Elite Preferences in a Consolidating Democracy:

The Brazilian Legislative Surveys, 1990-2009

(Supplemental Materials)

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This Web Appendix presents supplemental results as well as details of the estimation process that were omitted from the main body of the paper due to space constraints.

WEB APPENDIX A

Brazilian Political Parties in 2012

Party	*Size*	*Orientation and Background*	*Principal Leaders in 2012*	*Rescaled Ideology 2009*
Workers' Party (PT), founded 1980	85	Prior to 2002: left-wing; grew out of labor unrest in late 1970s; strong support from intellectuals, workers, state employees; best organized party in Brazilian history. Since 2003: centrist turn, alliances with right parties, pragmatic economic policy, expanding support in Northeast	Luiz Inácio Lula da Silva, former president 2003-2010; Dilma Rousseff, president from 2011; Rui Falcão, party president; Tarso Genro and Jacques Wagner, governors; José Dirceu, former party president	3.08 (0.14)
Party of the Brazilian Democratic Movement (PMDB), founded 1966	77	Front party opposing military regime of 1964-1985; currently centrist, decentralized, functions as catchall support party for Lula and Dilma governments	José Sarney, former president 1985-1990; Michel Temer, vice president from 2011; Sergio Cabral, governor of Rio de Janeiro; numerous leaders and factions	5.56 (0.14)
Party of Brazilian Social Democracy (PSDB), founded 1988	53	Progressive faction of PMDB in 1980s; originally Western European-style social democratic; champion of 1990s promarket reforms; supports parliamentarism; principal force of the modernizing center	Fernando Henrique Cardoso, former president 1995-2002; Aécio Neves and José Serra, former governors; Geraldo Alckmin, governor of São Paulo	5.65 (0.14)
Social Democratic Party (PSD), founded 2011	47	Liberal center, vehicle for centrist politicians (mostly from DEM, but some from PTB, PP, PSDB) to support Kassab's bid for São Paulo governorship in 2014; frees politicians from hard-opposition status of DEM and PSDB	Gilberto Kassab, mayor of São Paulo 2006-2012; Afif Domingos, vice-governor of São Paulo	NA
Progressive Party (PP), founded 1966, renamed 2003	39	Conservative: formerly ARENA and then PDS, the promilitary party in 1964-1985; shrank drastically in 1980s; has changed names	Paulo Maluf, ex-governor; Francisco Dornelles, senator and party president	7.48 (0.15)

		four times		
Party of the Republic (PR), founded 2006	36	Center-right, based on merger of former Liberal Party (PL) and PRONA party.	Anthony Garotinho, former governor of Rio de Janeiro; Inocêncio Oliveira, deputy	6.65 (0.14)
Brazilian Socialist Party (PSB), founded 1985	28	Left party usually in orbit of PT	Eduardo Campos, governor of Pernambuco; Ciro Gomes, ex-minister; Luiza Erundina, former PT mayor of São Paulo	3.25 (0.14)
Democrats (DEM), founded 1984, renamed 2007	27	Formerly PFL; conservative, pragmatic, clientelistic "party of power'; as core leaders supported every president from 1964 to 2002, military or civilian; usually allies with PSDB	Rodrigo Maia, deputy; ACM Neto; deputy; Demóstenes Torres, senator	7.89 (0.15)
Democratic Labor Party (PDT), founded 1980	26	Center-left; created by Leonel Brizola (1922-2004); on-again, off-again partner of PT in 1980s and 1990s; mostly restricted to Rio de Janeiro and Rio Grande do Sul	Carlos Lupi, labor minister since 2007; Cristovam Buarque, former PT governor of Brasília; Miro Teixeira, deputy	3.70 (0.14)
Brazilian Labor Party (PTB), founded 1980	21	Center-right; clientelistic; "party for rent" that supports most presidents; after 2003, grew as repository for opportunistic center-right politicians wishing to support Lula	Roberto Jefferson, former deputy; Fernando Collor, senator and former president; Sergio Zambiasi, senator	6.43 (0.15)
Social Christian Party (PSC), founded 1985	17	Center-right "party for rent" loosely linked to Christian doctrine and to Assembly of God churches	Eduardo Amorim, senator; Ratinho Junior, deputy	NA
Communist Party of Brazil (PC do B), founded 1962	13	Defected from PCB in 1962 during Sino-Soviet split, later pro-Albanian until end of Cold War; after 1989 mostly satellite of PT; dominated national student union. Since 2003: centrist turn, reliable and pragmatic ally of PT presidents	Aldo Rebelo, minister; Inácio Arruda, senator; Manuela D'Avila, deputy	2.19 (0.14)
Popular Socialist Party (PPS), founded 1922, renamed 1992	11	Descended from Moscow-line Brazilian Communist Party (PCB); abandoned Leninism and supported Gorbachev in 1980s; later center-left; in Lula years moved	Roberto Freire, deputy	4.49 (0.14)

