Multihoming on Social Media Platforms: The Role of Content Moderation

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Abstract

Theoretical work on platform competition emphasizes the importance of differentiated features and multihoming in determining market outcomes. However, empirical evidence of platforms competition in stable markets remains sparse. We analyze such a market through the introduction and growth of the Parler social media platform. Parler, offered similar features to other microblogging platforms with the addition of *freedom* from content moderation as its differentiated feature. Our work demonstrates that Parler's differentiated feature, both, expanded the market and increased competition with the dominant microblogging platform. We also identify periods when the salience of Parler and its differentiated feature were heightened. We find that competition was heightened with additional salience of Parler's differentiated feature while increased visibility of Parler, itself, resulted in market expansion. Our work concludes with a discussion of the events leading to Parler shutting down and the competitive issues therein.

Keywords: Platform Competition, Winner-take-all Markets, Social Media Platforms, Content Moderation

1 Introduction

Digital platforms reach millions of individuals looking to connect with others and benefit from the platforms' network effects[1]. This has resulted in platforms that dominate their respective industries with few, if any, close competitors. Often termed winner-take-all markets, the emergence of such market dynamics are well understood. However, much less understood is if, and how, a new platform may be able to compete in an established winner-take-all market. We aim to address this gap in understanding through a thorough examination of the microblogging platform market.

Microblogging platforms are defined as those which allow for the posting and sharing of short snippets of text with interested others (Java et al. 2007) and have become a mainstay for information gathering (Shearer et al. 2024) and reporting (Jurkowitz and Gottfried 2022). This market has historically been dominated by a single platform, Twitter, which has become synonymous with the microblogging market itself (Costolo 2013). Despite this, there has been substantial entry into the microblogging platform market with little success. Early competitors, like Jaiku, have since exited the market (Kramer 2009) and well-funded competitors, like Meta's Threads, have failed to achieve self-sustaining growth (Barr 2023). However, in 2018 a new entrant, Parler, drew millions of users and appeared poised to challenge the dominant microblogging platform (Horwitz and Hagey 2020).

Parler, like other microblogging platforms, offered users a prescribed set of interactions which made it "approximately the same as [other microblogging platforms]" (Aliapoulios, Bevensee, Blackburn, Bradlyn, Cristofaro, et al. 2021). However, unlike other microblogging platforms, Parler positioned itself as a "platform in the spirit of the *First Amendment to the United States Constitution*" (Parler 2021) by promising not to remove legal user-generated content. This was in contrast to other platforms at the time which were known to remove unlawful content, as required by law, as well as potentially objectionable material, to appease advertisers (Anderson et al. 2019) and consumers (Anti-Defamation League 2020), through a

[1] `https://datareportal.com/social-media-users`

process known as content moderation (Gillespie 2017). However, the public discourse at the time reveals a wide heterogeneity between users who preferred a *safe* platform with greater content moderation and those who preferred a platform offering *freedom* from such content moderation. Our research aims to understand the role of Parler's differentiated feature which appealed to freedom-loving users and the resulting competitive outcomes.

Our research aims to address the following questions: (i) do users adopt Parler despite its smaller installed base compared to the dominant platform? If so, are they motivated by network effects - despite the smaller install base- or are they primarily driven by Parler's freedom feature? To the extent that users adopt Parler, (ii) is Parler adoption primarily driven by new users entering the microblogging platform market for the first time or by users electing to multihome across the entrant and dominant platforms? Provided that there are two potential user types (new or multihoming), (iii) do these user types exhibit differential network effect dynamics? For example, do users prefer other users of their own type when making their adoption decisions? Finally, we want to understand (iv) how Parler adoption is affected by external events increasing the salience of the platform or its differentiated feature.

Our analysis uses granular user adoption data for the entrant and dominant platforms to evaluate the importance of Parler's differentiated feature in driving platform adoption. We do this by controlling for network effects as in prior empirical research (e.g., Chu and Manchanda 2016) which we then extend to allow heterogeneity by user-type. We also leverage external shocks which separately increased the salience of Parler or its differentiated feature to identify changes in adoption behavior using a regression-discontinuity-in-time (RDiT) framework (Hausman and Rapson 2018). Over the entire adoption period, we find that new and multihoming users adopt at a similar rate to one another. However, we find that new entry is accelerated following external events which increase the salience of Parler while external events increasing the salience of Parler's differentiated feature increases multihoming user adoption. This would suggest that Parler's differentiated feature increased competition for users and the intensity of competition was heightened during periods of greater perceived

differentiation. However, we were not able to observe whether Parler was able to successfully compete against the dominant platform due to an exogenous shutting down of the entrant, the implications of which we discuss in the latter part of this manuscript.

