FEDERALISM AND FISCAL EQUALIZATION
IN CANADA AND THE UNITED STATES, 1990 - 1999[*]

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This paper examines the system of intergovernmental transfers in Canada and the United States from 1990 to 1999. The analysis focuses on (1) the effects of federal transfers on the revenues of subnational governments and (2) the relationship between federal transfers to subnational units and the fiscal capacity of those units. Equalizing transfers are transfers whose distribution is inversely proportionate with a subnational unit's fiscal ability or capacity. During the 1990's, Canada's system of intergovernmental transfers has explicitly attempted to equalize the fiscal capacities of the provinces. The effects of the U.S. system, on the other hand, have been unclear. Coefficients describing the relationship between the per capita receipt of federal transfers and the fiscal capacity of the states (as measured by both per capita GDP and per capita income) in the U.S. are at times positive but, for the most part, statistically insignificant, indicating that state fiscal capacity is not a very important factor in the distribution of U.S. federal transfers.

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I. Introduction

In a federal country, decision-making powers are divided between a central government and several regional governmental units. Each level of government is constitutionally assigned rights and responsibilities in an attempt to better respond to regional differences while abiding by national policies. Yet when lower level governmental units are limited to the resources within their boundaries, disparities in resources among regions will lead to problems of rich and poor regional governments. Intergovernmental transfers from the central government to regional units are often used in federations in an attempt to achieve a balance between resources and responsibilities and to ensure that a citizen can enjoy a standard of living similar to anyone else in any part of the country.

The purpose of this paper is to examine the system of intergovernmental transfers in Canada and the United States during the 1990's, focusing on the effects of federal transfers on the revenues of regional governments and the relationship between these transfers and the fiscal disparities of the regions in both countries.[1] Focusing on the last decade will provide a recent but also fairly comprehensive examination of Canadian and American federal transfers. The paper begins by dealing with the role of intergovernmental transfers in a federal system. The section continues by explaining the federal systems in Canada and the United States and the use and importance of grants within those systems. Section 3 presents a review of the literature on the topic of grants and fiscal equalization in Canada and the United States. Section 4 looks at the source of the imbalances – the demographic and economic disparities between provinces and states. Finally, sections 5 and 6 present the empirical analysis: Section 5 shows what effects federal transfers have on the fiscal disparities of the regions by comparing regional governmental revenues before and after funds from the federal government are distributed. Section 6 examines the relationship between the major grant programs and the fiscal capacities of the states and provinces.

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[1] In this paper, unless stated otherwise, "region" will refer to the subnational units of states or provinces.

II. On Federalism, Grants and Fiscal Equalization

It is the co-ordination but also the independence between a central government and the regional units which gives a federal country its balance. A federal system can provide unity in matters of stabilizing the national economy, assuring an equitable distribution of income and providing public goods that are national in scope, but it can also ensure, through the autonomy of its regional governments, that public services and goods suit the tastes and needs of the residents of the various jurisdictions.[2] However, while the central government has access to the resources of the citizens of the entire country, the regional units are limited to the taxpayers that reside within that region's boundaries.[3] This can lead to imbalances in a federal system.

The existence of rich and poor regional units leads to horizontal inequities. A widely accepted principle in the area of federal finance is that individuals in similar economic circumstances, regardless of their place of residence in the country, should receive similar treatment from government in terms of services and taxes.[4] Yet this principle is jeopardized if a resident's regional government, due to inadequate revenues, is unable to provide nationally comparable public services at similar tax rates. The real price of public goods and services, measured by the individual's tax bill, increases compared to the prices in other regions of the country. A wealthier region, with its superior resources, will be able to meet its fiscal responsibilities with less effort (i.e. lower tax rates) than the poorer region. Hence, despite identical nominal incomes, the resident of the poorer region will face a greater tax burden for the same level and quality of public services as the resident of the wealthier region – two equals being treated unequally.[5]

There are two possible solutions to this imbalance. The central government may administer geographically discriminatory personal taxes, in which the federal rate of tax

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[2] Oates (1972), p.15

[3] This assumes that tax exportation – taxes coming from nonresidents – is not feasible or is not significant to a regional government's budget.

[4] See Buchanan (1950), p.587, Oates (1972), p.81, Hobson and St-Hilaire (1993), p.14, or Boadway (1998), p. 58

[5] Oates (1972), p.83

varies proportionately with the wealth of the region (residents of rich regions pay higher rates of federal tax), or equalizing transfers may be distributed to the regional governmental units, with poorer regional units receiving more per capita funds than the wealthier ones. A federal tax system based on geography and the wealth of regions would very likely be unrealistic; therefore, intergovernmental transfers seem to be the most suitable mechanism in correcting the "rich-region poor-region" problem in a federal system.

Two basic types of transfers are used in federal countries: conditional transfers and unconditional transfers. In the case of conditional transfers, the government responsible for providing the funds, dictates how the money is to be spent. The "condition" can be as vague as a general area, such as health or transportation, or as precise as a specific program. Unconditional, or general-purpose transfers, may be spent according to the recipient government's priorities or, as is sometimes the case, simply used to provide tax relief. Canada, concerned with equalizing the fiscal capacities of its regional governments, makes significant use of unconditional transfers. As discussed below, the United States relies heavily on conditional, or specific-purpose grants.

Federalism, Grants and Fiscal Equalization in Canada

The strength and autonomy of Canada's provinces have tempted many to label Canada the most decentralized federation in the world. Beginning in the early 1960's, provincial governments accumulated considerable responsibility in the areas of taxation and public expenditure. Provinces have control over health, education and social assistance while their authorization to tax stops only at international trade.[6] While this widespread provincial authority and responsibility ensures that regional needs are met, a province's own revenues are often not sufficient to match the needed expenditures.

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[6] Vaillancourt (1999), p.2