		considerably rightward to ally with PSDB-led opposition		
Brazilian Republican Party (PRB), founded 2005	10	Christian and conservative; founded by Lula's vice president José Alencar (1931-2011) with support from pastors linked to Universal Church of the Kingdom of God (IURD)	Marcello Crivella, IURD leader and senator from Rio de Janeiro	NA
Green Party (PV), founded 1986	10	Center-left, pragmatic environmentalists, active in local politics; held environment ministry under Cardoso and culture ministry under Lula	Marina Silva, former minister and presidential candidate; Alfredo Sirkis, federal deputy; Fernando Gabeira, former deputy	4.18 (0.14)
Party of Socialism and Liberty (PSOL), founded 2004	3	Former radical left faction of PT, founded by dissidents unhappy with centrist policies; key leaders were expelled from PT in 2003	Heloísa Helena, former senator; Luciana Genro, former deputy; Plínio de Arruda Sampaio, former deputy	1.22 (0.14)

Size refers to seats in Chamber of Deputies on April 1st, 2012. Parties here comprise 503 of 513 chamber seats (98%), with five micro-parties excluded from the table. Reputational ideology: to identify the model, we arbitrarily set the mean and standard deviation of the complete set of party estimates. In the analysis presented in the text, we normalized the estimates to have mean zero and standard deviation 1, which is the standard metric used in most ideal point estimation models (those values are provided in Web Appendix C). However, given that most opinion surveys generally use a scale that is all in the positive range, and for more intuitive comparisons to the raw answers provided by respondents to our survey instrument (where 1 equals left and 10 equals right), we here fixed the mean and standard deviation of the distribution of estimates to the observed mean of all party placements, by all legislators, in all BLS waves.

WEB APPENDIX B

BLS Survey Items Used in this Study

Questions are listed below in the order in which they appear in the text.

Ideology and Economic Views

Now let us suppose that on this scale, the number 1 corresponds to the left, the number 5 to the center, and the number 10 to the right. A person who is very leftist would be at number 1, and one who is very rightist, at number 10. Where would you place yourself? And where would you place the following political parties, at the national level?

In your opinion, what would be the most appropriate economic system for Brazil? Choose only one option.

- A predominantly market economy with the smallest possible participation by the state
- An economic system in which there were an equitable distribution between the responsibilities of state enterprises and the responsibilities of private firms
- An economy in which the state and state-owned firms made up the principal sector, but without eliminating participation by the market economy
- An economy in which private capital were completely removed from the principal economic sectors, with large firms coming under state control

Political Institutions

With regard to a debate in the National Constituent Assembly of 1987-1988, do you favor or oppose the inclusion of the [constitutional] article that grants the Armed Forces the right to intervene in order to guarantee internal order?

In Brazil, it is necessary to give the president of the Republic the power of *medidas provisórias* [decree authority]. (Strongly agree; somewhat agree; somewhat disagree; strongly disagree.)

If Brazil maintains a system of proportional elections, would you prefer that the order of candidates on the list be determined by the party or would you prefer an open list (as exists now)?

