Faculty Publications   Political Science, Department of

6-1-1974

A Collective Goods Analysis of the Warsaw Pact After Czechoslovakia

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THE WARSAW PACT AFTER CZECHOSLOVAKIA

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When the troops of five Warsaw Pact nations [1] moved into Czechoslo-
vakia on the night of 20-21 August 1968, a great many of the "givens"
of international politics were rudely challenged. East-West relations
in Europe, particularly central Europe, called for reevaluation. French
and West German policies especially demanded reappraisal.[2]

Western European commentary raised fundamental questions
concerning the Warsaw Treaty Organization (WTO) : "And as far as
the Warsaw Pact is concerned, this alleged partnership for alleged
protection against alleged risks of aggression from the West, turned
out to be an instrument in the hands of the supreme Power used
against its own members and was successfully perverted for this
purpose." [3] Some viewed the Czech situation as one further indicator
of the declining cohesion of European communism. Such observers
saw "declining cohesion as evidence of a disintegration or transforma-
tion of the movement." [4] Opinions such as these questioned the func-
tions and purposes of the alliance as well as the relationship between

[1] Three hundred thousand troops were Soviet, with 50,000 Poles, 20,000 Hun-
garians, 20,000 East Germans, and 10,000 Bulgarians.

[2] See Karl Birnbaum, *Peace in Europe, East-West Relations 1966-1968 and the
Prospects for a European Settlement* (London: Oxford University Press, 1970),
especially chapter 3, for an excellent review and analysis of the effects of the
Czech crisis on the matrix of East-West European policies. For a shorter discus-
sion see Andrew J. Pierre, "Implications of the Western Response to the Soviet
Intervention in Czechoslovakia," *The Atlantic Community Quarterly* 7 (Spring
1969) : 59-75.

[3] F. Luchsinger, "The Price of Aggression," *Neue Zurcher Zeitung*, 25 August
1968, reprinted in *Survival* 10 (November 1968) : 365-67.

[4] Harvey Joel Tucker, "Measuring Cohesion in the International Communist
Movement, 1957-1970" (Indiana University, 1972), p. 1.

the Soviet Union (the large member) and the other members of WTO. This note investigates some of the purposes and concerns of WTO, and it inquires as to the possible effects of the 1968 Czech invasion on the workings of WTO, its functions, and the relationships between the smaller members and the Soviet Union.

THE THEORY OF COLLECTIVE GOODS AND ALLIANCES

I consider these questions of continuity from the perspective of a framework that deals directly with the purposes, functions, and benefits of organizations—the theory of collective goods. This approach, originally developed by economists and applied to the analysis of small groups by Mancur Olson, has fruitfully been applied to the study of alliances.[5] This approach assumes that one purpose of an organization is that of serving the common interests of its members. In the study of alliances, this purpose is, simply, security—the protection of the member states by the collectivity. The main purpose of alliances such as WTO and NATO is *deterrence*, the forestalling of aggression against members of the organization.[6]

[5] See Mancur Olson, *The Logic of Collective Action* (Cambridge, Mass.: Harvard University Press, 1965); Mancur Olson and Richard Zeckhauser, "An Economic Theory of Alliances," *Review of Economics and Statistics* 48 (August 1966): 266-79; Philip M. Burgess and James A. Robinson, "Alliances and the Theory of Collective Action: A Simulation of Coalition Processes," *Midwest Journal of Political Science* 13 (May 1969): 194-218; and Bruce M. Russett and Harvey Starr, "Alliances and the Price of Primacy," in Bruce M. Russett, *What Price Vigilance? The Burdens of National Defense* (New Haven, Conn.: Yale University Press, 1970), pp. 91-126. See also Bruce M. Russett and John D. Sullivan, "Collective Goods and International Organization," in *The United Nations: Problems and Prospects*, ed. Edwin H. Fedder (St. Louis, Mo.: Center for International Studies of the University of Missouri, 1971), pp. 91-112, for a statement of the wider applicability of collective goods analysis to international relations. The authors also provide an extensive discussion of the conditions under which the collective good will be provided (pp. 96-105).

