

THE JUSTICE SYSTEM, IDEOLOGY, AND SOCIAL CHANGE IN THE CONSOLIDATION
OF DEMOCRACY: EVIDENCE FROM NICARAGUA AND COSTA RICA

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ABSTRACT

THE JUSTICE SYSTEM, IDEOLOGY, AND SOCIAL CHANGE IN THE CONSOLIDATION OF DEMOCRACY: EVIDENCE FROM NICARAGUA AND COSTA RICA

I examine the role that political ideology plays in the development of the justice system as an overlapping consensus in a consolidating society. I argue that political ideology and citizens' perceptions of judicial independence are major factors in civil society's attitudes concerning the fairness of the law. To support this argument, I offer evidence from survey research that I performed among individuals in Nicaraguan and Costa Rican civil societies. I use the Chi-squared test of independence and a Bayesian inferential linear model to analyze the opinions of 348 individuals in the two societies. Findings suggest that a reduction in the belief that the law serves a specific ideological interest must take place among individuals in the political center of the consolidating society to facilitate the full consolidation of democracy.

INTRODUCTION

In 1991, the Nicaraguan Supreme Court found a portion of Decree 11-90, which established an authority to review confiscated property that was allocated to citizens by the prior Sandinista government, unconstitutional on the grounds that the law granted an administrative agency powers that rested exclusively in the judicial power.¹ The ruling produced a mixed response in political government: the Executive branch accepted it; while, many members of the National Assembly sought ways to circumvent it. One may argue that the Court's ruling produced political tensions in both the government and civil society, and attitudes concerning the ruling affected attitudes concerning the judiciary. However, it is clear that the political tensions concerning the confiscated land existed prior to the Court's ruling on Decree 11-90, and individuals who viewed the law as right (fair) before the Court ruled on the case also viewed the law as right (fair) after the case. Conversely, those individuals who viewed Decree 11-90 as unfair before the case reached the Court viewed the law as unfair after the court ruled on the case. In this consolidating environment, the judiciary, which lacks legitimacy, has no mediating effect on the law. Individuals form their opinions concerning the law partly or solely based on their orientation towards the party of the government.

The fact that the judiciary is an output of the political sphere is a major impediment to the judiciary's ability to contribute to the establishment of the rule of law. Nevertheless, I, like other students of democratic consolidation, assign the judiciary a major role in the institutionalization of the rule of law.

The consolidating judicial institution faces at least six problems:

1. The court has no institutional legitimacy. Herron and Randazzo argue that the judiciary has a weak institutional legacy (2003, 423). I argue that the consolidating judiciary has no and perhaps a negative institutional legacy.
2. Other institutional actors are stronger than the judicial institution (Herron and Randazzo 2003, 423).

¹ For more details on this institutional clash see McConnell 1993.

3. Judicial officials have little insulation from personal retaliation by actors in the political sphere (Iaryczower, Spiller, and Tommasi 2002, 699).
4. The public lacks knowledge of the courts, and this lack of knowledge is exacerbated by the lack of public access to the courts (Caldeira and Gibson 1997; and Prillaman 2000, p. 6).
5. Consolidating judiciaries lack the capacity to induce compliance (Gibson and Caldeira 2003, 5)
6. Consolidating judiciaries have no diffused support (Gibson and Caldeira 2003).

Couched within this argument is the fact that political cleavages condition the manner in which the public perceives the consolidating judiciary. Nevertheless, Linz and Stepan argue that an independent judicial system is an intervening variable in societal support for the law (1996, 10).² I accept this argument to a great extent. At the same time, the fact that political cleavages condition perceptions of judicial independence indicates that political ideology is also an important factor in the acceptance of the rule of law.

In this discussion, I examine the role that political ideology plays in the development of the justice system as an overlapping consensus in a consolidating society. I argue that political ideology and citizens' perceptions of judicial independence are major factors in civil society's attitudes concerning the fairness of the law. To support this argument, I offer evidence from survey research that I performed amongst individuals in Nicaraguan and Costa Rican civil society. Findings suggest that a reduction in the belief that the law serves a specific ideological interest must take place within the society to facilitate the consolidation of democracy.

This argument is presented in five parts. First, I present my model of the consolidating judiciary. Second, I introduce the cases of interest. Third, I present the data and the analytical

² Specifically, Linz and Stepan argue that "a clear hierarchy of laws, interpreted by an independent judicial system and supported by a strong legal culture in civil society" is required to achieve consolidated democracy (1996, 10). The most prominent discussion of the role of the rule of law and the judiciary in the democratization process in Latin America has taken place between institutionalist such as Linz and Stepan (1996) *Problems of Democratic Transition and Consolidation* and those dubious of the institutionalization thesis such as Mendez, O'Donnell, and Pinheiro (1999), *The (Un)Rule of Law & the Underprivileged in Latin America*.

model. Fourth, I demonstrate the reliability of perceptions of judicial independence and political ideology as factors in an individual's trust in the fairness of the justice system. Fifth I return to the data and demonstrate the effect of political ideology on the linkage of the independent judiciary/trust in the fairness of the justice system decision. I conclude with a brief discussion of the implications of these findings on democratic development.

Conditional Model of the Judiciary in Democratic Consolidation

I argue that individuals in civil society form perceptions concerning judicial independence and trust in the fairness of the law. In this study, the law of interests is criminal law.³ I argue that the judicial independence/fairness of the law relationship in the consolidating environment is both unidirectional and spurious. The idea of a unidirectional relationship entails one variable having an effect on another but not conversely. In my conceptualization, attitudes concerning the judicial independence affect attitudes concerning the fairness of the law. However, one may argue the opposite and posit the idea that attitudes concerning the law affect attitudes concerning judicial independence.

Agresti and Findlay argue that a relationship must satisfy three criteria to be a causal one: association between variables, appropriate time order, and elimination of alternative explanations (1997, 357). Both unidirectional contentions advanced above assume an association between the two variables. Both also assume that alternative explanations will be eliminated. The point of conflict between the two contentions is that of time order. However, the judiciary is established prior to a particular disputed law reaching its jurisdiction. In this view, the assumptions on which

³ It clear that fairness is not the central goal of lawmakers when they create criminal law. Pinherio (1999) is correct to argue that “the rule of law should not be equated with the enforcement of criminal law, precisely because one of the cardinal features of criminal law is its discriminatory character” (2). Nevertheless, the advocates of new law desire to convince the society that certain forms of behavior are the correct forms of behavior for the society. This is a principal reason that criminal law is interesting. I agree with Bernard (1981), who argues that “[i]nterpersonal and inter-group conflict becomes manifested in the criminal law through processes in which the behaviors of least powerful—political and economic—groups in society are most likely to be defined as criminal and are most likely to be responded to by the criminal justice system” (11).

the association's time order is based must be questioned. These two contentions are grounded in different assumptions concerning judicial legitimacy. The first contention (my contention) assumes that the consolidating judiciary has little or no legitimacy. The second contention (the contention on which the idea of diffused support is based) assumes that the judiciary has legitimacy and a particular ruling may enhance or detract from this legitimacy.⁴

Because consolidated judiciaries lack legitimacy in the form of separation from the political sphere at the initial stages of the consolidating process, some individuals reject the intervening effect of the judiciary on decisions concerning the fairness of the law. In this view, the relationship between judicial independence and trust in the fairness of the law is a spurious one. The relationship is spurious because individuals ignore completely the judiciary and base their attitudes concerning the fairness of the law solely on their political orientation to the party of the government.

