# IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS EASTERN DIVISION

Moehrl et al. v. NAR et. al

Case No. 1:19-cv-01610

# **Expert Class Certification Report of**

**Dr. Nicholas Economides** 

February 23, 2022

[Corrected: March 8, 2022]

HIGHLY CONFIDENTIAL: SUBJECT TO PROTECTIVE ORDER

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#### I. Introduction

- 1. I am Nicholas Economides. I am Professor of Economics at the Stern School of Business of New York University, located at 44 West 4th Street, New York, NY 10012.
- 2. I received a B.Sc. in mathematical economics (first-class honors) from the London School of Economics in 1976, an M.A. in economics from the University of California at Berkeley in 1979, and a Ph.D. in economics from the University of California at Berkeley in 1981.
- 3. From 1981 to 1988, I was assistant and then associate professor of economics at Columbia University. From 1988 to 1990, I was associate professor of economics at Stanford University. I have taught at the Stern School of Business of New York University since 1990. During the academic year 1996–1997, in January 2001 to August 2001, and in January 2004 to August 2004, I was visiting professor at Stanford University. Between June 2007 and December 2007, from January 2011 to August 2011, from June 2012 to August 2014, and from January 2017 to August 2017 I was a visiting professor at the Haas School of Business at the University of California at Berkeley. In academic year 1997-1998 I was visiting scholar at the Federal Reserve Bank of New York.
- I specialize in industrial organization and antitrust. I have published more than 100 research papers in the areas of industrial organization, microeconomics, antitrust, network economics, finance, and telecommunications policy, and I have given numerous seminar presentations at academic and government institutions and conferences. I have published academic research articles in the Antitrust Bulletin, the Antitrust Law Journal, the American Economic Review, the International Economic Review, the International Journal of Industrial Organization, the Journal of Competition Law and Economics, the Journal of Economic Theory, the Journal of Industrial Economics, the Journal of Law and Economics, and the RAND Journal of Economics, among others. I am editor of the Journal of Economics and Management Strategy, a leading journal in Industrial Organization, the Journal of Competition Law and Economics, a leading journal on Antitrust, as well as other journals. Previously, I was editor of the International Journal of Industrial Organization, another leading journal in Industrial Organization, for seven years. I teach graduate (M.B.A. and Ph.D.) courses in antitrust, industrial organization, microeconomics, and network industries and platforms. A copy of my curriculum vitae is attached as Attachment A.

- 5. In the past, I have prepared reports and affidavits, submitted testimony, and been deposed. A list of cases over the past four years in which I provided trial or deposition testimony is in Attachment B.
- 6. I am being compensated at an hourly rate of \$950 and my compensation is not contingent on the outcome of this proceeding. My research into the matters discussed below continues, and I reserve the right to modify or supplement my opinion as additional information becomes available.

## A. Assignment and Summary of Conclusions

7. Plaintiffs allege that the National Association of Realtors ("NAR") and real estate brokers Realogy Holdings Corp., HomeServices of America Inc., BHH Affiliates, LLC, HSF Affiliates, LLC, the Long & Foster Companies, Inc., RE/MAX LLC, and Keller Williams Realty, Inc. (collectively, "Corporate Defendants") agreed, combined, and conspired to impose, implement and enforce anticompetitive restraints that have caused home sellers to pay inflated commissions on the sale of their homes, in violation of antitrust law. The damages class in the present action is defined as

"Home sellers who paid a commission between March 6, 2015 and December 31, 2020 to a brokerage affiliated with a Corporate Defendant in connection with the sale of residential real estate listed on a Covered MLS and located in the following jurisdiction(s): [see footnote<sup>2</sup>]. A "Covered MLS" includes any MLSs that were NAR-affiliated and whose listings were maintained as of June 30, 2021 by the Covered MLS. Excluded from the class are:

- Sales of residential real estate at a price below \$56,500.
- Sales of residential real estate sold at auction.

<sup>&</sup>lt;sup>1</sup> See Consolidated Amended Class Action Complaint, *Moehrl et al. v. The National Association of Realtors et al*, June 14, 2019.

<sup>&</sup>lt;sup>2</sup> Covered MLS: Bright MLS (Jurisdiction(s): Delaware, Maryland, District of Columbia, New Jersey, Pennsylvania, Virginia, West Virginia); Carolina/Canopy MLS (North Carolina, South Carolina); Triangle MLS (North Carolina); Stellar MLS (Florida); Miami MLS (Florida); Florida Gulf Coast (Florida); Metro MLS (Wisconsin); Yes MLS/MLS Now (Ohio, West Virginia); Columbus Realtors MLS (Ohio); Northstar MLS (Minnesota, Wisconsin); Wasatch Front/Utah Real Estate (Utah); REcolorado/Metrolist (Colorado); Pikes Peak MLS (Colorado); GLVAR MLS (Nevada); SABOR (Texas); ACTRIS/ABOR (Texas); HAR MLS (Texas); NTREIS (Texas); ARMLS (Arizona); Realcomp II (Michigan).

- Employees, officers, and directors of defendants, the presiding Judge in this case, and the Judge's staff."<sup>3</sup>
- 8. I have been asked to determine, taking the defendants' antitrust liability as given, whether common evidence can show that all or nearly all class members have been harmed by the challenged conduct, and whether damages to the members of the class in this case can be accurately estimated using common evidence and common methodology. To answer these questions, I have analyzed documents and data produced by the defendants and third parties, as well as deposition testimony, industry studies, economic literature, the findings of governmental investigations, and other publicly available information.
  - 9. My conclusions may be summarized as follows:
  - I first review the findings of Professor Elhauge, who in his report finds that the defendants used a system of mandatory blanket offers to maintain and extend an anticompetitive equilibrium in the market for MLS broker services. In the but-for world, blanket offers, steering, and hogging contracts would all be nonexistent or extremely rare, and buyer brokers would be used less frequently.
  - Because this challenged conduct was the extension of a previous anticompetitive equilibrium in the relevant geographic markets, I consider yardsticks based on comparable markets outside of the U.S. I identify these markets by looking for countries with similar levels of economic and institutional development, proxied by measures of GDP per capita and of corruption level. I also limit the set of markets to countries with populations above 10 million inhabitants, leaving seven countries (Australia, Belgium, Canada, Germany, the Netherlands, Sweden, and the United Kingdom).
  - I examine these seven countries' real estate brokerage services markets in detail to determine whether they: (a) were free from the challenged conduct

Residential real estate that will sell at auction.

<sup>&</sup>lt;sup>3</sup> Plaintiffs have also sought certification of an injunctive relief class, which I understand is defined as follows: "Current and future owners of residential real estate that will be listed on a Covered MLS and located in the following jurisdictions: Covered MLS: Bright MLS (Jurisdiction(s): Delaware, Maryland, District of Columbia, New Jersey, Pennsylvania, Virginia, West Virginia); Carolina/Canopy MLS (North Carolina, South Carolina); Triangle MLS (North Carolina); Stellar MLS (Florida); Miami MLS (Florida); Florida Gulf Coast (Florida); Metro MLS (Wisconsin); Yes MLS/MLS Now (Ohio, West Virginia); Columbus Realtors MLS (Ohio); Northstar MLS (Minnesota, Wisconsin); Wasatch Front/Utah Real Estate (Utah); REcolorado/Metrolist (Colorado); Pikes Peak MLS (Colorado); GLVAR MLS (Nevada); SABOR (Texas); ACTRIS/ABOR (Texas); HAR MLS (Texas); NTREIS (Texas); ARMLS (Arizona); Realcomp II (Michigan). Excluded from the class are: Residential real estate that will sell for a price below \$56,500.

Residential real estate that will sell for a price below to

Employees, officers, and directors of defendants, the presiding Judge in this case, and the Judge's staff.

or similar conduct; (b) were free from government regulation partially obviating buyer brokers; and (c) were similar to the relevant markets, in that they did not feature buyers paying seller brokers. I find that three of the countries are appropriate comparison markets to the relevant markets (Australia, the Netherlands, and the United Kingdom).

- Consistent with economic logic and the other evidence in this case, I find that in the three comparison markets buyers were less likely to use buyer brokers (5%-20% in comparison markets vs. 87% in the U.S), buyers paid buyer brokers themselves, buyers paid less for buyer broker services (typically 1%-2% in comparison markets vs. 2%-3% in the U.S.), and that sellers paid the same or less for seller broker services (typically 1%-3% in comparison markets vs. 2%-3% in the U.S.).
- Using evidence from the yardstick markets above, I examine whether class members were better off in the but-for world than in the actual world, that is, whether they were harmed by the conduct. In Case 1, where all buyers are equally likely to use buyer agents, I estimate that 99.5%-99.9% of all class members were harmed by the challenged conduct, and that individually each class member was more likely than not to be harmed. In Case 2, where buyers vary in their use of buyer brokers depending on home prices and on the tightness of the local property market, I again estimate that 99.4%-99.9% of all class members were harmed by the challenged conduct. I also model variation in buyer agent usage among class members based on the selling price of their homes and on the tightness of the markets in which they sell their homes, and show that after accounting for the variation, only a de minimis number of class members are not likely to be harmed. Those class members can be identified using the model, and I show that all of them paid lower commissions than the but-for commission rate used for damages (1.55%), meaning that they are already excluded from collecting any damages.
- For damages purposes, I create a yardstick estimate of the rate paid to buyer brokers in the but-for world, based on the rates paid to buyer brokers in each of the comparison markets (Australia, the Netherlands, and the United Kingdom). For each country, I evaluate the available evidence, both transactional and documentary, to find a best estimate of the average rates paid to buyer brokers. I then construct a single yardstick estimate by averaging the best estimate for each country, equal to 1.55% of the purchase price.
- I make several conservative assumptions in my damages calculation. Despite the fact that buyers pay their own brokers in the comparison countries, under certain circumstances, a buyer might have asked a seller to pay the buyer broker commission negotiated in advance by the buyer in exchange for a higher offer price for the home. I thus calculate damages conservatively

- assuming the seller would pay the buyer broker in each class transaction. I also calculate damages as if each transaction were one of those involving a buyer broker. This is an extremely conservative assumption given that in the comparator markets, only 5%-20% of transactions involve buyer brokers.
- Using this yardstick estimate, I calculate total damages for the class and damages for individual named plaintiffs' transactions. Total damages in this case are equal to the total commissions paid in the actual world on all class transactions with commission rates above 1.55%, minus the total but-for commissions, calculated as the total selling price times the yardstick commission rate of 1.55%. Transaction-level damages (on transactions with commission rates above 1.55%) are calculated similarly. My estimate of total damages for the class is \$13.7 billion.

# II. THE CHARACTERISTICS OF THE RELEVANT MARKET IN THE BUT-FOR WORLD ARE COMMON TO THE CLASS

10. In this section, I discuss the findings of Professor Elhauge, who has analyzed the relevant market, the history of the defendants' conduct, and the anticompetitive effects of that conduct. He finds that the defendants used a system of mandatory blanket offers to maintain and extend an anticompetitive equilibrium in the market for MLS broker services. The blanket offers replaced a pre-existing subagency system, and forced sellers to commit to pay buyer brokers, which along with hiding offers from buyers, in turn incentivized steering by buyer brokers. The blanket offers and steering in turn facilitated "hogging" seller broker contracts in which the seller did not benefit from lower buyer broker costs, eliminating buyers' incentive to negotiate or forgo buyer brokers. In the but-for world, blanket offers, steering, and hogging contracts would all be nonexistent or extremely rare, and buyer brokers would be used less frequently.

#### A. The Relevant Market

11. I understand that Prof. Elhauge has opined that the relevant product market in this case is the "market for MLS broker services", and that the relevant geographic markets are the territories covered by each Covered MLS.<sup>4</sup>

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<sup>&</sup>lt;sup>4</sup> See Expert Class Certification Report of Professor Einer Elhauge, 2/23/22, (hereinafter "Elhauge Report") at Section II.B and II.C.

# B. NAR's System of Mandatory Blanket Offers Through MLSs Maintained and Extended an Anticompetitive Equilibrium

- 12. Professor Elhauge has analyzed the defendants' conduct and determined that the defendants' system of mandatory blanket offers through MLSs maintained and extended an anticompetitive equilibrium.<sup>5</sup> I summarize some of his findings and conclusions in this section.
- 13. Before 1993, the NAR-affiliated Multiple Listing Services ("MLSs," platforms owned or operated by local associations of Realtors facilitating the offer of cooperative compensation and the listing and searching of properties for sale) maintained a subagency system. In this system, listing brokers were responsible for listing properties and representing the seller. Sub-agents were brokers or representatives of brokers who liaised with buyers and showed properties. Offers of compensation were made through the MLSs from the listing brokers to these subagents who agreed, in exchange for this compensation, to work on behalf of the seller and the listing broker. Truly independent buyer brokers were not guaranteed compensation through the MLSs. By 1992 or so, the subagency system faced significant legal and other challenges, because the sub-agents' fiduciary responsibilities to the seller and the listing broker conflicted with the appearance, to the buyer, that the sub-agent was acting in the buyer's interest.8
- 14. In response to these concerns, the industry implemented several rules through the MLSs that had the effect of maintaining and extending an anticompetitive equilibrium in which sellers had to pay for buyer broker<sup>9</sup> services (indirectly through their listing brokers), and where buyers had no practical and effective way of negotiating buyer broker fees nor any incentive to do so.<sup>10</sup> These rules, among other things, forced sellers (through their listing brokers) to make blanket unilateral offers of compensation to buyer brokers in specific amounts or percentages, hid the offers from buyers, allowed buyer brokers to search and filter

<sup>&</sup>lt;sup>5</sup> See Elhauge Report at Section V.A.

<sup>&</sup>lt;sup>6</sup> See Elhauge Report at Section I.B.

<sup>&</sup>lt;sup>7</sup> Id.

<sup>&</sup>lt;sup>8</sup> Id.

<sup>&</sup>lt;sup>9</sup> Prof. Elhauge, in his report, uses "buyer-broker" generically to refer to all cooperating brokers working with buyers, including buyer brokers, transaction brokers, and subagents. Hereinafter, I follow this convention. As Prof. Elhauge notes, during the last decade subagency has been practically nonexistent, and transaction brokers are present largely only in Florida, where they receive identical offers of cooperative compensation to buyer brokers for nearly all MLS listings. See Elhauge Report at Section I.C.

<sup>&</sup>lt;sup>10</sup> See Elhauge Report at Section V.A.

properties by offered buyer broker commission, and prevented or discouraged buyer brokers from negotiating compensation down from the blanket offer.<sup>11</sup>

- Professor Elhauge has found that this blanket offer system had the following anticompetitive effects. First, it incentivized steering by buyer brokers. 12 The blanket offer requirement, together with the limits on negotiation, forced sellers to commit to pay buyer broker commissions and, before a home offer was made, specify the amount. Buyer brokers were then able to evaluate the payments on offer to them and steer their buyer clients away from properties offering lower buyer broker compensation (in conflict with their fiduciary duty to their buyer clients). Moreover, restrictions on revealing the buyer broker compensation offer to the buyer clients prevented buyers from knowing whether they were being steered. And rules allowing buyer brokers to view and sort listings by the offered buyer broker commission further facilitated buyer broker steering activities. Second, the system of blanket offers with impediments to negotiation removed the incentives for and ability of market participants to lower buyer broker fees. 13 Buyer brokers had no incentive to compete on price, because they were not paid by the party retaining them, the buyer. Sellers had an incentive to offer a high buyer-broker commission to avoid buyer agents steering buyers away from their properties toward properties offering a higher buyer-broker commission. Sellers also had very little incentive to avoid "hogging" contracts (in which the seller broker captures the buyer broker commission in the absence of any or a different buyer broker) because the vast majority of buyers used buyer brokers.<sup>14</sup>
- 16. These anticompetitive effects were mutually reinforcing.<sup>15</sup> The existence of steering disincentivized sellers from lowering or eliminating blanket offers, and from avoiding hogging-type contracts. The existence of blanket offers and hogging-type contracts disincentivized buyers from paying their own buyer agents or from choosing not to use buyer agents, thus facilitating steering.

## C. But for the Challenged Conduct, a Very Different Equilibrium Would Have Existed in the Real Estate Service Markets

<sup>&</sup>lt;sup>11</sup> See Elhauge Report at Section IV.

<sup>&</sup>lt;sup>12</sup> See Elhauge Report at Section V.B.

<sup>&</sup>lt;sup>13</sup> See Elhauge Report at Section V.B.

<sup>&</sup>lt;sup>14</sup> See Elhauge Report at Section V.C.

<sup>&</sup>lt;sup>15</sup> See Elhauge Report at ¶216.

But for the challenged conduct, the MLSs: (i) would not have imposed rules forcing sellers to make blanket offers of compensation to buyer brokers; (ii) would not have implemented blanket offers of compensation to buyer brokers in their platform; (iii) would not have prohibited the display of blanket offers to buyers, thus making it clear from the beginning what the broker's potential conflict of interest would be; and (iv) public presentation of any offers to buyer brokers would have made clear that buyer brokers were not providing services for free. As a result, well before the start of the Class Period, the Covered MLS markets would have ended up in a different equilibrium than the current one. At that (competitive) equilibrium: (1) blanket offers would have been nonexistent or extremely rare and, if made, would likely be public; (2) steering would have been nonexistent or extremely rare; (3) many fewer buyers would use buyer brokers and those that did would typically negotiate fees with brokers at the time of retention; and (4) seller broker fees would be negotiated separately from buyer broker fees and "hogging" would be nonexistent or extremely rare. 16 These competitive market characteristics would reinforce each other and thereby maintain the competitive but-for world equilibrium.

# 1. Blanket Offers to Buyer Brokers Would Have Been Nonexistent or Extremely Rare and Would Have Been Public If They Were Made

18. In the actual world equilibrium, sellers made blanket offers both because they were required by NAR and the MLSs and because, once the equilibrium was in place, buyer brokers would have steered buyers away from their properties if they tried to reduce their blanket offers.<sup>17</sup> These blanket offers of cooperative compensation for MLS listings were typically not made public to potential buyers because NAR and the MLSs had rules restricting their disclosure.<sup>18</sup> In the but-for world equilibrium, sellers (through their listing brokers) would not have been compelled to make blanket offers, both because NAR and the MLSs would not have required them and because steering by buyer brokers would have been nonexistent or extremely rare.<sup>19</sup>

<sup>&</sup>lt;sup>16</sup> "Hogging" is the practice in which a seller broker keeps the total commission, including the portion that was earmarked for the buyer broker, if the buyer is not represented by a separate broker.

<sup>&</sup>lt;sup>17</sup> See Elhauge Report at Section V.A.

<sup>&</sup>lt;sup>18</sup> See Elhauge Report at Section IV.

<sup>&</sup>lt;sup>19</sup> See Elhauge Report at ¶183 ("Given these conflicts of interest, and the lack of a mechanism to make such binding offers in the MLS framework, such offers of compensation to buyer-brokers would not have become prevalent absent the challenged rules and thus the current anticompetitive equilibrium would not have come into existence."); and ¶197 ("In a but-for world without the challenged restraints, there would be no unilateral blanket offers of compensation to buyer-brokers and thus buyer-brokers would have no incentive to steer in this way.").

# 2. In the But For World, Steering Would Have Been Nonexistent or Extremely Rare

19. In the actual-world equilibrium, steering was feasible for buyer agents both because buyer broker commissions were not visible to buyers, and because the vast majority of sellers made blanket offers of uniformly high buyer broker commissions, making it easier to steer buyers away from the few sellers offering lower commissions.<sup>20</sup> In the but-for world equilibrium, because blanket offers would have been nonexistent or extremely rare (and if any did exist they would have been public), steering would also have been nonexistent or extremely rare, because a lack of blanket offers would have removed the incentive to steer.<sup>21</sup>

# 3. In the But For World, Buyer Brokers Would Have Competed With Each Other on Price, and Fewer Buyers Would Have Used Buyer Brokers

20. In the actual-world equilibrium, buyer brokers had no incentive to compete with each other on price, because prices were set by sellers' blanket offers of high buyer broker commissions. Likewise, buyers had no incentive to consider the price of buyer brokers or the value they obtained from the buyer broker services, because they paid the same for the property regardless of what their buyer broker earned.<sup>22</sup> In contrast, in the but-for world equilibrium, in the absence of blanket offers of buyer broker commission from sellers and seller brokers, buyers would have been responsible for paying their own brokers.<sup>23</sup> As a result, buyer brokers would have had a strong incentive to compete on price to obtain buyers' business.<sup>24</sup> Buyers would have needed to consider what the broker's services were worth to them, and many of them would have chosen not to engage buyer brokers.<sup>25</sup>

<sup>&</sup>lt;sup>20</sup> See Elhauge Report at ¶195 ("Together, the NAR rules both made it easier for agents working with buyers to steer buyers and made it more difficult for buyers to detect that steering, thus both exacerbating and facilitating steering incentives.").

<sup>&</sup>lt;sup>21</sup> See Elhauge Report at ¶197 ("In a but-for world without the challenged restraints, there would be no unilateral blanket offers of compensation to buyer-brokers and thus buyer-brokers would have no incentive to steer in this way.")

<sup>&</sup>lt;sup>22</sup> See Elhauge Report at ¶214 ("The NAR restraints requiring seller-brokers to make blanket fixed offers to pay for buyer-broker commissions externalizes the cost of buyer-broker services onto the seller and thus reduces the incentive of buyers to either forego or limit their use of buyer-broker services or to negotiate for a lower price for them.).

<sup>&</sup>lt;sup>23</sup> In some cases, the seller might have been the one nominally paying the buyer broker, for financing purposes. But all market participants would have understood that, whether buyers or sellers were nominally making the payment to the buyer broker, the offer would be evaluated by the seller based on the total net amount going to the seller.

<sup>&</sup>lt;sup>24</sup> See Elhauge Report at ¶215 ("Without the challenged restraints, those buyers who chose to use buyer-brokers would have incentives to try to negotiate to have their buyer-brokers take a lower commission because the buyer would be paying the commission either directly or through the home purchase financing.").

<sup>&</sup>lt;sup>25</sup> See Elhauge Report at ¶219 ("Absent these restraints on free market competition, many buyers would forgo using a buyer-broker entirely, limit the amount of buyer-broker services they sought, or would retain a different broker

# 4. In the But For World, Seller Broker Fees Would Have Been Separately Negotiated from Buyer Broker Fees, and Hogging Would Have Been Nonexistent or Extremely Rare

In the actual-world equilibrium, seller brokers offered contracts 21. featuring hogging, which is the term for a seller broker keeping the total commission including the portion designated for the buyer broker in the absence of a separate buyer broker. This was possible because almost all buyers used brokers, and thus for most transactions hogging did not occur. Thus, a seller did not have a strong incentive to reject the contract with hogging, because it was not likely to affect the commission paid by the seller, and likewise seller brokers had little incentive to compete by offering listing agreements without hogging terms.<sup>26</sup> However, the presence of hogging in seller broker contracts removes any incentive for the buyer to forgo the use of a buyer broker, or to negotiate a lower rate with the buyer broker. This is because when sellers have contracts with hogging, they do not obtain any financial benefit from accepting an offer from a buyer with no buyer broker.<sup>27</sup> In contrast, in the absence of hogging, they would benefit by the amount of the avoided buyer broker commission, and thus would prefer to accept offers from buyers without buyer brokers, all else equal. In the but-for world equilibrium, sellers normally would not have paid the buyer broker as the result of a blanket offer, <sup>28</sup> and the listing agreement would have provided for a commission only for their own (seller) broker.<sup>29</sup>

offering better terms, and the credible threat of doing so would reduce the commission rates demanded by buyers-brokers for those buyers who still chose to retain one.").

<sup>&</sup>lt;sup>26</sup> See Elhauge Report at ¶210, ("Given these realities, and the fact that 87-88% of U.S. homebuyers utilize a buyer-broker, offering, seeking, or negotiating a listing agreement in which the total commission paid by the seller would be reduced to the extent that the buyer-broker commission actually paid was reduced below the required blanket offer would likely be wasted effort.").

