
THE POLITICAL CHRONICLE

The Journal of the Florida Political Science Association

President Clinton and the New Congress

Charles O. Jones

(University of Wisconsin-Madison)

Political Polarization and Electoral Change in Israel

John J. McTague, Ph.D.

(Saint Leo College)

Aging and Politics: The Case of Indian River County, Florida

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Global Challenges and Barriers to International Collective Action: A Rational Choice Perspective

Aubrey Jewett

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Managing Editor: Hudson Reynolds, Saint Leo College Institute for Policy Studies, Division of Liberal Arts & Sciences, P.O. Box 2127, Saint Leo, Florida 33574. **The Political Chronicle** is published twice yearly by Saint Leo College on behalf of the Florida Political Science Association. Information regarding subscriptions should be addressed to the Managing Editor. Annual subscription fee is \$20. Make checks payable to **The Political Chronicle**.

Manuscripts submitted for consideration can be returned only if accompanied by a self-addressed stamped envelope. All manuscripts should be double-spaced with wide margins. The standard length for articles is 4,500-6,500 words. For style and footnoting, authors should refer to the **Chicago Manual of Style**. When a manuscript is accepted for publication, authors need to submit a copy on an IBM-readable floppy disk.

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USSN 1042-3885

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Introduction

Just in time for Summer here is the Spring issue of *Political Chronicle* (n. 1, 1995)! In this issue we have the honor of publishing an essay of the President of the American Political Science Association, Dr. Charles O. Jones, Professor of American Government at the University of Wisconsin-Madison and currently also visiting fellow at the Brookings Institution in Washington, DC. Dr. Jones delivered the keynote address at the Spring 1995 Florida Political Science Annual Conference in Winter Haven, and his essay, *President Clinton and the New Congress*, is a very witty and dispassionate look at the current state of American government and politics, especially the analysis of the record-shattering changes in the levers of Congressional power and the difficult balance between the Republican and Democratic parties on one hand, and the increasingly hostile interrelationship between Congress and the Presidency. In such situation of acute polarization and flux, only the new 1996 general congressional and presidential elections will consign to History the current executive-legislative clash (Clinton vs. Dole & Gingrich) as either the harbinger of a long-term domestic conservative political trend or as a temporary outburst of voter discontent which will be reabsorbed in time within the traditional patterns of American politics.

The second essay is by Dr. Jack McTague, Professor of History and International Affairs at Saint Leo College, Florida. In his paper *Political Polarization and Electoral Change in Israel*, Dr. McTague analyzes the evolution of Israeli domestic politics, elections and the semi-monopoly on political power exercised for long spells of time by the two major antagonists, the left-center Labour Party (from independence to the late-1970s) and the right-wing Likud (late-1970s-late-1980s). A "Grand Coalition" power-sharing formula among the two has been possible only recently in the late-1980s-early-1990s, following the inability of either party to gain a clear majority and fully address the political-economic dislocation to Israel's security and future by the widespread semi-insurrectionist Palestinian disturbances (Intifada). Labour's recent return to power is both the result of Likud's internal factionalism (rather than Labour's own increase in popularity) and is deeply conditioned by its decision to exploit the end of the Cold War to work out an Israeli-Palestinian Peace Accord (1993) for partial local Palestinian autonomy. But unless Labour succeeds in overcoming both the terrorist onslaught of the Palestinian Islamic fundamentalists of Hamas and Likud's opposition, its chances at staying in power are uncertain.

Dr. Russell Benjamin, of East Carolina University in Greenville, North Carolina, analyzes in *Age and Politics in Indian River County*, age, social issues and legislative policy choices towards the elderly in Florida's rural counties.

The fourth essay is from Assistant Professor in Political Science, Aubrey Jewett, from the University of Central Florida in Orlando. He analyses in *Global Ecological Challenges and Barriers to International Collective Action*, the impact of global population expansion on resource limits and allocations, pollution and collective action, debunking most common myths of impending doom and offering much hope for the future.

The Fall issue of *Political Chronicle* (n. 2, 1995) will be ready by December.

Marco Rimanelli and
Michael Gibbons, *Editors*

President Clinton and the New Congress

Charles O. Jones

Abstract

The 1994 mid-term Congressional elections, which handed both Houses of Congress to the Republican party, was a historically unprecedented reversal of Democrat President Clinton's role in national politics, just two years into his presidency. This article analyzes the domestic repercussions of this event in magnifying the new-found fragility of even first-term presidents, and in forcing them to protect their sources of political influence immediately after coming into office.

One major effect of the 1994 congressional elections was to redefine President Clinton's role in the national politics and policy making. Once again we are reminded of the fragility of presidential power, as well as the need for any one president to protect whatever limited sources of influence he has. Presidents need to get it as right as they can the first time.

President Clinton lost an election without being on the ballot, and, as a result, lost command of his presidency. His present status and strategic options are defined by the congressional Republicans. Therefore my initial remarks will be directed to the emergence of the congressional presidency of Bill Clinton. I will conclude with a brief examination of the president's political position in the separated system.

The first three months of the 104th Congress have been historic, more than a little frightening, and yet ultimately reassuring to those who believe in and support a system of separated institutions competing for shared powers. I will treat each of these as themes.

First the historic part: There simply is no counterpart case in this century for what happened in the 1994 midterm elections. No elected first-term Democratic president lost both houses of Congress at the mid-term. The closest analogy is with Truman in 1946 but he was not an elected president at the time and he did not campaign.

Republican analogies work somewhat better—Taft in 1910 and Hoover in 1930 experienced dramatic Democratic gains

in the House and Senate, though their party lost its majority in the House only. These are not altogether reassuring examples for Bill Clinton since both suffered devastating defeats in the subsequent presidential elections.

The Eisenhower case in 1954—the only other instance of an elected president's party losing both houses of Congress in his first term—is less useful since the shift of seats was small and, in any event, the president was viewed as above partisan politics.

And so President Clinton has had to reshape a presidency not that well formed from the start, challenged to cope with a new form of split party government, one featuring an inspired opposition.

But there is more that is historic. American political parties are often criticized in presidential elections for offering, and then ignoring, relatively flaccid party platforms. We surely don't expect to have explicit contracts with the voters during the state and local contests that make up a congressional mid-term election. In fact, in spite of the preference among many analysts for the responsible party model of government, many were puzzled by Newt Gingrich's media extravaganza on September 27 when he brought House Republican candidates to Capitol Hill to sign the "Contract with America." David Broder was one of the few commentators to recognize the effort as suited to party government.

Newt Gingrich said at a press briefing, "Our government operates on the party system. We are a team. And we're offering you a contract on what our team will do."

That is a sound proposition. People need to be reminded that Congress writes the laws in a partisan setting...in which the opposing parties divide, not just for spite, but on philosophy, program and principle. (*Washington Post*, 9/28/94, p. A23)

Most analysts were skeptical, if not mocking, of the exercise. E. J. Dionne reported that: "Many Democratic strategists are gleeful because this document ties 'outsider' Republican candidates back into their congressional leadership and defines the Republicans

as advocates of tattered Reagan-style tax cuts." Stanley Greenberg, Clinton's pollster, was quoted by Dionne as stating that the Republicans had made a mistake with the Contract in offering policy substance that was not popular (*Washington Post*, 10/4/94, p. A17). Paul Begala was quoted in the *New York Times* as very pleased with the Contract: "There is not a night I don't thank God for the contract" (10/9/94, p. A26). Editorial comment was scathing: "Reaganism in a rear-view mirror," "reckless," "deceptive," "duplicious propaganda," "a gimmick." (*New York Times*, 9/28/94, p. A20; *Washington Post*, 9/28/94, p. A22).

Studies will no doubt show that the Contract played a minor role with voters in the 1994 elections. In other respects, however, it was an historic development. As reported, some Republican candidates did not "buy the 'Contract'" (*Washington Post*, 9/30/94, p. A10). But the huge majority did. And tying "outsider" candidates into their congressional leadership is exactly what Gingrich and Company had in mind as support for their consolidation of power in potential competition with new committee chairs.

Since much of reality is perceptual, the fact that House Republicans did much better in the elections than expected was bound to be interpreted by these outsiders as an endorsement of their pledge. Consider how the opposite result would have been interpreted—whether or not it could be shown to be real as reflecting voter preferences. A net gain of 10 to 15 seats would have been viewed as a defeat for Gingrich and a rejection of the Contract.

The third historic aspect of the 104th Congress is in what has been accomplished to date and by whom. Let's take the "by whom" first. We have had historic elections that were widely interpreted as conveying mandates—e.g., 1932, 1964, 1980. They are almost always associated with landslide presidential elections, with post-election analyses identifying congruous presidential and congressional returns. It is uncommon to say the least to hear talk of a "mandate" as associated with House elections—more about that shortly.

In regard to the "what," it appears that the House Republicans will accomplish all of what they promised in the Contract—i.e., to bring to a vote all of the legislative actions listed therein. More than that, they will have passed the overwhelming majority of the proposals brought to the floor within the time limit they set and with extraordinary party unity, seemingly exceeding their own initial expectations (Dick Armev was quoted at the Contract-signing as stating "that does not guarantee all 10 of these measures will pass," *Washington Post*, 9/28/94, p. A23). Still more they have created an energy and momentum that is unprecedented. Consider the comparison with the 103rd Congress, Clinton's first, which was more active than usual in the first three months as Democrats sought to pass legislation earlier vetoed by President Bush:

	1993		1995	
	H	S	H	S
Days in Session *	32	37	52	57
Committee Meetings #	510	153	828	354
Roll Call Votes +	114	84	279	121

* As of March 28 for 1993; March 30 for 1995.

In addition, there were 49 confirmation hearings.

+ As of March 29 for 1993; March 30 for 1995.

Now to the more frightening part. 100-day deadlines are not well suited to the American system of separated institutions. Scorekeeping becomes an end in itself. There is a probable inverse relationship between a high score and good legislation. To say that the House Republicans achieved, even exceeded, the goals set in the Contract is not necessarily to point with pride to the results. Legislation by exhaustion is not recommended, nor is urgent large-scale testing of grand behavioral and structural theories of governing.

The House Republicans have set an impressive agenda in this first 100 days—one directed to basic questions about what government can do, which government ought to do it, as well as the capacity of the private sphere to solve public problems. It is surely the envy of any policy ambitious president. Speculation abounds in regard to the effects of political reform and policy change. For example:

- Term limits will improve lawmaking.
- Denial of cash benefits will reduce teen-age pregnancies.

- Block grants to the states will reduce bureaucracy.
- States are better at governing than is the nation.
- The item veto will reduce unnecessary expenditures.
- Cost-benefit analysis of regulations will limit government control.
- Capping punitive damages lowers medical care costs.
- "Loser pays" will reduce frivolous law suits.
- Tax cuts are consistent with balancing the budget.
- A constitutional amendment will produce a balanced budget.

The quantity and complexity of legislation passed by the House and sent to the Senate in the first three months is awesome. Those concerned about what will happen in the next 100 days need only take a look. The legislative pipeline is full and we have not as yet had budget resolutions introduced. The following major pieces of legislation have been fed into the separated system—24 wins for the Republican leadership, 1 loss (with tax cuts to come).

- Congressional Compliance (enacted)
- Balanced Budget Amendment (failed in Senate)
- Unfunded Mandates (enacted)
- Prison Construction
- Criminal Alien Deportation
- Anti-Crime Block Grants
- National Security Package
- Line-Item Veto
- Victim Restitution
- Exclusionary ("Good Faith") Rule
- Death Penalty Appeals
- Self-Employed Health Insurance Deduction
- Defense Supplemental
- Paperwork Reduction; Risk Assessment; Private Property Rights; Regulatory Moratorium; Regulatory Reform and Relief—combined in Omnibus Regulatory Overhaul
- Civil Litigation ("Loser Pays")
- Securities Regulation
- Product Liability
- Emergency Supplemental (17.3B cut)
- Welfare Overhaul

The one loss came on the Term Limits proposal, which received a majority but not the two-thirds required for a constitutional amendment.

Of the 25 votes on final passage in the House, Republicans lost an average of 6 votes per bill (a range of 0 to 40, on

term limits). They picked up an average of 83 Democratic votes (a range of 6 to 201). Party unity for House Republicans averaged 97 percent for the 25 votes (with a range of from 83 to 100 percent). Just one vote—term limits—fell below 90 percent unity. Republicans had 99 or 100 percent unity on 12 of the votes.

Party unity for House Democrats averaged 82 percent, with the range being from 50 to 100 percent. Of course, Republican unity was in support of all 25 pieces of legislation; Democratic unity varied—84 percent in favor (8 votes); 76 percent in opposition (17 votes).

What is frightening about this record? Should we not be overjoyed that party government is here at last? It was precisely this type of lawmaking that concerned the Founders. Big questions have been answered by untested theories and with little time devoted to considering the consequences. It reminds me of the busload of tourists with little time to see it all. With each stop they piled out, snapped pictures, rushed back to the bus, saying: "We'll see what we saw later."

It is a time for considering major shifts in the role of government. But in our system, devolution is to be achieved by evolution, not revolution.

That brings me to the reassurance that I promised as the third theme. Speaker Gingrich likes to compare this period with that in 1933. Indeed, the lamentable 100-day timetable emanates from that time. Democratic presidents are fond of invoking the 100-day promise; President Clinton being the most recent example with his economic and health care proposals. So far as I am aware, this is the first time a congressional leader has proposed such an ambitious program on this schedule.

The argument for acting quickly is familiar. Paul C. Light (*The President's Agenda*) argues that you need to "move it or lose it" since there are competing cycles of decreasing influence and increasing effectiveness. James Pfiffner (*The Strategic Presidency*), too, has stressed the need to "hit the ground running" in his study of presidential transitions. In his memoirs, President Johnson explained that: "A President must always reckon that his mandate will prove short-lived."

As it happens, most presidents have limited mandates and many have short

honeymoons, if any at all. But there are those occasions when election analysts are encouraged to declare a mandate for one party, with the president as leader—e.g., 1932, 1964, and, to a lesser extent, 1980. Under those circumstances, presidents move fast, often with cross partisan or bipartisan support in Congress.

In 1994, however, the Contract was a creation of the House Republicans for a mid-term election. And its presumed endorsement was the result of the Republicans exceeding expectations. Senate Republicans also had a platform of sorts, labelled "Seven More in 94," but there was no deadline, it was only loosely coordinated with the Contract, and Senate results were more or less as expected.

What we are observing, therefore, is the following: The House Republicans have seized the initiative in setting the agenda and formulating proposals that are then fed into the separated system. This is no small achievement—it is historic, as I have already pointed out.

Whereas the Senate will abide by this agenda for the most part, it will function precisely as designed. Counter proposals will be developed, action will be more deliberate, the minority party will be substantially more influential in forcing compromises, alternative theories will be propounded, senators will take time to display their plumage.

And representatives of the two chambers will then meet in conference when passions have cooled.

I stress again the importance of the role played by Speaker Gingrich and House Republicans. But a mandate for one of the three elected institutions is very different from one assigned to all three as led by the president (e.g., 1932, 1964, 1980).

What of the president's role in this version of the separated system? Of course, it depends on the person serving in the Oval Office. A president with limited domestic policy goals or one whose goals have been achieved (e.g., Eisenhower or Reagan in their final two years or Bush virtually from the start) can accommodate rather well these political circumstances. They can concentrate on foreign and national security matters, employ the veto to curb congressional excesses, and participate in domestic initiatives where political

gain might be realized.

For a policy ambitious president like Bill Clinton, however, there can be no greater predicament than to have lost control of the agenda. After all, reactive presidents are not listed among the great leaders. David Maraniss's account (*First in His Class*) of Clinton's dilemma in coping with the draft may provide clues as to the depths of the president's frustration. It was then and this is now a situation not easily controlled—not even by talk. Perhaps luck will serve him again, as it did then.

In these early stages, the president has sought to regain initiative by somehow interpreting the 1984 results as an endorsement of the change he had adopted as a theme for his presidency. In a post-election press conference, he explained that the Republican leadership would have to work with him whereas they might have thought it would be the other way round.

To date the president has settled into a reactive mode, essentially biding his time while searching for whatever advantage can be gained by the House Republicans simply going too far. This passive strategy is working well enough, as measured by poll results that indicate apprehension on the part of the American public about the Contract, particularly when framed as a trade-off between programs for children and tax cuts for the wealthy.

The next phase for the president will have to be more active involvement in Senate deliberations on the bills moved there by the House. At some point, the president will have to use the veto so as to establish the credibility of the veto threat. He has not as yet exercised the veto—a modern record. Apart from a dramatic promise to use his pen on a health care bill that never passed, he has not so far been aggressive in utilizing the threat either.

One further point regarding the president's role. An agenda shift of the magnitude of that proposed by Speaker Gingrich (and seemingly widely accepted among Republicans on Capitol Hill) inevitably produces a set of policy issues not presently foreseen. A president as policy-oriented as Bill Clinton can play an important role in beginning soon to identify that set of new problems associated with abrupt devolution. He may be able to recapture the agenda-setting

initiative in that way. It would at least allow him to define his role rather than having it defined for him.

We are observing history being made with this 104th Congress. Yet another variation in party control is displayed—one not seen since the Democrats lost control of both houses of Congress in President Cleveland's second first term—exactly 100 years ago. A significant agenda shift has been confirmed—one that has been emerging at least since the Nixon Administration. We may look forward to the 1966 election with more than usual interest.

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Political Polarization and Electoral Change in Israel

John J. McTague

Abstract

This essay looks at Israel as an example of a state that has peacefully made the transition from a political system of one-party dominance (Labour) to that of competitive multi-party politics (Labour vs. Likud). The paper also examines the factors in that transition, such as demographic changes in Israel and the impact of the conquest of the West Bank and Gaza in 1967. Finally, it suggests that this competitive system should continue for the immediate future.

The Israeli government is based on a parliamentary system, with a figurehead president as head of state. Power is vested in the Knesset, from which comes the prime minister and members of the Cabinet. The Knesset has 120 seats, which are chosen by a pure proportional electoral system. Voters choose parties, not individuals, on election day and seats are awarded in strict proportion to the percentage of votes received by each party. Prior to the election, each party must submit a ranked list of candidates; members are then seated according to their position on that list. Until 1992, parties needed to secure only 1 percent of the total vote to qualify for a seat; for that election, the threshold was raised to 1.5 percent.