The combination of these two perceptual choices and the unidirectional and spurious assumptions result in four outcome groupings: 1) independent judiciary/high probability of trust in the justice system, 2) independent judiciary/low probability of trust in the justice system, 3) non-independent judiciary/low probability of trust in the justice system, and 4) non-independent judiciary/high probability of trust in the justice system. Figure 1 shows the full conceptual model.

Judicial Independence

Figure 1 shows that the judiciary in a consolidating democracy may be independent or non-independent. My conceptualization of judicial independence is concerned with the separation of the institution from the political and the representation of political interests. Judicial institutions under previous non-democratic regimes have been subjugated to the executive branch of the state and particular political interests. Huntington (1968, 20) argues that one of the characteristics of political institutionalization is the separation of the judicial institution from the political sphere.

⁴ We see this type of argument in Gibson, Caldeira, and Baird's (1998) examination of the legitimacy of and diffuse support for national high courts in seventeen European countries and the United States.

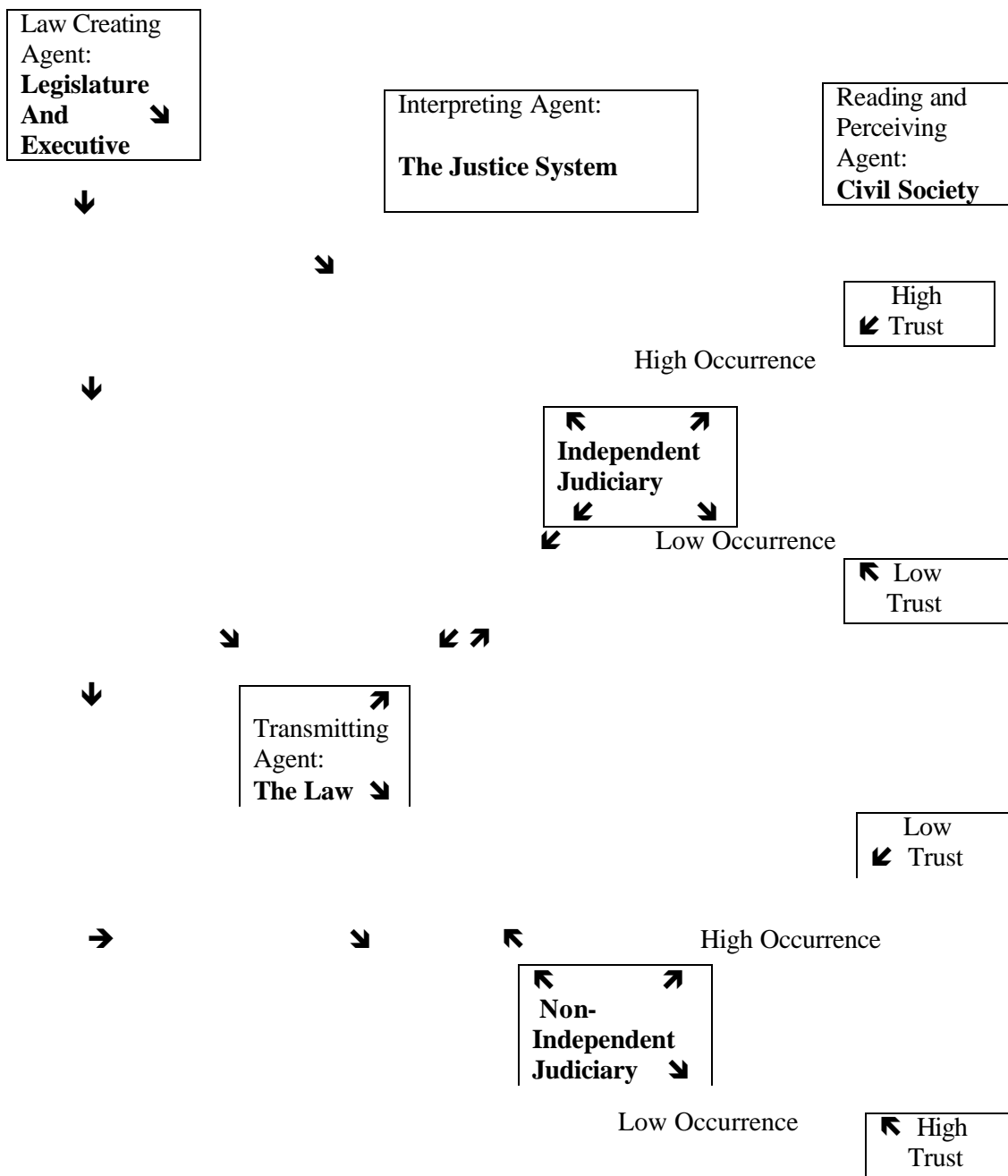


Figure 1. Model of Consolidating Judiciary in the Rule of Law

Rueschemeyer, Stephens, and Stephens (1992) argue that a fairly strong institutional separation (differentiation) from societal inequality is essential to democracy (64). Moreover, Rawls (1989) asserts that in a “well-ordered democratic regime” political liberalism introduces an

idea of “an overlapping consensus and along with it the further idea of the political as a special domain” (246).

These arguments coalesce to advance the concept that a fairly strong separation (differentiation) of the justice system from the political realm is essential for democratic development. From an institutional developmental standpoint, Schmidhauser’s (1989, 231) definition of judicial separation as “the position of some degree of freedom from one or more competing branches of government or from centers of private power” is a better definition of judicial independence in the democratic consolidation context than definitions that are concerned with judicial independence at the individual judge level.

Civil Society

Figure 1 also shows that civil society is the perceiving agent in my model. In other words, the law is fair if, and only if; civil society trusts (perceives) it to be so. At the same time, the judiciary is only independent if, and only if; civil society trusts (perceives) it to be so. While both the judiciary and the law are actors within the political system, the actions produced by these actors do not reflect solely the intended will of the two actors. That is to say, the outputs of the two actors may not produce the identity the two actors desire to create. The identities that these two actors have in the democratic system rest greatly on how they are perceived in civil society and the mass public.⁵

Following Rueschemeyer, Stephens, and Stephens (1992, 6), civil society is “the totality of social institutions and associations, both formal and informal, that are not strictly production-related nor governmental or familial in character.” Both the law and the judiciary appeal to civil society to assess their fairness and apoliticalness, respectively. Given that the contentiousness of the consolidating political environment, civil society perception is far from homogeneous. Knight (2001) points out that interactions within civil society reflect on the rule of law. He argues that

⁵ See Iaryczower, Spiller, and Tommasi (2002, 713) conclusion concerning negative public perception of judicial independence and legitimacy in Argentina.

the conception of the rule of law as a producer of informal mechanisms of social cooperation places conditions on the institutionalization of legal and judicial institutions that incorporate the findings of social scientific research across conflicting groups. This conflict may drive some individuals of civil society to ignore the intervening judicial institution and form conceptions of the law's fairness based strictly on their orientation to the political government.