In recent years there has been a large debate about the electoral system. Are you in favor of the proportional representation system, to majoritarian single-member districts, or to a mixed system (proportional for part of the seats, and majoritarian for the rest)?

With regard to a debate in the National Constituent Assembly of 1987-1988, do you favor or oppose the adoption of the parliamentary system of government?

Party Life

Some legislators are elected because of their party label — that is, the organizational power of the party or the profile that it has in public opinion. Others are elected due to their individual capacity for organization or due to their personal performance in politics. In your case, which was more important, the party or your personal efforts?

Do you believe it is correct for a party to end debate on an issue and impose party discipline?

Do you believe that in parliamentary activity, in general a legislator should vote as the party determines, or in accordance with what he or she believes?

A legislator should lose his or her mandate if he/she changes parties after the elections are over. (Strongly agree; somewhat agree; somewhat disagree; strongly disagree.)

Comparisons of Cardoso and Lula Administrations (2009 only)

Currently in Brazil, there is debate about the degree of continuity or change between the governments of FHC (1995-2002) and Lula (2003 to the present). Leaving aside your personal preference between the two governments, how would you evaluate the degree of continuity or change between the two presidents on each one of the following factors? Please use a scale of similarity that goes from 1 (where the governments are the most different) to 10 (where they are most alike).

- Foreign policy
- Relations with parties in the support coalition
- Combating violence
- Judicial reform
- Independence of the regulatory agencies
- Treatment of racial and ethnic minorities
- Political reform
- Social security policy
- Fighting poverty
- Controlling corruption
- Relations with the governors
- Fiscal policy
- Relations with civil society
- Monetary policy

Foreign Policy and Regional Integration (2009 only)

The current orientation of Brazilian foreign policy gives priority to relationships with the countries of South America. I would like to know if you agree or disagree with the following statements related to this topic. (Strongly agree; somewhat agree; somewhat disagree; strongly disagree.)

- Many of the current South American governments are allies in the struggle against neoliberalism, and should be supported
- Regional integration is an efficient way to stimulate the economic development of the country
- Leadership of the process of regional integration will project Brazil on the global stage
- The association with some South American countries damages the image of Brazil due to the authoritarian inclinations of their governments
- It would be more advantageous to deepen relations with OECD countries than with neighboring countries

WEB APPENDIX C

Estimation Procedure for Rescaling Ideological Placements

This Web Appendix contains the details of the estimation procedure used to rescale party and legislator estimates. Here we explain how the data were prepared and we we detail the model. We also present some analysis of the results, as well as the full set of party position estimates (using two different metrics).

The Data

We observe P_{ijt}, how each legislator places each party j in the left right continuum in each survey t, as well as how they place themselves (P_{iit}).
Data preparation was done in R. We imputed some missing values in P_{ijt} when respondents had failed to place some party. We did this by making a principal component decomposition of the matrix of non-missing responses, and using these to generate predictions for missing placements. We then repeated the procedure until predicted values converged. In essence, this means replacing missing observations with their conditional prediction. Some 11% of the P_{iit} observations were imputed this way.
As for $P_{iit,}$ legislators's missing self-placements were assumed to be the same as their placement of their own party, if this was not missing. If a legislator's party position had been imputed, it was not used as the legislator's self-placement. Some 17% of the P_{iit} observations were imputed this way. As our own Table 3 shows, a slight majority of legislators place themselves in the same position of their own party, so we believe this assumption is warranted. Alternatively, we could have conditionally predicted one's own self placement as a function of the placement of one's own party, as we know that legislators to the right are more likely to place themselves to the left of their own party. But this difference is small, and the small number of cases render it substantively irrelevant.
The six surveys include responses from 797 unique legislators, but since we did not impute values to legislators who failed to place themselves and their own party we were left with 769 unique legislators in the set that was actually used in the estimation. After imputations, P_{ijt} consisted of 11809 observations and P_{iit} of and 957 legislator-years observations (out of 997 responses to the six waves of the survey).

