

The case study in telecommunications policy research

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Abstract

Purpose – *The purpose of this paper is to examine the use of case studies in telecommunications policy research (TPR) and to compare and contrast usage with management, management information systems (MIS) and policy analysis.*

Design/methodology/approach – *This paper conducts a comparative analysis that examines the methodologies used to design and select case studies and the various theories used in their analysis.*

Findings – *The most sophisticated use of case studies is in management information systems (MIS), distinguishing critical realism, interpretivism and positivism to build theories. In policy analysis and TPR, theories are used to explain case studies, which are chosen as interesting sets of phenomena, rather than as means to extend, falsify or verify theories.*

Research limitations/implications – *Researchers in telecommunications policy should consider the approaches taken in MIS to determine whether they might improve their rigor. There is also scope for meta-analyses of the existing pool of case studies.*

Originality/value – *This appears to be the first article examining the use of case studies in TPR.*

Keywords *Methodology, Case study, Telecommunications*

Paper type *Conceptual paper*

Introduction

Cases studies are commonly used in telecommunications policy research (TPR), though the methodology is seldom discussed or reflected on, being treated with implicit pragmatism. One attraction of single or “small-N” studies is that a larger scale may be neither straightforward to conduct nor replicable over geography or over time, given that markets and technologies are constantly changing, and that countries vary in their adaptations of the evolving global best practice package of institutional designs, legislation, policies and regulations. The case study method was borrowed from the social sciences, where it is used to build theories and to teach practice, whereas in TPR, its use is limited to the description and exploration of markets, policies and regulations, only very rarely being used to build or to test theories.

While Yin (2003, 2014) has set out in considerable detail how case studies can be prepared, he does not provide links to theories, a challenge left to researchers, who must draw on their own disciplines and the objectives of their specific projects. Rohlifing (2012) distinguishes two types of case study:

1. Case-centered:

- theory is used to formulate a comprehensive explanation of a single case;
- insights are not used for the advancement of general theory; and
- Explanations are not generalized to other cases.

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2. Theory-centered:

- contributing to the advancement of general theory, sub-divided into:
 - Exploratory (or pilot);
 - Descriptive; and
 - Explanatory.

A research case study involves the intensive examination of a single unit, typically with a view to understanding a class of such units. The methodology is an ideal type, rather than a rigid set of rules, which can draw on a wide variety of sources, including:

- Archives;
- Ethnographies;
- Interviews;
- Observations; and
- Survey data.

The “fuzziness” of its definition makes the case study attractive in the exploratory stages of research, when a single setting or a very small number of settings can be used to develop and test hypotheses, albeit in a rough and ready fashion. At the outset, researchers need to be able to set aside preconceived notions to avoid finding what and only what they are looking for.

A single-unit case necessarily fails to “represent” the relationships that can be examined in the larger set of units that have yet to be studied. The rejection by many researchers of generalizations from a single instance to the larger set has cast a long shadow over the use of the case study in the social sciences, despite having been central to the work of, for example, Durkheim, Freud and Marx. [Ruddin \(2006\)](#) goes back to Aristotle and Plato[1], considering what can and cannot be inferred from single instances, arguing that the problem has been the absence of agreed rules for the drawing of inferences, which are necessary for the wider acceptance of generalizations drawn from case studies.

[Gerring \(2004\)](#) describes the place of the case study in political science as “vexed”, being viewed skeptically by methodologists, though widely used in practice, perhaps most famously in the analysis of the Cuban missile crisis ([Allison, 1971](#)). More prosaically, [Flyvbjerg \(2006\)](#) examined the use of case studies in urban planning, drawing attention to five common misunderstandings about the problem of generalization:

1. General, theoretical (context-independent) knowledge is more valuable than concrete, practical (context-dependent) knowledge.
2. One cannot generalize on the basis of an individual case; therefore, the case study cannot contribute to scientific development.
3. The case study is most useful for generating hypotheses, that is, in the first stage of a total research process, whereas other methods are more suitable for hypothesis testing and theory building.
4. The case study contains a bias toward verification, that is, a tendency to confirm the researcher’s preconceived notions.
5. It is often difficult to summarize and develop general propositions and theories on the basis of specific case studies.

