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**THE RELATIONSHIP BETWEEN CANADA'S FOREIGN AID CONTRIBUTIONS
AND THE STATE OF THE CANADIAN ECONOMY: A QUANTITATIVE
ANALYSIS**

by

Marion R. Rivers, B.A.

**A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of**

**Master of Arts
Department of Political Science**

Carleton University

Ottawa, Ontario

March 1991

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and Research acceptance of the thesis

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Thesis Supervisor

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June 6, 1991

ABSTRACT

This study examines the apparent academic consensus that the predominate motivating force behind Canadian foreign aid contributions is economic. Using an original data base, drawing on the results of bivariate and multivariate regressions in which total aid and a number of explanatory variables were used, this study quantitatively traces Canadian Official Development Assistance from 1960-1985.

Those variables having the greatest explanatory value for total aid, were Canadian GNP growth rate, recipients' GNP/capita, recipients' population in non-agricultural sectors, LDC, Commonwealth and la francophonie membership, recipient countries' geographical size, population size and imports from Canada. While the positive correlation between total aid and Canada's GNP growth rate, the size of the recipients' GNP/capita and recipients' population in non-agricultural sectors plus the negative correlation with imports from Canada does support the economic motivation argument, the positive correlation between total aid and other variables such as LDC, membership in the Commonwealth and la francophonie, recipients' geographical size and population size does not. Despite rhetoric to the contrary, political and philanthropic considerations are alive and well within Canada's Official Development Assistance Program - even during periods of recession and economic restraint.

ACKNOWLEDGEMENTS

I shall be forever indebted to Dale Stewart for giving me the courage to undertake this work and for his consistent encouragement and support throughout its phases. To Professor Scott Bennett, I would like to express my appreciation for sharing his expertise through the advise and counsel he provided me in the preparation of this thesis. To Keith Heintzman and Kaethe Ambrozas, I offer my sincere thanks for their assistance and patience in the computerization of the data for this analysis.

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**THE RELATIONSHIP BETWEEN CANADA'S FOREIGN AID CONTRIBUTIONS
AND THE STATE OF THE CANADIAN ECONOMY: A QUANTITATIVE
ANALYSIS**

RESEARCH PROBLEM

Since World War II, "aid" within the international context has traditionally meant "the flow of resources (both of capital and of technical assistance in the form of people with their skills) from the more advanced economies to the less advanced or developing economies".(1) It has become a world movement manifested first through the Marshall Plan to facilitate European financial and economic recovery. This was a "one shot" initiative in the sense that massive amounts of assistance were injected into already developed though war ravaged economies. No long term relief was required or anticipated.

The Colombo Plan, on the other hand, marked the real beginning of modern aid as we know it, ie. "a transfer of resources, both technical and financial, from developed to developing economies".(2) A Commonwealth initiative, the Plan was initially focused on countries of "South and Southeast Asia but was later extended to include a much wider area stretching from Iran to South Korea and from Fiji in the Pacific to the Maldives in the Indian Ocean".(3) As of 1985, Canadian foreign aid recipients included a total of one hundred and twenty-one countries.

The Cold War and the end of the British, French and Dutch empires profoundly affected the growth of aid in a global sense because most of the newly independent countries were poor, economically backward states devoid of economic, technical and political expertise.(4) Coupled with some degree of moral obligation to assist those less fortunate than themselves, the Cold War east-west camps were intent on safeguarding their own self-interests economically, militarily and politically. Both sides offered aid to secure the support of new nations. As a member of the "west camp", having close economic, political and military ties with Britain and the United States, Canada has been a consistent aid donor since WW II. But what have been Canada's motives for these aid donations over the years?

According to Tom Hockin's Report of the Special Joint Committee on Canada's International Relations entitled, Independence and Internationalism,

Canada has been involved in aid programs from their inception. "The impulse of Canadians to co-operate with people in the Third World is long established and powerful. Since Confederation Canadian churches and voluntary groups have worked to improve the quality of education and medical care in the Caribbean, Africa, India and other parts of the world. Beginning with the first conference on the Colombo Plan in 1950, all Canadian governments have been concerned to promote the economic and social development of the poorest countries in the world. Over the years various reasons have been offered for this activity, but essentially it comes down to this: it is right and it is in Canada's self-interest that all peoples should enjoy well-being and a decent standard of living".(5)

This "moral or philanthropic rationale" for aid is prevalent in the post-war literature.

The international milieu, however, has undergone a metamorphosis since 1950. "The world's financial safety is on a knife-edge ... posed by the debt crisis in an interdependent world".(6) The 1980's recession seriously aggravated developing countries' ability to pay debts accumulated since the 1950's during the process of nation building and economic mobilization. Some of the devastating results have been a sharp drop in their exports/imports, net capital outflows (the result of government interest payments in foreign currency and the transfer of personal funds to more secure economies), and military expenditures to secure or maintain domestic stability.

Debt management, then,

is the single most critical issue in economic relations between developed and developing countries. In the longer run, however, finance is only half of the equation; the other half is trade. If the indebted developing countries are to grow and pay even a portion of their debts, they must greatly expand their export earnings. This requires, above all else, the recovery of economic growth in the industrialized democracies and improved access to their markets".(7)

What this means is that, while foreign aid may indeed have some altruistic, idealistic objectives and motivation, the bottom line appears to be more national self-interest. By

assisting the debtor to become economically self-sufficient, the creditor enhances its own economic (not to mention military and political) options.

Yet, repeatedly the purported purpose of Canadian aid

"is to better the lives of the poorest people in the poorest countries. It is not to sell Canadian goods and services, provide profits, or improve Canadian education and research. If it does any or all of these things as a concomitant to bettering the lives of the poorest people in the poorest countries, so much the better".(8)

How have these fundamentally different objectives for foreign aid been reflected in actual Canadian contributions made to recipient countries?

From Linda Freeman's perspective, "the importance of economic factors is related to an historical context: state policy naturally has a different emphasis in times of economic hardship than it does in boom periods".(9) According to Freeman, our foreign aid contributions have had an obvious commercial focus since 1982, reflecting Canada's financial "belt-tightening" due to a recession and a general economic decline.

Given the changes experienced in the international climate since the 1970's, how have Canada's aid contributions changed in terms of type of aid contributed, dollar value per type of aid, ratio of aid to GNP, source of aid and targeted

recipients? Her options are varied since aid may be provided in the form of finance (grants and loans); technical assistance (the provision of expert personnel and training); or food aid, emergency assistance or military aid. It may be administered as bilateral aid, multilateral aid, aid from non-governmental organizations (NGO's) and aid from private investors or financiers.

In her article entitled, "The Effect of the World Crisis on Canada's Involvement in Africa", Freeman concluded that "in a time of difficulty, other considerations in Canada's relation with Africa will be secondary to what is perceived, in the short term at any rate, as economic necessity".(10) Does the "short term economic necessity" criteria explain Canada's relationship with aid recipients generally? If so, can this conclusion be supported empirically? The purpose of this thesis is to provide an empirical analysis of the above questions. It begins with a section on theoretical background to illustrate why this analysis is significant. The theoretical background is followed by specific hypothesis, a description of the data set, plus the dependent and independent variables and the specific methodology and techniques to be used in order to test each of the hypothesis listed. This material will then be used as the groundwork to determine those factors which best explain Canadian ODA to recipient countries between 1960-1985.

ENDNOTES - RESEARCH PROBLEM

1. Arnold, Guy, Aid and the Third World: The North / South Divide, Robert Royce Limited, London, 1985, 2.

2. Ibid., 2.

3. Ibid., 4. The seven founding members of the Colombo Plan were Australia, Britain, Canada, Ceylon, India, New Zealand, and Pakistan.)

4. For example, some of the newly formed post-war states fitting this description included Ghana (1957), Nigeria (1960), Somalia (1960), Sudan (1956), Benin (1960), Burkino Faso (1960), Cameroon (1960), Central African Republic (1960), Chad (1960), Congo (1960), Cote d'Ivoire (1960), Gabon (1960), Guinea (1958), Madagascar (1960), Mali (1960), Mauritania (1960), Morocco (1956), Niger (1960), Senegal (1960), Togo (1960), Tunisia (1956), Zaire (1960), India (1947), Indonesia (1945), Jordan (1946), Republic of Korea (1948), Pakistan (1947), Philippines (1946), Sri Lanka (1948), Syria (1946) and Cyprus (1960). Several others emerged in the early and mid 1960's.

5. Hockin, Tom, Independence and Internationalism, Report of the Special Joint Committee on Canada's International Relations, 83.

6. Ibid., 86.

7. Ibid., 87.

8. Association of Universities and Colleges of Canada, "Issues in Canada's Official Development Assistance Policies and Programs", Brief, December 1986, 3.

9. Freeman, Linda, "The Effect of the World Crisis on Canada's Involvement in Africa", Studies in Political Economy, #17, Summer 1985, 108.

10. Ibid., 108.

THEORETICAL BACKGROUND

At this point, it is useful to examine more closely the literature regarding the traditionally cited objectives for foreign aid, in order to illustrate how the rationale for aid has changed with time and circumstance. The predominate paradigms have converged on the economic motivation - particularly during the late 1970's and early 1980's - as the driving force for Canadian ODA. This paradigmatic convergence adds credence to Freeman's "short term economic necessity" argument.

The literature review begins with a description of Marxist, realist and statist orientations. This brief overview is followed by an examination of the traditionally cited motives for ODA from within the respective paradigms.

FROM MARX TO RELATIVE AUTONOMY

According to Marxist theory, the state is depicted as an "instrument" in the hands of capital acting as an agent of the bourgeoisie, that is, the economically dominant class with control over capital and the mode of production. Within the international arena, a particular state's viability depends on its perpetuation of and reproduction of capitalism for survival within a predominantly capitalist international economic system.(1)

Evolving from Marx and paraphrasing Poulantzas' theory of relative autonomy, the state is represented as an organizer and mediator between conflicting classes and internal class forces within capitalist society.(2) This is a significant deviation from determinist theory which suggests that dominant class interests and state policy have a given one to one correlation.(3) Rather, for Poulantzas,

"in holding state power, it (the dominant class) can perpetuate existing social relations only through a whole series of compromises which maintain the unstable equilibrium of the classes present, and through a whole range of political organization and particular ideological functioning, by which it manages to present itself as the representative of the general interest of the people and the embodiment of the unity of the nation".(4)

It is this same condition of relative autonomy through which nation states function within the interdependent, international economic order, that is, producing an unstable equilibrium among conflicting forces (political, economic, military, environmental, et cetera. both nationally and internationally) in order to legitimize themselves internally and abroad as "the representative of the general interest of the people and the embodiment of the unity of the nation". It is from such a world view that Freeman's argument emerges.

THE REALISTS

From a realist's perspective this unstable equilibrium revolves around the issue of war and peace or national security as the major concern. Nation states are the primary actors. Power is the primary orientation.(5) For the realist, humanity will always be segmented in groups that are conflict ridden - hence the quest for power so that one group has the means by which its interests or objectives can be realized at the expense of another group or groups' interests/objectives.

The international realist "views each state as seeking to maximize its security, its advantages, and its ability to influence within a largely anarchic international system".(6) This was the predominate paradigm in Canadian foreign policy literature from 1945-60. It was largely responsible for creating and perpetuating Cold War tensions.(7) Many contemporary political theories assert that within national boundaries, this same "realist" power struggle occurs among political elites(8) and interest groups.(9)

During the 1960's, foreign aid was seen as a substitute for defence spending. It was viewed as a form of sharing the burden of defence among the countries of the North Atlantic Treaty Organization (NATO). At the time, it was a commonly held position that

"if you reduce the aid program from its existing level you will probably have to increase the military expenditures by a greater amount in order to maintain national security".(10)

This aid / defence spending relationship was the basis of some of the first statistical analysis of total aid spending by country.(11)

THE STATIST APPROACH

In contrast to the realist paradigm, the statist approach, as described by Eric Nordlinger and Cranford Pratt, alleges that within any nation-state,

"the bureaucracy has significant autonomy in determining government policy. ... For the statist, the state plays a major initiating role, identifying desirable policies through its own internal procedures, promoting support for these policies, and then executing them."(12)

While international realists hypothesize how changes in the international system precipitate foreign policy changes, statist focus on the internal determinants of foreign policy to explain how the international systemic determinants are transformed into specific policies. The bureaucratic decision-makers are pivotal players in deciding whether and how a state decides to respond to shifts in the distribution of power within the international system. For the statist, the bureaucracy wields a central role in policy making - including ODA eligibility and allocation decisions.(13)

Pratt refers to statist and realist theory as "natural companions" because together they combine a domestic and

international perspective. This statist/realist marriage has traditionally offered three distinct, though often overlapping motives for official development assistance (ODA) - philanthropic, economic and political. These three motives will now be examined through the lens of the Marxist, realist and statist paradigms.(14)

I. PHILANTHROPIC MOTIVATION

The philanthropic motivation for foreign aid stems from a perceived humanitarian or moral obligation of the fortunate few to the less advantaged. It was prevalent during the Pearsonian era of internationalism. Rhetoric engulfing Canadian aid issues during the 1945-60 period was permeated with moral issues. For example, the following quotation from the former Prime Minister, Lester B. Pearson, is indicative of the international realists which predominated during the Pearsonian era.

"It speaks well, I think, for the people of Canada that they are not so preoccupied with the challenging and difficult problems posed by the development of their own economy and the defense of their own security that they have no time to give aid - and thought - to the economic development of other countries who are struggling against much greater odds".(15)

The sources provided in footnote fourteen contain a plethora of references supporting Canada's humanitarian objective for foreign aid disbursements - especially during the immediate post-war period.

From a statist perspective, there is evidence to suggest that those responsible for administering Canadian ODA disbursements share this same philanthropic bent. The Canadian International Image Study conducted in the mid-1970's by Peyton Lyon and Brian Tomlin, asked bureaucrats to rank-order objectives for Canadian development assistance. Their responses ranked "assisting those recipient countries whose need is greatest" second out of a possible eleven objectives for foreign aid.(16) The results of this image study would suggest that, following statist orientations, a predisposition toward altruistic initiatives among the bureaucracy would ultimately be reflected in specific government policies (for example ODA) because the bureaucracy has significant autonomy in determining government policy, promoting support for those policies, then executing them.