These same individuals will stimulate discussions with others in their associational interactions and may impact other civil societal members' perceptions of the law and the judicial institution. At the same time, other individuals in civil society may view the judicial institution in a positive light and will pass this view to other individuals in their associational sphere. Knight (2001, 22) expresses the importance of these interactions and argues "especially important here is the analogy between interactions involving formal legal rules and the role of social norms in informal social interactions."

Hypotheses

I test two hypotheses in this investigation.

Hypothesis 1: In consolidating democracies, individuals in civil society who have ideological orientations that differ from the ideological leaning of the party of the government will have less trust in the fairness of the law than individuals in civil society who share the ideological leaning of the party of government.

Hypothesis 2: In consolidated democracies, individuals in civil society who share the ideological orientation of the major opposition party will have less trust in the fairness of the law than individuals in civil society who share the ideological leaning of the party of the government.

Cases

In attempting to understand the importance of the judiciary in the consolidation process, I examine the judiciary, civil society, the criminal justice system, and political society in two Central American countries: Nicaragua, a consolidating democracy; and Costa Rica, a consolidated democracy. Nicaragua transitioned from authoritarian rule by way of a leftist revolution led by the *Frente Sandinista de Liberación Nacional* (FSLN). The 1979 Revolution was followed by national elections in 1984 with the FSLN winning 66.8% of the vote in an

election with 75% turnout.⁶ After losing the 1990 national elections, the Sandinistas surrendered power to a center-right coalition; the National Opposition Union (UNO) led by Violeta Chamorro. A right of center coalition led by the *Partido Liberal Constitucionalista* (PLC) prevailed in the two subsequent elections in 1995 and 2001. The judicial institution has been very active in the establishment of its structure and even in its constitutional origin in the 1987 Political Constitution (Wilson 1991). Nevertheless, the institution has lacked the capacity to deflect incursions from the political sphere.

Alternatively, Costa Rica has experienced uninterrupted democracy since 1948.⁷ Hammergren (1998) argues that Costa Rican judicial reform “can be seen as the judiciary’s ideal reform, one it produces with the compliance of but little intervention by political elites, and with external support that follows the judiciary’s lead rather than imposing its own conditions” (210). The Costa Rican judicial institution is the model of the professional judiciary. These two cases offer an excellent contrast in democratic and judicial development. The slightly right-of-center Social Christian Unity Party (PUSC) currently controls the Costa Rican presidency and Legislative Assembly. A Costa Rican Supreme Court Justice succinctly contrasted ideological identification in Costa Rica and Nicaragua. He explains—

Costa Rica and Nicaragua are very different places. Nicaragua is very polarized. In Nicaragua, you have a strong left, a strong right, and a weak center. In Costa Rica, everyone is in the center.⁸

The Analytical Model Consolidating Judiciary Model: The Political Components

The three political components of the consolidating judicial model are political ideology, political socialization, and social class. Nicaraguan civil society is marked by strong ideological

⁶ The 1984 Elections were declared free and fair by many international groups including the Latin American Studies Association, Americas Watch, and several governmental delegations including the United Kingdom, Ireland, and Costa Rica (Reding 1987, 291). *Coordinadora* groups (a coalition of right of center party members, members of the business sector, and some of the armed opposition) boycotted the election at the behest of the United States Government.

⁷ Diamond and Linz (1989) and O’Donnell (1999) place Costa Rica among the cases of stable democracy. Conversely, Anderson and Dodd (2002) point out that Nicaragua appears to have consolidated its electoral democracy.

⁸ Interview with Supreme Court Magistrado José Arroyo, San José, Costa Rica, November 22, 2002 (Walker, 2003).

cleavages. While political ideology may not always be the principal cleavage line in new democracies, new democracies are generally divided by a dominant versus subordinate cleavage that has a great impact on law creation and societal acceptance of the newly created laws. Research has shown that citizens can place themselves on a left/right ideological scale in relation to major lines of political conflict (see for example Levitin and Miller, 1979; Knight, 1985; and Jacoby, 1991). Davis argues further that these labels can be used to form opinions concerning “issues, candidates and political parties without citizens being well informed” (2003, 1). While self-identification along the left-right political spectrum has been associated more closely with advanced Western democracies, this type of political research is being performed increasingly in Latin America (see for example Moreno 1999; Klesner, 2003; and Davis, 2003). Political ideology is the major cleavage that many individuals in Nicaraguan civil society have internalized the ideas associated with the political left and political right. Political ideology is the first political effect that impacts trust in the justice system and is included necessarily in the full consolidating judiciary model.

Political socialization in the form of the prior knowledge that citizens reference to assess governmental actions is the second political factor included in the full consolidating judiciary model. Age is deployed in the form of five age groupings to detect a cohort effect that should be present in a post-authoritarian/newly democraticizing society. Zaller (1992) argues that chronological age is a “predisposition” that regulates attitude change (172). Moreover, much evidence exists to support the thesis that generational differences affect the acceptability of new ideas (see for example Abramson 1983, and Glenn, 1977).

Finally, social class cannot be overlooked in any model that is intent on understanding citizens’ attitudes in a democratic setting. In this study, occupation is a crude representation of social class.⁹ I have point to the importance of class in my citation of Rueschemeyer, Stephens

⁹ For a fuller discussion of the traditional importance of class in political analysis see Marshall (1963).

and Stephens (1992) and their privileging of the working class in democratic development. In this sense, the opinion of blue-collar workers is of particular interest. Ideology should be correlated somewhat with social class, however, ideology is a fundamental component of Nicaraguan historical development that is quite unrelated to social class.¹⁰

I posit trust in the fairness of the justice system to be a function of perception of judicial independence, age cohort, ideology, occupation, and country (see Appendix for measurement specifications).

Data

The total respondents for the study are 348 individuals who are members of 32 civil society groups in Nicaragua and Costa Rica: 226 Nicaraguan respondents from 20 groups, and 122 Costa Rican respondents from 12 groups. The sample was produced by a multi-stage sampling process and was clustered in three ways: by country (Nicaragua and Costa Rica); by city (Granada and León (Nicaragua), and Cartago and Limón (Costa Rica), and by civil society organization (this breakdown is shown in Appendix 1).¹¹

Dependent Variable: Trust in the Fairness of the Justice System

The survey instrument asked respondents to assess the fairness of the justice system through three criminal justice scenarios (see Appendix 2). Each of the scenarios was presented twice: once involving an affluent accused, and once involving a less affluent accused. The responses to the six questions were scored on a scale of 1 to 4, with 1 indicating bias towards the wealthy accused, and 4 indicating bias towards the less affluent accused. This procedure resulted in a scale that ranged from 6 to 24. I fold the extremes around the mean of 15 and produce a 10-point scale in which 1 = complete distrust in the fairness of the justice system (regardless of perceived

¹⁰ See Davis, Aguilar, and Speer (1999) for a discussion of Nicaraguan urban informal works and their tendency to favor right of center political candidates.

¹¹ Agresti and Finlay (1997, 28) argue multistage methods use combinations of various sampling techniques and are common in social science research because they are simpler to implement than the simple random sample but provide a broader sampling of the population than a single method.

bias) and 10 = trust in the fairness of the justice system. Any value below 10 is a level below full trust in the justice system.

Explanatory Variable : Judiciary Independence

The primary explanatory variable of the model is perception judicial independence from the political sphere. This variable is also based on three sets of paired questions and is measured on an ordinal scale that ranges from 1 to 19 with 1 being non-independence or political judges and 19 being independent judges (see Appendix 2 for survey questions and measurement specifications).

