Phase I Assessment of the Competitive Effects Associated with the New gTLD Program

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EXECUTIVE SUMMARY

We were retained by ICANN to evaluate the competitive effects associated with the New Generic Top-Level Domain ("gTLD") Program. This program was developed to allow for new top-level domains ("TLDs") to be introduced, with the first new TLD ultimately being launched in October 2013. Our evaluation of competitive effects is divided into two phases: this initial report (the "Phase I Assessment"), which establishes a baseline description of the marketplace for domain names approximately 18 months after the first gTLD was introduced, and a subsequent report (the "Phase II Assessment"), which will assess the extent to which the New gTLD Program has affected competition in this marketplace in the coming year.

Based on the data collected to date, our principle findings are as follows:

- The New gTLD Program substantially expanded the number of available TLDs. Prior to the introduction of the new gTLDs, 22 legacy TLDs were in existence, 14 of which are available without certain restrictive registration requirements. A year and a half after the first new gTLDs were delegated, 428 gTLDs were available for purchase.[2]
- The majority of domain name registrations are accounted for by legacy TLDs. However, registration shares across registries, and across registrars, are more dispersed for new gTLDs as compared to legacy TLDs.
- On average, new gTLD wholesale prices, that is, the prices charged by registries to registrars, are higher than legacy TLD wholesale prices. This could imply that new gTLD operators expect some consumers to value new gTLDs more than legacy TLDs. However, it is important to keep in mind that legacy TLDs have historical restrictions on pricing, which continue to persist today, whereas new gTLDs do not.
- There is greater dispersion of wholesale prices among new gTLDs than among legacy TLDs. Price dispersion on its own is not indicative of high or low levels of competition. Price dispersion may reflect TLD differentiation resulting from intrinsic value, lack of pricing information across consumers, service differentiation, and/or the fact that legacy TLDs are subject to wholesale price caps.
- When add-on products offered by registrars are considered, such as email and web hosting, the cost of registering a domain name is a relatively small part of the total cost of creating a website.
- Among add-on products, some display very little price dispersion across registrars (e.g., forwarding services) while others have much more variation (e.g., services designed to assist customers in building websites).

The further evolution of this marketplace will be examined over the coming year.[3] The Phase II Assessment will allow for a deeper analysis of the competitive effects associated with the New gTLD Program, and will include an examination of changes in prices and registration volumes for legacy TLDs and new gTLDs in our existing sample, as well as additional new gTLDs introduced over the next year. It is important to note that fully

[2] Availability is defined as having Monthly Transaction Reports as of March 2015.

[3] Data collection is discussed in Section III. The data collected will be refreshed in 2016 and results will be updated as part of the Phase II Assessment. The target for publication of the Phase II Assessment is fall 2016.

analyzing the market effects of the New gTLD Program would require examining a variety of factors beyond price and registration levels, including the extent to which gTLDs and registrars have differentiated themselves through such activities as increasing product quality and the availability of ancillary services and products, and the extent to which consumers view new gTLDs as substitutes for each other and for legacy TLDs. Such lines of examination would require detailed transaction-level data from registrars, resellers, and secondary market facilitators, which have not been made available at this time.

SECTION I – INTRODUCTION

Prior to the introduction of new generic top level-domains ("gTLDs"), 22 legacy top level domains ("TLDs") had been introduced since 1984.[4] Among the 22 legacy TLDs, 14 are available without certain restrictive registration requirements,[5] and of those TLDs, .com, .net, and .org account for approximately 94% of current total registrations. Specifically, .com, .net, and .org had approximately 121.0 million, 15.5 million, and 10.6 million registrations, respectively, as of April 2015, with all other legacy TLDs accounting for approximately 9.5 million registrations.[6]

In August 2007, the Generic Names Supporting Organization ("GNSO") issued a final report that addressed the extent to which, and how, new gTLDs should be introduced.[7] This report noted several potential benefits associated with introducing new gTLDs, including promoting competition among TLDs, providing consumers with increased choice, and responding to consumers' interest in TLDs in both ASCII and IDN formats.[8]

In June 2011, ICANN's Board of Directors approved the New gTLD Program,[9] and in January 2012, ICANN opened the window for the first round of gTLD applications,

[4] We consider any TLD released prior to the New gTLD Program to be a legacy TLD. The initial set of these TLDs were introduced in 1984, when RFC 920 established .com, .edu, .gov, .mil, .org; .net was also introduced along with these TLDs. Additional TLDs were subsequently released from 1988 through 2012. J. Postel and J. Reynolds, Network Working Group, Domain Requirement, Request for Comments: 902, October 1984 available at, https://tools.ietf.org/html/rfc920, accessed July 27, 2015; ICANN, New Generic Top-Level Domains: About the Program, available at http://newgtlds.icann.org/en/about/program, accessed July 28, 2015.

[5] The seven TLDs with certain restrictive registration requirements are .gov, .edu, .int, .mil, .aero, .coop, .museum, and .post. These Sponsored Top Level Domains (sTLD) restrict registrations based on pre-defined eligibility. See IANA's root zone database for TLD categorization: https://www.iana.org/domains/root/db, accessed July 28, 2015. See also ICANN's sTLD section criteria: https://archive.icann.org/en/tlds/stld-apps-19mar04/PostAppA.pdf, accessed July 28, 2015.

[6] Source: Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.

[7] ICANN Generic Names Supporting Organization Final Report, August 8, 2007, available at http://gnso.icann.org/en/issues/new-gtlds/pdp-dec05-fr-parta-08aug07.htm#_Toc43798015/, accessed July 30, 2015.

[8] ICANN Generic Names Supporting Organization Final Report, August 8, 2007, available at http://gnso.icann.org/en/issues/new-gtlds/pdp-dec05-fr-parta-08aug07.htm#_Toc43798015/, accessed July 30, 2015.

[9] ICANN Approved Board Resolutions, June 20, 2011, available at https://www.icann.org/resources/board-material/resolutions-2011-06-20-en, accessed July 30, 2015.

ultimately receiving 1,930.[10] Of these, 706 have been delegated by ICANN to date.[11] The first gTLD under this program was ultimately launched in October 2013,[12] and as of December 2014, approximately 430 total gTLDs were available for registration.[13]

Some stakeholders, however, noted potential costs associated with the introduction of new gTLDs. In particular, some suggested that the expansion of available TLDs would force current trademark owners to re-register domain names in the new gTLDs, which might allow new registries operating these new gTLDs to exploit trademark owners.[14] In addition, some have expressed concern about the potential for cybersquatting and have questioned the extent to which the new gTLD expansion is likely to lead to the benefits discussed above,[15] though it is not the focus of this report to address these concerns.

ICANN previously commissioned a series of reports to help quantify the costs and benefits of the New gTLD Program.[16] One of the main results of these reports was establishing an economic framework for analyzing the expansion of new gTLDs. In 2014, the Implementation Advisory Group for Competition, Consumer Trust & Consumer Choice developed a set of recommended metrics which would help analyze the performance of the New gTLD Program.[17]

As part of its Affirmation of Commitments with the U.S. Department of Commerce, ICANN is undertaking several reviews of the program, including one which will evaluate the extent to which the New gTLD Program resulted in increased competition in the marketplace for domain names.[18] We have been retained to undertake this assessment, and we have divided our work into two phases: This initial report (the "Phase I Assessment"), which establishes a baseline description of metrics that can be used to assess, in the future, the competitive conditions in the marketplace for domain names, and a subsequent report (the

[10] ICANN New Generic Top-Level Domains, New Top-Level Domain Name Applications Revealed, available at http://newgtlds.icann.org/en/announcements-and-media/announcement-13jun12-en, accessed July 30, 2015.
[11] ICANN New Generic Top-Level Domains, Current Statistics available at https://newgtlds.icann.org/en/program-status/statistics, accessed July 30, 2015.
[12] ICANN New Generic Top-Level Domains, TLD Startup Information, available at https://newgtlds.icann.org/en/program-status/sunrise-claims-periods, accessed July 24, 2015.
[13] Registration volume data is obtained from December 2013 monthly transaction reports. Sunrise period dates are collected from ICANN's New gTLD Program status webpage, available at http://newgtlds.icann.org/en/program-status/delegated-strings/.
[14] ICANN's Expansion of Top Level Domains, Hearing before the Committee on Commerce, Science, and Transportation, United States Senate, December 8, 2011, available at http://www.gpo.gov/fdsys/pkg/CHRG-112shrg74251/html/CHRG-112shrg74251.htm, accessed February 26, 2015.
[15] ICANN's Expansion of Top Level Domains, Hearing before the Committee on Commerce, Science, and Transportation, United States Senate, December 8, 2011, available at http://www.gpo.gov/fdsys/pkg/CHRG-112shrg74251/html/CHRG-112shrg74251.htm, accessed February 26, 2015.
[16] Katz, Michael L., Gregory L. Rosston, Theresa Sullivan, "An Economic Framework for the Analysis of the Expansion of Generic Top-Level Domain Names," June 2010.
[17] "Implementation Advisory Group for Competition, Consumer Trust & Consumer Choice (IAG-CCT): Final Recommendations on Metrics for CCT Review," September 26, 2014.
[18] A list of the set of proposed reviews can be found here: https://newgtlds.icann.org/en/reviews.

"Phase II Assessment"), which will assess the extent to which the New gTLD Program affects competition in this marketplace in the coming year.

SECTION II – THE MARKETPLACE FOR DOMAIN NAMES

In this section, we first provide a brief overview of how economists think about the effects of competition in a given market as well as relevant institutional background associated with the marketplace for domain names. Based on this discussion, we then highlight the types of information which may inform an assessment of competition in the marketplace for domain names. We then detail our methodological approach to assess competitive effects in Section III and discuss our results in Section IV.

An Economic Framework

Broadly speaking, firms can compete on such factors as price, product and service attributes, marketing and promotion efforts, and ancillary services. For example, increased competition in the marketplace for breakfast cereals, which has a large degree of product proliferation, may lead cereal manufacturers to lower their wholesale prices (i.e., the prices charged to grocery stores), to increase their marketing expenditures and promotion of health benefits or convenience of their product, to introduce a new version of their cereal, or to use a combination of these three levers. Similarly, increased competition in the retail grocery store market may lead grocers to lower their retail prices (i.e., the prices charged to consumers of cereal products), to change the mix of cereal products offered, and/or to compete on other non-price factors such as service, parking, or store aesthetics and cleanliness. While not always true, such efforts of firms to differentiate themselves are often viewed as improving consumer welfare.