For the Marxist, the philanthropic motivation for ODA stems from the perceived currency in managing the contending social forces inherent in capitalism. For example, Cranford Pratt speaks of a counter consensus developing within Canadian society during the past fifteen years. This counter consensus consists of groups such as Project Plowshares, the Canadian Council for International Cooperation, Oxfam, the Canadian Catholic Organization for Development and Peace, Ten Days for World Development, the Inter-Church Committee on Human Rights in Latin America, the Taskforce on the Churches and Corporate

Responsibility, and many of the World Outreach Committees of the Conferences of the United Church which oppose, on ethical grounds, important elements of Canadian foreign policy. For example, nuclear disarmament, human rights, international equity and solidarity with oppressed peoples are some of the rallying points of this counter consensus.(17) From a Marxist perspective, emergency assistance to drought and famine in Ethiopia and the Sudan serves to perpetuate and protect the status quo, while at the same time, effectively responding to pressures from the counter-consensus. Fundamental change in domestic or international systems is thus actually stifled by ODA.

The philanthropic motivation for aid is manifested today by at least the verbal support of a foreign aid target of .7 per cent of Canada's gross domestic product plus Canada's representation on and activity in such international organizations as the United Nations Commission on Human Rights.(18) It has waned, however, in comparison to the focus placed on economic motives during the 1970's and 1980's.

In an Economic Council of Canada's 1978 report entitled, "For a Common Future: A Study of Canada's Relations with Developing Countries", there is no recognition of any national interest in a more just international order. According to "For a Common Future", humanitarian concerns are entirely the

responsibility of individuals. "Moral arguments seldom constitute sufficient reason for action between states."(19)

II. ECONOMIC MOTIVATION

The second traditionally cited motivation or objective for Canadian foreign aid, presented in the literature is economic. The economic objective has received considerable theoretical mileage from both Marxists and statists/realists.(20)

"Because ODA involves government expenditures within the domestic economy, development assistance is assumed to be motivated by a concern to advance the material well-being of the donor - either the donor's economy writ large, or, ... the interests of the capitalist class".(21)

Freeman described Canada's economic interests in the following terms.

" A deeply entrenched ideological commitment has always existed in which political and bureaucratic officials have understood Canada's national interest as the promotion of Canadian capitalism".(22)

Since the immediate post-war years of Pearsonian internationalism, economic issues have increasingly become a major focus of attention in Canadian foreign policy.(23) There are two obvious reasons for this change in focus.

1. The world recessions in the late 1970's and early 1980's led to an increased emphasis on economic issues as opposed to security issues in international relations.

2. The Canadian bureaucratic-corporate relationship, described by Robert Presthus as "continuous, functionally specific and crucial" ensures that economic interests are uppermost in any foreign policy decisions.(24)

Building on Freeman's and Presthus' arguments, it is the growing importance of economic concerns in foreign policy issues, particularly as they relate to ODA, coupled with the elite accommodation between the corporate and bureaucratic relationship that has resulted in Canada's "bias to business" in aid practises. Given that the political arm of the government's primary concern is to maintain office, and given the demonstrated close bureaucratic-corporate relationship in Canada, it is clear that corporate interests are in the right place at this political-economic juncture to wield disproportionate pressure on political decision-makers in comparison to other constituents. The role played by such corporate entities as the Chambers of Commerce and the Canadian Manufacturing Association in the Canada-US Free Trade negotiations are indicative of this disproportionate pressure.

What this means is that,

"When the policy preferences of public officials differ from those of the politically best endowed private actors it is the latter that are almost invariably translated into public policy."(25)

In Canada, the corporate interests are the politically best endowed private actors.(26)

Using his concept of "societal constraint of the state" Nordlinger argues that,

"The state is continuously and inordinately dependent upon societal actors for a variety of specific and diffuse supports, from votes on election day to assistance in the implementation of public policy on a day-to-day basis. ... Those who control a disproportionate share of the resources over time or with respect to any one issue deploy them effectively in exerting control over the state directly, and indirectly, by using them to attain a predominant position within civil society. ... The state is almost invariably unwilling or unable to act upon its preferences when these diverge from society's. If society does not literally predominate from a position above the state, it very much controls it from below. Being subject and subjected to the societal constraints, the state is vulnerable and malleable; those who predominate within civil society dominate the democratic state."(27)

For Nordlinger, the corporate sector constitutes the predominate "effective demand group" within society. In this respect, although he functions from a different paradigm base than Pratt or Freeman, he would share their conclusion that it is the economic interests within the Canadian nation-state that influence the greatest pressure on Canadian foreign policy at this historical juncture. In relation to Canadian foreign aid policy, the program and disbursements reflect the efforts of corporate interests to influence governmental expenditures "either through regular bureaucratic channels or

through producer politics in the electoral or parliamentary arena".(28)

III. POLITICAL MOTIVATION

The third traditional objective for foreign aid is political. Together with the philanthropic and economic objectives, the political objective completes what Nossal refers to as the "original trinity of motivations" for official development assistance.(29)

Seen through the eyes of a realist, by using the transfer of goods and services to achieve security/diplomatic foreign policy objectives, governments use aid for political purposes. For example, during the years 1960-68, via a conscious initiative toward globalism, aid was used as an instrument to advance Canadian interests worldwide, on a bilateral basis. More specifically,

"Canada extended its formal diplomatic presence to all regions and major capitals in the world, dealt with quite distinctive cultural groupings, and supplemented conventional diplomacy by the deliberate use of such new techniques as cultural relations and development assistance".(30)

As well, during the 1960's, "significant Canadian aid" began to be deployed to specific francophone countries (for example Tunisia, Algeria, Gabon, Cote d'Ivoire and Morocco) for the domestic political purpose of countering Quebec's

assertiveness.(31) In the 1970's and 1980's, the Canadian government used aid sanctions against India, Vietnam, Cuba and Sri Lanka to achieve "political" objectives.(32)

In addition to these specific examples, turning now to a statist's perspective, the political motive for ODA is very strong in Canada. The Canadian International Image Study cited earlier ranked "promoting stability in recipient countries" as first from a possible eleven objectives.(33) In an unpublished paper entitled, "CIDA: The Organization - With Special Reference to the Special Programs Branch", this author demonstrated that CIDA's organizational configuration is not so much for program / project delivery effectiveness as it is to provide the Canadian state - through CIDA's bureaucracy - maximum political flexibility and maneuverability within an increasingly interdependent international environment.

For Marxists, the political motivation for ODA is the reverse side of the economic coin. Aid is used in the state's interest to manage the contending social forces inherent in capitalism. In each of the cases cited in the above paragraphs within the realist paradigm, Marxists view the same political decisions regarding ODA as overt initiatives to maintain and perpetuate Canadian capitalism within an international capitalist economic system or to prop up a state that will support capitalism.

Regardless of the paradigm analytical base, literature from the past fifteen years converges on economics as one of the predominate driving forces behind ODA policy and disbursements. While political and philanthropic considerations may still exert pressure around specific issue areas, they have less impact in this area of foreign policy than during the immediate post-war era. The task now is to determine whether or not such an academic consensus can be supported empirically.

ENDNOTES - THEORETICAL BACKGROUND

1. Nordlinger, Eric A., On the Autonomy of the Democratic State, 47-48.
2. Poulantzas, Nicos, Political Power and Social Classes, London, 1978, pt. IV. See also, Panitch, Leo, ed., The Canadian State: Political Economy and Political Power, University of Toronto Press, Toronto, 1977 plus Nordlinger, Eric A., On the Autonomy of the Democratic State, Harvard University Press, Cambridge, 1981.
3. For a description of Determinist Theory within a political context, see Montopoulos, Kyriakos M., Knowledge and Determination: The Transition from Hegel to Marx, B.R. Gruner Publishing Co., Amsterdam, 1980, Chapter IV.
4. Poulantzas, Nicos, Political Power and Social Classes, 283.
5. Keohane, R.O., "Theory of World Politics: Structural Realism and Beyond", in A.W. Finifter, Political Science: the State of the Discipline, 1983, 503-40. Also see Lapid, Y., "The Richness of Nationalism and the Poverty of Neorealism", Department of Political Science, Carleton University, Fall Term 1987. Because the pluralist paradigm parasitically hinges on the nation state - a realist concept - it is not considered in this analysis. An explanation of the pluralist paradigm, as it relates to Canadian foreign policy issues can be found in Pratt, Cranford, "Dominant Class Theory and Canadian Foreign Policy: The Case of the Counter-Consensus", Development Studies Programme, University of Toronto, Working Paper A, 6(November 1983).
6. Pratt, Cranford, "Dominant Class Theory and Canadian Foreign Policy: The Case of the Counter-Consensus", 102.
7. See Dewitt, David and Kirton, John, Canada as a Principal Power, John Wiley, 1983, 17-28.
8. See Porter, John, The Vertical Mosaic, University of Toronto Press, Toronto, 1975; Clement, Wallace, The Canadian Corporate Elite, Macmillan, Toronto, 1975; and, Presthus, Robert, Elite Accommodation in Canadian Politics, Macmillan, Toronto, 1973.
9. See Pross, A. Paul, ed., Group Politics and Public Policy, Oxford University Press, Toronto 1986; Pross, A. Paul, Pressure Group Behaviour in Canadian Politics, McGraw-Hill Ryerson, Toronto, 1975; and, Pross, A. Paul, ed., "Governing Under Pressure: Special Interest Groups", Canadian Public

Administration, Vol. 25, NO. 2, Summer 1982 - the entire issue.

10. Van Ypersele de Strihou, J., "Sharing the Defense Burden Among Western Allies", Review of Economics and Statistics, 49(November 1967), 527-536.

11. Dudley, Leonard and Montmarquette, Claude, The Supply of Canadian Foreign Aid: Explanation and Evaluation, Economic Council of Canada, Ottawa, 1978, 40.

12. Pratt, Cranford, "Dominant Class Theory and Canadian Foreign Policy: The Case of the Counter-Consensus", 103. This view is shared by Eric Nordlinger. Nordlinger, however, also claims the state is dependent on societal support thus subject to various social constraints. See Nordlinger, Eric A., On the Autonomy of the Democratic State, Harvard University Press, Cambridge, Massachusetts, 1981, 42-43.

13. Dewitt, David and Kirton, John, Canada as a Principal Power, John Wiley, Toronto, 1983. A similar conclusion was drawn in an unpublished paper by this author entitled, "Decision Maker Interaction Study: The Immigration Group, Canada Employment and Immigration Commission", Carleton University, April, 1987.

14. In his article, "Mixed Motives Revisited: Canada's Interest in Development Assistance, Kim Nossal cites the following sources in support of this approach to the study of Canadian foreign aid. Anglin, D.G., "Canada's External Assistance Programme", International Journal, 9(1954), 193-207; Reuber, G.L., "Why Canadian Foreign Aid?", International Journal, 14(1958-59), 11-20; Spicer, Keith, A Samaritan State? External Aid in Canada's Foreign Policy, University of Toronto Press, Toronto, 1966; Reuber, G.L., "The Trade-offs Among the Objectives of Canadian Foreign Aid", International Journal, 25(1969-1970), 129-41; Triantis, S.G., "Canada's Interest in Foreign Aid", World Politics, 24(1971), 1-18; Lyon, Peyton, "Introduction" in Lyon, Peyton V. and Ismael, Tareq Y., eds., Canada and the Third World, Macmillan, Toronto, 1976; Dudley, L. and Montmarquette, Claude, The Supply of Canadian Foreign Aid: Explanation and Evaluation, Economic Council of Canada, Ottawa, 1978, chapter 3; Economic Council of Canada, For a Common Future: A Study of Canada's Relations with Developing Countries, Supply and Services Canada, Ottawa, 1978; Morrison, David R., "Canada and International Development", Journal of Canadian Studies, 14(1979-80), 133-44; North-South Institute, In the Canadian Interest? Third World Development in the 1980's, North-South Institute, Ottawa, 1980; Carty, Robert, and Smith, Virginia, Perpetuating Poverty: The Political Economy of Canadian Foreign Aid, Between the Lines, Toronto, 1981, chapter 2; Lavergne, Real P., "The

Determinants of Canadian Aid Policy", paper prepared for the Western Middle Powers and Global Poverty Project, Ottawa, 1986.

15. UN Association in Canada, Conference on Canadian Aid to Underdeveloped Countries, Proceedings, Ottawa, 1955, 7.

16. Nossal, Kim, "Mixed Motives Revisited: Canada's Interest in Development Assistance", Canadian Journal of Political Science, XXI:I, March 1988, 36.

17. Pratt, Cranford, "Dominant Class Theory and Canadian Foreign Policy: The Case of the Counter-Consensus", 118-119.

18. Doxey, Margaret, "Human Rights and Canadian Foreign Policy", Behind the Headlines, No.4, 1979; Humphrey, J.P., "The Role of Canada in the UN Program for the Promotion of Human Rights", in R. St. John Macdonald's Canadian Perspectives on International Law; Sewell, J.P., "Canada and the Functional Agencies", International Journal, Spring, 1978.) The human obligations of global solidarity are demonstrated through the international network created by peace and disarmament movements plus international initiatives to combat starvation, systemic torture and extensive detention without trial.(Pratt, Cranford, "Canadian Foreign Policy: Bias to Business", International Perspectives, November/December 1982, 3.

19. Economic Council of Canada, "For a Common Future: A Study of Canada's Relations with Developing Countries", Ottawa, 1978.

20. The following sources approach the economic motivation for aid using their respective paradigm as a framework for analysis. Spicer, Keith, A Samaritan State? External Aid in Canada's Foreign Policy, University of Toronto Press, Toronto, 1966; Reuber, G.L. "The Trade-offs Among the Objectives of Canadian Foreign Aid", International Journal, 25 (1969-1970), 129-41; Triantis, S.G., "Canada's Interest in Foreign Aid", World Politics, 24(1971), 1-18; plus Peyton V. Lyon's "Introduction" in Lyon, Peyton V. and Ismael, Tareq Y. (eds.), Canada and the Third World, Macmillan, Toronto, 1976; Pratt, Cranford, "Canadian Foreign Policy: Bias to Business", International Perspectives, November/December 1982, 3-7; Pratt, Cranford, "Canadian Policy Towards the Third World: Basis for an Explanation", Studies in Political Economy, No.13, Spring 1984, 27-55; Freeman, Linda, "The Effect of the World Crisis on Canada's Involvement in Africa", Studies in Political Economy, No.17, Summer 1985, 107-139.

