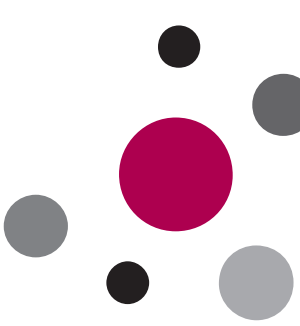

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Measuring the Potential of Direct Democracy Around the World (1900-2014)

David Altman

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Please address comments and/or queries for information to:

V-Dem Institute

Department of Political Science

University of Gothenburg

Sprängkullsgatan 19, PO Box 711

SE 40530 Gothenburg

Sweden

E-mail: contact@v-dem.net

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Measuring the Potential of Direct Democracy Around the World (1900-2014)*

David Altman
Professor of Political Science
Pontificia Universidad Católica de Chile

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Abstract

To what extent is direct democracy achieved in current polities? To answer this question, I develop an index, *Direct Democracy Practice Potential (DDPP)*, which is applied to 200 polities worldwide. This index results from the aggregation of the scores of four types of mechanisms of direct democracy: popular initiatives, popular referendums, obligatory referendums, and authorities' plebiscites. This index measures: (1) how easy it is to initiate and approve each type of popular vote and (2) how consequential that vote is (if approved). Ease of initiation is measured by: (a) the existence of a direct democracy process, (b) the number of signatures needed, and (c) time limits to collect signatures. Ease of approval is measured by quorums pertaining to: (a) participation, (b) approval, (c) supermajority, and (d) district majority. Consequences are measured by: (a) the legal status of the decision made by citizens (binding or consultative), and (b) the frequency with which direct popular votes have been used and approved in the past.

Introduction

Direct democracy in the form of popular and direct votes is not new. However, the use of direct democracy has been increasing worldwide, particularly following World War II. Mechanisms of direct democracy (MDDs) have been used in both dictatorships and democracies; in presidential and parliamentary regimes; in poor, developing, and rich countries; in federal and unitary states; in both the south and the north; at the local, regional, and national levels of government; in times of joy and in times of trouble. Almost every imaginable political subject has been put forth for public consideration at one time or another (Butler and Ranney 1994; LeDuc 2003; Altman 2011; Qvortrup 2014). However, the lack of a measure of direct democratic rights has meant that we have been unable to determine whether direct democracy is spreading around the world, and even less capable of assessing its quality. This paper fills this gap in the literature by offering two indices designed to measure the strength of direct democracy votes as well as their quality.

Unlike other common concepts in political science, such as "political parties" or "elections," definitions of direct democracy lack a common connotation. What we understand as direct democracy has different meanings in different places, and the different institutional components of this concept (popular initiatives, referendums, or plebiscites) have diverse normative undertones. For instance, a referendum in one country is called a plebiscite or even a popular initiative in another. Essentially, "there exists no universal referendum terminology" (Suksi 1993: 10). To complicate things further, in certain countries concepts such as "initiatives," "plebiscites," and "referendums" are often used as synonyms, even within the very same piece of legislation!

In this paper, *direct democracy* refers to an institutionalized process by which citizens of a region or country register their choice or opinion on specific issues through a ballot. It encompasses initiatives, referendums, and plebiscites, but it does *not* encompass recall elections, deliberative assemblies, or other settings in which the vote is not secret and the purview is restricted. It also does not apply to elections for representatives.[1]

More specifically, I define a mechanism of direct democracy (MDD) as a publicly recognized institution wherein citizens decide or express their opinion on issues – other than through legislative and executive elections – directly at the ballot box through universal and secret vote. Secret voting

[1] The constitutions of the Maldives and Tanzania stipulate that the President be elected by their respective parliaments, whose decisions are then submitted for popular vote. As these direct votes are related to the election of authorities, these cases are not considered within the scope of the direct democracy world.

is a necessary condition, without which, any mechanism of direct democracy (hereinafter MDD) is not possible.

For this research I distinguish two major groups of mechanisms of direct democracy. The first group is composed of those MDDs initiated by signature gathering (CI-MDDs): popular initiatives and referendums. The distinction between popular initiatives and referendums is crucial, as popular initiatives are designed to alter the status quo, whereas referendums are created to prevent change.[2] The second group is composed of those MDDs that are (directly or indirectly) initiated by authorities: mandatory referendums and plebiscites.[3] Most Top-Down MDDs (TD-MDDs), such as mandatory referendums or authorities' plebiscites, propose to alter the status quo. Figure 1 graphically demonstrates the different types of MDDs addressed in this research.

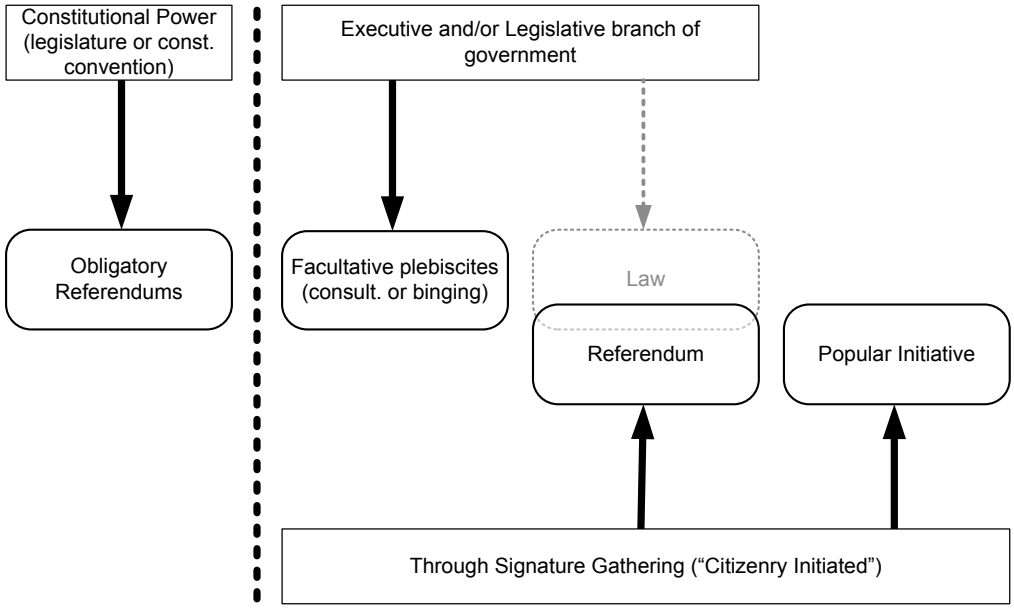

Figure 1. Simplified procedural typology of mechanisms of direct democracy

[2] See Svensson (2011) on different typologies and a discussion about them.

[3] While there is neither "universal referendum terminology" (Suksi 1993: 10), nor a unique typology (see Hug (2002), Vatter (2009)), here I employ the terminology used by the *National Conference of State Legislatures* (http://www.ncsl.org/), the *Initiative & Referendum Institute* of the University of Southern California (http://www.iandrinstitute.org/), and the *Centre for Research on Direct Democracy* of the University of Zurich (http://www.c2d.ch/).

Description

- Popular Initiatives: A popular initiative is a bill, statute or constitutional amendment supported by a group of citizens that offers an alternative to the status quo. Citizens are allowed to decide directly at the ballots on matters of concern to them, without the consent of the country's main political officials. They therefore serve as a proactive player on certain topics.

- Referendums: Unlike a popular initiative, an optional referendum allows citizens to reject a law passed by the legislature (the "people's veto" in US jargon). Thus, citizens move second, i.e. they react to a previous move by the authorities. It is the "defensive" instrument in the hands of citizens, par excellence.[4]

- Obligatory Referendums: These are, in most cases, limited to certain specific topics in the constitution or —as in Switzerland, Uruguay, and even all but one of the American states (Delaware)— to an amendment of the constitution. Strictly speaking however, it is not a right the population uses in any active way. Rather, it is a defensive right or a veto right.

- Authorities' Plebiscites: TD-MDD plebiscites are direct democratic mechanisms that allow authorities to pose a question to the citizenry for them to answer. These institutions are not necessarily related to popular sovereignty in its traditional sense, which is why some scholars claim that they cannot even be characterized as belonging to the direct democratic world (Kaufmann and Waters 2004).[5] Though leaders can use plebiscites perversely, during the vote itself citizens exercise their sovereignty and are thus still fulfilling the definition of MDD provided above.

The first question to deal with is as follows: *how can we determine the amount of direct democracy in a particular time and place?* Although the next section offers the rationale behind the construction and operationalization of an index that will help answer this question, let me first delineate some of the tricky problems associated with such an endeavor.

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[4] At times also called "popular referendums" (Donovan 2014).

