

Latin American Federative Variables for ICT and Development Research: A Comparison between Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, and Venezuela

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Abstract

From the perspective of the information revolution and based on the methodology put forward by the Telecommunications Law Indicators for Comparative Studies (TLICS) Model published in 2011 and 2012, this paper builds on the federative indicator used by the literature on dependence of economic development on ICT to answer the following research question: What indicators better represent the institutional federative background of eight representative Latin American countries for the ICT comparative research? Six sets of federative indicators on revenue, fiscal transfer, regulation, adjudication, planning, and media are put together to compare the Latin American federative environment as a groundwork for the ICT comparative research. The empirical universe of the paper encompassed eight countries that formed a potpourri of four officially unitary countries—Chile, Colombia, Peru, and Uruguay—, and four federative countries—Argentina, Brazil, Mexico, and Venezuela—, that account for 82% of the Latin American surface area, 81% of its population, and 92% of its GNI (World Bank Data 2011). The article is organized in three main parts. A detailed description of the ICT federative indicators of the TLICS model and their underpinning concepts is performed in the first part. The second part applies these variables to the aforementioned Latin American countries. The third part delves into the comparison of the countries analyzed by means of categorizing the differences and commonalities revealed by those indicators. As a main outcome, based on data collected from the institutional background of those countries, we found clusters of commonalities between federative and non-federative countries that support the assumption that the sole reference to a single federative category, as opposed to the use of

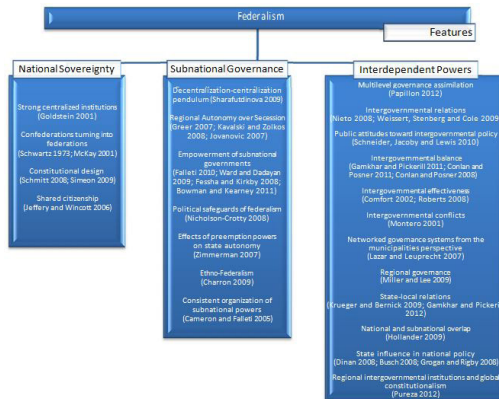
atomized indicators, cannot provide a real picture of their institutional background for ICT and development comparative purposes.

KEYWORDS: comparative regulatory models; federalism; Latin America; Telecommunications Law Indicators for Comparative Studies (TLICS Model).

The three features of Federalism

Besides the practical importance of the federal ideal to deal with multicultural and multi-national polities that answers for some 40 percent¹ of the world’s population (Watts 2002), materializing the prophetic Proudhon’s *age of federations*², and the third globalization wave of legal thought (Kennedy 2006), a variety of federalism facets have been built alongside social sciences analyses on state, power, and legitimacy. It is also well-known that federalism comes in many varieties and contexts (Anderson 2008). In the last decade, the literature on federalism has investigated a plethora of federative features portrayed in Table 1 below, which shows three main characteristics of federalism: (i) national sovereignty; (ii) institutionalized and autonomous subnational governance; (iii) national and subnational mutually dependent powers.

Table 1: Last decade literature review on federalism main features



1 That percentage is deduced by Watts (2002) taking account of such examples as Canada, the United States and Mexico in North America, Brazil, Venezuela and Argentina in South America, Switzerland, Germany, Austria, Belgium and Spain in Europe, Russia in Europe and Asia, Australia, India, Pakistan and Malaysia in Asia, and Nigeria, Ethiopia, and South Africa in Africa.

2 The reference in the text points to the well-known assertion that “the twentieth century will open the age of federations, or else humanity will undergo another purgatory of a thousand years” (Proudhon 1863, 68–69)

Among the studies that describe federalism as recognition of the Union's central institutions, Goldstein (2001) examines the evolution of legitimacy and authority for centralized institutions in the European Union by contrasting the broad acceptance of the European Court of Justice decision-making power with the not so smooth development of federal institutions in the sixteenth century experience of the United Dutch provinces, the pre-Civil War experience in the United States, and the post-1848 experience of the Swiss Federation. According to that study, the existence of strong centralized institutions and the lack of a long-term history of subnational resistance in the European Union, as opposed to the cases of the U.S., Switzerland, and Netherlands, qualify the European Union experience as an exceptional success of federative enterprise. Historical analyses on integrity and sub-units resistance to a central power are not unusual. McKay (2001) argues that the European Union reproduces a common pattern of confederations turning into federations. From his point of view, that common heritage makes the U.S., Switzerland, and Canada experiences important benchmarks for the analysis of the European Union federal system. Goldstein and McKay put forward a perception of federal systems previously described in classics, such as the well-known constitutional history of Bernard Schwartz (1973) on the process of reshaping the American Constitution in the period between 1835 and 1877. He posits that the American federation was finally stabilized as a new Constitution emerged from the Civil War and the Reconstruction years. The amendments thereof provided for basic new rights and, most and foremost, for their federalization, as enforcement of civil rights would then also become a Union function. The U.S. would finally become a nation, instead of a mere confederation, only after federal predominance asserts itself over state traditional functions. Schwartz reaffirms the classical view on federalism, which lies on a strong bond between the subnational juridical entities and the national identity. The classical literature on the concept of federalism defines it as a set of political and juridical principles in opposition to the concept of international alliance or confederation (Schmitt 2008, 381–395, Karmis and Norman 2005). Confederation is perceived as a contractual relation that obligates a state to go to war in a particular instance without interfering with its political status and its constitution, while federation lies upon the concept of federal state as a *public law subject* dependent upon a public law constitution derived from the constitution-making power. That bond is, by definition, a constitutional one. Simeon (2009), for example, addresses the adoption of federal or federalist regimes by way of reviewing models of successful federative experiences and their constitutional design and constitution-making processes. His focus on formal institutional changes reveals the effects of informal processes on the functioning of federal systems, such as legal and regulatory underpinning values, interpretations of the constitution by the courts, intergovernmental accords, agreements, and concordats, changes in party systems and alliances, and changes in fiscal arrangements. Non-constitutional renewals may reshape a given country's federal framework when formal constitutional reform proves out of reach (Lazar 1998). Even when formal changes are under the spotlights, as in the devolu