For *critical* reviews and analyses of the collective goods approach, see: William Loehr, "Collective Goods and International Cooperation: Comments," *International Organization* 27 (Summer 1973): 421-30; P. F. Cowhey, J. A. Hart, and J. K. Schmidt, "The Theory of Collective Goods and the Future Regime of Ocean Space," paper presented at the Annual Meeting of the International Studies Association, New York City, 14-17 March 1973; Francis Beer, *The Political Economy of Alliances: Benefits, Costs, and Institutions in NATO*, Sage Professional Papers in International Studies (Beverly Hills, Calif.: Sage Publications, 1972); Harvey Starr, "Is There 'An Economic Theory of Alliances'—An Investigation into the Collective Good Approach to Alliance Behavior" (M.Phil. examination paper, Yale University, 1969).

[6] While alliances have a number of diverse purposes for their members, in principle security remains the basic function of alliances such as NATO and WTO. More importantly, member nations continue to perceive security-oriented deterrence as vital. Note, for example, West European views on American troop withdrawals or other activities that may weaken the American commitment to deterrence in Europe.

Mancur Olson and Richard Zeckhauser, in their article "An Economic Theory of Alliances," make the above assumptions in presenting a model that "attempts to explain the workings of international organizations," [7] and which, they assert, is applicable to any international organization that independent nations establish to further their common interests. The model they develop focuses upon burden sharing and the "insufficiency and inefficiency" found in international burden sharing. The model stresses both the concept of *suboptimality* in the purchase of additional amounts of the good an alliance produces and the differences in the valuation that nations place upon the increments in such goods.[8] The framework is focused on the idea of organizations, the purposes of organizations, the collective or public goods that organizations produce, and especially the interrelationships of these factors in small groups, which Olson developed in *The Logic of Collective Action*.[9]

In his book, Olson states that the "characteristic and primary function [of organizations] is to advance the common interests of groups and individuals." [10] In other words, some collective good is afforded to a special group of actors. By the properties of a collective good no member of the group can be denied its benefits, and thus there is no rational reason for a member to pay its share of the costs. In fact, unless rewards are proffered or there is coercion, the rational actor will not so contribute.[11] The nonexclusive nature of the collective good thus encourages a tendency toward suboptimality. "The larger the group," notes Olson, "the farther it will fall short of providing an optimal amount of a collective good." [12] He demonstrates how small groups, such as alliances, can provide collective goods without either coercion or reward, and in these properties differ from large groups. Simply because the group is small, the voluntary, self-interested action of members can provide the collective good. Still, even in small groups "the collective good will not be provided on an optimal scale, since its supply will be regulated by the satisfaction of the individual." [13] The small member will still be receiving free amounts of collective good from the largest member (often more than the former would have provided for itself), and thus has no incentive to expend its own resources to obtain any of the collective good. Thus,

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[7] Olson and Zeckhauser, p. 266.
[8] Ibid., p. 272.
[9] Olson, pp. 53-56.
[10] Ibid., p. 7.
[11] Ibid., p. 2. On this point, see also the article by Burgess and Robinson.
[12] Olson, p. 10.
[13] See the review of Olson's book by N. W. Chamberlain in the *American Economic Review* 56 (June 1966) : 603.

small groups with common interests, such as alliances, demonstrate a proclivity toward the "exploitation of the great by the small."

Olson and Zeckhauser similarly assert that almost every sort of organization provides collective goods. In the case of alliances it is, as noted above, deterrence.[14] Of interest in this research note is the effect that providing a collective good has on organizations, especially upon burden sharing within the organization. Olson and Zeckhauser posit that alliance output of the collective good will always be suboptimal. The larger members (in terms of GNP) are those that "place a higher absolute value on the public good" and also shoulder a disproportionate share of the burden.[15] The degree and significance of suboptimality and disproportionality decrease in circumstances where military forces also provide noncollective, private benefits to the individual nations. Olson and Zeckhauser, while recognizing that defense expenditures have major private goods characteristics, also assert that "however important the non-collective benefits of alliances may be there can be little doubt that above all, alliances produce collective goods."[16] Therefore, the amount a member spends on defense, and alliance suboptimality, will be affected by the amount of defense expenditure provided by its allies.

To measure the degree of suboptimality and to discover if a collective good is being provided, the authors assume that, if the model is accurate, the larger a nation is, the larger its proportion of resources devoted to defense expenditures will be. With GNP and defense expenditures as the indicators of size and effort, the model holds that the greater a nation's GNP, then the greater will be that percentage of GNP spent on defense (D/GNP).

