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PREDICTING THE POLITICAL CONSEQUENCES OF ELECTORAL REFORM: HOW MANY PARTIES WILL NEW ZWALAND HAVE UNDER PROPORTIONAL REPRESENTATION

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Summary of Paper Supported by IRIS

PREDICTING THE POLITICAL CONSEQUENCES OF ELECTORAL REFORM: HOW MANY PARTIES WILL NEW ZEALAND HAVE UNDER PROPORTIONAL REPRESENTATION?

Jack H. Nagel

New Zealanders' recent decision to replace their Anglo-American style first-past-the-post electoral system with a version of proportional representation (PR) based on party lists offers political scientists virtually a controlled experiment, because no other institution of New Zealand's long-lived democratic system has changed. Consequently, N.Z. experience over the next decade or so should provide a direct test of propositions about the causal effect of electoral systems on other key attributes of a democratic polity.

This paper derives predictions about the future number of parties in New Zealand from three leading quantitative models--Taagepera and Shugart (1993), Taagepera and Grofman (1985), and Ordeshook and Shvetsova (1994). Because each of these models depends on an incomplete specification of institutional and/or societal variables, I also develop and apply a common-sense synthesis. The four models are remarkably consistent in predicting that New Zealand will have six or seven parliamentary parties under PR. In contrast, informed observers anticipate that as many as nine serious parties will offer lists in the first PR election, and many expect that only three or four will survive an eventual shakeout. Thus a systematic application of models based on research in comparative politics offers new information and non-trivial, falsifiable predictions.

The synthesis outlined here proposes that the upper limit on the number of parliamentary parties will be the lesser of a democracy's institutional carrying capacity and the number of issue dimensions plus one. The institutional carrying capacity is derived by a straightforward application of statistical models (e.g., Taagepera and Shugart or Ordeshook and Shvetsova). The second part of the formula, which follows (and extends) Taagepera and Grofman, requires close observational knowledge of social and ideological cleavages in a particular country. The synthesis is not completely deterministic, because it recognizes the role of political mobilization, which depends on the strategies and skill of political entrepreneurs.

If this approach works in forecasting New Zealand's political future, agencies and individuals concerned with

international political development can also apply it to other countries that have recently instituted democratic elections or reformed their electoral systems. Commonly, such political changes stimulate a proliferation of parties followed by a period of party consolidation. The movement to equilibrium might be faster and smoother if key political actors have a better understanding of their system's carrying capacity. Improved ability to predict party systems can also contribute to processes of constitutional design and choice.

Besides predicting the number of parties, the synthesis also has implications about which parties will survive. For example, in New Zealand the wrenching economic restructuring of 1984-92 created a new dimension of cleavage (economic liberalization vs. interventionism) that cut across the old issue dimension based on socio-economic class. As a result, two new parties were spawned, one from each of the established major parties; and the formation of a third, free-market party appears imminent. However, the Taagepera and Grofman hypothesis (which is incorporated in the synthesis) implies that at most one of these parties will survive. The model thus offers a strong prediction about the effects on a party system of a new political issue, such as fundamental economic reform.

PREDICTING THE POLITICAL CONSEQUENCES OF ELECTORAL REFORM: HOW MANY PARTIES WILL NEW ZEALAND HAVE UNDER PROPORTIONAL REPRESENTATION?

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New Zealanders' recent decision to replace their venerable first-past-the-post (FPP) electoral system with a version of proportional representation based on party lists offers political scientists an opportunity that is as close as our discipline comes to a controlled experiment. Aside from a modest increase in the size of the unicameral Parliament (from 99 to 120 members), the referendum that adopted PR left intact all the other long-established institutions of New Zealand's government. Therefore, the experience of the next decade or so should provide a direct test of propositions about the causal effect of the electoral system on other key attributes of a democratic polity--e.g., the party system, the prevailing type of government (single-party or coalitions, majority or minority), the political culture (adversarial or consensual), and the stability of governments and policies.

Of these, the outcome most proximate to the electoral system is the party system. One of the best-known propositions in political science is the Duverger rule--that FPP elections favor two-party legislatures, whereas PR permits and is usually associated with legislative multi-partyism.[1] In the past decade, scholars have developed more precise specifications of Duverger's propositions. Instead of resting content with his binary formulation (FPP, two parties; PR, multiple parties), they have derived quantitative formulas relating the number of parliamentary parties in democracies to finer properties of their electoral or social structures.

This paper derives predictions about the future number of parties in New Zealand from three leading models of this type. Because none of the models offers a comprehensive theory, I also propose a synthesis and compare its prediction with those obtained from each of the three models taken separately.

My inquiry has practical implications that could conceivably conflict with its scientific purpose. In the debate over electoral reform that preceded the referendum, nearly everyone in New Zealand agreed with Duverger--they expected that a victory for PR would end the two-party system that had existed in Parliament since 1935. In the aftermath of the vote, New Zealanders have devoted considerable attention to precisely the question that I investigate here: Given that New Zealand will have a multi-party future, how many parties can be expected to gain (and maintain) representation in Parliament? Their attempts to answer this question have so far depended mainly on inside

knowledge and informed speculation about the intentions and capacities of key political actors. However, if political leaders learn about and are sufficiently impressed by political scientists' models, the predictions offered here could become self-fulfilling prophecies. For example, would-be party organizers might be deterred from launching a new party if they believe if would exceed the institutional or social capacity of the New Zealand political system. In short, whatever impact this article has on political action will undercut its value in offering predictions to be tested by the results of that action.

I shall nevertheless forge ahead. Most likely, political entrepreneurs will be too practical or too impassioned to pay much attention to academic predictions derived from regression equations and speculative theorizing. And, if they do heed these results, then the scholars reponsible for them can take comfort both from influencing events and from appearing to have predicted correctly!

The initial section of the paper provides basic background information for readers unfamiliar with New Zealand politics. Next, I introduce three essential conceptual distinctions. The main body of the paper describes and applies the models of Taagepera and Shugart (1993), Taagepera and Grofman (1985), and Ordeshook and Shvetsova (1994). In the final section, I propose a synthesis, from which I derive predictions about the number and identity of parties that are likely to survive in New Zealand under PR.

