
PATRICK JAMES  Florida State University

Energy policy, especially with respect to oil and gas resources, has been a high profile—and perhaps the most contentious—item on the intergovernmental agenda in the past decade. It is one of the most regionally divisive areas of Canadian public policy. . . . Moreover, it was the Trudeau government’s policy on energy, more than other policies, that had perhaps the most deleterious effect on federal-provincial relations in the early part of the 1980s.

Over a decade ago, the federal Liberal government announced one of the most controversial policy initiatives in Canadian history, the National Energy Program (NEP). Although there have been memorable developments in public policy since that time, including the constitutional Meech Lake Accord and the Free Trade Agreement with the United States, the NEP and its aftermath remain interesting to students of Canadian, comparative and even international politics. The federal-provincial bargaining that followed the NEP’s announcement on October 28, 1980 is easily recalled; intense disagreements focussed on economic, partisan and, ultimately, even constitutional issues.

* The author thanks Paul Barker, André Blais, Norman Frohlich, John A. Galbraith, Michael Lusztig, Hudson Meadwell, Eric M. Uslaner, Robert A. Young, the members of the Political Economy Workshop at the University of Western Ontario and the reviewers of this JOURNAL for helpful commentaries. I also thank Robert Michelin for work as a research assistant, Maria Marcheschi for word processing services, and the Social Sciences and Humanities Research Council of Canada for support under grant 410-87-0403.


3 G. Bruce Doern and Glen Toner, *The Politics of Energy: The Development and
While those events have stimulated a wide range of scholarly and journalistic investigations, a prominent shortcoming exists in the scholarship: only two studies use game theory to explain the interaction between governments in the era of the NEP. Uslaner, as part of an authoritative study of energy politics in the US, applied a game-theoretic analysis to Canada's NEP and its aftermath, while James used solution concepts from co-operative game theory to analyze the distribution of economic rents from energy resources to levels of government. Each of these studies, however, focussed on the results, as opposed to the process, of intergovernmental bargaining.

Game theory, sometimes referred to as the science of strategy, analyzes bargaining rigorously. Focussing on strategic interaction and communication, such an approach might illuminate the difficult political processes surrounding the NEP, and place those processes within a wider context. There may be less than obvious reasons behind the pattern of bargaining over the NEP.

There are five stages to the game-theoretic investigation that follows. First, a brief history of the phase of confrontation is provided, with the description focussing on aspects that are essential to the subsequent analysis. Second, the game-theoretic interpretation is presented in general terms, including participants, strategies and potential outcomes. Relevant measurements are derived in the third phase. In the fourth stage, the process of a sequential game is analyzed, in both abstract and operational terms. Fifth, and finally, policy-related implications of the analysis are discussed, along with possible directions for further research.

The NEP: Energy Politics in an Era of Confrontation

The Energy Game (EG), to be described later in strategic terms, spanned the period of intense confrontation involving the governments of Canada (F) and the province of Alberta (A) over resource revenues at the outset of the 1980s. For analytical purposes the EG begins in

Implementation of the NEP (Toronto: Methuen, 1985).


Abstract. Over a decade ago, the federal Liberal government announced one of the most controversial policy initiatives in Canadian history, the National Energy Program (NEP). The bargaining that followed the NEP’s announcement on October 28, 1980 is easily recalled; intense disagreements focussed on economic, partisan and, ultimately, constitutional issues. While these events have stimulated a wide range of investigations, a prominent gap exists in the scholarship: very few studies adopt a game-theoretic perspective. In seeking to explain strategic interaction over energy policy, such an approach might increase understanding of the difficult political processes surrounding the NEP in a wider context.

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June 1980 and concludes with the signing of the Canada-Alberta Energy Agreement on September 1, 1981. This era can be described most effectively through division into four phases: (a) the negotiations between A and F from June 1980 onward, including A’s July proposals; (b) announcement of the NEP and virtually immediate retaliation by A late in October 1980; (c) a period of stalemate from November 1980 to March 1981; and (d) the series of negotiations that produced the September 1981 Canada-Alberta Agreement.

Events prior to June 1980 set the stage for bargaining over economic rents. The energy sector became more prominent in the 1970s, with the oil shock of 1973-1974 causing worldwide economic dislocation. Stagflation plagued the Canadian economy. Rivalries involving Ottawa and the provinces intensified and conflict with the energy-centred province of Alberta assumed primary importance. Canada experienced a new stimulus from abroad in 1979: an oil shock increased the international commodity value of gas and oil assets by 100 per cent almost overnight. When the Liberals returned to office in early 1980,
they realized that if world oil prices continued to increase the producing provinces— and especially A— would have the power to rearrange radically the distribution of economic power in Canada. By moving the price of their oil more in line with the world level and obtaining extraordinary income, those provinces could “challenge federal economic management power and, in the process, confound the intricate formulas for federal-provincial equalization payments.”7

Phase (a) of the EG involved four formal, top-level meetings from June through early October of 1980. The period prior to those meetings constitutes the EG’s preplay position. This means that, although A had been holding out for a new accord on energy since the fall of Joe Clark’s Conservative government in December 1979 and its replacement by Pierre Trudeau’s Liberal government in early 1980, the formal, bilateral game-playing had not yet started. The two players had neither articulated their preference orderings nor selected strategies.

Alberta’s proposals in July 1980 revealed keen interest in collecting the substantial rents from energy resources. The proposals covered conventional oil and gas pricing, oil sands development, revenue-sharing, interprovincial loans and taxation.8 Alberta Premier Peter Lougheed proposed to raise conventional oil prices over the course of three years to 75 per cent of the world price, with no increase in provincial royalty rates for either conventional oil or gas. Development of the oil sands would be accelerated, including $7 billion in direct investment and provision by A of infrastructure for the workforce. (F’s share of royalties from the oil sands also would increase.) The price of natural gas would be fixed at 85 per cent of that of oil, with producers paying for transportation of new gas to eastern Canadian markets. New mineral leases would be subject to taxation by F, with A to provide funding for various interprovincial projects and loans. However, Lougheed asked that F refrain from imposing a wellhead tax on either oil or natural gas and also not tax natural gas exports.

For A, this produced an ideal distribution of revenues; by comparison, F would receive far less than its expectations, if the NEP can be taken as evidence of those.9 Since A might act on its proposals, the Trudeau government decided to challenge the producing provinces— especially A— over the issues of pricing and revenue sharing. Intergovernmental conflict intensified; almost predictably, a series of meetings failed to settle the dispute by October 1980. Observers described the

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meetings in stark terms: the sessions "cumulatively fuelled the mutual perception that neither side was prepared to negotiate."\textsuperscript{10}

Each side negotiated aggressively. The Liberals had been in a combative frame of mind after the failure of the Conservative government to negotiate an agreement with Alberta, and perceived victory in the 1980 election as evidence of an advantage over Lougheed in energy bargaining.\textsuperscript{11} Furthermore, with only two seats west of the Great Lakes, the Liberals had little western support — real or potential — to lose.