<sup>&</sup>lt;sup>27</sup> See Elhauge Report at ¶207 ("Accordingly, in the current equilibrium created by the challenged restraints, even if a buyer went without a buyer-broker or the parties were somehow able to overcome the rules' restraints on negotiating a reduced buyer-broker commission, the economic benefit would typically simply go to the seller-broker and would not result in any reduced commission to the seller, unless the listing agreement between the seller and seller-broker was itself renegotiated.").

<sup>&</sup>lt;sup>28</sup> Sellers would only pay buyer brokers in the event that they were asked to by buyers who had some interest in including the fee in the sale price, and they would only agree to this after weighing the net amount they received from the buyer against other offers from different buyers for the property, some of which would likely not ask the seller to pay a buyer agent.

<sup>&</sup>lt;sup>29</sup> See Elhauge Report at ¶212 ("If, as is expected in the but-for world, sellers would rarely offer to pay buyer-broker commissions and buyers would rarely retain buyer-brokers, then the typical commissions that sellers agreed to pay their seller-brokers would be lower and entirely for the seller-broker.").

# III. FOREIGN MARKETS SERVING AS YARDSTICKS FOR MARKET OUTCOMES IN THE BUT-FOR WORLD ARE COMMON TO THE CLASS

Because the challenged conduct or conduct similar to the challenged conduct in this case has been in place for a very long time in the relevant markets, benchmarks based on market outcomes in the relevant markets prior to the implementation of the challenged conduct are not appropriate estimates of market outcomes in the but-for world. Instead, I consider yardsticks based on comparable markets outside of the U.S. I identify these markets by first looking for countries with similar levels of economic and institutional development, proxied by measures of GDP per capita and of corruption level. I also limit the set of markets to countries with populations above 10 million inhabitants. I then examine the resulting set of markets in detail to determine whether they: (a) were free from the challenged conduct or similar conduct; (b) were free from government regulation partially obviating buyer brokers; and (c) were similar to the relevant markets, in that they did not feature buyers paying seller brokers. I start with seven countries that are comparable in economic and institutional development (Australia, Belgium, Canada, Germany, the Netherlands, Sweden, and the United Kingdom), and find that of those, three countries are appropriate comparison markets to the relevant markets (Australia, the Netherlands, and the United Kingdom).

After identifying these comparison markets, I describe relevant features of their real estate brokerage industries and contrast them with the U.S. under the influence of the challenged conduct. Consistent with economic logic and the other evidence in this case, I find that in the comparison markets buyers were less likely to use buyer brokers, buyers paid buyer brokers themselves, buyers paid less for buyer broker services, and sellers paid the same or less for seller broker services.

# A. Identifying Countries with Similar Economic and Institutional Development to the U.S.

23. Real estate transactions take place in the context of: (a) buyers' and sellers' willingness to pay, and (b) the risk and difficulty of transacting. Therefore, I consider only yardstick markets similar to the U.S. in their level of per capita income and prevalence of corruption. Between 2016 and 2020, the U.S. had an average per-capita income of \$58,995 (in constant 2015 U.S. dollars) and an average

score of 71.2 on Transparency International's Corruption Perceptions Index (CPI).<sup>30</sup> As potential yardstick markets, I consider the countries within 30% of those U.S. mean values (within the range of \$41,297 and \$76,694, and the range of 49.8 and 92.6, respectively). I further limit the set of countries to countries with a population of at least 10 million people.<sup>31</sup> Using countries of 10 million or greater population ensures that the real estate brokerage industries in those countries encompass multiple large metropolitan areas and a mix of residential properties of different types and in different density settings, as we see in the U.S. This yields a set of 7 countries: Australia, Belgium, Canada, Germany, the Netherlands, Sweden, and the United Kingdom.

- 24. This set of countries is robust to the choice of cutoffs. For example, increasing the percentage threshold by one tenth to 33% of the U.S. value would not change the set of countries, and decreasing it by one tenth to 27% would only eliminate Germany and Belgium (which, as I discuss below, have certain confounding characteristics making them poor comparators).<sup>32</sup> If I instead used a cutoff equal to one standard deviation of the population of GDP and CPI values, there would be no change in my set of countries.<sup>33</sup> If I were to increase the population threshold by one tenth to 11 million, it would only eliminate Sweden (which, as I discuss below, has certain confounding characteristics making it a poor comparator).<sup>34</sup> If I were to decrease the population threshold by one tenth to 9 million, there would be no change in my set of countries.<sup>35</sup>
- 25. This set of countries is also consistent with similar comparison analyses performed by the Defendants. My set of countries is identified using per capita GDP, Transparency International's CPI index, and population,

  36 My set of 7 countries

contains 5 of the 6 countries identified by NAR and its employed consultants as

(https://data.worldbank.org/indicator/NY.GDP.PCAP.KD?end=2020&most\_recent\_value\_desc=true&start=2016); corruption figures are from Transparency International

(https://images.transparencycdn.org/images/CPI FULL DATA 2021-01-27-162209.zip).

<sup>&</sup>lt;sup>30</sup> GDP figures are from the World Bank

<sup>&</sup>lt;sup>31</sup> For consistency with GDP and corruption figures, I use the average population over the years 2016-2020. Population figures are from the World Bank (https://data.worldbank.org/indicator/SP.POP.TOTL).

<sup>&</sup>lt;sup>32</sup> See backup in file "MOE040 Yardstick Selection Output.txt".

<sup>&</sup>lt;sup>33</sup> See backup in file "MOE040 Yardstick Selection Output.txt".

<sup>&</sup>lt;sup>34</sup> See backup in file "MOE040 Yardstick Selection Output.txt".

<sup>&</sup>lt;sup>35</sup> See backup in file "MOE040\_Yardstick\_Selection\_Output.txt".

<sup>&</sup>lt;sup>36</sup> See Realogy-Sitzer-00901366 ( ) at 00901387-00901388.

comparables in the "D.A.N.G.E.R. Report" (Singapore being the exception, which I exclude because of its population of 5.6 million inhabitants).<sup>37</sup>

# B. Eliminating Countries with Confounding Characteristics

26. Although certain foreign countries may be similar to the U.S. in broad economic and institutional terms, their real estate industries may have featured certain institutional characteristics that make them poor comparators for the relevant markets in the but-for world. In particular, I identify three disqualifying characteristics that are particularly likely to make market outcomes different than they would be in the relevant markets in the but-for world, namely (1) the presence of conduct functionally similar to the challenged conduct; (2) the presence of government regulation partially obviating buyer brokers and (3) the presence of real estate industry structures where the buyer pays a substantial part of the seller broker's commission (the reverse of the prevailing pattern in the U.S.).<sup>38</sup>

## 1. Presence of Conduct Functionally Similar to the Challenged Conduct

- 27. The objective of investigating non-U.S. real estate markets is to find yardstick markets in which the challenged conduct did not take place. If similar rules were in place in foreign markets, those markets would not be economically valid yardstick markets. My research indicates that Canada is one such country.
- 28. <u>Canada</u>. The Canadian real estate brokerage services market appears to have had close analogues to the challenged conduct in this case. The Canadian Real Estate Association ("CREA") was similarly dominant and maintains a similar MLS system to NAR in the U.S. CREA had as members "approximately 90 per cent of licensed real estate brokers in Canada." CREA controlled MLS-related trademarks, licensed them to local member real estate boards, and imposed a number of exclusionary restrictions on their use. The resulting MLS system was "the only comprehensive listing of homes for sale in Canada" and "brokers and agents cannot

<sup>&</sup>lt;sup>37</sup> See NARSITZER0000315626 ("The D.A.N.G.E.R. Report") at p. 22.

<sup>&</sup>lt;sup>38</sup> Note that in this and the following sections, I use the terms "buyer broker" and "seller broker" generically to refer to providers of real estate services to buyers and sellers of property respectively, although the terms actually used to describe such providers may vary across countries (e.g., "estate agent" in the UK, "makelaar" in the Netherlands).

<sup>&</sup>lt;sup>39</sup> Notice of Application, *Commissioner of Competition v. The Canadian Real Estate Association*, 2010 Comp. Trib. 2, February 8, 2010, at p. 3.

<sup>&</sup>lt;sup>40</sup> *Id*. At 1.

<sup>&</sup>lt;sup>41</sup> *Id*.

compete effectively in the market without access to the MLS® system."<sup>42</sup> The CREA required blanket offers of compensation to buyer brokers as a condition for listing properties on an MLS in Canada. This requirement was promulgated in the CREA's "Realtor Code"<sup>43</sup> and into various Canadian MLS and local association rules.<sup>44</sup> Therefore, given that the Canadian real estate brokerage services market appears to have had conduct very similar to the challenged conduct in this case, it cannot serve as a reliable comparison market.

### 2. Presence of Government Regulation Partially Obviating Buyer Brokers

- 29. Some foreign markets had government regulation of participants in the real-estate market that substantially affected the role of a buyer broker or the demand for buyer brokers. In particular, some countries mandated responsibilities for other participants in the real estate market that in turn affected the demand for buyer brokers. Because the but-for world in the U.S. would not have included changes to government regulation of the responsibilities of brokers or other participants in the real-estate market, and because such regulation might have resulted in a different level of demand and therefore a commission level different from that occurring in the but-for world, foreign markets featuring such regulation are not economically valid yardstick markets. My research indicates that Belgium and Sweden featured such regulation and are therefore excluded as potential yardsticks.
- 30. <u>Belgium</u>. In Belgium, a notary is a "public official empowered by the state to act as a professional legal advisor in all matters relating to real estate transactions." There, a substantial part of the responsibilities a buyer broker would fulfill in the U.S. is or can be fulfilled by notaries instead, such as advising on the

<sup>&</sup>lt;sup>42</sup> Competition Bureau Canada, "Submission to FTC and DOJ: Residential Real Estate Brokerage," July 30, 2018, available at https://www.competitionbureau.gc.ca/eic/site/cb-bc nsf/eng/04382.html.

<sup>&</sup>lt;sup>43</sup> "A listing on MLS® must involve agency and an offer of compensation to the selling office." CREA, "The REALTOR® Code" ("A listing on MLS® must involve agency and an offer of compensation to the selling office.") at p. 23, available at https://www.crea.ca/wp-content/uploads/2016/03/The-REALTOR-Code.pdf.

<sup>&</sup>lt;sup>44</sup> See, e.g., Chilliwack & District Real Estate Board et al, "Rules of Cooperation" ("Compensation: The listing Member agrees to pay to the cooperating Member compensation for the cooperative selling of the property. An offer of compensation of zero is not acceptable."), available at https://static.chimeroi.com/am/Rules-of-Cooperation-January-2019.pdf; and ORTIS Board of Directors, "Regional MLS® Rules" ("AND WHEREAS the Association has determined that Members submitting Listings to the MLS® System must offer co-operation, including an offer of compensation, to other Members whether acting as a Buyer's Representative, or otherwise."), available at https://kwar.ca/docs/RegionalMLSRules\_annotated.pdf.

<sup>&</sup>lt;sup>45</sup> https://www.brusselstimes.com/belgium/170724/the-notarys-role-when-buying-property-in-belgium/. Also see https://www.notaris.be/other-languages/english/what-is-a-civil-law-notary.

preparation of purchase offers.<sup>46</sup> Further, notaries' fees were fixed by law, so they cannot serve as an alternative yardstick for buyer broker fees.<sup>47</sup>

28. <u>Sweden</u>. In Sweden, government regulation gave seller brokers a fiduciary responsibility toward buyers in all areas except price.<sup>48</sup> As a result, the demand for buyer brokers was substantially lower than it would have been in an unregulated market, and buyer brokers were rarely used.<sup>49</sup>

# 3. Real Estate Industry Differences (Buyers Pay Seller Brokers)

31. For commissions in foreign countries to serve as a yardstick for but-for-world commissions, they must have been established in a market that functioned in a way consistent with the but-for world. In certain foreign real-estate markets, buyers paid some or all of seller-broker commissions. When buyers pay some or all of the seller broker's commission, it distorts the incentives of the seller when choosing and negotiating with a seller broker, much like the incentives of the buyer are distorted when the seller pays the buyer broker. Since in the but-for world we would not expect buyers to have paid seller-broker commissions, these markets are not economically valid yardstick markets. My research indicates that in Germany, buyers have typically paid half or all of the seller broker commission and therefore Germany is excluded as a potential yardstick.

<sup>&</sup>lt;sup>46</sup> See, e.g., <a href="https://www.nytimes.com/2021/06/02/realestate/house-hunting-in-belgium-a-beaux-arts-mansion-for-under-2-million.html">https://www.nytimes.com/2021/06/02/realestate/house-hunting-in-belgium-a-beaux-arts-mansion-for-under-2-million.html</a> ("Notaries, who are government-appointed and work at fixed rates averaging around 1 percent of the total purchase price, play a key role in property sales, said Bart van Opstal, spokesman for notaris.be, the official site of Belgian notaries. "The notary checks more than 100 controls to make sure the transaction is secure, including debts on the property, rights of first refusal on the sale, even whether the electricity is OK," said Mr. van Opstal, who is a notary with Vander Heyde, van Opstal, & van Tieghem in Oostende.");

https://www.brusselstimes.com/belgium/170724/the-notarys-role-when-buying-property-in-belgium/. 
<sup>47</sup> See Notaris.be (<a href="https://www.notaris.be/other-languages/english/characteristics-of-the-notarial-profession">https://www.notaris.be/other-languages/english/characteristics-of-the-notarial-profession</a>) ("The civil law notary is independent; with regard to his or her clients, but also in relation to public administrations. To safeguard that independence, the civil law notary is subject to a fixed scale of fees, determined by law, from which the notary may not depart.").

<sup>&</sup>lt;sup>48</sup> Association of Swedish Real Estate Agents (<a href="https://www.maklarsamfundet.se/english/swedish-housing-market-and-real-estate-agents">https://www.maklarsamfundet.se/english/swedish-housing-market-and-real-estate-agents</a>) ("The Swedish estate agent is intended to be an impartial counsellor, both to the seller and the buyer, except in regard to the price issue where the estate agent has a special obligation to their (his, her or their) employer. If employed by the seller, the estate agent's primary obligation is consequently to try to get the best price for their employer, but still carries, concerning information about the property, a damages-sanctioned responsibility towards the buyer. In drawing up transfer agreements, the estate agent shall equally observe the interests of both buyer and seller, and with this in mind formulate the agreement in a way that enables both parties to understand its meaning.")

<sup>&</sup>lt;sup>49</sup> See https://www.fastighetsbyran.com/sv/sverige/artiklar/engelska-sprakstod/ ("By law, the estate agent is obliged to safeguard the interests of both parties, so there is therefore no need for a buyer's estate agent in Sweden."); Björn Berggren, Rickard Engström, Dr Fredrik Kopsch, Hans Lind, "The Evolution of the Real Estate Brokerage Market: The Case of Sweden." International Journal of Engineering Technology and Scientific Innovation, Vol. 04, Issue 01, Jan.-Feb. 2019, 16-32, at 17 (in Sweden, "only the seller contracts a real estate broker, who in turn has an obligation, by law, to be impartial toward both the seller and the buyer," citing Jingryd, 2008 and Schick, 2012).

32. <u>Germany</u>. Prior to 2020, buyers often paid seller broker commissions, even when the seller broker was acting as a sole agent for the seller.<sup>50</sup> In December 2020, a new law came into effect that prohibited sellers from asking buyers to pay more than 50% of the seller broker's fee (sellers do have the option to pay the entire fee themselves).<sup>51</sup> The law also prohibits brokers who act as dual agents from charging different fees to the two sides.<sup>52</sup>

## C. Features of Remaining Markets: Australia, Netherlands, UK

33. The remaining three comparison markets are Australia, the Netherlands, and the United Kingdom. I find that their real estate brokerage markets are good yardsticks for how brokers would be retained and paid in the but-for world in this case. In this section, I describe various relevant features of the real estate brokerage industry in these countries. I find that overall, in each of these countries, (a) buyer brokers were relatively rare; (b) buyer brokers were typically paid by buyers; (c) buyer broker fees were typically lower than in the U.S.; and (d) seller broker fees were typically the same or lower than in the U.S.

#### 1. Australia

34. Buyer brokers were relatively rare in Australia. One consumer advocate estimated as of 2017 that "only about 2.5 per cent of property sales in Australia involve a buyer's agent."<sup>53</sup> Another industry analyst reported an estimate as of 2019 that "buyers agents represent just 5% of transactions in Australia."<sup>54</sup> Interviews of Australian real estate brokers indicate that buyer brokers were used in 1%-5% of transactions. Based on this evidence, with estimates ranging from 1% to 5%, I will use the conservative end of the range, 5%, for subsequent analyses.

<sup>&</sup>lt;sup>50</sup> See, e.g., <u>www.simplegermany.com/buying-a-house-in-germany</u> ("In the past, buyers often paid 100% of the fee") and McMackler, "Distribution of brokerage costs when selling real estate," (https://www.mcmakler.de/verkaufen/verteilung-maklerkosten).

<sup>&</sup>lt;sup>51</sup> See McMackler, "Distribution of brokerage costs when selling real estate,"(https://www.mcmakler.de/verkaufen/verteilung-maklerkosten).

<sup>&</sup>lt;sup>52</sup> See McMackler, "Distribution of brokerage costs when selling real estate," (https://www.mcmakler.de/verkaufen/verteilung-maklerkosten).

<sup>53</sup> Schlesinger, Larry, "Buyer's agents: are they worth the money?" Financial Review, Feb 10, 2017 (https://www.afr.com/property/residential/buyers-agents-are-they-worth-the-money-20161223-gth5mn).

<sup>&</sup>lt;sup>54</sup> Davis, Kylie, "The similarities – and differences – between the Australian and US property markets," realestatethink.com.au, May 18, 2019 (https://www.realestatethink.com.au/the-australian-and-us-property-markets/).

<sup>&</sup>lt;sup>55</sup> See Interview with John Pye, 1-27-22 ("Buyers agents are involved in only approximately 5 percent of real estate transactions in the Sydney market."); Interview with Kim Ball, 1-27-22 ("the vast majority of people don't use a

- 35. When buyer brokers were used, buyers paid their own brokers.<sup>56</sup>
- 36. Buyer brokers' fees in Australia depended on the level of service desired by the buyer. Buyers paid higher rates for "full search" services similar to those typically offered by buyer brokers in the U.S., and lower rates for a la carte services such as help with appraisal and negotiations or auctions.<sup>57</sup> Propertybuyer, a buyer agency serving Sydney, Melbourne, and Brisbane (the largest three metropolitan areas in Australia, comprising half of Australia's population) with over 3000 transactions represented, charged 1.5 to 2.0% of the purchase price for full search, plus goods and services tax ("GST", equal to 10% in Australia).<sup>58</sup> The fees of Elite Buyer Agents, a Melbourne buyer agency with "thousands of property purchases,"<sup>59</sup> depended on the services required, but "typically vary from 1% to 2%."<sup>60</sup> National Property Buyers, a buyer agency operating in Melbourne, Brisbane, and Adelaide (the capital of South Australia), also charged fees depending on service, "anywhere between 1% and 2%."<sup>61</sup> A variety of other agencies, serving Brisbane/Gold Coast, Sydney, and Adelaide, also charge between 1.3% and 2%.<sup>62</sup>

buyer agent"); Interview with Peter Gill, 1-25-22, ("Buyers' agents are 'not very popular' in Australia generally ... In his 35 years of practicing real estate, Gill was involved in less than 10 transactions in which the buyer was represented by their own agent."); Interview with Tiron Manning, 1-11-22, ("Only 'between 1 and 5 percent' of residential real estate transactions involve a buyer's agent.").

<sup>&</sup>lt;sup>56</sup> See, e.g., <a href="https://onproperty.com.au/pays-buyers-agent-feecommission/">https://onproperty.com.au/pays-buyers-agent-feecommission/</a> ("Who pays the buyer's agent their fees or commission."); <a href="https://rebaa.com.au/faqs/">https://rebaa.com.au/faqs/</a> ("All REBAA members are exclusive buyer's agents which means they only act for the buyer – they are not taking money from the owner as well as a buyer.").

<sup>&</sup>lt;sup>57</sup> See, e.g., <a href="https://www.propertybuyer.com.au/about/what-is-a-buyers-agent">https://www.propertybuyer.com.au/about/what-is-a-buyers-agent</a> ("Full search: Fees are set at 1.5 to 2.0% +GST of purchase price (or flat fee equivalent)"; lower fees for auctions or for appraisal and negotiation only); <a href="https://www.elitebuyeragents.com.au/faq/">https://www.elitebuyeragents.com.au/faq/</a> ("Fee's [sic] can vary on the services required, be it fixed or percentage based which typically vary from 1% to 2%.").

<sup>&</sup>lt;sup>58</sup> See <a href="https://www.propertybuyer.com.au/about/our-company">https://www.propertybuyer.com.au/about/our-company</a> ("We have ... secured over 3000 properties for our clients."); <a href="https://www.propertybuyer.com.au/about/where-we-service">https://www.propertybuyer.com.au/about/where-we-service</a> ("Propertybuyer offers independent, trusted advice to clients looking to purchase residential or commercial property in Sydney, Brisbane, Melbourne and other parts of Australia."); and <a href="https://www.propertybuyer.com.au/about/what-is-a-buyers-agent">https://www.propertybuyer.com.au/about/what-is-a-buyers-agent</a> ("Full search: Fees are set at 1.5 to 2.0% +GST of purchase price (or flat fee equivalent)"; lower fees for auctions or for appraisal and negotiation only).

<sup>&</sup>lt;sup>59</sup> Elite Buyer Agents, "About Us," <a href="https://www.elitebuyeragents.com.au/about-us/">https://www.elitebuyeragents.com.au/about-us/</a>.

<sup>&</sup>lt;sup>60</sup> Elite Buyer Agents, "Frequently Asked Questions," <a href="https://www.elitebuyeragents.com.au/faq/">https://www.elitebuyeragents.com.au/faq/</a> ("Fee's [sic] can vary on the services required, be it fixed or percentage based which typically vary from 1% to 2%.").

<sup>&</sup>lt;sup>61</sup> National Property Buyers, "Our Buyer Agent Services", <a href="https://nationalpropertybuyers.com.au/buyers-agents-australia/services/">https://nationalpropertybuyers.com.au/buyers-agents-australia/services/</a>.

<sup>&</sup>lt;sup>62</sup> See, e.g., RealTeam Property Group ("For the full Search and Buy service our professional fee is between 1.5% - 2.0% of the purchase price of the property.") <a href="https://realteam.com.au/services/full-search-and-buy-property-service">https://realteam.com.au/services/full-search-and-buy-property-service</a>; Savvy Fox Property Buyers Agent ("We charge an initial \$2,000 when you appoint us as your buyer's agent. When everything is done and dusted we charge a success fee of the balance of the total cost \*approx. 1.5% + GST.") <a href="https://www.savvyfox.com.au/buyers-agents-fee-gold-coast/">https://www.savvyfox.com.au/buyers-agents-fee-gold-coast/</a>; Unicorn Buyers Agents ("For our premium option one 'done for you' service as a guide the fixed fee will be between 1.3% and 2% of the purchase price for residential property") <a href="https://www.unicornbuyersagents.com.au/buyers-agent-fees/">https://www.unicornbuyersagents.com.au/buyers-agent-fees/</a>.