Findings

The Nicaraguan model explains 16% of the variability in trust and the Costa Rican form of the model explains roughly 11% of the variability in trust in the fairness of the justice system. The consolidating judiciary model is designed to perform better in the consolidating society and these results reflect this condition. Table 1 shows the findings for the individual coefficients for the three models. It is clear that judicial independence (the separation of the judicial from the political) is an important factor in an individuals trust in the fairness of the justice system in both countries. In all three of the models, judicial independence and ideology have significant coefficient estimates. This finding is fairly strong confirmation that these components have significant effects on individuals trust in the fairness of the justice system.

Still we see a reversal in the significant ideological coefficient between the Nicaraguan and Costa Rican models. In Nicaragua, the findings suggest that civil society members in the ideological center have far less trust in the justice system than do civil society members of the political right. Conversely in Costa Rica, civil society members of the ideological left have far less trust in the justice system than civil societies members of the ideological right.

Table 1. Trust as linear function of Consolidating Judiciary Models

	Nicaragua	Costa Rica	Overall
Variable	Coeff.(Std.err.)	Coeff.(Std.err.)	Coeff.(Std.err.)
Intercept	6.378(0.576)***	6.642(0.633)***	6.066(0.410)***
Judicial Independence	0.182(0.038)***	0.098(0.040)*	0.160(0.028)***
Age Cohort	-0.772(0.191)***	-0.089(0.208)	-0.482(0.141)***
Ideology:			
Right	0.000	0.000	0.000
Center	-0.836(0.421)*	-0.269(0.377)	-0.490(0.294)
Left	-0.362(0.429)	-1.226(0.709)	-0.406(0.346)
Occupation:			
Student	0.000	0.000	0.000
Blue Collar	1.699(0.532)**	0.196(0.554)	1.046(0.390)**
White Collar	1.442(0.507)**	0.526(0.654)	1.094(0.398)**
Country:			
Nicaragua	-----	-----	0.000
Costa Rica	-----	-----	0.442(0.297)

F-statistic (Nicaragua Model): 7.072 on 6 and 219 DF, p-value: 6.733e-07, $R^2 = 0.162$

F-statistic (Costa Rican Model): 2.309 on 6 and 115 DF, p-value: 0.03846, $R^2 = 0.108$

F-statistic (Overall Model): 9.035 on 7 and 340 DF, p-value: 3.115e-10, $R^2 = 0.158$

Significance codes: ‘***’ = 0.001; ‘**’ = 0.01; ‘*’ = 0.05; ‘.’ = 0.1

Coefficient estimates are maximum likelihood estimates and errors are asymptotic standard errors.

To understand these relationships further, I ran Bayesian linear models using the data from the three models in Table 1 and priors constructed from the use of an informative prior in the Nicaragua and Overall cases and the use of a non-informative prior in the Costa Rican case (see Appendix 3 for model specifications). The informative prior is drawn from a similar study that I performed in 1997 in León Nicaragua only. Table 2 shows the posterior summary of the means, standard deviations, and Bayesian credible intervals of this process. The findings indicate that the estimates for judicial independence, Age cohort, and Ideology are reliable (Table 2 shows only those estimates that are bound away from 0 in each model).¹²

¹² The Occupation variables of Blue and White Collar prove to be unreliable. In comparison to each other, there is virtually no difference in the trust attitudes of blue and white-collar workers in all 3 models. In Table 1, the occupation dummy variables are additive findings to compensate for the fact that students are younger and generally have higher judicial independence scores than do blue or white-collar workers. Moreover, the positive relationship between blue and white collar workers and trust in the fairness of the justice system is a reversal of the findings from my 1997 research, which produced negative but insignificant coefficients for both blue collar and white collar workers in comparison to students (-0.078 and -1.176, respectively). This reversal is an example of the volatility of the consolidating environment. Additionally, Anderson (1992) found that prior to the 1990 Nicaraguan elections, the political environment

Table 2. Posterior Summary: Trust as linear function of Consolidating Models

Estimate	Mean	Standard deviation	90% Bayesian Credible Interval
<u>Overall Model with informative prior from 1997 Nicaraguan data.</u>			
Intercept	6.757	0.286	[6.280: 7.229]
Judicial Independence	0.146	0.026	[0.102: 0.188]
Age Cohort	-0.299	0.121	[-0.499:-0.099]
Ideology, Center	-0.537	0.264	[-0.973:-0.102]
Costa Rica	0.504	0.279	[0.043: 0.964]
Tau	0.196	0.015	[0.171: 0.221]
<u>Nicaraguan Model with informative prior from 1997 Nicaraguan data.</u>			
Intercept	6.667	0.321	[6.137: 7.197]
Judicial Independence	0.144	0.033	[0.090: 0.198]
Age Cohort	-0.427	0.152	[-0.677:-0.177]
Ideology, Center	-0.793	0.348	[-1.368:-0.218]
Tau	0.169	0.016	[0.142: 0.196]
<u>Costa Rican Model with non-informative prior.</u>			
Intercept	7.511	0.560	[6.598: 8.435]
Judicial Independence	0.097	0.040	[0.031: 0.163]
Ideology, Left	-1.210	0.711	[-2.384:-0.036]
Tau	0.289	0.038	[0.226: 0.352]

Tau = $1/s^2$: Appendix G provides Model Specifications.

Ideology

The findings in Table 2 offer good evidence for Hypothesis 2 in that the current party in government in Costa Rica is the right of center party. The estimate for left is reliable, and the negative direction of the estimate illustrates the lower level of trust in the fairness of the system among civil society members who self identify as the ideological left. Among the Costa Rican respondents, few identify with the ideological left. Despite the fact that nine of the twelve Costa Rican organizations sampled were natural conduits for left of center political orientation, only nine of the 122 people in the Costa Rican sample identified themselves as ideologically left.¹³ The leader of a Costa Rican national women's network remarked that she formerly identified with the

surprisingly exhibited patterns that paralleled those found in advanced western electoral environments. In this environment, social class and political ideology are somewhat decoupled. The unreliability of Occupational grouping and the reliability of political ideological groupings reflect the partial decoupling of social class and political ideology in the consolidating environment.

¹³ These groups included seven labor unions, a women's organization, and members of the opposition slightly left of center political party.

ideological left but now identifies with the center.¹⁴ The small number of individuals who identify with the left and have less trust in the system is important. It points to the fact that political contestation remains a component of the justice system, even though that component is greatly diminished in this consolidated system.

The findings in Table 2 only partly confirm Hypothesis 1 in that the Ideology: Left parameter is not reported as a reliable estimate. This is due to the fact that the linear trust scale is designed to ascertain trust regardless of the ideological leaning of the respondent.¹⁵ The comparison ideology is right of center, which is the base ideology of the current presidents in both countries. Figure 1 shows the distribution of actual trust in the Nicaraguan justice system by political ideology along with the median trust level for each ideological grouping.

The median trust level for individuals in the ideological center is lower than both the ideological left and the ideological right. Table 2 confirms that the difference in the distribution of trust values of the ideological center and those of the ideological right is reliable. The lack of difference between the trust values of the ideological left and those of the ideological right indicates that there is a shared characteristic in the manner in which these civil society individuals form their opinions concerning the fairness of the justice system. The shared characteristic appears to be that they partly base their opinion of the justice system on their relationship to the party controlling political government; that is, whether the government is of the political left or the political right.