Since firms can compete on price and non-price factors, it follows that these factors are often used to evaluate changes in competition. Although there is not by any means necessarily a causal link, a decrease in the prices charged to consumers, an increase in the quality of products offered, and/or an increase in the quality of other services provided by firms may reflect increased competition. Furthermore, an increase in the number of firms offering services, or more generally in the number of market participants, may be correlated with increased competition.

As such, our assessment of the effect of the New gTLD Program on competition in the marketplace for domain names will focus on the extent to which price and non-price factors have changed as new gTLDs, registries, and registrars have entered into the marketplace.

Underlying this framework is our interest in how consumers will be affected by changes in competition. In competition law, for example, a principle focus is how, and to what extent, consumers are affected by changes in competition. As there are multiple dimensions over which firms can compete in the marketplace for domain names, increases in competition within a market can bring various benefits for consumers. If firms choose to engage in price competition, consumers will typically benefit from the resulting lower prices. Other benefits, which are more difficult to observe than price, may also manifest as a result of competition; for example, competing firms may choose to develop new or different product offerings, therefore increasing the variety of choices consumers face, and potentially allowing for more personalized products. In addition, the quality of the good itself may increase as firms strive to differentiate themselves. Finally, as stated above, firms may also compete on other non-price factors which benefit consumers, such as improved customer service.

Institutional Background: The Marketplace for Domain Names

There are two sets of separate prices in the market place for domain names for any given registry: Sunrise and non-Sunrise prices. The purpose of a sunrise period, during which sunrise prices are charged, is to allow trademark holders the opportunity to register domain names in the new gTLD prior to others. ICANN established several mechanisms which give trademark holders tools to help protect their trademarks. Specifically, these include the Trademark Clearinghouse, Uniform Rapid Suspension System, and Trademark Post-Delegation Dispute Resolution Procedure. Together, these systems allow trademark holders to register their trademarks, participate in sunrise periods, and identify when new, possibly infringing gTLDs are registered.[19] Non-Sunrise prices are the prices charged after the sunrise period is over.

For a registry operating a given TLD, that registry sets sunrise and non-sunrise prices, which are then charged to registrars which sell that TLD to consumers. Registrars then sell domain names (i.e., string.tld) for that TLD to consumers, typically with a markup over the sunrise or regular wholesale price. Registrars may also sell ancillary services or add-ons to these customers, such as search engine optimization services, brand protection services, website forwarding, and email. Finally, the purpose of obtaining a domain name registration is often the creation of a final website that contains content placed there by the purchaser of the domain name; it is for this very reason that registrars offer the host of ancillary products mentioned earlier.

Domain names are an inherently complex product, with various upstream and downstream components. Thus, in order to understand where competitive effects associated with the New gTLD Program may be observed, it is useful to first describe how registries may compete with each other, how registrars may compete for customers,[20] and the various purposes for which customers use domain names.

[19] ICANN Protect Your Trademark, available at http://newgtlds.icann.org/en/announcements-and-media/infographics/tm-protection, accessed on August 19, 2015.

[20] We note that what follows is not meant to describe every possible way in which registrars and registries compete; rather, the following is intended to highlight some of the levers that may be used by registries and registrars when competing in the marketplace for domain names.

We view the initial creation of a TLD as the first stage in this process. Registries first submit an application to ICANN for the creation of a TLD. If the application is successful, the registry will receive a contract to operate the newly created TLD (making it the registry operator for the TLD), and must provide registry services such as zone file publication and customer database administration. The registry operator can provide these services themselves or outsource some or all of them to an outside registry services provider.[21] At this stage, we can consider the TLD as an input to the ultimate creation of a domain name, and potentially a website, with the TLD being further developed and refined downstream by registries, registrars, and ultimately by the consumer. In this final stage, the consumer may choose to create a finished website accessible to internet users or to use the domain name for other purposes such as forwarding or reselling.

Registries can compete on price, both sunrise and wholesale, on promoting their TLDs,[22] and on differentiating their TLDs. ICANN's bylaws include a core value of encouraging competition to guide the organization's decisions and actions. Registration prices for many gTLDs were initially capped.[23] However, in recent years and in some instances, the caps have been relaxed and prices have increased, granting some price discretion to registries that operate legacy TLDs.[24] With new gTLDs, both the initial and subsequent pricing of a given TLD are at the discretion of the operating registry. (At least one registry that we are aware of, .xyz, has offered free registrations.) While the New gTLD Program offered the opportunity to apply for new gTLDs, prospective registries attempting to do so paid a $185,000 application fee and committed to compliance with a different set of requirements than had applied to TLDs in the legacy space, such as security and rights protection requirements.

Registries may also compete on product differentiation, such as by operating TLDs that provide value to specific communities (for example, those interested in photography), provide enhanced security or internationalized domain names, or that can only be registered by consumers meeting certain restrictions. Finally, registries can also compete using various marketing techniques, such as public awareness campaigns.

Registries are required to use registrars to sell second level registrations in their TLDs,[25] who can then compete on prices offered for each domain name, the set of domain names offered, and on services and add-ons offered to customers purchasing a domain name from the registrar. For example, as a result of increased competition among registrars, a given registrar could lower the retail price for a domain name in a particular TLD (through a

[21] Technically, the registry is simply the list of domain names using a particular TLD, and this is distinct from the registry operator. For simplicity, we refer to registry operators as registries in the remainder of the report.
[22] Given the lack of available data, we do not track the promotional expenditures of registrars.
[23] See ICANN's bylaws, Section 2, Core Values, #6: https://www.icann.org/resources/pages/governance/bylaws-en/#I.
[24] For an analysis of legacy price caps and their possible application to new gTLDs, see "Preliminary Analysis of Dennis Carlton Regarding Price Caps For New gTLD Internet Registries, by Dennis Carlton, available at https://archive.icann.org/en/topics/new-gtlds/prelim-report-registry-price-caps-04mar09-en.pdf.
[25] Second level registrations are the strings to the left of the dot.

lower markup over the wholesale price charged by the registry), offer better customer service, offer a broader or more diversified set of domain names, decrease the prices of its ancillary services, and/or offer ancillary services not offered by other registrars. In addition to selling directly to consumers, registrars can also choose to work with resellers, who also sell domain names to consumers. In the analysis that follows, we were only able to collect pricing and registration volume data for registrars.

The final stage of refinement is then undertaken by the customer. After obtaining a registration of a domain name via a registrar, the consumer can choose to create and launch a website or resell the domain name registration through various secondary market facilitators. If the consumer chooses to use the registration to create and launch a website, the steps involved can be time-consuming, and as was mentioned above, many registrars offer additional services to make this process easier for the consumer. However, the consumer does not have to obtain additional services from the registrar they purchased the TLD registration from, and can instead purchase incremental services from other companies or perform these tasks on their own. Furthermore, the specific tasks needed to launch the final website depend on the consumer's intended purpose for the website. For example, new businesses and start-ups will need to create a website from scratch. In this case, they may find newer TLDs more attractive if more customized, well-tailored domain names are available compared to older TLDs. Pre-existing entities, such as current trademark holders and businesses, likely already have a webpage and do not need to create additional content. However, the new TLD may provide a way to create a better, more customized domain name (compared to their current one) that helps users identify the business. Alternatively, pre-existing entities may choose to purchase a large set of new and related domain name registrations for the sole purpose of redirecting visitors to their pre-existing website. This may be done to increase web presence by increasing the number of ways users can find the main web site, to defensively register in order to preempt entities such as cybersquatters.

With the above framework in mind, it should be clear that fully analyzing the competitive effects of the New gTLD Program requires a rich set of data. For example, one important question is of substitutability; that is, to what extent do consumers view new gTLDs as substitutes for legacy TLDs, and how willing are consumers to substitute within the set of new gTLDs?[26] The answer to this question is not clear as the value consumers place on a domain name may depend on many things, including the characteristics and quality of the TLD string (e.g., string length or topic, as well as the policies of the registry), as well as of the second level domain name. That is, as is often observed in the secondary market, two domain names sharing the same TLD can vary considerably in value. The ideal dataset to investigate these questions would thus contain individual transactions from both primary and secondary markets. Unfortunately, although requested, sufficient transaction-level data were not provided by registrars. Specifically, only six registrars, all from the Asia Pacific region, provided some form of historical data. These responsive registrars

[26] The degree of substitutability plays an important role in several observable market characteristics such as registration and pricing patterns. For example, the higher the degree of substitutability, the less likely high levels of price dispersion would be observed.

accounted for only 14% of registration volume of the new gTLDs being sampled and did not provide any regional geographic variation. As a result, we rely on posted retail prices from the websites of registrars in our sample, the details of which are presented in Section III.

It is also of interest to examine the extent to which registries and registrars have differentiated themselves. We address this question to some extent in Section IV by analyzing the prices and availability of various ancillary products across a set of registrars, but again the ideal dataset would consist of transaction level observations. As Section III outlines in more detail, sufficient transaction level data were not provided, and we are not able to presently answer many of these important questions regarding competition. As such, our primary objective in Phase I is to develop baseline measures summarizing the current state of prices and registration patterns, which we will then examine changes to in Phase II, thereby providing more insight into the competitive effects of the New gTLD Program.

SECTION III – DATA COLLECTION AND METHODOLOGY

In this section, we describe our sample selection methodology and data collection process,[27] and conclude with a brief overview of the final dataset.

TLD Sample Construction

Given the large number of gTLDs currently available, and the larger number expected to be available during our Phase II Assessment, we developed a methodology designed to sample new gTLDs that have generated the greatest registration activity; we also included gTLDs that overlap with these gTLDs in terms of target customer groups. The resulting sample included 109 gTLDs, accounting for 81.4% percent of gTLD registrations, 14 legacy TLDs, and a sample of 15 ccTLDs.

This sampling approach provides several benefits. First, the approach is objective and reproducible. Second, the use of registration volumes in guiding our sampling means that we are allowing consumers' decisions in the marketplace to determine the relevant sample.[28] And finally, by including those gTLDs that may overlap in their target consumer groups, we include sets of gTLDs in which one may observe more direct competition for particular customers in the future.

Below, we describe our selection process in more detail for gTLDs, ccTLDs, and legacy TLDs.

