested parties. Most notably, the quality of platforms is a matter of intensive debates. Buyers, vendors, managers and platform owners discursively assess the performance of specific market places within specialized communication forums tied to market platforms, but also on external websites (e.g. dreaddit, see above). There are also specialized forums which can only be accessed by particular users (e.g. vendors, administrators). While it has been impossible for us to observe the debates in these closed forums, con-

tributions in the publicly available forums indicate that the closed debating rooms are used for the exchange of more confidential insider information.

For understandable reasons, security issues play the most prominent role in all these discussions. Users intensively discuss all possible indications that particular platforms might be infiltrated by law enforcement agencies. Arguments which speak in favor or against such an assumption are omnipresent in all communication forums. But external security is not the only salient topic. The reliability of specific vendors (e.g. experiences with deliveries, the quality of the products), and the securement of payments are the second most important issue. Users constantly exchange information about the hereto-related characteristics of the individual markets. Their performance in terms of securing transactions is carefully examined and meticulously scrutinized. This also includes an exchange of experiences with regard to the adjudication processes (tickets) in cases of conflict. The density of information makes it possible for vendors, buyers, and intermediaries to plausibly assess whether and to what extent specific markets are able to meet their expectations (Morselli et al. 2017). For the sake of quick oversight, some more websites offer a ranking system for markets, but the rather superficial quantitative measurement does not replace the exchange of “gossip” in the various discussion forums.

However, discussions do not only relate to the quality of the market platforms as such, but also offer detailed information on individual vendors. Once again, rating systems within specific market platforms provide a rough oversight, but the interested user can also find more detailed information in the various discussion forums, utilizing either those forums linked to a specific market platform, or third party forums such as Subdreds, where discussions center on certain market platforms. As for the market platforms themselves, the most important question is whether a vendor is “honest” or whether he should be considered as a police officer or intelligence agent. Shortly thereafter, however, her financial and commercial reliability is the second most important issue. Particular vendors are often publicly denounced as to be unreliable long before a platform owner decides to withdraw the license and to expulse them from the platform.

Having said this, it should have become clear that network governance plays an important role for the protection of property rights in the stateless world. However, one question still

remains open. Why should users be motivated in first instance to exchange information? Given the commercial interests of professional users (vendors, intermediaries, platform owners and their staff), and in view of the subjectively dire needs of drug addicted buyers, why should they engage in such time-consuming activities? Rational choice theories could interpret the exchange of information in terms of iterative games and anticipated cooperation gains, which would still be in line with the mode of network governance. But the underlying focus on utility maximization does not explain why platform owners and vendors often exchange information which ultimately helps their competitors. Even stronger, many users often show a quasi-altruistic behavior: They devote a considerable amount of time to explain particular problems to unexperienced newcomers and help them to find vendors and markets of good quality, although the increased demand ultimately leads to higher drug prices for themselves.

Bounded rationality might at least partially explain such a behavior, but we think that there is something more behind it. Regardless of their particular roles, the users of dark net drug market platforms understand themselves as members of a community (Masson / Bancroft 2018; Paquet-Clouston et al. 2018). This community is first of all constituted by the shared interest in illegal narcotic substances. The moral appreciation of these goods entails normative positions which perceive indulging in the use of narcotics / self-inflicted harm as an expression of personal freedom. This quasi-existentialist moral philosophy explains why many users passionately condemn the sale of goods which are likely to inflict harm on others, most notably child pornography. As Oxygen, a Dream Market participant, told us:

“First of all, on a community like this, you won’t find the following things: (...) Torture or Rape Content, Weapons, or Weapons of Mass Destruction, Venom or Toxins. Everything that is meant to harm another human being, other than yourself” (Oxygen 2018).

With this regard, the ongoing discussion on the moral virtue of weapon sales is very illustrative. Weapons can be used to damage yourself, which is perceived as morally acceptable. But weapons can also be used to harm others against their own will, which contradicts the ethical code of the drug market community. That’s why the sale of weapons is a strongly contested issue, which also explains the differentiation between weapons and weapons of mass destruction in the above-mentioned quote. At the same time, the constant debate of these issues is constitutive for the performative reproduction of community values.

