Mapping multidimensional issue -congruence through Procrustes Analysis

ABSTRACT
The "issue-congruence" paradigm has recently witnessed an "explosion" of comparative studies. However, a satisfactory way to map and analyze multi-dimensional programmatic competition is still lacking. Here, I propose to use Procrustes Analysis to explore the nature of ideological representation and competition by constructing a simple-to-interpret map on the basis of a multi-dimensional set of issues. Procrustes Analysis has several advantages: a) it is a parametric technique (differing from Correspondence Analysis), b) it produces a fit statistic that provides the basis for comparisons across cases and different constituent groups, c) it can either be combined with Factor Analysis to analyze "latent ideological dimensions" or be performed on the basis of single issue questions, d) it can go beyond two dimensions, e) it produces estimates on the relative issue congruence observed for each dimension. In this research note I illustrate the virtues of this technique through a triangulation of elite (the PELA database) and mass (LAPOP 2010 survey) data.

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Comments welcome!

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Introduction

In a democracy, programmatic representation can be defined as the extent to which party officials are responsive to the preferences of their electorates (Ranney 1962; Dalton 1985; Powell 1982, 1989; Iversen 1994, 1994a; Przeworski et. al. 1999). For responsiveness to occur, at least three conditions should be present: 1) policy divergence among the parties contesting the election; 2) policy stability on the part of the parties contesting the election; and 3) policy voting on the part of the electorate. The "issue congruence" paradigm describes and seeks to explain the degree to which parties and voters coordinate around their preferences on a given set of salient policy dimensions (Powell Jr. 2004). Although this research tradition has recently witnessed an "explosion" of comparative studies, a satisfactory way to map and analyze multi-dimensional issue congruence is still lacking (Powell Jr. 2004).

In this research note, I propose to apply a methodological strategy centered on Procrustes Analysis to implement multidimensional issue-congruence estimations. That technique provides a way to explore the nature of ideological representation and competition in a given party system by constructing a simple-to-interpret map on the basis of a multi-dimensional set of issues. Furthermore, Procrustes Analysis provides a series of complementary features: a) it is a parametric technique (differing from Correspondence Analysis), b) it produces a fit statistic that provides the basis for comparisons across cases and different constituent groups, c) it can either be combined with Factor Analysis to analyze "latent ideological dimensions" or be performed on the basis of single issue questions, d) it can go beyond two dimensions, e) it produces estimates on the relative issue congruence observed for each dimension.

To demonstrate the potential of the Procrustes technique, I present the results for two cases, whose party-systems have been characterized as relatively programmatic in the Latin American context: Chile and Uruguay. I compare these two cases to that of Peru, one of the cases for which programmatic mobilization seems to be very scant. To do so, I draw on the last round of the PELA and LAPOP surveys, which share a small set of comparable questions. I also argue that provided a large set of questions covering different issue-dimensions, Procrustes Analysis could also be applied to analyze multidimensional issue-congruence on the basis of non-identical survey items at the mass and elite levels. To do so, Confirmatory Factor Analysis at both levels could be applied.

The next section provides a non-technical overview of the method, and of its proposed application to analyze multidimensional issue congruence. Subsequently, I exemplify its potential through an empirical exploration of multidimensional issue congruence in three Latin American cases. I then close this research note identifying pending tasks and the limitations of currently available data. Hopefully, this could help to improve measurement at the mass and elite levels to take full advantage of this technique's potential in future iterations of the LAPOP and PELA projects.

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Method

In this section I provide a non-technical introduction to Procrustes Analysis, which has been extensively used, for instance, in psychometrics, shape and body image analysis, market research, and geography.[1] Procrustes Analysis is a Multi-Dimensional Scaling technique, which is based in the following intuition: the method compares and maximizes the fit between objects described by two different matrices (at least two-dimensional ones). One of the matrices is considered the source and the other the target matrix. Every object is represented by at least two coordinates in each matrix. If every object has the same coordinates in both matrixes the overlap is complete.

A classic example from geography helps illustrate the characteristics of this technique (see Cox and Cox 2001). Assume we want to compare the location of a set of towns in two maps: a modern map and one drawn in antique times. To analyze the accuracy of the antique map, we need to compare the scale of both maps, the relative (Euclidean) distance among towns, and the orientation of each map.

To maximize the fit between both matrices (maps) Procrustes Analysis transforms the data applying an optimal combination of three procedures: dilation (uniform rescaling), rotation (either orthogonal or oblique) and translation. Differing from non-parametric techniques such as Correspondence Analysis, the Procrustes technique computes fit statistics. The Procrustes statistic is defined as the size of the residuals (the difference between objects in the target and source matrices) relative to the variation in the target variables. That statistic can be read as a 1-(R-square) measure, with results approaching 0 as those signaling the best fit between the target and the source matrices. For that reason, with Procrustes statistics tending to zero we can conclude that both maps are fairly similar regarding the relative position and multidimensional distance of our set of towns. The opposite holds if we obtain Procrustes statistics close to 1.

