

**IN THE MATTER OF AN INDEPENDENT REVIEW PROCESS BEFORE THE  
INTERNATIONAL CENTRE FOR DISPUTE RESOLUTION**

Namecheap, Inc. (Namecheap)

**Claimant**

v.

Internet Corporation For  
Assigned Names and Numbers  
(ICANN)

**Respondent**

ICDR Case No. 01-20-0000-6787

**Expert Report of Dennis W. Carlton, Ph.D.**

**January 14, 2022**

**HIGHLY CONFIDENTIAL - OUTSIDE ATTORNEYS' EYES ONLY**

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## **I. QUALIFICATIONS, ASSIGNMENT, AND OVERVIEW OF CONCLUSIONS**

### **A. QUALIFICATIONS**

1. I am the David McDaniel Keller Professor of Economics at the Booth School of Business of The University of Chicago. I received my A.B. in Applied Mathematics and Economics from Harvard University and my M.S. in Operations Research and Ph.D. in Economics from the Massachusetts Institute of Technology. I have served on the faculties of the Law School and the Department of Economics at The University of Chicago and the Department of Economics at the Massachusetts Institute of Technology.

2. I specialize in the economics of industrial organization which addresses topics in how firms compete, including the study of antitrust economics. I am co-author of the book *Modern Industrial Organization*, a leading text in the field of industrial organization, and I also have published over 100 articles in academic journals and books. In addition, I serve as Co-Editor of the *Journal of Law and Economics*, a leading journal that publishes research applying economic analysis to industrial organization and legal matters; serve on the Editorial Board of *Competition Policy International*, a journal devoted to competition policy; and serve on the Advisory Board of the *Journal of Competition Law and Economics*. I have also served as an Associate Editor of the *International Journal of Industrial Organization and Regional Science and Urban Studies*, and on the Editorial Board of *Intellectual Property Fraud Reporter*. I was the 2014 Distinguished Fellow of the Industrial Organization Society.

3. In addition to my academic experience, I served as Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice from October 2006 through January 2008. My responsibilities included supervising approximately 50 Ph.D. economists, helping formulate antitrust policy toward ongoing proposed mergers, analyzing general antitrust policies both horizontal and vertical, and communicating such policies to foreign and domestic agencies, as well as to practitioners. I also served as a Commissioner of the Antitrust Modernization Commission, created by Congress to evaluate U.S. antitrust laws. I have served as a consultant to the Department of Justice and Federal Trade Commission on the Horizontal Merger Guidelines, as a general consultant to the Department of Justice and Federal Trade Commission on antitrust matters, as a member of the American Bar Association advisory

committee that advises the incoming President on antitrust policy, as an instructor to judges on antitrust economics at the Federal Judicial Institute and as an advisor to the Bureau of the Census on the collection and interpretation of economic data. I have prepared other reports for the Internet Corporation for Assigned Names and Numbers (ICANN) regarding new gTLD pricing and competition.

4. I also am a Senior Managing Director of Compass Lexecon, a consulting firm that specializes in the application of economics to legal and regulatory issues and for which I served as President (of Lexecon) for several years. I have provided expert testimony before various U.S., state and federal courts, the U.S. Congress, a variety of state and federal regulatory agencies and foreign tribunals. My curriculum vitae and a list of my testifying experience over the last four years is provided in Exhibit 1. Compass Lexecon bills for my time on this matter at my customary hourly rate, which is currently \$1,800 per hour. Neither my compensation nor that of Compass Lexecon is dependent on the outcome of this proceeding.

#### B. ASSIGNMENT

5. I have been asked by counsel for ICANN to assess whether Namecheap has suffered or is likely to suffer in the future material economic harm as a result of ICANN's conduct as alleged in Namecheap's Request For Independent Review Process, ICDR CASE NO. 01-20-0000-6787. As part of my analysis, I have been asked to evaluate the economic analysis and conclusions of Prof. Dr. Frank Verboven and Dr. Gregor Langus in their expert reports submitted in this matter.<sup>1</sup> In their reports, Prof. Dr. Verboven and Dr. Langus conclude that ICANN's removal of price control provisions on .ORG, .INFO, and .BIZ has "significant potential" to cause harm to Namecheap<sup>2</sup> and "can be expected" to lead to higher registry prices because they claim .ORG, .INFO, and .BIZ have market power. Prof. Dr. Verboven and Dr. Langus neither indicate how much harm or elevation in price they think is likely, nor quantify any actual harm suffered by

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<sup>1</sup> Expert Report of Professor Dr. Frank Verboven and Dr. Gregor Langus, December 20, 2020 ("Verboven First Report") and Expert Report of Professor Dr. Frank Verboven and Dr. Gregor Langus, November 25, 2021 ("Verboven Second Report").

<sup>2</sup> Verboven First Report, ¶ 6.

Namecheap to date as a result of the removal of price control provisions on .ORG, .INFO, and .BIZ.<sup>3</sup>

6. A list of the materials that I and my staff have relied on in the preparation of this report is provided in Exhibit 2.

### C. INDUSTRY BACKGROUND

7. As background for my analysis and conclusions, I briefly describe my understanding of how domain names are organized on the internet and the role of ICANN, registry operators, registrars, and registrants.

8. The internet's Domain Name System (DNS) assigns a unique, alpha-numeric name to the unique IP address (denoted by a series of numbers) of the computer or server on which a website is hosted. Computer networks use the numeric IP addresses to route traffic, but assigning names to websites (which map to the numeric IP addresses) allows users to more easily locate the website they are seeking. ICANN is the body tasked with overseeing the technical coordination of the Internet's DNS. The naming system is hierarchical, with a set of Top Level Domains (TLDs) within which other, second-level domains, are organized. As a simple example, ICANN's website can be reached at ICANN.ORG, where "ICANN" is the second-level domain name and ".ORG" is the TLD.<sup>4</sup> The DNS was first created with seven TLDs, of which .ORG was one. In 2001, ICANN approved the addition of seven more TLDs, including .INFO and .BIZ. Since then, hundreds of additional TLDs have been introduced, and there are approximately 1,500 TLDs, including ccTLDs, in operation in the DNS today.

9. Each TLD is operated by a *registry operator* that is responsible for operating the TLD and updating the register, which is "[a]n authoritative master database of the domain names

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<sup>3</sup> They indicate only that, "[t]herefore, it can be expected that the wholesale prices will increase with the removal of price caps. Accordingly, the costs for independent registrars in servicing registrants will increase. Because independent registrars have no ability to pass on the increased costs without losing some customers, the removal of price caps can be expected to reduce the profits of independent registrars." (Verboven Second Report, ¶ 10.)

<sup>4</sup> In addition to generic TLDs (gTLDs) like .ORG or .COM, many countries have their own TLDs (country code TLDs, or ccTLDs) like .US or .UK.

registered in a top-level domain (TLD)” and the associated IP addresses.<sup>5</sup> This register allows computer networks to route traffic to the desired destination.<sup>6</sup> ICANN is responsible for approving and overseeing registry operators for gTLDs and reaches agreements with those registry operators that detail the obligations of the operators. The .ORG registry has been operated by the non-profit Public Interest Registry since 2003; the .INFO registry has been operated by Afilias Limited since the registry’s launch in 2001; and the .BIZ registry has been operated by Registry Services, LLC (which has been owned by registrar, GoDaddy, Inc. since it acquired Neustar’s registry business in August, 2020).<sup>7</sup> All three of these registry operators function under registry agreements with ICANN that were most recently signed in June 2019.

10. In most cases, assigning second-level domain names within a gTLD is done not by the registry operator but by companies or entities known as *registrars*. ICANN uses an accreditation process to approve registrars and enters into an agreement with each accredited registrar that details the registrar’s obligations for registrations in gTLDs. To claim a domain name within a particular gTLD, a *registrant* (which may be an individual, company, or other entity) contracts with a registrar that serves that gTLD; if the desired domain name is available, the registrant can sign an agreement with the registrar to purchase a domain name registration for a specified period of time. Namecheap is one of hundreds of registrars that are accredited by ICANN to register names on .ORG, .INFO, and .BIZ, among many other gTLDs.

11. Registry operators set the wholesale price of a domain name to registrars; in a few cases, this “registry price” is or has been subject to price regulation.<sup>8,9</sup> Registrars set the price of

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<sup>5</sup> ICANN Acronyms and Terms, *available at*: <https://www.icann.org/icann-acronyms-and-terms/en/nav/R>.

<sup>6</sup> In this report, I use the terms “TLD” and “registry” interchangeably.

<sup>7</sup> GoDaddy Inc., Form 10-K for the fiscal year ended December 31, 2020, p. 92. Prior to the acquisition, Neustar or its subsidiary had operated the .BIZ registry since its introduction in 2001.

<sup>8</sup> When I use the term regulation in this report, I do not necessarily mean government regulation. I also use regulation to refer to the contractual price restrictions that have been in the registry agreements for various registries (which Prof. Dr. Verboven and Dr. Langus refer to as price controls or price caps).

<sup>9</sup> I understand that the U.S. Department of Commerce has an oversight role in regulating the maximum registry price that can be charged for .COM domain names by the .COM registry operator, Verisign. This is managed through the Verisign Cooperative Agreement, which was

registering a domain name to registrants. I understand that ICANN imposes no controls or caps on the prices registrars can charge registrants, nor has ICANN imposed any such restrictions since ICANN began accrediting registrars. .ORG, .INFO, and .BIZ were subject to price controls until June 2019, when these gTLDs were transitioned to ICANN's Base Registry Agreement, which is used by almost all other gTLD operators and which has no price controls. The previous price controls were defined in ICANN's contractual agreements with the registries and provided a maximum registry price with allowance for increases in the maximum of up to 10% each year.

#### D. OVERVIEW OF CONCLUSIONS

12. Based on my review of the evidence, my main conclusion is that ICANN's removal of price control provisions on .ORG, .INFO, and .BIZ has not caused any harm so far to Namecheap and is not likely to cause material harm to Namecheap in the future. My conclusion that Namecheap is not likely to be materially harmed from the removal of price controls is based on evidence indicating that Namecheap (and other competing registrars) would pass on any future registry price increases by raising prices to registrants and is unlikely to lose many sales as a result of those price increases. Thus, the impact of registry price increases (in excess of what could have occurred under the previous price controls that limited increases to 10% per year), if any, will be borne primarily by registrants. This conclusion holds whether or not .ORG, .INFO, or .BIZ have sufficient market power to allow them to raise prices above the levels allowed under the prior price controls.