21. Nossal, Kim Richard, "Mixed Motives Revisited: Canada's Interest in Development Assistance", Canadian Journal of Political Science, XXI:I, March, 1988, 36.

22. Freeman, Linda, op. cit., 108.

23. Pratt, Cranford, "Canadian Foreign Policy: Bias to Business", International Perspectives, November/December 1982, 3.

24. Presthus, Robert, Elite Accommodation in Canadian Politics, Macmillan, Toronto, 1973. See also, Olsen, Dennis, The State Elite, McClelland and Stewart, Toronto, 1980.

25. Nordlinger, Eric A., op. cit., VI.

26. Pratt, Cranford, "Dominant Class Theory and Canadian Foreign Policy: The Case of the Counter-Consensus", 107.

27. Nordlinger, Eric A., op. cit., 42-43.

28. Tarschys, Daniel, "The Growth of Public Expenditures: Nine Modes of Explanation", Scandinavian Political Studies, 10(1975), 9-13.

29. Nossal, Kim Richard, Ibid., 37. Later in this same article, Nossal presents an alternative set of motives which he argues more accurately account for the level and nature of Canada's development assistance. These include the Canadian state's interest in prestige, organizational maintenance and limiting real expenditures. Nossal admits, however, that these three alternatives are actually an elaboration and refinement of the politico-strategic motives from a statist/realist perception. For this reason they are not discussed separately in this paper.

30. Dewitt, David B. and Kirton, John J., Canada as a Principal Power, John Wiley & Sons, Toronto, 1983, 39.

31. Ibid., 39, 382.

32. Nossal, Kim Richard, op. cit., 36. Vietnam was reinstated in January 1990 as a "potential recipient for Canadian ODA".

33. Lyon, Peyton and Tomlin, Brian, Canada as an International Actor, Macmillan, Toronto, 1979, 158-59, Table 8.2.

HYPOTHESIS

If the academic consensus that economics is the predominate driving force behind ODA disbursements is valid, then there should be little difficulty in empirically substantiating that:

HYPOTHESIS #1. There is a positive relationship between Canada's economic growth and her total foreign aid contributions. This hypothesis was substantiated by Dudley and Montmarquette's analysis but refuted by Real Lavergne's work.(1)

HYPOTHESIS #2A. Between 1960-1985, the proportion of bilateral aid to multilateral aid increases. That is, there is a negative relationship between bilateral and multilateral aid. This hypothesis coincides with a general post war movement from multilateralism to bilateral aid.(2)

Bilateral, or government to government, ODA is that aid channel in which the governments of Canada and the recipient country agree upon a program of assistance according to the country's priorities and Canada's abilities to assist. Multilateral aid represents ODA funds channeled through international financial institutions, UN agencies, the Commonwealth and La Francophonie plus various research and

humanitarian organizations. A complete listing of multilateral institutions to which Canada contributes via the ODA program is provided in the CIDA Annual Report 1985-86.

HYPOTHESIS #2B. There is a negative relationship between bilateral aid and the Canadian GNP growth rate. As Canada's economy declines or stagnates, the need for greater control of ODA contributions is realized by greater use of the bilateral aid channel.

HYPOTHESIS #3. As Canada's economy stagnates or declines, the proportion of "tied aid" increases. Tied Aid is that portion of aid which the recipient is obliged to use to purchase goods and services from the donor country. To reflect vested interests for the corporate constituency, during times of economic decline, the proportion of tied aid is expected to increase. Another reason why this result may be anticipated is that there has been a general post-war movement away from multilateral aid to bilateral aid. Only bilateral aid is tied. This means that an inverse relationship between these two variables should be easily determined empirically within the time frames in question because of the late 1970's and early 1980's recessions.

HYPOTHESIS #4A. There is no relationship between Canadian aid contributions and exports to Canada from recipient countries.

HYPOTHESIS #4B. There is no relationship between Canadian aid contributions and Canadian imports to recipient countries.

While commercial interests would suggest a positive correlation in 4A and 4B, these hypothesis are supported by an earlier study in which it was quantitatively proven that Canada's commercial exports are not an important factor in the selection of recipients for its foreign aid.(3) They are further supported by the position that for the bulk of Canadian aid "countries are not selected primarily with commercial objectives in mind. ... It should be obvious that the primary motivation of Canadian aid policy is not a commercial one."(4)

Shifting focus from the short term economic considerations, this author argues that:

HYPOTHESIS #5A. There is a negative relationship between Canada's aid contributions and the size of the recipients' GNI/capita. That is, the lower the recipients countries' GNP/capita, the greater Canada's aid contributions.

HYPOTHESIS #5B. There is a negative relationship between Canada's aid contributions and the recipient countries' GNP growth rate/capita. That is, the lower the recipient countries' GNP growth rate/capita, the greater Canada's aid contributions.

These hypothesis (5A and 5B) are consistent with Canada's stated policy of helping the "poorest of the poor". They are also supported by Lavergne's position that, especially for the bilateral aid channel, the concentration is on low income and low growth countries.

HYPOTHESIS #6. There is a negative relationship between Canadian aid contributions and the geographical size of recipient countries. That is, the larger the Canadian aid contributions, the smaller the geographical size of the recipient country. As a country's geographical size and subsequent resources limit its ability to sustain its population, aid from outside sources becomes necessary. While the "small country bias" has not been substantiated empirically since 1969, as a basis for Canadian foreign aid, the hypothesis warrants further examination with this data base. (6)

HYPOTHESIS #7A. There is a positive relationship between Canadian aid contributions and the population size of recipient countries. In the Dudley and Montmarquette study cited in hypothesis 4, it was determined that "in terms of population size, the smallest developing countries received a disproportionately large share of Canadian bilateral aid". This author will attempt to refute that finding.

HYPOTHESIS #7B. There is a positive relationship between Canadian aid contributions and the population density within recipient countries.

HYPOTHESIS #7C. There is a positive relationship between Canadian aid contributions and the illiteracy rate in recipient countries.

HYPOTHESIS #7D. There is a positive relationship between Canadian aid contributions and the percentage of the recipient countries' population in agriculture.

HYPOTHESIS #7E. There is a positive relationship between Canadian aid contributions and the size of the recipients' population under 15 years of age.

HYPOTHESIS #8A. There is no relationship between Canadian aid contributions and the percentage of urban residents in recipient countries.

HYPOTHESIS #8B. There is no relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors.

Since population density figures for this data base do not reflect density in the urban sense nor do they indicate the supporting power of the territory's land and resources, there should be no correlation between aid contributions and the percentage of urban residents in recipient countries; nor, the size of the recipient countries' population in non-agricultural sectors. Until the aid policy articulated in Sharing Our Future adopted a more proactive as opposed to a reactive approach to ODA, the latter two variables received virtually no attention in Canadian aid allocation decisions.

HYPOTHESIS #9. In an effort to help the "poorest of the poor", Canada's aid contributions are targeted toward the Least Developed Countries (LDC's). That is, there is a positive relationship between Canada's aid contributions and the recipients labelled as Least Developed Countries.

HYPOTHESIS #10. Canada's aid contributions are targeted toward recipients sympathetic to Canada's two founding cultures, English and French. More specifically, there is a positive relationship between Canada's aid contributions and recipients' majority population being either a member of the Commonwealth or la francophonie. This hypothesis was supported by Dudley and Montmarquette as well as Lavergne.(8)

HYPOTHESIS #11. In terms of funds allocated through particular aid channels, there has been a relative increase in the proportion of aid designated for the Non-Governmental Organizations Program (NGO) as compared to the government to government or multilateral channels. That is, there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid. CIDA and OECD statistics indicate a steady increase in the proportion of Canadian bilateral to multilateral aid since the post-war era. At the same time, funds allocated for the NGO program have been growing more rapidly than funds for bilateral programs. Consequently, this anticipated inverse relationship should be easily substantiated empirically.

The next portion of the analysis begins with a description of the data source, methodology, and techniques used in the empirical testing of each hypothesis. The results of the empirical analysis, followed by the conclusions, explaining the driving forces behind Canada's ODA contributions, complete this study.

Endnotes - Hypothesis

1. Dudley, Leonard and Montmarquette, Claude, The Supply of Canadian Foreign Aid: Explanation and Evaluation, Economic Council of Canada, Ottawa, 1978; Lavergne, Real, "The Determinants of Canadian Aid Policy", prepared for the Western Middle Powers and Global Poverty Project, 1988.
2. Hudson Michael, "The Political Economy of Foreign Aid", in Goulet, Denis and Hudson, Michael, The Myth of Aid, IDOC North America, New York, 1971.
3. Dudley, Leonard, and Montmarquette, Claude, The Supply of Canadian Foreign Aid: Explanation and Evaluation, Economic Council of Canada, Ottawa, 1978, 79.
4. Lavergne, Real, op. cit., 27,35.
5. Ibid., 27.
6. Dudley, Leonard, and Montmarquette, Claude, op. cit., 63.
7. Ibid., 17.
8. Dudley, Leonard and Montmarquette, Claude, op. cit., 103; Lavergne, Real, op. cit., 28.

METHODOLOGY

A. Data Set: Variables and Sources

The data set for this analysis was compiled from documentation produced by the Department of External Affairs (DEA), the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC), the Economic Development Corporation (EDC), the United Nations (UN), the Central Intelligence Agency (CIA), and Statistics Canada. Data is available for Canada's total recipient Official Development Assistance (ODA) population from 1960 to 1985 inclusive. The exception is for states that did not secure independence until after 1960. In those cases, data is provided after the date of independence.

The unit of analysis is recipient country by year. There are one hundred and twenty-two countries listed in the data base. They include: Algeria, Angola, Anguilla, Argentina, Antigua, Bangladesh, Barbados, Belize, Benin, Bhutan, Bolivia, Botswana, Brazil, Burkino Faso, Burma, Burundi, Cameroon, Canada, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Cook Islands, Costa Rica, Cote d'Ivoire, Cuba, Cyprus, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guatemala,

Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Israel (Gaza Strip), Jamaica, Jordan, Kenya, Kiribati, Korea (Republic of), Lebanon, Lesotho, Liberia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Mauritania, Mauritius, Mexico, Montserrat, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Solomon Islands, Somalia, South Africa, Sri Lanka, St. Kitts, St. Lucia, St. Vincent, Sudan, Suriname, Swaziland, Syria, Tanzania, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turks and Caicos Islands, Tuvalu, Uganda, Uruguay, Vanuatu, Venezuela, Virgin Islands, Western Samoa, Yemen Arab Republic, Yemen (Democratic People's Republic of), Zaire, Zambia, and Zimbabwe. This list of countries to which Canada provided ODA was taken from CIDA's 1985-86 Annual Report, Table M, pages 109-113. To the extent that information was available, data was collected covering the time period 1960 - 1985 for each of the countries listed.

Variables for each country within the data set include:

1. Government to Government ODA (excluding food aid) - This variable, reported in (\$000), was taken from the International Development Association (IDA) Report #2 dated 11/02/87 documenting country

to country ODA by Fiscal Year (1950-1986). Government to government ODA, often referred to as bilateral aid, is that aid channel in which the governments of Canada and the recipient country agree upon a program of assistance according to the country's priorities and Canada's abilities to assist.

2. Non-Governmental Organizations Program - This variable, reported in (\$000), was taken from IDA Report #2 dated 11/02/87 documenting country to country ODA by Fiscal Year (1950-1986). This program supports the overseas development efforts of Canadian NGO's (national private organizations) by matching their funds raised to work with partner agencies in the Third World.

3. Industrial Cooperation Program (INC) - This variable, reported in (\$000), was taken from IDA Report #2 dated 11/02/87 documenting country to country ODA by Fiscal Year (1950-1986). INC supports private sector initiatives aimed at establishing joint ventures or other forms of collaboration in order to transfer technology to developing countries. Canadian firms receive funding for starter and feasibility studies, and

for project preparation. Support is also provided for investment missions and technology transfer. (CIDA Annual Report 1985-86, 59.)

4. Humanitarian Assistance - This variable, reported in (\$000), was taken from IDA Report #2 dated 11/02/87 documenting country to country ODA by Fiscal Year (1950-1986). It is the channel through which Canada provides a rapid response to the immediate relief needs of disaster victims (floods, earthquakes, nuclear and chemical accidents, et cetera) in recipient countries.

5. Food Aid - The amount of Food Aid, reported in (\$million), was taken from CIDA Annual Reports. Food aid is provided through three main channels: multilateral institutions (for example, the United Nations World Food Program), bilateral arrangements with specific countries and Canadian non-government organizations. In this data base, food aid includes only the bilateral arrangements with specific countries. Contributions through multilateral institutions and non-governmental organizations are included within those respective variables.

6. International Development Research Centre Funds
- The International Development Research Centre (IDRC) supports the efforts of developing countries to build up their own research capabilities, particularly in the areas of agriculture, energy, health and education. This variable, reported in (\$000) was taken from CIDA Report #2 dated 11/02/87.

7. Petro-Canada International Assistance Corporation - The Petro-Canada International Assistance Corporation assists developing countries to reduce their dependence on imported oil by using Canadian technology and expertise for oil and gas exploration. This variable, reported in (\$000) was taken from CIDA Report #2 dated 11/02/87.

8. Provincial Government Contributions to Non-Governmental Organizations - Provincial Government Contributions to NGO's, reported in (\$million), were taken from CIDA Annual Reports beginning with the 1982 Annual Report. This variable represents Provincial Government contributions to NGO's for which CIDA has matching funds.

9. Gross National Product (GNP) Per Capita - The recipient countries' GNP / Capita, reported in (\$U.S.), was taken from Canada's Bilateral Relations: Some Key Statistics, an annual publication produced by the Policy Planning Secretariat, External Affairs, Canada.

10. GNP Growth Rate - The recipient countries' GNP Growth Rate was taken from the annual reviews of Development Co-operation: Efforts and Policies of the Members of the Development Assistance Committee, OECD, Paris.

11. Exports to Canada - Exports to Canada by country, reported in (\$000 Canadian), were taken from Canada's Bilateral Relations: Some Key Statistics, an annual publication produced by the Policy Planning Secretariat, External Affairs, Canada, and from Statistics Canada, External Trade Division.

12. Imports from Canada - Imports from Canada by country, reported in (\$000 Canadian), were taken from Statistics Canada, External Trade Division.