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The output of the Procrustes analysis also includes relevant parameters to: a) assess the translation factor from one matrix (map) to the other, b) assess whether the orientation of both matrixes (maps) is the same (e.g. if the rotation and reflection matrixes are close to an identity-matrix), c) estimate differences regarding the scale in both matices (maps). Finally, the output also includes a table that describes, for every coordinate (x and y in a bi-dimensional matrix), how well the transformed source coordinates match the target ones. Procrustes assumes that dimensions (x and y coordinates) weight equivalently and are orthogonal (though oblique rotations are also available). Therefore, if statistics for each coordinate differ, the two dimensions have disproportional influence in the obtained result.

How can this technique be applied to assess levels of multidimensional issue congruence? Assume we have a multidimensional matrix that represents relative issue positions of voters' from different parties. Further assume that we have

[1]For a technical treatment see e.g. Cox and Cox 2001.

equivalent issue positions in a matrix that represents each party's congressional delegation. Running a Procrustes analysis to obtain the best possible fit between both matrices we can assess how much the multidimensional issue-positions of voters and party leaders overlap. The results of Procrustes analysis could be graphed, into an overlay figure.

Visually, perfect issue-congruence (an empirical proxy for ideological representation) would be obtained when partisan groups fall close to their corresponding party elites. Conversely, "ideological cartelization" occurs when party elites cluster together but are spatially distant from their supporters. Whereas Figure 1 represents the first theoretical scenario, Figure 2 represents the latter. Both graphs assume two relevant competitive dimensions or issue-bundles. Figure 3, in turn, presents a scenario of programmatic collapse towards the center of the two-dimensional competitive space. In substantive terms, while the first scenario is consistent with a significant degree of party/voter coordination around ideological or issue positions, in the second and third scenarios parties and their constituents should coordinate on the basis of alternative linkages (i.e. clientelism, pork distribution, candidate or partisan images and traditions, etc.).

Procrustes analysis has important advantages over its alternatives. Compared to factor analysis, its crucial advantage is that it can be applied (simultaneously) to elite and mass level data. This is impossible to do, in a single factor analysis. Yet, Procrustes analysis can be estimated on the basis of factor analysis results. Suppose we have a series of issues that relate to a latent competitive dimension (i.e. a series of questions on the preferred levels of state intervention/regulation in different social activities). Further, assume that issue questions at the elite and mass surveys are not strictly identical. By drawing on factor analysis we can estimate factor scores representing a latent (state-market) dimension. Those factor scores can then be imputed into a Procrustes analysis. I pursue and exemplify this type of application below. In sum, Procrustes analysis provides a promising way of comparing factor analysis results across the mass and elite levels.

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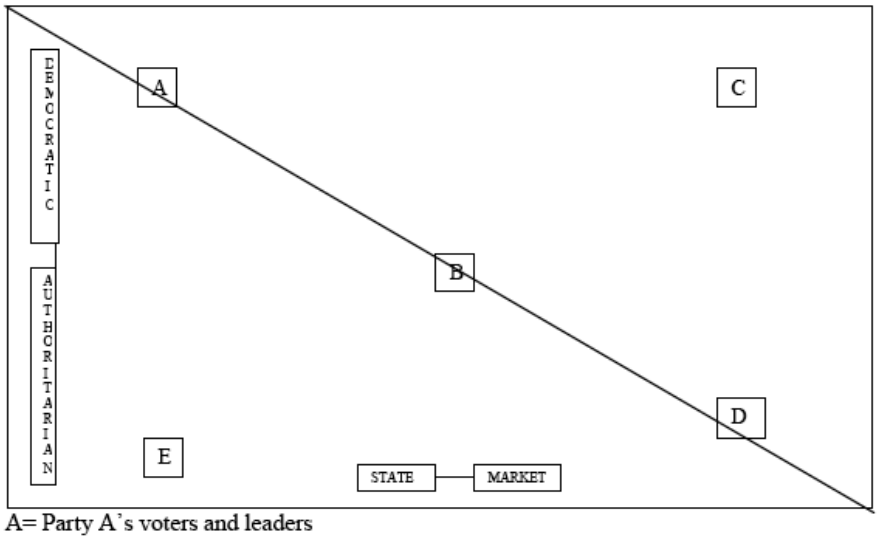
Compared to Correspondence analysis, Procrustes analysis provides parametric estimates and an objective statistic to base comparisons across different outputs and solutions. Correspondence analysis is usually criticized as a descriptive and highly volatile data analysis tool. In this sense, it is not more than a graphical depiction of a 2x2 or multi-variate contingency table. Interpretation of Correspondence analysis results is also criticized as impressionistic, due to the lack of standardized statistics to assess the fit of different outcomes. Procrustes analysis addresses both criticisms.

