

# Compliance with the Inter-American Court of Human Rights: Methodological Proposal and Preliminary Findings

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In this document, we advance a methodological proposal to assess levels of compliance with decisions of the Inter-American Court of Human Rights (IACtHR). The document presents historical trends in compliance, introduces the new methodology, and offers an analysis of the 238 cases (1,782 reparation measures) decided by the Court by the end of 2018.

The main findings are:

- The number of reparation measures under supervision has increased tenfold in less than two decades, from 121 measures in 2001 to 1,229 in 2018. This growth partly reflects a change in the IACtHR: Since 2000, the Court has decided more cases, requested more reparations per case, and emphasized non-monetary reparations. Rates of compliance have not grown sufficiently to compensate for this change.
- Only five states have ever complied with every obligation towards their victims, closing all pending cases. Those countries had very few cases under supervision at the time. Thus, a state's rate of compliance may offer an incomplete picture of government efforts.
- Prior studies have shown that monetary and symbolic reparation measures experience greater levels of compliance. However, they reach this conclusion by taking a "snapshot" of rates of compliance at a particular point in time. This conventional method ignores the amount of time that it takes states to comply with the rulings of the IACtHR.

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<sup>1</sup> We are indebted to Elizabeth Jiménez Mora, Michael Talbot, and Bernardo Pulido Márquez for their advice in the development of this study.

- We propose to assess the number of years elapsed between the Court’s decision and the resolution declaring compliance. Statistical models allow us to estimate the yearly probability of compliance (partial or full). Based on these estimates, we retrieve the expected time to compliance under different circumstances.
- Our preliminary analysis based on this method indicates that, on average, it takes about 8 years from the time of a ruling until the Court identifies the first form of compliance (partial or full). It takes about 11 years until the Court identifies full compliance.
- These averages, however, hide considerable variation in the propensity of states to comply over time. The probability of compliance increases in the first three years after a ruling of the IACtHR, and declines afterwards.
- The averages also hide variation in rates of compliance across types of reparation measures:
  - Although observers of the Inter-American System express concerns about low rates of compliance, we should expect some compliance for most reparation measures within a decade: within 4 years for contributions to the Court victims’ fund, 5 years for indemnifications and compensation for legal costs, 6 years for measures of satisfaction, and 10 years for measures of restitution.
  - However, measures of rehabilitation, no-repetition, and the prosecution of perpetrators present very low rates of compliance, and we cannot confidently expect compliance within a reasonable period.

In the first section of this report, we summarize historical trends in compliance for the overall IACtHR, and by state. In the following sections, we discuss methodological issues related to proper estimation of rates of compliance, and present the results of our statistical analysis of all cases decided by 2018.

## **Historical Trends**

### **Historical Trends for the Court**

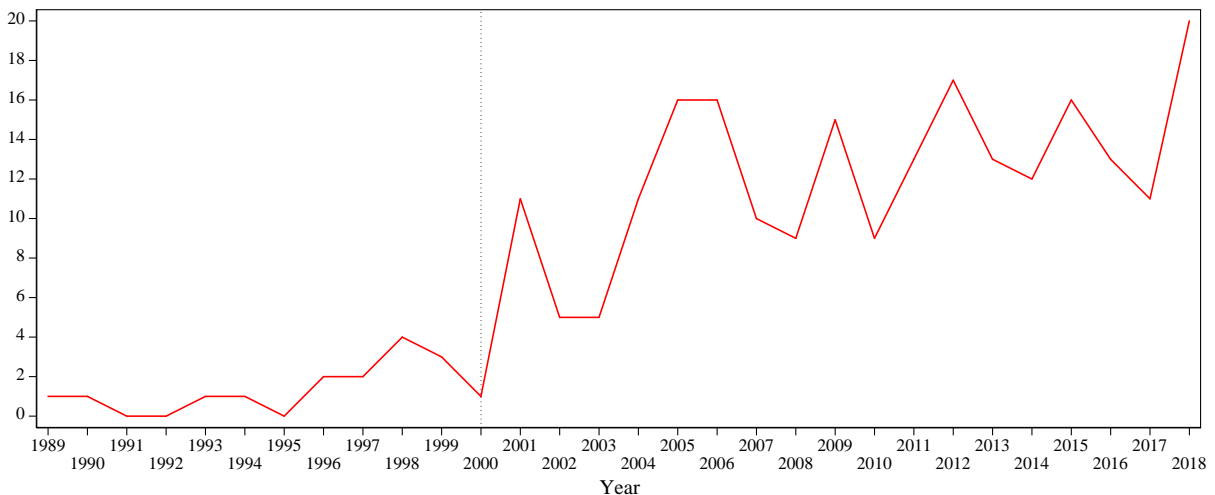
Between 1989 and 2018, the IACtHR ruled in 238 cases, ordering (by our count) 1782 reparation measures. Yet, only about a third of all reparation measures have met full compliance to this day. To analyze this issue, we developed a database covering all cases decided by the end

of 2018.<sup>2</sup> Ten Notre Dame students, working with two doctoral candidates, dated the time of compliance for each reparation measure based on the date of the Court’s supervision resolutions. Cases vary significantly in the number of measures. For example, “Genie Lacayo vs. Nicaragua” involves a single reparation, while “López Soto y otros vs. Venezuela” includes 21. About 80% of the rulings involve 10 measures or less, and the average case includes 7.5 reparations.<sup>3</sup>

The analysis of the data suggests that a major transformation took place at the beginning of the 21<sup>st</sup> century. After 2000, the IACtHR decided on many more cases and ordered more reparation measures per case. However, the rate of compliance by states never caught up with the surge in the number of requests. The result has been an accumulation of pending reparation measures at supervision stage, creating rising concerns about compliance.

