

ANTITRUST IN A WORLD WITHOUT SCARCITY: HOMEMADE COMPETITION AND THE ATOMIZATION OF THE MARKETS

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Abstract: In 2014 Stanford's Professor Mark Lemley wrote the avant-garde and provocative article *IP in a World Without Scarcity*. There he claimed that, as technology lowers the costs to produce and distribute new products, inventors need less IP protection in order to get stimulated to innovate. In this article we will explore the implications for antitrust of abundance caused by technology. We claim that the ongoing democratization of production and distribution has allowed that a number of people produce anything from almost anywhere in the world, which might, in the near future, lead to an atomization of the markets and lower prices to marginal costs.

Keywords: *scarcity, technology, IP, antitrust, close substitutes, marginal cost, homemade competition, atomization of the markets, low elasticity, uniqueness.*

In 2014 Stanford's Professor Mark Lemley wrote the avant-garde and provocative article *IP in a World Without Scarcity*¹. There he claimed that, as technology lowers the costs to produce and distribute new products, inventors need less IP protection in order to get stimulated to innovate. Because IP artificially creates scarcity in order to allow the recoupment of the investments and a fair share of profits for the inventor, the rationale behind the professor's idea seems straightforward: the lower the costs to innovate, the shorter the protection the inventor will need.

¹ Lemley, M. A., *IP in a World Without Scarcity* (March 24, 2014). Stanford Public Law Working Paper No. 2413974. Available at SSRN: <http://ssrn.com/abstract=2413974> or <http://dx.doi.org/10.2139/ssrn.2413974>. Last accessed on Aug26, 2015. The final version of the article was published in the 90 (2) NYU Law Review 460, May 2015. Available on <<http://www.nyulawreview.org/sites/default/files/pdf/NYULawReview-90-2-Lemley.pdf>>. Last accessed on August 31, 2015.

Quoting Lemley, "[t]he more abundant they [things] become, the cheaper they become." Therefore, in a world without scarcity, because the inputs are abundant, they are also cheap and, as a matter of consequence, it also becomes cheap to create. And because distribution is also becoming cheap, the global costs to be recouped by the innovators have been consistently lowered. Insofar as the costs to innovate are so low, the number of innovators is also ascendant and no producer holds monopolistic or oligopolistic power.

As the title makes it clear, Mark Lemley's article was written to corroborate the author's manifested understanding² that, instead of promoting it, IP rights usually curb innovation. In other words, his work corroborates his vast scholarship in IP. In this article, however, we will explore *the implications for antitrust* of abundance caused by technology. We will build our argument over three cases: driverless or autonomous cars, web applications and 3D printers and oppose the conclusion we reach with the reality we observe on the audiovisual (music/video) market. We claim that the democratization of production and distribution alike has allowed that almost anyone produce anything from almost anywhere in the world, which will eventually lead to the atomization of the markets.

Technology does not necessarily replicate the perfect competition model, though. Even though it helps spur products that are close substitutes, such products are not always perfect replicas -- although, as we will see, 3D printing will probably help escalate the (authorized and unauthorized) distribution of perfect copies. On the other hand, technology will likely disrupt the current prevalence of monopolistic competition: Low costs of innovation and a much higher number of innovators help create more options to the consumer. Instead of one premium product *A* and one product *B* for low income consumers, technology will help bring *C, D, E...Z* to the market, which fit in-between *A* and *B*, some closer to *A*, some closer to *B*.

The easier it gets to supply a product or service on the market, the harder it gets to sustain market power in the long run and to profit from hardcore cartels. Because the market is so contestable, higher prices or lower quality could easily lead to high churn or attrition rates. And insofar as there are so many atomized competitors, it would be virtually

² A good example of his scholarship lies in: Lemley, M. A., *Faith-Based Intellectual Property* (March 30, 2015). 62 UCLA L. REV. 1328 (2015); Stanford Public Law Working Paper No. 2587297. Available at SSRN: <http://ssrn.com/abstract=2587297> or <http://dx.doi.org/10.2139/ssrn.2587297>. Last accessed on August 26, 2015.

impossible to aggregate a significant number of market players with high combined market shares. On top of that, as just mentioned, the immediate effects of cartels -- higher prices and lower quality -- would lead to a higher churn. And because the market is contestable, any attempt to price predatorily and then recoup (by imposing higher prices) would fail, because there would be entry and more competition would lower the price to marginal cost.