FIGURE 1
Relative Importance of Canada's Levels of Government
Federal and Provincial Revenue and Expenditure Ratios, 1950 to 1998
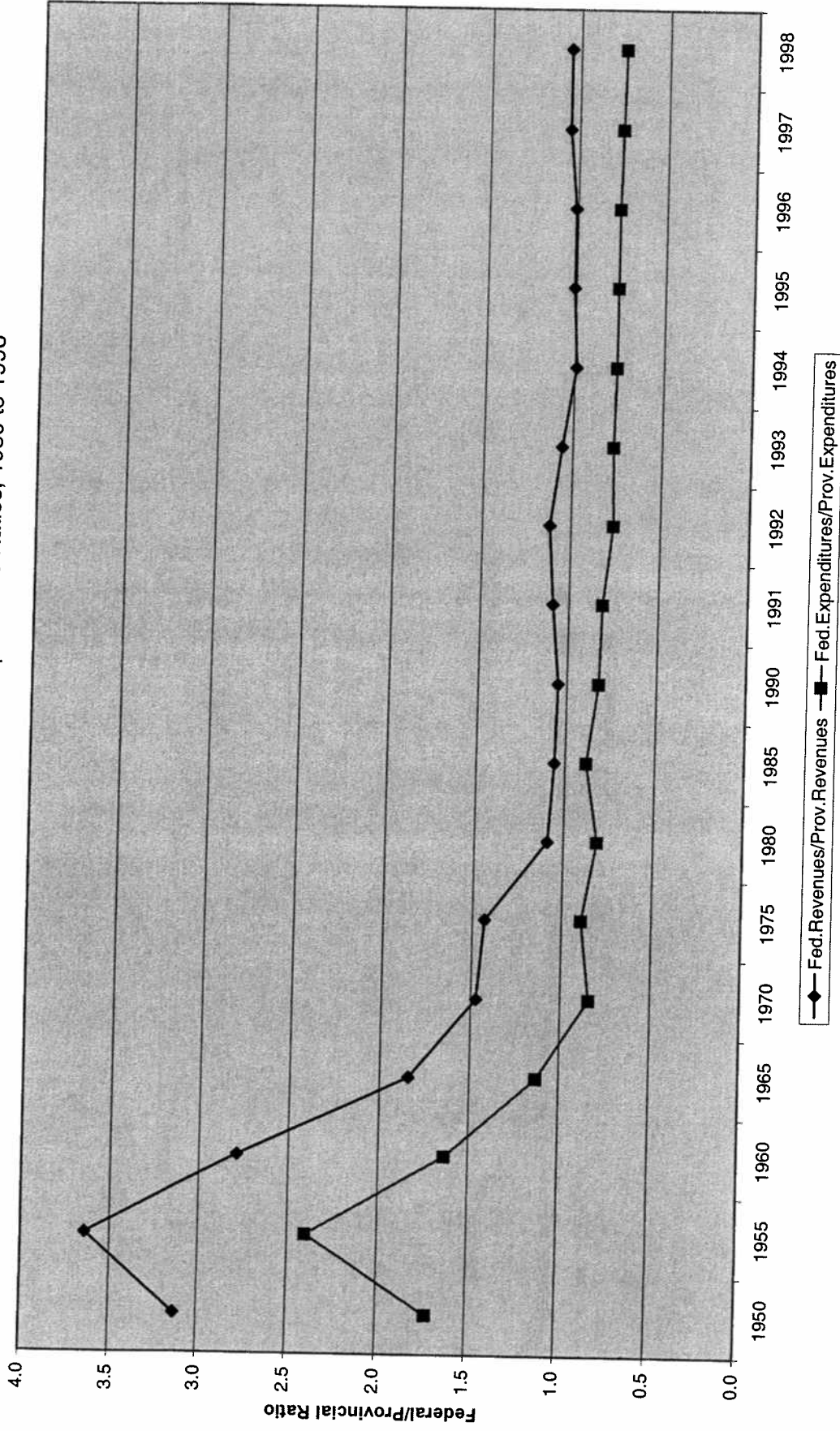
Sources: 1950 to 1980: Hobson and St-Hilaire (1993), Table 1, p.19
1985 to 1998: Calculations based on: Revenues: CANSIM D25768 and D26079
Expenditures: D25776 and D26086
Transfers: D26077

Figure 1 illustrates the importance of Canada's federal government relative to provincial governments in the areas of spending and revenue since 1950. Federal-provincial ratios, which measure this importance, have fallen in both areas since the mid-1950's, with a sharp downward trend from 1955 to 1970. This demonstrates the shift in taxing and spending powers from the federal government to the provincial governments. However, while provincial expenditures have exceeded federal expenditures since the late 1960's, the federal government still collects more revenue than the provincial governments (though barely since 1980). Transfers are then made from the federal government to the provinces to correct this vertical fiscal imbalance – the fact that the provinces spending responsibilities exceed their revenues while quite often the opposite is true for the federal government. Moreover, as described above, transfers from the federal government may also be needed to ensure that horizontal inequities in a federation do not lead to varying levels and qualities of services.

This decentralization of the Canadian federation has shaped the country's system of intergovernmental transfers. The 1950's witnessed the introduction of a number of conditional grants and federal-provincial cost-sharing programs for health insurance, post-secondary education and welfare, as well as the creation of the equalization program. However, as the provinces increased their demands for greater discretion and the federal government looked to control its spending, the cost-sharing arrangements covering health and education were eventually replaced by a block grant from the federal government. This block grant, introduced in 1977 as Established Programs Financing (EPF), accommodated the wishes of both levels of government; the provinces could set their own spending priorities in post-secondary education, hospital insurance and medical care (the "established programs") with few restrictions while the federal government's contribution was limited, growing at a rate determined by per capita GNP and per capita tax collections.[7] Each province received an amount, half of which came as a cash transfer and half as a transfer of tax points, according to their portion of the population. In 1996, EPF was blended with Canada's social welfare program (Canada Assistance Plan) to create the Canada Health and Social Transfer.

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[7] Perry (1997), p.173

Canada now essentially has two major transfers: the Canada Health and Social Transfer (CHST), a conditional transfer with very few conditions, and the Equalization program, an unconditional grant. The simplicity and virtual lack of restrictions in the Canadian system demonstrates Ottawa's apprehension of infringing upon provincial freedoms in setting priorities and managing public programs. Table 1 shows the size of Canada's two major transfer programs along with total cash transfers from 1989-90 to 1998-99. In addition to the CHST and the Equalization program, there are a number of "small" federal transfers, which have totaled between 3 and 4 billion dollars throughout the 1990's.[8] Table 1 also does not include the federal transfer of tax points, which made up more than 50% of the CHST transfer in 1998-99.[9] The exchange of "tax space" is for tax points that were relinquished to the provinces in 1977. Therefore, Table 1 focuses on cash transfers from the federal government to the provinces.

TABLE 1
Equalization, CHST and Total Transfers in Canada
Cash Transfers, 1990 – 1999

Year	Equalization ($millions)	CHST ($millions)	Total Transfers ($millions)	Total Transfers per capita ($)	Total as % of GDP	Total as % of Fed.Spending
1989-90	8,155	13,715	26,446	965.90	3.9	17.9
1990-91	8,261	13,861	26,592	956.87	3.9	16.9
1991-92	8,075	14,961	27,298	970.78	3.9	17.0
1992-93	7,377	17,916	30,758	1,077.65	4.2	18.8
1993-94	7,756	16,830	29,669	1,025.17	3.9	18.3
1994-95	8,543	17,331	32,004	1,094.12	4.0	19.0
1995-96	8,801	16,790	31,046	1,048.65	3.7	19.2
1996-97	8,796	15,127	26,565	895.29	3.0	17.0
1997-98	8,292	12,500	24,805	827.19	2.8	15.4
1998-99	8,482	16,018	28,343	937.02	3.0	16.4

Sources: Transfers: 1989-90 to 1995-96: Perry (1997), tables A.48 to A.54
                                    1996-97 to 1998-99: *Finances of the Nation*, table 8.1
                                    Statistics Canada: CANSIM matrices 8182-8191
                  GDP: Statistics Canada: CANSIM label D44959
                  Population: Statistics Canada: CANSIM label D31248
                  Federal spending: Statistics Canada: CANSIM label D25776
Notes: CHST: Before 1996-97, this is the sum of Established Programs Financing (EPF) and Canada Assistance Plan (CAP)

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[8] Vaillancourt (1999b), p.3
[9] Treff and Perry (1998), p.8:2

Canada Health and Social Transfer (CHST)

While Canada's system of transfers is straightforward, the transfers themselves are far from uncomplicated. In 1996, Canada's last major federal-provincial cost-sharing program, the Canada Assistance Plan (CAP), was combined with the block transfer for health and post-secondary education, EPF, to form the Canada Health and Social Transfer (CHST). Much like the introduction of EPF in 1977, the CHST allowed the federal government to reduce its contribution to the provinces (since CAP transfers were determined by provincial spending) while provincial governments now had considerable flexibility in social welfare. Once again, Ottawa's ability to impose national standards on the provinces was weakened.[10] Essentially, the only obligations that now rest with the provinces are to provide social assistance without imposing minimum residency requirements on recipients and to respect the principles of the Canada Health Act.[11]

As mentioned above, the CHST is composed of a cash and tax transfer. The tax transfer is an exchange of tax points between the federal and provincial governments; the provinces increase their income tax rates while the federal government reduces its rates by an equal amount.[12] The federal government determines the cash component of the transfer by subtracting the total value of tax points from total CHST entitlements (the sum of cash and tax points). The calculation is as follows[13]:

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        TOTAL CASH TRANSFER
  +     TOTAL VALUE OF TAX POINTS

  =     TOTAL ENTITLEMENTS AVAILABLE TO PROVINCES

  x     POPULATION WEIGHT OF PROVINCE j

  =     TOTAL ENTITLEMENTS TO PROVINCE j

  -     VALUE OF TAX POINTS
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[10] Perry (1997), p.263
[11] Treff and Perry (1999), p.8:12
[12] Bird and Vaillancourt (2000)
[13] Commission sur le déséquilibre fiscal (2001), p.10

$$= \quad \text{CASH TRANSFER TO PROVINCE j}$$

The tax points consist of 14.9% of the basic federal personal income tax and 1.0% of taxable corporate income.[14] However, since a tax point will raise more revenue in a richer province than in a poorer province, richer provinces receive a smaller per capita cash transfer. Table 2 lists CHST cash transfers by province for 1998-99. Per capita amounts vary since the CHST included a limit on the growth of transfers to the "have provinces" (British Columbia, Alberta and Ontario). Thus the CHST includes an equalizing component. These disparities in per capita payments were scheduled to be removed by 2001-02, when all provinces should receive $1,067 per capita in total entitlements (tax and cash transfers).[15]

Equalization

The objective of Canada's second major transfer is to reduce the horizontal imbalances among the provinces. Initiated in 1957 and enshrined in the Constitution in 1982, Canada's equalization transfer program has always focused on enabling all provinces to provide "reasonably comparable levels of public services at reasonably comparable levels of taxation".[16] The equalization formula is based on the difference between the per capita revenue yield that a particular province would obtain using an average tax rate and the average per capita revenue yield in the five "representative" provinces, which are all the provinces except resource-rich Alberta and the poorer provinces of New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland. The current formula considers 33 revenue sources ranging from a province's personal and corporate income taxes to gasoline and tobacco taxes to lottery revenues.[17] The

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[14] There is an additional step in the province of Quebec. In the 1960's, Quebec opted-out of a number of federal conditional grant programs and therefore the province receives an additional transfer of tax points equal to 16.5% of basic federal tax. The province then returns the value of three basic federal tax points to the federal government for a program that was discontinued in 1974. See Commission sur le déséquilibre fiscal (2001), p. 10.

[15] Commission sur le déséquilibre fiscal (2001), p.11

[16] Constitution Act (1982), Section 36

[17] Treff and Perry (1999), p.8:5

TABLE 2
Equalization, CHST and Total Transfers by Province, 1998-99

	Equalization ($millions)	per capita ($)	percent share (%)	CHST ($millions)	per capita ($)	percent share (%)	Total Transfers ($millions)	per capita ($)	percent share (%)	% of total prov. revenues
BC	-	-	0.0	1,610	399.74	12.9	2,563	636.28	10.0	9.2
Alberta	-	-	0.0	946	319.49	7.6	1,489	503.14	5.8	8.3
Sask.	159	155.02	1.9	423	412.21	3.4	1,143	1,114.36	4.5	15.6
Manitoba	1,071	937.34	12.6	498	435.94	4.0	1,709	1,495.71	6.7	26.9
Ontario	-	-	0.0	4,069	353.28	32.7	5,497	477.28	21.5	9.2
Québec	3,952	537.75	46.6	3,808	518.19	30.6	6,675	908.27	26.1	15.0
NB	982	1,301.87	11.6	332	440.54	2.7	2,154	2,855.63	8.4	36.6
NS	1,178	1,254.26	13.9	426	453.36	3.4	2,156	2,295.57	8.4	38.9
P.E.I.	198	1,434.78	2.3	60	436.23	0.5	368	2,666.67	1.4	36.9
Nfld	942	1,741.86	11.1	274	505.92	2.2	1,854	3,428.25	7.2	42.5

differences are summed for all 33 revenue sources and those provinces with a deficiency at the end receive an equalization transfer based on the size of that deficiency.[18] Hence, the equalization program entitles all provinces to per capita revenues equal to the *potential* average of British Columbia, Saskatchewan, Manitoba, Ontario and Quebec.[19] Table 2 shows how much each province receives under Equalization in both dollar and per capita amounts. While the four Atlantic Provinces receive the most in per capita terms, almost half of all equalization dollars are paid to the province of Quebec. Over the last thirty years, British Columbia, Alberta and Ontario have been known as the "contributing provinces" since they do not receive any equalization payments.

Table 2 also illustrates the importance of federal transfers to each province. In 1998-99, federal transfers accounted for less than 10% of total provincial revenues in the "have" provinces. In Atlantic Canada, these transfers are much more important, making up more than 40% of Newfoundland's total revenues. Over the last decade, it is clear that the intention of Canada's system of intergovernmental transfers is to redistribute revenues among the provinces while respecting the discretion of those provinces in the use of federal funds.

Federalism, Grants and Fiscal Equalization in the United States

Perhaps one of the most surprising aspects of the U.S. federal system is how "unfederal" it is compared to other federations. There are such overlaps in authority between Washington, the states and the municipalities, that it is difficult to identify any clear distinctions between state, federal and even local functions. For instance, it may seem odd to a Canadian, accustomed to the strength and autonomy of the provinces, that in the United States, federal and local governments play active roles in the areas of health, public housing, education and transportation. In fact, the responsibilities of the

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[18] However, those provinces with excess capacity do not make payments – they simply do not receive any equalization transfers.

[19] Boothe (1998), p.12

U.S. federal government often extend into such fields as local libraries, zoning regulations, mass urban transit and even pest control.[20]

Much of this intertwining of powers is due to the traditional roles and strengths of both state and local governments. Compared to the Canadian provinces, U.S. states are relatively weak. In his comparative study on federal finance, Richard Bird labeled the states as "little more than yet another public sector pressure group and a set of administrative agencies intermediating in some respects between the federal government and the local governments and citizens".[21] While the states have since, to a certain extent, "shed their image as the "weak links" in the federal system"[22], Bird's comment does highlight the dominance of the federal government and the significant importance of local governments relative to the states.

This dominance of the federal government is clearly reflected in the U.S. system of intergovernmental transfers to state and local governments. In the United States, there are three types of grants-in-aid: categorical (specific-purpose) grants, block grants and general-purpose assistance. Over 80% of the more than 600 U.S. federal grant programs in 1996 were categorical[23]. It has often been suggested that the preference for categorical grants in the United States stems from a mistrust of the states. Frustration on the part of the federal government, caused by the states' neglect, inadequacy and unwillingness in dealing with problems traditionally under their authority, led to the dependence on categorical grants that ensured specific levels of public goods and services rather than providing the *capabilities* of supplying such levels, as is done in Canada.

