



# Patent Trespass and the Royalty Gap:

Exploring the Nature and Impact of “Patent Holdout”  
(Summary)

by

**Bowman Heiden**

Center for Intellectual Property (CIP)

and

**by Nicolas Petit,**

Professor of Law, University of Liege



# Patent Trespass and the Royalty Gap: Exploring the Nature and Impact of “Patent Holdout” (Summary)

by Bowman Heiden and Nicolas Petit

Across the world, a problem known as “patent holdup” has gained mainstay in academic and policy circles. Patent holdup is said to occur when a patent owner makes licensing or cross-licensing demands that are more onerous than those anticipated by technology implementers when they decided to enter the industry. Patent holdup is often considered more severe in relation to a category of patents that are declared essential to the implementation of an industrial standard, known as standard essential patents (“SEPs”). Concerns of patent holdup have informed much of the debate regarding patent and antitrust reform for the past decade, particularly in industries that produce multi-technology products such as wireless communications. As the story goes, if patent holdup is systematic, SEP owners unconstrained by each other’s licensing policies collectively impose a “royalty stack” on downstream industries, and consumers.

In contrast, patent holdout (also known as “reverse holdup” or “licensee holdup”) has featured less prominently on the agenda of global decision makers. Patent holdout is today understood as the conduct of implementers of patented technology who deliberately choose to avoid the conclusion of a licensing agreement, in the hope of paying either zero or reduced royalties. We review the meaning of holdout in mainstream economics. This inquiry leads us to an unexpected discovery: holdout is a term of art that invariably defines the conduct of a property owner, not the conduct of technology implementers. On this basis, we open a discussion on the possible policy impact that the choice of a concept like “*holdup*” had on policy makers, as opposed to “*holdout*”. We substitute the improper concept of patent holdout with the concept of “patent trespass,” and look at existing instantiations. Our study is based in part on a cross-sectional investigation. Throughout 2016 and 2017, we conducted qualitative interviews with five industry stakeholders on both sides of the patent spectrum, namely SEP holders and SEP implementers.

## *I. Patent Holdout Theory*

In mainstream economics, holdout is a term of art used to denote the situation that arises when an economic agent cannot act “unless there is first the consent of some determinate group of individuals”.<sup>1</sup> In mainstream economics, holdout belongs to the wider category of situations of failed coordination and collective action problems amongst economic agents.<sup>2</sup> Holdout is often compared, and contrasted, with the concept of externalities. Holdout is also discussed, and distinguished, from free-riding (or freeloading).

Several real life applications of holdout feature prominently in the economic literature, including inter alia common pool problems, land assembly, regulatory takings and eminent domain, takeovers and acquisitions, and wage negotiations. Against this backdrop, it should be unsurprising that the concept of holdout has also been used in relation to intellectual property rights (“IPRs”) in general, and patents in particular. Golden defines holdouts as patent owners’

---

<sup>1</sup> Epstein, Richard A. “Holdouts, externalities, and the single owner: One more salute to Ronald Coase.” *The Journal of Law & Economics* 36.1 (1993): 553-586 at 559.

<sup>2</sup> Barak Atiram, “The Wretched of Eminent Domain: Holdouts, Free-Riding and the Overshadowed Problem of Blinded-Riders”, 18 *Berkeley J. Afr.-Am. L. & Pol'y* 52 (2016).

“demands for a better deal,” and studies how applications for injunctions - “holdout threats” - can entitle them to exact high royalties which he calls “holdout premiums”.<sup>3</sup>

From the reviewed literature, several first order properties of holdout emerge. We discuss them in turn. To begin with, in mainstream economics, the holdout firm is a property owner; holdout invariably occurs when an economic agent owns a private good or service that is excludable. Put differently, the common thread to holdout by landowners, shareholders, workers or patentees is to benefit from entitlements protected by a property rule. Under this system, the entitlement is protected and enforced with injunctions.

The upshot is twofold. First, it is improper to talk of holdout to denote the conduct of economic agents who are not property owners. Second, holdout power is a function of the effectiveness of the property rule. Endogenous or exogenous factors may render property enforcement imperfect, uncertain or costly, and in turn limit holdout power; patent infringements may for instance be difficult to detect or courts may not grant injunctions automatically.

Moreover, holdout corresponds to a situation where strangers do not transact and fail to coordinate. In particular, the owner of a valuable resource chooses not to sell, even though a positive economic surplus may be shared between him and a buyer.<sup>4</sup>

Any student of holdout can instantly notice that the scholarship is divided on whether holdout is a distributional or an efficiency problem. On one side of the spectrum, some studies essentially discuss holdout as a bargaining problem. Holdout occurs when economic agents fail to agree over the sharing of economic surplus. On the other side, several studies look at holdout through the lenses of economic inefficiency. In this variant, holdout is depicted as a “market failure”, which prevents wealth maximising transactions from taking place.