[5] They claim: "Plebiscites have nothing to do with initiatives and referendums; on the contrary, they are often used by governments who want to get a special legitimacy on their policies by bypassing existing laws and constitutional rules" (p. xix)

To begin with, the credible menace of triggering a CI-MDD (a reactive referendum or a proactive popular initiative) plays a crucial role in moderating political decisions and shifting the political course even before the gathering of signatures starts (e.g. Papadopoulos 2001). Several years ago I asked former Uruguayan presidents Jorge Batlle and Julio María Sanguinetti whether they took into account the fact that a popular referendum could potentially be triggered when they submitted a bill to congress. Their answers were crystal clear. Sanguinetti argued: "If one did not take that into account, he was almost committing suicide. It was decisive." Batlle said: "Of course! What – the other players do not play?" (for the complete interviews with former presidents, see Altman 2011: 180-186).[6] The problem thus becomes quantifying something which seldom occurs, yet its potential use has enormous impact on political life. This has been called the "indirect effect" of direct democracy (Matsusaka 2014) or the *direct democracy paradox* (Altman 2013).

Thus, simply counting occurrences of MDDs is meaningless for measuring how much direct democracy potential there is in a given country. Such an approach to measurement would "reward" divided societies where agreements are not attainable and thus everyone uses all the institutional ammunition at their disposal to reach their goals (for example: popular initiatives).[7] On the contrary, a society where settlements are found before everyone uses the strongest weapon at their disposal — i.e. an MDD— would be "punished." Thus, conceptually, two different places might have the very same 'amount' of direct democracy, but in 'A' several MDDs are held per year and in the other, 'B', MDDs only appear once in a while (Altman 2013: 622).

Typologies, scales, and even indices of direct democracy are relatively new in the discipline. Most of these endeavors face one or more of five major flaws, to different degrees. First, they are tailored to a limited number of observations and thus their generalizable power is reduced as most of those observations (like cantons in Switzerland) share many attributes.[8] Second, some of these indices use an overly fluid concept of direct democracy and they fail at concept specification. In

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[6] This is not a particularity of relatively healthy democracies such as Uruguay or Switzerland (Papadopoulos 2001) or the United States (Gerber and Lupia 1995) where this phenomenon has been studied in great detail. This can also happen in non-democratic regimes such as Iran, as evidenced by Erdbrink (2015), where the threat of a referendum may be sufficient to change politics at the highest levels. Of course, this is a hard thing to measure, but it is a good example of where "de jure" features of a constitution may matter more than we think.

[7] This type of approach was taken by Tolbert et al (2001).

[8] These studies have either countries as units of analysis, such as those in Continental Western Europe (Gross and Kaufmann 2002; Vatter 2009), Latin America (Breuer 2011; Madroñal 2005), and South East Asia (Hwang 2005), or subnational units (most notably Swiss cantons (Freitag and Stadelmann-Steffen 2010; Trechsel and Serdült 1999; Frey et al. 2001; Stutzer 1999), American states (Gerber 1999; Bowler and Donovan 2004), German Länders (Scarrow 1997; Schiller 2011; Vatter and Stadelmann-Steffen 2013)).

other words, they do not set a clear line between what direct democracy is and what it is not. Third, they fuse *Top Down-MDDs* with *Citizen Initiated-MDDs* into the same category. There are dozens, maybe hundreds of plebiscites, called in an ad-hoc manner by leaders who are just seeking some form of legitimization, mobilization, or simply delegating a hard decision to the citizenry. Of course, not all TD-MDDs (e.g. plebiscites) are alike, but calling a plebiscite usually results from one of these incentives. Four, they tend to follow formalities in constitutional texts, ignoring semantics: what in one country is called a plebiscite, in another can just as easily be called a popular initiative. Five, they mix the potential use of MDDs with their actual use in a general and somewhat cryptic way. This is problematic because we cannot differentiate whether we are measuring the occurrence of MDDs or assessing the potentiality of direct democracy.

To overcome the problems mentioned above, I propose a new measure for assessing the direct democracy potential that exists in a given country. This index will measure institutional openness and how easy it is to approve an MDD.[9]

An Index of Direct Democracy

This section advances an index of direct democracy that takes into consideration how easy it is to initiate and approve each type of popular vote and how consequential that vote is (if approved).[10] Each term is composed mostly of indicators available from the V-DEM data set either directly, or after a transformation. I coded each country based on its de jure features (usually constitutional), but also took into account de facto direct democratic "ventures" (usually performed by autocrats). The rule used for non-independent states (e.g. colonies) is a presumptive zero, which allows for combining this index with other V-DEM indices.

There are important differences at the procedural level for the deployment of popular votes across countries and time, even when studying the same type of MDDs (e.g. popular initiatives). These differences are crucial for assessing the degree of potential use of direct democracy (e.g. in terms of the amount of signatures required, participation and approval quorums, circulation time

[9] Popular votes do not occur in an institutional vacuum and the extent to which they are free and fair is crucial in the same way it is for regular elections. Perhaps, as with any electoral procedure, a popular vote held in an autocratic setting is notably different from the same type of vote in a democratic context.

[10] This paper serves as the basis of the direct democracy index (*v2xdd_dd)* in the V-DEM database (Coppedge et al. 2015b; Coppedge et al. 2015a), which constitutes one of the components of the participatory variety of democracy as described in greater detail by Coppedge et al (2011).

limits, qualifiers, etc.). For instance, the higher the percentage of signatures needed to carry on a popular initiative, the lower the probability of such a popular vote occurring since only powerful and resourceful organizations can afford such enterprise. Likewise, the shorter the available time to gather signatures endorsing a potential popular vote, the smaller the potential use of these institutions. These institutions may also simply be "guns without triggers" if the chances of producing political change are virtually zero regardless of how frequent their use. This stands in stark contrast to the few indices the literature has advanced thus far, which tend to fuse these two dimensions into one, which is problematic for the reasons previously mentioned.

We can imagine a situation in which the triggering of an MDD is relatively easy, but then the probability of that MDD being approved is quite slim due to, say, extremely high participation quorums.[11] These are theoretically distinct dimensions for which an index must account. The first dimension considers how much potential exists for the use of an MDD in a given country for a given year (i.e. how "easy" is it to trigger an MDD?). The second dimension refers to, once an MDD is qualified, how probable it is that this institution will achieve its purpose (*changing or altering the status-quo*).[12]

Institutional Openness (How Easy is to Trigger an MDD?)

It would be extremely easy to trigger a direct popular vote if it required only 1% of the electorate's support; however, having a popular vote does not mean that the chances of a measure being approved are higher, especially if we need an affirmative vote of, say, 80% of the electorate. I claim,

[11] Let me illustrate with two of the most prodigious users of direct democracy: Switzerland and Uruguay. In Switzerland it is extremely easy to qualify a popular initiative as the requirement for a minimum number of signatures is one of the lowest cross-nationally (100,000 signatures, which represent less than 2% of the electorate); in Uruguay, however, an initiative must have at least 10% of the signatures of the electorate to qualify. At the same time, the chances of approving a qualified CI-MDD in Switzerland are lower than in Uruguay because of the requirement of double majorities (citizens and cantons). In Uruguay, a majority of the electorate determines the fate of the initiative (as long it represents 35% of the electorate), which is far lower than a double majority.

[12] Of course, we could think that in the long run, knowing popular votes' previous results might influence the prospect of some groups attempting to qualify a CI-MDD, but even so it might not necessarily undermine the chances of triggering a CI-MDD per se. The question, therefore, is which characteristics are crucial for triggering and which ones are crucial for approval.

then, that there are certain institutional characteristics that are crucial for triggering popular votes and others that are crucial for those votes being approved.[13]

For a popular vote to be triggered it must first exist as an institution; I call this "Existence" (∃). If there is no legal provision for initiatives or referendums, this term has the minimum value (zero). All procedures in the hands of citizens must fulfill some required minimum level of support. This support is universally obtained through signatures; I call this term "Signatures" (1-S). This term is the portion of signatures of the whole electorate required to trigger the DD measure. If 25% of citizens must support the measure, then this term equals 0.75 (i.e. 1-0.25). The more signatures required, the more difficult it is to trigger the CI-MDD. As TD-MDDs (plebiscites) are triggered by some combination of authorities' desires, they do not require the gathering of signatures and the like.

It is also apparent that it would be harder to gather the required signatures if the time available time to do this were just three months versus, for instance, one year. I call this term "Circulation Time" (CT); the less CT, the more difficult it is to trigger the CI-MDD. Aware that the cut points are rather arbitrary, I take 1 year as a focal point (CT=1); if there is more time to gather signatures, CT remains at 1. If there is less than one year available to gather signatures, then I calculate CT as the square root of the remaining days to complete a year available to gather the signatures (scaled on a 0-1 range).[14] Thus, if the available circulation time is three months, then CT=0.5 (if half a year, 0.7; nine months, 0.86, etc).[15] Thus, the initiation of an MDD in a particular country is calculated as follows:

$$\textit{Practice Potential} = (\exists) * (1\text{-}S) * (CT)$$

[13] The idea of "institutional openness" is taken from Barankay et al. (2003). If the country under consideration is federal, then this index should ideally correspond to the average of the sum of each subnational unit (the same logic applies for the rest of the terms). At this point in the research, only the national dimension is covered.