Each of these he dismisses in turn; for example, for the fourth, he shows that the case study methodology contains “no greater bias” than other methods toward verification – rather it is more biased toward falsification. This is a test formalized by [Popper \(1959\)](#), in which the physical sciences require the existence of propositions for which there might be

observations that would disprove them. A classic, if trivial, example was the discovery of black swans in Australia, which disproved the proposition that all swans were white. Cases of the “most likely” type are considered suited to the falsification of a proposition, whereas “least likely” cases can verify a proposition.

In TPR, an obvious alternative to case studies is the use of quantitative techniques, allowing analyses of the larger sets of instances[2]. A significant problem is that the quality of the data is often weak, with inconsistencies from country to country and from year to year, while some data sets are proprietary, making replicability difficult and expensive or even impossible (Hausman and Ros, 2012). Considerable reliance is placed on data from the International Telecommunication Union (ITU)[3], where enormous efforts are made to collect and publish consistent data, but with limited success, as many governments are not able to collect accurate and timely data (ITU, 2015), leading to estimates and interpolations that do not match national statistics. One problem among many is how to convert data from mobile operators reporting the number of active SIM cards into real and distinct humans, rather than, say, hot water boilers, anti-theft tracking systems in cars or drug dealers treating them as one-time-use items[4]. There has often been more emphasis on techniques for the “crunching” of numbers than on verifying the underlying data. There are few truly large samples and fewer consistent surveys, with exceptions such as Eurostat, OECD, Pew Research and Research ICT Africa (RIA). Some countries are still reliant on decennial census data, with some supplementary data from household surveys. A potential source of data has been overlooked within TPR, which has been the failure to build open databases containing regulatory decisions, licenses and ownership details. An exception was Song (2015), who placed network mapping data on GITHUB. The ITU (2014) tried to build a database of national laws and regulations, but found it was unable to authenticate and especially maintain the data sets, which were published in PDF files rather than open data formats, making it unnecessarily difficult to use.

The next section examines the use of case studies in policy analysis. This is followed by an analysis of the use of case studies in management research, especially in management information systems (MIS). Then, there is an analysis of their use in telecommunications and communications policy research. This is followed by examination of the recent case studies of corruption in the telecommunications sector. Finally, conclusions are drawn and issues identified for further research.

Policy analysis

The analysis of public policy dates from the 1940s. It is a multi-disciplinary area of research not only closely related to and drawing on both political science and public administration, but also borrowing from anthropology, economics, history, operational research and sociology (Deleon, 2006). Policy analysis examines how decisions that affect communities of different sizes are prepared and executed and how options are identified and choices made, together with the consequences of those choices. It is possible to distinguish between (Thissen and Walker, 2013):

- *ex ante* policy analysis (or policy development);
- policy-making (or policy studies); and
- *ex post* policy analysis.

Case studies are commonly used in teaching policy analysis to explore practical examples and the difficulties of resolving conflicting claims and interests, providing students with enough background on the policy issue and the participants, but without so much detail as to obscure the dilemmas (Velenchika, 1995). On the one hand, case studies can be taught using the rational, quantitative analyses drawn from welfare economics, with its positivist rigor, or, on the other hand, using a political approach, such as the stages model of policy development (Table I). In the 1990s, there was a dispute between two approaches to policy analysis:

Table I The continuous policy cycle

| <i>Agenda setting</i> | <i>Identifying, defining and prioritizing problems that require the attention of government</i> |
|---|---|
| Policy formulation | Setting objectives, identifying the cost and estimating the effect of solutions, choosing from a list of solutions and selecting policy instruments |
| Legitimation | Ensuring that the chosen policy instruments have support, including approval by government and parliament, seeking consent through consultation with interest groups and referenda |
| Implementation | Establishing or employing an organization to implement the policy, ensuring it has the necessary resources (e.g. finance, staff and legal authority) to do so and ensuring that policy decisions are carried out as planned |
| Evaluation | Assessing the extent to which the policy was successful or the policy decision was the correct one; if it was implemented correctly and, if so, had the desired effect |
| Policy maintenance, succession or termination | Considering whether the policy should be continued, modified or discontinued |

Source: Foster *et al* (2010)

1. positivists (microeconomics, quantitative methods and rationality); and
2. post-positivists (political science, power, language and the social construction of reality).