This hypothesized relationship has been found valid for NATO. Studies by Olson and Zeckhauser, Jacques M. van Ypersele de Strihou, Frederick Pryor, and Russett and Starr have all tested the relationship between GNP (size) and proportionate military expenditures (D/GNP).[17] All have found positive, statistically significant cor-

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[14] With certain reservations, deterrence at the alliance level may be seen as having strong collective goods qualities. Collective goods may be defined by two properties: external economy, where benefits are equally available to all members of the group; and nonrivalness, where each individual's consumption does not diminish the supply available to each of the other members.

[15] Olson and Zeckhauser, p. 269. The authors present their arguments partially through the use of simple indifference maps, which use defense spending as an indicator of the valuation of the public good.

[16] Ibid., p. 274.

[17] See Jacques M. van Ypersele de Strihou, "Sharing the Defense Burden Among Western Allies," *Yale Economic Essays* 8 (Spring 1968): 261-320; and Frederick Pryor, *Public Expenditures in Communist and Capitalist Nations* (Homewood, Ill.: Irwin Press, 1969), pp. 96-98. Starr (passim), using several

relations for a variety of time periods and data sources. These studies demonstrate that as an organization provides a collective good, members do indeed behave in certain ways; members will share the burdens of the organization in proportion to their size.

Russett and Starr have also employed the theory of collective goods in an analysis of NATO, SEATO, CENTO, the Rio Pact, the Arab League, and the Warsaw Treaty Organization. They observe: "Various alliances are affected in different ways by big power dominance, and the alliances serve a different mix of functions. By comparing the distribution of burdens actually borne with that predicted by the theory of collective goods, we can better understand what these functions are in each case." [18] They conclude that the Olson-Zeckhauser model can demonstrate the success with which NATO or WTO provides deterrence to member states. They note that the positive correlation between GNP and D/GNP that indicates the failure of burden sharing may also indicate the small members' confidence in alliance deterrence.

For WTO it was found that the collective goods theory failed to apply in two early periods, 1956 and 1962. However, for 1965 and 1967 it was found to work quite well. This alerts us to several interpretations of Soviet behavior. The theory of collective goods is meant to apply only to voluntary organizations. For the earlier periods it appears that Soviet coercion extended beyond membership to the level of contribution as well. For 1965 and 1967, the high correlations between GNP and D/GNP—size and effort—may be interpreted in light of the Olson-Zeckhauser model as indicating non-Soviet confidence in the Soviet deterrent. The other members' contributions were not random, but ordered by size. Soviet coercion, it could be proposed, had been relaxed to the extent that members could "set their own levels of contribution in accordance with their own per-

different indicators, demonstrates that if the Olson-Zeckhauser hypothesis regarding GNP and D/GNP is confirmed, the assumption that a collective good is being provided may be accepted.

[18] Russett and Starr, p. 99. In earlier research I also tested the Olson-Zeckhauser hypothesis against universal and regional groupings in order to compare the regional alliances to the international context in which they operated. For a world sample of 117 nations, the Pearson product-moment correlation was a mere .17; for Europe and North America (n=31), the correlation was .35; for Latin America (n=22), r=.12; for Africa (n=36), r=−.04; for the Near East (n=9), r=−.17; for the Far East/Oceania (n=18), r=−.18. None of these correlations were significant at the .05 level except Europe/North America. Thus, the GNP–D/GNP relationship is neither a common one nor one usually found outside the organizational context. However, as noted, if non-NATO European countries are added to the alliance, the model still holds. See Starr, pp. 17, 19-35.

ceptions of security needs rather than have their military efforts dictated by the superpower member." [19]

The question remains as to what effects the events of August 1968 had on the burden sharing in WTO. Did those events result in major changes in members' defense expenditures, in the weakening of their belief in the Soviet Union, or in a breakdown of WTO? To investigate these questions, the procedures used by Russett and Starr were repeated for WTO for the years 1967 through 1971. Both Kendall's tau and product-moment correlations were calculated. The product-moment correlations were calculated both with and without the Soviet Union, to take into account its extreme GNP value.[20] The data used are presented in table 1.