The Model

Our model assumes each party in each survey has a "true" ideological position, that is not observed by us ($\boldsymbol{\pi_{jt}}$). Legislators i observe these true positions with error, and also shift (β^0_i) and stretch (β^1_i) the scale according to their idiosyncratic interpretation of the left right continuum. We also assume that legislators apply the same shift and stretch factors to their own true positions (μ_i) when reporting them, which is also subject to error. Finally, we a allow the meaning of the scale to vary linearly from year to year according to year specific stretch (δ^0_t) and shift (δ^1_t) factors. In essence, this means that legislators that answer more than one survey have one true position that is stable over time, and that differences in self-reporting are due to changes in the meaning of the scale from year to year. The following relationships describe the model:

$$P_{ijt} = \beta^0_i + \beta^1_i \, \pi_{jt} + \varepsilon_{ijt} \quad (1)$$

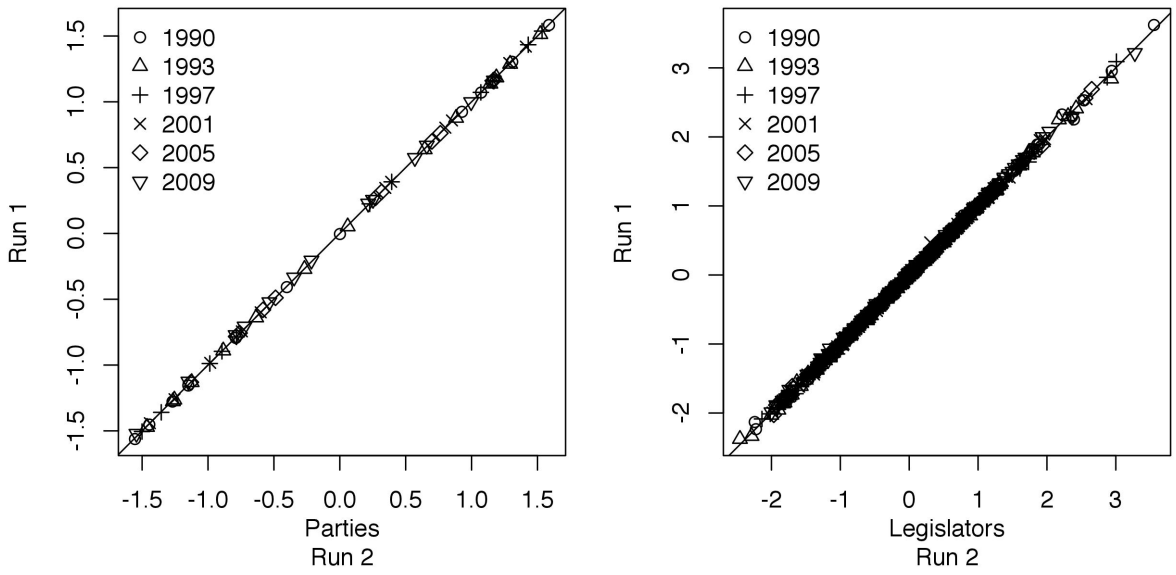
$$P_{iit} = \beta^0_i + \beta^1_i \, \mu_i + \upsilon_{jit} \quad (2)$$

$$P_{iit} = \delta^0_t + \delta^1_t \, \mu_i + \theta_{it} \quad (3)$$

Note that because we were primarily interested in shifts in positions over time, we do not constrain parties' positions in any way. There is nothing in the model linking π_{jt}'s for different t's. Since the ideological scale is arbitrary, the model was identified it by setting the mean and standard deviation of the complete set of estimates of legislator and positions across all surveys to 0 and 1.