Figure 1 displays the growing number of cases decided by the IACtHR over time. On average, the Court issued 1.3 decisions per year between 1989 and 2000, but issued 12.3 decisions per year between 2001 and 2018. Moreover, the number of reparations requested by the Court also expanded over time. Until 2000, the average case involved 3 reparations; in the contemporary period, the typical case has involved 8 measures.

Figure 1. Cases Decided by the IACtHR, per Year

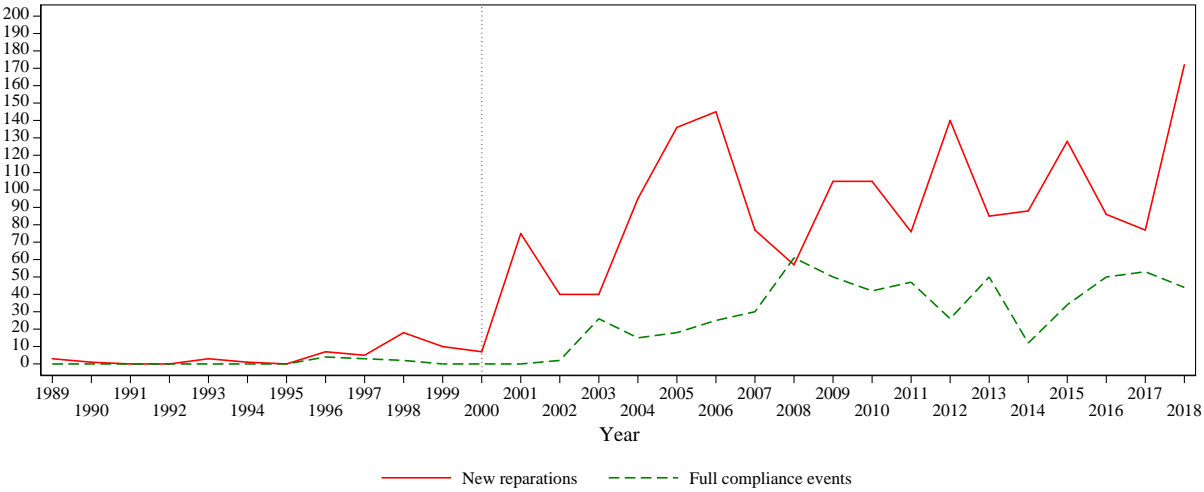


<sup>2</sup> <http://www.corteidh.or.cr/cf/jurisprudencia>

<sup>3</sup> Older cases often listed several measures involving monetary compensation (e.g., legal costs, damages, contributions to the Court’s fund) under a single resolution point. Following the Court’s monitoring procedures, we treated each measure as an individual reparation measure in our database.

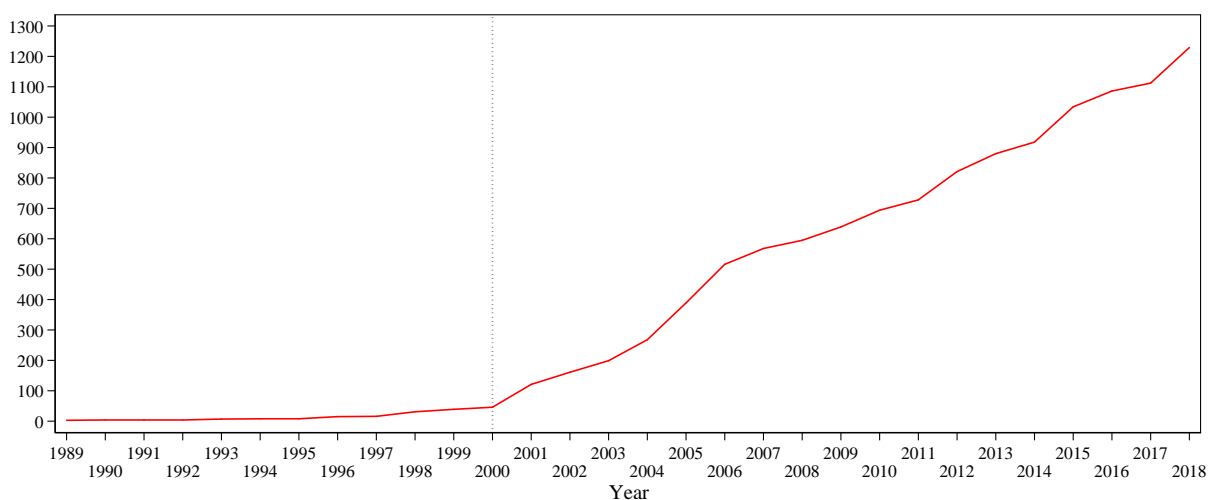
Figure 2 documents that the number of new reparations ordered by the IACtHR surged after 2000. Every year, with the exception of 2008, the number of new measures exceeded the number of closed reparations. This gap reflects in part the time lag in compliance: resolutions of full compliance in any given year correspond to (a smaller number of) measures ordered in earlier years. But the growing gap also reflects that reparation measures became more complex over time. A majority of measures ordered until 2000 were indemnifications and requests to cover victims’ legal costs, while only about a third of the reparations ordered in this century have a monetary component. Although states comply with monetary reparations at a higher rate (we document this fact below), the composition of the reparation portfolio has shifted: some 48% of all measures under supervision were monetary in nature in 2000, but this number had dropped to 26% by 2018.

Figure 2. Number of New Reparations Ordered vs. Full Compliance Resolutions



The combination of more cases, more reparation measures, and an inadequate rate of compliance, produced an accumulation of pending reparations under supervision. On average, the Court had just 15 measures under supervision in any typical year until 2000. Between 2001 and 2018, in contrast, the Court has supervised 664 measures per year on average. Figure 3 documents that the number of pending measures has increased tenfold in less than two decades, from 121 measures under supervision in 2001 to 1,229 in 2018. This trend explains rising concerns about compliance, and calls for a systematic analysis of this issue.