In 1995, the so-called "Devolution Revolution" (a plan to transfer more power from Washington to state governments), along with federal deficit pressure, increased the support for block grants. Block grants, although a type of specific-purpose grant, provide funds for a broadly defined functional area and thus give recipients some discretion in the

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[20] Wilson (1998), p.224
[21] Bird (1986), p.147
[22] Pagano and Bowman (1989), p.12
[23] Posner and Wrightson (1996), p.88

use of the funds. In the United States, these grants are usually the result of the amalgamation of a number of previously existing categorical grants in a specific policy area. For instance, the Temporary Assistance for Needy Families Block Grant (TANF) replaced three categorical grants in 1997: Aid to Families with Dependent Children (AFDC), Job Opportunities and Basic Skills Training (JOBS) and Emergency Assistance (EA) – each one with very specific eligibility criteria and directives. States now receive a lump-sum payment that may be used in any manner to meet the objectives of the program thus giving state governments greater flexibility in managing the programs. But this increased flexibility comes at a cost. As entitlement (a form of categorical grant) programs, AFDC, JOBS and EA were adjusted to match economic conditions; costs were not capped and the number of beneficiaries and the amount of benefits increased as the state of the economy worsened. Using a lump-sum payment, the federal government is able to reduce its domestic spending. In the words of two experts at the U.S. General Accounting Office,

> From a budgetary perspective, block grants have distinct advantages as a tool of cutback management. From the national viewpoint, coupling budget cuts to grant consolidations and regulatory relief can help gain needed state support for reduced federal spending. Also, the federal government can reduce its political liabilities by shifting the burden of making painful choices to the states. The states, in turn, can lay responsibility for the decisions they eventually must make at the federal doorstep because the federal government imposed the cuts initially.[24]

While the creation of block grants does help the federal government in its struggle with deficits, the removal of strict conditions on funding for a number of programs gives the states considerable authority and strengthens their role in the U.S. federal system.

1996 appears to have been a significant year for both provincial and state governments. With the introduction of a major block grant in the United States and the creation of the CHST block grant in Canada, both Washington and Ottawa conferred a greater degree of flexibility upon their regional governments while accepting a reduction

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[24] Posner and Wrightson (1996), p.92

in their ability to impose national standards. Unquestionably, the threat of increasing deficits made this option relatively more attractive to the two federal governments.

Table 3 presents total U.S. transfers in both absolute and per capita dollar amounts and as percentages of U.S. Gross Domestic Product and total federal spending. Amounts for Medicaid, the United States' largest grant program, are also listed. Medicaid's importance has increased significantly over the 1990's, rising from roughly 30% of total U.S. transfers in 1989-90 to 40% in 1998-99.

TABLE 3
Medicaid and Total Transfers
in the United States, 1990 – 1999

Year	Medicaid ($millions)	Total Transfers ($millions)	Total Transfers per capita ($)	Total as % of GDP	Total as % of Fed.Spending
1989-90	40,857	135,325	542.46	2.4	10.8
1990-91	52,533	154,519	612.80	2.6	11.7
1991-92	67,740	178,065	698.21	2.9	12.9
1992-93	75,774	193,612	751.07	3.0	13.7
1993-94	82,034	210,596	808.97	3.0	14.4
1994-95	89,070	224,991	856.12	3.1	14.8
1995-96	91,844	227,811	858.92	3.0	14.6
1996-97	95,552	234,160	874.44	2.9	14.6
1997-98	101,001	246,128	910.75	2.8	14.9
1998-99	108,569	267,081	979.43	2.9	15.7

Sources: Medicaid: Statistical Abstract of the United States, Federal Aid to State and Local Governments
Transfers, GDP and Fed.Spending: Statistical Abstract of the United States: 2000, Table No.497
Population: Bureau of Economic Analysis (www.bea.doc.gov/bea/regional/spi/) as of Feb.2001

What is remarkable about the system of intergovernmental transfers in the United States is the absence of any interstate equalization. As this paper points out below (Section IV), there are significant fiscal disparities among the states. Yet, there is no grant program designed specifically to correct these disparities. Of the over 900 U.S. grant programs listed in the Catalog of Federal Domestic Assistance, only 172 are

distributed according to a formula.[25] And among these formula grants, only sixteen include any measure of a state's fiscal capacity. Seven lump-sum grants list State per capita income as one of the statistical factors in the allocation formula:

1. *Senior Community Service Employment Program (Older Worker Program)*: State per capita income is one of three statistical factors used for fund allocation.

2. *Vocational Education Basic Grant*: State per capita income is one of two statistical factors used for fund allocation.

3. *Rehabilitation Services – Vocational Rehabilitation Grants to States*: Federal funds are distributed based on population weighted by per capita income.

4. *Tech-Prep Education*: State per capita income is one of two statistical factors used for fund allocation.

5. *Protection and Advocacy for Individuals with Mental Illness*: State per capita income is one of two statistical factors used for fund allocation.

6. *Developmental Disabilities Basic Support and Advocacy Grants*: Two-thirds of the amount appropriated is allotted to each State according to population, weighted by the relative per capita income for each State.

7. *Child Welfare Services*: State per capita income is one of two statistical factors used for fund allocation.

Seven matching grants use State per capita income to determine the matching rate:

1. *Medicaid*: State per capita income is one of two factors used for fund allocation.

2. *Family Support Payments to States*: If the State has an approved Medicaid plan, it may elect to use the Medicaid formula (which depends in part on State per capita income levels).

3. *Child Care Mandatory and Matching Funds of the Child Care and Development Fund*: Matching funds are allotted based on the applicable Medicaid rate.

4. *Foster Care*: Matching rate for payments is equal to the Medicaid percentage.

5. *Adoption Assistance*: Matching rate for payments is equal to the Medicaid percentage.

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[25] Catalog of Federal Domestic Assistance (www.cfda.gov), Types of Assistance (as of July 2001)

6. *State Children's Insurance Program*: Provides for an "enhanced Federal Matching Assistance Percentage" that is equal to the matching rate in the Medicaid program.

7. *Temporary Assistance for Needy Families Contingency Fund*: Contingency funds are available at the applicable Medicaid rate.

Two grants consider State Total Taxable Resources:

1. *Community Mental Health Services Block Grant*: Allotments to States are based upon certain weighted population factors and Total Taxable Resources.

2. *Substance Abuse Prevention and Treatment Block Grant*: Allotments to the States are based upon certain weighted population factors and Total Taxable Resources.

Assistance is more often based on the perceived need of a state or city, which might be measured by population, the past expenditures of that state or city or the poverty rate in a jurisdiction. The remaining grants are associated with specific projects, which are awarded to States based on an application process.

A large number of U.S. grant programs include matching requirements, which often benefit wealthier states. This is because the size of a matching grant depends on state spending. Therefore, state governments capable of offering greater program spending attract more federal funds. Table 4 lists the amount of federal transfers and their importance to each state for fiscal year 1996-97. The state of Alaska clearly benefits the most in per capita terms, receiving two and a half times the national average of per capita federal transfers. However, federal transfers only make up 11.5% of Alaska's total revenues. Most states seem to count on federal transfers for between 10 – 20% with no states depending on federal money as much as the Atlantic Canadian Provinces. South Dakota and North Dakota are the most dependent on federal aid – transfers make up just more than 28% of total state revenues.