tion process of the United Kingdom, the road to federalization raises questions of shared citizenship and core values of unity that were previously celebrated through pro-welfare state centralized policies (Jeffery and Wincott 2006). Therefore, the assertion above should slightly be rephrased: the bond between national and subnational units in a federation is, by definition, a constitutional-oriented one that may rest upon a federal supremacy clause, a subset of federal clauses, or informal processes and decisions portraying federal institutions. In any case, comparative analyses are bound to pay attention to more than just a formal constitutional provision that broadcasts a federal or unitary identity. Rather it must dig deeper into the institutional variables of federalism. One set of those institutional variables is addressed in the TLICS model, namely the legal and regulatory framework and its underpinning values conveyed in courts' interpretations.

Although the descriptions of federalism as federal predominance and its underpinning shared values are present in classical and recent studies, the other facet of the federal scheme is nevertheless even more ubiquitous. On the other side of the description of federalism as federal predominance lies the autonomy of subnational governance. It should be noted that the existence of subnational governance is a key aspect of federal systems, but political experiences with federalism will answer in different ways the question of how much and what kind of administrative and financial prerogatives should be devolved to subnational units. They may also answer those questions differently in accord with time as described in the pendulum-like trajectory of centralized and decentralized administration of the Russian federal history (Sharafutdinova 2009). Given that federal features differ in time, institutional variables of federalism must be time-sensitive as well. One of the main characteristics of subnational governance is the existence of regional institutionalized organizations that undermine secessionist movements as proposed in Greer (2007) by analyzing nationalism, self-government, and regional autonomy in Scotland and Catalonia. Besides the federal myth as a unity of usually multi-ethnic and multi-national states, the three remaining factors proposed by Kavalski and Zolkos (2008) needed to avoid federal failure—democratization, complex identity, and re-constitutive flexibility—deal with subnational empowerment. That empowerment is nonetheless a federal feature as long as it functions as a preferable choice when compared to secession. It is even possible to find defendants of a procedural model of secession arguing for its constitutional enshrinement in stable federal states qualified as liberal democracies (Jovanovic 2007). Falletti (2010) proposes that the sequence in which decentralization reforms unfold—administrative, fiscal, and political types—determines the achievable empowerment of subnational governments. Thus, empowerment of subnational units is a widely mentioned federal characteristic, making federal identity dependent upon specific features, such as: (i) fiscal sustainability, as the ability of governments to meet existing spending commitments with existing resources (Ward and Dadayan 2009); (ii) power devolution to subnational units, as a real and nearly universal trend since the early 1990s in sub-Saharan Africa, despite informal recentralization movements that deliber-

ately strengthened local government at the expense of regional autonomy (Fessha and Kirkby 2008), a possibility the like of which Dickovick (2006) describes, using evidences from Peru, Brazil, and South Africa, as strategic decisions designed to favor one level of subnational government to the detriment of another; (iii) municipalization, as a second-order devolution of power and authority from states to their local governments in need of integrative actors to match the empirical data and managers/legislators' perceptions of state centralization experienced in the United States (Bowman and Kearney 2011); (iv) political safeguards of federalism, which were rejected by studies on the use of coercive tools by the federal government, yet re-examined by Nicholson-Crotty (2008) as a likely possibility during election cycles, which create an intermittent safeguard of state authority; (v) legislative self-restraint on exercising preemption powers that might be responsible for depriving state governments from the means to exercise their reserved powers in the federal system (Zimmerman 2007); (vi) ethno-federalism as regional autonomy to minorities in countries with ethno-linguistic diversity or "fractionalized States", which, according to Charron (2009), outperforms its unitary rivals for each quality of government indicators; (vii) consistent organization of subnational powers, namely the assertion that a federal polity is an arrangement of separation of powers in its constituent units (Cameron and Falletti 2005). They all have in common the focus on subnational empowerment and show that institutional variables of federalism must address both national sovereignty and subnational governance issues.

