The Online Illicit Drug Market Economy

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ABSTRACT: The growth of the Internet has contributed to the emergence of various illicit online markets, including the sale of illegal drugs on the Dark Web. The Dark Web is unique in its ability to disguise the real-world identity and location of its users, promoting an open network of illicit exchange. The purpose of this Backgrounder is to provide descriptive characteristics of 4,042 products across 74 different drug vendors located on the Open and Dark Web. In particular, this Backgrounder will provide detailed information regarding average product price, types of communication used, preferred payment platforms, modes of delivery, communication of vendor trust and service, and customer feedback.

The sale of illicit drugs remains the oldest and most profitable illegal industry, boasting an estimated annual gross revenue of over $100 billion.[1] While the online drug market amounts to only a fraction of the entire illicit drug market economy, its growth is concerning for various reasons. In fact, the number of drug vendors on the Dark Web in 2012 doubled from roughly 220 to more than 550 in less than a year.[2] In addition, online illicit drug markets provide numerous vulnerable populations (e.g., youth and substance-dependent individuals) with access to hazardous and highly addictive products.[3]

Dark Web drug markets are particularly concerning because of the challenges they pose to law enforcement.[4] First, the investigation and prosecution of illicit drug vendors are complicated by the encryption techniques present on Dark Web platforms (e.g., Tor, Freenet).[5] Second, vendors' overt use of traditional supply chains, such as USPS and DHL, complicates the process of interdiction of goods. Third, attempts to arrest and disrupt vendors and markets often leads offenders to alter their behavior in order to minimize risk of arrest and continue operations.[6]

Given the relatively constant operation and fluctuation in online underground drug market operations, it is essential that researchers continuously assess its unique features and characteristics. Such information is essential to understand the current contours of the market and identify potential trajectories for operation over the near future.

This analysis explored 4,042 products advertised across 74 different drug vendors operating on both Dark Web cryptomarkets (N = 56) and Open Web shops (N = 18). All data was collected between August 2018 and February 2020, reflecting a relatively robust period of market operations. The characteristics of vendor operations are detailed, including average product pricing, communication methods used, preferred payment platforms, modes of delivery, communication of vendor trust and service, and customer feedback.

Product Pricing and Payment Type

The top six drugs by category in our data were marijuana, opiates, ecstasy/MDMA, psychedelics, steroids, and cocaine (see Table 1 for complete list of drug categories). The

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1 Kilmer, B., Everingham, S., Caulkins, J., Midgette, G., Pacula, R., Reuter, P., Burns, R., Han, B., & Lundberg, R. (2014). *What America's users spend on illegal drugs: 2000–2010.* Santa Monica: RAND Corporation.

2 Martin, J. (2014). Lost on the Silk Road: Online drug distribution and the 'cryptomarket'. *Criminology & Criminal Justice, 14,* 351-367.

3 Barratt, M. J., Lenton, S., Maddox, A., & Allen, M. (2016). 'What if you live on top of a bakery and you like cakes?' – Drug use and harm trajectories before, during and after the emergence of Silk Road. *International Journal of Drug Policy, 35,* 50–57.

4 Liggett R., Lee J.R., Roddy A.L., Wallin M.A. (2019) *The Dark Web as a Platform for Crime: An Exploration of Illicit Drug, Firearm, CSAM, and Cybercrime Markets.* In: Holt T., Bossler A. (eds) The Palgrave Handbook of International Cybercrime and Cyberdeviance. Palgrave Macmillan, Cham.

5 Buxton, J., & Bingham, T. (2015). *The rise and challenge of dark net drug markets.* Swansea: Global Drug Policy Observatory.

6 Popper, N. (2019). Dark web drug sellers dodge police crackdowns. *The New York Times,* June 11, 2019. https://www.nytimes.com/2019/06/11/technology/online-dark-web-drug-markets.html

average price of all products was $1,133.32 (std. dev = $5,267.87). The lowest listed price for a product was $0.40 (diclazepam pellets), while the highest priced product (5000 80MG Oxycodone Pharmaceutical Grade, an opiate) was advertised at $109,748.80.