Lougheed's Alberta team had equal confidence that it held the stronger position and thus hesitated to make concessions. The province effectively controlled the supply side, due to the potential of the two oil sands projects, Cold Lake and Alsands, to provide crude oil. This power had implications for self-sufficiency, an obvious federal priority. A also believed that it could not be bullied economically by F because of the sizeable and expanding Alberta Heritage Savings Trust Fund (AHSTF). The AHSTF enabled loans to other provinces, presumably building further national support for A's position. Of course, any government confronting Ottawa also could expect political rewards from constituents.\textsuperscript{12}

Previous federal energy ministers had not been very powerful figures, suggesting that Ottawa might lack effective leadership. Furthermore, Albertans thought that, with other important issues on the horizon, F could afford to devote only limited resources to the energy issue.\textsuperscript{13} Members of the provincial government also suspected that Lougheed knew much more about the energy industry and therefore could out-bargain his federal counterpart.\textsuperscript{14} Phase (a) concluded with the unilateral price increase of $2 per barrel imposed by A in August 1980. The stage then was set for F to act and, on October 28, 1980, it did so.

\textsuperscript{10} Doer and Toner, \textit{The Politics of Energy}, 45.

\textsuperscript{11} Ibid., 44. Uslaner's study of voting in that election supports the position that energy policy affected the outcome significantly: the energy issue seemed to mobilize strong supporters of each party "above and beyond the effects of party I.D. and party leader evaluations." See Eric M. Uslaner, "Looking Forward and Looking Backward: Prospective and Retrospective Voting in the 1980 Federal Election in Canada," \textit{British Journal of Political Science} 19 (1989), 495-513.

\textsuperscript{12} When provincial leaders have adopted platforms that emphasize conciliation, potential benefits for the province, as opposed to the national interest, are stressed when communicating with voters.

\textsuperscript{13} The Albertans knew that the Trudeau government intended to tie the NEP to patriation of the constitution; in fact, when signing the 1981 Agreement (to be described at a later point), Lougheed emphasized his continuing opposition to Ottawa's patriation plan (\textit{The Globe and Mail}, September 3, 1981, 11). The Albertans hoped that retaliation would delay implementation of the NEP long enough that, in order to succeed with the constitutional initiative, the federal Liberals would have to drop the energy issue.

\textsuperscript{14} Doern and Toner, \textit{The Politics of Energy}, 44.
Announcement of the NEP as the central component of the Liberal budget initiated phase (b) of the EG. The NEP included comprehensive measures concerning the pricing of oil and natural gas, incentives for explorers and producers, revenue-sharing among provinces and taxation of energy firms. It further proposed Canadian control of a significant number of the larger oil and gas firms, an early increase in the proportion of the sector owned by Ottawa, and that production of oil and natural gas be at least 50 per cent Canadian-owned by 1990.

Specific provisions of the NEP reveal its federal point of view. Ottawa set wellhead prices for crude oil and natural gas at levels favourable to consumers in central Canada, levied a petroleum compensation charge on all users of oil products and transferred 50 per cent of the revenues from the oil export tax to the producing provinces. The federal government created a Natural Gas and Gas Liquids Tax (NGGLT) on domestic and export sales, starting at $0.30/thousand cubic feet (mcf) and rising to $0.75/mcf by 1983. Ottawa also instituted an 8 per cent Petroleum and Gas Revenue Tax (PGRT) on net revenue, introduced incentive grants and phased out depletion allowances. Finally, Grant noted what may have been—at least in terms of impact on the energy sector—the most controversial provision of all: “the federal government would take a 25 per cent interest in oil and gas plays [ventures] in the Canada lands, thus confiscating at a stroke a major source of future foreign income.” The retroactive nature of that interest, moreover, heightened the sense of confiscation and external manipulation experienced by Albertans.

Stage (b) did not last long, however, because A responded two days later. Although A had anticipated such a move by F and planned retaliatory measures in advance, the breadth and depth of the attempt to move into the energy industry came as a shock. A recent court case over Saskatchewan’s potash had established Ottawa’s right to regulate resources under the Trade and Commerce power of the constitution, but the NEP represented a much more extensive form of intervention. To Albertans, the federal budget looked like a blatant effort to seize control of a sector of the economy over which the provinces had presumed constitutional jurisdiction. Alberta’s Minister of Energy Mervin Leitch described the budget as “a massive and discriminatory attack on Alberta” and asserted that it had “created a confrontation between the federal government and ourselves,” while Premier Lougheed called the budget “an outright attempt to take over the resources of this province.”

Lougheed had not been prepared for the legislative authority granted by Trudeau to federal Minister of Energy Marc Lalonde. He had assumed that a deal could be worked out only between the ultimate power-brokers involved, himself and Trudeau. The NEP demonstrated the error of that assumption. Lougheed could see after October 28 that an agreement would not be arranged between the two leaders; instead, an intergovernmental battle, to determine the final say in matters of Canadian energy policy, had developed.

On October 30, 1980, Lougheed announced a three-pronged retaliation. First, A promised to reduce conventional oil shipments to eastern Canada (specifically, Ontario and Quebec), outlining a series of three 5 per cent cutbacks in production over nine months. Each reduction would amount to 60,000 barrels of oil per day. Scheduled to begin on March 1, 1981, the cutbacks eventually would reach 15 per cent of the prior daily production level of 1.2 million barrels. This reduction ostensibly would continue until F had acknowledged A’s position and agreed to resume negotiations for a more equitable arrangement on energy-pricing and revenue-sharing. Lougheed also promised to cancel the cutbacks if shortages occurred in other Canadian provinces, but warned that scarcity created artificially by F would be ignored.18

A’s other two initiatives included withholding approval for the Al-sands and Cold Lake oil sands projects and challenging the NEP in the courts. Delaying the large-scale, Canadian-backed projects would stall Ottawa’s drive for security of supply (and, incidentally, Canadianization of the energy sector). Although most components of the NEP could not be opposed on constitutional grounds, sections 109 and 92:2, 5 and 13 of the British North America Act, 1867 cast doubt upon the constitutionality of federal taxes on provincial resources, such as that on exports of provincially-owned natural gas. Thus phase (b) ended with the two sides more in confrontation than ever before.

Phase (c) constituted a waiting period. In November, talks resumed at the deputy ministerial level. This renewed communication revealed that both sides had become aware of the confrontation’s building intensity. The adversaries thus demonstrated—in principle—a desire to reach the settlement which had escaped them prior to announcement of the NEP. Progress, however, remained elusive; each rival continued to hope for a weakening of the adversary’s resolve.19 Even by

within Alberta to the federal initiatives: “Perhaps it is understandable why so many Western Canadians, and not just those resident in Alberta, are angered and bewildered by the Lalonde energy policy and the MacEachen budget, and why the oil and gas producing industry is considering drastic retrenchment of its activities. For the energy program contained in the budget is an affront to our economic intelligence, and an attack on our regional interests.”