[14] I could have opted for a logarithmic transformation, but the shape of the obtained line does not fit my theoretical expectations, particularly when only a few days are available to gather signatures.

[15] Another aspect V-DEM did not address is what can be called "frequency restrictions." On occasion there are some limitations on the number of MDDs possible within a particular period (for example, within the same executive administration). We considered, but did not include this aspect in our measure. Finally, as it happens with most democracy indices, this index does not include subnational uses of/rights to use MDDs regardless of how intensive their use can be (American States, Swiss Cantons, German Länders, etc).

How Easy is it to Approve an MDD?

It is one thing to capture how easy it is to trigger a popular vote; however, it is a completely different matter to assess how consequential that vote is. In regard to how effective these institutions may be once they are on their way, different types of quorums should be taken into consideration. Quorums and super majorities are intended to raise the bar for potential change. At times, the decision at the polls is contingent on a minimum amount of citizens participating in the procedure ("participation" quorum). At other times, a minimum number of people endorsing the proposal has to be met ("approval" quorum). Sometimes super majorities are needed for a decision to be binding. Basically, quorums in general have two major objectives: to stop change and to provide legitimacy.[16] The literature shows diverse treatments of quorums. The most typical way to deal with them has been to think of them as a series of dummy variables (regardless of whether there were any statistical models), as if they are completely independent from each other. This is incorrect because they are intimately related. Therefore, one might think that the multiplication of quorums is a fairly straightforward measure of their interaction, and it is easy to calculate. But this is also problematic because their relationship is more complex; actually, we can think of the approval quorum as a subset of the participation quorum as it is impossible to obtain, say, a 40% endorsement of a measure without at least 40% participation. Hence, the multiplication method punishes countries that simultaneously exhibit two or three quorums. Let me explain.

As studies by Côrte-Real and Pereira (2004), Aguiar-Conraria and Magalhães (2010a, 2010b), and Altman (2011) have demonstrated, all possible results of an MDD can be represented on a surface delimited by two orthogonal axes (yeas and nays), thereby taking into consideration their interaction with participation and approval quorums. Here, we take a step further, fusing participation quorums, approval quorums, and super-majorities into a new variable that calculates the polygon's surface within the mentioned surface, OAC (the shaded area in Figure 2.) We call this variable the *Status Quo Surface* (SQS); the larger the area, the more protected the status quo is. Having used the traditional arithmetic operators to fuse quorums (such as by averaging or

[16] As colleagues comment: "quorums are a simple way of protecting the status quo" (Maniquet and Morelli 2010: 2), "a low turnout in referendums is seen as a threat to their legitimacy" (Qvortrup 2002: 164). It has been shown elsewhere that participation quorums may have a pernicious effect on the process of direct democracy as it produces incentives for strategically derailing certain proposals through abstaining from voting and thus helping in not reaching the quorum; not only are they expected to decrease electoral participation, but they may also violate the secrecy of the vote (see Altman 2011: 18-24; Aguiar-Conraria and Magalhães 2010a, 2010b). As the incentives to abstain disappear under approval quorums, the latter is considered superior — a better institutional tool —than the former (Maniquet and Morelli 2010).

multiplying them), for a country with "a" approval and "p" participation quorums in Figure 2, we would count shaded regions **ε** and **δ** twice, overestimating the combined effect of two or even three quorums acting simultaneously in a given place. Though SQS and the multiplicative term are highly correlated, SQS is the best measure in this regard. [See the appendix for interpretation of the figure, and most importantly, how exactly we calculate this variable.]

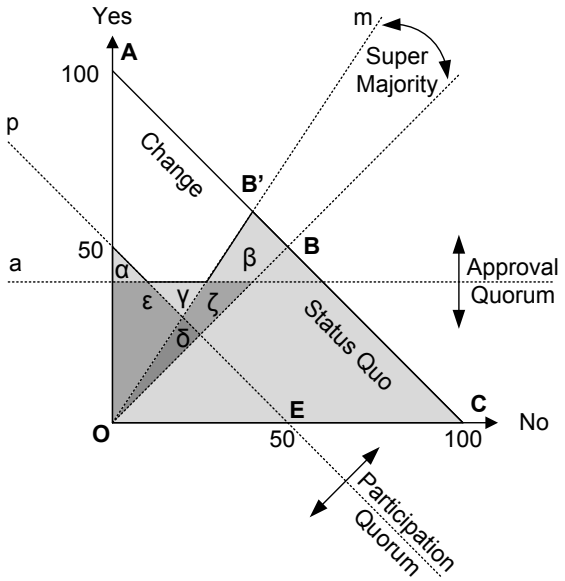

Figure 2. Fusing all quorums into SQS[17]

Some federal countries such as Switzerland or Australia require double majorities for particular types of MDDs to be approved (i.e. they must win both a majority of citizens' votes and a majority of states in the country). Ceteris paribus, these *administrative quorums* or *double majorities* are

[17] The line that represents the approval quorum (line *a*) is always parallel to $\overline{OC}$.
The line that represents the participation quorum (line *p*) is always parallel to $\overline{AC}$.
The line that represents the super-majority (line *m*) has always *O* as its origin.
In case these requirements exist in combination:

- Any point falling in sector □ is defeated by participation quorum.
- Any point falling in sector □ is defeated by super-majority requirements.
- Any point falling in sector □ is defeated by approval quorum.
- Any point falling in sector □ is defeated by participation **AND** approval quorums.
- Any point falling in sector □ is defeated by approval quorum **AND** by super-majority requirements.
- Any point falling in sector □ is defeated by participation **AND** approval quorums **AND** super-majority requirements.

more difficult to obtain because there are other institutional veto players to overcome along the way. AQ is operationalized as follows:

$$AQ = 0.5 + \left(\frac{1-RD}{2}\right)$$

where RD represents the fraction of the required districts for approval.

For a country that needs half of its districts approving an MDD (such as Switzerland) AQ=0.75; in cases where all districts are required to approve an MDD (such as Tanzania, with Zanzibar and the continental districts' approval required) AQ=0.5. Thus, the effectiveness potential of CI-MDDs existing in a particular country is calculated as follows:

*Effectiveness Potential = (1-SQS)/0.5 * (AQ)*

Finally, there are two variables that deserve some attention as they conceptually stand on their own merit, (i.e. they are not related to either the qualification of an MDD or how easy it is to approve a popular vote). The first of these two is the *decisiveness* of the MDD (D). This variable, based on V-DEM's *v2ddlegci*, relates to whether the decision reached at the polls constitutes a binding resolution (D=1) or simply an expression of popular desire (D=0.75).[18]

The second variable is called "*credible threat*" (T) and is relevant for citizen-initiated MDDs. By credible threat I mean the effectiveness of the menace of a CI-MDD. Sometimes, a group of citizens can threaten that, if a certain decision is not made or changed, they will launch a popular initiative (or a referendum for that matter) to make the change themselves, regardless of what the authorities (executive and/or legislative) want. Yet, if they have never used such an institution, the threat is not as credible as if they have used it before, let alone if the previous use was successful. Thus, the threat is mediated by the time elapsed since the instrument was previously used and how successful it was.

Therefore, a credible threat should be understood as a discount factor or a decay function that occurs since the last time a particular type of CI-MDD occurred. This decay function will asymptotically approach the threshold of a credible threat for countries that have the legal possibility of initiating a CI-MDD, yet have never experienced one. In other words, once we reach a certain distance from the last CI-MDD, that particular CI-MDD is no longer a threat.

[18] Regardless of whether the decision is binding, any decision taken directly has a great dose of legitimacy that is hard to undermine, particularly under a democratic regime. Thus, a consultative vote is more than "half" but less than a binding one.

Though we can assume that a political repertoire lasts for about twenty years, it makes sense to think that the second year after a particular event —when memories are notably fresh— is drastically different than some nineteen years later. In some countries, once a CI-MDD is qualified by citizens, the realization of the vote is concurrent with the next election for authorities. We should therefore account for the electoral cycle in order to not punish a popular vote qualified during the first year of a given electoral cycle in case such a rule exists. Within the democratic world, the largest gap between elections is five years (e.g. France, Ireland, United Kingdom, Uruguay); I use that number as a benchmark.[19]

In a given political cycle the threat of a CI-MDD is equal to 1 during the first five years and from the sixth year onwards the threat decreases linearly by 0.06 units yearly, if the CI-MDD was successful. This means that by the 20th year after the occurrence of that CI-MDD the threat level reaches 0.1, which is the baseline I use for those countries that have the legal apparatus to hold a CI-MDD but have never experienced one. If the use of a given CI-MDD was not successful, the future potential menace loses some credibility. Thus, in this case, the first five years account for 0.9 and then the decay function decreases by 0.1 yearly. I call this the long cycle.[20]

The idea of being sensitive to actual occurrences of MDDs instead of just potential rights is based on previous works on the quality of democracy. Altman and Pérez-Liñán have studied how "effective" participation and competence are in the context of Latin American democracies, going beyond the mere existence of the rights to compete and to participate as, up to that moment, there had been a virtually hegemonic way of approaching democracy (Altman and Pérez-Liñán 2002). This perspective is shared by several scholars and reaffirmed by colleagues such as Przeworski who, in a thoughtful passage, stated:

> Take, for example, Freedom House's ranking of countries. They rate countries according to whether people are free to do things. So the United States ranks close to the top. Americans are free to form political parties, they are free to vote. But they don't form political parties, and half the population doesn't vote, even in presidential elections. I find ideologically tainted and unconvincing this idea of freedom as an abstract potentiality

[19] Simply defined for this purpose as those countries with a v2x_polyarchy>0.8.