This paper proceeds as follows: In Section 2, we review existing literature on platform competition and user heterogeneity regarding content moderation. In Section 3, we provide additional context on Parler's market positioning and the concurrent public discourse surrounding content moderation. Section 4 presents the data used for our analysis. Details of our analysis are presented in Section 5. Section 6 provides an overview of our results, discussing their implications for our understanding of platform competition. Section 7 concludes with a discussion on Parler's shutdown, the state of content moderation, and implications for digital competition.

2 Related Literature - Platform Competition

Platform competition is characterized by the importance of network effects, from which platforms derive most of their value (Parker and Van Alstyne 2005). A central feature which determines competitive outcomes in platform competition is whether users' elect to singlehome - occupying a single platform - or multihome across multiple competing platforms (Armstrong 2006). Economics research employing analytical methods has demonstrated that in the absence of platform differentiation, a monopolistic outcome is likely to emerge where a single platform captures the entire market (Caillaud and Jullien 2003). Such an outcome has been referred to, in the platform competition literature, as a winner-take-all (WTA) outcome and is said to occur when three conditions are present: (i) there exist strong network effects, (ii) there exists a cost to multihoming, (iii) there is little to no demand for an existing differentiated feature (Eisenmann et al. 2006). The concept of a WTA market has been widely accepted in platform strategy research, with subsequent work examining strategies for achieving dominance in a WTA market (e.g., Eisenmann et al. 2006) and understanding

entrants' rationale for attempting to compete with such unfavorable market dynamics (e.g., Laferrière et al. 2023). However, there is a surprising dearth of research examining the nature of competition once a new platform enters a winner-take-all market (Rietveld and Schilling 2021).

Despite a lack of examination of entry into WTA markets, there exists a rich literature on platform adoption generally. Consistent with analytical results of prior research this largely empirical body of work demonstrates that network effects are essential to platform adoption (e.g., Dranove and Gandal 2003; Clements and Ohashi 2005; Chu and Manchanda 2016; etc.). Further, empirical research on platform competition confirms that successful entry into a platform market requires a substantial quality differential in order to overcome an incumbents' installed-base advantage (Zhu and Iansiti 2012). However, most empirical research on platform adoption and competition typically assumes singlehoming or evaluates a single platform, omitting competition altogether. More recent research has begun to evaluate multihoming in established platform markets. Primarily analyzing the daily deals (Kim et al. 2017; H. Li and Zhu 2021) and video games (Landsman and Stremersch 2011) markets. This stream of research has consistently found that multihoming agents are motivated to adopt a secondary platform by the potential to benefit from variety not available on their primary platform alone. However, this work continues the tradition of evaluating the competitive dynamics of two-sided markets. The social media platform market, however, is characterized by users adopting a platform to interact with similar others. As a result, whether and how social media platforms can differentiate themselves remains an open empirical question (Zhang and Sarvary 2015).

2.1 Differentiation on Content Moderation

Research in marketing suggests that social media platforms can explicitly differentiate themselves by their content moderation policies (Y. Liu et al. 2022). Content moderation is the set of policies and procedures enacted by a digital platform to police user-generated con-

tent (UGC) in order to appease regulators, advertisers, and their user base (Gillespie 2017). Through their choice of policies, social media platforms can create differentiation in the types of content which they will host (Zhang and Sarvary 2015). Nonetheless, most mainstream social media platforms have similar policies (Singhal et al. 2022) which allow them to position themselves as safe spaces (Gibson 2019), places for community (Klassen et al. 2021), and even global town squares (Costolo 2013). Despite the market appearing to have settled on a set of content moderation policies, there is widespread discontent among users regarding these policies. Ample research in computer science documents that users rarely agree with moderation decisions (Jhaver et al. 2019), often feel targeted by such policies (Haimson et al. 2021), and disagree on the appropriate amount of content moderation (Shen and Rose 2019). Despite clear evidence of heterogeneity in users' preferences for content moderation, and analytical research suggesting content moderation as a means for differentiation between social media platforms, there is no research examining the viability of such a differentiated feature. Much less whether it may allow an entrant to compete in an established winner-take-all market.

