STRATEGIC REVERSAL BEHAVIOR OF APPELLATE COURTS IN THE FEDERAL JUDICIAL HIERARCHY

by

ZHAOYING DU

(Under the Direction of Professor Susan Haire)

ABSTRACT

By developing a simple game in which higher courts and lower courts interact while seeking their own policy goals, this paper examines the reversal behavior of the U.S. Courts of Appeals using the insights of agency theory. Drawing on the payoffs of the circuit courts and the district courts, the author hypothesizes that appellate courts reverse trial courts strategically. When the preference distance between the two courts is small, higher courts are more likely to reverse lower courts' decisions that are contrary to lower courts' own preferences, but to affirm those similar to the lower courts' own preferences. When the distance is large, the higher courts act opposite. The consistency between policy outcomes of lower courts' decisions and their preferences, and higher courts' reversal propensity are also important factors influencing higher courts' behavior. An empirical analysis of Courts of Appeals' economic cases over seven years (1993-1999) partially supports these expectations.

INDEX WORDS: Reversal, Courts of Appeals, District Courts, Game theory, Spatial model, Probit model

STRATEGIC REVERSAL BEHAVIOR OF APPELLATE COURTS IN THE FEDERAL JUDICIAL HIERARCHY

by

ZHAOYING DU

L.L.B., Zhongshan University, China, 2000

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF ART

ATHENS, GEORGIA

2003

STRATEGIC REVERSAL BEHAVIOR OF APPELLATE COURTS IN THE FEDERAL JUDICIAL HIERARCHY

by

ZHAOYING DU

Major Professor: Susan Haire

Committee: Scott Ainsworth
Stefanie Lindquist

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
May 2003

DEDICATION

To my parents

ACKNOWLEDGEMENTS

Thanks to Dr. Susan Haire who generously provided me with the data for this thesis and the information sheets containing the original cases factors. Also thanks to Dr. Susan Haire, Dr. Scott Ainsworth, Dr. Stefanie Lindquist, Dr. Thomas Schoenbaum, Dr. John Maltese, Dr. Jeffery Yates, Dr. Paul Gurian, Dr. Mihriye Mete, Dr. Robert Grafstein for their excellent instructions and great help to my studies at the University of Georgia.

TABLE OF CONTENTS

Page

APPENDICES

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

This study seeks to understand the factors that influence the appellate courts' reversal behavior in the federal judicial hierarchy. Scholars have established that the preferences of justices or judges have an important influence on their decision-making (Segal and Spaeth 1993, 1996, 2002). The high courts have their own preferences while the lower courts have their own values, and therefore the decisions of lower courts may be different from the preferences of the higher courts. As Howard (1981, 3) stated: "In theory, federal judges form a pyramid that supports the will of the justices. In reality, federal judicial power is widely diffused among lower court judges who are insulated by deep traditions of independence, not only from other branches of the government, but also from each other." In addition to such strong sources of fragmentation, lower courts have more information regarding the facts of the cases. Drawing on the insights of game theory, the author here has conducted an analysis that hopes to contribute to the understanding of higher courts' reversal behavior.

There are growing numbers of works considering the judicial hierarchy (Johnson 1979; Gruhl 1980; Songer 1987; Songer, Segal and Cameron 1994; Cameron, Segal and Songer 2000; Baum 1994; Haire, Lindquist and Songer 2001). Most of those works are focused on the supervision of the Supreme Court to the U.S. Courts of Appeals. Songer,

Segal and Cameron (1994) used the principal-agent model to test the Higher court-circuit court interactions, while Haire, Lindquist and Songer (2001) used principal-agent theory to examine factors that influence appellate supervision in the lower tiers of the federal judicial hierarchy in the civil rights field. My research builds on these studies by developing a game and testing the courts' interplay in the lower tiers of the federal judiciary in economic cases.

Former studies found that the ideologies of the judges have a strong independent effect, and judges do find opportunities to "shirk" to satisfy their own policy interests. Enlightened by these findings, this article is also built on preference-based models with the assumptions that both of the courts are preference-motivated actors.

By developing an interaction game between the appellate courts and the trial courts, the author hypothesizes that the increase of ideological distance between the judges in two levels of courts increases the reversal possibility; and the consistency between lower courts judges preferences and the policy outcomes of decisions of individual cases also affects the likelihood of reversal. But the interaction of preference distance and consistency between decision direction and trial courts' preferences suggest that if lower courts decide cases contrary to their own preferences, the larger the preference distance, the less the reversal possibility. An empirical test of the hypotheses is conducted in economic cases over a seven-year period. The results reveal that the distance between the attitudinal values of judges in the two levels and the interaction between trial courts policy outcomes and preference distance do not have significant impact. But the

consistency between decision direction of the lower courts and their preference and the reversal propensity of higher courts are important factors that influence the decisions of the circuit courts.

The remainder of this paper consists of five parts. The following chapter is to provide theoretical framework, and the description of the judicial reversal game. In part three, the author attempts to apply the analysis of the model to the legal setting of the circuit-district courts relationships. In chapter four, the results of a probit are presented and offer support for certain arguments. Chapter five contains a discussion of the model and the empirical analysis, and chapter six presents concluding remarks.

CHAPTER 2

A MODEL OF JUDICIAL REVERSAL

Framework

The US District Court is the basic trial court in the federal system, which is located in 94 districts. District Courts vary in size. All district courts have at least two judges and one has as many as 28. Above the federal district level are the 12 U.S. Courts of Appeals. There is a right to appeal all final judgments of district courts to the circuit courts of appeals of the appropriate circuit. (Burnham, 1999)

Appellate courts are in the second level of the federal judiciary and are expected to supervise the decision outcomes of the federal trial courts (Baum 1984, Haire et al 2002). From this perspective, the relationship of the two tiers of courts falls within the principal-agent relationship. Originated from the economic field, principal-agent theory shows that an agent will operate primarily for the benefit of a principal contradicts the basic economic notion of self-interest. Particularly, this will be the case when enforcement is problematic. The central concern of principal-agent theory is control and discretion in hierarchical relationships (Songer, Segal, Cameron 1994).

Here this theory is employed to explain hierarchical control in the judicial system. In the model of the paper, the higher court is the principal and the lower court is the agent. However, the higher courts lack the common controlling tool for a principal, such as

performance-based levels of compensation. According to one scholar, "Through lifetime tenure, judges do not need to have their contracts renewed by those constituencies at regular intervals. And in the American system of jurisprudence, higher courts cannot promote, demote or fire; salaries are set, and they cannot give bonus or offer stock options. This is one of the most striking features of the federal judiciary considered as a hierarchical organization" (Cameron, Segal and Songer 2000, 102). At the same time, organizational features of lower courts permit discretion. Factors such as inadequate feedback mechanisms, limitations on the supply of sanctions, and the possession of organizational power by subordinates generally ensures that the executors of policy retain freedom to take independent action (Baum 1976). In fact, a variety of motives for deviation may exist, ranging from disagreement about policy to a desire to make one's job easier. In examining judicial implementation as an organizational process, the assumption that any deviation from the policies of a superior court is aberrant is not appropriate. Instead, lower court judges shall be viewed as independent actors, who will not follow the lead of higher courts unless conditions are favorable for their doing so. This perspective is a useful one because of its consistency with organizational reality. Equally important, it requires the analysis of the implementation process to search for those positive forces which may cause judges to take the actions indicated by their superiors. It is this approach which this analysis will take.

For higher courts, there are in fact sources of control available to them. Lower court judges are concerned about the disposition of cases. Their policy preferences and

perceptions of justice are revealed through decision-making. If a higher court reverses the decision of a lower court, the latter may well view the ultimate disposition of the case as much less desirable than if its judgment had sustained. And, according to judicial culture, judges do not like reversals. Frequent reversals bring the derision of colleagues and decline in professional status (Cameron et al 2000). Therefore, the most significant supervisory tool available to the circuit courts is the power to reverse or affirm the lower courts' decisions. Although the power of reversal is exercised relatively infrequently by the circuit courts, it nevertheless serves as a powerful mechanism to shape lower courts' decision-making (Haire et al 2002).

In this paper, a game-theoretic model is developed to illustrate how the appellate courts as principals use this significant power of review to control the behavior of their agents in the lower courts. In particular, the model seeks to identify the critical determinants underlying appellate courts' reversal behavior and tests these expectations through a statistical analysis.

Description of the Model

This part describes a complete and perfect information game used to model the interaction between the higher court (H) and the lower courts (L). Both courts are policy oriented, but their preferences over the case outcomes may or may not be the same. It is presumed that through the repeated interplay between the higher court and the lower court, each knows the other's policy preference. Since there is a right of appealing all

final judgments of district courts to the court of appeal of the appropriate circuit, litigants that lost in the case utilize such an opportunity to bring their arguments to an upper level, hoping to get their desired results. During the repeated review of the corresponding district courts' decision, higher courts might well know whether their subordinates are conservative or liberal; while through affirmation and reversal, especially through the instructions along with the "reverse and remand", lower courts also gain the knowledge of their principals.