13. Least Developed Country - Least Developed Countries comprise the developing countries whose per capita gross domestic product (GDP) did not exceed the equivalent of \$100 in 1986, whose share of manufacturing in total GDP did not exceed 10 per cent, and whose adult literacy rate did not exceed 20 per cent. These countries are: Afghanistan, Bangladesh, Benin, Bhutan, Botswana, Burkino Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Djibouti, Equatorial Guinea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Laos, Lesotho, Malawi, Maldives, Mali, Nepal, Niger, Rwanda, Samoa, Sao Tome-Principe, Sierra Leone, Somalia, Sudan, Tanzania, Togo, Uganda, Yemen PDR, and Yemen Republic. Information for this variable was taken from Giuseppe Schiavore's International Organizations: A Dictionary and Directory, The Macmillan Press Ltd., London, 1986.

14. Commonwealth Member - The list of Commonwealth members, including the year each member joined the organization, was taken from the Commonwealth Yearbook published by the Foreign and Commonwealth Office, London, 1987.

15. La Francophonie Member - The list of la francophonie members was taken from the conference report of the September 1987 Quebec summit in Arabies. Le Mensuel du Monde Arabe et de la francophonie, No.9, Septembre, 1987 plus Canada Yearbook 1988, 21-4 and 21-5.

16. Area in Square Kilometres - The area of each country, reported in square kilometres, was taken from the World Development Report 1987, World Bank, Washington, D.C., and Canada's Bilateral Relations: Some Key Statistics, an annual publication produced by the Policy Planning Secretariat, External Affairs, Canada.

17. Population - The population for each country was taken from United Nations Demographic Yearbooks.

18. Population Density Per Square Kilometre - The population density figures are the quotients of population divided by surface area. They do not reflect density in the urban sense nor do they indicate the supporting power of a territory's land and resources. This information was taken from United Nations Demographic Yearbooks and UNESCO

Statistical Yearbooks.

19. Percentage Urban Residents - The percentage of the population living in urban centres was taken from United Nations Demographic Yearbooks.

20. Illiteracy Rate - The source for the illiteracy rate was the UNESCO Statistical Yearbooks with special emphasis on information supplied by the United Nations Educational Scientific and Cultural Organization.

21. Percentage Population in Agriculture - This variable represents the percentage of the population, over 15 years, engaged in agriculture. The information was taken from the FAO Agricultural Yearbook of Food and Agricultural Statistics.

22. Population in Non-Agricultural Sectors - This variable, reported in (000's) represents the number of individuals over 15 years engaged in employment in non-agricultural sectors. The information was taken from the United Nations Yearbook of Labour Statistics.

23. Population Under 15 Years - The population under 15 years, in (000's), was taken from the World Bank's, World Population Projections.

24. Percentage of Canadian ODA to Canadian GNP - The percentage of Canadian ODA to GNP was taken from the Canadian Almanac and Directory, 1988.

25. Recipient countries' average GNP Growth Rate Per Capita - The average GNP growth rate per capita was taken from Development Co-operation Annual Reviews: Efforts and Policies of the Members of the Development Assistance Committee, OECD, Paris plus Canada Yearbook 1988.

26. Canadian Inflation Rate - The average annual inflation rate (percent) was taken from the World Development Report, 1980 and 1987, World Bank, Washington, D.C.

27. Multilateral Aid - The dollar value of Canadian multilateral aid was taken from CIDA Annual Reports. This variable represents ODA funds channeled through international financial institutions, UN agencies, the Commonwealth and La Francophonie plus various research and humanitarian

organizations. See CIDA Annual Report 1985-86 for a complete listing.

28. Canadian GNP Growth Rate - The Canadian GNP growth rate depicts the growth rate in real terms after adjustments for price changes. It is represented as a percentage rather than a dollar value. This information was taken from Canada Yearbooks plus Statistics Canada's National Income and Expenditures Accounts, Quarterly Estimates, 1947-86.

29. Tied Aid - The percentage of bilateral ODA that is tied was taken from the OECD's Development Assistance Review, 1961-1986. Tied Aid is that portion of aid which the recipient is obliged to use to purchase goods and services from the donor country. Only bilateral aid is tied.

The real average annual GNP growth rate was used as the indicator of the condition or strength of the Canadian economy. Other economic indicators such as unemployment, and the size of the federal deficit have not been included within the parameters of this data set.

From a political perspective, there are some obvious variables that are also omitted from this data set. For example, the political posture of the recipient country, the degree of dissent tolerated, media ownership and/or control, the degree of corruption, whether the recipient country is a member of the International Monetary Fund, whether mayors or provincial officials are appointed by the central government, and whether exit permission is required for residents to travel abroad are all variables that would lend considerable substance to an analysis of each recipient country's political composition and climate at a given time. At first glance, it may appear logical that these factors would be considered in the determination of eligibility for and allocation of Canadian ODA. In speaking with personnel from the Strategic Planning Division in CIDA and External Affairs, Economic Relations With Developing Countries, Aid Policy, however, both sources emphasized that this type of information is not even considered in eligibility or allocation decisions for Canadian ODA.

The reasons for this are twofold:

1. Canada is a middle power within the international arena. As such, these kinds of criteria for aid disbursements are simply inappropriate, whereas with a super power such as the United States, a potential recipient country's

"political posture" can be a major eligibility as well as allocation factor.

2. CIDA functions in a reaction mode. That is, during the 1960-85 period, in spite of some rhetoric to the contrary, aid was essentially granted in response to specific country requests on the basis of particular issues rather than any comprehensive aid policy. This has been less the case since 1987 with the Sharing Our Future policy statement in which a proactive approach to ODA was first adopted.(1)

As a result, CIDA makes no attempt to capture these kinds of political variables "at all". The Aid Policy Division within External Affairs indicated that while such information is available in a narrative format the utility of such material, if reduced to a tabular form, is questionable.(2) The exploration of and testing of External Affairs' assessment regarding tabularly formatting these political variables is not addressed in this analysis.

B. Statistical Procedures

The following statistical procedures were executed to test the stated hypothesis.

Note: i) Because the data base consists of time related data, for each test executed to examine a specific hypothesis a Durbin-Watson test was conducted to check for autocorrelation.

ii) Wherever "total aid" was used as the dependent variable, it was computed the same way as in the test for Hypothesis #1.

iii) As a final test for each hypothesis, an additional regression was executed including "year" as a control variable, to determine trends in the dependent variable over time.

HYPOTHESIS #1: There is a positive relationship between Canada's economic growth and her total foreign aid contributions.

To test this hypothesis, a bivariate regression was run with the dependent variable, total aid, and the independent variable being Canadian GNP growth rate. For this test, total aid was computed by adding government to government aid , contributions to non-government organizations, Industrial Cooperation funds (beginning in 1971), humanitarian

assistance, food aid (converted to \$1000's for consistency in units' size), International Development Research funds (beginning in 1970), Petro-Canada Assistance funds (beginning in 1982), provincial government contributions to NGO's (beginning in 1982 - these funds are matched by CIDA funds), and multilateral aid (converted to \$1000's for consistency in units' size). The regression technique facilitated the examination of changes in the Canadian GNP growth rate over the entire 1960-85 time period in relation to subsequent changes in Official Development Assistance (ODA).

While it is true that food aid and humanitarian assistance have traditionally been allocated on a short term crises bases, both have become a consistent portion of Canada's aid contributions. Within the time frame under study they have constituted up to 9.4% of Canada's ODA.(3) For this reason, food aid and humanitarian assistance were included in this and subsequent regressions where the variable total aid is used. A one year difference or change variable was created for total aid (as opposed to a total for a year) in order to more accurately reflect the focus of government decisions. As well, the Canadian GNP growth rate was lagged three years to reflect the budgetary cycle.

HYPOTHESIS #2A: Between 1960-1985, the proportion of bilateral to multilateral aid increases. That is, there is a negative relationship between bilateral and multilateral aid.

To test this hypothesis, a regression was run with bilateral aid as the dependent variable and multilateral aid as the independent variable. For this procedure, bilateral aid was computed by adding government to government aid, humanitarian assistance, food aid (calculated in \$1000's for consistency in units' size), included International Development Research funds, and Petro-Canada International Assistance funds. A difference variable of one year was created for bilateral aid and multilateral aid respectively, as opposed to a total for a year, in order to more accurately reflect the focus of government decisions.

HYPOTHESIS 2B: There is a negative relationship between bilateral aid and the Canadian GNP growth rate.

To test this hypothesis, a regression was run with the dependent variable, bilateral aid, and the independent variable being the Canadian GNP growth rate. For this procedure, bilateral aid was computed in the same manner as in the regression testing Hypothesis 2A. The Canadian GNP growth

rate was lagged three years to reflect the budgetary cycle.

HYPOTHESIS #3: As Canada's economy stagnates or declines, the proportion of "tied aid" increases.

From 1960 to 1970 Canada's bilateral aid was tied 100%. As a result of Trudeau's Foreign Policy for Canadians this was relaxed to 80% in 1969-70. It was not until 1981 and beyond, however, that OECD, DAC Development Cooperation Reviews recorded annual fluctuations in the percentage of Canada's tied aid component. In order to test this hypothesis, the dependent variable was tied aid, computed into a one year difference variable, and the independent variable was the Canadian GNP growth rate lagged three years.

HYPOTHESIS #4A: There is no relationship between Canadian aid contributions and exports to Canada from recipient countries.

To test this hypothesis, a regression was run with the dependent variable, total aid, and the independent variable being exports to Canada from recipient countries. Total aid, was computed in the same way as for the regression testing Hypothesis #1. The independent variable was computed into a one year difference variable to reflect changes in exports to Canada rather than levels.

HYPOTHESIS #4B: There is no relationship between Canadian aid contributions and Canadian imports to recipient countries.

To test this hypothesis, a regression was run with the dependent variable, total aid, computed as in the regression testing Hypothesis #1, and the independent variable being Canadian imports to recipient countries. The independent variable was computed into a one year difference variable to reflect changes in imports from Canada rather than levels.

HYPOTHESIS #5A: There is a negative relationship between Canada's aid contributions and the size of the recipients' GNP per capita. That is, the lower the recipients' GNP/capita the greater Canada's aid contributions.

To test this hypothesis, a regression was run with the dependent variable, total aid, computed in the same manner as in the regression testing Hypothesis #1, and the independent variable being recipient countries' GNP per capita. The independent variable, recipient countries' GNP / capita was lagged three years to account for their respective budgetary cycles and fluctuations in overall economic performance.

HYPOTHESIS #5B: There is a negative relationship between Canada's aid contributions and the recipients' GNP growth rate/capita. That is, the lower the recipients' GNP growth rate/capita, the greater Canada's aid contributions.

To test this hypothesis, a regression was run with the dependent variable, total aid, computed the same as in the regression testing Hypothesis #1, and the independent variable being recipient countries' GNP growth rate per capita. The independent variable, recipient countries' GNP growth rate / capita was lagged three years to account for their respective budgetary cycles and fluctuations in overall economic performance.

HYPOTHESIS #6: There is a negative relationship between Canadian aid contributions and the geographical size of recipient countries. That is, the larger the Canadian aid contributions, the smaller the geographical size of the recipient country.

The test for this hypothesis was a regression with the dependent variable being total aid, computed the same as in the regression testing Hypothesis #1, and the independent variable being the geographical size of the recipient

countries.

An earlier hypothesis, which has been eliminated from this thesis, stated that there was no relationship between this dependent variable and this independent variable. The results of a regression testing that earlier hypothesis suggested a different approach to these variables was warranted. As well, some literature on ODA addresses the "small country" theory as a criteria for Canadian aid contributions.(4)

HYPOTHESIS #7A: There is a positive relationship between Canadian aid contributions and the population size of recipient countries.

The test for this hypothesis was a bivariate regression with the dependent variable being total aid, computed the same way as in the regression testing Hypothesis #1, and the independent variable being the population size of recipient countries. The independent variable, population size of recipient countries, was computed into a one year difference variable, then lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #7B: There is a positive relationship between Canadian aid contributions and the population density within recipient countries.

The test for this hypothesis was a bivariate regression with the dependent variable being total aid, computed the same way as in the regression testing Hypothesis #1, and the independent variable being the population density within recipient countries. The independent variable, population density within recipient countries, was computed into a one year difference variable, then lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #7C: There is a positive relationship between Canadian aid contributions and the illiteracy rate in recipient countries.

The test for this hypothesis was a bivariate regression with the dependent variable being total aid, computed the same way as in the regression testing Hypothesis #1, and the independent variable being the illiteracy rate in recipient countries. The independent variable, illiteracy rate in recipient countries, was computed into a one year difference variable, then lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #7D: There is a positive relationship between Canadian aid contributions and the percentage of the recipient countries' population in agriculture.

The test for this hypothesis was a bivariate regression with the dependent variable being total aid, computed the same way as in the regression testing Hypothesis #1, and the independent variable being the percentage of the recipient countries' population in agriculture. The independent variable, percentage of the recipient countries' population in agriculture, was computed into a one year difference variable, then lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #7E: There is a positive relationship between Canadian aid contributions and the size of the recipient countries' population under 15 years of age.

The test for this hypothesis was a bivariate regression with the dependent variable being total aid, computed the same way as in the regression testing Hypothesis #1, and the independent variable being the size of the recipient countries' population under 15 years of age. The independent variable, size of the recipients' population under 15 years of age, was computed into a one year difference variable, then

lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #8A: There is no relationship between Canadian aid contributions and the percentage of urban residents in recipient countries.

A bivariate regression was attempted using total aid, computed the same way as in the regression testing Hypothesis #1, as the dependent variable and the percentage of urban residents in recipient countries as the independent variable. The independent variable, percentage of urban residents in recipient countries, was computed into a one year difference variable, then lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #8B: There is no relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors.

A bivariate regression was attempted using total aid, computed the same as in the regression testing Hypothesis #1, as the dependent variable and the percentage of recipient countries' population in non-agricultural sectors as the independent variable. The independent variable, percentage of recipient countries' population in non-agricultural sectors, was

computed into a one year difference variable, then lagged two years to reflect CIDA's project life cycle.

HYPOTHESIS #9: In an effort to help the "poorest of the poor", Canada's aid contributions are targeted toward the Least Developed Countries (LDC's). That is, there is a positive relationship between Canada's aid contributions and the recipients labelled as Least Developed Countries.

The test for this hypothesis was a bivariate regression using total aid, computed the same as in the regression testing Hypothesis #1, as the dependent variable and Least Developed Countries as the independent variable.