Background

In every one of its (normally triennial) parliamentary elections from 1914 through 1993, New Zealand used FPP--or more precisely, single-member constituencies with single-vote ballots and the plurality decision rule.[2] From 1908 until 1935, a three-party system proved surprisingly persistent, mainly because two of the parties were concentrated in geographically distinct areas--Labour in the cities and Reform in the countryside. When the Depression brought Labour to power in 1935, the two bourgeois parties (Reform and United, formerly the Liberals) merged to establish the National Party. From then on, Labour and National, both tightly disciplined, held nearly all parliamentary seats and alternately ruled New Zealand in a series of one-party majority governments. The system was so pure that leading treatises in comparative politics used New Zealand as the prime example of two-party majoritarian politics (Lijphart 1984) and of single-member-district plurality elections (Taagepera and Shugart 1989).

In a November 1993 referendum, New Zealanders voted by a 54-46 margin to replace FPP with a version of PR called mixed-member proportional (MMP).[3] Modelled on the German system, MMP was

originally recommended in 1986 by a Royal Commission appointed to suggest improvements in the electoral system. As framed by the Electoral Act of 1993, which the voters approved in the referendum, MMP gives electors two votes--one for a constituency representative and one for a party list. The first Parliament elected under MMP will have 65 members from single-member constituencies (elected by FPP) and 55 from nationwide party lists. The seats that parties win in constituencies will be subtracted from their list allocations so as to establish overall proportionality between each party's list vote and its representation in Parliament. This "compensatory" mechanism makes MMP a truly proportional system, despite the large number of representatives from single-member constituencies. However, to win list seats, a party must receive at least 5% of the list vote or win at least one constituency seat.

The 1993 referendum coincided with what will probably be New Zealand's last parliamentary election under FPP.[4] Partly in anticipation of an MMP victory and partly as a result of some of the same stresses that led to the reform, that election produced New Zealand's greatest departure since 1932 from a pure two-party Parliament. Besides National (with 50 seats and 35.1% of the vote) and Labour (with 45 seats and 34.7%), two smaller parties won representation--the Alliance (two seats and 18.2%) and New Zealand First (two seats and 8.4%).

The Alliance, led by former Labour MP Jim Anderton, is a coalition of five small parties--Anderton's NewLabour (which split from Labour in 1989 in order to oppose the free-market policies of the Labour government in power from 1984 to 1990), Mana Motuhake (a Maori party founded in 1979 by former Labour MP Matiu Rata), the Greens, the Liberal Party (formed by two dissident National MPs in 1991), and the Democrats (a remnant of Social Credit, which had won many votes and occasional seats as New Zealand's principal third party from 1954 to 1984). Besides Anderton, who held his working-class Christchurch electorate, the Alliance's other winning candidate in 1993 was Sandra Lee, a Mana Motuhake leader and environmental activist. She won in an Auckland electorate.

New Zealand First was organized in 1993 by former National MP and Maori Affairs Minister Winston Peters after he was expelled from the governing National Party caucus for refusing to refrain from outspoken denunciations of financial scandals he alleged occurred during the privatization of the Bank of New Zealand. Peters, a maverick populist, often led polls for preferred prime minister both before and after his expulsion. His party appealed to middle-class voters, many of them elderly, who yearned for the economic security and community spirit that had prevailed in New Zealand before the wave of free-market economic reforms enacted by both Labour and National governments from 1984 through 1993. In the 1993 election, Peters retained

his Tauranga constituency with the largest vote total amassed by any candidate in New Zealand (Anderton's was second). NZF's second victory revealed another dimension of Peters' appeal. As a well-assimilated Maori, he was not expected to have any great support among members of his own race, but to universal surprise, NZF candidate Tau Henare carried the Northern Maori constituency, defeating both Rata and the Labour incumbent.[5]

In the aftermath of the referendum, groups considering whether to form new parties have engaged in intensive discussions and strategizing. Barry Gustafson (1994), an especially well-placed observer, suggests that as many as nine parties capable of reaching the 5% MMP threshold might offer lists at the next election: a Conservative Party emphasizing social issues and drawn from former adherents of National and the small Christian Heritage Party; a pro-market party based on the advocacy group ACT (Association of Consumers and Taxpayers), which is led by former Labour Finance Minister Sir Roger Douglas; a Centre Party based on disaffected members of Labour and National; free-standing Green and Maori parties that would draw support both from the Alliance and from adherents of those causes who did not join the Alliance; New Zealand First; and the rumps of National, Labour, and the Alliance.

Preliminary Distinctions

In order to introduce the models that I will apply to New Zealand, it is first essential to make conceptual distinctions (a) between electoral and parliamentary parties, (b) between simple counts and the "effective" number of parties, and (c) between institutional, societal, and combined models.

Electoral and Parliamentary Parties

Comparative research on electoral systems considers as outcomes both the number of parties receiving votes in elections ("electoral parties") and the number of parties winning seats in the legislature ("parliamentary parties"). In general, electoral systems confine the number of parliamentary parties more narrowly than the number of electoral parties. This is because what Duverger termed the "mechanical" effect of electoral rules operates more inexorably than the "psychological" effect. Mixtures of passion, miscalculation, and naivete frequently induce parties and candidates to enter races that the rules give them have little chance to win.

The difference between electoral and parliamentary party systems has been especially apparent in New Zealand, where small scale and low barriers to ballot listing facilitate the entry of new parties. In all but a handful of elections between 1935 and 1993, three or more parties received significant shares of the popular vote; nevertheless, during this period, New Zealand consistently had a literal or almost-literal two-party system in the House of Representatives.[6]

The models used in this paper all pertain to the number of parliamentary parties. Often, if not invariably, the number of electoral parties will be larger.

Simple Counts vs. the "Effective" Number of Parties

At first blush, determining the number of parties represented in a legislature might seem an easy task--simply count the number of parties to which members have publicly stated they belong. However, most statistical researchers eschew the simple count (N) because it gives equal weight to all parties, no matter how many or how few seats they win. Instead, the conventional practice is to use the so-called "effective" number of parties (EN), which is defined as the reciprocal of the sum across all parties of the square of each party's fractional share of seats, p_i (Taagepera and Shugart 1989, 77-81, 259-60):

$$EN = 1/\Sigma p_i^2 \tag{1}$$

For example, by simple count, the N.Z. Parliament elected in November 1993 had four parties--National, Labour, the Alliance, and New Zealand First. The "effective number" of parties, however, was only 2.16, calculated as follows:

Party	*Seats*	p_i	p_i^2
National	50	.505	.2550
Labour	45	.455	.2070
Alliance	2	.020	.0004
NZ First	2	.020	.0004

$$\Sigma p_i^2 = .4628$$

$$EN = 1/\Sigma p_i^2 = 2.16$$

Two of the models used in this paper were developed for EN, but I shall take pains to translate them into simple counts for three reasons. First, except in the limiting case of equal seat shares, it is hard to intuit what EN means. Second, EN often hides important information. For example, although the dynamics of three- and four-party systems are quite different, if the Alliance had won four seats and NZ First none in 1993, EN would not change unless carried to an extra decimal place (2.155).