Actually, there are two applications for this complete and perfect information game. H and L can represent the appellate courts and trial courts, or Supreme Court and appellate courts. There is only a slight difference between the two applications: for the Supreme Court, it will first decide whether to grant certiorari and then to decide whether to reverse the lower court's decision and that Supreme Court hears fewer cases than the appellate courts, because through certiorari, the Supreme Court can control its docket.

Therefore, nature first decides whether the two layers of the courts share the same preferences or not, and each player knows the other player's attitude on different fields of cases. If the two courts' preferences are convergent, then it is labeled C; if they are divergent, then it is labeled D. The lower courts have the first move in the game. Cases come to lower courts, and a lower court judge has two options: to decide cases based on his own preference or decide the case in the opposite direction of his own preference. Those moves are labeled S (decision direction and preference is the same) and –S (decision direction and preference is different).

Then the higher courts play the second and also the last move. H also has two options: to reverse the lower court's decision or to affirm it. It is then labeled as R (reverse) and –R (affirm). Although in the real world, higher courts have more dispositions of lower courts' decisions besides reverse and affirm, such as affirm in part and reverse in part, vacate, or deny petition or dismiss appeal, to make the game simple in order to illustrate the strategies more clearly, only reversal and affirmation are considered. Also, for clearer illustration purpose, only two situations are presented: one is where two courts have exactly same preferences, and the other is when the two courts' preferences are opposite, i.e., the lower court is extremely liberal while the higher court is extremely conservative, or vice versa. But in fact, the two courts' preferences distance may range from zero to maximum. A curve connecting the C and D branches of the game tree represents the change of the preferences distance.

To summarize, there are two players to play the game: H and L. Their preferences may be convergent C or divergent D. Nature first sets out the situation of C and D, then L makes the first move and H makes the second move. The set of pure strategies for L is defined as S_L={S/C,D; -S/C,D; -S/C, S/D; S/C,-S/D}, for H is S_H={R/C,S; R/C,-S, R/D,S; R/D,-S; -R/C,S; -R/C,-S; -R/D,S; -R/D,-S}. The strategy S/C,D is read as no matter C or D, L always chooses S. The strategy -S/C, S/D is read as if C, and L chooses –S and if D, L chooses S. And the strategy R/C,S is read as if C and if L chooses S, then H choose R. The other strategies are read in a similar fashion.

Payoffs

The high court sets out and maintains a policy or preference through precedents, its affirmation and reversal disposition of the lower courts' decisions and instructions along with the remands in order to realize a net policy payoff (uh). If the lower court's decision is in the same direction as the higher court's policy preference, and this decision is not reversed, then H's value of payoff is (uh). However, if the lower court's decision is different from the higher court's preferences and the higher court does not reverse the case, the payoff for the higher court would be (–uh). Since one of the important roles higher courts must play is to maintain the consistency of the federal law and also to ensure law is applied uniformly to every case, therefore the payoff for H is also a measure of a higher court's credibility and dignity as the principal of the hierarchy. In terms of this model, H's ignorance or affirmation of L's deviation from its preference reduces H's credibility. Moreover, if the higher court reverses the lower court, there will be a cost—c—accompanying the payoff for the higher court to do so. Because if a higher court reverses a lower court's decision, it will need to write its own decision. Even when remanding the case to the lower court, the higher court must render instructions for the lower court to go to the right track. Due to the heavy workload of the higher court, an additional task is a cost to it.

As to the lower court, its payoffs depend on whether its own preference is the same as that of the higher court and whether it is sanctioned by the higher court or not. Since a higher court's reversal is not so frequent, if the lower court's decision is affirmed, the

payoff for the lower court is its policy value, (ul). If the lower court is reversed by the higher court, it will lose a value of institutional integrity, i. If the lower court is a convergent court, decides on its own preference and therefore also follows the higher court, and will not be reversed, then it receives ul, if reversed, then it gets –ul-i. If it does not act on its own preference and therefore not follows the higher court and gets reversed, then the payoff is uh-i. Because in this situation, the higher court will decide the appealed case based on its own preference, then the result for the case is at H's ideal point, so the payoff or utility for L is $U_L(H)$[1], which is (uh), and the reversal brings a –i to L, at last, L gets the payoff (uh-i), since the two courts share the same preference, so (uh-i) equals (ul-i).

If the lower court is a divergent court, if it decides the cases on the opposite direction of its own preference and therefore follows H's preference and is not reversed, the payoff for it is $U_L(H)$, which is (uh). But since here the two courts have opposite preference, (uh) equals (–ul), therefore, the payoff for L is (–ul). By the same manner, the payoff for L is (–ul-i), if it is reversed by H.

Details of the payoffs are showed in the following figure 1,2 and 3. It is assumed that ul>i>0, and uh>c>0.

[1] $U_L(H)$ is read as the utility of L at the ideal point of H.

Payoffs of H and L for decision at each player's ideal point

The ideal points for H and L are the same

So $U_L(H)=U_H(L)=U_L(L)=U_H(H)=uh=ul$

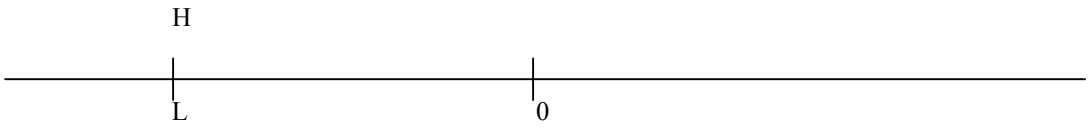


Figure 1. Convergent Courts

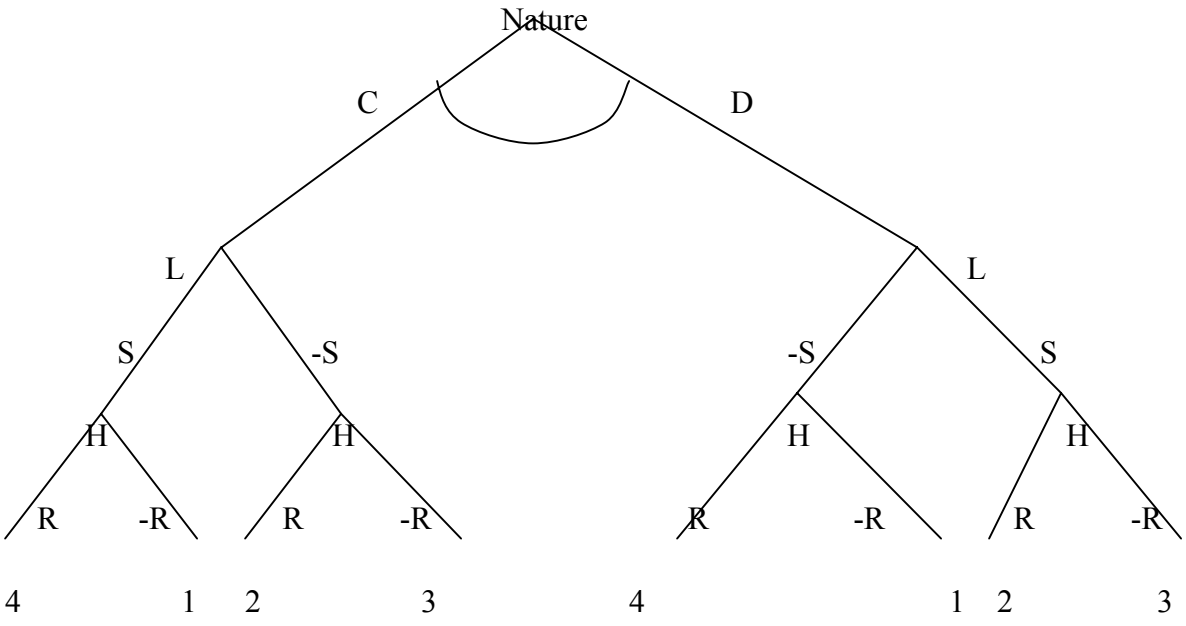
Payoffs of H and L for decisions at each player's ideal point

The ideal points for H and L are in the opposite directions and symmetric

So $U_L(H)=uh=-ul$, $U_H(L)=ul=-uh$

$U_L(L)=ul=-uh$, $U_H(H)=uh=-ul$

Figure 2. Divergent Courts



Payoffs[2]: Numbers of 1,2,3,4 represent the best to the worst payoffs for H
In situation C**:** (The payoffs for L from best to worst are also1,2,3,4.)
4= -ul-i, -uh-c 1= ul, uh * 2= ul-i, uh-c 3= -ul, -uh
In situation D**:** (The payoffs for L from best to worst are 3,4,1,2 here.)
4= ul-i, -uh-c 1= -ul, uh * 2= -ul-i, uh-c 3= ul, -uh

Legend:
Nature first decides whether two courts' preferences are convergent or divergent
C=convergent courts; D=divergent courts; L=lower courts; H=Higher courts
S=lower court decides case on its own preference (on the **S**ame direction);
-S=lower court decides case on the opposite direction of its own preference
R=Higher courts reverse lower courts; -R=not reversed
ul is lower courts' preferences value; uh is higher courts' preference value
i=lower courts' integrity value, i.e., the value of not being reversed;
If C, then uh=ul; if D, then uh=-ul
For 4=-ul-i, –uh-c, -ul-i is L's payoff (first player's), and –uh-c is H's payoff (second player's).