TABLE 4
U.S. Total Transfers by State
($000 000), Per Capita ($), State Share and Importance to State

	Total Transfers ($millions)	per capita ($)	percent share (%)	% of total state revenues
Alabama	3,483	806	1.5	16.5
Alaska	1,303	2,139	0.6	11.5
Arizona	3,355	737	1.5	15.1
Arkansas	2,283	905	1.0	19.2
California	27,014	837	11.8	12.9
Colorado	2,444	628	1.1	10.8
Connecticut	2,905	888	1.3	13.2
Delaware	629	860	0.3	12.3
Florida	8,504	580	3.7	11.2
Georgia	5,469	730	2.4	13.7
Hawaii	1,184	998	0.5	14.5
Idaho	936	773	0.4	15.7
Illinois	9,296	781	4.0	13.9
Indiana	3,539	604	1.5	12.5
Iowa	1,977	693	0.9	13.5
Kansas	1,620	624	0.7	12.4
Kentucky	3,702	947	1.6	18.3
Louisiana	4,457	1,024	1.9	19.1
Maine	1,378	1,109	0.6	18.9
Maryland	3,950	775	1.7	12.8
Mass.	6,365	1,041	2.8	16.6
Michigan	7,237	740	3.1	11.7
Minnesota	3,952	843	1.7	11.9
Mississippi	2,626	962	1.1	19.8
Missouri	4,231	783	1.8	16.4
Montana	991	1,127	0.4	20.8
Nebraska	1,227	741	0.5	11.5
Nevada	983	586	0.4	9.7
New Hamp.	842	718	0.4	14.8
New Jersey	6,602	820	2.9	12.3
New Mex.	2,152	1,244	0.9	20.8
New York	24,384	1,344	10.6	15.2
N. Carolina	6,284	846	2.7	16.1
N. Dakota	1,074	1,676	0.5	28.3
Ohio	8,327	744	3.6	12.6
Oklahoma	2,510	757	1.1	15.6
Oregon	2,853	880	1.2	12.9
Penns.	10,268	854	4.5	14.2
Rhode I.	1,144	1,158	0.5	19.4
S. Carolina	2,987	794	1.3	15.0
S. Dakota	982	1,330	0.4	28.1
Tennessee	4,555	849	2.0	15.9
Texas	13,184	678	5.7	12.7
Utah	1,355	658	0.6	11.4
Vermont	601	1,020	0.3	17.8
Virginia	3,518	522	1.5	9.6
Washington	4,496	801	2.0	11.2
W. Virginia	2,100	1,157	0.9	22.0
Wisconsin	3,617	700	1.6	10.8
Wyoming	762	1,588	0.3	20.4
U.S.	229,778	859	100.0	x

Sources: Transfers: Statistical Abstract of the United States: 1998, Federal Aid to State and Local Governments, Table No.505

State Revenues: U.S. Census Bureau (www.census.gov/govs/estimate) as of June 2001

Major U.S. Grant Programs

Outlays for the largest grant program, Medicaid, are projected to be $124.8 billion in 2001.[26] Medicaid provides financial assistance for health services and medical aid to those who meet low-income requirements. The program also includes Medicare, which provides health insurance to high-risk persons over the age of 65. To be eligible for federal funds, states must meet strict federal criteria, which dictate the health services that are to be offered and the income qualifications of program beneficiaries.[27] Medicaid is a matching grant program and is allocated based on (1) a state's medical assistance expenditures and (2) the per capita personal income of that state (an average of the three most recent years is used). States with lower incomes are provided with a more favourable matching rate. Hence, Connecticut, for example, the state with the highest per capita personal income for 1999 received a matching rate of 50 cents of federal money for every state dollar spent on Medicaid expenditures, while the federal share was 77 cents (legislation lists 83% as the maximum matching rate) for every state dollar in the low-income state of Mississippi.[28] Furthermore, Medicaid might be more important in Mississippi than in Connecticut simply because Mississippi is a poorer state and may contain more eligible applicants within its borders.

Table 5 shows the top 10 per capita recipients of Medicaid between 1996 and 1999. In 1999, Mississippi received $527 per person in Medicaid funds from the federal government. While this was 34% above the national average for Medicaid, higher income states such as New York and Rhode Island received more in per capita funds from the federal government. Connecticut, also well above the average in the receipt of federal Medicaid funds, was just below Mississippi, receiving $484 per capita.

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[26] United States Department of Commerce (2001), p.243

[27] As part of President Bill Clinton's desire for increased decentralization, a waiver was introduced in 1994 which allowed states to request adjustments in Medicaid compliance requirements. States must apply to the federal government for such a waiver and promise that their management of the program will be "budget-neutral" over a five-year period (Pagano and Bowman 1995, p.2-3).

[28] U.S. Department of Health and Human Services (www.aspe.hhs.gov/health/fmap00.htm). See Table 14 in Section VI for the 1999 Medicaid matching rates (called the Federal Medical Assistance Percentages – FMAP) by state.

TABLE 5
Top Ten per capita Recipients of (1) Medicaid and (2) Administration for Children and Families
1996 - 1999

MEDICAID

	1995-96			1996-97			1997-98			1998-99	
State	per capita receipt ($)	% share of total Medicaid	State	per capita receipt ($)	% share of total Medicaid	State	per capita receipt ($)	% share of total Medicaid	State	per capita receipt ($)	% share of total Medicaid
N.Y.	710	14.0	N.Y.	692	13.1	N.Y.	784	14.1	N.Y.	808	13.5
LA	596	2.8	ME	569	0.7	ME	606	0.7	ME	611	0.7
W.V.	517	1.0	LA	566	2.6	W.V.	561	1.0	R.I.	585	0.5
ME	517	0.7	W.V.	520	1.0	R.I.	536	0.5	W.V.	583	1.0
R.I.	475	0.5	R.I.	510	0.5	LA	521	2.3	LA	548	2.2
MS	466	1.4	KY	465	1.9	MS	506	1.4	VT	532	0.3
CT	437	1.6	MS	463	1.3	MA	495	3.0	MS	527	1.3
MA	418	2.8	N.M.	439	0.8	TN	485	2.6	KY	509	1.9
N.M.	416	0.8	TN	434	2.4	KY	473	1.8	TN	507	2.6
TN	414	2.4	N.C.	421	3.3	VT	452	0.3	MA	491	2.8
USA	$339	100.0	USA	$350	100.0	USA	$366	100.0	USA	$394	100.0

ADMINISTRATION FOR CHILDREN AND FAMILIES

	1995-96			1996-97			1997-98			1998-99	
State	per capita receipt ($)	% share of total AFC&F	State	per capita receipt ($)	% share of total AFC&F	State	per capita receipt ($)	% share of total AFC&F	State	per capita receipt ($)	% share of total AFC&F
MS	71	1.9	AK	181	0.5	N.Y.	233	13.1	AK	158	0.4
AK	71	0.4	N.Y.	147	12.9	AK	215	0.4	CA	149	21.1
S.D.	70	0.5	R.I.	136	0.6	CA	176	17.7	R.I.	145	0.6
N.D.	65	0.4	MD	131	3.2	HI	164	0.6	N.Y.	129	10.0
VT	56	0.3	HI	127	0.7	VT	163	0.3	CT	128	1.8
MT	56	0.5	N.M.	121	1.0	R.I.	156	0.5	VT	126	0.3
N.M.	49	0.8	CA	103	16.1	N.M.	153	0.8	HI	117	0.6
ME	48	0.6	IL	103	6.0	CT	144	1.5	MI	113	4.7
WY	48	0.2	N.D.	100	0.3	MI	138	4.2	MA	109	2.9
KY	47	1.8	PA	96	5.6	ME	136	0.5	PA	106	5.4
USA	$41	100.0	USA	$74	100.0	USA	$111	100.0	USA	$79	100.0

AK: Alaska; CA: California; CT: Connecticut; HI: Hawaii; IL: Illinois; KY: Kentucky; LA: Louisiana; ME: Maine; MD: Maryland; MA: Massachusetts; MI: Michigan; MS: Mississippi; MT: Montana; NM: New Mexico; NY: New York; NC: N.Carolina; ND: N.Dakota; PA: Pennsylvania; RI: Rhode Island; SD: S.Dakota; TN: Tennessee; VT: Vermont; WV: West Virginia; WY: Wyoming

Therefore, it seems that Medicaid rewards states with either low incomes, such as Mississippi, West Virginia ($583 per capita) and Louisiana ($548 p.c.), or states with high expenditure capabilities such as New York, Massachusetts and Connecticut. This observation is consistent with Medicaid's allocation formula. Of course, the rewarding of low-income states depends on whether that state government is prepared to commit an adequate amount in program spending.