[27] Details which do not compromise the confidentiality of the registrars and registries have been provided. For example, registry wholesale prices for gTLDs are confidential, and as such, we do not identify wholesale prices for specific gTLDs. Furthermore, we do not report summaries of registry wholesale prices for gTLDs that could be used to infer the wholesale prices for specific gTLDs.

[28] Such an approach is often used in the specification of common economic indices. For example, the S&P 500 index consists of the largest 500 companies listed in the NYSE. If an individual wants to gauge the performance of the broader economy, looking at the S&P 500 will be much more informative than choosing a few random and possibly small companies.

Sample Selection of gTLDs, ccTLDs, and Legacy TLDs

Our selection process for gTLDs consisted of three steps. First, in order to ensure that our sample contained only active, new gTLDs that were available for purchase, we eliminated any gTLD for which there were no Monthly Transaction Reports available as of March 2015.[29]

Second, from this group, we selected as follows.

- First, we included a set of gTLDs based on total current registrations to account for historically popular gTLDs.
- Second, we included a set of gTLDs based on the number of registrations in the past three months to account for more recently popular TLDs.
- Finally, given the resulting list above, we also included any gTLDs that were similar to these gTLDs in name and likely purpose. These similar gTLD groups consist of gTLDs with similar spellings or topic areas and are likely to have some overlap in their respective target groups of consumers (e.g., if .work had been included, other gTLDs such as .careers, .career, and .jobs would be considered.)

The process described above generated a set of 109 gTLDs that represents 81.4% of overall gTLD registration activity.

Third, the 109 selected gTLDs were examined to confirm that the resulting sample included gTLDs reflecting diversity with respect to geographic scope and "community" designations. Specifically, we verified that our list of 109 gTLDs included:

- At least five gTLDs utilizing IDN in the gTLD itself. (That is, gTLDs whose string included non-ASCII characters such as ".移动"".)
- At least five "community" gTLDs, where "community" gTLDs are determined based on the original gTLD applications. "Community" gTLDs are operated for the benefit of a clearly defined community. All applicants must substantiate their claim that they represent a well-defined community, and must submit written endorsements to this effect.[30] However, these applications are only evaluated if the gTLD string is contended.

Based on data provided by ICANN, we selected ccTLDs based on the cumulative total number of domain name registrations for each ccTLD. Specifically, we chose the three ccTLDs within each ICANN region with the highest total domain name registrations. After this initial selection, we verified that all selected ccTLDs were available for purchase through registrars. If a ccTLD was not available, it was replaced with the next largest ccTLD, as ranked by registrations, in the appropriate region.

[29] Monthly Transaction Reports are submitted to ICANN by operating registries of legacy TLDs and new gTLDs, and detail the number of registrations and renewals for a TLD, for each registrar.

[30] These groups must also be of considerable size, and the members must also be aware that they belong to said group. "Shared characteristics" can be broadly defined, and includes professions, languages, and geographic locations. For more information, see ICANN Applicant Guidebook Section1.2.3.

In addition, we also included all legacy TLDs that were available before the first new gTLD was released in October 2013, and that are currently available for purchase without certain registration restrictions, where in particular, we exclude legacy TLDs that are intended specifically for government entities, institutions, and organizations with restrictive registration requirements. Based on the latter criterion, from the 22 legacy TLDs available, we excluded .gov, .edu, .int, .mil, .aero, .coop, .post, and .museum, each of which has special customer criteria.

Ultimately, our data requests and collection process included 109 new gTLDs, 15 ccTLDs, and 14 legacy TLDs.[31]

Registry and Registrar Selection

Since each TLD can only be operated by one registry operator, our sample of TLDs determined our list of registries from which to request data. Because a registry operator can operate multiple TLDs, our final list of registry operators that we contacted consists of 59 unique registry operators.[32]

In contrast to registries, legacy TLDs and new gTLDs can be offered by more than one registrar. We selected a sample of 54 registrars associated with our selected gTLDs so as to collect data from the registrars who account for most domain registrations, and to also ensure that each TLD in our sample was offered by at least 10 of the selected registrars.[33]

Data Collection Methodology

Price and non-price data for the sample of 59 registries and 54 registrars were obtained through direct outreach to registries, review of registrars' publicly-available websites, and from ICANN.

Registration Volumes

Publicly-available transaction reports for each TLD, which provide information on historical registration volumes, were collected from ICANN's website at https://www.icann.org/resources/pages/reports-2014-03-04-en. These reports detail how many registrations each registrar was responsible for in each month.

Sunrise and Wholesale Prices

Data regarding sunrise and regular wholesale prices were requested and collected directly from the operating registries. While some legacy TLD registries provided data, most data on historic legacy TLD wholesale prices were collected from official price change correspondence between operating registries and ICANN, which are available at https://www.icann.org/resources/pages/correspondence-2012-09-24-en. Finally, the majority of ccTLD operating registries did not provide wholesale data.

[31] The legacy TLDs include .com, .org, .net, .asia, .mobi, .travel, .jobs, .biz, .info, .name, .cat, .tel, .xxx, and .pro.

[32] The reduction in the number of operating registries (from the total number of TLDs) is primarily due to the registry Donuts, which is the operating registry for 54 gTLDs in our sample.

[33] Some gTLDs were provided by a total of fewer than 10 registrars. In this case, all registrars offering the gTLD were included in the registrar sample.

Retail Prices

Requests for current and historical data were sent to all registrars in our original sample. Only six registrars, all from the Asia Pacific region, provided some form of historical data. These responsive registrars accounted for only 14% of registration volume of the new gTLDs being sampled and did not provide any regional geographic variation.

Given the lack of responses from registrars, we collected posted retail prices from the websites of registrars in our sample.[34] However, many registrars in our original sample (which was based on registration volumes of new gTLDs) did not offer publicly-available pricing information.[35] As a result, we collected retail price information from 39 of the original 54 registrars in our sample.[36] We recognize that these price data are limited; given detailed transaction-level data, one could compare, for example, how prices of the same or similar second-level domain names differ across legacy TLDs and new gTLDs. We also received no data from secondary market institutions; such data would have allowed for better investigation of how consumers value different domain names at legacy TLDs and new gTLDs. However, the paucity of this type of detailed data available to us makes such an exercise currently impossible.

Add-on Prices and Availability

Requests for add-on services and relevant prices were sent to registrars, but none provided data. Therefore, we manually collected current add-on prices and availability from a sample of 35 registrar webpages.[37] Examples of add-ons include hosting, email, server, SSL, privacy, website builder, eCommerce, DNS, and forwarding services.

Summary of Data Collected

Table 1 below outlines general statistics regarding the number of TLDs from which we were able to obtain price, add-on, and registration volume data.

[34] In collecting retail prices from registrar websites, we first looked for available price-sheets, which describe what the price for a one-year registration is for different TLDs. If price sheets were unavailable, we manually searched for the exact domain "somethinggeneric.tld" for each TLD in our sample that the registrar offered and recorded the retail price for a one-year registration. If a TLD was on sale, we collected the standard list price and sale price. We only report and analyze list prices.

[35] Many registrars that did not offer publicly-available pricing data were consulting registrars and did not have websites where consumers could shop for individual domain names.

[36] Retail price information for one gTLD was unavailable.

[37] Prices were collected either from price lists or via manual searches. In the case of manual searches, "somethinggeneric.tld" was used across a set of TLDs to ensure add-on prices did not vary across TLDs within a registrar. No differences were observed in add-on prices across TLDs within the same registrar.

Table 1
Summary of Collected Data

		Legacy TLDs	New gTLDs	All TLDs
Total in Sample		**14**	**109**	**123**
Sunrise Prices	Number of TLDs with Available Data	5	82	87
	Percent of Total Registrations	0.0%	11.6%	0.3%
April 2015 Wholesale Prices	Number of TLDs with Available Data	10	78	89
	Percent of Total Registrations	99.6%	68.7%	98.9%
April 2015 Retail Prices	Number of TLDs with Available Data	14	108	122
	Average Number of Offering Registrars Across TLDs	20	22	21
	Collected Registrars' Percent of TLD Registrations	55.7%	62.8%	55.9%
Registration Volume Data	TLDs With Historical Registration Data	14	109	123

Notes:
[1] Percent of Total Registrations for Sunrise Prices reports the sunrise volume data for TLDs with pricing information in our sample as a fraction of all April registration volume for our full sample of TLDs.
[2] Percent of Total Registrations for April 2015 Wholesale Prices reports the wholesale volume data for TLDs with pricing information in our sample as a fraction of all April registration volume for our full sample of TLDs.
[3] Average Number of Offering Registrars Across TLDs reports, on average, legacy TLDs were offered by 20 registrars.
[4] Collected Registrars' Percent of TLD Registrations reports the retail volume data for TLDs with pricing information in our sample as a fraction of all April registration volume for our full sample of TLDs.
[5] Sunrise prices were not available for all TLDs due to a lack of a response from the registries.
[6] Wholesale prices were not available for all TLDs due to a lack of a response from the registries.
[7] Retail prices were not available either for lack of offering registrars or lack of available list price information.

Sources:
[1] Wholesale prices were provided by operating registries and official ICANN documentation.
[2] Retail prices were collected from registrar websites.
[3] Volume data were provided through Monthly Transaction Reports.

As shown above, we collected retail price information for 122 TLDs (this includes legacy TLDs and gTLDs), with TLDs being offered by 21 registrars on average. Wholesale price

information was provided for 78 new gTLDs and 89 TLDs overall, which account for 69% and 99%, respectively, of registrations in our original sample. Additionally, add-on list prices were collected from a total of 35 registrars. Finally, historical registration volume data were available for all legacy and new gTLDs, but unavailable for ccTLDs.

