Public Good Economics and Standard Essential Patents

Christopher Yoo
Professor, University of Pennsylvania Law School
Philadelphia, PA

The smartphone and other similar industries have benefited immensely from the creation of technological standards. Adoption of an industry-wide standard can reduce costs, reduce uncertainty for firms wishing to produce components of the standard, provide flexibility for consumers to mix and match different components, and can accelerate innovation by allowing parallel testing of different technological configurations consistent with the standard. The problem is that once a patented technology has been incorporated into a standard, the standard can insulate it from competition from substitute technologies. To guard against the appropriation of quasi-rents that are the product of the standard-setting process rather than the innovation itself, standard setting organizations (SSOs) require patentholders to disclose their relevant intellectual property before the standard has been adopted and to commit to license those rights on terms that are fair, reasonable, and non-discriminatory (FRAND). To date courts and commentators have provided relatively little guidance as to the meaning of FRAND. The most common approach is to impose a uniform royalty based on a percentage over overall revenue. The baseline for setting this uniform royalty is the royalty that the patentholder could have charged had the standard had not been created. In essence, this approach takes the ex ante distribution of entitlements as given and attempts to ensure that the standard setting process does not increase patentholders' bargaining power. However, comparisons to the ex ante baseline do not provide a basis for assessing whether the resulting outcome would maximize economic welfare. Fortunately, public goods economics can provide an analytical framework for assessing whether a particular licensing structure is likely to maximize economic welfare. Although it is often observed that patentable inventions are public goods, key concepts of public good economics (such as the Samuelson condition that provides public good economics' key optimality criterion) are rarely explored in any depth. This Article will conduct a detailed explanation of the implications of public economics for standard essential patents. The resulting framework surpasses the current approach by providing a basis for assessing whether any particular outcome is likely to maximize welfare and by suggesting possible institutional structures that may render the information needed to make such an assessment incentive compatible. In addition, public good economics indicates that consumers would likely benefit if holders of standard essential patents were permitted to charge royalty rates that are not uniform.

Email: csyoo@law.upenn.edu