



Internet diffusion and regime type: Temporal patterns in technology adoption



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ABSTRACT

It is often assumed that the Internet would threaten the survival of authoritarian regimes. Accordingly, most country-comparative studies have identified a democracy advantage in Internet diffusion. This paper revisits these technology-centric assumptions by conceptualizing the adoption of the Internet as a dynamic phenomenon with multiple phases that unfold differently depending on the political system. It is argued theoretically, that initially, the Internet diffuses faster in democracies because of inherent innovation advantages. However, authoritarian regimes adopt the Internet at comparable rates when the economic benefits of the technology outweigh the democratization risks. Yearly cross-sectional regressions for the years 1996–2013 show that the relationship between regime type and Internet diffusion varies temporally as authoritarian regimes have caught up considerably. Since 2013, there are no significant differences between democracies and authoritarian regimes anymore and monarchies even outperform democracies.

1. Introduction

The Internet has been regarded as a “liberation technology” (Diamond, 2010) which facilitates the exchange of political information and the organization of collective action, thereby reducing asymmetries between citizens and states in political communication.¹ From this perspective, digital technologies threaten the survival of authoritarian regimes, which typically rely on centralized information control.² In line with this reasoning, the empirical literature on the adoption of the Internet mostly identified democracy advantages (Corrales & Westhoff, 2006; Guillén & Suárez, 2005; Milner, 2006). Yet phenomena like the booming Internet economy in China and the use of the web by approximately 30% of citizens in non-democratic countries (World Bank, 2015) contradict simplistic assumptions. While these phenomena have been recognized by conceptual works and case studies, the empirical literature on the adoption of the Internet by different political regimes has not taken recent developments into account.

This paper extends this research conceptually, methodologically and empirically. It argues that the relationship between regime type and Internet diffusion needs to be understood as a dynamic process. The superior innovative capacity of democracies leads to a faster adoption of digital technologies, however, when the economic value of digital technologies rises with economies of scale, it is rational for autocratic rulers to encourage their use in economy and society in order to enhance the output performance of the regime. Meanwhile, the democratization risks are countered by a mix of political, economic and technical means to control information flows on the web.

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¹ This paper is a revised chapter of a dissertation submitted to Heidelberg University (Stier, 2016).

² The terms authoritarian and autocratic are used synonymously in this article. The same applies to the terms Internet diffusion and Internet adoption.

To identify temporal variations in the relationship between regime type and Internet diffusion, this study implements cross-sectional regressions for the years from 1996 to 2013 taking relevant control variables into account. It is also the first paper to test the effects of authoritarian regime subtypes. A growing literature in comparative politics has demonstrated that different types of authoritarian rule influence outcomes in a wide range of policy fields (Croissant & Wurster, 2013). The empirical results show a temporal democracy advantage in Internet diffusion and a catching up by autocracies lead by monarchies which even outperform democracies in 2013.

The article first reviews the empirical literature on Internet adoption in Section 2. Section 3 develops the theoretical framework that concentrates on regime type as the most important explanatory variable, while Section 4 explains the research design of the paper. The empirical results are presented and discussed in Section 5, before Section 6 concludes.

2. Literature review

The adoption of Information and communication technologies (ICT) is a complex process at the intersections of governments, citizens and economic actors. The overarching political system determines the fundamental shape of these interexchanges and of economic activities in general. In the case of telecommunications policy, Internet service providers are dependent upon reliable regulation, state funding as well as the provision of public goods like public safety and the preservation of property rights in order to pursue their business models (Evans, 1995; Goldsmith & Wu, 2006; Milner, 2006). Internet diffusion is high when governments and economic stakeholders provide sufficient infrastructure and citizens are capable and willing to use these services.

There are multiple reasons why governments chose to encourage Internet use. Widespread use of digital technologies stimulates the economic performance of a country directly through applications like online banking and online commerce, but also indirectly by reducing transactions costs of myriad economic and communication processes. The emerging Internet economy itself stimulates new innovations and creates positive feedback loops. Thanks to economies of scale, the value of digital investments rises with an increasing number of users.³ Independent of regime type, national development in the 21st century is not feasible without embracing digital technologies.

The determinants of Internet diffusion have been the subject of country-comparative studies in a variety of disciplines.⁴ In terms of regime types, most studies applied a technology-centered approach, i.e. inherent properties of the Internet were related to the characteristics of different regime types. According to this perspective, the pluralism of democratic societies and economies is beneficial to the adoption of the web, while many facets of the decentralized medium run contrary to authoritarian strategies of information control and censorship (Corrales & Westhoff, 2006; Diamond, 2010; Guillén & Suárez, 2005; Norris, 2001). In an empirical test of this argument, Corrales and Westhoff (2006) found in panel regressions that democracies had a significantly higher Internet diffusion than autocracies. In contrast, the broadcasting medium television was used at equal rates in both regimes, which the authors credit to its value for authoritarian propaganda. Milner concurs in empirical analyses and relates the higher Internet use in democracies to the preferences of authoritarian elites: “Groups that believe they will lose from the Internet use political institutions to enact policies that block the spread of the Internet” (Milner, 2006, p. 176). Several other studies also identified a democracy advantage in ICT use (Beilock & Dimitrova, 2003; Crenshaw & Robison, 2006; Fuchs, 2008; Guillén & Suárez, 2005; Gulati & Yates, 2012).⁵ Taken together, the democracy advantage is robust across a variety of research designs including cross-sectional and panel regressions as well as diverging observation periods.

Yet to the best knowledge of the author, no comparative study of Internet diffusion in different political regimes has incorporated data from the late 2000s and early 2010s. It is possible that this research topic is perceived as settled after the consolidation of previous results in the literature.⁶ While none of these works claims that the democracy advantage should last forever, discussions of the potential benefits of digital technologies for authoritarian rulers are rare. Notably, Corrales and Westhoff (2006) demonstrate that market-oriented, richer autocracies have a higher Internet diffusion. An inter-autocratic comparison recently showed that regimes with a stricter information control in the offline world have the highest Internet use while the level of democratization does not reach statistical significance (Rød & Weidmann, 2015). Furthermore, a growing number of conceptual works and case studies recognizes that autocracies incorporate ICT in the very functioning of their regimes (e.g. Kalathil & Boas, 2003; Morozov, 2011). In light of this reorientation, the previously discussed empirical literature on telecommunications policy seems outdated. Theoretical and empirical models of Internet diffusion should be open to temporal changes in causal mechanisms. The present study argues that differences between political regimes can be explained to a large extent by temporal patterns of technological innovation and technology modification.

3. Theoretical framework

In order to elaborate on the relationship between regime type and Internet adoption, one has to first define the boundaries between regimes. Following Magaloni et al. (2013), the presence of the following conditions defines a polity as democratic:

“(1) A civilian government (as opposed to military or royal court) provides the main source of policy making; (2) Political leaders

³ In the Internet economy, economies of scale are called network effects.

⁴ The literature review only captures studies that included political variables.

⁵ Hargittai (1999) and Norris (2001) report diverging results. In their cross-sectional models explaining Internet diffusion in the years 1998 and 2000, respectively, economic variables dominate political factors.

⁶ Corrales and Westhoff (2006), Guillén and Suárez (2005) and Milner (2006) have accumulated more than 500 citations on Google Scholar (as of April 2016).

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