In mainstream economics, holdout is further described as a form of self-interest. The literature envisions holdout as rational, utilitarian conduct. In some studies, holdout is discussed by reference to “strategic reasons”. We give weight to this point to stress that the literature does not make bad behaviour determinant of holdout. There is no moral judgment on the degree of “honesty” or “candour” of the holdout agent. And neither is there a suggestion that holdout implies any form of “fraud”, “deceit” or “guile”.

However, in the area of patent policy, a current of economics literature has deviated from the term of art of holdout, and instead used *systematically* a distinct concept of patent “*holdup*” to refer to patent owners’ refusal to license their patents. In “Navigating the Patent Thicket: Cross Licences, Patent Pools and Standard Setting”, Professor Shapiro discusses generally how “cumulative innovation” can be stifled by “blocking patents”, and considers the risk that the IP laws have created a “patent thicket”. Shapiro considers the situation of manufacturers who assemble various inputs and who may design products and place them into large-scale production without information on patents likely to issue. Shapiro says that the “holdup problem” would be particularly acute “in industries where hundreds if not thousands of patents, some already issued, others pending, can potentially read on a given product”. Thus Shapiro discusses under the label “holdup” conduct that other economists have called holdout in prior literature; However, , the policy paper makes no reference to holdout.

---

<sup>3</sup> Golden, John M. “Patent trolls and patent remedies.” *Tex. L. Rev.* 85 (2006): 2111.

<sup>4</sup> López, Edward J., and J. R. Clark. “The Problem with the holdout problem.” *Review of Law & Economics* 9.2 (2013): 151-167.

His subsequent paper with Mark Lemley, “Patent holdup and royalty stacking,” builds on the analytical intuition laid down in the previous policy paper. The problem of “patent holdup” is discussed as follows: “injunction threats” entitle patent owners to “negotiate royalties far in excess of the patent holder’s true economic contribution”. Injunction threats often involve a strong element of “hold up in the common circumstance in which the defendant has already invested heavily in the design, manufacture, market and sell of the product”.

The “basic economic model” on which those claims are made involves a infringer who is already selling the product when it learns of the patent claim, be it because of unawareness, of lack of information on the patent, or of strategic conduct by the patent owner. However, there is an important tweak here. Lemley and Shapiro extend their concept of patent holdup to situations where the “patent holder approaches the downstream firm before that firm has designed its product”. Admittedly, in this case, the risk of holdup should be limited. The potential implementer that has not yet sunk investments in the product and can either attempt to design its product around the patent or decide to invest in other markets. In turn, this decreases the level of the royalties that the patent holder can demand. The interdisciplinary paper again applies holdup to the conduct of a property owner, this time with more sophistication. And again, one finds no reference to the economics discussed previously.

In 2010, Shapiro published a paper entitled “Injunctions, Hold-up and Patent Royalties” which conveys the same understanding of holdup. In addition to the “hidden patent” case where the implementer inadvertently invests without knowing it infringes, Shapiro extends the patent holdup theory discussed above to include an “early negotiation scenario”, i.e. holdup may happen even when the implementer has not incurred sunk investments. The point is that weak patents may be licensed at rates in excess of the true value that they would garner in damages litigation.

Now that we have a rounded exposition of the current of literature that some call patent holdup theory, we can detect that it marks a deviation from the frame of reference of mainstream economics. As has been shown, it has been conventional in economics literature to call holdout the position held by a property owner whose consent must be obtained by a third party willing to undertake market activity. In patent holdup we indeed observe the three constituent features of holdout: first, we are witnessing the conduct of a property owner who owns a good or service that is - not tangibly but intangibly - excludable; second, we see that the patent owner’s conduct does not necessarily involve “bad behaviour”, opportunism, guile, ambush; third, we discuss here the conduct of economic agents who have had little if no course of transacting with each other. This situation is distinct from the typical holdup setting, which assumes prior coordination through contract, and subsequent hazard in exchange relationships. The submission of a FRAND commitment changes nothing to this, and does not create a pre-contractual framework or agreement, because such declarations are general in content and impersonal in scope.

