

**Steps toward characterizing online anonymous drug marketplaces customers.**

(Commentary on Barratt et al: Use of Silk Road, the online drug marketplace, in the UK, Australia and the USA)

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Barratt et al.'s article presents the first large survey to characterize buyers on the online anonymous marketplace Silk Road. At the time the survey was conducted, Silk Road was the most successful online drug marketplace. While people had been exchanging drugs online through forums, bulletin boards, and even dedicated websites for years, thanks to an ingenious combination of cryptographic tools, Silk Road offered stronger anonymity to its sellers and buyers, and facilitated the online trade of drugs on an unprecedented scale.

A few months after the study was completed, Silk Road was taken down following a lengthy FBI operation. The billion-dollar amounts alleged in the criminal complaint (1) (and unfortunately echoed in Barratt et al.'s paper) are highly inflated due to erroneous conversion rates between "bitcoins" and US dollars, but it remains true that Silk Road was a thriving marketplace (2). More interestingly, the criminal complaint suggests that most of the operation revolved around traditional police techniques, such as infiltration by undercover agents, and search for digital evidence trails. On the other hand, there is no evidence that the core technology facilitating anonymous marketplaces was compromised. As a result, the online sale of narcotics has not stopped with the original Silk Road's demise; whether it has in fact even been curbed remains an open question.

Thus, despite a rapidly changing landscape, Barratt et al.'s research provides fundamental insights into the reason for the existence of such marketplaces: Their customers. Through quantitative measurements, information about Silk Road economics and sellers is known (2) but, until Barratt et al.'s paper, no sound, large-scale study of the buyers was available. Van Hout and Bingham (3, 4) present interesting case studies focusing on several individuals, but the analysis Barratt et al.'s propose is far more general and broader in scope.

Perhaps most striking from Barratt et al.'s survey is the very high proportion of people who had actually heard of Silk Road at the time the survey was conducted. Certainly the population sample is biased toward younger populations who are more likely to be familiar with such marketplaces, but reaching close to 50% awareness is a very high number for a website that was less than two years old at the time, not directly accessible on the web, and which only advertised through word-of-mouth and mentions in news articles.

Barratt et al. confirm our intuitive understanding of the clientele of Silk Road and related marketplaces. At a very high level, Silk Road tends to cater mostly to relatively well-off white males. (It is worth noting that there is a bit of inherent selection bias in the Silk Road customers, as they are precisely the socio-economic category with the best access to computer technology.) The discussion section of the paper also confirms previous observations (2) that Silk Road shares essential characteristics with legal e-commerce sites. More generally, Silk Road's business model, which is essentially to take away the risk (physical and financial) incurred in face-to-face illegal transactions and substitute it by an anonymous online interaction, appears viable from an economic standpoint.

What Barratt et al.'s paper does not yet fully answer, and which would be fertile grounds for future research, is whether Silk Road and related marketplaces are actually as detrimental to society as they seem to be at first glance. Using the simplifying assumption

that all narcotic and drug abuse is undesirable, whether Silk Road-like marketplaces are a problematic development on a societal level reduces to two related questions:

- Does Silk Road provide measurable access to drugs to people who did not have that access before; or, on the other hand, do we primarily observe displacement effects, where people who would have been buying drugs on the street anyway simply shift to an online marketplace?
- Does Silk Road measurably reduce some of the other negative side effects of the in-person drug trade? Namely, are products on Silk Road safer to use, thanks to the presence of reviews filtering out low quality products and vendors, and the existence of a community providing harm reduction advice; and does Silk Road facilitate a reduction in drug-related violence by depersonalizing transactions?

Table 4 provides some elements of answers, in the form of a comparison between Australian, UK, and US subjects; but it would be highly interesting to obtain absolute, rather than comparative, statistics, that could help answer these questions more definitively.

Regardless of these possible follow-ups, Barratt et al.'s article is a fascinating piece of research. This work will likely foster further research in better understanding whether these marketplaces breed increased drug abuse by facilitating access, or if, on the other hand, anonymous online marketplaces like Silk Road realize their stated goal of reducing potential harm from drug-related transactions and drug abuse.

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