[20] As the assumption that the cycle endures for 20 years is rather controversial, I have also explored this decay function with a shorter cycle of about of 10 years. As in the long cycle, during the first five years the threat equals 1, but then it loses 0.15 yearly in case of success. In case of failure, the first five years equals 0.9 and then it loses 0.2 yearly. No substantial differences were found.

divorced from the ability to exercise it. Rosa Luxemburg once said, "The problem is not to be free, but to act freely" (Przeworski in Munck and Snyder 2007: 477).

The *Direct Democracy Practice Potential* (DDPP) results from the addition of the scores of each type of popular vote studied (popular initiatives, referendums, plebiscites, and obligatory referendums).[21] Each type of popular vote receives a maximum score of two resulting from the addition of two terms: ease of initiation and ease of approval. Each of these terms obtains a maximum value of one and works as a chain defined by its weakest link. Thus, since we are studying four types of popular votes, the maximum possible overall DDPP is 8 (however, I scale it to a 0-1 range for graphical purposes).

Table 2. Overall direct democracy indices

MDD Type	Institutional Openness	Effectiveness	Decisiveness	Credible Threat	Total
PI	[(∃)*(1-S)*(CT)]	[(1-SQSxti)/0.5*(AQ)]	(D)	(T)	(0-2)
RF	[(∃)*(1-S)*(CT)]	[(1-SQSxti)/0.5*(AQ)]	(D)	(T)	(0-2)
OR	[(∃)][22]	[(1-SQSxti)/0.5*(AQ)]	(D)		(0-2)
AP	[(∃)]	[(1-SQSxti)/0.5*(AQ)]	(D)		(0-2)

PI: Popular Initiative, RF: Referendum, OR: Obligatory Referendum, AP: Authorities' Plebiscite

[21] Sometimes, leaders call for plebiscites without the legal framework needed to do so. These "ad hoc" plebiscites are usually justified by governments as a means to bypass national urgencies or crises, and are recurrently based on "façades of legality" through sometimes-obscure administrative acts. The question is what status to assign to a regime that has no permanent constitutional authorization for plebiscites but nonetheless uses them, perhaps even regularly. There are two alternative ways to deal with this problem: treat them either as single events or as lasting characteristics of the regime where they occur. Whether we treat them as single events ("flashes" of direct democracy) or lasting characteristics of the regime depends on the research question at hand. Sometimes we will need to measure discrete events of direct democracy, other times we will be more interested in the ongoing character of a regime. In this paper I treat them as flashes of DD rather than a lasting characteristic of a regime for two reasons: the first is that I do not have reliable information about the length of each regime in each country on earth; the second is that treating them as flashes provides notable information which enriches the analysis I will perform later. In any case, given that the index for assessing the potential for plebiscites was composed by two terms, the first being (∃) and the second [(1-SQS)*(AQ)], for "ad hoc" plebiscites the first term will be zero for the whole period that a particular government was in power.

[22] By definition there is no signature gathering at OR & AP.

For each type of citizen-initiated popular vote (e.g.,. popular initiative or referendum), the ease of initiation is measured by:

- the existence of a direct democracy process $(\exists_{xti})$,
- the number of signatures needed $(1 - S_{xti})$, and
- time-limits to circulate the signatures (CT_{xti}).[23]

Ease of approval is measured by the interaction among the quorums pertaining to:

- participation, approval, supermajority $(1 - SQS_{xti})/0.5$, and
- district majority (AQ_{xti}).

Consequences are measured by:

- the legal status of the decision made (binding or consultative) (D_{xti}), and
- the frequency with which direct popular votes have been held in the past (T_{xti}).

The index is aggregated using this formula:

$$DDPP_{xt} = \sum \left[(\exists_{xti}) (1 - S_{xti}) (CT_{xti}) + \frac{(1 - SQS_{xti})}{0.5} (AQ_{xti}) \right] (D_{xti}) (T_{xti})$$

where *x* refers to country, *t* to a particular year, and *i* to a particular MDD.[24]

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[23] By definition there is no signature gathering at obligatory referendums and authorities' plebiscites.

[24] Using V-DEM variable names, the formula should be read as follows: [(v2ddlegci) (v2ddsigcip) ((v2ddgrtlci) ∩ (v2ddgrgpci)) + ((v2ddbindci) ∩ (v2ddthreci) ∩ (v2ddspmjci)) (v2dddistci)] (v2ddlegci) [(v2ddoblref)(v2ddplebyr)(v2ddciniyr)(v2ddrefyr)].

Descriptive Patterns

Criterion-related validation of the new index is difficult because, to my knowledge, no other measure of DDPP other than that proposed here is available on a worldwide scale, and the existent measures have notorious flaws as previously mentioned. Yet, with about 200 polities analyzed for about 115 years each, there is room to show some general patterns in terms of where and how direct democracy has evolved around the world.

One of the strong intuitions behind the literature of direct democracy is the idea that institutions of direct democracies are rather sticky; it is extremely hard to get rid of them. This is so because, predominantly, direct democracy can only be reformed through direct democratic means and, consequently, although it possibly could be halted or discontinued, it can rarely be eliminated (Auer 2007; Altman 2011). In other words, once DD rights are conferred, they do not roll back; at most they freeze.

Figure 3 displays the evolution of DDPP and its components since 1900 for all independent polities worldwide. As expected, change in DDPP is virtually always positive; most components remain stable or increase with just one exception —plebiscites— which present a bumpier development (see also footnote 22).

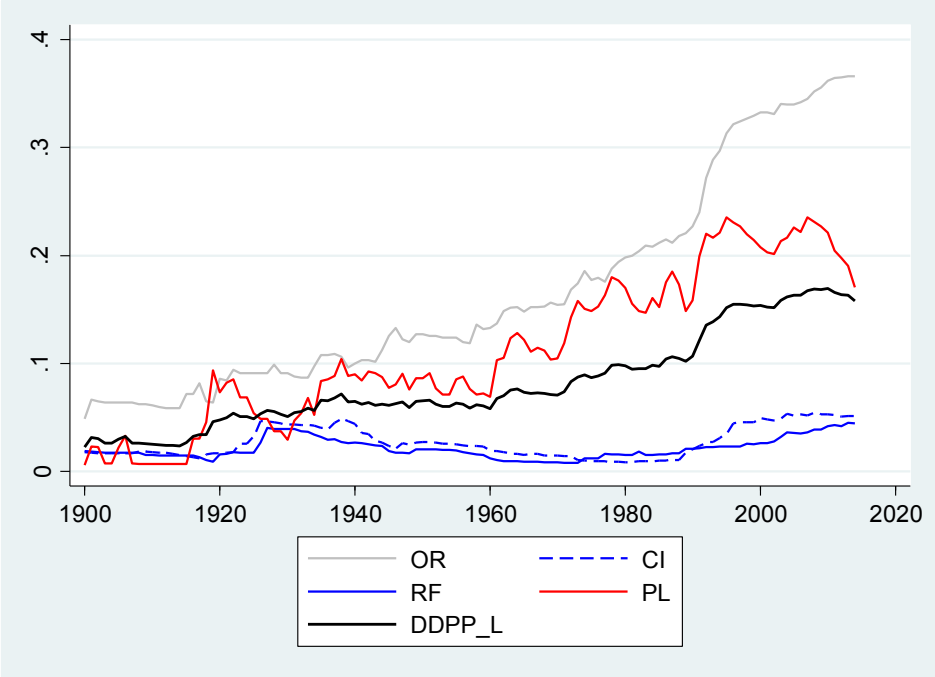

Figure 3. DDPP and its components since 1900

There are two moments that catch our eye in terms of shifting patterns displayed in Figure 3. The first moment occurs at the beginning of the 1960s. During these years, several countries became independent (many of those where former French colonies who emulated the constitution of the Fifth Republic which included the presidential right of calling plebiscites concerning "matters of national interest"). The second occurred with the collapse of the former Soviet Union, circa 1990. Unlike what happened in the 1960s, the new post-Soviet countries inherited the Soviet popular ratification of constitutional changes and some countries in Eastern Europe also extended rights for triggering CI-MDDs.[25]

The map below (Figure 4) provides a graphical glimpse of DDPP around the world (circa 2012 and just at the national level): The darker the shade, the higher the DDPP. For a complete list of all polities and their respective scores on DDPP and its components since 2000, see Table 5 in the annex.