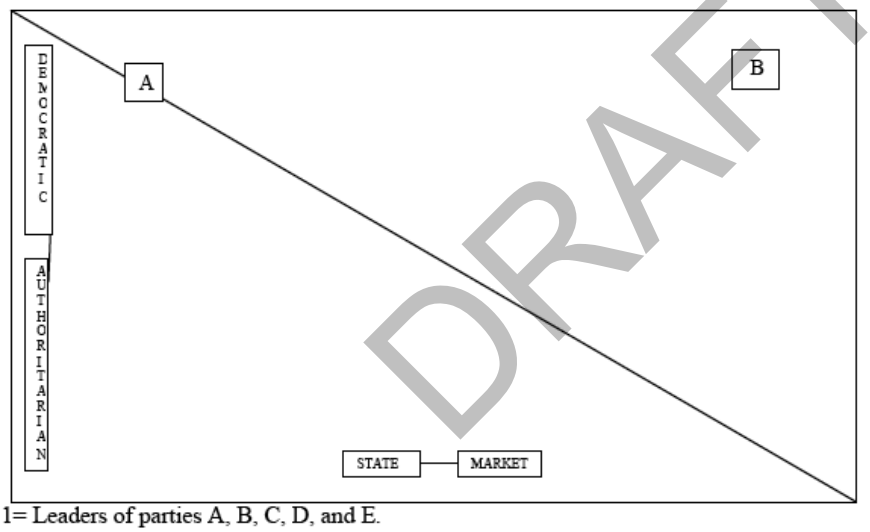
The next section discusses several challenges that researchers seeking to apply Procrustes analysis to analyze multidimensional issue congruence might face. For each challenge, a set of alternatives is explored. The subsequent section presents an application of Procrustes analysis to assess multidimensional issue congruence in four Latin American cases, drawing on data from the PELA and the LAPOP surveys.

Figure 1. Theoretical perfect issue-congruence with 5 parties competing on a two-dimensional setting



A= Party A's voters and leaders
B= Party B's voters and leaders
C= Party C's voters and leaders
D= Party D's voters and leaders
E= Party E's voters and leaders

Figure 2. Theoretical programmatic-cartelization (in dimension y) with 5 parties competing on a two-dimensional setting



1= Leaders of parties A, B, C, D, and E.
2= Voters of parties A, B, C, D, and E.

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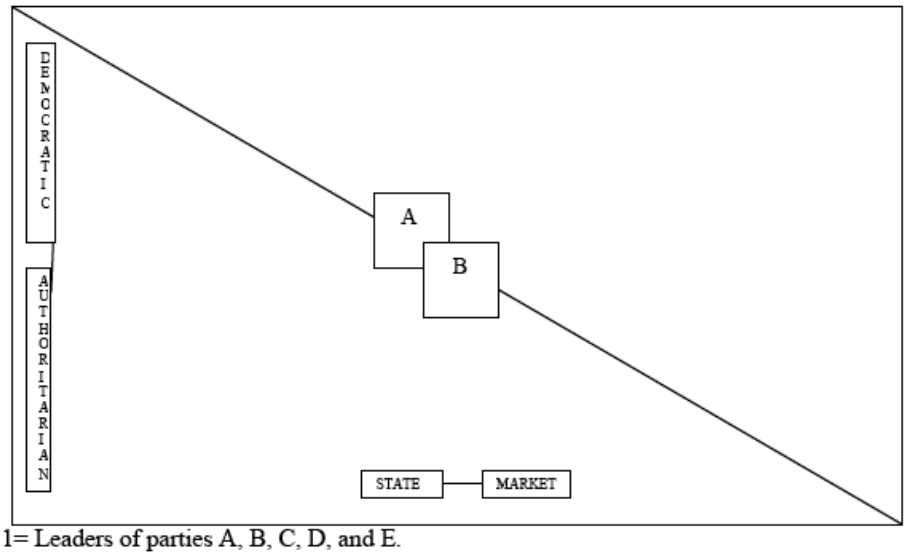
Figure 3. Theoretical programmatic collapse with 5 parties competing on a two-dimensional setting



1= Leaders of parties A, B, C, D, and E.
2= Voters of parties A, B, C, D, and E.

Relevant Analytical Steps

The first challenge researchers confront is to obtain strictly comparable issue-questions at the elite and mass levels. If the researcher possesses homogeneous issue-questions across levels (i.e. voters and leaders) the analysis proceeds more simply. However, when issue-questions are heterogeneous (either in terms of question formulation, metric, or both), the researcher should construct reasonable pairs of questions measuring a similar underlying issue at each level (see Luna and Zechmeister 2005 for a previous attempt at doing so for Latin American countries).

The second relevant decision consists of deciding whether to work around single issue-questions or to build a latent-variable for measuring each competitive dimension. If multiple items related to a theoretically relevant competitive dimension are available at both levels, even if issue questions are not comparable across levels, confirmatory factor analysis provides a good way to estimate more reliable latent competitive dimensions. If the researcher opts for estimating issue congruence on the basis of single-issue coordinate estimates (each issue representing a competitive dimension), each item should be standardized before proceeding to estimate the Procrustean analysis. Regular z-scores are adequate for achieving that standardization.