Estimation

Estimation was done on JAGS, called from R via rjags. Results reported in the paper were estimated in model runs with 1000 iterations in adaptation mode, 10000 updates, and sampling from additional 5000 iterations with a thinning of 5. The model was ran with these parameters several times to ensure for the stability of results. Figure 1, reports results for two such runs, and shows that results are all but identical in both runs. The JAGS model code is reported below.



a) Party Estimates b) Legislator Estimates

Figure W1 – Convergence of Estimates in Two Runs of the Model

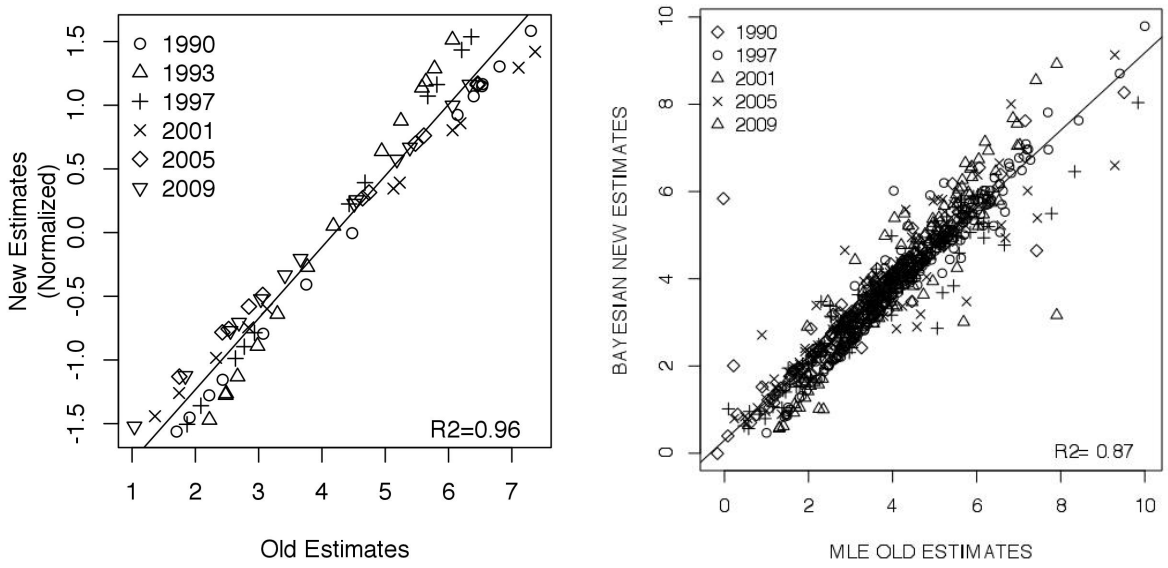
JAGS code

```
model{
for(i in 1:length(P)){
P[i] ~dnorm(a[N[i]]+b[N[i]]*ppraw[K[i]],taup[Y[i]])
M[i] ~dnorm(a[N[i]]+b[N[i]]*mstrraw[N[i]],taum)
}
for(n in 1:NYS){ #by legislator-years
MM[n] ~dnorm(d[YY[n]]+g[YY[n]]*mstrraw[NN[n]],tauz)
}
for(y in 1:YS){
taup[y] ~ dgamma(0.01,0.01)
}
taum  ~ dgamma(0.01,0.01)
tauz ~ dgamma(0.01,0.01)
for(p in 1:KS){ #party parameters
ppraw[p] ~ dnorm(5.04,0.2) #from the data
}
for(p in 1:KS){ #party parameters
pp[p] <-  ((ppraw[p]-mean(ppraw)) / sd(ppraw))
}
```

```
for(n in 1:NS){ #legislator parameters
mstrraw[n] ~ dnorm(4.35,0.2) #from the data
}
for(n in 1:NS){
mstr[n]<-((mstrraw[n]-mean(mstrraw)) / sd(mstrraw))
}
for(ny in 1:NS){ #legislator  parameters
a[ny] ~ dnorm(0.0, 0.25)
b[ny] ~ dnorm(1.0, 0.25)
}
for(y in 1:YS){ #year parameters
d[y] ~ dnorm(0.0, 0.25)
g[y] ~ dnorm(1.0, 0.25)
}}
```

Comparison with Previous Estimates

The main changes relative to previous versions of the model (referred to in the text) consist of the estimates of year effects, and the efficiency of all estimates, but the estimates themselves map very well onto previous estimates, as shown in Figure W2.