Interviews of Australian real estate brokers corroborate these ranges, indicating that buyer broker fees were between 1.5% and 2% of property prices, <sup>63</sup> and that buyers were also responsible for paying 10% GST to the government (calculated on the commission amount). <sup>64</sup>

37. Seller broker commission rates in Australia were typically between 1.5% and 3% of the purchase price, depending on location. Locations with more competition had lower seller broker rates.<sup>65</sup> NAR's D.A.N.G.E.R. Report reported rates in Australia as 2%-3%.<sup>66</sup> The Wall Street Journal reported that the "typical rate" in 2015 was 2%.<sup>67</sup> LocalAgentFinder, a real estate broker comparison site, reports average fees based on their broker listing data, by state and by state capital city. The average commission rate by state ranged between 1.96% for South Australia to 2.73% for Tasmania.<sup>68</sup> The average commission rate by state capital city ranged from 1.86% in Sydney to 2.70% in Hobart.<sup>69</sup> Interviews of Australian real estate brokers corroborate this range, reporting 1.2%-2% for Sydney and Newcastle (another city in the state of New South Wales) and up to 3% in locations further from major centers.<sup>70</sup>

<sup>&</sup>lt;sup>63</sup> See Interview with Tiron Manning, 1-11-22, ("The average commission paid to buyers' agents in the Newcastle market is 1.65 to 2 percent. The average commission paid to buyers' agents in the capital city of Sidney is 2 percent." and "The 1.65 to 2 percent commission paid to buyers' agents is for full-service representation of the buyer including property search and identification, negotiating the sales price on behalf of the buyer, organizing "due diligence" of the property, and finalizing the purchase of the property at closing."); Interview with Kim Ball, 1-27-22 ("Her fee to represent buyers is 2 percent of the sale price which she acknowledged is 'quite high."); Interview with John Pye, 1-27-22 ("Pye has 'heard' that buyers' agents in the Sydney market typically charge their clients up to 1.5 percent of the sale price of the home.").

<sup>&</sup>lt;sup>64</sup> See e.g., Interview with Kim Ball, 1-27-22 ("In addition to the commission, buyers are responsible for paying a goods and service tax (GST) to the government of 10 percent which is calculated on the commission amount."). <sup>65</sup> See, e.g., https://www.localagentfinder.com.au/real-estate-agent-commission-fees ("Metropolitan areas have more properties going up for sale on the market and so in order to compete in this market, the agents are forced to lower their rates."); also see Interview with Tiron Manning, 1-11-22, ("The listing commission increases the farther someone goes from a major center because there is 'less competition between sales agents.").

<sup>&</sup>lt;sup>66</sup> NARSITZER0000315626 at p. 23 (stating that "many fear a gradual downward slide or realignment of fees as charged in other countries in the world," and then listing some of those fees: "According to a report by the International Real Estate Review, real estate brokerage fees around the world are: 1-2% United Kingdom; 1.5-2% Singapore; 1.5-2% Netherlands; 2-3% Australia; 3% Belgium; 3-6% Germany).

<sup>&</sup>lt;sup>67</sup> See WSJ, "Real Estate Commissions Around the World," https://graphics.wsj.com/table/commish 1016.

<sup>&</sup>lt;sup>68</sup> https://www.localagentfinder.com.au/real-estate-agent-commission-fees.

<sup>&</sup>lt;sup>69</sup> https://www.localagentfinder.com.au/real-estate-agent-commission-fees.

<sup>&</sup>lt;sup>70</sup> See Interview with John Pye, 1-27-22 ("The commission paid to listing agents varies from 1.2 to 1.5 percent of the sale price of the home in the Sydney market."); Interview with Kim Ball, 1-27-22 ("The average listing commission in the Sydney market is 1.5 to 2 percent of the sale price of the home."); Interview with Peter Gill, ("The typical commission paid to listing agents in Australia is around 2 percent."); Interview with Tiron Manning, 1-11-22, ("The average commission paid to listing agents in Newcastle is 1.5 to 2 percent so comparable with buyers' agents' commissions. The listing commission increases the farther someone goes from a major center because there is 'less competition between sales agents.' Listing commissions in Byron Bay or Coffs Harbour can go up to 3 percent.").

#### 2. The Netherlands

- 38. In the Netherlands, buyer brokers were used by a substantial minority of buyers. According to NVM, the national federation of real estate brokers, buyer brokers were used by 17% to 23% of buyers between 2016 and 2020, with an overall average of 20%.<sup>71</sup> Buyer brokers were used more heavily in the "tightest housing markets," in 2019 reaching a high of 50% in the city of Haarlem, 38% in The Hague, and 36% in Utrecht.<sup>72</sup>
  - 39. When buyer brokers were used, buyers paid their own brokers.<sup>73</sup>
- 40. Buyer brokers' fees in the Netherlands depended on the level of service desired by the buyer, and were often charged in the form of fixed fees or tiered fees (for example, an agency might charge €3000 for a house selling below €300,000, and €4000 for a house selling above €300,000). "Makelaarsland", a national brokerage, charged €2,775 for full buyer broker service in the largest cities and €1,975 elsewhere, while charging only €750 for remote support including valuation and checking legal documents. "de-aankoper," a brokerage in Utrecht, charged €4750 for homes up to €400,000 in price, €5,250 for homes from €400,000 to €600,000 in price, and so on up to €9,500 for homes above €1,000,000. "Thomas de aankoopmakelaar," a brokerage in Groningen, charged €3,250 for homes up to €250,000, with tiers up to €6500. In order to compare these flat or tiered fees to percentage rates charged in the U.S. or other countries, my staff gathered data on home sales and associated buyer brokers from Funda.nl, the main real estate portal in the Netherlands. They then searched buyer broker agency websites looking for

<sup>&</sup>lt;sup>71</sup> NVM, "Dutch property market in focus, The year 2020 in facts and figures," <a href="https://www.nvm.nl/media/ylbarm2w/dutch-property-market-in-focus-2020.pdf">https://www.nvm.nl/media/ylbarm2w/dutch-property-market-in-focus-2020.pdf</a> at p. 31.

<sup>&</sup>lt;sup>72</sup> NVM, "Dutch property market in focus, The year 2019 in facts and figures," at p. 29.

<sup>&</sup>lt;sup>73</sup> See e.g., <a href="https://www.nar.realtor/global/real-estate-practices-around-the-world#N">https://www.nar.realtor/global/real-estate-practices-around-the-world#N</a> ("Who pays the commission fees? The seller pays his own agent and the buyer pays his own agent.").

<sup>&</sup>lt;sup>74</sup> See Makelaarsland, "Aankoopmakelaar [Buyer Broker]" https://www.makelaarsland.nl/aankoopmakelaar/.

<sup>&</sup>lt;sup>75</sup> See de-aankoper [The Buyer], "What does a buyer's agent cost in Utrecht," https://de-aankoper.nl/wat-kost-een-aankoopmakelaar/.

<sup>&</sup>lt;sup>76</sup> See Thomas de aankoopmakelaar, "Cost," https://www.thomasdeaankoopmakelaar nl/portfolio/kosten/.

<sup>77</sup> My staff collected data on 13875 transactions from Funda nl, located in the Groningen area (30 km radius) and Utrecht area (10 km radius), between September 2020 and February 2022, with sale prices greater than \$56,500 (€50,275). I limited the sample to prices above \$56,500 in order to use comparable transactions to those in the class, which are similarly limited. I chose Utrecht because it was a "hot market" as identified by NVM, the Dutch association of real estate brokers, and because it is geographically distinct from other major urban areas. See NVM, "Dutch property market in focus, The year 2019 in facts and figures," at p. 29. I also chose Groningen because it is geographically separated from other urban centers, allowing me to collect data on both the city and a rural hinterland. Data includes address, listing date, sale date, sale price, buyer broker (if used), and seller broker. Transaction amounts range from €69,000 to €4,250,000. The mean amount is €395,752, and the median is €335,950. See backup file "MOE005\_NL\_data.log". 24.6% of these transactions employed buyer brokers (consistent with the

posted prices, finding posted prices available for the listed buyer broker on 371 transactions between September 2020 and February 2022.<sup>78</sup> I then calculated commission rates as total fees divided by the sale price of the home. The resulting commission rates range from 0.15% to 2.47%, with a mean of 1.13% (including VAT of 21%).

41. NAR's "Real Estate Practices Around the World" website states that "for many years" the seller broker commission was 1.85% + VAT but now can be 1% + VAT or even lower. The Wall Street Journal reported in 2015 that average fees were 1.5%, with a range from 1% to 2%. The website Mijn Verkoopmakelaar ("My Seller Broker"), a seller broker price comparison site, in 2020 researched 3000 proposals sent by seller brokers through their platform to potential seller customers, and found an average of 1.3% commission, including VAT, for selling a property. The selling a property of the seller customers are seller brokers.

## 3. United Kingdom

42. Buyer brokers were relatively rare in the UK. Defendant NAR's "Real Estate Practices Around the World" website states that a "small proportion" of buyers are represented by brokers. 82 Rightmove, a major UK property search portal,

Dutch average in 2020 of 22.8% using buyer brokers). NVM, "Dutch property market in focus, The year 2020 in facts and figures," <a href="https://www.nvm.nl/media/ylbarm2w/dutch-property-market-in-focus-2020.pdf">https://www.nvm.nl/media/ylbarm2w/dutch-property-market-in-focus-2020.pdf</a> at p. 31. 37% of transactions in the city of Utrecht employed buyer brokers, consistent with a NVM 2019 report stating that 36% of buyers in Utrecht used buyer brokers. NVM, "Dutch property market in focus, The year 2019 in facts and figures," at p. 29.

<sup>&</sup>lt;sup>78</sup> For each market, my staff searched all buyer broker agency websites for any broker with more than two transactions in the data. This comprised 91% of transactions with listed buyer brokers. See backup files "Groningen + 30 broker fees.csv" and "Utrecht + 10 broker fees.csv". They found usable posted prices for 371 transactions. Agencies were excluded if they did not provide enough information to determine a total fee (whether a total amount or a percentage commission). In cases where agencies posted multiple prices, for example for "full service" vs. "direct purchase", to be conservative I used the "full service" option. If there were multiple full-service options I chose the higher service level, as long as it did not appear to include separate services such as mortgage advising. When prices were offered a la carte, I assumed that the buyer would make four home visits with a buyer broker and make four offers on homes. I did not include rates based on any saving off the list price.

<sup>&</sup>lt;sup>79</sup> See e.g., <a href="https://www.nar.realtor/global/real-estate-practices-around-the-world#N">https://www.nar.realtor/global/real-estate-practices-around-the-world#N</a> ("What fees have to be paid for Inspections, utilities, governmental fees? Are they different for people from other countries? Broker fees can be a fixed fee or a commission. For many years commission was 1,85% without VAT. The competition between brokers has lowered the commissions in some areas 0,8% to 1,0% without VAT or even lower. This includes advertisement, negotiations, the purchase deed, investigations and inspection, etcetera. Fixed fees can vary. Competition is very strong at the moment.").

<sup>&</sup>lt;sup>80</sup> See WSJ, "Real-Estate Agent Commissions Around the World" (Typical rate of 1.5% (2015), with notes: "2015: 1%-2% paid by the seller; buyer's agent infrequent but if used, paid by buyer.").

<sup>&</sup>lt;sup>81</sup> Mijn Verkoopmakelaar, "How to compare and select real estate agents in the Netherlands," ("In 2020, we have researched 3,000 proposals that agents sent through our platform to potential sellers. The outcome: on average, estate agents asks 1.3% (Avg. EUR 4,000), VAT included, for selling a property.") https://mijnverkoopmakelaar.nl/how-to-compare-and-select-estate-agents-in-the-netherlands.

<sup>&</sup>lt;sup>82</sup> NAR, "Real Estate Practices Around the World" (https://www.nar.realtor/global/real-estate-practices-around-the-world#U).

states that "unlike other countries, the buyer does not usually have their own agent," but that buyer brokers did exist. <sup>83</sup> Interviews of real estate brokers in the UK indicate that seller brokers were not often involved in transactions including buyer brokers and that both buyer and seller brokers consider buyer brokers to have been very rare, with one buyer broker estimating buyer broker usage as 1% of all transactions. <sup>84</sup> Due to the lack of conclusive data on this point, for subsequent analyses I conservatively estimate the level of buyer broker use to be the same as the level in Australia, at 5%.

- 43. When buyer brokers were used, buyers paid their own brokers.<sup>85</sup>
- 44. Buyer brokers' fees in the UK depended on the level of service desired by the buyer, and often included a negotiation bonus. The Buying Agents, a buyer agency in London, charged 1.5% + VAT of the purchase price, or 15% of the amount by which the purchase price is lower than the asking price, whichever is greater. Buyers Edge, another London agency, charged £2200 plus 0.2% of the sale price plus 15% of any saving between asking price and purchase price. Limited-service options were available, such as negotiation-only, sales completion only, or advice-only, and cost much less. Property Search London charged 1% of the purchase price for full service. Eccord, a higher-end London agency, charged 2%. Outside

<sup>&</sup>lt;sup>83</sup> Rightmove, "Benefits of buying through an agent," (<a href="https://www.rightmove.co.uk/advice/buyer/buying-a-property/agent-benefits/">https://www.rightmove.co.uk/advice/buyer/buying-a-property/agent-benefits/</a>).

generally and "wouldn't expect" buyers' agents to operate in his market at all."); Interview with Natalie Davies, 1 12-22 ("Buyers are very rarely represented by their own agents and typically only international buyers will retain their own agent to search for property in the UK."); Interview with Philippa Sole, 1-18-22 (amended 2-1-22) ("Buyers' agents are not used "very often" in either the Poole market or in England generally. They are "very widely used" by wealthy individuals in and around London who have specific requirements for a property but not the availability to look themselves."); Interview with Richard Marrison, 1-18-22 ("99 percent of buyers "will go it alone" and negotiate the sale price of a home against the estate agent selling the home."); Interview with Simon Speak, 1-27-22 ("Buyers' agents are 'not very common in the UK' and generally not used by buyers to locate and purchase properties. Speak couldn't recall any transactions in which a buyer's agent was involved in the last 12 years.").

<sup>&</sup>lt;sup>85</sup> See, e.g., <a href="https://www.buyersedgeuk.com/buying-service/property-find-consult/">https://www.buyersedgeuk.com/buying-service/property-find-consult/</a>; Interview with Philippa Sole, 1-18-22 (amended 2-1-22) ("The buyer always pays her commission"); Interview with Richard Marrison, 1-18-22 ("The buyer is responsible for the payment to Buyers Edge of any and all services used.");

<sup>&</sup>lt;sup>86</sup> See e.g. The Buying Agents.com <a href="https://www.thebuyingagents.com/about/buying-agents-fees/">https://www.thebuyingagents.com/about/buying-agents-fees/</a>; <a href="https://www.thisismoney.co.uk/money/mortgageshome/article-1693375/Could-a-buying-agent-save-you-money.html">https://www.thebuyingagents.com/about/buying-agents-fees/</a>; <a href="https://www.thisismoney.co.uk/money/mortgageshome/article-1693375/Could-a-buying-agent-save-you-money.html">https://www.thisismoney.co.uk/money/mortgageshome/article-1693375/Could-a-buying-agent-save-you-money.html</a>.

<sup>87</sup> See <a href="https://www.buyersedgeuk.com/buying-service/acquisition/">https://www.buyersedgeuk.com/buying-service/acquisition/</a> (Sales Completion 0.2% of sale price);
<a href="https://www.buyersedgeuk.com/buying-service/negotiation-only/">https://www.buyersedgeuk.com/buying-service/negotiation-only/</a> ("Property Negotiation Only 15% of amount saved from list price (only paid on exchange)");
<a href="https://www.buyersedgeuk.com/buying-service/the-pocket-agent/">https://www.buyersedgeuk.com/buying-service/the-pocket-agent/</a> ("Angel Agent Service £499").

<sup>&</sup>lt;sup>88</sup> Property Search London ("a Success Fee of 1% of the Purchase Price of your new home is charged, on exchange of contracts."), http://propertysearchlondon.co.uk/property-search-london/buyers-search html.

<sup>89</sup> See <a href="https://eccord.com/property-sourcing/">https://eccord.com/property-sourcing/</a> ("Success fee (based on the purchase price as follows) Up to £5m 2%; >£5m 1.75%; >£10m 1.5%").

of London, various agencies' prices were similar, with buyer brokers charging 1-1.75% or, in some cases, 12-15% of the saving between asking price and purchase price. In two small sets of data produced by Defendants Keller Williams and HomeServices covering 166 transactions in the UK, the average commission rate paid by buyers to buyer brokers was 60% of transactions had rates and 10% of transactions had rates 91

45. Seller broker commission rates in the UK were typically between 1% and 2%. Defendant NAR's "Real Estate Practices Around the World" website reports that "fees paid by sellers average 0.9-1.3%." The Wall Street Journal reported in 2015 that average fees were 1.5%, with a range from 1% to 2%. The Advisory.com, a UK real estate advisory website, in a 2018 survey found average fees of 1.18% plus value added tax ("VAT" [equal to 20% in the UK]). Defendant NAR's D.A.N.G.E.R. Report stated that brokerage fees in the UK were 1%-2%. A UK government research survey of recent home sellers in 2017 found that 52% of buyers who retained a broker paid a commission between 1.0% and

<sup>91</sup> See statistics in "MOE003 Defendants UK Data Summary.log". ReMax also produced data, but it was provided only in an aggregated format, and was not able to be reliably decomposed into individual transactions. See email from Eddie Hasdoo to Rio Pierce, Nov. 30, 2021 (

<sup>90</sup> See, e.g., Philippa Sole ("The fee for me acting on your behalf is 1% + VAT / 1.2% inc VAT of the purchase price, less the initial £500 registration fee.") https://philippasole.co.uk/search-agency/; Rebecca Regis ("When contracts have been exchanged, a further fee based on the purchase price of the property will be due. This will usually be between 1.25% and 1.75% (no VAT) of the purchase price.") https://rebeccaregis.co.uk/buying-service/; Eversby Property Search ("Our success fee is the greater of either 1.2% of the final Purchase Price or 12% of the 'saving' (difference between the Asking Price and the final Purchase Price after negotiation)"); Fiona Penny ("Purchase price (inclusive of fittings and fixtures): £500,000 to £750,000, Success fee: 1%; £750,000 to £1,000,000, 1.5%; Excess £1,000,000, 1.75%. Or: 15% of the amount saved from the asking price after negotiating on a property, whichever is the greater, payable on exchange of contracts.") https://www.fionapenny.com/our-fees; BarkerStourton Property Search ("We charge a nominal initial registration fee (£1,000 plus VAT) and this provides you with one year's search with BarkerStourton. On finding and exchanging contracts on a property we then charge 1.5% of the purchase price (plus VAT).") https://www.barkerstourtonpropertysearch.com/property-buying-agents; County Homesearch ("[The fee] would typically be 1.5% of the purchase price (or 15% of saving negotiated if greater) + VAT.") https://www.county-homesearch.com/our\_services/homefinding-for-buyers/

<sup>).

92</sup> NAR, "Real Estate Practices Around the World." https://www.nar.realtor/global/real-estate-practices-around-the-

<sup>&</sup>lt;sup>92</sup> NAR, "Real Estate Practices Around the World." <a href="https://www.nar.realtor/global/real-estate-practices-around-the-world#U">https://www.nar.realtor/global/real-estate-practices-around-the-world#U</a> ("Fees paid by sellers average 0.9-1.3%").

<sup>&</sup>lt;sup>93</sup> See WSJ, "Real-Estate Agent Commissions Around the World" (Typical rate of 1.5% (2015), with notes: "2015: 1%-2% paid by the seller.").

<sup>&</sup>lt;sup>94</sup> See TheAdvisory.com (2018 survey finding an average fee of 1.18% + VAT). https://www.theadvisory.co.uk/estate-agents/fees-what-should-you-pay/.

<sup>&</sup>lt;sup>95</sup> NARSITZER0000315626 at p. 23 (stating that "many fear a gradual downward slide or realignment of fees as charged in other countries in the world," and then listing some of those fees: "According to a report by the International Real Estate Review, real estate brokerage fees around the world are: 1-2% United Kingdom; 1.5-2% Singapore; 1.5-2% Netherlands; 2-3% Australia; 3% Belgium; 3-6% Germany).

1.4% (the remaining responses: 33% paid 1.5-1.9%; 9% paid less than 1.0%; 6% paid 2% or more). Interviews with real estate brokers in the UK corroborate these commission rate estimates, with most estimating commission rates at 1% to 1.5% (although one broker gave a range of 1%-3%). (1%-3%).

# D. Distributions of Commissions Paid to Buyer Brokers in Australia, the Netherlands, and the UK

46. For subsequent analysis, it will be useful to construct the distribution of commissions that would be paid to buyer brokers in the but-for world. I do this by combining data on the percentage of transactions in which buyers use buyer brokers in each comparison market with data on the commission rates paid to buyer brokers in those comparison markets.

#### 1. Australia

47. In Australia, the evidence indicates that buyer brokers are used very rarely, in 5% or fewer of transactions throughout the class period. For those 5% of transactions involving buyer brokers, the evidence indicates that buyers typically pay buyer brokers between 1% and 2% of the transaction amount, plus GST of 10%. Many of the above price quotes "depend on services required"; that is, they include price quotes for lower service levels than the "full service" that is similar to the services typically provided by buyer brokers in the U.S. 100 In the but-for world, it is very likely that many buyers would avail themselves of lower service levels, since they would be responsible for paying buyer brokers themselves. However, to

<sup>&</sup>lt;sup>96</sup> Department for Business, Energy, & Industrial Strategy, "Research on Buying and Selling Homes, Research paper number BIS/283," October 2017, at p. 29.

<sup>&</sup>lt;sup>97</sup> See Interview with Alan Booth, 1-31-22 ("The commission paid to listing agents in northwest England is 1 to 1.5 percent of the sale price of [the] home."); Interview with Natalie Davies, 1-12-22 ("The typical commission paid to listing agents in northern England is '1 percent plus VAT."); Interview with Philippa Sole, 1-18-22 (amended 2-1-22) ("The average listing commission is 1 percent in both the Poole market and in England generally."); Interview with Richard Marrison, 1-18-22 ("The average commission paid to listing, or estate, agents in the UK is 1 to 1.5 percent of the property's sale price."); Interview with Simon Speak, 1-27-22 ("Listing agents in the UK are paid between 1 and 3 percent of the sale price of the home by the seller. The commission amount varies depending on the agent and their offerings.").

<sup>&</sup>lt;sup>98</sup> See Section III.C.1 above.

<sup>&</sup>lt;sup>99</sup> See Section III.C.1 above.

<sup>&</sup>lt;sup>100</sup> See, e.g., PropertyBuyer, <a href="https://www.propertybuyer.com.au/about/what-is-a-buyers-agent">https://www.propertybuyer.com.au/about/what-is-a-buyers-agent</a> ("Full search: Fees are set at 1.5 to 2.0% +GST of purchase price (or flat fee equivalent)"; lower fees for auctions or for appraisal and negotiation only); Elite Buyer Agents, <a href="https://www.elitebuyeragents.com.au/faq/">https://www.elitebuyeragents.com.au/faq/</a> ("Fee's [sic] can vary on the services required, be it fixed or percentage based which typically vary from 1% to 2%.").

be conservative, I will limit the range to 1.5%-2%, which is consistent with the sources describing their quotes as covering "full service" buyer brokerage. <sup>101</sup> Also, although in the US typically buyers would not need to pay tax on the services of a buyer broker, to be conservative, I include the GST as part of the commission amount. For the purposes of constructing this distribution, I assume that buyer brokers are equally likely to charge any price between 1.5% and 2.0%, in 0.05% intervals (e.g., 1.5%, 1.55% ... 2.0%) plus GST of 10%, resulting in a range between 1.65% and 2.20%. Including transactions with and without a buyer broker, the distribution of buyer broker fees for all transactions is as shown in Figure 1.

Figure 1: Distribution of Buyer Broker Fees Across All Transactions in Australia<sup>102</sup>



#### 2. The Netherlands

<sup>&</sup>lt;sup>101</sup> See, e.g., PropertyBuyer, <a href="https://www.propertybuyer.com.au/about/what-is-a-buyers-agent">https://www.propertybuyer.com.au/about/what-is-a-buyers-agent</a> ("Full search: Fees are set at 1.5 to 2.0% +GST of purchase price (or flat fee equivalent)"; lower fees for auctions or for appraisal and negotiation only).