¹⁴ Interview with Ana Hernández, Director of Asociación Alianza de Mujeres Costarricenses (AMC), San José Costa Rica, March 11, 2003.

¹⁵ The scale is constructed such that responses that have extreme bias towards wealthy or the poor are collapsed around the center of the scale, which is the approximation of trust.

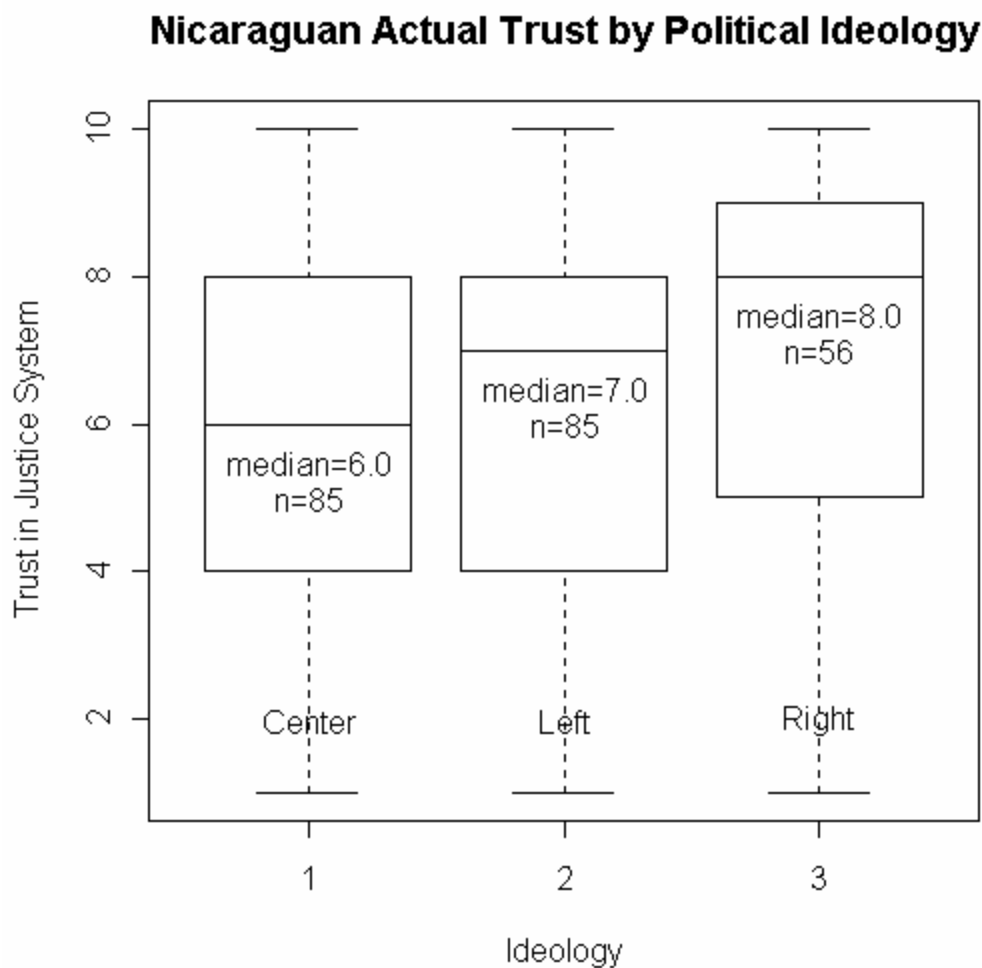


Figure 1. Nicaraguan Actual Trust by Political Ideology

Ideology, Judicial Independence and Trust

Now that the reliability of the effects of ideology and judicial independence on trust in the justice system have been established across the two cases, I return to the actual data to further explore these relationships. Nicaraguan community leaders expressed some ideological biases in their assessments and observations that reflect the political biases found in the formation of civil society attitudes towards the fairness of the justice system in consolidating Nicaragua. For example, the Chamber of Commerce President in León asserts that the ideological left in León

should have greater trust in the justice system because the local court system favors the left.¹⁶

While findings show no difference in attitudes between León and Granada, ideological differences appear to exist between the manner in which individuals of left, right, and center link the importance of judicial independence to fairness of the justice system.

Recall that the four outcome groupings are 1) independent judiciary/high probability of trust in the justice system, 2) independent judiciary/low probability of trust in the justice system, 3) non-independent judiciary/low probability of trust in the justice system, 4) non-independent judiciary/high probability of trust in the justice system. Outcomes 1 and 3 are the outcomes that link perceptions concerning judicial independence to trust in the justice system. Outcomes 2 and 4 are the more political outcomes in which citizens bypass the intervening effects of the judiciary to form their views of the fairness of the justice system. The findings here illustrate that these more political outcomes in the Nicaraguan environment are driven by political ideology.

To further explicate my argument, I create dichotomous trust in the justice system and judicial independence variables. For trust in the justice system, scores of 7 and lower are coded low trust and scores of 8 and higher are coded high trust. For judicial independence, scores of 9 and lower are coded non-independent (political) and scores of 10 and higher are coded independent. Table 3 illustrates that a lower percentage of individuals in the Nicaraguan ideological center trusts in the justice system than percentages of individuals in the ideological left or ideological right. More importantly, the table also illustrates that a greater percentage of individuals in the ideological center links its assessment of judicial independence and trust in the justice system.

Sixty-eight percent of centrist individuals links the decisions concerning judicial independence and trust in the justice system (that is, independent judiciary/high-trust or non-independent judiciary/low-trust). Conversely, only 57.6 percent of individuals of the ideological left and 51.8

¹⁶ Cordero Interview.

percent of the ideological right link the two decisions. The difference between individuals of the center and the right is significant at alpha-level of .10.¹⁷

Table 3. Nicaraguan Civil Society Apolitical Dichotomous Trust and Political Judiciary by Ideology

Independent Judiciary	Trust in Fairness of Justice System		Judicial Independence Total	
	Low Trust	High Trust		
Center				
Yes	16.5	24.7	41.20	
No	43.5	15.3	58.80	
Total Trust	60.0	40.0	100.00	N = 85
Left				
Yes	24.7	24.7	49.40	
No	32.9	17.7	50.60	
Total Trust	57.6	42.4	100.00	N = 85
Right				
Yes	21.4	25.0	46.40	
No	26.8	26.8	53.60	
Total Trust	43.6	56.4	100.00	N = 56
Total				
Yes	20.8	24.8	45.60	
No	35.4	19.0	54.40	
Total Trust	56.2	43.8	100.00	N = 226

Meanwhile, we can see the direct effect of political ideology in the decision to trust the justice system in the fact that the percentage of individuals of the ideological right that sees the judiciary as non-independent and, nevertheless, trust the fairness of the system (non-independent judiciary/high-trust) is higher at 26.8 percent than that of the ideological center or left, 15.3 and 17.7 respectively. Alternatively, the percentage of individuals of the ideological left that sees the judiciary as independent and, nevertheless, distrusts the fairness of the justice system (independent judiciary/low-trust) is higher at 24.7 percent than that of the ideological center (16.5).