This system tends to encourage a multiplicity of parties. The minuscule threshold is so easily obtained that there is a constant temptation for larger parties to split up and new parties to arise, since the smaller units can still win seats and sometimes have even more power if they are needed to form a coalition. Consequently, in the thirteen national elections that have been held since independence, there have never been fewer than ten parties represented in the Knesset.¹

Nevertheless, in Israel's first eight elections, from 1949 to 1973, one party—Mapai—which in 1968 emerged with other socialist parties to form Labor, dominated the political landscape. This dominance extended back to the 1920's when socialist parties became the strongest force in the Yishuv (the Jewish community in Palestine) due to their

strength in the kibbutz movement and in the Histadrut, the national labor union. Most of Israel's "founding fathers"—David Ben-Gurion, Moshe Sharett, Golda Meir—came from Mapai, and that party and other socialist groups had strong support from the Ashkenazim, the European Jews who comprised the majority of the state's population until the 1970s.

An analysis of Israel's first eight elections shows that Mapai/Labor never received a serious challenge until 1973. In each of the first seven elections, Mapai and its socialist partners Mapam and Achdut Ha'avodah (who in 1969 ran a joint slate as the Labor Alignment) never won fewer than 56 seats out of 120. In 1949, 1959 and 1965 they won an outright majority of seats, while in 1953, 1955, 1961 and 1969 they needed to add smaller parties such as the National Religious Party (NRP) to their coalition. As should be obvious in a purely proportional system, the socialist parties also dominated the popular vote. In the first seven elections, they never won less than 46 percent of that vote and three times exceeded the 50 percent mark.

Perhaps more important to their dominance was the fact that Mapai/Labor faced no serious opposition until 1973. Prior to that year, the best performance of any opposition group in seven elections had been that of Gahal, which in both 1965 and 1969 won 21 percent of the vote and 26 seats. (Gahal was a combined slate of Menahem Begin's Herut Party and the Liberals, the forerunner of the Likud.) Still, this was less than half the votes or seats of the socialist groups, so that Gahal did not appear to be a serious challenger to Mapai/Labor's dominance.

The 1977 election is known in Israel as the "earthquake" but in retrospect it was the previous election of 1973 which began the trend from domination of a single party to a competitive system. By that time, Gahal had allied with several smaller parties to become the Likud and had recruited one of the few heroes of the Yom Kippur War, Ariel Sharon, to their ranks. That war, fought just two months before the election, was regarded

by many Israelis as their first military setback and was the first major blemish on Labor's record in power. The two people most responsible for conducting that war, Prime Minister Meir and Defense Minister Moshe Dayan, saw their popularity fall dramatically because the army was caught unaware by Egypt's surprise attack.

Moreover, as Labor's image was declining, the Herut-Gahal-Likud world view was becoming more respectable. From its inception in 1948, Herut had espoused control of all of "Eretz Israel," a concept which had appeared to be an impossible dream until 1967. But during the Six-Day War that dream had become a reality, bringing the party closer to the mainstream of Israeli politics. And Begin himself, the former terrorist leader (Irgun) who had been treated as an outcast during the Ben-Gurion years (1948-63), had gained respectability by serving as minister without portfolio in the wall-to-wall coalition that had been created just before the Six-Day War began.²

Consequently, the 1973 election was the most competitive in the state's history to that point. The socialist parties (Labor Alignment) saw their vote fall below 40 percent for the first time (39.6 percent), while an opposition party (Likud) garnered more than 25 percent, also for the first time (30.2 percent). Labor still had the most seats but its margin of victory (51-39) was the smallest ever, and the party found it difficult to put together a coalition (the NRP eventually joined but proved to be a difficult partner). American political scientist Don Peretz, who has analyzed Israeli elections for the *Middle East Journal* for the past 25 years, wrote at the time that this election might be the beginning of a competitive two-party system in the Jewish state.³

The election of 1977 proved his prophecy correct. The movement away from Labor which had begun in 1973 was greatly exacerbated by a number of events. In spring 1974 Golda Meir retired as prime minister, handing the job to former Chief of Staff and Ambassador to Washington Yitzhak Rabin. She was the last representative

of the "founding fathers" to run the country, and Rabin seemed to exemplify a new generation, untried and less trustworthy. Moreover, Rabin lacked the charisma of his predecessor and did not make a strong impression in his public appearances.

A further problem for Labor was the fact that their economic policies were being called into question. The oil embargo which followed the Yom Kippur War and the subsequent rise in prices contributed to worldwide inflation which hurt Israel badly (30 percent by 1977). The Labor socialist parties had built the welfare state in the country but seemed to have few new economic ideas to meet the changing conditions of the 1970s. On the other hand, the Liberals in the Likud strongly criticized the country's economic structure and campaigned on a program of greater free enterprise and less government regulation.

Demographic changes were also working against Labor. Immigration since the founding of the state had largely come from Asian and African countries, to the point where these Sephardim comprised about 45 percent of the population by the mid-1970s. Several studies have demonstrated that these Sephardic voters tended to feel that Labor had neglected their needs over the years and was primarily an Ashkenazi party. Moreover, they generally took more "hawkish" positions regarding the Occupied Territories and negotiations with the Arabs, which inclined them more toward the Likud's ranks.⁴

Other data showed that the Likud was more popular with younger voters, with Labor's strength resting with those over the age of 40. Older voters could remember that Mapai/Labor had created the state in 1948, while younger ones recalled that Labor had been caught unprepared in October 1973 when Anwar Sadat launched his attack. Since the Sephardic population tended to be younger than the Ashkenazi one, these two tendencies blended together in the Likud's favor.⁵

Still, as the year 1977 began, few were predicting the "earthquake" that took place in May. New elections became mandatory when Rabin's coalition fell apart in December 1976, due to the NRP's abstention on a no-confidence vote over an official ceremony that partly overlapped the Sabbath. Most

prognosticators predicted that Labor would be returned as usual, but a series of disastrous events helped to foil these predictions. First, Rabin was challenged for the party leadership by Defense Minister Shimon Peres, who at the time was regarded as more of a hawk than the Prime Minister. Rabin fought off the challenge but the battle left major scars which helped create the rivalry between the two men that persists to the present day.

Then a rash of scandals unfolded in the spring which rocked the party to its foundations. First, Asher Yadlin, who had been the party's candidate to head the Bank of Israel, was tried and found guilty of bribery. Then, Housing Minister Avraham Ofer committed suicide while under investigation for misappropriation of funds. Finally, in April, press accounts revealed that Rabin's wife Leah had broken the law by keeping an illegal bank account in the United States, dating back to their days in Washington. Rabin was forced to withdraw as head of the Labor list and Peres was chosen to replace him. This event happened less than two months before the election.

Compounding Labor's difficulties was the existence of a new party, the Democratic Movement for Change. Headed by former Chief of Staff and noted archeologist Yigael Yadin, the DMC appealed primarily to the same middle class Ashkenazi constituency as Labor. Its platform was similar to Labor's in many areas, but had one major difference—a commitment to change in the political system, specifically electoral reform. Attracting a smattering of politicians from all across the spectrum, it seemed to represent a fresh force in the nation's politics.⁶

Moreover, the Likud ran a sophisticated campaign, orchestrated by Ezer Weizman (today Israel's President and identified with Labor). Begin, who had been slowed by a heart attack, was portrayed as a grandfatherly figure, in an attempt to further soften his image which had gradually become less demonized since 1967. With Labor also taking a hard line on the Occupied Territories, Likud's position no longer appeared extremist, while her calls for more free enterprise also seemed sensible. Still, polls taken in early May by *Ma'ariv* and *Yediot Aharonot* showed Labor

leading by between 4 percent and 9 percent, although over a fifth of all voters were undecided.⁷

Consequently, when the election results were announced they caused shock waves not only in Israel but around the world. Labor had suffered major losses, dropping 19 seats (51 to 32) and 15 percent of its vote (39 percent to 24 percent). But the Likud made only modest gains, picking up four seats (39 to 43) and just three percent more of the popular vote than it had in 1973. The biggest surprise was the showing of the DMC, which in its first attempt won 11.6 percent of the vote and 15 seats. And the various religious parties, who generally hover between 10 and 20 seats, picked up two from 1973 for a total of seventeen.

How does one account for this earthquake? A gradual decline in Labor's support and increase in the Likud's had been evident in 1973, so some further move in that direction was not unexpected. The Likud's gain of four seats probably reflected that trend. But the collapse of Labor was so dramatic as to require greater explanation. It would appear that the combination of the headline-making scandals of early 1977 and the presence of the DMC can to some extent account for it. The scandals caused many long-time Labor voters to withhold their support this time around, yet most were unwilling to vote for the Likud, a party they had regarded as anathema since Herut's inception. But it was much easier for them to vote for the DMC, which almost seemed to represent Labor without the scandals. It appears likely that the new party's 11 percent of the vote and 15 seats came primarily from former Labor voters. By voting DMC they could send a message to their old party without crossing the political divide.⁸

Still, before the earthquake could be considered complete, Begin and Likud had to put together a coalition government. He had 43 seats to start with, then added two more when Sharon, who had run on a separate list and captured two seats, rejoined the party. Then the NRP and Agudat Israel (another religious party), which had grown increasingly uncomfortable with Labor, threw their 16 seats Begin's way. Two more were added by a one-man party, Flatto-Sharon, and the coopting of

Labor's Dayan as Foreign Minister, bringing the total to 63, a small but sufficient majority. Later in the autumn the DMC joined the coalition, adding 15 more seats, but that decision ended up tearing the party apart, causing its dissolution before the 1981 election (the small Shinui party, now part of Meretz, is all that remains of it).⁹

The year 1977 brought an end to 29 years of one-party and one-bloc domination in Israel, but what would take its place? Superficially, one might look at the fact that the Likud held or shared power from 1977 to 1992 and conclude that those 15 years were a period of one-party dominance also. But that was not really the case. It would be more accurate to describe the period since 1977 as one of competitive two-party or two-bloc politics, characterized by extremely close elections between Labor and parties of the left versus Likud, parties of the right and religious parties.

Election results from the last five national contests (1977, 1981, 1984, 1988, and 1992) bear out this fact. In those five races, Labor has actually performed marginally better, averaging 41.2 seats to Likud's 40.8 and 32.1 percent of the vote to 31.7 percent. In 1984 Labor actually outpolled the Likud by three seats, and in 1981 and 1988 fell only one seat short of its rival. Partly due to these close results, the two parties governed together from 1984 to 1990 in a National Unity coalition.

But the main reason that the Likud held a slight advantage over that 15 year period was that its bloc was generally larger than Labor's. The 1977 election inaugurated the era of two competing blocs, each revolving around one of the major parties. And the key for the Likud has been the fact that the "third force" in Israeli politics, the religious parties, joined its bloc in 1977 and has remained there ever since, with one exception. The religious parties for the most part are committed to the concept of "Eretz Israel," which has been Herut-Likud's *raison d'etre* from the beginning. On the other hand Labor, led by Peres from 1977 to 1992, stood for compromise under the slogan "land for peace," and the parties of the left are also more secular in orientation than the Likud and its allies, making coalition even more difficult. The problem was clearly demonstrated in the first year of Rabin's

current government via the frequent clashes between former Education Minister Shulamit Aloni (of the secular Citizens' Rights Movement) and the Shas Party (the one exception noted above to the rule of religious parties joining Likud coalitions).

Comparing the size of the two blocs in the last five elections, we find that the Likud had an average advantage of 63-54.¹⁰ During that time the religious parties have never won fewer than thirteen seats and these always went to the Likud bloc prior to 1992, tipping the scales in their favor. Without those religious Knesset members, the Likud would not have been able to form a government after any election, except for the two Likud-Labor grand coalitions that governed from 1984 to 1990. Only in 1992, when parties of the left won 61 seats, thereby making a Likud government impossible, did Shas, which was the most dovish of the religious parties, choose to cross the aisle and join a Labor coalition. But the relationship was stormy; they quit the government in summer 1993 and didn't rejoin.

Why does it appear that Israel has a competitive two-party and two-bloc system? Because each party and bloc has a solid base of support with a large number of voters who are loyal to it and its ideology. Labor loyalists tend to be Ashkenazim, middle class, less religious and those who favor the "land for peace" concept; the Likud draws its support mostly from Sephardim, the religiously observant, the lower classes and those who want to hold onto the Occupied Territories. Labor and the left's worst performance came in 1977 when they captured only 33 percent of the vote and 41 seats, but this was clearly an aberration, as it was at least 10 percent less than the left has ever polled either before or since. The Labor bloc's best showing came in 1992 when it polled 49.4 percent of the vote.

Conversely, the bloc of rightist and religious parties hit its nadir in 1992, but with 48.1 percent of the vote they barely fell short of the left. Their highest total had come just four years earlier with 52.7 percent, demonstrating a remarkably consistent bloc of rightist and religious voters. While the Likud itself lost 6.2 percent and eight seats in 1992, parties allied to it partially compensated by picking up two of those seats. Labor's

"blocking majority" was a razor-thin 61 seats and these included five places won by Arab anti-Zionist parties who could not be included in the government, due to an unwritten rule of Israeli politics. Only the addition of Shas to the coalition gave the government a "Jewish majority."¹¹ A shift of just two seats to the right would have allowed the Likud to stay in power in 1992.

Still, thin as its margin was, Labor has formed its first government since 1977 and the Likud is out of power for the first time since then. A number of factors explain this result. First, the Russian immigrants who had poured into the country since 1990 were angered over their high unemployment and poor housing prospects; they voted heavily against the Likud. Second, many Sephardim in the party were upset because their hero David Levy complained about the shabby treatment he received from Yitzhak Shamir and other Ashkenazi Likud leaders; Sephardic support for the party consequently declined. Third, the Likud was hurt by corruption scandals, particularly in the Housing Ministry. Also, George Bush's refusal to guarantee loans for new housing unless Shamir agreed to halt construction in the Occupied Territories demonstrated that normal relations with the U.S. were in jeopardy under the Likud. And finally, Labor helped its own cause by replacing the dovish four-time loser Peres at the top of the list with the hawkish and more popular Rabin. Perhaps the biggest surprise of the election is that, given all these handicaps, the Likud and its allies still came so close to retaining their hold on power.

That fact bodes well for the continuation of a competitive two-party and bloc system. The key factor in determining the short-term prospects for Labor and Likud will be the success or failure of the experiment in Palestinian self-rule in the territories. Labor will earn either enormous credit or blame for that outcome. If self-rule somehow results in peaceful relations between Israel and the Palestinians, part of Eretz Israel will be lost and with it the *raison d'etre* of the Likud. But if the experiment continues to lead to more violence and instability, Labor will surely suffer the wrath of the voters. Rabin and Peres will either go down in history as far-sighted statesmen who brought

peace to the Middle East or as fools who endangered the existence of their country. The future of the Israeli political system will depend on which of those views the majority of voters believe is more accurate.

Notes

- 1 Gregory Mahler, *Israel: Government and Politics in a Maturing State*, New York, 1990, ch. 6 and Gershon Kieval, *Party Politics in Israel and the Occupied Territories*, Westport, Connecticut, 1983.
- 2 Benjamin Akzin, "The Likud in Howard R. Penniman, *Israel at the Polls: the Knesset Elections of 1977*, Washington, 1979, pp. 91-114 and Ilan Peleg, "The Legacy of Begin and Beginism for the Israeli Political System," Gregory Mahler ed., *Israel After Begin*, Albany, 1990, pp. 19-49.
- 3 Don Peretz, "The War Election and Israel's Eighth Knesset," *Middle East Journal*, v. 28, no. 2 (1974), pp. 111-125. The most complete analysis of this election is found in Asher Arian ed., *The Elections in Israel—1973*, Jerusalem, 1975.
- 4 Ofira Seliktar, "Ethnic Stratification and Foreign Policy in Israel: the Attitudes of Oriental Jews toward Arabs and the Arab-Israel Conflict," *Middle East Journal*, v. 38, no. 1 (1984), pp. 34-50; Daniel Elazar, "Israel's New Majority," *Commentary*, March 1983, pp. 33-39; Michael Curtis, "The Evolution of Israeli Politics," *Middle East Review*, v. 15, no. 1-2, pp. 59-63.
- 5 Asher Arian, *Politics in Israel, the Second Generation*, rev. ed., Chatham, NJ, 1989, pp. 147-170; Abraham Diskin, *Elections and Voters in Israel*, New York, 1991, pp. 163-186.
- 6 Penniman, *Israel...1977*, *Jerusalem Post Overseas Edition*, Jan.-May 1977.
- 7 Don Peretz, "The Earthquake—Israel's Ninth Knesset Elections," *Middle East Journal*, v. 31, no. 3 (1977), p. 251.
- 8 Peretz, "Earthquake," pp. 252-255; Efraim Torgovnik, "A Movement for Change in a Stable System" in Penniman, *Israel...1977*, pp. 147-172; C. Gratham, N.H., 1985, pp. 48-84.
- 9 Peretz, "Earthquake;" Penniman, *Israel...1977*; Bradley, *Three Case Studies*.
- 10 If we omit Labor's disastrous results in 1977, the margin in the last four elections is narrower, 63-57 in favor of the Likud. Arian, *The Second Generation* and Diskin, *Elections and Voters* provide excellent analysis of electoral behavior prior to 1992, as does Gershon Kieval and Bernard Reich, eds., *Israeli Politics in the 1990s*, New York, 1991.
- 11 Sammy Smooha and Don Peretz, "Israel's 1992 Knesset Elections: Are They Critical?," *Middle East Journal*, v. 47, no. 3 (1993), pp. 444-463; Leon T. Hadar, "The 1992 Electoral Earthquake and the Fall of the Second Israeli Republic," *Middle East Journal*, v. 46, no. 4 (1992), pp. 594-616; *Jerusalem Post International Edition*, Jan.-July 1992.

Aging and Politics: The Case of Indian River County, Florida

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Abstract

This paper examines the relationship between age and politics in Indian River County, Florida. It is an extension of a project conducted by University of Florida Professors James W. Button and Walter A. Rosenbaum, which examines the relationship between age and politics in several Florida counties.