Figure 3. Extensive Game Form

[2] Explanation: for payoff 4 in situation D, the ideal points of the two courts are in different directions. Suppose there is an original point set in the middle point between their ideal points, as showed in figure 2, that is, the two courts' ideal points are symmetric on the different sides of the original point, then uh=-ul, and if –S, i.e., L makes decision contrary to its own ideal point, at H; and consequently, if R, i.e. H reverses L's decision, that is, H makes the final decision at L, then the final outcome for the decision is at L. then L gets $U_L(L)$=ul and minus i, that is ul-i; and $U_H(L)$=ul=-uh and minus c, that is (–uh-c) . We get other payoffs by the same token.

Equilibria for the Game

A. Convergent courts

From figure 3, we can see that if the higher courts and the lower courts hold similar preferences, there is a Sub-game Nash Equilibrium (S, -R), which is marked with a star symbol. In this equilibrium, the payoff for L is (ul), which is the best payoff for it in this situation; the payoff for H is uh, also the best payoff than all the other payoffs.

H may get the second best payoff (uh-c) by reversal if L plays –S in the first move. But L would not do so if it is concerned about its integrity value i.

B. Divergent courts

If the two courts have different preferences, there is also a Sub-game Nash Equilibrium (-S, -R). In this equilibrium, the payoff for L is (–ul), and for H is (uh). This time, the payoff for L is not the best one among all the possible payoffs. If L does not follow H's preference but acts on its own preference, (S, -R), and if H does not reverse its decision, L may get the best payoff (ul). However, in this game, L takes the first move, and H the second, and if L plays S and if H does not reverse, i.e., (-R), then H will get the second worse payoff, -uh. Because we have presumed that courts are preference-based, H would play R, that is, to reverse the lower court to get a better payoff uh, and then L would get the worst payoff (–ul-I). To put it simpler, if L plays S, H would play R, then they end in (S, R), L gets (–ul-I), and H gets (uh-c). But if L plays -S, H would play–R, then they end in (-S, -R), L gets (–ul) and H gets (uh). So by backward induction, L's best strategy is to play –S in the situation of D.

However, since there exists transaction costs for the higher courts to reverse the lower courts, and also reversal is not so frequent, the lower courts may assume the risk and act on their own preference in the hope that the higher courts will not reverse. Moreover, the greater the distance between the preferences of the two courts, the greater the temptation for lower courts to deviate from the higher courts' preference.

In summary, no matter whether the two courts share the same preferences or not, if lower courts and higher courts are both strategic players and both decide cases based on their attitudes and policy preferences, and, if the lower courts are concerned about their integrity and always try to avoid reversal, then the best strategy for the lower courts is to decide in the same direction of the higher courts' preferences. To be specific, that is, if the two courts are convergent, the lower courts decide cases on their own preferences and therefore follow the higher courts' preference. If divergent, the lower courts decide cases on the preferences of the higher courts and therefore decide cases on the opposite direction of their own preferences. And if lower courts make decisions consistent with higher courts' preferences, the best strategy for higher courts is not to reverse the lower courts. But if there is distance between lower courts' preference and higher courts' preference, the larger the distance, the more likely the lower courts will not follow the higher courts and decide case according to the lower courts' own preferences. As a consequence, the best response for higher courts is to reverse the lower courts if the lower courts decide cases similar to their own preference.

CHAPTER 3

APPLICATIONS

Why do lower courts follow the higher courts' preferences?

When the higher court's preference is revealed by precedents, decision-making behavior, and instructions, the conventional view scrutinized by Segal and Spaeth (1996) sees precedent as the major explanation of judicial decisions. An alternative view requires us to make modifications in this conventional conception, for it regards precedent as a constraint on justices acting on their personal preferences.

The first point of view argues that precedent provides the primary reason why justices make the decisions that they do (Knight and Epstein 1996). On this account justices use the rules that are established by higher court cases as the basis for their subsequent judicial decisions. There are two possible interpretations of this mechanism. One holds that precedent actually determines the preferences of the courts. If a lower court's original preference conflicts with the higher courts' preference, after the precedents are set up, then, in subsequent cases, lower courts will adopt the precedents as their own preference and adjust their decisions accordingly. On the second interpretation of this mechanism, precedent does not actually determine lower courts' preferences, but it overrides such preferences when the two diverge. That is, if lower court's preference

dictates that they vote one way, but precedent dictates that they vote the other way, lower court judges who believe in the importance of precedent should follow precedent and not their preference.

The second point of view suggests that precedent can serve as a constraint on lower courts acting on their personal preferences. On this account, lower courts have a preferred rule that they would like to establish in the case before them, but they strategically modify their position to take account of a normative constraint in order to produce a decision as close as is possible to their preferred outcome (Knight 1992). A norm favouring respect for precedent can serve as such a constraint.

From the game-theoretic model presented earlier, one can see that following precedent, and thus the higher courts' preferences is the best response of the lower courts in the interaction game, which can yield the best outcome for them.

First, if the lower courts are convergent with the higher court, that is, have the same preference as the higher court, following the preference of the higher court does not conflict with their own preference, and such an action will not lead to higher court's reversal, so both courts can achieve the optimal outcome.

Second, if the lower courts are divergent, that is, have different preference with the higher court, then it is the best response for the lower courts to follow the higher court's preference or to decide cases in the opposite direction of its preference. As we can get from the model, the possible outcomes for this situation D, that is, divergent courts are:

4= ul-i, -uh-c 1= -ul, uh * 2= -ul-i, uh-c 3= ul, -uh

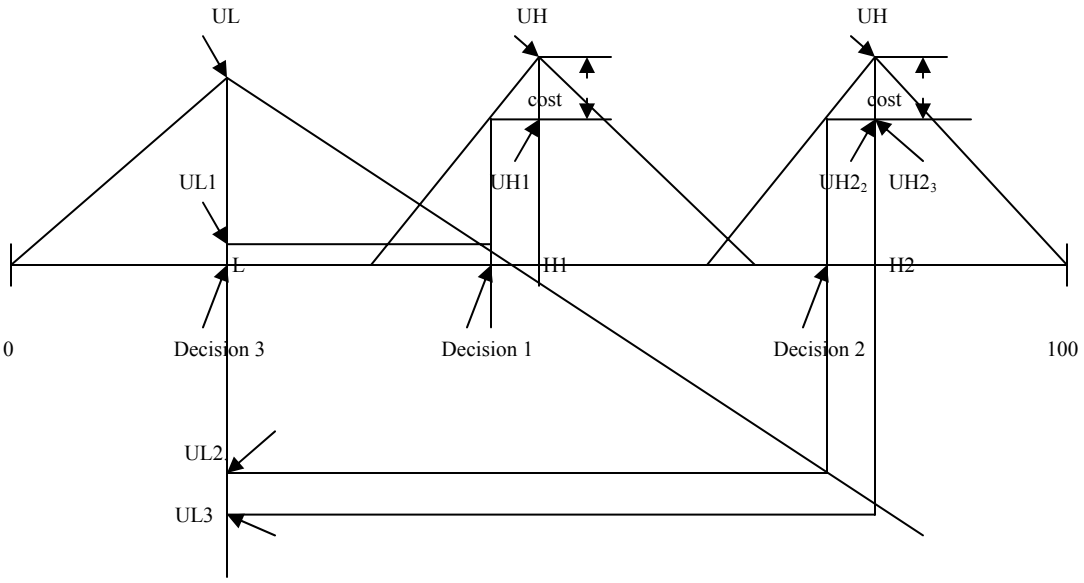
Because the higher court makes the last move, the lower court must think ahead. When deciding whether to choose S and get the payoff of ul, the lower court will predict that they will not get it, because the higher court will reverse the case to avoid an undesirable outcome (-uh). If lower court choose S, it will get the worst payoff (-ul-i). To avoid such risk, lower courts will choose follow. The lower courts must consider their integrity: the cost of i. If the lower courts are not concerned about the effect of a reversal to their integrity, then they will get the same payoffs whether they follow or deviate from the higher court's preferences. But as we have discussed above, reversal is a very useful tool for the higher court because lower court judges care about their institutional integrity (Cameron et al 2000). This is the value they place on not being disciplined by the higher court. This can be thought of as the preference of the courts for their own continuation "after" the game to review further cases that come upon them and thus also reflect the Court's policy orientation. From the above analysis, we can have another interpretation for the reason why lower courts follow the higher courts. It is not because of the lower courts' consideration of coherence or the courts' decisions, but because of the significance of their institutional integrity and their own preferences.