19 Maclean’s, March 2, 1981.
March 1981, both sides still attempted to convince the public that the adversary should be held responsible for the impasse. Lalonde connected rising gasoline prices to Alberta's cutback in supply, while Leitch blamed Ottawa for the half cent per litre increase.20

Phase (d) began formally in April 1981 with a new round of negotiations between Lalonde and Leitch. Bargaining continued until a six-day marathon session in late August produced a new energy accord on September 1, 1981. The Canada-Alberta Energy Agreement substantially revised the NEP's energy-pricing and revenue-sharing regimes. It created a two-tier pricing system to govern oil prices through December 31, 1986.21 One price schedule pertained to conventionally produced oil from existing fields (oil recovered from sources discovered before January 1, 1981) and another covered production from conventional fields, enhanced recovery schemes, oil sands plants and frontier oil from January 1, 1981 onward. The price of conventional, "old" oil would not be allowed to exceed 75 per cent of the international price, with "new" oil priced according to the New Oil Reference Price (NORP). (The NORP equalled the world price, its lower boundary.) Changes would come into effect through regularly scheduled increases up to anticipated ceilings. Natural gas pricing at the wellhead also changed; every six months beginning February 1, 1982, the price would increase by $0.25/mcf. At the consumer level (that is, Toronto city-gate), the price of natural gas would be maintained at about 65 per cent of crude oil prices. With regard to revenue-sharing, $F$ insisted (in writing) that the NGGLT could be levied, but established 0 per cent as the initial level for exports and a variable tax for domestic production. In return, $A$ agreed to an increase in the federal PGRT from 8 per cent to 16 per cent (effectively 12 per cent, given the introduction of a Resource Allowance set at 25 per cent) and the introduction of a 50 per cent Incremental Oil Revenue Tax (IORT).22

With the 1981 Agreement, stage (d) of the EG drew to a close. Having described the history of the confrontation, it is possible to outline the game-theoretic interpretation.

21 The following description of the Agreement is taken from The Globe and Mail, September 2, 1981, 1.
22 The Agreement also restricted taxation changes during the life of the Agreement. One study described the IORT as follows: "[It] is to be levied at 50 per cent of the incremental revenues on old oil. These revenues are equal to production of old oil times the difference between the old oil price and the price established in the NEP, after subtracting the provincial royalties from both prices." See John F. Helliwell and Robert N. McRae, "Resolving the Energy Conflict: From the National Energy Program to the Energy Agreement," Canadian Public Policy 8 (1982), 16.
The Energy Game

Federal-Alberta energy bargaining in 1980-1981 can be described as two-player, quasi-co-operative and variable-sum. Strategies available to the players and potential outcomes also will be explained.

The Players

Only two players are considered to have significant roles during the period in question: the governments of Canada and Alberta. James and Michelin argued that point extensively, based on the state autonomist approach. According to that perspective, actors within the state make efforts to translate their preferences into authoritative actions.23 Public policy is the result. In extreme circumstances, there is no influential input from non-state participants; their actions result from manipulation by actors inside the state. If state autonomy describes an area of public policy accurately, negotiations involve only actors within the state. The preferences of societal actors can be bracketed.

Other normally important actors, such as interest groups, watched the EG from the sidelines. The energy industry, for example, generally looked at the conflict from A’s point of view and made that position rather obvious. However, the EG ultimately focussed on constitutional issues, such as ownership and taxation of natural resources. Only governments could participate directly and effectively in that type of dispute.

Each government did attempt to build a coalition among those outside the governmental realm, to enhance the credibility of its position.24 For example, F emphasized the NEP’s beneficial pricing policy for consumers and its favourable treatment of Canadian energy firms. However, in the 1980-1981 bargaining with A over economic rents, neither consumers nor entrepreneurs participated. Interest groups and the voting public are regarded as part of the political environment, not players.25

24 James and Michelin, “The Canadian National Energy Program and Its Aftermath,” 69, described that type of behaviour as a reflection of Type II state autonomy (Nordlinger, On the Autonomy of the Democratic State). When state and societal preferences diverge initially, public officials “attempt to change societal preferences and, once successful, to translate the now-similar preferences into public policy.”
25 Uslaner (Shale Barrel Politics, 178) also concluded in favour of a two-person game, implicitly noting the role of other actors such as interest groups: “we can readily model events as a two-person (two-party) game. Cleavages reinforce each other so that the bargaining model is easier to depict.”
Bureaucratic politics might be raised as an obstacle to the two-player assumption: What about conflict within respective levels of government? A's history of conflict and desire to obtain greater influence with F motivated provincial officials to support Lougheed in the confrontation. As for the larger and more diverse federal bureaucracy, the evidence suggests unity behind the NEP. Thus the EG, spanning June 1980 to September 1, 1980, includes just two players.

A Quasi-co-operative, Variable-Sum Game

Another important aspect of the setting concerns the potential resolution. At one extreme, a purely co-operative game is one in which binding agreements are feasible. As Friedman noted, "[t]he fundamental distinction between cooperative and non-cooperative games . . . is that cooperative games allow binding agreements while non-cooperative games do not." This difference, however, is of more practical value when treated as a continuum. It is difficult to imagine any political agreement that is completely enforceable. Even with absolute harmony among parties to an agreement (for example, self-enforcing arrangements in games of co-ordination), if perceived interests change, compliance may be short-lived. However, given the likely costs, government disregard for negotiated settlements should be rare. A reputation for reliability is essential to further collaboration. While the EG is not co-operative in the strict sense, potential effects on a player's standing occupy a prominent role in strategic choice, with the long-term costs of breaking an agreement outweighing immediate benefits. This property leads to an expectation against a lengthy sequence of player movements. The EG is labelled quasi-co-operative because its process can be assessed in terms of a non-cooperative framework, while the outcome is binding in a de facto sense.

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26 David Milne, Tug of War: Ottawa and the Provinces under Trudeau and Mulroney (Toronto: James Lorimer, 1986).
27 Dome Petroleum should be noted as an exception within A's implicit coalition. It took advantage of federal initiatives and supported the general aims of the NEP. However, neither Dome nor other companies functioned as independent players in the EG, so the two-actor assumption is not threatened by the existence of this anomaly.
28 Friedman, Game Theory, 148.
29 In James, "The Canadian National Energy Program and Its Aftermath," 177, which focussed strictly on outcomes, intergovernmental bargaining is described as leaning toward "the co-operative end of the game spectrum" and suitable for consideration "in the context of co-operative game theory." The EG, however, remains non-co-operative in the literal sense, because the players can reject the details of an agreement derived at any intermediate stage. The arguments about costs of breaking an agreement become relevant only when a formal, public deal exists.
Since the revenue pool circa 1980 was projected to expand, the game is variable-sum.\textsuperscript{30} Rather than players gaining at each other's expense, both could benefit from the right sort of deal. This property is illustrated by the fact that the aggregate financial payoffs vary by scenario, such as the NEP combined with Alberta’s retaliation or the Agreement.\textsuperscript{31} The game should not be regarded as an all-out conflict. Instead, its players have competitive and complementary interests or, in the language of game theory, "mixed motives."\textsuperscript{32}

Of course, each outcome distributed payoffs and entailed some element of conflict. The costs that each player can impose on itself and the adversary create the potential for co-operation; there must be an agreement on rent shares and overall revenues. The latter depend on the energy industry's reaction, with governments having a common interest in further exploration and production. Thus even the division of rents is not zero-sum.

**Strategies**

Two classes of pure, path-independent strategies exist: co-operation (C) and non-co-operation (C'). While there is a continuum of choice, ranging from full agreement to absolute conflict, at least three compelling arguments favour a streamlined approach toward describing options.

First, even the simpler, strategic form of a game—which displays only strategies, outcomes and payoffs, as opposed to the sequence of play—becomes extremely complex with more than two strategies per player. For example, a $3 \times 3$ matrix entails nine payoffs for each player; the assessment of equilibria (that is, stable outcomes) also is significantly more complicated. Second, there is potential measurement error to consider. To conduct an equilibrium analysis, a rank-ordering of the outcomes must be identified for each player. As will become apparent, even with only four outcomes it can be difficult to assess preferences. With more outcomes, and less "distance" between them with regard to payoffs, the chances of measurement error increase dramatically, creating greater risk of incorrect rankings. Third, the dynamics of the EG can be modeled effectively using existing theories of strategic interaction under conditions of dichotomous choice. The process of bargaining can be explained without resorting to more finely distinguished


\textsuperscript{31} Helliwell and McRae, "Resolving the Energy Conflict."

