



CENTR Research Paper

Examining the Impact of Parked Domains, Domain Pricing, and Economic Indicators on ccTLD Renewals: A Regression Analysis

Executive Summary

This study investigates the factors influencing the renewal of country code top-level domains (ccTLDs), focusing on the roles of parked domains, domain pricing, consumer price index (CPI), and key economic indicators such as new business registrations and trademark activity. Using multiple regression models, the analysis identifies critical determinants that affect the likelihood of ccTLD renewals. The results suggest significant associations between renewals, and proxies for economic activity and domain pricing.

Parked Domains:

The presence of parked domains is a significant factor negatively affecting ccTLD renewal rates. Both Models 1 and 2 show that a higher number of parked domains (low content)² is strongly associated with a lower likelihood of renewal.

Domain Pricing:

Domain pricing generally has a negative impact on renewal rates, although the effect is less consistent across the models. In Model 1, higher domain prices are marginally significant in reducing renewals, indicating that cost remains an important consideration for domain owners.

Economic Activity:

New Business Registrations: Model 2 shows a highly significant positive relationship between new business registrations and domain renewals. This indicates that economic dynamism, reflected in the creation of new businesses, is a key driver of ccTLD renewals.

Trademark Registrations: In Model 3, which examines trademark activity, there is a significant positive relationship between trademark registrations and domain renewals, suggesting that intellectual property considerations play a role in sustaining domain ownership.

Policy Implications:

Encouraging Active Domain Use: Given the negative impact of parked domains on renewal rates, policies that promote the active use of domains could help increase renewal rates and sustain the digital economy.

Supporting Economic Dynamism: The strong link between new business registrations and domain renewals suggests that fostering a dynamic business environment can positively influence ccTLD sustainability.

Affordable Domain Pricing: Maintaining accessible pricing for domain renewals is important to ensure that cost does not become a barrier to maintaining online presence.

This study provides insights into the factors driving ccTLD renewal rates, with a particular emphasis on the detrimental effect of parked (low content) domains and the positive influence of economic activity. While Models 1 and 2 offer robust and reliable findings, the results from Model 3 should be viewed cautiously due to the limited dataset. Overall, the study underscores the importance of promoting active domain use and supporting a vibrant economic environment to enhance the sustainability of ccTLDs.

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Abstract

This research examines the understudied area of country code top-level domain (ccTLD) renewal patterns, with a particular focus on the impact of parked domains. By considering a range of factors, including domain pricing, consumer price index, and economic indicators, this study aims to provide a comprehensive understanding of the forces driving ccTLD renewals. The study explores factors influencing the renewal of country code top-level domains (ccTLDs), focusing on parked domains, domain pricing, consumer price index (CPI), and economic indicators such as the number of new businesses registered and trademark registrations. Through econometric estimation, the analysis identifies key determinants of ccTLD renewals, with a particular emphasis on the role of parked domains. A key finding of this research is the significant influence of parked domains on ccTLD renewal rates. This highlights the importance of understanding the dynamics of domain parking and its implications for the domain name industry. By recognising the role of parked domains, policymakers, domain registrars, and other stakeholders can make informed decisions to promote the sustainable growth and development of ccTLDs. The study contributes to the broader discourse on the intersection of intellectual property, economics, and technology. By examining the relationship between trademark registrations and ccTLD renewals, this research sheds light on the complex interplay between these factors. This knowledge can be valuable for businesses, governments, and organisations seeking to protect their intellectual property rights and leverage domain names as strategic assets. Policies that are enabling of concurrent registration may be amenable to higher rates of domain registration. While all three models provide valuable insights, it is crucial to note that Model 3 is based on a more limited dataset, making its findings less robust compared to the earlier models. The results from Models 1 and 2, which utilise larger and more comprehensive datasets, are more reliable and consistently indicate that parked domains significantly influence renewal rates.

Introduction

Domain names are the digital addresses of businesses and organisations, serving as crucial gateways to online presence and brand identity. Their renewal is essential for maintaining a continuous and secure online presence. Understanding the factors influencing domain renewal is vital for stakeholders in the digital economy, as it allows for informed decision-making and strategic planning.

This study investigates the impact of parked domains, domain pricing, and economic indicators on ccTLD renewal rates. Parked domains, while not actively used, can still hold significant value, especially in the context of brand protection and future development. Additionally, economic factors such as new business registrations and trademark activity can influence domain renewal decisions.

However, the domain parking ecosystem also presents challenges. As highlighted in the literature, parked domains can be exploited for malicious purposes, such as spreading malware, phishing attacks, and cybercrime. The prevalence of parked domains and their potential misuse underscores the need for robust security measures and ethical practices within the domain industry.