HYPOTHESIS #10: Canada's aid contributions are targeted toward recipients sympathetic to Canada's two founding cultures, English and French. More specifically, there is a positive relationship between Canada's aid contributions and recipients' majority population being either a member of the Commonwealth or la francophonie.

The test for this hypothesis was a bivariate regression using total aid, computed the same way as in the regression testing Hypothesis #1, as the dependent variable and the Commonwealth

plus la francophonie as a combined independent variable. Since the hypothesis stipulates membership in "either ... the Commonwealth or la francophonie", by treating these independent variables separately, their potential to explain the dependent variable would be unnecessarily and inappropriately diffused. By combining their explanatory capability, this hypothesis was more accurately tested.

From the results of this hypothesis, along with results from previous hypothesis, it will then be possible to compare those quantitative variables that do and those that do not more readily explain ODA contributions.

HYPOTHESIS #11: In terms of funds allocated through particular aid channels, there has been a relative increase in the proportion of aid designated for the Non-Government Organizations Program (NGO) as compared to the government to government or multilateral channels. That is, there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid.

Two separate sets of regressions were executed to test this particular hypothesis. In the first regression, an attempt was made to determine the relationship between the amount or

levels of aid allocated to the three channels, NGO, government to government and multilateral aid respectively. The dependent variable was the NGO aid channel and the two independent variables were government to government aid and multilateral aid.

The second regression that was executed in an attempt to test this hypothesis computed a one year difference variable for funds allocated to the NGO Program, government to government and multilateral aid respectively. Then, the newly computed difference variable for the NGO Program was used as the dependent variable, with the newly computed difference variables for government to government aid and multilateral aid as the independent variables. In this way the relationship between the differences in these three aid channels was examined instead of the levels, as was the case in the first regression to test this hypothesis.

As a final test for this hypothesis, as for previous hypothesis, an additional regression was executed for levels and differences in aid respectively, including "year" as a control variable, to determine trends in the dependent variable over time.

In addition to the tests for individual hypothesis, two sets of multivariate regressions will be executed - each with total aid being the dependent variable. One regression will be run including all the explanatory variables used in the study thus far for total aid plus "year"; another will be run using only those independent variables with significant significance factors in the first multiple regression, plus year.

Now that the regressions intended to test the above hypothesis have been explained, the analysis of the results from those regressions will be discussed.

ENDNOTES - METHODOLOGY

1. CIDA's Strategy for International Development Cooperation 1975-80 spoke of proactive ODA initiatives but it is not until 1987 with Sharing Our Future that a proactive policy plus performance coincide.
2. Information for these "political variables" is available in narrative form from the following sources: "Country Reports on Human Rights Practises", Report Submitted to the Committee on Foreign Affairs U.S. House of Representatives and the Committee on Foreign Relations U.S. Senate, Department of State Washington, D.C., 1982; The Europa World Yearbook 1990, Vol. 1&2, Europa Publications Limited, London; "Background Notes", United States Department of State, Bureau of Public Affairs; The World Factbook, CIA, Washington, D.C.
3. CIDA, Annual Report, 1985-86, 10.
4. Dudley, Leonard and Montmarquette, Claude, The Supply of Canadian Foreign Aid: Explanation and Evaluation, Economic Council of Canada, Ottawa, 1987.

ANALYSIS

Note: In time related data, autocorrelation may be an important consideration in the results. Because of the particular procedures that were executed for this analysis, autocorrelation has not been a problem. Nevertheless, the Durbin-Watson results are provided in Appendix A.1 for the reader's convenience.

HYPOTHESIS #1: There is a positive relationship between Canada's economic growth and her total foreign aid contributions.

Using total aid, computed into a one year difference variable, as the dependent variable and the average Canadian GNP growth rate, lagged three years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
CANGNP	222.362046	.072930	.0003
R Square:	.00532	Significance:	.0003

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, CANGNP, affecting the

dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. The significance of this beta weight is .0003, indicating that the results are very significant. What this means is that the state of Canada's economy, represented by the average Canadian GNP growth rate, does have a significant impact on Canadian foreign aid contributions.

The R Square from this regression was .00532 with a significance factor of .0003. What this indicates is that .5% of variation in total aid can be explained by CANGNP in this regression. If the average Canadian GNP growth rate represents the state of the Canadian economy, then these results suggest that, in fact, the amount of Official Development Assistance contributed by Canada to other countries was only slightly related to Canada's economic condition during the years 1960-1985. Rather, 99.5% of total aid, allocated during this time frame, must be explained by other factors.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Year	186.885219	.191804	.0000
CANGNP	512.990279	.168251	.0000
R Square:	.03302	Significance:	.0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of strengthening the impact of the independent variable CANGNP on the dependent variable, total aid. The Beta for CANGNP increased from .072930 to .168251. Both Beta coefficients were significant. The reason for this change in CANGNP is that by controlling for "year", the incremental nature of aid allocations and disbursements was eliminated from the impact of GNP. The full effect of CANGNP on the dependent variable, total aid, was then more readily apparent.(1)

As well, the R Square of .03302 indicates that 3% of variation in total aid can be explained by the combined effect of "year" and CANGNP compared to only .5% in the previous regression using CANGNP alone as the independent variable. This change in variation can also be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year". What this means is that a significant positive relationship does exist between the amount of total aid and the average Canadian GNP growth rate.

positive relationship between bilateral aid and the strength of the Canadian economy, represented by the variable, Canadian GNP growth rate.

HYPOTHESIS #3: As Canada's economy stagnates or declines, the proportion of "tied aid" increases.

Using tied aid, computed into a one year difference variable, as the dependent variable and the Canadian GNP growth rate, lagged three years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
CANGNP	-1.758220	-.362086	.0000
R Square: .1311 Significance: .0000			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, CANGNP, affecting the dependent variable, tied aid. It measures the amount of change in the dependent variable with one unit change in the independent variable. As expected, in this instance, the beta weight indicates a negative relationship between the two variables. The significance of this beta weight is .0000, indicating that the results are very significant.

than a negative relationship between bilateral and multilateral aid, as was predicted in the hypothesis, there, in fact, is no relationship.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Multilat	5836.239532	.002017	.9210
Year	75.658026	.083469	.0000
R Square: .00696		Significance: .0002	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of slightly strengthening the impact of the independent variable, multilateral aid, on the dependent variable, bilateral aid.

The Beta for multilateral aid increased from -.0000 with a significance factor of .9799 to .0020 with a significance factor of .9210. In neither instance was the significance reading significant.

As well, the R Square of .00696, from this regression, indicates that .7% (figure rounded) of variation in bilateral aid can be explained by the effect of "year" plus

multilateral aid compared to 0% in the previous regression using only multilateral aid as the independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

From these regressions, then, rather than a negative relationship between bilateral aid and multilateral aid, as was predicted in the hypothesis, there is, in fact, no relationship between the two variables. The Beta coefficients are simply too insignificant to conclude otherwise.

HYPOTHESIS #2B: There is a negative relationship between bilateral aid and the Canadian GNP growth rate.

Using bilateral aid, computed into a one year difference variable, as the dependent variable and the Canadian GNP growth rate, lagged three years, as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
CANGNP	207.627496	.073202	.0003
R Square: .00536		Significance: .0003	

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. The significance of this beta weight is .0003, indicating that the results are very significant.

The R Square from this regression was .00536 with a significance factor of .0003. What this indicates is that, within the time frame of this analysis, .5% of variation in bilateral aid can be explained by the Canadian GNP growth rate. That is, there is a small but significant, positive relationship between bilateral aid and the strength of the Canadian economy. This is the opposite of results anticipated in the hypothesis.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
CANGNP	431.896995	.152272	.0000
Year	144.213981	.159104	.0000
R Square:	.02442	Significance:	.0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of strengthening the impact of the independent variable, Canadian GNP growth rate, on the dependent variable, bilateral aid. The Beta for the Canadian GNP growth rate increased from .073202 with a significance factor of .0003 to .152272 with a significance factor of .0000. In both cases the significance readings were very significant. The reason for the change in the Beta results is that by controlling for "year", the incremental nature of aid allocations and disbursements was eliminated from the impact of CANGNP. The full effect of the average Canadian GNP growth rate on the dependent variable, bilateral aid, was then more readily apparent.

As well, the R Square of .02442, from this regression, indicates that 2% (figure rounded) of variation in bilateral aid can be explained by the combined effect of "year" and CANGNP compared to only .5% in the previous regression using only CANGNP as the independent variable. This change in variation can also be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

Once again, contrary to the anticipated results predicted in the stated hypothesis, there is a small but significant,

positive relationship between bilateral aid and the strength of the Canadian economy, represented by the variable, Canadian GNP growth rate.

HYPOTHESIS #3: As Canada's economy stagnates or declines, the proportion of "tied aid" increases.

Using tied aid, computed into a one year difference variable, as the dependent variable and the Canadian GNP growth rate, lagged three years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
CANGNP	-1.758220	-.362086	.0000
R Square: .1311 Significance: .0000			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, CANGNP, affecting the dependent variable, tied aid. It measures the amount of change in the dependent variable with one unit change in the independent variable. As expected, in this instance, the beta weight indicates a negative relationship between the two variables. The significance of this beta weight is .0000, indicating that the results are very significant.

The R Square from this regression was .13111 with a significance factor of .0000. What this indicates is that 13% of the variation in tied aid can be explained by the Canadian GNP growth rate. This means that 87% of Canada's tied aid must be explained by variables other than the Canadian GNP growth rate. That is, while the results from this regression substantiate the hypothesis that as Canada's economy stagnates or declines, the proportion of tied aid increases, other variables, as yet undefined, must also be employed to completely explain variations in tied aid.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
CANGNP	-2.942215	-.605916	.0000
Year	-.761355	-.490638	.0000
R Square:	.31238	Significance:	.0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of strengthening the impact of the independent variable, CANGNP, on the dependent variable, tied aid. The Beta for CANGNP changed from -.362086 with a significance factor of .0000 to -.605916 with a significance factor of .0000. The reason for this change in

CANGNP is that by controlling for "year", the incremental nature of aid allocations and disbursements was eliminated from the impact of CANGNP. The full effect of CANGNP on the dependent variable, tied aid, was then more readily apparent.

As well, the R Square of .13111 with a significance factor of .0000 increased to .31238 with a significance factor of .0000 with the inclusion of "year" as one of the independent variables. This represents an increase from 13% to 31% of the variation in tied aid that can be explained by the combined effect of the Canadian GNP growth rate and year. This change in variation can also be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

As in the previous regression, a negative and significant relationship has been found between tied aid and the Canadian GNP growth rate. Hypothesis #3 has been substantiated. That is, as Canada's economy stagnates or declines, the proportion of "tied aid" increases.

HYPOTHESIS #4A: There is no relationship between Canadian aid contributions and exports to Canada from recipient countries.

Using total aid, computed into a one year difference variable, as the dependent variable and exports to Canada as the

independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
X to CAN	.002517	.031776	.1194
R Square: .00101 Significance: .1194			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, exports to Canada, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. While the beta weight indicates a positive relationship between the two variables, the significance factor of .1194, indicates that the results are not very significant.

The R Square from this regression was .00101 with a significance factor of .1194. What this suggests is that .1% of variation in total aid can be explained by the effect of exports to Canada. As with the Beta coefficients, however, the R Square results are not very significant. This means that in this particular regression, hypothesis #4A has been empirically substantiated. That is, there is no significant relationship between Canadian aid contributions and exports to

Canada from recipient countries.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Year	103.872446	.106606	.0000
X to CAN	.001983	.025037	.2182
R Square:	.01233	Significance:	.0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had little impact on the independent variable, exports to Canada. The Beta for exports to Canada changed from .031776 with a significance reading of .1194 to .025037 with a significance reading of .2182. The reason for this minor change in results is that the variable, exports to Canada, is much less the product of incremental inertia than the variables used to test earlier hypothesis. Consequently, when "year" was included as a control variable, little change was produced in the results.

An R Square of .01233 with a significance factor of .0000, however, indicates that 1.2% of variation in total aid can be explained by the combined effect of "year" and exports to Canada compared to only .1% with a significance factor of

.1194 in the previous regression using exports to Canada as the independent variable.

According to the results of these regressions, the variable, exports to Canada, does have a small, positive, but not significant impact on Canadian aid contributions. This is contrary to the results anticipated from the stated hypothesis.

HYPOTHESIS #4B: There is no relationship between Canadian aid contributions and Canadian imports to recipient countries.

Using total aid, computed into a one year difference variable, as the dependent variable and Canadian imports to recipient countries as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
Im fr Can	-.003137	-.053171	.0091
R Square:	.00283	Significance:	.0091

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, imports from Canada, affecting the dependent variable, total aid. It measures the

amount of standard change in the dependent variable with one standard unit change in the independent variable. The beta weight indicates a negative relationship between the two variables and the significance factor of .0091, indicates that the results are very significant.

The R Square from this regression was .00283 with a significance factor of .0091. What this indicates is that .3% (figure rounded) of variation in total aid can be explained by the effect of imports from Canada. This means that in this particular regression, hypothesis #4B has not been empirically substantiated. Rather, a small, negative and significant correlation has been determined between total Canadian aid contributions and imports from Canada to recipient countries.

When "year" was included as a control variable, the results were as follows.

Variable	B	Beta	Significance
Im fr Can	-.003406	-.057728	.0044
Year	107.733276	.110569	.0000
R Square:	.01503	Significance:	.0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had little impact on the independent

variable, Canadian imports to recipient countries. The Beta for imports to recipient countries changed from $-.053171$ with a significance reading of $.0091$ to $-.057728$ with a significance reading of $.0044$. The reason for this minor change in results is that the variable, Canadian imports to recipient countries, is less the product of incremental inertia than the variables used to test earlier hypothesis. Consequently, when "year" was included as a control variable, little change was produced in the results.

An R Square of $.01503$, however, indicates that 1.5% of variation in total aid can be explained by the combined effect of "year" and Canadian imports to recipient countries compared to only $.2\%$ in the previous regression. A significance reading of $.0000$ indicates that these latter results are very significant. What this means is that Hypothesis #4B has not been empirically substantiated in this test. Rather, there is a small, negative but significant relationship between Canadian total aid contributions and Canadian imports to recipient countries.

HYPOTHESIS #5A: There is a negative relationship between Canada's aid contributions and the size of the recipients' GNP per capita. That is, the lower the recipients' GNP/capita, the greater Canada's aid contributions.