SECTION IV – RESULTS

This section summarizes Phase I results that provide baseline measures of price, registration volume, and other factors which will provide competitive benchmarks for comparison in Phase II. Specifically, in our Phase I Assessment, we have:

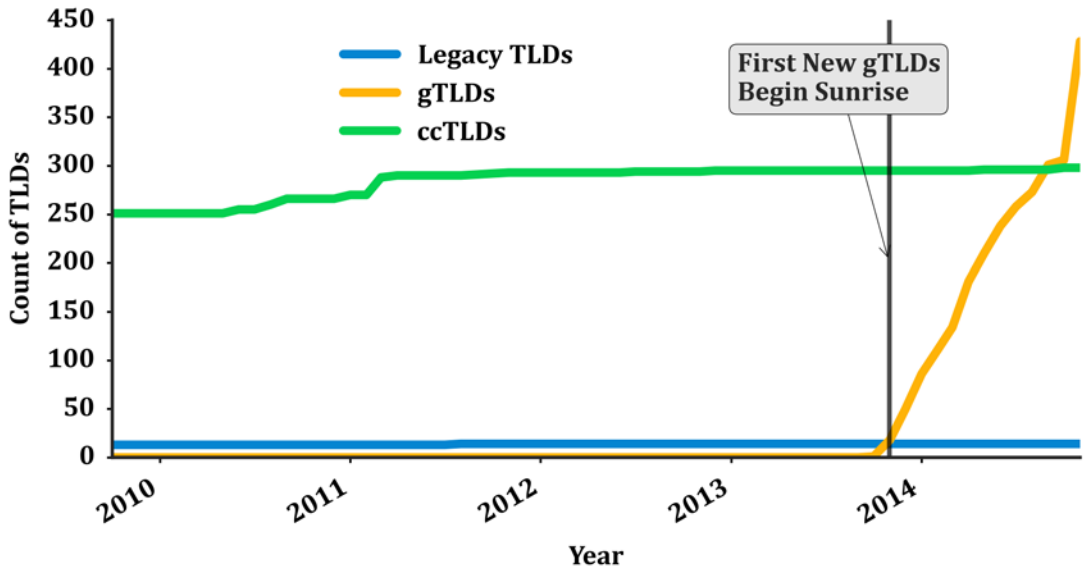
- Examined how the new gTLD expansion increased the number of available TLDs over time.
- Examined how domain name registrations are distributed across registries and registrars. We find that registration shares across registries, and across registrars, are more dispersed for new gTLDs as compared to legacy TLDs.
- Developed baseline measures of price dispersion for registry and registrar prices, as well as for add-on pricing. Overall, we find a significant amount of price dispersion.
- Incorporated data on registration volumes to create baseline price-index values for legacy TLDs and new gTLDs. Based on these values, we find that the overall price level for legacy TLDs is lower than that for new gTLDs.
- Used historical registration volumes to examine the extent to which new gTLDs have affected legacy TLD registrations.

In what follows, we first present a simple examination of how the number of TLDs has changed over time. Then, we establish various baseline measurements. Finally, we examine whether there are any initial indications that the New gTLD Program has affected competition in the TLD marketplace.

Number of Available TLDs Over Time

We first examine how the expansion of the New gTLD Program has affected the number of TLDs available to consumers; these data are plotted below in Figure 1.

Figure 1
Cumulative Number of Available Legacy TLDs and gTLDs (2009 – 2015)



Notes:
[1] The entrance date for a particular gTLD is defined as the end of its Sunrise period.
[2] Only new gTLDs with non-zero registration volumes as of December 2014 are included as being publicly available.

Sources:
[1] Registration volume data were obtained from December 2013 monthly transaction reports.

[2] Sunrise period dates are collected from ICANN's new gTLD program status webpage, available at http://newgtlds.icann.org/en/program-status/delegated-strings/.

Prior to the entry of the first new gTLDs, 14 legacy TLD domain names were available without certain restrictive registration requirements. The first new gTLDs were introduced in late 2013, and by the end of 2014, the number of available gTLDs had increased to 428; in addition to the 14 available legacy TLDs, this resulted in a total of 442 TLDs being available to consumers.

Baseline Analyses

Given the available data, we focus on examining the distribution of prices and registration volumes across and within TLDs. During the Phase II Assessment, we will examine how these baseline measurements have changed over the course of one year.

Registration Distributions

We first examine the current distribution of domain name registrations. Tables 2 and 3 below show the share of domain name registrations within legacy TLDs and new gTLDs for both the top 15 registries and registrars, as ranked by their share of all registrations.

Table 2
Registration Shares Across Registry Operators

Registry	Share of All Registrations	Share of Legacy Registrations	Share of New gTLD Registrations
VeriSign	85.0%	86.9%	0.0%
Public Interest Registry	6.6%	6.8%	0.2%
Afilias	4.0%	4.1%	1.1%
NeuStar, Inc	1.6%	1.7%	0.0%
Donuts	0.7%	0.0%	30.0%
XYZ.COM, LLC	0.5%	0.0%	21.3%
DotAsia Organisation	0.2%	0.2%	0.0%
Uniregistry, Corp.	0.1%	0.0%	4.7%
dotBERLIN GmbH & Co. KG	0.1%	0.0%	4.5%
.Club Domains	0.1%	0.0%	4.2%
Telnic	0.1%	0.1%	0.0%
Registry Services Corporation dba RegistryPro	0.1%	0.1%	0.0%
Rightside	0.1%	0.0%	3.6%
TLD Registry Limited	0.1%	0.0%	3.2%
China Internet Network Information Center	0.1%	0.0%	3.0%
All Others	0.7%	0.2%	24.1%

Notes:
[1] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.
[2] Each TLD's registration volume was assigned to a registry operator as specified in the registry agreement with ICANN.
[3] Each TLD was then linked to a parent company registry, the total domains for each of its associated TLDs was summed, and registration shares were calculated based on these sums for all registries.
[4] Registries shown are the top 15 as ranked by share of all registrations.

Source:
[1] Registration data is derived from monthly transaction reports provided to ICANN by operating registries as of November 2014.

As can be seen above, VeriSign, which operates .com, has 86.9% of legacy TLD registrations; the top four legacy registries are responsible for 97.3% of legacy registrations. By contrast, the leading registry in new gTLD registrations, Donuts, has 30.0% of new gTLD registrations, followed by the registry for .xyz, which has 21.3% of new gTLD registrations. In general, the registration shares for new gTLDs are more dispersed compared to legacy TLDs, although it is important to keep in mind that new gTLD registrations as a whole are only a small fraction of total domain name registrations.

Table 3
Registration Shares Across Registrars

Registrar	Share of All Registrations	Share of Legacy Registrations	Share of New gTLD Registrations
Go Daddy, LLC	31.9%	32.3%	14.6%
eNom Inc	7.4%	7.5%	5.9%
Tucows	5.3%	5.4%	2.1%
Network Solutions	5.0%	4.8%	12.0%
1&1 Internet AG	3.8%	3.8%	4.3%
Public Domain Registry	3.0%	3.0%	0.9%
Wild West Domains	2.4%	2.4%	0.4%
GMO Internet, Inc.	2.4%	2.3%	5.1%
Register.com	1.8%	1.8%	0.3%
HiChina Zhicheng Technology Limited	1.6%	1.6%	0.4%
FastDomain	1.5%	1.6%	0.0%
Melbourne IT Ltd	1.5%	1.5%	0.1%
Domain.com, LLC	1.3%	1.4%	0.0%
Xin Net Technology Corporation	1.3%	1.2%	6.0%
OVH	1.2%	1.2%	1.9%
All Others	28.6%	28.2%	46.1%

Notes:

[1] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.

[2] Within a TLD, registration volumes were assigned to distinct registrars. Reported registrar names vary across TLDs in the monthly transaction reports due to differences in spelling and abbreviations and we manually linked each reported registrar to a standardized registrar name.

[3] Registration volumes within a registrar were then summed, and registration shares were calculated based on these sums for all registrars.

[4] Registrars shown are the top 15 as ranked by share of all registrations.

Source:

[1] Registration data is derived from monthly transaction reports provided to ICANN by operating registries as of November 2014.

Turning to the distribution of domain names across registrars, as can be seen in Table 3, GoDaddy is responsible for the largest amount of registrations. Examining the remaining share of registrations responsible for registrars that are not in the top 15, and comparing that to the same row in Table 2, it can be seen that registration shares across registrars are more dispersed than across registries among the top 15.

Finally, the New gTLD Program allows culturally- or regionally-specific TLDs to be created. Table 4 below shows the number of registries which are based in each of ICANN's five regions. Locations of each registry were obtained from ICANN's Registry Listing available at https://www.icann.org/resources/pages/listing-2012-02-25-en. In Phase II, we will examine the extent to which this distribution changes over the coming year.

Table 4
Registries Across Regions

Region	Number of Registries
Africa (AF)	2
Asia Pacific (AP)	36
Europe (EUR)	65
Latin America (LAC)	4
North America (NA)	46

Source:
[1] ICANN list of registries available at https://www.icann.org/resources/pages/listing-2012-02-25-en

Sunrise Price Dispersion

All new gTLDs must have a sunrise period prior to making the gTLD available to the broader public. As discussed earlier, the purpose of a sunrise period is to allow trademark holders the opportunity to register domain names in the new gTLD prior to others. New gTLDs are required to have such a Sunrise period, whereas legacy TLDs could elect to do a sunrise period or not. One perspective is this structure helps trademark holders in that it gives them priority in choosing domain names in the new gTLD. However, others have raised concerns that this structure allows registries to exploit trademark holders. A recent example lies in .sucks, which had publicly stated sunrise prices of $2,499 per registration and was the cause of concern for some entities.[38, 39,40]

Given these concerns, we include sunrise prices in our baseline analyses. Sunrise prices were provided by the TLD operating registry for five legacy TLDs and 82 new gTLDs in our sample. Table 5 below provides data regarding the distribution of initial sunrise prices for legacy TLDs and new gTLDs, regardless of the timing associated with TLD entry into the marketplace. Throughout the remainder of the report, all prices are reported in USD. Lastly, in comparing sunrise prices of legacy and new gTLDs, it is important to note that legacy TLDs typically had much higher levels of sunrise registrations.