\textsuperscript{32} Zagare, Game Theory, 37.
strategies, although it would be interesting to combine more subtle variants and create new equilibrium points.

There are at least two reasons why path-dependent strategies, in which the choice of one player depends on the previous choice of the other, also are not considered. One reason is that the demands on information would be overwhelming for an initial study of the dynamics of bargaining. At every stage, all of the "reaction functions" would have to be specified for each actor. Another reason is a basic principle of model-building: Add complexity only as it becomes necessary. Before moving beyond description of the EG as a 2 x 2 game, it is useful to find out how much can be explained by that approach. The first task is to describe the strategies (C and C') for the players at stages (a) through (d).

In phase (a), for F, C meant trying to negotiate without taking any dramatic, interventionist actions like the NEP. This strategy produced an outcome that, from F's point of view, amounted to provincial victory. By co-operating—implicitly recognizing some of A's claims by not engaging in punitive actions—F almost certainly would have precluded the possibility of ultimate victory. Strategy C might have resulted in something better, but only if A played C as well—compromising through acceptance of F's right to tax resource revenues—before F could announce a new, hard-line energy programme. Given the fact that, in adopting such a strategy, A would have had everything to lose, that scenario was most unlikely. A could gain only if F elected to be gracious in its time of victory by granting A some of its demands.

F's strategy, C', involved articulation of a hard-line energy policy—like the NEP—designed to change the balance of the game. This would eliminate what F perceived to be the evolving state of affairs and least-preferred outcome: victory for A, symbolized by exclusive control over rents from energy production.

For A, C in phase (a) of the game would have meant softening its position of June-October 1980. Instead, A instituted C', represented by the July Proposals, designed to discourage C' by F. This strategy witnessed A trying to convince F, currently playing C, of its resolve.

Phase (b) constituted a transition period. By announcing the NEP, F implemented C' and created a new situation. The C strategy for F in phase (b) would have meant continuing negotiations which, as noted previously, appeared to be at an impasse, thus favouring A.

Faced with the reality of the NEP, which effectively overturned the July proposals, A still could have opted for C. However, A believed that course of action would not produce results. Considering the degree of coercion in the Program perceived by Albertans, a conciliatory policy would have been impossible to justify. Furthermore, in choosing C', A believed its capabilities to be strong enough to force F to change po-
sitions. Thus Lougheed announced the three forms of retaliation described previously.

In phase (c), the C' strategy for F involved use of its now-superior position to force A back to the negotiating table. Once formal discussions at the ministerial level began in April, it became evident that the post-NEP environment increasingly favoured F, because the latter had demonstrated its capabilities by implementing a major and decisive policy with widespread public support. In the words of contemporary observers, "[t]hey were now the initiators and Alberta would have to react."\(^{33}\) F believed that, for two reasons, the possibility of a victory by A had been all but eliminated: (1) the failure of A's retaliation; and (2) the popularity of the NEP in most of Canada. The other option, C, would have been either to accept the main points of A's position or do nothing. This scenario had a very low likelihood of taking place, given F's beliefs about A's bargaining position.

A had to choose in stage (c) between resuming negotiations (C) or holding out against the measures directed against the energy industry (C'). Believing that pressure would increase more rapidly and reach a higher level for F, A tried the second option. However, A held a position less strong than in the summer of 1980. The Albertans found it difficult to counter the Canadianization goals of the NEP. Their bargaining leverage had been diminished by a promise, at the time of response to the NEP, not to harm the energy supplies of other provinces. It also appeared that Lougheed's retaliation had proven more damaging to Albertans than other Canadians.\(^{34}\) Cutbacks in oil production hurt not only oil producers but also the important oil service sector. Activity in the Canada Lands increased and exploration shifted visibly to the United States, with negative implications for A's revenues and overall economic welfare. Furthermore, Canadians in general appeared relatively unaffected by Alberta's manoeuvres. Lougheed's government expected mounting pressure to settle, while Ottawa did not confront that factor to the same degree. A prominent newspaper report, for example, described Lalonde's confidence that Canada would have little problem maintaining oil supplies.\(^{35}\) Available evidence justified that confidence: A's retaliation had proven ineffective and the federal bargaining position actually had improved.\(^{36}\)

When phase (d) began in April 1981, it had become clear to both sides that F enjoyed the superior position. The latter agreed to resume negotiations and made it clear from the beginning of the talks that it

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\(^{35}\) *The Globe and Mail*, November 1, 1980, 1.

wanted an agreement by September 1, 1981, in time for a fall budget, which created further pressure. The deadline implied that, without an energy agreement, a new budget—just as harsh for Alberta as the previous one—could emerge. Believing that to be quite possible, and convinced that $F$ would proceed with full implementation of the NEP in lieu of an agreement, $A$ experienced greater pressure to settle the issue.

Of course, it should be noted that $F$ also had an interest in settling matters. The import tax, and a perception that it cared less about consumers in central Canada than the partisan battle with Lougheed, became political burdens for the federal government. In fact, over a longer period of time, the stalemate might have developed into a very unpleasant scenario for Trudeau. This is true especially of the non-monetary payoffs (in areas such as the planned constitution and voter approval), which were bound to deteriorate. In terms of pressure imposed by the strategic situation, however, $A$ had a more desperate need to act. The stalemate, by implication, became attractive to $F$. It could hold out longer, eventually obtaining an agreement with $A$, while also building a reputation for assertive bargaining. A compromise—with $F$ controlling the agenda—would set an excellent precedent for later constitutional bargaining. In sum, the waiting game of phase (c) set the groundwork for the strategic decisions of stage (d). Selection of $C$ by both $A$ and $F$ eventually led to a mutually acceptable outcome: the settlement of September 1, 1981. This completes the description of strategies over each stage of the game.

Outcomes

There are four potential outcomes to the EG: mutual co-operation ($O_1$); $A$ co-operates and $F$ does not ($O_2$); $F$ co-operates and $A$ does not ($O_3$); and mutual non-co-operation ($O_4$). These outcomes correspond to compromise, victory for $F$, victory for $A$, and stalemate. Figure 1 displays the basic $2 \times 2$ matrix for the game, with the outcomes identified in the key. Payoffs appear in each cell for $A$ and $F$, respectively. For example, $A$'s payoff in the first cell is $a_{11}$; for $F$, the corresponding entry is $f_{11}$. Each of the four outcomes depicted in Figure 1 will be described in generic terms.

Outcome ($O_1$) corresponds to a negotiated settlement, somewhere between $O_2$ and $O_3$, including the acceptance of demands from $F$ about revenue-sharing as well as certain claims by $A$ relating to jurisdiction over ownership and development of non-renewable, natural resources. With both sides recognizing that such issues raised questions of fundamental importance to the nature of federalism, each would hesitate to risk an outcome that might irreparably damage federal-provincial relations. $O_1$ is the result.