3 Parler's Entry into the Microblogging Market

The microblogging platform market is an ideal setting to evaluate the viability of a differentiated entrant in a winner-take-all market for various reasons. (i) It is an established market with a clear definition - social media platforms which primarily rely on posting, sharing, and interacting with short snippets of text (Java et al. 2007). Due in part to the narrow definition of the market, entrants have been undifferentiated in their offerings and have not been able to successfully compete against the dominant platform. In other words, (ii) the microblogging platform market appears to exhibit winner-take-all dynamics and meets all of the pre-requisites for such a market outcome. However, (iii) we are able to observe the entry of a new microblogging platform (Parler) with a single characteristic differentiated feature

(freedom). Further, reinforcing the functional equivalence of Twitter and Parler is a collection of works in Computer Science comparing user behavior between these two platforms (e.g., Hitkul et al. 2021; Esser 2021; M. Otala et al. 2021; Ward 2021; Park et al. 2022). This significantly simplifies our analysis by allowing us to focus on Parler's singular differentiated feature - its stance on content moderation.

As discussed in Section 2.1, content moderation is an essential service offered by social media platforms (Gillespie 2018). However, the role and importance of content moderation became especially salient during the first Trump presidency when concerns about misinformation and election interference were met with regulatory hearings to understand the role of social media platforms in accelerating the spread of potentially harmful, albeit legal, content (Timberg 2016; Nakashima et al. 2017). Following the increased public scrutiny of potentially objectionable content on social media platforms, the platforms were more proactive about removing content related to the COVID-19 pandemic (Roth and Pickles 2020). This increased scrutiny of posts related to the pandemic was largely seen as a necessary step to stem the flow of potentially harmful misinformation about the virus (Hern and editor 2020). However, the policy change also raised concerns of online censorship due to the broad discretion it granted social media platforms (NCAC 2020). Concerns of online censorship increased further following the dominant microblogging platform's decision to label then sitting president Donald Trump's post as misinformation for the first time (Wong 2020). This marked a sharp departure from the industry's earlier stance which had allowed the then president to make provably false statements thousands of times without repercussions (Shapiro 2021). Following the labeling of the president's post, the president accused platforms of trying to "totally silence conservative voices"[2]. During this period of public discourse regarding the appropriate level of content moderation, where congressional hearings and consumers simultaneously demanded, both, more *and* less moderation (Romm et al. 2020), Parler offered an alternative microblogging platform with less moderation.

[2] `https://twitter.com/realDonaldTrump/status/1265601611310739456`

Parler launched in 2018 (Aliapoulios, Bevensee, Blackburn, Bradlyn, De Cristofaro, et al. 2021) with a stated mission to provide a "social platform in the spirit of the *First Amendment to the United States Constitution*" (Parler 2021). Aside from Parler's vow to only practice the legally mandated amount of content moderation, Parler functioned "approximately the same as Twitter" (Aliapoulios, Bevensee, Blackburn, Bradlyn, Cristofaro, et al. 2021). In other words, Parler's *only* differentiating feature from the dominant platform was its distinct content moderation policy, based in *freedom*. Parler found a receptive market for its singular differentiated feature among users "sick and tired of Twitter" (MacLeod 2020), growing to over 10 million users in only 2 years - a rate of growth comparable to that of dominant platform (Cox 2023). Accelerating Parler's growth were endorsements from prominent figures, including Candance Owens and Dan Bongino, which increased exposure of the Parler microblogging platform (Aliapoulios, Bevensee, Blackburn, Bradlyn, De Cristofaro, et al. 2021) and the aforementioned events which increased the salience of Parler's differentiated feature. However, the extent to which celebrity endorsements and salience of freedom impacted Parler's adoption and the dynamics therein remains an empirical question.

4 Data

Our analysis of Parler adoption draws on the complete history of all 13.27 million users which *ever* joined the Parler platform (Aliapoulios, Bevensee, Blackburn, Bradlyn, Cristofaro, et al. 2021). For each user, we observe the date and time on which they joined Parler as well as their username, among other characteristics. We then used Twitter's Academic Access API to search for each Parler user's username, gathering the username and account creation dates for multihoming users and error codes for non-multihoming users. Following prior research, we combine the two dataset by username matches (J. Liu et al. 2013; Y. Li et al. 2018; Murdock et al. 2023). This technique allows us to determine *all* of the users which *ever* multihomed across Twitter and Parler, as well as when they began to multihome. Note

that our measure of multihoming is that of joining both platforms rather than posting to both platforms given that most users typically never post despite being active on a social media platform (Mierlo 2014)

Our matching technique is both interpretable and conservative when compared to other potential matching techniques using posting behavior or machine learning models which would risk losing representativeness and increasing false positives. Put differently, the strict requirement of perfectly matched usernames is likely to understate the true impact of content moderation policies on user multihoming and platform competition, resulting in conservative estimates of our measures of interest. With this conservative technique, we determine that 45.9% of all Parler users multihome and multihoming users disproportionately started on Twitter and later adopted Parler (92.1% of multihomers), rather than the reverse sequence (7.9% of multihomers). This would indicate that Twitter users had demand for Parler, which was only differentiated from the larger platform by its content moderation policy. It also presents clear evidence that Parler expanded the market to users which had not previously been active in the microblogging platform market.