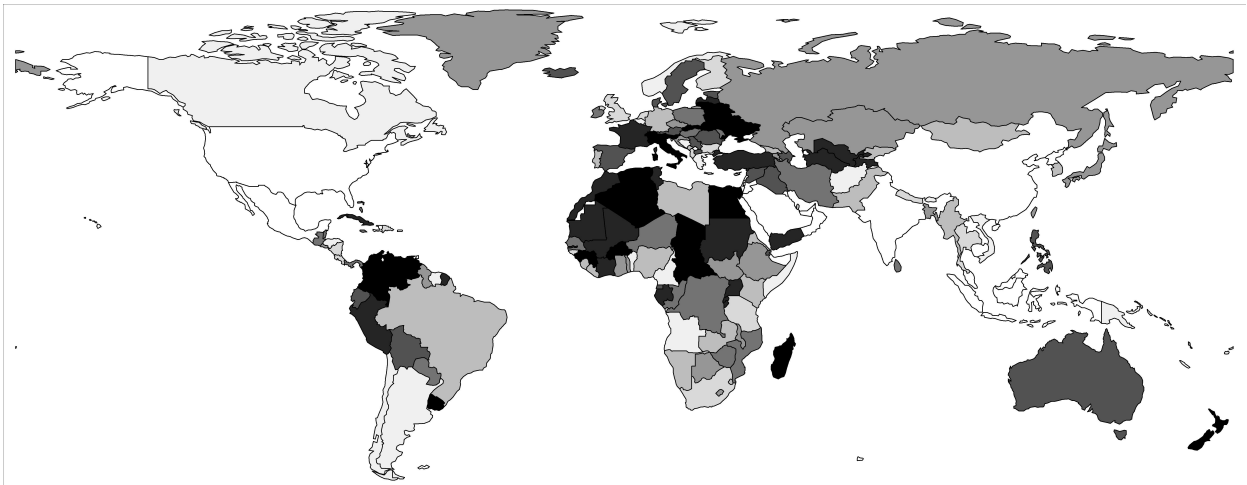

Figure 4. DDPP around the world (year ≥ 2000)

The table below shows how large regions of the world perform in DDPP and its components (sorted by DDPP from highest to lowest). I have included the value of an intermediate measure of citizen-initiated MDDs (popular initiatives and referendums) of DDPP, called CIC (the

25 Some of these countries excel in this regard, particularly Slovenia, Slovakia, etc. (See Annex for countries' patterns).

citizen-initiated component). This new indicator allows us to foresee how important citizen-initiated MDDs are in the world's regions and countries.

The region with the highest DDPP is Eastern Europe and Central Asia, followed closely by the so-called Developed World (Western Europe, North America, Australia, and New Zealand). These two regions also account for the regions with the highest CIC worldwide. As explained above, the collapse of the Soviet Union allowed for many countries to open up to alternatives for CI-MDDs as well as the inclusion of the need for popular ratification of constitutional change. Concomitantly, the so-called developed world includes some recurrent examples of the intensive (and virtuous) uses of direct democracy, namely Switzerland, a country that in many respects could be considered the "gold standard" of direct democracy worldwide, and Italy, where reiterated referendums against laws acquire a distinctive partitocratic flavor.

Table 3. DDPP and its components by geopolitical region (year>1999)

Region	CI	RF	CIC	OR	PL	DDPP
Eastern Europe & Central Asia	0.132	0.077	**0.104**	0.397	0.250	**0.214**
Developed World	0.097	0.106	**0.102**	0.374	0.195	**0.193**
Latin America	0.091	0.088	**0.090**	0.358	0.200	**0.184**
Sub-Saharan Africa	0.006	0.002	**0.004**	0.394	0.308	**0.177**
MENA (Middle East & North Africa)	0.000	0.000	**0.000**	0.282	0.374	**0.164**
The Caribbean	0.002	0.003	**0.002**	0.443	0.041	**0.122**
The Pacific	0.095	0.008	**0.051**	0.345	0.034	**0.120**
South Asia	0.000	0.000	**0.000**	0.186	0.125	**0.078**
East Asia	0.033	0.000	**0.017**	0.198	0.045	**0.069**
South-East Asia	0.009	0.009	**0.009**	0.161	0.032	**0.052**

The least direct democratic regions in the world are located in Asia: the East, the South, and the South-East. The Asian continent is certainly weak in any aspect of DDPP. In terms of particular components of DDPP, the most plebiscitarian region is the Middle East and North Africa, followed by Sub-Saharan Africa. These results are not a surprise whatsoever. Figures 6 & 7 show the trends of DDPP and CIC at the national level for countries in two regions in the world.

Some Preliminary Conclusions

The use of mechanisms of direct democracy is growing worldwide. It is not strange that, in the context of a political conflict, the contentious make strong claims for "letting the people decide." The fact is that —regardless the intentions of MDD promoters (leaders or citizens)— direct democracy occupies a relevant place in the minds of political players everywhere, for good or for bad. Despite the growing interest in the topic, an important limitation of the literature on direct democracy is that thus far we have not had tools to measure how much direct democracy exists in a given place. This paper has presented an original index of direct democracy to fill this lacuna.

This index measures: (1) how easy it is to initiate and approve each type of popular vote, and (2) how consequential that vote is (if approved). Ease of initiation is measured by: (a) the existence of a direct democratic process, (b) the number of signatures needed, and (c) time limits to collect signatures. Ease of approval is measured by quorums pertaining to: (a) participation, (b) approval, (c) supermajority, and (d) district majority. Consequences are measured by: (a) the legal status of the decision made by citizens (binding or consultative), and (b) the frequency with which direct popular votes have been used and approved in the past.

I am aware that a useful index, almost by definition, has to sacrifice important, interesting, and sometimes unique country-specific aspects of the phenomenon under consideration but whose inclusion would make the index unintelligible. It is also important to acknowledge that this index is not intended to cover each and every dimension of the direct democratic world that might have an effect on the prospects of using MDDs. For example, it does not tell us anything regarding potential limitations on the topics citizens can bring to a popular vote (taxes, sovereignty) or how the vote is scheduled.

Not only did I have to omit certain aspects from DDPP's aggregation scheme, but I am also very aware that every single indicator of DDPP could be problematized. For example, one of the simplest terms in the DDPP's calculation is the quantity of signatures required to launch a CI-MDD. As simple as it appears, in some polities those signatures must be gathered from a specific amount of the state's districts (as is the case in Alaska), and even specify the minimum amount of signatures to be collected in each district. Obviously, this distribution requirement adds to the difficulty of qualifying an initiative or referendum. Yet, including it in the high level aggregation scheme could blur the meaning and power of the overall measure.

The overall results of this piece of research satisfy my expectations so far. Though I am aware that this is just a first cut at this topic, the findings are suggestive and seem quite robust. These findings are likely to contribute greatly to the study of this alluring subject.