But there are further commonalities among the users of dark net markets which facilitate community governance. The technological skills which are required to access dark net markets entail a pre-selection by which a certain level of technological know-how and an affinity with digital media becomes prerequisite for participation (Tsanetakis 2018). If users show in their posts that they cannot live up to the expected standard of technological capacities, their communication partners make it unambiguously clear that they are not welcome. Generally speaking, the interactions in discussion forums are characterized by a high level of subtle or sometimes gross irony. Humor plays an important role, and the mutual expectation that the interlocutor might be an existential threat (police officer, intelligent agent) gives spice to the self-reflective tone of many conversations. In individual chats, we were often impressed by (or even jealous of) the richness of knowledge and all-round education of our interlocutors. It may not come as a surprise that libertarian philosophy is frequently discussed. But most dark net platforms also offer specialized communication forums, in which interested users discuss arts, movies, literature, sports, and sometimes even metaphysics.

The community spirit of shared moral values, ideals, and a common identity explains how dark net users can overcome the perils of short-termism in market or network governance (Munksgaard / Demant 2016; Morselli et al. 2017). At the same time, community governance helps to establish a certain level of mutual trust (Berry 2018), even if all participants know about the limitations of hierarchically organized defense mechanisms in a stateless and anonymous world. In the words of Oxygen (2018), “there is some kind of ‘honor’ involved”. But community governance also serves as shield against unwelcome intruders who are either not willing or not able to adapt themselves to the prevailing informal codes. By that, it does not only contribute to the enforcement of property rights but also helps to enhance the overall security of the ecosystem as a whole.

Conclusion

Our thick description has shown how the transaction of drugs within the observed dark net platform ecosystem is sustained by an at least acceptable level of property rights protection. A sophisticated mix of hierarchical, market, network, and community governance ensures the rights of all interested parties sufficiently in the absence of traditional public authorities or even against the interventions of these institutions. By that, property rights governance in this subfield of the dark net seems able to substitute one of the core functions (or, according to

some libertarians, the only justifiable function) of the state. Does this mean that we should understand these dark net platforms as something bigger, maybe as proto-states in the making? Although such analogies are indeed tempting, we think that they would be overstretched, as long as we do not subscribe to the libertarian minimal state. Despite eroding state capacities, real world states still provide a broad spectrum of partially even contradictory policy outputs, whereas the functionality of dark net drug governance is limited to a single purpose. This already brings us to one of the weaknesses of our approach. In choosing the governance perspective, we implicitly assume that the observed dynamics are straightforwardly goal-oriented. The interpretive framework of governance modes is prone to teleological fallacies, because all actors' behaviors are understood as intentional and functional in view of a particular goal. But already early institutional economists like Douglas North have warned that the establishment of institutions is ultimately rooted in political processes and power struggles (North 1990). In a broader sense, the whole governance literature is frequently criticized for its ignorance of power relationships (Draude et al. 2012). In order to overcome the functionalist bias of our approach, more ethnographic research would be needed in order to get a more in-depth understanding of the negotiations and deliberations among the users of the observed platforms as well as their power struggles.

But even if we assume that the chosen framework is helpful to understand the relatively high performance of the dark net drug platform ecosystem, we think that the analysis would significantly benefit from a more detailed assessment of the different governance modes. What is the relative importance of non-state hierarchical, market, network and community governance for the protection of property rights? To answer this question, we would need quantitative comparisons between markets with different governance structures. Statistical analyses could also be used to compare the level of property protection in dark nets with the hereto-related governance performance of state-sustained (legal) settings.

Such an approach would also be able to speak to the more fundamental questions of political theory and philosophy. Do we really need a state to protect property? Some authors argue that stateless property protection is possible but likely to produce negative externalities such as an over-exploitative use of resources (Dixit 2009). We consider this objection to be flawed, because negative externalities can also be produced or at least tolerated by public authorities. St. Augustine's famous verdict that states are nothing else than "bands of robbers" (See Sanderlin

1950) may be exaggerated, but at least from a post-colonial perspective, it is not completely unsubstantiated.

But if the state is not necessarily conducive to the prevention of negative externalities, and if public authority is only a sufficient and substitutable condition for protection of property rights, we might conclude that socialist anarchists like Proudhon were inaccurate but not entirely wrong. Not property itself is theft, as Proudhon proclaimed, but the protection of property by the state is a dissipation of public means which could be used for alternative, potentially more welfare-enhancing purposes. In this view, the insistence of Enlightenment philosophers and institutional economists on the state's responsibility for the protection of private property could be understood as the foundation of an ideological superstructure to the benefit of the (emerging) bourgeoisie class. While such a bold claim would certainly need far more research, it shows that the analysis of dark net governance can also enhance an in-depth understanding of our daily environment.

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