Centralization and decentralization factors present in federations and quasi-federal systems are traditionally described as the two fundamental dilemmas of federalism (Riker 1964). The first dilemma faces the question of what prevents the national government from destroying federalism by overwhelming the authority of its constituent units, while the second dilemma tackles the questions of what prevents the constituent units from engaging in free-riding and other causes of failure to cooperate that lead to political disintegration. Although the two tendencies of centralization and decentralization serve as benchmarks against which federal systems can be judged, they are only fragmented aspects of a broader phenomenon: the cooperation between different levels of public law subjects, which reveals the central idea of federalism as an intergovernmental system.

As prolific as this discussion on the two dilemmas of federalism unfolds—national or subnational predominance—, it pales when compared with the third main feature of federalism based on interdependent allocation of powers between national and subnational units. In fact, the third feature of federalism works to ameliorate the federal dilemma between centralization and decentralization to affirm that federal institutions may be designed to build a self-enforcing federalism toward a sustainable cooperative federation (Figueiredo Jr., McFaul and Weingast 2007). Papillon (2012) points to the importance of analyzing the policy-level dynamics of tribal governments in the United States and Canada as multilevel governance regimes grounded in both constitutional rights and federal self-government

legislation, although differing in their institutional legacies. In both countries, by engaging in multilevel governance exercises through tribal self-determination, federal recognition of tribal sovereignty has not weakened their federal regime, rather reinforced the process of assimilation to the institutional framework of the dominant society. Multilevel governance theory posits that the diffusion of policy process at the core of federal systems leads to growing interdependency between governing actors and, consequently, to the replacement of formal decision process by cooperation and coordination mechanisms. There are two main consequences for that tendency: for one, national and subnational governments do not play inside watertight jurisdictional orders anymore; for two, national and subnational governments no longer fully control the outcomes of their decision-making process, that is, in principle, an interdependent one. A set of essays on the Spanish new decentralized state (Nieto 2008) deals with the "*estado autonómico*" established by the constitution of 1978, focusing on institutional mechanisms for intergovernmental relations designed to stabilize the Spanish model of cooperative federalism, such as joint plans, programs, commissions and conferences, and financing systems, transfers and subsidies between national government and subnational autonomous communities. From the perspective of the influence of public input into governmental policymaking, Schneider, Jacoby and Lewis (2010) posit that the American public is able to clearly identify its preferences for intergovernmental policy responsibilities across a range of policy areas. Public opinion in the U.S. toward policy responsibilities differs in accord with governmental levels, be them programmatic activities of the national, state, or local governments, and is related to the relative efforts of the various governmental levels within the respective policy areas. By way of dividing responsibilities across different levels of government, federal mechanisms of intergovernmental policy has matched in the U.S. with the actual public attitudes and gave citizens more opportunity to influence the decision-making process (Schneider, Jacoby and Lewis 2010). Although the existence of distribution of powers among national and subnational governments be an essential feature of intergovernmental relations when related to the same substantive area—public transportation, crime, urban development, health care, environmental protection, elderly assistance, education, unemployment, response to natural disasters, economic development, energy, ICT, and so forth—, the key aspect of the federal intergovernmental model lies on the concept of balanced distribution of powers, which is of main concern for the literature on intergovernmental relations of federalism focused on the influence of political and legal reforms and crisis over the balance of intergovernmental shared power (Gamkhar and Pickerill 2011). The key concept of intergovernmental relations refers to their balance. The web-shaped structure of a multilevel government is also central to the idea of federalism, as demonstrated by eight essays on multilevel/networked governance systems from the viewpoint of municipalities in Spain, Switzerland, Australia, France, Germany, Mexico, South Africa, and the United States (Lazar and Leuprecht 2007). It is also important to know that the