Like its parent project, the main question that this work seeks to answer is whether the aging are more or less likely to vote in favor of school bond referenda. Another major question is whether the aging support tax referenda.

The research shows that age is indeed negatively correlated with a positive vote for a school referendum. In two of the other elections, a sales tax referendum and the United States Senate election between Connie Mack and Kenneth "Buddy" MacKay, age is not significantly correlated with a liberal vote. In the final election, a bond referendum for a park, age was significantly (and negatively) correlated with a positive vote.

The findings of this project reinforce earlier research suggesting that older voters do not support financing of education. Further research in this area would be very helpful in building the base of political knowledge about the aging, and their political attitudes and behavior. The findings would be relevant because Florida has a growing aging population and low state taxes for public education.

This project examines the politics of the aging. The particular area of interest is the relationship between aging voters and support for school bond referenda. Indian River County, Florida is the setting for this study, which also examines the relationship between the aging and two other referenda, as well as a general election. The three latter elections are explored for comparative purposes.

Review of the Politics of the Aging

Before discussing the aging and political participation in the previously discussed context, it is useful to get an understanding of the aging and politics

in general. Neal Cutler (1977) gives an overview of factors that he posits will determine the future role of the aging in American politics. Cutler asserts that we should expect more political demands from older Americans in the future (1977).

The first of Cutler's factors are demographic. The growth rate for Americans over age 65 was twice that of younger persons from 1950-1970 (Cutler, 1977). Further, people who reach age 65 live longer than in the past (Cutler, 1977). The aging will also be better educated than in the past, asserts Cutler, which will make it possible that the aging will be politically active (1977).

Cutler next examines a group of participatory factors. Cutler posits that whether or not the aging will participate in future politics depends upon whether or not people withdraw from social activities with advancing age, as the disengagement theory of Cumming and Henry argues (1977). The author asserts that political evidence suggests that the disengagement theory is not as strong as was previously believed. In fact, political data suggest that people become more active with age, and that they do so at least into their sixties (Cutler, 1977).

The final factor examined by Cutler is political conservatism among older Americans. Cutler states that a prevalent belief in popular folklore is that aging effects conservatism, and that there is psychological evidence to that effect (Cutler, 1977).

There is little evidence, however, that older Americans become more conservative politically. Cutler argues that the aging are generally less conservative than their younger counterparts on some issues. As they increasingly recognize aging needs such as pension income, the aging may be more likely to support benefits-issues (1977, 1019-22).

Like Cutler, Robert Hudson (1980) argues that older citizens are not more conservative than others. Hudson also posits that concentrations of the aging in certain states and localities may make for age-based attitudes and orientations (Hudson, 1980). The aging live in, and

are affected by, the political system in the United States. Citizens participate in the civic culture described by Almond and Verba (1963). In this civic culture, people participate in the political process.

Additionally, political participation increases with age (Jennings and Markus, 1988; Strate et al, 1989). It is posited that aging may lead to increased participation because of an accumulation of skills over time (Strate et al, 1989).

These findings conflict with the proponents of disengagement theory, who argue that advanced age is accompanied by a lack of involvement with many activities, including politics (Jennings and Markus, 1988). The theory that most accurately describes political involvement by the aging may be the theory of selective withdrawal. This theory posits that people decide which activities will be increased or decreased (Jennings and Markus, 1988).

Overview of the School Referendum

Background information about the school referendum is provided by Howard Hamilton and Sylvan Cohen (1974) and by Robert Jennings and Mike Milstein (1983). They all focus on the school fiscal referendum (throughout this project, any reference to school referenda will be a reference to fiscal referenda).

The fiscal referendum for schools has one of several forms--the school bond, tax levy, and budget vote (Hamilton and Cohen, 1974; Jennings and Milstein, 1983). Voter rejection of all three forms has increased.

The school referendum has an interesting origin. Hamilton and Cohen assert that, contrary widely held presumptions, school referenda were "the unintended handiwork of conservative political forces rather than Jacksonian democrats or Progressives" (1974, 3).

The school referendum within school districts, posit Hamilton and Cohen, was an unanticipated result of debt and tax limitation laws and constitutional provisions originating in the 1870s and expanding until World War I (1974). The purpose of these measures, argue the authors, was to "inhibit bond issues by

requiring referenda and to clamp a tight lid on property tax rates by state law" (Hamilton and Cohen, 1974, 5).

There were several types of debt and tax limitation laws. Some of these statutes set maximum rates for cities, counties, townships, and school districts, while others specified that the total amount of tax on a parcel should not exceed a certain amount of mills (Hamilton and Cohen, 1974). Most states added the referendum option to such laws, and the voters in a county or school district could authorize special assessments that exceeded the statutory limits (Hamilton and Cohen, 1974, 5).

It was assumed that this option would be rarely used, but this was not the case in most states (Hamilton and Cohen, 1974, 5). Hamilton and Cohen assert that tax limitation laws created an initial revenue shortfall in most states for local governments and for schools. The result was that in order to rescue the schools and local governments, states passed sales taxes and "devised a variety of grants and tax sharing arrangements. Thus the tax limitation schemes begat fiscal policy centralization and a web of state-local fiscal relationships and interdependence" (Hamilton and Cohen, 1974, 5).

The states with the most school referenda can attribute the numerous elections to a proliferation of school districts and to election laws (Hamilton and Cohen, 1974, 8). Hamilton and Cohen point out that some states mandate annual elections, while others mandate that budgets be voted on until they pass (1974).

The School Referendum: Support Factors

Contextual factors, as well as socioeconomic ones, affect popular support for school referenda are now examined. These are examined here.

One contextual factor is the amount requested by the referendum (Hamilton and Cohen, 1974). However, the influence of amount differs according to whether the referendum is for a budget, tax levy, or bond issue. Among other findings, repeat budget elections (which often had reduced budgets) had a higher success rate in one district cited by Hamilton and Cohen (1974).

For tax levies, size is relevant only to new levies in studies cited by Hamilton

and Cohen (1974). And the association between bond size and approval rate is slight (Hamilton and Cohen, 1974).

Another factor affecting support for school referenda is the supramajority requirement (Hamilton and Cohen, 1974). Hamilton and Cohen argue that the supramajority requirements have "tripped a large number of school bond proposals, particularly in California" (1974, 67).

Turnout is a third contextual factor affecting support for school referenda. Piele and Hall assert that higher voter turnout has a negative relationship with the percentage of favorable votes in a fiscal school referendum (1973).

Community conflict is a fourth contextual factor (Piele and Hall, 1973). Piele and Hall posit that certain issues, such as desegregation, sex education, and district boundary disputes, may get enough exposure in the community to raise the level of interest in the schools (1973). As a result, usually inactive people with negative attitudes toward the schools may be prompted to vote against the referendum (Piele and Hall, 1973).

Another dimension of community conflict is that of interest groups. There is some evidence that school referenda are more likely to be defeated when there is a high level of organized opposition (Piele and Hall, 1973). In general, a full-fledged community conflict reduces the chance of a school referendum passing.

Socioeconomic factors affecting support for school referenda, include race, sex, parental status, income, age, and overall socioeconomic status (Piele and Hall, 1973; Hamilton and Cohen, 1974; and Hahn and Kamieniecki, 1987). Those most likely to support school referenda are blacks and other ethnic minorities, women, people with children, those of higher incomes, and those of with higher socioeconomic status (Piele and Hall, 1973; Hamilton and Cohen, 1974; and Hahn and Kamieniecki, 1987).

Age is negatively associated with support for school referenda. Younger voters are more likely vote for a school referendum than are older voters (Piele and Hall, 1973, 104). Hamilton and Cohen assert that older voters are overwhelmingly against school referenda (1974, 181).

Background Information and Hypotheses

As was stated at the outset of this project, this research focuses on Indian River County, Florida. The hypotheses for this work are based upon previous research, and upon the preceding reviews.

- H1. There is a negative correlation between age and a "yes" vote on a school bond referendum.
- H2. There is a positive correlation between socioeconomic status and a "yes" vote on a school bond referendum.
- H3. There is a negative correlation between turnout for a school bond referendum and a "yes" vote on a school referendum.
- H4. There is a positive correlation between race and a "yes" vote on a school bond referendum, with blacks being more likely to vote "yes."
- H5. There is a positive correlation between being female and a "yes" vote on a school bond referendum.

These basic hypotheses are used for the May 24, 1988 school bond election, which is the major focus of this examination. In addition to this election, these hypotheses are used for three other elections in Indian River County to see if the hypotheses yield consistent results over different types of elections. These elections are: the November 8, 1988 general election between United States Senate candidates Connie Mack (Republican) and Kenneth "Buddy" MacKay (Democrat); the March 14, 1989 sales tax referendum; and the November 7, 1989 bond referendum for the funding of the McKee Jungle Gardens Park. Some elaboration on these elections is appropriate at this point.

The school bond election of May 24, 1988 was for \$41.9 million (Hendley, 1988a, 1A). Of this sum, \$19.8 million was to be used for a new high school in northern Indian River County, and another \$16.7 million was proposed for a middle school in the southern portion of the county (Hendley, 1988a). Another \$5.3 million was to be used for additions to Dodgertown, Fellsmere, Beachland, Vero Beach, Sebastian, and Highlands elementary schools (Hendley, 1988a, 1A).

The bonds were to be paid back through increased millage, beginning in 1991 (Hendley, 1988a, 1A). A mill was defined as one dollar per assessed dollar value. For a home worth \$100,000 with

a \$25,000 homestead exemption, for example, a one mill increase would cost 75 dollars per year. Interest payments would make the total cost of the bonds approximately \$20 million (Hendley, 1988a, 1A).

The November 8, 1988 general election is used because it is a candidate election that involved statewide seats. A candidate election also allows a researcher to compare the effects of independent variables (especially age) on an election involving political officials with referendum elections.

The March 14, 1989 sales tax referendum was for a 1-cent tax to fund capital improvements in Indian River County. These proposed improvements included a new courthouse for Vero Beach, a new health building, and new roads (Bialecki, 1989, 1A). Turnout was expected to be higher than usual for a referendum because of council elections in Indian River Shores, Fellsmere, Sebastian, and Vero Beach (Bialecki, 1989, 1A).

The November 7, 1989 tax referendum was for the county to buy the McKee Jungle Gardens. The referendum asked whether the county would buy nineteen acres of the former 100-acre tourist attraction, as well as 81 acres of environmentally sensitive wetlands, at a total cost of \$2.9 million ("McKee Jungle Gardens-Will the County Buy It?" Vero Beach Press Journal November 3, 1989: 7A-8A).

The McKee Jungle Gardens Preservation Society, which formed in 1988 to oppose developers' attempts to buy the last 19 acres of the park, would get a lease from the county for the property. The Society would restore and maintain the gardens at no additional cost to taxpayers ("McKee Jungle Gardens," 8A).

The primary interest here is whether the aging vote differently than the rest of the electorate. The findings have added significance if the results from the school bond referendum are different from those of the other elections.

Methodology and Variables

The methodology for this research entails using election records from Indian River County. From the election records, it is possible to break the electorate down by age: 18-34, 35-54, 55-64, and 65 and over. A composite variable for voters

over the age of 55 is also used. Political party is available for these age divisions. Further, female voters can be grouped as 55-64 and 65 and over in age.

Total voters, total black voters, total females, and total Democrats and total Republicans are also included in the county records. All of the described variables are for both registered voters and for turnout in all elections except for the Jungle Gardens referendum, for which these figures are available only for election turnout.

Each election precinct has the total votes for each of the four elections. Additionally, each of the county's 32 precincts has median family income, percentage of college graduates, as well as socioeconomic ranking (on a scale of 1-20) for each precinct.

To obtain the percentage of college graduates, smaller geographical units known as enumeration districts were examined. These are geographical areas that comprise voting precincts; they often cross precinct lines. During the aging project of Professors Button and Rosenbaum, the enumeration districts were drawn in on maps of the precincts. Those districts are used here.

Using an architectural device called a planimeter, the relative geographical areas of a precinct covered by enumeration districts were determined. In a hypothetical example, 48 percent of the area a precinct was covered by one enumeration district, 30 percent by a second enumeration district, and 22 percent were covered by a third enumeration district.

In obtaining the percentage of college graduates per precinct, the numbers of people in each enumeration district in various educational categories were weighted by the percentage of the precinct that each enumeration district comprised. In another hypothetical example, 48 percent of the area of a precinct was covered by one enumeration district, while 52 percent were covered by another.

In the first enumeration district, 48 percent of the registered voters were counted in each of the following categories: through three years of high school, high school graduates, 1 through 3 years of college, four years of college, and five or more years of college. Likewise, 52 percent of the registered voters were counted in the second

enumeration district, according to educational attainment.

The numbers from the enumeration districts were combined, and the registered voters with at least four years of college were divided by the sum of all the educational distributions. This proportion was the total percentage of college graduates per precinct. And while this method is not totally precise (as enumeration districts comprising less than 2 percent of a precinct would not be used) it gives a fairly accurate representation of a precinct's proportion of college graduates.

Median family income was obtained from 1980 census data from Indian River County. A caveat to the income data is that the elections in this project took place at least eight years afterward the 1980 census, and the overall Indian River County population increased by over 39 percent between 1980 and 1987 (Shoemyen, 1988, 18). The median family income figures, then, can be expected to be somewhat out of date.

The socioeconomic status (SES) ranking was based on the estimated median property values for each precinct, according to property appraisers, as well as other information about the precincts. The precincts were assigned rankings of 1 through 20, with a score of 20 representing a high SES precinct.

Variables are tabulated for Indian River County in order to obtain a percentage of voters for each election. This gives a more accurate description of the impact of a particular segment of the electorate than would basing the variables on registration figures.

Registration patterns do not necessarily translate into voting patterns. For instance, it is known that the aging turn out for elections in greater percentages than do younger voters. Consequently, a precinct that reports a population of 30 percent registration of aging voters could have an election in which the aging comprised 60 percent of the turnout.

The turnout pattern favoring the aging is demonstrated in each of the elections covered in this study. In the school bond referendum, for example, those voters over the age of 55 comprised more than 65 percent of the turnout; those under 55 comprised less than 35 percent. In the sales tax referendum, approximately 70 percent of the turnout was comprised

of voters over 55, while in the Mack-MacKay election these voters made up 57 percent of the turnout. And in the McKee Jungle Gardens referendum, over 70 percent of the voters were older than 55 years of age.

The mode of testing the hypotheses of this research is regression analysis. It is very well suited for examining aggregate data.

Partisan identification and income, often used as control variables in political research, are not used in this project. Multicollinearity (Lewis-Beck, 1990) is present.

By using Pearson correlation coefficients for the school bond referendum, political partisanship was found to be highly correlated with socioeconomic status and race. For example, the percentage of Republicans was found to be correlated with the percentage of blacks by a coefficient of $-.6462$. The percentage of Democrats was found to be correlated with the percentage of blacks by a coefficient of $.6394$. And the significance level in each case was $.000$, meaning there was less than a $.000$ probability that the relationships were by chance (Coogan and Woshinsky, 1982).

Party was found to be correlated with socioeconomic status in similar ways. The percentage of Democrats was found to be correlated with socioeconomic status by a coefficient of approximately $-.67$, while the percentage of Republicans was found to have a correlation coefficient of $.76$. Based on these findings, and on the correlations, race and socioeconomic status were used instead of party in the regression equations.

Income was not used in the analysis because it was found to be very highly correlated with socioeconomic status (Pearson correlation coefficient of $.85$), and because it was based on 1980 census data, making median family income figures out of date. Income was also found to be highly correlated with voter turnout (coefficient of $.63$), reinforcing the reason not to use income as an independent variable.

Returning to the regression equation used in this research, the dependent variable is vote choice. For the school bond referendum, this dependent variable is the percentage of "yes" votes. For the sales tax referendum, it is the percentage of "yes" votes. In the general election,

the dependent variable is the percentage voting for Mackay (Democrat). Finally, in the McKee Jungle Gardens referendum, this variable is the percentage of "yes" votes.

The independent variables of most interest in each of the elections is percentage of voters over 55 years of age. The age of 55 is the threshold of old age because, among other reasons, the American Association of Retired Persons (AARP) uses this age for eligibility for membership. The other independent variables are socioeconomic status, turnout as a proportion of registered voters, percentage of black voters, and percentage of female voters. These independent variables remain constant over the elections to allow comparisons across elections.

It is important to point out that this research uses aggregate level analysis. The variables used are usually used on the individual level in analyzing survey data. This analysis, however, uses aggregate level, although the precinct level is about as low a level as one can use with employing group data.

Accordingly, a reader should be careful not to make an ecological fallacy (Johnson and Joslyn, 1986). Specifically, findings about aging on the precinct level should not be used to predict how an individual aging person will act politically.

Contextual information is also used (where applicable) in analyzing these elections. This information is in the form of newspaper accounts before and after each election. This allows one to get a "feel" for what the county is like, and an appreciation of the political climate surrounding the elections.

Each regression equation gives a figure called a regression coefficient. This is denoted as "B" on computer print-outs and on the tables that is reproduced in this paper (Agresti and Finlay, 1986).

The standardized regression coefficient, Beta, is the primary figure of interest in this analysis. It measures the effect of each independent variable while controlling for the other independent variables (Agresti and Finlay, 1986). For the purposes of this research, I limit my discussion to Betas that are significant at the $.05$ level or lower.

Results of Analysis

The first regression equation examined is the one concerning the school bond referendum. In this equation, the independent variables of percentage of voters over 55 years of age, socioeconomic status (SES), turnout as a proportion of registered voters, percentage of black voters, and percentage of female voters, are tested to determine their effects on the dependent variable of percentage of "yes" school bond votes. The results are in the following table.

TABLE 1
POSITIVE SCHOOL BOND
VOTE BY AGE, SES, TURNOUT
RACE AND SEX

Variable	B	Beta
Constant	.962431	3.594(t)
Percent Over 55**	-.226098	-.458696
SES	-.001364	-.064641
Turnout	-.173402	-.149002
Percent Black**	.302792	.628724
Percent Female*	-.980711	-.349397
R Square	.63130	
Adjusted R Square	.56039	

* significant at $.05$

** significant at $.01$

*** significant at $.001$

The variables that have the greatest predictive power are age (Beta of $-.458696$), race (Beta of $.628724$), and sex (Beta of $-.349397$). Age, as hypothesized, is negatively correlated with a "yes" vote on a school bond referendum. Race, as hypothesized, is positively correlated with a "yes" vote. Sex is correlated with a positive vote, but not in the hypothesized direction. Being female is negatively correlated with a "yes" vote. The other hypothesized variables, turnout and socioeconomic status, are not significantly correlated with a "yes" vote on a school bond referendum.