[38] The operating registry for .sucks provides its suggested pricing online, available at https://www.registry.sucks/products/.
[39] .sucks is not included in our sample of gTLDs.
[40] For example, see the article "Is the Owner of the .sucks Domain Extorting Brands and Celebrities", available at http://www.dailydot.com/technology/dot-sucks-domain-name-icann/

Table 5
New gTLD Sunrise Prices

	Legacy TLDs	New gTLDs
Average	$42.72	$142.77
Minimum	$5.75	$0.00
25th Percentile	$20.00	$80.00
Median	$24.00	$80.00
75th Percentile	$63.84	$80.00
Maximum	$100.00	$2,938.82
Number of Obs.	5	82

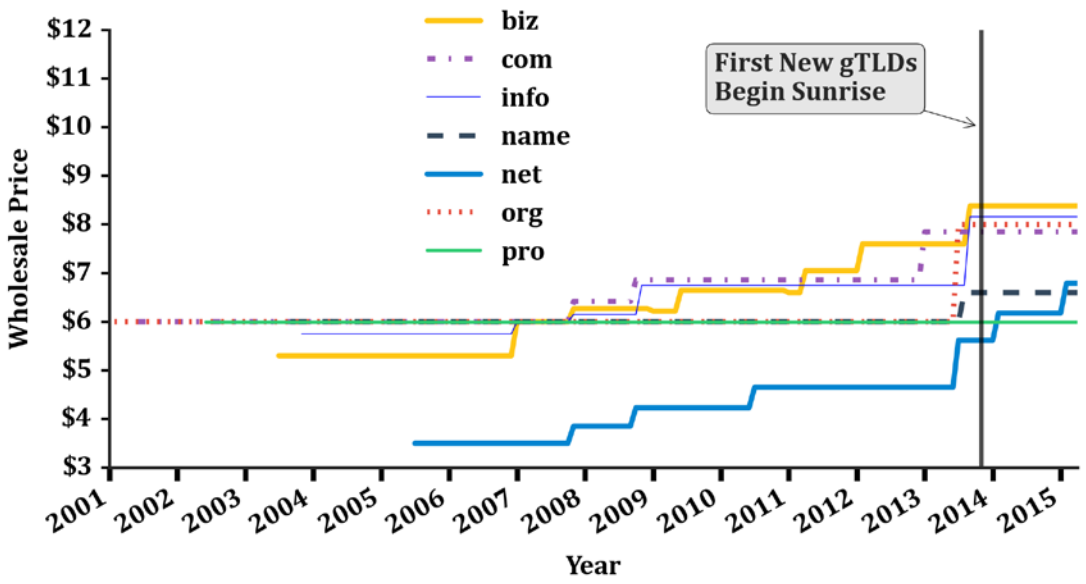
Notes:
[1] One-year registration prices are reported.
[2] Sunrise prices were not available for all TLDs either due to a lack of a response from the registries or lack of a one-year registration price.

Sources:
[1] New gTLD sunrise price information was provided by operating registries.
[2] Sunrise price information for legacy TLDs was obtained from official ICANN documentation.

Wholesale Price Dispersion

Figure 2 below relies on public price change correspondences between registries and ICANN for the legacy TLDs .com, .net, .info, .org, .name, .pro, and .biz, and shows that while price changes have been somewhat infrequent, they have trended upward. The graph also shows that the largest price change occurred in 2013 for six of the seven legacy TLDs plotted below.

Figure 2
Historical Legacy Wholesale Prices (2001 – 2015)



Notes:
[1] .travel is omitted as an outlier.
[2] Available data from price change correspondences indicates that the wholesale price for .travel is $80, and has never changed.
[3] Sufficient price information for other legacy TLDs is unavailable.

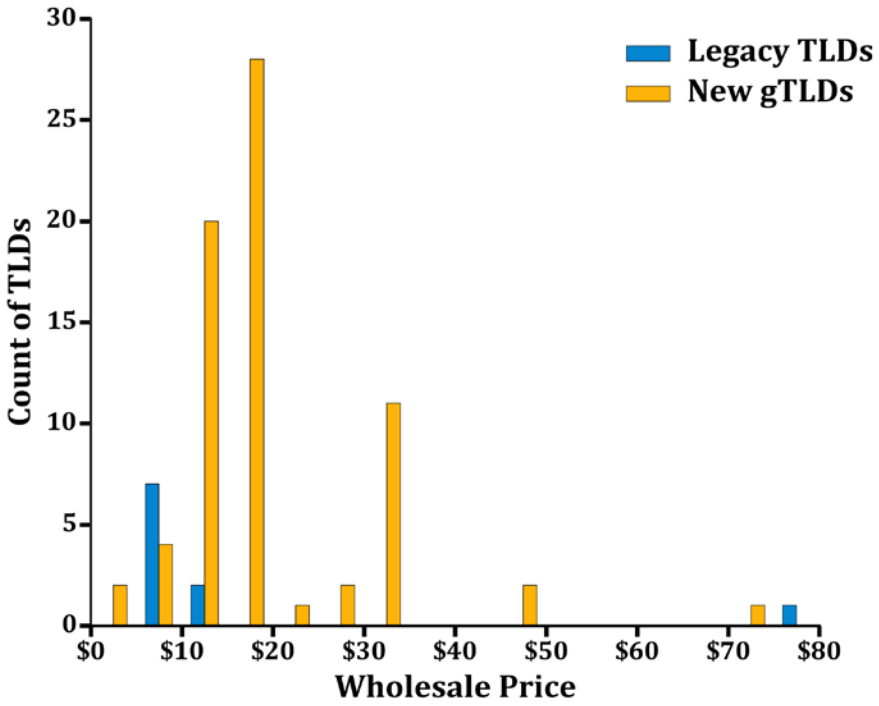
Sources:
[1] Legacy wholesale price information were obtained from official price change correspondences between operating registries and ICANN.
[2] Historical entrance dates for new gTLDs were obtained from ICANN's new gTLD program status website, available at http://newgtlds.icann.org/en/program-status/delegated-strings/.

We next provide, in Figure 3, a plot of the current distribution of wholesale prices for all legacy TLDs in our sample as well as new gTLDs in our sample; summary statistics are provided in Table 6. In comparing the distribution of prices for legacy TLDs and new gTLDs, it is clear that new gTLDs have higher average prices when compared to legacy TLDs. Barring a large wholesale price for a legacy TLD and a large price for a gTLD (i.e., outliers), Figure 3 suggests that there exists higher price dispersion among new gTLDs as compared to legacy TLDs.

In our discussions regarding price dispersion here, and elsewhere in the report, it is important to note several items. First, when comparing legacy TLDs to new gTLDs, we must keep in mind that legacy TLDs historically had greater restrictions on pricing. Second, the presence or absence of price dispersion does not imply a lack of competition since price dispersion can occur for a variety of reasons. For example, price dispersion might be expected if firms or products have been able to differentiate themselves, perhaps by offering better quality, certain product features or characteristics, better customer service, or through persuasive advertising. In this situation, consumers likely view the alternatives as not very good substitutes, and firms will have some ability to set higher prices. Alternatively, price dispersion could be consistent with a situation where consumers face

high search costs, or lack complete information regarding pricing and availability. At present, we are only able to quantify the extent to which price dispersion exists, and do not have the necessary data to explain why any observed price dispersion exists. In Phase II, we will examine how price dispersion has changed, which may provide insight into what is causing current levels of price dispersion. Ultimately, however, much richer data (such as transaction-level data) is needed to thoroughly examine the underlying causes.

Figure 3
Current Wholesale Prices for Legacy and New gTLDs



Note:
Wholesale prices are as of April 2015.

Sources:
[1] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN.

[2] New gTLD wholesale prices are provided by the operating registries.

Table 6
Current Wholesale Price Distribution

	Legacy TLDs	New gTLDs
Average	$16.21	$20.29
Minimum	$6.00	$0.00
25th Percentile	$6.79	$13.00
Median	$8.00	$20.00
75th Percentile	$8.38	$20.00
Maximum	$80.00	$74.00
Number of Obs.	9	70

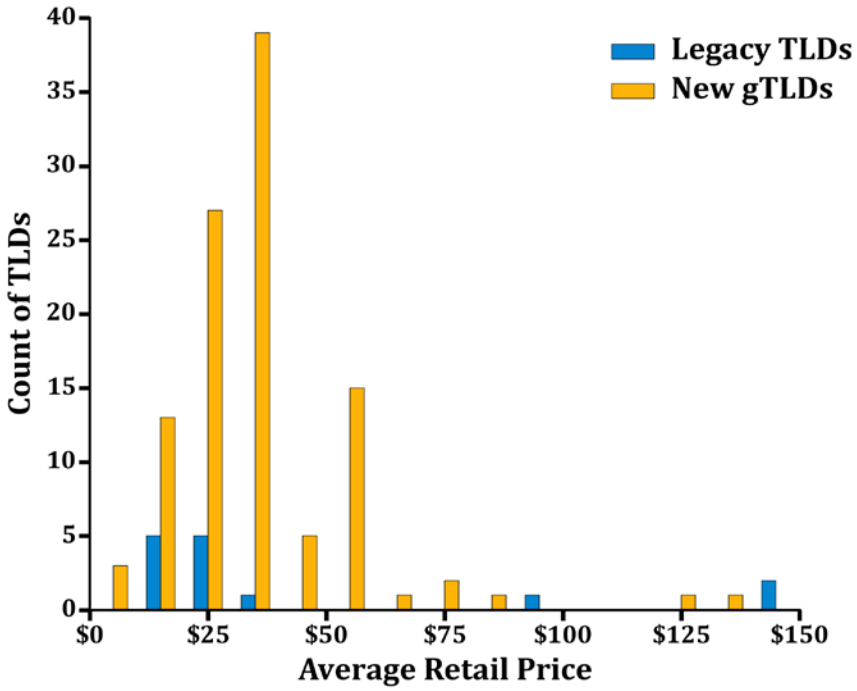
Notes:
[1] Wholesale prices are as of April 2015.
[2] One-year registration prices are reported.
[3] Wholesale prices were not available for all TLDs either due to a lack of a response from the registries or lack of a one-year registration price.

Sources:
[1] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN.
[2] New gTLD wholesale prices are provided by the operating registries.

This is confirmed when we examine the spread between the minimum and maximum and the interquartile range of wholesale prices within each group. New gTLDs and legacy TLDs both have a spread of 74.00, but new gTLDs have a much larger interquartile range of 7.00, compared to an interquartile range of 1.59 within legacy TLDs.

Retail Price Dispersion
Next, we examine the distribution of retail prices. Figure 4 and Table 7 below show the distribution of average retail prices for each TLD.

Figure 4
Average Retail Price Distribution for Legacy and New gTLDs



Notes:
Retail prices are as of April 2015.

Sources:
Retail prices were collected from registrar websites.

Table 7
Average Retail Price Distribution

	Legacy TLDs	New gTLDs
Average	$44.40	$35.21
Minimum	$17.02	$4.03
25th Percentile	$19.82	$23.06
Median	$21.36	$33.52
75th Percentile	$30.11	$39.81
Maximum	$147.94	$136.96
Number of Obs.	14	108

Notes:
[1] Retail prices are as of April 2015.
[2] One-year registration prices are reported.
[3] Retail prices were not available for all TLDs either due to a lack of available information or lack of a one-year registration price.