A particular concern of the latter group was to increase the roles of citizens in the definition of problems, the generation of alternative solutions and the selection and implementation of the policy (Fischer, 1992). The disagreements were largely resolved by combining the two approaches (Hajer, 2003), with students encouraged to synthesize them into workable and practical models of applied policy analysis.

Case studies are used relatively casually in policy analysis, with examples chosen without reporting a selection methodology, often being driven by events, then tested using a variety of theories selected to aid the analysis and explanation of the particular policy decision and its outcomes (Table II).

Unlike in the social sciences, including the closely allied political science, the use of case studies in policy analysis is for description, explanation and teaching, rather than the extension, falsification or refinement of theories. The choice and design of case studies is not based on a particular methodology, but rather on interesting phenomena and immediate concerns, drawn from the wide field of policies being or recently implemented, that are then matched with one or two theories considered to be appropriate, to explain the policy processes and their outcomes. There is only limited feedback into social science theory.

Management research

The use of case studies in management teaching is forever linked to the Harvard Business School, and is a major component of instruction in all business schools, making their preparation a vital activity (Christensen, 1987). The use of case studies in research has been more equivocal and subject to changing fashions, despite many seminal insights and well-established methodologies, with variations between sub-disciplines.

Eisenhardt developed roadmaps to help in the building of management theories using case studies (Eisenhardt, 1989; Eisenhardt and Graebner, 2007)[5]. Her focus was on the dynamics of single settings, chosen for their theoretical rather than their statistical significance, with multiple levels of analysis and with a view to the replication or extension of previous work (e.g. the addition of new categories). Given the small number of cases

Table II Examples of case studies in policy development

| <i>Subject</i> | <i>Description</i> | <i>Theories</i> |
|--------------------------|---|--|
| National security policy | The influence of policy entrepreneurs on the national security policy of the Geo. W. Bush administration, concerning the invasion of Iraq and the legal redefinition of torture (David, 2015) | Policy entrepreneurs |
| Deepwater horizon | An exploration of five themes of contingent coordination in the responses to the explosion in April 2010, involving personnel from various organizations (McNamara <i>et al.</i> , 2014) | Network theory. Public management theory |
| Foreign aid | A review and evaluation of official development assistance (ODA) (Dobransky, 2014) | Regime theory |
| Ghana | An analysis of the relationships between the rule of law, development and democratization (Beal and Graham, 2014) | Dependency theory. Modernization theory |
| Energy policy | Three exploratory case studies examining the relationships between national politics and policies in the energy sector (Khodr and Ruble, 2013) | Comparative politics |
| Policy gridlock | A failure to implement 'green growth' policies, despite an apparent consensus in their favor (Heo, 2013) | Veto player theory |
| Gender mainstreaming | Five national approaches, identifying factors inhibiting and promoting gender mainstreaming (Hankivsky, 2013) | Feminist theory |

being studied, which often reflected limited resources and the richness of the material, she argued for the selection of "polar" opposites (i.e. very high and very low performing examples) to more easily observe contrasting patterns. She attacked the myths built up around theory building from case studies, in particular about verification, the claims that theories were limited by the preconceptions of the investigators. She insisted the opposite was true, that the juxtaposition of conflicting realities unfreezes thinking, allowing a theory to be formed with less bias than with desk research or deduction from axioms. Because the theories from case studies were embedded in empirical data, she considered them more likely to be relevant and testable.

Building a management theory from case studies is seen as an iterative process, adding cases that confirm or falsify hypotheses, altering and adding data collection methods to improve and deepen the understanding of the material, and checking against prior research. A significant danger is of being overwhelmed by the collection of too much data. The final products are expected to be fresh insights, such as:

- a conceptual framework;
- concepts;
- propositions;
- a theory; or
- no clear pattern.

A significant challenge lies in writing up the case study. Authors are required to be sufficiently critical to convince, first, peer reviewers and, then, readers that the research question is important and interesting, and to demonstrate that existing research fails or fails adequately to address that question.

Where the research is in response to new phenomena, then the questions need to be framed in terms of their importance and the lack of a plausible existing theory. A key challenge is to show that the purpose is to develop theory, rather than to test it, and consequently, that theoretical sampling is appropriate, rather than random or stratified

sampling, selecting cases that illuminate and extend relationships and the logic of the theory.