13. I also conclude that there is no justification for reimposing price controls on .ORG, .INFO, and .BIZ. Prof. Dr. Verboven and Dr. Langus do not adequately consider the costs of regulation, including the difficulty of setting a price that, absent special circumstances, is typically left to market forces. Set against these costs, the benefits of reimposing price controls are likely to be small: The evidence indicates that that .ORG, .INFO, and .BIZ are not likely to

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last updated in 2018. (Amendment Thirty-Five (35) to the Cooperative Agreement between U.S. Dept. of Commerce and Verisign, October 26, 2018, *available at*: [https://www.ntia.doc.gov/files/ntia/publications/amendment\\_35.pdf](https://www.ntia.doc.gov/files/ntia/publications/amendment_35.pdf).) I also understand that the registry agreement between ICANN and the registry operator of .NET and .NAME, also Verisign, still contain the historic price controls because Verisign has not transitioned .NET and .NAME to the Base Registry Agreement.



raise registry prices significantly above the levels allowed by the prior price controls in the immediate future or even further in the future. .ORG, .INFO and .BIZ are subject to competition from other TLDs, including .COM, which is highly popular (accounting for 74% of registered domains and 67% of new registrations<sup>10</sup>) and will continue to have a regulated price for the foreseeable future. There are hundreds of other TLDs from which registrants can choose, and .ORG, .INFO, and .BIZ's collective share of registrants is small and has declined in recent years, indicating that their competitive importance is waning in the face of competition from other TLDs. In addition, .INFO and .BIZ do not satisfy the indicators of market power put forth by Prof. Dr. Verboven and Dr. Langus, making significant price increases in excess of those allowed under the prior controls unlikely. And .ORG's non-profit registry operator has repeatedly stated that it will not raise prices at the expense of harming registrants and has demonstrated that commitment by not raising prices in over five years. Finally, registrants on .ORG, .INFO, or .BIZ could protect themselves against price increases by locking in current prices for up to ten years. When balanced against the difficulty and costs of price regulation, which Prof. Dr. Verboven and Dr. Langus fail to adequately consider, I conclude that there is no justification for reimposing price controls on .ORG, .INFO, and .BIZ.

## **II. NAMECHEAP HAS NOT BEEN AND IS NOT LIKELY TO BE MATERIALLY HARMED FROM THE REMOVAL OF PRICE CONTROLS**

14. Prof. Dr. Verboven and Dr. Langus conclude that “.ORG, .INFO, and .BIZ hold considerable market power”<sup>11</sup> and that “it can be expected that the wholesale prices [of .ORG, .INFO, and .BIZ] will increase with the removal of price caps.”<sup>12</sup> They conclude that the “removal of price control provisions has a significant potential to harm Namecheap” in two ways.<sup>13</sup> First, Prof. Dr. Verboven and Dr. Langus claim that Namecheap will not be able to fully

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<sup>10</sup> These shares are across all gTLDs that submit monthly registry reports to ICANN. See *infra* n. 20. As of August 2021, .COM accounts for 74% of registered domains. In the 12 months ending August 2021, .COM was responsible for 67% of new registrations. Across all TLDs, including ccTLDs, .COM accounts for 45% registered domains according to [domaintools.com](https://research.domaintools.com/statistics/tld-counts/). (<https://research.domaintools.com/statistics/tld-counts/>, accessed January 3, 2022.)

<sup>11</sup> Verboven Second Report, ¶ 9.

<sup>12</sup> Verboven Second Report, ¶ 10.

<sup>13</sup> Verboven First Report, ¶ 6.

pass through a wholesale price increase to registrants and will instead absorb at least part of the price increase, which will reduce its per-registration profit.<sup>14</sup> Second, they claim that to the extent Namecheap passes through at least part of a wholesale price increase, demand for registrations on .ORG, .INFO, and .BIZ will be reduced and Namecheap will lose sales and profits from registrants that cease using these registries.<sup>15</sup> I note that nowhere do Prof. Dr. Verboven and Dr. Langus opine on the magnitude of this envisioned harm to Namecheap. Nor do they quantify any actual harm suffered by Namecheap to date as a result of the removal of price control provisions on .ORG, .INFO, and .BIZ, despite price increases in both .INFO and .BIZ.

15. Based on my evaluation, I find that neither of Prof. Dr. Verboven and Dr. Langus’s two sources of alleged harm to Namecheap (from removal of the price controls) are supported by the evidence. As I explain below, economic theory and evidence do not support the conclusion that Namecheap is likely to be materially harmed<sup>16</sup> by the removal of price controls, either from absorbing part of any resulting registry price increase or from losing sales to registrants who stop using the .ORG, .INFO, and .BIZ registries due to a hypothetical registry price increase (that is passed on by Namecheap).

**A. IF REGISTRY PRICES INCREASE, NAMECHEAP IS NOT LIKELY TO BE MATERIALLY HARMED BY MARGIN REDUCTIONS BUT INSTEAD WILL PASS THROUGH THE PRICE INCREASES TO REGISTRANTS**

16. For Prof. Dr. Verboven and Dr. Langus’s conclusion that Namecheap will be harmed from reduced margins to be correct, it would have to be the case that Namecheap is unable to pass through to registrants the increased costs it faces from higher future registry prices. This lack of passthrough is at odds, however, with both the market conditions in which Namecheap

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<sup>14</sup> Verboven First Report, ¶ 53 (“Following an increase in its costs in relation to .ORG, .INFO or .BIZ, Namecheap would likely absorb a part of the cost increase by accepting a lower margin on its sales.”).

<sup>15</sup> Verboven First Report, ¶ 54 (“Namecheap’s passing-on of the increase in its input costs increases prices for registrants. The price increases result in reduced demand, and lost sales, as some customers do not purchase at higher retail prices unless the demand is perfectly inelastic.”).

<sup>16</sup> I define harm to Namecheap as reduced profits.

operates (which Prof. Dr. Verboven and Dr. Langus recognize), Namecheap’s own statements, and Redacted - Confidential Information.

1. **Namecheap does not possess significant market power and thus economic theory predicts that Namecheap would pass through input cost increases**

17. Economic theory predicts that firms in competitive markets, when faced with common increases in input costs—such as those that Namecheap and other registrants would face from increased registry prices—will pass through the input cost increases to consumers.<sup>17</sup> In the absence of market power, firms do not earn supra-competitive margins from which to absorb higher input costs and thus must pass on input cost increases to customers.<sup>18, 19</sup>

18. Economic evidence indicates that Namecheap does not possess significant market power in the registration of domain names on .ORG, .INFO, or .BIZ. First, Namecheap is responsible for serving only a small portion of current registrants of those three gTLDs. According to monthly gTLD registry reports that ICANN publishes, Namecheap is the registrar for just 4.7%, 4.6%, and 4.4% of all domains currently registered on .ORG, .INFO, and .BIZ, respectively.<sup>20</sup> These small shares are not indicative of Namecheap having market power over registrants on those registries. Second, there are hundreds of registrars that offer domain name registrations on

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<sup>17</sup> The same conclusion applies in the case of cost decreases: Namecheap would pass cost decreases through to its customers.

<sup>18</sup> In the situation where an industry is perfectly competitive (firms price at marginal cost) and the production function is characterized by constant returns to scale (marginal cost does not change with output), a common increase in an input cost that increases marginal cost is fully passed through to consumers. (See, Dennis W. Carlton and Jeffrey M. Perloff (2005), *Modern Industrial Organization, 4th ed.*, Boston: Pearson/Addison Wesley, pp. 277-278.) Of course, no market is perfectly competitive, e.g., the pass-through of cost increases may not be instantaneous for a variety of reasons. But the observed market conditions facing domain name registrars leads one to expect that changes in registry prices will be fully passed through over a reasonable time period, and therefore the data should indicate a passthrough rate of approximately one.

<sup>19</sup> With free entry, as appears to be the case here, it is hard to understand how any registrar could continue to earn supra-competitive profits from providing domain name registration services.

<sup>20</sup> Registry reports are published monthly, with a three-month lag. (ICANN, Monthly Registry Reports, available at: <https://www.icann.org/resources/pages/registry-reports/>.) My calculations use registry data through August 2021, and these shares are reported as of August 2021. Throughout this report, I exclude sponsored and reserved TLDs (.AERO, .COOP, .POST, .MUSEUM, .EXAMPLE) from all calculations using the ICANN monthly registry data.

.ORG, .INFO, and .BIZ. According to data acquired from domainnamestat.com, there are 339 ICANN-accredited registrars with registered domains on .INFO, of which 239 registrars have at least 100 registered domains on .INFO.<sup>21</sup> There are 294 ICANN-accredited registrars with registered domains on .BIZ, of which 200 registrars have at least 100 registered domains on .BIZ. .ORG’s registry operator, PIR, lists more than 200 registrars that are accredited by ICANN and have met PIR’s Quality Performance Index threshold and are authorized to register .ORG domains.<sup>22</sup> Third, the competitiveness of the domain registration industry is not up for debate. Prof. Dr. Verboven and Dr. Langus cite to prior studies that found that “registrars were fiercely competing on price” and conclude that “[t]oday, intense competition among registrars is even more certain” as “ICANN’s website listed over 2500 registrars accredited with ICANN.”<sup>23</sup>

19. Each ICANN-accredited registrar has the same access to each gTLD registry and has access to the same wholesale pricing for domain names on .ORG, .INFO, and BIZ, respectively.<sup>24</sup> Given the hundreds of current registrar competitors, each facing the same wholesale registry pricing, economic theory predicts that Namecheap and other registrars will not have significant market power in registering domain names on .ORG, .INFO, or .BIZ. Registrants have many alternative registrars to which they can turn to obtain domain names on

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<sup>21</sup> <https://domainnamestat.com/>, accessed January 6, 2022. ICANN monthly registry reports yield similar estimates.

<sup>22</sup> <https://thenew.org/org-people/work-with-us/find-a-registrar/>.

<sup>23</sup> Verboven Second Report, ¶¶ 91-93.