The second regression equation explores the relationship between the independent variables of age, socioeconomic status, turnout, race, and sex, and the dependent variable of a "yes" vote for a sales tax referendum. The results of this equation show that the independent variables do not predict a positive vote for a sales tax as well as the independent variables explain change in a positive vote on a school bond referendum.

TABLE 2
POSITIVE SALES TAX VOTE BY
AGE, SES, TURNOUT,
RACE AND SEX

Variable	B	Beta
Constant	.470357	1.817(t)
Percent Over 55	-.043517	-.084395
SES**	.010547	.602061
Turnout	.054497	.115731
Percent Black*	.208979	.525726
Percent Female	.072905	.031911
R Square	.46928	
Adjusted R Square	.05579	

* significant at .05

** significant at .01

*** significant at .001

The variables of socioeconomic status (Beta of .602061) and race (Beta of .525726) are significant predictors of a positive vote for a sales tax referendum. In addition, they are each correlated in their hypothesized (positive for both socioeconomic status and for race) directions. None of the other independent variables are significant in their correlations with the dependent variable of positive vote for sales tax.

The third regression equation explores the relationship between the independent variables of age, socioeconomic status, turnout, race, and sex, and the dependent variable of a vote for MacKay. (A vote for MacKay, a Democrat, is considered a liberal vote, as are positive votes for the school bond, sales tax, and jungle bond referenda.)

TABLE 3
VOTE FOR MACKAY BY AGE,
SES, TURNOUT
RACE AND SEX

Variable	B	Beta
Constant	.797712	2.157(t)
Percent Over 55	.027775	.040580
SES***	-.014113	-.466641
Turnout	-.097548	-.062345
Percent Black***	.445043	.645632
Percent Female	-.438790	-.097949
R Square	.81164	
Adjusted R Square	.77541	

* significant at .05

** significant at .01

*** significant at .001

The analysis finds that the independent variables that predict a liberal candidate vote (in this case, a vote

for MacKay) best are socioeconomic status (Beta of -.466641) and race (Beta of .645632). These variables are significant at the .001 level. In fact, for socioeconomic status, the significance level is .0002, while for race the significance level is .0000. No other variables in any of the regression equations have these significance levels.

The final regression analysis tests the predictive power of the previously used independent variables on the dependent variable of a positive vote on the McKee Jungle Gardens bond referendum. The regression equation shows that, with the exception of race and socioeconomic status, the independent variables have predictive power on the dependent variable.

TABLE 4
POSITIVE JUNGLE GARDENS
BOND VOTE BY AGE, SES,
TURNOUT, RACE, AND SEX

Variable	B	Beta
Constant	-.385148	-1.409(t)
Percent Over 55**	-.235981	-.422343
SES	-.005868	-.261001
Turnout***	.600947	.701387
Percent Black	-.049123	-.093762
Percent Female**	1.710852	.542936
R Square	.63229	
Adjusted Square	.56157	

* significant at .05

** significant at .01

*** significant at .001

As can be seen from Table 4, age (Beta of -.422343), turnout (Beta of .701387), and sex (Beta of .54936) have predictive power in regard to a positive vote on the McKee Jungle Gardens bond referendum. Turnout is the most predictive; however, it is predictive in the opposite direction from which it was hypothesized in that turnout is a positive predictor.

The other significant independent variables, age and sex, are correlated in their hypothesized directions with a positive vote for the jungle bond referendum. Age is negatively correlated, while sex is correlated positively.

Discussion of Results

Age is the variable that is central to this study. The school bond referendum, as the central election in this study on the aging, is examined first.

The school bond referendum was

defeated by the overwhelming margin of 76 percent against to 24 percent for the referendum (Hendley, 1988b, 1A). The variable of age was negatively correlated (Beta of -.458696) with a positive vote for the school bond referendum, as was hypothesized. The only significant variable with a higher Beta score was race (.628724).

According to a newspaper account, the opposing sides each agreed that high voter turnout was responsible for the referendum's failure (Hendley, 1988b, 1A). This variable, however, was not a good predictor of a negative vote for the referendum (it had a significance level of .44).

In spite of the fact that overall turnout was not a good predictor of the vote in this election, there was an interesting finding about turnout and age. Over 65 percent of those who voted on the referendum were over 55 years of age. About 44 percent of the voters were over 65, while an additional 20 percent of the voters were between 55 and 64. About 25 percent of the electorate were between the ages of 35 and 54, while those between 18 and 34 were responsible for a paltry 9 percent of the turnout.

In addition, there was at least the perception that the aging were against the referendum, and that they generally opposed funding for education. As early as 1979, a letter to the opinions page of *The Vero Beach Press Journal* by an older person expressed opposition to a school bond referendum (Steinitz, 1979, 8A). The letter writer asserted the following: "Older people know the value of money, and while many of us will not be around 20 years from now to pay off the bond, we do feel it is also a rip-off of the younger generation" (Steinitz, 1979, 8A).

In the case of the 1988 referendum, the Indian River County school superintendent, James Burns, attributed that bond's defeat to the aging (Hendley, 1988c). In assessing the outcome of the election, Burns argued that "it was a disaster and the tragedy is apparently a commitment by the senior citizens not to support the schools" (Hendley, 1988c, 7A). And two groups with heavy senior memberships, the Indian River County Taxpayers Association and the Civic Association, actively campaigned against the referendum, although Hendley points out that there was widespread opposition

to the referendum (Hendley, 1988c, 7A).

Some of the interviews conducted by Button and Rosenbaum (1989) in Indian River County indicate there is still a belief that the older citizens opposed the 1988 school bond, and school bonds in general. A county commissioner, for example, said that seniors oppose school bonds because they have no children in school (Button and Rosenbaum, 1989).

From the preceding, it can be stated that there was at least a perceived relevance of age as an issue in the school bond referendum. And in spite of the fact that there was community conflict, the fact there were two aging groups that campaigned against the referendum supports the empirical finding that age was negatively correlated with a positive vote on the school bond referendum.

Age was not a significant predictor of the vote in the next two elections covered in the research, the sales tax referendum and the United States Senate race between MacKay and Mack. In the sales tax referendum, which passed by a large margin (Moczydlowski, 1989, 6A), the age variable was not significant.

The age variable may not have been predictive of sales tax vote because there was a benefit for the aging as well as other voters. The sales tax went for what County Commission Vice Chairman Carolyn Eggert characterized as essential construction (Moczydlowski, 1989a, 1A). Such a benefit would help neutralize any aging opposition based on Piele and Hall's self-interest (Piele and Hall, 1973).

Socioeconomic status and race were the only variables that had significant predictive power in the sales tax referendum (Betas of .602061 and .525726, respectively). Perhaps these variables were related to vote because there were also candidate elections involved in this referendum. These have been linked to candidate choice in the past (Campbell et al, 1960; Abramson et al, 1987). And since the Pearson correlations found that these variables were highly correlated with partisanship, it could be argued that socioeconomic status and race approximated partisanship in these elections.

In the Senate election, which was won in Indian River County by Mack, age was not a significant variable in predicting a vote for MacKay (the liberal candidate). This result was not surprising to this author, as a general election

vote is more likely to be affected by such variables as race, sex, and socioeconomic status (Campbell et al, 1960; Abramson et al, 1987). And in this election, socioeconomic status and race (which also approximate partisanship, a very significant candidate election variable) are indeed significant predictors of a liberal vote choice.

In the final election investigated, the McKee Jungle Gardens referendum, which was defeated (Moczydlowski, 1989b, 1A). In this election age was a significant independent predictor of a negative vote. As hypothesized, the relationship between the two variables was negative (Beta of $-.422343$). Sex (Beta of $.542936$) and turnout (Beta of $.701387$) were also significant in the regression equation, although turnout was positively correlated with a positive vote, the opposite of the hypothesized relationship direction.

In this election, as in the school bond referendum, there was organized aging opposition to the referendum. The Taxpayers Association, which had a significant aging membership, was the biggest organization that opposed the referendum (Moczydlowski, 1989b, 1A). The president of the Taxpayers Association, Pat Holm, stated that "we have so many other needs for tax money and I'm glad the community recognized that need (Moczydlowski, 1989b, 1A)."

There was apparent community conflict involved in the McKee Jungle Gardens referendum. A group pushing passage of the referendum was the McKee Jungle Gardens Preservation Society (Moczydlowski, 1989b).

The first implication of the findings is that age continues as a very good predictor of votes in school bond referenda. With the exception of race (Beta of $.628724$), the age variable had the strongest relationship (Beta of $-.458696$) with a positive school bond referendum vote.

This seems consistent with the contention of Piele and Hall (1973), who asserted that older voters were less likely to support school referenda. They posit that this is because older voters are less likely to have children in the schools, and are more likely to have limited financial resources, than are younger voters (Piele and Hall, 1973, 104).

This could be very important for Florida school politics in the future. The

state is very popular for retirees, and the numbers of aging residents in Florida appear to be rising (Dickinson, 1978). And these increasing numbers mean that the aging are likely to have more political clout than in the past.

Jennings and Markus (1988) assert that the level of political involvement rises throughout the life cycle, with only a slight decrease in the later years of those activities that are physically taxing. Professors Rosenbaum and Button (1987) assert that "Florida's older residents today are comparatively younger, wealthier, healthier, and better than the average retired person in the U.S." (1987, 16). And while their discussion focuses on the possible burden the aging may pose to Florida communities, the statement is relevant to school bond politics as well.

This relatively young and healthy population of aging voters is likely to be politically active for the foreseeable future. And since the aging have been opposed to school financial referenda, it may become more difficult for school districts to finance public education.

This could have particular relevance to those districts in localities with significant older populations. It is true that the healthier and more affluent aging voters may not have the financial reasons to oppose school bonds, the fact that many are from other areas could exacerbate the phenomenon (pointed out by Piele and Hall, 1973) of voters not supporting school bond referenda if they do not have school-age children in the schools. Whether the factors that influence older voters to oppose school referenda can be used to predict senior opposition to general financial referenda is debatable. In the sales tax referendum, age was not a significant variable.

Supporting this finding is the fact that the referendum was seen as benefitting the whole community, with a significant proportion of the costs being borne by tourists (Moczydlowski, 1989a, 6A). These factors would tend, according to Piele and Hall's (1973) self-interest criteria for the aging, to explain why the aging would not oppose the sales tax. Retirees would benefit, as would everyone else, while the costs would not be as great as they would be were this a school bond, which would be paid by property owners.

In the McKee Jungle Gardens referendum, there was organized aging

opposition; the leader of the organization cited taxation as a reason for the opposition (Moczydlowski, 1989b, 1A). This again, gets back to the Piele and Hall (1973) reference to self-interest as a reason for the opposition of the aging to financial referenda (although those authors were referring to school referenda).

Economic self-interest of the aging and community conflict are variables (although I did not analyze community conflict empirically) that can be argued to be connected with the failure of the both the school bond and the Jungle Gardens referenda to get the support of the aging. In both elections, it could be argued, the aging saw the bonds as against their economic self-interest. Community conflict was present in both elections.

These conflicts did not involve just the aging. But in both cases the aging had organized opposition groups. For the school bond referendum, the opposition groups were the Indian River County Taxpayers Association and the Civic Association (Hendley, 1988c). In the Jungle Gardens referendum, the opposition was the Indian River County Taxpayers Association (Moczydlowski, 1989b). Piele and Hall argue that "the greater a community's level of organized opposition, the more likely is the defeat of school financial elections" (1973, 80). My argument is that the level of organized opposition can be associated with the defeat of general financial referenda. In fact, Piele and Hall (1973) assert that "school issues also receive the brunt of the organized opposition to taxes in general" (1973, 81).

These preceding paragraphs support the assertion of this paper that the aging oppose referenda based on economic self-interest and on community conflict, especially community conflict along the dimension of organized opposition to financial referenda by the aging. This could lead to the intergenerational conflict envisioned by Cutler (1977).

Cutler posits that there is a "dependency ratio," which is the proportion of retired persons to working people (1977, 1012). Cutler asserts that decreasing birth rates and the aging of the "baby boom" generation, and increasing life expectancy, mean that the dependency ratio will increase. He further asserts that age-based political conflict

will become more likely, due to the fact that a decreasing work force will be supporting this rising retirement population (1977).

If Cutler's theory is correct, this conflict could become exacerbated in Florida because of the migration of retired citizens to Florida. Dickinson (1978) posits that "Florida is the number one retirement state" (1978, 103). And the growth in the aging population in Indian River County reflects this pattern.

Between 1980 and 1987, the population of persons over 65 years of increased by 65 percent in Indian River County (Shoemyen, 1988). This was a higher change in growth rate than the state figure for people over 65, which was 29 percent. The Indian River County increase in this population growth rate was one of the highest of any county in the state (Shoemyen, 1988).

In terms of the overall population of aging in Indian River County, as of 1987 there were 20,121 people over the age of 65, totaling about 24 percent of the population (Shoemyen, 1988). The overall proportion of those over 65 for Florida in 1987 was 18 percent (Shoemyen, 1988). The impact of the aging population as detailed in this paragraph and the preceding one is even greater if one uses 55 as the threshold for being elderly (precise population figures for those 55 and over were not available).

Further, Strate et al (1989) assert that the aging process increases political activity. This is due to increasing civic competence over the life cycle. In a state such as Florida, and a county such as Indian River, with their increasing populations of aging, this could mean that intergenerational political conflicts could increase.

Especially in school bond referenda, these factors could become relevant. And this related to the concept of the "gray peril syndrome" (Rosenbaum and Button, 1987, 4). The gray peril is comprised of:

- (1) resistance to local government taxing and spending for programs lacking immediate benefits for the aging;
- (2) demands for services benefitting principally the elderly; and
- (3) growing antagonism between younger and older community residents over allocation of local resources. (Rosenbaum and Button, 1987, 4)

Rosenbaum and Button report that some local officials and activists seem to believe in the gray peril. One assistant city manager in a Florida community was cited by the researchers as saying that "they are tax users, not tax generators, and they are especially a burden on local emergency services" (Rosenbaum and Button, 1987, 15).

This is yet another dimension of potential intergenerational conflict. It will prove interesting to see what effect the gray peril will have on intergenerational relations.

Before concluding this project, it is useful to discuss the findings in Indian River County in the context of political participation. First of all, the electoral and other political activity of the aging in Indian River County appears to fit the participant political culture model of Almond and Verba (1963).

In the participant political culture, people are oriented toward both input and output aspects of the political system (Almond and Verba, 1963). The aging in Indian River County have shown, both in terms of their high electoral turnout in all four elections, and in terms of their interest group activities, that they take part in a participant political culture. The aging have demonstrated that they are interested in having input in the system and in effecting certain outputs.

This participant political culture is related to the civic culture. In the civic culture, nonpolitical attitudes such as trust in others and social participation in general play a role (Almond and Verba, 1963). Citizens participate in the political process, while not losing orientations as subjects or parochials (Almond and Verba, 1963, 32).

Verba and Nie (1972) posit that political participation can occur in several ways. These modes are: voting, taking part in campaign activity, initiating contacts with government officials, and taking part in group or organizational activity (Verba and Nie, 1972). For the aging in Indian River County, the voting mode was employed in all four elections studied, and the participatory method of taking part in group or organizational activity was employed in the school bond and the jungle bond referendum campaigns.

It can be posited that the participatory political culture applies to the aging in Indian River County. Another

proposition is that civic competence, as described by Strate et al (1989), applies to the aging in Indian River County.

Strate and associates argue that civic competence, which is the knowledge and skill necessary to make informed political judgements, increases over the lifespan (1989). The researchers further assert that life experiences increase civic competence. These experiences lessen the deleterious effects that lack of education or low socioeconomic status would ordinarily have on civic competence (Strate et al, 1989).

Strate et al argue that civic competence has the most significant relationship with age and voting (1989). In Indian River County, the turnout figures by age support this statement. In each election studied, the turnout for the seniors was consistently higher than for their younger counterparts.

In the school bond election, for example, although only 25 percent of the registered voters participated in the election, approximately 65 percent of those voting were at least 55 years of age. In the sales tax referendum, the Senate election, and the McKee Jungle Gardens bond referendum, those 55 years of age or older comprised 70 percent, 57 percent, and 70 percent of the turnout, respectively. Aging could be argued, then, to be correlated with rising vote turnout.

In summation of this section, it can be argued that the aging in Indian River County demonstrate the participant political culture described by Almond and Verba (1963). It can also be argued that the aging's voting turnout demonstrates civic competence, as described by Strate et al (1989).

Final Statements and Future Research

Politics and aging, especially as it relates to public education, is an area that merits further research. There seems to be a general preconception about how the aging in Florida think and behave politically, especially in regard to funding public education. By continuing to empirically test the previously described hypotheses regarding the aging (as well as the other variables), it may be possible to build more factual foundations for popular (and academic) political opinions regarding the aging in Florida educational and fiscal politics.

These factual bases could be further built upon by conducting individual level research on the aging in Florida. This research was on the aggregate level. Making inferences about individual level behavior by evaluating group behavior can be risky (Johnson and Joslyn, 1986).

This aggregate level analysis, however, is at the precinct level, rendering it very close to individual level analysis. In consideration of the fact that individual analysis is time-consuming and expensive, doing low-level aggregate analysis is expedient for much research.

A question that will almost certainly be asked is whether the research from a single case study is generalizable. After all, Indian River County is but one county out of sixty-seven in Florida.

My response is that Indian River County is a good example of a Florida county with an average or above average proportion of aging populations. A case study of this type allows for more in-depth research than could be devoted to several counties.

In Indian River County, several elections beside a school bond referendum were examined. These were a sales tax referendum, a general election, and a bond referendum for a park. A comparison of elections to determine the relationship between age and liberal vote choices was therefore possible. Analyzing these elections would have been more difficult if numerous counties had been studied. Further, it was easier to examine contextual factors, such as community conflict, in the elections.