Gibbert *et al.* (2008) examined all 159 case studies published between 1995 and 2000 in ten leading management journals. They confirmed four key considerations for case studies (Table III) in these articles and that their importance had been recognized by the authors, reflecting a “market” for such papers in leading journals, always provided they had demonstrated sufficient rigor. Tsang (2013) argued that a problem in management research was the focus on generalizability, explaining that case studies had advantages over quantitative research, notably in falsification.

A review of 135 case study-based articles in 4 international business journals, from 1995 to 2005 found that the convention was to be exploratory and to use interviews in several corporations, with underlying positivistic assumptions (Piekkari *et al.*, 2009). This narrow approach was developed during an earlier period and had become established within the international business sub-discipline, without discussion of its limits, which potentially precludes alternative approaches. The increasing number of firms in published case studies appeared to be at the expense of the variety and depth in data sources and temporal boundaries.

While the field of MIS is closely allied to management research, arguably a sub-discipline, it has its own, parallel and more intensely philosophical debate on case study methodologies. In an early overview, Lee (1989) reported an already substantial literature, in which researchers were “attempting to clarify the methodological basis upon which to conduct case studies”. He distinguished building and testing theories, the latter based on a positivist model from the physical sciences, which could be used to generalize theories about MIS. Keutel *et al.* (2013) reviewed 327 articles that used case studies, between 2001 and 2010, in (only) 6 major MIS journals, accounting for one quarter of their published empirical research. While positivism had been historically dominant, interpretivism was drawing level, supplemented by a few instances of critical research (Table IV).

Keutel *et al.* (2013) called for “mindful” research, in which approaches to the use of case studies would be carefully devised to pursue particular paths, rather than following tradition. Given the diversity of potential approaches to preparing case studies, the recycling of established approaches risked carrying forward undisclosed assumptions and

Table III Criteria for a researcher preparing a case study applying positivism

| <i>Criterion</i> | <i>Requirement</i> |
|------------------------------|---|
| Internal or logical validity | The causal relationships between the variables and the results must be sufficiently compelling to justify the conclusions. It should include a research framework, pattern matching and theory triangulation |
| Construct validity | Ensuring an investigation that leads to an accurate observation of reality, avoiding subjective judgments. It should show a clear chain of evidence, allowing reconstruction of the reasoning from research questions to conclusions, with examination of the phenomena from different data sources |
| External validity | The analytical (rather than statistical) generalizability from empirical observation to theory, rather than to a population. Theories must account for phenomena not only in the setting in which they are studied. A clear rationale should be provided for the selection of the case study and sufficient details to make clear the reasoning of its choice |
| Reliability | The transparency and replicability of the processes, enabling other researchers to arrive at the same insights, for example, the notes made and documents collected, organized for subsequent retrieval |

Source: Gibbert *et al.* (2008)

Table IV Approaches to case studies in management information systems research

| | |
|---|--|
| Positivism | The predominant philosophical paradigm in MIS case studies. It is based on beliefs about the natural sciences, in which an objective reality exists independently from the observer, which can be understood by identifying unidirectional cause-effect relations and rules not bounded in context and time |
| Interpretivism (Walsham, 2006) | Reality is seen as a socially constructed product, built on hermeneutics and phenomenology (Cole and Avison, 2007). Consequently, the understanding of phenomena is driven by the meanings that people assign to them. Validity is not achieved by the verification of the correct answer, but convincing the reader that a believable story has been told |
| Critical research (Wynn and Williams, 2012) | Aims to understand and to explain phenomena, and to challenge established social structures and control in organizations and society, investigating and questioning the roles of MIS. Taking explicit value positions and, therefore, it considers moral and normative and ethical concerns |

aims, even of perpetuating flawed research methodologies. They argued that case studies should be used to test theories and for researchers to provide the rationales for their choice of cases and of their design. Rather than a “cookie cutter” approach, they called for more innovative research that was more explicitly reasoned in its approach to the use of case studies.

Building theories from case studies is widely practiced in management research, both to test and to extend theories, though there remains doubt and criticism. Those working in MIS have incorporated sophisticated approaches from the philosophy of science and the social sciences to ensure the validity of their work. The resulting theories depend not on the typicality or representativeness of the cases, but on the cogency of the reasoning.

