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The Alignment of Evidence and Economics: A Rebuttal to Ginsburg and Wright

By Joseph Kattan & Timothy J. Muris[1]

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Introduction

In a March article in CPI's Blog O' Blogs, Judge Douglas Ginsburg and Professor Joshua Wright ("G&W") criticized the Nash bargaining model of the Federal Trade Commission's economic expert in the agency's case against Qualcomm, Professor Carl Shapiro, as "contrary to real-world evidence."[2] In an April response, we analyzed the trial evidence in that case and demonstrated that it fully supported Shapiro's economic analysis.[3] We showed that consistent testimony from numerous Qualcomm customers established that Qualcomm's "no license no chips" regime, under which Qualcomm threatens to stop supplying its monopoly modem chips to customers that do not agree to its patent licensing demands, significantly increased the royalties that customers pay Qualcomm. We also explained that the economics of Shapiro's Nash bargaining model, with which G&W did not quarrel, demonstrated that Qualcomm's elevated royalties served as a direct tax on Qualcomm's competitors.

G&W have now replied to our critique, arguing that we are wrong about the evidence.[4] Their reply, however, completely ignores the evidence in the FTC's case. Instead, they rely on the opening statement of Qualcomm's counsel in another case, Qualcomm's litigation with Apple, which settled before a single piece of evidence was admitted into the record. It should go without saying that the contentions of Qualcomm's counsel are not evidence (a point sharpened by Judge Lucy Koh's strong critique of the untruthfulness of Qualcomm's senior executives at the FTC trial in her opinion in *FTC v. Qualcomm*[5]) and that the analysis of the FTC's case should be based on the record evidence in that case. Yet, as we show below, G&W would be wrong even if we were to credit the assertions of Qualcomm's lawyers in another court.

Judge Koh's painstaking review of the evidence in *FTC v. Qualcomm*, which G&W ignore, is relevant to our analysis (as it should be to G&W's). Her lengthy opinion parsed through the extensive testimony of Qualcomm customers that Qualcomm's threats to curtail modem chip shipments imperiled the survival of their mobile phone businesses and forced them to accede to Qualcomm's licensing demands. These customers testified unwaveringly that Qualcomm's supply threats deprived them of the ability to settle their disagreements through the judicial process by which intellectual property disputes with all other counterparties are resolved as a last resort. As a result of the supply threats, customers were forced to cave to Qualcomm's demands. This was the evidentiary foundation for Shapiro's Nash bargaining model, and his conclusion that the elevated royalties that Qualcomm imposed on its customers injured both the customers and Qualcomm's rival suppliers. This is exactly how a tariff injures both consumers and the suppliers of the products that are subject to the tax.

The thrust of the G&W reply is the unexceptional fact that one of the largest victims of Qualcomm's hold-up, Apple, sought to reduce the large royalty tax that Qualcomm had imposed. Apple, they also say, thought that Qualcomm had a valuable patent portfolio. But they never try to show that Qualcomm's portfolio was so valuable as to justify Qualcomm's imposition on Apple of greater royalties than Apple paid all other patent holders combined. Nor do they try to deal with the coercive effect of "no license no chips" upon the patent

royalties paid by Qualcomm's customers other than to say, without discussing *any* evidence, that it just isn't so. The evidence that G&W ignore shows, however, that their second attempt to discredit the economic foundations of the FTC's case is no more successful than the first.

"No license no chips"

Our first response to Wright and Ginsburg provided just a few examples from the extensive testimony of Qualcomm's customers that "no license no chips" was coercive. For example, an LGE executive testified that "when Qualcomm threatened to terminate the supply agreement, LGE had no option but to agree to whatever Qualcomm demanded. LGE's top management did not want to take the risk of endangering LGE's mobile business."[6] We also cited Lenovo testimony that Qualcomm's supply threats basically "make[] you say, 'Do I still want to be in this business? Because I'm taking the risk that I will be shut out immediately if I don't agree.'"[7] This, and the BlackBerry testimony we also cited, is just the tip of the iceberg, as Judge Koh demonstrates over 70 pages of evidentiary analysis.[8] Even giant customers such as Samsung were not immune to Qualcomm's threats of supply disruptions. Judge Koh's opinion details how Samsung capitulated to Qualcomm's royalty demands just one week after Qualcomm's CEO threatened it with supply curtailment.[9]

G&W's response to all this? "The assertion that companies negotiating with Qualcomm either had to 'agree to the license or basically go out of business' ignores the reality that even if Qualcomm discontinued supplying chips to a customer, the customer could obtain chips from one of four rival sources."[10] In other words, readers should ignore the Lenovo executive whose testimony is quoted in this passage, the Samsung executive who testified that without Qualcomm modem chips "Samsung would not have been able to manufacture mobile phones nor sell the same,"[11] and the other customers who testified that their dependence on Qualcomm for modem supplies meant that resistance to Qualcomm's licensing demands would pose an existential threat to their businesses. As Chico Marx famously quipped in *Duck Soup*, "who you gonna believe, me or your own eyes?" We believe that readers who look at the evidence will believe their own eyes.