Figure 3. Pending Reparation Measures under Supervision



### Historical Trends, by State

One of the reasons for the accumulation of pending reparation measures is that states rarely “clear their accounts” with the Inter-American Court. Some, like Haiti and Trinidad and Tobago have shown no willingness to comply with any measures to this day.<sup>4</sup> Most states meet some obligations, but usually address a limited number of pending reparations in any given year. Only five states have ever complied in full with all pending obligations towards the victims, closing all cases decided by the IACtHR at the time. However, those countries had very few cases under supervision. Thus, the rate of compliance may offer an incomplete picture of states’ efforts.

Figure 4 below tracks the percentage of reparation measures addressed by states in any given year. The green line reflects the percentage of reparations with full or partial compliance. The blue line, more demanding, reflects events of full compliance. We dated events based on the year of IACtHR supervision resolutions, which may involve some delay with regard to the timing of actual redress.

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<sup>4</sup> Trinidad and Tobago denounced the American Convention in 1998, but the IACtHR continued to rule with respect to events occurring prior to the effective date of the denunciation. A similar rule applies to Venezuela after 2012.

Figure 4. Percentage of Reparation Measures Meeting State Compliance, per Year



The pattern for most states indicates “peaks” of compliance. For example compliance surged in Argentina in 2010 (for *Bayarri* and *Kimel*); Barbados in 2011 (*Boyce* and *Dacosta Cadogan*); Bolivia in 2004-2005 (*Trujillo Oroza*); Brazil in 2008 (*Ximenes Lopes*); Ecuador in 2009 (*Tibi*, *Zambrano Vélez*, *Chaparro Álvarez*, and *Albán Cornejo*); El Salvador in 2006 (*Hermanas Serrano Cruz*); and Uruguay in 2013 (*Gelman*). Some of those instances involve a single case, which suggests that compliance may relate to particular factors surrounding specific cases and not to broader changes in states’ political will.

Only five countries in Figure 4 complied with all pending reparations in full: Honduras in 1996 (in *Godínez Cruz* and *Velásquez Rodríguez*); Nicaragua in 1998 (*Genie Lacayo*); Suriname in 1997-1998 (*Aloeboetoe* and *Gangaram Panday*); Chile in 2003 (*Olmedo Bustos*); and Costa

Rica in 2010 (*Herrera Ulloa*). It is important to note that these states had, at the time, very few measures under supervision, which facilitated the closing of pending cases. Honduras had only four reparations pending by 1996, Nicaragua had just one in 1998, Suriname had four in 1997, Chile had two in 2003, and Costa Rica had just four reparations under supervision in 2009.

States' commitment to the Inter-American System looks quite different if we assess the absolute *number* of reparations with partial or full compliance in any given year. Guatemala complied with 29 reparations (of 72 measures pending) in 2007; Peru complied with 26 (out of 145) in 2009; Colombia complied with 19 (of 89) in 2009; Mexico complied with 19 (of 78) in 2013; Ecuador complied with 17 (of 32) in 2009; Paraguay complied with 16 (of 50) in 2008; and Honduras complied with 16 (of 34) in 2008. Because of this reason, estimates of time-to-compliance may offer a better indicator of state efforts than relative rates of compliance.

## Methodological Issues

### The “Snapshot” Approach to Compliance

Existing research emphasizes three types of factors to explain compliance: domestic factors, international factors, and case-specific factors. First, compliance with IACtHR decisions depends on characteristics of the state, including domestic institutions, the political will of domestic leaders, and the degree to which non-governmental organizations pressure governments to comply.<sup>5</sup> Second, international actors, such as the General Assembly of the Organization of American States, international NGOs, or foreign governments, may pressure states, creating incentives to comply.<sup>6</sup> Finally, compliance depends on the features of each case.<sup>7</sup> Among those features are the types of rights violated and the type of reparation measures requested.

This literature shows that states comply with symbolic and monetary measures at much higher rates than with measures of non-repetition or requests to prosecute perpetrators. For example, González-Salzberg (2010, 2013) analyzes data on IACtHR decisions from 1989 to 2011 and tracks the status of compliance for 330 measures. He finds rates of compliance between

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<sup>5</sup> Alvarez et al. (2007), Bailliet (2013), Coimbra (2013), Garavito and Kauffman (2016), Hawkins and Jacoby (2010), Huneeus (2011), Nuño (2016), Parente (2018), Parra Vera (2016), Sánchez (2013).

<sup>6</sup> Alvarez et al. (2007), Bailliet (2013), Hawkins and Jacoby (2010).

<sup>7</sup> Baluarte (2012), Basch et al. (2010), Calderón Gamboa (2014), Garavito and Kauffman (2016), González-Salzberg (2010), Hawkins and Jacoby (2010), Salazar and Cerqueira (2016).

63 and 80 percent for measures of monetary compensation, publicity of rulings, and acts of acknowledgement. In contrast, compliance ranges between 3 and 31 percent for measures that require prosecution or changes to legislation. Other empirical studies support these findings. Hawkins and Jacoby (2010) examine a sample of IACtHR decisions from 1996 to 2010. They analyze 703 reparation measures and find rates of compliance between 40 and 43 percent for apologies and material reparations, but just 7 to 19 percent for legislative and investigative measures. Basch et al. (2010) find similar patterns in a sample of cases processed by the Inter-American Commission and by the Inter-American Court between June 2001 and June 2006, while Baluarte (2012) finds them in a sample of Court rulings from 1989 to 2009. Based on a sample of 36 cases and 359 reparations from 2001 to 2008, Hillebrecht (2014) finds compliance rates above 50 percent for symbolic reparations and only 14 percent for retrials and non-repetition measures. Finally, Parente (2018) finds that states take the shortest time to comply with requests to publish decisions and pay monetary reparations, and the longest time to comply with reparation measures that require them to investigate and prosecute offenders.