Appendix

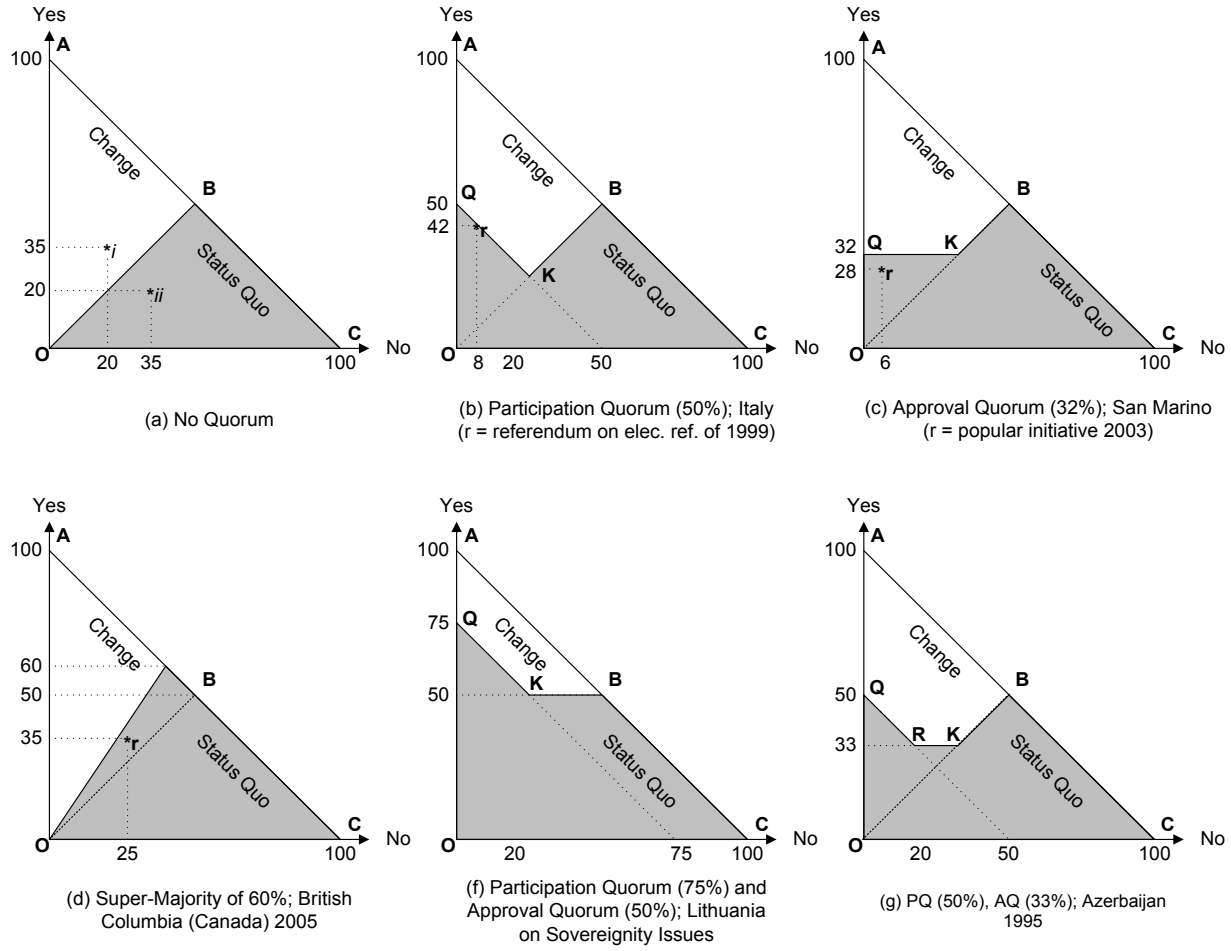

Figure 5. Calculating the Status Quo Surface

Figure (a): There are neither quorums nor super majorities. In this case, there are no mysteries: every point falling onto the shaded area is defeated; every point in the white area wins. SQS=50%. **Figure (b):** In this case there is a participation quorum of 50% (very common in post-Soviet European countries). The represented case corresponds to a referendum held in Italy in 1999 against electoral reform. Though the referendum was brutally successful in terms of the relative distribution of votes between the yeas and nays (91% yeas from the valid votes), participation reached only 49.6% and therefore did not surpass the required 50%. This referendum failed. The SQS results from the addition of 50% (ΔOBC) and a new triangle (rectangle with a side of 50 units)

which represents 12.5% of the Δ*A0C*. *Thus SQS*= (ΔOBC) + (ΔOKR) → 62.5%. **Figure (c):** In this case an approval quorum exists. Here, the example is San Marino with its 32% approval rate. Again, as in the Italian scenario above, the distribution of the vote was more than clear: an evident superiority of yeas (81%) v. nays (19%). Nonetheless, given that the yeas represented about 28% of the national vote, this result was not legally binding and the popular initiative was defeated. The SQS results from the addition of 50% (ΔOBC) and a new triangle (with a side of 32 units) which represents 10.2% of the ΔA0C. Thus SQS= (ΔOBC) + (ΔOKR) → 60.2%. **Figure (d):** Here, a super majority is needed to be successful. This case represents the popular vote following the British Columbia Citizens Assembly for electoral reform. The rules of the game stipulated that this change had to be approved by at least 60% of the voters, otherwise was defeated. **Figures (f) and (g)** represent combinations of both participation and approval quorums.

Table 4. Estimating the Status Quo Surface (SQS) based on different quorums[26]

Setting PQ at:	SQS	Setting AQ at:	SQS	Setting SM at:	SQS
0	50.00	0	50.00	0	50.00
5	50.13	5	50.25	5	50.00
10	50.50	10	51.00	10	50.00
15	51.13	15	52.25	15	50.00
20	52.00	20	54.00	20	50.00
25	53.13	25	56.25	25	50.00
30	54.50	30	59.00	30	50.00
35	56.13	35	62.25	35	50.00
40	58.00	40	66.00	40	50.00
45	60.13	45	70.25	45	50.00
50	62.50	50	75.00	50	50.00
55	65.13	55	79.75	55	55.00
60	68.00	60	84.00	60	60.00
65	71.13	65	87.75	65	65.00
70	74.50	70	91.00	70	70.00
75	78.13	75	93.75	75	75.00
80	82.00	80	96.00	80	80.00
85	86.13	85	97.75	85	85.00
90	90.50	90	99.00	90	90.00
95	95.13	95	99.75	95	95.00
100	100.00	100	100.00	100	100.00

PQ: Participation Quorum, AP: Approval Quorum, SM: Super Majority

[26] This table should be read as follows: if we set a quorum at 65%, if it is a PQ, then SQS equals 71.13; if it is an AP, then SQS=87.75; and if it is an SM, then SQS=65.00. Fiji is the country that, with an AQ of 75% for obligatory referendums, has the largest SQS (SQS=93.75). Liberia, Nauru, Kiribati, and Nigeria have an AQ of 66%. Their SQS=88.44. Gambia, also in the context of obligatory referendums has a PQ=50 and an SM=75, and thus its SQS=81.25.

Table 5. Country averages of DDPP and its components (if year ≥ 2000)

Country	CI	RF	CIC	OR	PL	DDPP
Afghanistan	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Albania	0.000	0.000	**0.000**	0.000	0.165	**0.041**
Algeria	0.000	0.000	**0.000**	0.656	1.000	**0.414**
Angola	0.000	0.000	**0.000**	0.000	0.069	**0.017**
Antigua and Barbuda	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Argentina	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Armenia	0.000	0.000	**0.000**	0.430	0.070	**0.125**
Australia	0.000	0.000	**0.000**	0.835	0.075	**0.228**
Austria	0.000	0.000	**0.000**	0.656	0.220	**0.219**
Azerbaijan	0.000	0.000	**0.000**	0.656	0.193	**0.212**
Bahamas	0.000	0.000	**0.000**	0.656	0.067	**0.181**
Bahrain	0.000	0.000	**0.000**	0.000	0.900	**0.225**
Bangladesh	0.000	0.000	**0.000**	0.525	0.080	**0.151**
Barbados	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Belarus	0.059	0.000	**0.030**	0.656	0.625	**0.335**
Belgium	0.000	0.000	**0.000**	0.000	0.093	**0.023**
Belize	0.028	0.036	**0.032**	0.537	0.361	**0.241**
Benin	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Bhutan	0.000	0.000	**0.000**	0.000	0.047	**0.012**
Bolivia	0.299	0.059	**0.179**	0.263	0.380	**0.250**
Bosnia and Herzegovina	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Botswana	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Brazil	0.000	0.000	**0.000**	0.000	0.460	**0.115**
Brunei	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Bulgaria	0.019	0.026	**0.022**	0.000	0.220	**0.066**
Burkina Faso	0.000	0.000	**0.000**	0.656	1.000	**0.414**
Burma/Myanmar	0.000	0.000	**0.000**	0.375	0.137	**0.128**
Burundi	0.000	0.000	**0.000**	0.656	0.700	**0.339**
China	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Cambodia	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Cameroon	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Canada	0.000	0.000	**0.000**	0.000	0.075	**0.019**
Cape Verde	0.071	0.095	**0.083**	0.000	0.100	**0.067**
Central African	0.000	0.000	**0.000**	0.656	0.817	**0.368**
Chad	0.000	0.000	**0.000**	0.656	1.000	**0.414**
Chile	0.000	0.000	**0.000**	0.000	0.075	**0.019**
Colombia	0.273	0.092	**0.182**	0.457	0.520	**0.335**
Comoros	0.000	0.000	**0.000**	0.656	0.007	**0.166**
Congo, Democratic R.	0.000	0.000	**0.000**	0.656	0.080	**0.184**
Congo, Republic	0.000	0.000	**0.000**	0.656	0.100	**0.189**

Country	CI	RF	CIC	OR	PL	DDPP
Costa Rica	0.064	0.078	**0.071**	0.000	0.170	**0.078**
Croatia	0.090	0.057	**0.073**	0.375	0.069	**0.148**
Cuba	0.000	0.000	**0.000**	0.656	0.460	**0.279**
Cyprus	0.000	0.000	**0.000**	0.000	0.133	**0.033**
Czech Republic	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Denmark	0.000	0.000	**0.000**	0.670	0.150	**0.205**
Djibouti	0.000	0.000	**0.000**	0.771	0.100	**0.218**
Dominica	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Dominican Republic	0.000	0.000	**0.000**	0.151	0.024	**0.044**
East Timor	0.000	0.000	**0.000**	0.000	0.069	**0.017**
Ecuador	0.097	0.097	**0.097**	0.306	0.640	**0.285**
Egypt	0.000	0.000	**0.000**	0.656	1.000	**0.414**
El Salvador	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Equatorial Guinea	0.000	0.000	**0.000**	0.000	1.000	**0.250**
Eritrea	0.000	0.000	**0.000**	0.000	0.500	**0.125**
Estonia	0.000	0.000	**0.000**	0.656	0.160	**0.204**
Ethiopia	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Fiji	0.000	0.000	**0.000**	0.041	0.000	**0.010**
Finland	0.000	0.000	**0.000**	0.000	0.075	**0.019**
France	0.000	0.000	**0.000**	0.656	0.520	**0.294**
Gabon	0.000	0.000	**0.000**	0.525	0.640	**0.291**
Gambia	0.000	0.000	**0.000**	0.352	0.688	**0.260**
Georgia	0.339	0.000	**0.170**	0.000	0.288	**0.157**
Germany	0.000	0.000	**0.000**	0.409	0.000	**0.102**
Ghana	0.000	0.000	**0.000**	0.360	0.178	**0.134**
Greece	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Grenada	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Guatemala	0.000	0.000	**0.000**	0.656	0.100	**0.189**
Guinea	0.000	0.000	**0.000**	0.656	0.580	**0.309**
Guinea-Bissau	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Guyana	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Haiti	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Honduras	0.026	0.034	**0.030**	0.000	0.027	**0.022**
Hong Kong	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Hungary	0.472	0.074	**0.273**	0.033	0.151	**0.183**
Iceland	0.000	0.000	**0.000**	0.656	0.210	**0.217**
India	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Indonesia	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Iran	0.000	0.000	**0.000**	0.656	0.100	**0.189**
Iraq	0.000	0.000	**0.000**	0.656	0.100	**0.189**
Ireland	0.000	0.000	**0.000**	0.723	0.072	**0.199**
Israel	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Italy	0.000	0.806	**0.403**	0.656	0.000	**0.366**