Similarly, a simple count gives a more realistic view of a hung party system in which a small third party holds the balance of power. Third, recent work by Ordeshook and Shvetsova (1994, 121) suggests that "a simple count is not only the more behaviorally meaningful dependent variable, but it is also the more predictable measure of number of parties."

The effective number and the simple count will be the same if and only if all parties have an equal number of seats--e.g., if three parties each had 33 seats, then both EN and N would equal 3.0. In the typical case where the distribution of seats is unequal, N will be greater than EN. For any given value of EN, one can calculate the minimum and maximum possible values of N for the N.Z. House as it will be constituted under MMP. Table 1 displays the results of these calculations for various values of EN.[7] In using this table, the reader should remember that both extremes are improbable; more plausible simple counts are in the middle of the ranges shown.

INSERT TABLE 1 ABOUT HERE

Institutional, Societal, and Combined Models

Quantitative models that use the number of parliamentary parties as a dependent variable fall into three classes. *Institutional* models attempt to explain EN or N purely as a function of formal properties of electoral rules. *Societal* models ignore formal institutions and instead relate the party system to social cleavages. *Combined* models use both institutional and societal predictor variables.

Taagepera and Shugart: Predicting from Electoral Rules

As a naive first cut, one might attempt to deduce the maximum possible number of parties that an electoral system permits purely from the logical properties of its formal rules. New Zealand's new electoral law requires that a party obtain 5% of the party list vote or win at least one constituency seat in order to share in the allocation of list seats. Theoretically, the constituency-seat loophole opens the door for a massive proliferation of parties. If every constituency seat winner were the candidate of a separate party, and twenty other parties divided the list vote equally, Parliament might have as many as 85 parties![8] This figure may be taken as the absolute logical upper limit on N. Setting aside the possibility of sub-threshold constituency winners and focussing only on the list-vote threshold gives a logical upper limit of twenty parties. However, this figure is also far-fetched, because it would require that those twenty parties each receive exactly 5% of the party vote.

A more realistic view of institutional limits can be obtained by applying models that distill the experience of numerous democracies into relationships among a few key variables. Rein Taagepera and Matthew Shugart (1993) contend that just "two institutional variables--district magnitude and assembly size--rather remarkably account for the effective number of parties in a country." Through an unconventional method moving back and forth between deduction and induction, they fit the following nonlinear formula to data from 21 democracies:

(2) $$EN = .85(S*M)^{3/16},$$

where S is the assembly size and M represents what Taagepera and Shugart call the "effective" district magnitude.

S requires no comment; for New Zealand under MMP, it will be 120. Determining M is a more difficult issue, The root meaning of district magnitude is the number of seats allocated to an electoral district; but determining the "effective" district magnitude for New Zealand under MMP is not straightforward because of the mix of constituency and list seats and the 5% threshold required to win list seats.

The compensatory feature of New Zealand's mixed-member system implies that single-member constituencies can be ignored in determining M--parties' seat shares will be based on 120 seats as if there were a single nationwide electoral district. However, in order to incorporate thresholds while maintaining at least the appearance of a parsimonious theory, Taagepera and Shugart radically shift the meaning of "effective magnitude." For countries with legal vote thresholds, they define effective magnitude as follows:[9]

(3) $$M = 50\%/\text{vote threshold } \%$$

The 5% threshold that New Zealand will use under MMP thus produces an effective M of 10.

Consequently, the Taagepera and Shugart institutional model predicts the following effective number of parties for New Zealand under MMP:

(4) $$EN = .85(120*10)^{3/16} = 3.2$$

Table 1 shows that this value of EN corresponds to a simple count between four and ten parties--a wide range, but nevertheless more restricted than the a priori span of one to twenty.[10] However, the upper end of the translated range is improbable. For example, an N of 10 with EN = 3.2 requires a distribution in which nine parties have close to the minimum of six seats each, while one large party holds an absolute majority. If such a distribution did occur, smaller parties would probably

consolidate, both to avoid the peril of falling below the threshold and to develop an alternative to the big hegemonic party. Thus a more stable outcome consistent with the Taagepera and Shugart model would be a party system comprised of four to eight parties, with about six parties as a reasonable central tendency.

Taagepera and Grofman: Predicting from Societal Cleavages

In an earlier paper, Taagepera and Bernard Grofman (1985) proposed a bold model based solely on social cleavages:

$$EN = I + 1, \tag{5}$$

where I is the number of issue dimensions or axes of cleavage in the society. In words, the effective number of parties equals the number of issue dimensions plus one; or, as the authors prefer to put it, "parties minus issues equals one."[11]

The Taagepera and Grofman model is a strong prediction not only because of its simplicity, but also because one can readily imagine two reasons why it might not be true: (a) If two opposed positions define each dimension of cleavage, then I independent dimensions should generate 2^I combinations of positions. For example, if a country is divided religiously into Christian and Secular (C and S) camps and ideologically into Left and Right (L and R), then there are four possible combinations--CL, CR, SL, and SR. Each of these might conceivably support a party, but Taagapera and Grofman predict that only three will occur. (b) Along some dimensions, more than two distinct positions might exist. Thus, an ideological dimension might support Left, Right, and Center parties, not just Left and Right; but Taagepera and Grofman predict that no dimension will support more than two parties. In the Appendix, I propose reasons why their formula might provide a reasonably accurate summary of outcomes from the dynamics of party competition and proliferation.

Taagepera and Grofman's operationalization of their hypothesis presents two difficulties. Neither term in Equation (5) is necessarily an integer, because they state the proposition for EN and test it using Lijphart's measure of issue dimensions, which scores issues of "medium salience" as half dimensions. Moreover, Lijphart's measure does not include all the cleavages that exist in a society, but instead counts only those that durably divide significant parties from each other (Lijphart 1984, 128). Thus using it to test the model raises (contrary to Taagepera and Grofman's denial) serious problems of contamination between independent and dependent variables.