Furthermore, the motivations behind domain registration and renewal are complex. While some domains are registered with the intent to build active websites, others may be acquired for speculative or defensive purposes. This diversity of motivations highlights the need for a nuanced understanding of domain behaviour and the factors that drive renewal decisions.

Trademarks and business registrations important steps in business establishment. Trademarks are crucial strategic assets, that are likely to significantly influence decisions surrounding domain name registration, management, and renewal. They provide a legal and operational framework that shapes how businesses approach their online presence.

Registered trademarks offer legal protection against infringement. This translates directly to domain name strategy. Trademark owners often defensively register domains that are identical or confusingly similar to their marks across various top-level domains (TLDs) (.com, .net, .org, etc.) and ccTLDs. This pre-empts cybersquatting and typo-squatting (registering misspellings of trademarks). During domain renewal, these defensive registrations are prioritised to maintain brand protection. Trademarks inform the selection of primary domain names. A strong, registered trademark provides a solid legal basis for pursuing action against infringers. This strengthens the case in Uniform Domain-Name Dispute-Resolution Policy (UDRP) proceedings or other legal actions. Ongoing trademark monitoring informs domain management. If a new trademark is registered or an existing one is broadened, corresponding domain registrations and renewals may be necessary. Conversely, if a trademark is abandoned, associated domains might be allowed to expire to reduce costs.

Business registration establishes a legal business name, which often forms the basis for the primary domain name. This reinforces brand identity and provides a clear link between the online presence and the legal entity. Businesses with multiple divisions or product lines may use variations of their registered business name in domain names to create distinct online presences. This requires careful planning during initial registration and ongoing management during renewals. Proper business registration ensures that domain ownership can be clearly established and transferred if necessary. This is crucial for legal compliance and business transactions.

Trademarks and business registrations are not merely ancillary to domain names; they are fundamental drivers of domain strategy throughout the entire domain lifecycle, from initial registration to ongoing renewal. Understanding this interplay is essential for protecting brand identity, establishing a legitimate online presence, and minimising legal risks.

Yet little is known about the association between these factors. The renewal of country code top-level domains (ccTLDs) is essential for maintaining a continuous and secure digital presence. Understanding the factors that drive domain renewals is critical for stakeholders in the digital economy. This study investigates the impact of parked domains, domain pricing, and various economic indicators on ccTLD renewal rates. Parked domains, which are registered but not actively used, represent a significant portion of ccTLDs and may affect renewal behaviour. Additionally, economic conditions, including new business registrations and trademark activity, are expected to play a role in determining whether domains are renewed.

Methodology

The study employs a Pooled OLS method to analyse regional panel data, which combines cross-sectional and time-series observations. It assumes a constant relationship between variables across all individuals and time periods. This method treats all observations as independent, ignoring potential individual-specific or time-specific effects. While the AB dynamic panel estimator was preferred to control for unobserved heterogeneity and endogeneity (omitted variable bias), the number of estimators and differencing methods precluded the use of this approach. The particular need for additional longitudinal pricing data is noted. Three regression models were constructed to analyse the influence of different factors on ccTLD renewal rates, variable abbreviations are in parentheses. Given the increased availability of longitudinal data, and a greater number of regional panels alternative methods could be employed in future estimation.

Model 1: Assesses the impact of parked domains (`numeric_park`), domain pricing (`wp_buy_tax_ex`), CPI (`cpi_price`), and internet penetration (`ind_internet`).

Model 2: Evaluates the role of parked domains, domain pricing, CPI, and the number of new businesses registered (`new_business_registered`).

Model 3: Investigates the relationship between parked domains, domain pricing, CPI, and the number of trademark registrations (`trademark_res`).

It is important to highlight that **Model 3** is based on a smaller sample size ($n=31$) compared to Models 1 ($n=65$) and 2 ($n=64$). This limitation means that the findings from Model 3 are less robust and should be interpreted with caution. The results from Models 1 and 2, which are supported by larger datasets, provide more reliable insights into the factors affecting ccTLD renewals.

Results

Model 1: The Influence of Parked Domains, Pricing, CPI, and Internet Penetration

Parked Domains (`numeric_park`): The coefficient is negative and highly significant ($-2.29e+08$, $p < 0.001$), indicating that a higher number of parked domains is associated with a lower likelihood of renewal. This suggests that parked domains are less likely to be renewed, possibly due to their lack of active use.

Domain Pricing (`wp_buy_tax_ex`): The coefficient is negative (-26029 , $p = 0.051$), indicating that higher domain prices may discourage renewals, although this effect is marginally significant.

CPI (`cpi_price`): The impact of CPI is not significant (coefficient = 1726.773 , $p = 0.787$), suggesting that inflationary pressures do not have a direct influence on domain renewals in this model.