<sup>&</sup>lt;sup>102</sup> See backup file "MOE020 AUS pdf.png".

48. In the Netherlands, buyer brokers were involved in 20% of transactions on average over the period 2016-2020.<sup>103</sup> Thus, 80% of transactions did not involve a buyer broker. As described above, to determine the commission rates paid by buyers to buyer brokers in the Netherlands my staff gathered data from Funda.nl, the largest real estate portal in the Netherlands, and from various buyer broker websites that list their fees.<sup>104</sup> The commission rates in this sample of 371 transactions range from 0.15% to 2.47%, with a mean of 1.13% (including VAT of 21%).<sup>105</sup> The 10<sup>th</sup> percentile in this sample is 0.7%, and the 90<sup>th</sup> percentile is 1.6%. Including transactions with and without a buyer broker, the distribution of buyer broker fees for all transactions is as shown in Figure 2.

Figure 2: Distribution of Buyer Broker Fees Across All Transactions in the Netherlands<sup>106</sup>



# 3. United Kingdom

<sup>&</sup>lt;sup>103</sup> NVM, "Dutch property market in focus: The year 2020 in facts and figures," at p. 31.

<sup>&</sup>lt;sup>104</sup> See Section III.C.2 above.

<sup>&</sup>lt;sup>105</sup> See backup file "MOE005 nl rates.dta".

<sup>&</sup>lt;sup>106</sup> See backup file "MOE020 NL pdf.png".

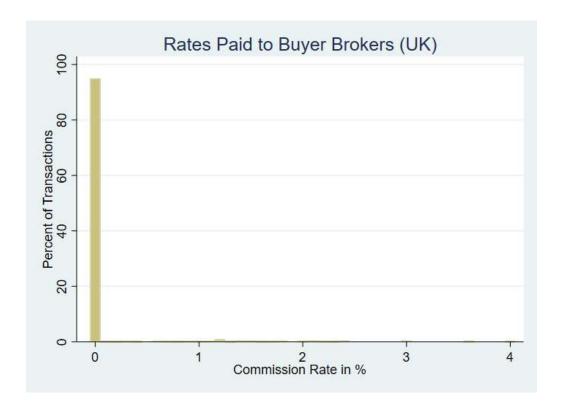
In the U.K., the evidence indicates that buyer brokers are used very rarely, in 5% of transactions or fewer throughout the class period. For those 5% of transactions involving buyer brokers, evidence from buyer broker agency posted prices as well as from interviews with buyer brokers indicates that buyer broker commission rates typically fall between 1% and 2%, plus VAT of 20%. 107 For a more specific estimated distribution, which is consistent with this evidence, I have two small sets of data produced by two of the Corporate Defendants, Keller Williams, and HomeServices, of 166 transactions where a Keller Williams or HomeServices broker was the buyer broker, and the total transaction value was at least \$56,500, which is the threshold for the class definition. The data do not appear to include VAT, so to be conservative I add it for purposes of this distribution. The commission rates in this sample, plus VAT, range from with a mean of The 10<sup>th</sup> percentile of fees in this sample is , and the 90<sup>th</sup> percentile is Together, the distribution of buyer broker fees for all transactions is as shown in Figure 3.

Figure 3: Distribution of Buyer Broker Fees Across All Transactions in United Kingdom<sup>109</sup>

<sup>109</sup> See backup file "MOE020 GB pdf.png".

<sup>&</sup>lt;sup>107</sup> See Section III.C.3 above.

<sup>&</sup>lt;sup>108</sup> See statistics in "MOE003 Defendants UK Data Summary.log". ReMax also produced data, but it was provided only in an aggregated format, and was not able to be reliably decomposed into individual transactions. See email from Eddie Hasdoo to Rio Pierce, Nov. 30, 2021 (



E. Market Outcomes in the Comparison Markets Are What Economic Logic Would Predict Absent the Challenged Conduct

- 50. The above outcomes—fewer and cheaper buyer brokers paid by buyers, without correspondingly more expensive seller brokers—are consistent with what economic logic would expect given the absence of the challenged conduct.
- 51. Economic logic indicates that the demand for buyer brokers would have been very different in the but-for world than in the actual world. In the actual world, under the influence of the challenged conduct, buyers chose to work with buyer brokers expecting that they would not pay any fee directly to the buyer broker. In contrast, in the but-for world buyers would have been responsible for paying a positive price for buyer broker services in the but-for world. Because buyers in the comparison markets paid their brokers themselves, they employed buyer brokers far less often than in the U.S. As noted in Section III.C above, in the U.K. and Australia buyer brokers were used 5% of the time or less, and in the Netherlands buyer brokers

were used about 20% of the time. In the U.S., according to a NAR research report, as of 2018 buyers used buyer brokers in 87% of transactions. 110

52. Economic logic also indicates that the commission rates of buyer brokers would have been lower in the but-for world than the actual world. In the actual world, the commission rates of buyer brokers were determined by what sellers were willing to offer. And what sellers valued was not the buyer broker's local knowledge, or their friendly demeanor, but instead their ability to steer their clients toward and away from particular homes. Thus, a high commission reflected the high value put by sellers on a buyer broker's ability to steer buyers toward, or at least not away from the seller's property. If prices were set in a competitive market by buyers, the commission rate must be based on the value of the broker's services to the buyer, which for many buyers was much lower. Indeed, as I calculate below in Section V.B.2, the average buyer broker commission rate across the comparison markets is 1.55%, compared with the class transaction average of 2.78%. 111

# IV. THE EVIDENCE SHOWS THAT ALL OR NEARLY ALL PLAINTIFFS WERE HARMED BY THE CHALLENGED CONDUCT

53. The class in this case is a group of residential property sellers who overpaid for real estate brokerage services because of a system of anticompetitive conduct that resulted in supracompetitive pricing and excessive use of buyer brokers. The determination of whether a class member would have been better off in the butfor world than in the actual world (that is, whether they were harmed by the conduct) thus depends on a series of questions about the but-for world: (a) whether a particular transaction would have involved a buyer broker at all in the but-for world; (b) whether only buyers would have paid their own buyer brokers in the but-for world; (c) whether the commission rate paid to the buyer broker in the but-for world would have been lower than the commission rate that was paid to the buyer broker in the actual world; (d) whether if the buyer broker commission rate was lower in the but-for world, the seller would have paid a lower overall fee for real estate brokerage services; and (e) if a class member was not harmed in a particular transaction, whether that class member would have been harmed in another transaction.

<sup>&</sup>lt;sup>110</sup> NAR Research Group, "Real Estate in a Digital Age: 2019 Report", at p. 2 ("In 2018, buyers worked with an agent 87 percent of the time to find their home").

<sup>&</sup>lt;sup>111</sup> See Section V.B.2 and Section V.C.1, below.

- 54. In this section, I address each of these questions, using evidence from the yardstick markets identified above.
  - a) I find that most transactions would not have involved buyer brokers in the but-for world.
  - b) Although in the yardstick markets buyers paid their own brokers in the transactions where buyer brokers were involved, I conservatively assume that in the but-for world some sellers might agree to pay the buyer broker commission, although the commission would have been negotiated in advance by the buyer, rather than provided in a blanket offer by the seller.
  - c) Using the yardstick markets, I estimate two models of class member impact. In Case 1, where all buyers are equally likely to use buyer agents, I estimate that in total 99.5%-99.9% of all class members were harmed by the challenged conduct, and that each class member was individually more likely than not to be harmed. In Case 2, where buyers vary in their chance of using buyer agents depending on property price and on the tightness of the local market, I again estimate that 99.4%-99.9% of all class members were harmed by the challenged conduct. I also model variation in buyer agent usage among class members based on the selling price of their homes and on the tightness of the markets in which they sell their homes, and show that after accounting for the variation, only a de minimis number of class members have less than a 50% chance of being harmed. Those class members can be identified using the model, and I show that all of them paid lower commissions than the but-for commission rate used for damages (1.55%), meaning that they are already excluded from collecting any damages.
  - d) The overcharge would not have been offset by a higher rate paid to the seller broker in the but-for world, because seller brokers are no more expensive in the yardstick markets than in the actual world.
  - e) Finally, although there are almost certainly class members represented in more than one class transaction, and if so the percentage of impacted class members must logically be equal or higher than the percentage of impacted transactions, I conservatively use the percentage of impacted transactions as a lower-bound estimate of the percentage of impacted class members.
- 55. Taking all these conclusions together, I find that 99.4%-99.9% of all class members were harmed by the challenged conduct.

## A. In the But-For World, Most Transactions Would Not Have Involved Buyer Brokers

56. Above, I show that only a small minority of buyers in the yardstick residential real estate markets used buyer brokers. In the Netherlands, the use of buyer brokers averaged 20% of transactions between 2016 and 2020. In Australia and the United Kingdom, the evidence indicates that fewer buyers used buyer brokers, likely in 5% or less of transactions. Thus, I conclude that but for the challenged conduct, 80% or more of buyers involved in class member transactions would not have used buyer brokers. As a result, regardless of whether the buyer or the seller would have paid the buyer broker, at least 80% of class members would have been better off in the but-for world, simply because there would have been no need for anyone to pay a buyer broker.

# B. In the But-For World, Buyers Would Have Negotiated Price with Their Own Brokers but Might or Might Not Have Paid Them

Above, I show that buyers in the yardstick real estate markets paid their own buyer brokers, if they chose to use them. 114 In the but-for world, buyers would engage, determine a fee with, and be responsible for paying their own buyer broker. If buyers paid their own buyer broker in every instance in the but-for world, then every class member would have been better off in the but-for world and therefore harmed by the challenged conduct. However, in some instances a buyer might have preferred to fold their buyer broker's commission into the purchase price of the property, and thus have asked the seller to accept a higher purchase price contingent on the seller paying their buyer broker as part of the closing process. This might have happened, for example, in the instance that a mortgage lender would not allow a buyer to include fees that the buyer had paid directly in the amount of the mortgage. 115 To be clear, in the but-for world, where buyers would be responsible for choosing, contracting with, and paying buyer brokers, there would be economic incentives for mortgage lenders to change their policies to accommodate buyers who wanted to pay their buyer brokers directly (for instance, to lower the home price for tax assessment reasons). But to be conservative, I estimate class member impact

<sup>&</sup>lt;sup>112</sup> See Section III.C.2 above.

<sup>&</sup>lt;sup>113</sup> See Section III.C.1 and III.C.3 above.

<sup>&</sup>lt;sup>114</sup> See Section III.C above.

<sup>&</sup>lt;sup>115</sup> See Elhauge Report at footnote 397 ("In the but-for world, the rare buyer who utilizes a buyer-broker might negotiate with the seller for a closing credit equal to some or all of their buyer-broker fee in exchange for paying a higher price for the home, in order to finance the fee.").

assuming that each seller accepted such a request to pay the buyer broker in each class member transaction.

### C. Estimating Transaction-Level Harm

58. Based on the evidence on commission rates paid to buyer brokers and frequency of buyer broker utilization in the yardstick markets, I can estimate the probability, for each transaction, that the commission rate paid to the buyer broker in the but-for world (it may be zero) would have been less than in the actual world.

# 1. Case 1: The Chance That a Particular Transaction Would Have Involved a Buyer Broker Is The Same For All Transactions

- 59. The first step in estimating the probability that a transaction was impacted by the challenged conduct is determining the distribution of possible butfor commission rates for each transaction. This case stands in contrast to some other economic analyses of class actions, in which the class member has certain characteristics that might be expected to carry over from the actual world to the butfor world. For example, a large toy retailer such as Target might be expected to pay a lower price for toys than other retailers because of Target's bargaining strength, both in the actual world and in the but-for world. In this case, however, the decision maker is different between the actual world and the but-for world. In the actual world it is the seller (perhaps together with the listing broker) who chooses the commission rate offered to the buyer broker. In the but-for world it would be the buyer who chooses a buyer broker and negotiates a commission rate with that broker. Whatever seller-specific factors that led any individual seller to offer a particular commission rate in the actual world will not affect individual buyers' decisions to engage a buyer broker and negotiate over brokers' rates in the but-for world. Thus, there is no a priori reason to think that these decisions would have similar outcomes.
- 60. For the purposes of estimating transaction-level harm, then, a given buyer's choice of whether to use a buyer broker and what commission rate to agree on with that broker is unknown. And because seller characteristics do not determine the buyer's choices, the commission in the but for world can be treated as a random draw from the distribution of outcomes in the yardstick markets. Suppose we are considering the transaction of a house at 428 Cascade Lane, on June 3<sup>rd</sup>, 2018, on which a 3% commission was paid to a buyer broker in the actual world, and we use

the Netherlands market as the yardstick. The estimated distribution of commission rates paid to buyer brokers in the Netherlands is shown in Figure 4.

Figure 4: Estimated Distribution of Commission Rates Paid to Buyer Brokers in the Netherlands<sup>116</sup>



- 61. This histogram shows each commission rate (grouped in "buckets" roughly one tenth of a percentage point wide) and the percent of transactions at that rate. For instance, a 0% commission is paid 80% of the time, because 80% of buyers choose not to employ buyer brokers. The next most common commission rate is just above 1%, and it happens about 2% of the time. Overall, we can see that all the commissions in the distribution are less than 3%. Thus, I estimate that for this transaction at 428 Cascade Lane, the buyer broker would be paid less in the but-for world 100% of the time.
- 62. Now consider a different transaction, this time a house at 102 Magnolia Drive, on July 30, 2019, on which a 1.5% commission was paid to a buyer broker. Because a lower commission was paid in this transaction, there are some transactions

 $<sup>^{116}</sup>$  See backup file "MOE020\_NL\_pdf.png".

in the yardstick distribution with higher buyer broker commissions paid. In particular, 1.3% of transactions in the yardstick distribution had higher than 1.5% commission, and 98.7% had lower than 1.5% commission. Thus, we estimate that for this transaction, the buyer broker would be paid less in the but-for world 98.7% of the time.

- 63. Using the MLS data on class transactions, I calculate an estimate of the probability of harm for each class transaction as described above, using each yardstick distribution (Australia, the Netherlands, and the U.K.). 117 I can aggregate these transaction-level estimates in two different ways that indicate that a very large share of the class was very likely harmed. First, I consider how many transactions were likely to be impacted. Because the but-for world is an unknown as a result of the defendants' conduct, I cannot determine exactly which transactions would be impacted. However, I can say that 100% of transactions had at least an 80% chance of harm, since in the comparison markets there were no buyer brokers in 80% of the transactions. In fact, in two of the comparison markets, the UK and Australia, there were no buyer brokers in 90% and 95% of the transactions, respectively. The 80% chance of harm for 100% of transactions, that is for all the class, is a much stronger showing than "more likely than not" harm which would require showing only a slightly more than 50% chance of harm for each transaction.
- 64. Second, I can take the average of all the transaction-level estimates. In particular, I add up the estimated chances of harm for each class transaction and divide by the total number of class transactions. This provides an estimate of the total percentage of transactions that would have had lower commission rates in the but-for world. Table 1 below presents this average, calculated for each comparison market.

Table 1: Percentage of Transactions with Harm (Case 1), by Comparison Market<sup>118</sup>

Comparison Market	% Transactions with Harm
Australia	99.9%
Netherlands	99.9%
United Kingdom	99.5%

<sup>&</sup>lt;sup>117</sup> See backup file "MOE070\_impact\_simulations.do". Note that I make an adjustment to the commission rate paid on transactions marked in the MLS data as Variable Rate if they do not reflect a different broker on the buyer and seller side. See the discussion of this adjustment in the Data Appendix to this report.

118 See backup file "MOE070 impact.log".

65. No matter which of the comparison markets is used, the analysis shows that the vast majority of class members were harmed by the challenged conduct. All benchmark markets show that at least 99.5% of class members were harmed, and both the Netherlands and Australia show that at least 99.9% were harmed.

# 2. Case 2: Class Members Were Still Harmed Despite Predictable Variation in Buyers' Use of Buyer Brokers in the But-For World

- 66. Above, I showed that economic logic indicates that there is no reason to believe that the amount of commission paid in the actual world, or any other characteristic of the seller, should have an effect on the chance that a buyer would have chosen to use a buyer broker. As an initial, straightforward assumption, I calculated the chance of harm if all class transactions were equally likely to involve a buyer broker in the but-for world. However, various industry sources suggest that the use of buyer brokers is higher in "hotter" or "tighter" markets, and for wealthier or "time-poor" customers.<sup>119</sup>
- 67. I was able to investigate these questions using data from the third yardstick market, the Netherlands. NVM, the Dutch national federation of real estate brokers, publishes annual reports summarizing activity in the Dutch real estate industry. They have reported that in 2019 the highest use of buyer brokers was 50% in the city of Haarlem, 38% in The Hague, and 36% in Utrecht, and describe these as "the tightest housing markets in the Netherlands." This is in contrast to an overall national average of 20% for that year. Wy staff have collected data on recent transactions in Utrecht from Funda.nl, the real estate portal operated by NVM, and find similar results. I conclude, therefore, that adjustments to my impact model to reflect market tightness in the surrounding area of each class transaction are economically appropriate.
- 68. I also used data collected from the Funda.nl portal on recent transactions in several Dutch cities to investigate whether buyer brokers were used

<sup>&</sup>lt;sup>119</sup> See, e.g., Interview with Philippa Sole, January 18, 2022 (Amended February 1, 2022), ("Buyers' agents are not used "very often" in either the Poole market or in England generally. They are "very widely used" by wealthy individuals in and around London who have specific requirements for a property but not the availability to look themselves."); NVM, "Dutch Property Market in Focus 2019" at p. 29 ("Therefore, [purchase] brokers are obviously operating on the tightest housing markets in the Netherlands.").

<sup>&</sup>lt;sup>120</sup> My analysis of these issues is limited to the Netherlands because granular data on the frequency of use of buyer brokers is not available at sufficient scale in Australia and the UK.

<sup>&</sup>lt;sup>121</sup> NVM, "Dutch property market in focus, The year 2019 in facts and figures," at p. 29.

<sup>122</sup> NVM, "Dutch property market in focus, The year 2019 in facts and figures," at p. 29.

<sup>&</sup>lt;sup>123</sup> See backup file "MOE005 NL data.log".

more often with higher-priced properties.<sup>124</sup> First, I performed a linear regression analysis and found that there was a statistically significant increase in use of buyer brokers as property prices rose, but that this increase was small—about two percentage points in the likelihood of a buyer using a broker for every increase of 100,000 Euros in property price.<sup>125</sup> Further investigation determined, however, that this effect is not consistent across the range of all property prices. Analyzing price groups indicates the following: (a) use of buyer brokers is low for property transactions between 0 Euros and 150,000 Euros; (b) use of buyer brokers is much higher for property transactions between 150,000 and 250,000 Euros, and slightly higher still for property transactions between 250,000 and 350,000 Euros; (c) as prices increase further, there is no statistically significant increase in use of buyer brokers.<sup>126</sup> Accordingly, I conclude that adjustments to my impact model to reflect low use of buyer brokers among buyers purchasing houses below 250,000 Euros (about \$283,000)<sup>127</sup> are economically appropriate.

- 69. Based on the above analysis, I make two adjustments to the impact model presented in Case 1 above.
  - First, I address the market tightness issue by adjusting the probability that each class transaction will involve a buyer broker. I first create an index of market tightness for each county, based on publicly available county-level data on market conditions from Redfin, the online brokerage. I calculate the index based on median days on the market, the ratio of monthly sales (past 5 months) to current inventory, and percent of properties sold above listing price. To reflect the distribution of buyer broker usage in the Netherlands, which has a mean of 20% but a "long tail" to the right (a few locations where buyer brokers are used much more frequently) I transform the index by taking the exponent of the index. I then calibrate the model, based on the fact that Haarlem in the Netherlands has 2% of the Netherlands' population, and uses buyer brokers at 2.5 times the average national rate (the highest rate in the Netherlands). The MLS "REcolorado" plays a similar outlier role in my data, so I calibrate the model such that the average

<sup>&</sup>lt;sup>124</sup> See discussion of data at Section III.C.2 above.

<sup>&</sup>lt;sup>125</sup> See backup file "MOE005\_NL\_data.log".

<sup>126</sup> See backup file "MOE005 NL data.log".

 $<sup>^{127}</sup>$  The average exchange rate between Euros and USD between 2016 and 2020 was 0.882. 250,000 / 0.882 = 283,447.

<sup>&</sup>lt;sup>128</sup> I construct the index as follows. I first normalize each component variable (subtracting the mean from each observation and then dividing by the standard error) and then average the three variables for each observation (county-month). I also limit the impact of outlier observations by setting the value of the normalized components to 3 if the value of normalized component is greater than 3, and -3 if the value of the normalized component is less than -3.

<sup>&</sup>lt;sup>129</sup> See NVM, "Dutch property market in focus, The year 2019 in facts and figures," at p. 29.

transaction in the REcolorado data uses buyer brokers at 2.5 times the average national rate, while the overall average buyer broker usage rate remains the same as in the original model. Finally, I multiply the resulting transformed index by the average buyer broker usage rate in the yardstick market being used.

- Second, I address the property price issue by lowering the relative buyer broker usage rate of low-priced properties and raising the relative buyer broker usage rate of high-priced properties. The average buyer broker usage rate in the Dutch data samples was 1.9 times as high for transactions above \$283,000 than below. Transactions on properties below \$283,000 constitute 58% of the class transactions. Thus, in order to keep the overall average at the yardstick level, I decreased the buyer broker usage rate to 72% of its previous value for low-price transactions, and increased the buyer broker usage rate to 137% of its previous value for high-price transactions. In the small percentage of cases where the model predicts a buyer broker usage rate above 100%, I reduce the buyer broker usage rate to 100%.
- 70. As before, I aggregate the transaction-level estimates in two ways, both of which indicate that a very large share of the class was very likely to be harmed. First, I consider how many transactions were likely to show harm. After the above adjustments to the likelihood of a buyer broker being involved in each transaction, there are a *de minimis* number of transactions where harm is possible, but not more than 50% likely. Table 2 shows, for each yardstick market, the percentage of transactions where harm is 50% likely or less. The table also shows the maximum commission rate paid on these transactions. In 100% of transactions where this maximum commission rate was paid to buyer brokers, the likelihood of harm exceeded 50%. Only transactions with commission rates under this maximum of 1.1% could have a less than 50% chance of harm.

Table 2: Transactions Where Harm Less Than 50% Likely (Case 2), by Comparison Market<sup>131</sup>

<sup>&</sup>lt;sup>130</sup> REcolorado actually has about 4% of the transactions in the class. Because increasing the number of transactions in the right tail of the distribution has the effect of increasing the number of transactions that might not have harm, using REcolorado as the calibration point is conservative (defendant-friendly). See backup file "MOE070 impact.log".

<sup>&</sup>lt;sup>131</sup> See backup file "MOE070 impact.log".

Comparison Market	% of Transactions Where Harm is 50% Likely or Less	Maximum Commission Rate Paid on Such Transactions	
Australia	0.000%	-	
Netherlands	0.006%	1.1%	
United Kingdom	0.000%	-	

This table shows that there were an extremely small number of transactions where harm is less than 50% likely. There were zero transactions if using the Australia comparison market or the U.K. comparison market, and six thousandths of a percent of such transactions in the Netherlands. These are transactions that are both likely to involve a buyer broker, given the location of the property and its price, <sup>132</sup> and also where the commission rate paid in the actual world was quite low. In fact, the right-hand column indicates that all transactions with fees above 1.1% are more likely than not to show harm. This is particularly important given my damages analysis in the following section (Section V). There I estimate damages to be the difference between the actual commission rate paid to a buyer broker and the but-for yardstick rate of 1.55% percent. Together, these analyses indicate that no damages will be assigned to any transaction where harm is less than 50% likely, because damages will only be assigned to transactions where a buyer broker was paid more than 1.55%, which is higher than the 1.1% threshold shown above. Thus, there is no need to specifically identify such transactions and remove them for damages purposes. However, if in the future I update the above calculations and either of these thresholds changes, I will identify any transactions in the data that have a 50% or less chance of harm but where the buyer broker was paid more than the damages yardstick, and remove them from consideration for damages.