A third, but critical decision, relates to the dimensionality of the proposed analysis. Multi-dimensional issue-congruence is important for analyzing cases in which multiple issues or competitive dimensions are significant in structuring party competition. If party-competition is one-dimensional (i.e. left-right), analyzing multi-dimensional issue congruence is both pointless and potentially misleading. A possible way to assess the dimensionality or the importance of different issues or competitive dimensions for partisan competition is to analyze salience measures. Ideal datasets, such as that available to Kitschelt et al (1999) for four East European cases would include independent salience measures for each issue-

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question in both surveys. Yet, this ideal scenario is not typical.

Oneway ANOVA analyses could be applied to detect irrelevant issues or competitive dimensions. If at least some partisan groups (at the elite and/or mass level) do not differ significantly in their mean positioning (either due to overlapping means or sizable mean standard errors) in a given issue or competitive dimension, such issue/dimension could be excluded from the analysis.[2]

Once consequential issue/dimensions are identified, a subsequent (fourth) decision relates to the number of dimensions to include in the analysis. Traditionally, multi-dimensional spatial analyses of party system competition do not go beyond two or three ideological dimensions. I stick to this standard here and propose to apply Procrustes analysis to at most three dimensions/issues at a time.

A fifth, an optional decision, relates to the possibility of estimating issue congruence for different constituent groups (e.g. comparing the most educated to the least educated voters of each party; urban vs. rural constituencies; minorities vs. the rest of the citizenry, etc.). Of course, sample sizes and party's overall share of the electorate introduce important constraints for segmenting the sample while retaining representativeness. Yet, if available, large partisan sample sizes would allow for this type of analysis. The next section exemplifies the potential for pursuing this option at a descriptive level (available sample sizes at the mass level are not statistically representative of each constituent group).

Finally, a sixth decision relates to the type of rotation procedures allowed. While orthogonal rotations are the default, oblique and unrestricted rotations are possible. If a researcher has reasons to believe that two or more competitive dimensions are reinforcing (i.e. not cross-cutting), oblique or unrestricted rotations could be more realistic. A useful way to analyze the obtained effects of different rotations algorithms is to compare the Procrustes statistic that would result from each alternative.

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Drawing on this preliminary discussion, and on data from the last wave of PELA and LAPOP, the next section exemplifies the potential use of this technique for mapping multi-dimensional issue congruence. A brief discussion and conclusion follows.

A Preliminary Example: Applying Procrustes Analysis to PELA and LAPOP Data for Chile, Peru and Uruguay.

In this section I present the results obtained when applying Procrustes Analysis to an issue congruence analysis of three party systems, those of Chile, Peru and Uruguay. To do so, I worked around three possible issue dimensions that map the relative position of each "party" at the elite and mass levels: one related to a

[2]Luna and Zechmeister (2005) draw on this technique in their issue-congruence analysis of Latin American party systems.

regime divide, one representing the state-market dimension, and the last related to moral issues. To identify "party" groups I relied on the variables PARTIDO (PELA) and VB11 (LAPOP). The latter has a series of shortcomings for the purpose of the analysis that I address in the concluding section of this paper.

To operationalize the regime dimension, I standardized responses to items DEM6 (PELA) and DEM23 (LAPOP). Both questions, though using different scales (1-4 vs. 1-7), ask respondents whether they think that parties are required for democracy. I used this question, instead of the more straightforward option to measure the regime divide (the "Churchillean" item represented by DEM3 and DEM2), because at the elite level there is virtually no variance (i.e. congress-members almost always and universally think democracy is the best possible regime). I estimated z-score versions of both DEM6 and DEM23, inputting them into the analysis for each case.

To operationalize the state-market divide, I built a latent variable by factor analyzing the series ROES1-ROES6 (PELA) and ROS1-ROS6 (LAPOP). Both series are strictly comparable. Factor analysis results are also highly consistent across the elite and mass levels and across cases. The first factor, for which I estimated regression scores, is fairly highly correlated to most variables in the series. I inputted those factor scores, which are standardized by definition, into the Procrustes Analysis.

Finally, to operationalize the moral (liberal/conservative) dimension, I relied on VAL1 (PELA) and D5 (LAPOP). Both items, using a uniform 10-point scale, ask respondents whether they approve or reject gay marriage.

Although other possible dimensions (issues) might be salient in these countries, for the purpose of illustration, I ran the same Procrustes Analysis specification across cases, fitting a three-dimensional solution. Output 1 presents the obtained Procrustes Analysis solution for Peru. Meanwhile, Figure 4 graphically displays the overlay of the five parties observed (1=upp, 2=apra, 3=Alianza Futuro, 4=Unidad Nacional, 5=Partido Nacionalista) at the elite and mass levels.

The observed Procrustes statistic is .55. Accordingly, the fit between both levels (issue congruence) around the three dimensions analyzed is poor. This is reflected in Figure 4, in which each party is represented at both the elite and mass levels. The Partido Nacionalista is the one that presents the lesser congruence between elite and masses. Meanwhile, the individual Procrustes statistic for each dimension suggests that the gay marriage issue is the one in which fit is greater. Finally, an oblique (.38) or unrestricted (.26) rotation would significantly increase issue-congruence, in comparison to the orthogonal solution produced here.