I sidestep these problems by applying the Taagepera and Grofman formula in more straightforward fashion. Rather than

count only issues that divide existing parties, I attempt an impressionistic inventory of potential divisions in New Zealand's society; and rather than weight them, I count each division just once. To be included, a cleavage must exist reasonably independent of (orthogonal to) other issue dimensions; it must divide the population into two groups, each of which includes more than five percent of voters; and it must (actually or potentially) matter enough to at least one of these groups that one could imagine the formation of a party based on their support. After adding up all the dimensions that satisfy these criteria, I apply the result to predict a simple count, N, of potential parties, rather than the EN of Taagepera and Grofman's original hypothesis.

An Inventory of Social Cleavages in New Zealand

As a guide in searching for social cleavages, I use Lijphart's standard checklist of issue dimensions commonly found in democratic party systems: socioeconomic class, religion, ethnicity, urban-rural, regime support, foreign policy, and postmaterialism (Lijphart 1984, 127-41). To these seven, I add three other divisions that seem pertinent to New Zealand: regionalism, gender, and economic interventionism.

Socioeconomic Class. Conflicts based on social class, income, and property-ownership are the most common basis of party divisions in all democracies (Lijphart 1984, 130) In New Zealand, class-related economic issues were historically the principal distinction between Labour and National. The recent economic reforms have increased the gap between haves and have-nots, so there is every reason to expect that socioeconomic class will continue to affect New Zealand's party system under MMP.

Religion. In most Western democracies, this dimension historically was manifested in conflicts between Catholics and Protestants or between clerical and secular tendencies. Both divisions have occasionally arisen in N.Z. politics, mainly with respect to educational policies. In a predominantly Protestant and increasingly secular nation, Catholics constitute the largest religious minority, but the emergence of a Catholic party appears extremely improbable. Instead, as in the United States, the religious dimension is most likely to affect N.Z. politics under the guise of conflict over social issues linked to traditional religious values--sexual morality, policies favoring traditional vs. single-parent families, abortion, homosexuality, etc. Although Parliament tries to keep such issues out of party politics by resorting to conscience votes, there is potential for this dimension to give rise to a socially conservative party that will oppose the generally permissive and libertarian trend of modern society. Campaigning on these themes, a non-denominational Christian Heritage Party contested the last two elections under FPP. It achieved just 2% of the vote in 1993,

but a less explicitly religious socially conservative party might do better under MMP.

Ethnicity. Persons with Maori ancestry constitute about 15% of New Zealand's population; and during the past two decades much controversy has arisen over Maori cultural identity, language use, constitutional status, social problems, and reparation claims. Since 1980, candidates of the Maori party Mana Motuhake have usually placed second after Labour in the four Maori electorates. Although Mana Motuhake joined the Alliance for the 1993 election, there is obvious potential for a Maori party to win seats under MMP. No other ethnic minority is large enough to sustain a separate party.

Urban-Rural. Historically, conflicts between agrarian and commercial-industrial sectors have been second only to socio-economic class in shaping N.Z. politics, and some authorities would put the urban-rural cleavage in first place. The Reform Party, which dominated N.Z. governments from 1912 to 1935, was predominantly (though not exclusively) a farmers' party. Since 1935, differences between rural and urban supporters have been a major source of tension within the National Party. However, in other democracies, even those with PR electoral systems, the shrinking rural share of the population has forced farmers' parties to recast themselves--from Agrarians to Centre (Sweden) or Country to National (Australia). With its rural population at 15%, New Zealand offers the possibility of an explicitly agrarian party; but the actual formation of such an entity does not seem likely at this time, especially as free-market reforms have lessened the economic conflicts between rural and urban interests.

Regime Support. Communists, fascists, and other parties that challenge the fundamental tenets of a democratic regime have been electorally insignificant in New Zealand and will surely remain so under MMP; but two other issues of regime definition could become important: conversion from a monarchy to a republic and federation with Australia. In 1994 Prime Minister Jim Bolger urged that New Zealand become a republic by the year 2000, and polls showed about a quarter of the population favored the change.[12] The Australasian federation issue will probably remain latent. In any case, neither republicanism nor federation is likely to become the basis of a lasting new political party. Neither commands sufficiently passionate allegiance at present. If a movement of either sort does emerge, it will probably affect the party system only until a referendum resolves the issue.

Foreign Policy. A strain of pacifistic nationalism has been a recurrent element in N.Z. politics, especially during the past quarter century. During the 1984 and 1987 elections, Labour's ban on nuclear-ship visits and the resulting breakup of the ANZUS alliance divided the electorate and the major parties, but the

issue receded after National subsequently acquiesced to the ban. In 1994, former Prime Minister David Lange, as foreign affairs spokesperson for the Labour opposition, evoked this cleavage again by advocating an end to New Zealand's close defense relationship with Australia. With the Cold War ended and no imminent threats to N.Z. security, it is hard to imagine that foreign policy disputes could lead to the formation of any new party. Nevertheless, this dimension could help Labour survive during a time of confusion and division over economic policies.

Postmaterialism. Beginning in the late 1960s, a common phenomenon in advanced societies was the emergence of what Ronald Inglehart labelled "post-materialism"--a distinctive value orientation centering around environmentalism, participatory democracy, and feminism. In 1972, New Zealand gave birth to the world's first post-materialist political party, Values, which achieved 5.2% of the vote in 1975 before succumbing to the FPP electoral system. In 1990, Values was reincarnated as the Green Party, which won 6.9% of the vote. Many but not all Greens joined the Alliance for the 1993 election, but this history clearly shows the potential under MMP for a party based on post-materialist values.[13]

Regionalism. In a country separated into two islands, one might expect geography to be the source of a politically important cleavage. Although regional conflicts do occur, the North-South division is insufficiently reinforced by ethnic, cultural, or economic differences; thus, it is hard to imagine the emergence of a South Island party. In contemporary politics, a more important regional faultline lies between the rapidly growing Auckland metropolis and the rest of the country; but this also does not appear so sharp as to shape the party system, though it often helps explain voting patterns.

Gender. In numbers, commitment, and political skill, N.Z. feminists certainly have the capability to form a party that could win seats under MMP. However, many of their concerns coincide with other, gender-neutral issues; and women have achieved conspicuous success within existing parties.[14] Thus it appears unlikely that gender-specific conflicts will provide a basis for any new political parties.