Higher Courts' Reversal Behavior

A. Preference Distance Between the Two Courts

From the model, we can see that, as the preference distance between two courts diverges, the equilibrium payoff for the lower courts comparing to the lower courts' own

preference becomes increasingly less attractive to the them, and the temptation for lower courts to take the risk of not following the higher courts' preferences become higher and higher. Figure 4 below shows how this is the case more clearly:



Legend:

H1 is higher court 1, which is closer to L's preference; H2 is higher court 2, which is farther away from L's preference
Point L=L's ideal point Point H1=H1's ideal point Point H2=H2's ideal point
UL=L's maximum utility UH=Hs' maximum utility
UL1=L's utility of decision 1 UL2=L's utility of decision 2
$UH2_3$=H2's utility after a reversal of decision 3
Decision 1=L's decision point as to H1

Figure 4: The Preference Distance Between H and L Matters

As illustrated in figure 4, suppose we have two Hs here which are both courts one level higher than L. The only difference between H_1 and H_2 is H_2's ideal point is farther

away than H_1's ideal point from L's ideal point. L and Hs have different preferences, and L follows Hs' preferences and decides the case at a point that is different from L's ideal point. When considering the reversal cost of H and that L tries to maximize its utility, L will make decisions at the point that as near as possible to L's ideal point, but also a point at which the cost of reversal for H would refrain H from reversing the decision. So for H1, L decides at the point of *Decision 1,* which is a cutting point at which H_1 would not reverse the decision because of the reversal cost. But H_1 would reverse all the cases that are to the left of the point of *Decision 1*. At this situation, L's utility is UL_1 for decision 1, and H_1's utility is UH_1.

For H_2, if L decides a case at the point of *Decision 2*, then the utility L can get is UL_2, a negative value, much less desirable for L. In this situation, L may take the risk, and decide the case at its ideal point L, which is also *Decision 3*, and gets its maximum utility UL, if H_2 does not reverse. If H_2 reveres L's decision 3, and re-decides the case at its ideal point H_2, L will get UL_3-I at last, which is the utility it gets from point H_2 minus the i, the value of institutional integrity, and H_2 gets UH_{23}, which equals UH_{22}, both are the results of UH minus the value of reversal cost (UH_{23}=UH_{22}=UH-cost).

It clearly shows that if L decides cases at points that are near H's preference points, the final outcome L gets from a farther H2 is less desirable for L than from a closer H1. As the preference distance between H and L increases, the temptation for L not to follow H becomes greater, and then L becomes more likely to take the risk of being reversed by H, in a hope that H will not render a reversal. In such a case, L gets his ideal point. But as the

distance gets larger, H's tolerance of L's deviation will reach the limit, and to some extent, H will reverse L's decision and make a new decision.

Hypothesis 1: from the spatial model above, we can hypothesize that as the ideological distance between the two courts becomes larger, there will be more observations of reversals.

It should be noted that this hypothesis is not regarding the comparison between the directions of lower courts' decisions and lower courts' preferences.

B. Preference Distance and Lower Courts' Decisions

Another implication we can get is the policy direction of the lower court's decision and the preference distance between the two courts work together to influence the reversal rates. When L decides a case on its own preference, that is, in Figure 3 it takes the strategy of S, then H would be more likely to confirm the case if they are convergent court, then both players get the best payoff ul and uh. H is more likely to reverse L's decision if they are divergent courts, in order to avoid the worse payoff for H, (-uh), and to get a better payoff (uh-c), thus avoiding the cost of reversal (See Figure 3). In the case of convergent courts, if L decides a case contrary to its preference, that is, moves as –S, that in the situation of C, H would be more likely to reverse to get payoff 2 instead of not reversing and getting payoff 3. In the situation when H and L are divergent, i.e., in branch D, if L is –S, then H would be less likely to reverse, and, instead, would affirm the decision.

Figure 4 also shows that when L decides a case at its ideal point, for example decision 3, that decision's direction is the same as L's ideal point, and, if the two courts' ideal points are close, such that H shares a similar ideal point as L, H will not reverse. If the two courts' ideal points are divergent, such as L and H_2, H would be more likely to reverse. As illustrated by decision 3, H_2 reverses decision 3 and re-decides the case at H_2's ideal point. When L decides a case contrary to its own preference, in figure 4, that is decision 2, if the two courts preference distance is large, like the distance between L and H_2, H_2 would be less likely to reverse the accommodating decision of L. But, as to H_1, decision2 is not so welcome. H_1 would be more likely to reverse decision2 than a decision that is on the left to the point of decision 1, although that decision may be much more closer to L's ideal point than decision 2. From the above analysis of the game model and the spatial model, we offer another hypothesis that:

Hypothesis 2a: When L's decision is consistent with the lower court's preference, the larger the distance between the two courts, the more likely the higher court will reverse the lower court. **Hypothesis 2b**: When the decision is contrary to the lower court's preference, the longer the distance between the two courts, the less likely the higher court will render reversals.

Here it should be noted that, since the direction of a decision can only be measured as whether it is on the same or opposite direction of L's preference, we cannot know how far the decision goes when it is in the opposite direction to L's preference. For example, decision 1 and decision 2 are both on the opposite directions to L's ideal point, but for H_1,

it will not reverse decision 1, but will reverse decision 2. On the other hand, H_2 will reverse decision 1 but not decision 2. So, without a precise measurement of distance and direction of the decision in relate on H's ideal points, one is not able to test this hypothesis in a refined manner.

At first glance, the second hypothesis is at odds with the first hypothesis, which postulates that the greater the preference distance, the higher the reversal rates. But hypothesis 1 is based on the consideration that when the distance is large, L will suffer more if it decides a case near H's preference, therefore, L will be more likely to decide a case at its own ideal point and H in return, will be more likely to reverse and decide the case at its own ideal point. The implied assumption of hypothesis 1 is that the greater the distance, the more likely L will decide a case similarly to its own preference. This assumption will also be tested.

In summary, hypothesis 1 is about the overall relationship between preference distance and reversal, and hypothesis 2 is about how the effects of preference distance and policy direction of L's decision interact to increase or decrease the likelihood of reversal. Their focuses are not in the same dimension.

In order to test those applications and hypotheses deducted from the game model and spatial model, an empirical analysis will be conducted in the fourth chapter.

CHAPTER 4

EMPIRICAL ANALYSIS

Research Design and Data

Since the paper analyzes the reversal behavior of the higher courts, the higher courts' review disposition of lower courts' decisions is the dependent variable.

Other Hypotheses and Independent Variables

As previously deduced from the perfect and complete information game, we hypothesize that when the preference distance between the two players increases, the more likely the higher courts would reverse the lower courts. So, the preference distance between the lower courts and the higher courts certainly will be our main independent variable. Since the trial court can only perceive the whole circuit's preference but cannot predict the potential panel composition, the available knowledge of higher court's preference for the trial court is the whole circuit's preference. Moreover, Van Winkle (1996) suggested that individual panels in the circuit are sensitive to the policy predisposition of the majority due to the potential for rehearing en banc. Therefore, the first independent variable is the preference distance between district court and the circuit.

IV_1: difference between the economic ideological score of the district court judge and the median score of circuit court judges.

Agency theory's key concern of the goal conflict problem shows that if agent and principal have similar policy goals, the need for policing and monitoring would be reduced (Waterman and Meier 1998). When the goals and intentions between principal and agent differ more sharply, the more vigilant the principal would be in supervising and enforcing its will. And if the district court and the appeals court panel do not share similar goals, the outcome of supervision will more likely result in reversal. Haire et al. (2002) applied this concept of goal conflict to study interactions between judges in the circuit and district courts, and their analysis support the hypothesis that " a circuit panel is more likely to reverse when the policy outcome of the district court decision is inconsistent with the dominant preferences of the panel". Therefore, another independent variables is:

IV_2: The comparison between the policy direction of the lower court's decision and the higher court panel's preference.[1]

When there is a lower court judge that is sitting by designation, it is suggested that the judge has a desire to support his colleagues in the lower courts, and leads him to avoid reversing behavior, and may further persuade the other panel members to do likewise (Green and Atkins 1978; Haire et al. 2002), and therefore reduce the likelihood of reversal.

IV_3: The existence of lower court judges sitting by designation.

Also, different circuits may have different levels of deference to trial court judges. Some circuits may be more tolerant of trial court decisions that deviate from its preference,

[1] It is also likely that when the entire circuit's preference is consistent with the district court's policy outcome, reversal is less likely, since panel composition cannot be predicted by the district court. But due to collinearity, the variable to test this hypothesis is not included in the final specification.

but some may be less tolerant. So, the panel in a circuit that has a record of higher reversal rates is more likely to reverse lower court's decision. The following variable is:

IV_4: Circuits' prior record of reversal rates.