multilevel governance in a federal system faces different spatial scales that go beyond the traditional dyad of federal and state spheres to encompass subunits relations (Gamkhar and Pickerill 2012) or subunits alone, such as regional metropolitan areas (Miller and Lee 2009) and cities that must respect, for example, in the U.S., the Dillon's Rule, which binds them to state rules under a complex environment of political calculus (Krueger and Bernick 2009). From a mutually dependent perspective, both higher-level entities influence lower-level ones, and lower-level public law subjects influence higher-level governance, such as the state influence in the national policy process (Dinan 2008), as happens with the practice of front-loading in the United States (Busch 2008). Mere centralization or decentralization policy will be a federative one only if new national or subnational initiatives be enacted as intergovernmental administration (Conlan and Posner 2011). Mutually dependent national and subnational governance is rather one of the strengths of federalism than its limitation, as posed by Hollander (2009) in his examination of the consequences of Australia's quest for eliminating duplication, overlap and redundancy in the Australia's New Federalism agenda of the early 1990s. The consequence of federalism in shaping centralization and decentralization policies is to bind them to the central concept of intergovernmental equations. The book of fifteen essays edited by Conlan and Posner (2008) on how to improve the management of federalism to make it more responsive and effective sees federalism precisely as intergovernmental machinery. As mutually dependent machinery, it also allows for different and creative policy designs that pairs federal funding with state flexibility and influences nationwide partisan politics (Grogan and Rigby 2008). Effectiveness of government responses to extreme events, such as those of September 11th, 2001, depends on the federal intergovernmental system performance. Comfort (2002) argues that the performance of federal intergovernmental relations can be tackled by the theory of complex adaptive systems, while Roberts (2008) claims for an alternative way to pure centralization and decentralization by defending dispersed federalism of federal agencies responsible for emergency management and homeland security as a method prone to better take into account location specificity. Influence of state programmatic expertise on the federal decision-making process depends on the previous alignment between federal and state policy interests, that is, intergovernmental relations. When this intergovernmental alignment does not exist, Esterling (2008) concludes that the federative scheme fails to deliver its benefits of mutual support for the public good. The privileged position of subnational governments in learning with the experiment with policies depends on the federal feature of intergovernmental alignment. Hence, to thoroughly analyze centralization and decentralization processes, it is necessary to understand the complexity of subsequent distributional conflicts among national and subnational governments as described by Montero (2001) in the Argentine, Brazilian, Spain, and Mexican cases. Intergovernmental relations also occupy the play's center stage when one deals with

the New Regionalism of international law studies (Pureza 2012) that address intergovernmental institutions designed to mediate the relations between, e.g., the European social model based on indirect salaries, universal public services and social rights, and the global economic and financial order. By overcoming the fragilities of the contractual-oriented international law through the emergence of *jus cogens* and *erga omnes* obligations, international institutions have been able to mimic national public law frameworks, making them susceptible to federal categories of centralization, decentralization, and intergovernmental dependence. The literature on federalism shows it is undisputable that the categories alone of centralization and decentralization are insufficient for depicting the federative phenomenon, as a whole set of independent features also emerge from intergovernmental relations.

TLICS Model threefold analysis of Federalism

As long as the first two characteristics portray the inherent tension between centralization and decentralization within federalism, the third one sums-up the meaning of federalism as intergovernmental affairs. Therefore, as described in Table 1, institutional variables of federalism will invariably fit under the central idea of a system in which two forces cohabit: centralization and decentralization. What makes federalism so rich and interesting for social science studies is precisely its instable position between tendencies of national sovereignty and subnational autonomy. To understand federalism, it is imperative to adopt a conceptual framework that depicts both centripetal and centrifugal forces inherent to any description of federal systems, and the transversal arrow that connects them: multilevel intergovernmental relations. Unity, autonomy, conflict, and cooperation are not incompatible concepts under the scrutiny of subnational interdependence as multilevel governance leading to interrelated national and subnational political decisions.

The Telecommunications Law Indicators for Comparative Studies (Aranha 2011) shows a set of key legal aspects of institutional variables useful for the ICT and development literature. Federative variables were found through that method in (Aranha, Lopes, et al. 2012), following a recent international movement focused on the juridical dimension of institutional variables for comparison purposes in projects such as the European initiative on Harmonization of ICT Policies, Legislation and Regulatory Procedures. The TLICS model focuses on indicators visible in the countries' legal frameworks and courts interpretation. This article builds upon the main features of federalism, by applying legal-based institutional variables to Latin American selected countries, and organizing them in clusters of centralization and decentralization under a set of six indicators on the dimensions of revenue, fiscal transfer, regulation, adjudication, planning, and media industry.

Building on insights of the literature on federal systems, especially from the perspective of the undisputable dynamic and ever-changing process of the centralization and decentralization phenomenon, as described in the U.S. intergovernmental relations between 1995 and 2005 (Weissert, Stenberg and Cole 2009), the federative variables developed by the TLICS model depict national and subnational features of ICT-based federative principles that encompass not only national and subnational predominance, but also the intergovernmental relations. This model allows for comparisons in a three-fold way: centralization, decentralization, and interdependence as the coexistence of centralized and decentralized commands in the legal framework that account for a necessary interaction for planning the ICT sector in a national-subnational environment. From this perspective, both centralized and decentralized features of federalism may coexist in a given legal framework, pointing out to an intergovernmental imperative.