Economic Interventionism. The struggle between supporters and opponents of extensive government intervention in the economy wracked N.Z. politics during the past decade. Previously associated with divisions linked to socioeconomic class, this conflict emerged as a major independent dimension in 1984, when Labour leaders introduced radical free-market reforms while continuing to invoke their party's traditional concern for society's poorer members. As noted above, splits created by this cleavage in both major parties shaped New Zealand's present party configuration. At this writing, it appears likely that the

dimension will spawn yet another new party, as former Finance Minister Sir Roger Douglas and his followers in ACT seek to complete the "unfinished business" of their free-market revolution.[15] Nevertheless, the staying power of the conflict between economic traditionalists and modernizers is by no means certain. The 1993 election was widely interpreted as revealing that voters wanted neither a rollback nor an extension of economic liberalization. If the requirements of coalition-building under MMP perpetuate this standstill, then both Douglas and Alliance leader Jim Anderton may be unable to sustain their supporters' commitment.

Summary Estimate from the Number of Issue Dimensions

The preceding inventory reveals two active dimensions--one that is certain to continue (socioeconomic class) and one that may or may not persist (economic interventionism). Three dimensions that were the basis for minor electoral parties under FPP could very well sustain parliamentary parties under MMP (ethnicity, postmaterialism, and social conservatism related to traditional religious values). Two dimensions that could support parties appear unlikely to do so (urban-rural and gender). Three dimensions will probably remain latent as bases for party differentiation (regime support, foreign policy, and region).

In short, the N.Z. party system under MMP will probably be shaped by somewhere between one and five issue dimensions, with the possibility but not the likelihood of a larger number becoming active. If Taagepera and Grofman's hypothesis holds, from two to six parties will be represented in Parliament.

Predictions from the social cleavage and institutional models thus intersect in the range of four to six parties. However, rather than rest content with conclusions based on mere overlap, I shall take the obvious next step by exploring models that combine institutional and societal variables.

Ordeshook and Shvetsova: A Combined Model

Most political scientists would agree with the general idea behind a combined model--that the number of parties in a democracy depends jointly on institutions and society or, more precisely, on political pressures generated by social cleavages but channelled through the framework provided by electoral laws. Nevertheless, so far as I know, the only quantitative models based on this principle appear in a very recent paper by Peter Ordeshook and Olga Shvetsova (1994).

Ordeshook and Shvetsova's article has four notable features: (a) Because they measure just one dimension of social cleavage--ethnic heterogeneity, theirs is only a partial combined model.

(b) Because they employ the data compiled by Arend Lijphart (1994) in his reanalysis of Douglas Rae's classic work (Rae 1967), their results can be seen as the latest refinement in an eminent tradition of electoral systems research.[16] (c) Although they find that a nonlinear (logarithmic) specification performs best, Ordeshook and Shvetsova use straightforward regression methods, rather than the unorthodox curve-fitting employed by Taagepera and Shugart. (d) Ordeshook and Shvetsova test their models for both EN and N, but find that versions based on the simple count consistently perform better.

Ordeshook and Shvetsova's preferred models involve just two independent variables, the familiar district magnitude, M, and a measure of ethnic heterogeneity, H.[17] In their preferred models, H and M are combined in an interactive specification. For EN, the effective number of parties, their most appropriate equation[18] is

(6) $$EN = 2.21 + .46H*\ln(M).$$

The value of H for New Zealand is 1.37,[19] and as in Equation (4), M remains 10. Therefore, the predicted result for the N.Z. Parliament under MMP is

(7) $$EN = 2.21 + .46*1.37*2.30 = 3.66.$$

This value of EN implies a simple count of parties between four and eleven. However, we need not depend on Table 1's rough translation of EN into a range of N, because Ordeshook and Shvetsova also estimate equations directly for N as a dependent variable. Their most suitable model is as follows:[20]

(8) $$N = 3.93 + 1.12*H*\ln(M)$$

Applied to New Zealand, Equation (8) produces the following predicted result:

(9) $$N = 3.93 + 1.12*1.37*2.30 = 7.46$$

Ordeshook and Shvetsova thus predict seven, or possibly eight, parties under MMP. The structure of Equation (8) enables one to decompose this total. Under the old FPP system (M=1), the model predicts a simple count of four parties, which is precisely the number that resulted from the last FPP election in 1993 (though only two or three parties were represented in other Parliaments elected under FPP). The model predicts that the institution of MMP will result in three or four additional parties. Of these, one is attributable to the ethnic cleavage between Maori and Europeans, because if New Zealand were ethnically homogeneous (H=1), the model would yield 6.5 parties under MMP. Under FPP, Ordeshook and Shvetsova predict the ethnic dimension would have no effect on the party system, as was in

fact the case.

Table 2 compares results from Ordeshook and Shvetsova's combined model with those obtained above for the purely institutional and societal models. Although slightly higher, the Ordeshook-Shvetsova predictions are strikingly consistent with the range I obtained earlier from the Taagepera and Shugart institutions-only model, even though the two teams of authors rely on different theoretical specifications, data bases, and estimation methods. Taagepera and Grofman's societal model points to a somewhat more conservative range. The three models together have a central tendency around six or seven parties, which is almost but not quite an intersection.[21] However, rather than rely on this mechanical method of generating a consensus prediction, I prefer to ask whether it is possible to reach an intuitively more satisfying synthesis.

INSERT TABLE 2 ABOUT HERE

An Intuitive Synthesis

A common-sense way to predict (or explain) the number of parliamentary parties in a democracy would run along the following lines: (a) Electoral and parliamentary institutions determine an upper limit, or institutional carrying capacity. (b) Within this boundary, a second potential limit is set by the number of issue dimensions, or social and ideological cleavages. (c) The degree to which these limits are actually approached depends on political mobilization--the strategies, efforts, and skill of political leaders and activists.

Institutional Carrying Capacity

The carrying capacity of a first-past-the-post system is an EN of about 2; N may be somewhat higher, but any parties beyond the two largest will be underrepresented and small. (An exception to both parts of this generalization occurs when parties have geographically concentrated bases, as in Canada and India.) In systems of proportional representation, carrying capacity depends largely on district magnitude and legal thresholds (which may be combined into a measure of effective magnitude). Logical upper limits established by formal rules will exceed practical carrying capacity, which can be inferred from the upper part of the range of estimates in models like Taagepera and Shugart's and Ordeshook and Shvetsova's.