Full model and two separate models

It is also hypothesized that when the decision direction of the lower courts is the same as their own preferences, the greater the preference distance between higher courts and lower courts, the higher the reversal possibility. When the trial court decisions are at odds with their own preferences, we would expect the contrary phenomena. So I will conduct two additional separate tests. One consists of all cases in which the decision direction is the same as the lower courts' preferences. The other test is comprised of all cases in which the decision direction is different from the lower courts' preferences. For these two tests, preference distance is also the main independent variable.

We now have two hypotheses somewhat at odds with each other. The key point here is the comparison between the decision direction and lower courts' preference. For the full model, this is an important independent variable, while in the other two separate tests, this variable is divided into two categories: direction and preference is similar, and direction and preference is different[2]. In fact, this comparison is an important factor in other court hierarchy papers. An appellate court can review issues of law *de novo* and will

[2] In chapter 2 and 3, we have talked about how the effects of preference distance and policy direction of L's decision interact to increase or decrease the likelihood of reversal. This is induced from the game. But when in reality, the information available for the higher courts is the policy direction of the low court's decision. So in reality, higher courts use the comparison between policy direction of lower court's decisions and its own preference as a signal.

reverse for any non-harmless error, but it is much more limited in its review of the factual basis for a trial court judgment. Circuit courts generally defer to the district court's findings of fact given the district judge's first-hand knowledge of testimonial evidence. Therefore, like in all principal-agent relationships, informational asymmetry and the need for efficient disposition of appeals make the higher courts inclined to rely on signals to assist in their evaluation of the trial court's ruling. When the lower courts rule differently from the higher courts' preference, they might either reach the decision based on facts or might also made a decision based on their own preferences, which are diverge from those of the higher courts. In the latter case, the divergent lower courts might use their discretion to achieve their own policy goals and in so using their power, it would stymie the ability of the higher court to achieve its policy goals. Just as a principal may rely on signals to make a judgment on whether the agent is compliant, the higher courts may rely on signals to evaluate the trial court's ruling. If a trial court renders a ruling that is against its own policy preference, it is less likely that the trial court is using its discretionary power to accomplish its own policy goal, and, therefore, the decision of the case is more likely to be acceptable to the circuit court's panel.

Indeed, Cameron, Segal and Songer (2000) found support for Supreme Court's reliance on cues and signals, and Haire et al. (2002) also found the similar pattern for circuit courts. When the decision direction of the lower court is contrary to its own policy preference, the higher court is less likely to reverse the decision. So, for the full model, we offer the same hypothesis as Haire et al.: A circuit panel is less likely to reverse when

the outcome below is inconsistent with the district judge's policy preference. Then, we have another independent variable:

IV_5: the comparison between decision direction and the lower court's preference.

The other factors that can help the higher courts to overcome informational asymmetry will also influence the higher courts disposition of lower courts' decisions. One factor is the experience of the lower court judges. Generally, a novice will make more mistakes than an experienced agent because he is just beginning familiarize himself with the directions and job assignments with the principal. And, the principal is more likely to strictly supervise on such a newly appointed agent and so there will be more instances of correction to the agent's performance. Since trying a case is complicated and requires experience, by the same token, the higher courts may assume that the decisions of newly-appointed district judges require closer scrutiny, because it is more likely that new district judges may make more mistakes as they become assimilated to their new jobs. So a higher court is more likely to reverse the decision of a lower court judge who is newly appointed.

IV_6: The experience of the trial court judge who renders the decision.

Just like the higher courts facing the problem of information asymmetry, the lower courts also face informational deficits that potentially affect the need for and the nature of appellate supervision. Conflicting panel decision and dissenting opinions undermine the clarity of circuit law (Wasby 1986). So even if the trial court chooses to follow the preference of the higher court, due to the uncertainty of the preference, the

lower courts have difficulty discerning the circuit's preferences and will make the wrong judgment. Hence, another hypothesis is: circuit panels are more likely to reverse trial court decisions as the dissent rate of the circuit increases.

IV_7: Dissent rates of circuit courts.

On the other hand, the utilization of en bancs offers an important source of information on circuit preferences to the district court, since the preferences of the entire circuit are clearly exposed by en banc decisions. So the increase of use of en bancs in a circuit will decrease subsequent circuit panels' reversals of district courts' decisions. Hence, the last variable is:

IV_8: Number of en bancs held by circuits.

Except for independent variable 5, which will be included in the full model only, the other variables will be included in all three models: the full model including all the cases, the "same direction" model which just includes the cases that are decided similarly to the lower court's preference, and the "different direction" model which includes the cases that are decided differently with the lower court's preference.

Variables 1 to 4 are measures that account for preference conflicts of the two courts, and variables 5 to 8 are measurements for information asymmetry faced by the two courts, signals to the higher courts and circuit's preference uncertainty for trial courts.

Data

In order to examine the hypotheses empirically, approximately 1400 cases from 1993-1999 were collected. These cases are published economic related decisions of the

U.S. Courts of Appeals, such as tax cases, patents and copyrights cases, torts, commercial disputes, bankruptcy, antitrust, mergers and so on. By selecting a specific issue area, the analysis includes roughly comparable cases. Moreover, economic cases represent a traditional policy area beside civil rights cases in which preference of the courts will be more likely to be discerned. In addition, Haire et al. (2002) have done similar research on the civil rights and civil liberties decisions cases. It is time to test whether the principal-agent theory can also be applied to the lower tiers of the federal judiciary in other issue areas.

The sample included published decisions in economic issues from each circuit except for the D.C. circuit[3] for each year from 1993 to 1999. From the population the sample drew roughly 15-20 cases for each year per circuit so that the total number of each circuit is roughly 120 for the seven year period.

For the dependent variable, if the circuit court voted to affirm a district court's decision, the dependent variable was coded as " 0". This variable is also coded as " 0" if the panel dismissed the appeal or denied a petition. If the panel voted to reverse, the variable was coded as "1". This variable is also coded as "1" if the panel voted to vacate and /or remand the case and if the panel granted a stay of the petitioner's motion. Decisions, which are ambiguous, such as affirmed in part and reversed in part and which

[3] The reason to exclude the D.C. circuit is the same as stated in Haire et al. (2002) endnote 7: "because this circuit tends to focus on judicial review of agent actions, and the proportion of cases where the appellate court was reviewing outcomes of district courts is lower than in the other circuits. So the interactions between principal and agent in the D. C. Circuit are too unique to be included in our model. It deserves a separate study that focuses on the relationship between the circuit and administrative agencies."

cannot show unambiguous disposition, such as certification to another court, not ascertained, are excluded from the sample. Since the dependent variable is dichotomous, a probit model is appropriate to estimate the effects of the independent variables on the likelihood of the circuit courts decisions of the trial courts ruling.

For the main independent variable—the preference distance between higher court and lower court, I used the Segal and Timpone (2000) scores of presidential economic liberalism, and matched these presidential scores with the judges that were appointed by them respectively[4]. Measuring judges' political preferences is not an easy task. Epstein and Mershon (1996) suggested that scholars should invoke the Segal/Cover scores in the set of circumstances indicated by their developers: aggregated individual-level decisions in civil liberties cases; and students of the judicial process who seek to explore phenomena other than aggregated individual-level voting in civil liberties cases ought to give serious thought to devising new surrogated for judicial preferences. Previous studies by Robert Dahl (1957), Segal and Timpone (2000) and others have argued that the predominant pattern of Supreme Court decision-making reflects the appointments Presidents make to the Court. Those efforts to analyze the impact of presidential appointments to the Court have generally undertaken a justice-by-justice analysis of the Presidents' ideological satisfaction with their appointments as measured by the

[4] Data on the identity of the appointing president for appeals court judges are drawn from the Multi-User Database on the Attributes of U.S. Appeals Court Judges. For district court judges, they are relied on data provided by Robert Carp et al. For judges appointed recently from both courts, data on federal judges are collected from the Federal Judicial Center web site.

ideological consistency between the appointing President's policy positions and his individual appointee's voting behavior. And, they found a high degree of consistency exist between presidential expectations and the voting records of individual justices. Those researches are mainly testing the Supreme Court justices. For lower tiers of the judiciary, Goldman (1997, p346-p365) found that the presidential agenda and judicial selection are intimately tied in the selection process for district and circuit court judges. Presidents frequently appointed those who share their policy values. And this relationship has become more evidenced since the Reagan Administration. We assume that there exists consistency between the presidential policy value and lower court judges' policy values. Therefore, for the preference distance variable, a continuous measure of preference is used by relying on the appointing president's economic liberalism scores.

Those hypotheses dealing with measures of ideological consistency between judge values and cases outcomes require a dichotomous measure of preferences. Since the indicators of other variables could only be measured at the nominal level, for instance, the case outcomes of the trial courts are measures as liberal or conservative, so, using a measure of preferences that was also categorized similarly can make the coding more consistent. By relying on party affiliations of appointing presidents, we assume that those appointed by Democrat presidents will be more likely to support liberal policy and that those named by Republican presidents will be more likely to hold conservative views.