<sup>24</sup> In the Base Registry Agreement, ICANN requires that registry operators treat all accredited registrars the same:

Subject to the requirements of Specification 11, Registry Operator must provide non-discriminatory access to Registry Services to all ICANN accredited registrars that enter into and are in compliance with the registry-registrar agreement for the TLD; provided that Registry Operator may establish non-discriminatory criteria for qualification to register names in the TLD that are reasonably related to the proper functioning of the TLD. Registry Operator must use a uniform non-discriminatory agreement with all registrars authorized to register names in the TLD (the “Registry/Registrar Agreement”).

(See, for example, Registry Agreement between ICANN and Public Interest Registry (.ORG registrar), June 30, 2019, Article 2.9(a), available at: <https://itp.cdn.icann.org/en/files/registry-agreements/org/org-agmt-pdf-30jun19-en.pdf>.)

.ORG, .INFO, or .BIZ, which constrains Namecheap and other registrars from charging supra-competitive prices for registering domain names on those TLDs.

20. Furthermore, Namecheap sells domain name registrations on TLDs other than .ORG, .INFO, and .BIZ and lacks significant market power in those other TLDs also for exactly the same reason. ICANN-accredited registrars have access on the exact same terms as Namecheap to those other registries. In the registration of domain names across all TLDs (i.e., among all registrars and registries), Namecheap has a small share of registrants: among gTLDs that submit monthly registry reports to ICANN, Namecheap is the registrar for just 5.9% of total domains, and Namecheap's share across all TLDs, including ccTLDs, is estimated to be less than 3%.<sup>25</sup> These small shares indicate that Namecheap has no significant market power in registering domain names.

21. Consistent with the economic theory, Namecheap has stated that it would pass through cost increases to registrants. When ICANN was considering removing the price controls on .ORG, .INFO, and .BIZ in 2019, Namecheap advised its customers that it would pass through registry price increases if .ORG, .INFO or .BIZ raised prices after the controls were removed:<sup>26</sup>

ICANN, the organization that oversees domain names, has proposed removing price caps on all .org, .info, and .biz top level domains. This change could significantly increase the wholesale price that Namecheap pays for domains, ***and would force us to pass along those increases to you.***

These facts indicate that Namecheap (and other competing registrars) will behave like a firm in a competitive industry and pass through any input cost increases.

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<sup>25</sup> ICANN monthly registry reports (August 2021). According to domainnamestat.com, Namecheap's share of all registrations, including ccTLDs, is 2.8%. ([https://domainnamestat.com/statistics/registrar/NameCheap\\_Inc\\_-IANA\\_ID-1068](https://domainnamestat.com/statistics/registrar/NameCheap_Inc_-IANA_ID-1068), accessed January 6, 2022.)

<sup>26</sup> Namecheap000165, Ex. R-44 [emphasis added]; *see, also*, "Introducing .COM, .ORG, .NET, .BIZ, & .CO Domains," *Namecheap Blog*, November 17, 2020, ("If they [.ORG] choose to increase their prices, then registrars will need to do so as well."), Ex. R-45.

2. [Redacted - Confidential Information]

22. The prediction from economic theory that Namecheap will pass through input price increases [Redacted - Confidential Information]

23. I use data provided by Namecheap that reports Namecheap’s domain registrations by TLD, day, registration type (new, renewal, or transfer), and registration duration (1-10 years). The data report Namecheap’s average retail price and the average wholesale cost that Namecheap paid to registries. The cost data appear to be reliable and complete for the time period April 2018 through October 2021.<sup>27</sup>

24. I first look at changes in renewal prices. .ORG has not raised its registry price on renewal registrations in several years, but .INFO and .BIZ have each raised their registry price on renewal registrations multiple times (by amounts that would have been allowed under the price controls before June 2019). Between April 2018 and October 2021, .INFO increased its registry price (i.e., the wholesale cost) of a renewal registration by 10% three times, and .BIZ increased its registry price of a renewal registration by 10% twice.<sup>28</sup> .ORG did not change its registry price of a renewal registration during this time period. Table 1 summarizes how the average retail

<sup>27</sup> Namecheap’s Counsel affirmed the reliability of the cost data beginning in 2018. In a letter to ICANN, Namecheap’s Counsel stated that the Namecheap cost data prior to 2018 are less reliable as that data “may not take account of rebates and it may include additional costs that are no longer traceable.” “Namecheap started the manual tracking of Cost Data based on contracts, emails, and notices from registries in a more consistent and systematic manner as from 2018.” (Letter from Namecheap Counsel to ICANN Counsel, December 27, 2021, (“Namecheap Letter”), p. 3.) [Redacted - Confidential Information]

[Redacted - Confidential Information]

Note that in all analyses of the Namecheap data, I exclude Namecheap registrations for which Namecheap works through an intermediary rather than being charged by the registry operator directly. The excluded observations comprise less than 1% of Namecheap registrations.

<sup>28</sup> Based on Namecheap cost data.

price charged by Namecheap for renewal registrations on .INFO and .BIZ has evolved with the change in wholesale costs. [Redacted - Confidential Information]

[Redacted - Confidential Information]

**Table 1: Namecheap Reaction to Changes in the .INFO and .BIZ Registry Price for a Renewal Registration**

TLD <sup>1</sup>	Date Range <sup>2</sup>	Wholesale Cost	Average Retail Price	Change in Wholesale Cost	Change in Average Retail Price	Passthrough
[Redacted]	[Redacted]	[Redacted - Confidential Information]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted - Confidential Information]	[Redacted]	[Redacted]	[Redacted]	[Redacted]

Source: Namecheap005750, Namecheap005752.

Notes: 1. There is no change in the .ORG wholesale cost for a renewal from April 2018 - October 2021.

2. The date range is the range during which the wholesale cost is constant.

3. Restricted to registrations with a duration of one year.

25. Table 2 shows a similar analysis of passthrough on new registrations between April 2018 and October 2021. Over this time period, the registry price of a new registration increased for .INFO and decreased for .ORG and .BIZ. [Redacted - Confidential Information]

[Redacted - Confidential Information]

**Table 2: Namecheap Reaction to Changes in the .ORG, .INFO, and .BIZ Registry Price for a New Registration**

TLD	Date Range	Average Wholesale Cost	Average Retail Price	Change in Average Wholesale Cost	Change in Average Retail Price	Passthrough
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		Redacted - Confidential Information				

Source: Namecheap005750, Namecheap005752.

Note: Restricted to registrations with a duration of one year.

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<sup>29</sup>

This passthrough analysis weights each TLD equally as each TLD represents a separate observation of Namecheap's passthrough rate. To exclude TLDs for which data may be unreliable due to a small number of registrations, I restrict attention to TLDs for which Namecheap had at least 50 registrations in both April 2018 and October 2021. This volume cutoff affects the number of TLDs that are included in the analysis but does not qualitatively affect the conclusions about passthrough rates.

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The regression specification includes an intercept term, which captures any average changes in Namecheap's prices between April 2018 and October 2021, unrelated to wholesale cost changes.

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This passthrough analysis uses registrations with a duration of exactly one year as longer registrations may blend new and renewal prices together or reflect expectations about future price changes.

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The passthrough analysis reported in the text is robust to various methodological choices.

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**B. NAMECHEAP IS NOT LIKELY TO BE MATERIALLY HARMED BY REDUCED SALES AS A RESULT OF INCREASED WHOLESALE PRICES**

28. Prof. Dr. Verboven and Dr. Langus’s second theory of harm to Namecheap is that if Namecheap passes through at least part of the supposed price increase for .ORG, .INFO, and .BIZ, demand for registrations on these registries will fall and Namecheap will suffer lost sales and lost profits. In order for Namecheap to be materially harmed via this lost customer theory, a significant number of Namecheap’s customers would have to switch to another registry that is less profitable for Namecheap, switch to another registrar, or stop registering their domain names altogether. None of these possibilities is supported by the evidence nor do Prof. Dr. Verboven and Dr. Langus attempt to quantify any such harm or cite any evidence demonstrating that these effects would occur at all, let alone that they would be material.

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29. Even if some registrants decided to no longer use .ORG, .INFO, or .BIZ in response to higher prices from Namecheap, this does not mean that Namecheap would necessarily lose the business of these registrants as Prof. Dr. Verboven and Dr. Langus seem to suggest. Many of these registrants—if faced with higher pricing from .ORG, .INFO, or .BIZ—could switch to other registries, and Namecheap can still serve these registrants who switch.

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<sup>31</sup> I use heteroskedasticity-robust standard errors.

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**Table 3: Namecheap’s Expected Lifetime Margin on a New Registration**

TLD	Renewal Rate, $\rho$	Based on Own Margins	Based on Margins of All Other TLDs	Based on Margins of All Other TLDs, Excluding .COM

Source: Namecheap005750, Namecheap005752.

Notes: 1. The table assumes that  $\rho$  is consistent within a row.

2. Restricted to registrations with a duration of one year.

33. Redacted - Confidential Information

**2. Namecheap’s registrants are unlikely to divert to other registrars**

34. Since registries cannot discriminate when setting prices charged to registrars, any wholesale price increase faced by Namecheap also would be faced by other registrars. Namely, other registrars would not be competitively advantaged vis-à-vis Namecheap from the increased registry pricing and would face the same profit incentives as Namecheap to pass through higher registry prices to registrants. Prof. Dr. Verboven and Dr. Langus recognize that a wholesale price increase would be felt by other registrars, not just Namecheap: “Like Namecheap, other independent registrars are also affected by the same upward pressure on their costs. Therefore, the effect of the removal of price caps on other independent registrars is like the effect on Namecheap.”<sup>33</sup> Thus, competing registrars would not gain any cost advantage over Namecheap from supposedly higher future registry prices and so would have no resulting increased ability to divert registrants using .ORG, .INFO or .BIZ away from Namecheap.

<sup>33</sup> Verboven Second Report, ¶ 222.