a) Party Estimates b) Legislator Estimates

Figure W2 – Comparison of Old MLE Estimates with New Bayesian Estimates

Estimates of Party Positions

The model is unidentified up to one linear transformation. This means that without any restriction, each run of the estimation procedure returns results that are proportional, but not identical. To obtain identical estimates in every run, we chose to arbitrarily fix the mean and standard deviations of the complete set of party estimates (πjt in Equation 1, above). In the article, we reported estimates in which we fixed the mean and standard

deviation of the estimates at the mean and standard deviations observed in the data (Pijt), but here, in Table W1, we present an alternative normalization where we fixed mean and standard deviation of the estimates at 0 and 1, which is the standard approach used in most ideal point estimation applications. Although we prefer this metric, the one presented in the article converts the estimates into a scale similar to the one that was used in the surveys (and in many other surveys as well). Please note, however, that scales are arbitrary, so direct comparisons between actual and rescaled answers should be undertaken with care.

Table W1: Party Position Estimates (Mean=0, Sd=1)

	1990	1993	1997	2001	2005	2009
DEM	1.30	1.18	1.43	1.29	1.16	1.16
SE	0.04	0.04	0.05	0.05	0.06	0.07
PCDOB	-1.56	-1.47	-1.51	-1.44	-1.13	-1.13
SE	0.04	0.04	0.05	0.05	0.06	0.06
PDC	1.15					
SE	0.04					
PDT	-0.79	-0.64	-0.79	-0.74	-0.49	-0.52
SE	0.03	0.04	0.04	0.05	0.06	0.05
PMDB	0.00	0.05	0.22	0.35	0.27	0.23
SE	0.03	0.04	0.04	0.05	0.06	0.05
PP	1.58	1.29	1.54	1.42	1.17	1.00
SE	0.04	0.04	0.05	0.05	0.06	0.06
PPS	-1.28	-0.89	-0.90	-0.60	-0.58	-0.21
SE	0.03	0.04	0.05	0.05	0.06	0.05
PR	1.07	1.14	1.16	0.80	0.76	0.67
SE	0.04	0.04	0.04	0.05	0.06	0.06
PRN	1.17	1.51				
SE	0.04	0.04				
PSB	-1.16	-1.13	-0.99	-0.98	-0.78	-0.71
SE	0.03	0.04	0.04	0.05	0.05	0.06
PSDB	-0.41	-0.27	0.39	0.39	0.32	0.26
SE	0.03	0.04	0.04	0.05	0.06	0.06
PSOL						-1.52
SE						0.06
PSTU		-1.26				
SE		0.04				
PT	-1.45	-1.28	-1.36	-1.26	-0.76	-0.77
SE	0.03	0.04	0.05	0.05	0.05	0.05
PTB	0.92	0.88	1.07	0.86	0.70	0.57
SE	0.03	0.04	0.05	0.05	0.06	0.06
PV						-0.33
SE						0.05

Table W2, below, reports results of tests of differences between the positions of adjacent parties. The standard error of rescaled estimates in Table W1 include error within each wave, and across waves. However, in order to test whether a party has a different position relative to the parties next to it, one need not consider the second source of variability. For this reason, parties that might seem indistinguishable from each other in Table W1, can actually be distinguished, as reported in Table W2.

Table W2: Simple Ordering of Brazilian Parties from Left to Right, 1990–2009

Year	
1990	PL PDC PCdoB PT PCB PSB PDT PSDB PMDB PTB PRN PFL PDS
1993	PT PL PCdoB PSTU PSB PPS PDT PSDB PMDB PP PTB PFL PPR PRN
1997	PSB PTB PFL PCdoB PT PPS PDT PMDB PSDB PR PTB PL PPB
2001	PMDB PL PCdoB PT PSB PDT PPS PSDB PTB PFL PPB
2005	PT PPS PMDB PTB PFL PCdoB PSB PDT PSDB PL PP
2009	PT PMDB PTB PSOL PCdoB PSB PDT PV PPS PSDB PR PP DEM

Notes: This table does not allow for comparisons across year. Stacked parties, in any given year, indicate that the differences between their estimated positions are *not* statistically different at the .10 confidence level. All other adjacent parties are statistically different from one another.