As it should be clear at this point, technology that eliminates scarcity creates effects that might eliminate the need for antitrust scrutiny. The examples we provide below should help illustrate how the change is happening and why the kind of competition that is flourishing is so disruptive.

We will start with the market for rides -- the traditional market for taxis that, all around the world, has been under the disruptive entry by Silicon Valley's Uber. We have chosen to start with this market because, even though it has already been subject to the entry of a maverick, the inevitable future of driverless cars should further eliminate any reason to regulate and restrict entry to this market.

Then we explore the world of web applications, how the Internet works from server to server and why this market, despite the qualification that is necessary to start coding or programming, is already one with the lowest entry barriers. This is also where we see how the Internet has allowed that production and distribution costs for software come to zero.

Our next stop is the market for 3D printers and how it has democratized production -- helping the birth of industrial production in lower scale (that has shown to be so necessary in times of economic slowdown). Here we will also see how 3D printers have revolutionized the market by bringing to marginal costs the value to distribute hardware.

We will finally move to the market for audiovisual content -- a market that has already been subject to the empowerment of the content producer and the displacement of the intermediary. We will face, here, the question why high technology is not able to curtail market power and cartelization where uniqueness is present.

DRIVERLESS OR AUTONOMOUS CARS

Taxis have dominated the market for car rides for a long time now. Car ride markets are those where the rider chooses the departure time and the points of origin and destination.

Taxi services have been identified as classical examples of rent seeking³ because the rents extracted by the owners of the licenses -- who should not be confused with the cab drivers -- do not come from the quality of the service provided to the rider. Instead, they come from the oligopolization of the market by a few license holders who take advantage of inelastic and growing demand to charge higher rates.

In order to justify the imposition of entry barriers, lobbyists acting on behalf of the private interest of the owners of the licenses convince the legislators to raise a series of safety regulations and to set the retail price elected by the license holders. The license holders effectively have the power to block entry, raise prices and forgo the active supervision that allegedly inspired the entry barriers and the safety regulation. Because lower entry creates higher demand pressure, lowers competition for the rides and helps keep coordination costs low, the ratio *cab per person* has significantly dropped over the decades and the failed franchise system has compromised the ability to serve well the population. There are too few taxis⁴, most of them with old cars and uneducated and/or convicted drivers willing to take advantage of asymmetric information concerning the urban geography in order to take longer routes and charge riders higher fares. Last, taxi drivers have cream skimmed and refused to serve more violent neighborhoods, a behavior that should not be tolerated among providers of a public service⁵.

Because the system of franchises was leading to poor and expensive services, the market created its own solution: Ride-sharing services like Uber and Lyft, that worked as intermediaries between people willing to offer rides and people willing to take rides. Ideally, the service should help reduce the number of cars on the streets by intermediating

³ Tullock, G., *The welfare cost of tariffs, monopolies and theft*. 5:3 (1967: June) Western Economic Journal 224.

⁴ Krugman, P. R., Wells, R., *Economics*. New York: Worth Publishers, 2006.

⁵ Uber is Serving New York's Outer Boroughs more than Taxis are

-- But most of its rides, like those of taxis, still start in Manhattan. By [Carl Bialik](#), [Andrew Flowers](#), [Reuben Fischer-Baum](#) and [Dhruvil Mehta](#). August 10, 2015. Available on

<<http://fivethirtyeight.com/features/uber-is-serving-new-yorks-outer-boroughs-more-than-taxis-are/>>. Last accessed on August 26, 2015.

owners of cars with idle capacity with potential riders willing to have access to services that could serve them at least as well as taxis. But, eventually, what happened was that Über's success made it logical for many people to leave their former jobs to invest in new cars and become full-time drivers. Or at least find part-time jobs and become part-time Über drivers. Such trend reduced the expected Über effect over the number of cars on the streets.

Ride sharing services came to benefit cab-dissatisfied consumers. Therefore, they set only the maximum prices that the drivers should charge, require evidence of good standing and habilitation to drive, do not set limits to the number of drivers, require new cars and the use of GPS, provide the rider with access to the driver's personal and car information and offer to the rider the ability to track the car in her mobile device. In other words, ride sharing services solve, for a lower price, the problem that taxis' franchises were meant to solve.