35. To be complete, I address Prof. Dr. Verboven and Dr. Langus’s qualification that the impact of a wholesale price increase would be felt by all “independent” registrars. I recognize that GoDaddy owns Registry Services, which is the registry operator for .BIZ. Prof. Dr. Verboven and Dr. Langus conclude in their first report that a vertical relationship between a registry and a registrar could lead the registry to disadvantage non-affiliated registrars by charging higher prices to those non-affiliated registrars<sup>34</sup> or inappropriately using information from the non-affiliated registrars to benefit the vertically integrated registrar.<sup>35</sup> They provide no economic evidence in either of their reports as to whether such effects are likely or have occurred. Their first report says merely that discriminatory prices “may”<sup>36</sup> occur and misappropriation of information is “possible.”<sup>37</sup> Their second report (submitted 18 months after the GoDaddy acquisition of Registry Services) does not discuss any potential anticompetitive impact of vertical integration but does focus its analysis on “independent registrars,” which appears to refer to non-vertically integrated registrars. Although vertical integration can, under some circumstances, have anticompetitive effects, I note here that, as of August 2021, the share of .BIZ registrations held by GoDaddy (27%) is similar to GoDaddy’s share on all registries that it serves, i.e., on which it has at least one domain name registration (31%).<sup>38</sup> In addition, since Registry Services was acquired by GoDaddy in April 2020, the wholesale price of a .BIZ renewal registration has not increased. These facts suggests that Registry Services has not favored GoDaddy over other, independent registrars and thus the evidence currently available does not provide a basis for a concern about vertical harm—a concern that, in any event, Prof. Dr. Verboven and Dr. Langus do not explicitly raise in their second report and do not offer any evidence to support in either report.

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<sup>34</sup> Verboven First Report, ¶¶ 90-91.

<sup>35</sup> Verboven First Report, ¶¶ 92-93.

<sup>36</sup> Verboven First Report, ¶ 90.

<sup>37</sup> Verboven First Report, ¶ 93.

<sup>38</sup> ICANN monthly registry reports.

3. **Registry price increases are unlikely to significantly reduce overall demand for domain names**

36. Another version of harm theorized by Prof. Dr. Verboven and Dr. Langus is that Namecheap could theoretically lose customers if some would-be Namecheap customers decide not to register a domain name (on any registry) in response to an increase in the registry price of .ORG, .INFO, or .BIZ. (Note that if a registrant switches to a different TLD, its overall demand for domain name registrations is unchanged and Namecheap can serve that demand.) The harm I consider in this section is that demand for domain name registrations decreases overall (i.e., registrants drop a .ORG, .INFO, or .BIZ domain name without switching to another TLD) and that leads registrars, such as Namecheap, to lose some customers.

37. Prof. Dr. Verboven and Dr. Langus state that lost sales will occur unless demand for registrations is perfectly inelastic, a situation that “arises in exceptional circumstances that do not apply in our context.”<sup>39</sup> Although theoretically Namecheap could lose customers when it passes through an increase in its registry wholesale cost, Prof. Dr. Verboven and Dr. Langus provide no economic evidence supporting the conclusion that such losses would be significant; they merely state that the conditions for perfectly inelastic demand are not present in domain name registrations. Although I agree that demand is unlikely to be perfectly inelastic, Prof. Dr. Verboven and Dr. Langus provide no analysis and give no indication as to whether Namecheap may lose one customer, or 1,000 customers, or 1,000,000 customers, and thus they provide no economic evidence as to whether Namecheap is likely to be materially harmed as a result of customers dropping their domain name registrations after a registry price increase in .ORG, .INFO, or .BIZ.<sup>40</sup> Indeed, an increase in the registry price of .ORG, .INFO, or .BIZ may lead to additional registrations for Namecheap as registrants may lock in the original prices for long durations (up to ten years) and/or register secondary domains on other TLDs in order to transition to a new domain name.

38. An examination of current wholesale prices for registrations on .ORG, .INFO, and .BIZ suggests that it is unlikely that a price increase by .ORG, .INFO, or .BIZ would result in a

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<sup>39</sup> Verboven First Report, note 13.

<sup>40</sup> I note that less than 7% of Namecheap’s revenue from April 2018 through October 2021 comes from .ORG, .INFO, and .BIZ.

significant reduction in overall demand for total domain name registrations on registrars like Namecheap. The wholesale cost of a new registration is \$6.93 on .ORG, \$3.25 on .INFO, and \$3.36 on .BIZ.<sup>41</sup> Given the level of these costs—which cover a registration for an entire year—it is difficult to conclude that a significant number of registrants would no longer register a new domain name if the price of doing so increased by a modest amount per year on .ORG, .INFO, or .BIZ because they could register that new domain name on any other TLD.<sup>42</sup> Likewise, the wholesale cost of renewing a domain name registration for a year is \$9.93 on .ORG, \$13.15 on .INFO, and \$12.63 on .BIZ.<sup>43</sup> It is difficult to imagine that a modest price increase on these three TLDs would significantly impact total demand for renewals on all TLDs. This is especially true when renewal registrants that objected to a price increase (or new registrants that fear a possible future price increase in the absence of price controls) could lock in their current price for a ten-year period, thus insulating themselves from the price increase. Prof. Dr. Verboven and Dr. Langus have provided no economic evidence supporting their conclusion that Namecheap would lose customers of .ORG, .INFO, or .BIZ, let alone a significant number, because overall demand for domain names would decline.<sup>44</sup>

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39. In this section, I have shown that, even if registry prices in the future were to increase for .ORG, .INFO, or .BIZ, Namecheap is unlikely to experience material harm. First, economic theory

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Prof. Dr. Verboven and Dr. Langus concur that

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<sup>41</sup> Based on Namecheap’s average wholesale costs in October 2021.

<sup>42</sup> Prof. Dr. Verboven and Dr. Langus do not state by how much they expect registry operators will raise prices for .ORG, .INFO, and .BIZ domain name registrations (and do not quantify the expected harm that they claim Namecheap will suffer). (See, e.g., Verboven First Report ¶ 6 (“At this stage, we have not quantified Namecheap’s harm.”).)

<sup>43</sup> Based on Namecheap’s average wholesale costs in October 2021.

<sup>44</sup> .ORG, .INFO, and .BIZ account for 7.5% of registered domains among gTLDs that submit monthly registry reports to ICANN (August 2021) and less than 5% of registered domain names among all TLDs. (<https://research.domaintools.com/statistics/tld-counts/>, accessed January 3, 2022.)

registrars face significant (“intense” to use their exact language)<sup>45</sup> competition, which also supports this conclusion. Second, Namecheap would not be disadvantaged relative to other registrars and so Namecheap is unlikely to lose registrants to other registrars if it passed through cost increases. And third, Prof. Dr. Verboven and Dr. Langus provide no economic evidence that a significant number of registrants will give up having a domain name in response to the registries of .ORG, .INFO, and .BIZ raising their prices to registrars and those registrars then passing through the wholesale cost increase; it strains credulity to conclude that any realistic increase in the cost of registering a particular domain name would lead to a significant decline in demand for total domain name registrations, especially when registrants have the ability to lock in current prices to avoid future increases or switch to other TLDs. It then follows that Namecheap is unlikely to be harmed by a significant decline in its total domain name registrations were it to pass through a wholesale cost increase, even if there were to be such an increase.

### **III. PRICE REGULATION OF .ORG, .INFO, AND .BIZ IS NOT WARRANTED, GIVEN THAT REGULATION HAS COSTS AND THE BENEFITS OF REGULATION ARE UNLIKELY TO BE SIGNIFICANT**

40. Price regulation can both benefit and harm consumers. Regulation that keeps prices low can, at least in the short run, benefit consumers because it lowers the price that they would otherwise pay and creates incentives for more consumers to purchase a good or service. Those same low prices, however, can also impose a significant cost on consumers by depressing supplier incentives and degrading the quality and value of the service or product consumers purchase.<sup>46</sup> In assessing the desirability of price controls, therefore, one must assess whether the likely benefits outweigh the likely harms. In this section, I discuss how Prof. Dr. Verboven and

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<sup>45</sup> Verboven Second Report, ¶ 93.

<sup>46</sup> The railroad industry provides an example of how improper regulation eventually led to consumer harm: Restrictions on railroad pricing lowered the returns to investment, which ultimately led to a significant decline in capital investment by railroads; over time, consumers were harmed by low-quality railroad services. (Dennis W. Carlton and Jeffrey M. Perloff (2005), *Modern Industrial Organization*, 4th ed., p. 733; Robert D. Willig and William J. Baumol (1987), “Railroad Deregulation: Using Competition as a Guide,” *Regulation*, 11(1):28-35, pp. 30-31; Dennis W. Carlton and Randal C. Picker (2014), “Antitrust and Regulation,” in Nancy L. Rose, ed., *Economic Regulation and Its Reform: What Have We Learned?*, University of Chicago Press.)



Dr. Langus have underestimated the potential costs of price regulation and demonstrate that the likely benefits of regulation are small, leading me to conclude that there is no justification for reimposing price controls on .ORG, .INFO, and .BIZ.

**A. PROF. DR. VERBOVEN AND DR. LANGUS FAIL TO ADEQUATELY CONSIDER THE POTENTIAL COSTS OF PRICE REGULATION**

41. In the U.S., the judgment regarding balancing the benefits and costs of regulation is clear: Absent special circumstances, U.S. antitrust law and policy relies on competition, not regulation, to constrain the price a firm sets and to protect consumers. This reflects the judgment that, in most cases, the likely harms of price regulation outweigh the likely benefits. Firms that are clever or lucky enough to develop and promote valuable products are allowed to enjoy profits from their products: U.S. antitrust law and policy do not prohibit firms from pricing above marginal cost. The ability to charge high prices for valuable products incentivizes firms to innovate, invest, advertise, and provide better quality products overall than would occur if prices were regulated to remain low. This does not mean that price controls can never benefit consumers, but just that the expected harms from price controls that impair supplier incentives typically outweigh the expected benefits resulting from such controls. Prof. Dr. Verboven and Dr. Langus state that they recognize the “key tradeoffs” of price regulation and that price regulation is not warranted and can be harmful to innovation and efficiency in markets with “effective competition.”<sup>47</sup>

42. The potential costs of regulation include not only the costs of determining, monitoring, and enforcing the regulation, but also the cost of setting the wrong price, i.e., setting a price that inefficiently impairs registry incentives. For example, limiting the amount a registry can charge may harm registrants (especially in the long run), because such controls limit the pricing flexibility of registries to market their product and can reduce the incentives of registries to provide a high-quality product leading to declines in TLD investment, innovation, promotion, and expansion.<sup>48</sup> Prof. Dr. Verboven and Dr. Langus acknowledge the link between quality and

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<sup>47</sup> Verboven Second Report, § VII.A.