The greatest ambition from using a case study is that it could encourage studies of even more counties. This expanded research, especially if it were expanded to include individual data, would allow for an increased knowledge of the relationship between aging and politics in Florida counties. This would make the findings more generalizable.

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Global Ecological Challenges and Barriers to International Collective Action: A Rational Choice Perspective

Aubrey Jewett

Abstract

This paper argues that there is cause for optimism when looking at global ecological challenges through a rational choice perspective. An examination of the four major issue areas that put neomalthusians in despair, indicate that: population growth, in and of itself, presents no serious international risk; food supplies will remain sufficient to feed even the largest projected population in the foreseeable future; vital natural resources will continue to be adequately supplied; and pollution, while a significant concern, will not pose an immediate threat to human existence. It is suggested that there are four possible ways to help overcome obstacles to global collective action that impede effectively addressing the worldwide environmental, security, and economic problems that do exist: eliminate the need for cooperation; set up institutions to foster cooperation; engage in a cooperative-reciprocal strategy to elicit cooperation; and, act unilaterally to manage world affairs. Although all of these possibilities have merit in some situations, management of international affairs by the great power in the system provides the best hope for a rational solution to overcoming barriers to international cooperation.

Introduction

"There must exist a special neurosis, that should perhaps be given the name "arithmetic fright." It consists of the tendency to induce despondency in oneself through the contemplation of a ratio. The Malthusians are its most apparent victims..." (Gordon 1958:111).

This paper uses a rational choice perspective to look at the "ecological problem" in international relations: the belief that the growing human population will outstrip food supplies, exhaust vital natural resources, and irrevocably pollute the earth's environment; and also that these potential crises present a global collective action problem to the nations of the world.¹ The paper begins by

presenting the debate over the "Limits to Growth" model and summarizing the concepts pertinent to this research: rational choice theory, the "tragedy of the commons," collective action, and the "free rider." Next, a critical examination of the four issue areas is conducted both logically and historically. Rational choice analysis indicates that: population growth, in and of itself, presents no serious international risk; food supplies will remain sufficient to feed even the largest projected population in the foreseeable future; vital natural resources will continue to be adequately supplied; and pollution, while a significant concern, will not pose an immediate threat to human existence.

The study concludes by exploring several ways to overcome barriers to international cooperation. It is suggested that there are four possible ways to help overcome obstacles to global collective action that impede effectively addressing the worldwide environmental, security, and economic problems that do exist: eliminate the need for cooperation; set up institutions to foster cooperation; engage in a cooperative-reciprocal strategy to elicit cooperation; and, act unilaterally to manage world affairs. As Ken Waltz proposes, in the anarchial international political system, the most rational solution and best hope lies in the management of world affairs by the leading power (s).²

Rationale

"In asking what the possibilities of managing world affairs are, we should also ask how great the need for management may be." ³

Determining the nature and severity of the collective action ecological challenge is important for several reasons. First, national policy makers see the practical importance in this research: if the pessimistic view of the "Limits to Growth" seems correct, and global catastrophe lurks around the corner, states must act quickly. Conversely, if the "Limits to Growth" is overstated, scarce national resources must

not be frivolously expended. Second, these issues have practical and theoretical importance to the discipline. From the practical standpoint, the severity of the problem should coincide with the amount of research effort put forth by international relations scholars; they too have limited resources that should be spent wisely.

Theoretically, these global challenges generally fall within the purview of interdependence and cooperation scholars. But, they also maintain the interest of one of the most widely used research approaches in international relations, rational choice;⁴ and one of the most widely followed paradigms, structural realism.⁵ In addition, this research has pedagogical value because it affects what is taught to students of world politics: virtually every survey text in the field now includes a section on demography and the global environment.⁶ Finally, the use of rational choice theory as a framework for study brings much needed rigor to a debate often dominated by emotional appeal and failed policy decisions that are cloaked in a veil of good intentions.

The "Limits to Growth" Debate

"The world in 2000 will be more crowded, more polluted, less ecologically stable and more vulnerable to disruption..."⁷

"The world in 2000 will be less crowded (though more populated), less polluted, more stable ecologically and less vulnerable to resource supply disruption..."⁸

As the above quotes indicate, little consensus exists concerning the prospects for, and results of, world growth: one takes an essentially pessimistic view and the other an optimistic one. Serious debate about the subject began with the publication of *The Limits to Growth* in 1972 sponsored by the Club of Rome: a book that detailed the pessimistic findings of an integrated, computerized, global model called World3.⁹ The simulation examines the, mostly non-

linear, causal relationships between five different sectors that affect the global system as a whole: population, capital, agriculture, non-renewable resources and pollution. The model bases its predictions on a number of assumptions, complicated feedback processes, and long irregular time lags which, of course, drive the results. Specifically, the simulations indicate that if the present (1970s) production and population growth rates continue, then within 100 years incomes will fall, pollution will rise, starvation will be rampant and the global economy will decline.¹⁰

The model suggests that solutions designed to alleviate specific problems often create unintended consequences due to the interrelationship among all the variables. Immediate population control, ostensibly the key to the solution, leads to increased capital accumulation, which accelerates the depletion of natural resources, which leads to the collapse of industrial production. Increased food production wards off starvation in the short run, but leads to further population pressures which cause rapid depletion of natural resources and exacerbate environmental degradation. Economic growth will alleviate population pressures, but causes a tremendous rise in pollution along with the rapid use of finite non-renewable resources. If countries discover new sources of existing natural resources, then economic growth booms causing the new stocks to be consumed more rapidly while population and pollution zoom upward. Development of new energy sources (nuclear for instance) still leads to a virtually uninhabitable polluted world. The only solution, according to the authors, combines draconian population and pollution controls with intense resource conservation and a moratorium on economic growth.¹¹

The Club of Rome report sparked a rash of global modeling designed to test the original findings; the results of these new models ran the spectrum of possibilities depending on the assumptions made by the programmers. The Bariloche Foundation, composed of *dependentistas* from Argentina, claim that the catastrophes predicted in *Limits to Growth* already exist in the Third World. They conclude that before steps are taken to slow economic growth, conserve resources or preserve the

environment, all people must be raised to an adequate standard of living. Their model suggests this can be accomplished in a generation by a radical restructuring of the world's economy and polity: the first world nations must reduce their consumption and give the surplus to the states of the developing world.¹² *Global 2000*, a model commissioned by President Carter in 1980, takes a more conservative stance, but still predicts that in the future: "Despite greater material output the world's people will be poorer in many ways than they are today".¹³ A model that explicitly takes political variables into account (GLOBUS), which previous simulations lack, makes optimistic environmental and economic predictions, although over a shorter time span than examined in *Limits to Growth*.¹⁴

A variety of scholars examine these contradictory findings by taking a global view, but not employing computer models: they too are divided into optimists and pessimists.¹⁵ The optimistic forces see no serious economic, demographic, or environmental problems that cannot be overcome. They accuse the pessimists of non-rigorous (read non-economic) thinking, an ahistorical perspective, and irrational assumptions. The optimists include: Kahn, William Brown and Martel; Simon; Simon and Kahn; and Singer.¹⁶ The pessimists essentially agree with the *Limits to Growth* model and believe the optimists are blind to the reality of finite resources on the planet and tied to the conservative economic belief that growth is always good. They include Lester Brown who was writing on these matter before *Limits to Growth*; Lester Brown's colleagues at Worldwatch Institute who have published the *State of the World* annually since 1985; and Paul and Anne Ehrlich who have published a score of neomalthusian books since the 1960s.¹⁷ This paper suggests that the optimists' assessment of the pessimists remains essentially correct as demonstrated below.

Concepts

*"The subject of 'international relations' is often regarded as an account of rational actors interacting with one another."*¹⁸

"The negative effects of [global] collective goods will generate

[international] conflict".¹⁹

The rational choice model provides the framework to analyze the four issue areas with great rigor and to show that the pessimists overstate the "ecological problem." Rational choice, as an application in international relations, combines facets from several disciplines; but its reliance on methodological individualism helps to make it distinctive. In addition, although logic and applied mathematics contribute to the domain, rational choice borrows heavily from the field of microeconomics and thus shares much of its theoretical reasoning.²⁰ Actors (be they nations, groups, or individuals) have preferences which can be ordered, are transitive and relatively consistent. Actors derive total utility, an overall level of satisfaction, from attaining a certain amount of their preferences; marginal utility measures the amount of additional satisfaction achieved from additional "units" of any single preference. Marginal utility suffers from the law of diminishing returns: as an actor "consumes" more of a preference, the marginal utility tends to decline.²¹

In addition, actors operate as if they were rational in their pursuit of utility maximization, weighing the costs and benefits of particular actions in order to gain an acceptable mix, or "market basket," of preferences. These "market baskets" lie on a curve where the actor is indifferent to his placement at any particular point (there is a marginal rate of substitution for any two preferences), but where he prefers a higher curve to a lower one.²² Restated in global political terms: rational choice assumes that states (or the leaders of states) will act efficiently in order to realize their goals in the face of limited resources. Further, the desirability of those goals is generally not questioned.²³

Described in the microeconomic terms of rational choice, "ecological problems" in world politics are a form of externalities: they are negative byproducts of economic action whose cost are not borne primarily by the producer.²⁴ In a sense they are also negative collective goods (or public "bads"): nonexcludable goods that an individual will receive whether he helps to obtain them or not; ²⁵ or whether he wants them or not, also known as the "forced-rider" problem.²⁶ Thus, using examples from the *Limits*

to Growth mentality, a childless couple suffers from the effects of overpopulation as much as the large family that helped to cause the condition: both experience the food shortages, resource depletion and pollution brought on by excessive growth. These ecological problems result from what Hardin²⁷ calls the "tragedy of the commons." Hardin views many of the world's resources as part of a "global commons": the ocean and atmosphere are jointly supplied non-excludable collective goods. The "tragedy of the commons" occurs when rational individual action in a communal environment leads to societal problems. These actions occur because the private action results in a net gain to the individual since society picks up the "external" costs.

The "ecological problems" in international relations are also often described as "collective action problems" because they require a global group effort by the individual nations to solve them.²⁸ As described by Olson, collective action problems occur because it is not rational for individuals (people or nations) to sacrifice their time or money (resources) to obtain a public good (for example cleaner air or water).²⁹ Each individual seeks his own goals in an efficient manner, frequently disdaining to join a group effort, rationalizing that his actions will have little effect on the larger group. This is logical because, in a large group setting, one individual's action frequently does not affect the group's overall goal attainment. Therefore, large groups will not necessarily organize for concerted action, even when they have a reason to do so. Even when large groups do form, they provide collective goods only when they can bring coercion or positive inducements to bear on their members; even then the good is supplied at sub-optimal levels.³⁰

If a large group does form and take collective action, small members of a group will exploit the larger members: a smaller member gets his fill of a good quicker than a larger member, and thus loses incentive to produce anymore, leaving the large members to do the work.³¹ This is frequently referred to as the "free rider" problem, since in essence, the small members profit from the work of the larger members. In its extreme form, everyone chooses to be a "free rider" and nothing at all gets done about

a problem. In hierarchal domestic political systems these drawbacks are more easily overcome through legal compulsion; however in the anarchial international environment no simple solution exist. Thus as Nicholson points out, even if scientific agreement existed on what should be done about global environmental degradation, there is no international political mechanism to carry it out: rational individual nations have no incentive to voluntarily contribute to a group effort when they will benefit from the cleaner environment whether they help or not.³² This study examines potential solutions to global ecological collective action problems after determining their actual severity.

Population in Perspective

"No technical solution can rescue us from the misery of overpopulation. Freedom to breed will ruin us all".³³

"Every species of animal naturally multiplies in proportion to the means of their subsistence, and no species can ever multiply beyond it".³⁴

There is a temptation to let Adam Smith's unalterable logic (above) speak for itself and move on. If societies cannot grow beyond their capability to support themselves, then there is, a priori, no population problem. However, Garret Hardin's outlook (above) is quite prevalent and so cannot be ignored. Hardin actually agrees with Smith in principle; it is the existence of a welfare state that allows any group "that adopts overbreeding as a policy to secure its own aggrandizement" to escape the "punishment of overbreeding" that worries him. The welfare mentality, combined with the belief that "everyone has an equal right to the commons," causes Hardin to view "the freedom to breed" as intolerable and leads him to suggest "mutual coercion, mutually agreed upon" to limit it.³⁵ Hardingoes further by advocating "lifeboat ethics." He argues that international food banks are a type of global commons that should not be set up since they only encourage irresponsible breeding. By limiting food banks, poor countries' "population growth would be periodically checked by crop failures and famines".³⁶

Suffice to say that Hardin accurately assesses the *potential* for tragedy on the global commons (especially in the area

of pollution); however, the following sections show that he generally overstates the problems. More importantly, for a logical thinker, he shows little faith in the likely rational behavior of a polity faced with a serious population crisis. Given that international welfare is a result of collective action, welfare will always be provided at suboptimal limits. This suppresses the externalities associated with improvident fecundity. Ultimately, if resources become scarce, those nations, families, or classes that overbreed in relation to their ability to sustain themselves will face the consequences of their actions. The fact that thousands starve to death every year in impoverished nations provides graphic proof of this line of reasoning. Thus Hardin's pleas to advanced nations to provide less collective action in the form of food banks for developing ones are akin to preaching to the converted: they make the preacher feel useful, but have little effect on the flock.

Further examination of the population question acts to put it in perspective. First, the numbers that are customarily given in discussions on the population "explosion" are given. Next, it is shown that these figures are misleading and that historically, over the millennia, Adam Smith is quite correct. After that, the paper discusses "demographic transition theory" to point out that continued growth is not inevitable; in fact decline is quite likely over time as economic growth and education rise. The section concludes by examining the notion that people are the ultimate resource, and that even if growth continued unabated, it would have a net positive impact on the world.

Population grows exponentially. If net growth is a seemingly low 2 percent a year, then the "Rule of 72" indicates that the doubling time for a population is only 36 years.³⁷ Graph 1 reveals that it was not until sometime in the 1800s that total world population reached one billion. In the span of 100 years a second billion was added and by the mid 1900s (a span of about 30 years) a third billion. Presently there are over five billion people on the planet with 6 billion expected by the year 2000. Although the rate of population growth peaked in the mid 1960s, the momentum already established means that absolute growth will not halt until the end of the 21st

century. United Nations' estimates on total numbers vary according to estimates of when fertility rates reach replacement level (2.1 percent growth). The median estimate of 2035 would result in 10.2 billion people total by the 21st century; a 20 year delay means 2.8 billion more, and replacement level by 2015 means 2.2 billion less. The difference between the high and low estimate is equal to today's population: 5 billion.³⁸

Clearly, Graph 1 shows a steep, seemingly unprecedented, growth in population; however, this is misleading. The arithmetic population curve potted in Graph 1 is deceptive because it suggests that population figures remained close to the baseline for an indefinite period into the remote past and surged only in the past 200 years in response to the scientific-industrial revolution. Graph 2, plotted logarithmically to capture the huge span of time and large variations in numbers of people, shows that in fact, the growth spurts in world population are not unprecedented.

Deevey, an anthropologist, points out that the population curve has moved upwards in a stepwise fashion in response to the three major cultural revolutions in world history. The tool-making revolution, that occurred 500,000 to 1,000,000 years ago, allowed hunter-gatherers to multiply and thrive in a wide range of environments outside of the tropics, reaching a density of .04 people per square kilometer (km^2). The agricultural revolution, that began 16,000 years ago, saw the domestication of plants and animals which provided unprecedented amounts of food to Neolithic man; in response, population truly exploded: multiplying 100 times in less than 8000 years, reaching a population density of 1 person km^2 . The scientific-industrial revolution, that started only 200 - 300 years ago, brought improved sanitation and medical treatment, the Voyages of Discovery, and food production at previously unimaginable levels. This resulted in drastically reduced mortality rates, record life spans, and a present population density of 16.4 people km^2 .³⁹

Deevey points out that the curve portrays the release of population restraints at three different epochs in history; more importantly, he notes that during the two interrevolutionary periods, population approached an equilibrium.

Thus he argues that this latest increase will also level off when the limitations set in on the scientific-industrial revolution. He concludes that two types of restraints operate to check population size. The environment (space, food, and resources) sets the upper limit, but this limit can be raised at times through man's ingenuity. Populations also limit their own rates of increase through disease, war, and voluntary birth control. In particular, even if environmental conditions allowed infinite growth, when humans feel physically overcrowded, they will, like other animals, decrease their birth rate.⁴⁰ Deevey's work clearly supports Adam Smith's rational belief in natural, but expandable, population limits.

The changes in population for nations undergoing modern economic development are frequently described with the "Demographic Transition Model."⁴¹ In stage 1, pre-industrial times, population growth rates were low, with birth and death rates fairly steady, fluctuating occasionally due to environmental circumstances like disease and famine. In stage 2, coinciding with the scientific-industrial revolution of the nineteenth century, birth rates remained fairly steady but mortality rates declined dramatically. This led to enormous increases in net growth, followed by continued steady high growth as the death rate leveled off again at much lower levels. Eventually, the natality rate started to fall and growth rates actually tailed off. In stage 3, the middle of the twentieth century, birth and death rates converged again, but at a much lower level than before. Dumond points out that a 4th stage is now apparent: declining growth rates due to a fall in natality in response to burgeoning population increases.⁴²

Dumond attributes this to rational individual family choice to reduce the number of children born. With reasoning similar to Gary Becker, he argues that the decision to have offspring is largely an economic one, and has always been so throughout time. He shows that even ancient nomadic-hunting societies always employed some form of voluntary birth control, well below their actual level of fecundity, because overproduction is irrational, and because some unrealized potential must exist in the case of catastrophic decreases in size. In modern

developed nations, even so called welfare states, the majority of families still incur the brunt of the costs in raising their children, and so choose to limit their numbers. Similar choices concerning children are made in agricultural and developing societies, but the costs to their immediate parents are still low: portability and education are generally not factors, children begin work in agriculture at early ages, and general declines in living are spread through out their society.⁴³

Thus the rapidly increasing growth rates in much of the Third World will be slowed voluntarily as those societies develop economically. This self imposed solution has strong ethical appeal, since freedom of choice in procreation is a basic human value. Thus it should not be dependent on "...cost benefit analysis, social utility, governmental magnanimity, or popular opinion"; further, coercive measures should not be employed to limit population unless it can be shown that the right of individual choose will seriously hamper other equally valued rights.⁴⁴

Simon argues that population growth does not by itself threaten other rights, and in fact has a positive effect on the economy and general standard of living. Additional people increase productivity by creating and applying new knowledge. Invention and adoption of technological improvement comes from people; the amount of improvement depends on the number of people available. Growing populations produce bigger markets; this leads to increased specialization in products and services, an increased efficiency in production, and makes profitable many important social investments that would not befeasible on a small scale. Empirical evidence shows that population growth does not have a negative effect on economic growth. Differences in national standards of living, can to a large extent, be accounted for by a combination of a growing healthy workforce and productive political and economic organization that allows new knowledge to be efficiently harnessed.⁴⁵

When a standard Malthusian computer model is adjusted for the increase in productivity due to additional people's incentives and adaptive capabilities, output per worker is shown to be higher for a growing population in the long run. The pessimistic

conclusions about increased population and economic growth, reached by the Limits to Growth model, reflect its unrealistic assumptions concerning finite stocks of resources, both human and natural. No support exists for this view in either logic or statistical evidence. Advanced societies with growing populations have: increased food supply dramatically; discovered new lodes of natural resources and more efficient production means; invented new substitutes; and cleaned the environment significantly in past decades. Future improvements are bounded only by the "imagination and exercise of educated skills" made possible by increases in knowledge; and population growth directly affects the stock of knowledge available.⁴⁶ Thus growing population may be viewed as an asset and not a liability.

