

# Is There an Anti-commons Tragedy in the Smartphone Industry?

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## Abstract

An influential literature claims that standard setting in the smartphone industry creates monopoly power. Moreover, because there are many owners of standard-essential patents, and each may independently exercise monopoly power (a phenomenon called royalty stacking), an anti-commons tragedy may ensue. With actual data from the smartphone industry, we show that royalty stacking theory predicts a cumulative royalty yield of nearly 80 percent. That is, it predicts that four-fifths of the price of a smartphone will accrue to patent holders. Even if all patent holders would combine to eliminate the tragedy of the anti-commons and behave as a single monopolist, theory predicts a cumulative royalty yield of nearly 67 percent. That is, it predicts that two-thirds of the price of a smartphone will accrue to patent holders.

We then use actual data from licensors in the smartphone value chain to estimate the actual cumulative royalty yield. We find that in 2015 the cumulative royalty yield in the smartphone value chain was only 3.4 percent of the average selling price of a smartphone. This suggests that patent holders do not exercise any meaningful monopoly power to increase prices, much less that there is an anti-commons tragedy in the smartphone industry.

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