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Output 1. Procrustes Analysis Solution for Perú

Procrustes analysis (orthogonal)

Number of observations	5
Model df (df_m)	7
Residual df (df_r)	8
SS(target)	15.92616
RSS(target)	8.737166
RMSE = root(RSS/df_r)	1.045058
Procrustes = RSS/SS	0.5486

Translation c

	statemk~l	dem6stdel	gaystdel
_cons	-.3691049	-.2069315	-.3722969

Rotation & reflection matrix A (orthogonal)

	statemk~l	dem6stdel	gaystdel
statemktvot	-.5193066	-.4994138	-.6934743
dem6stdvot	.4361561	-.8527155	.2874788
gaystdvot	-.7349071	-.1531734	.6606432

Dilation factor

rho = 4.0160

Fit statistics by target variable

Statistics	statemk~l	dem6stdel	gaystdel
SS	1.34088	.40588	14.1794
RSS	1.318325	.7632664	6.655575
RMSE	.7031158	.5349999	1.579823
Procrustes	.9831787	1.880522	.4693834
Corr_y_yhat	.7184572	.5924945	.7916476

. estat compare

Summary statistics for three transformations

	Procrustes	df_m	df_r	rmse
orthogonal	0.5486	7	8	1.045058
oblique	0.3876	10	5	1.111134
unrestricted	0.2635	12	3	1.182749

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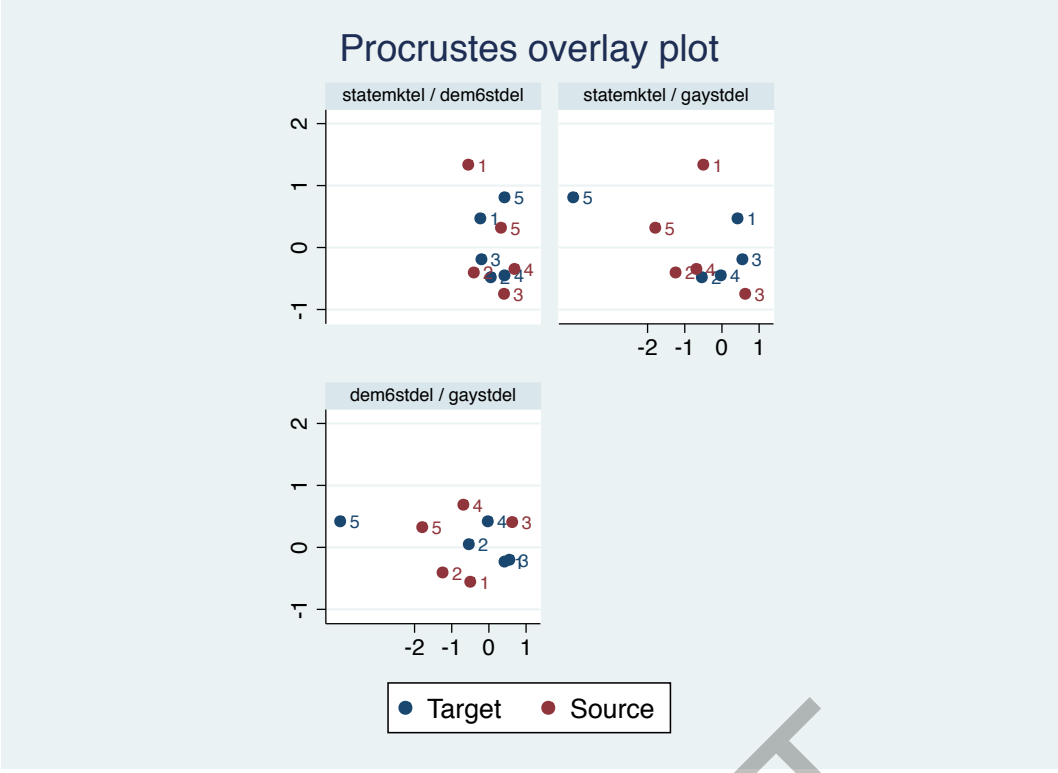
Figure 4. Procrustes orthogonal solution for Peru



1=upp/2=apra/3=Alianza Futuro/4=Unidad Nacional/5=Partido Nacionalista

Output 2 and Figure 5 present the obtained results for the Uruguayan case. In this case, fit is greater, with the Procrustes statistic falling down to .11. Graphically, the greater levels of multidimensional issue congruence observed in Uruguay translate into significant overlaps between target and source groups for each party. Whereas voters and leaders of the FA align close to each other and far from their counterparts in the Blanco and Colorado parties, the latter two lay close together constituting an "ideological family". This is consistent with recent scholarship on the format of the Uruguayan party system and its competitive logic. The best fit is obtained once again around the gay marriage issue. Yet, the state-market and regime divides also obtain significantly smaller Procrustes statistics than those observed in Peru. For instance, the .28 observed for the least congruent divide in Uruguay (state-market) is almost .20 more congruent than the best estimate obtained in Peru (gay marriage).