Telecommunications policy research

TPR is a distinct interdisciplinary area of research that emerged in the 1970s in response to liberalization of the telecommunications sector (Pool, 1974; Day, 1976). The relatively frequent use of case studies is primarily for policy analysis, to examine and explain phenomena such as novel institutions, legislation, policies and regulations, both *ex ante* and *ex post*, but with very little development of theory. The underlying economic theory of contestable markets has remained largely unchanged (Baumol *et al.*, 1982), though there has been some progress on two-sided markets (Economides and Tåg, 2012; Genakos and Valletti, 2012), whereas the metaphor of the ladder of investment for broadband has not been developed into a theory (Cave, 2006).

One approach has been through books of national case studies, for example, a series by (Noam, 1992, 1997, 1998, 1999) (Noam *et al.*, 1994) about different continents. More recently, there have been volumes on broadband, presenting national case studies (Jordan *et al.*, 2013; Lemstra and Melody, 2014). Table V shows examples of case studies from the journal *Telecommunications Policy*. These very rarely cite works on the design of case studies, let alone the underlying philosophies, instead offering narrative accounts of specific phenomena, and while they may draw on theories from the social sciences to aid explanation, they seldom make contributions back to those disciplines and their theories.

Case studies are also used in communications and media policy (Table VI), taking a broadly similar approach to TPR. This is slightly surprising, as it has a broader, more inclusive and more theoretical research paradigm than TPR, which has a hegemonic paradigm, one that emphasizes relevance and immediacy over theoretical rigor.

Table V Case studies in the journal *Telecommunications Policy*

| Topic | Description | Methodology |
|----------------------------------|---|--|
| Wi-Fi | The rise of the IEEE 802.11 standard to "market dominance" (van de Kaa and de Bruijn, 2015) | Case study (citing Yin). Platform wars. Network effects. Networked governance |
| Smart cities | Mobile digital services in several smart cities, to identify divergent strategies. Validation of a theoretical framework. (Walravens, 2015) | Smart city. Industry cluster. Business model |
| Network neutrality | Korea and the USA (Shin, 2014) | Broadband ecosystem. Multi-method approach |
| Female policy-makers | In-depth explorations of contributions of three leading women to policy- and rule-making in the USA (Phalen <i>et al.</i> , 2014) | Feminism |
| Universal service | Comparative case study (Jayakar and Liu, 2014) | Policy analysis. State legitimation |
| Development of 3G standards | Longitudinal account of the roles of the Chinese government in the development of TD-SCDMA, as part of its "catching up" strategy (Gao <i>et al.</i> , 2014) | Narrative with inductive reasoning (citing Walsham, a leading MIS interpretivist) |
| Rural telecentres | ICT adoption in rural telecentres in Iran (Moghaddam and Khatoon-Abadi, 2013) ^a | Theory of reasoned action (TRA) |
| Disruptive technologies | Three major mobile operators in Germany responding to Wi-Fi services (Madjdi and Hüsigg, 2011) | Disruptive technology theory |
| Privatization | Longitudinal account of privatization of KT (Korea Telecom), from 1987 to completion in 2002 (Jin, 2006) | Historical approach focusing on economics and policies |
| Rural and remote ICTs | Interrelationships between policy, organizational, community and technological dimensions examined through three case studies (Ramírez, 2001). A hypothesis was developed on the role of mediating organizations | Grounded theory for case studies. Integrating systems thinking, soft systems methodology and participatory action-research |
| Innovation and standardization | The relationship between technical innovations and standardization in mobile telecommunications, from which the implications for an optimal role for standardization in innovation processes (Kano, 2000) | None given |
| CATV | Treatment of digital conditional access (CA) systems in the 1995 EU Advanced Television Standards Directive (95/47/EC) (Levy, 1997) | None given |
| Government-business partnerships | An examination of the planning and implementation of direct broadcast satellite (DBS) communications in Japan (Gershon and Kanayama, 1995) | None given |

Note: ^aThis paper is very poorly written and difficult to read

There is limited evidence of the accumulation of knowledge about the ways to prepare case studies in TPR and to use them to develop theory, falling far short of the purposive research called for by Keutel *et al.* (2013). Moreover, there does not appear to have been research to show the relevance of case studies in TPR, that they are being developed in response to the needs of policy-makers, or that use is being made of the case studies in policy analysis. In terms of the borrowed theories, there are very few instances of falsification or extension, largely because TPR has limited engagement with theory.