Abundant Food Prospects

*The 1970s will see "the ultimate food-population collision" because "Man is not only running out of food, he is also destroying the life support systems of Spaceship Earth."*⁴⁷

*"Neomalthusian prophets will continue to focus on limitations of overall food supply but supply will be more than sufficient to feed the world."*⁴⁸

As Simon notes in the previous section, worldwide, food has been produced in ever greater amounts, at rates that exceed population growth. Thus it should come as no surprise that Ehrlich's prediction for massive global starvation in the 1970s, originally made in the late 1960s, did not come to pass.⁴⁹ By contrast, Tarrant's observation remains right on target: food supplies will be more than sufficient to feed the world, and pessimists (even when they have been proven wrong time and again) will continue to predict that starvation and catastrophe lurk in the coming decades.⁵⁰

This section begins by outlining the Malthusian arguments about food shortages (and solutions to them) and show why they are logically deficient. Next, a historical look at food shows that its production has greatly increased over time due to technological advances. The paper continues by looking at the bright future prospects for further increases. The discussion finishes by pointing out why, in the face of plentiful supplies,

many citizens of the Third World still do not get enough to eat.

"Population, when unchecked, increases in a geometrical ratio. Subsistence only in an arithmetical ratio...I see no way by which man can escape from the weight of this law..."⁵¹ Malthus' logic has a certain intuitive appeal because of its simplicity. And certainly, exponential population growth is possible; although humans have almost always engaged in voluntary practices to keep their numbers well below mathematical doubling times.⁵² However, his second premise is absolutely false. It fails to take into account man's inventiveness, or from an economic point of view, the critical role of human capital, in bettering the human condition. Malthus, an economist, writing in the birthplace of the industrial revolution, England, 22 years after the publication of the *Wealth of Nations* by Adam Smith and the invention of the steam engine by James Watt, should have known better. And certainly neo-malthusians writing 2 centuries later, with the benefit of historical perspective, should not still predict that population growth invariably outstrips food supplies. But they do.⁵³

Sanderson points out that three waves of pessimism occurred after World War II: the late-1940s and early-1950s; the mid-1960s, and in the early to mid-1970s. In each case temporary shortages in the aftermath of war or several years of drought in major grain producing nations sparked concern.⁵⁴ In the 1970s pessimists also began to blame the "wasteful" indirect consumption of original food energy, through livestock production, for shortages and starvation (over and above the ever popular population explosion explanation). Predictions of prolonged shortage proved to be wrong in each case. In fact, world grain production, increasing at 3 percent annually, has outpaced the population growth rate of about 2 percent for the past 50 years. Even developing nations followed this pattern but at a closer rate: 3 percent grain increases versus 2.5 percent population increases.⁵⁵

Sanderson, goes on to point out that food is a commodity; an abundant commodity, but a commodity nonetheless.⁵⁶ This simple, but undeniable truth, appears to be overlooked by neomalthusians on a regular basis. Like any commodity,

food's availability and price are subject to the laws of supply and demand. A large number of people go hungry in the developing world because they are poor, not because food is in short supply globally. In fact, arguments on "wasteful indirect consumption" notwithstanding, if a ban on feeding grain to animals were passed tomorrow, the major cause of hunger, poverty, would still be unsolved and food would be no more plentiful or cheaper over the long run.

Paradoxically, the US Department of Agriculture, and its constituency, farmers, view the food crisis as one of oversupply. For 24 out of the past 30 years market forces have pushed grain supplies way up and prices down. Thus the government actually tries to suppress production in order to support prices; worrying more about maintaining farm income, in the face of global overproduction, than about food shortages and market forces.⁵⁷ Tarrant notes that brief relative shortages are an inevitable result of the current food production cycle: shortages result in higher prices; the higher prices attract increased planting which leads to over supply which depresses prices; low prices then discourage further expansion of food supplies. The occasional shortages are relative since they do not reflect potential production, only actual production for the following year; thus they "should not produce panic responses."⁵⁸

The domestication of plants and animals during the Neolithic revolution provides an early example of man's ingenuity applied to expanding food production and is widely acknowledged by the scientific community. In modern times, the increases in yields have involved: new farming techniques that allowed expansion of crop land, advances in fertilization and pest control, and, most of all, genetic altering of crops. The development of hybrids, particularly of corn, wheat and rice started the 'green revolution' which traces its origins to US efforts in the early 1900s; it eventually diffused, over the decades, to other parts of the world. For instance, the IR-8 variety of rice (whose development was funded by the Rockefeller Foundation) increased rice yields from 710 pounds per acre to over 10,000 pounds per acre, on average over the 1960s.⁵⁹

Mangelsdorf traces the development of hybrid corn: "one of the most

spectacular developments in applied biology in this century."⁶⁰ He notes that incredible increases in corn yield came about by the alteration of a single chromosome in the corn plant which lowered the ear down the stalk; akin to "moving the engine of a primitive airplane from a position behind the wings to one in front of them."⁶¹ This change resulted in a stalk which had greater capacity to support large ears, an ear more likely to bear only female flowers which in turn develop the kernels, and a husk that more completely encloses the ear so that it cannot disperse its seeds. The biological advantages make corn potentially more productive than other cereals: for instance maximum wheat yields in the 1950s were 100 bushels an acre compared to 300 for corn. It comes as no surprise that in the decade after the introduction of the first hybrid corn in the US, in 1928, acreage of corn under cultivation went from 40,000 acres to 24,000,000.⁶²

Jensen traces the increase in wheat yields to explore the impact of technology on agriculture and to examine the carrying capacity of the land. He follows wheat production in New York state which has an unfavorable environment to wheat cultivation. He finds that from 1866 to 1935 gains in wheat yield were quite modest: only 3 bushels per acre total over 70 years. However, the decades after 1935 showed large increases: 5 bushels per acre per decade. These dramatic increases can be attributed to the introduction of the first commercially released hybrid wheat in 1920. The lag time between the introduction and the results demonstrates the farmers rational reluctance to adopt a new technology until after they have seen the results. Ironically, Jensen hypothesizes that a yield ceiling is approaching and that the "Malthusian divergence between food production and people production rates will widen." However, Jensen admits that he is "aware that the favorable data on wheat productivity I presented for New York through the 1970s do not support my gloomy conclusions and prognosis for the future."⁶³

Jensen's response is typical of neo-malthusian thinking; it focuses on potential yield ceilings *given existing technology*, and ignores future development. Actually, the prospects for increasing food supplies are better than

at any time previous in the world's history. Areas with potential to increase food production include agricultural acreage, crop yields, and currently suppressed production. Although area for agricultural production obviously must be limited by physical geography and climate, the maximums have not been reached. Arable land increased 7 percent from 1285 hectares in 1968 to 1376 hectares in 1984. Within this range, cereal harvested area rose during the 1970s by 51 million hectares, but by 1987 had returned to 1968 levels of 706 million hectares. Notwithstanding the marginal quality of this land (since rational farmers use the most fertile ground first) there is still a huge amount of land that could be brought under cultivation if needed.⁶⁴

Despite Jensen's prognosis, and the certitude of diminishing marginal returns, crop yields will continue to improve in the foreseeable future.⁶⁵ In the developed world, biotechnology has only just begun to increase yields. Considering that 20 percent to 40 percent of world food production is lost each year to pests and disease, biotechnology promises to create plants that resist these yield suppressors. In addition, work continues on engineering new types of crops that can survive drought, salinity, frost, and even viral infection.⁶⁶ In the developing world, yields, although improving for decades, are still far below those of the First World; thus they have plenty of room to expand before hitting a hypothetical "yield ceiling." Further, plenty of production remains unrealized in the developed nations in the form of intentionally suppressed potential. In the United States, Canada and Europe, this constitutes a "hidden" grain reserve of up to 20 percent of total production.⁶⁷ Total food supply will be adequate to feed the world, but "the real problems of hunger and starvation have little to do with the supply of food."⁶⁸

Mainly, people starve in the Third World because they cannot afford to buy food, their countries are involved in destructive wars, or their governments pursue policies that either intentionally or unintentionally, cut off their food supply. Some estimates indicate that over one billion people in the Lesser Developed Countries (LDCs) live in poverty and so cannot buy adequate supplies of food.⁶⁹ War has been

particularly hard on the people of the Sahel in North Africa. Combined with drought, war in Sub-Saharan Africa caused a famine that resulted in the deaths of tens of thousands of people and slow starvation for millions more. In Ethiopia and the Sudan, governments used food as a weapon of control over their citizens. The UN High Commissioner for Refugees sums this situation up: "He who controls the roads controls the food. He who controls the food controls the people." These factors combined to make Africa the only major region where population (2.8 percent) grew faster than food production (1.8 percent) over the last two decades.⁷⁰

Many African governments also promote policies favorable to food importation at the expense of domestic production in order to prevent civil strife and to stay in power. However these policies reduce the incentives for native farmers to produce food in the long run.⁷¹ Centrally planned economies negatively affect food production as well, regardless of the level of development. But, since they also inhibit wealth production, they create double damage for LDCs. Graph 3 shows that yield rates for centrally planned economies significantly underperformed those of both developed and developing nations.⁷² Further, Communist countries that have switched to market based approaches have drastically increased food production. China in the late 1970s and Vietnam in the late 1980s experienced large gains in agricultural productivity by unleashing market incentives.⁷³

In summary, food production will continue to outpace population growth as yield efficiencies improve; further, arable land and production potential can always be brought out of reserve. Therefore, starvation has little to do with population growth, and quite a bit to do with poverty, war, and government policy. Thus solutions to the food "crisis" should involve economic development, peaceful resolution of political differences and policies that encourage adequate food production by and distribution to the people that are starving.

Plentiful Natural Resources

"On the basis of current ratios of production to known reserves, oil will last only until about the year 2035."⁷⁴

"...we now know that for resource after

resource, estimates of known reserves in the 1950s proved by 1970s to be drastically low."⁷⁵

One complaint about the increasing rates of food production just discussed is the increasing amounts of energy used in modern agriculture; the Limits to Growth model suggests that this contributes to the inevitable, rapid disappearance of nonrenewable natural resources. Unfortunately for the pessimists (and fortunately for the world) they have gotten it only half right once again: energy use has gone up substantially, but the world is not running out of natural resources; especially energy resources. As the two quotes above suggest: people are always claiming that some resource is about to be used up, and they invariably turn out to be wrong. Graph 4 shows that indeed, energy input to the food system has gone up dramatically since the widespread introduction of hybrids in the 1930s. But, graph 5 shows that labor use on farms has gone down just as dramatically over the same span of time as other energy inputs replace human capital. This reflects remarkable gains in agricultural efficiency that allow less farmers to feed more people; a phenomenon most rational people would consider to be quite positive.

This section begins by covering the basic economic principles underscoring natural resources and their conservation, emphasizing why, theoretically, man will never "run out" of needed resources. Next, this research indicates that, historically, energy "crises" are nothing new, and have always been solved by market forces and ingenuity. The paper continues by showing that estimates of "known" energy reserves in this century have always been low, and discussing why rational producers constantly underpredict. This part concludes by discussing some of the problems associated with energy resources (none of which have to do with "running out") and by examining future energy prospects.

The most basic tenet of economic theory is that man must choose between alternative uses of goods because they are scarce. Resource pessimists (generally from the natural sciences) generally grasp the concept of scarcity, but they do not define it correctly; further, they frequently overlook the usage part

of the equation. When conservationists talk of the scarcity, they focus on the finite stock, that by definition ultimately exists, for all non-renewable resources; each additional person born takes the world ever closer to depletion. However, from a rational, economic standpoint: "The only meaningful measure of scarcity, barring emergency or wartime need, is the economic cost of the good."⁷⁶ And by that measure, the cost of almost every natural resource has gone down throughout history; "including the proportions of our incomes spent for energy."⁷⁷ Therefore, in economic terms, *the Earth's resources seem to be becoming more plentiful over time, even in the face of burgeoning population.*

Julian Simon (an economist from the optimistic school) made this point clear when he bet Paul Ehrlich (a biologist from the pessimistic school) in 1980, that by 1990, the price of any five metals that Ehrlich chose would decrease. Ehrlich sent Simon a check for \$1,000 in 1990.⁷⁸

As to the usage of resources, many conservationists take the position of Gifford Pinchot, the father of the modern conservation movement: "Conservation means the greatest good of the greatest number, and that for the longest time."⁷⁹ Thus to conserve energy, means to postpone the use of energy resources to some time in the future; but to conserve the supply of oil for the "longest time" would logically, in the extreme, result in never using them at all; it is unclear how this result would provide the greatest good to anyone.⁸⁰ Clearly, then, choices must be made as to the temporal distribution of non-renewable resources. These choices can best be made utilizing an economic definition of conservation: the allocation of scarce resources among competing and alternative uses that takes into account future and current satisfaction of wants, and where the goal of resource allocation should be the maximization of those wants.⁸¹

This can be depicted by a production possibility curve (shown in Graph 6) where a trade off exists between future and present allocation. Society can choose to reduce current consumption for more future consumption, but it must take into account that value of resources in the future is always worth less than the present value. This reflects the logical positive time preference for money that

exists for most individuals. From an economic standpoint, society must avoid the misallocation of capital stocks since this leads to economic waste. When the present value of a resource today is greater than the present value of a resource in the future, subject to a discount factor, than more of the resource should be used now. Mathematically the discount factor "d" equals $1 / (1+i)^n$; where "i" equals the interest rate and "n" is the number of time periods that resource usage is being deferred into the future.⁸² But as McDonald points out, a free, competitive market and price system assures the efficient allocation of resources much more than having economists, bureaucrats, and politicians resort to the actual computations.⁸³

By focusing on and fretting over the finite nature of any single resource, the neo-malthusians ignore a fundamental lesson of economic history as well: few resources are ever indispensable or irreplaceable over time. The basic laws of supply and demand help explain this phenomena. If a fund resource begins to deplete, its price goes up which depresses demand. This is surely a most cost effective conservation method. The higher price and lower demand also gives incentives to producers to recover previously cost prohibitive stocks and to come up with more efficient production methods in order to maintain profit margins. The higher prices and potential expansion for demand also drive competitors to invent new substitutes to replace the old resource. As Simon succinctly puts it: "the only constraint upon our capacity to enjoy unlimited raw materials at an acceptable price is knowledge."⁸⁴

Apocalyptic prophets that claim depletion of fossil fuels will doom civilization show their ignorance of world history; for nowhere is man's innovative capacity more apparent than in his ability to find alternative sources of energy whenever existing ones dwindled. Hardy points out that the first energy shortage occurred during Paleolithic times when the scarcity of food animals precipitated the Neolithic revolution. Later, ancient Romans met their energy crisis - a manpower shortage - by developing water power. Although the technology had been around for many centuries, Rome had stayed with manpower while labor was in plentiful supply; partly because it

was cheap and partly because they feared that new technology would cause civil unrest by throwing the poor out of work. But when population plummeted in the 4th century, manpower became scarce and costly, spurring the Romans into a spurt of technological creativity: building dams, aqueducts, and water powered mills.⁸⁵

In the 1600s, a timber shortage in England, laid the foundation for the Industrial Revolution. Throughout the Renaissance, wood was the most used natural resource: wood supplied the energy and raw material for almost all building, heating, and manufacturing. As population grew, wood became scarce and by the mid-1600s, its price rose between 5 and 8 times what it had been just 5 decades earlier. Slowly, coal, which was cheap and plentiful in comparison, replaced timber. The switch to coal promoted myriad discoveries and innovations. Inexpensive, hot burning coal allowed high quality efficient iron and steel production. The need for pumps to keep mine shafts free of water led to the discovery of the steam powered "miner's friend." The cost of overland transportation spurred the colliers to build wooden rails to the sea ports on which to send horse drawn wagons. The combination of steam, iron, and coal came together in the form of steam locomotives that replaced the horse drawn wooden wagons by the 19th century. As Hardy notes, there is reason for optimism if in fact a true energy crisis is looming since: "the historical shortages of (power) proved to be beneficial in the long run."⁸⁶

However, in all likelihood, modern society is not going to face a sustained energy crisis any time soon. Predictions of severe energy shortages have appeared throughout the century, and yet, as noted earlier, real prices for energy supplies have fallen over the decades. For instance, at the turn of the century, Governor Pinchot predicted that coal would be gone within 50 years.⁸⁷ Ironically, present coal forecasts predict adequate reserves to last for over 200 years, far longer than natural gas (60 years) or oil (45 years).⁸⁸ Ray shows that in almost every decade in the last 100 years, a US government agency has under-predicted the amounts of oil that actually became available.⁸⁹ Underestimation of reserves happens with

such regularity because it is rational for the suppliers of the data (the companies that wish to recover the resources) to do so: if the suppliers cannot sell the reserves for several decades they have little economic incentive to look for additional sources; also, if known reserves seem in oversupply, the price of the resource invariably goes down.⁹⁰

This is not to say that OPEC cannot, on occasion, successfully limit oil production and raise prices. In fact, given US dependence on foreign oil,⁹¹ this is a far more likely "energy crisis" than totally depleting a resource. However, even in this scenario there is room for optimism thanks to market forces and rational consumer responses to them. Monopoly, or oligopoly, production of a natural resources encourages conservation. This is because single sellers can charge higher prices than they could in the face of competition and thus establish output at below the market clearing level. Therefore, monopoly pricing provides a social good by reducing resource use.⁹²

For example in the aftermath of the oil embargoes of 1973 and 1980, the United States cut its oil consumption significantly and in many cases structurally, as did much of the industrial world. Graph 7 shows that for First World between 1960 and 1973 every 1 percentage increase in energy consumption correlated perfectly with GNP growth. Since the 1973 Oil Shock however, energy intensity as a function of economic development has gone down significantly.⁹³ Note, also that these conservation moves forced the OPEC nations to drop their prices. Except for these occasional inconvenient cut offs in supply, economic theory and history both support an optimistic view of abundant future resources. This is true for energy supplies especially, even in the distant future when fossil fuels really do wane.