Country	CI	RF	CIC	OR	PL	DDPP
Ivory Coast	0.000	0.000	**0.000**	0.656	0.760	**0.354**
Jamaica	0.000	0.000	**0.000**	0.656	0.050	**0.177**
Japan	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Jordan	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Kazakhstan	0.051	0.000	**0.025**	0.000	0.688	**0.185**
Kenya	0.028	0.000	**0.014**	0.154	0.300	**0.120**
Kiribati	0.000	0.000	**0.000**	0.325	0.000	**0.081**
Korea, North	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Korea, South	0.000	0.000	**0.000**	0.422	0.100	**0.130**
Kosovo	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Kuwait	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Kyrgyzstan	0.047	0.000	**0.023**	0.000	0.440	**0.122**
Laos	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Latvia	0.204	0.507	**0.356**	0.375	0.133	**0.305**
Lebanon	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Lesotho	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Liberia	0.042	0.000	**0.021**	0.325	0.000	**0.092**
Libya	0.000	0.000	**0.000**	0.109	0.367	**0.119**
Liechtenstein	0.671	0.751	**0.711**	0.000	0.700	**0.530**
Lithuania	0.180	0.000	**0.090**	0.681	0.354	**0.304**
Luxembourg	0.000	0.000	**0.000**	0.000	0.640	**0.160**
Macau	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Macedonia	0.064	0.563	**0.314**	0.422	0.069	**0.280**
Madagascar	0.000	0.000	**0.000**	0.656	0.880	**0.384**
Malawi	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Malaysia	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Maldives	0.000	0.000	**0.000**	0.306	0.160	**0.117**
Mali	0.000	0.000	**0.000**	0.656	0.220	**0.219**
Malta	0.000	0.083	**0.041**	1.000	0.312	**0.349**
Marshall Islands	0.066	0.000	**0.033**	1.000	0.000	**0.266**
Mauritania	0.000	0.000	**0.000**	0.656	0.460	**0.279**
Mauritius	0.000	0.000	**0.000**	0.375	0.000	**0.094**
Mexico	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Micronesia, Fed.	0.264	0.000	**0.132**	0.578	0.050	**0.223**
Moldova	0.050	0.000	**0.025**	0.401	0.198	**0.162**
Monaco	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Mongolia	0.000	0.000	**0.000**	0.422	0.069	**0.123**
Montenegro	0.084	0.000	**0.042**	0.439	0.089	**0.153**
Morocco	0.000	0.000	**0.000**	0.656	0.340	**0.249**
Mozambique	0.000	0.000	**0.000**	0.656	0.079	**0.184**
Namibia	0.000	0.000	**0.000**	0.409	0.100	**0.127**
Nauru	0.000	0.000	**0.000**	0.325	0.000	**0.081**
Nepal	0.000	0.000	**0.000**	0.000	0.087	**0.022**

Country	CI	RF	CIC	OR	PL	DDPP
Netherlands	0.000	0.000	**0.000**	0.000	0.300	**0.075**
New Zealand	0.637	0.067	**0.352**	0.656	0.340	**0.425**
Nicaragua	0.099	0.099	**0.099**	0.000	0.100	**0.075**
Niger	0.000	0.000	**0.000**	0.656	0.160	**0.204**
Nigeria	0.000	0.000	**0.000**	0.325	0.000	**0.081**
Norway	0.000	0.000	**0.000**	0.000	0.075	**0.019**
Oman	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Pakistan	0.000	0.000	**0.000**	0.000	0.460	**0.115**
Palau	0.807	0.095	**0.451**	0.516	0.220	**0.409**
Panama	0.059	0.000	**0.029**	0.656	0.000	**0.179**
Papua New Guinea	0.000	0.000	**0.000**	0.044	0.000	**0.011**
Paraguay	0.075	0.000	**0.037**	0.656	0.100	**0.208**
Peru	0.066	0.344	**0.205**	0.656	0.000	**0.266**
Philippines	0.094	0.094	**0.094**	0.656	0.000	**0.211**
Poland	0.000	0.000	**0.000**	0.422	0.275	**0.174**
Portugal	0.000	0.000	**0.000**	0.000	0.358	**0.089**
Qatar	0.000	0.000	**0.000**	0.000	0.740	**0.185**
Romania	0.000	0.000	**0.000**	0.656	0.400	**0.264**
Russia	0.068	0.000	**0.034**	0.422	0.069	**0.140**
Rwanda	0.000	0.000	**0.000**	0.525	0.820	**0.336**
Saint Kitts and	0.000	0.000	**0.000**	0.409	0.000	**0.102**
Saint Lucia	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Saint Vincent an	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Samoa	0.000	0.000	**0.000**	0.656	0.000	**0.164**
San Marino	0.463	0.352	**0.408**	1.000	0.000	**0.454**
Sao Tomé and P.	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Saudi Arabia	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Senegal	0.000	0.000	**0.000**	0.656	0.100	**0.189**
Serbia	0.099	0.099	**0.099**	0.544	0.100	**0.211**
Seychelles	0.000	0.000	**0.000**	0.431	0.170	**0.150**
Sierra Leone	0.000	0.000	**0.000**	0.374	0.000	**0.094**
Singapore	0.000	0.000	**0.000**	0.409	0.000	**0.102**
Slovakia	0.599	0.083	**0.341**	0.422	0.110	**0.304**
Slovenia	0.609	0.755	**0.682**	1.000	0.420	**0.696**
Solomon Islands	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Somalia	0.000	0.000	**0.000**	0.000	0.073	**0.018**
Somaliland	0.000	0.000	**0.000**	0.000	0.000	**0.000**
South Africa	0.000	0.000	**0.000**	0.000	0.100	**0.025**
South Sudan	0.000	0.000	**0.000**	0.500	0.100	**0.150**
Spain	0.000	0.000	**0.000**	0.656	0.345	**0.250**
Sri Lanka	0.000	0.000	**0.000**	0.656	0.070	**0.181**
Sudan	0.000	0.000	**0.000**	0.219	1.000	**0.305**
Suriname	0.000	0.000	**0.000**	0.000	0.100	**0.025**

Country	CI	RF	CIC	OR	PL	DDPP
Swaziland	0.000	0.000	**0.000**	0.438	0.000	**0.109**
Sweden	0.000	0.000	**0.000**	0.656	0.210	**0.217**
Switzerland	0.853	0.815	**0.834**	0.875	0.000	**0.636**
Syria	0.000	0.000	**0.000**	0.000	1.000	**0.250**
Taiwan	0.231	0.000	**0.116**	0.309	0.215	**0.189**
Tajikistan	0.000	0.000	**0.000**	0.422	0.688	**0.277**
Tanzania	0.000	0.000	**0.000**	0.150	0.000	**0.038**
Thailand	0.000	0.000	**0.000**	0.306	0.047	**0.088**
Togo	0.073	0.000	**0.037**	0.000	0.400	**0.118**
Tonga	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Trinidad and Tobago	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Tunisia	0.000	0.000	**0.000**	0.656	0.640	**0.324**
Turkey	0.000	0.000	**0.000**	0.656	0.547	**0.301**
Turkmenistan	0.078	0.078	**0.078**	0.306	0.460	**0.231**
Tuvalu	0.000	0.000	**0.000**	0.000	0.140	**0.035**
Uganda	0.095	0.000	**0.048**	0.656	0.427	**0.294**
Ukraine	0.749	0.000	**0.374**	0.656	0.100	**0.376**
United Arab Emir	0.000	0.000	**0.000**	0.000	0.000	**0.000**
United Kingdom	0.000	0.000	**0.000**	0.000	0.255	**0.064**
United States	0.000	0.000	**0.000**	0.000	0.000	**0.000**
Uruguay	0.577	0.779	**0.678**	0.689	0.000	**0.511**
Uzbekistan	0.000	0.000	**0.000**	0.656	0.688	**0.336**
Vanuatu	0.000	0.000	**0.000**	0.656	0.000	**0.164**
Venezuela	0.095	0.090	**0.092**	1.000	0.646	**0.458**
Vietnam, Dem.	0.000	0.000	**0.000**	0.000	0.100	**0.025**
Yemen	0.000	0.000	**0.000**	0.656	0.367	**0.256**
Zambia	0.000	0.000	**0.000**	0.422	0.100	**0.130**
Zimbabwe	0.000	0.000	**0.000**	0.000	1.000	**0.250**

