

The Welfare Effects of Government Intervention into the Licensing of Standard-Essential Patents

An Analysis of the Chinese Smartphone and SoC Markets

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Abstract

The licensing of standard-essential patents (SEPs) in the cellular communications field has been a contentious issue. In particular, the licensing policies of Qualcomm for third-generation (3G) and fourth-generation (4G) cellular communication standards has been the subject of several lawsuits and government intervention episodes. Given Qualcomm’s dual role as a technology licensor as well as a supplier of baseband modem chips and System-on-Chips (SoCs) to smartphone manufacturers, there has been a concern that Qualcomm’s royalties on smartphone sales could create an anticompetitive “margin squeeze” against rival SoC manufacturers. It has also been claimed that Qualcomm’s policies cause consumers to pay higher prices for smartphones. We evaluate the impact of the most drastic intervention to date – the Chinese government’s 2015 policy to forcibly lower Qualcomm royalty rates. Using a simple theoretical model, we argue that such an intervention could have ambiguous effects on consumers – it could lead to higher or lower smartphone prices. To quantify the policy’s impact, we construct a structural econometric model of the Chinese smartphone and SoC markets which allows for strategic pricing in the two vertically related markets. Counterfactual analysis using the estimated model allows us to quantify the intervention’s impact on smartphone manufacturers’ marginal costs and their product prices. Our simulation results for the Beijing market in 2018 indicate that the intervention caused smartphone manufacturers’ marginal costs to increase by 0.74 percent on average. However, this was more than offset by smartphone manufacturers’ incentive to lower their prices under the reduced royalty rate, leading to a reduction in smartphone prices of 0.35 percent on average. These results suggest that the Chinese government’s intervention had the intended effect on consumer welfare, although its magnitude was fairly limited.

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