The disruptive transition to a system of Übers and Lyfts has created turmoil all around the world, as license holders claimed that regulatory costs put them in disadvantage. Regulatory costs included the price of the franchise not incurred by the Übers and Lyfts and labor burdens that the ride-sharing applications refused to pay, as they did not regard the drivers as employees (but as regular application users). In London, to be very specific, the drivers of the black cabs also incurred high opportunity costs to study and memorize the city circuits and the location of the main touristic sites. What demonstrations have not shown was the tax incentives that license holders receive in countries like Brazil or the costs that, unlike license owners, Über drivers incur to meet safety, technology and year-of-the-car standards. On top of that, Übers may have been serving more riders outside the wealthiest districts than cab drivers -- this is actually the case of Übers serving the boroughs of New York City outside Manhattan⁶. And, because Über does not depend on public

⁶ Uber is Serving New York's Outer Boroughs more than Taxis are

-- But most of its rides, like those of taxis, still start in Manhattan. By [Carl Bialik](#), [Andrew Flowers](#), [Reuben Fischer-Baum](#) and [Dhruvil Mehta](#). August 10, 2015. Available on <http://fivethirtyeight.com/features/uber-is-serving-new-yorks-outer-boroughs-more-than-taxis-are/>. Last accessed on August 26, 2015.

franchises, it has also been helping minorities make their livings and has significantly reduced the wait times for those who cannot drive⁷.

Last but not least, license owners failed to provide arguments that sustained the convenience of not shifting from an inefficient regulated model to modern market oriented and self-regulated service. If ride-sharing services prove to be superior, it is regulation that must change or be lifted -- regulation is just the means to achieve the welfare of the people, not the ends to be achieved at any cost, economic inefficiency included.

But another change has been announced for this market: The entry of autonomous cars. Uber itself has already disclosed its plans to use driverless cars to serve people. Uber bets that the technology that has been tested by Google and Tesla for some years now will offer safer rides and eliminate opportunistic behavior as it eliminates the human interface. After the completion of the tests with the driverless cars, there will be no reason why they should not replace the traditional taxis. Autonomous cars offer other advantage: They can be programmed not to cream skim, they do not entail a labor relationship and open the possibility of serving more violent neighborhoods.

But, in our opinion, the revolution of driverless cars is deeper: As the common citizens start to consume them, the ability to offer safe rides for riders will no longer be in the hands of those who can incur the costs to process the records of human drivers. Because the cars will be entirely in the hands of the machines, reliable autonomous cars will allow any owner of such autonomous cars to offer rides in exchange for a compensation: The car manufacturers will offer, once-and-for-all, the universal guarantee of reliability. Once approved, there will be no barrier for an atomization of the service. In other words, the surge of autonomous cars will eliminate the need for the intermediaries: Übers, license holders or the government itself alike.

In other words, there will be less cars on the streets because the moments when one's car would be idle can now be used to drive someone else elsewhere. The technology will make it easier to collectively own a car and at the same time avoid the dilemma of the commons: Because the

⁷ How Uber is Changing Life For Women in Saudi Arabia -- Women, legally barred from driving in the country, make up 70-90% of the service's customer base. By [Evie Nagy](#). Available on <
<http://www.fastcompany.com/3048461/app-economy/how-uber-is-changing-life-for-women-in-saudi-arabia#>>. Last accessed on August 26, 2015.

driver is always the same machine, no one using the car will have incentives to be reckless.

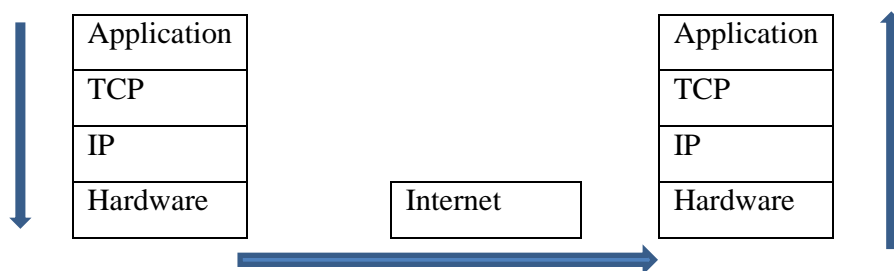
Because competition will come from every home where there is an autonomous car, we call such an atomization of the market as *homemade competition*. Homemade competition for autonomous cars creates homogeneous *intra-model competition*, while creating heterogeneous *inter-model competition*: The same model of the same brand of car will offer the same conditions of comfort and safety, regardless of the owner. Safety regulation for the maintenance and use of the autonomous cars should replace the periodic habilitation tests for humans and be enough to assure the regular conditions of the autonomous car -- be it in the private use by the owner, be it in the similar use by a third party (the rider) in exchange for a compensation.