One of the more interesting developments in the area of federal grants over the latter half of the 1990's was the replacement of some major categorical grants with block grants. The most cited example of this was the introduction of the Temporary Assistance for Needy Families (TANF) welfare block grant in 1996. This grant makes up 60% of the Administration for Children and Families program agency. The TANF block grant does not contain the precise spending requirements of its predecessor, Aid to Families with Dependent Children. However, while states now have increased flexibility in setting spending priorities, they must meet strict federal work quotas for former beneficiaries to be eligible for federal aid. Because the failure to meet minimum working requirements entails the potential loss of millions of federal funds, "states have had no real choice but to concentrate their discretion under TANF on moving welfare recipients into paid employment as quickly as possible".[29] The existence of such obligations makes one wonder whether the TANF grant truly is a "block" grant.

One would expect these kinds of terms for federal aid to benefit states experiencing strong economic conditions. Therefore, it is no great surprise that the Administration for Children and Families program has favoured states with high per capita GDP since the new program regulations took effect in 1996. The lower half of Table 5 lists the top 10 per capita recipients of federal transfers for the Administration for Children and Families program since the TANF block grant was introduced. Alaska, California, Rhode Island, New York and Connecticut were the top recipients of per capita federal dollars for this program in 1999 – states, all of which generate relatively high economic activity.

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[29] Schram (Spring 1999), p. 3

Other dominant grant programs include the Highway Trust Fund, Lower Income Housing Assistance, Compensatory Education and Education for the Disadvantaged and, more recently, Food and Nutrition Services. Compensatory Education and similar education programs have, fairly consistently, benefited poorer states. The majority of these funds go directly to local governments and school districts based on their number of school-aged children from low-income families. Lower Income Housing Assistance grants are, perhaps surprisingly, consistently distributed in favour of high-capacity and high-income states. States that received the most in per capita dollars in 1999 were states with high fiscal capacities and income, but also states that ranked high in population density, such as Massachusetts, Rhode Island, New York and New Jersey. Grants for highways might simply be determined based on the amount of road per capita in each state. Wyoming, Alaska, Montana and North Dakota, all sparsely populated states but very large in terms of area, were the top four receivers of per capita highway grants. As the review of previous research reveals, there are often different opinions about which states, rich or poor, benefit from the distribution of federal transfers.

III. Literature Review

Canada-US comparisons in finance and economics are logical considering the geographical proximity of the two countries as well as the economic activity between both nations, particularly following the signing of two Free Trade Agreements. However, very little exists in the way of comparative studies on the two systems of intergovernmental transfers. As L.S. Wilson puts it, referring to the Canadian case, "it is as if our own system is so complex that the prospect of going on to understand yet another one is just too daunting".[30] Or, it is perhaps because the evolution of fiscal federalism in Canada and the United States has been so different that some see little of value in comparative studies. The comparative studies that do exist are often theoretical and focus on lessons that might be learned from the design and problems of other systems. Such studies include Mieszkowski and Musgrave (1999), and Wilson (1998). And while these studies compare theories of what systems of intergovernmental transfers should look like, they rarely report on what actually exists.

U.S. Studies

While the subject of U.S. fiscal federalism is a popular one among American economists, there is little recent analysis of the relationship between grants and the fiscal capacity of the U.S. states. In fact, the Advisory Commission on Intergovernmental Relations (ACIR), the organization that developed the concept of the Representative Tax System (RTS) and that did considerable research in the area of fiscal equity among states, folded in the early 1990's. Nevertheless, in 1982, two researchers from the ACIR published a paper analyzing state fiscal disparities and intergovernmental grants in the United States (Davis and Lucke, 1982). The study is dated but remains a remarkably thorough quantitative analysis. The authors calculated the fiscal capacities of the 50 U.S. states using the RTS and found that there was a significant level of disparities among the states in 1980 and that these disparities had grown since 1975 by over 100%: from a population-weighted coefficient of variation among all the indices of 0.106 in 1975 to

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[30] Wilson (1998), p.205

0.222 in 1980. In 1980, Davis and Lucke reported the state with the highest fiscal capacity to be Alaska (capacity 5.15 times the national average) and the state with the lowest to be Mississippi (capacity 68% of the national average). The "escalating capacities of the energy-producing states" was cited as one of the major factors responsible for the increasing fiscal capacity disparities among states.[31]

Examining the U.S. federal government's attention to the rich-state-poor-state problem, it was determined that most of the grants to state and local governments are not intended to equalize the fiscal capacity of the states. Davis and Lucke found that only twenty-nine programs, totaling $34.2 billion (out of $89.8 billion in total grants to state and local governments in 1980), included per capita income as one of the statistical factors in the allocation formula.[32] An important point that the authors fail to mention is that almost 40% of the $34.2 billion comes from one program – Medicaid.

Calculations revealed an overall population-weighted correlation between the per capita state distribution of 1980 grants and 1981 revenue capacity of +0.154; higher capacity states receive more per capita federal transfers on average than lower capacity states. Of the three major U.S. grant programs in 1980, Medicaid and Food Stamps were negatively correlated with state revenue capacity (implying equalizing effects) while Aid for Families with Dependent Children (AFDC) was positively correlated. It is proposed, however, that federal fiscal equalization works through the U.S. tax system rather than the grant system. Since the federal tax structure is progressive, higher capacity states pay more in taxes and therefore fund a greater amount of U.S. grants. Indeed, the positive correlation between per capita federal tax collections and state revenue capacity is +0.87.[33] Still, the authors give the following reasons as to why Australia, Canada and West Germany place greater emphasis on interstate equalization:

- the centralization of revenue collection in these other countries, which leads to greater tax uniformity

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[31] Davis and Lucke (1982), p.339
[32] Davis and Lucke (1982), p.350
[33] Davis and Lucke (1982), p.352

- state governments in these countries have a much stronger role vis-à-vis localities than in the U.S.

The study concludes by saying that "the U.S., in contrast to these other countries, has a rococo, relatively unstructured federalism in which other priorities [than differences in fiscal capacity among states] dominate the federal grant system. Because Congress wants to focus on particular services rather than on the general level of service or tax capacity, a substantial portion of the remaining grant system is focused on very narrow purposes."[34]

A 1988 study (Inman, 1988), examining the case for federal aid from the perspective of economic efficiency and equity, shows that most federal transfers do demonstrate equalizing effects. The author regresses federal aid to states against two variables to test for the presence of equity in federal aid – income per capita by state and the coefficient of variation in family income within the state. The results show that "while aid is occasionally allocated more heavily to states with larger within-state income variations, federal aid is almost always inversely related to the level of state income. By 1972, almost all federal aid is equalizing."[35] The effects of one dollar of additional state income on the receipt of federal aid are also calculated. The coefficients for 1972 and 1984 are negative for all program categories (education, highways, welfare and "other"), indicating equalizing effects for federal aid. The study's conclusions are more cautious, however: "while federal aid is a useful step toward state-local fiscal equity, [the study's results on the fiscal equity performance of federal aid] suggest it would be hard to rationalize the present aid system as a grant structure designed solely to promote fairness."[36]

A more recent study comes from the United States General Accounting Office and focuses on the extent to which the federal grant system succeeds in targeting funding to states with relatively greater needs and fewer fiscal resources.[37] The study estimated the

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[34] Davis and Lucke (1982), p.355
[35] Inman (1988), p.51. The years used in the study are 1957, 1962, 1972, 1977 and 1984.
[36] Inman (1988), p.54
[37] United States General Accounting Office (1996).

influence of state fiscal capacity on 1994 per capita federal grant allocations to the 50 states with the use of a multiple regression analysis. The independent variables included state fiscal capacity, represented by a state's cost-adjusted Total Taxable Resources (TTR)[38], and several measures of need, such as poverty rates, unemployment rates and the population of school age children and seniors. From the study's results, it was concluded that a state's fiscal capacity was not an important factor in targeting most closed-ended (grant amount limited) grant funds to lower capacity states. In fact, for "very small" states (states with less than 0.25% of the total U.S. population), the per capita grant distribution was positively related to fiscal capacity. The authors attributed this last observation to the fact that many grants have guaranteed minimums, which, on a per capita basis, greatly benefit the very small states. The GAO paper's final conclusion was that federal aid is not targeted to offset the fiscal imbalances that exist between states.