Using total aid, computed into a one year difference variable, as the dependent variable, and recipient countries' GNP/capita, lagged three years as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
GNP/capita	.466081	.052471	.0101
R Square: .00275 Significance: .0101			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, the recipients' GNP/capita, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. Contrary to the results anticipated from the stated hypothesis, the beta weight indicates a positive relationship between the two variables and the significance factor of .0101, indicates that the results are very significant.

The R Square from this regression was .00275 with a significance factor of .0101. What this suggests is that .3% (figure is rounded) of variation in total aid can be explained by the effect of recipient countries' GNP/capita. What this

means is that with this regression, rather than illustrating a negative relationship between the dependent and independent variables, in fact, a small, positive and significant relationship has been determined.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
GNP/capita	.415548	.046782	.0197
Year	232,675475	.182213	.0000
R Square: .03592		Significance: .0000	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had little impact on the independent variable. However, the R Square was changed from .00275 with a significance factor of .0101 to .03592 with a significance factor of .0000, indicating that a change from .3% to 3.6% variation in total aid can be explained by the combined effect of recipient countries' GNP/capita plus "year". This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year". As in the previous regression testing this hypothesis, rather than illustrating a negative relationship between the dependent and independent variables, a small,

positive and significant relationship has been determined.

HYPOTHESIS #5B: There is a negative relationship between Canada's aid contributions and the recipients' GNP growth rate/capita. That is, the lower the recipients' GNP growth rate/capita, the greater Canada's aid contributions.

Using total aid, computed into a one year difference variable, as the dependent variable, and the recipient countries' GNP growth rate/capita, lagged three years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
GNP gr/capita	15.471784	.012628	.9361
R Square: .00016		Significance: .9361	

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, the recipients' GNP growth rate/capita, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. Contrary to the results anticipated from the stated hypothesis, the beta weight indicates a

positive relationship between the two variables but the significance factor of .5361, indicates that the results are not very significant.

The R Square from this regression was .00016 with a significance factor of .5361. This means that .0% of variation in total aid can be explained by the effect of the recipients' GNP growth rate/capita. The significance reading, however, indicates that the results are not very significant. This would suggest that, rather than the predicted negative relationship as stipulated in the hypothesis, there is no relationship between these two variables.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
GNP gr/capita	53.487888	.043657	.0317
Year	243.607807	.190775	.0000
R Square: .03559		Significance: .0000	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of slightly strengthening the impact of the variable, recipient GNP growth rate/capita, on total aid. The Beta for recipient GNP growth rate/capita

changed from .012628 with a significance reading of .5361 to .043657 with a significance reading of .0317. The reason for this change in recipient GNP growth rate/capita is that by controlling for "year", the incremental nature of aid allocations and disbursements was eliminated from the impact of GNP growth rate/capita. The full effect of recipient GNP growth rate/capita on the dependent variable, total aid, was then more readily apparent.

As well, the R Square of .03559 indicates that 3.6% (figure rounded) of variation in total aid can be explained by the combined effect of "year" and recipient GNP growth rate/capita compared to .0% in the previous regression using recipient GNP growth rate/capita as the sole independent variable. This change in variation can also be explained by the incremental nature of aid allocations and disbursement, represented by the variable "year". What this means is that a positive and significant relationship, rather than a negative one as predicted by the stated hypothesis, has been determined between these two variables.

HYPOTHESIS #6: There is a negative relationship between Canadian aid contributions and the geographical size of recipient countries. That is, the larger the Canadian aid contributions, the smaller the geographical size of the recipient country.

Using total aid as the dependent variable and the area of the recipient countries in square kilometres as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
Area	.000128682	.028604	.1424
R Square: .00082		Significance: .1424	

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, geographic size or area, affecting the dependent variable, total aid. The significance of this beta weight is .1424 indicating that the results are positive, not negative as was originally anticipated, but not very significant.

The R Square from this regression was .00082 with a significance factor of .1424. What this indicates is that .08% of variation in total aid can be explained by the geographic size of the recipient country. However, once again, the results are not very significant. For this reason, from this particular regression it is not possible to substantiate Hypothesis #6. Rather, there appears to be no relationship between Canadian aid contributions and the

geographical size of recipient countries.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Year	91.959116	.110525	.0000
Area	.0001515	.033679	.0826
R Square: .01301 Significance: .0000			

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of slightly strengthening the impact of the independent variable, area, on the dependent variable, total aid. The Beta for area changed from .028604 to .033679 with the latter's significance reading of .0826 almost reaching the significant level. This can be explained by the fact that aid allocations and disbursements are less the result of a particular recipient's size and more the result of what was allocated to a particular country in previous years. In both cases, however, the sign was positive whereas the hypothesis stipulates the sign was expected to be negative.

The change in R Square from .00082 in the previous regression to .01301 in the regression including "year" as a control

variable means that 1.3% of variation in total aid can be explained by the combined effect of "year" and area compared to only .08% in the previous regression using area alone as the independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

Contrary to the anticipated results, then, based on the results from this test, there is a small, positive and significant relationship between Canadian aid contributions and the geographical size of recipient countries.

HYPOTHESIS #7A: There is a positive relationship between Canadian aid contributions and the population size of recipient countries.

Using total aid, computed into a one year difference variable, as the dependent variable and the population size of recipient countries, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
Population	-.003551	-.027620	.1759
R Square:	.00076	Significance:	.1759

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, population, affecting the dependent variable, total aid. In this instance the beta coefficient is negative, not positive as was anticipated in the stated hypothesis, but not significant.

The R Square from this regression was .00076 with a significance factor of .1759. Although this suggests that .08% (figure is rounded) of variation in total aid can be explained by the effect of this independent variable, the significance factor is not significant. The Beta weight indicates that there is a negative correlation between total aid and the independent variable, population, but as with the R Square, the Beta results are insignificant. These results lead to the conclusion that there is a negative but insignificant relationship between Canadian aid contributions and the population size of recipient countries.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Population	.003774	-.029358	.1480
Year	105.872310	.108659	.0000

R Square: .01257

Significance: .0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of slightly increasing the strength of the independent variable on the dependent variable. The Beta coefficient changed from $-.027620$ with a significance reading of $.1759$ to $-.029358$ with a significance reading of $.1480$. In both cases, the sign was negative but the significance readings were insignificant.

The R Square, however, changed from $.00076$ with a significance factor of $.1759$ to $.01257$ with a significance factor of $.0000$ indicating that 1.3% (figure rounded) of variation in total aid can be explained by the combined effect of "year" and the recipient countries' population compared to only $.08\%$ in the previous regression without "year" as the independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

Once again it has been determined that there is a negative but insignificant relationship between Canadian aid contributions and the population size of recipient countries, not a positive relationship as was predicted in the stated hypothesis.

HYPOTHESIS #7B: There is a positive relationship between Canadian aid contributions and the population density within recipient countries.

Using total aid, computed into a one year difference variable, as the dependent variable and the population density within recipient countries, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
Pop density	.273223	.013237	.5166
R Square:	.00018	Significance:	.5166

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, population density within recipient countries, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. In this instance, the Beta sign is positive, as was anticipated in the stated hypothesis, but the results are very insignificant.

The R Square from this regression was .00018 with a significance reading of .5166. These results suggest that only .02% (figure rounded) of variation in total aid can be explained by the variable, population density within recipient countries. Once again, however, the results are very insignificant.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Pop density	.253578	.012285	.5450
Year	105.309287	.108081	.0000
R Square: .01186		Significance: .0000	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of slightly decreasing the impact of the independent variable on the dependent variable. The Beta coefficient changed from .013237 with a significance reading of .5166 to .013385 with a significance reading of .5450. The sign remained positive and the results remained insignificant.

The R Square also changed, from .00018 with a significance reading of .5166 to .01186 with a significance reading of

.0000 indicating that 1.2% (figure rounded) of variation in total aid can be explained by the combined effect of "year" and the population density within recipient countries compared to .0% in the previous regression without "year" as an independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

Because of the insignificant Beta significance readings, however, the results of these regressions do not adequately substantiate Hypothesis #7B.

HYPOTHESIS #7C: There is a positive relationship between Canadian aid contributions and the illiteracy rate in recipient countries.

Using total aid, computed into a one year difference variable, as the dependent variable, and the illiteracy rate in recipient countries, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
Illiteracy rate	.152024	.004802	.8140
R Square:	.00002	Significance:	.8140

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, illiteracy rate in recipient countries, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. In this instance, the Beta sign is positive, as was anticipated in the stated hypothesis, but the results are not significant.

The R Square from this regression was .00002 with a significance reading of .8140 indicating that no amount of variation in total aid can be explained by the recipient countries' illiteracy rate. The significance factor of .8140, however, indicates the results are not significant. These results lead to the conclusion that there is no relationship between total aid and the recipient countries' illiteracy rate.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Illiteracy rate	-.111717	-.003529	.8624
Year	105.678778	.108460	.0000

R Square: .01172 **Significance:** .0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of changing the sign of the independent variable, illiteracy rate, on the dependent variable, total aid. As in the previous regression, when "year" was used as a control variable, the significance factor for illiteracy rate was not significant.

When "year" was used as a control variable, the R Square changed from .00000 with a significance factor of .8140 to .01172 with a significance factor of .0000 indicating that 1.2% (figure rounded) of variation in total aid can be explained by the combined effect of "year" and the recipient countries' illiteracy rate compared to .0% in the previous regression without "year" as an independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year". These results are not consistent with the results from the previous regression and lead to the conclusion that there is a negative but insignificant relationship between total aid and the recipient countries' illiteracy rate.

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HYPOTHESIS #7D: There is a positive relationship between Canadian aid contributions and the percentage of the recipient countries' population in agriculture.

Using total aid, computed into a one year difference variable, as the dependent variable and the percentage of the recipient countries' population in agriculture, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
% pop in agric	.367473	.009193	.6524
R Square: .00008	Significance: .6524		

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, percentage of the recipient countries' population in agriculture, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. In this instance, the Beta sign is positive, as was anticipated in the stated hypothesis, but the results are not significant.

The R Square from this regression was .00008 with a significance factor of .6524. What this means is that .0% of variation in total aid can be explained by the effect of this independent variable. These results lead to the conclusion that there is a positive but insignificant relationship between Canadian aid contributions and the population size of recipient countries.

When "year" was included as a control variable, the results were as follows"

Variable	B	Beta	Significance
% pop in agric	.550531	.013772	.4978
Year	105.979651	.108769	.0000
R Square: .01189		Significance: .0000	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of increasing the strength of the independent variable, percentage of the recipient countries' population in agriculture, on the dependent variable, total aid. The Beta coefficient changed from .009193 with a significance factor of .6524 to .013772 with a significance factor of .4978. In both cases, the sign was positive, as anticipated in the stated hypothesis, but the significance readings were not significant.

The R Square changed from .00008 with a significance reading of .6524 to .01189 with a significance reading of .0000 indicating that 1.2% (figure rounded) of variation in total aid can be explained by the combined effect of "year" and the percentage of the recipient countries' population in agriculture, compared to .0% in the previous regression without "year" as an independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

The results from this regression substantiate those from the previous regression which determined that there is a positive but insignificant relationship between Canadian aid contributions and the percentage of the recipient countries' population in agriculture. In other words, while the latter R Square is significant, the insignificant significance reading for the Beta coefficient leads to the conclusion that, these results have failed to prove a positive relationship between Canadian aid contributions and the percentage of the recipient countries' population in agriculture.

HYPOTHESIS #7E: There is a positive relationship between Canadian aid contributions and the size of the recipient countries' population under 15 years of age.

Using total aid, computed into a one year difference variable, as the dependent variable and the size of the recipient countries' population under 15 years of age, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a simple regression technique.

Variable	B	Beta	Significance
Pop under 15	1.193687	.018753	.3582
R Square: .00035 Significance: .3582			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, size of the recipient countries' population under 15 years of age, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. In this instance, the Beta sign is positive, as was anticipated in the stated hypothesis, but the results are insignificant.

The R Square from this regression was .00035 with a significance reading of .3582. What this indicates is that .04% (figure rounded) variation in total aid can be explained by the effect of this independent variable. With a

significance reading of .3582, however, these results are not very significant. These results have failed to substantiate Hypothesis #7E.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Pop under 15	1.684742	.026467	.1932
Year	107.222509	.110045	.0000
R Square: .01240		Significance: .0000	

Comparing these results with those from the previous regression, the inclusion of "year" as a control variable had the effect of slightly increasing the strength of the independent variable on the dependent variable. The Beta coefficient changed from .018753 with a significance factor of .3582 to .026467 with a significance factor of .1932. In both cases the significance factors were not significant.

The R Square changed from .00035 with a significance reading of .3582 to .01240 with a significance reading of .0000 indicating that 1.2% of variation in total aid can be explained by the combined effect of "year" and the size of the recipient countries' population under 15 years of age, compared to .0% in the previous regression without "year" as

an independent variable. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

While the latter R Square is significant, the insignificant significance reading for the Beta coefficient lead to the conclusion that, as in the previous regression, these results have failed to prove that there is a positive relationship between Canadian aid contributions and the size of the recipient countries' population under 15 years of age.

HYPOTHESIS #8A: There is no relationship between Canadian aid contributions and the percentage of urban residents in recipient countries.

Using total aid, computed into a one year difference variable, as the dependent variable with the percentage of urban residents in recipient countries, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
% urban res	.066822	.001148	.9551
R Square:	.00000	Significance:	.9551

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, percentage of urban residents in recipient countries, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. While the Beta sign is positive, the significance of this beta weight is .9551, indicating the results are not significant.

The R Square from this regression was .00000 with a significance reading of .9551. What this indicates is that .0% of variation in total aid can be explained by the percentage of urban residents in recipient countries in this regression. Once again, these results are not very significant.

These results lead to the conclusion that there is no relationship between Canadian aid contributions and the percentage of urban residents in recipient countries.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Year	105.413274	.108188	.0000
% urban res	.009286	.000159	.9937
R Square: .01170		Significance: .0000	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of strengthening the impact of the independent variable on the dependent variable, total aid.

Once "year" was included as a control variable, the R Square did increase from .00000 with a significance reading of .9551 to .01170 with a significance reading of .0000. What this indicates is that a change from .0% to 1.2% (figure rounded) of variation in total aid can be explained by the combined effect of the percentage of urban residents in recipient countries plus "year". This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

The R Square was significant in this last regression. The Beta coefficient remained positive, but insignificant. For this reason, the hypothesis that there is no relationship between Canadian aid contributions and the percentage of urban residents in recipient countries has been substantiated.