Internet Penetration (`ind_internet`): The coefficient is negative but not significant (-5831.169 , $p = 0.654$), indicating that internet penetration may not be a strong predictor of renewal rates in this context.

Model 2: The Impact of Parked Domains, Pricing, CPI, and New Business Registrations

Parked Domains (numeric_park): The negative coefficient remains highly significant ($-4.04e+07$, $p = 0.002$), reinforcing the finding that parked domains are less likely to be renewed. This result underscores the importance of domain activity in predicting renewals.

Domain Pricing (wp_buy_tax_ex): The effect is negative but not statistically significant (-3703.562 , $p = 0.118$).

CPI (cpi_price): CPI continues to show no significant impact on renewals (coefficient = 80.93158 , $p = 0.947$).

New Business Registrations (new_business_registered): The coefficient is positive and highly significant (0.4989054 , $p < 0.001$), indicating that a higher number of new business registrations is strongly associated with increased domain renewals. This suggests that economic vitality, as reflected by business dynamism, plays a crucial role in sustaining ccTLDs.

Model 3: The Effect of Parked Domains, Pricing, CPI, and Trademark Registrations

Parked Domains (numeric_park): The coefficient is negative but not significant in this model ($-4.27e+07$, $p = 0.196$). This finding is less reliable due to the smaller dataset, highlighting the variability in the influence of parked domains across different contexts.

Domain Pricing (wp_buy_tax_ex): The coefficient is positive but not significant (16884.04 , $p = 0.123$), indicating mixed effects of pricing on renewals in this model.

CPI (cpi_price): The CPI shows a significant positive impact (14979.94 , $p = 0.037$), suggesting that inflation might influence renewal decisions when considered alongside trademark activity, although this result should be interpreted cautiously due to the limited data.

Trademark Registrations (trademark_res): The positive and significant coefficient (0.6755869 , $p = 0.023$) indicates that higher levels of trademark registrations are associated with increased domain renewals. This suggests that intellectual property considerations may encourage the maintenance of online assets.

Given the smaller sample size in Model 3, these results should be considered less robust than those from Models 1 and 2, which provide stronger evidence due to their larger and more comprehensive datasets.

Discussion

The consistent finding across Models 1 and 2; that parked domains significantly reduce the likelihood of renewal; highlights a critical aspect of ccTLD health. Parked domains, when used for advertising, or speculative purposes without active content, represent underutilisation of the digital namespace. Underutilisation may be consequential for the value proposition of the namespace, perception, and may have policy implications for regulators.

We offer a value proposition hypothesis. The Value Proposition impact of domain underutilisation may be diminished through inapt utilisation. Therefore, users are less likely to renew domains that don't serve a clear purpose or generate value. This reinforces the importance of promoting active domain usage and developing relevant content.

ccTLD Perception is the alternative and more speculative hypothesis. A high proportion of parked domains can negatively impact the perception of a ccTLD, potentially hindering its growth and adoption. It could suggest a lack of vibrant online activity within the associated country or region. ccTLD registries may consider implementing policies that discourage domain parking or incentivise active use, such as tiered pricing or stricter enforcement of usage guidelines.

The negative impact of domain pricing on renewals, while statistically significant in two of the three models, is important to analyse further. The consistent material effect size across all models, even when statistical significance wasn't reached, suggests a real-world impact. This indicates that there is a degree of price sensitivity, and that pricing strategy and value add services are critical. Given the absence of service bundle data, this dimension remains underexplored.

The findings suggest that users are sensitive to price changes, this may be particularly relevant for domains that are not generating substantial revenue or value. This is particularly relevant for smaller businesses and individual users.

ccTLD registries need to carefully consider their pricing strategies, balancing revenue generation with affordability and accessibility. Excessive price increases could lead to decreased renewal rates and a shrinking domain base, however this view must be set against the discoveries pertaining to parking, business activity and trademarking, with utilisation, business activity and trademarking all critical drivers of renewal. To justify higher prices, registries could focus on providing value-added services, such as enhanced security features, DNS management tools, or customer support.

The emergence of economic activity, specifically new business registrations, as a key driver of domain renewals underscores the strong link between the digital and physical economies. This suggests that new businesses recognise the importance of establishing an online presence, driving demand for domain names and subsequent renewals. Domain renewal rates may serve as a valuable indicator of economic health and business activity within a specific region or country. Consequently, policies that support business growth and entrepreneurship indirectly contribute to a healthy domain ecosystem.