While the results of the three studies were not unanimous on the absence of equalizing effects in federal aid, there does seem to be a consensus that reducing the fiscal inequalities of the states is not a priority of the U.S. grant system.

Canadian Studies

Because equalization is a very important component of the Canadian federation, issues surrounding federal-provincial relations and fiscal equalization receive a great deal of attention in Canada. And since it is already established that the system of intergovernmental transfers attempts to equalize provincial fiscal capacities, many Canadian studies focus on how much equity is and should be achieved through Canada's transfer system. Boothe (1998) explains that despite the Canadian transfer system's commitment to redistributing revenues equitably among the provinces, the system creates a certain amount of inequity among people.[39] Since equalization is intended to allow all provinces to offer comparable services without having to resort to higher taxes, Boothe

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[38] See Appendix I for a description of TTR and other indicators of regional fiscal capacity.
[39] Boothe (1998), p.19

argues that transfers from richer provinces benefit high-income persons in poorer provinces at the expense of lower-income persons in richer provinces. This is because the burden of progressive taxes falls more heavily on higher-income earners; with equalization permitting lower taxes but the same services, high-income earners in poor provinces benefit the most from these transfers. Boothe's calculations for what provinces receive what amounts in transfers after the payment of federal taxes shows that Newfoundland received $2,360 per person in 1996-97 while Ontario paid $536 more per person in taxes than it received in federal transfers.[40]

Questions have often been raised as to whether Canada's system of transfers over-equalizes the fiscal capacities of the provinces. That is, are federal transfers too generous to poorer provinces while imposing greater than necessary burdens on the richer provinces? Hobson (1998) insists that the Canadian system instead under-equalizes because the fiscal capacities of the recipient provinces are brought up to a standard that lies below the national average. Furthermore, Hobson argues that since transfers are funded out of the taxes paid by all provinces, poorer provinces contribute to their own transfer payments.[41] This leads to situations such as the province of Quebec contributing 22% to federal revenues while it receives one of the lowest per capita amounts in equalization due to the fact that it has one of the higher fiscal capacities among the recipient provinces. Therefore, Hobson concludes that compared to the level of implicit equalization existing in a unitary state, which would equalize all provinces to a national average, Canada's system under-equalizes. In order to reach an optimal level of equalization, Hobson proposes that those provinces with negative entitlements under the equalization formula should be required to pay that amount (presently, the "contributing" provinces are not required to make payments because of their greater fiscal capacity; they simply do not receive any equalization payments). Hobson states that if the equalization program does not adopt this sort of scheme, there should then be an equalizing component in the Canada Health and Social Transfer (CHST).[42]

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[40] Boothe (1998), p. 18
[41] Hobson (1998), p. 158
[42] Hobson (1998), p.173

The equalizing effects of the Canadian transfer system are well known and most Canadian researchers agree that equalization should be one of the main objectives. However, there is much disagreement over the level of equalization that should exist. Suggestions that the system exhibits "super-equalization" has created some ill feelings between the "haves" and "have nots" in Canada.[43]

Despite the fact that Canada and the United States have different systems of federal finance and different priorities for those systems, both countries suffer from extensive economic inequalities among regions.

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[43] The term "super-equalization" has been credited to Canadian economist Thomas Courchene. Taken from Boothe (1998), p.15

IV. Regional Disparities

Canada

Canada is the largest country on the North American continent, extending from the Pacific Ocean in the west across to the Atlantic Ocean in the east and north to the Arctic Ocean. However, economic activity and prosperity in Canada is not "a mari usque ad mare". Economic activity in Canada is extremely concentrated. While there has been significant convergence in provincial Gross Domestic Product (GDP) per person and personal incomes among the regions over the century, the disparities between Atlantic Canada and the rest of the country continue to be the nation's primary economic concern. As recently as a 2001 Industry Canada study on productivity among the 50 American states and 10 Canadian provinces, Prince Edward Island, Nova Scotia and New Brunswick were ranked last while Newfoundland finished 53rd.[44] Table 6 summarizes some key demographic and economic features of Canada's provinces.

Ontario, Canada's most populous province, has, for the last forty years, accounted for roughly 40% of the country's GDP. With the inclusion of Ontario's neighbour to the east, Quebec, the two central provinces make up more than 60% of Canadian GDP. However, since 1985, important population growth has been limited to the three "have" provinces, Ontario, British Columbia and Alberta. Meanwhile, population growth has almost been at a standstill in the poorer Atlantic provinces, with Newfoundland losing residents since 1985.

Fiscal disparities between the provinces are also striking when provincial government revenues are compared. Table 7 presents own revenue per capita and GDP per capita relative to the national average, which is assigned a value of 100. As a summary measure of fiscal disparities, the standard deviation of the index is calculated. This statistical measure quantifies the dispersion of the indices around the national

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[44] Simpson (June 2, 2001), p.A15

TABLE 6
Key Features of Canada's Provinces, 1998

	Canada	NFLD	PEI	NS	NB	QUE	ON	MAN	SAS	ALBT	BC
Area (sq.km)	9,976,128	405,720	5,660	55,490	73,440	1,540,680	1,068,580	649,950	652,330	661,190	947,800
% Area	100.0	4.1	0.1	0.6	0.7	15.4	10.7	6.5	6.5	6.6	9.5
Rank (area)	x	7th	10th	9th	8th	1st	2nd	6th	5th	4th	3rd
Population	30,247,900	545,400	137,000	936,100	753,400	7,323,500	11,386,100	1,137,900	1,024,900	2,907,000	3,997,500
% Population	100.0	1.8	0.5	3.1	2.5	24.2	37.6	3.8	3.4	9.6	13.2
Growth since 1985	16.6%	-6.1%	7.0%	5.4%	3.8%	9.5%	22.0%	4.9%	-0.4%	20.6%	33.7%
Population density	3.0	1.3	24.2	16.9	10.3	4.8	10.7	1.8	1.6	4.4	4.2
Rank (population)	x	9th	10th	7th	8th	2nd	1st	5th	6th	4th	3rd
GDP ($000 000)	901,805	11,240	2,851	21,112	17,466	193,685	372,667	29,963	28,825	106,175	113,933
% GDP	100.0	1.2	0.3	2.3	1.9	21.5	41.3	3.3	3.2	11.8	12.6
GDP per capita	29,814	20,609	20,810	22,553	23,183	26,447	32,730	26,332	28,125	36,524	28,501
Rank (GDP p.c.)	x	10th	9th	8th	7th	5th	2nd	6th	4th	1st	3rd

Sources: Population and GDP: Statistics Canada - Cansim matrices 9229-9220
Area: 1997 Canadian Encyclopedia Plus

average – the greater the standard deviation, the greater the disparities among provinces. The standard deviation is not weighted by population and treats each province as an equal regional unit, regardless of the number of residents. This has the effect of emphasizing the region instead of individuals.