While these studies agree in their findings, they also share some methodological limitations. Quantitative studies of compliance with rulings of the IACtHR typically observe compliance with reparation measures at a single point in time. With the exception of recent work by Parente (2018), each study selects a certain period and takes a “snapshot” of rates of compliance for cases observed within that period. For example, studies indicate that, as of mid-2013, 65% of monetary reparations ordered by the Court had met full compliance (González-Salzberg 2013). This approach does not account for the time it takes states to comply. Figures are unable to differentiate between non-compliance in recent cases, for which states have had little time, and past cases, for which states have had ample time to comply.

To illustrate this issue, Figure 5 presents a hypothetical example with three states (A, B, and C) required by the Court to comply with two reparation measures each (labeled A1, A2; B1, B2; and C1, C2). State A receives the ruling in 2002 and complies with the first measure in 2008 and the second measure in 2009. State B receives the ruling in 2003, complies with the first measure in 2009 and the second measure in 2015. State C receives the ruling in 2009, complies with the first measure in 2010 and with the second in 2012. Thus, State C responds to the Court’s requests promptly, State A complies reluctantly after several years, and State B complies even more reluctantly after a long time.



Figure 5. Snapshot of Compliance in 2010

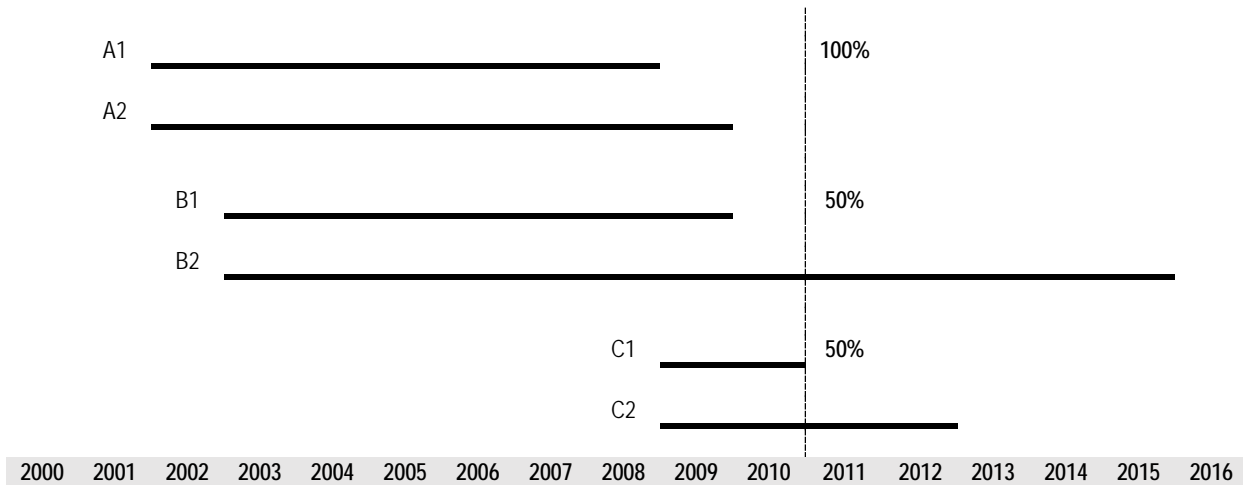


Figure 5 illustrates why the snapshot approach may generate misleading conclusions. Consider a study observing the status of all cases at the end of 2010. At this point, State A has complied with 100% of its reparation measures, State B has complied with 50%, and State C has complied with 50%. Thus, State A appears to be most committed to the Inter-American System, while C in fact outperforms the other two states.

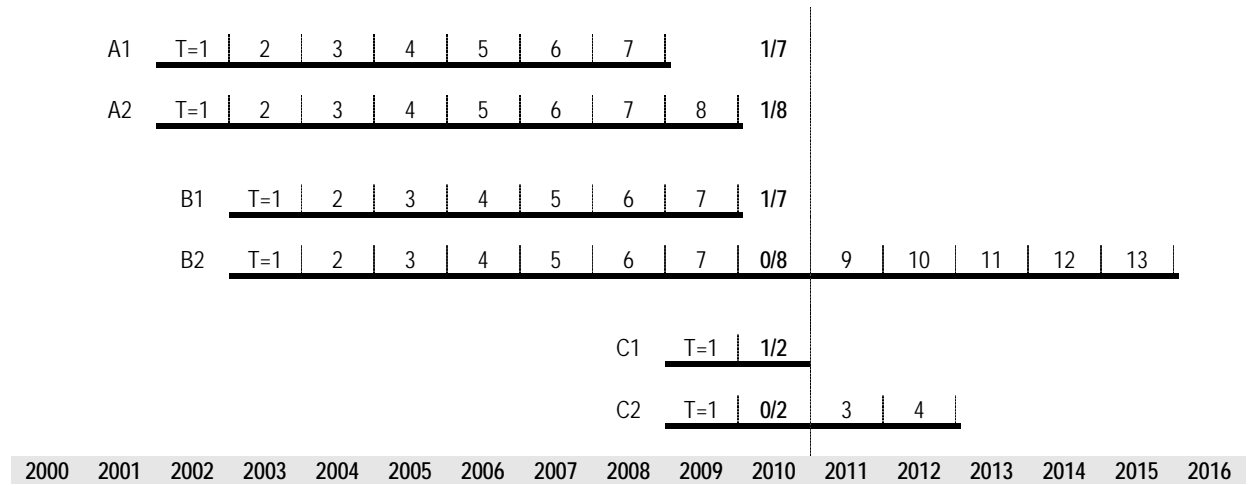
This example suggests that low rates of compliance in any given snapshot may in part reflect the time that states take to address the Court’s requests. For example, of 930 reparation measures issued by the Court in 1989-2010, states had complied in full with only 30% by the end of 2010. However, the rate of full compliance increases to 41% if we exclude measures ordered in the last three years of the period (2007-10).