It must also be noted that relying on the economic liberalism scores and party affiliation of the appointing president to measure preference is not ideal. Segal and Timpone (2000) have pointed out that presidents appear to be reasonably successful in their appointments in the short run, but justices on average appear to deviate over time away from the presidents who appointed them. So the appointing presidents' scores are not even very good measures for Supreme Court justices, let alone for lower tier judges. Moreover, Giles, Hettinger and Peppers (2001) found that the voting behavior of Courts of Appeals judges selected without senatorial courtesy is consistent with the operation of a presidential policy agenda. Among judges selected when senatorial courtesy is at play during the selection process, the linkage between presidential preferences and judicial outcomes disappears. So, we have to say using appointing presidents' liberalism scores and party affiliation is a rough proxy as a measurement for judicial preferences.

The coding method followed the conventions of the Multi-User Database of the U.S. Court of Appeals. For example, if the outcome is for the person claiming patent or copyright infringement in patent or copyrights cases, then it is coded as liberal; if opposite, then coded as conservative; if the outcome is for economic underdog and one party is clearly an underdog in comparison to the other, then it is coded as liberal. The detailed of the coding process are outlined in Table 1[5].

[5] A limited set of variables are collected to supplement existing data from the Multi User Database on the U.S. Court of Appeals. The reliability analysis for the variables in the Database can be found at www.polisci.msu.edu/pljp.

Table 1: Variables and Measures for full model including all cases

Variable	Measures	Expected Effect on Reversal Likelihood
Dependent Variable		
	=1 if circuit court reverses trial court's decision; =0 if affirms	
Independent variables		
Goal Conflict		
IV_1:Preference distance between district court judge and circuit median	Absolute value of difference between district judge appointing president's economic liberalism score and circuit median appointing president's economic liberalism score	Positive
IV_2: Consistency between trial court decision policy and panel preferences	=1 if policy outcome is liberal and majority of judges on panel are Democrats or if policy outcome is conservative and majority on panel are Republicans; =0 if otherwise	Negative
IV_3: Presence of district judges on panel	=1 if panel includes a district court judge sitting by designation; =0 is no district judge presents	Negative
IV_4: Circuit's reversal rate	Circuit's reversal rate, 3 years average, lagged one year	Positive
Signals and Uncertainty		
IV_5: Trial court policy outcome is contrary to trial court judge's preference	=1 if policy outcome is liberal and trial judge is Republican or if outcome is conservative and judge is Democrat; =0 if otherwise	Negative
IV_6: Freshman trial court judge	=1 if trial court judge has less than 3 years' experience at time of circuit decision; =0 if otherwise	Positive
IV_7: Circuit's dissent rate	Circuit's dissent rate, 3 years average, lagged one year	Positive
IV_8: Circuit's en bancs	Number of en bancs held by circuit, lagged one year	Negative

Table 2 Variables and expectations for Consistent Decision Direction model for Cases in which trial court policy outcome is same to trial court judge's preference

Variables	Expected Effect on Reversal Likelihood
IV1: Preference distance between trial court judge and circuit median	Positive
IV2: Consistency between trial court decision policy and panel preferences	Negative
IV3: Presence of district judges on panel	Negative
IV4: Circuits' reversal rates	Positive
IV6: Freshman trial court judge	Positive
IV7: Circuits' dissent rates	Positive
IV8: Circuits' en bancs	Negative

Table 3 Variables and expectations for Contrary Decision Direction model for Cases in which trial court policy outcome is contrary to trial court judge's preference

Variables	Expected Effect on Reversal Likelihood
IV1: Preference distance between trial court judge and circuit median	Negative
IV2: Consistency between trial court decision policy and panel preferences	Negative
IV3: Presence of district judges on panel	Negative
IV4: Circuits' reversal rates	Positive
IV6: Freshman trial court judge	Positive
IV7: Circuits' dissent rates	Positive
IV8: Circuits' en bancs	Negative

Comparing the three tables above, we can see that the difference between the first fulll model and the other two models is independent variable 5—the comparison of decision direction and trial court judge's preference cannot be not included in the last two

models, because this variable is used to separate the observations into the "consistent decision" model and "contrary decision" model. The only difference between the same decision and contrary decision model is the expected effect of preference distance is positive in the former one and negative in the latter one.

Results

Table 4. Probit Model of Likelihood of Reversal by Circuit Court in Economic Decisions, 1993-1999

Independent variables	**Full Model: Distance Without Direction**	**Consistent Decision Model: Distance and Direction**	**Contrary Decision Model: Distance and Direction**
IV_1: Preference distance between district court judge and circuit median	.0051(.0036)	.0205(.0058)***	-.0101(.0051)*
IV2: Consistency between trial court decision policy and panel preferences	-.0404(.0892)	.0721(.1356)	.1518(.1367)
IV3: Presence of district judges on panel	-.0505(.0985)	-.1594(.1407)	.0784(.1435)
IV4: Circuit's reversal rate	.0439(.0222)*	.0358(.0329)	.0517(.0300)[i]
IV5: Trial court policy outcome is contrary to trial court judge's preference	.2059(.0890)*		
IV6: Freshman trial court judge	.1624(.1257)	.3106(.1763)[i]	-.0032(.1813)
IV7: Circuit's dissent rate	-.4898(.8032)	-1.159(1.133)	.4560(1.189)
IV8: Circuit's en bancs	-.0030(.0044)	-.0004(.0056)	-.0064(.0076)

N=883, 471 and 412 respectively
Numbers in parentheses are standard errors
Wald chi2(8)=16.05, p<.0416, Wald chi2(7)=20.69, p<.0043 ,Wald chi2(7)=7.63, p<.3664
Mean of dependent variable: 0.3337, 0.2972 , 0.3753
[i]p<.0.08, *p<0.05, **p<0.01, ***p<0.001

Table 5. Changes of Predicted Probability of Reversal of Three Models[6]

Changes in Predicted Probability of Reversal	Full Model	Consistent Decision Model	Contrary Decision Model
Minimum Preference Distance	0.2692	0.1968	0.4245
Maximum Preference Distance	0.3801	0.6508	0.2105
Difference	0.1109	0.4540	-0.2140

The results of the probit model provide support for the main independent variable and also some support for other hypotheses. For the main independent variable that we are mostly interested in and as the game model and the spatial model suggests, generally when the preference distance increases, the more likely that the higher court will reverse the lower court. Now in the full model, we can see that when the distance of the two courts is at its minimum, the probability of being reversed is 27%. When the distance reaches its maximum, the reversal likelihood rises to 38%, an 11% increase in the predicted probability.

For the consistent decision model (when the lower court made a decision that is consistent with its own preference), when the preference distance of the two courts is close, the likelihood of being reversed is only 20%, but the probability of reversal reaches 65% when the distance is maximized. The preference distance variable is statistically significant at the 0.01 level. The comparison between the full model and the consistent decision model confirm our hypothesis that if the lower courts decide cases consistent with their preference, then, as the preference distance increases, the likelihood of reversal increases.

[6] Changes of predicted probability is calculated by holding all other variables at their median values and allowing the variable of preference distance to range from its minimum to maximum value.

The contrary decision model also performs well, although the entire model is not significant, for the p value for the entire model is 0.3664. The preference distance variable is significant at the 0.5 level. When the preference distance of the two courts is at its minimum, the probability of being reversed is 42%. While the distance reaches its maximum, the reversal likelihood drops to 21%. The change of the predicted probability of reversal is 21%. This also confirms the hypothesis that if the lower courts decide cases contrary to their preference, then as the preference distance increases, the likelihood of reversal decreases.

For other independent variables, circuits' propensity to reverse district courts is significant at the 0.05 level in the full model and significant at the 0.08 level in the contrary decision direction model. Circuits that tend to reverse decisions of district court judges in the three years prior to the case being reviewed were more likely to reverse in the present case. It seems that long-term interaction between district courts and appeals court judges on the entire circuit shapes the degree to which conflict exists between the review panel and the district court judge. But this pattern is not evident in the consistent decision model.

In contrary, in the consistent decision direction model, cases from relatively new trial court judges were more likely to be reversed than those cases in which the decisions were rendered by more experienced judges. But this is not evident in both the full model and the consistent decision model.

The likelihood of reversal is not significantly influenced by other factors, such as consistency between trial court decision policy and panel, presence of district judges on

panel sitting by designation, circuit's dissent rate, and number of en bancs held.

It is hypothesized that the outcome of monitoring would vary due to informational asymmetries that exist between trial courts and appeal court so that cases were more likely to be affirmed when the district court judge decided contrary to his or her own preferences. But in the full model, the test result demonstrated a relationship contrary to the hypothesis. It shows that when the policy outcome of the trial court decision is contrary to trial court judge's preference, the circuit court is more likely to reverse the district court judge's decision. A discussion for those results is in the next chapter.

CHAPTER 5

DISCUSSION

Although the effects of several hypothesized factors on the circuit courts' reversal behavior were relatively weak, overall, the results of the statistical models confirm our deduction from the game and the spatial model. For some variables that are significant in other scholars' findings, they cannot do as well in this analysis.