72. Additionally, I can take the average of all the transaction-level estimates in this Case 2 analysis. Again, I do this by adding up the estimated chances of harm for each class transaction and divide by the total number of class transactions. This provides an estimate of the total percentage of transactions that had lower commission rates in the but-for world. Table 3 below presents this average, calculated for each comparison market.

<sup>&</sup>lt;sup>132</sup> Transactions with higher changes of involving a buyer broker, per my model above, would be those that have selling prices above \$283,000 and are located in markets with high tightness indicators, such as counties in popular areas of Utah and Colorado.

Table 3: Total Percentage of Transactions with Harm (Case 2), by Comparison Market<sup>133</sup>

Comparison Market	% Transactions with Harm		
Australia	99.9%		
Netherlands	99.9%		
United Kingdom	99.4%		

- 73. This table is almost unchanged from the Case 1 analysis. No matter which of the comparison markets is used, the analysis shows that nearly all class members were harmed by the challenged conduct. All benchmark markets show that at least 99.4% of class members were harmed, and both the Netherlands and the Australia show that at least 99.9% were harmed.
- 74. To conclude, these adjustments reliably model the impact of the challenged conduct on class transactions and class members. They demonstrate that although there may be some factors that differ across class transactions, such as local real estate market conditions or the price level of different properties, my model, common to the class, is successful in adjusting for such observed differences, estimating the probability of harm given those differences, and identifying class transactions or members that are likely not harmed given those differences. Importantly, my damages model measures zero damages for all transactions with buyer broker commission amounts that have a 50% or less chance of being harmed. I nevertheless reserve the right to further refine these models if more data becomes available.

# D. In the But-For World, If the Buyer Broker Commission Rate Were Lower, Class Members Would Have Paid a Lower Overall Fee for Real Estate Brokerage Services

75. In order for the seller to be harmed in a transaction, not only must the buyer broker commission be lower in the but-for world, but the sum of the buyer broker and seller broker commissions must also be lower. Thus, any decrease in the buyer broker commission must not be offset by an equally large or larger increase in the seller broker commission in the but-for world. The evidence indicates, however, that seller broker commissions in the comparison countries were either the same or lower than in the U.S.

<sup>133</sup> Source: backup file "MOE070 impact.log".

- Australia were typically between 1.5% and 3% of the purchase price. <sup>134</sup> The most specific estimates come from the real estate broker comparison site LocalAgentFinder, which reported average seller broker commission rates by Australian state or territory. <sup>135</sup> I have combined these average rates with Australian state population data in order to find a weighted average, equal to 2.19%. <sup>136</sup> In comparison, the average seller broker commission rate in the transaction data produced by the defendants is 2.70%, while the 10<sup>th</sup> percentile rate is 1.55% and the 90<sup>th</sup> percentile rate is 3.3%. <sup>137</sup> Thus, there is no evidence that seller broker commission rates were higher in Australia than in the U.S.
- 77. The evidence above indicates that seller broker commission rates in the Netherlands were typically between 1% and 2% of the purchase price. The most specific estimates come from the seller broker price comparison website "Mijn Verkoopmakelaar [My Seller Broker]", which in 2020 researched 3000 proposals sent by seller brokers through their platform to potential seller customers, and found an average of 1.3% commission, including VAT, for selling a property. Given the U.S. average seller broker commission of 2.70%, there is thus no evidence that seller broker commission rates were higher in the Netherlands than in the U.S.
- 78. The evidence above indicates that seller broker commission rates in the U.K. were typically between 1% and 2% of the purchase price. The most specific estimates come from the real estate advisory website The Advisory.com, which in a 2018 survey found average fees of 1.18% plus value added tax ("VAT" [equal to 20% in the UK]); and a UK government survey finding that 85% of sellers who used a seller broker paid a commission between 1% and 2%. Given the U.S.

<sup>&</sup>lt;sup>134</sup> See Section III.C.1 above.

<sup>135</sup> https://www.localagentfinder.com.au/real-estate-agent-commission-fees.

<sup>&</sup>lt;sup>136</sup> See backup file "Economides Damages Tables.xlsx".

<sup>&</sup>lt;sup>137</sup> See backup file "MOE061\_seller.log". This calculation is based on all transaction data produced by the defendants in which a defendant broker was the listing broker in the transaction, and where the listing broker commission was more than 0% and less than 10%. Limiting the time period to 2020 and afterward does not substantially change the result (2.64% vs. 2.70%).

<sup>&</sup>lt;sup>138</sup> See Section III.C.3 above.

<sup>&</sup>lt;sup>139</sup> Mijn Verkoopmakelaar, "How to compare and select real estate agents in the Netherlands," ("In 2020, we have researched 3,000 proposals that agents sent through our platform to potential sellers. The outcome: on average, estate agents asks 1.3% (Avg. EUR 4,000), VAT included, for selling a property.")

https://mijnverkoopmakelaar nl/how-to-compare-and-select-estate-agents-in-the-netherlands.

<sup>&</sup>lt;sup>140</sup> See Section III.C.2 above.

<sup>&</sup>lt;sup>141</sup> See TheAdvisory.com (2018 survey finding an average fee of 1.18% + VAT). https://www.theadvisory.co.uk/estate-agents/fees-what-should-you-pay/.

<sup>&</sup>lt;sup>142</sup> Department for Business, Energy, & Industrial Strategy, "Research on Buying and Selling Homes, Research paper number BIS/283," October 2017, at p. 29.

average seller broker commission of 2.70%, and the comparable statistic that 80% of U.S. sellers paid between 1.55% and 3.3% to their seller brokers, there is thus no evidence that seller broker commission rates were higher in the U.K. than in the U.S.

# E. If a Class Member Was Not Harmed in a Particular Transaction, That Class Member Might Have Been Harmed in Another Transaction

79. Finally, all the previous analysis in this section has addressed harm at the transaction level. But many class members likely sold property in more than one class transaction. It is likely that in the but-for world, some of those class members who might not have been harmed in one transaction may nevertheless have been harmed in others. Therefore, the transaction-level estimates of harm I have provided above are minimum estimates for harm at the class member level. In other words, transaction-level estimates of harm are necessarily conservative (defendant-friendly) due to the possibility that a class member might have entered into multiple transactions and was harmed in some but not others.

# V. DAMAGES TO CLASS MEMBERS CAN RELIABLY BE DETERMINED USING METHODS COMMON TO THE CLASS

80. As discussed above in Section II, Professor Elhauge has concluded that in the but-for world sellers (through their listing brokers) would not have made blanket offers to buyer brokers, the incentive for buyer brokers to steer away from offers of low commissions would no longer have existed, buyers would have negotiated commissions with their brokers at the time of retention, and seller broker fees would have been negotiated separately from buyer broker fees and thus there would not have been any hogging. In Section III above, I identified comparable markets in foreign countries based on development and institutional characteristics of the countries and on institutional specifics of the real estate brokerage markets in those countries. In Section IV above, I showed that, given the distribution of commissions paid in the comparator countries, almost all class members were likely to be harmed, and that the *de minimis* number of class members that were not likely to be harmed could be identified and would not be awarded damages. In this Section,

<sup>&</sup>lt;sup>143</sup> I understand that the length of the damages class period is just under 5 years and 10 months. According to Defendant NAR's data 29% of home sellers had a tenure of 5 years or less and 41% had a tenure of 7 years or less. NAR, 2020 Profile of Home Buyers and Sellers at p.116, Realogy-Moehrl-01172629.

I will use the market outcomes in the comparable countries as yardsticks for the market outcomes in the but-for world and estimate damages to the members of the class resulting from the challenged conduct.

- 81. In the but-for world the buyers would have negotiated the compensation for buyer brokers and would have been responsible for paying buyer brokers. However, under certain circumstances, a buyer might have asked a seller to pay the buyer broker commission negotiated in advance by the buyer in exchange for a higher offer price for the home. 144 I thus calculate damages conservatively assuming the seller would pay the buyer broker in each class transaction. I also calculate damages as if each transaction were one of those involving a buyer broker. This is an extremely conservative assumption given that in the comparator markets, only 5%-20% of transactions involve buyer brokers.
- 82. To calculate this measure of damages, I need to estimate the rate paid to buyer brokers in the but-for world. I base this estimate on the rates paid to buyer brokers in each of the three countries (Australia, the Netherlands, and the United Kingdom) that I identified as comparison markets. For each country, I evaluate the available evidence, both transactional and documentary, to find a best estimate of the average rates paid to buyer brokers. I then construct a single yardstick estimate by averaging the best estimate for each country. This yardstick estimate is equal to 1.55% of the purchase price.
- 83. Finally, using this yardstick estimate I calculate total damages for the class and damages for individual named plaintiffs' transactions. Total damages in this case are equal to the total commissions paid in the actual world on all class transactions with commission rates above 1.55%, minus the total but-for commissions, calculated as the total selling price times the yardstick commission rate of 1.55%. Transaction-level damages (on transactions with commission rates above 1.55%) are calculated as the commission paid in the actual world, minus the but-for commission, calculated as the selling price times the yardstick commission rate of 1.55%. My estimate of total damages for the class is \$13.7 billion.

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<sup>&</sup>lt;sup>144</sup> From the perspective of the seller, this request to pay the buyer-broker fee would simply become part of the net value of that buyers' offer, and the offer price would be discounted by the seller commensurately, just as a seller might discount an offer from a buyer that was contingent on the seller replacing the furnace or fixing the roof before closing.

# A. For the Purpose of My Damages Calculation Only, I Assume Conservatively that the Buyer Broker Commission Would Have Been Paid by Sellers, and that Buyers Would Have Used Buyer Brokers

- As I have discussed previously in my impact analysis, buyers in the vardstick real estate markets paid their own buyer brokers, if they chose to use them. 145 In the but-for world, buyers would have engaged, determined a fee with, and been responsible for paying their own buyer broker. However, some buyers might have preferred to fold their buyer broker's commission into the purchase price of the property and might have asked sellers to accept a higher purchase price contingent on the seller paying their buyer broker as part of the closing process. This might happen, for example, if the buyer wanted to take out a mortgage for the entire amount of the purchase price, including the buyer broker fee, because in the actual world some mortgage lenders might not allow buyers to include other fees that buyers have paid directly in the amount of the mortgage. 146 To be clear, in the butfor world, where buyers would be responsible for choosing, contracting with, and paying buyer brokers, there would have been economic incentives for mortgage lenders to change their policies to accommodate buyers who wanted to pay their buyer brokers directly (for instance, to lower the home price for tax assessment reasons). But to be conservative, I calculate damages assuming that the seller would have paid the buyer broker in each class member transaction.
- 85. I also conservatively assume for purposes of estimating damages that all class member transactions would have been among those using a buyer broker in the but-for world. This is an extremely conservative assumption because, as the yardstick markets indicate, when buyers are responsible for the costs of engaging a buyer broker, they are much less likely to use a buyer broker. In Australia, the U.K., and the Netherlands, where buyers who retain a broker pay their own brokers, buyer brokers are cheaper than in the U.S. (typically charging 1%-2%) but are much rarer—only 5%-20% of buyers use buyer brokers.<sup>147</sup>

# B. In the But-For World, I Conservatively Estimate That Sellers Would Pay a Yardstick Commission Rate Equal to the Average of the Comparable Markets

<sup>&</sup>lt;sup>145</sup> See Section V.A above.

<sup>&</sup>lt;sup>146</sup> See Elhauge Report at footnote 397 ("In the but-for world, the rare buyer who utilizes a buyer-broker might negotiate with the seller for a closing credit equal to some or all of their buyer-broker fee in exchange for paying a higher price for the home, in order to finance the fee.").

- 86. As a yardstick for the commission rate that would have been paid to buyer brokers in the but-for world, I use an average over the commission rates paid to buyer brokers in the three comparison countries. As described above in Section III.C.3, I have several sources of information about these rates, including documents and data produced in this litigation, public documents published by the defendants, and documents and data collected by my staff from public sources. As these sources are not the same for each country, below I describe the sources of data for each country and how I arrive at a single rate for each country. My investigation into buyer broker prices in these countries continues and I will update these estimates when and if I locate more information or data. Regardless of what the final values of these estimates are, I can reliably determine them in the same way for the entire class as I would if I was estimating damages for any individual class member.
- 87. Note that in these comparable markets, there is evidence showing buyer brokers were paid flat fees, percentage rates, or a mix of both. I calculate the country-level averages, and then the overall yardstick, based on the percentage rates implied by the total fees charged in the data. I do this to facilitate comparisons across markets, particularly since buyer broker commissions were primarily paid as percentage rates in the U.S. Comparisons based on rates also allow me to compare buyer broker commissions between markets that have different price levels, both across and within countries.

# 1. Individual Country Estimates

88. <u>Australia</u>. As discussed above in section III.C.1 and III.D.1, the evidence indicates that buyers in Australia typically paid buyer brokers between 1% and 2% of the transaction amount, plus goods and services tax ("GST") of 10%. However, the lower end of that range may reflect buyer broker engagements with lower service levels; for example, the agency Property Buyer quotes 1.5% to 2% for "Full Search", while the agency Elite Buyer Agents quotes 1% to 2% varying "on the services required". In the but-for world, it is very likely that many buyers would avail themselves of lower service levels, since they would be responsible for paying buyer brokers themselves. However, to be conservative I will assume that all buyers would have chosen higher levels of service, and limit the range to 1.5% to

<sup>&</sup>lt;sup>148</sup> See Section III.C.1 above.

<sup>&</sup>lt;sup>149</sup> See, e.g., <a href="https://www.propertybuyer.com.au/about/what-is-a-buyers-agent">https://www.propertybuyer.com.au/about/what-is-a-buyers-agent</a> ("Full search: Fees are set at 1.5 to 2.0% +GST of purchase price (or flat fee equivalent)"; lower fees for auctions or for appraisal and negotiation only); <a href="https://www.elitebuyeragents.com.au/faq/">https://www.elitebuyeragents.com.au/faq/</a> ("Fee's [sic] can vary on the services required, be it fixed or percentage based which typically vary from 1% to 2%.").

2%. Also, although in the US typically buyers would not need to pay tax on the services of a buyer broker, to be conservative I include the GST as part of the commission amount. Given the range 1.5% to 2%, I take as the best estimate the middle of the range, 1.75%. When GST is added, the estimate becomes 1.925%.

- Netherlands. As discussed above in Sections III.C.2 and III.D.2, many 89. buyer brokers in the Netherlands quote prices as flat fees or as "tiered" flat fees, where a certain fee is paid for a band of purchase prices (e.g., a fee of 4,000 Euros for purchases between 200,000 to 400,000 Euros). This makes constructing a yardstick more complex than simply gathering percentage rate quotes. To determine actual fees and the resulting implied percentage rates, I and my staff have gathered price data from a sample of real estate agencies in the Netherlands that publish their fees for acting as buyer brokers, as well as listing information for these agencies from Funda.nl, the largest real estate platform. 150 As a result, I can determine approximately what rates were paid for buyer brokers by 371 buyers in the Netherlands between September 2020 and February 2022.<sup>151</sup> Over the 371 transactions for which I was able to find published fee information, the average rate paid was 0.94% of the sales price (excluding VAT). It is highly likely that if there was negotiation away from those listed prices, it would have been downward rather than upward, as the listed price was listed by the broker. Thus, my estimate is likely conservative for this sample. As in Australia, buyers are responsible for paying value added taxes ("VAT") on the service provided by the buyer broker. Again, to be conservative I add the 21% VAT onto the average rate for my best estimate, resulting in an estimate of 1.13% of the sales price.

<sup>&</sup>lt;sup>150</sup> Details of analysis discussed in Section III.C.2 above.

<sup>&</sup>lt;sup>151</sup> Although part of this data is from a time period after the class period, the rates are likely conservative, as the demand for buyer agents has generally been rising over the period since 2015. See e.g. NVM, "Dutch property market in focus, The year 2020 in facts and figures," <a href="https://www.nvm.nl/media/ylbarm2w/dutch-property-market-in-focus-2020.pdf">https://www.nvm.nl/media/ylbarm2w/dutch-property-market-in-focus-2020.pdf</a> at p. 31.

<sup>&</sup>lt;sup>152</sup> See discussion in Section III.C.3 above.

<sup>&</sup>lt;sup>153</sup> See backup file "MOE003 Defendants UK Data Summary.log".

<sup>&</sup>lt;sup>154</sup> See Section III.C.3 above.

are responsible for paying VAT on the buyer broker services. After adding VAT (20%), the total is 1.59%. Thus, I use the 1.59% rate as my best estimate.

### 2. Aggregate Yardstick Estimate

91. Table 4 summarizes the best estimates from the country-level discussions above. Because I have no *a priori* reason to think that any one of these countries is the most reliable yardstick, I use the mean of the three estimates. The mean of the best estimates is 1.55%. Henceforth, I use this value as my yardstick estimate of the buyer broker commission rate in the but-for world.

Table 4: Summary of Country-Level Best Estimates of Buyer Broker Commission Rates<sup>155</sup>

Country	Commission Rate
Australia	1.925%
Netherlands	1.13%
United Kingdom	1.59%
Average	1.55%

# C. Total Damages for Each Plaintiff are Equal to Actual Commission Paid to Buyer Brokers Minus the Transaction Value Times the But-For Commission Rate

92. Finally, I calculate damages for the class as a whole and for the named plaintiffs' individual transactions. I first summarize the class transactions, including the number of transactions, total revenues, and total buyer broker commissions paid. I then calculate damages for the class and for the named plaintiffs. Damages are calculated as the actual commissions paid, less the but-for commissions paid, which are equal to the total transaction value times the but-for yardstick commission rate. Note that any class members who paid a buyer broker commission rate of 1.55% or below will have no damages. As discussed above in Section IV.C, all the class members that I identified as being less than 50% likely to be harmed offered less than 1.1% commission rates to buyer brokers, and thus would not collect damages under my methodology.

<sup>&</sup>lt;sup>155</sup> Source: backup file "Economides Damages Tables.xlsx".

# 1. Summary of Plaintiffs, Revenues, and Commission Rates Paid

93. The class period begins March 6, 2015 and ends December 31, 2020. During the class period, there are 3.46 million transactions in the data that fit the class criteria. Table 5 summarizes these transactions. In total, the selling price for these transactions was \$1.1 trillion, and the total buyer broker commission amount was \$30.6 billion. On average (calculated as total commissions divided by total selling price) the commission rate was equal to 2.78%.

Table 5: Transaction Statistics by Year, All Class Transactions 156

Year	Total Transactions	Total Selling Price	Total Buyer Broker Commission Amount	Average Commission Rate
2015	505,358	\$143,885,771,328	\$4,032,194,850	2.80%
2016	591,365	\$172,800,483,001	\$4,829,204,426	2.79%
2017	601,773	\$185,492,412,820	\$5,159,127,927	2.78%
2018	585,447	\$188,364,500,299	\$5,215,148,742	2.77%
2019	579,308	\$193,669,342,860	\$5,364,119,278	2.77%
2020	597,625	\$219,324,923,210	\$6,024,879,361	2.75%
Total	3,460,876	\$1,103,537,433,517	\$30,624,674,583	2.78%

94. Because my yardstick for damages in this case is 1.55%, I only estimate positive damages amounts for class transactions with buyer broker commission rates above 1.55%. Table 6 summarizes the class transactions with buyer broker commission rates above 1.55%. In total, the selling price for these transactions was \$1.09 trillion and the total buyer broker commission amount was \$30.5 billion. The

<sup>156</sup> Source: backup file "Economides Damages Tables.xlsx".

<sup>&</sup>lt;sup>157</sup> As discussed above in Section IV.C, although I do not estimate positive damages amounts for class transactions with commission rates below 1.55%, it does not mean those transactions were not more likely than not harmed. In fact, most of those transactions were likely harmed, because most transactions in the but-for world would not involve a buyer broker, and so would have a buyer broker commission rate of 0. However, solely for the purposes of estimating damages, I am assuming that all class transactions would have been among those involving a buyer broker in the but-for world.

average commission rate (equal to the total commission amount divided by the total selling price) was 2.81%.

Table 6: Transaction Statistics by Year, Class Transactions with Buyer Broker Commission Rates Above 1.55%<sup>158</sup>

	Total		Total Buyer Broker	Average
Year	Transactions	Total Selling Price	Commission	Commission
	Transactions		Amount	Rate
2015	497,470	\$141,358,877,323	\$4,021,012,222	2.84%
2016	582,199	\$169,769,067,094	\$4,814,945,986	2.84%
2017	592,258	\$182,289,543,691	\$5,144,480,996	2.82%
2018	575,743	\$184,999,689,981	\$5,197,994,369	2.81%
2019	572,913	\$191,230,884,106	\$5,345,004,912	2.80%
2020	590,053	\$216,180,343,735	\$5,996,826,725	2.77%
Total	3,410,636	\$1,085,828,405,929	\$30,520,265,210	2.81%

#### 2. Summary of Damages

95. The class-wide damages total in this case is equal to the total commissions paid in the actual world on all class transactions with commission rates above 1.55%, minus the total but-for commissions, calculated as the total selling price times the yardstick commission rate of 1.55%.

Damages = Total Actual World Buyer Broker Commissions
- (Total Selling Price \* But-For Yardstick Commission Rate)

96. Table 7 summarizes the class-wide damages calculation. The total butfor buyer broker commissions are \$16.8 billion, and the total damages are \$13.7 billion. Note that this calculation is straightforward to update, if new evidence indicates that the yardstick commission rate should be different, by changing the yardstick commission rate in the calculation.

<sup>158</sup> Source: backup file "Economides Damages Tables.xlsx".

Table 7: Class-Wide Damages by Year<sup>159</sup>

Year	Total Buyer Broker	Total Selling Price	Yardstick	Total But-For	Damages
	Commission Amount	(B)	Commission	Commissions	(A) – (D)
	(A)		Rate	$(D) = (B) \times (C)$	
			(C)		
	\$4,021,012,222	\$141,358,877,323	1.55%	\$2,188,706,617	\$1,832,305,605
2015					
	\$4,814,945,986	\$169,769,067,094	1.55%	\$2,628,591,056	\$2,186,354,931
2016					
	\$5,144,480,996	\$182,289,543,691	1.55%	\$2,822,449,768	\$2,322,031,228
2017					
	\$5,197,994,369	\$184,999,689,981	1.55%	\$2,864,411,867	\$2,333,582,502
2018					
	\$5,345,004,912	\$191,230,884,106	1.55%	\$2,960,891,522	\$2,384,113,390
2019					
	\$5,996,826,725	\$216,180,343,735	1.55%	\$3,347,192,322	\$2,649,634,402
2020					
			1.55%		
Total	\$30,520,265,210	\$1,085,828,405,929		\$16,812,243,152	\$13,708,022,058

## 3. Damages and Impact to Named Plaintiffs

97. I demonstrate the impact and damages determination for individuals by examining the named plaintiffs in this case. Table 8 below shows the class sales transactions for each named plaintiff. Plaintiff Michael Cole has two class sales transactions, and the other five named plaintiffs each have one. The transactions span five of the Covered MLSs. Each transaction took place through a seller broker affiliated with a Defendant, including all four of Keller Williams, RE/MAX, Realogy, and HomeServices. The transactions were all located within the states identified in the class definition as part of the jurisdictions of the relevant MLSs and occurred during the class period.

Table 8: Named Plaintiff Class Sales Transactions 160

Named	MLS	Affiliated	Address	State	Closing
Plaintiff		Defendant			Date
Michael Cole	REColorado	ReMax	8126 S MEMPHIS WAY	Colorado	5/11/2017

<sup>159</sup> Source: backup file "Economides Damages Tables.xlsx".