<sup>48</sup> I understand that registry operators can provide different levels of service. For example, although there are minimum levels of DNS abuse prevention that all registry operators must adhere to,

prices, stating that: “By allowing firms that successfully improve the quality of their products or services to set higher prices and realize higher margins, free prices also play a role in maintaining incentives for quality improvement or innovation at optimal levels.”<sup>49</sup> Although Prof. Dr. Verboven and Dr. Langus recognize that regulation can have costs, they fail to properly account for them, including the difficulty of determining the level at which prices should be set.

43. Prof. Dr. Verboven and Dr. Langus appear to assume that ICANN is the perfect regulator, one capable of setting an optimal price that protects registrants against unwarranted large price increases, yet simultaneously incentivizes the investments important to consumers. They assert that “[w]hen set at the right level, price caps can bring substantial benefits in markets where the prospects for effective competition are limited,”<sup>50</sup> and “[t]here is also no reason to believe that the risk is significant that *properly set* price caps on these gTLDs could have led to such adverse outcomes in the future.”<sup>51</sup> These assertions are tautologies: they assume that ICANN will set price caps at the “right” level, and thus price regulation will be beneficial. They ignore the practical difficulties of identifying when price caps would be beneficial and determining what price level is the “right” level. By appearing to assume that ICANN can regulate prices optimally, Prof. Dr. Verboven and Dr. Langus fail to adequately recognize that economists prefer to rely on market mechanisms to constrain prices precisely because regulation is difficult, costly, and can have unintended consequences. ICANN has no special ability to set prices to optimally balance consumer price protection and firm incentives for efficient behavior. Indeed, I understand that ICANN Board members Maarten Botterman and J. Beckwith Burr explain in their witness statements that ICANN does not possess the institutional capacity, resources, or expertise to act as a pricing regulator or to affirmatively set prices in the DNS.<sup>52</sup>

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some registry operators, such as Verisign and PIR, go beyond those minimum levels. See, [https://www.verisign.com/en\\_US/company-information/dns-abuse/index.xhtml](https://www.verisign.com/en_US/company-information/dns-abuse/index.xhtml).

<sup>49</sup> Verboven Second Report, ¶ 66.

<sup>50</sup> Verboven Second Report, § VII.A.2 [emphasis added].

<sup>51</sup> Verboven Second Report, ¶ 217 [emphasis added].

<sup>52</sup> Witness Statement of J. Beckwith Burr, January 14, 2022, ¶ 19; Witness Statement of Maarten Botterman, January 14, 2022, ¶ 8.

44. Prof. Dr. Verboven and Dr. Langus’ approach errs because, despite acknowledging that regulation can have costs, Prof. Dr. Verboven and Dr. Langus do not adequately recognize that ICANN lacks the expertise to set optimal prices. Without such expertise, the danger is that ICANN could set the wrong price—one that impairs efficient market outcomes—which would ultimately harm registrants rather than protect them.

**B. THE BENEFITS OF PRICE REGULATION OF .ORG, .INFO, AND .BIZ ARE UNLIKELY TO BE SIGNIFICANT**

45. In some cases, competition may not protect customers and may not provide incentives for firms to operate efficiently, especially when customers are dealing with firms whose competitive advantages have nothing to do with the firms’ past or current behavior. One possible justification for why ICANN initially imposed price controls on some gTLDs was to guard against the exercise of market power that was rooted in the scarcity of TLDs and limited competition among TLDs in the early days of the commercial internet.<sup>53</sup> The relevant question now, however, is whether reimposition of the prior price controls for the legacy gTLDs .ORG, .INFO, and .BIZ is needed today and in the future to protect registrants. Prof. Dr. Verboven and Dr. Langus answer this question affirmatively, concluding that, “[t]he available evidence indicates that, .ORG, .INFO, and .BIZ continue to hold persistent market power today”<sup>54</sup> and do not face “effective competition,”<sup>55</sup> and, hence, “it can be expected that the wholesale prices will increase with the removal of price caps.”<sup>56</sup> Because, as I discuss in Section II above, Namecheap would not be materially harmed by increases in the registry prices of .ORG, .INFO, and .BIZ, Prof. Dr. Verboven and Dr. Langus’s conclusion about likely increases in the registry prices of .ORG, .INFO, and .BIZ is not connected to any theory of harm to Namecheap. Nonetheless, in this section I analyze whether .ORG, .INFO, and .BIZ would be likely to significantly raise price above the level allowed by the prior price controls.

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<sup>53</sup> Verboven Second Report, ¶ 84 (“[T]he rationale for the introduction of price caps was market power held by gTLDs.”).

<sup>54</sup> Verboven Second Report, ¶ 7.

<sup>55</sup> Verboven Second Report, ¶ 95.

<sup>56</sup> Verboven Second Report, ¶ 10.

46. Prof. Dr. Verboven and Dr. Langus' criteria for identifying markets that would benefit from price regulation is overly simplistic and ignores the costs of regulation. For example, they state that the fact that .ORG, .INFO, and .BIZ charge higher prices than the top three new gTLDs means that .ORG, .INFO, and .BIZ have market power<sup>57</sup> and are candidates for regulation. But it is also true that *many* TLDs charge higher prices than the three new gTLDs mentioned by Prof. Dr. Verboven and Dr. Langus.<sup>58</sup> If, as Prof. Dr. Verboven and Dr. Langus appear to believe, charging a price higher than those three new gTLDs charge is a good indicator of market power and that setting regulated prices is easy and costless, then Prof. Dr. Verboven and Dr. Langus would presumably want to regulate many new gTLDs (in addition to legacy gTLDs such as .ORG, .INFO, and .BIZ). In 2009, I analyzed whether there needed to be price restrictions on new gTLDs and concluded that it was not necessary.<sup>59</sup> My view then was that such price restrictions were undesirable and that is my opinion now. That opinion partially depended on the existing price regulation of .COM and other legacy gTLDs at that time.<sup>60</sup> As I explain in this

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<sup>57</sup> Verboven Second Report, ¶¶ 160-61, 174, and 186-87.

<sup>58</sup> Prof. Dr. Verboven and Dr. Langus report that, in 2021, Namecheap paid higher wholesale costs for .ORG, .INFO, and .BIZ than for the new gTLDs .XYZ, .ICU, and .TOP. (Verboven Second Report, ¶¶ 160, 174, and 186.) But Namecheap paid higher wholesale costs for almost all other new gTLDs than for .XYZ, .ICU, and .TOP.

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<sup>59</sup> See, Report of Dennis Carlton Regarding ICANN's Proposed Mechanism for Introducing New gTLDs, June 5, 2009.

<sup>60</sup> Report of Dennis Carlton Regarding ICANN's Proposed Mechanism for Introducing New gTLDs, June 5, 2009, ¶ 73 ("The fact that the existing major TLDs are currently subject to price caps further constrains the ability of new gTLD registry operators to charge non-competitive prices. More specifically, the current agreements between the U.S. Department of Commerce, ICANN, and VeriSign cap the price increases that VeriSign can charge registrars for the .com and .net TLDs. Several other non-sponsored TLDs (such as .info and .biz) are also subject to price caps. While the appropriateness of these price caps may be debatable, the existence of the caps limits the prices that new gTLDs can charge by capping the price that the major registry operators can charge.") I define gTLDs introduced before 2013 as "legacy" gTLDs. I note that .COM and .NET alone were responsible for 85% of legacy gTLD registrations in January 2009 (the time period I analyzed in my previous report) and are responsible for 91% of legacy gTLD registrations as of August 2021. (ICANN monthly registry reports.)

section, there is much additional evidence since 2009 that one can now use to evaluate whether continued price controls on .ORG, .INFO, and .BIZ are needed to prevent prices from rising more than they would have under the prior price controls.

47. Based on the evidence I discuss below, I conclude that TLD competition and other factors limit .ORG, .INFO, and .BIZ's ability to raise price and that they are unlikely to raise prices significantly above the levels that would have been allowed under the prior price controls. If they did attempt to raise prices above the levels allowed by the prior price controls, registrants—even locked-in registrants—could mitigate the harm of any such increases.

1. **.ORG, .INFO, and .BIZ Face Competition From Other TLDs and That Competition Has Grown Over Time**

48. All TLDs face competition from .COM, which is by far the most popular TLD, accounting for 74% of registered domains and 67% of new registrations among gTLDs that submit monthly registry reports to ICANN.<sup>61</sup> The success of .COM in part stems from the initial restrictions on entry into TLDs. I understand that this proceeding is not about whether .COM should continue to be regulated. .COM's prices are regulated and price caps have been binding,<sup>62</sup> indicating that the price controls have kept prices on .COM lower than they would have been in the absence of price controls. At the observed price/quality bundle, .COM remains successful, as indicated by its large share of all registrations, including its large share of new registrations.<sup>63</sup> This indicates the desirability of .COM's price-quality offering, which in turn limits the pricing of competing registries, including .ORG, .INFO, and .BIZ.

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<sup>61</sup> See, supra n. 10. In contrast, across all TLDs, including ccTLDs, .ORG, .INFO, and .BIZ account for just 3.0%, 1.1%, and 0.4% of registered domains, respectively. (<https://research.domaintools.com/statistics/tld-counts/>, accessed January 3, 2022.)

<sup>62</sup> Report of Dennis W. Carlton, *Afilias Domains No. 3 Limited v. Internet Corporation for Assigned Names and Numbers*, ICDR Case No. 01-18-0004-2702, May 30, 2019, available at: <https://www.icann.org/en/system/files/files/irp-afilias-expert-report-carlton-31may19-en.pdf>, ¶ 30.

<sup>63</sup> .COM has 45% of registrations across all TLDs according to domaintools.com (<https://research.domaintools.com/statistics/tld-counts/>, accessed January 3, 2022.) and 74% of registrations among gTLDs that submit monthly registry reports to ICANN (August 2021). In the 12 months ending August 2021, according to ICANN monthly registry reports, .COM was responsible for 67% of new registrations.