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Output 2. Procrustes Analysis Solution for Uruguay

```
Procrustes analysis (orthogonal)            Number of observations =         3
                                            Model df (df_m)        =         7
                                            Residual df (df_r)     =         2
                                            SS(target)             =  .9704666
                                            RSS(target)            =  .1097651
                                            RMSE = root(RSS/df_r)  =  .2342702
                                            Procrustes = RSS/SS    =    0.1131
Translation c

------------------------------------------------------------
             | statemk~l  dem6stdel   gaystdel
-------------+----------------------------------------------
       _cons |  .2038023  -.0433362  -.1096475
------------------------------------------------------------

Rotation & reflection matrix A (orthogonal)

------------------------------------------------------------
             | statemk~l  dem6stdel   gaystdel
-------------+----------------------------------------------
statemktvot  | -.1218376  -.9761457   .1797088
 dem6stdvot  |  .6305364  -.2159496  -.745513
  gaystdvot  |  .7665373   .0224814   .6418062
------------------------------------------------------------
   (Warning: rotation A not unique)

Dilation factor

            rho =    2.1536

Fit statistics by target variable

------------------------------------------------------------
  Statistics | statemk~l  dem6stdel   gaystdel
-------------+----------------------------------------------
          SS |  .3000667      .0906      .5798
         RSS |   .084757   .0193332   .0056749
        RMSE |  .3565606   .1702932   .0922625
  Procrustes |  .2824605   .2133904   .0097877
 Corr_y_yhat |  .8510516   .8880176    .995793
------------------------------------------------------------

. estat compare

Summary statistics for three transformations

------------------------------------------------------------
             | Procrustes    df_m  df_r       rmse
-------------+----------------------------------------------
  orthogonal |     0.1131       7     2   .2342702
     oblique |     0.0000      10    -1          .
unrestricted |     0.0000      12    -3          .
------------------------------------------------------------
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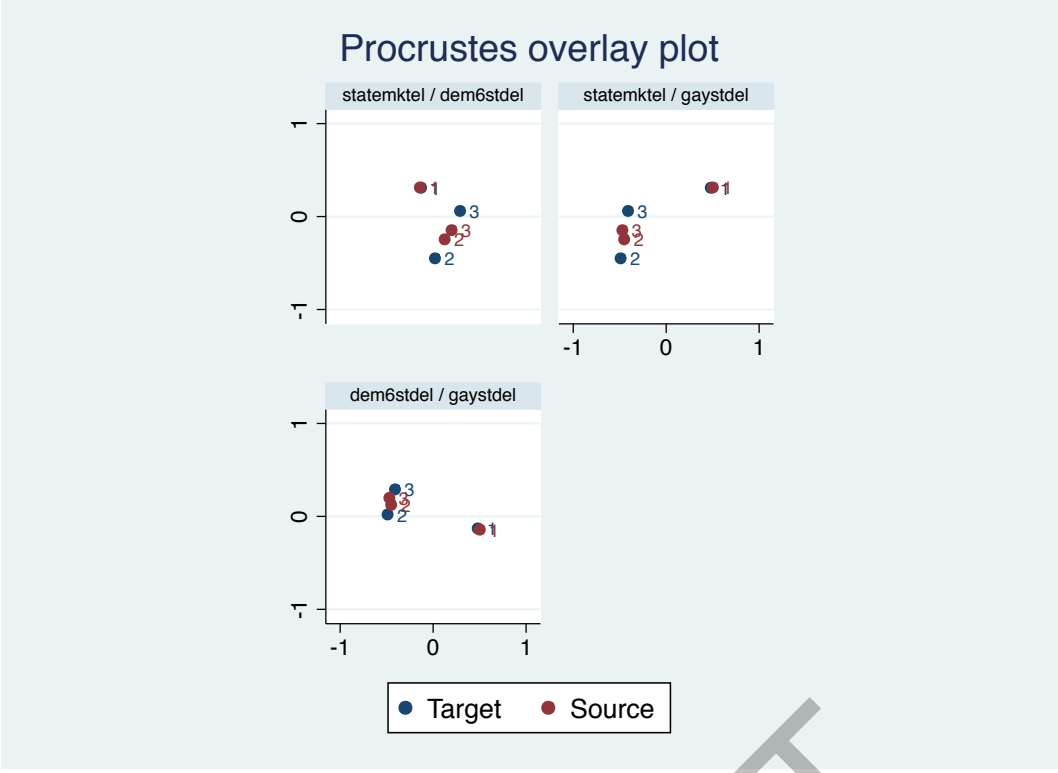
Figure 5. Procrustes Orthogonal solution for Uruguay



1=FA/2=PN/3=PC

Finally, Output and Figure 6 display the obtained results for Chile. While results for Peru and Uruguay are as expected (with Peru scoring significantly lower than Uruguay regarding issue congruence) on the basis of extant knowledge (see e.g. Kitschelt et al 2010), those observed in Chile seem puzzling. The Procrustes statistic is .77, and the fit for individual dimensions does not significantly improve regarding the overall estimate (the lower observed score is .73 in the state-market divide). Yet, significant reductions are observed under oblique or unrestricted rotation algorithms, obtaining much better results. This signals the fact that these three dimensions might be highly correlated in the case, turning a multidimensional orthogonal solution inaccurate. Still, when compared to the results obtained for Uruguay, issue-congruence seems to be less in Chile.

In particular, as observed in Figure 6, the PPD has very low levels of issue congruence, followed by the UDI (in particular when the state-market divide is included in bi-dimensional comparisons).

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Output 3. Procrustes Analysis Solution for Chile