<sup>&</sup>lt;sup>160</sup> Source: backup file "Economides Damages Tables.xlsx".

Michael Cole	REColorado	Keller Williams	12710 ESPERA WAY	Colorado	11/6/2019
Steve Darnell	ABOR	Realogy	5601 FOXFIELD LN	Texas	6/1/2016
Christopher Moehrl	Northstar MLS	ReMax	9727 TREE FARM RD	Minnesota	11/15/2017
Jack Ramey	Bright MLS	Realogy	3652 CLAIRTON ST	Maryland	5/8/2015
Jane Ruh	Metro MLS	ReMax	3640 E NORTHBROOK BLVD, OAK CREEK, WI 53154	Wisconsin	9/26/2018
Daniel Umpa	Bright MLS	HomeServices	1324 EUCLID ST NW #402	District of Columbia	11/2/2017

98. Table 9 below shows the damages estimates for each transaction. Damages for each transaction are equal to:

Damages = Actual World Buyer Broker Commission
- (Selling Price \* But-For Yardstick Commission Rate)

The total buyer broker commissions paid for the named plaintiffs in the actual world were \$94,129 on a total selling price of \$3,416,900. On average, the named plaintiffs paid 2.75% in buyer broker commissions. At the yardstick commission rate of 1.55%, they would have paid a total of \$52,905 in buyer broker commissions, and thus the total damages for the named plaintiffs are \$41,223.

Table 9: Named Plaintiff Damages, by Transaction 161

Named Plaintiff	Date	Buyer Broker Commission	Selling Price (B)	Buyer Broker Commission	Yardstick Commission	Total But-For Commissions	Damages (A) - (D)
		Amount Paid	(2)	Rate Paid	Rate	$(D) = (B \times C)$	(11) (D)
		(A)		(A/B)	(C)		
Michael Cole	5/11/2017	\$9,100	\$325,000	2.80%	1.55%	\$5,032	\$4,068
Michael Cole	11/6/2019	\$12,498	\$499,900	2.50%	1.55%	\$7,740	\$4,757
Steve Darnell	6/1/2016	\$33,600	\$1,120,000	3.00%	1.55%	\$17,341	\$16,259
Christopher Moehrl	11/15/2017	\$10,530	\$390,000	2.70%	1.55%	\$6,039	\$4,492
Jack Ramey	5/8/2015	\$9,900	\$330,000	3.00%	1.55%	\$5,110	\$4,791
Jane Ruh	9/26/2018	\$7,176	\$299,000	2.40%	1.55%	\$4,630	\$2,546
Daniel Umpa	11/2/2017	\$11,325	\$453,000	2.50%	1.55%	\$7,014	\$4,311
Total		\$94,129	\$3,416,900	2.75%	1.55%	\$52,905	\$41,223

<sup>&</sup>lt;sup>161</sup> Source: backup file "Economides Damages Tables.xlsx".

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief. Executed on February 23, 2022 (with corrections as of March 8, 2022), at San Francisco, California.

Nicholas Economides

## **Data Appendix**

### 1. Data Restrictions

In order to avoid calculating damages on erroneous data, I limit all damages to 10%. That is, any commission rates larger than 10% in the data are converted to 10% before the calculation of damages.

#### 2. Variable Rate Commissions

10.8% percent of the class transactions are marked in the MLS data as being variable rate listings.<sup>1</sup> Variable rate transactions are "listings where one amount of commission is payable if the listing broker's firm is the procuring cause of sale/lease and a different amount of commission is payable if the sale/lease results through the efforts of the seller/landlord or a cooperating broker."<sup>2</sup> Thus, sellers could pay a lower total commission (buyer commission plus seller commission) when the seller broker is the broker for both sides of the transaction. For example, the blanket offer to buyer brokers on a particular transaction could be 3%, and the seller broker commission could be a variable rate: 3% if a cooperating (buyer) broker brings the buyer, and 2% if the listing (seller) broker brings the offer. Thus, for transactions where the buyer broker and the seller broker are the same, and the transaction is a variable rate listing, the seller could be getting a discount on the total broker commission. This occurs in 1.7% of class transactions.<sup>3</sup>

In the but-for world, there is no *a priori* reason to think that the buyer broker would be the same—that is, the buyer might choose not to use a broker, or might choose a different broker given that they would have to pay for the broker—and so there is no *a priori* reason to think that the seller would get the same discount off of the seller broker commission rate. Thus, when I calculate impact and damages, if the data indicates that the seller was likely to have fulfilled the conditions for the variable rate to be payable, then I need to adjust the impact/damages amount for the amount of the discount, because the difference between the actual world and but-for world would be reduced by that amount.

<sup>&</sup>lt;sup>1</sup> See backup file "MOE080 appendix calcs.log".

<sup>&</sup>lt;sup>2</sup> NAR Realtor Code of Ethics, https://www.nar.realtor/about-nar/governing-documents/code-of-ethics/2022-code-of-ethics-standards-of-practice.

<sup>&</sup>lt;sup>3</sup> See backup file "MOE080 appendix calcs.log".

Given the data available to me, it is not possible to determine for each class transaction whether the seller obtained such a discount and if so what it was. The MLS data that I use for determining impact and damages shows whether the transaction was a variable rate listing, and shows whether seller broker and the buyer broker for a transaction were the same (thus conceivably fulfilling the variable rate discount condition). Again, as noted above 1.7% of class transactions meet these conditions. The MLS data does not show the commission paid by the seller to their agent in this circumstance. Data produced by the defendants shows in many cases the commission paid by the seller to their agent, but does not show what the commission would have been if the buyer agent had been different. It is also possible that when the Defendant seller brokers recorded the transaction in their data, that they recorded the discount on the buyer broker side, rather than the seller broker side. Thus, it is important to consider the total commission paid versus the total commission that would have been paid had the buyer broker been different.

Accordingly, in order to provide a reliable measure of harm for these 1.7% of transactions, I estimate the amount of the discount using a subset of the defendant data for which the defendant providing the data served as the broker on both sides of the transaction, and that includes data on both the buyer broker commission paid, and the seller broker commission paid.<sup>4</sup> In this data, I compare transactions that were marked in the MLS data as Variable Rate, versus those that were not marked as Variable Rate. I also focus on four MLSs with substantial amounts of data (Bright MLS, NTREIS, Northstar MLS, Stellar MLS), in order to increase the reliability of the analysis. Finally, to deal with data entry errors, I limit the data to total commission rates between 0% and 10%.

First, I measure the difference in total commission rates between the Variable Rate listings and the non-Variable Rate listings. Table D1 shows the average total commission rate for each of these groups in each of the MLSs considered. The MLSs vary in the effect of the Variable Rate contracts, from Stellar MLS with a difference of 0.06 percentage points, to NTREIS, with a difference of 0.4 percentage points. The total difference in average rates is 0.2 percentage points.

<sup>&</sup>lt;sup>4</sup> For this analysis I use the Realogy Trident and Keller Williams datasets, which as noted by Prof. Elhauge are a particularly close fit with the MLS data, indicating they are of high quality. See Elhauge Report, Data Appendix.

Table D1: Average Total Commission Rate, by Variable Rate and MLS<sup>5</sup>

MLS	Non-Variable	Variable	Difference	Total
Bright MLS	5.22	4.97	0.25	5.17
NTREIS	5.39	5.00	0.4	5.36
Northstar MLS	5.66	5.56	0.1	5.65
Stellar MLS	5.33	5.27	0.06	5.31
Total	5.47	5.26	0.2	5.44

If all transactions with variable rate contracts received discounts, then 0.2 would be the best estimate for the average. However, to be conservative I consider the possibility that fewer variable rate contract transactions received a discount, but that the received discounts were larger than 0.2 percentage points. I estimate the number of transactions affected by the variable rate by examining the share of transactions that paid 6% total commission rates, the largest typical rate paid in the datasets. I look at transactions paying 6% rates because there are unlikely to be higher-paying transactions that would end up at 6% after a discount. On average, 55.7% of transactions with non-variable contracts paid near 6% (within 5.9 and 6.1), while only 45.9% of transactions with variable contracts paid near 6%. This implies that 9.8% / 55.7% = 17.5% of contracts obtained a discount as a result of the variable rate contract. If a saving of 0.2 percentage points, on average, was achieved by discounts to 17.5% of contracts, that implies that the average saving was 0.2 / 17.5% = 1.14. Given that pricing in the data is heavily biased toward round number pricing, this implies that the typical discount is probably 1 percentage point.

To be conservative, since given the data available to me I am not able to determine for certain which 17.5% of the variable rate, same-broker transactions received discounts, I calculate impact and damages as if all of them (1.7% of the class transactions) had received a 1% discount, down to a minimum rate of 0%.

<sup>&</sup>lt;sup>5</sup> Source: backup file "MOE061\_appendix.xlsx".

#### **Prof. Nicholas Economides CV**

February 2022

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Executive Director, NET Institute, www.NETinst.org, December 2002-

January 2017-August 2017: Visiting Professor, Haas School of Business, U.C. Berkeley.

September 2012-August 2014: Visiting Professor, Haas School of Business, U.C. Berkeley.

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January 2004-August 2004: Visiting Professor, Stanford University.

January 2001-August 2001: Visiting Professor, Stanford University.

Academic year 1997-1998: Visiting Scholar, Federal Reserve Bank of New York.

Academic year 1996-1997: Visiting Professor, Stanford University.

January 1989 - August 1990: Visiting Associate Professor, Stanford University.

July 1988 to August 1990: Associate Professor, Columbia University, Department of Economics.

September 1981 - June 1988: Assistant Professor, Columbia University, Department of Economics.

Research Assistant for Professor Andreu Mas-Colell, October 1979 - June 1981.

Research Assistant for Professor David Babel, January 1981 - August 1981.

Research Assistant for Professor Richard Gilbert, October 1978 - September 1979.

Teaching Assistant at the University of California, Berkeley, September 1977 - June 1980.

Courses supervised: Graduate Microeconomic Theory, Intermediate Microeconomics, Introductory Economics.

#### Education

Ph.D. 1981, University of California, Berkeley.

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Network Industries, Telecommunications, Structure of Financial Markets, Antitrust and Competition Policy, Law and Economics, Industrial Organization.

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#### A. PUBLISHED AND ACCEPTED PAPERS

2021 Giving Away Our Data for Free is a Market Failure, with Ioannis Lianos, ProMarket.

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  - "Do Increases in Preference Diversity (Across Countries) Induce Increases in Trade? An Affirmative Example," *Journal of International Economics*, vol. 17 (1984), pp. 375-381, at <a href="http://www.stern.nyu.edu/networks/Economides">http://www.stern.nyu.edu/networks/Economides</a> Do Increases In Preference Diversity.pd <a href="mailto:f.">f</a>.
- 1982 "The Demand for Life Insurance: An Application of the Economics of Uncertainty: A Comment," *Journal of Finance*, vol. 37, no. 5 (1982), pp. 1305-1309, at <a href="http://www.stern.nyu.edu/networks/Economides">http://www.stern.nyu.edu/networks/Economides</a> Demand For %20Life Insurance.pdf .
- 1981 *Oligopoly in Markets for Products Differentiated by their Characteristics*, Ph.D. dissertation, University of California, Berkeley, 1981.

#### B. PAPERS UNDER REVIEW AND WORKING PAPERS

- 1. "Non-Discrimination in payment systems," with Yossi Spiegel, mimeo.
- 2. "Antitrust in two-sided markets," with Ioannis Lianos, mimeo.
- 3. "To Surcharge or Not to Surcharge? A Two-Sided Market Perspective of the No-Surcharge Rule" with David Henriques, NET Institute Working paper #11-03, August 2011, at http://www.stern.nyu.edu/networks/Economides\_Henriques\_To\_surcharge\_or\_not\_to.pdf
- 4. "Trichet Bonds to Resolve the European Sovereign Debt Problem," with Roy Smith,

- NET Institute Working paper #11-01, January 2011, at <a href="http://www.stern.nyu.edu/networks/Economides-Smith Trichet Bonds.pdf">http://www.stern.nyu.edu/networks/Economides-Smith Trichet Bonds.pdf</a>.
- 5. "Bank Network Formation and Sustainability," with Matthew Pritsker, mimeo.
- 6. "Unbundling Music: The Effect of Online Selling of Individual Songs on Prices," with Sherif Nasser, mimeo.
- 7. "Dynamic Duopoly with Network Effects" (with Matt Mitchell and Andrzej Skrzypacz), mimeo., at <a href="http://www.stern.nyu.edu/networks/Dynamic Duopoly with Network Effects.pdf">http://www.stern.nyu.edu/networks/Dynamic Duopoly with Network Effects.pdf</a> .
- 8. "The Incentive for Vertical Integration," NET Institute Working Paper, at <a href="http://www.stern.nyu.edu/networks/The Incentive for Vertical Integration.pdf">http://www.stern.nyu.edu/networks/The Incentive for Vertical Integration.pdf</a>.
- 9. "Does it Pay to be First? Sequential Locational Choice and Foreclosure" (with Jamie Howell and Sergio Meza), Discussion Paper, Stern School of Business, N.Y.U., <a href="http://www.stern.nyu.edu/networks/SeqlocDec2004.pdf">http://www.stern.nyu.edu/networks/SeqlocDec2004.pdf</a>.
- 10. "Quality Choice in Markets with Network Effects," (with Cristian Dezso), mimeo.
- 11. "Standards Coalitions Formation and Market Structure in Network Industries," (with Andrzej Skrzypacz), Working Paper, http://www.stern.nyu.edu/networks/Standards.pdf.
- 12. "The Microsoft Antitrust Case: A Case Study for MBA Students," mimeo., at http://www.stern.nyu.edu/networks/homeworks/Microsoft\_Case.pdf
- 13. "Market Structure in Network Industries," mimeo.
- 14. "Raising Rivals' Costs in Complementary Goods Markets: LECs Entering into Long Distance and Microsoft Bundling Internet Explorer," Discussion Paper EC-98-03, Stern School of Business, N.Y.U., <a href="http://www.stern.nyu.edu/networks/98-03.pdf">http://www.stern.nyu.edu/networks/98-03.pdf</a>.
- 15. "Compatibility and Market Structure for Network Goods," Discussion Paper EC-98-02, Stern School of Business, N.Y.U. (with Fredrick Flyer), http://www.stern.nyu.edu/networks/98-02.pdf.
- 16. "Critical Mass and Network Size with Application to the US Fax Market," Discussion Paper no. EC-95-11, Stern School of Business, N.Y.U. (with Charles Himmelberg), <a href="http://www.stern.nyu.edu/networks/Critical.pdf">http://www.stern.nyu.edu/networks/Critical.pdf</a>.
- 17. "Monopolistic Competition with Two-Part Tariffs," (with Steve Wildman), <a href="http://www.stern.nyu.edu/networks/Economides Wildman Monopolistic Competition with Two-Part Tariffs.pdf">http://www.stern.nyu.edu/networks/Economides Wildman Monopolistic Competition with Two-Part Tariffs.pdf</a>.
- 18. "The Incentive of a Multiproduct Monopolist to Provide All Goods," Discussion Paper no. EC-95-09, Stern School of Business, N.Y.U., http://www.stern.nyu.edu/networks/95-09.pdf.

- 19. "Principles of Interconnection: A Response to 'Regulation of Access to Vertically-Integrated Natural Monopolies'," submitted to the New Zealand Ministry of Commerce, <a href="http://www.stern.nyu.edu/networks/principl.pdf">http://www.stern.nyu.edu/networks/principl.pdf</a>.
- 20. "Equilibrium Fee Schedules in a Monopolist Call Market," Discussion Paper no. EC-94-15, Stern School of Business, N.Y.U. (with Jeff Heisler), http://www.stern.nyu.edu/networks/94-15.pdf.
- 21. "Mixed Bundling in Duopoly," Discussion Paper EC-93-29, Stern School of Business, N.Y.U., <a href="http://www.stern.nyu.edu/networks/93-29.pdf">http://www.stern.nyu.edu/networks/93-29.pdf</a>.
- 22. "Benefits and Pitfalls of Network Interconnection," Discussion Paper no. EC-92-31, Stern School of Business, N.Y.U. (with Glenn Woroch), <a href="http://www.stern.nyu.edu/networks/92-31.pdf">http://www.stern.nyu.edu/networks/92-31.pdf</a>.
- 23. "Compatibility and Market Structure," Discussion Paper EC-91-16, Stern School of Business, N.Y.U., <a href="http://www.stern.nyu.edu/networks/91-16.pdf">http://www.stern.nyu.edu/networks/91-16.pdf</a>.
- 24. "Co-existence of Call and Continuous Markets," mimeo. (with Jeff Heisler).
- 25. "Market Structure of Broadband and Multimedia Services on the Information Superhighway," mimeo. (with David Salant).
- 26. "The Benefits of Franchising and Vertical Disintegration in Markets for Locationally Differentiated Products," mimeo.
- 27. "Variable Compatibility Without Network Externalities," Discussion Paper No. 157, Center for Economic Policy Research, Department of Economics, Stanford University.
- 28. "The Choice of Strategy Space in Duopoly," mimeo.
- 29. "A Simple Model of Trade in Differentiated Products," International Economics Research Center Discussion Paper No. 26 (195), Department of Economics, Columbia University.
- 30. "One-sided and Two-sided Commitments," Discussion Paper No. 337, Department of Economics, Columbia University.
- 31. "Equilibrium Coalition Structures," Discussion Paper No. 273, Columbia University, Department of Economics.
- 32. "Stable Open Shop Unions," Discussion Paper No. 247, Columbia University, Department of Economics.

#### C. WORK IN PROGRESS

- 1. Privacy and Cybersecurity
- 2. Economics of most favored nation clauses
- 3. Mobile banking

- 4. Loyalty-Requirement contracts and other vertical restrictions; bundling
- 5. Compatibility, Add-ons, Adapters and Interfaces
- 6. The Economics of networks and complementarity
- 7. Two-sided network pricing and two-sided price discrimination
- 8. Endogenous Formation of Markets and Networks
- 9. Two-Part Tariffs, and other Non-Linear Pricing Schemes
- 10. Patents and antitrust

### D. <u>PROFESSIONAL ACTIVITIES</u>

- Created in December 2002 and is the Executive Director of the NET Institute, www.NETinst.org. The Networks, Electronic Commerce and Telecommunications ("NET") Institute is a non-profit institution devoted to research on network industries, electronic commerce, telecommunications, the Internet, "virtual networks" comprised of computers that share the same technical standard or operating system, and on network issues in general. The NET Institute functions as a world-wide focal point for research and open exchange and dissemination of ideas in these areas. The NET Institute competitively funds cutting edge research projects in these areas of research. It organizes conferences and seminars on these issues. In its eighteen years of operation, the NET Institute has funded (with about \$2 million) through competitive proposals over 400 researchers (typically assistant professors) who received summer grants for research in the areas mentioned above. The NET Institute's Board consists of Dr. Vinton G. Cerf (Google), Professor Nicholas Economides (NYU), David Heiner (Truveta), Dr. Nathan Myhrvold (Intellectual Ventures) and Professor Ariel Pakes (Harvard).
- Co-editor, *Journal of Economics & Management Strategy* (JEMS).
- Co-editor, *Journal of Competition Law and Economics* (JCLE).
- Editor, Telecommunications Policy.
- Editor, European Academy for Standardization Yearbook.
- Editor, *Netnomics*.
- Editor, *International Journal of Management and Networks Economics* (IJMNE)
- Editorial Board, Information Economics and Policy (IEP)
- Editorial Board, Quarterly Journal of Electronic Commerce (QJEC)
- Editorial Board, Journal of Financial Transformation (JFT)
- Editorial Board, *Policy and the Internet*
- Editor, *Economics of Networks*, Social Science Research Network.

- Editor, International Journal of Industrial Organization, 1993-2002.
- Advisory Board, Journal of Competition and Regulation in Network Industries
- Advisory Board, *Industrial Organization: Theory*, Social Science Research Network.
- Advisory Board, *Industrial Organization: Industry Studies*, Social Science Research Network.
- Advisory Board, *Industrial Organization: Productivity, Innovation, and Technology*, Social Science Research Network.
- Advisory Board, *Industrial Organization: Regulation, Antitrust, and Privatization*, Social Science Research Network.
- Advisory Board, *Economist Intelligence Unit*.
- Editor of a special issue of the *International Journal of Industrial Organization* on Network Economics.
- Referee for The American Economic Review, Annales d'Economie et de Statistique, Australian Economic Papers, B.E. Journals in Economic Analysis and Policy, Econometrica, The Economic Journal, Economic Theory, Economica, The European Economic Review, The European Journal of Political Economy, Harvard Law Review, International Economic Review, The International Journal on Media Management, International Journal of Industrial Organization, The Journal of Economic Theory, The Journal of Economics, Management and Strategy, The Journal of Evolutionary Economics, The Journal of Finance, The Journal of Industrial Economics, Journal of Institutional and Theoretical Economics, The Journal of International Economics, Journal of Organizational Computing, Journal of Political Economy, Journal of Regional Science, Kyklos, Marketing Science, Mathematical Social Sciences, Quarterly Journal of Economics, Quarterly Review of Economics and Finance, The Rand Journal of Economics, The Review of Economic Studies, Scandinavian Actuarial Journal, Regional Science and Urban Economics, Zeitschrift fuer Nationaloekonomie, as well as for the National Science Foundation.
- Drafting Committee of the new Hellenic Competition Law 2020.
- AXION Award, 2019
- Drafting Committee of the new Hellenic Competition Law, 2010.
- Career Award Panel, National Science Foundation, 2006.
- Has made numerous presentations of current research at leading Universities and at conferences, including the Winter and Summer Meetings of the Econometric Society and the American Economic Association, the Annual Congress of the European Economic Association, the European Association for Research in Industrial Economics, the Telecommunications Policy Research Conference, and many others. Has organized the

Industrial Organization and the Economic Theory Workshops at Columbia University 1982-1988. In recent years, he organized the Industrial Organization Workshop at the Stern School of Business, N.Y.U.

- Has created a server on the Internet on *The Economics of Networks*. This server contains information on networks, working papers, and a very extensive interactive bibliography on this subject. The *Economist* magazine has rated this web site among the top 4 economics site in the world. Since its creation in March 1995, it has been visited over 4.2 million times.
- Outside reviewer in numerous promotion and tenure cases.

## Ph.D. students supervised while at Stern (graduated)

- Asim Ansari, Professor of Marketing at the Columbia Business School.
- Angelos Antzoulatos, Professor of Economics, University of Piraeus, Greece.
- Ravi Aron, Professor of Information Systems at the Wharton School, University of Pennsylvania.
- Cristian Dezso, Assistant Professor, University of Maryland.
- Mark Ginsburg, Assistant Professor of Information Systems at the University of Arizona.
- Jeffrey Heisler, Professor of Finance at the Business School of Boston University.
- Evangelos Katsamakas, Assistant Professor of Information Systems, Fordham University.
- Ravi Mantena, Assistant Professor of Information Systems, University of Rochester.
- Sergio Meza, Assistant Professor of Marketing, University of Toronto Business School.
- <u>Sherif Nasser</u>, Assistant Professor of Marketing, Olin School of Business, Washington University.
- Gal Oestreicher-Singer, Assistant Professor of Information Systems, Tel Aviv University.
- Chris Stefanadis, Assistant Professor of Economics, University of Piraeus, Greece.
- <u>Shivakumar Viswanathan</u>, Associate Professor of Information Systems at the Business School of the University of Maryland.
- Mingdi Xin, Assistant Professor of Information Systems, University of British Columbia.