HYPOTHESIS #8B: There is no relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors.

Using total aid, computed into a one year difference variable, as the dependent variable, and the size of the recipient countries' population in non-agricultural sectors, computed into a one year difference variable then lagged two years, as the independent variable, the following results were obtained using a regression technique.

Variable	B	Beta	Significance
Pop in non-agric	.264222	.064621	.0015
R Square:	.00418	Significance:	.0015

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, size of the recipient countries' population in non-agricultural sectors, affecting the dependent variable, total aid. It measures the amount of standard change in the dependent variable with one standard unit change in the independent variable. In this case, the Beta sign is positive and the significance of this beta weight is .0015, indicating the results are very significant.

The R Square from this regression was .00418 with a significance reading of .0015. What this indicates is that .4% of variation in total aid can be explained by the size of the recipient countries' population in non-agricultural sectors. Again, the results are very significant.

Contrary to what was anticipated from the stated hypothesis, these results lead to the conclusion that there is a positive and significant relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Pop in non-agric.	.245757	.060105	.0031
Year	102.910651	.105619	.0000
R Square: .01531		Significance: .0000	

Comparing these results with those from the previous regression, the inclusion of "year" as a control variable had the effect of slightly decreasing the impact of the independent variable on the dependent variable, total aid. The reason for this is that this particular independent variable does not follow a clear linear progression over time.

Therefore, by controlling for "year", little of the incremental effects experienced in earlier regressions could be removed with this procedure.

Once "year" was included as a control variable, the R Square increased from .00418 with a significance reading of .0015 to .01531 with a significance reading of .0000. What this indicates is that a change from .4% to 1.5% (figure rounded) of variation in total aid can be explained by the combined effect of the size of the recipient countries' population in non-agricultural sectors plus "year". This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

The R Square was significant in this regression, and the Beta coefficient was positive and significant. For this reason, the hypothesis that there is no relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors has not been substantiated. Rather, there is a positive and significant relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors.

HYPOTHESIS #9: In an effort to help the "poorest of the poor", Canada's aid contributions are targeted toward the Least Developed Countries (LDC's). That is, there is a positive relationship between Canada's aid contributions and the recipients labelled as Least Developed Countries.

Using total aid, computed into a one year difference variable, as the dependent variable, with Least Developed Country as the independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
LDC	896.650821	.053029	.0065
R Square: .00281 Significance: .0065			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, Least Developed Countries (LDC's), affecting the dependent variable, total aid. It measures the amount of standard change i.e. the dependent variable with one standard unit change in the independent variable. The Beta sign is positive, as was predicted in the stated hypothesis, and the results are significant.

The R Square from this regression was .00281 with a significance factor of .0065. What this indicates is that .3% (figure rounded) of variation in total aid can be explained by the variable, LDC. From the significance reading (.0065), it is evident that these results are significant.

What these results substantiate is that there is a positive relationship between Canada's aid contributions and the recipients labelled as Least Developed Countries.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
LDC	595.449884	.035215	.0736
Year	85.599461	.102881	.0000
R Square: .01308 Significance: .0000			

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of slightly decreasing the impact of the independent variable, LDC, on the dependent variable, total aid. The Beta decreased from .053029 with a significance factor of .0065 to .035215 with a significance factor of .0736. The results of the second Beta coefficient are very close to being significant. The decrease in the

impact of the independent variable may be explained by the fact that once the incremental nature of aid allocations and disbursements is eliminated from the impact of LDC, its weight as a deciding variable in aid decisions simply decreases. That is, this particular independent variable does not follow a clear linear progression over time.

The R Square changed from .00281 with a significance reading of .0065 to .01308 with a significance reading of .0000 indicating that a change from .3% (figure rounded) to 1.3% variation in total aid can be explained by the combined effect of LDC and "year". This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

The results of this regression further substantiate the hypothesis that there is a positive relationship between Canada's aid contributions and the recipients labelled as Least Developed Countries.

HYPOTHESIS #10: Canada's aid contributions are targeted toward recipients sympathetic to Canada's two founding cultures, English and French. More specifically, there is a positive relationship between Canada's aid contributions and recipients' majority population being either a member of the Commonwealth or la francophonie.

Using total aid, computed into a one year difference variable, as the dependent variable and Commonwealth member plus La Francophonie member combined into one dichotomous independent variable, the following results were obtained using a bivariate regression technique.

Variable	B	Beta	Significance
Comm/franc	720.410680	.051401	.0084
R Square: .00264		Significance: .0084	

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficient or beta weight calculated to indicate the "weight" of the independent variable, Commonwealth and la francophonie member, affecting the dependent variable, total aid. The significance of this beta weight is .0084, indicating that the results are very significant.

The R Square from this regression was .00264 with a significance factor of .0084. What this indicates is that .3% (figure is rounded) of variation in total aid can be explained by the combined effect of the recipient countries being a member of the Commonwealth and la francophonie. What these results indicate, then, is that membership in either of these organizations has a small but significant relationship in the determination of Canada's total ODA contributions. This means

that for the period 1960-85, the hypothesis that there is a positive relationship between Canada's aid contributions and recipients' majority population being either a member of the Commonwealth of la francophonie has been empirically substantiated with this particular data base using a regression technique.

When "year" was included as a control variable, the results were as follows:

Variable	B	Beta	Significance
Year	85.590765	.102871	.0000
Comm/franc	439.750448	.031376	.1124
R Square: .01282		Significance: .0000	

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable slightly weakened the impact of the independent variable, Commonwealth/francophonie. The Beta decreased from .051401 with a significance factor of .0084 to .031376 with a significance factor of .1124. However, the R Square increased from .00264 with a significance factor of .0084 to .01282 with a significance factor of .0000. This means that 1.2% of variation in total aid can be explained by the combined effect of "year" and Commonwealth/francophonie compared to only .3% (figure rounded) of variation in total

aid explained by Commonwealth/francophonie. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

The results from these two regressions lead to the conclusion that there is a positive relationship between Canada's aid contributions and recipients' majority population being either a member of the Commonwealth or la francophonie.

HYPOTHESIS #11: In terms of funds allocated through particular aid channels, there has been a relative increase in the proportion of aid designated for the Non-Government Organizations Program (NGO) as compared to the government to government or multilateral channels. That is, there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid.

Using the total Non-Government Organizations Program as the dependent variable with total government to government aid and total multilateral aid as the independent variables, the following results were obtained using a regression technique.

Variable	B	Beta	Significance
Multilat	-1491.956611	-.002689	.8861
Gov to Gov	.028358	.270042	.0000

R Square: .07294 **Significance:** .0000

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficients or beta weights. It translates the variables to a uniform scale so that the relative strength of one independent variable and its effect on the dependent variable can be compared to the relative strength of another independent variable on the dependent variable.

In this case, as was anticipated by the stated hypothesis, multilateral aid had a negative sign, but the significance factor indicates that this result is not very significant. On the other hand, government to government aid has a much stronger and positive relative strength to NGO. This positive sign is the opposite to what was anticipated by the stated hypothesis and the significance factor is very high.

The R Square from this regression was .07294 with a significance factor of .0000. What this suggests is that 7% of a variation in the level of funds allocated to the NGO Program can be explained by the combined effect of multilateral aid and government to government aid. With this particular regression, however, the hypothesis that there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid, has

not been empirically substantiated.

When "year" was included as an additional control variable, the results were as follows:

Variable	B	Beta	Significance
Year	28.307261	.191184	.0000
Multilat	793.687629	.001430	.9381
Gov to Gov	.024721	.235408	.0000
R Square:	.10827	Significance:	.0000

Comparing these results with those from the previous regression testing this hypothesis, the inclusion of "year" as a control variable had the effect of changing the sign from negative to positive for the independent variable, multilateral aid, and slightly decreasing the Beta weight for government to government aid. The significance factor for government to government aid was very significant; not so for multilateral aid. The R Square indicates that 10.8% of variation in total aid can be explained by the combined effect of "year" with multilateral aid and government to government aid compared to only 7% in the previous regression. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year". Nevertheless, as in the previous regression, these results have failed to substantiate the hypothesis that

there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid. Rather, government to government aid appears positively and significantly correlated to the NGO Program.

Using a one year difference variable for the NGO Program as the dependent variable, with a one year difference variable for government to government aid and a one year difference variable for multilateral aid as the independent variables, the following results were obtained from this second set of regressions.

Variable	B	Beta	Significance
Multilat	-93.353192	-.0001516	.9938
Gov to Gov	.023774	.110661	.0000
R Square: .01225		Significance: .0000	

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized beta coefficients or beta weights. It translates the variables to a uniform scale so that the relative strength of one independent variable and its effect on the dependent variable can be compared to the relative strength of another independent variable on the dependent variable. Once again, in this case multilateral aid has a slight negative weight but with a very low significance factor. Government to government

aid has greater and positive relative weight in relation to the NGO Program and its significance factor is very high.

The R Square from this regression was .01225 with a significance factor of .0000. What this suggests is that 1.2% of the difference in funds allocated to the NGO Program can be explained by the combined effect of government to government aid and multilateral aid. The results of this second test support the results from the first test of this particular hypothesis. That is, both tests for this hypothesis have failed to empirically substantiate that there is a negative relationship between the proportion of NGO Program funds and government to government or multilateral aid.

When "year" was included as an additional control variable, the results were as follows:

Variable	B	Beta	Significance
Year	12.025467	.073182	.0002
Multilat	927.300117	.001506	.9380
Gov to Gov	.022457	.104528	.0000
R Square: .01756 Significance: .0000			

Comparing these results with those from the previous regression using difference variables to test this hypothesis, the inclusion of "year" as a control variable changed the sign

for multilateral aid from negative to positive and slightly decreased the beta weight for government to government aid. The R Square changed only slightly from .01225 to .01756 indicating that 1.8% of variation in the Non-Government Organizations Program can be explained by the combined effect of "year", multilateral aid and government to government aid compared to 1.2% in the previous regression using multilateral aid and government to government aid as the two independent variables. This change in variation can be explained by the incremental nature of aid allocations and disbursements, represented by the variable "year".

It is interesting to note that the R Square, without "year" included as a control variable is higher in the regression examining levels (.07294) than in the regression examining differences (.01225). The reason for this is that once differences are the focus of explanation, trend effects are less powerful.

The results from these two sets of regressions are consistent. They have failed to empirically substantiate the hypothesis that there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid. This was the case whether the independent variables were calculated on the basis of levels or differences. Rather, in each case, government to government

aid appears positively and significantly correlated to the NGO Program.

MULTIVARIATE REGRESSION: A multiple regression was executed using total aid, as it had been computed in the previous regressions, and the following explanatory variables as the independent variables: recipient countries' GNP growth rate/capita; recipients' population in non-agricultural sectors; recipient countries' population density; membership in the Commonwealth and/or la francophonie; recipient countries' illiteracy rate; recipient countries' exports to Canada; recipient countries' GNP/capita; recipient countries' population under 15 years of age; imports to recipient countries from Canada; recipient countries' geographical size; whether the recipient country is an LDC; Canadian GNP growth rate; recipient countries' population size; %age of recipient countries' population in agriculture; and, %age of recipient countries' population that are urban residents. "Year" was included in the regression as a control variable so that the impact of the other independent variables could be more readily observed. The results were as follows:

Variable	B	Beta	Significance
Year	188.370040	.193328	.0000
Recipient GNP growth rate/capita	20.111472	.021513	.2898
Population density	.404138	.019579	.3539
Geographical size	.000196	.041337	.0421
Population in non- agricultural sectors	.237982	.058204	.0038
Recipient GNP/capita	.551750	.081406	.0001
Illiteracy rate	-.391192	-.012357	.5469
Imports from Canada	-.003577	-.060626	.0031
Population under 15	1.672340	.026272	.2281
Population size	-.004754	-.036976	.0750
Commonwealth/ la francophonie	498.347542	.034763	.0918
LDC	721.574982	.042403	.0411
Exports to Canada	.001474	.018606	.3721
%age pop in agric	.060645	.001517	.9423
%age urban residents	-.281102	-.004829	.8287
Canadian GNP growth rate	558.812854	.183279	.0000
R Square: .05256 Significance: .0000			

The "B" column represents the unstandardized regression coefficient. The "Beta" column represents the standardized

beta coefficients or beta weights. It translates the variables to a uniform scale so that the relative strength of one independent variable and its effect on the dependent variable can be compared to the relative strength of another independent variable on the dependent variable.

From the results of this regression, the Beta coefficient for the independent variables geographical size, population in non-agricultural sectors, recipient GNP/capita, imports from Canada, LDC and Canadian GNP growth rate were significant. Of those variables, imports from Canada to recipient countries was negatively correlated to total aid; the other variables were positively correlated. The Beta coefficient for population size as well as membership in the Commonwealth and/or la francophonie, although just short of what is traditionally accepted as a significant significance reading, were very close, at .0750 and .0913 respectively. Since this data base includes the total population of Canadian foreign aid recipients during 1960-1985, not just a sample, these last two variables were accepted as significant in this analysis. The Beta coefficients for the other independent variables used in this regression were insignificant.

From these results, it is clear that there was a significant negative correlation between Canadian ODA and short term

economic factors such recipient imports received from Canada (Canadian exports). No significant results were determined regarding the correlation between total aid and recipient exports to Canada. The positive and significant correlation between total aid and the Canadian GNP growth rate does indicate, however, that when the Canadian economy is "solid" that Canadian's, by and large, are more generous in their ODA contributions. More recent evidence of this relationship has been manifested in Canada's ODA reductions during a time of recession - indicating a strong economic motivation for foreign aid. The positive and significant relationship between bilateral aid, tied aid and the Canadian GNP growth rate further supports this argument. (See the results from the regression testing Hypothesis #2B and #3.)

The positive correlation between total aid and the variable, LDC, reflects Canada's efforts to respond to requests from the "poorest of the poor" - essentially a philanthropic and political motivation because there is no immediate economic pay-off. Rather, efforts in this direction reflect a readiness to respond to internal conditions within recipient countries. Canada's aid efforts have provided some genuine assistance to the recipients and have enabled Canada to remain one of the "good guys" in the global community.