Table 1: Descriptive Statistics

Period	Variable	Obs	Mean	Std. Dev.	Min	Max
Overall	New Users	828	16026.15	83253.48	1	1506549
	Log New Users	828	6.577555	2.742688	0.6931472	14.22533
	Proportion of New Users Multihoming	828	0.4380755	0.1604886	0	1
Before Candance Owens's Endorsement	New Users	64	5.33	8.82	1	45
	Log New Users	64	1.39	0.80	0.69	3.83
	Proportion of New Users Multihoming	64	0.54	0.36	0	1
After Candance Owens's Endorsement / Before COVID-19 Policies	New Users	474	1444.65	6033.70	1	93136
	Log New Users	474	5.65	1.59	0.69	11.44
	Proportion of New Users Multihoming	474	0.45	0.15	0.09	1
After COVID-19 Policies / Before Trump Labeled	New Users	60	1048.42	777.39	383	4188
	Log New Users	60	6.78	0.56	5.95	8.34
	Proportion of New Users Multihoming	60	0.35	0.08	0.11	0.55
After Trump Label / Before Dan Bongino Endorsement	New Users	21	10908.81	13922.23	1937	49644
	Log New Users	21	8.81	0.90	7.57	10.81
	Proportion of New Users Multihoming	21	0.44	0.01	0.41	0.47
After Dan Bongino Endorsement	New Users	209	58816.07	158068.70	4443	1506549
	Log New Users	209	9.99	1.15	8.40	14.23
	Proportion of New Users Multihoming	209	0.42	0.05	0.34	1

To test whether the salience of Parler or its differentiated feature affected the adoption

of Parler, we split the sample into the periods before and after the four events mentioned in Section 3. Specifically, we identify two dates which are known to have increased concerns of online censorship, and therefore the salience of Parler's differentiated feature: (i) the announcement of heightened scrutiny of COVID-19 posts on the dominant platform and (ii) the labeling of the president Trump's post as misinformation by the dominant platform. Likewise, we use two endorsements identified by prior scholars as important to the growth of Parler: that of (i) Candance Owens and (ii) Don Bongino (Aliapoulios, Bevensee, Blackburn, Bradlyn, De Cristofaro, et al. 2021).

To test whether demand for Parler is driven by its differentiation on content moderation, we evaluate the entire life of the Parler social media platform. Detailed descriptive Statistics are presented in Table 1. The table shows that Parler adoption (number of new users) increased after each of the noted events. Additionally, Figures 1 and 2 show sharp increases in user adoption and multihoming, respectively, following the policy changes which resulted in increased salience of Parler's differentiated feature. However, formal modeling is necessary to evaluate whether increased salience of the differentiated feature resulted in these changes, as well as to compare the salience of the differentiated feature to generic knowledge of the platform.

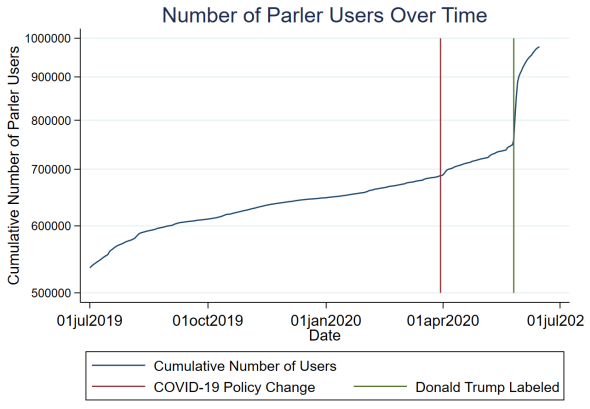

Figure 1: Cumulative Number of Parler Users

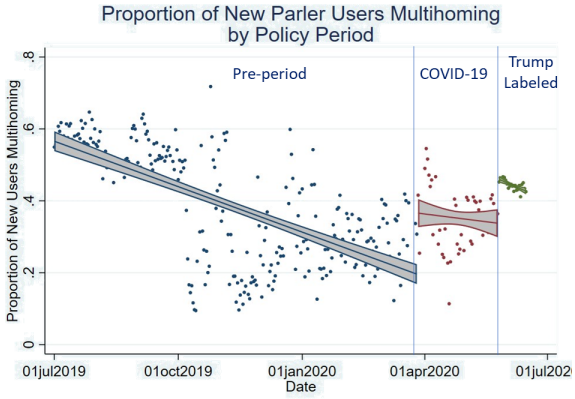

Figure 2: Proportion of New Users Multihoming

5 Empirical Methodology

Our analysis aims to characterize the determinants of Parler adoption and the role of Parler's differentiated feature in driving such adoption. Accordingly, our analysis consists of two parts. Following prior research, we first identify the importance of network effects for Parler adoption using a standard logit framework (e.g., Clements and Ohashi 2005; Zhu and Iansiti 2012; Chu and Manchanda 2016). We then extend this common framework to differentiate network effects by user type. Subsequent analysis leverages external shocks which affected demand for Parler's differentiated feature in order to understand the role of the differentiated feature on competition within the microblogging platform market. Each of these analyses is explained in greater detail below.