#### E. PROFESSIONAL MEMBERSHIPS

- Member of the American Economic Association, the Industrial Organization Society, the European Industrial Organization Society, and the Econometric Society.
- National Research Council and National Academies of Sciences, head of committee on usability and security of computer systems
- University Senator and University Faculty Council member, New York University; Finance Committee of the University Senators Council; head of the Finance Committee of the University Senators Council; head of the Housing Committee of the University Senators Council

## F. AWARDS

- 1. National Science Foundation research grant on 5G, 2015-2021.
- 2. Gates Foundation grant on mobile money.
- 3. Glucksman Fellowship award, 1991-1992, 1993-1994.

- 4. National Science Foundation research grants, 1984 1988.
- 5. Summer Research Grants, Stern School of Business, 1990-1996; 2010.
- 6. Research Associate, Columbia Institute for Tele-Information, Columbia Business School.
- 7. Research Associate, Center for the Study of Futures Markets, Columbia Business School.
- 8. Fellowship by the Center for Law and Economics, Columbia University, 1984 1986.
- 9. Council for Research in the Social Sciences research grants, Summer 1982, 1984, 1985.

### G. REFERENCES

References are available upon request.

#### H. <u>CORPORATE AFFILIATIONS</u>

Has advised or is currently advising the U.S. Federal Trade Commission, the governments of Canada, Greece, Ireland, New Zealand, and Portugal, Attorneys General of several States, the Federal Reserve Board, several Federal Reserve Banks, the Bank of Greece, major telecommunications corporations and major Financial Exchanges. Advisory Board, *Economist Intelligence Unit*. A list of cases where I have served as an expert on antitrust, regulatory, public policy, and financial markets matters is available upon request. Among others, I have served as an expert in

- Cameron et al. v. Apple
- Re Air Cargo Shipping Services Antitrust Litigation
- FCC Open Internet Proceeding
- United States v. SBC and United States v. AT&T
- United States v. Verizon and MCI
- Avaya Inc. v. Telecom Labs
- Spartanburg Regional Healthcare System v. Hillenbrand Industries
- WorldCom-Sprint Merger
- MCI-WorldCom Merger
- United States v. Microsoft (Amicus Brief)
- New York State Investigation of Intel
- VTech v. Lucent
- Several FCC and State proceedings on behalf of AT&T, Sprint, and MCI, as well as an independent

## I. RECENT SEMINARS AND CONFERENCE PRESENTATIONS

- Speaker, ICABE conference, November 3, 2021
- Speaker, Ecosystems and Competition Law, October 21, 2021
- Speaker, Regulating Competition in the Digital Economy, June 30, 2021
- Speaker, White and Case, Conference on Antitrust, April 22, 2021
- Speaker, University of Auckland, April 21, 2021
- Speaker, Hellenic Competition Commission, Antitrust in Platforms, February 22, 2021
- Speaker, NYU Poly, 5G issues, February 16, 2021
- Speaker, Hellenic Competition Commission, A primer on platforms, February 15, 2021

- Speaker, Hellenic Competition Commission, Competition Law in Greece, February 4, 2021
- Speaker, ICABE conference, October 9, 2020
- Speaker, <u>Big Tech and Antitrust Conference</u>, Yale University, October 4, 2020
- Organizer and speaker, Stern NYU, <u>NET Institute conference</u>, November 15, 2019
- Speaker, <u>TechCon</u>, Stern NYU, November 8, 2019
- Speaker, Brexit, Baruch College, November 7, 2019
- Speaker, Antitrust in the Developing World, NYU Law, November 1, 2019
- Speaker, ICABE conference, Thessaloniki, Greece, October 22, 2019
- Speaker, Conference: Next Day for Greece, June 19, 2019
- Speaker, University of Piraeus, Finance Department, June 6, 2019
- Speaker, University of Athens, Law School, June 5, 2019
- Speaker, Competition, Governance, and Regulation of the Internet Economy, Peking University, Beijing, China, April 17, 2019
- Speaker, American Bar Association Antitrust Conference, Antitrust in two-sided platforms, March 28, 2019
- Organizer and speaker, Stern NYU, <u>NET Institute conference</u>, December 7, 2018
- Stern School of Business, Platforms, November 13, 2018
- MIT, Network neutrality, October 23, 3018
- Speaker, FTC Hearings on EU Android, October 16, 2018
- Speaker, IMEDIPA, Competition Policy in Europe, June 8, 2018
- Speaker, Athens College, The Business of Platforms, June 7, 2018
- Speaker, American Bar Association Antitrust Conference, Antitrust in two-sided platforms, April 11, 2018
- Organizer and speaker, Stern NYU, NET Institute conference, December 1, 2017
- Speaker HACC, The Economics of Business Platforms, November 20, 2017
- Speaker, FCC, Mobile Banking and Compatibility, October 13, 2017
- Speaker, Athens College, <u>PPT: Greek Economic Crisis</u>, <u>Video part A</u>, <u>Video part B</u>, June 8, 2017
- Organizer and speaker, <u>NET Institute conference</u>, December 9, 2016
- Speaker, Capitol Group, Google tying issues, August 2, 2016
- Speaker, International Center for Enterprise Preparedness, Brexit, July 21, 2016
- Speaker, Hidden side of the moon (Android-Google), Moscow, April 22, 2016
- Speaker, Stern School of Business, NYU, December 14, 2015
- Speaker, US Congress, Committee on Telecommunications, October 27, 2015
- Speaker, Idryma K. Karamanlis, Athens, June 4, 2015
- Speaker, Center for Economic Policy Research, Athens, May 21, 2015
- Speaker, Emergency Economic Summit on Greece, May 19, 2015
- Speaker, Stern School of Business, March 3, 2015
- Speaker, Elios Society, February 3, 2015
- Speaker, American Bar Association, Counseling and Litigating in the Aftermarket Post-Kodak, December 18, 2014
- Speaker, NYC Media Seminar, Economics of Network Neutrality, November 5, 2014
- Speaker, FCC, Network Neutrality Regulation, October 2, 2014

- Speaker, University of Athens, Network Neutrality, June 16, 2014
- Speaker, KEPE, Greek and EU crisis, May 28, 2014
- Speaker, CEPR conference, Download Caps, May 22, 2014
- Speaker, Stanford Law School, Network Neutrality, May 15, 2014
- Speaker, UC Berkeley, EU Crisis, April 3, 2014
- Speaker, Wharton, Network neutrality, February 18, 2014
- Speaker, IOfest, UC Berkeley, Mobile banking, November 16, 2013
- Speaker, IEEE Software Defined Networks for Future Networks and Services, November 13, 2013
- Speaker, UC Berkeley Engineering, Network neutrality, November 8, 2013
- Speaker, Athens Biennale, October 12, 2013
- Speaker, UC Berkeley, Mobile Money, October 11, 2013 Organizer and speaker, <u>NET Institute Conference</u>, UC Berkeley, June 7, 2013
- Speaker, Stanford University, Greek, Cypriot, and EU Crisis, April 13, 2013
- Speaker, Greek Crisis, March 15, 2013
- Presentation by Ben Hermalin of joint work on price discrimination in networks, IOfest, GSB, Stanford University, December 8, 2012
- Speaker, Rimini, Italy, <u>Conference on EU crisis organized by Gorbatchev and Kissinger</u>, <u>Presentation on the Greek and EU crisis</u>, October 13, 2012
- Speaker, Center for Economic Policy Research, Athens, <u>Greek and EU crisis</u>, June 27, 2012
- Speaker, Economic Recovery in Ireland: Status, Outlook, and Opportunities, May 10, 2012
- Speaker, NACHA Payments 2012, Baltimore, May 1, 2012
- Speaker, Kansas City Federal Reserve, March 28, 2012
- Organizer and speaker, NET Institute Conference, New York, April 20, 2012
- Speaker, IIOC conference, Alexandria, Virginia, March 16-17, 2012
- Speaker, Loyola Marymount University, February 12, 2012
- Speaker, Governance of Social Media Workshop, Georgetown University, November 11, 2011
- Speaker, Stern School of Business, October 17, 2011
- Speaker, Board of Governors, Federal Reserve Board of Governors, October 7, 2011
- Speaker, University of Southern California, Los Angeles, September 12, 2011
- Speaker, Cheung Kong Graduate School of Business, Beijing, April 1, 2011
- Speaker, Shanghai University of Finance and Economics, Shanghai, March 29, 2011
- Speaker, "Competition Law and the State" conference, Hong Kong, March 18-19, 2011
- Speaker, Measuring Systemic Risk Conference, Chicago, December 15, 2010
- Organizer and speaker, <u>NET Institute Conference</u>, New York, November 19, 2010
- The Health Care Delivery System as Innovation Zone, NYU Medical Center, November 15, 2010
- Speaker, Entrepreneurship and Stern School of Business, October 7, 2010
- Speaker, TPRC, Washington DC, October 3, 2010
- Speaker, WIN conference, Stern School of Business, September 24, 2010
- Presentation by Ben Hermalin of joint work, Economics dept., UC Berkeley, September 7, 2010

- Speaker, Summer Institute in Competitive Strategy, Haas School of Business, UC Berkeley, July 22, 2010
- Speaker, University of Athens, June 2, 2010
- Speaker, Hellenic Competition Commission, Athens, June 1, 2010
- Speaker, American Bar Association, May 25, 2010
- Organizer and speaker, NET Institute Conference, New York, April 16, 2010
- Speaker, George Mason Law Review 13th Annual Symposium on Antitrust Law, Washington DC, February 4, 2010
- Speaker, Institute of Advanced Legal Studies, University College London, January 21, 2010
- Speaker, Oxford University, January 20, 2010
- Speaker, Security and Privacy Day Conference, NYU-Poly, December 4, 2009
- Speaker, Hearings of the New York City Council, November 20, 2009
- Speaker, Debate on Net Neutrality, Web 2.0 Conference, November 17, 2009
- Speaker, World Economic Forum, New York, October 1, 2009
- SIEPR/Microsoft Conference on Internet Economics, Stanford, CA, September 24-25, 2009
- Speaker and Committee Chairman, National Academy of Sciences conference on Usable Security and Privacy, Washington, DC, July 21-22, 2009
- Speaker, New York State Bar Association, New York, June 17, 2009
- Speaker, Engineering School, University of Athens, June 3, 2009
- Speaker, 3rd International Conference on Competition Law and Policy, Athens, May 29, 2009
- Speaker, Competition Policy Workshop, Santorini, May 28, 2009
- Speaker, Convergence of Broadband Telecommunications and Media, Athens, May 20, 2009
- Organizer and speaker, NET Institute Conference, New York, May 8, 2009
- Speaker, NYU Law School, March 3, 2009
- Speaker, Yale University, February 17, 2009
- Speaker, NYU Poly, February 13, 2009
- Speaker, USC Law School, Los Angeles, January 27, 2009
- Speaker, USC Economics Department, Los Angeles, January 26, 2009
- Speaker, American Economic Association Meetings, San Francisco, January 3, 2009
- Speaker, New York City Bar Association, New York, November 25, 2008
- Speaker, NYU Law School, November 11, 2008
- Speaker, Wharton School, November 4, 2008
- Speaker, Axinn, Veltdrop, Harkrider, October 6, 2008
- Speaker, Telecommunications Policy Research Conference, Arlington, VA, September 29, 2008
- Speaker, Brookings Institution, September 16, 2008
- Speaker, Telecommunications Regulator, Athens, Greece, June 2, 2008
- Speaker, Athens Business School, May 29, 2008
- Speaker, IIOC conference, May 17, 2008
- Speaker Fordham University, May 2, 2008
- Organizer and speaker, NET Institute Conference, New York, April 18, 2008

- Seminar Speaker, Stern School of Business, February 19, 2008
- Seminar Speaker, UC Santa Barbara, December 5, 2007
- Seminar Speaker, Haas School of Business, University of California, Berkeley, November 29, 2007
- Speaker, Northwestern University School of Law, Conference: "The End of the Microsoft Antitrust Case?," November 15, 2007
- Seminar Speaker, Marshall School, USC, Los Angeles, November 9, 2007
- Seminar Speaker, Annenberg School, USC, Los Angeles, November 8, 2007
- Seminar Speaker, iSchool, University of California, Berkeley, November 7, 2007
- Seminar Speaker, Economics Department, University of California, Berkeley, October 30, 2007
- Seminar Speaker, UC Santa Cruz, October 9, 2007
- Seminar Speaker, University of Maryland, September 28, 2007
- Speaker, Telecommunications Policy Research Conference, Arlington, VA, September 29, 2007
- Speaker, The Reform of EC and Greek Competition Law, Athens, Greece, June 1-2, 2007
- Organizer and speaker, **NET Institute Conference**, New York, April 20, 2007
- Keynote Speaker, Hawaii International Conference on System Sciences, January 3-6, 2007.
- Speaker, Structuring Regulatory Frameworks for Dynamic and Competitive South Eastern European Markets, Athens, Greece, December 18 19, 2006.
- Speaker, The Future of Telecommunications, University of Southern California, Los Angeles, October 13, 2006
- Seminar Speaker, University of Southern California, Los Angeles, October 12, 2006
- Speaker, Telecommunications Policy Research Conference, Arlington, VA, September 30, 2006
- Speaker, Telecommunications Policy Research Conference, Arlington, VA, September 29, 2006
- Speaker, Stepping Stones And Stumbling Blocks: Lessons From The Telecom Wars Conference, George Mason Law School, Arlington, VA, September 28, 2006
- Seminar speaker, University of California, Berkeley, September 26, 2006
- Speaker, American Bar Association, San Francisco, September 15, 2006
- Seminar speaker, University of California, Berkeley, September 13, 2006
- Organizer and speaker, NET Institute Conference, New York, April 21, 2006
- Speaker and session chairman, Industrial Organization Conference, Boston, April 9, 2006
- Discussant, Industrial Organization Conference, Boston, April 8, 2006
- Speaker, Industrial Organization Conference, Boston, April 8, 2006
- Speaker, Quello Telecommunications Conference, Washington DC, April 6, 2006
- Speaker, Open Source in the International Marketplace, University of Pennsylvania Law School, Philadelphia, March 31, 2006
- Speaker, Rotman School of Business, University of Toronto, November 21, 2005
- Speaker, Telecommunications Policy Research Conference, September 24, 2005
- Speaker, Japan Fair Trade Commission, Tokyo, September 20, 2005
- Speaker, University of Tokyo, Tokyo, September 16, 2005

- Speaker, Stern's Center for Digital Economy Research Workshop, June 16, 2005, see <a href="http://w4.stern.nyu.edu/news/news.cfm?doc\_id=4608">http://w4.stern.nyu.edu/news/news.cfm?doc\_id=4608</a>
- Speaker, NYU Law School, April 7, 2005
- Organizer and speaker, <u>NET Institute Conference</u>, New York, April 1, 2005
- Speaker, University of California, Santa Cruz, January 11, 2005
- Speaker, American Economic Association Meetings, Philadelphia, January 8, 2005
- Speaker, Stern School of Business, November 16, 2004
- Speaker, Department of State, Washington DC, November 12, 2004
- Speaker, NYU Law School, November 5, 2004
- Speaker, Athens Business School and University of Athens, Athens, Greece, October 19, 2004
- Speaker, "Law of Network Potential" Conference, University of California, Berkeley, October 14, 2004
- Speaker, Telecommunications Conference, Stanford University, Stanford, California, October 9, 2004
- Speaker, Telecommunications Policy Research Conference, Arlington, Virginia, October 1-3, 2004
- Speaker, "After the Closing of the Spectrum Frontier: What Spectrum Allocation Models Work Best, When, And Where?," Columbia University, New York, September 27, 2004
- Speaker, University of California, Berkeley, July 31, 2004
- Speaker, Stanford University, July 12, 2004
- Speaker, University of California, Davis, April 27, 2004
- Session chairman and discussant, IIOC conference, Chicago, IL, April 24, 2004
- Speaker, IIOC conference, Chicago, IL, April 23, 2004
- Speaker, University of Arizona, April 19, 2004
- Speaker, Stern School of Business, New York, March 11, 2004
- Speaker, Hoover Institution, Stanford University, Stanford, CA, March 9, 2004
- Speaker and organizer, NET Institute conference, New York, NY, December 12, 2003
- Speaker, Stern School of Business, New York, NY. December 4, 2003
- Speaker, Federal Trade Commission, Washington DC, November 6, 2003
- Speaker, Department of State, Washington DC, November 5, 2003
- Speaker, Telecommunications Policy Research Conference, Arlington, Virginia, September 19-21, 2003
- Speaker, "Network Economics and Antitrust," Law School, New York University, March 31, 2003
- Speaker, "Complexities and the Limits of Organization" conference, Columbia University, February 24, 2003
- Speaker, "Integration, Investment And Innovation: Future Directions for the Telecommunications Industry" conference, Georgetown University, February 21, 2003
- Seminar speaker, Stern School of Business, October 31, 2002
- Speaker, Conference: "On the future agenda for economic policy," Stanford University, October 24-26, 2002

- Speaker, Telecommunications Policy Research Conference, Alexandria, VA, September 28-30, 2002
- Speaker, American Bar Association Meetings, Washington DC, August 11, 2002
- Speaker, New Economy Conference, Athens, Greece, June 7, 2002
- Keynote speaker, Austrian Economic Association Conference NOEG, Vienna, Austria, May 16, 2002
- Speaker, Trends for the New Economy Conference, Texas A&M, April 19, 2002
- Speaker, organizer, and moderator, CEO Summit on Rebuilding Confidence in the US Economy, New York University, December 7, 2001, see <a href="http://www.stern.nyu.edu/networks/summit.html">http://www.stern.nyu.edu/networks/summit.html</a>
- Seminar speaker, Stern School of Business, November 13, 2001
- Speaker, Telecommunications Policy Research Conference, Alexandria, VA, October 29, 2001
- Session chairman, Telecommunications Policy Research Conference, Alexandria, VA, October 28, 2001
- Speaker, Conference: "Key Drivers For Wireless 3G," Columbia University, October 25, 2001
- Speaker, Federalist Society, "The Microsoft Decision, What's Next?," New York, October 24, 2001
- Speaker and moderator, "Antitrust Concerns in Network Industries," American Bar Association Meetings, Chicago, August 7, 2001
- Speaker, "Antitrust Concerns in Network Industries," New York Bar Association, June 14, 2001
- Speaker, Supercomm Conference, Atlanta, June 4, 2001
- Seminar speaker, Hoover Institution, Stanford University, May 7, 2001
- Seminar speaker, Economics Department, Stanford University, May 7, 2001
- Conference speaker, AT&T, April 25, 2001
- Seminar speaker, Stern School of Business, April 24, 2001
- Seminar speaker, MIT, April 23, 2001
- Seminar speaker, Law School, Stanford University, April 18, 2001.
- Seminar speaker, Graduate School of Business, Stanford University, March 21, 2001.
- Seminar speaker, University of California, Berkeley, March 18, 2001.
- Seminar speaker, University of California, Santa Barbara, March 12, 2001.
- Seminar speaker, University of California, Los Angeles, March 2, 2001.
- Seminar speaker, Stanford University, February 28, 2001.
- Speaker, "Consumers in the Digital Age Conference," *Hastings Law Journal* Symposium, San Francisco, February 11, 2001.
- Speaker: "Microsoft Antitrust," Winter Meetings of the American Economic Society, New Orleans, January 7, 2001.
- Keynote speaker, Canadian Competition Bureau, Ottawa, Canada, November 15, 2000.
- Speaker, Southern Economic Association, Arlington, Virginia, November 12, 2000.
- Seminar speaker, Stern School of Business, New York University, October 17, 2000.
- Seminar speaker, Columbia University Law School, October 10, 2000.

- Speaker, New York University School of Law, September 25, 2000.
- Seminar speaker at the Federal Reserve Bank of Philadelphia, September 18, 2000.
- Webcast presentation on the AOL-Time Warner merger, Yahoo FinanceVision, July 28, 2000.
- Speaker and session organizer, Conference of the European Financial Management Association, Athens, June 29, 2000.
- Seminar speaker, Athens Business School, June 26, 2000.
- Speaker, Credit Suisse First Boston, New York, May 11, 2000.
- Conference organizer and speaker, The Law and Economics of United States v. Microsoft, Stern School of Business and NYU School of Law, May 5, 2000. See <a href="http://www.stern.nyu.edu/eco/conference/">http://www.stern.nyu.edu/eco/conference/</a>.
- Speaker, "The Telecommunications Act of 1996," American Enterprise Institute, Washington DC, April 27, 2000.
- Seminar Speaker, "United States v. Microsoft," Stern School of Business, April 25, 2000.
- Speaker, "The Telecommunications Act of 1996," American Enterprise Institute and USC Annenberg Center for Communications Studies, Los Angeles, April 7, 2000.
- Session Organizer and Discussant: "Dynamic Oligopoly," Winter Meetings of the Econometric Society, Boston, January 7-9, 2000.
- Speaker, Competition Policy for the Cyber-World, Columbia University, November 18-19, 1999.
- Speaker and co-organizer, Whither Social Science Data and Data Infrastructure Conference, Stern School of Business, New York, November 12-13, 1999.
- Telecommunications Policy Research Conference, Alexandria, Virginia, September 26, 1999.
- Organizing Committee, EARIE conference, Turin, Italy, September 3-6, 1999.
- Speaker, Athens Laboratory of Economic Research, Athens, Greece, June 16, 1999.
- Speaker, Stockholm School of Economics, Stockholm, Sweden, June 4, 1999.
- Speaker, Swedish Competition Authority, Stockholm, Sweden, June 3, 1999.
- Panelist, Roundtable on remedies in the Microsoft case, Progress and Freedom Foundation, March 17, 1999.
- Seminar speaker, Federal Communications Commission, Washington DC, January 7, 1999.
- Session organizer and speaker, "Network Industries," ASSA meetings, New York, January 5, 1999.
- Panelist, "The Microsoft Case," ASSA meetings, New York, January 3, 1999.
- Speaker, Law and Economics Seminar, Columbia University, "The Microsoft Case," December 7, 1998.
- Organizing Committee and speaker, First International Conference on Information and Computation Economies, Charleston, NC, October 26, 1998.
- Speaker, Telecommunications Policy Research Conference, Alexandria, Virginia, October 4, 1998.
- Session chairman, Telecommunications Policy Research Conference, Alexandria, Virginia, October 4, 1998.
- Speaker, Conference on Real Options in Telecommunications, Columbia University, October 2, 1998.
- Keynote speaker, EARIE conference, Copenhagen, August 28, 1998.
- Speaker, Summer program, Social Science Research Council, Airlee House, VA, August 8,

1998.

- Speaker, Conference on "Competition, Convergence and the Microsoft Monopoly: The Future of the Digital Marketplace," Progress and Freedom Foundation Conference, Washington DC, February 4, 1998.
- Speaker and session organizer, American Economic Association Winter Meetings, Chicago, January 4-6, 1998.
- Speaker, Telecommunications Policy Conference, organized by the Japanese Ministry of Telecommunications and the Japan-US Center of Stern, Tokyo, Japan, December 4, 1997.
- Speaker, Information Systems Seminar, Stern School of Business, November 6, 1997
- Speaker, Conference on "Pricing and Costing a Competitive Local Telecommunications Network," organized by the American Enterprise Institute, November 4, 1997.
- Speaker, Industrial Organization Seminar, Stern School of Business, September 30, 1997.
- Speaker and session organizer, Telecommunications Policy Research Conference, Alexandria, Virginia, September 27-29, 1997.
- Speaker, Voice-on-the-Net Conference, Boston, September 25, 1997.
- Speaker, Conference on Internet Telephony, organized by the National Telecommunications Infrastructure Initiative, Washington DC, September 4, 1997.
- Speaker, Federal Communications Commission, Washington DC, September 3, 1997.
- Seminar speaker, Stanford University, August 7, 1997.
- Speaker, Workshop on Synthetic Economies, conference organized by the Institute for Defense Analyses, Washington DC, July 23-24, 1997.
- Speaker, Western Economic Association, Seattle, July 10, 1997.
- Seminar speaker, University of California, Irvine, May 5, 1997.
- Speaker, Institutional Investors, Athens, Greece, June 19, 1997.
- Seminar speaker, Stanford University, April 9, 1997.
- Speaker, Voice-on-the-Net Conference, San Francisco, April 1, 1997.
- Seminar speaker, Stanford University, March 3, 1997.
- Seminar speaker, Stanford University, February 25, 1997.
- Speaker, University of California, Berkeley, February 6, 1997.
- Speaker and organizer, Stern School of Business, Roundtable for Electronic Commerce, November 22, 1996.
- Seminar speaker, University of California, Berkeley, November 5, 1996.
- Seminar speaker, Stern School of Business, October 24, 1996.
- Speaker and session organizer, Telecommunications Policy Research Conference, October 6, 1996.
- Seminar speaker, Federal Reserve Bank of St. Louis, May 17, 1996.
- Speaker, Consortium on Telecommunications Conference at Northwestern, May 10, 1996.
- Organizer, Roundtable for Electronic Commerce, Stern School of Business, April 26, 1996.
- Seminar speaker, Workshop on Clearing Houses at the Cleveland Federal Reserve Bank, April 19, 1996.
- Speaker at the Canadian Competition Bureau, March 28, 1996.
- Seminar speaker at Princeton University, February 27, 1996.
- Seminar speaker at INSEAD, January 17, 1996.