¹⁷ The p-value for chi-squared significance test with 1 degree of freedom is 0.0335 ($X^2 = 4.52$). See Appendix 3 for method specifications.

Table 4. Apolitical Trust and Political Judiciary by Ideology

Independent Judiciary	Trust in Fairness of Justice System		Judicial Independence Total	
	Low Trust	High Trust		
Center				
Yes	20.6	36.9	57.50	
No	30.0	12.5	42.50	
Trust Total	50.6	49.4	100.00	N = 160
Left				
Yes	25.5	23.4	48.90	
No	34.1	17.0	51.10	
Trust Total	59.6	40.4	100.00	N = 94
Right				
Yes	20.2	36.2	56.40	
No	23.4	20.2	43.60	
Trust Total	43.6	56.4	100.00	N = 94
Total				
Yes	21.8	33.0	54.80	
No	29.4	15.8	45.20	
Trust Total	51.2	48.8	100.00	N = 348

The findings on ideology in Nicaragua and Costa Rica taken together are instructive. They indicate that the political center is the portion of the society that is most important in assessing the fairness of the justice system. The Costa Rican findings illustrate that civil society members who have strong ideological leanings may still have a distinctive difference from individuals who share the opposite ideological leaning; however, members of civil society in the ideological center should rest somewhere in between the extremes in assessment of the fairness of the ‘apolitical’ justice system. In other words, civil society views the justice system as autonomous from the political sphere (Table 1).

Moreover, Table 4, which includes the Costa Rican observations, illustrates the effect of an infusion of individuals in the ideological center that shares sensibilities with the dominant political class on the apolitical dichotomous trust choice. While the percentage of centrist civil society members who link the judicial independence/trust in the justice system choices remains practically unchanged (66.9 percent to 68.2 percent), the political choice of non-independent judiciary and trust in the justice system declines among the ideological right (from 26.8 percent to

20.2 percent) and the ideological center (from 15.3 percent to 12.5 percent). On the other hand, the inclusion of the nine left-ideology Costa Rican observations slightly increases the opposition political decision; that is, independent judiciary/low-trust (from 24.7 percent to 25.5 percent).

The attitudes of the ideological center towards judicial independence offer perhaps the most compelling and intuitive evidence of the effects of judicial independence on trust in the fairness of the justice system in consolidating and consolidated democracies. Table 5 illustrates the complete reversal of the non-independent judiciary/low-trust and independent judiciary/high-trust cells configuration in Nicaragua and the same configuration in Costa Rica.

Table 5. Contrast of Nicaraguan and Costa Rican Ideological Centers: Dichotomous Apolitical Trust in Justice System by Independent Judiciary

Independent Judiciary	Trust in Fairness of Justice System		Judicial Independence Total	
	Low Trust	High Trust		
Nicaraguan Center				
Yes	16.5	24.7	41.20	
No	43.5	15.3	58.80	
Trust Total	60.0	40.0	100.00	N = 85
Costa Rican Center				
Yes	25.3	50.7	76.00	
No	14.7	9.3	24.00	
Trust Total	40.0	60.0	100.00	N = 75

The majority of centrist Nicaraguan respondents fall in the non-independent/low trust cell (43.5 percent to 14.7 percent for Costa Rica).¹⁸ On the other hand, 50.7 of centrist Costa Rican respondents fall in the independent judiciary/high trust cell (only 24.7 percent of centrist Nicaraguan reside in this cell).¹⁹ These findings indicate the emergence of the justice system as an “overlapping consensus” in the consolidated democracy of Costa Rica and the lack of such an emerging consensus in the consolidating democracy of Nicaragua.

¹⁸ This difference of 28.8 percent is significant and yields p-value of 0.00007 using chi-squared test of independence ($X^2 = 15.81$, degrees of freedom = 1).

¹⁹ This difference of 26.0 percent is significant and yields p-value of 0.001 using chi-squared test of independence ($X^2 = 10.77$, degrees of freedom = 1).

Table 6 shows a contrast of the Nicaraguan and Costa Rica ideological rights and suggests that a higher percentage of Nicaraguan civil society individuals base their trust in the fairness of the justice system choice on their ideological orientation to the government than do civil society individuals in Costa Rica. This condition is illustrated in the significant difference in the cell percentages in the non-independent judiciary/high trust cell. Among the Nicaraguan respondents, 26.8 % of right of center individuals makes this political choice to trust the fairness of the law, while only 10.5 % of Costa Rican self-identified right of center citizens makes this political choice. Using the Chi-squared test, this difference is significant and yields a p-value of .046 (see Appendix 3 for method).

Table 6. Contrast of Nicaraguan and Costa Rican Ideological Rights: Dichotomous Apolitical Trust in Justice System by Independent Judiciary

Independent Judiciary	Trust in Fairness of Justice System		Judicial Independence Total	
	Low Trust	High Trust		
Nicaraguan Right				
Yes	21.4	25.0	46.40	
No	26.8	26.8	53.60	
Trust Total	43.6	56.4	100.00	N = 56
Costa Rican Right				
Yes	18.4	52.7	71.10	
No	18.4	10.5	28.90	
Trust Total	36.8	63.2	100.00	N = 38

Additionally, only 51.8% of the Nicaraguan right respondents link their judicial independence/trust in the justice system decision, while 71.1% of Costa Rican right respondents links the judicial independence/trust in the justice system decision. The difference of 19.3% is a significant one and suggests that the ideological rights of the two countries are quite different. This finding concerning the linkage of the judicial independence/trust decision and the finding concerning the choice to trust the law/while ignoring the judiciary illustrates the reduction of the effect of political ideology in consolidated societies as compared to consolidating society.

The small number of Costa Rican respondents who self-identify as the ideological left makes my findings concerning the ideological left less compelling. Nevertheless, the findings suggest

that the two ideological lefts operate in very similar manners in forming their decisions concerning judicial independence and the fairness of the justice system. Majorities of the ideological left respondents in both countries distrust the fairness of the law (Nicaragua 57.6% to Costa Rica 77.8%). Fifty-seven percent of Nicaragua leftist respondents links the judicial independence and trust in the justice system decision, while 55.6% of Costa Rican leftist respondents links the judicial independence and trust decision.

Finally, 24.7% of Nicaraguan leftist respondents makes the oppositional political decision to distrust the fairness of the law even though it views the judiciary as independent. For Costa Rica, 33.3% of leftist respondents makes the oppositional political choice. Admittedly, 33.3% in Costa Rica is only 3 people. Still, the fact that the decision pattern of the Costa Rican leftist respondents is similar to the decision pattern of Nicaraguan leftist respondents offers evidence that political contestation is reflected in the attitudes of Costa Ricans concerning the justice system. Moreover, Seligson (2002) argues that there increasing signs of discontent among Costa Ricans. This finding concerning the Costa Rican left appears to be a manifestation of this discontent.

