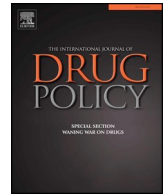




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Short Report

Preliminary findings of the impact of COVID-19 on drugs crypto markets

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ABSTRACT

Background: The COVID-19 pandemic has had unprecedented consequences on the world economy. The impact of the pandemic on illicit drug market remains scant. We expose the potential consequences the COVID-19 pandemic could have on the ability of people who use drugs to source their illicit drugs via cryptomarkets.

Methods: We analyzed 262 self-reported submissions of illicit drug transactions on the darkweb. The self-reports include the date of the transaction, the types of illicit drugs bought/sold, and whether the shipment of the illicit drugs succeeded, had issues (ex. unusually long delivery, an error in the type of drug shipped, quantity or concentration of the drug), or failed.

Results: Between January 1st 2020 and March 21, 2020, successful deliveries represented 60% to 100% of transactions. Starting on March 21 however, the share of shipments that had issues or failed increased rapidly and represented a majority of all shipments. At the peak of the market disruption, the successful deliveries represented only 21% of all transactions.

Conclusion: Illicit drug transactions on the darkweb were disrupted at the same time as lockdowns were put in place in the United States and in the United Kingdom. While no causation link can be established, the correlation suggests that lockdowns could have disrupted drug cryptomarkets activities. We discuss the market disruption in light of the literature.

The COVID-19 pandemic has had unprecedented consequences on the world economy (Barua, 2020). While much attention has been given to how COVID-19 patients are treated (or fail to be treated), the evidence of any impact of the pandemic and lockdowns imposed by many countries on people who use illicit drugs remains scant.

Illicit markets operate outside of the law, but not outside the social and economic reality. Like any business environment, darkweb drug markets known as cryptomarkets are commercial settings whose participants are concerned with costs and profits (Brownstein, 2000; Reuter, MacCoun, Murphy, Abrahamse & Simon, 1990). We present in this short report a discussion of the potential disruption that the COVID-19 pandemic imposed on illicit drug markets activities, particularly those on the darkweb.¹ To support this discussion, we provide empirical data that suggests drug cryptomarkets may have been disrupted at the same time as lockdowns were put in place in Western countries to combat the COVID-19 pandemic. The data are collected through self-generated reports from buyers and sellers active on drug cryptomarkets.

Darkweb sourcing is of particular interest in the COVID-19

pandemic period as it is the only sourcing channel that does not involve any direct physical contact. Indeed, people who use drugs purchase their drugs on a website hosted on the darkweb and the drugs are then shipped through the mail by the dealer. The latest estimates show that cryptomarkets have combined sales of USD\$700 million per year (Chainanalysis, 2020).

Method

To identify potential disruptions in drug cryptomarkets activities, we analysed 262 user-generated submissions on the DrugRoutes.com website. This website was launched in January 2020 with the objective of soliciting anonymous self-generated information of drug cryptomarket transactions. As illustrated in Fig. 1, participants are asked to provide information about the dates of their drug transactions on the darkweb, the types of drugs they have purchased and, most importantly, if they received their illicit drugs, had issues (e.g. unusually long delivery, an error in the type, quantity or concentration of the

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¹ The darkweb is a communication networks that makes it very difficult to locate where websites are hosted and who their visitors are. The anonymity of darkweb communications has enabled an underground economy based on independent drug dealers posting advertisements on large online illicit markets known as cryptomarkets.

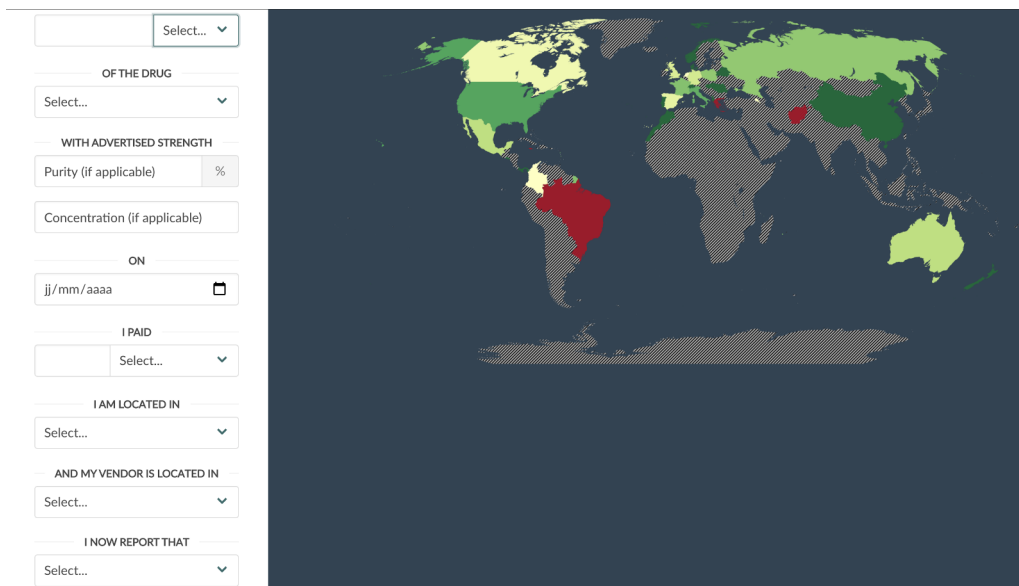


Fig. 1. Screenshot of the website on Drugroutes.com.