Corrupt dealing in telecommunications

Info has recently published case studies on corruption in the telecommunications sector, an appropriate methodology, given that it had not been predicted and that little was known about the nature of such activities, requiring an exploratory and inductive research

Table VI Case studies in the journal media, culture and society

| <i>Subject</i> | <i>Description</i> | <i>Methodology</i> |
|---|---|---|
| Bootlegging | Examination of one area of piracy–bootlegging–and its possible effects on the “official” music industry (Marshall, 2004) | None |
| National identity | Examines the social construction of minorities through coverage of the Kurds by Turkey’s biggest daily newspaper, <i>Hürriyet</i> (Sezgin and Wall, 2005) | Discourse analysis |
| Radio station licensing | Two radio stations battling first for the same license and, then, when a second license was issued, for the same listeners and advertisers (Enli and Sundet, 2007) | Field theory (Bourdieu) and reflexive sociology |
| Gender | Seeking patterns in the quantitative representation of females and males present in the thumbnail images accompanying BBC News headlines (Cullity and Younger, 2009) | Content analysis |
| Corporate governance | The ownership and administration structure of Chinese television in the wake of market capitalization (Zhong, 2010) | None |
| Fans subtitling <i>anime</i> | The nature and implications of fan-translation and distribution of cultural commodities through English “fansubbing” of <i>anime</i> (Lee, 2011) | None |
| Workers TV cooperative | Examination of Migrant Workers’ Television (MWTV) in Korea, exploring relationships between migration, media and class (Lee, 2012) | None |
| Mobile phone status Mobility in Africa | An online survey of mobile phone use (Chuma, 2014) Qualitative research into the relationship between mobility and the new technologies when communicating in marginal zones in Africa (de Bruijn, 2014) | Focus group and surveys Ethnographic action research |

strategy. The collection of detailed actions by manufacturers, operators, politicians and governments allowed the processes they used to be explored, illustrating how legislation, licensing and policies had been abused. They have pointed to areas for further research in TPR, in policy analysis and in the management of firms, as well as to a range of omissions in best practice for institutions, legislation and policies.

A secondary reason for using case studies was that the subject does not lend itself to surveys or interviews, as individuals have good reasons not to disclose their activities or even their views, given its illegality. The famous Corruption Perceptions Index (CPI) has been subject to criticism, precisely because it measures perceptions, which reflect popular knowledge of prior instances of corruption (Andersson and Heywood, 2009; Olken, 2009; Heywood and Rose, 2014). Additionally, there was the suspicion that the subject might have been intentionally ignored by researchers, governments and inter-governmental bodies (Blackman, 2012).

As de Graaf and Huberts (2008) noted:

Quantitative research does not seem to tell the whole story about the nature of corruption; it necessarily ignores the characteristics and details of the context of each corruption case. Quantitative research cannot account for contingency, which is so important for social research – especially corruption research – because of the complexity of the phenomenon of corruption.

The contingencies in the telecommunications cases proved complex. Moreover, quantitative approaches are unlikely to generate clear policy advice, which was a primary objective of these studies, with a view to reducing corruption in the sector.

The World Bank undertook a quantitative analysis of corruption across all types of infrastructure investment and maintenance was estimated at USD 18 billion per annum, whether to obtain connections, to win contracts or to change policies (Kenny, 2006)[6].

Statistical analyses are difficult, as the available measures are only “very weak proxies” for the extent of the corruption, especially grand corruption. The economic damage of a corrupt act is not dependent on the size of the payment, as it might deliver a project at the planned quality but at an inflated price, which would be less damaging than another bribe of the same size that delivers lower quality or a less economically beneficial project. Disentangling different types of failures of governance is, at best, a difficult exercise. The CPI was found to be a lagging, rather than a leading, indicator and a poor proxy for corruption in infrastructure, which made it less useful in policy formulation and investment decision-making (Kenny, 2009).

In the 1990s, expanding mobile operator groups entering markets with corruption were seen as opting for non-equity investments (Uhlenbruck *et al.*, 2006), but very soon thereafter the large groups took equity stakes (e.g. Celtel, Etisalat, MTN, TeliaSonera and Vodafone). A study relating the growth of mobile teledensities in 2002 with the rule of law (Candeub *et al.*, 2009) was problematic, given the uncertainty over the accuracy of teledensities in any one year and the difficulties in excluding other factors (e.g. new licenses and technologies). The protection of private contracts and property rights were found to be unrelated to growth, whereas there were positive correlations for regulatory policies (e.g. lighter import controls and restrictions on foreign ownership) and negative correlations for corruption and state capture.