As a cautionary note, while the findings are compelling and insightful, the limited dataset may not provide sufficient statistical power to draw absolute or definitive conclusions about the impact of trademark registrations and CPI on domain renewals. Additional research with larger datasets is crucial to confirm or refute the tentative findings from Model 3. This research should explore how different trademark strategies (e.g., defensive vs. offensive registration) influence domain renewal decisions. Additionally, the specific mechanisms through which CPI or other economic indicators influence domain renewal behaviour, and also new registration should be explored. While the mechanisms are not the focus of this research, they remain important. For example, consider, does inflation lead to cost-cutting measures that include foregoing domain renewals, or new registrations, perhaps both, in the extreme?

When taken together the findings nonetheless remain useful. The results from Models 1 and 2 consistently indicate that parked domains significantly reduce the likelihood of renewal, emphasising the importance of active domain use in sustaining ccTLDs. The impact of domain pricing on renewals is generally negative, although its significance varies across models (significant in two of the three models), the effect size was material in all models. Economic activity, particularly new business registrations, emerges as a key driver of domain renewals, underscoring the role of a dynamic business environment in maintaining digital assets.

Conclusions

This study provides important insights into the factors influencing ccTLD renewal rates. This research provides valuable insights into the factors influencing domain renewals within ccTLDs. The findings highlight the importance of active domain usage, careful pricing strategies, and a dynamic business environment. Further research, particularly with larger datasets, is needed to fully understand the complex interplay of factors affecting the long-term health and sustainability of the digital namespace.

The robust findings from Models 1 and 2 highlight the significant impact of parked domains and economic indicators, particularly new business registrations, on domain renewals. However, the results from Model 3 are less reliable due to the limited dataset, and further research is necessary to strengthen these conclusions. The study underscores the importance of encouraging active domain use and supporting economic dynamism to enhance the sustainability of ccTLDs.

Note - The data employed in this study, in addition to being sourced from Centr, have been sourced from authoritative and well-established data providers and credible sources, the World Bank, IMF and EuroStat. These sources are comprehensive, reliable and well established data providers, which are extensively utilised in both academic research and policy analysis.

Econometric models:

TABLE 1 – Models of domain parking, internet access and new business activity

Variable	Model 1	Model 2	Model 3
Parked domains	-2.29e+08***	-4.04e+07***	-4.27E+07
	(-5.84E+07)	(-1.27E+07)	(-3.22E+07)
Domain pricing	-26029	-3703.562	16884.04
	(-13050.24)	(-2332.877)	(-10597.74)
Inflation	1726.773	80.93158	14979.94**
	(-6374.96)	(-1201.286)	(-6810.628)
Internet penetration	-5831.169		
	(-12933.93)		
New Business Registrations		0.4989054***	
		-0.0527139	
Trademarks			0.6755869**
			(-0.2801361)
Constant	1791919	266947	-1584925
	(-1310536)	(-171775.1)	(-985412.8)
Observations	65	64	31
R-squared	0.3485	0.8365	0.578
Adj. R-squared	0.3051	0.8254	0.513
F-statistic	8.03	75.47	8.9

Notes:

Significance levels: p < 0.1 (*), p < 0.05 (**), p < 0.01 (***).

This table presents the coefficients, standard errors, and statistical significance of the variables across the three models. Standard errors are in parentheses below the coefficients. These models employ methods that best accommodate data limitations and represent critical initial estimates of key associations noted.

Limitations: While the studies employ suitable methods of estimation, the modest amounts to data available to facilitate analysis, necessitate that the studies are seen as robust foundational explorations of the noted issues. The estimations serve as robust exploratory estimates of critical domain relationships that will inform future studies, and potentially support the development of viable forecasting methodologies and models. Model 1 and Model 2, which have more robust datasets, show stronger and more reliable results, particularly regarding the influence of parked domains on ccTLD renewal rates. Model 3, due to its limited data, provides less reliable findings and should be interpreted with caution. The use of dynamic panel estimation techniques was preferred but ultimately not employed due to the paucity of data, and the need for differencing of data that resulted in significant reductions in available observations using the AB Dynamic panel estimation technique.

About the author

Dr. Michael D’Rosario is a Senior Research Fellow at Central Queensland University’s CREATE institute and a Lecturer at the University of Adelaide, specializing in applied economics, data science, and policy evaluation. He facilitates Executive Education for the University of Oxford’s AI in Business program, focusing on the strategic applications of artificial intelligence in industry.

Formerly Chief Economist and Head of Data Science at Per Capita, Dr. D’Rosario led initiatives like the Australian Inequality Index and consulted for organizations such as Transparency International and CENTR. With a PhD in Econometrics and Policy, he has over 15 years of experience in research, teaching, and advising on economic and data-driven solutions spanning the University of Melbourne, Deakin University and Loyola University, where he was a Prime Minister’s Fellow.

Dr. D’Rosario’s work bridges complex data analysis with practical insights, advancing ethical AI integration, education, and policy innovation. His interdisciplinary expertise drives collaborations across academia, government, and industry to tackle contemporary challenges.

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