Most important: autonomous or driverless cars should disrupt this market in such a way that it will no longer exist in the way we see it today. Service should become cheaper, safer, universal and ubiquitous. Eventually, competition will be so vibrant that the car owners will decide to offer lifts for their marginal costs -- basically the costs to charge electric cars.

WEB APPLICATIONS

The Internet works in layers. A simplification of how it works can be found in many textbooks⁸ and specialized websites⁹ and blogs.

Picture 1. How the Internet operates



Source: The Shuler Family Website

⁸ Van Schewick, B., *Internet architecture and innovation*. Cambridge, MA: MIT, 2010.

⁹ Shuler, R., *How does the Internet work*. Available on <http://www.theshulers.com/whitepapers/internet_whitepaper/index.html>. Last accessed on Aug27, 2015.

The translation is quite straightforward for a repeated user. Content (here represented as the application layer) is "sliced" in chunks and transmitted in multiple packets using the Transmission Control Protocol Layer (TCP) -- where the packets are assigned to specific applications according to the port numbers they are identified with -- and the Internet Protocol Layer (IP) -- where the packets are assigned to specific computers according to their IP addresses. Information flows from one computer to the other as binary code and can only reach their destination because of the routers that identify the IP addresses with specific Internet Service Providers (ISPs). At the destination computer, the machine reads the code and translates the original message.

All this process happens every time one uses simple messaging applications or complex content providers sending heavy content. Because the TCP/IP protocols on the Internet are open, anyone can develop and transmit content over the Internet "for free" under end-to-end (E2E) network neutrality rules. Under E2E network neutrality rules, all that the content provider should pay is the regular fee that any end user pays to send or receive content -- be it a heavy email message, be it heavy streaming content. The ability that a number of content providers have to develop n independent solutions for the same problem makes it possible to claim that the Internet simulates a situation of almost perfect competition¹⁰.

This is true not only for content that can be accessed on specific web addresses, like web blogs, but also for software that can be downloaded at the destination and, as we will see, for hardware that can be downloaded on 3D printers.

It means that, for the distribution and licensing of software, the Internet has already been successfully lowering distribution and licensing costs. On top of that, the Internet has also eliminated costs associated with the operation of brick-and-mortar offices by giving an opportunity for the rise of virtual businesses. Besides, the Internet has changed the timing of the delivery, making it instantaneous -- increasing the welfare of the final consumers.

When we first heard of Napster it was but what we have already called homemade competition. Actually, the world of application

¹⁰ Taufick, R., *Network Neutrality, Innovation Competition And Regulatory Asymmetry* (December 22, 2014). Available at SSRN: <http://ssrn.com/abstract=2541977> or <http://dx.doi.org/10.2139/ssrn.2541977>. Last accessed on August 27, 2015.

development has long been a world of home developers who use their spare times to create something that is usually useful for their own day-to-day activities. This is also the story of the founders of world's most valuable business, Google. Sergey Brin and Larry Page have met when they were PhD computer science students at Stanford University and developed an algorithm to help their researches. Like many, they would not have started their businesses if there were significant upfront costs. Basically, all they needed was the computers they used at Stanford, the Internet provided by the Stanford campus and their education. But no cost was required specifically to innovate or to start a business.

As it should be clear now, the Internet helped eliminate scarcity in the production and in the distribution of software by eliminating upfront costs associated with the operation of brick-and-mortar offices and the design, packaging, transportation and delivery of the product. By eliminating costs, it also eliminated significant entry barriers, which essentially dropped to zero for skilled developers on the market. The Internet helped eliminate scarcity for solutions that are now offered by a number of applications -- many of them for free, replicating the zero marginal cost incurred by the developers in very competitive markets.

3D PRINTERS

Probably the most meaningful piece of evidence used by Mark Lemley to explain why the protection of IP rights is doomed to extinction comes from the development of 3D printing and its ability to eliminate scarcity. Basically, such printers can now do for hardware what the Internet alone has already done for software: It cuts off the distribution costs. Moreover, it raises exponentially the costs to monitor and deter piracy, or the production of unauthorized copies.

Because distribution costs represent a significant part of the expenses for many sectors, like drugs -- that have to reach the smallest and most isolated towns in the country if universalization goals and other public policies are to be achieved -, the use of 3D printing could lower the price for the final consumer and the costs for public healthcare. As anticipated, because the distribution costs are lowered, IP protection might not need to be as lengthy as it is today to allow proper recovery from the investment. In terms of competition, lower costs mean lower entry barriers and higher rivalry: In healthcare, lower entry barriers for branded drugs could spur innovation, while shorter IP protection for the branded drugs

could anticipate the entry for the generic drugs and lower the prices for the final consumer and for government procurement.

