Memorandum: Will the International Trade Commission or the Antitrust Division Set Policy on Monopoly and Innovation?

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Will the U.S. International Trade Commission (ITC) or the Antitrust Division set policy on monopoly and innovation? I submit this memorandum to the Antitrust Division in consultation with my attorney, Judge Kenneth W. Starr, to pose this question, which arises from the ITC’s serious misapplication of antitrust law and economics in Investigation No. 337-TA-1065, Certain Mobile Electronic Devices and Radio Frequency and Processing Components Thereof. I was an expert economic witness for Qualcomm in this patent-infringement dispute with Apple. Refusing to accept any fee, Judge Starr has agreed to represent me—in friendship and as a matter of principle.

The ITC is an independent federal agency authorized to adjudicate disputes involving, among other things, the importation into the United States of articles that allegedly infringe U.S. intellectual property rights. A patent holder may file, pursuant to section 337 of the Tariff Act of 1930, a complaint with the ITC requesting an exclusion order—an in rem remedy blocking the importation and sale in the United States of products infringing a U.S. patent.¹ To establish a violation of section 337, the complainant must prove (1) patent infringement under Title 35 of the U.S. Code, (2) the importation of the infringing article, and (3) the existence of a domestic industry related to the product protected by the patent.² If the ITC finds a violation of section 337, it shall exclude the infringing article unless the agency finds that the public-interest factors that section 337 enumerates—namely, the exclusion order’s effects on the public health and welfare, competitive conditions

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² 19 U.S.C. § 1337(a)(i)–(g).
in the United States, the production of competitive articles in the United States, and U.S. consumers—counsel against granting that remedy.3

In a section 337 investigation, the ITC delegates to an administrative law judge (ALJ) the compilation of a hearing record and the adjudication of preliminary findings (called a “final initial determination and recommended determination”). The “final initial determination” addresses whether a violation of section 337 exists; the “recommended determination” addresses the proper remedy for the violation, if found. The ALJ’s scrutiny of the public-interest factors requires rigorous economic analysis of facts and data. Yet, not all ALJs at the ITC apparently possess the sophistication in microeconomics necessary to evaluate the public-interest factors reliably. Consider the effect of a requested exclusion order on U.S. consumers or on competitive conditions in the United States. How can an ALJ answer such a question competently if his understanding of economics is so shallow that he reveals by his comments in open court that he does not appreciate the difference between microeconomics and macroeconomics? Or if he says that he hates supply and demand curves? That admitted lack of facility with economic reasoning should worry anyone who relies on the institutional competence of the ITC. It should particularly worry the Antitrust Division when such an ALJ takes it upon himself to make national policy on monopoly and innovation.

In Part I of this memorandum, I show that not all ALJs at the ITC understand that it is specious to purport to infer monopoly power from market share alone. In Part II, I show that not all ALJs at the ITC understand that successive monopolies over time in technologically dynamic industries provide a legitimate and noble form of competition that can produce breakthroughs in innovative products and quality-adjusted price reductions.

3 Id. § 1337(d)(1).
4 See Open Session Hearing Transcript at 306:1–10, Certain Thermoplastic-Encapsulated Electric Motors, Components Thereof, and Products and Vehicles Containing Same, Inv. No. 337-TA-1073 (USITC July 23, 2018) (“[THE ALJ]: What do we call that kind of economics you’re talking about? Does it cross into microeconomics or is it more macroeconomics? THE WITNESS: No, this is all micro. All about consumer choice. [THE ALJ]: Pure supply and demand, that type of stuff? THE WITNESS: That’s right. [THE ALJ]: The type of economics most of us had problems with at university; right?”).
5 See Open Session Hearing Transcript at 1429:1–1430:1, Certain Mobile Electronic Devices and Radio Frequency and Processing Components Thereof, Inv. No. 337-TA-1065 (USITC June 25, 2018) (Testimony of Ms. Carla Mulhern) (“Q: Now, you’ve said your area of expertise is applied microeconomics, and that sounds like you apply economic principles to specific markets; is that fair? A: That’s fair. Q: So one of the— [THE ALJ]: Supply and demand curves; correct? Isn’t that the sine qua non of economics? THE WITNESS: That’s right. [THE ALJ]: I remember that from economics in school many, many years ago. It was the part of economics I hated the most, Ms. Mulhern.”).
I. Inferring Monopoly Power from Market Share Alone