Persistent Pollution Problems

"In a reverse way the tragedy of the commons reappears in problems of pollution."⁹⁴

"Problems of pollution and the environment are not new, though the widespread concern is."⁹⁵

Many neo-Malthusians have acknowledged that the exhaustion of natural resources is unlikely; instead,

they now worry about the "damage that their extraction and processing impose on the environment."⁹⁶ And, unlike the alleged ecological "problems" discussed in previous sections, pollution really does present serious challenges to the world. However, pessimists, as becomes their usual style, do tend to overstate the extent of the pollution problem. In this section then, the main goal is to provide perspective; not to show that the problem does not exist. This portion starts with an overview of the problem and explains the "rationality of pollution." Next the main areas of concern are covered in a general way and the problem of global warming is discussed in more detail. This part concludes by taking a historical look at the problem and then, briefly, at future prospects. The last section of the paper is devoted to methods of overcoming the barriers to international cooperation that keep nations from acting effectively on the pollution problem (and of course on many other shared concerns).

Meadows points out that pollution, at least in the areas that have been measured, seem to be growing exponentially and at faster rates than population growth. Further, although she acknowledges that there is a growth curve, implying that it will level off at some point, no one knows at what level this will occur.⁹⁷ In addition, since the ultimate effects of pollution are lagged until some time after they occur, nations are likely to underestimate the problem. Finally, many forms of pollution spread around the globe far away from their point of creation. These last two points helps explain why rational nations have allowed pollution to become a problem. First because the seriousness of the effects are spread over time they are not recognized. Second, as Hardin notes above, many pollution problems result from the tragedy of the commons.⁹⁸ Since the costs of pollution are spread over many nations, it is an externality. Therefore, nations that produce disproportionate shares, whether from consumption in advanced nations or from development efforts in LDCs, have incentive to continue since they achieve a marginal net gain in the form of subsidized economic activity (the underlying cause of most forms of environmental degradation).

Goudie describes several of the

pressing problems that the world faces in the coming decade, and in the next century. Stratospheric ozone depletion threatens to create larger "ozone holes" than the ones currently over Antarctica which could result in an increase in levels of harmful radiation. Although steps have been taken to reduce the amount of chlorofluorocarbons (CFCs) (thought to contribute to ozone depletion) released in the atmosphere this problem still bears watching to see if such efforts are doing any good. The seas and oceans have become dumping grounds for many of the waste and toxins of the world. Forest die-back has occurred in North America and Europe; many biologists attribute the phenomenon to acid rain. In the tropical climates, deforestation continues at an alarming rate threatening to destroy the habitat of many species of plants and animals and eventually the species themselves.⁹⁹ In a similar vein, Meyers claims that between the years 1600 and 1900 humans accounted for the loss of 1 species every 4 years and had accelerated to 1 per day in 1979; he predicts that the pace could accelerate to 1 per hour by century's end.¹⁰⁰ Finally, as many authors note, potentially, the most serious problem is global warming.

Global warming implies just that: the temperature of the Earth is rising and will rise to unacceptable levels. Theory holds that increasing concentrations of carbon dioxide, methane, and nitrous oxide in the atmosphere are acting like the roof of a green house: they allow the sun's energy in, but then trap the heat that would otherwise escape back into space.¹⁰¹ The major producer of these greenhouse gasses is the developed world, although the LDCs are accounting for a greater relative share over time as they attempt to advance economically. The main direct sources of the gasses include: burning of fossil fuels for energy production, transportation, and manufacturing; the release of methane from cattle ranching (bovine flatulence) and rice paddies; and deforestation which removes the plants and trees that normally remove carbon dioxide from the atmosphere and turn it into oxygen. The theory underlying global warming is generally accepted even if the actual effects of rising concentrations of gas are in dispute.¹⁰²

In the worst scenario, as the greenhouse gasses accumulate in the

upper atmosphere, the temperature will rise by 3-5 degrees Celsius. This causes the melting of polar ice caps, which raise the sea level around the world and results in the flooding of much coastal land. In addition changing weather patterns might result in more droughts, dust storms and hurricanes.¹⁰³

However, not all scientists agree that temperature will rise, and even if they did, the failures of past predictions by neo-Malthusian scientists makes it appropriate to maintain some skepticism. As a point of perspective, consider the following passage written by respected paleo-climatologist J. D. Hays in 1972 who, along with many others, predicted a new Ice Age descending on the planet within a century:

*"The suspicions that winters simply are getting colder is no longer a suspicion among climatologists. Over the last 30 years permanent snow on Baffin island has expanded. Pack ice around Iceland in the winter is increasing and becoming a hazard to navigation. Warm loving armadillos that migrated northward in the Midwest in the first half of this century are now retreating southward to Texas and Oklahoma."*¹⁰⁴

Clearly there is a tendency for people in general (and for scientists whose fields and reputations gain short term notoriety) to look at short term trends and extrapolate them. This occurred in the 1980s as dire headlines appeared in major magazines warning of the hottest temperatures on record which included quotes from scientists claiming this as support for their version of the global warming hypothesis. As Ray notes however, these short term trends are often in dispute. First of all, the National Climatic Data center released a report in 1989 that found no significant trends in temperature or rainfall for the United States in the past 100 years. Further, while the United States experienced several summers of near record heat, many areas around the world experienced unseasonably cool weather. Indeed several scientists have made the point that the Earth still could be undergoing a period of major cooling. Natural phenomenon, especially volcanic eruptions, have in the past produced cycles of cooling, when their smoke and soot acted like a curtain over the greenhouse; some see this trend at work

today. Other scientists accept the premise that carbon dioxide is building up in the atmosphere, but that this too will result in a cooling trend. As heat builds up at first, more moisture is withdrawn from the oceans, which results in more clouds and rain, which have a net cooling effect.¹⁰⁵

Caveats can be made for many of the other problems as well. Bettman makes the point (much as Nicholson does) that the United States has experienced pollution throughout its history; and, in many ways, is much cleaner than it used to be.¹⁰⁶ This shows that development and economic well being are not always causes of ecological destruction, rather they often provide the means to improve the environment. As for species loss, anthropologists note that only a small fraction of species inhabit the Earth today compared to the span of geologic time; pointing out that extinction was at work long before man entered the picture. As for deforestation, Ray points out that it is not an irreversible process. In the United States, by 1920, there had been a 35 percent decline in the number of trees covering the country since the time that the first settlers arrived. But since then, due to intensive reforestation programs, there has been a 20 percent increase in the number of trees.¹⁰⁷ (It should be noted that much of this new growth comes from the private timber industry; a industry much maligned by some extremist "stop the world I want to take a snapshot" environmentalists).

To reiterate the main point of this section, global environmental pollution problems do exist, but the extent of these difficulties is often overstated. The same may be said of population growth, food production, and natural resource depletion: although neo-malthusians are even more apt to exaggerate the scope and misrepresent the true nature of these problems. However, the fact remains that some global ecological challenges do exist, and to alleviate them, barriers to international collective action must be overcome. To effectively address global problems of an ecological nature, and those pertaining to security and economics as well, it is necessary to find ways to encourage international cooperation. That is the focus of the final section.

International Cooperation

"If the leading power does not lead, the others cannot follow."¹⁰⁸

Up to now, this paper has used the term "global collection action problems" almost exclusively to describe ecological challenges facing the world. However, they are of course, just a subset of a more wide spread discipline: international cooperation. This section uses rational choice to look at four different approaches to solving ecological (and other types of) international cooperation problems: eliminate the need for cooperation; set up institutions to foster cooperation; engage in a cooperative-reciprocal strategy to elicit cooperation; and, act unilaterally to manage world affairs.

The first strategy is eliminate the need for cooperation. This is particularly appropriate for certain "global commons" problems. The crux of these difficulties is that the good in question is collectively owned and therefore it is rational for individuals to use as much of the resource as they can, to the detriment of society.¹⁰⁹ To the extent that the commons can be privatized, market forces will be brought to bear on resources, which ensures their efficient use without the need for further international cooperation.¹¹⁰ The UN Law of the Sea Conference employed this strategy to great success when coastal states gained exclusive right to 200 mile economic zones off their water borders.¹¹¹ Even though the resource is now owned by separate nations (groups), the structure of the hierarchal domestic political system in states allows them to handle collective allocation problems with a minimum of waste and externalities.¹¹² Of course the limitation of this strategy is that it is only appropriate for a small selection of problems and generally requires a modicum of cooperation to get it established in the first place.

The neo-liberal institutionalists (NLI) believe that through the creation of institutions, cooperation can be fostered between nations. Different organizations, regimes, and conventions act as incentives for state cooperation by reducing the costs of collaboration, standardizing expected rules, providing regular channels for communication and giving some measure of protection against defection. Formal institutions like the UN do, on occasion, solicit

cooperation, as in the privatization of a portion of the ocean's resource. Regimes, such as the one set up by the START treaties, can help solidify arms control agreements, and even, through their verification process, overcome some fears of defection by the opponent. And conventions, in the form of expected international behavior like reciprocity or diplomatic immunity for instance, do lower information costs.¹¹³

However, NLI theorists generally overestimate the power of institutions, neglecting that they are only as strong as their most powerful member state wants them to be. Although the UN was able to establish a private 200 mile sea zone, they were unable to create an international authority to manage the resources of the ocean floor. The developed nations, with the United States leading the pack, desired private control of the resources. The LDCs, who would not be able to compete in a private situation, encouraged the formation of a supranational authority to manage the sea beds. The UN took the LDCs' views, and thus the US refused to sign a global treaty on the issue.¹¹⁴ More importantly, NLI theorists fixate on the absolute gains of a transaction and the ability of institutions to monitor agreements, and thus decrease cheating, as incentives to cooperation. However, rational states in an anarchial environment must focus on relative gains or risk losing ground to its neighbor, or in the worst case, even its sovereignty.¹¹⁵ Since nation-states will continue to dominate the international arena into the foreseeable future, neo-liberal institutionalism has definite limits for fostering cooperation between them.

Goldstein and Freeman note that the three main genres of models (game theory, psychological, and empirical quantitative) all agree that cooperative-reciprocal strategies will elicit cooperation from opponents.¹¹⁶ All three types of models implicitly or explicitly engage the rational choice framework since they assume individual, rational, goal directed behavior. Using iterated computer simulations (which add the "shadow of the future" to previously unrealistic one shot prisoner's dilemma game), Axelrod finds that the simplest strategy, "Tit for Tat", out performs all competing strategies in helping cooperation evolve between nations. On the first move of a game, a player offers

a single cooperative initiative and afterwards copies whatever the opponent does on every move; thus the rational opponent learns that cooperation brings reward and defection brings punishment (akin to a B. F. Skinner behavioral training approach).¹¹⁷ This strategy is rational for the initiator since overcoming initial reluctance to cooperation (and thus realizing goals) requires some nation to be "first" in showing a willingness to cooperate; on the other hand, the reciprocal element acknowledges the need to be strong in the anarchial international environment and not continually risk receiving the "sucker's" payoff.

Osgood and Etzioni bring psychological refinement to the basic approach by suggesting Graduated Reciprocation in Tension Reduction (GRIT) and Progressive GRIT respectively. Both involve some series of repeated cooperative initiatives so that the opponent will not misinterpret a single initiative as an anomaly or a trick: GRIT maintains some level of cooperation for a fixed duration; PGRIT an escalating series starting with safe, low level, symbolic action that grows in importance over time until the stakes make it necessary to employ reciprocal maneuvering. Richardson's famous models of dynamic state behavior include defense (a reciprocal response) and fatigue coefficients, and emphasize the need to create "negative grievances" (modeled as an error term and reflecting cooperative agreement).¹¹⁸

Goldstein and Freeman evaluate the utility of all these model when they design a quasi-experiment to examine the strategic international behavior of the United States, Soviet Union, and China on four elements: policy inertia, bilateral response, triangular response, and the use of policy initiatives. Using events data they discover patterns of cooperative-reciprocal behavior between the three dyads over the post World War II period. There are three periods of great hostility that alternate with periods of relative cooperation. This suggests that nations do on occasion proactively seek to elicit cooperation from their neighbors and that these efforts sometimes yield results: recent prime examples for the US are the period of *Detente* with the Soviets and thawing of relations with China in the early 1970s.¹¹⁹

The variations of the cooperative-

reciprocal strategy provide a guideline for overcoming barriers to cooperation over time, and empirical findings indicate that nations do act on them. Thus they offer some hope for economic cooperation and, to a lesser degree, security concerns. However the empirical evidence also reflects a pessimistic pattern. Goldstein and Freeman's charts indicate that the periods of non-cooperation were severely antagonistic; further absolute positive cooperation appeared very infrequently, and even then at a much lower level relative to the magnitude of hostility it alternated with.¹²⁰ This provides support for the neorealist view of the limits to cooperation (especially in security areas) due to the anarchical system structure of the world. In addition, these strategies do little to overcome problems of collective action and free riding, and thus, by themselves, seem basically inappropriate to solving global ecological challenges.

The best near term solution to many global problems relies on the strongest nation or nations to act unilaterally to manage world affairs whether cooperation from other nations is forthcoming or not.¹²¹ Theoretically, this is the structural realist solution, and from a rational choice standpoint, offers hope since it logically overcomes several notable barriers to cooperation. It differs from basic cooperative-reciprocal strategies in that the unsolicited initiatives it suggests are not taken to specifically gain cooperation. They are specifically taken to solve problems that trouble the acting nation, although the leader's action can be structured (by virtue of positive and negative inducements) to encourage others to follow its example.

By virtue of its size and wealth, the leading nation can afford to look after the system when other nations cannot; further it has rational incentive to do so because it has the largest stake in the system. Because it recognizes the "logic of collective action" the leading state knows that if it does not take steps to solve problems, in all likelihood no other nation will. In addition, free rider problems do not cause undue problems since, comparatively, the largest nation in the present system is so much bigger than the others; thus it can absorb some amount of relative loss without serious threat to its well being and survival. Its

size also gives it leverage to ensure that smaller nations cannot ride totally free if they wish to benefit through trade and security association with the larger state. Further, when there are only several powerful states in the system, they frequently can take concerted action within some broad range of parameters because they are a *small* group, with all the inherent organizational advantages that come with being small.¹²²

A few examples serve to drive home the point. In the most recent Gulf War, Saddam Hussein's invasion of Kuwait threatened the world's oil supply. The United States, under the auspices of the UN, acted, for all intents and purposes, unilaterally to counter the threat with its military might. Further, it was able to solicit a variety of aid in the form of money, supplies and diplomacy to defray a significant portion of the costs (\$54 billion collected left the US paying about \$2 billion.) This incident provides support for Boyers contention that comparative advantage can and should be put to use in the security policies of the Western alliance.¹²³ The United States has also been the leading proponent of the GATT for decades, incurring most of the organizational costs and occasionally, marginal relative losses. The US works for cooperation and free trade because, as the largest economy in the world, it stands to gain quite a bit by doing so, and because it can afford to give relative gains to its partners because the margin of safety provided by its size (and also because defections from economic agreements have relatively low potential costs).

Many critics overstate the free rider problem that exists in NATO; they neglect that the United States rationally chose to absorb most of the costs because it could afford to and, because of its position as world leader, felt most threatened by the dangers from the Soviet Union. In a different issue area, the free rider problem is also overstated. When the United States decides to strengthen its environmental laws, global pollution is cut, at least relatively by a large degree, regardless of the actions of other nations. It is rational for the United States to engage in such action to the extent that the collective "bads" impinge relatively more on its high standard of living compared to the much lower standards of living through out most of the world.

The United States can absorb the cost of pollution control and still economically compete in a world of free riders because it is huge compared to all other nations in the system. In Olson's terms the United States benefits from its jurisdictional integration which gives it a large free trade zone inside its national borders which contributes to its prosperity.¹²⁴

Thus the overall point is that the United States can, should, and probably will take the lead in solving global environmental and other types of problems that it believes are serious enough to affect it. Rational choice theory allows some confidence in this statement. As the largest rational actor in a relatively small group of nations (that is the ones that have the capacity to make a noticeable impact on the system) the United States will almost invariably end up supplying more than its share of the collective ecological good since it has the largest stake in the system; and thus in a clean environment. Indeed Waltz suggests that even if the United States wanted to shed its global responsibilities, it would have a hard time doing so.¹²⁵

This is not a perfect solution: the United States at times may be out step with its neighbors in regards to which problems need attention and the degree to which they need attention. Sometimes it might miss out on a real problem altogether. And of course even with all its resources, the United States cannot solve global problems by itself. It must use skillful bargaining and negotiation, cooperative-reciprocal strategies no doubt, to encourage other nations to follow its lead in order to make greater headway against serious ecological problems. However, with all its faults, this solution is the best because rationally, it is the only one that can really overcome the collective action problems and other severe barriers to cooperation that stand between nations in an anarchical world system.