illicit drugs) or if they never received them. The website collects information from drug buyers and dealers acting on cryptomarkets only. The crowdsourcing tool is advertised on a regular basis through posts on forums and private messages on cryptomarkets as the notoriety of the platform does not yet generate as many submissions as substance specific crowdsourcing tool like PriceOfWeed.com (see Giommoni & Gundur, 2018 for a review of alternative crowdsource platform). In each contact, our research team provides a link to the website hosted on the darkweb. Each submission is verified to detect whether the price per unit of the submission is outside the normal parameters of darkweb drug dealing. The suspicious submissions are deleted from the database.

The sample includes submission from buyers of 63 different countries although 86% of the self-reported transactions originate from Western countries. The participants in the sample bought drugs from 50 different countries though again 90% of drugs were sourced from Western countries. Of those countries, the United States play an important role as they represent 21% of the buyers in the sample though it is far from being the sole contributor to the sample of data. The total transaction value of the transactions submitted on DrugRoutes.com amounts to USD 821,863.

Results

The Fig. 2 presents the percentage of reported transactions on cryptomarkets that were received, had issues (gray) or were never received (blue) between January 1st and April 22nd, 2020. These orders come from a variety of countries and may be influenced by decisions in the United States which is a very active country on cryptomarkets (Winstock, Barratt, Maier & Ferris, 2019). In the United States, the lockdowns started on March 21st, 2020, as indicated by the vertical line in the Fig. 2. Before the imposition of the lockdowns, the share of problematic orders were just a small fraction of the total (around 20%). The results show that before the lockdown in the United States, successful deliveries represented the majority of transactions, i.e. between 60% and 100% on any given day.

After the lockdown was put in place, we observe larger disruptions on drug cryptomarkets activities at a time when Western countries including the United States and the United Kingdom started imposing restrictions on movements and social isolation. Starting around March 21st, 2020, the number of transactions with issues or never received jumped to represent the vast majority of all the reported transactions. The deliveries with issues begin to go up to 18% and reached 36% on March 27th. During this time, the deliveries that were never received started to go up representing 11% of deliveries and reached 46% on

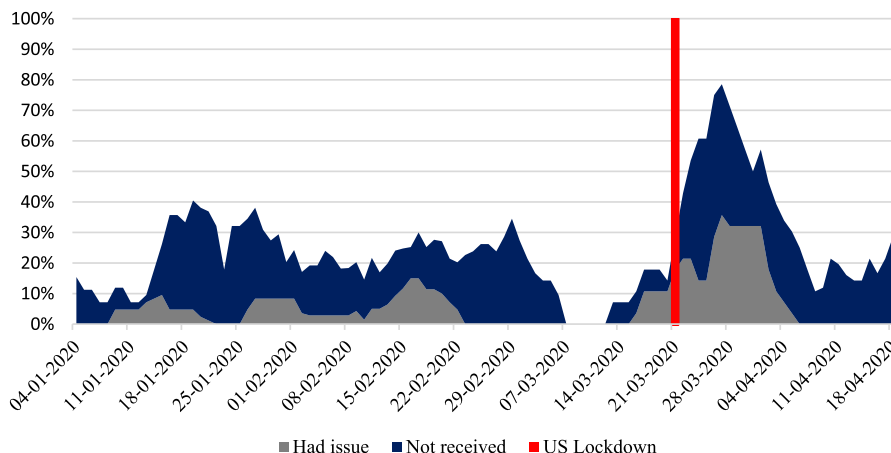


Fig. 2. Percentage of packages not received or that had issue in the delivery (7 days rolling average).

March 24th. During lockdown, the successful deliveries represented only 21% of all the transactions.

Fig. 2. also shows that this disruption was circumscribed in time. In fact, we note a decrease in the orders that had issues or that were never received in the first half of April 2020. Starting on April 8th, the number of failed deliveries dropped to 11% and a few days earlier, the issues in deliveries dropped to 0%. The disruption of the market was therefore very short-lived.

Discussion

The unique set of data from DrugRoutes.com provides almost in real-time insights into the potential disruption of cryptomarkets. The disruption coincides with important lockdown measures around the world in relation to the spread of the COVID-19 pandemic. The lockdowns had significant consequence on all levels of the economy. While we cannot establish a causal link, the data suggests a correlation between the lockdowns and disruption in the underground economy of drug cryptomarkets detected through an increase in unsuccessful transactions. However, a decrease in issues and unreceived packages is observed when most Western industrialized countries were still holding to the lockdown measures which may suggest that the market adapted very quickly to the new reality and its challenges. Past research has presented online platform for drug sales as an innovation in criminal activity suggesting a great adaptability of the market and its participants (Aldridge & Décary-Héту, 2014; Rush, Smith, Kraemer-Mbula & Tang, 2009). Our finding is in line with the usual rapid and constant change of online environment.