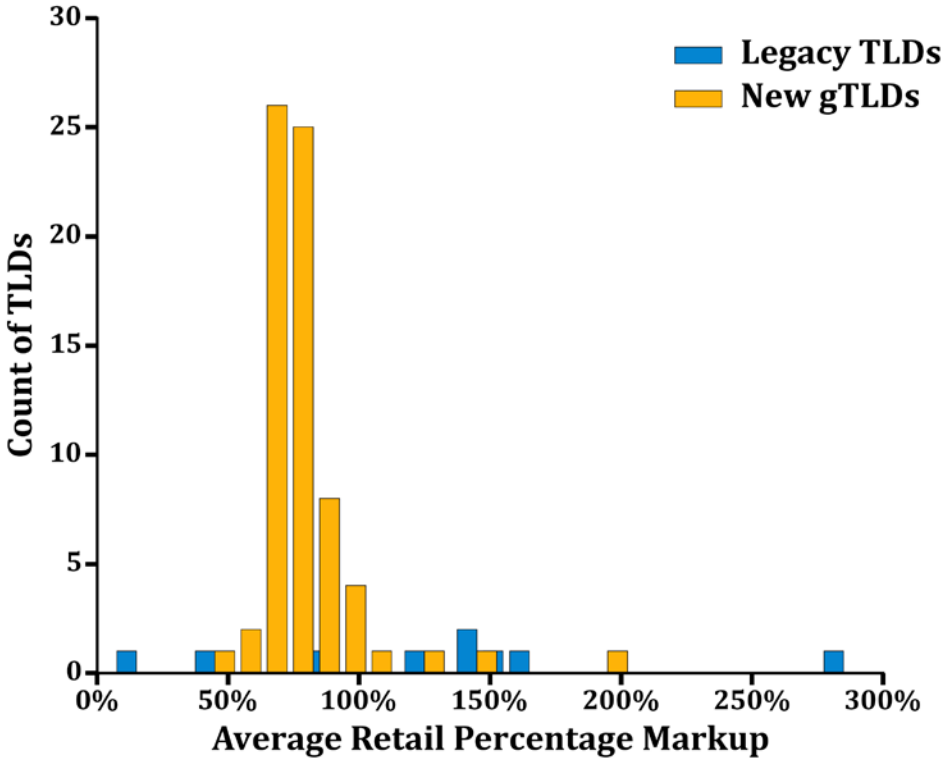
Source:
Retail prices were collected from registrar websites.

Figure 4 and Table 7 show, similar to wholesale prices, that new gTLDs have higher retail prices (based on comparing medians so as to control for the influence of outliers) and appear to have a greater amount of price dispersion. Once again, we examine the spread between the minimum and maximum and the interquartile range for both new gTLDs and legacy TLDs. For average retail prices, new gTLDs have a spread of 132.93 while legacy TLDs have a spread of 130.92. Moreover, the interquartile range of new gTLDs is 16.75 compared to 10.92 for legacy TLDs. Both of these facts suggests greater price dispersion for new gTLDs as compared to legacy TLDs.

Retail Markups

Combining the data on wholesale and retail prices, Figure 5 below plots the distribution of retail markups: the percentage increase in retail price compared to wholesale price.

Figure 5
Average Retail Percentage Markup for Legacy and New gTLDs



Note:
Wholesale and retail prices are as of April 2015.

Sources:
[1] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN.
[2] New gTLD wholesale prices are provided by the operating registries. Retail prices were collected from registrar websites.

As depicted above, legacy TLDs typically have a higher markup as compared to new gTLDs. One possible explanation for this is that legacy TLD wholesale prices are lower due to the presence of price caps.[41] Below, Table 8 provides summary statistics for the distribution of retail markups across all registrars in the sample for legacy TLDs and new gTLDs.

Table 8
Retail Markup Distribution

	Legacy TLDs	New gTLDs
Average	158%	78%
Minimum	57%	48%
25th Percentile	136%	67%
Median	143%	72%
75th Percentile	155%	80%
Maximum	351%	217%
Number of Obs.	9	69

Notes:
[1] Wholesale and retail prices are as of April 2015. One-year registration prices are reported. Retail prices were not available for all TLDs either due to a lack of available information or lack of a one-year registration price.
[2] Markup rate is calculated by subtracting the wholesale price from the retail price and dividing the difference by the wholesale price for each TLD-registrar observation. One-year registration prices, as of April 2015, are used in this calculation.

Sources:
[1] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN.
[2] New gTLD wholesale prices are provided by the operating registries.
[3] Retail prices were collected from registrar websites.

Retail Price Index

The expansion of new gTLDs has created a market with hundreds of TLD options for consumers. As shown in the above analyses, these TLDs vary substantially in price. A price index is a mathematical way to summarize the distribution of prices in a manner that also accounts for differences in registration volume. As prices and registration patterns change over time, monitoring this index value can help summarize changes in the overall price level for domain name registrations.

We calculated initial retail price-index values for the overall set of TLDs as well as for legacy TLD and new gTLDs separately. For each TLD, we collected price observations from 39 registrars, and the index values are created from these price observations. We calculate

[41] See "Preliminary Analysis of Dennis Carlton Regarding Price Caps For New gTLD Internet Registries", available at https://archive.icann.org/en/topics/new-gtlds/prelim-report-registry-price-caps-04mar09-en.pdf.

both weighted and un-weighted index values: the un-weighted index value treats each TLD price observation the same, whereas the weighted index value places more importance on TLDs with higher registration volumes.[42] The end result, shown in Table 9 below, is a single value which we will be able to compare to in Phase II to identify changes in the overall price level.

Table 9
Legacy TLD and gTLD Retail Price Index Values

	All	Legacy TLDs	gTLDs
Un-Weighted Index Value	$35.22	$36.62	$35.06
Weighted Index Value	$17.56	$17.42	$22.69
Number of Obs.	122	14	108

Note:
The weighted-price index value first calculates a weighted average retail price for each TLD, where the weights are determined by each registrar's registration volume of the TLD. Then, we take the average of these registrar-weighted average prices across all relevant TLDs, weighting each by their total domain registrations. One-year registration prices, as of April 2015, are used in this calculation.

Sources:
[1] Retail prices were collected from registrar websites and price-lists.
[2] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.

The un-weighted index values are higher for both legacy TLDs and gTLDs as compared to their respective weighted index values, reflecting the fact that lower-priced legacy TLDs have a larger number of registrations than more expensive TLDs.

In a similar fashion, we also calculated both weighted and un-weighted price index values for wholesale prices. For the weighted values, each TLD was weighted by its relative volume of domain registrations. This information is provided below in Table 10. Once again, when comparing the overall legacy TLD wholesale price to new gTLDs, we note that many legacy TLDs had historical price caps, as well as different start-up costs compared to new gTLDs, both of which may be influencing their current prices relative to new gTLDs.

[42] The weighted-price index value first calculates a weighted average retail price for each TLD, where the weights are determined by each registrar's registration volume of the TLD. Then, we take the average of these registrar-weighted average prices across all relevant TLDs, weighting each by their total domain registrations.

Table 10
Legacy TLD and gTLD Wholesale Price Index Values

	All	Legacy TLDs	gTLDs
Un-Weighted Index Value	$20.10	$16.09	$20.62
Weighted Index Value	$7.91	$7.82	$13.33
Number of Obs.	86	10	76

Note:
The weighted-price index value first calculates a weighted average wholesale price for each TLD, where the weights are determined by the registration volume of the TLD. Then, we take the average of these registration-weighted average prices across by TLD, weighting each by its total domain registrations. One-year registration prices, as of April 2015, are used in this calculation.

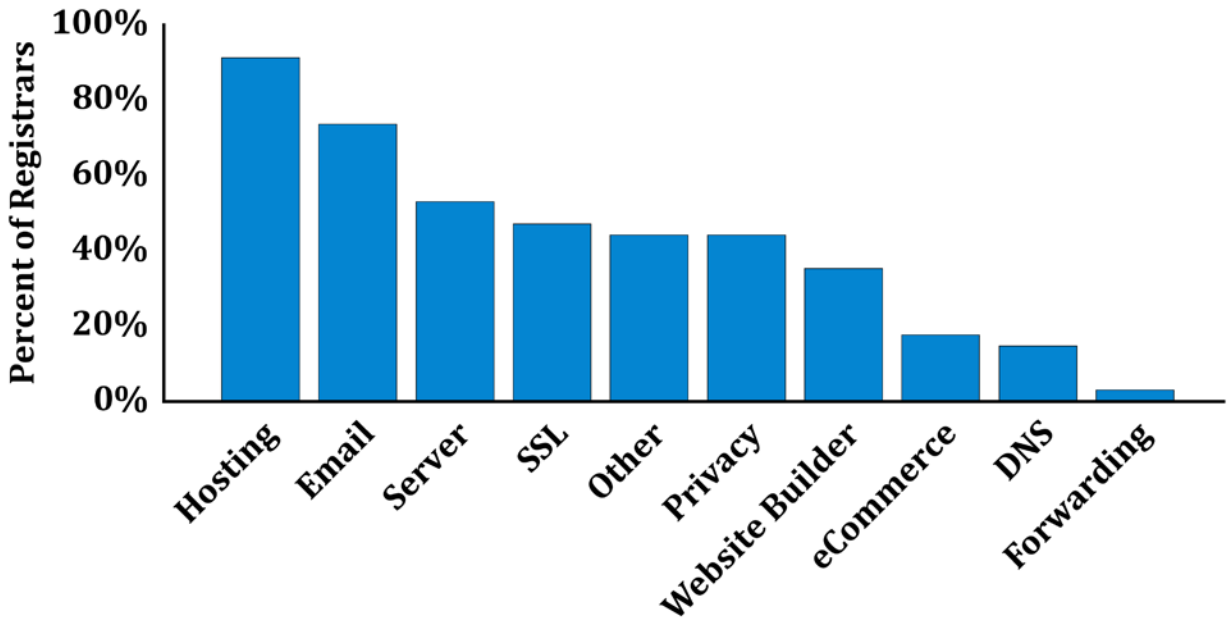
Sources:
[1] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN.
[2] New gTLD wholesale prices are provided by the operating
[3] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.