G&W also assert that Qualcomm had never cut off any customer's supply of chips.[12] This is not exactly true, as the court's opinion shows in its discussion of Qualcomm's curtailment of supplies to Sony during licensing negotiations.[13] But more importantly, this claim is entirely irrelevant. A bank robber is not innocent just because he merely pointed the gun at the clerk who emptied the vault for him. And multiple customers testified that they emptied the vault in the face of Qualcomm's threat to cut off supplies. G&W offer no reason to disbelieve them.

Valuing Qualcomm's Patents

G&W discuss in great detail a point that no one disputes: Qualcomm's patent portfolio is valuable. But few also doubt that suppliers of valuable products can increase prices through

exclusionary practices. G&W rely in particular on a claim that Qualcomm's counsel's attributed to Apple to the effect that Qualcomm holds a stronger portfolio than some other patent holders.[14] Even if that assessment were true, it would not support Qualcomm's anticompetitive licensing regime. At trial, Qualcomm failed in trying to establish an entitlement to the elevated fees it collects. Its expert witness on the topic admitted that he had no opinion on the "the relative strength of Qualcomm's patent portfolio or of Qualcomm's patents essential to any standard," or even on the royalty value of the Qualcomm patents that he analyzed.[15] A Qualcomm employee proffered by the company to establish the value of its patents testified similarly that "I don't actually look at what others are doing. I only look at what we are doing."[16]

So how did Qualcomm earn more in cellular royalty revenues than all other patent holders combined?[17] By taking away from customers the ability to have unresolved royalty disputes determined through litigation. As one Qualcomm executive explained in an internal presentation under the heading "High modem share drives compliance and royalty rate," Qualcomm's dominant position in the modem chip business "[a]ddresses [license] compliance challenges and sustainability of long term royalty rate[] without risky litigation" and "[r]educes dependence on legal and regulatory structures to sustain royalty rates."[18] To Qualcomm, dominance in the modem chip business appears more critical to sustaining its royalty rates than the value of its portfolio.

Qualcomm's Economic Testimony

In their original article, G&W criticized Professor Shapiro for not embracing the analysis of Qualcomm's expert, Professor Aviv Nevo, who claimed that Qualcomm had not behaved anticompetitively because its royalty rates had held steady over decades. We showed in our response that this so-called empirical analysis was fatally flawed. As we explained with supporting citations to the trial record:

He [Nevo] excluded from consideration any license that had non-standard terms. He also disregarded any license amendments that had altered the terms that he incorporated into his analysis. In addition, Nevo excluded the value of any cross-licenses that Qualcomm obtained as part of a license agreement. And on top of that, he excluded any consideration of the royalty base and all other license terms. It's as if Nevo were studying the retail prices of automobiles price and discarded all sales other than those at the sticker price.[19]

In their reply, G&W say that we "mischaracterize Nevo's testimony" because Nevo supposedly only "excluded from his analysis agreements that, according to the FTC's own theory of harm, would be unaffected."[20] But they cite no support for the proposition that non-standard license terms, amended license terms, the value of cross-licenses to Qualcomm, or the royalty base are irrelevant to the FTC's theory of harm, nor do they attempt to explain why this would be true. Notably, even Nevo did not attempt to defend his exclusions on this basis. G&W also fail to explain why the terms that Nevo excluded are irrelevant to what Nevo purported to show,

which is that Qualcomm's royalty rates remained unchanged over time. For example, license amendments that change the royalty rate are highly relevant to a purported study of the royalty rate, but Nevo admitted that he ignored them. As to G&W's charge that we mischaracterized Nevo's testimony, this exchange between Nevo and the FTC's counsel is conclusive:

> Q. So you can't tell from looking at your data set how the royalty in a contract would be calculated; right?
>
> A. We with -- well, this is the data that we collected and what we have here, yes.[21]