To avoid cherry-picking the data in order to reach a foreordained conclusion, this study adopted the TLICS model hermeneutical approach of norm-governed behavior by strictly binding to pre-designed forms¹ and 43 juridical variables for each country analyzed (Aranha, Lopes, et al. 2012). A set of eight countries representative of the Latin American experience were then analyzed: four officially unitary countries (Chile, Colombia, Peru, and Uruguay); and four self-declared federative countries (Argentina, Brazil, Mexico, and Venezuela). They account for 82% of the Latin American surface area, 81% of its inhabitants, and 92% of its GNI (World Bank Data 2011). Each country was scrutinized in four sectors—telecommunications, broadcast, broadband, and e-commerce—according to the following dimensions: revenue, divided in taxing federalism (Indicator 1.1) and administrative fees (Indicator 1.2); fiscal transfer, divided in sectorial funds (Indicator 2.1) and local treasures (Indicator 2.2); regulation, divided in regulatory jurisdiction (Indicator 3.1) and contingent regulation (Indicator 3.2); adjudication, divided in public law jurisdiction (Indicator 4.1) and private law jurisdiction (Indicator 4.2); planning, divided in national ICT development plans indicator (5.1), and subnational ICT development plans indicator (5.2); and finally media industry, manifested in one indicator of content quota (Indicator 6.1), which exceptionally contemplates only three sectors, that is, broadcast, pay TV, and Internet. A thorough description of each indicator is implemented in Aranha, Lopes, et al. (2012).

By juxtaposing TLICS model against theories on federalism and the historical plasticity of federal arrangements, we addressed features derived from federalism and useful for comparative analyses on ICT and development in a threefold way: the existence of exclusive centralized juridical features on a given dimension; the existence of exclusive decentralized juridical aspects on a given dimension; and the existence of an interdependent system of attributions and countervailing trends among national and subnational units.

¹ The TLICS model forms are available at www.getel.org/TLICSmodel and the 43 forms of each country analyzed are available at www.getel.org/TLICSdata.

Policy-dynamics and legal framework: designing time-sensitive variables

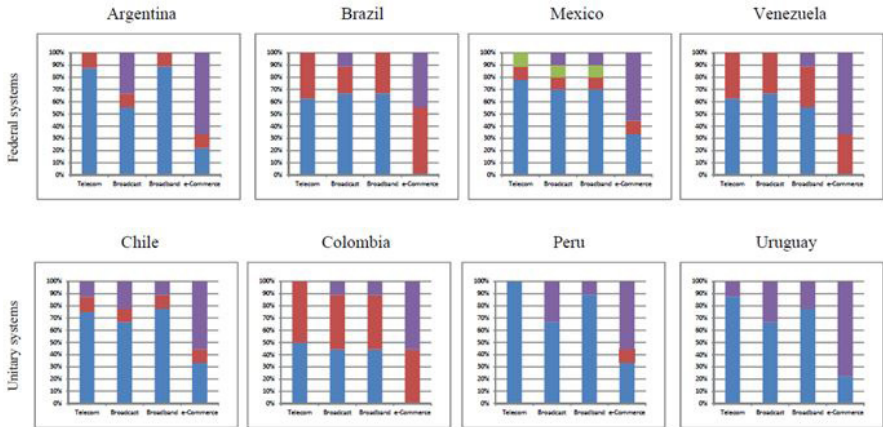
Focusing on institutional variables from the exclusive viewpoint of constitutional design is broadly criticized in the aforementioned literature of the last decade on federalism by a twofold reason: for one, constitutional designs are usually viewed as steadfast, unchangeable propositions, regardless the fact of unstoppable changing of their meaning through the interpretation of the courts; for two, constitutional designs are perceived as exclusive sources for institutional identification of a given country. Nonetheless, neither constitutional designs are free from hermeneutical changes of meanings, nor figure as exclusive sources of legal identity of institutional variables in a given country. TLICS model focuses precisely on the changing nature of the legal framework and interpretation of the courts to face the fact that federations vary in their institutional presentations in many historical, economic, social, political, and demographic aspects, including the underlying values that inform their federalist discourse (Burgess 2006). The variety of federal models mirrors the variety of their institutional variables. In that sense, TLICS model adopts time-sensitive indicators, as legal, policy basis, and regulatory instruments are displayed in the aforementioned forms in accord with their enactment, so that it remains clear the timeframe during which a given policy, legal instrument, regulatory document, or interpretation came into force.

Latin American federative indicators according to TLICS Model

By applying the six sets of the TLICS model federative indicators on revenue, fiscal transfer, regulation, adjudication, planning, and media on the Latin American context, we found several behaviors independent from the official categorization of each country as federal or unitary systems. The empirical universe of the paper encompassed eight countries that formed a potpourri of four federative countries—Argentina, Brazil, Mexico, and Venezuela —, and four officially unitary countries—Chile, Colombia, Peru, and Uruguay —, that account for 82% of the Latin American surface area, 81% of its population, and 92% of its GNI (World Bank Data 2011).

The charts below show each country's centralized, decentralized, interdependent, and absent federative features pertaining telecom, broadcast, broadband, and e-commerce sectors. The colors represent the predominance of federal and unitary features of the set of dimensions described above: centralization as blue; decentralization as red; national-subnational interdependence as green; and absence of regulation as purple. The first set of four charts corresponds to officially federal countries, while the set below it represents officially unitary countries.