37 Uslaner, *Shale Barrel Politics*, 177.
Outcome \((O_2)\) would see \(F\) seizing, through something like the NEP, almost absolute control of the energy industry in Canada in terms of supply, development, revenue-sharing and pricing. This would put \(A\) (and other producing provinces) in an inferior position — virtually a junior partner — and establish \(F\) as the final arbiter of all questions dealing with energy. Accompanying these developments, however, would be terrible, perhaps irreparably damaged, relations with the western provinces and the probable failure of the Trudeau constitutional reform package being negotiated at the time.

Outcome \((O_3)\) results from successful provincial action. This outcome sees \(A\) victorious, with \(F\) losing support from the public for its programmes, especially in the realm of energy policy. The provinces would emerge as the leaders in federal-provincial relations, a likely scenario had \(A\)’s proposals met with a co-operative response from \(F\). Such an outcome, however, also could damage relations seriously, perhaps to the point of permanence.

When a confrontation — for example, that which occurred in phase \((c)\) — is tolerated by both sides, a stalemate is the result \((O_4)\). This outcome persisted in 1981 because, for several months, neither player demonstrated any willingness to modify its position.

Why did \(O_1\) ultimately emerge as a lasting outcome? An answer to this question must await the analysis of strategic interaction.
Measuring Preferences and Ranking Outcomes

With respect to economic rents, each of the actors had a two-dimensional utility function. $A$ and $F$ hoped to obtain revenue, but each also wanted to limit the amount received by its rival. It is impossible to estimate the marginal rate of substitution for these commodities (that is, absolute versus relative gain), so the most straightforward approach available is to estimate the proportion of rent obtained by each rival.

Table 1 displays data on expected rent shares from oil and gas for the provincial and federal governments, along with producers and consumers, as projected for 1986 by Helliwell and McRae.\(^{38}\) Using a macro-economic model of the existing oil and gas industry, they estimated the provincial and federal shares of energy revenues under various conditions, corresponding to $O_1$ through $O_4$.\(^{39}\)

There are two underlying reasons for this measurement strategy. First, in the eyes of each rival, the residual rent would exist as an incentive to the energy industry. For example, $F$’s utility function would include the overall standing of the energy sector, but only insofar as that affected the latter’s ability to generate revenue for $F$. Second, the proportions effectively build in the non-pecuniary aspects of the conflict. The NEP revealed an unstated but crucial objective for $F$: the redistribution of political power away from the provinces, especially $A$. Thus the rent shares became important in terms of the relative expansion of the federal treasury versus the AHSTF. While the constitutional dimension of the conflict cannot be quantified directly, the use of proportional rent shares is a reasonable substitute.

Projected revenue shares for 1986, the final year of the Canada-Alberta Agreement, are deemed more appropriate than the proportions for 1982, also estimated by Helliwell and McRae and used in the game-theoretic analysis by James. In the latter study, the 1982 rents are appropriate because the purpose is to compare rents across established outcomes, with the first year after the Agreement (the final scenario) being the best choice.\(^{40}\) The focus here, however, is on dynamic analysis of bargaining. The players did not know that September 1981 would

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\(^{38}\) Helliwell and McRae, "Resolving the Energy Conflict."

\(^{39}\) Uslaner (Shale Barrel Politics, 174) compared rent shares for Albertans to those of Canadians outside of Alberta (as computed by Helliwell and McRae, “The National Energy Conflict,” 17), rather than looking at the rents accruing directly to the governments. However, for present purposes, that would build in an undesired element of pure conflict. In the sequential game, $F$ also had a long-term interest in every province’s degree of satisfaction with the result. Although it wanted to limit $A$’s revenues, an extreme outcome would spell a virtual end to further national integration. To incorporate this federal priority, it is appropriate to look at overall revenues. Given the nature of the data generated by Helliwell and McRae, that entails a comparison of federal-provincial rents.

\(^{40}\) James, “The Canadian National Energy Program.”
TABLE 1

EXPECTED ECONOMIC RENT SHARES FROM NON-FRONTIER OIL AND GAS FOR THE PROVINCIAL AND FEDERAL GOVERNMENTS

<table>
<thead>
<tr>
<th>Outcome Scenario</th>
<th>Provincial governments</th>
<th>Federal government</th>
<th>Producers and consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Share of rents Rank</td>
<td>% Share of rents Rank</td>
<td>% Share of rent</td>
</tr>
<tr>
<td>O_1 Canada-Alberta Agreement September 1, 1981</td>
<td>a_{11} = 39 3</td>
<td>f_{11} = 34 4</td>
<td>27</td>
</tr>
<tr>
<td>O_2 Unrevised NEP, October 28, 1980</td>
<td>a_{12} = 34 1</td>
<td>f_{12} = 25 2</td>
<td>41</td>
</tr>
<tr>
<td>O_3 Alberta’s July 1980 Proposals</td>
<td>a_{21} = 46 4</td>
<td>f_{21} = 11 1</td>
<td>43</td>
</tr>
<tr>
<td>O_4 Stalemate with Alberta’s retaliation, November 1980-March 1981</td>
<td>a_{22} = 36 2</td>
<td>f_{22} = 27 3</td>
<td>37</td>
</tr>
</tbody>
</table>


be the end of the game as so defined. Thus, for the EG, the 1986 shares are better: they correspond more closely to the permanent pattern taking shape, while also not being too far removed from the present. Having just won a major electoral victory, each player could envision being in power five years later; by contrast, payoffs a decade or more beyond 1981 would be much less meaningful.41

The data points generated by the macro-economic model have "face" validity. The scenarios are based on assumptions built into actual policies. Thus the revenue shares listed in Table 1 reflect the expectations of the players during the game. For example, the four scenarios build in a 2 per cent annual increase in the world oil price, as anticipated by all parties in 1980-1981.42

41 The cumulative rents over the life of each scenario also would be a useful indicator of relative worth. However, devising a means of comparison among O_1 through O_4 is complicated by the need to decide a relevant "lifetime" for each scenario, along with the performance of calculations further removed from the original data.42 Helliwell and McRae, "Resolving the Energy Conflict," 14.
One objection to the orderings generated by Table 1 pertains to the role of the jurisdictional issue in forming preferences, notably for A. The principle of provincial sovereignty, ruling out actions such as the "wellhead" tax, might be regarded as co-equal in importance to the division of revenues. (After all, the jurisdictional issue is in part the basis for adoption of state autonomy as an overall outlook on intergovernmental relations surrounding the NEP.) If so, that would suggest a reversal in preference between the NEP with Alberta's retaliation and the Agreement, because the latter legitimized the NGGLT and PGRT. Lougheed and Leitch, however, eventually selected the Agreement over continuing the stalemate, suggesting that the intensity of preference regarding sovereignty could not have been greater than that directed toward energy revenues.

With respect to reliability, the modeling procedures described in great detail by Helliwell and McRae do not appear to have provoked criticism. Prospects are enhanced further because the EG entails rank-ordering of outcomes. Thus small discrepancies in the measurement of percentage shares cannot overturn the presumed structure of the game matrix. Based on the percentage figures from Table 1, the payoff ranking for A is $a_{21} > a_{11} > a_{22} > a_{12}$; for F, $f_{11} > f_{22} > f_{12} > f_{21}$. These orderings entail an assumption about each actor's marginal rate of substitution for absolute versus relative gain. All other things being equal, absolute payoffs are preferred to those of a comparative nature. For example, consider $a_{11} = 39\%$ and $a_{12} = 34\%$, with the difference in rents compared to F being 5 per cent and 9 per cent, respectively. It would be perverse for A to prefer a lower proportion of rents for itself, as in the latter scenario, simply in order to force F to accept even less. A would get more than F in either instance and therefore should prefer $a_{11}$. The same logic is assumed to hold for F, which receives less than A regardless of the scenario.