```
Procrustes analysis (orthogonal)            Number of observations =         5
                                            Model df (df_m)        =         7
                                            Residual df (df_r)     =         8
                                            SS(target)             =   3.27108
                                            RSS(target)            =  2.516776
                                            RMSE = root(RSS/df_r)  =  .5608895
                                            Procrustes = RSS/SS    =    0.7694

Translation c

------------------------------------------------------------
             | statemk~l  dem6stdel   gaystdel
-------------+----------------------------------------------
       _cons |  -.1907165   .3776554   .2015266
------------------------------------------------------------

Rotation & reflection matrix A (orthogonal)

------------------------------------------------------------
             | statemk~l  dem6stdel   gaystdel
-------------+----------------------------------------------
statemktvot  |  -.4527819   .2810745   .8461594
dem6stdvot   |  -.8861005  -.0364066  -.4620611
gaystdvot    |  -.0990678  -.9589951   .2655445
------------------------------------------------------------

Dilation factor

             rho =    0.7697

Fit statistics by target variable

------------------------------------------------------------
  Statistics | statemk~l  dem6stdel   gaystdel
-------------+----------------------------------------------
          SS |    1.38288     .11868    1.76952
         RSS |   1.016124   .1258507   1.374801
        RMSE |   .6172896   .2172419   .7180184
  Procrustes |   .7347881   1.060421   .7769346
 Corr_y_yhat |   .8407345   .4774597   .4818065
------------------------------------------------------------

.
. estat compare

Summary statistics for three transformations

-------------------------------------------------------------
             | Procrustes    df_m  df_r       rmse
-------------+-----------------------------------------------
  orthogonal |     0.7694       7     8   .5608895
     oblique |     0.1117      10     5   .2703342
unrestricted |     0.0991      12     3   .3287262
-------------------------------------------------------------
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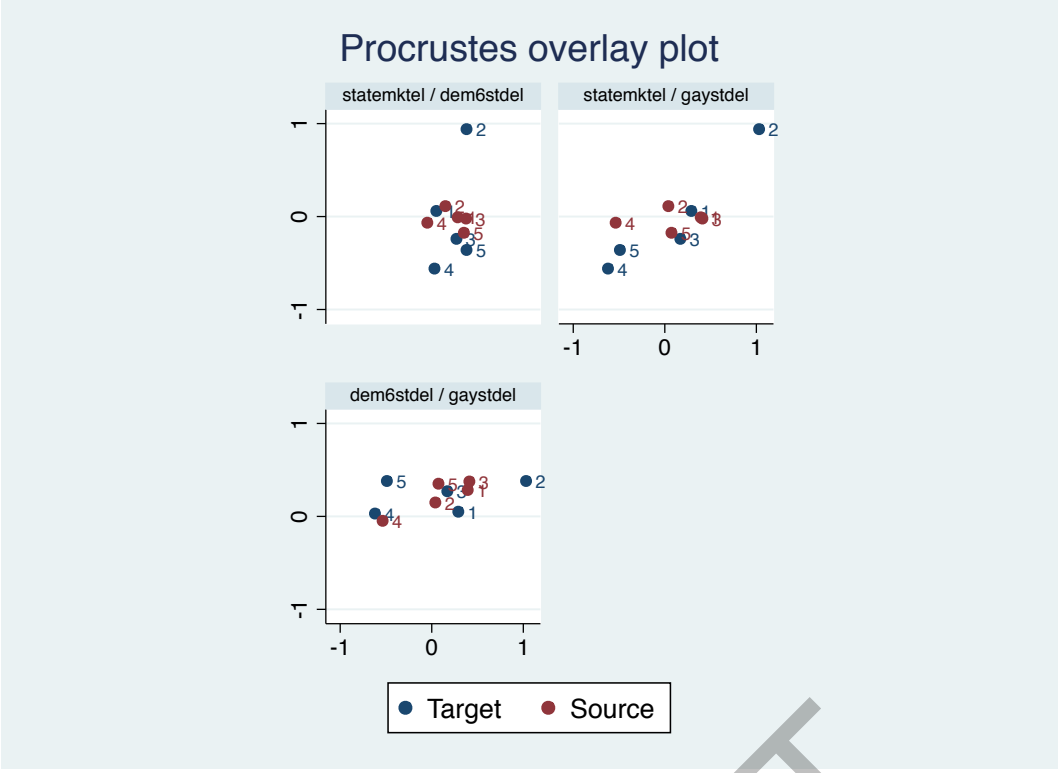
Figure 6. Procrustes Orthogonal solution for Chile