**Methodological Proposal: Discrete-Time Analysis**

To address this important limitation, we propose an alternative approach.<sup>8</sup> This strategy allows us to calculate the probability of compliance in any given year during the lifetime of a reparation measure, and to retrieve the expected time-to-compliance based on this information. Figure 6 illustrates the implementation of this strategy by a hypothetical researcher observing the same examples from Figure 5 at the end of 2010.

<sup>8</sup> To our knowledge, only Parente (2018) is currently employing this approach.

Figure 6. Discrete-Time Approach, by 2010



The procedure involves three steps:

1. *Split the life of a reparation measure into discrete time units (years).* Beginning on the year of the ruling, each reparation measure is observed at regular (discrete) intervals. Every year elapsed until compliance adds one time unit to the reparation's duration count (the denominator listed for each reparation in 2010). For example, it took State A seven time units, including the year of the ruling, to comply with measure A1.
2. *Estimate the probability of compliance per year.* The inverse of the number of years represents the average probability of compliance over the history of this reparation. For example, the annual probability of compliance for A1 is 1/7 (0.143) while the annual probability of compliance for A2 is 1/8 (0.125). Taken the two together, the average probability of compliance for State A, irrespective of the type of reparation, is 2/15 (0.133).
3. *Retrieve the expected-time-to-compliance from probability estimates.* The inverse of probability estimates allows us to retrieve the expected time to compliance, measured in years. Following the previous example, the expected time-to-compliance for State A is, re-translated to time units, 7.5 years (1/0.133).

Using this method, and assuming that we observe the situation of all cases at the end of 2010, the probability of compliance is 0.133 (an expected time-to-compliance of 7.5 years) for State A, 0.067 (or 15 years) for State B, and 0.25 (4 years) for State C. In contrast to the snapshot approach, the discrete-time approach identifies State C as most inclined to honor its

commitments with the Inter-American System, and State B as the least inclined to do so. Moreover, the estimates using incomplete information available in 2010 approximate quite reasonably the actual performance of each state, as observed by 2015 (7.5 years on average for State A, 10 years on average for State B, and 3 years for State C).

Three features of this approach deserve special mention. First, while a snapshot analysis can be easily implemented by tabulating information on compliance available in any given year, the discrete-time approach requires restructuring the data to create yearly records for each reparation measure. Between August 2018 and April 2019, our team undertook the creation of this dataset as the first step in the analysis. We created annual records for each of the 1,782 reparation measures, starting on the year of the ruling through the year of full compliance (or 2019, in cases of non-compliance). This process generated 13,327 observations at the reparation-year level.

Second, the estimation of the probability of compliance for each reparation-year is the key task for statistical analysis. Although the illustration presented in Figure 6 only compares three hypothetical states and two types of reparation measures, we must estimate the yearly probability of compliance for hundreds of cases, controlling for several factors, and assess how the probability of compliance evolves over the lifetime of a reparation. For example, only four reparation measures (A1, A2, B1 and B2) last for more than six years in Figure 6, and two of them experience sudden compliance in year 7. This means that, in this example, the rate of compliance for pending measures increases to 50% by year 7.<sup>9</sup>

Third, the logic of the discrete-time approach allows us to report results in two equivalent formats: as the estimated probability of compliance per year, or as the expected time-to-compliance. The two quantities are equivalent because they represent the inverse of each other. For instance, an estimated probability of compliance of 0.50 per year yields an expected time to compliance of 2 years, and an estimated probability of 0.10 yields an expected time to compliance of 10 years. This rule has two important implications for the interpretation of results:

- Our estimates of expected time-to-compliance incorporate information for reparation measures that never experienced compliance. For example, consider reparation measures of type 2 (A2, B2, C2) in Figure 6. By 2010, only country A has complied with reparation A2. However, other reparations of the same type remain open: B2 has been open for 8 years and

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<sup>9</sup> See the appendix for additional details on statistical modeling.

C2 has been open for 2 years. Thus, only one event of compliance has taken place for 18 reparation-years observed (1/18). By 2010, estimated time-to-compliance for reparation measures of type 2 is thus, on average, 18 years.

- Unrealistic time estimates reflect situations in which adverse conditions generate very low probabilities. For example, a duration estimate of 100 years (!) would indicate that the probability of compliance under a particular set of conditions is just 0.01 (or 1%). Because all statistical estimates involve a margin of error, very low probabilities are often hard to distinguish from zero. Thus, very long time horizons must be interpreted as evidence of unlikely compliance within a reasonable period, not as precise estimates.

## Results

We conducted a statistical analysis of the 13,327 reparation-years. To identify events of compliance, we registered the year when the IACtHR declared that states had complied in part or in full with particular reparation measures. For example, a yearly observation in our database may reflect the status of the Military Justice Code reform, one of the 11 measures required in *Radilla Pacheco v. México* (2009), as of 2013. By the end of 2013, no resolution had yet reported compliance with this measure. Thus, although we discuss the results as estimates of time-to-compliance, it would be more accurate to interpret them as estimates of the time until the Court *declares* compliance in a supervision resolution. We are already working to pinpoint the exact year of compliance in the next stage of this project.

Proper implementation of the discrete-time approach requires the estimation of statistical models. To illustrate this point, Table 1 compares countries in terms of four descriptive measures: the average probability of compliance (including partial compliance), the average probability of full compliance, the expected time until any form of compliance, and the expected time to full compliance. The states with the best record are Ecuador (6 years to first indication of compliance on average), Bolivia (7 years), and Chile (8 years). At the other end of the spectrum, some countries present extremely low probabilities, and thus unrealistic time estimates: the Dominican Republic (87 years) and Venezuela (240 years). Haiti and Trinidad and Tobago have not complied with any reparation measures, thus the observed probability is zero.