There is a contradiction to the above finding, however, in the positive and significant correlation between total aid and recipients' GNP/capita. If Canadian ODA was consistently focused on the "poorest of the poor", then the correlation to recipients' GNP/capita would be negative. As well, note that the growth rate/capita is not significant. Of added interest is the fact that the beta coefficient for recipients' population in non-agricultural sectors was also positive and significant. One explanation for the results of these three variables is that a certain degree of economic activity is required within the recipient country, including infrastructure to support it, in order for aid initiatives to be implemented and administered internally. Hence the significance of the GNP/capita and population in non-agricultural sectors and the insignificance of the growth rate/capita. In contrast, the percentage of recipients' population which are urban residents is merely a statistical count without any indication of any particular types of activity. Hence the results for that particular variable were insignificant.

The correlation between total aid and the variable, Commonwealth and la francophonie reflects Canada's deference, within the global community, to its two founding cultures. The increase in aid to French speaking African countries corresponds to increased initiatives for recognition by Quebec

within the international arena. It was an attempt to use an international solution to a national issue. The motivation was political.

The results correlating total aid to recipients' geographical size support Dudley and Montmarquette's earlier findings that there has been no evidence of small country bias in Canadian foreign aid contributions since 1969. Historically, as well as quantitatively, this makes sense given the thrust of aid efforts in Africa, and South as well as Central America during the past two decades. Many of these countries, example Nigeria and Ethiopia, relatively speaking, are quite large geographically yet have received considerable Canadian aid within the time frame of this study. For this reason, the results indicating a positive correlation between total aid and recipients' geographical size were positive and significant. The same explanation applies for the positive and significant correlation determined between recipient population size and total aid. Indeed, there has been considerable effort within the ODA program to respond to recipient country need without calculating the immediate or even long-term return to Canada's economic wellbeing.

The R Square from this regression was .05256 with a significance factor of .0000. This indicates that 5% (figure rounded) of variation in total aid can be explained by the

combined effect of the fifteen independent variables plus "year" which was included as a control variable. From those fifteen, the variables having the greatest explanatory value for total aid were Canadian GNP growth rate, recipients' GNP/capita, recipients' population in non-agricultural sectors, LDC, Commonwealth and la francophonie membership, geographical size, imports from Canada and population size.

An additional multiple regression was executed using only those eight variables having the greatest explanatory value for total aid plus "year" as a control variable. The results from that particular regression were as follows.

Variable	B	Beta	Significance
Year	184.234605	.189084	.0000
Population size	-.004629	-.036010	.0721
Recipient GNP/capita	.543440	.080180	.0001
Population in non-agricultural sectors	.245656	.060081	.0027
Imports from Canada	-.003631	-.061552	.0021
Geographical size	.000206	.043369	.0322
Commonwealth/la francophonie	517.731493	.036115	.0794
LDC	702.409576	.041277	.0462
Canadian GNP growth rate	563.831222	.184925	.0000

R Square: .05075 **Significance:** .0000

In comparing the results from this regression with the previous regression using fifteen variables plus "year", for each of the eight variables having the greatest explanatory value for total aid, there was no change in the Beta sign and very little numerical change in either the Beta coefficients or the significance factors. There was a slight decrease in the R Square, .05256 and .05075 respectively, but this could be expected considering the first multiple regression consisted of twice the variables compared to the second multiple regression. Note that population size, recipient GNP/capita, population in non-agricultural sectors, imports from Canada, geographical size, Commonwealth / la francophonie, LDC, and Canadian GNP growth rate plus "year" explain 5% of variation in total aid - the same explanatory value as the fifteen variables plus "year" in the previous multiple regression.

ENDNOTES - ANALYSIS

1. In Doern, G.B. and Phidd, R., Canadian Public Policy: Ideas, Structure, Process, Methuen Publications, Toronto, 1983; and, Phidd, R., and Doern, G.B., The Politics and Management of Canadian Economic Policy, Macmillan of Canada, Toronto, 1978, incrementalism is described as the science of "muddling through". According to the rational model, the best predictor of future policy is the recent past. Incrementalism consists of:

- . small marginal adjustments to the status quo;
- . a restricted consideration of alternatives and of consequences;
- . the adjustment of objectives to policies, and;
- . the reconstructive and serial treatment of data and analysis.

It is essentially a conservative model placing a high normative value on the need for agreement and consensus and the avoidance of large errors. See page 142 of Canadian Public Policy: Ideas, Structure, Process. Nossal's organizational maintenance, referred to earlier, breeds an incremental mind set.

CONCLUSIONS

The following conclusions have been drawn from the analysis of test results for each of the stated hypothesis.

Hypothesis #1: The amount of Official Development Assistance contributed by Canada to other countries was positively and significantly related to Canada's economic condition during the years 1960-1985. This finding was substantiated by Dudley and Montmarquette's analysis but refuted by Real Lavergne's work.

Hypothesis #2A: Rather than a negative relationship between the dependent variable, bilateral aid, and the independent variable, multilateral aid, in fact, there is no relationship. This result contradicts the anticipated outcome, especially in view of the movement from multilateral to bilateral aid in the post-war years. The absence of correlation between these two variables is perhaps best explained by Dudley and Montmarquette's findings that bilateral and multilateral aid decisions are made by different players, for different reasons and with different anticipated consequences. For example, bilateral aid decisions are essentially made by Canadian politicians and bureaucrats with a predominately national viewpoint in mind. On the other hand, multilateral aid decisions are made within multilateral institutions responding

to a more global perspective and agenda.

Hypothesis #2B: Rather than a negative relationship between the dependent variable, bilateral aid, and the independent variable, Canadian GNP growth rate, there is a small but significant, positive relationship between the two variables.

Hypothesis #3: The results from this regression substantiate the hypothesis that as Canada's economy stagnates or declines, the proportion of tied aid increases. This positive correlation between the state of Canada's economy and the proportion of tied aid is actually greater than these results indicate because of the movement from multilateral to bilateral aid. Only bilateral aid is tied.

Hypothesis #4A: The results from the tests for this hypothesis lead to the conclusion that exports to Canada have a positive but not significant relationship to total aid contributions. These findings are contrary to the results anticipated in the stated hypothesis.

Hypothesis #4B: There is a small, negative but significant relationship between Canadian total aid contributions and Canadian imports to recipient countries. This conclusion supports Dudley and Montmarquette's plus Lavergne's position that Canadian aid is not essentially commercially driven. It

contradicts Freeman's position, however, which argues the opposite viewpoint.

Hypothesis #5A: Rather than illustrating a negative relationship between Canada's aid contributions and the size of the recipients' GNP per capita, a small, positive and significant relationship was determined. This finding supports Dudley and Montmarquette's previous study which found no evidence that the poorer countries tended to receive more aid than the more affluent ones.

Hypothesis #5B: As in #5A above, rather than illustrating a negative relationship between Canada's aid contributions and the recipients' GNP growth rate/capita, a significant, positive relationship was determined. Once again, this finding supports Dudley and Montmarquette's work which found no evidence that poorer countries tended to receive more aid than the more affluent ones.

Hypothesis #6: This hypothesis was not substantiated. Rather, there appears to be a small, positive and significant relationship between Canadian aid contributions and the geographical size of recipient countries. This supports Dudley and Montmarquette's findings that any small country bias could not be empirically substantiated after 1969.

Hypothesis #7A: There is a negative but insignificant relationship between Canadian aid contributions and the population size of recipient countries - not a positive relationship as was predicted in the stated hypothesis.

Hypothesis #7B: The results from the tests for this hypothesis do not adequately substantiate any positive correlation between Canadian aid contributions and the population density within recipient countries.

Hypothesis #7C: There is a negative but insignificant relationship between total aid and the illiteracy rate in recipient countries. That is, this analysis has failed to empirically substantiate a positive correlation between Canadian aid contributions and the illiteracy rate in recipient countries.

Hypothesis #7D: There is a positive but insignificant relationship between total aid and the percentage of the recipient countries' population in agriculture. As in the case with #7C, this analysis has failed to empirically substantiate a positive correlation between Canadian aid contributions and the percentage of the recipient countries' population in agriculture.

Hypothesis #7E: The results from the tests for this hypothesis have failed to prove that there is a positive relationship between Canadian aid contributions and the size of the recipient countries' population under 15 years of age.

Hypothesis #8A: The hypothesis that there is no relationship between Canadian aid contributions and the percentage of urban residents in recipient countries has been substantiated.

Hypothesis #8B: The hypothesis that there is no relationship between Canadian aid contributions and the size of the recipient countries' population in non-agricultural sectors has not been substantiated. Rather, there is a positive and significant relationship between the two variables.

The results for Hypothesis #8B are particularly interesting because until the aid policy articulated in Sharing Our Future, the size of the recipient countries' population in non-agricultural sectors received virtually no attention in Canadian aid allocation decisions.

Hypothesis #9: There is a positive relationship between Canada's total aid contributions and the recipients labelled as Least Developed Countries. This finding, supported by Dudley and Montmarquette's work plus that of Real Lavergne, comes as no surprise.

Hypothesis #10: Membership in either the Commonwealth or la francophonie has a positive and significant relationship in the determination of Canada's total ODA contributions. As was the case in #9, this finding is supported by Dudley and Montmarquette's work plus that of Real Lavergne.

Hypothesis #11: The hypothesis that there is a negative relationship between the proportion of NGO program funds and government to government or multilateral aid, has not been empirically substantiated in this study. This finding, consistent whether the independent variable was calculated on the basis of level or differences, contradicts the anticipated results. The increase in the proportion of bilateral aid as compared to multilateral aid has already been mentioned in relation to Hypothesis #'s 2A and 3. Proportionally, according to CIDA statistics, funds allocated to the Non-Governmental Organizations Program have grown more rapidly than funds for the bilateral and multilateral channels. This relationship has not been reflected in this analysis.

Multivariate Regression: Those variables having the greatest explanatory value for total aid were Canadian GNP growth rate, recipients' GNP/capita, recipients' population in non-agricultural sectors, LDC, Commonwealth and la francophonie membership, geographical size, imports from Canada and population size. Together, these eight variables plus "year"

explain 5% of variation in total aid contributions from 1960-1985.

In summary, there is a strong economic motivation for Canadian ODA. This was demonstrated in both multiple regressions by the significant positive correlation between total aid and the Canadian GNP growth rate. Further, the correlation between total aid and the size of the recipients' GNP/capita and the recipients' population in non-agricultural sectors supports the economic motivation argument, as does the positive and significant correlation between bilateral aid and tied aid with the Canadian GNP growth rate. The positive correlation between total aid and such variables as LDC, Commonwealth / la francophonie, geographical size and population size, however, requires a broader repertoire of motives than economics. Rather, from 1960-1985, despite rhetoric to the contrary, it is apparent that political and philanthropic considerations were alive and well within Canada's Official Development Assistance Program - even during periods of recession and economic restraint.

Given the results of these regressions, then, which paradigm best explains them? Given the significance of the economic, political and philanthropic variables, it would be easy to lean in the direction of Poulantzas' relative autonomy. That is, the motivational mix for ODA in Canada is simply a

manifestation of a nation state functioning within the interdependent, international economic order, producing an unstable equilibrium among conflicting forces (political, economic, military, environmental, et cetera both nationally and internationally) in order to legitimize itself internally and abroad as "the representative of the general interest of the people and the embodiment of the unity of the nation".

The statist paradigm would be more difficult to support using the results of this particular analysis. Were further investigation to include an examination of the programs and projects actually implemented in recipient countries by CIDA, however, quite a different picture could emerge giving ample ammunition for the statist paradigm. It is within the realm of program policy and projects that the state, through the bureaucracy, "plays a major initiating role, identifying desirable policies through its own internal procedures, promoting support for these policies, and then executing them." Although not a government department in the usual sense of the term, it would be interesting to explore how CIDA's bureaucracy exercises the autonomy it has in determining ODA policy. Unfortunately, such an examination is beyond the parameters of this analysis. The test results for these hypothesis do not support a statist argument.

In spite of the apparent "fit" for relative autonomy, it is the realist paradigm that gives the greatest explanatory mileage for the results of this study. It is relative autonomy's outer parameter. As indicated earlier in this thesis, the realist views a nation state's domestic and international behaviour as an effort to maximize its security, its advantages and its ability to influence within a largely anarchic international system. The reason for the conflict and unstable equilibrium among conflicting forces that relative autonomists describe is so the nation state can continue to exist as a sovereign entity within that "system". Aid, is one of many foreign policy tools used to maximize Canada's advantages and ability to influence internationally. How exactly that occurs is the basis for further investigation.

Before embarking on such an adventure, however, remember that paradigms provide a perceptual framework that help make sense of and interpret the world, events and behaviour. In an age of schizophrenic "paradigm shifts" the traditional debate about which paradigm illustrates reality is more a personal world view and choice rather than truth discovered, defined or explained.

APPENDIX A.1

Durbin-Watson Results

Hypothesis	d	n	k	dl and du at 0.05 significance	
1	2.29475	2406	1	1.65	1.69
2A	2.30270	2406	1	1.65	1.69
2B	2.31343	2406	1	1.65	1.69
3	2.65041	2406	1	1.65	1.69
4A	2.27423	2406	1	1.65	1.69
4B	2.28055	2406	1	1.65	1.69
5A	1.29944	2406	1	1.65	1.69
5B	1.30032	2406	1	1.65	1.69
6	2.28382	2633	1	1.65	1.69
7A	2.27010	2406	1	1.65	1.69
7B	2.28136	2406	1	1.65	1.69
7C	2.27751	2406	1	1.65	1.69
7D	2.27905	2406	1	1.65	1.69
7E	2.27773	2406	1	1.65	1.69
8A	2.27743	2406	1	1.65	1.69
8B	2.27855	2406	1	1.65	1.69
9	2.28518	2633	1	1.65	1.69
10	2.28383	2633	1	1.65	1.69
11 (Levels)	1.33815	2633	2	1.63	1.72
(Difference)	2.74713	2633	2	1.63	1.72
Multiple (1)	2.30508	2406	16	1.57	1.78
(2)	2.23063	2406	9	1.57	1.78

APPENDIX A.1 (cont'd.)

Note:

d = Durbin-Watson d statistic
n = number of observations
k = number of explanatory variables
dl = lower level of d statistic at 0.05 level of
significance
du = upper level of d statistic at 0.05 level of
significance

Reference: Gujarati, Damodar, Basic Econometrics, McGraw-Hill, Inc., New York, 1978, 235-239 and 438-439.

END

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FIN