TESTING THE BURDEN-SHARING MODEL

Looking first at table 2, which presents the correlations between GNP and D/GNP, it is apparent that the burden-sharing model proposed by Olson and Zeckhauser continues to be valid in the postinvasion period. For both the rank-order and product-moment correlations that exclude the Soviet Union, the periods subsequent to the invasion show stronger relationships between size and effort than those found in 1967. Although the 1969 figures either are somewhat lower or the same as those of 1968, the 1970 measures of association are the highest. The rank-order correlations have risen appreciably. The taus calculated for WTO for 1967–71 are higher than those Russett and Starr calculated for NATO for the 1950–67 period.[21] This

[19] Russett and Starr, p. 115. In her study, Robin Remington provides some indication that Soviet policy toward WTO changed in this respect after the fall of Khrushchev in 1964: "Whereas Khrushchev had treated the alliance as a vehicle for Soviet power and appeared to value it primarily as a stepping stone to more universal forms of Communist organization, the new collective leadership came to use the mechanism of the coalition for consultation and conflict containment." See Robin Remington, *The Warsaw Pact* (Cambridge, Mass.: M.I.T. Press, 1971), p. 168.

[20] See Russett and Starr, p. 101, for a discussion of the methodology employed. Briefly, the Soviet GNP is so much larger than that of the other WTO members that the correlation coefficient will be affected by the outlier. Removing the Soviet Union corrects this distortion while not affecting the presence or absence of a GNP–D/GNP relationship for the rest of WTO.

The data used were provided by the Institute for Strategic Studies (now the International Institute for Strategic Studies) publication, *The Military Balance*, for the years 1968/69, 1969/70, 1970/71, 1971/72, 1972/73. While not exactly congruent with the data used by Russett and Starr, this is a respected data source, useful for its continuity across time.

[21] See Russett and Starr, table 4.3, p. 105. I must note, however, that the degree to which a change in GNP affects the change in D/GNP is consistently falling. The betas (which indicate this relationship) for the product-moment correlations computed without the Soviet Union are as follows: .100 for 1967, .099 for 1968, .094 for 1969, .079 for 1970, .075 for 1971.

TABLE 1. WARSAW TREATY ORGANIZATION DATA FOR 1967-71: GNP IN BILLIONS OF DOLLARS, DEFENSE EXPENDITURES (DE) IN BILLIONS OF DOLLARS, AND D/GNP PERCENTAGES

GNP Rank Order [a]	1967			1968			1969			1970			1971		
	GNP	DE	D/GNP	GNP	DE	D/GNP	GNP	DE	D/GNP	GNP	DE	D/GNP	GNP	DE	D/GNP
1. USSR	358.0	34.45	9.6(1) [b]	430.0	39.78	9.3(1)	466.0	39.33	8.5(1)	490.0	53.90	11.0(1)	536.0	54.00 [c]	10.1(1)
2. Poland	34.0	1.66	5.4(3)	38.0	1.83	4.8(4)	40.5	2.00	5.0(4)	42.5	2.22	5.2(4)	45.3	2.35	5.2(4)
3. East Germany	28.5	1.06	3.7(4)	30.0	1.71	5.7(2.5)	32.0	1.87	5.9(2)	34.0	1.99	5.9(2)	35.9	2.12	5.9(2)
4. Czechoslovakia	25.5	1.45	5.7(2)	26.8	1.54	5.7(2.5)	28.3	1.58	5.6(3)	30.3	1.76	5.8(3)	32.4	1.88	5.8(3)
5. Rumania	16.9	.53	3.1(5)	18.1	.55	3.0(5)	20.0	.57	2.9(6)	21.4	.75	3.5(5.5)	22.8	.80	3.5(5.5)
6. Hungary	12.1	.31	2.6(7)	12.7	.37	2.9(6.5)	13.5	.46	3.4(5)	14.4	.51	3.5(5.5)	15.6	.54	3.5(5.5)
7. Bulgaria	7.5	.22	3.0(6)	8.0	.23	2.9(6.5)	8.3	.23	2.8(7)	8.9	.28	3.1(7)	9.4	.32 [c]	3.4(7)

[a] Order for listing nations is the GNP rank order consistent for all five years.

[b] Numbers in parentheses are ranks in D/GNP for that year.