Societal Cleavages

As a working hypothesis, I shall use Taagepera and Grofman's proposal in the following way: If persistent issue dimensions are identified independently of the party system, then the upper limit of N will equal I+1 if I+1 is less than the institutional

carrying capacity. If I+1 exceeds the carrying capacity, then some cleavages will not be expressed in the party system, though they may affect political dynamics, often by dividing parties internally. In short, *the upper limit on the number of parties is the lesser of I+1 and the institutional carrying capacity.*

Political Mobilization

How closely the number of parties approaches this limit depends on whether there are political leaders to organize each party for which there is potential space within the institutional and social system. For many reasons, leaders may fail to organize potentially successful parties--they may lack essential resources; they may overlook an opportunity; they may conscientiously refrain from exploiting dangerous social divisions; they may be thwarted, discouraged, or enticed by more skillful leaders of established parties. Conversely, at other times, the number of parties that political entrepreneurs try to found may exceed the institutional or social limits identified above. Surplus parties are especially likely to form when a new system is introduced. During such periods, a general shakeout and consolidation of parties can be expected, and some parties will be stillborn or short-lived.

How Many Parties for New Zealand?

The foregoing synthesis applies to New Zealand in straightforward fashion. The two models that include institutional variables point to a theoretical limit of ten or eleven parties, by simple count. However, the distribution of seats required to reach this limit under MMP is highly improbable, so a more realistic estimate of New Zealand's institutional carrying capacity is about eight parties. My assessment of issue dimensions suggests that at present there are only five dimensions capable of supporting parties. Applying the Taagepera and Grofman formula yields a societal limit of six parties. If the proposed synthesis is correct, six should therefore be the predicted number of parliamentary parties in New Zealand under MMP in the medium-term future. However, the fact that the institutional limit is higher suggests that one or two additional parties might win seats if latent cleavages become more salient and are exploited by skilled leaders. Conversely, the number of parties in Parliament might fall short of six if some cleavages are not skillfully exploited or recede from the forefront of people's concerns. Fluctuations from election to election should be expected; but conflicts compete with one another for attention and votes, so the identity of the cast may vary more than the number of players.

How does this prediction of approximately six parties compare with forecasts based on less self-consciously scientific methods? As noted earlier, Barry Gustafson expects that as many

as nine serious parties will contest for seats under MMP. He does not predict how many will succeed over the longer term. Many observers expect a shakeout to occur. One prediction, based mainly on Germany's experience under a similar electoral system, is that New Zealand will eventually consolidate to a two-and-a-half party system, with two major parties and a third party that holds the balance of power (McRobie n.d). Compared with these extremes of nine and three, a forecast of six is sufficiently different to add value but central enough to be plausible. The fact that some well-informed observers make similar predictions offers further reassurance. Jonathan Boston (1994), for example, expects that New Zealand "will wind up with a minimum of five parliamentary parties (certainly in the short-to-medium term)."

Which Parties Will Survive?

Having taken the risk of using the rather speculative Taagepera and Grofman model to make numerical predictions, I shall now pull out all stops by applying it to predict which parties will have trouble surviving in the crowded field now emerging.

The Taagepera and Grofman formula implies that, starting from two-party competition based on the socio-economic issue dimension under FPP, each additional issue dimension that emerges under MMP should support one and only party. Therefore, shakeouts should occur whenever more than one party is founded on a new dimension or if more than two parties are based on any dimension--no matter how different their positions.

These tests immediately suggest the vulnerability of the proposed Centre Party (which presumably would be centrist on both socio-economic and interventionism dimensions, and perhaps others as well). Proposals for a Centre Party are inspired by the example of the German Free Democratic Party and the disproportionate power it enjoys as the pivotal party in the Bundestag; but to be pivotal is not necessarily to be centrist. On social welfare issues, the FDP is generally to the right of the Christian Democratic Union; and its formation and survival are due to loyalties created by a second dimension--religion.[22] Parties that attempt to stake out a center position on any dimension are always subject to squeezing out if parties to the left or right adopt more moderate positions (see the Appendix). Therefore, centrists in a multi-party system are vulnerable unless their core followers' loyalty is cemented by group identities based on a second social cleavage. Thus my first prediction is that if a Centre Party develops, it will not hold.

The second area of overcrowding occurs on the interventionism dimension, which, it would appear, has already spawned two parties--the Alliance (or at least its NewLabour core) and New Zealand First, and which will quite likely also

produce a free-market party based on ACT. If Taagepera and Grofman are right, only one of these three will survive. Which two will go?

New Zealand First appears most precarious, but not simply because it has fewer voters than the Alliance and less money than ACT. NZF is not purely a pro-interventionist splinter from National, in the way that NewLabour was the interventionist breakaway from Labour. As a party built around a charismatic leader, NZF embodies Winston Peters' unorthodox and multifaceted appeal. In 1993, New Zealand First could be seen as the only party appealing to the social traditionalists who once constituted "Rob's Mob"--the former supporters of Sir Robert Muldoon, the populist (and interventionist) National Party Prime Minister from 1975 to 1984.[23] In addition, as Henare's victory showed, NZF became the vehicle through which many Maori voters expressed group identity and pride. Complex and seemingly contradictory appeals can help create a larger coalition under FPP, but under MMP, New Zealand First will be vulnerable to parties aiming more exclusively at a single dimension. If Maori and socially conservative parties are launched, they may take much of NZF's electoral base, leaving it unable to compete with the Alliance for the interventionist vote.

If New Zealand First folds (or becomes primarily a vehicle for Maori aspirations or social conservatism), two parties deriving from the struggle over the free-market reforms will remain. If Taagepera and Grofman are right, only one will survive, even though the two occupy opposite ends of the interventionism spectrum. One way their prediction might come about can be seen in the possible effect of a successful free-market party on the Alliance/NewLabour. By luring the most fervent advocates of the economic reforms away from Labour's ranks, such a party might ease the way for an Alliance-Labour rapprochement. It remains an open question which (if either) of these partners would dominate a merged entity. Obviously, the Alliance could shrink drastically if separate Green and Maori parties form. On the other hand, Labour has lost its ideological moorings, and Anderton's leadership has been a formidable asset for the Alliance. It may take an election or two under MMP to resolve this competition.

Still another possibility, as noted earlier, is that stalemate on interventionist issues could cause both the Alliance/NewLabour and a free-market party to wither away, if the former finds itself unable to roll back the reforms, and the latter cannot extend them into new territory. In this case, I would predict a maximum of five parties, rather than six, unless a new dimension of conflict moves onto center stage.