49. Although .COM is the most popular TLD, it is not the only source of competition to .ORG, .INFO, and .BIZ. ICANN has expanded the set of allowed gTLDs over time and more than 1,100 new gTLDs are currently available; collectively, these gTLDs have 26.5 million registered domains.<sup>64</sup> Many of these gTLDs have names that would seem to have universal appeal such as .XYZ, .ONLINE, and .TOP. There has also been continued growth in ccTLDs, including a rise in so-called “open ccTLDs,” such as .CO, .GA, and .TK, that can be used by any registrant regardless of where the registrant resides. Altogether, there are over 300 ccTLDs and, collectively, they have 153 million registered domains.<sup>65</sup>

50. The increase in competition resulting from the addition of hundreds of gTLDs and ccTLDs was recognized by the Department of Commerce in 2018 when it decided to allow for a relaxation of the price controls on .COM. “[T]he Department [found] that ccTLDs, new gTLDs, and the use of social media have created a more dynamic DNS marketplace” and “given the more dynamic DNS marketplace, the Department [determined] that it [was] appropriate to amend the Cooperative Agreement to provide pricing flexibility for the registration and renewal of domain names in the .com registry.”<sup>66</sup>

51. The combined share of registered domain names accounted for by .ORG, .INFO, and .BIZ is small and both the combined number and share of domains have fallen in recent years, indicating that these TLDs are of limited competitive significance. When I analyzed the TLD marketplace in 2009, .ORG, .INFO, and .BIZ had a total of 14.6 million registered domains, which accounted for 13.4% of registered domains among gTLDs that submit monthly registry reports to ICANN.<sup>67</sup> In September 2013, the month before the first new gTLDs were

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<sup>64</sup> ICANN monthly registry reports (August 2021).

<sup>65</sup> <https://www.iana.org/domains/root/db>; Verisign Domain Name Industry Brief, 2021 Q3.

<sup>66</sup> Amendment Thirty-Five (35) to the Cooperative Agreement between U.S. Dept. of Commerce and Verisign, October 26, 2018, *available at*: [https://www.ntia.doc.gov/files/ntia/publications/amendment\\_35.pdf](https://www.ntia.doc.gov/files/ntia/publications/amendment_35.pdf), pp. 1 and 2. Despite this relaxation, I understand that the U.S. Department of Commerce retains an oversight role in regulating the maximum price that .COM operator Verisign can charge registrars for .COM domain names.

<sup>67</sup> The figures in this paragraph were calculated using ICANN monthly registry reports.

delegated,<sup>68</sup> .ORG, .INFO, and .BIZ had a total of 19.2 million registered domains, which accounted for 12.7% of registered domains among gTLDs that submit monthly registry reports to ICANN. In May 2019, the month before the contractual price controls on ORG, .INFO, and .BIZ were removed, the number of registered domains on these three TLDs had declined to 17.8 million registered domains and their share had declined to 8.6% of registered domains among gTLDs that submit monthly registry reports to ICANN. As of August 2021, .ORG, .INFO, and .BIZ have declined further, to a total of 16.6 million registered domains, which accounts for 7.5% of registered domains among gTLDs that submit monthly registry reports to ICANN.<sup>69</sup> If this decline in share and in number of registrations continues, the competitive importance of these three TLDs will be even smaller in the future and, whatever market power Prof. Dr. Verboven and Dr. Langus think they have today, that market power will diminish in the future.

**2. There Are Strong Justifications for Not Reimposing Price Controls on .INFO and .BIZ**

52. In addition to the limits on pricing behavior imposed by .COM and other TLDs, other evidence indicates that reimposing the prior price controls for .INFO and .BIZ is not likely to have significant benefits.

(a) *.BIZ has not raised prices above the level allowed by the previous controls*

53. Since the contractual price controls were removed in June 2019, .BIZ has continued to set prices that would have been consistent with the prior controls. .BIZ has increased the wholesale price of a renewal registration only once since the removal of the price controls, a 10% increase on November 4, 2019.<sup>70</sup>

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<sup>68</sup> <https://newgtlds.icann.org/en/about/program>.

<sup>69</sup> .ORG, .INFO, and .BIZ have 11.0 million, 4.1 million, and 1.5 million registered domains, respectively, which account for 5.0%, 1.9%, and 0.7% of registered domains among gTLDs that submit monthly registry reports to ICANN. (ICANN monthly registry reports (August 2021).) Across all TLDs, including ccTLDs, .ORG, .INFO, and .BIZ account for 3.0%, 1.1%, and 0.4% of registered domains, respectively. (<https://research.domaintools.com/statistics/tld-counts/>, accessed January 3, 2022.)

<sup>70</sup> 

54. This market evidence indicates that price increases over the short run (above levels allowed by the previous controls) are unlikely because factors other than the price controls limit the .BIZ registry operator in its pricing decisions. This does not guarantee that in the future the .BIZ registration prices will not increase, but it shows that there is no evidence to expect it in the short term.<sup>71</sup>

(b) *The evidence on .INFO and .BIZ fails to support the criteria that Prof. Dr. Verboven and Dr. Langus set forth to identify market power.*

55. In their discussion of .ORG, Prof. Dr. Verboven and Dr. Langus identify the following indicators of substantial market power that they claim apply to .ORG:<sup>72</sup> (1) it is semantically differentiated from other TLDs; (2) it is one of the most popular TLDs in terms of registrations; (3) it has high levels of recognition and trust; and (4) market evidence is consistent with .ORG having market power because the number of registrations on .ORG has been stable despite .ORG's "relatively high"<sup>73</sup> prices. The evidence does not support the claim that .INFO and .BIZ have these characteristics, and thus Prof. Dr. Verboven and Dr. Langus' criteria would indicate that .INFO and .BIZ do not have market power. In addition, Prof. Dr. Verboven and Dr. Langus claim that (5) registrants face substantial switching costs. I agree that some registrants face

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<sup>71</sup> The price history of .INFO is more complicated. .INFO has increased its registry price three times since the controls were lifted. The first two price increases (10% increases on January 1, 2020 and on January 8, 2021) were within the limits that would have been allowed by the prior price controls. Recently, .INFO has informed registrars that it will increase the registry price for renewals in January 2022. According to "wholesale" price data reported by Domain Cost Club, the new .INFO registry price of \$14.60 will be 11% higher than the prior price of \$13.15. This price increase would be one percentage point (about 13 cents) above what would have been allowed under the controls. At the same time, however, Domain Cost Club data indicates that .INFO is lowering the registry price of a new registration from \$3.25 to \$2.00, a 38% reduction. (<https://www.domaincostclub.com/pricing.dhtml>, accessed January 3, 2022.) Whether this combination of price changes—a price increase on renewals slightly above the prior cap and a price decrease on new registrations—is, on balance, beneficial to customers depends not only on the success of this strategy in attracting new customers, the mix of new and renewal registrations, and the average life of a registration, but also on the overall cost-benefit analysis of price controls. (See Section III.A.)

<sup>72</sup> See Verboven Second Report, § IX.C.1.

<sup>73</sup> Verboven Second Report, ¶ 162.



switching costs, but it does not follow that .INFO and .BIZ can necessarily raise prices significantly above what would have prevailed under the prior price caps.

- (1) The evidence does not support the claim that .INFO and .BIZ have significant semantic differentiation that confers significant market power

56. Although there is differentiation among TLDs and registrants likely do not view all TLDs as equally good substitutes, Prof. Dr. Verboven and Dr. Langus provide no evidence to support the claim that .INFO or .BIZ have especially unique identities that would be likely to prevent a significant number of registrants from switching away from them.

57. Although I am unaware of data that would allow one to quantify the amount of differentiation between TLDs, registrars do encourage potential customers to consider alternative TLDs. Namecheap’s website explains that: “Although the .info domain extension was originally intended for informative websites, its use soon broadened to include many other uses. It can be used freely as an alternative to .com and the remaining registered gTLDs.”<sup>74</sup> I understand that .BIZ is a generic TLD intended for any business purpose, and both generic and more specialized TLD alternatives for business purposes are available. Namecheap’s website, for example, describes .BIZ as one of many TLDs (other than .COM) that are appropriate for business uses. Namecheap points to: .PRO (“With this TLD, your domain communicates at a glance that your business is on a different level”); .BIZ (“In a fast-paced world with limited attention spans getting shorter and shorter, .biz tells your customers who you are right away”); .LTD (“By choosing this top-level domain, your private limited organization shows your legal standing right away”); .LLC (“This domain creates a unique namespace apart from the crowded business TLD market, making it easier for any firm or partnership to stand out without having to change their existing branding or positioning”); .CONSULTING (“With a broad term such as consulting, this can apply to scientific research, political wonks, or advertising branding to name a few”); .CAB (“Whether you’re a single cabby, run a fleet, or have an upscale chauffeur firm, a .cab TLD will set you on the right track”); .LIMO (“how do you stand out in this multi-billion dollar business known for its competitiveness? With a .limo domain”); .CAREERS (“Whether you’re in recruitment, or offering careers advice, the .careers namespace is a professional, and memorable

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<sup>74</sup> <https://www.namecheap.com/domains/registration/gtld/info/>.

way to inform people what your site is all about”); .MENU (“Given the competition in the food industry, you have to meet people’s expectations to take on your competition, and what better way than with a .menu TLD”); .COFFEE (“.coffee will distinguish you from the your competitors in the overcrowded field of .coms”); .FLORIST (“Aside from the obvious floral shops, this extension is a great fit for flower wholesalers, landscapers, professional gardeners, and anyone else doing business interested in botany”); and .STORE (“With a .store domain, you can help guide your customer into choosing your products by supplying a browsable product catalogue, details about your location and opening times, contact details, and anything else that might encourage a visit”).<sup>75</sup> GoDaddy likewise recommends many TLD alternatives for businesses, including .NET (“Many people associate .net with web-based applications and services. If your business operates in those industries, .net makes perfect sense and can help validate and communicate your services.”) and .CO (“Creating a website with .co makes sense if you are a business, particularly if you’re a young startup that markets itself as original or unique.”) among others.<sup>76</sup>

- (2) The evidence does not support the claim that either .INFO or .BIZ is one of the most popular TLDs in terms of registrations

58. Prof. Dr. Verboven and Dr. Langus claim that having a large number of domain name registrations results in a TLD becoming more familiar to users and can generate network effects, conferring market power on the TLD. They provide no evidence that .INFO and .BIZ benefit from unusually large network effects due to uniquely large registration counts. Although .INFO is the fourth largest gTLD,<sup>77</sup> according to domaintools.com, .INFO has only the 16<sup>th</sup> most registered domains behind several ccTLDs and open ccTLDs— such as .GA, .TK, and .CF. .BIZ has the 32<sup>nd</sup> most domain registrations behind several open ccTLDs and even some new gTLDs—.XYZ, .ONLINE, and .TOP.<sup>78</sup> Moreover, Prof. Dr. Verboven and Dr. Langus provide

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<sup>75</sup> <https://www.namecheap.com/domains/best-business-website-tld-domains/>

<sup>76</sup> <https://www.godaddy.com/garage/most-common-domain-extensions/>

<sup>77</sup> ICANN monthly registry reports (August 2021).