Among the scenarios, it is interesting to note that the Agreement gives the highest combined share of rents to F and A. This reinforces the assumption of state autonomy, because the eventual settlement obviously did not serve the interests of those outside the EG.

The Rivalry as a Sequential Game

Among the 78 2 \times 2 strictly ordinal games, 57 do not contain a mutually best outcome. Strategic interaction therefore determines the result. One such case is the EG, which has rank-ordered payoffs corresponding to those in the second row of Figure 1. The ordinal payoffs are derived from the percentage shares of revenue that appear in Table 1.

Although the strategic form of the game is a useful summary, the cells (and payoffs) in that matrix are derived from different time periods. For example, A's C' strategy has a different content before and after announcement of the NEP. Prior to F's initiative, A's C' strategy meant seizing economic rents from energy sources, namely, the July Proposals. After the advent of the NEP, C' meant retaliation against the NEP. To clarify the meaning of each choice it may be helpful to put the sequence of play in diagrammatic form.

Figures 2(a)-(d) cover the four stages of the game, with the payoffs in each matrix corresponding to the underlying, long-term preferences displayed by Figure 1. The arrows show movement, with the boxed outcome being the one at the end of a given stage. In phase (a), A departs from mutual co-operation (which, at that point, meant the status quo in the energy sector) and intervenes with the July Proposals. F responds to A's choice of C' in phase (b) with announcement of the NEP, its version of C' at that stage. A then could retaliate or co-operate with F's initiative. Since A chose to retaliate on three fronts, the players end up in mutual non-co-operation at the conclusion of (b).

Phase (c) shows joint non-co-operation. Prior to negotiations in earnest during the summer of 1981, each side tried to outlast the other. Finally, stage (d) reveals movement to mutual co-operation. The diagram indicates that A moved first, with F responding, reflecting the stronger bargaining position occupied by the latter.

Figures 2(a)-(d) are summarized by the arrows in Figure 1, the latter being easier to use in the analysis of strategic interaction. From A's payoffs in Figure 1, it is clear that non-co-operation is a dominant strategy; regardless of F's choice, A can do better by not co-operating. Thus F's best strategy also is non-co-operation; this produces the second-best rather than worst payoff, 3 versus 1. Mutual non-co-operation constitutes a Nash equilibrium because neither player has an incentive to depart from it unilaterally. For example, if A switched to co-operation, that would reduce its payoff to the worst level, 1.

44 A game is considered strictly ordinal when all preferences over outcomes are expressed as "X is better than Y," as opposed to permitting weak preferences such as "X is at least as good or better than Y."

Although mutual non-co-operation is a Nash equilibrium, it also is unsatisfactory on grounds of efficiency. Joint co-operation is preferable for both players; how, then, can it be obtained? The Alberta/Ottawa rivalry over energy revenues had a sequence of play, not simply a “one shot” matching of strategies. Thus it falls into the class of sequential games, which must be analyzed in dynamic terms. Among the available options, there are at least three reasons why the Sequential Threat Game (STG), presented by Brams and Wittman, is the best choice, at least for an initial effort toward assessment of the EG.46

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First, the STG is a well-established framework of analysis, with applications to both domestic and international politics.\(^{47}\) This study focusses primarily on the NEP and its aftermath, not the development of game-theoretic means of interpretation. It is a basic principle of social science that simpler options should be exhausted before turning to the creation of more complex explanatory models. Second, and somewhat related, the STG does not entail an extended mathematical exposition. Potential alternatives, like the Chain Store Paradox, require considerable algebraic manipulation and, ultimately, measurement of more variables.\(^{48}\) The STG, by contrast, presents minimal barriers to intellectual entry. Third, and most important in terms of validity, the EG does not have the properties of an iterated game. In other words, if repeated, the game would not be played in exactly the same way. Even in a future resource- and sovereignty-based struggle with another province, it is far from certain that the same ordering of outcomes, for example, would hold true for Ottawa or its adversary.\(^{49}\) The framework of an iterated game is not appropriate, while the STG is well-suited to assess federal-provincial bargaining in a game with an individual history.

Brams and Wittman have described the rules of play for a sequential game such as the EG:\(^{50}\) (1) both players simultaneously choose strategies, thereby defining an initial outcome of the game; (2) once at an initial outcome, either player can unilaterally switch its strategy and change that outcome to a subsequent outcome in the row or column in which the initial outcome lies; (3) the other player can respond by unilaterally switching its strategy, thereby moving the game to a new outcome; (4) these strictly alternating moves continue until the player with


\(^{48}\) See R. Selten, "Chain-Store Paradox," Working Paper no. 18, Institute of Mathematical Economics, Universitat Bielefeld. In Ordeshook’s presentation of the Paradox, specification of the players’ strategies entails estimates of probabilities that can change over iterations of the game; for example, at each stage it is necessary to update the probability that a potential antagonist believes that the principal player (known as the "chain store") will resist competition. See Peter C. Ordeshook, Game Theory and Political Theory: An Introduction (Cambridge: Cambridge University Press, 1986), 451-62.

\(^{49}\) A few possibilities would include potash in Saskatchewan, hydro-electric power produced in Newfoundland, sulphur in Alberta and pulpwood in British Columbia.

\(^{50}\) Brams and Wittman, “Nonmyopic Equilibria.”
the next move chooses not to switch its strategy. When this happens, the game terminates, and the outcome so reached is the final outcome. Since the sequential game allows for altered strategies after the initial selections, rational choice transcends a static or myopic equilibrium concept. Although (2,3) is a Nash point in the context of a one-shot game, the players should be able to do better in an iterated game, because somewhat different rationality postulates are appropriate for sequential play.

First, non-myopic rationality determines strategic choice. Each rival can anticipate how the other is motivated to respond to a given move. Neither will depart from a position “if the move leads to a final outcome which does not improve his payoff (rank).” Obviously, neither player would move from its best outcome. For the other outcomes, a “backward induction” process would occur; given available moves and countermoves, departure from a given point would be appropriate only if that ultimately would lead to a superior final outcome.51

Second, each player anticipates a “single play of the game.” When a player expects that movement from a position will result in an inferior final outcome, “he will stop, and the resulting [that is, present] outcome will be a final outcome; otherwise, he will continue to move.”52 The objective of play is to locate a non-myopic equilibrium.

Figure 1 reveals a cycle of play that does not produce a non-myopic equilibrium. Even with (3,4) as the starting point, one of the players still has an incentive to pursue a better outcome: (4,1), favouring A. But F will switch to non-co-operation, in order to escape its worst outcome, producing (2,3). Although A then would have to face (1,2) if it moved again, pursuit of (3,4) still would be feasible by making that choice. At (1,2), F obviously would prefer to move to (3,4), its ideal point, thus completing the cycle illustrated by the arrows in the figure. Hence this game is one of 37 among the total of 78 2 x 2 ordinal games which do not have a non-myopic equilibrium.