Table 6. Summary statistics: DDPP and its components (if year ≥ 2000)

Variable	Obs	Mean	Std. Dev.	Min	Max
CI	2,926	0.051	0.156	0	0.960
RF	2,926	0.036	0.147	0	0.948
CIC	**2,926**	**0.044**	**0.133**	**0**	**0.840**
OR	2,926	0.349	0.320	0	1.000
PL	2,926	0.211	0.337	0	1.000
DDPP	**2,926**	**0.162**	**0.146**	**0**	**0.849**

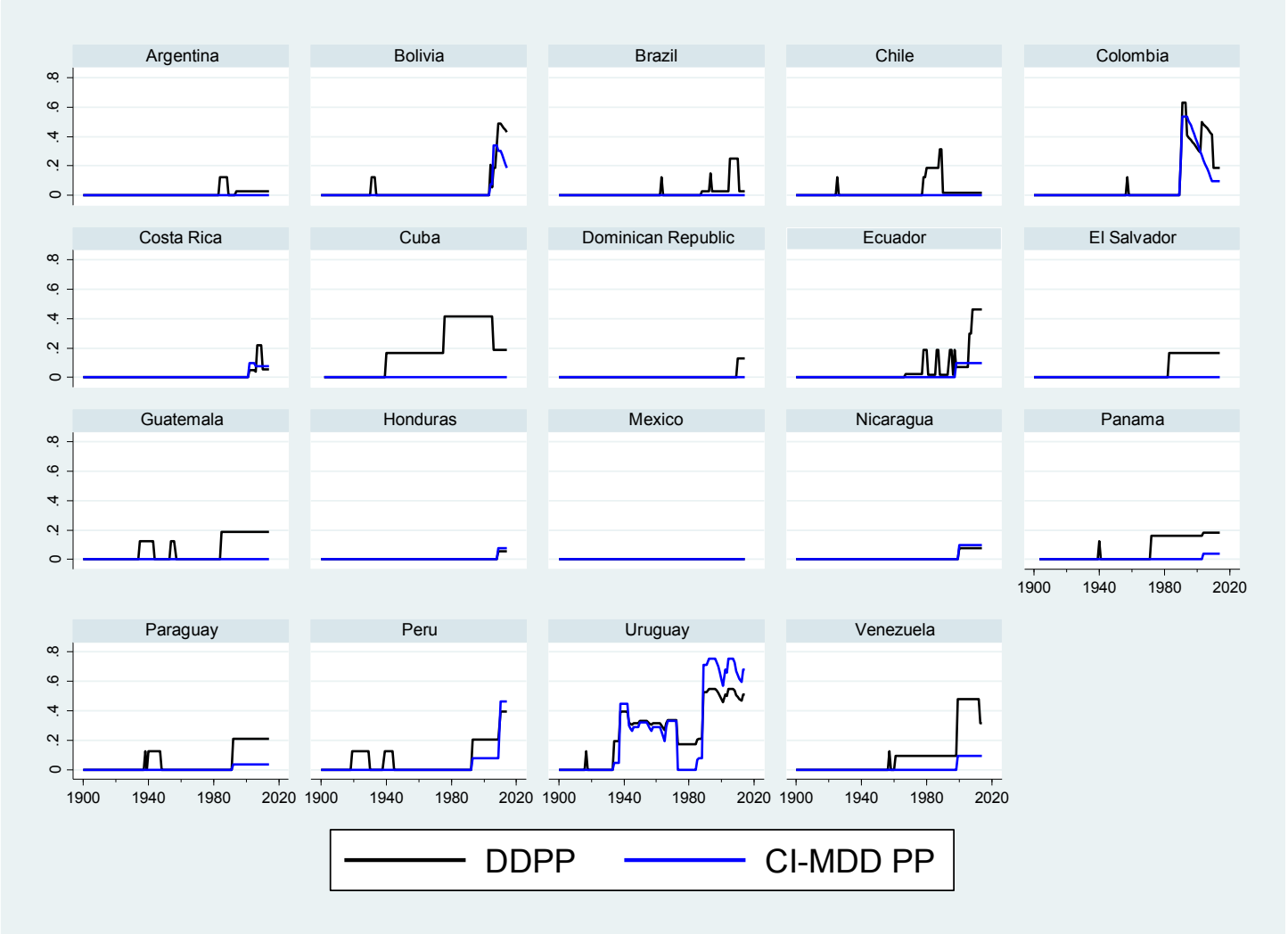

Figure 6. Latin America

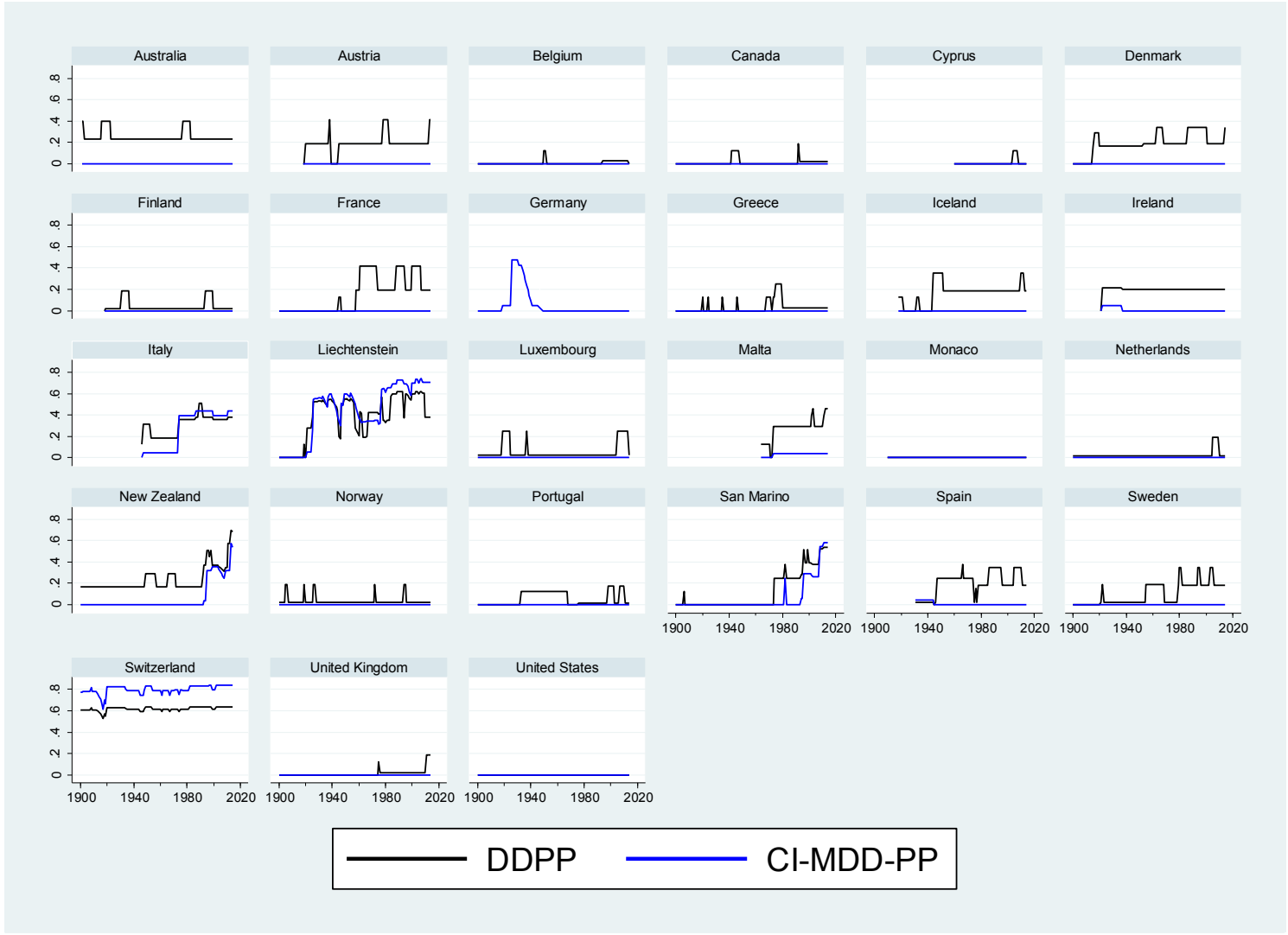

Figure 7. "Developed World"

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