The ALJ in the 1065 Investigation found that the requested exclusion order would give Qualcomm a monopoly in the supply of baseband processor modems to smartphone manufacturers with respect to their sale of so-called “premium” smartphones in the United States (although this supposed “market” curiously excludes any Samsung smartphones sold in the United States that contain Samsung’s own baseband processor modems). In other words, the ALJ (implicitly) defined the relevant product market to be the supply of only a subset of baseband processor modems used in the manufacture of only a subset of the many smartphones sold. The ALJ then (explicitly) defined the relevant geographic market for that subset-of-a-subset of baseband processor modems to consist of only the United States, despite the undisputed fact that baseband processor modems are generally manufactured outside the United States and installed in smartphones that are also manufactured outside the United States. Those smartphones are then shipped throughout the world.

During the hearing, counsel for Apple asked me “to assume . . . that [for] the competitive premium smartphones identified by Qualcomm, each and every one of them uses Qualcomm baseband chips with the exception of some Samsung phones for which Samsung self-supplies” and “to assume, that for the accused products in this case [five models of Apple iPhones], Intel supplies some of the baseband chipsets for those phones.” He then asked this hypothetical question: “[I]f Qualcomm prevails on obtaining the requested exclusion orders, for the U.S. market and the premium smartphones that Qualcomm identified, Qualcomm would have a complete monopoly on the baseband chipsets for those phones; correct?”

I responded: “Not necessarily as a matter of economics.”

A. Correctly Defining Market Power

Monopoly power is “a high degree of market power.” In turn, the canonical definition of market power was supplied by Professor William Landes and Judge Richard Posner in their 1981 article in the Harvard Law Review: “the ability of a firm (or a group of firms, acting jointly) to raise price above...”

7 Id. at 461:25–462:2.
8 Id. at 462:10–14.
9 Id. at 462:15.
the competitive level without losing so many sales so rapidly that the price increase is unprofitable and must be rescinded." For more than 30 years, the federal courts have considered that analysis authoritative. A firm’s market power depends on the own-price elasticity of demand for its product. If demand for a firm’s product is highly price-elastic, a number of substitutes exist for that product and, consequently, the firm has a limited ability to raise price profitably. That is, the firm has limited market power. Conversely, the less price-elastic demand is for a firm’s product, the greater is the firm’s market power.

Landes and Posner expressed that inverse relationship between a firm’s market power and its own-price elasticity of demand in a formal model that begins with the familiar Lerner Index:

\[ L_i = \frac{P_i - C_i}{P_i} = 1 / e_i, \]

where \( L_i \) is the Lerner Index for firm \( i \), \( P_i \) is the price at firm \( i \)’s profit-maximizing output, \( C_i \) is the marginal cost at firm \( i \)’s profit-maximizing output, and \( e_i \) is firm \( i \)’s own-price elasticity of demand (treated here as a positive number). At the profit-maximizing level of output, a higher Lerner Index denotes greater market power because demand is less price-elastic; conversely, a lower Lerner Index denotes less market power because demand is more price-elastic.

Although in principle one could use Equation 1 to estimate a firm’s market power directly, a firm’s own-price elasticity of demand often is unknown. Landes and Posner explained that, in those cases, one can express a firm’s market power as a function of three variables: (i) the firm’s market share,
(2) the market’s own-price elasticity of demand, and (3) the price elasticity of supply of the firm’s competitors. Equation 2 expresses that relationship:

$$L_i = \frac{S_i}{(e_d + [e_s \times (1 - S_i)])},$$

(2)

where \(S_i\) is firm \(i\)’s market share, \(e_d\) is the market’s own-price elasticity of demand, and \(e_s\) is the price elasticity of supply of competing firms. To measure a firm’s market power, one must analyze all three variables in conjunction with one another. This insight is well recognized.