Table 7. Contrast of Nicaraguan and Costa Rican Ideological Lefts: Dichotomous Apolitical Trust in Justice System by Independent Judiciary

Independent Judiciary	Trust in Fairness of Justice System			Total
	Low Trust	High Trust	Judicial Independence	
Nicaraguan Left				
Yes	24.7	24.7	49.40	
No	32.9	17.7	50.60	
Trust Total	57.6	42.4	100.00	N = 85
Costa Rican Left				
Yes	33.3	11.1	44.40	
No	44.5	11.1	55.60	
Trust Total	77.8	22.2	100.00	N = 9

Overall, my argument of the consolidating judiciary is successful in placing 74.8 % of the individuals in the sample. Outcomes 1 and 3 (based on the linear portion of the model) account for 62.4 % of this correct placement. Outcomes 2 and 4 account the other 12.4 % of this correct placement. Table 8 shows this configuration. I have argued that Outcomes 2 and 4 can be viewed

as the spurious outcomes. These are the outcomes in which individuals ignore the mediating effects of the judiciary and base their view of the law solely on their orientation to the political government.

It is possible for me to make the assumption that centrist individuals may lean to the left or the right. However, I will refrain from making this assumption and assume that only those individuals who clearly express an ideological preference can make a political choice. Thus, Table 7 shows that I subtract centrist individuals who fall in Outcomes 2 and 4 and leftist and rightist individuals who are in the Outcome categories that are in opposition to the expected political decision on Trust.

Table 8. Correct Placement Predictions by Consolidating Judicial Model

Outcome	Frequency (%)	Observations Unexplained by model (%)	Frequency of Observations correctly Explained	Percentage Correctly Explained by Model
1) Independent/ High Trust	115 (33.0)	0	115	33.0
2) Independent/ Low Trust	76 (21.8)	52 (14.9)	24	6.9
3) Non-Independent/ Low Trust	102 (29.4)	0	102	29.4
4) Non-Independent/ High Trust	55 (15.8)	36 (10.3)	19	5.5
Total	348 (100.0)	88 (25.2)	260	74.8

Discussion and Conclusion

Political ideology plays an important role in the way civil society individuals view the justice system in the consolidating environment. Ideology conditions how individuals link judicial independence and trust in the fairness of the justice system as individuals in the Nicaraguan ideological center appear to make this linkage at a higher rate than individuals of the ideological left or right. Alternatively, Nicaraguan civil society members of the ideological left and ideological right tend to make the political decisions to trust or distrust the fairness in opposition

to their judicial independence perceptions at higher levels than do Nicaraguan civil society members of the political center. The overall findings illustrate that the current ideological environment in Nicaragua is a major impediment to the development of a justice system that serves as an overlapping consensus.

The Costa Rican findings concerning ideology provide evidence of a societal transformation in a state of democratic consolidation. In this investigation, the ideological center emerges as the change group. In the Costa Rican case, the center accepts the fairness of the justice system in the same manner as individuals of the ideological right, who share the political leanings of the current government. Moreover, the Costa Rican ideological right links its decision concerning judicial independence and the fairness of the law in a manner that is similar to the ideological center. The implication is that criminal law and the administration of this law have evolved into areas that in the mind of the majority of citizens do not possess bias towards or against a particular economic class.

While this argument seems to equate the law to fairness, this equation is not the aim of my study. Asked directly, Costa Rican citizens, like American citizens, might argue that justice is granted to the highest bidder. Nevertheless, in a study that searches for parallel behavior by the system, the first inclination of Costa Rican ideological center is to assume fairness at an equal level to individuals of the ideological right. Of course, this assumption of fairness varies among the individuals in both groups. The important factor is that the pattern of this variation does not produce a significant difference.

In the case of Nicaragua, political ideology operates as we would expect concerning the political extremes. The opposition ideology, the left, has less trust in the fairness of the justice system than does the ideological right. However, the ideological center exhibits an even lower level of trust in the fairness of the justice system as it reacts to the unwillingness of the political leaders to surrender their disputes to the “procedures and processes of the democratic regime” (Linz and Stepan 1996, 6).

While acquiescence to decisions of the Nicaraguan judiciary has improved since the Supreme Court ruled on Decree 11-90, the ideological center of Nicaraguan civil society has yet to acknowledge this improvement and continues to view the justice system as a tool of the political sphere. The revulsion of the Nicaraguan center to the state of the justice system is reflected in my survey findings and is a clear reflection of the lack of development and support of a legal culture in civil society.

Appendix 1
Civil Society Organizations of the Multistage cluster sampling in Nicaragua and Costa Rica

Type of Organization	Type of Organization	Number surveyed
Frente Sandinista de Liberación Nacional(FSLN) (León/ Granada)	Left-leaning political party	17
Partido Liberal Constitucionalista (León /Granada)	Right-leaning political party	24
Asociacion de Estudiantes de Comercio (León)	Business college student Organization	13
Casa CUUN (León)	Activist student organization	32
Iglesia Baptista (León / Granada)	Evangelical churches	25
Movimiento Comunal (León / Granada)	Community improvement organization	30
Cámara de Comercio (León / Granada)	Business organization	6
Asociacion de la Mujer Nacional AMNLAE (León / Granada)	National women's network: development and training groups	30
Asociación de Trabajadores del Campo (León / Granada)	Farm-workers union	15
Estudeientes Universidades privado (Granada)	Private university students	27
CGTEN (Granada)	National teachers union	7
Asociación Alianza de Mujeres Costarricenses (Limón)	National women's network	8
Asociación de Trabajadores Domésticas (Cartago)	Union of domestic workers	9
Asociación Solidarista Empleados Bali (Cartago)	Workers association	7
Asociación Solidarista Empleados Cartex (Cartago)	Workers association	11
Cámara de Comercio (Cartago)	Business organization	7
La Cooperativa del Sector Educación COOPENAE (Cartago)	Teachers' cooperative	12
La Cooperativa del Sector Educación COOPENAE (Limón)	Teachers' cooperative	13
COOPEUNITRAB, R. A. (Limón)	Workers cooperative	10
Estudiantes de Instituto Tecnológico de Costa Rica (Cartago)	Technical university students	14
Estudiantes de Universidad de Costa Rica (Limón)	Liberal Arts university students	15
Partido Liberación Nacional (PLN) (Cartago)	Slightly left of center political party	9
Sindicato de Trabajadores de Japdeva (SINTRAJAP) (Limón)	Labor union	7
Total	32 community organizations	348

APPENDIX 2
SURVEY QUESTIONS AND VARIABLE MEASUREMENTS

Survey Questions and Scoring System for Answers

Example of Judicial Independence Survey Questions

1. Municipal court judges are politicians similar to the members of the National Assembly.
___1___ agree ___2___ somewhat agree ___3___ somewhat disagree ___4___ disagree
8. Municipal court judges are interested in the law and not in political matters like members of the National Assembly.
___4___ agree ___3___ somewhat agree ___2___ somewhat disagree ___1___ disagree

Trust in the Justice System Survey Questions

2. Immediately after a robbery, the police arrest the son of a poor family from Limón for the crime of robbery by intimidation. At the time of the arrest, the youth has \$30.00 and a knife. The judicial system will punish the youth severely.
___1___ agree ___2___ somewhat agree ___3___ somewhat disagree ___4___ disagree
11. Immediately after a robbery, the police arrest the son of a wealthy family from San Jose for the crime of robbery by intimidation. At the time of the arrest, the youth has \$100.00, credit cards that belong to another person, and a knife. The judicial system will punish the youth severely.
___4___ agree ___3___ somewhat agree ___2___ somewhat disagree ___1___ disagree
4. A rich property owner kills a day laborer in a bar fight. This landholder will be declared guilty of the murder of the laborer.
___4___ agree ___3___ somewhat agree ___2___ somewhat disagree ___1___ disagree
13. A day laborer kills a rich property owner in a bar fight. This laborer will be declared guilty of the murder of the landholder.
___1___ agree ___2___ somewhat agree ___3___ somewhat disagree ___4___ disagree
7. An investigation determines that an office worker in the Coffee Bank embezzled \$700. This case will reach the jury.
___1___ agree ___2___ somewhat agree ___3___ somewhat disagree ___4___ disagree
14. An investigation determines that the director of FNT embezzled \$360,000. This case will reach the jury.
___4___ agree ___3___ somewhat agree ___2___ somewhat disagree ___1___ disagree

Measurements

Trust In The Fairness Of The Justice System—ordinal-values = 1 to 10.