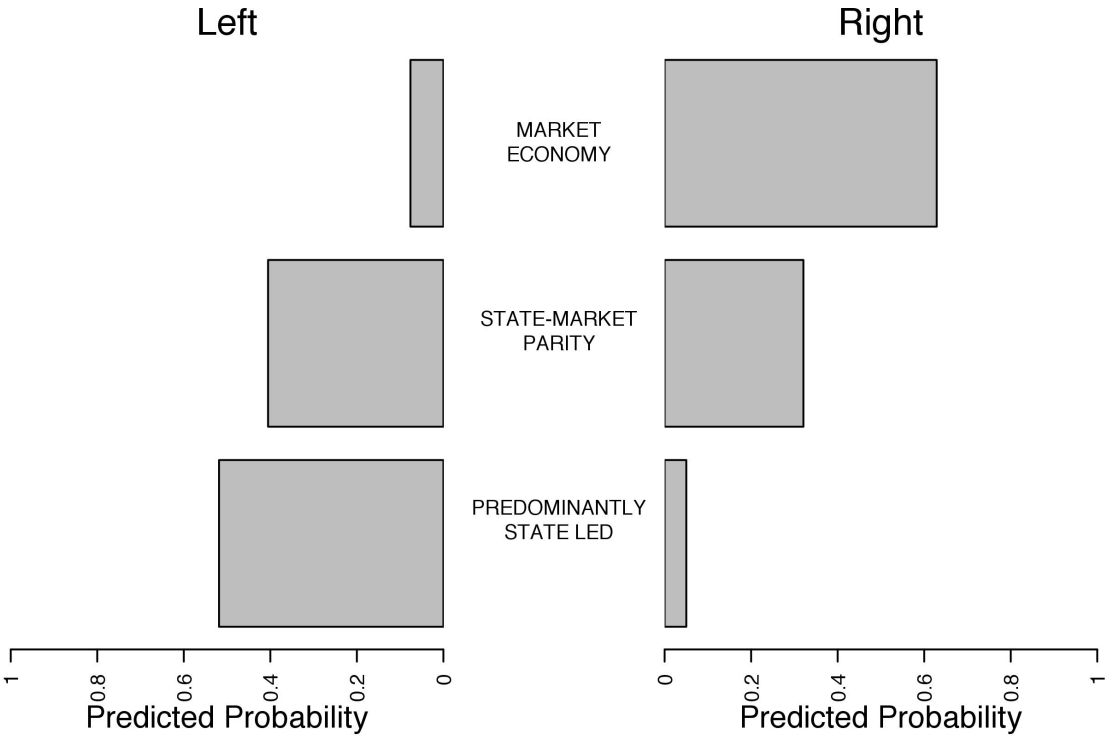
WEB APPENDIX D

Extended Results

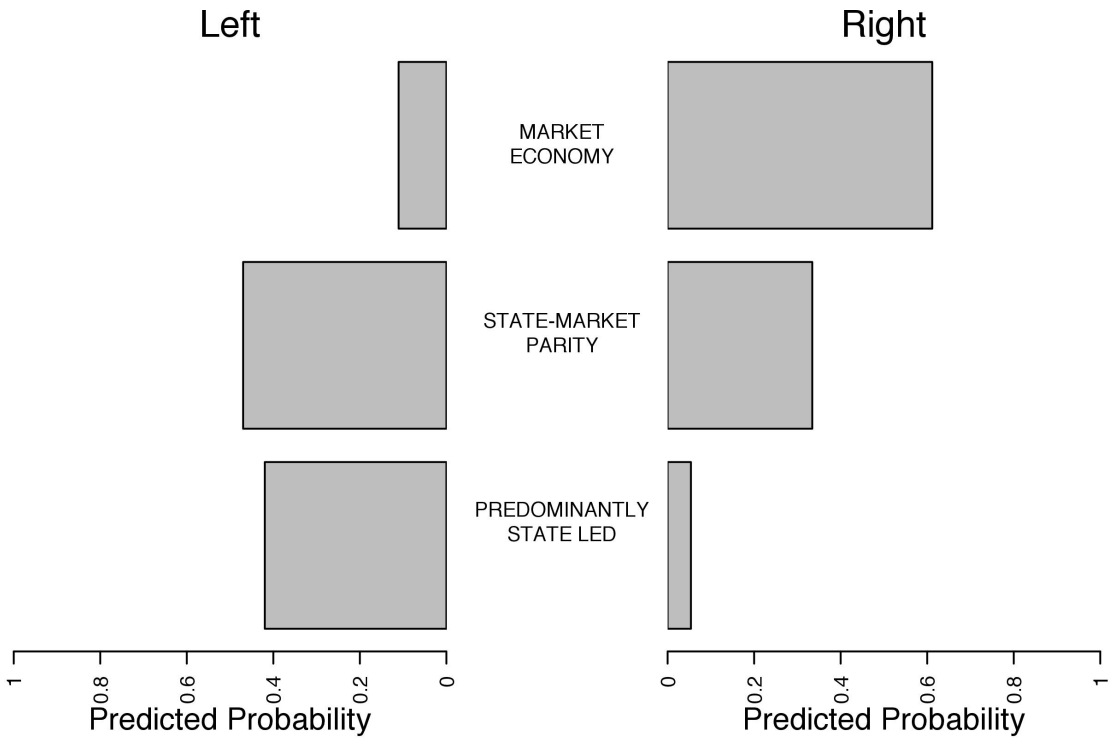
Preferences Over the Economic System

Figure W3, below, reports the predicted probabilities that legislators in the 10th and 90th percentile of the ideological spectrum would give each of the answer categories in the economic preference question.

Table W3, on the other hand, is equivalent to the regression table reported in the article except that it uses the four-level answer category instead of the merging those into three levels. Results are substantively unchanged.



a) Left and Right in 1987



b) Left and Right in 2009

Figure W3: Left and Right at Two Moments in Time, 1987 and 2009
Notes: the figures shows the predicted probabilities for each response in 1987 and 2009 for legislators whose rescaled ideological positions are in the 10^{th} and 90^{th} percentile (left and right).of the distribution of ideological positions across all surveys. The probabilities are drawn from the ordered logit presented in Table 3 of the main text.

Regression With Three or Four Category Dependent Variable