Assistant Attorney General Makan Delrahim, in a speech delivered on November 7, 2018, reiterated that a high market share alone is insufficient to support a finding of market power, much less monopoly power: “Defining the relevant market and calculating shares does not end the inquiry [into market power], because a high market share does not always equate to market power. Depending on the circumstances, a firm with a high market share still may lack the ability to increase price or exclude competitors.”

Even Professor Carl Shapiro, the Federal Trade Commission’s expert economic witness in its pending monopolization case against Qualcomm, agrees that “equat[ing] high market shares with a high degree of market power . . . is highly misleading if the market elasticity of demand is ignored, and likewise if rivals’ elasticity of supply is not considered.”

It is therefore clear that I answered the hypothetical question posed by Apple’s counsel truthfully and correctly. My re-direct examination (discussed below) also confirmed that I was correctly evaluating the hypothetical allegation of monopoly power within the Landes-Posner framework, which I have used in my scholarly writings since 1982.

B. Impugning the Credibility of Truthful and Correct Testimony

Immediately after I answered the hypothetical question from Apple’s counsel, the ALJ interjected with a more succinct hypothetical question: “Let’s think
for a minute. If you have 90 percent of the market, is that a monopoly? Is 90 percent of the market a monopoly? "

"Not necessarily," I replied. "It depends on how quickly their supply response is through entry or production expansion."

"I hear what you're saying," the ALJ said. "Let's clear the courtroom for a minute. I want counsel only. Counsel only. . . . Witnesses out."

The transcript is sealed during the period of my sequestration, which lasted almost eleven minutes. One month later, the same ALJ explained on the public record in a different investigation: "As some of you know, if I have a problem with credibility of a witness, I'll ask the witness to leave, I'll leave the lawyers in the courtroom and I'll tell the lawyers what problem I have with the credibility." Given that statement, it is most reasonable to infer that, during my sequestration, the ALJ was telling counsel why he believed that my answer to the hypothetical question about inferring monopoly from market share alone was not credible.

Two sealed pages of the hearing transcript, consisting of 395 spoken words (and containing no confidential business information) record what transpired in the courtroom while I was sequestered. It does not disclose any substantive details to say that the ALJ uttered 389 of the 395 words transcribed and that the lawyer from the ITC's Office of Unfair Import Investigations uttered the remaining six words, but only when responding twice to the ALJ's questions. In addition, the transcription of the ALJ's remarks during my sequestration ended abruptly after three minutes, when—in mid-sentence—the ALJ ordered the stenographer to go off the record. From that moment, no record of the ALJ's remarks was created until, more than seven minutes later, he instructed the stenographer to resume the transcription, after he had already ordered me to return to the courtroom to resume my cross examination.

In speaking to counsel about my answer to the hypothetical question about monopoly power, the ALJ apparently spent twice as much time off the record. Although an ALJ's responsibility is to create a complete record to aid the commissioners of the ITC in deciding a section 337 investigation, the ALJ