1 = complete DISTRUST and 10 = TRUST

Construction of Trust variable-- The responses to the six questions were scored on a scale of 1 to 4, with 1 indicating bias towards the wealthy accused, and 4 indicating bias towards the less affluent accused. This procedure resulted in a scale that ranged from 6 to 24. I fold the extremes around the mean of 15 and produce a 10-point scale in which 1 = complete distrust in the fairness

of the justice system (regardless of perceived bias) and 10 = trust in the fairness of the justice system. Any value below 10 is a level below full trust in the justice system.

Dichotomous Trust—starting with the 10-point scale -- scores of seven and below = low-trust in the justice system, scores of eight and above = high-trust in the justice system.

Judicial Independence—ordinal variable with values of 1 to 19, where 1 = non-independent or political judiciary and 19 = independent or non-political judiciary.

Construction of Judicial Independence Variable -- Each of the six questions is scored on a scale of 1 to 4: 1 being non-independent or political judges, and 4 being independent or non-political judges. The responses for the six questions are summed, which results in a scale of 6 to 24. This scale is recoded to range from 1 to 19, where 1 = non-independent or political judiciary and 19 = independent or non-political judiciary.

Dichotomous Judicial Independence—starting with 19-point scale; values of 9 and below (the midpoint of scale is 9.5) = 0, and 10 and above = 1.

0 = Political judiciary, and 1 = Independent Judiciary

Violence Against Women Trust—the two paired questions are added producing a range of 2 to 8. Five is the midpoint of the scale and an indication of a perception of equal treatment. Eight (rarely produced) is an indication of bias to the poor perpetrator, and 2 is an indication of bias towards the wealthy perpetrator. These bias extremes are folded and result in a 4 point scale, where 1 = extreme bias and 4 = fair treatment. Given that 2.5 is the midpoint, values of 1 and 2 = 0, and values of 3 and 4 = 1.

0 = biased treatment of violence against women cases

1 = fair treatment of violence against women cases

Age Cohort— as an ordinal variable with the following values: 16 to 22 = 1, 23 to 30 = 2, 31 to 40 = 3, 41 to 50 = 4, 51 or greater = 5.

Ideology—a trichotomous with three dummy variables: Center, Left, and Right.

Occupation—a trichotomous with three dummy variables: Blue collar, White collar, and Student.

APPENDIX 3
METHODS

THE BAYESIAN LINEAR REGRESSION MODEL

The model used in this study is derived from Gill (2002, 151-160). The likelihood function is specified according to the standard linear model formulation:

$$y = X\beta + \epsilon$$

where y is a vector containing the response, X is a $n \times p$ explanatory variable matrix, β is its $n \times p$ coefficient matrix, and ϵ is the error vector, which is distributed homoscedastically $N_k(0, s^2 I_k)$. The likelihood function for a sample size n is:

$$L(\beta, s^2 | X, y) = (2\pi s^2)^{-n/2} \exp[-1/2s^2(y - X\beta)'(y - X\beta)]$$

I employ a normal prior for the parameters β :

$$\beta \sim N(B_\beta, t_\beta)$$

For the scalar conditional error precision $t = 1/s^2$, I assume a Gamma prior.

The likelihood and prior are multiplied to produce the posterior distribution:

$$f(\beta, s^2 | y) \propto f(y | \beta, s^2) \times f(\beta) f(s^2).$$

I use Gibbs sampling through WinBugs to obtain posterior means, standard deviations, and Bayesian credible intervals.²⁰

I employ a normal prior for the parameters of the prior $p(\beta)$:

$$\beta \sim N(B_\beta, t_\beta)$$

where $B_{\text{judicial independent (country)}} = [0.096, 0]$.

$B_{\text{Overall}} = [0.066, -0.785, -1.05, 0.177, -0.078, -1.176, 0]$

$B_{\text{Nicaragua}} = [0.066, -0.785, -1.05, 0.177, -0.078, -1.176]$

$B_{\text{Costa Rica}} = [0, 0, 0, 0, 0, 0]$

The scalar conditional error precision $t_\beta = 1/s^2$ is the same for all 3 models:

$t_\beta = \text{diagonal}_{7 \times 7} [230.27, 10.065, 1.844, 2.130, 1.385, 1.656, 1]$ for Overall

$t_\beta = \text{diagonal}_{6 \times 6} [230.27, 10.065, 1.844, 2.130, 1.385, 1.656]$ for Nicaraguan

$t_\beta = \text{diagonal}_{6 \times 6} [0.01, 0.01, 0.01, 0.01, 0.01, 0.01]$ for Costa Rican

The WinBugs model is:

Model Y;

```
{for (i in 1:N) {
  Y[i]~ dnorm(mu[i], tau);
```

```
  mu[i]<- alpha + beta1*(political[i] - 9.216) + beta2*(age[i] - 2.434) + beta3.center*center[i] +
  beta4.left*left[i] + beta5.blue*blue[i] + beta6.white*white[i] + beta7.country*country[i]
}
```

²⁰ The idea of a closed form is that we can form a solution in terms of functions and mathematical operators. Not reaching closed form is to say that a model leads to a posterior form equation that is difficult or impossible to obtain analytically.

```

alpha ~ dnorm(7.415, 0.962)
beta1 ~ dnorm(.0658, 230.27)
beta2 ~ dnorm(-0.0785, 10.065)
beta3.center~dnorm(-1.050, 1.844)
beta4.left ~dnorm(0.1768, 2.130)
beta5.blue ~ dnorm(-0.078, 1.3854)
beta6.white ~ dnorm(-1.176, 1.6556)
beta7.country ~ dnorm(0, 1)
tau ~ dgamma(0.001,0.001)
sigma <- 1/sqrt(tau)
}
Burnin period = 10001; chains = 3; Sample = 90,000

```

CHI-SQUARED TEST OF INDEPENDENCE

The chi-squared test compares the observed counts in a cell of a contingency table with values expected from null hypothesis of independence. Given this understanding the null and alternative hypotheses are the following:

H_o : Independence

H_a : Non-Independence

The test statistic is formed by:

$$\chi^2 = \sum (f_o - f_e)^2 / f_e \quad (\text{Eq. A3-1})$$

Where f_o is the observed frequency, and f_e is the expected frequency.

$$f_e = \{[(\text{row total}) * (\text{column total})] / \text{total sample}\} \quad (\text{Eq. A3-2})$$

The chi-squared value is compared to the right-hand tail probability above observed χ^2 value for chi-squared distribution with df (degrees of freedom) = (rows – 1) (columns – 1).

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