[c] International Institute for Strategic Studies (IISS) data are unavailable for the Soviet and Bulgarian defense expenditure. For the Soviet Union, the Stockholm International Peace Research Institute (SIPRI) notes there was no budgeted change for 1970-71 or 1971-72. Therefore, the Soviet expenditure was left substantially the same. SIPRI data for Bulgaria are quite similar to IISS data for 1967-70. Therefore, I used the SIPRI figure for 1971. See SIPRI, World Armaments and Disarmament, SIPRI Yearbook 1972 (New York: Humanities Press, 1972), pp. 69 and 85 respectively.

TABLE 2. SIZE AND BURDEN SHARING: RELATIONSHIPS BETWEEN D/GNP
AND GNP, AND MEANS IN 1967-70

	1967	1968	1969	1970	1971
Tau (rank order)	.62	.75	.71	.76	.76
r^2 (percentage of variance explained)	.81	.75	.66	.86	.82
r^2 *without* Soviet Union	.62	.66	.66	.72	.69
Mean D/GNP *without* Soviet Union	3.9	4.2	4.3	4.5	4.6

NOTES:
All taus >.76 significant at .01 level
For seven countries, r^2 >.60 significant at .05, r^2 >.80 significant at .01
For six countries, r^2 >.66 significant at .05, r^2 >.85 significant at .01

may be interpreted as indicating that the Soviet provision of a deter-
rent umbrella still thrives, along with the confidence of the other
members that deterrence is being provided.

Why this should be so seems fairly clear. Regarding possible
"aggressors," the Soviet Union had displayed a toughness and willing-
ness to act, communicating the will and credibility necessary for the
successful provision of deterrence. In addition, WTO members found
themselves in a classic action-reaction pattern. The Prague crisis
"gave a renewed sense of function to NATO" [22] and, in so doing,
reawakened the need for unity and cooperation within WTO: "the
main effect of the Czechoslovak crisis was to accentuate the need for
cohesion within the two military alliances." [23] The deterrent strength
of WTO can be seen as benefitting from both these factors: the firm
display of Soviet resolve to protect the interests of socialism in
Europe; and a return, within a reasonable period, to the preinvasion
East-West detente.

The collective goods model is also useful in that it provides a
predicted position for each alliance member, and allows the analyst to
see how reality compares to the model. Using rank-order correlation,
the model asserts that a member's rank on the GNP scale will match
its rank on the D/GNP scale. Russett and Starr note that if alliance
members spend *more* than would be predicted by the model, three
main reasons should be surveyed: (1) members have a "lack of con-
fidence in the resolve of their protector"; (2) members are seeking
private goods; and (3) members are coerced to higher levels of
spending. One may predict that overspending in WTO is most likely
the result of Soviet coercion. If, however, WTO states reacted de-

[22] *Strategic Survey* (London: Institute for Strategic Studies, 1969), p. 2.
[23] Birnbaum, p. 89. Nevertheless, observers agree that detente in Europe was
not seriously damaged. For example, on 21-22 June 1970 Warsaw Pact foreign
ministers renewed the call for a European security conference.

fensively to Soviet actions in Czechoslovakia, as some have claimed, overspending would then be for private goods providing security *against* the Soviet Union. Turning to table 1 we may investigate the rank ordering of WTO members over the four-year time period.

The D/GNP *rankings* of neither Poland nor Czechoslovakia appear to be affected by the events of 1968, except that both come to be surpassed by East German defense spending. In 1967 East Germany was third in GNP, but ranked fourth in D/GNP. It tied for second D/GNP in 1968, and took second for its own in 1969–71. East Germany does seem to have been affected by the events of 1968. Obviously, its overspending did not stem from a lack of confidence in the Soviet deterrent. Nor does it seem to have been coerced. More probably, East Germany's D/GNP ranking rose as a result of the withdrawal of Soviet constraints on East German defense spending. As the most conservative WTO ally of the Soviets, East Germany remained the Soviet Union's staunchest supporter throughout the Czech crisis. Soviet dramatization of a West German "threat," including the especially insidious tactic of "peaceful counter-revolution," was supported "most emphatically by the East German leaders." [24] East Germany's ideological allegiance and strategic vulnerability, combined with the trigger events of August 1968, led it to increase defense expenditures with Soviet acquiescence. According to Institute for Strategic Studies figures, East German defense expenditures rose over 60 percent from 1967 to 1968, with a further 9 percent rise from 1968 to 1969. Table 3 indicates that from 1967 to 1971 East Germany increased its defense spending by a full 100 percent, surpassing the 1967-71 Soviet increase of 56.7 percent.[25] Only one other WTO partner similarly surpassed the Soviet increase during this period.