Add-On Prices and Availability

As was noted earlier, registrars are similar to other retailers in that they can compete on prices, available products (i.e., TLDs offered), and on non-product dimensions such as delivery, customer service, customer loyalty programs, and other factors. Registrars, in addition to the pricing of domain registrations, must also choose which add-on services to provide and what prices to charge for these add-on services. A particular point of interest is whether or not the intensity of price competition varies across add-on services. That is, there may be features for which prices are relatively more salient than others, and we would typically expect that registrars would be more competitive in these more salient add-on services. In other words, if consumers care more about the prices of a particular add-on service, they will be more likely to spend time searching and comparing prices, which in turn makes it more likely that registrars will compete with each other for lower prices.

In our investigation into add-on services, we found that there is a large variety of add-on categories registrars offer, and within an add-on category, a registrar may offer multiple products, each varying in price. We categorized add-on products into ten unique groups, and the below chart shows how many of the 35 registrars in our sample offered at least one add-on product in each category.

Figure 6
Add-On Feature Availability: Percent of Registrars Offering Various Services



Notes:
[1] Add-on information was collected from registrar websites.
[2] Percentage represents the percent of the 35 registrars with add-on data which offered any service in a particular category.

Source:
Add-on information was collected from registrar websites.

As Figure 6 depicts, hosting, email, and server-related products are the most frequently offered. Therefore, it appears registrars choose to offer add-on services which allow individuals to set up a website effectively.

Within each add-on category, we noted benchmark values for the level and variation in prices. As registrars can offer multiple products within a single category, we focus on the average price a registrar charges for services within each category. Table 11 provides summary statistics on these distributions for each of the add-on categories.[43]

[43] Several categories grouped together combine add-on products of varying quality, which explains some of the variance in prices shown in Table 10. For example, the "Server" category does not distinguish between offerings of different storage capacity, which greatly affects the annual cost of the service.

Table 11
Distribution of Add-On Prices

Add-On Category	Observations	Mean	Median	Minimum	Maximum
Server	18	$1,311.47	$674.11	$14.95	$8,154.60
Email	26	$264.29	$112.32	$0.00	$1,943.23
Hosting	31	$265.13	$188.04	$12.00	$1,650.94
eCommerce	6	$265.15	$194.30	$103.56	$494.88
SSL	16	$223.32	$206.21	$16.99	$553.67
Website Builder	13	$171.15	$123.88	$0.00	$637.80
DNS	7	$44.95	$5.00	$0.00	$246.76
Privacy	16	$51.81	$23.24	$0.00	$299.98
Forwarding	4	$1.63	$0.00	$0.00	$6.51

Notes:
[1] Price data are as of April 2015 and reflect the cost of one-year of service.
[2] Add-on prices were manually searched on registrar websites and grouped into categories based on frequent website headings for add-on services. For example, the category server includes services such as: Virtual Server, Server Rent, Linux Servers, and Cloud Server.

Source:
Add-on information was collected from registrar websites.

One notable feature of the add-on price landscape is that there are some add-on categories with very little price dispersion (e.g., forwarding), while other categories have a large amount of variation. One possible explanation is that add-ons with lower price dispersion are add-ons where customers tend to be more sensitive to and well-informed about the pricing. . This might imply that forwarding is a relatively important feature for most consumers. However, without detailed transaction information from multiple registrars, we cannot investigate if hypotheses such as this are likely to be correct.

Cost of a Website
Any consumer looking to make a website has to decide what TLD to use, what registrar to use, and what additional features to include. Not only is this choice set growing over time, with the addition of new gTLDs, but the prices for each choice vary over time as well. As such, we aim to describe (1) how the total cost of launching a website through a registrar changes over time and (2) how this overall cost compares to the average cost of registering a domain name.

In order to examine these questions, we first turn to Table 11 above, which shows the distribution of add-on prices. Using these values as baselines, we will be able to examine how these prices change over the next year. Regarding how the cost of registering a domain name compares to the overall cost of launching a website, we noted earlier that our weighted-index value for the cost of registering a domain name for a TLD was $7.91. As Table 11 shows, this cost is lower than the median price of all add-on services with the exception of forwarding. In general, even if a consumer only purchased one additional service, the cost of registration would be a small amount of their total cost. For example, if a

consumer only purchased email services, the cost of registering the domain name would only account for 6.6% of the overall cost.

A more precise approach might be to establish a baseline index for launching a new website, perhaps constructed in a similar manner to the price index described above. However, the lack of adequate transaction-level data provided by registrars makes it difficult to know which add-on services are being purchased more or less frequently, and how these purchases vary between existing trademark holders and smaller parties. As such, establishing a baseline value for total costs using registrar add-on data is infeasible.

Instead, we examined the prices of five website building companies. These companies charge consumers an annual fee for building and maintaining a website, which include services such as hosting, email, and eCommerce functionality.[44] Pricing structures are typically tiered, with basic packages including website building and hosting services. Email and other advanced services come with more expensive packages.

Of the five companies we examined, the cheapest introductory package we observed had a price of $84 per year. Using this as a lower-bound on the cost of building a website, and using the same average domain name registration cost of $7.91, we find that registration costs account for 9.4% of total costs.

Registration Shares

In Phase II, we will also describe how gTLDs compete both with legacy TLDs and other gTLDs. Thus, in addition to examining how prices evolve over the next year, we will also examine how registration patterns have changed. Specifically, we focus on several groups of TLDs that are similar, either in name and/or in their likely target consumers. For example, .career, .careers, .jobs, and .work might constitute such a group. As discussed in Section III, such groups were included as part of our sample construction process. After selecting gTLDs based on total and recent registration volume, related gTLDs were then added. For each proposed group, we ran domain name searches on two large-volume registrar websites[45] and recorded which gTLDs were included in the "Suggested Domain Name" list immediately following the search. Every TLD in the groupings below had at least one other group member displayed as a suggested domain name alternative.

For each TLD in a group, the Table 12 below shows its share of registrations within its corresponding group as of April 2015, as well as its wholesale price, retail price, and the number of months it has been available.

[44] We examined the following website builder companies: SiteBuilder, WebsiteBuilder.com, Sitey, eHost.com, and Sitelio.

[45] Specifically, we ran the checks using GoDaddy and 101 Domain.

Table 12
TLD Groups – Registration Shares

TLD Family	TLD	Registration Share	Months Available
Beer	bar	22.5%	14
Beer	beer	39.6%	12
Beer	pub	37.8%	15
Deals	bargains	14.1%	16
Deals	cheap	18.3%	16
Deals	deals	30.3%	10
Deals	discount	18.6%	13
Deals	gratis	16.1%	13
Deals	qpon	2.7%	14
Education	academy	38.7%	17
Education	college	15.1%	13
Education	degree	0.8%	12
Education	education	34.5%	17
Education	schule	3.0%	13
Education	university	7.9%	13
Global	global	32.6%	11
Global	international	38.3%	17
Global	world	29.1%	8
Help	expert	11.4%	16
Help	guide	3.9%	12
Help	guru	28.7%	18
Help	help	10.0%	9
Help	how	1.0%	9
Help	reviews	5.6%	15
Help	solutions	14.9%	17
Help	support	5.8%	17
Help	tips	14.4%	18
Help	wiki	4.3%	15
Home	casa	6.9%	8
Home	condos	6.1%	15
Home	haus	6.8%	14
Home	house	33.7%	17
Home	immo	24.1%	9
Home	immobilien	19.5%	16
Home	maison	2.9%	15
Jobs	career	1.1%	9
Jobs	careers	9.5%	17
Jobs	jobs	59.5%	67
Jobs	work	29.9%	8
Legal	attorney	34.7%	12
Legal	lawyer	50.0%	12
Legal	legal	15.3%	6
Photography	camera	5.1%	18
Photography	photo	16.3%	16
Photography	photography	47.9%	18
Photography	photos	17.1%	17
Photography	pics	8.7%	16
Photography	pictures	4.9%	13
Travel	cruises	5.9%	15
Travel	flights	5.7%	15
Travel	reise	3.6%	12
Travel	reisen	11.3%	13
Travel	travel	47.8%	67
Travel	vacations	12.1%	15
Travel	viajes	4.0%	17
Travel	voyage	9.7%	18

Notes:
[1] Price data are as of April 2015.
[2] TLD are grouped into families that consist of TLDs with similar spellings or topic areas and are likely to have a large overlap in their respective target groups of consumers.
[3] Wholesale price is listed as missing for those TLDs in our sample for which we did not receive wholesale price information.
[4] Registration Share is calculated as the percent of volume the TLD represents compared to the other TLDs in the family grouping.
[5] Months Available is calculated as the number of months the TLD has been available (as general availability) up until April 2015.

Sources:
[1] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.
[2] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN.
[3] New gTLD wholesale prices are provided by the operating registries.

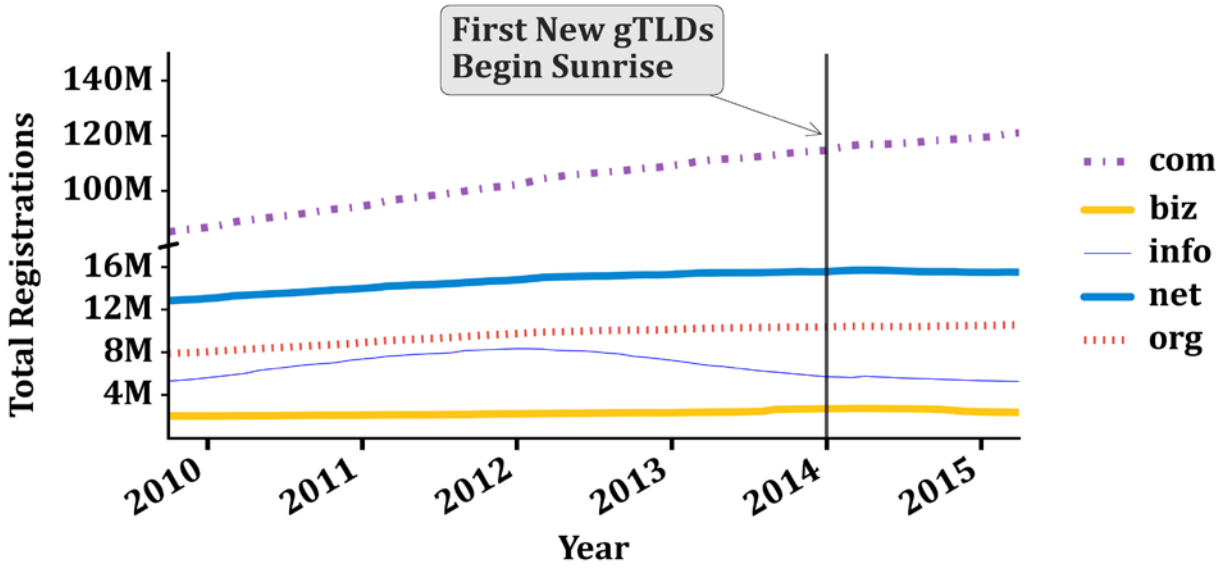
Competitive Effects

Given the lack of adequate, historical transaction-level data, time trend analyses are currently infeasible, but will be examined in Phase II. However, there are a few analyses which can be performed with the currently available data regarding how historical registration patterns have changed with the recent introduction of new gTLDs.