Table 1. Observed Time-to-Compliance, by Country

Country	Probability of any compliance	Probability of full compliance	Time to any compliance	Time to full compliance
Ecuador	0.17	0.11	6	9
Bolivia	0.15	0.12	7	9
Chile	0.12	0.11	8	9
Argentina	0.11	0.07	9	15
Costa Rica	0.11	0.06	9	16
Uruguay	0.10	0.05	10	19
Mexico	0.09	0.07	11	14
Brazil	0.09	0.05	12	19
Panama	0.08	0.08	12	13
Guatemala	0.08	0.05	13	19
Nicaragua	0.07	0.04	14	25
Colombia	0.07	0.04	15	24
Barbados	0.06	0.03	16	32
El Salvador	0.06	0.05	17	21
Paraguay	0.06	0.02	18	41
Honduras	0.05	0.04	20	23
Suriname	0.05	0.04	20	24
Peru	0.05	0.03	21	32
Dominican Republic	0.01	0.01	87	87
Venezuela*	0.00	0.00	240	240
Haiti**	0.00	0.00	-	-
Trinidad and Tobago**	0.00	0.00	-	-

Notes: Estimates do not control for any other factors (e.g., different types of reparations confronted by different countries).

\* Probability estimate is 0.004, including years after denunciation of the Convention in 2012

\*\* No estimation of time if possible because no episodes of compliance ever took place.

Table 1 offers more accurate information than a conventional “snapshot” comparison of compliance rates by country. However, the table still relies on a single descriptive criterion (states), ignoring other possible explanations. The comparison in Table 1 implicitly assumes that the Court ordered similar reparation measures for all countries, around the same time, but these assumptions may not hold. For example, 80% of reparation measures ordered to Barbados were monetary in nature, while only 54% of the reparations ordered to Ecuador were so. Similarly, the Court ordered most reparation measures to Paraguay before 2007, but ordered most reparation measures to Brazil after 2015. Differences in timing matter because a single reparation measure

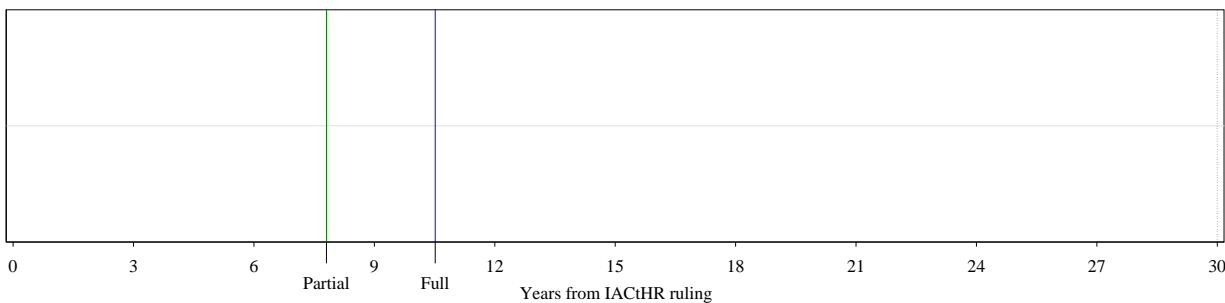
open for 10 years will affect the average probability of compliance for one country as much as 10 measures ordered last year.<sup>10</sup> In both cases, the overall denominator used to calculate the country’s probability will increase in 10 time units, but in the latter case, the country barely had any time to comply.

To accommodate these differences, we estimate a statistical model that accounts simultaneously for the type of reparation and for the number of years elapsed since the ruling. The statistical model also accounts for the fact that different countries have different propensities to comply (as illustrated by Table 1), and for the fact that some legal cases may involve easier conditions for compliance. We do not address technical issues of estimation here, but provide basic information about statistical models in the Appendix.

### Average Time to Compliance

Our analysis based on the statistical model indicates that, on average, it takes about 8 years from the time of the ruling until the Court identifies the first form of compliance (partial or full). The probability of observing any form compliance is about 13% per year. Moreover, it takes about 11 years from the time of the ruling until the Court identifies *full* compliance (the average probability of full compliance is about 9% per year). Figure 7 presents these figures, using the 30-year benchmark (for the first reparations ordered in 1989) as reference.

Figure 7. Expected Time to Partial and Full Compliance



<sup>10</sup> The oldest reparation measures in our sample have remained open for 23 years (*Neira Alegría* and *El Amparo*).

## Life Cycle of Reparation Measures

General estimates, however, hide considerable heterogeneity in the probability of compliance, both over time and across types of reparation measures. Most episodes of compliance happen (if they happen at all) within four years of a ruling. Figure 8 depicts the expected probability of compliance as time elapses from the Court's initial ruling. The left panel presents estimates for the first indication of compliance (partial or full), while the right panel presents more demanding estimates for full compliance. The vertical dotted lines mark the overall, expected time reported in the previous figure (8 years and 11 years, respectively).