<sup>78</sup> <https://research.domaintools.com/statistics/tld-counts/>, accessed January 3, 2022.

no analysis that demonstrates that the number of registrations on .INFO and .BIZ results in enough familiarity to generate these supposed network effects and market power.

- (3) The evidence does not support the claim that either .INFO or .BIZ enjoy high levels of recognition and trust compared to other TLDs

59. Prof. Dr. Verboven and Dr. Langus use data from MOZ and Domcop to assess the number of “highly visible”<sup>79</sup> domains on various TLDs. Prof. Dr. Verboven and Dr. Langus claim that, since .ORG is one of the TLDs with a high frequency of highly visible domains, this “provides an indication of its high relevance relative to many other TLDs.”<sup>80</sup> This same reasoning demonstrates that .INFO and .BIZ do not have high relevance relative to many other TLDs. .INFO has only one domain in MOZ’s top 500.<sup>81</sup> There are 39 other TLDs—including gTLDs and open ccTLDs, such as .NET and .CO—with at least one domain in the top 500. .BIZ has zero domains in the top 500. Similarly, .INFO has just two of the top 1,000 domains according to Domcop.<sup>82</sup> There are 36 other TLDs with at least two domains in the top 1,000. .BIZ has zero domains in the top 3,000 according to Domcop.

60. On the other hand, .INFO and .BIZ do have a large number of low quality or harmful domains<sup>83</sup> based on data from the Spamhaus Project, which is an internet watchdog that generates statistics about bad domains, meaning domains registered to professional spammers and malware operators. Essentially, Spamhaus tracks internet traffic and classifies individual domains based on whether they appear to be “spamming or being used for botnet or malware abuse.”<sup>84</sup> Spamhaus reports the percentage of bad domains per TLD as well as a “badness”

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<sup>79</sup> Verboven Second Report, ¶ 157.

<sup>80</sup> Verboven Second Report, ¶ 156-157.

<sup>81</sup> <https://moz.com/top500>, accessed January 13, 2022.

<sup>82</sup> <https://www.domcop.com/top-10-million-domains>, accessed January 13, 2022.

<sup>83</sup> Verboven Second Report, ¶ 117 (“In contrast, network effects do not occur, or can even be negative, if a TLD contains a large share of domains with little value to users or even potentially harmful content. In such event, the users will either not become very familiar with the TLD, or they will trust it less, as the number of low quality or harmful domains in it increases. Indeed, the demand for such a TLD may even suffer from a reputation that it should be avoided.”).

<sup>84</sup> <https://www.spamhaus.org/news/article/728/>.

index that weights partially on TLD size.<sup>85</sup> Spamhaus notes that TLDs can employ “anti-abuse mechanisms” and “keep[]spammers off their domains and work to maintain a positive reputation”; “if they wish[] to, any TLD registry can ‘keep clean’.”<sup>86</sup>

61. Table 4 shows that .INFO and .BIZ each have a much higher percentage of bad domains than do the biggest legacy gTLDs, ccTLDs, and new gTLDs. The percentage of bad domains on .INFO and .BIZ is instead comparable to the biggest open ccTLDs, which have free registration.<sup>87</sup>

**Table 4: Spamhaus Badness Index for Select TLDs**

<b>TLD</b>	<b>Type</b>	<b>Bad Domain Percentage</b>	<b>Badness Index</b>
.INFO		15.7%	1.50
.BIZ		26.4%	2.41
.COM	Legacy	5.2%	0.64
.NET	Legacy	5.4%	0.53
.DE	ccTLD	0.5%	0.04
.UK	ccTLD	1.7%	0.15
.XYZ	ngTLD	2.9%	0.26
.ONLINE	ngTLD	3.3%	0.28
.GA	Open ccTLD	30.4%	2.63
.TK	Open ccTLD	22.9%	2.11

Source: <https://www.spamhaus.org/statistics/tlds/>, accessed 1/13/2022.

Notes: .BIZ is ranked as the 7th most abused TLD; .GA is 3rd.

(4) The evidence does not support a claim that the number of registrations on .INFO and .BIZ has been steady

62. In addition to representing only a small percentage of registered domains today, the number of registered domains on .INFO and .BIZ has decreased over the last several years and has not been steady as argued by Prof. Dr. Verboven and Dr. Langus and which they claim is

<sup>85</sup> <https://www.spamhaus.org/statistics/tlds/>.

<sup>86</sup> <https://www.spamhaus.org/news/article/728/>.

<sup>87</sup> <https://icannwiki.org/.ga> (“Registration is offered ‘for free[.]’”); <http://www.dot.tk/en/index.html?lang=en>.

evidence of market power.<sup>88</sup> Prof. Dr. Verboven and Dr. Langus claim that “.INFO DUMs [registered domains] have only moderately (by about 10%) decreased in the period of fastest expansion of new gTLDs between 2014 and 2020, from 5.1 million to 4.5 million[.]”, but this is incorrect and misleading.<sup>89</sup> First, their estimate of 5.1 million registered domains in 2014 appears to be an error. .INFO had 5.7 million domains in January 2014 and at least 5.4 million throughout 2014.<sup>90</sup> Second, it is not clear why they start their analysis in 2014 and end it in 2020. The first new gTLDs were delegated in October 2013<sup>91</sup> and more information exists after December 2020. Updating their analysis, I find that domains registered on .INFO declined from 6,158,549 in September 2013 (the month before the first new gTLDs were delegated) to 4,141,653 in August 2021, a decline of 33%.<sup>92</sup> Likewise, Prof. Dr. Verboven and Dr. Langus claim that there has been “stable demand for registrations in .BIZ” over the past ten years.<sup>93</sup> Yet domains registered on .BIZ decreased from 2,659,252 in September 2013 to 1,451,393 in August 2021, a decline of 45%.<sup>94</sup> Over the same time period, total domains under management among gTLDs that submit monthly registry reports to ICANN increased by 46%, which means that both .INFO’s and .BIZ’s share of registrations among gTLDs that submit monthly registry reports to ICANN have declined (from 4.1% to 1.9% for .INFO, and from 1.8% to 0.7% for .BIZ). This decline is not surprising given the increase in the number of TLDs from which registrants can choose, as I discussed in Section III.B.1, above.

- (5) The existence of switching costs alone does not imply that .INFO and .BIZ can exercise significant market power to raise price significantly above the levels allowed by the prior price controls

63. Prof. Dr. Verboven and Dr. Langus claim that many registrants of domains in .INFO and .BIZ “would face substantial switching costs if they decided to register their primary domain in a

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<sup>88</sup> Verboven Second Report, ¶¶ 176, 187 and 189.

<sup>89</sup> Verboven Second Report, ¶ 175.

<sup>90</sup> ICANN monthly registry reports.

<sup>91</sup> <https://newgtlds.icann.org/en/about/program>.

<sup>92</sup> ICANN monthly registry reports.

<sup>93</sup> Verboven Second Report, ¶ 189.

<sup>94</sup> ICANN monthly registry reports.

different TLD[,]” and as a result, .INFO and .BIZ hold “a material degree of market power” although likely less than .ORG.<sup>95</sup> As I explained in a previous report,<sup>96</sup>

Registrants that subscribe to a particular Internet domain name face costs when switching registries because the TLD is a component of the domain name which, by definition, cannot be ported across registries. That is, if the registrant that operates the website cars.com wants to switch to the .net registry, then it must adopt cars.net (if available) or adopt another .net domain name. Switching costs faced by registrants may create incentives for registries and registrars to act opportunistically by raising prices.

However, it does not follow that .INFO and .BIZ can necessarily raise prices significantly above what would have prevailed under the prior price caps, and that is demonstrated by the evidence I discussed in the prior section: market evidence from .INFO and .BIZ registrations and pricing indicate that those TLDs face competition from other TLDs both for new and renewal registrations.

64. Competition from other TLDs for new registrants provides protection from price increases to even renewal (or “locked-in”) registrants. A significant price increase on renewals would affect the registries’ reputations: raising prices to locked-in registrants would make the platform less attractive to new registrants. As I previously explained,<sup>97</sup>

[C]ompetition among suppliers to attract new customers in markets characterized by switching costs limits or eliminates the suppliers’ incentive and ability to act opportunistically. For example, a supplier that imposes unexpected or unreasonable price increases will quickly harm its reputation making it more difficult to continue to attract new customers. Therefore, even in the absence of price caps, competition can reduce or eliminate the incentive for suppliers to act opportunistically.

So, to the extent that a registry seeks to continue to attract new registrants, this would limit its ability to raise price to existing (renewal) registrants. In fact, this type of competition (for new

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<sup>95</sup> Verboven Second Report, ¶¶ 165, 178.

<sup>96</sup> Report of Dennis Carlton Regarding ICANN’s Proposed Mechanism For Introducing New gTLDs, June 5, 2009, ¶ 14.

<sup>97</sup> Report of Dennis Carlton Regarding ICANN’s Proposed Mechanism For Introducing New gTLDs, June 5, 2009, ¶ 65.

registrants) is what protects locked-in registrants on other TLDs from price increases, even in the absence of price controls.

65. Registrants also have protection because, even if they are locked-in to their TLD, they can respond to a significant price increase by invoking a renewal option to keep pricing at current levels for up to ten years. This limits any harm that could occur if .INFO and .BIZ significantly increase prices in the future.