This should have driven Shapiro and colleagues to use the concept of “patent holdout”. Instead, however, they discuss the issue under the “patent holdup” label. This terminological orientation is not, in itself, a problem. Yet, all theories are language-specific and hypotheses-dependent. In a famous article on the methodology of positive economics, Milton Friedman wrote:

*“A theory is, in general, a complex intermixture of two elements. In part, it is a “language” designed to promote “systematic and organized methods of reasoning.” In part, it is a body of substantive hypotheses designed to abstract essential features of complex reality”.*<sup>5</sup>

To be sure, the four papers tie their findings to the economics of holdup, and in particular to Transaction Cost Economics. This would certainly suffice to assuage our methodological concerns, provided that TCE theory is a better fit to their subject of inquiry.

But this is less than certain: patent holdup marks a deviation from the classic understanding of holdup in that it dispenses with the requirement of “opportunistic surprise,” although opportunism is deemed a necessary condition of holdup by virtually all TCE scholars. But the most important issue lies elsewhere, in dispensing with perhaps the most foundational requirement of holdup in TCE, namely “asset specificity” which creates the potential for opportunism. True that specific investments are present in the “hidden patent”/“patent surprise” scenarios, where the downstream manufacturer had designed his products in a way that infringed on the patent. Yet, their proposed expansion to “early negotiation” settings where none of the firms has yet made design choices removes specific investments from the picture.

There are also other ambiguities regarding the proposed connection between TCE and patent holdup theory. For example, TCE views holdup as a multidirectional phenomenon. It can come from both parties to an exchange, seller and buyer. This should have driven the aforementioned papers to contemplate the possibility of holdup of patent owners by downstream manufacturers. Yet, not a trace of that hypothesis can be found in the patent holdup literature. This point is particularly apt because R&D investments are the canonical example of sunk costs in mainstream economics.

We are not the first to notice that the language of the holdup papers deviates from accepted terminology. In a 2007 reply to the Interdisciplinary paper, Professor John Golden noted in a footnote that Lemley and Shapiro had not used the classic term of “hold-out” which “primarily suggests a demand for a better deal”, and preferred a more “judgmental” concept of “holdup” which “suggests both criminal conduct and a threat of immediate harm”.

The policy implications of that deviation from mainstream economics are less well understood, though potentially substantial. The selection of holdup as a starting point is likely to anchor, in the behavioural sense, towards a benevolent and informed reader, including policy makers but also industry players and general public opinion, presenting a series of biases, priors and prejudices about patent owners and implementers.

The deviation of holdout with holdup thus moves the terms of the debate, in a sense that throws a whiff of suspicion on patent owners. It acts as a filter that colours the discussion and conveys preconceptions on patent holders and implementers. Had the discussion been conducted in holdout terms, and not through the filter of holdup, a wholly different picture would have emerged, and new policy directions may have been followed.

Moreover, discussion of injunction on FRAND-pledged SEPs as a new instantiation of “holdup” does not seem based on a careful empirical investigation, but instead displays a “casual

---

<sup>5</sup> Milton Friedman. "The methodology of positive economics." In *Essays in Positive Economics*, University of Chicago Press (1953): 259.

attitude toward checking the facts”.<sup>6</sup> As we have already stressed, the patent holdup literature dispenses with explaining how the proposed theory can stand alive absent the basic conditions of opportunism and asset specificity.

## II. Patent Trespass

Now that we have argued that holdout is an improper term to denote the conduct of an unlicensed implementer, we must come up with a distinct, better term. As hinted above, a more appropriate characterisation may be patent “trespass”. This concept captures the idea that the product of a technology implementer involves a “relatively gross invasion” over a technology developer’s patent claims. The scholarship on patent trespass is scant, possibly because of the initial concept’s deviation from standard economic theory.

At a general level, patent trespass can be said to arise when a SEP holder’s licensing revenue decreases, because some (or all) technology implementers avert, either temporarily or permanently, the conclusion of a licensing agreement on terms that correspond to recognized industry practices. A common form of trespass arises when wilful SEP infringement remains undetected, and implementers wait to get sued. A related version of patent trespass occurs when detected infringers refuse or delay negotiation and/or payment. Patent trespass can also arise before courts, when infringing defendants resort to “diversionary tactics” in litigation.

In the scholarship, the determinants of patent trespass are equally heterogeneous, yet even more elusive. Some scholars stress transactions costs, in the form of detection costs, negotiation costs and litigation costs, as a possible driver. In particular, the litigation time reduces the litigation payoff of the patent owner, as injunctions are less powerful. Similarly, some claim that the “relative size of the infringer as compared to the SEP owner” may play a role, entitling big implementers to resist claims of legitimate compensation vindicated by small developers. One area of relative consensus is that limitations to the availability of injunctive relief – categorically or discretely – contribute to the formation of patent trespass. Virtually all authors agree that injunctions seek to promote the conclusion of licensing contracts when technology is relevant. Restricting their availability may be particularly conducive to trespass in relation to technologies subject to rapid life cycles, such as wireless communications.