Table 1: Last decade literature review on federalism main features

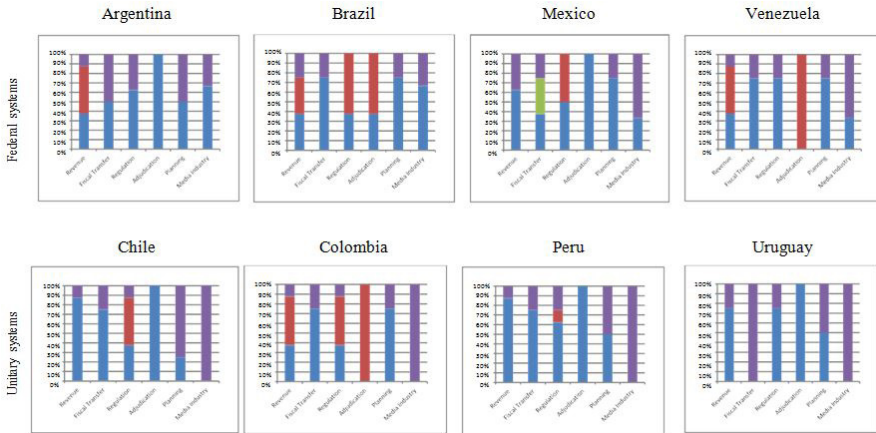


Stacked bar charts depicting ICT federative variables per sector (telecom, broadcast, broadband, and e-commerce), in which the blue color represents national centralization features, red represents sub-national decentralization features, green represents national-subnational interdependence, and purple represents the absence of regulation. Data were analyzed using TLICS model tables available at www.getel.org/TLICSforms

The comparison between the two sets of four federal and four unitary countries shows that although Peru and Uruguay pay tribute to their constitutional characterization as unitary systems, the remaining countries do not follow the script written in their constitutions. There is a clear predominance of centralized features in all countries regardless of their federal or unitary title, except for Colombia, which shows in all sectors shared centralized and decentralized features. Argentina and Mexico portray themselves as mostly centralized in the telecom, broadcast, and broadband sectors, while Brazil and Venezuela, although showing more decentralized features than the previous two, also mostly deny their federative heritage in those sectors. More importantly, when we focus on one sector alone, such as telecom, only Brazil, Colombia, and Venezuela figure among those partially federative, while the remaining countries, regardless of their qualification as federal or unitary systems, show the predominance of centralized features.

The previous figure and the next one offer a broader view of ICT federative variables per sector—telecom, broadcast, broadband, and e-commerce (Figure 1)—and per dimension—revenue, fiscal transfer, regulation, adjudication, planning, and media industry (Figure 2). A cross section of the ICT federative variables by dimensions brings light to another ICT cleavage of the Latin American countries analyzed.

Figure 2: Federative variables per dimension in Latin America according to TLICS model



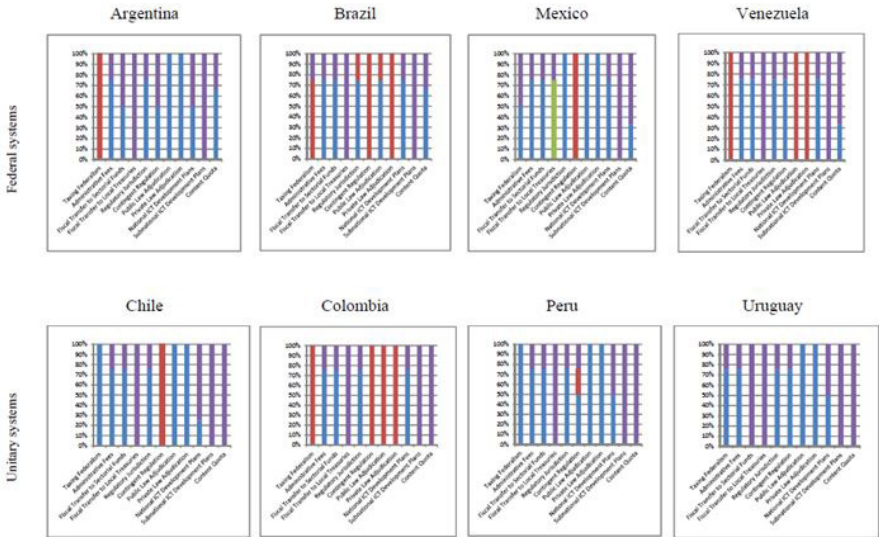
Stacked bar charts depicting ICT federative variables per dimension (revenue, fiscal transfer, regulation, adjudication, planning, and media industry), in which the blue color represents national centralization features, red represents subnational decentralization features, green represents national-subnational interdependence, and purple represents the absence of regulation. Data were analyzed using TLICS model tables available at www.getel.org/TLICSforms