3. **There Are Strong Justifications for Not Reimposing Price Controls on .ORG**

(a) *The .ORG registry is operated by a non-profit entity with non-commercial objectives*

66. The .ORG registry is operated by the nonprofit entity Public Interest Registry (PIR), which has different incentives than a commercial operator would have. When price caps were removed and the .ORG registry agreement was renewed in June 2019, PIR stated its mission as a non-commercial operator:<sup>98</sup>

Regarding the removal of price caps, we would like to underscore that Public Interest Registry is a mission driven non-profit registry and currently has no specific plans for any price changes for .ORG. Should there be a need for a sensible price increase at some point in the future, we will provide advanced notice to the public.

(b) *.ORG has not raised prices in more than five years and recognizes limitations on its ability to raise prices, namely, competition and registrants' rights to long-term contracts*

67. The .ORG registry has not raised prices in more than five years,<sup>99</sup> despite being allowed to raise prices by 10% annually when the contractual price controls were in force and having no

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<sup>98</sup> <https://thenew.org/pir-welcomes-renewed-org-agreement/>.

<sup>99</sup> According to Domain Cost Club, the wholesale price of a .ORG renewal was \$9.93 in 2016 and is \$9.93 today.  
<https://web.archive.org/web/20161018082812/https://www.domaincostclub.com/pricing.dhtml>;  
<https://www.domaincostclub.com/pricing.dhtml>.

contractual limits on price increases since the removal of the caps in June 2019. When the caps were removed, PIR restated its assurances not to excessively raise prices:<sup>100</sup>

The .ORG Community always is considered in every decision we make here at Public Interest Registry. **Rest assured, we will not raise prices unreasonably. In fact, we currently have no specific plans for any price increases for .ORG.** We simply are moving to the standard registry agreement with all of its applicable provisions that already is in place for more than 1,200 other top-level domain extensions.

Under the current .ORG Registry Agreement, Public Interest Registry has had the ability to annually raise prices 10% per year. Despite that ability, we have not raised our prices for the last three years.

68. Although PIR states it is driven by non-commercial motives, it also recognizes commercial realities that would limit its ability to raise prices, including competition from other TLDs and the fact that registrants can opt for a contract term of up to ten years during which the price paid by the registrant could not be raised:<sup>101</sup>

We also want to mention that you, our end users, are protected in the registry agreement in case of any sensible future price increases. You would receive six-months' notice of any increase from your registrar (the company where you registered your domain) with the ability to lock in your pricing at the then current rate for the next 10 years without any price fluctuation. Also, keep in mind that .ORG is constrained by the competitive market; we cannot dramatically increase prices for .ORG, as we recognize and understand that both our .ORG end users and our .ORG registrars would turn away from .ORG.

#### IV. CONCLUSION

69. For the reasons set forth above, I conclude that ICANN's removal of price control provisions on .ORG, .INFO, and .BIZ has not caused any harm so far to Namecheap and is not likely to cause material harm to Namecheap in the future, because evidence indicates that

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This conclusion holds whether or not .ORG, .INFO, and .BIZ have sufficient market power to allow them to raise prices above the levels allowed under the prior price controls. I

<sup>100</sup> <https://thenew.org/an-open-letter-to-the-org-community/> [emphasis added].

<sup>101</sup> <https://thenew.org/an-open-letter-to-the-org-community/>.



also conclude that, because regulation can impose costs and, in this case, is unlikely to lead to significant benefits, there is no justification for reimposing price caps on .ORG, .INFO, and .BIZ.

*Dennis W. Carlton*

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Dennis W. Carlton  
January 14, 2022

**EXHIBIT 1**

**CURRICULUM VITAE OF DENNIS W. CARLTON  
AND  
TESTIMONY, JANUARY 2018-JANUARY 2022**



## FIELDS OF SPECIALIZATION

Theoretical and Applied Microeconomics  
Industrial Organization

## ACADEMIC HONORS AND FELLOWSHIPS

Keynote Address, 32nd Annual Workshop of the Competition Law & Policy Institute of New Zealand, 2021  
2020 Award for Best Article in *Economic Inquiry* for the article "Antitrust Treatment of Nonprofits: Should Hospitals Receive Special Care? (with C. Capps and G. David)".  
Best Academic Economics Article in Antitrust - 2019 Antitrust Writing Awards, given by Concurrences and George Washington University Law School for the article "Vertical Most-Favored-Nation Restraints and Credit Card No-Surcharge Rules" (with R. Winter) in *Journal of Law and Economics*.  
Harris Professor Lecture, Clemson University, 2019  
Taft Lecture, New York Bar Association, 2018  
Keynote Address, CRESSE Conference, June 2018  
Best Academic Economics Article in Antitrust - 2016 Antitrust Writing Awards, given by Concurrences and George Washington University Law School for the article "Rethinking Antitrust in the Presence of Transaction Costs: Coasian Implications" (with B. Keating) in *Review of Industrial Organization*.  
Keynote Address, Federal Trade Commission, Auto Distribution: Current Issues and Future Trends, January 19, 2016  
Award for Antitrust Litigation Consultants of the Year 2015, awarded by Corporate Vision  
Keynote Address, International Industrial Organization Conference, 2014  
The 2014 Distinguished Fellow, Industrial Organization Society  
Economist of the Year, Global Competition Review, 2014  
Keynote Address, Sixth Annual Federal Trade Commission Microeconomics Conference, 2013  
Heath Memorial Lecture, University of Florida, 2013  
Award (w. Mark Israel) for Best Antitrust Analysis in Litigated Cases, Global Competition Review, 2013  
Keynote Address, 21<sup>st</sup> Annual Workshop of the Competition Law & Policy Institute of New Zealand, 2010  
Keynote Address, Japanese Symposium on Competition, sponsored by Japan Fair Trade Commission, 2009  
Recipient of Inaugural Robert F. Lanzilotti Prize, awarded by the Industrial Organization Society for Best Paper in Antitrust Economics, 2008  
Keynote Address to Israel Antitrust Conference, 2008  
Lewis Bernstein Memorial Antitrust Lecture, Washington, D.C., 2006  
Distinguished Visitor, University of Melbourne, April 2005  
Milton Handler Lecture, New York, 2004  
Keynote Address to the International Competition Network, Mexico, 2004  
Alexander Brody Distinguished Lecture, Yeshiva University, 2000  
Ph.D. Thesis chosen to appear in the Garland Series of Outstanding Dissertations in Economics  
Recipient of the 1977 P.W.S. Andrews Memorial Prize Essay, best essay in the field of Industrial Organization by a scholar under the age of thirty  
National Science Foundation Grant, 1977 - 1985  
Recipient of Post-doctoral Grant from the Lincoln Foundation, 1975  
National Science Foundation Fellowship, 1972 - 1975  
Phi Beta Kappa, 1971  
John Harvard Award, 1970  
Detur Book Prize, 1969  
Edwards Whitaker Award, 1969  
M.I.T., National Scholar Award, 1968

## PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Appointed to ABA Leadership in Antitrust Section: 2018-2019  
Participant in the FTC Competition and Consumer Protection Hearings: "The State of U.S. Antitrust Law", September 21, 2018 (Session 1) and "Merger Retrospective Hearing", April 12, 2019  
Co-Organizer and Instructor, Antitrust Law and Economics Institute, Federal Judicial Center, 2017, 2018  
Member, Task Force on International Divergence in Dominance Standards, American Bar Association 2017 - 2018  
Board Member, The Taub Center for Social Policy Studies, 2017 - present  
Member, U.S. Chamber of Commerce International Competition Policy Expert Group for report on International Trade and Competition, 2017  
Appointed Member of the ABA Presidential Transition Task Force, Antitrust Law, 2016  
Appointed Member of the ABA Presidential Transition Task Force, Antitrust Law, 2012  
Advisory panel to the Department of Justice and the FTC on the merger guidelines, 2010  
Co-editor, Journal of Law and Economics, 1980 - present  
Visiting Committee, MIT, Department of Economics, 1995 - 2011  
Member, Advisory Board, Economics Research Network, 1996 - present  
Member, Advisory Board of Antitrust and Regulation Abstracts, Social Science Research Network, 1998 - present  
Advisory Board, Massachusetts Institute of Technology, Department of Economics, 1999  
Editorial Board, Competition Policy International (CPI), 2010 - present, Co-Editor, Competition Policy International (CPI), 2004 - 2009  
Member, Economic Task Force - Antitrust Division, American Bar Association, 2010  
Advisory Board, Journal of Competition Law and Economics, 2004 - present  
Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice, 2006 - 2008  
Presidential Appointment to the Antitrust Modernization Commission, 2004 - 2007  
Invited Panelist at Public Hearing on the Retail Banking Sector Inquiry: Payment Cards, before the European Commission in Brussels, Belgium, July 17, 2006.  
Consultant on Merger Guidelines to the FTC, 2003  
Professor, George Mason Institute for Judges, October 2001  
Chairman, FTC Round Table on Empirical Industrial Organization (September 11, 2001)  
Participant in the Round Table on the Economics of Mergers Between Large ILECS before the Federal Communications Commission, February 5, 1999  
Member, Steering Committee, Social Science Research Council, Program in Applied Economics, 1997 - 1999  
Participant in roundtable discussions on "The Role of Classical Market Power in Joint Venture Analysis," before the Federal Trade Commission, November 19, 1997 and March 17, 1998.  
Participant in meetings with Committee of the Federal Reserve on Payment Systems, June 5, 1997  
Associate Editor, Regional Science and Urban Economics, 1987 - 1997  
Resident Scholar, Board of Governors of the Federal Reserve System, Summer, 1995  
Accreditation Committee, Graduate School of Business, Stanford University, 1995  
Associate Editor, The International Journal of Industrial Organization, 1991 - 1995  
Editorial Board, Intellectual Property Fraud Reporter, 1990 - 1995  
Consultant on Merger Guidelines to the U.S. Department of Justice, 1991 - 1992  
Member, Advisory Committee to the Bureau of the Census, 1987 - 1990  
National Bureau of Economic Research, Research Associate  
Member, American Economic Association, Econometrics Society

## BOOKS

Market Behavior Under Uncertainty, Ph.D. Thesis, Massachusetts Institute of Technology (September 1975); Garland Publishing (1984).

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## RESEARCH PAPERS

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## EXPERT TESTIMONIAL EXPERIENCE (Includes last 4 years)

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**EXHIBIT 2**

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