- Speaker at the Ecole Polytechnique / University of Paris I Colloquium on the Cement Industry, January 15, 1996.
- Presenter of two research papers and organizer of as session at the ASSA conference, January 5-7, 1996.
- Seminar speaker at the Federal Trade Commission, December 07, 1995.
- Seminar speaker at the University of Toronto, November 06, 1995.
- Seminar speaker at Yale University, October 26, 1995.
- Speaker at the Workshop on Telecommunications conference, Wellington, New Zealand, October 18-19, 1995.
- Speaker at the CIRANO conference on networks, Montreal, October 13, 1995.
- Speaker in Workshop on "Economic Survival" at the Stern School of Business, October 12, 1995.
- Speaker at the 1995 Telecommunications Policy Research Conference, September 30 October 2, 1995.
- Speaker at the New York Law School conference on "The Senate Telecommunications Bill: A Primer," August 23, 1995.
- Speaker at the Interoperability Conference, Freedom Forum, Washington DC, July 6-7, 1995.
- Speaker at the New York Law School conference on "The Senate Telecommunications Bill: A Primer," June 29, 1995.
- Speaker at the CEPR conference of Mobile Telephony at CREST-LEI, ENSAE, Paris, June 8, 1995.
- Speaker at the Annual National Conference of Economic Research in France, University of Nantes, June 9, 1995.
- Speaker at a seminar at the Stockholm School of Economics, May 29, 1995.
- Speaker at a conference on the "Restructuring and Privatization of the Electricity Industry in Europe," Athens, Greece, May 25, 1995.
- Speaker at a joint seminar of Economics and GBA at Chicago, May 4, 1995.
- Seminar speaker at the London School of Economics, April 28, 1995.
- Seminar speaker at the Federal Reserve Bank of Philadelphia, April 21, 1995.
- Speaker at a conference of *Electronic Call Market Trading* at the Stern School, April 20, 1995.
- Speaker at the "Utilities Regulation Network Conference," Milan, Italy, April 7-8, 1995.
- Seminar speaker at the Stanford Business School, March 14, 1995.
- Seminar speaker at the University of California, Berkeley, March 13, 1995.
- Seminar speaker at the University of California, Los Angeles, March 10, 1995.
- Speaker and member of the organizing committee at "Strategic Alliances and Interconnection," Symposium organized by the International Telecommunications Society, University of Colorado at Boulder, January 9, 1995.

# J. RECENT ARTICLES, TELEVISION, AND RADIO PROGRAMS WITH QUOTES OF NICHOLAS ECONOMIDES ON ANTITRUST, TELECOM, INTERNET, EU CRISIS AND OTHER ISSUES

• CGTN TV, What IMF's report means for the global economy, January 25, 2022

- TIME, <u>Washington's Proposed Rules to Protect Investors Could Widen the Wealth Gap</u>, January 14, 2022
- Kathimerini, Outlook for 2022, December 31, 2021 (in Greek)
- eKathimerini, Outlook for 2022, December 31, 2021
- CGTN TV, <u>Inflation, Interest Rates</u>, and <u>Prospects for U.S. and World Economy</u>, December 16, 2021
- Parapolitika Radio, <u>Inflation</u>, <u>supply chain failures</u>, <u>and covid in the USA and Greece</u>, December 2, 2021 (in Greek)
- CGTN TV, Post-pandemic inflation may last for years, November 27, 2021
- NBC TV New York, Supply Chain Reality Check, November 15, 2021
- Forbes, <u>Cash-Rich Tech Companies Are Remaking Post-Pandemic Manhattan</u>, October 20, 2021
- ERT TV, Facebook and its regulation, October 10, 2021 (video in Greek)
- Kathimerini, <u>The required reform of the Greek social security system</u>, October 5, 2021 (video in Greek)
- Financial Times, How much can Lina Khan do to rein in Big Tech?, June 17, 2021
- Parapolitika radio, What changes are needed in the Greek and US economy, June 9, 2021 (in Greek)
- Bloomberg, Why States are not hiring, June 4, 2021
- CGTN TV, Biden's budget, June 1, 2021
- eKathimerini, Voting by mail is by far the best solution for Greeks abroad, April 19, 2021
- Kathimerini, On voting of Greeks abroad and relations with Greek diaspora, April 18, 2021 (in Greek)
- The Hill, Tech giants in brewing battle over tracking, ads, March 7, 2021
- Cosmos FM Radio, Prospects of US and Greek economy, March 7, 2021 (in Greek)
- Yahoo Finance TV, The market is overreacting to bond yields, March 5, 2021
- Technology Policy, How Giving Data Away for Free is a Market Failure, March 5, 2020
- CGTN TV, Biden stimulus package, February 5, 2021
- ERT Radio, Economic policies of the Biden administration, January 21, 2021 (in Greek)
- Kathimerini, <u>Reduce tax rates on wage income to accelerate growth</u>, January 7, 2021 (video in Greek)
- AlphaNews TV, <u>Issues of the US election</u>, November 3, 2020 (in Greek)
- AlphaNews TV, Economic Policies of Trump and Biden, October 30, 2020 (in Greek)
- Parapolitika, <u>Assessment of economic policies of Trump and Biden</u>, October 26, 2020 (in Greek)
- The Information, <u>How Facebook, Google, Twitter Diverge in Defense of Tech's Liability</u> Shield, October 27, 2020
- CGTN (Chinese Central TV), Wealth gap and taxes, September 19, 2020
- TimesUnion, Albany NY, <u>Cuomo pleads for federal aid, some experts say New York should fix itself</u>, September 9, 2020
- eKathimerini, Reforms without further ado, August 25, 2020
- Kathimerini, Reforms Now! August 23, 2020 (in Greek)

- New York Times, <u>Apple's 'Extreme' App Policies Give Google Defense in Fortnite Antitrust Suit</u>, August 17, 2020
- CRAIN's, Colleges take different paths to reopening, August 10, 2020
- Kathimerini, <u>How should the Greek pension system be reformed</u>, <u>Video</u>, August 5, 2020 (in Greek)
- BusinessBecause, <u>Big Tech CEO Hearing: Showdown Or Show Trial?</u> July 31, 2020
- Seeking Alpha, Alphabet: Antitrust Suits Will Weaken Google's Dominance, July 6, 2020
- Alumni of Athens College, USA, <u>Presentations and Discussion on Covid19 health</u>, economics, and political aspects, <u>Nicholas Economides</u>, <u>George Georgiou</u>, and <u>Stavros</u> Lambrinidis, June 21, 2020
- eKathimerini, <u>Reforms and resistance</u>, May 17, 2020
- Kathimerini, <u>Reforms and resistance</u>, May 17, 2020 (in Greek)
- Yahoo Finance, On reopening, May 13, 2020
- WPIX 11 TV New York, <u>Salons and spas likely to reopen slowly but expected to recover better than some industries</u>, May 8, 2020
- RAI TV, <u>Economides crisi economica Usa non durera molto se si rimette in moto presto il motore</u>, May 9, 2020 (in Italian)
- Fortune, American companies laid off 22 million in the past month. Europe chose a different path, April 20, 2020
- Kathimerini, When and how should we re-open, April 12, 2020 (in Greek)
- Kathimerini, When and how should we re-open, April 12, 2020 (in English)
- Global Finance, <u>Bankers vs Contagion</u>, April 8, 2020
- Forbes, Market preview: What to remember as we move past a quarter to forget, April 8, 2020
- National Herald, NY new hospitalizations on decline, April 8, 2020
- HALC, Virus by the numbers, April 7, 2020
- Yahoo Finance, Stocks plummet after Fed reveals emergency stimulus, March 16, 2020
- Asahi Shinbun, Corona fears drive market policy, March 14, 2020
- Protocol.com, What tech companies vulnerable to COVID-19 should be watching for in the economy, March 10, 2020
- Yahoo Finance, Fear of coronavirus drives stock market, February 27, 2020
- National Herald, New York, <u>Effects of coronavirus on the economy</u>, February 27, 2020 (in Greek)
- Fortune, <u>5 reasons the T-Mobile-Sprint merger should've been rejected and will raise your phone bill</u>, February 20, 2020
- Fox 5 TV NY, What does the T-Mobile takeover of Sprint means for you, February 11, 2020
- National Herald, New York, <u>Coronavirus Threatens U.S. Companies in China</u>, February 11, 2020
- PIX11 TV New York, <u>Coronavirus threatens U.S. companies that produce goods in China</u>, February 5, 2020
- Yahoo Finance, Prospects of US and world economy, January 29, 2020
- Fubon Center, Antitrust and privacy for digital platforms, January 2, 2020
- Jumpstart, Should Gig Tech be Broken Up? (p. 42-45) January 1, 2020

- BBC World Service, Taxes, December 18, 2019
- Yahoo Finance, US China trade deal and Fed actions, December 12, 2019
- CoinDesk, <u>Is Greece Cracking Down on Tax Evasion or Taxing Anonymity?</u>, December 11 2019
- Associated Press, <u>State AGs look to head off T-Mobile-Sprint deal in court</u>, December 6, 2019
- Yahoo Finance TV, Trade talks and the Fed, November 4, 2019
- Yahoo Finance TV, China-US trade talks, October 7, 2019
- Cosmos FM NYC, <u>Discussion on the Greek and World economy</u>, September 1, 2019 (in Greek)
- Yahoo Finance TV, On interest rates and the US-China trade war, August 23, 2019
- CQ Researcher, The 5G revolution, August 2, 2019
- CGTN TV, On US interest rate cut, July 31, 2019
- Business Insider, Amazon blew Prime Day sales out of the water this year, and that could put a bigger target on its back, July 17, 2019
- Wall Street Journal, Amazon Faces Probe in Europe Over Third-Party Selling, July 17, 2019
- Cosmos FM, Economic issues of the new Greek government, June 12, 2019
- Associated Press, Facebook's digital currency may flourish where banks don't, June 28, 2019
- Yahoo Finance TV, <u>President Trump threatens more tariffs if talks with China break down</u>,
   June 26, 2019
- Kathimerini, Strong growth is absolutely necessary for Greece, June 23, 2019
- Kathimerini, Strong growth is absolutely necessary for Greece, June 23, 2019 (in Greek)
- Liberal.gr, <u>Economic policy recommendations for the new Greek government</u>, June 12, 2019 (in Greek)
- WSJ, Google Gets Ready for Legal Fight as U.S. Mulls an Antitrust Probe, June 3, 2019
- Kathimerini, The seven wounds of Greece and the next day, May 5, 2019 (in Greek)
- Kathimerini, The seven wounds of Greece and the next day, May 5, 2019
- Yahoo Finance, Fed needs to explain the model it uses, May 1, 2019
- CGTN TV, China's relations with Europe, April 12, 2019
- Yahoo Finance, Federal Reserve keeps interest rates constant, March 20, 2019
- WSJ, Google Offers Concessions on Eve of New EU Antitrust Rebuke, March 19, 2019
- Yahoo Finance, <u>Federal Reserve officials signal pause in interest-rate increases for now</u>,
   February 20, 2019
- i24 TV, Brexit; US/China negotiations, February 7, 2019
- Yahoo Finance, Fed meeting, shutdown, China, and earnings, January 28, 2019
- CGTN TV, <u>Income inequality in California and the impact of the high tech sector</u>, January 23, 2019
- CNBC TV, GDP slowdown won't be that important for tech sector, December 4, 2018
- Axios, Slowing economy could increase pressure on Big Tech, December 3, 2018
- CGTN TV, Brexit deal and its chances at parliament, November 13, 2018
- CGTN TV, Italy's budget and dispute with EU Commission, November 13, 2018
- Federal Trade Commission Hearings, The EU Android Case, October 16, 2018
- Bloomberg Radio, CVS/Aetna merger, October 12, 2018

- Bloomberg TV, Does \$400K a Year Make You Rich?, October 3, 2018
- CGTN Washington DC, Hurricane Florence and US infrastructure, September 17, 2018
- The Greek Current (HALC), <u>Prospects for the Greek economy after the end of the bailouts</u>, September 7, 2018
- Arizona Republic, <u>Think your internet service is slower than advertised? You're not alone</u>,
   September 6, 2018
- Cosmos FM NYC, Prospects of Greece after exiting the bailout programs, August 19, 2018
- Bloomberg Radio, DOJ appeals AT&T/Time-Warner case, August 7, 2018
- TheStreet.com, Can Advertisers Unfriend Facebook?, August 6, 2018
- CGTV, Trade issues as Juncker visits Trump, July 25, 2018
- Forbes, End Of Bailouts, But No Solution, July 20, 2018
- Wall Street Journal, <u>Why the Android Antitrust Case May Not Trouble Google</u>, July 19, 2018
- Bloomberg Radio, DOJ appeals on AT&T/Time Warner merger, July 13, 2018
- eKathimerini, End of the bailouts and onto a path to a new bankruptcy, June 28, 2018
- Kathimerini, End of bailouts and start of the path to a new bankruptcy for Greece, June 24, 2018
- Kathimerini, End of bailouts and start of the path to a new bankruptcy for Greece, June 24, 2018 (in Greek)
- Cosmos FM, Prospects for Greece at end of bailouts, June 24, 2018 (in Greek)
- Knowledge@Wharton, Prospects for Greece, June 22, 2018
- Bloomberg News, <u>Greece's Creditors Agree to Landmark Debt Deal as Bailout Saga End</u>, June 21, 2018
- Wall Street Journal, How AT&T Beat the Government, June 16, 2018
- Entrepreneur, <u>How the Ruling Allowing AT&T's \$85 Billion Acquisition of Time Warner</u> Could Affect Entrepreneurs, June 13, 2018
- Crain's, AT&T-Time Warner merger approved by judge, June 12, 2018
- Kathimerini, <u>Problems of the next Greek government and their solutions</u>, May 20, 2018 (in Greek)
- Skai TV, Economic issues in Greece, May 19, 2018 (in Greek)
- Los Angeles Times, <u>T-Mobile</u>, <u>Sprint come up short in making their case for a wireless merger</u>, May 8, 2018
- Fortune, The T-Mobile-Sprint Merger Isn't Really About 5G, May 4, 2018
- CNBC, A competitor will be removed from the market if Sprint and T-Mobile are allowed to merge, April 30, 2018
- CNBC TV, Sprint/T-Mobile merger, April 30, 2018
- i24 TV, US bonds reach 3%, April 26, 2018
- Bloomberg Radio, <u>AT&T/Time-Warner trial update</u>, April 13, 2018
- Barrons, Zuck's Polished Performance Won't Quell Facebook Crisis, April 11, 2018
- Bloomberg Radio, AT&T/Time-Warner trial starts, March 23, 2018
- Fortune.com, Facebook Can't Be Trusted, March 22, 2018
- Fox Business TV Network, Fed increases rates, March 21, 2018

- Washington Post, <u>The war of numbers in the court battle over AT&T's mega-merger</u>, March 16, 2018
- CNBC, Negative impact of the abolition of network Neutrality, February 22, 2018
- Digital Trends, States are waging guerrilla warfare to save net neutrality, February 15, 2018
- Al Jazeera (English), Effects of Trump's tax cut, December 22, 2017
- Swiss Public Radio, <u>Impact of net neutrality decision abroad</u>, December 15, 2017 (in Italian)
- Futurism, Net Neutrality Is Dead. Here's What The Experts Are Saying, December 14, 2017
- i24 TV, Repeal of net neutrality rules, December 14, 2017
- Fortune.com, Net Neutrality Is Dead. The Internet Is Next., December 14, 2017
- IEEE Spectrum, The case for net neutrality, December 13, 2017
- AmNY, <u>Net neutrality repeal would jeopardize city tech industry, experts say</u>, December 3, 2017
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- Washington Post, <u>How two decisions in Washington could turn AT&T into a uniquely powerful company</u>, November 22, 2017
- Fortune Magazine, <u>How Can Trump Really Punish CNN? Allow the AT&T-Time Warner Merger</u>, November 22, 2017
- LA Times, <u>U.S. faces tough battle proving AT&T would use Time Warner to squeeze</u> competition, November 21, 2017
- Knowledge@Wharton, On Google antitrust and privacy issues, November 15, 2017
- Wall Street Journal, <u>Missouri Attorney General Launches Probe Into Google's Business</u> Practices, November 14, 2017
- BusinessBecause, <u>Amazon</u>, <u>Apple</u>, <u>Ethics</u>, <u>And Corporation Tax</u> <u>Business School Professors Debate</u>, November 8, 2017
- ERT1 Radio, Greek PM visits the US, October 17, 2017
- Center for Public Integrity, The future of the internet is up for grabs, October 3, 2017
- BusinessBecause, <u>Net Neutrality: Why US Business School Entrepreneurs Could Be At Risk</u>, September 13, 2017
- CGTN TV, The state of the EU economy, September 13, 2017
- Kathimerini, Greek bond issue, success or impasse, July 30, 2017 (in Greek)
- Kathimerini, Greek bond issue, success or impasse, July 30, 2017 (in English)
- GreekReporter, No Cause for Celebration on Greece's Bond Issue, July 26, 2017
- Associated Press, FCC Chair Gets Drilled on Net Neutrality, at min 1:10, July 22, 2017
- Mashable, Hey Google, learn from Microsoft and settle with the EU, June 29, 2017
- Kathimerini, The real solution to the Greek crisis, June 19, 2017 (in English)
- Kathimerini, The real solution, June 18, 2017 (in Greek)
- USA Today, Amazon-Whole Foods deal could mean new phase of retail, June 17, 2017
- Bloomberg News, <u>Greece Wins 8.5 Billion Euro Payout as Debt Clarity Deferred</u>, June 16, 2016
- Athens College, Greek economic crisis, PPT, Video A, Video B, June 8, 2017
- Spiceworks, The benefits of network neutrality, June 5, 2017
- The Hill, The FCC should preserve net neutrality, May 5, 2017
- Cosmos FM, Greek second review, April 30, 2017

- Bloomberg News, <u>EU Pressures Greece to Resolve Issues as New Debt Crisis Looms</u>, March 20, 2017
- CGTN (CCTV), German economy and global factors behind income inequality, March 17, 2017
- Marketplace, NPR, Breaking U.S. sanctions can get you a \$1.2 billion fine, March 8, 2017
- i24 TV, <u>US Economy and Trump's speech to Congress</u>, February 28, 2017
- eKathimerini, Grexit is catastrophic for Greece, February 21, 2017
- Kathimerini, Grexit is catastrophic for Greece, February 20, 2017 (in Greek)
- International Business Times, <u>Trump and network neutrality</u>, February 13, 2017
- Kathimerini, <u>Euro or Grexit?</u>, February 12, 2017 (in Greek)
- The Hill, FCC should retain net neutrality, February 10, 2017
- SBC TV, The IMF report on Greece (at 24'), February 7, 2017 (in Greek)
- Zero, Parapolitika, Euro or drachma: nine myths and truths, January 2017 (in Greek)
- Proti Grammi Skai.gr, <u>Trump inauguration and reaction</u>, January 23,2017 (in Greek)
- Kathimerini, <u>Trump Priorities: America First and War on Islamic Extremists</u>, January 20, 2017 (in Greek)
- IEEE Spectrum, <u>Is Net Neutrality Good or Bad for Innovation?</u>, January 18, 2017
- Kathimerini, Reforms and recovery for Greece in 2017, January 9, 2017 (in Greek)
- Wired, Don't Gut Net Neutrality. It's Good for People and Business, January 5, 2017
- Fortune, How Greece's Troubled Economy Could Turn Around in 2017, January 3, 2017
- Kathimerini, Mr. Trump at the White House, November 13, 2016 (in Greek)
- WSJ, Google Responds to EU Antitrust Charges on Android, November 10, 2016
- SBC TV, US Elections, November 10, 2016 (from 1:01:37 in Greek)
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- The Next President and What it Means to Us, November 6, 2016
- Cosmos FM, US debt and candidates' economic policy proposals, November 6, 2016
- SBC TV, What should be done to end the economic crisis in Greece, October 26, 2016 (in Greek, from 47<sup>th</sup> min.)
- Fortune, Why AT&T Needs Time Warner to Transform Its Business, October 26, 2016
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- CCTV, Samsung phone recall could be trouble ahead of holiday season, October 13, 2016
- Fortune, Why the Supreme Court Could Be Samsung's Saving Grace, October 13, 2016
- TheStreet, <u>Greece Seeing Rebound in Economy for 2017</u>, <u>But Not Everyone Is Optimistic</u>,
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- CNN, Consequences of Brexit, October 4, 2016
- Bloomberg, <u>Is Greece back on track</u>, October 4, 2016

- Bloomberg, <u>Here's Why You're Paying \$200 to Rent a Clunky Set-Top Box</u>, September 26, 2016
- Kathimerini, <u>Greece: recovery through rationality or extreme decline</u>, September 25, 2016 (in Greek)
- Cosmos FM (New York), Prospects of the Greek and US economies, September 19, 2016
- Kathimerini, Stiglitz's proposals and the real solution for Greece, August 28, 2016 (in Greek)
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- InterCep NYU, Brexit, July 21, 2016
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- CNN International TV, Aftermath of Brexit, June 27, 2016
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- Kathimerini, <u>From an empire to two miserable islands</u>, June 26, 2016 (in Greek)
- Cosmos FM, Brexit impact on Greece, June 26, 2016 (in Greek)
- Al Jazeera TV, Impact of Brexit, June 24, 2016
- MSNBC TV, Immediate Impact of Brexit, June 23, 2016
- Mega TV, Prospects of UK referendum, June 23, 2016 (in Greek)
- Skai radio, Possible effects of the UK referendum, June 23, 2016 (in Greek)
- Al Jazeera TV, Brexit would hurt the UK, June 17, 2016
- Kathimerini, <u>Analysis of Eurogroup decision on Greek debt</u>, May 26, 2016 (in Greek)
- Kathimerini, <u>Eurogroup postpones decision on Greek debt to 2018</u>, May 25, 2016 (in Greek)
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- Kathimerini, <u>The EU</u>, the <u>IMF</u>, the <u>USA</u> in the <u>Greek debt and growth</u>, May 22, 2016 (in Greek)
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- Fortune Magazine, Netflix Video 'Throttling' May Be Annoying But Is Totally Legal, March 31, 2016
- Fortune Magazine, Why a Charter-Time Warner Cable Merger Won't Actually Kill Cable Companies, March 22, 2016
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- Marketplace, Network neutrality and Facebook, February 9, 2016
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## Professor Nicholas Economides

## February 2022

## Case with Trial or Deposition Testimony in the Last 4 Years by Prof. Nicholas Economides

2021	Cameron et al. v. Apple. Expert declaration and deposition.