Table 3 in the main paper reports regression coefficients for where the dependent variable is a three level ordinal variable indicating preference over the economic system of the country. The original variable, however, was coded in a four level scale, which we simplified due to the small number of respondents in the leftmost category. Table W3, below, compares estimates of the regression reported earlier, with those obtained using the original four point variable. Results are substantively identical.

Table W3 – Comparison of Regression Coefficients

	4-level DV	3-level DV
Rescaled Ideology	1.387	1.272
SE	0.188	0.184
t-value	7.39	6.905
Year=1997	1.014	0.953
	0.235	0.234
	4.325	4.075
Year=2001	0.515	0.453
	0.245	0.244
	2.107	1.859
Year=2005	0.578	0.508
	0.254	0.254
	2.278	2.000
Year=2009	0.154	0.088
	0.241	0.241
	0.638	0.367
Ideology*Year=1997	-0.204	-0.082
	0.266	0.265
	-0.766	-0.308
Ideology*Year=2001	-0.136	-0.058
	0.287	0.285
	-0.473	-0.202
Ideology*Year=2005	-0.298	-0.151
	0.284	0.287
	-1.049	-0.527
Ideology*Year=2009	-0.271	-0.140
	0.269	0.272
	-1.005	-0.516
TOTAL N	684	684
N ESTATAL	13	
N PREDOMÍNIO ESTATAL	100	113
N EQUILIBRIO	283	283
N MERCADO	288	288