We begin by characterizing users' incentive for joining Parler. Following prior research on platform adoption (Zhu and Iansiti 2012), we consider that users will adopt Parler if they will derive non-negative utility from doing so. A representative user i's utility from adopting Parler can be decomposed to that resulting from access to N_t other users on the platform at time t and the intrinsic value of the platform α, which includes the value of the differentiated feature. Following prior work on platform adoption, we estimate users' utility function using the following reduced-form logit model:

$$ln(\frac{s_t}{1-s_t}) = \alpha + \beta N_{t-1} + \epsilon_t \tag{1}$$

where s_t represents the market share of Parler at time t. Note, however, that in our setting market share is not uniquely determined. This results from the fact that there are two populations of potential adopters: (i) users enter the microblogging platform market for the first time (i.e., new users) and (ii) existing users electing to multihome (i.e., multihoming users). Accordingly, Equation 1 is estimated separately for new (s^{new}) and multihoming (s^{multi}) users where the former is operationalized as the proportion of internet connected users not using a microblogging platform which adopted the entrant platform. The latter,

meanwhile, is operationalized as the proportion of the dominant platform's users which have also adopted the new entrant.

$$ln(\frac{s_t^{new}}{1-s_t^{new}}) = \alpha + \beta ln(N_{t-1}) + \epsilon_t \tag{2}$$

$$ln(\frac{s_t^{multi}}{1-s_t^{multi}}) = \alpha + \beta ln(N_{t-1}) + \epsilon_t \tag{3}$$

Additionally, the granularity of our data allows us to separately estimate the importance of network effects from each user group. Differences in the importance of network effects from each group may result from users preferentially interacting with other users like themselves. This is likely to occur when users differ in their taste for freedom as is the case for new and multihoming adopters. Formally, we estimate the following Equations which separately estimate the importance of each user-type's network effects to potential adopters of either type:

$$ln(\frac{s_t^{new}}{1-s_t^{new}}) = \alpha + \beta^{new} ln(N_{t-1}^{new}) + \beta^{multi} ln(N_{t-1}^{multi}) + \epsilon_t \tag{4}$$

$$ln(\frac{s_t^{multi}}{1-s_t^{multi}}) = \alpha + \beta^{new} ln(N_{t-1}^{new}) + \beta^{multi} ln(N_{t-1}^{multi}) + \epsilon_t \tag{5}$$

Further, we control for the punctuated nature of Parler adoption by introducing models which also include fixed effects (γ_t) for each time-period coinciding with the aforementioned shocks as well as a more flexible model with month specific fixed effects. Both sets of fixed effect models can be parameterized as follows:

$$ln(\frac{s_t^{new}}{1-s_t^{new}}) = \alpha + \beta ln(N_{t-1}) + \gamma_t + \epsilon_t \tag{6}$$

$$ln(\frac{s_t^{multi}}{1-s_t^{multi}}) = \alpha + \beta ln(N_{t-1}) + \gamma_t + \epsilon_t \tag{7}$$

$$ln(\frac{s_t^{new}}{1-s_t^{new}}) = \alpha + \beta^{new} ln(N_{t-1}^{new}) + \beta^{multi} ln(N_{t-1}^{multi}) + \gamma_t + \epsilon_t \tag{8}$$

$$ln(\frac{s_t^{multi}}{1-s_t^{multi}}) = \alpha + \beta^{new} ln(N_{t-1}^{new}) + \beta^{multi} ln(N_{t-1}^{multi}) + \gamma_t + \epsilon_t \quad (9)$$

In addition to identifying the type-specific importance of network effects for user adoption, we leverage external shocks to identify the impact of increased salience of Parler or its differentiated feature on market competition. For this, we leverage the sudden and unanticipated nature of these external shocks to estimate a regression-discontinuity-in-time (RDiT). This quasi-experimental approach estimates the 'treatment' effect of increased platform awareness and differentiation on market competition (Hausman and Rapson 2018). We operationalize competition in the microblogging platform market using theoretical results indicating that increased multihoming results in heightened competition while a lack of multihoming may result in a winner-take-all outcome. Formally, we calculate the proportion of new users which are multihoming each day across the two platforms ($multihomingProportion_t = \frac{\Delta N_t^{multi}}{\Delta N_t^{new}}$) where Δ signifies the change in the relevant variable - indicating a *daily* proportion of new adopters multihoming rather than the *cumulative* proportion of users multihoming. This measure allows us to capture daily dynamics using our RDiT framework where an increase in the multihoming proportion indicate heightened competition in the microblogging platform market.