1=ps/2=ppd/3=pdc/4=udi/5=rn

To close, Table 1 displays a comparison of the Procrustes statistic obtained for each case, when running the analysis for the complete sample, as well as for specific education terciles. That Table also displays results for Chile, when the PPD (a highly incongruent party) is removed from the comparison group. In every one of the cases, an education gap exists, with low educated groups displaying less issue congruence than their most educated counterparts. Yet, high levels of variance exist regarding the Procrustes statistic observed for the least educated groups across countries. For instance, the obtained statistic for the least educated in Uruguay is similar to the one observed for the most educated in Chile. In sum, this suggests that issue congruence levels across education or socioeconomic groups are not structurally determined, but vary in relation to the overall levels of congruence observed in the national party system.

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Table 1. Comparison of Prucrustes Statistic for First and Third Education Terciles (mass level)

	Chile	Chile (no PPD)	Peru	Uruguay
Average	.77	.23	.54	.11
Low education	.76	.34	.82	.15
High education	.74	.16	.47	.03
Gap	.02	.18	.35	.11

To close this empirical section, as a crosscheck, Table 2 presents the levels of internal consistency observed in each case and each level (elites, all citizens, low education and high education groups). In Chile, the only divide that creates consistent differences across levels is the regime one. In turn, the state-market and

the gay-marriage issues only produce significant differences at the elite level (and for all citizens in the case of the state-market divide).

In Peru, the state-market and gay-marriage divides only produce significantly different positions at the elite level. Meanwhile, the regime divide produces differences at the mass level that are not matched by elite positions.

Finally, in Uruguay, the state-market and the gay-marriage divides produce significant differences at both the elite and mass levels (with the only exception of low educated citizens in the state-market divide). The regime divide is less salient and only produces significant differences at the citizen level.

In short, the indirect salience measure constructed on the basis of the ANOVA results seems consistent with the Procrustes results reported above. The countries in which multi-dimensional issue congruence is lower, display less differentiation in the three divides analyzed here. Yet, in every case, at least one partisan comparison produces salient differentiation.

Table 2. "Salience" of each issue/divide at the elite and voter levels

Divide/Group (elites/all voters/low education/ high education)	State-Market	Regime	Gay-Marriage
Chile	*/*/no/no	*/*/*/*	*/no/no/no
Peru	*/no/no/no	no/*/no/*	*/no/no/no
Uruguay	*/*/no/*	no/*/no/no	*/*/*/*

Source: Produced on the basis of Oneway ANOVA results with Bonferroni post-hoc tests. (*= at least .05 significant differences exists among parties).

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Final remarks.

To map the degree of issue representation present in a given polity, a researcher would need to design or obtain a dataset that complies with the following criteria: a) a set of issues that exhausts the salient dimensions of political competition in the system while excluding irrelevant (noisy) dimensions of political competition; b) a set of identical indicators (including survey timing) that measures issue preferences on each dimension on each desired analytical level (i.e. party congressional leaders, party activists, party members, voters); and c) a sufficiently large sample (N) to establish significant comparisons between different cross-sections of the electorate (i.e. beyond partisanship, once could compare by education levels, class, gender, political interest and/or efficacy, etc.). If interested in mapping the diachronic evolution of partisan competition on ideological linkages, the researcher should have access to a set of comparable measures across time and at both levels.

Obviously, we are far from that ideal. Unfortunately, the data currently at hand do not simultaneously fulfill these requirements. However, keeping these requirements in mind *ad hoc* (and tentative) issue-congruence measures can be

developed. In this research note I have proposed the Procrustes Analysis technique as a tool to map (and estimate) multidimensional issue-congruence across systems and constituent groups. I have done so by working around a set of comparable issue questions included in both the PELA and LAPOP questionnaires.

To close, let me point to possible improvements on the data that could eventually contribute to more fruitful triangulations in the future. First, the inclusion of more paired-issue questions in both surveys would facilitate the pursuit of more reliable and comprehensive issue-congruence analyses. Second, direct issue salience measures for each issue-dimension included would be of use. Although sub-optimal, the inclusion of such questions in only one questionnaire would still be extremely helpful. Finally, the party sympathy question included in LAPOP reduces the sample-size for each party cross-section, turning the obtainable estimations unreliable for parties and systems in which a small fraction of respondents sympathize with a party. For instance, whereas the estimates presented here for Uruguay are based on the 66% of the national sample that identified with a party, that percentage was only of 11% in Chile. Substituting or complementing the sympathy question for a party-vote question (which is not directly equivalent to presidential-vote in the last election) could also be of help.

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