At a very general level, patent trespass occurs when a firm practices a patented technology, a SEP in the context of this paper, yet refuses to take a licence. Our sample of interviews highlights several specificities of patent trespass: first, patent trespass is *intentional*; Second, while patent trespass consists of a refusal to take a licence, it often manifests itself through less explicit strategies; Third, even if the patent owner can successfully claim compensatory damages with interest rates, patent trespass is not simply akin to a deferred payment; fourth, most respondents consider that there is some symmetry between patent holdup and trespass; fifth, trespassing firms may pursue strategic goals that go beyond pure revenue sharing.

Given that licensing negotiations and litigation can take many years, the combination of direct costs and the time value of money can erect transaction cost barriers that could block or at least diminish SEP holders ability to collect reasonable royalties. Without the availability of injunctive relief, all of these factors benefit the potential licensee and incentivise delay indefinitely,

---

<sup>6</sup> Coase, Ronald. "The conduct of economics: the example of Fisher Body and General Motors." *Journal of economics and management strategy* 15.2 (2006): 255 at 275.

which in effect, provides the SEP implementer with a low cost option to wait. The situation is exacerbated when there are multiple implementers, as each implementer is incentivised to trespass the longest, as this maximises their competitive advantage relative to their competing implementing firms.

### *III. Determinants of systemic and systematic patent trespass*

At a quantum level, patent trespass is a transactional problem. In classic economic terms, patent trespass is a situation in which two firms are trying “to divide up the pie” through “tough negotiations”. When these negotiations and transfer payments become structured into market norms, one group of actors may hold a consistent, recurrent and predominant bargaining position over other market actors. In this case, the sharing of economic surplus no longer occurs at a discrete level, and can be described as *systematic*. The economic significance of a transactional and systematic problem is primarily *distributional*, and thus incapable to force firms to reallocate their resources to other markets. Short of such a deadweight loss, it does not have an impact on economic efficiency and aggregate welfare, and as such, is not a reason for policy intervention.

In a trespass scenario, a systemic effect can be envisioned as a tax on new R&D and patents that decreases the incentives of patent owners to invest into future technologies that may become relevant to standards or to participate and contribute technology to SSOs. The systemic effect of patent trespass can be seen as the opportunity costs for the innovator not yet committed to the project. Systemic patent holdup would therefore result in a decrease in dynamic economic efficiency. In the context of SEPs, this would manifest itself in a reduction in performance or delay in the development of new standards, possibly through the reduction of R&D spending by technology firms in general and the exit from consensus-based standard-setting processes in particular.

Our interviews point to several important plus factors that can transform transactional patent trespass into systematic and systemic issues: first, the relative size, resources and reputation of patent owners and implementers seem to be determinant; second, our interviews suggest a systematic patent trespass effect can be deemed to occur when 30% or more of a relevant market is unlicensed; third, markets which exhibit a long tail of unlicensed implementers may be the by-product of collective action problems; fourth, the likelihood of patent trespass is influenced by the clarity, predictability and stability of the legal framework in relation to patent enforcement; fifth, the systemic effect of patent trespass is primarily experienced through the impact on the technology market through the development and performance of consensus-based standards.

### *IV. Conclusions*

This paper has investigated the concept of “patent trespass” from a theoretical and empirical perspective. Generally, our analysis calls for balance to the “standard narrative” of patent holdup and royalty stacking. The improper concept of “patent holdout” should be replaced with another concept that conforms with mainstream economic theory. We have proposed “patent trespass”, but we concede that other concepts may be more appropriate. The concept of patent holdup used in the early patent economics literature is misleading, and creates a “semantic trap”. The theoretical analysis of “patent holdup” proposed in the early patent economics literature is incompatible with the conventional understanding of holdup theory in transaction cost economics.

The patent holdup narrative is incomplete, and needs to be supplemented by a “patent trespass” concept. In this paper, we advance some basic features of patent trespass in the hope of building a fuller, more comprehensive theory. We stress the importance of “patent trespass” plus factors and strategies based on expert interviews and received theory. Our industry survey provides tolerably strong empirical backing to the theoretical proposition of “patent trespass”. The main conclusion of the study is that patent trespass is a significant phenomenon which deserves as much attention from courts and policy-makers as the patent holdup narrative. Our study recommends moving towards a new holistic framework in policy making, one that grasps the asymmetric bargaining power that may exist between SEP holders and implementers.