Formally, we estimate a local-linear RDiT model which estimates the immediate change in the multihoming proportion following each of the shocks of interest using both Epanechnikov and Triangular kernels (Imbens and Lemieux 2008). Global polynomial results are available from the authors upon request. To cleanly identify the effect of the shocks, we also control for other factors known to affect user adoption. Namely, we control for the lagged number of recent adopters new to the microblogging platform market $ln(\Delta N_{t-1}^{new})$ and multihoming across platforms $ln(\Delta N_{t-1}^{multi})$. Additionally, we include day-of-week fixed effects δ_t - which are common in RDiT research (e.g., Burger et al. 2014). Further, we control for potential autocorrelation by (i) including the AR(1) term, (ii) explicitly controlling for the role of network effects, and (iii) estimating the RDiT model using the standard RDRobust package

(Calonico et al. 2020) as well as a custom function which estimates the same model using autocorrelation adjusted Newey-West standard errors (Newey and West 1987).

$$\begin{aligned} multihomingProportion_t = &\beta_0 + \beta_1 policyChange_t + \beta_2(T_t - T_c) + \\ &\beta_3(T_t - T_c) \times policyChange_t + \\ &\beta_4 ln(\Delta N_{t-1}^{new}) + \beta_5 ln(\Delta N_{t-1}^{multi}) + \\ &\beta_6 multihomingProportion_{t-1} + \delta_t + \epsilon_t \end{aligned} \tag{10}$$

6 Results

We begin by evaluating users' incentives for adopting the new platform in the presence of a dominant incumbent. Following prior research in platform adoption, we start with adoption models which pool all users together when estimating network effects. Additionally, we control for observed and unobserved changes in platform adoption over time by introducing shock and month fixed effects as detailed in Section 5. The results from our logit estimation models are presented in Table 2. The results clearly show that both new and multihoming users value network effects derived from other users' prior adoption. This result is consistent across models and indicates that users adopting Parler are still sensitive to network effects despite having a smaller installed base than the dominant platform - likely resulting from Parler's differentiated offering. Having confirmed the importance of network effects for a new entrant in an established WTA market, we further subdivide users' network effects to those derived from new users or from multihoming users.

Table 3 shows that adopting users are more sensitive to prior adoption from users of their own type compared to the other type. That is, new users are more motivated by other new users while multihoming users follow other users which have elected to multihome across the two platforms. This result is consistent across models and confirms that the distinct user groups are likely differentiated in their taste for freedom and the associated interactions.

Table 2: Determinants of Parler Adoption

	No Time Fixed Effects		Shock Fixed Effects		Month Fixed Effects	
	New Users	Multihoming Users	New Users	Multihoming Users	New Users	Multihoming Users
L.Parler Users (Log)	0.974***	0.939***	0.889***	0.937***	0.956***	0.918***
	(0.00970)	(0.00329)	(0.0205)	(0.0234)	(0.0425)	(0.0405)
Constant	-22.47***	-18.75***	-22.09***	-18.85***	-22.12***	-18.46***
	(0.132)	(0.0437)	(0.125)	(0.109)	(0.491)	(0.220)
Shock FE	No	No	Yes	Yes	No	No
Month FE	No	No	No	No	Yes	Yes
Observations	762	870	762	870	762	870
Degrees of Freedom	1	1	5	5	25	30
F-Statistic	10074.3	81529.1	41870.2	88453.1	5477766.5	1806319.3

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Further, our results indicate that multihoming user adoption may fuel self-sustaining growth to a greater extent than adoption from new singlehoming users. This would suggest that increasing multihoming not only increases market competition but also the viability of the entrant. Accordingly, it is important to understand the determinants of increased user multihoming.