Bulgaria, last in terms of GNP, was sixth in D/GNP in 1967. By 1968 it had to share sixth place with Hungary, and dropped down to seventh for 1969-71. Bulgaria's change in ranks was a result of Hungary's changing patterns of defense expenditure. Hungary was sixth in GNP in 1967, but seventh in D/GNP. In 1968 it was tied for sixth, and moved toward fifth in 1969 and 1970. Here is a case that strongly fits the model of reactive increases in defense spending. Hungary was not, it seems, coerced by the Soviets to spend more. As Birnbaum has pointed out, Hungarian opposition to the "doctrine of the Socialist Commonwealth" (or "Brezhnev Doctrine") has been no less bitter or tenacious than that of Rumania, only more circumspect. We thus find Hungarian defense expenditures increasing by

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[24] Birnbaum, p. 86.
[25] This would explain why East German D/GNP correlates a mere .08 with Soviet D/GNP.

TABLE 3. PERCENTAGE OF INCREASES IN DEFENSE EXPENDITURES:
WTO 1967-71

	From 1967 to 1968	From 1968 to 1969	From 1969 to 1970	From 1970 to 1971	Average Yearly Increase	Aggregate Percentage Increase 1967 to 1971
Bulgaria	1.3	2.6	19.2	12.85	9.0	43.6
Czechoslovakia	5.9	2.5	11.9	6.5	6.7	29.3
East Germany	61.3	9.2	6.3	6.7	20.9	100.0
Hungary	18.2	23.5	11.8	6.5	15.0	75.2
Poland	10.1	9.8	10.5	5.9	9.1	41.6
Rumania	4.0	4.2	30.7	6.4	11.3	50.1
USSR	15.5	−1.1	37.0	0.0	12.9	56.7

NOTES:
Average Yearly Increase for all members except Soviet Union=12.0.
Aggregate Average Percentage Increase for all members except Soviet Union=
56.6.

healthy but not spectacular margins from 1967 to 1968 (18 percent) and from 1968 to 1969 (23 percent). Over the entire period under study, Hungary's defense expenditures increased 75.2 percent. The quiet Hungarian increase made it the only partner besides East Germany to outstrip the Soviet Union in percentage of defense increases during 1967-71.

Rumania was the third nation to change its 1967-1968 pattern in 1969-1971. Most remarkably, Rumania, which was even in rank (fifth in both GNP and D/GNP) in 1967 and 1968, dropped to sixth in D/GNP in 1969, and only managed to tie for fifth in 1970 and 1971. These changes highlight the different Rumanian and Hungarian reactions to the Czech crisis. Rumania dropped to sixth as a result of the increased Hungarian military spending, and pulled even with Hungary only after substantial increases of its own between 1969 and 1970.

The formation of an armed militia on 28 August 1968 may give the impression that the primary response by Rumania to the Czech invasion was military. The modest Rumanian increases in defense spending from 1967 to 1969 lead one to believe otherwise. The principal reaction was, instead, diplomatic. The first Rumanian move was to demonstrate solidarity with Yugoslavia, as Ceausescu conferred with Tito as early as 24 August 1968. In September the People's Republic of China notified the world that it would protect Albania. The Rumanians doubtless took some shelter beneath this Chinese "parasol," no matter how flimsy it was. Within a year of the Czech invasion, President Nixon was welcomed in Bucharest, and within two years, new treaties of friendship were signed with the Soviet Union and

Poland.[26] Rumania thus attempted to secure its independent position without recourse to major increases in military expenditures. From table 3, we see that Rumania holds the median position in regard to aggregate percentage increase in military spending for the whole period under investigation. East Germany shows the greatest overall percentage increase. Hungary and the Soviet Union also surpass Rumania. Poland, Bulgaria, and Czechoslovakia show smaller increases.

CONCLUSIONS

We may conclude that the Warsaw Treaty Organization performance in regard to the collective goods model does not alter drastically after 1968. WTO "fit" with the model increases steadily, so that the strongest measures of association are found in 1970, although they drop slightly in 1971. A principal raison d'etre for the organization—deterrence—apparently continues to be adequately fulfilled. The events of 1968 do not appear to have weakened the core purpose of the alliance; indeed, they may have strengthened it. The collective good, as operationalized in the Olson-Zeckhauser model, is still being provided, and most likely to a greater extent than in NATO.