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23 Id. at 462:25–463:2. I do not have an audio recording of my testimony and do not recall ever being asked to audit the hearing transcript of my testimony. My recollection is that I actually said, "Not necessarily. It depends on how quickly there’s a supply response through entry or production expansion."
24 Id. at 463:3–9.
26 Open Session Hearing Transcript at 466:2, Certain Mobile Electronic Devices and Radio Frequency and Processing Components Thereof, Inv. No. 337-TA-1065 (USITC June 19, 2018) (Testimony of Mr. J. Gregory Sidak) ("(Noncounsel individuals returned to courtroom.").
in the 1065 Investigation has left the ITC commissioners, the U.S. Trade Representative, the Federal Circuit, and me to speculate why the record of his remarks has a seven-minute gap while he explained why I supposedly lacked credibility when giving cross-examination testimony refuting the linchpin of Apple's affirmative defense (namely, that the issuance of the requested exclusion order supposedly would create a monopoly over a subset of baseband processor modems used in a subset of smartphones sold in the United States). In fact, the ALJ refused to credit any of my testimony.\(^{27}\) Notwithstanding the ALJ’s claim that the amount of my professional fees motivated his ruling (a rationale that Judge Starr debunks in a separate letter),\(^{28}\) the triggering event for the ALJ's finding on credibility far more plausibly appears to have been my truthful and correct expert economic testimony that it is unreliable to purport to infer monopoly power from market share alone. Had the ALJ not discredited that well-established economic proposition, he could not have reached the conclusion that he did in his initial determination. The commissioners of the ITC, the U.S. Trade Representative, the Federal Circuit, and I therefore have a common and legitimate interest in knowing what the ALJ told counsel during the seven-minute gap in the hearing transcript and why the ALJ did not want to create a record of his remarks about my credibility and the credibility of my expert economic testimony.

C. Refusing to Allow Truthful, Correct, and Relevant Testimony on Supply Substitution and Geographic Market Definition

After I returned from my sequestration, the ALJ confirmed that he lacked enough understanding of antitrust law to recognize that I had in fact given a completely truthful and correct answer to his earlier hypothetical question. The relevant exchange occurred during my re-direct examination by Mr. David Marriott of Cravath Swaine & Moore, counsel for Qualcomm, on supply substitution and geographic market definition:

[MR. MARRIOTT]: Mr. Sidak, you were asked about whether an exclusion order would give Qualcomm a monopoly in baseband chip sets. Do you recall those questions?

A: Yes.


\(^{28}\) Letter from Kenneth W. Starr to The Honorable Makan Delrahim, Assistant Attorney General, Antitrust Division, U.S. Department of Justice (Dec. 11, 2018).
Q: You said I believe that it depends. Let me . . . begin by asking you what you understand and believe to be the relevant geographic marketplace for any evaluation of competition relating to baseband chipsets.

A: Worldwide.

Q: Why do you say that, sir?

A: Because these products are sold to companies throughout the world who manufacture smartphones that are shipped throughout the world.

Q: And why did you say it depends in response to the question about whether an exclusion order would give Qualcomm a monopoly?

A: If I remember the context of the question correctly, I was concerned about attaching economic conclusions to a factual description that doesn't support a true finding of monopoly. I know this is not an antitrust case, and I'm not trying to suggest that we introduce a lot of antitrust principles. But in an antitrust case, you don't simply say something is a monopoly, you have to go about defining a relevant market, establishing whether a particular firm has market power or not, before you could ever get to the conclusion that there was a monopoly. And there are both opportunities for substitution on the consumer side, the buyer side, and also on the producer side in terms of entry and—

At that moment, the ALJ cut me off:

[THE ALJ]: Excuse me . . . . What does any of this have to do with the statutory factors? I mean, why is it relevant that it's a worldwide market versus—the statutory factors only address what happens in the United States.

. . . .

. . . . My point is let’s ask relevant questions. I don’t—I don’t care whether it’s a worldwide market. Worldwide market is irrelevant to statutory factors as affecting the United States.

MR. MARRIOTT: Your Honor, respectfully, I would submit to you the fact that the market is a worldwide market is not irrelevant to the statutory factors, insofar as the competitive conditions worldwide affect what happens—

[THE ALJ]: I understand all that. But my point is I don't think it's nearly as relevant as you think it is. I don't think there's going to be a lot of care or concern on the Commission or at the USTR about the worldwide market. They're going to be worried about the market in the United States.

MR. MARRIOTT: Understood, your Honor.