Table 3: User-Type Specific Determinants of Parler Adoption

	No Time Fixed Effects		Shock Fixed Effects		Month Fixed Effects	
	New Users	Multihoming Users	New Users	Multihoming Users	New Users	Multihoming Users
L.Parler Singlehoming Users (Log)	0.997***	-0.0305	0.695***	-0.168*	1.257***	0.151
	(0.0238)	(0.0379)	(0.188)	(0.0685)	(0.194)	(0.154)
L.Multihoming Twitter to Parler (Log)	0.00468	1.084***	0.248	1.125***	-0.193	0.850***
	(0.0322)	(0.0395)	(0.145)	(0.0598)	(0.180)	(0.169)
L.Multihoming Parler to Twitter (Log)	-0.0394***	-0.105***	-0.0241	-0.0551**	-0.233*	-0.141
	(0.00936)	(0.0185)	(0.0123)	(0.0206)	(0.117)	(0.116)
Constant	-21.80***	-18.82***	-21.68***	-18.55***	-21.87***	-18.26***
	(0.128)	(0.0904)	(0.189)	(0.122)	(0.300)	(0.316)
Shock FE	No	No	Yes	Yes	No	No
Month FE	No	No	No	No	Yes	Yes
Observations	762	871	762	871	762	871
Degrees of Freedom	3	3	7	7	27	32
F-Statistic	72867.6	43251.1	44969.5	167954.5	125162.0	650587.3

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

As described in Section 5, we identify the role of Parler's differentiated feature by leveraging external shocks which increased concerns of online censorship and therefore increased the salience of Parler's freedom feature. RDiT estimation results of such shocks are presented in Tables 4 & 5 which show results following heightened restrictions on COVID-19 related content and the moderation of the then sitting president's online posts by the dominant

platform. We find that following increased moderation of COVID-19 content, the proportion of new users multihoming on Parler increased by 10.0 to 11.7 percentage points. Table 1 indicates that prior to the policy change, the proportion of new users multihoming was 45%. Therefore, we find that increased moderation of COVID-19 content resulted in a 22% to 26% increase in multihoming. Likewise, Table 5 reveals a 6.8 to 7.5 percentage point increase in the proportion of new users multihoming following the labeling of Donald Trump's post as potential misinformation. This amounts to an additional 19.4% to 21.4% increase in multihoming on Parler. These results suggest that increased differentiation resulted in greater platform competition - as indicated in a greater proportion of users multihoming. Notably, these increases are due to increased differentiation and not due to increased generic awareness of the Parler microblogging platform.

Table 4: Effect of COVID-19 Policies on Multihoming User Adoption
(DV = $multihomingProp_t$; RDRobust and RDD with Newey-West correction)

Kernel	Triangular		Epanechnikov	
Model	RDRobust	Newey-West	RDRobust	Newey-West
RD_Estimate	0.0996***		0.117***	
	(0.0301)		(0.0327)	
Newey-West RD Estimate		0.0996**		0.117**
		(0.0301)		(0.0338)
L.New Singlehoming Adopters (log)		0.169		0.149
		(0.167)		(0.165)
L.New Multihoming Adopters (log)		-0.136		-0.102
		(0.182)		(0.181)
L.New Multihoming Proportion		0.968		0.750
		(0.928)		(0.924)
Constant		-0.393		-0.390
		(0.363)		(0.356)
Day of Week	Yes	Yes	Yes	Yes
Observations	503	79	503	65
Eff. Observations (Left)	39		32	
Eff. Observations (Right)	40		33	
Bandwidth(Left)	39.36		32.30	
Bandwidth (Right)	39.36		32.30	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Effect of the Labeling of Donald Trump on Multihoming User Adoption (DV = $multihomingProp_t$; RDRobust and RDD with Newey-West correction)

Kernel	Triangular		Epanechnikov	
Model	RDRobust	Newey-West	RDRobust	Newey-West
RD_Estimate	0.0677***		0.0754***	
	(0.0102)		(0.0121)	
Newey-West RD Estimate		0.0677**		0.0754
		(0.0182)		(0.0334)
L.New Singlehoming Adopters (log)		2.237		3.432
		(2.344)		(3.663)
L.New Multihoming Adopters (log)		-2.256		-3.459
		(2.354)		(3.679)
L.New Multihoming Proportion		9.868		14.74
		(10.00)		(15.67)
Constant		-4.323		-6.697
		(4.872)		(7.614)
Day of Week	Yes	Yes	Yes	Yes
Observations	81	21	81	17
Eff. Observations (Left)	10		8	
Eff. Observations (Right)	11		9	
Bandwidth(Left)	10.24		8.889	
Bandwidth (Right)	10.24		8.889	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

To demonstrate that multihoming increased due to greater differentiation rather than overall awareness, we estimated similar RDiT models on celebrity endorsements which prior research indicates were instrumental to Parler's rapid growth (Aliapoulios, Bevensee, Blackburn, Bradlyn, De Cristofaro, et al. 2021). Specifically, Table 6 demonstrates the role of Candance Owen's endorsement of the new platform while Table 7 shows the same for Dan Bongino's endorsement. Both tables indicate that multihoming did not increase following the shocks raising awareness of the Parler platform. In fact, it would appear that celebrity endorsements may have resulted in (weakly) lower multihoming.