This finding supports recent publications on the impact of the pandemic on the illicit drug trade. The United Nations Office on Drugs and Crime (UNODC) reports a disruption in the supply chains of physical drug markets and the diversification of drug trafficking patterns and routes due to mobility restrictions, closed borders and a decline in overall world trade (UNODC, 2020). Beside the disruption of physical illicit drug sales, other sources have confirmed the impacts directly on cryptomarkets. The European Monitoring Center for drugs and drug addiction (EMCDDA) also reports that cryptomarkets have changed over the past months. It reports that in February and March, darkweb illicit drug trade was on the rise, driven largely by cannabis products (EMCDDA, 2020).

Although virtual in nature, drug cryptomarkets are connected to physical drug markets in many ways (Paquet-Clouston et al., 2018). Indeed, many darkweb drug dealers source their drugs from physical markets, and the disruption constraints apply to all dealers, whether they deal on the darkweb or in the physical markets. Our findings appear to confirm this connection by identifying a potential disruption in cryptomarkets transactions at the same time as lockdowns disrupted economies in Western countries. If cryptomarkets and physical drug markets are connected, law enforcement in one setting may impact the other more than previously estimated, and actions that target market participants may lead to displacements of participants to the darkweb where their actions are harder to track. Therefore, events such as lockdowns or social distancing measures could disrupt both physical and online illicit drug markets cryptomarkets.

The unique frame in which the pandemic forces people to act by forcing global border closures and restricting supply may cause an upswing in activities on the darkweb to circumvent these closures. Significant changes in the regulation of illicit drugs could be correlated to increases in sourcing of illicit drugs on cryptomarkets. For example, following the opioid crisis in the United States in 2014, the Drug Enforcement Agency (DEA) rescheduled hydrocodone combination products (HCPs) by narrowing the conditions under which HCPs could be prescribed and prevented automatic renewals of these prescriptions. Researchers found that HCPs doubled in the percentage of all US sales on the darkweb following the schedule change (Martin, Cunliffe, Décary-Héту & Aldridge, 2018). The pandemic might be equivalent to

this kind of significant regulation changes, at least temporarily.

This study presents some limitations. The sample of data we draw our findings from is by no means representative or a random sample of all transactions on cryptomarkets. With under USD\$1000,000 in reported transactions, our dataset represents only a small fraction of all cryptomarket transactions. An analysis comparing the self-reported transactions to those occurring on cryptomarkets is beyond the scope of this short report. More modestly, this short report presents an interesting pattern following the imposition of social distancing measures across Western countries. By using a novel data collection method, i.e. DrugRoutes.com, we are able to provide a unique insight into the short-term disruption that the COVID-19 crisis caused to drug cryptomarkets.

We overcome the daily changes in submissions by using a 7-days rolling average in the analysis. Using a moving average smooths out transaction data and allows us to present a clearer picture of cryptomarket transactions around the lockdown period. The rolling average mixes data before and after the lockdown was initiated. This means that the higher success rate from before the lockdown increased the success rate during the lockdown period. The high failure rate during the lockdown also impacted data at the tail end of the figure. If anything, however, this only makes it more apparent that there could have been a shift in the success rate of transactions during the early days of the lockdown given that pre-lockdown success rates were high. The slope that returns to pre-lockdown success rate is likely accelerated by the 7-day rolling average.

Conclusion

The COVID-19 pandemic has generated significant anxiety and stress in large portions of the population (Kumar & Nayar, 2020). It has unprecedented consequences on business and economic environment (Nicola et al., 2020) and the underground illicit economy is not an exception. Our results point to the disruption of cryptomarkets possibly due to the pandemic. An increase in the darkweb illicit drug trade might have created an increase in the disruption of this business. Our preliminary findings suggest that the flow of cryptomarkets drugs may have been disrupted over the past weeks at the same time as lockdowns were put in place in Western countries. The disruption also seems to be circumscribed in time which suggests a rapid adaptation of the underground economy to the new circumstances of the markets. Observations as to whether these disruptions are likely to be ongoing is yet to be seen.

Tools that monitor people who use drugs' forums and user-generated data such as DrugRoutes.com provides real-time data on the situation and could help better shape health policy and measure indirect yet significant impacts of the COVID-19. Researchers should investigate how such tools to connect to people who use drugs could be integrated in their ongoing research to better understand the impacts of pandemics and other significant events on drug use.

Declarations and ethics

Ethics in research

The manuscript respects all the policies of Elsevier and of the International Journal of Drug Policy.

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Have you obtained ethical approval for the conduct of your study?

The research has been approved by the Comité d'éthique de la recherche (Société et culture) de l'Université de Montréal. Project no. CERSC-2019-045-P.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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