[THE ALJ]: Let's focus on that.\(^\text{30}\)

And so, the ALJ refused to allow me to complete a truthful, correct, and highly relevant answer concerning supply substitution and geographic market definition—economic factors which directly influence the requested exclusion order’s effects on U.S. consumers and competitive conditions in the United States.

II. SCHUMPETERIAN COMPETITION AND INNOVATION

During my cross examination, the lawyer from the ITC’s Office of Unfair Import Investigations asked: “Standard economic theory provides that monopolies reduce innovation and result in higher prices; correct?\(^\text{31}\)

I responded: “I think it’s ambiguous whether monopolies increase or decrease innovation. There is the theory associated with Joseph Schumpeter about creative destruction, that it’s the lure of achieving a monopoly for a limited period of time that drives innovation and that competition basically takes the form of successive iterations of monopoly, where one firm displaces another, which displace[d] another.”\(^\text{32}\)

Schumpeterian competition or creative destruction is often called dynamic competition and is distinguished from static competition.\(^\text{33}\) Static competition manifests itself in the form of multiple providers of existing products offered at low prices, offering an unchanging menu of unimproved products at very good prices. Prices are drawn down to the floor of long-run marginal cost; but that floor becomes their resting place. Firms never overcharge customers, but firms offer customers no exciting new products. In contrast, dynamic competition is a style of competition that relies on innovation to produce new products and processes and concomitant quality-adjusted price reductions of substantial magnitude. Such competition improves productivity, the availability of new goods and services, and,

\(^\text{30}\) Id. at 503:12–504:14.

\(^\text{31}\) Id. at 492:19–21.


\(^\text{33}\) The following paragraphs draw from J. Gregory Sidak & David J. Teece, Dynamic Competition in Antitrust Law, 5 J. Competition L. & Econ. 581 (2009).
more generally, consumer welfare. Professor David Teece and I conclude: “Advocates of strong competition policy must surely favor dynamic competition, for static competition is anemic in comparison.”

In markets characterized by dynamic competition, a high market share is consistent with an innovative market. When firms compete through technological innovation to achieve market dominance, dominance is continually challenged and subject to displacement by subsequent innovations. This form of rivalry may have an all-or-nothing flavor. Winners enjoy a period of dominance, during which they receive above-cost prices that include the returns necessary to induce risky investment in product innovation, but are subject to being supplanted by rivals in a later innovation cycle.

American antitrust jurisprudence recognizes the difference between static competition and dynamic competition. The Supreme Court said in *Trinko* in 2004 that “[t]he opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place; it induces risk taking that produces innovation and economic growth.” The Court was describing dynamic competition—firms competing not *within* the market but *for* the market. In other words, American antitrust jurisprudence understands that a pattern of sequential rivalry for temporary dominance in a technologically dynamic industry is a legitimate and noble form of competition, one that promotes breakthrough innovations that dramatically lower quality-adjusted prices.

Quoting my own scholarship with Professor Howard Shelanski, the D.C. Circuit observed in *United States v. Microsoft* that “[r]apid technological change leads to markets in which ‘firms compete through innovation for temporary market dominance, from which they may be displaced by the next wave of product advancements.’” Again quoting the same article from the *University of Chicago Law Review*, the D.C. Circuit said that this “Schumpeterian competition . . . proceeds sequentially over time rather than simultaneously across a market.” This precise understanding of dynamic competition informs the current policies of the Antitrust Division. Assistant Attorney General Delrahim reiterated the salience of this very passage from *Microsoft* in a speech delivered on December 7, 2018, in which he said

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34 *Id.* at 602.


36 See *Harold Demsetz, Why Regulate Utilities?*, 11 J.L. & Econ. 55, 57 & n.7 (1968); see also *Sidak & Teece*, *supra* note 33.


38 *Id.* at 49–50 (quoting Shelanski & Sidak, *supra* note 37, at 12).
that Schumpeter’s “insight was enshrined into antitrust law in the D.C. Circuit’s opinion in *United States v. Microsoft*. The court explained there that ‘Schumpeterian competition . . . proceeds sequentially over time rather than simultaneously across a market’ and that ‘[c]ompetition in [technologically dynamic] industries is “for the field” rather than “within the field.”’