The pervasive decentralized features present in all sectors in Argentina, Chile, and Venezuela (Figure 1) correspond to specific dimensions in the Figure 2 cleavage, that is the revenue dimension in Argentina, the regulation dimension in Chile, and the dimensions of revenue and adjudication in Venezuela. In terms of adjudication, only Brazil, Venezuela, and Colombia show decentralized features, while the same amount of decentralization is shown for the regulation dimension in the cases of Brazil, Chile, and Colombia. On another topic, while Uruguay is strongly centralized in the telecom, broadcast, and broadband sectors (Figure 1), it is absent of centralized features in the fiscal and media dimensions (Figure 2). Mexico's predominance of centralized features (Figure 1) is in contrast with the shared characteristics of centralized and decentralized features in the regulation and fiscal transfer dimensions (Figure 2). Brazil otherwise shows non-predominant decentralized features in all sectors (Figure 1), while when it is analyzed through another cleavage (Figure 2), it is predominantly federative in the regulation and adjudication dimensions. Argentina proudly defies its federative identity in Figure 1, especially for the telecom and broadband sectors, but when it is depicted in Figure 2, its revenue dimension

shows a predominant federative country. Venezuela, in turn, is a good showcase in which the TLICS model demonstrates its benefits for comparative analyses. In Figure 1, Venezuela shows a semi-federal presentation in all sectors, while in Figure 2, the dimensions cleavage shows a strongly centralized country in terms of fiscal transfer, regulation, and planning, not to mention that decentralized features shown in Figure 1 correspond mostly to Venezuela's pervasive characteristic of decentralized variables present in the adjudication dimension (Figure 2).

The charts above (Figures 1 and 2) are still dealing, though, with broad descriptions, instead of making use of all the benefits offered by granulated data on revenue, fiscal transfer, regulation, adjudication, planning, and media dimensions available in the TLICS model for the Latin American context. If we look at the data from the perspective of specific indicators on taxation, administrative fees, fiscal transfer to sectorial funds, fiscal transfer to local treasuries, regulatory jurisdiction, contingent regulation, public law adjudication, private law adjudication, national ICT development plans, subnational ICT development plans, and content quota, we end up with the following set of charts.

Figure 3: Federative indicators in Latin America according to TLICS model



Stacked bar charts depicting TLICS model federative indicators, in which the blue color represents national centralization features, red represents subnational decentralization features, green represents national-subnational interdependence, and purple represents the absence of regulation.

Figure 3 tells a different story putting together Argentina, Colombia, and Venezuela as decentralized countries according to the tax indicator, while all countries behave mostly as if they were unitary countries according to the administrative fees indicator. Except for Uruguay, all countries depict a centralized approach to fiscal transfers to sectorial funds, as they show a strong predominance of centralized variables in that indicator paired with an absence of variables of fiscal transfer to local treasuries. Nonetheless, as we compare side by side the indicators of fiscal transfers and taxation, Argentina, Brazil, Venezuela, and Colombia match as federalized countries pertaining fiscal federalism. The regulatory jurisdiction indicator puts all countries together as centralized countries, with a slight difference at the indicators of Brazil and Mexico, which can only be understood by a more atomized variable that separates e-commerce from the telecom, broadcast, and broadband sectors. Chile, Colombia, Brazil, and Mexico have similar regimes of decentralized contingent regulation, as an indicator that shows regulation on ICT by local regulatory bodies not directly entitled with sectorial competence on ICT such as ICT consumer rights regulation, antitrust regulation, electromagnetic health hazard regulation, ICT infrastructure limits derived from land use regulation—zoning ordinances and building requirements—, environmental regulation or the like. By the same token, Argentina, Venezuela, and Uruguay figure as centralized countries according to the contingent regulation indicator, while Peru stands alone as a semi-federal country according to the same indicator. The indicators of public and private law adjudication portray Argentina, Mexico, Chile, Peru, and Uruguay as centralized countries. Colombia and Venezuela stand apart with their accentuated federal features in that indicator, while Brazil stands alone as a centralized country for public law adjudication as opposed to a federalized country for the indicator of private law adjudication. When we focus on the planning dimension, Chile stands alone as predominantly absent, while Argentina, Peru, and Uruguay show signs of centralization, and Brazil, Mexico, Venezuela, and Colombia show predominantly centralized features for the indicator of national ICT development plans. The content quota indicator, as electoral, educational, cultural or local independent content quota, clearly separates the four officially unitary countries from the four federal ones by depicting the absence of content regulation in Chile, Colombia, Peru, and Uruguay, while Mexico and Venezuela show a minor importance of centralized content quota policies, and, finally, Argentina and Brazil figure as predominantly centralized countries as far as content quota is concerned.

As we dig deeper into the data, the charts below (Figure 4) show a comparison between the eight Latin American countries in the telecom, broadcast, broadband, and e-commerce sectors paired with the indicators of taxation in the first row, administrative fees in the second row, regulatory jurisdiction in the third row, and contingent regulation in the fourth row.