The documentary sources on corruption are necessarily limited, as record keeping is not advisable in criminal endeavors. Nonetheless, elements of deals are to be found in press releases and newspaper stories, in financial reports and in the sometimes dangerous work of investigative journalists. Some material came to light through the United Nations Security Council, civil litigation and prosecutions, notably in the USA. The last of these, while often revealing, is weak on corporate motivations, with firms opting for deferred prosecution agreements, avoiding the cross-examination of witnesses in court.

The case studies of corruption in the telecommunications sector were unpredicted by prior research. The corruption might have been identified by ethnographic studies with consultants, managers and officials in developing countries, both nationals and those working for the IFIs, or they might have been suggested had a more comprehensive model of governance been used, one that included corruption and looked for its direct and indirect effects, for example, through statistical analyses. Opponents of neoliberalism might have complained about the corruption, had they not, largely, been excluded from or co-opted into TPR. The case studies also identified a broader methodological problem, the possibility of there being other “unknown unknowns”, factors that have yet to be considered, whereas further instances of corruption are now “known unknowns”.

Conclusion

The simplistic and unreflective defense of the use of case studies in TPR would be tradition, though such a default methodology is probably indefensible. It could be argued that the aim was exploration to point the way to further work, though there is suspiciously little evidence that case studies are built upon, being very rarely used to develop theories and only infrequently referred to in other case studies. The vast majority are explanatory and pedagogical, concerning legal, market, policy or regulatory phenomena, examining events, singly or comparatively. There is limited evidence that they are taken up by and found to be useful by practitioners. Taken together, this suggests that the knowledge obtained by researchers is not being accumulated, which is wasteful and hinders progress.

One significant omission is a class of wider case study that surveys a national politico-regulatory system, as is seen in the occasional reviews of regulatory reforms by the OECD (2003), the preference being for a more piecemeal approach. There have neither

been meta-analyses that pull together the results of groups of case studies, nor is there evidence that the case studies feed into quantitative research.

There has been little effort to develop a unified approach to the production of case studies in TPR, leaving unchallenged the implicit use of positivism. Those working in MIS are much more sophisticated, with substantial studies on each of critical realist, interpretivist and positivist approaches and active disputes over their respective merits. Given the similarities with TPR, there are lessons to be learned from the more philosophical approach, notably in endeavoring to follow the call from Keutel *et al.* (2013) for explanations of the approaches being taken by individual researchers. The challenge for the telecommunications policy researcher is to explain the selection of the theory or theories to be used in the analysis, and the spatial and temporal limits of the case study. This requires a careful and critical examination of the theories, of their applicability and weaknesses, and consideration of the approaches of critical realism, interpretivism and positivism. If the aim is limited to explanation or to policy recommendations, then the overheads of a theory-centered case methodology can be pared back, but cannot be entirely eliminated.

There is scope for further research in several areas, notably in collecting published and unpublished case studies, perhaps in a repository, and subjecting them to meta-analyses. A more general examination of relevance and rigor in TPR would be very useful, in particular a comparison with MIS, a discipline with which there is much in common (e.g. rapidly advancing technology, often in “bandwagons”). The results from TPR cases might usefully be reconsidered for extension of theories borrowed from other disciplines.

Notes

1. For example, in his *Politics*, Aristotle draws general conclusions from the constitutions of a small number of Greek city states.
2. See, for example, Madden and Coble-Neal (2004), Koutroumpis (2009) and Gruber and Koutroumpis (2011).
3. The source, although the ITU, is sometimes cited as United Nations or World Bank, which reproduce its data.
4. As approximation requires surveys of customers in each country or geographic zone to determine patterns of their ownership of multiple SIM cards and of companies that install SIM cards in smart meters, car location systems and the like. See Sutherland (2007) and GSMA Intelligence (2014).
5. Google Scholar reports the earlier paper has in excess of 30,000 citations.
6. Evidence of petty corruption was captured by the Business Environment and Enterprise Performance Survey (BEEPS).

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