Consistent with past studies on illicit dark web drug markets[7][8], our analysis found marijuana, ecstasy/MDMA, and psychedelics as three of the most commonly advertised products on the illicit drug market. However, our results deviate from these former studies in finding opiates, steroids, and cocaine as other commonly sold products on the Dark Web. These findings are more consistent with studies exploring offline drug sales in traditional street markets[9][10].

Numerous payment methods were accepted, including Bitcoin (71.9%), Western Union (25%), Moneygram (24.6%), and wire transfer (17.1%). Other cryptocurrencies (22.3%) and non-crypto payment methods (25.8%) were also frequently accepted. A limited number of vendors indicated they accepted payment via escrow (6.8%), Web Money (3.8%), Perfect Money (1.9%), and Paypal (1%).

Types of Communication, Trust, and Service

Vendors utilized a variety of communication platforms, with most using accounts hosted through encrypted email services (27.8%). A portion also listed gmail accounts (23%) and personalized email accounts linked to their shop or online identity (19.8%). A small proportion also utilized Jabber (1.6%) and ICQ (0.6%).

Vendors also displayed varying levels of trust and service. A majority of vendors operated customer service lines via some form of online communication (81.4%), while just under half offered bulk discounts (43.4%) and product replacements (40.7%) to customers. In contrast, free samples (0.1%) were seldom offered or advertised.

Methods of Product Delivery

Drug vendors used various legitimate delivery services to fulfill their purchase orders. The four most common listed services were Fedex (22.4%), UPS (20.6%), DHL (14.1%), and USPS (4.7%). A majority of vendors (40.7%) listed other physical delivery service providers.

Customer Feedback Scores

Customer feedback sections allow markets to be influenced by social forces that maximize reward and reduce risk for buyers and sellers[11]. Our analysis found that customer feedback was mostly positive (32.3%), though a smaller portion expressed neutral (5.7%) and negative (2.1%) sentiments.

Conclusion

The Dark Web has substantially modified the landscape of drug crime, providing a platform for individuals to buy, sell, and trade substances under the protection of anonymity. By shifting to the Internet, illicit drug vendors reduce their risk of detection and physical harm while enabling illicit economic transactions to continue unabated.[12] While online drug markets have been in existence for less than a decade (i.e., the shift began in 2011 with the establishment of the Silk Road)[13], it is a growing phenomenon that deserves greater attention.

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Table 1. Drug Classification/Type Descriptive Statistic

Drug Classification/Type	**Frequency**	**Percentage**
Amphetamine	74	1.8
Anastrozole	6	0.1
Anti-convulsant	3	0.1
Anti-depressant	10	0.2
Anti-psychotic	2	0.0
Antihistamine	19	0.5
Aromatase Inhibitor	3	0.1
Aurobindo	4	0.1
Barbiturates	50	1.2
Benzodiazepines	172	4.3
Buprenorphine	34	0.8
Cabergoline	2	0.0
Carisoprodol	14	0.3
Cathinone	198	4.9
Cephalosporin Antibacterial	8	0.2
Cocaine	207	5.1
Cyclopyrrolone	9	0.2
Decongestant	4	0.1
Dissociative Anesthetic	82	2.0
Dissociative Hallucinogen	5	0.1
Dopamine Agonists	3	0.1
Ecstasy	376	9.3
Gabapentin	1	0.0
Gamma Butyrolactone	7	0.2
Human Chorionic Gonadotropin	3	0.1
Hyoscine	4	0.1
Isobutylamine	3	0.1
Levothyroxine	1	0.0
Marijuana	1,125	27.8
Melanotan	1	0.0
Menotropin	2	0.0
Methamphetamine	99	2.4
Methylphenidate	38	0.9
Mifepristone	1	0.0
Modafinil	10	0.2
Morphinan	1	0.0
Nicotine	1	0.0
Opiates	724	17.9
Ovulatory Stimulants	5	0.1
Phenylmorpholine	6	0.1
Potassium Cyanide	4	0.1
Psychedelic	281	7.0
Research Chemicals	13	0.3
Sedatives	20	0.5
Sibutramine	2	0.0
Sildenafil	38	0.9
Smokeless Tobacco	1	0.0
Steroids	266	6.6
Stimulant	38	0.9
Thienodiazepine	22	0.5
Triiodothyronine	2	0.0
Venom	28	0.7
Weight Loss Pills	10	0.2
Total	4,042	100