Conclusion

"There must exist a special neurosis, that should perhaps be given the name "arithmetic fright." It consists of the tendency to induce despondency in oneself through the contemplation of a ratio. The Malthusians are its most apparent victims..."¹²⁶

There is cause for optimism when looking at global ecological challenges through a rational choice perspective. An examination of the four major issue areas that put neo-Malthusians in despair, indicate that: population growth, in and of itself, presents no serious international risk; food supplies will remain sufficient to feed even the largest projected population in the foreseeable future; vital natural resources will continue to be adequately supplied; and pollution, while a significant concern, will not pose an immediate threat to human existence. It is suggested that there are four possible ways to help overcome obstacles to global collective action that impede effectively addressing the worldwide environmental, security, and economic problems that do exist: eliminate the need for cooperation; set up institutions to foster cooperation; engage in a cooperative-reciprocal strategy to elicit cooperation; and, act unilaterally to manage world affairs. Although all of these possibilities have merit in some situations, management of international affairs by the great power (s) in the system provides the best hope for a rational solution to overcoming barriers to international cooperation.

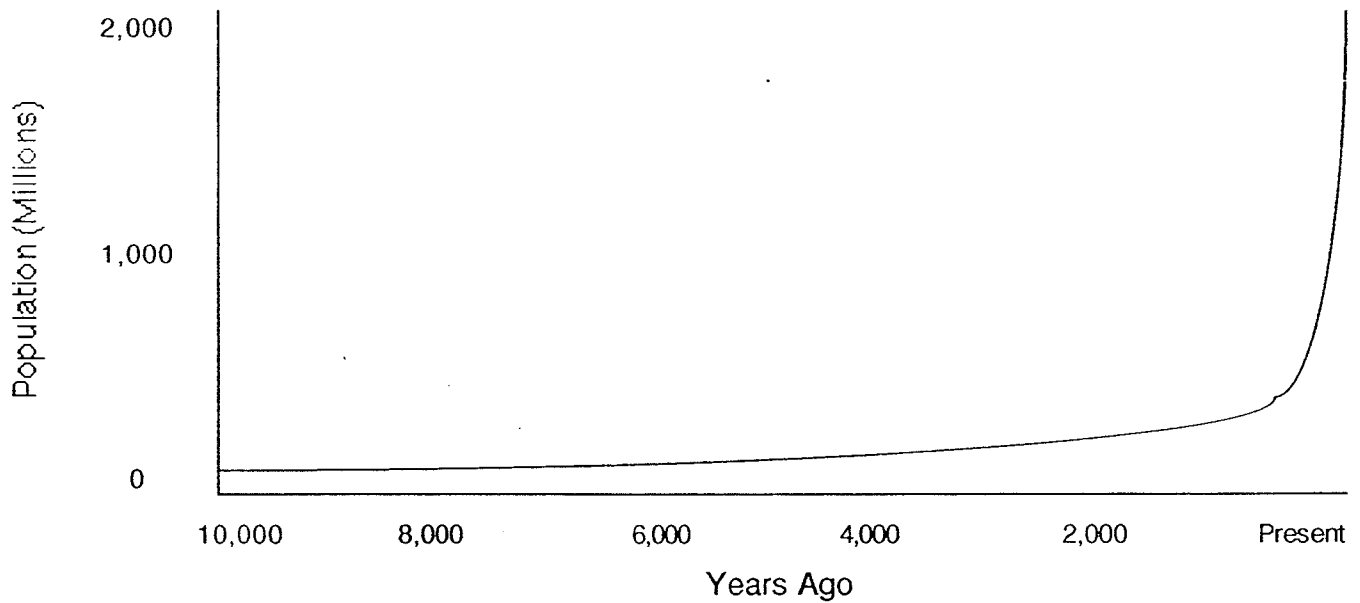
* An earlier version of this paper was presented at the annual meeting of the Florida Political Science Association on April 1, 1995, at Winter Park, Florida. The author wishes to thank Patrick James for his introduction to rational choice in international relations and Lou Woods for providing exposure to the economic view of natural resources. As always, opinions and errors remain the responsibility of the author.

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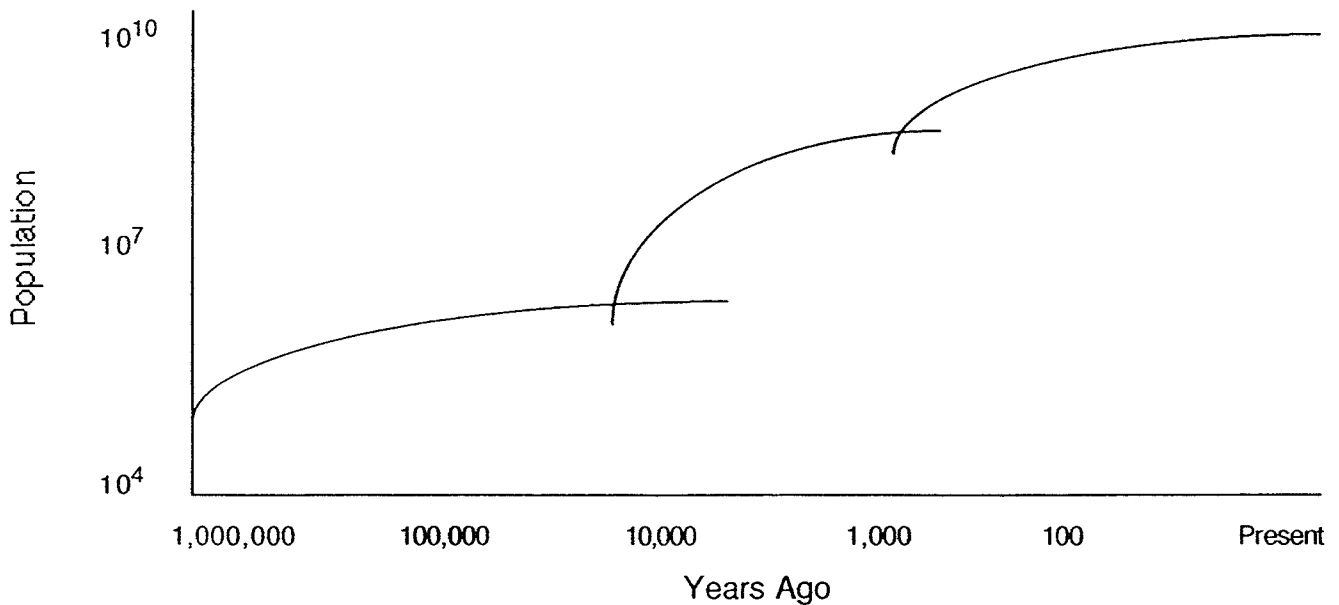
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Graph 1



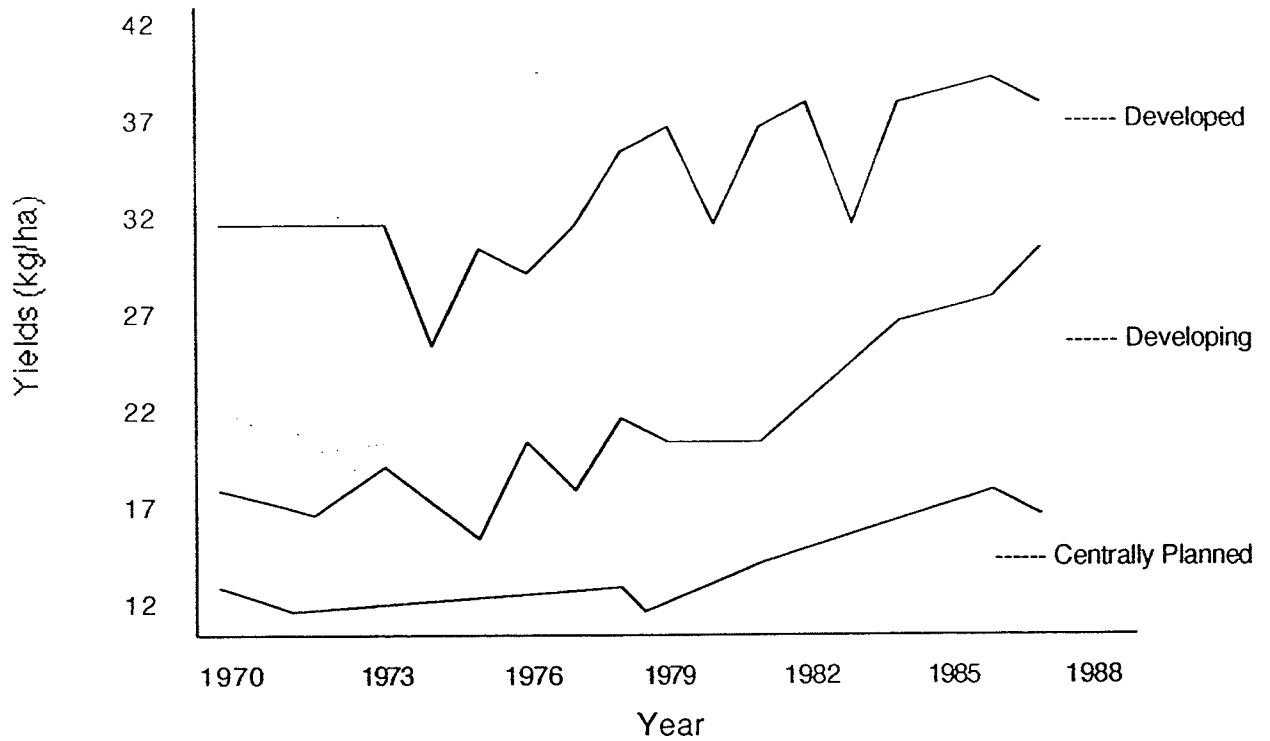
"Arithmetic Population Curve plots the growth of human population from 10,000 years ago to the present. Such a curve suggests that the population figure remained close to the base line for an indefinite period from the remote past to about 500 years ago, and then surged abruptly during the past 500 years as a result of the scientific- industrial revolution" (Deevey 1960:200).

Graph 2



"Logarithmic Population Curve makes it possible to plot, in a small space, the growth of population over a longer period of time and over a wider range (from 10,000 to 10 billion persons). Curve . . . reveals three population surges reflecting tool making or cultural revolution (1,000,000 years ago), agricultural revolution (10,000 years ago) and scientific-industrial revolution (300 years ago)" (Deevey 1960:200).

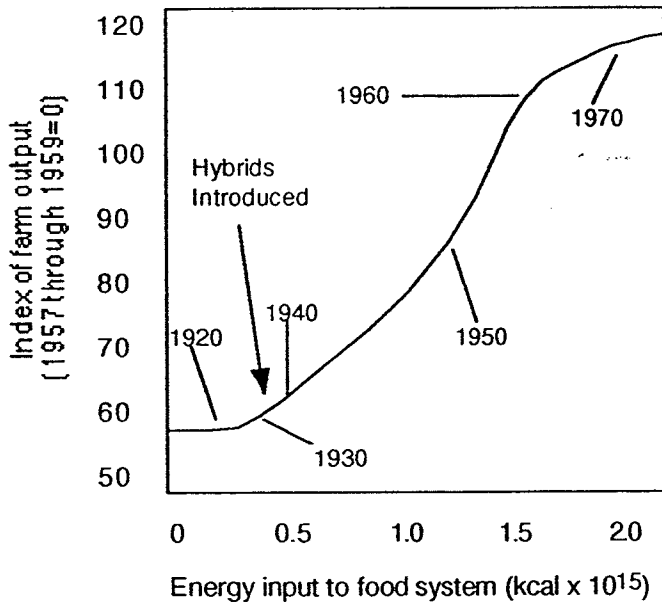
**Graph 3
Crop Yields**



Source: Tarrant 1990:236.

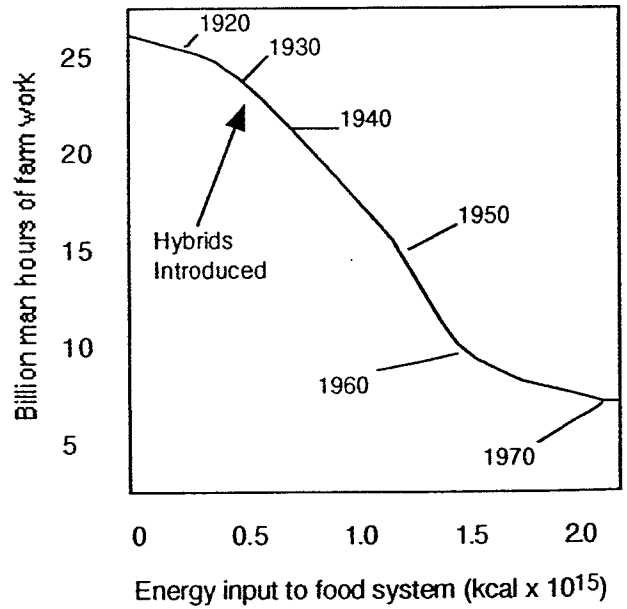
Energy and Food

Graph 4



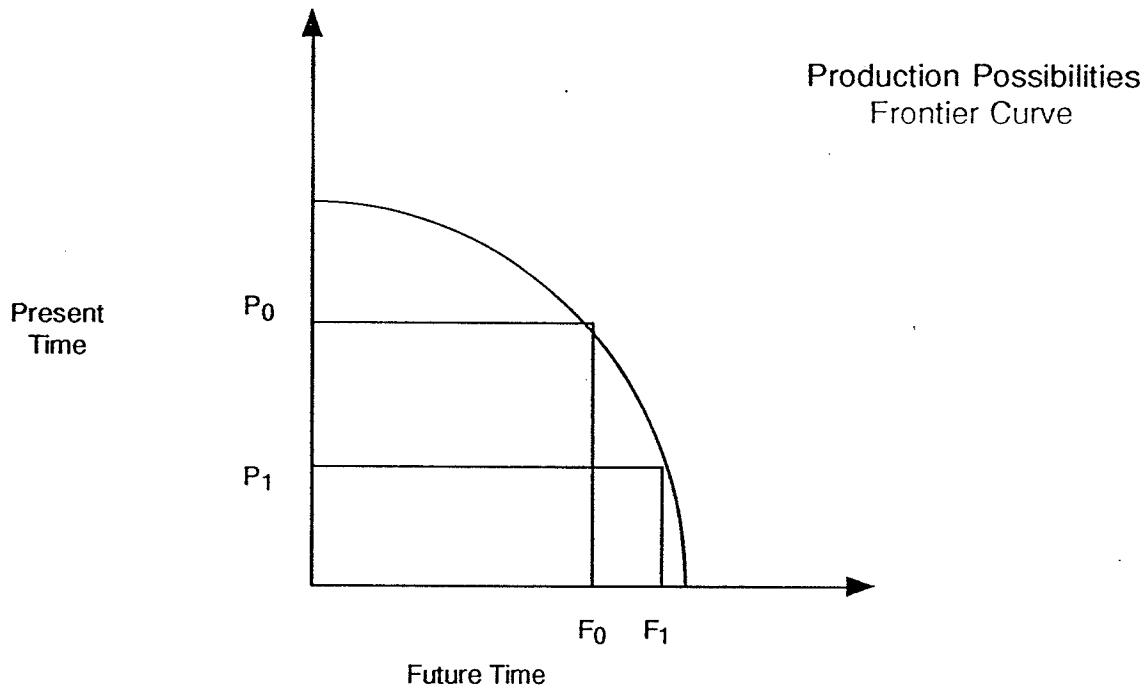
Farm output as a function of energy input to the U.S. food system, 1920 through 1970. (Source: Woods 1991)

Graph 5



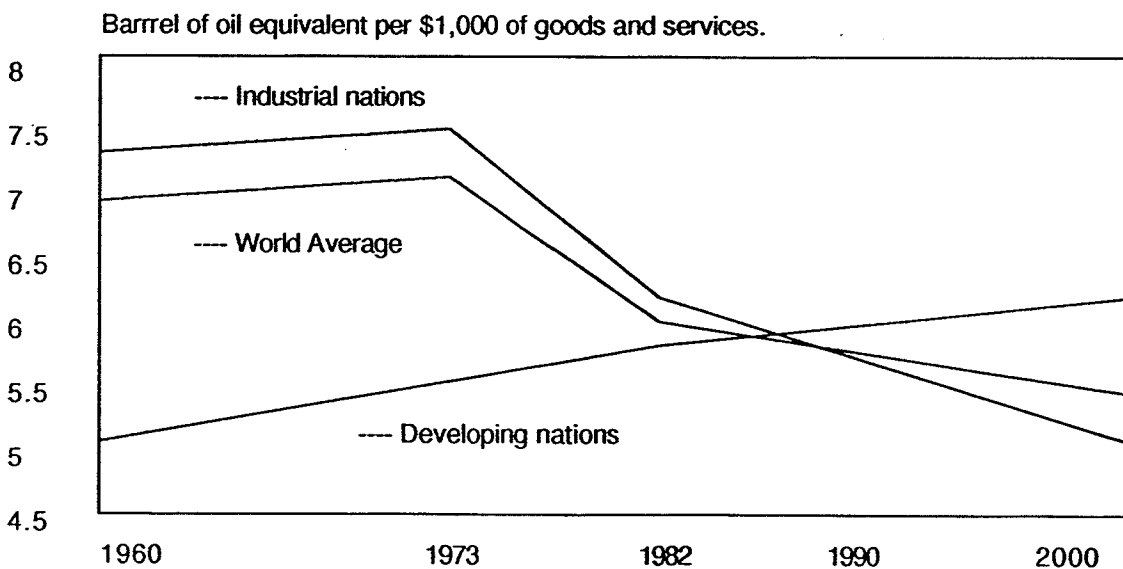
Labor use on US farms as a function of energy use in the food system. (Source: Woods 1991)

Graph 6



Non-Renewable Resource Allocation - A change from P_0 - F_0 to P_1 - F_1 reduces current consumption to gain future consumption. Note that the value of the resource in the future is always less than the present value and must be adjusted with a discount factor (Woods 1991).

Graph 7



Energy Intensity and Economic Development - From 1960 to 1973 a 1% rise in energy usage corresponded to a 1% in GNP growth for industrial nations. After the 1973 Arab oil embargo, energy intensity (the ratio of energy consumption to GNP) declined sharply; the decline moderated somewhat as oil prices fell during the 1980s. Note that developing nations continue to have increases in energy intensity as they modernize (Kegley & Wittkopf 1993:352).

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