However, the ALJ in the 1065 Investigation appeared to be unaware of this controlling law from the Supreme Court and the D.C. Circuit. Instead, he wrote that “[t]he Staff [from the ITC’s Office of Unfair Import Investigations] argues ‘it is a staple doctrine of economic theory that monopolies reduce innovation and result in higher prices,’” and that “the Staff offers ‘that the contradictory testimony by Qualcomm’s expert, Dr. Sidak, that monopolies can actually increase innovation, should not be considered credible.’” The ALJ found that “this conclusion . . . is such an accepted truism that it would not be error to take notice of the validity of this theory.”

**Conclusion**

The preferable answer to the question posed by the title of this memorandum is obvious, and it has clear implications for complex patent litigation. As the quality of administrative adjudication deteriorates at the ITC, patent holders engaged in global disputes over licensing or infringement can choose to litigate their multijurisdictional disputes before highly sophisticated tribunals in other countries. Compare, for example, the rigorous and detailed opinion delivered in April 2017 by Mr. Justice Colin Birss determining a global rate for fair, reasonable, and nondiscriminatory (FRAND) royalties for standard-essential patents (SEPs) in *Unwired Planet International Ltd v. Huawei Technologies Co.* His opinion (strictly on royalties and FRAND licensing, not also infringement) runs 166 single-spaced pages in its redacted and abbreviated form; it was unanimously affirmed by the Court of Appeal of England.

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40 337-TA-1065 Redacted Final Initial Determination, supra note 27, at 178 (quoting Staff’s Confidential Initial Post-Hearing Brief at 63).
41 *Id.* (quoting Staff’s Confidential Initial Post-Hearing Brief at 63).
42 *Id.* at 178 n.47.
43 [2017] EWHC (Pat) 2988 (Eng.). For analyses of various aspects of Mr. Justice Birss’ important opinion, see J. Gregory Sidak & Urška Petrovčič, *Will the CJEU’s Decision in MEO Change FRAND Disputes Globally?*, 3 CRITERION J. ON INNOVATION 301 (2018); J. Gregory Sidak, *Is a FRAND Royalty a Point or a Range?*, 2 CRITERION J. ON INNOVATION 401 (2017); J. Gregory Sidak, *Fair and Unfair Discrimination in Royalties for Standard-Essential Patents Encumbered by a FRAND or RAND Commitment*, 2 CRITERION J. ON INNOVATION 301 (2017).
and Wales in October 2018 with only limited modifications.\textsuperscript{44} Put alongside Mr. Justice Birss’ opinion, the ALJ’s redacted initial final determination and recommended determination in the 1065 Investigation reflects poorly on the competence and rigor of ITC adjudication. The ALJ’s findings in the 1065 Investigation are reminiscent of the independent agency that, in the words of Judge Robert Bork, had “done a remarkable job of rebutting the presumption of its own expertise.”\textsuperscript{45} By its own failure to ensure that its employees possess the requisite economic sophistication to discharge their statutory duties faithfully, a supposedly expert independent agency can destroy its own credibility. Given what the 1065 Investigation reveals about how far the ITC’s economic sophistication on monopoly and innovation lags behind that of the Antitrust Division, why would any patent holder having the choice litigate before the ITC rather than a court in London or Germany or China?

\textsuperscript{44} Unwired Planet Int’l Ltd v. Huawei Techs. Co. [2018] EWCA (Civ) 2344 (Eng.). For a thorough discussion, see J. Gregory Sidak, Why Unwired Planet Might Revolutionize the Resolution of FRAND Licensing Disputes, 3 Criterion J. on Innovation 601 (2018).

\textsuperscript{45} ALLTEL Corp. v. FCC, 838 F.2d 551, 562 (D.C. Cir. 1988) (Bork, J.).