G&W also attempt to refute our argument that Nevo had failed to account for the weakening of Qualcomm's portfolio and for the change of the composition of mobile phones from voice-only products to versatile multimedia computers. They assert that Apple's documents "are fatal to [this] claim."[22] By this, they presumably refer to documents that purportedly say only that Qualcomm has a valuable patent portfolio. But the fact that a portfolio is valuable does not speak to how valuable it is today or whether it was more valuable yesterday. And what do Qualcomm's own documents, which were actually admitted into evidence in the FTC trial, say? They showed, as Judge Koh found, that "Qualcomm's patent contributions are declining with successive standards,"[23] that "Qualcomm is not the top contributor to standards,"[24] and that "Qualcomm has sustained by far the highest royalty rates of any cellular patent holder despite its declining SEP [standard-essential patent] share with successive standards and the expiration of its patents."[25]

G&W also miss the mark in criticizing our observation that Nevo failed to account for the changing composition of mobile phones from voice calling devices to multimedia computers. In the early days of Nevo's study, Qualcomm might have claimed some nexus between its royalty scheme, which taxes the entire handset, and its cellular SEPs (though even then the scheme would have violated Qualcomm's commitment to license rival modem chip makers, and therefore to base royalties on modem chip prices). Today, by contrast, the royalty scheme that Qualcomm imposes through its "no license no chips" regime taxes the numerous components of a modern mobile phone for which Qualcomm's standard-essential patents make no contribution, from touch technology to facial recognition to microprocessors to graphics processing to cameras to nonvolatile memory and many others. Yet G&W argue that this is all irrelevant:

> As to changes in the composition of handsets over time, there is no doubt that a smartphone today has many more features than a first-generation handset that only made and received calls; those new features, however, would be meaningless without Qualcomm's SEPs, which are implemented by mobile chips that enable cellular communication.[26]

Really? Is touch technology meaningless without Qualcomm's cellular SEPs? Are high-resolution cameras meaningless without Qualcomm's cellular SEPs? Are fast microprocessors meaningless without Qualcomm's cellular SEPs? Is facial recognition meaningless without Qualcomm's cellular SEPs? Is nonvolatile memory technology that enables the storage of tens of thousands of songs on a mobile phone meaningless without Qualcomm's cellular SEPs?

G&W offer no supporting evidence for their assertions, and Qualcomm's own documents contradict them, as can be seen from this Qualcomm strategic plan in the FTC trial record:

> "Past: Modem Leadership Drove Value
>
> Now: Best User Experience Drives Value"[27]

Customers uniformly testified to the same effect. To give but one example from a customer document, this one from Samsung, "[t]he value of smart phones lies in various computer functions, the operating system, software, applications, and design, etc., which have nothing to do with Qualcomm's chipset IP."[28]

Other G&W Quibbles

G&W claim that we "conveniently[] ignore the evidence that the industry has been characterized by increasing output and quality."[29] Not so. This was the clear implication of our response to their claim that mobile phone prices have declined. As we said in our response:

Ginsburg & Wright also claim that Nevo had shown that the industry was characterized by declining prices. True. But not due to Qualcomm. Like all other electronic industries, the mobile phone industry is characterized by declining prices because of Moore's Law. On average, the cost of electronic components declines by 50 percent every two years. This goes for the microprocessors, graphics processors, DRAM, nonvolatile memory, flat panel displays, and other components that make up a mobile phone.[30]

G&W do not attempt to link any price or quality improvements to Qualcomm's SEPs.

And then there is the claim that Apple purportedly pursued a campaign to reduce its royalty payments to Qualcomm, which consumes a large amount of space in G&W's reply. This is of no moment. We have not seen the purportedly supporting evidence, but would be hardly surprised if the victim of massive overcharges imposed through coercion would want to lower them. We find it more relevant that, as customer after customer testified, all attempts to achieve a reasonable negotiated royalty payment to Qualcomm failed because Qualcomm's threats of supply cutoffs forced the customers to capitulate to Qualcomm's demands.

Conclusion

We agree with G&W on most antitrust principles but we come to different conclusions because we credit the trial evidence and they ignore it. G&W conclude that antitrust should demand "proof of actual anticompetitive effects rather than relying upon a model that is not robust to market realities."[31] We agree, but, as we stated in our original response, the evidence of market realities reflected in the trial record fully supported Professor Shapiro's economic analysis. G&W also say that "[m]odern antitrust analysis requires plaintiffs to substantiate their claims with more than just theory or scant evidence that rivals have been harmed."[32] We

agree again, but suggest that overwhelming testimony from injured customers should not be mischaracterized as carping by competitors or "just a theory."