The lack of significant results for some independent variables are likely due to several factors. First, for the statistical analysis of the full model, we are assuming in the game and spatial model that, when the preference distance become larger, the lower court is less willing to accommodate the higher court's preference, because by doing so, the payoff or utility for the lower court is becoming less attractive and therefore, the lower court is more tempted to decide on its own preference. But, when using probit to test the influence of preference distance on decision pattern of the lower court, we reported a result that is slightly contrary to that assumption[1]. The preference distance and lower court's concerns for compliance complicate the situation, therefore, it is not easy to get a reliable prediction of higher court's reversal behavior if only we consider trial court decision

[1] Estimated coefficient for distance is 0.006772, SE=0.00371, P=0.07, which means when the distance between the two court becomes larger, the trial court judge is slightly more likely to decide a case contrary to his own preference, but not consistent with his own preference. The coefficient for distance is not substantively significant although statistically significant at the 0.07 level.

direction versus trial court's preference. In the game, we consider the lower court's concern for its institutional integrity. This is the value lower courts place on not being disciplined by higher courts. It is assumed that the value of institutional integrity (i) is less than the value of a decision at L's ideal point (ul). This abstract concept is not easy to be measured and tested in the empirical test. But lower courts' concerns about their institutional integrity may weigh more than getting a case decided on their own preference, and therefore, the assumption (ul>i) may not hold. In turn, this may affect the reliability of the prediction of high court's reversal behavior.

The other reason has also been stated previously. Most of the preference variables are measured using the federal judges appointing presidents' economic liberalism scores or party affiliations. But they are just proxies for the true preferences of federal judges. Moreover, scholars have pointed out that the consistency of these scores declined over time. And, senatorial courtesy played an important role in appointing lower federal judges. These factors can reduce the accuracy of the measurement, and in turn, influence the statistical analysis.

The most important factor is the sample is small. Many economics cases are first decided by specialized federal courts, such as tax court or administrative agencies. These cases are not addressed by district courts and excluded from this analysis, resulting in a sample of 883 observations. 526 cases were dropped for this reason. When dividing the whole model into consistent decision model and contrary decision model, each model's sample size shrinks. Then, it is harder for this model to gain statistical significance.

When the trial court policy outcome is contrary to trial court judge's preference, the possibility of the case being reversed is higher in the full model. This result is contrary to the hypothesis that the circuit courts would take the contrary decision direction as a signal of to conclude that the decision below is more likely to be acceptable to the panel. As the game and spatial model have shown, the signal effect is diluted by the preference distance. If the two courts are close to each other, when the lower court judge decides a case contrary to his own preference, then the outcome policy is more likely to be contrary to the circuit court's preference, therefore it would be more likely to be reversed (if the circuit court is preference based). The summary statistics of the full model show that, although the preference distance of the two courts ranges from 0 to 60.6, the mean of this is only 19.13. That means the sample contains more convergent courts than divergent courts. By rendering a decision contrary to their own preferences, more trial court judges were deciding cases contrary to circuit courts' preferences than judges deciding cases consistent with circuit courts' preference, and in turn, resulting in more trial courts' decisions being reversed.

CHAPTER 6

CONCLUSIONS

We have examined the judicial hierarchy using a game and spatial model analysis. Following our assumption about the lower court's concern for avoiding reversal, plus the higher court's unwillingness to bear the cost of reversing cases that do not follow its preferences, then it is always better for the lower courts to follow the high court's policy preference and to maintain their institutional integrity. However, due to the degree of divergence of courts in different levels or preference distance (for example, it will be very costly for the lower courts to follow a higher court policy with which they strongly disagree), it is assumed that lower courts will take the risk of being reversed by not following higher court's preference.

Drawing from the game and spatial model, it was hypothesized that generally as the preference distance of the two courts increases, the likelihood of reversal increases. The empirical test result in the full model does not suggest preference distance between the two courts affects reversal. However, when taking both the decision direction versus lower court's preference and, the two courts' preference distance into account, the game and spatial model showed that when lower court judges decide cases contrary to their preferences, an increase in ideological distance between two courts decreases the possibility of reversal. But when a lower court judge decides cases consistent with their

preferences, an increase in ideological distance increases the possibility of reversal. The empirical tests in the consistent decision direction model and contrary decision direction model confirmed the aforesaid hypotheses.

For the other hypothesized factors influencing reversal, there were some significant results in the empirical tests, such as the circuit's reversal rate in the full model and contrary decision model and freshman trial court judge in the consistent decision model. These were consistent with the expected effect on reversal, except for one variable: trial court policy outcome is contrary to district court judge's preference in the full model. The empirical test result is contrary to the expected effect on reversal. That is because the sample contained more convergent courts than divergent courts, so the trial courts deciding contrary to their preferences were more likely deciding cases contrary to the circuits' preference, and therefore there were more reversals[1]. From this perspective, this result further confirmed the hypothesis that when trial court judges rendered decisions contrary to their preferences, a decrease in preference distance increases the likelihood of reversal.

Another important independent variable: consistency between trail court decision policy and panel preferences, is not statistically significant in all the three empirical test models which cannot support the corresponding hypothesis[2]. The likelihood of reversal is

[1] The full model has controlled for the distance variance, which means it has controlled for divergent and convergent courts. But model could not capture the overwhelming observations of convergent courts.

[2] In fact, this variable is significant in the findings of Haire et al. (2001). Also, if the assumption that judges prefer to make decision base on their preferences holds, we can deduce from the game and the spatial model that circuit court would be more likely to affirm district court's decision if the decision policy is consistent with panel's preference regardless of the preference distance between the two courts. In the sample for the empirical test, the correlation

also not significantly influenced by other factors, such as presence of district judges on penal sitting by designation, circuit's dissent rate, and number of circuit's en banc.

This research highlights the importance of studying strategic relations at all levels within a bureaucratic organization like the federal judicial system. The use of preference distance and an assumption of the interactive effect of the policy direction of the lower court's decision with its own preference provides a new way to test how a higher court may react strategically to the lower court's moves and how appellate disposition of lower court cases is rendered in a dynamic setting of a repeated game.

However, there are some issues in this article, which need to have further consideration. First, this interaction game can also be used to analyze the interaction between the Supreme Court and Appellate Courts. But the interaction between courts in the upper tier is different from that between district court and circuit court, therefore further research is needed to empirically test this relationship. Second, research is also needed in other issue areas. Also, more data are needed to do a further research on the hypotheses. It is possible that further test may confirm or pull down the speculation from the game and spatial model. Fourth, one important limitation for the game and spatial model is the assumption that trial court judge puts more value on preference than on institution integrity. But institutional constraints also play an important role in shaping trial court judge's decision making behavior (Songer et at. 1994). It is possible that trial

---

between independent variable 1 (preference distance) and independent variable 2 (consistency between trial court decision policy and panel preferences) is 0.3333 in the consistent decision model and –0.3676 in the contrary decision model (see appendices: correlations between independent variables). Although the correlation problem is not very serious, it may be a reason causing the unsignificant result for this variable.

court judge puts as much weight on institution integrity as on preference or more than on preference. Further research needs to take institution integrity into account when doing empirical tests.

The approach presented in this paper is a part of an early stage in the development of the examination of the interaction in the judicial hierarchy by using game theory and spatial model. The question lay out in this article is a crucial one that demands our further studies.

REFERENCES

Banks, Christopher P. 1999. Judicial Politics in the D.C. Circuit Court. Baltimore: Johns Hopkins Press.

Baum, Lawrence 1976 Implementation of Judicial Decisions--An Organizational Analysis American Politics Quarterly, Vol. 4 No. 1, January

Baum, Lawrence, 1997 The Puzzle of Judicial Behavior. Ann Arbor: The University of Michigan Press.

Boucher, Robert L. and Segal, Jr., Jeffrey A. 1995 Supreme Court Justices as Strategic Decision Makers: Aggressive Grants and Defensive Denials on the Vinson Court The Journal of Politics, Volume 57, Issue 3 (Aug.), 824-837

Brent, James C. 1999 An Agent and Two Principals: U.S. Court of Appeals Responses to Employment Division, Department of Human Resources v. Smith and the Religious Freedom Restoration Act. American Politics Quarterly 27:236-266

Burnham, William 1999 Introduction to the Law and Legal System of the United States. St. Paul, Minn: West Group.

Cameron, Charles, M., Jeffrey A. Segal, and Donald Songer. 2000. Strategic Auditing in a Political Hierarchy: An Informational Model of the Supreme Court's Certiorari Decisions. American Political Science Review 94:101-116.

Cameron, Charles; Lapinski, John and Riemann, S. Charles R. 2000 Testing Formal Theories of Political Rhetoric. The Journal of Politics, Vol. 62, No. 1, February, Pp. 187-205

Caminker, Eric. 1994. Why Must Inferior Courts Obey Superior Court Precedents? Stanford Law Review 46:817-871

Clinton, Robert Lowry 1994 Game Theory, Legal History, and the Origins of Judicial Review: A Revisionist Analysis of Marbury v. Madison American Journal of Political Science, Volume 38, Issue 2 (May), 285-302.