This result creates a paradox: (3,4) is superior to (2,3) but appears to be inaccessible. However, there is another process through which the preferred outcome may be achieved. One player may face the same type of game again, but with a different adversary. If both parties (and other, potential future players) are aware of that, then the returning player must be concerned with its bargaining reputation. Call the returning player the Threatener (T₁) and the non-returning player the Threatenee (T₂).53 The threatener may, through use of a threat, be able to break the deadlock:

52 Ibid.
53 Ibid., 27.
The threatener can make his threat credible by ignoring what he would lose in the short run if he were forced to carry it out (we assume there is always a cost to both threatener and threateneree associated with the former’s carrying out a threat) and instead focusing on the long-run value that a carried-out threat would have in enhancing the credibility of the threatener’s future threats in repeated plays of the game. . . . Insofar as the threatener establishes his credibility by carrying out threats this credibility will plausibly extend to repeated plays of different games.54

Within the context of a specific game, a threat also may be able to induce movement by $T_2$, if the latter is convinced of $T_1$’s resolve. Thus even a game without a non-myopic equilibrium may result in an enduring and relatively Pareto-efficient outcome.

Although the EG is assumed to be self-contained, federal-provincial bargaining over economic rents continues. $F$ has to think about the reputation effects of its play, because the next provincial adversary would be watching. (Of course, given the upcoming round of constitutional bargaining, $F$ had an even more important reason to think about its reputation.) $F$ therefore had the potential to play the role of $T_1$ in the EG.

There are two conditions for credibility of a threat designed to produce a specific outcome, such as $(3,4)$ in Figure 1.55 If $F$ wants to obtain a certain outcome $(a_{ij}, f_{ij})$, with $i$ representing the row and $j$ the column, then it must deter $A$ from leaving $(a_{ij}, f_{ij})$ once there. The first condition for credibility is that the threat is real. A threat by $F$ to terminate the game at an outcome $(a_{mn}, f_{mn}) = (a_{ij}, f_{ij})$ is real if and only if its implementation worsens the outcome for $A$. The second condition is that of a rational threat, which occurs if and only if successful deterrence of $A$ at $(a_{ij}, f_{ij})$ improve’s $F$’s outcome.

There is an algorithm to determine whether the game at issue has a threat outcome.56 For the column player, $F$, the algorithm proceeds as follows, with $(a_{ij}, f_{ij})$ representing the payoffs to $A$ and $F$ at row $i$, column $j$:

1. Locate $f_{ij} = 4$. This occurs at $(a_{11}, f_{11})$.
2. Since $a_{11} \neq 4$, $A$ and $F$ do not have a mutually best outcome; a threat therefore is required to obtain $f_{11}$.
3. Since $a_{11} \neq 1$, a threat to induce $f_{11}$ is feasible because $A$ might end up with something worse than $a_{11}$.
4. Find $(a_{mn}, f_{mn})$ such that $(a_{mn}, f_{mn}) < (a_{11}, f_{11})$. This occurs at either $(a_{22}, f_{22})$ or $(a_{12}, f_{12})$.
5. Since $n \neq j$, in each instance, and $a_{mn} = 2$ at $(a_{22}, f_{22})$; $(a_{11}, f_{11})$, i.e., $(3,4)$ is the deterrent threat outcome for $F$.

54 Ibid.
55 Ibid., 29.
56 Ibid., 33.
This result means that, given its concern for future reputation, F eventually could obtain the preferred outcome (3,4), preventing an indefinite cycle within the EG.

Regarding the specific nature of the threat, rationality dictates that F can deter C' by A in the game if and only if an outcome strictly inferior to (3,4) exists. This is true of both (1,2) and (2,3). Player F can effectively threaten not to co-operate, forcing A to accept the second-worst outcome, while F does somewhat better at (2,3), the stalemate. The inferior outcome at (2,3) for F, relative to (3,4), is assumed to be "the price he is willing to pay in any single play of a game to ensure the credibility of his threat so that it is not viewed as empty (i.e., a bluff) in future games." Of course, if F's commitment to C' is convincing, then that cost will not have to be absorbed, because A will accept mutual co-operation as the final outcome.

For the sake of argument, suppose that A also had some concern about its bargaining reputation, suggesting that it might seek to occupy the role of T_i. The payoff structure, however, does not provide A with the same opportunity possessed by F. If A threatens non-co-operation, F can enforce (1,2), as in the previous example. If A destabilizes the game by wavering between its two strategies, F still can institute (1,2) or (2,3), each of which is more painful for A. In sum, the fundamental problem for A in issuing a threat to F, given the payoff matrix, ultimately is one of credibility. The centrality granted to this factor represents a departure from other interpretations of the politics of the NEP.

One objection that might be raised to the preceding analysis pertains to its complexity. Since the players can see the implications of switching strategies, co-operation might be expected to emerge naturally: A possessed oil and natural gas, F had a majority in the House of Commons and each side could benefit from a stable arrangement concerning energy production, pricing and taxation. Furthermore, each player in a sequential game can make as many moves as necessary, provided that resolution is achieved in a given period; this factor should reinforce the tendency toward co-operation. Why, then, is a complicated, coercively oriented and protracted scheme of analysis needed to explain an outcome that would appear to be natural?

First, the EG took place within the greater national conflict over the degree of centralization in Confederation. With different positions on that issue, the two levels of government had anything but a tendency toward co-operation. While A and F understood that a settlement could be mutually beneficial, the deadlock over energy rent distribution symbolized the deeper conflict. Co-operation emerged only after a test of wills.

57 Ibid., 30.
58 For a helpful discussion of risk-taking and brinkmanship, see Avinash K. Dixit
Second, the number of moves or "experimentation" in a sequential game is limited by political reality. Rapidly changing strategic choices are impractical for governments, because the voting public (with help from the media) would interpret that behaviour as indecision and lack of leadership. Once announced, policies cannot be discarded in quick succession, even if—in the abstract—that would facilitate cooperation.

The result of the EG is consistent with the exercise of threat power in a sequential game. Trudeau and Lalonde played the role of T1, with Lougheed and Leitch as T2, in a game that lacked a non-myopic equilibrium. However, F as T1 could bring about its most desired outcome—a Pareto-superior compromise—through a real and rational threat. By continuing the stalemate, F made the situation worse for its rival, while the coercion of A—if it ultimately produced a compromise—would improve the outcome from F's point of view. Taken together, these conditions made the threat faced by A both real and rational. Since, by contrast, the game's structure did not permit A to play the role of T1, it is not surprising that F obtained its most preferred outcome.

While the preceding analysis might stimulate a number of other objections, constraints on space permit only three to be addressed. One is that O1 resulted from the energy industry's plight and budgetary constraints, as opposed to strategic interaction. In a game-theoretic context, these factors contribute to the measurement of A's preferences, not its choice of strategies. The revenue-related considerations are reflected in O4, which offers less than O1 in proportional and absolute terms. Industry preferences stand as an ad hoc explanation of A's decision-making, whereas the STG can explain the stalemate and the ultimate settlement and can be applied to many other issues as well.