Figure 8. Expected Probability of Compliance, by Time Elapsed from the Ruling

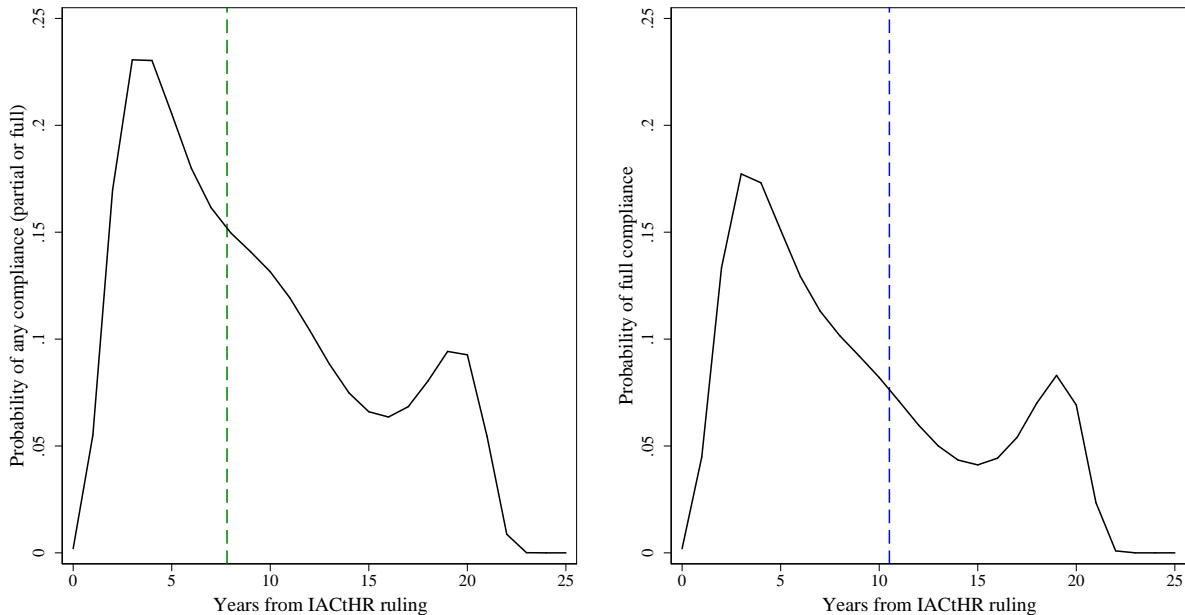


Figure 8 shows that the probability of compliance increases in the first three years after the ruling. States are most likely to comply in the third year after the decision (reaching a yearly rate close to 23% for any form of compliance, and 18% for full compliance). After year four, the probability of compliance declines progressively. A decade after the ruling, the expected rate of compliance is around 13% for full or partial compliance and 8% for full compliance. Thus, there is a window of opportunity to elicit compliance during the first decade. Compliance with “difficult” reparations appears to improve about two decades after the ruling, but this estimate

reflects the experience of very few cases (*Castillo Petruzzi vs. Perú; Garrido y Baigorria vs. Argentina*; and *Suárez Rosero vs. Ecuador*) and thus it is highly uncertain.

### **Types of Reparations**

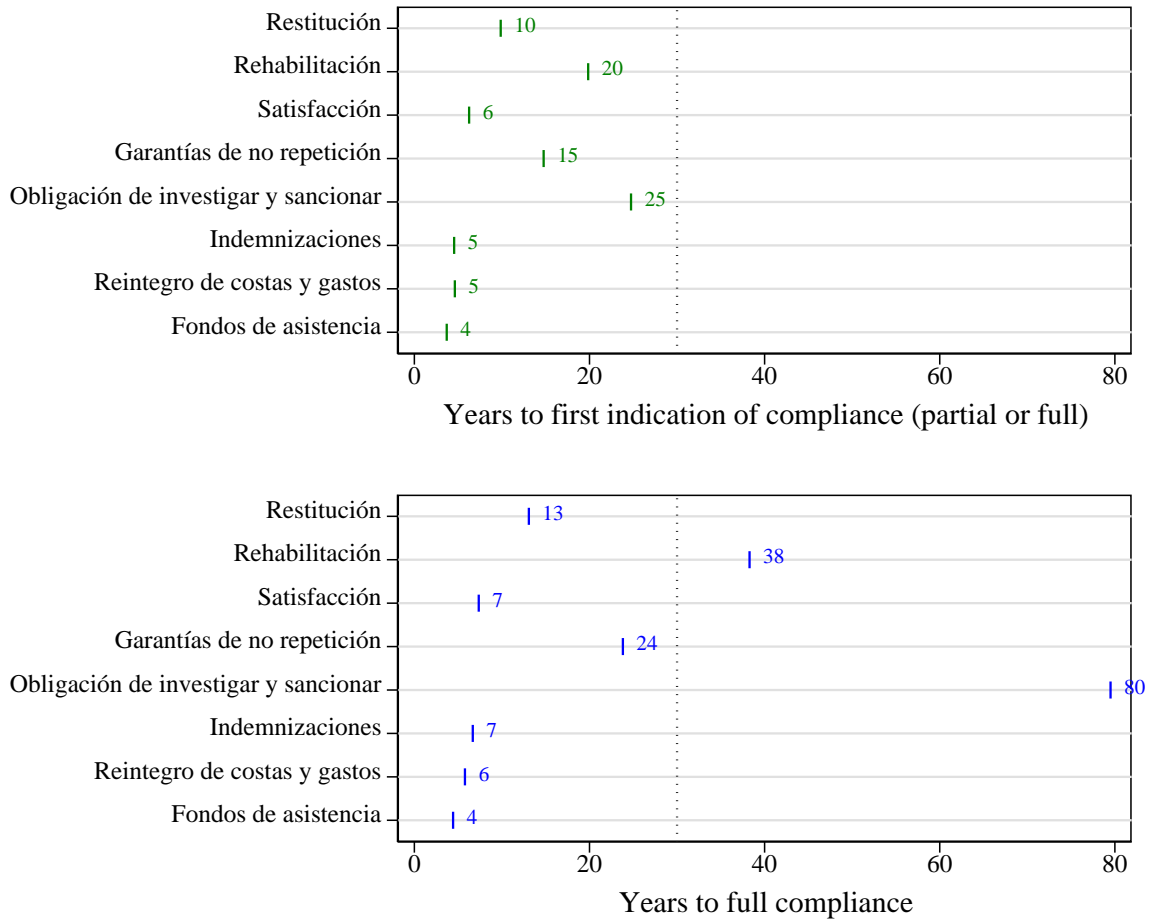
Although Figure 7 presents the pattern for the average reparation measure, the expected time to compliance also presents great heterogeneity across reparation types. Because—as noted above—prior studies have documented consistent differences across reparation types, we explore this issue as an opportunity to validate our method.