Drahozal, Christopher R. 1998. Judicial Incentives and the Appeals Process. Southern Methodist University Law Review 51:569-503

Giles, Michael W, Virginia A Hettinger and Todd Peppers 2001, Picking federal judges: A note on policy and partisan selection agendas. Political Research Quarterly 54:623

Goldman, Sheldon 1997, Picking Federal Judges: Lower Court Selection From Roosevelt Through Reagan. Yale University Press

Goldman, Sheldon and Lamb, Charles M. 1986 Judicial Conflict and Consensus: Behavioral Studies of American Appellate Courts. The University Press of Kentucky.

Green, Justin J. and Burton M. Atkins. 1978. Designated Judges: How Well Do They Perform? Judicature 61(8): 358-370

Gruhl, John. 1980 The Supreme Court's Impact on the Law of Libel: Compliance by the Lower Federal Courts. Western Political Quarterly 33:518

Haire, Lindquist, and Songer. 2001. "Hierarchical relationships in the federal courts" Paper presented at the annual meeting of the American Political Science Association.

Howard, J. Woodford. 1981. Courts of Appeals in the Federal System. Princeton: Princeton University Press.

Howard, J. Woodford Jr. 1981 Supreme Court in the Federal Judicial System. Princeton, NJ: Princeton University Press

Ingbennan ,Daniel E. and Yao, Dennis A. 1991 Presidential Commitment and the Veto American Journal of Political Science, Volume 35, Issue 2 (May), 357-389.

Johnson, Charles A. 1979 Lower Court Reactions to Supreme Court Decisions: A Quantitative Examination American Journal of Political Science, Volume 23, Issue 4 (Nov.), 792-804.

Johnson, Charles A. and Canon, Bradley C. 1984, Judicial Politics: Implementation and Impact. Washington: CQ Press.

Knight, Jack and Epstein, Lee 1996 The Norm of Stare Decisis American Journal of Political Science, Volume 40, Issue 4 (Nov.), 1018-1035

Knight, Jack and Epstein, Lee, 1996 On the Struggle for Judicial Supremacy, 30 Law and Society Review 87

Knight, Jack1992 Institutions and Social Conflict New York Cambridge University Press

Miceli, Thomas J. an Metin M. Cosgel. 1994. Reputation and Judicial Decision-Making. Journal of Economic Behavior and Organization 23:31-51.

Newman, Jon O. 1992. A Study of Appellate Reversals. Brooklyn Law Review 58:629-640.

Newman, Jon O. 1994. En Banc Practice in the Second Circuit: 1989-1993. Brooklyn Law Review 60:491-502.

Pacelle, Richard L. Jr. and Larry Baum. 1998. Supreme Court Authority in the Judiciary: A Study of Remands. American Politics Quarterly 20:169-191.

Richardson, Richard J. and Vines Kenneth N. 1970 The Politics of Federal Courts. Boston: Lower Courts in the United States, Little, Brown and Company

Rogers, James R. 2001 Information and Judicial Review: A Signaling Game of Legislative-Judicial Interaction American Journal of Political Science, Vol 45, No. 1, January, Pp. 84-99

Rowland, C.K. and Carp, Robert A. Carp 1996 Politics and Judgment in Federal District Courts, University Press of Kansas.

Schauer, Frederick. 2000. Incentives, Reputation, and the Inglorious Determinations of Judicial Behavior. University of Cincinnati Law Review 68:615.

Segal, Jeffery A. and Spaeth, Harnold 2002 The Supreme Court and the Attitudinal Model Revisited. Cambridge University Press

Segal, Jeffrey A. and Timpone, Richard J. 2000. Buyer Beware? Presidential Success Through Supreme Court Appointments. Political Research Quarterly, Volume 53, P557-p576

Shavell, Steven. 1995. The Appeals Process as a Mess of Error Correction. Journal of Legal Studies 24:379.

Songer, Donald R., Segal, Jeffrey A. and Cameron, Chailes M. 1994 The Hierarchy of Justice: Testing a Principal-Agent Model of Supreme Court-Circuit Court Interactions American Journal of Political Science, Volume 38, Issue 3 (Aug.), 673-696.

Songer, Donald.1987. The Impact of Supreme Court Trends on Economic Policy Making in the U.S. Courts of Appeals. Journal of Politics Volume 49 p830-841

Van Winkle, Steven r. 1996 "Rotating Three-Judge Panels and Strategic Behavior on the United States Courts of Appeals" Paper presented at the Annual Meeting of the Southern Political Science Association, Atlanta, GA.

Waterman, Richard W. and Kenneth J, Meier. 1998. Principal-Agent Models: An Expansion? Journal of Public Administration Research and Theory. Volume 8 173-202.

Wisdom, John Minor. 1967. The Friction Making, Exacerbating Political Role of Federal Courts. Southwestern Law Journal Volume 21, p411-429

APPENDIX A

SUMMARY STATISTICS

FULL MODEL

Variable	Obs	Mean	Std. Dev.	Min	Max
reverse1af~0	884	.3337104	.4718046	0	1
circuitvdi~e	884	19.12907	12.33141	0	60.6
dissnetrate	884	.1218609	.0561751	.0334	.2407
reverserate	884	10.08212	2.04224	4.33	14.33
enbanc	883	8.297848	8.746536	0	25
sitbydesig~n	884	.2884615	.4533034	0	1
freshman	884	.138009	.3451047	0	1
direction~al	884	.4671946	.4992051	0	1
direction~el	884	.5542986	.4973243	0	1

CONSISTENT DECISION MODEL

Variable	Obs	Mean	Std. Dev.	Min	Max
reverse1af~0	471	.2972399	.457529	0	1
circuitvdi~e	471	18.24055	11.74602	0	60.6
dissnetrate	471	.1223138	.0560439	.0334	.2407
reverserate	471	10.1193	1.98699	4.33	14.33
enbanc	471	8.530786	9.437961	0	25
sitbydesig~n	471	.2993631	.458466	0	1
freshman	471	.1316348	.3384528	0	1
direction~al	471	0	0	0	0
direction~el	471	.611465	.4879355	0	1

CONTRARY DECISION MODEL

Variable	Obs	Mean	Std. Dev.	Min	Max
reverse1af~0	413	.3753027	.4847882	0	1
circuitvdi~e	413	20.14237	12.90659	0	60.6
dissnetrate	413	.1213443	.0563879	.0334	.2407
reverserate	413	10.03971	2.105098	4.33	14.33
enbanc	412	8.031553	7.885215	0	25
sitbydesig~n	413	.2760291	.4475735	0	1
freshman	413	.1452785	.3528087	0	1
direction~al	413	1	0	1	1
direction~el	413	.4891041	.5004875	0	1

APPENDIX B

CORRELATION BETWEEN INDEPENDENT VARIABLES

FULL MODEL

	circui~e	dissne~e	revers~e	enbanc	sitbyd~n	freshman	direc~al	direc~el
circuitvdi~e	1.0000							
dissnetrate	0.0162	1.0000						
reverserate	0.0139	-0.0405	1.0000					
enbanc	0.0404	-0.1655	-0.0288	1.0000				
sitbydesig~n	0.0150	-0.1490	0.0669	0.0601	1.0000			
freshman	-0.0806	0.0555	-0.0190	-0.0464	-0.0723	1.0000		
direction~al	-0.1041	0.0006	0.0337	0.0120	0.0312	-0.0144	1.0000	
direction~el	-0.0248	-0.0668	-0.0352	0.0047	-0.0583	0.0338	0.1219	1.0000

CONSISTENT DECISION MODEL

	circui~e	dissne~e	revers~e	enbanc	freshman	sitbyd~n	direc~el
circuitvdi~e	1.0000						
dissnetrate	0.0045	1.0000					
reverserate	0.0578	-0.0759	1.0000				
enbanc	0.0512	-0.1029	-0.0728	1.0000			
freshman	-0.0343	0.0333	-0.0586	0.0154	1.0000		
sitbydesig~n	-0.0190	-0.1996	0.0668	0.0987	-0.0799	1.0000	
direction~el	0.3333	-0.0641	-0.0221	0.0384	0.1280	-0.0504	1.0000
_cons	-0.4063	-0.2400	-0.8289	-0.0584	-0.0382	-0.0790	-0.2676

CONTRARY DECISION MODEL

	circui~e	dissne~e	revers~e	enbanc	freshman	sitbyd~n	direc~el
circuitvdi~e	1.0000						
dissnetrate	0.0024	1.0000					
reverserate	-0.0157	-0.0201	1.0000				
enbanc	0.0557	-0.2542	0.0217	1.0000			
freshman	-0.0515	0.0845	-0.0058	-0.1412	1.0000		
sitbydesig~n	0.0247	-0.1097	0.0630	-0.0021	-0.0596	1.0000	
direction~el	-0.3676	-0.0544	-0.0412	-0.0544	-0.0382	-0.0566	1.0000