Table 6: Effect of Candance Owens's Endorsement on Multihoming User Adoption (DV = $multihomingProp_t$; RDRobust)

	Candance RDRobust Tri	Candance RDRobust Epa
RD Estimate	-0.150**	-0.124
	(0.0563)	(0..0658)
Observations	514	514
Eff. Observations (Left)	19	19
Eff. Observations (Right)	25	26
Bandwidth(Left)	24.23	25.58
Bandwidth (Right)	24.23	25.58

Note Newey-West standard errors could not be computed due to sparcity in user adoption during the early months of Parler adoption
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7 Discussion

Our results indicate that there was substantial demand for Parler and its differentiated feature despite the existence of a dominant platform in the microblogging market. Further, we find that Parler expanded the market by bringing in new users and increased competition with the dominant platform by inducing multihoming from the dominant platform's users. Our results also suggest that Parler's growth may have become self-sustaining due to positive network effects which were strongest among users of the same type. Accordingly, it would appear that increased differentiation may have resulted in greater competition within the microblogging platform market. In other words, it appears that Parler's entry - and the associated introduction of the freedom feature - may have tipped the market away from a winner-take-all equilibrium towards a competitive multihoming equilibrium. However, we were not able to observe the long-term impact of Parler's offering on the microblogging platform market.

Following the January 6th, 2021 Capitol riots, industry commentators pointed to Parler's lack of content moderation as enabling the riots at the Capitol (Rondeaux et al. 2022) despite the platform's attempts to warn law enforcement of imminent riots (Benner 2021). Shortly thereafter, Parler was effectively removed from the internet by digital infrastructure

Table 7: Effect of Dan Bongino's Endorsement on Multihoming User Adoption (DV = $multihomingProp_t$; RDRobust and RDD with Newey-West correction)

Kernel	Triangular		Epanechnikov	
Model	RDRobust	Newey-West	RDRobust	Newey-West
RD_Estimate	0.0135		0.0171	
	(0.00968)		(0.0107)	
Newey-West RD Estimate		0.0135		0.0171
		(0.0136)		(0.0153)
L.New Singlehoming Adopters (log)		7.968		9.810
		(4.277)		(7.835)
L.New Multihoming Adopters (log)		-7.964		-9.810
		(4.279)		(7.840)
L.New Multihoming Proportion		32.74		40.17
		(17.23)		(31.58)
Constant		-15.90		-19.59
		(8.606)		(15.75)
Day of Week	Yes	Yes	Yes	Yes
Observations	229	43	229	37
Eff. Observations (Left)	21		18	
Eff. Observations (Right)	22		19	
Bandwidth(Left)	21.36		18.14	
Bandwidth (Right)	21.36		18.14	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

platforms (Yurieff et al. 2021). Citing requirements for content moderation, Google was the first to remove Parler from its app store (Peters 2021). Apple soon followed suit citing Parler's failure "to moderate and remove harmful or dangerous content" (Leswing 2021). Having only its web presence remaining, Amazon Web Services removed Parler from the internet when it also decided to stop providing hosting services to the troubled platform (Palmer 2021). As a result, Parler became a failed platform, not because of poor market positioning or lack of demand, but rather because other platforms considered its differentiated feature - lack of moderation - to go against their own moderation policies. Notably, however, larger platforms have recently started moving towards increased freedom on their own services.

Following Elon Musk's acquisition of Twitter, the dominant microblogging platform moved to reduce its use of content moderation (X Safety 2023). Likewise, other new

microblogging platforms (e.g., Mastodon) do not practice centralized content moderation (Mastodon 2023). Other social media platforms, meanwhile, have also adopted looser moderation policies, e.g., Meta (Kaplan 2025) and YouTube (Nix and Ellison 2023). This would seem to suggest that the industry is beginning to adopt Parler's differentiated feature due to consumer demand for more freedom. However, the rapid demise of Parler by infrastructure-providing platforms and the uptake of similar policies by platforms large enough to self-host raises challenging questions about competition in the presence of interconnected online services. On the one hand, infrastructure providing platforms allow upstarts to develop without the need for capital-intensive investments. However, these platforms' own policies may restrict the offerings of new upstarts. As a result, infrastructure-providing platforms may be able to exert substantial influence over other platforms which may compete against their own services (e.g., Google owns both Google Cloud and YouTube).

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