Russett and Starr discuss a complementary indicator to the size-effort relationship for revealing whether or not the collective good is being produced. If the *gap* between the Soviet D/GNP and the mean non-Soviet D/GNP is wide, this may be said to indicate "that insofar as the small nations feel a need for military protection, they are now confident in Soviet deterrent strength." [27] This gap, which was 6.7 in 1967, remains wide in the postinvasion years: 6.9 in 1968, 6.7 in 1969, 6.5 in 1970, but dropping to 5.5 in 1971. The Warsaw countries appear to have low levels of expenditures on private defense goods, certainly lower than the NATO countries. Using Institute for Strategic Studies data, I find the gap between United States D/GNP and the non-US mean D/GNP to be much smaller and decreasing: 5.9 in 1967, 5.7 in 1968, 5.3 in 1969, and 4.6 in 1970.

It may still be argued that the rising military budgets of WTO members, as seen in tables 1 and 3, indicate that WTO members are spending more on private defense goods. Yet the non-Soviet mean D/GNP for 1968-71 is at the same level as the NATO non-US mean D/GNP in the middle 1960s.[28] Needless to say, no one ever accused

[26] The Nixon visit took place on 2-3 August 1969. The Soviet pact was signed 7 July 1970, the Polish one on 9 August 1970.

[27] Russett and Starr, p. 115.

[28] From table 2 we see that the non-Soviet mean D/GNP for 1968 was 4.2, for 1969 it was 4.3, and for 1970 it was 4.5. Using Russett and Starr's figures (p. 105), we see that the NATO non-US mean D/GNP from 1963-67 was: 1963—4.4, 1964—4.4, 1965—4.2, 1966—4.1, 1967—4.3.

America's NATO partners of spending too much on defense during
this period. Similarly, as a whole, non-Soviet members have not
increased defense expenditures at a more rapid rate than the Soviet
Union. Indeed, the percentage increase of defense expenditures is
exactly the same. Table 3 indicates an aggregate Soviet increase in
defense expenditures of 56.7 percent from 1967-71. The average ag-
gregate increase for the non-Soviet members over the same period was
56.6 percent.

Russett and Starr note: "From a theoretical viewpoint, both the
power of the theory of collective goods and its limitations are impres-
sive. Occasionally it works quite well and in so doing illuminates
the purposes of an alliance. In other instances it predicts less well or
not at all. It should not be taken as a universal key to alliance burden
sharing as some writers have implied. But the theory's failures, as
well as its successes, help to show what are the goals of particular
alliances and of particular states." [29] In essence, the nature of WTO
and the relationship of its members to the Soviet Union, as sum-
marized by measures of collective goods, appear not to have been
altered to any extent by the events of August 1968. It is important
to stress that while Soviet coercion in terms of membership continues,
there appears to be relatively free rein for WTO members in deter-
mining the size of their defense contributions. The present findings
confirm the earlier argument that there was indeed a shift in the
sixties away from apparent Soviet coercion in regard to defense
contributions. This seems to have continued, and become more marked
in the period under study here.[30] Analysis by a collective goods model
has shown a continuity in WTO which is contrary to certain early
Western expectations. In terms of goals, purposes, and behavior,
I have applied a model that would have revealed major shifts by indi-
vidual members and within the alliance as a whole. From this perspec-
tive, I can say such shifts have not taken place in recent years, even
given the events of August 1968.

[29] Russett and Starr, p. 123.
[30] One indicator of this leeway may be seen in the events of the March 1969
Warsaw Pact summit meeting in Budapest. At this meeting the Soviets proposed
a set of regulations on combined forces and commands that would have given
them direction over the other WTO military forces. The Soviet proposals would
have had nations represented in a unified command structure in proportion to
the size of their military contributions to WTO, thus assuring Soviet control.
However, the opposition of the other members blocked these proposals, thereby
scuttling a major objective of the Brezhnev doctrine—WTO force integration
under Soviet command and control. The non-Soviet WTO members appear not
to have the option of leaving the alliance—indeed, there seems to be little inclina-
tion to want to leave—but appear to have the initiative in the size, direction, and
use of their military forces (e.g., Rumania's nonparticipation in the 1968 Czech
invasion).