In terms of piracy, anyone who can reverse-engineer would be able to *print* a patented product at home for self-consumption or noncommercial purposes. Even if nowadays 3D printing only allow small scale production -- which is quite unlikely to remain as such in the long run -, once the product is reverse engineered, it could only take seconds until the formula to be used is posted on a website or circulates on web applications like messengers and social networks. In other words, patented products could have effectively no protection against having their products *3D printed* by the consumers. Although IP addresses can be tracked and the ones who post the formulae could be incriminated, enforcement stops there. There would be no guarantee that the recipients of the message have used the formulae. Even if the police authorities proceeded with a number of searches and seizures, there would be no guarantee that the recipients would have used their own personal 3D printers to do the job.

3D printing poses, then, a serious question on how to protect IP rights to a minimum necessary extent in order to provide incentives for investors. How to deal with the end of scarcity is, actually, Lemley's final question in his article. On the other hand, depending on the kind of compensation that the professional seeks for her work, 3D printing also provides an easy solution to place a product on the market. This is the case of the group of professionals who, according to Mark Lemley, find in reputation enough compensation for their works. If there are a significant number of professionals who fit in this category, it is quite possible that 3D printing will make available for free close substitutes for many products that are still protected by IP rights. In these cases, the value of products protected by IP rights drop to zero -- or close to zero, if consumers show to be too loyal to a brand -- from the perspective of the consumer: The price that is charged by the competitors for the substitutes.

The effect for competition is dubious -- as it is for innovation. Even if we accept that close substitutes will be made available for free, the pace of innovation for products that demand massive expenses in research may be affected. It is also true that close substitutes are not perfect substitutes -- which can make all the difference in niche markets. This is the specific case of drugs: the small differences in the distribution of the inactive ingredients (excipients) around the active principle can make the whole difference for the treatment of mental disorders like schizophrenia.

So, on the one hand, the ability to *print* in one's own house products whose composition has been disclosed for free by the inventors can lead to an atomization in the production. Those who own 3D printers can produce for themselves and sell the product for those who do not. Because competition is expected to grow as the prices for the 3D printers fall, in the long run the price for the outputs of the printers should equal marginal costs. On the other hand, this movement should disrupt the current incentives to innovate by compensating only those who do not depend on the sales of the innovative product to make their living (reputation-seekers). Because there will be less innovators, 3D printers should have an undesirable effect over the pace at which innovation happens on markets that remunerated innovation well.

We must not ignore, however, that 3D printers should help bring to the market innovation in less commercial markets -- including those for drugs that affect people living under poor conditions of health (like tropical diseases) and some niche markets that do not afford production in large scale. The results of researches funded by public money could be posted on the web and find an easier way to the market by 3D printers.

The balance between both situations tends to favor 3D printers. The use of technology itself can lead to online updates that only allow the use of the printers when they are connected to the Internet and updated -- Apple's iPhone already has a similar mechanism for its Facetime, that only works with a wifi connection. Such updates would block printing of products still protected by IP rights. Solutions alike can be easily designed and implemented and can help keep the incentives for innovation on the markets that pay well without affecting the benefits of bringing to the market for free many innovative products that can be made available by academics and many other innovators. Such innovations will help atomize more profitable markets and, eventually, drive prices down towards marginal costs. And they will also make it possible for researchers to find useful solutions, especially in the health sector, without being concerned about how profitable their idea is and how appealing it is, for instance, to the pharmaceutical industry. Homemade production will, in this case, make available products that can save lives, but which would not have been otherwise marketed for being considered not to be profitable enough.

AUDIOVISUAL

So far we have seen cases where technology can lower the costs to produce or to distribute certain products or services. By doing so,

technology becomes instrumental to the entry of a myriad of entrepreneurs, helping eliminate scarcity.

Scarcity is eliminated because the consumers feel that the products that are offered on the market are close substitutes. This is true in the case of rides, where the model of the vehicle is not usually relevant for the rider -- but even when it is relevant, technology will also allow the elimination of intra-model scarcity. It is also true in the case of web applications, where there are usually many similar options posted by different application developers that can solve the same problem. And it is also true in the case of the hardware delivered by 3D printers of the same quality. Here, just like in the intra-model competition that might exist in the market for rides, it might also be possible to distinguish different submarkets where competition thrives.