Following the Court’s criteria, we classified reparation measures into seven categories: restitution, rehabilitation, satisfaction, guarantees of no repetition, obligation to investigate and sanction, indemnification, and the refund of legal costs and expenses. As an eighth category—albeit not exactly a form of reparation—we include orders to reimburse the Court victims’ assistance fund. The most common types are measures of satisfaction (26%), followed by indemnifications (17%), guarantees of non-repetition (16%), orders to cover legal costs (13%), requests to investigate or prosecute (11%), restitution (8%), rehabilitation (6%), and reimbursements to the victims’ assistance fund (3%).

Figure 9 reports the expected time until the first indication of compliance (in the top panel) or until full compliance (in the bottom panel), by type of reparation measure. The vertical dotted line, included for reference, reflects the time elapsed since the Court’s first ruling (1989). Although observers of the Inter-American System often express concerns about low rates of compliance, the evidence suggests that most reparation measures typically find some compliance within a decade following the Court’s ruling. Initial time to compliance is, on average, four years for contributions to victims’ funds, five years for indemnifications and compensation for legal costs, six years for measures of satisfaction, and ten years for measures of restitution. Upon first indication of compliance, each of these five reparation types typically secure full compliance in the subsequent two years.



Figure 9. Expected Time to Compliance, by Type of Reparation Measure



However, measures of rehabilitation, non-repetition, and the prosecution of perpetrators present very low probabilities of compliance, and thus very long expected times. The top panel suggests that we should expect partial compliance within 15-25 years but, due to the low probabilities involved, these statistical estimates are too uncertain to be reliable. The bottom panel shows that we cannot expect full compliance in any reasonable period—thus the very long estimated delays, which reach eight decades in the case of investigations and prosecutions.

## Next Steps

The analysis presented in this document illustrates the advantages and the potential of the method proposed to analyze compliance with rulings of the IACtHR. This method requires additional work to organize reparations data into yearly observations, and the use of advanced statistical models to estimate the yearly probability of compliance under different conditions. Yet, our analysis shows that the implementation of this approach is feasible. To expand this project, we must identify further research tasks and develop an institutional framework.

### Research tasks:

1. Collect additional information on actual years of compliance (as opposed to the date of resolutions). Our team is already working on this task.
2. Work with the Court's Supervision Unit to identify questions of immediate relevance, for example:
  - Does the probability of compliance increase after the Court conducts public hearings or country visits?
  - Does the probability of compliance increase after the publication of resolutions monitoring the case?
  - Does the type of human rights violation affect the probability of compliance?
3. Collect the necessary data to address those questions.

### Institutional framework:

1. Establish a "Compliance Lab" to integrate Notre Dame students—at the BA, MGA, LL.M, and PhD levels—into the project. We are developing a proposal with Professor Diane Desierto (Keough School of Global Affairs) to create this lab within the Kellogg Institute for International Studies.
2. Establish a framework for cooperation between the IACtHR, the Keough School at Notre Dame (and perhaps the Max Planck Institute in Heidelberg). We began some discussions in January, and will continue this conversation based on responses to this report.

## Appendix: Statistical Models

We estimate the probability of compliance for each reparation-year using a discrete-time duration model, which includes frailties by country and legal case. Besides the type of reparation measure, the model includes a polynomial for the time elapsed since the ruling. The structure of the model is:

$$[1] \quad Y_{ict} = b_{0c} + b_x * Type_x + b_z * T^z + \varepsilon_{it}$$

where  $Y_{it}$  is a linear transformation of the probability of compliance for reparation measure  $i$  in legal case  $c$ , in year  $t$ . Following Parente (2018), we employ a complementary log-log link to transform the probability of compliance into a linear function, but alternative links (e.g., a logistic function) produced equivalent results. In Equation 1,  $b_{0c}$  represents the latent probability of compliance for reparation measures in case  $c$ , assuming that legal cases involve distinct facts and national conditions affecting conditions for compliance. This term is a frailty determined by

$$[2] \quad b_{0c} = b_{00} + b_{01c} + b_{02j}$$

where  $b_{00}$  is a constant for the whole sample,  $b_{01c}$  is a random effect adjusting the constant for each legal case, and  $b_{02j}$  is a random effect by country, capturing disparities observed in Table 1.

In turn,  $b_x$  represents the coefficients for eight types of reparation measures, where  $x$  indicates restitution, rehabilitation, satisfaction, guarantees of no repetition, obligation to investigate, indemnification, refund of legal costs, or contributions to the victims' assistance fund. (The reference category in all models is restitution.)

Coefficients  $b_z$  estimate changes in the hazard function according to the number of years elapsed since the time of the ruling (see Figure 8). Although it is common to employ a cubic polynomial ( $z = 3$ ) or similarly use cubic splines to map the hazard function (Carter and Signorino 2010), additional tests in this case indicated that a higher-order polynomial ( $z = 6$ ) was more appropriate. We performed likelihood ratio tests to identify the best specification for the polynomial. The higher-order polynomial employed presents two substantive advantages. First, it allows us to identify the maximum probability of compliance accurately in the third year, in line with descriptive statistics for the sample (a cubic polynomial displaces the maximum to year 6). Second, the even-degree polynomial does not assume an unrealistic surge in the probability of compliance after two decades, a result forced by the functional shape of odd-degree polynomials.

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