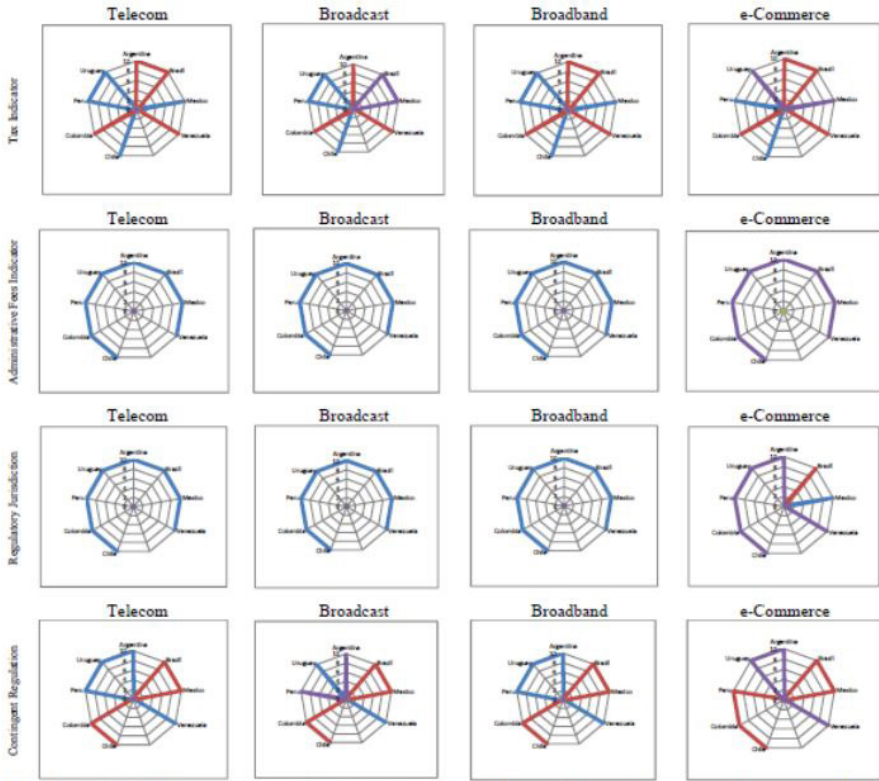
Figure 4: Federative indicators per sector in Latin America according to TLICS model



Stacked bar charts depicting ICT federative indicators of taxation, administrative fees, regulatory jurisdiction, and contingent regulation per sector (telecom, broadcast, broadband, e-commerce), in which the blue color represents national centralization features, red represents subnational decentralization features, green represents national-subnational interdependence, and purple represents the absence of regulation. The four countries positioned on the left side of the radar chart are officially federal systems, while the four remaining countries fit the unitary system legal framework. Data were analyzed using TLICS model tables available at www.getel.org/TLICSforms.

The same set of charts of Figure 4 is presented in Figure 5 as radar charts for easier visual identification of commonalities and differences.

Figure 5: Federative indicators per sector in Latin America according to TLICS model



Radar charts depicting ICT federative indicators of taxation, administrative fees, regulatory jurisdiction, and contingent regulation per sector (telecom, broadcast, broadband, e-commerce), in which the blue color represents national centralization features, red represents subnational decentralization features, green represents national-subnational interdependence, and purple represents the absence of regulation. The four countries positioned on the left side of the radar chart are officially unitary systems, while the four remaining countries fit the federal system legal framework. Data were analyzed using TLICS model tables available at www.getel.org/TLICSforms.

Figure 5 shows that centralized and decentralized features are distributed among countries regardless their formal affiliation to a unitary or federal system. The four countries positioned on the left side of the radar chart are officially unitary systems, while the four remaining countries fit the federal system legal framework. Radar charts show the disruptive behavior of countries according to the tax indicator, while all countries behave

coherently as unitary ones as we look into the administrative fees indicator. It does not really matter whether a country is considered unitary or federal, since all analyzed countries behave as centralized ones as far as administrative fees indicator is concerned. The tax indicator nevertheless shows a predominance of decentralization features on the right side of the charts, which are occupied by federal countries, although in both sides one can see centralized and decentralized features as well as absence of governmental interference. The absence of federal features is sound for e-commerce in the administrative fees and regulatory jurisdiction indicators, but is not dominant in the contingent regulation indicator, and virtually disappears in the tax indicator. On another topic, the regulatory

Jurisdiction indicator mostly mimics the administrative fees indicator, while the contingent regulation indicator shows shared features of centralization and decentralization regardless countries official presentation as unitary or federal systems. One may continue this exercise with all the sectors and indicators adding up to forty four charts, but this is enough to portray the picture intended in this article, that proposed to make the institutional variable of federalism wide open to the eyes of ICT comparative studies.

We found distinct and independent patterns of centralized and decentralized features/variables per sector—telecom, broadcast, broadband, e-commerce —, the absence of governmental interdependent relations, except for the planning dimension, and relevant depictions of each country's federative indicators useful for comparison purposes, in which the federal phenomenon is atomized in many different perspectives—tax, fees, fiscal transfer, regulation, adjudication, planning, and media industry according to TLICS model. The findings of different behaviors according to each indicator shows that TLICS model better serve as a framework for a more precise and granulated image of the Latin American ICT landscape with special interest for the ICT and development literature.

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