G&W also assert that "[a]ntitrust should have a limited role in adjudicating disputes arising between sophisticated parties in bilateral negotiations of patent licenses."[33] Once again, we agree. But sophistication of counterparties does not confer antitrust immunity, as Judge Ginsburg must have concluded in holding 18 years ago that Microsoft violated Section 2 of the Sherman Act.[34] Where evidence of coercion of customers, sophisticated or otherwise, is as overwhelming as it is in this case, antitrust does have a role. Ginsburg & Wright's last claim is that antitrust intervention in patent hold-up cases "risks transforming the agency into a price regulator."[35] But the *Qualcomm* case did not transform the FTC into a price regulator, and requiring Qualcomm to conduct license negotiations without exerting the coercion of "no license no chips" — a regime that elevates the prices that customers must pay for the products of Qualcomm's rivals — does not bear the slightest semblance to price regulation. Such negotiations are the norm in all other industries worldwide and, indeed, in the cellular industry itself, excepting Qualcomm.

We end with this concluding thought. Ginsburg & Wright accuse Shapiro of elevating theory over evidence. But in fact, it is they who elevate theory — or, more precisely, an insistence that Qualcomm did not coerce any customers to pay elevated royalties — over the evidence that can only be characterized as overwhelming.

[1] Joseph Kattan is a partner at Gibson, Dunn & Crutcher LLP. Timothy J. Muris is a George Mason University Foundation Professor of Law at the Antonin Scalia Law School and Senior Counsel at Sidley Austin LLP. The authors advise a variety of clients in connection with standard-setting matters, including Intel Corporation in connection with the case discussed in this article. The views expressed in the article are solely their own.

[2] Douglas H. Ginsburg & Joshua D. Wright, *Use and abuse of bargaining models in antitrust: AT&T/Time-Warner and FTC v. Qualcomm,* available at https://truthonthemarket.com/2019/03/14/use-and-abuse-of-bargaining-models-in-antitrust/?utm_source=CPI+Subscribers&utm_campaign=0ce29b7554-EMAIL_CAMPAIGN_2019_03_29_04_25&utm_medium=email&utm_term=0_0ea61134a5-0ce29b7554-234864229.

[3] Joseph Kattan & Timothy J. Muris, *The Alignment of Evidence and Economic Theory in FTC v. Qualcomm: A Response to Ginsburg & Wright*, available at https://www.competitionpolicyinternational.com/wp-content/uploads/2019/04/North-America-Column-April-2019-Full.pdf (cited below as Kattan & Muris Response").

[4] Douglas H. Ginsburg & Joshua D. Wright, *A Bargaining Model v. Reality in FTC v. Qualcomm: A Reply to Kattan & Muris*, available at https://www.competitionpolicyinternational.com/wp-content/uploads/2019/05/North-America-Column-May-2019-Full.pdf (cited below as "G&W Reply").

[5] *FTC v. Qualcomm Inc*., Case 5:17-cv-00220-LHK, slip op. at 13-18 (N.D. Cal. May 21, 2019) (cited below as "Op."). Because we think that the FTC's case should be judged by the strength of the evidence in the FTC trial, we also disregard Apple's opening statement against Qualcomm.

[6] *FTC v. Qualcomm, Inc*., Case No. 5:17-cv-00220-LHK (N.D. Cal.), trial transcript of Jan. 14, 2019, at 933-34.

[7] *FTC v. Qualcomm*, Jan. 4, 2019 testimony by deposition at 13.

[8] Op. at 44-114.

[9] Op. at 57.

[10] G&W Reply at 4.

[11] Op. at 33.

[12] G&W Reply at 4.

[13] Op. at 52-54.

[14] G&W Reply at 5.

[15] Op. at 167.

[16] *Id.*

[17] See Op. at 8-9.

[18] *Id*. at 160.

[19] Kattan & Muris Response at 4-5 (citations omitted).

[20] G&W Reply at 5.

[21] *FTC v. Qualcomm*, trial transcript of Jan. 25, 2019 at 1929.

[22] G&W Reply at 5.

[23] Op. at 173.

[24] *Id*. at 176.

[25] *Id*. at 175.

[26] G&W Reply at 5.

[27] Op. at 169.

[28] *Id*. at 59.

[29] G&W Reply at 5.

[30] Kattan & Muris Response at 5.

[31] G&W Reply at 7.

[32] G&W Reply at 7. On the importance of consumer testimony to antitrust cases, see Timothy J. Muris & Christine Wilson. *Bazaarvoice; Protecting Consumers by Silencing the Customer?* CPI Antitrust Chronicle, (March 2014 (1)).

[33] *Id*.

[34] *United States v. Microsoft Corp*., 253 F.3d 34 (D.C. Cir. 2001).

[35] G&W Reply at 7.