The remaining active dimensions--social conservatism, ethnicity, and postmaterialism--do not yet pose problems of

overcrowding, because (at the time this was written), parties representing each had not yet jelled. Parties based on these issues will face two main threats: lack of unity, and competition from other issues that appeal to their supporters. The electoral bases for Conservative, Maori, and Green parties are all potentially large enough to surpass the 5% threshold, but none is so numerous as to permit the luxury of multiple parties competing successfully for the same groups--a danger that would-be organizers of each proto-party all face. Conservatives must worry about New Zealand First; sponsors of a Maori party must overcome New Zealand First, the Alliance, and Labour; and Greens must disentangle their comrades from the Alliance.

These uncertainties underscore the fact that the forecast of six parties constitutes the upper end of a range rather than a point prediction. It also advisable in closing to remind readers that the future of New Zealand politics may end up confounding all the predictions in this paper, in which case political scientists may have to refine or jettison the models from which they were derived.

Appendix
Why Parties = Issues + 1

In a dynamic sense, the Taagepera and Grofman hypothesis reduces to two propositions:

(1) A single original issue dimension will produce a two-party system.

(2) Each new issue dimension will add only one more party to the system.

As noted above, it is easy to envision alternatives to both propositions, either of which would result in more numerous parties:

(1′) One dimension might support more than two parties--e.g., Left, Right, and Center.

(2′) A new dimension might cross-cut old ones in such a way that two or more of the original parties split, thus producing more than one new party.

Both of these alternative mechanisms are visible in New Zealand--(1′) in the much-discussed possibility that a Centre Party might form, and (2′) in the origin of the Alliance (or at least its NewLabour component) and New Zealand First as splinters of Labour and National respectively, each primarily motivated by the major party's adoption of free-market economic policies. Clearly, it would be unwise to regard the N=I+1 formula as an iron law, especially over short periods of time.[24]

Nevertheless, several processes can be adduced to explain why the hypothesis might be a reasonably strong empirical generalization, especially over periods long enough to kill off the weakest fledgling parties. The remainder of this Appendix describes these processes through a brief, preliminary, and informal outline.

(1) *Why a single dimension should not support more than two parties.* It is necessary first to clarify the concept of "dimension." Dimensions are of two types: categorical and positional.

A *categorical* dimension divides a society into just two distinct groups. In many societies, some of the issue "dimensions" on the checklist used earlier include more than one categorical dimension. For example, in Bosnia, the religious "dimension" (which coincides with ethnicity) comprises three categorical divisions--Muslim vs. non-Muslim, Orthodox vs. non-Orthodox, and Catholic vs. non-Catholic. Each constitutes a separate dimension in the sense used here. Therefore, if

political competition in Bosnia were electoral rather than genocidal, the Taagepera and Grofman hypothesis would predict three parties defined by ethnicity (or four if no other dimensions were active). Thus for categorical divisions, proposition (1) is saved partly by redefining and proliferating issue dimensions.

A positional dimension is defined by a continuum of positions ordered in a sequence that is generally recognized in the society (or at least by informed observers of the society). In plurality electoral systems, as is well known (Downs 1957), parties compete by movements across the issue space. If a small third party tries to establish a centrist position, the major parties can squeeze it out by moving closer to the center. Conversely, a major party threatened by a third party on its flank can steal the latter's thunder by moving in that direction.

Contrary to Downs, I would suggest that the same process occurs in PR systems. By movements in the direction of a smaller rival, a larger party can shrink the support base of the smaller until it falls below the threshold of representation. As long as competition occurs only along a single positional dimension, the smaller party may have no effective riposte. However, if the smaller party "owns" or is defined by a second issue about which its core supporters feel strongly, then it can resist the positional encroachments of its larger rival. Thus a third party that is apparently centrist on economic issues actually survives because to its core supporters, it is the agrarian party or the anti-clerical party. Similarly, communist parties formerly thrived alongside social democratic parties not because they were farther left on economic matters, but because there was a sharp split between the two camps on orthogonal issue dimensions--foreign policy and regime support. In short, even under PR. a single positional dimension of competition will produce a two-party system; and if there are more than two parties, there are two or more dimensions.

(2) *Why each new dimension will normally add only one party to the system.* Two processes tend to work in favor of this part of the hypothesis. The first is most easily seen using categorical dimensions; the second takes different forms depending on whether the dimensions are categorical or positional.

(a) Individuals' positions on a new dimension X-Y may be so distributed as to divide only one of the parties defined by the original dimension L-R; or more generally, the division produced on one side of the original division may not produce a party large enough to reach the threshold of representation, T. For example, if the original parties L and R both take the X position on the second dimension, then two new parties can arise only if $Y \cap L > T$ and $Y \cap R > T$. Often, only one of these inequalities will

be true. Two corollaries follow: (i) The higher the threshold of representation, the more likely proposition (2) will hold. (ii) The greater the number of dimensions already present in the system, the more likely that proposition (2) will hold for each incremental dimension.

(b) Even if a new dimension D_2 splits two existing parties (that differ on the original dimension D_1) evenly enough that splinters from each might exceed the threshold, both new and old parties will be motivated to follow strategies that increase the probability that D_2 will produce just one new party.

(i) If advocates of the change (anti-status quo) position on D_2 are passionate about the new issue, they will not want to dilute their strength, especially if they are uncertain about being able to survive as a new party (not just with respect to electoral thresholds but also with respect to financial and organizational viability). Therefore, they have an incentive to coalesce as just one new party. To do this, they will be wise to adopt policies on D_1 that enable former adherents of both original parties to join the new party. If D_1 is a positional dimension, the new party may define its position on D_1 ambiguously, and/or try to stake out a center position on D_1.

(ii) Likewise, the original parties, not wishing to lose adherents because of D_2, will have incentives to adopt similar strategies on D_2 questions--straddling them ambiguously or trying to find a middle ground. If D_2 is seen as a categorical issue, then the established parties will try to keep D_2 questions out of party politics by allowing conscience votes or seeking to have them decided by non-parliamentary mechanisms such as referendums. To the extent that established parties succeed with such strategies, there may not be enough D_2 rebels to sustain two new parties.

Endnotes

1. For alternative formulations, see Duverger (1986) and Riker (1982). Riker distinguishes the two parts of Duverger's proposition as "Duverger's Law" and "Duverger's hypothesis."