Another question concerns the rank-ordering of payoffs in the EG, which is different from other explicit (and implicit) treatments. A different approach would change the strategic environment conveyed by Figure 1. Uslaner, for example, used data from Helliwell and McRae on per capita rents from oil and gas, comparing Albertans to Canadians outside of Alberta. He also used absolute rent values, as opposed to shares. The payoffs for each outcome are as follows: O1 (3,3), O2 (2,4), O3 (4,1), O4 (1,2).59 In this version of the game, F has a dominant strategy of C'. Uslaner observed that "Alberta's conditionally best strategy, given Canada's, is to cooperate—leading to the predicted outcome of the NEP.... However, Alberta did not simply capitulate. This perspective on the confrontation misses the mark because the game is more


fruitfully viewed as involving bargaining. Certainly the two parties spent many hours behind closed doors working out a compromise.’’ Uslaner’s payoffs, however, suggest a result different from that associated with the values in Figure 1. If A plays C’ in order to achieve (4,1), F will move to (1,2), in order to escape its worst outcome. A then has to switch to C, because it prefers (2,4) to (1,2). However, mutual co-operation (3,3) is better than either of those options; a non-myopic A therefore would prefer not to set the game in motion. From F’s point of view, choosing C’ is ideal; A is left with a choice between (1,2) and (2,4). Thus the difficulty with such a measurement scheme is this: How can the ultimate choice of the compromise be explained, given the advantage that F enjoyed in the game?60

Each measurement scheme, to conclude, poses some problems. The first entails that F prefer mutual non-co-operation to the NEP. While that might be explained in terms of the need for a stalemate prior to a mutually beneficial compromise—as opposed to a victory for F that might stand in the way of future efforts toward a constitution—the point hardly is self-evident.61 The second set of payoffs appears to give a decisive advantage to F, because the stalemate is worse for A and, to break out, the latter would have to accept (2,4). It did not.

Third, and last among the criticisms, it could be argued that A’s rent value, which differed by a small amount in absolute terms between O1 and O3, does not suggest a superior position for F. F’s success as Ti, however, is revealed by the change in proportions of rent collected and the reinforcement of F’s right to tax the resources of A.

Conclusion

One interesting aspect of the EG is its independence from interpretations based on personalities. While the stalemate could be accounted for superficially in terms of “stubborn” or “self-destructive” leaders, the same figures participated in the negotiations that led up to the Canada-Alberta Agreement. Although personal characteristics of leaders do matter, economy of explanation suggests that complexity should be added only as necessary. The unfolding of the entire process of bargaining can be explained more convincingly as a sequential, quasi-co-operative, variable-sum game. Much of the bargaining over energy revenues can be accounted for by the strategic structure of inter-governmental relations. In a more general sense, this study helps to integrate

60 Uslaner (Shale Barrel Politics, 176) found CC to be the “Nash solution” to the bargaining problem of maximizing the product of joint gains for A and F relative to the stalemate.

61 One other factor points toward F’s preference for the stalemate: following A’s retaliation, the pricing and taxation incentives and subsidies in the NEP would make exploration in the Canada Lands even more attractive than before.
the study of Canadian political economy with ongoing investigations of other polities. While rational choice has pretensions of "transnational" relevance, it has made "very little headway in Canadian political science."62 Further game-theoretic studies could increase the comparative component of Canadian political analysis.

With respect to the specific contributions of the threat game as a dynamic model, both the process and ultimate result of bargaining occur as expected. Given the extreme differences over the issue of centralization of power, the NEP elicited a strong and immediate reaction from Alberta. Intensity of preference also explains the protracted stalemate, during which each adversary tested the other's resolve in a situation inferior for both. Ultimately, the province suffered more than the federal government and, as the threat game's strategic structure would anticipate, a compromise favourable to Ottawa emerged. It is worth noting that a static approach, like James's comparison of the distribution of economic rents across various scenarios, would not be able to explain the path of bargaining.65

Turning to the more recent history of energy as an issue, there have been some interesting developments since the Agreement. Ottawa substantially altered the NEP in 1982. From the election of Brian Mulroney's Conservative government in September 1984 to the signing of the Western Accord between Ottawa and the governments of British Columbia, Alberta and Saskatchewan on March 28, 1985, a new round of bargaining occurred. The Accord, along with an Atlantic Accord signed in February of the same year between the federal government and Newfoundland, "essentially dismantled the remnants of the NEP."64 These agreements, which deregulated the energy industry, marked the effective end of the NEP. More specifically, the Accord purported to resolve controversies over issues of pricing and revenue-sharing that had existed since the mid-1970s and crystallized in 1980. To stimulate investment and job creation in the energy sector, the Accord deregulated pricing, marking the first time in more than two decades that the price of domestic, crude oil would be determined in direct relation to international markets.65 Although Ottawa maintained certain

63 James, "The Canadian National Energy Program."
65 Pollard, "Canadian Energy Policy in 1985," 169. The Accord called for the deregulation of domestic crude oil prices as of June 1, 1985, effectively dismantling the complex, two-tier pricing system which had been established by the 1981 Agreement. It marked the end of the Petroleum Compensation Charge (PCC) and the Oil Export Charge (OEC). The Accord also removed all transportation subsidies in the energy sector and every control on short-term oil exports. Furthermore, it eliminated the IORT and the NGGLT. Although already at zero and thus not
tax incentives and export licensing through the National Energy Board, the remarkable federal withdrawal from virtually all areas of the oil and gas industry bears out the assertion by some observers that the Accord "marked the end of an era in Canadian energy policy." For that reason alone it would be interesting to conduct a game-theoretic analysis of the bargaining that led to the 1985 Accords. In sum, given the level of performance already demonstrated, a research enterprise based on the principles of rational choice should be taken seriously as a future direction for the study of Canadian politics.

Appendix

1 Acronyms and Symbols

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Government of Alberta</td>
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<tr>
<td>AHSTF</td>
<td>Alberta Heritage Savings Trust Fund</td>
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<tr>
<td>C</td>
<td>Co-operation</td>
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<tr>
<td>C'</td>
<td>Non-co-operation</td>
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<tr>
<td>EG</td>
<td>Energy Game</td>
</tr>
<tr>
<td>F</td>
<td>Government of Canada</td>
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<tr>
<td>IORT</td>
<td>Incremental Oil Revenue Tax</td>
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<tr>
<td>NEP</td>
<td>National Energy Program</td>
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<tr>
<td>NGGLT</td>
<td>Natural Gas and Gas Liquids Tax</td>
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<tr>
<td>NORP</td>
<td>New Oil Reference Price</td>
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<td>OEC</td>
<td>Oil Export Charge</td>
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<tr>
<td>PCC</td>
<td>Petroleum Compensation Charge</td>
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<tr>
<td>PGRT</td>
<td>Petroleum and Gas Revenue Tax</td>
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<tr>
<td>PIP</td>
<td>Petroleum Incentives Payments</td>
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<tr>
<td>STG</td>
<td>Sequential Threat Game</td>
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<tr>
<td>T_1</td>
<td>Threatener</td>
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<tr>
<td>T_2</td>
<td>Threatenee</td>
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2 Phases and Outcomes of the Energy Game

i. Phases
   (a) the negotiations between A and F from June 1980 onward, including A’s July proposals;

major financial concerns of the negotiators, the removal of these taxes had symbolic importance. The Accord also saw the phasing out of the Petroleum Incentives Payments (PIP), which Alberta followed up with termination of its own, similar program (Helliwell, et al., “The Western Accord,” 344).


(b) announcement of the NEP and virtually immediate retaliation by A late in October 1980;
(c) a period of stalemate from November 1980 to March 1981;
(d) the series of negotiations that produced the September 1981 Canada-Alberta Agreement.

ii. Outcomes

\[ O_1 \] mutual co-operation.
\[ O_2 \] A co-operates and F does not.
\[ O_3 \] F co-operates and A does not.
\[ O_4 \] mutual non-co-operation.