The market for audiovisual content is somehow more complex. Even though the distribution of music and video has been subject to intense concerns coming from the artists and intermediaries -- labels -- at least since *Cahn v Sony Corp.*, No. 90 Civ. 4537 (S.D.N.Y. filed July 9, 1990), it is not possible to speak of an atomization of the market. Technology helped happen the decay of the labels. Computers (including smartphones and tablets) and the Internet have made it a lot simpler to operate recording and edition equipment audience -- both are works that used to make artists dependent on the intermediaries -- and have democratized access to the audience. On the other hand, even though we -- the audience -- have a larger room to pick up winners and losers whose works are displayed on web applications like Youtube, fans do not simply switch away from the artists they love simply because they forbid the download of their videos and songs for free.

The so-called *Taylor Swift effect* is but what economist have long called elasticity: The ability that a product or service has to make consumers loyal. Everything else equal (*coeteris paribus*), the highest levels of fidelity belong to monopolies -- simply because there is no alternative to the product -- and to the cases of monopolistic competition. The lowest levels of fidelity are achieved as we find close substitution and become critical as we achieve perfect competition (where products are homogeneous). The higher the uniqueness of the artist, the lower the elasticity.

So, although technology has helped eliminate the dependence of the artist on the intermediary and has atomized the role of those who distribute or make content, it has not been capable of atomizing the role of

the artist. Just like Franz Liszt and Sergei Rachmaninoff belonged to the Romantic Era but do not have close substitutes, the current existence of a long tail of artists and works does not affect the value of the most prominent artists and their works.

We are talking about two different markets: The must-haves and the fringe competition. The must-haves have low elasticity because of their uniqueness: The consumer has decided to pay more to have the work of that artist. On the other hand, the works of the artists within the fringe are close substitutes: the average consumer perceives them as sample works of a certain genre. Nowadays Taylor Swift is a must-have for most teenagers: her music must be played in their parties. The rest of the repertoire is usually up to the DJ or VJ. Technology has made the fringe's tail longer for the DJs and VJs, but has not helped eliminate the frenzy over pop artists.

So at the same time that more artists become visible at lower costs, including by the creation of low-budget homemade studios, high competition in the fringe is leading the price for their works towards marginal costs. On the other extreme, the Taylor Swifts show market power and prove how inelastic is the demand for their works when they refuse to negotiate with popular applications like Spotify¹¹ (where people usually listen to music for free) and giants like Apple Music¹² (paid-subscriber-only content)¹³.

Unlike the fringe, the high end of the market -- where uniqueness exists -- is prone to agreements between competitors or cartelization. Tidal, the label recently created by Jay-Z to congregate most well paid music artists on the market, is but an agreement between competitors that can hardly find justification in the compensatory power theory. Because,

¹¹ McIntyre, H., *Taylor Swift vs. Spotify: Should artists be allowed to opt out of free streaming?* (August 8, 2015). Available on <<http://www.forbes.com/sites/hughmcintyre/2015/08/08/taylor-swift-vs-spotify-should-artists-be-allowed-to-opt-out-of-free-streaming/>>. Last accessed on August 30, 2015.

¹² Lev-Ram, M., *Taylor Swift and Apple: The back story* (July 14, 2015). Available on <<http://fortune.com/2015/07/14/taylor-swift-apple-backstory/>>. Last accessed on August 30, 2015.

¹³ Actually, unlike many well-succeeded artists, Swift still works with the label that discovered her. Besides her attachment to Scott Borchetta, the long partnership also seem to imply that her finances are going far better than such artists' -- probably because her degree of uniqueness (and market power) is higher.

as we have claimed, intermediaries like labels have lost their ability to define the rules for the audiovisual market, arrangements like Tidal lose their pro-competitive appeal and will increasingly look like illegal price fixing.

FINAL REMARKS

Technology can help eliminate scarcity, spurring competition between products and services that are close substitutes. By lowering the costs to produce and/or to distribute, technology is not only making it less necessary to maintain long periods of IP protection to create incentives to innovate, but also lowering the barriers to entry. With more competition from close substitutes, we expect more supply and that prices go down. As the technology to offer certain services or produce certain products is democratized and many people start having the ability to build what they need and supply such products and services to third parties, such markets tend to become atomized and the prices of the services or products might reach marginal costs.

We have found, however, that the ability to have longer tails when people seek uniqueness might lead to higher competition in the fringe, where the services or products are close substitutes, but will not affect the market power of those products and services whose demands are not elastic. And it is in the high end that illegal agreements between competitors still take shape.