2. The method predominated in elections back into the nineteenth century as well. However, in many elections through 1902, the four main cities constituted three-member constituencies; and in 1908 and 1911 New Zealand conducted a brief experiment with the second ballot (majority-or-runoff) method (Royal Commission on the Electoral System, 1986, Appendix A).

3. For an overview of the reform process and the motivations behind it, see Nagel (1994) and references cited there.

4. Actions necessary to implement MMP will probably not be complete until mid-1995 or later, so if a snap election is called before then, it will have to be under the old system.

5. Since 1867, the New Zealand House of Representatives has included four members elected from separate Maori constituencies. Until Henare's victory, Labour had won all of these seats in every election since 1935. In 1967, Maori candidates were permitted to run in general constituencies; several--including Peters and Lee--have done so successfully. Since 1975, Maori voters have had the option of registering to vote in either Maori or general constituencies. Under MMP, the number of Maori constituencies will be proportional to the number of voters who register on the Maori roll (Nagel 1994).

6. For election results, see Wilson 1985 or Norton 1988.

7. Details of these calculations are available on request from the author. Briefly, the minimum value of N occurs when parties' seat shares are as equal as possible. For integer EN, this means EN = N; for non-integer values of EN, N will be the next larger integer after EN. The maximum value of N occurs when all parties except one have six seats (the smallest possible seat allotment, due to the 5% threshold and the assembly size of 120). (I ignore here the possibility that a party might win a constituency seat while falling short of the list-vote threshold.) Values of EN and N can then be plotted as functions of the seat share of the single large party.

8. This outcome would require a temporary increase in the size of the House to 185 members. The Electoral Act provides that the number of MPs will increase above 120 whenever a party wins more electoral districts than its share of the party vote would normally entitle it to keep (Electoral Referendum Panel 1993, 21).

9. Taagepera and Shugart (1989, 134-35 and 268-69). The authors never satisfactorily explain how they derived this formula, but I will suppress doubts in order to see what their model implies for New Zealand.

10. It should be noted that additional uncertainty exists, because Equation (2) is only an estimate, and there is considerable scatter of empirical cases around the line it defines.

11. The authors initially suggest this model for list PR systems, but then quickly extend it to plurality (FPP) countries through an argument that I find unconvincing. In the synthesis presented below, I propose what I consider a more satisfactory way of applying the formula to plurality systems.

12. *New Zealand Report*, May 1994, pp. 12-4.

13. In a 1990 survey 9% of respondents had a postmaterialist value orientation, and another 61% expressed a mixture of postmaterialist and materialist values (McAllister and Vowles 1993).

14. Women constitute 20% of the current parliament, a high percentage for an FPP system. Their ranks are expected to increase under MMP--the Alliance has already pledged to alternate men and women on its lists. Prominent women MPs in recent years have included Helen Clark, formerly Deputy Prime Minister and presently Leader of the Labour Opposition; Ruth Richardson, National Minister of Finance from 1990 to 1993; Dame Ann Hercus, the Labour Minister of Police and Social Welfare; and Jenny Shipley, National's Minister of Health. The Governor-General is Dame Cath Tizard. Both National and Labour have had women Presidents (Labour frequently).

15. For their agenda, see Douglas 1993.

16. Rae pioneered the comparative statistical analysis of electoral systems. Lijphart's reanalysis is based on an expanded, updated, and improved data base. Taagepera and Shugart's institutional model is estimated from outcomes in a smaller set of democracies over more limited time spans.

17. H is mathematically identical to EN, with population shares of ethnic groups substituted for seat shares of parties. Ordeshook and Shvetsova estimate regressions for two versions of M--a simple average across districts, and Taagepera and Shugart's "effective" magnitude. I use only the latter.

18. Ordeshook and Shvetsova report estimations for 45 regressions. Equation (6) is their Regression Number 20. The models I use are both estimated from data for the most recent

election available for 52 election "regimes" in Lijphart's 27 democracies.

19. Computed from 1991 Census data for the ethnic composition of the population (Dept. of Statistics 1993, 79). The Census recognizes six ethnic categories--Maori, Pacific Island Polynesian, Chinese, Indian, Fijian, and Other--but only the Maori and Other (mostly European) are numerous enough to affect the index directly.

20. Equation (8) is Ordeshook and Shvetsova's Regression Number 26.

21. Note that, as an incomplete combined model, Ordeshook and Shvetsova's equation directly incorporates data about only one type of cleavage, ethnic heterogeneity. Nevertheless, it reflects the effect of other cleavages in the sampled democracies through the high intercept and the positive regression coefficient. In contrast, my application of the Taagepera and Grofman model depends on a survey of active cleavages in New Zealand. If other democracies have, on average, a larger number of active issue dimensions than New Zealand, then the Ordeshook and Shvetsova estimate will be on the high side.

22. I am indebted to Peter Swenson for these observations. Compare also Gallagher, Laver, and Mair (1992, 41).

23. I am indebted to Brian Easton for his analysis of the New Zealand electorate in 1993 as definable by three dimensions--left vs. right reflecting socio-economic class, economic modernizers vs. economic traditionalists, and social liberals vs. social conservatives (interview, Wellington, 2 November 1993). Easton infers this dimensional structure from the seven clusters of voters identified by Vowles and Aimer (1993, 204-9).

24. Taagepera and Shugart (1989, 92-8) implicitly take a similar position. See especially their discussion of Belgium in the 1980s.

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TABLE 1: RANGE OF POSSIBLE SIMPLE COUNT (N) OF PARTIES CORRESPONDING TO EFFECTIVE NUMBER (EN) FOR NEW ZEALAND PARLIAMENT UNDER MMP

Effective Number (EN)	Minimum Count	Maximum Count
1.0	1	1
1.5	2	5
2.0	2	7
2.5	3	8
3.0	3	10
3.5	4	10
4.0	4	11
4.5	5	12
5.0	5	12
5.5	6	12
6.0	6	13
6.5	7	13
7.0	7	14

TABLE 2: COMPARISON OF PREDICTIONS FROM FIVE MODELS

Model	Estimate of EN	Estimate of N	Possible Range of N	Most Probable N
Taagepera and Shugart	3.21	--	4 - 10	6
Taagepera and Grofman	--	--	2 - 6	6
Ordeshook and Shvetsova	3.66	--	4 - 11	7
Ordeshook and Shvetsova	--	7.46	--	7
Proposed Synthesis	--	--	2 - 8	6