Registration Volumes

If consumers view new gTLDs as substitutes for legacy TLDs, one might expect that the release of new gTLDs would lower the registrations seen in legacy TLDs. On the other hand, if consumers do not view them as substitutes, we might not expect to see any changes in legacy TLD registrations. Using data from monthly transaction reports submitted to ICANN, the below graph shows total (cumulative) registrations for the top five legacy TLDs over time.

Figure 7
Historical Legacy Registration Volumes (2010 – 2015)



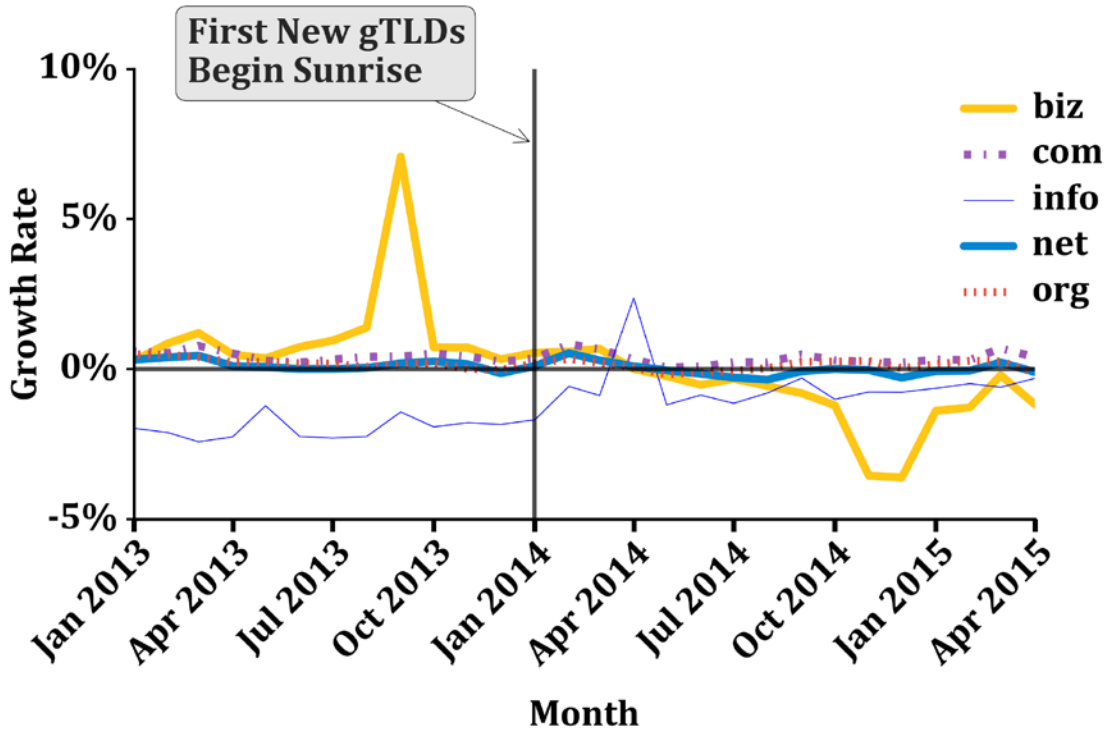
Sources:

[1] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.

[2] Historical entrance dates for new gTLDs were obtained from ICANN's new gTLD program status website, available at http://newgtlds.icann.org/en/program-status/delegated-strings/.

No clear effects are revealed in the above graph – legacy TLDs seem to be continuing to follow their previous registration trends. As an alternative measure of interest is growth rates, the graph below plots monthly growth rates for each of the above five legacy TLDs.

Figure 8
Legacy TLD Growth Rates



Sources:

[1] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.

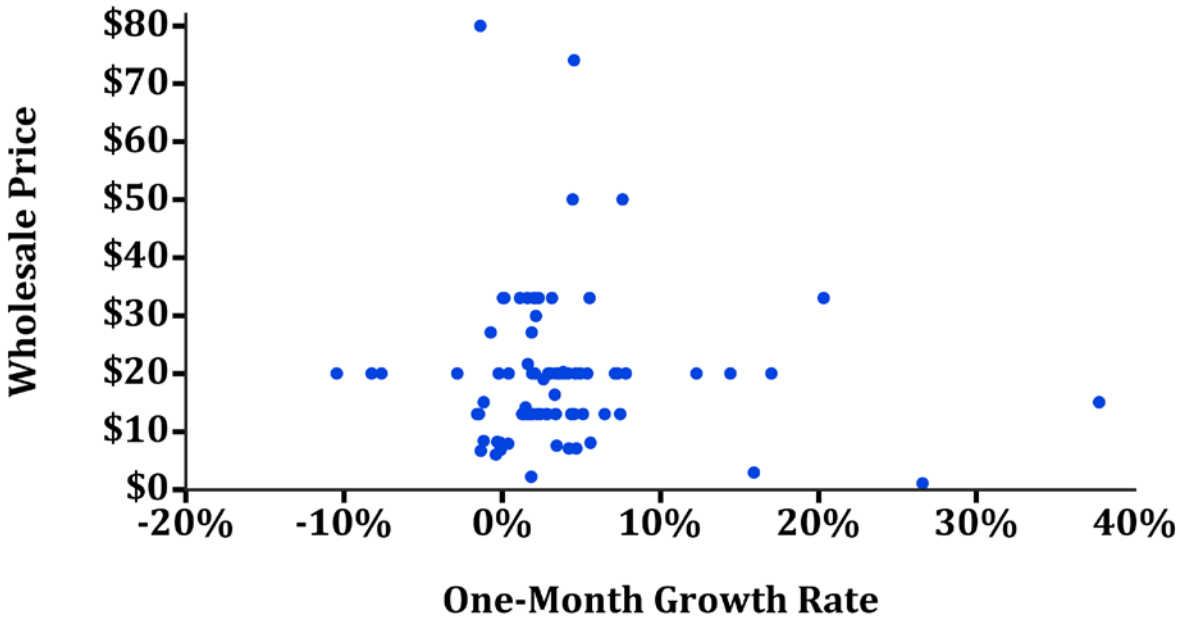
[2] Historical entrance dates for new gTLDs were obtained from ICANN's new gTLD program status website, available at http://newgtlds.icann.org/en/program-status/delegated-strings/.

From this graph, we see that other than perhaps a decline in .biz's growth rate, the growth rates of the other legacy TLDs do not appear to have been affected by the entry of new gTLDs. While we do not examine it here, in Phase II we will also incorporate renewal rates and investigate the extent to which renewal rates differ between legacy TLDs and new gTLDs.

The Relationship Between Wholesale Price and Registration Volume Across TLDs

As noted earlier, there is a considerable amount of price dispersion in wholesale prices among TLDs. Below, we examine the relationship between TLD prices and registration growth to better understand the source of the price dispersion. Specifically, Figure 9 below shows the relationship between April 2015 wholesale prices and registration growth rates across all the TLDs in the sample.

Figure 9
Wholesale Prices vs. April 2015 Growth Rate



Sources:
[1] Registration volumes are collected from monthly transaction reports provided to ICANN by operating registries.
[2] Legacy wholesale prices are sourced from official price change notices sent by registries to ICANN. New gTLD wholesale prices are provided by the operating registries.

In a typical market where products are somewhat substitutable, we might expect to see a negative relationship in equilibrium – as prices rise, registrations fall. However, in the above graph, there is no clear relationship between wholesale prices and growth rates. One explanation might be that consumers do not view new gTLDs as very good substitutes for each other. However, it could also be the case that consumers do not have full information or that the market itself is not in equilibrium at the moment. Given that the many new gTLDs are relatively new, this seems likely, and we will examine the extent to which these relationships have changed in Phase II.

The Relationship Between Retail Price and Registration Volume Within TLDs
We are also interested in describing how registrars compete with each other. As such, we investigated the extent to which registrars' list prices are correlated with relative registration volumes within each TLD. The below table shows how many TLDs exhibited a positive and negative correlation between their registrars' retail prices and registrars' registration shares within that particular TLD.

Table 13
Within TLD Registrar Price and Growth Correlations

	Number of TLDs with Positive Correlation	Number of TLDs with Negative Correlation
1-Month Growth Rate	41	79
1-Year Net Additions	86	34
Total Registrations	88	32

Notes:
[1] 1-Month Growth Rate is calculated by subtracting the prior month's volume from the current month's volume and dividing that difference by the prior month's volume.
[2] 1-Year Net Additions is a variable provided in the Monthly Transaction Reports.

Source:
[1] Retail price information was collected from registrar websites.
[2] Monthly Transaction Reports provided to ICANN by operating

The relationship between retail list prices and registration volume is not very strong, and is, if anything, more likely to be positive. That is, registrars with higher prices have higher registration volumes.

SECTION V – GOING FORWARD

We will examine the further evolution of this marketplace over the coming year.[46] The Phase II Assessment will allow for a deeper analysis of the potential competitive effects associated with the New gTLD Program, and will include an examination of changes in prices and registration volumes for TLDs in our existing sample, as well as additional gTLDs introduced over the next year. The Phase II Assessment will also examine the extent to which add-on prices and availability have changed over the course of approximately one year. Finally, while we will be able to examine more in Phase II by using changes in registration volume and list prices over time, transaction-level data would further expand the set of analyses which could be conducted. Thus, in the coming year, we will continue to reach out to registrars and other secondary market facilitators for historical, transaction-level data. As has been mentioned before, such data would allow for a much more thorough analysis of the competitive effects of the New gTLD Program.

[46] The data collected will be refreshed in 2016 and results will be updated as part of the Phase II Assessment. The target for publication of the Phase II Assessment is fall 2016.