TABLE 7
Fiscal Disparities in Canada, 1996-97

Province	own revenue per capita $	own revenue per capita ratio to mean	GDP per capita ratio to mean
British Columbia	7,002	117	110
Alberta	7,562	126	144
Saskatchewan	7,033	117	109
Manitoba	6,194	103	99
Ontario	6,519	109	122
Quebec	5,992	100	99
New Brunswick	5,331	89	85
Nova Scotia	4,677	78	83
PEI	4,766	80	77
Newfoundland	4,820	80	72
Mean	5,990	100	100
Variation			
All Provinces		0.175	0.220
Excluding Alberta		0.158	0.167

Sources: Calculations based on: Statistics Canada: Cansim matrices 9229-9220
                                                    Cansim matrices 8181-8191
Notes: Revenue from QPP contributions (source: Cansim D26665) subtracted from Quebec's own source revenue so as to be comparable with other provinces.
Canadian territories (Yukon, NWT, Nunavut) not included in calculations.
1996-97 is the most recent data available for U.S. State and Local Government revenues. Therefore, despite the availability of more recent data in Canada, 1996-97 data has been used for the Canadian provinces to allow for comparisons with to the United States.

The own source revenue calculations above measure the actual fiscal performance of a province instead of potential fiscal capacity. Hence, it is affected by that provincial government's choice of tax rate and tax base. Fiscal "capacity", on the other hand,

assesses the potential resources a regional governmental unit can tax to raise revenues. A "macro" approach, such as GDP per capita, provides a fairly accurate picture of the economic activity within a province; the greater the economic activity in a province, the greater the "ability" of its residents to pay taxes.[45]

Table 7 clearly illustrates the fiscal gap between Atlantic Canada and the rest of the country. At the other end of Canada's economic spectrum lies the resource-rich province of Alberta. If the provinces were left to fund public services out of their own resources, it is obvious that the disparities in service levels or quality would be enormous. For instance, in 1997, Alberta raised 57% more revenue per person than did Newfoundland. This is even more astounding when one considers that Alberta does not even levy a sales tax and that the province's personal income tax rates are 17% lower (for high income earners) than in Newfoundland.[46] Using provincial GDP per person to estimate potential fiscal capacity, if Alberta and Newfoundland were to use identical tax rates, Alberta would be able to raise 100% more in revenues.

Fiscal disparities in Canada have remained fairly constant for the last two decades with Alberta consistently 30% above the national average in own revenue per capita and the Atlantic Provinces lying 15-25% below. However, as Alberta learned in the 1940's, the discovery of natural resources drastically changes the fiscal position of a province. If Newfoundland's Hibernia offshore oil field and Nova Scotia's Sable Island natural gas project are as successful as predicted, Canada could be looking at two resource-rich Atlantic Provinces.[47] In the meantime, however, Atlantic Canada continues to rely on the country's equalization system for financial survival.

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[45] Perhaps one of the most commonly used measures of fiscal capacity is, of course, the Representative Tax System (RTS), which has been used in Canada since 1967 to determine the fiscal capacities of the provinces for the purposes of distributing equalization payments. The RTS defines fiscal capacity of a province or state as the amount of revenue that it could potentially raise if it applied the national average rate to each base. For an assessment of the major indicators of fiscal capacity, see Appendix I.

[46] Bird and Vaillancourt (2000), p.25. Combined federal and provincial personal income tax rates for a single taxpayer in Alberta with income of $200,000 are 44.7% while the rates in Newfoundland for the same individual are 52.5%.

[47] Simpson (June 2, 2001), p.A15

The United States

Interstate disparities in terms of own-source revenue per capita and GDP per capita are roughly similar to those in Canada. However, the range of own-source revenue per capita is drastically greater in the United States than in Canada. The state of Alaska collects $12,988 more per person in revenue (more than 4 and a half times the revenue) than South Dakota. In comparison, Canada's richest province in 1997, Alberta, raises only 1.6 times the revenue of the lowest province, Nova Scotia. Examining the coefficient of variation for the two countries shows the extreme effects of Alaska on the level of dispersion in the United States. When one removes the resource-rich regions (Alaska and Alberta) from the calculations, Canada's coefficient of variation falls from 0.175 to 0.158 while the coefficient for the United States drops significantly from 0.354 to 0.161. Disparities in per capita GDP between the two countries are a little more comparable with Alberta contributing to a higher level of dispersion in Canada than is present in the United States.

Table 8 presents demographic and economic numbers for the United States. Significant regional disparities do exist. A number of southeastern states, notably Mississippi, Alabama, South Carolina and West Virginia, are consistently poor while states with small populations but vast energy resources, such as Alaska and Wyoming, enjoy considerable wealth. In terms of personal incomes, the New England and Middle Atlantic regions (comprising of the states of New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Pennsylvania) have traditionally been the richer areas. However, over the last 15 years, remarkable population growth has taken place in the country's Far West and Rocky Mountain regions. The state of Nevada, although quite rich in natural resources, has experienced explosive growth due to its gambling and resort industries. The population of Nevada's neighbours, Arizona, Utah, Idaho, Oregon and California, has all grown at well over 20% since 1985.

TABLE 8

Key Features of U.S. States, 1998

	U.S.	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Florida	Georgia
Area (sq.km)	9,628,382	135,294	1,593,446	295,275	137,741	411,469	269,619	14,359	6,208	155,369	152,750
% Area	100.0	1.4	16.5	3.1	1.4	4.3	2.8	0.1	0.1	1.6	1.6
Rank (area)	x	30th	1st	6th	28th	3rd	8th	48th	49th	23rd	24th
Population	270,248,003	4,351,037	615,205	4,667,277	2,538,202	32,682,794	3,968,967	3,272,563	744,066	14,908,230	7,636,522
% Population	100.0	1.6	0.2	1.7	0.9	12.1	1.5	1.2	0.3	5.5	2.8
Growth since 1985	13.6%	9.5%	15.5%	46.6%	9.1%	23.6%	23.7%	2.2%	20.3%	31.3%	28.1%
Population density	28.1	32.2	0.4	15.8	18.4	79.4	14.7	227.9	119.9	96.0	50.0
Rank (population)	x	23rd	48th	21st	33rd	1st	24th	29th	45th	4th	10th
GDP ($000 000)	8,745,219	109,833	24,236	133,801	61,628	1,118,945	141,791	142,099	33,735	418,851	253,769
% GDP	100.0	1.3	0.3	1.5	0.7	12.8	1.6	1.6	0.4	4.8	2.9
GDP per capita	32,360	25,243	39,395	28,668	24,280	34,237	35,725	43,421	45,339	28,095	33,231
Rank (GDP p.c.)	x	44th	4th	35th	47th	12th	9th	2nd	1st	37th	17th

	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachu.
Area (sq.km)	16,729	216,457	150,008	94,328	145,755	213,110	104,664	128,594	91,653	31,849	23,934
% Area	0.2	2.2	1.6	1.0	1.5	2.2	1.1	1.3	1.0	0.3	0.2
Rank (area)	47th	14th	25th	38th	26th	15th	37th	31st	39th	42nd	45th
Population	1,190,472	1,230,923	12,069,774	5,907,617	2,861,025	2,638,667	3,934,310	4,362,758	1,247,554	5,130,072	6,144,407
% Population	0.4	0.5	4.5	2.2	1.1	1.0	1.5	1.6	0.5	1.9	2.3
Growth since 1985	14.5%	23.8%	5.9%	8.2%	1.1%	8.7%	6.5%	-1.0%	7.3%	16.2%	4.5%
Population density	71.2	5.7	80.5	62.6	19.6	12.4	37.6	33.9	13.6	161.1	256.7
Rank (population)	41st	40th	5th	14th	30th	32nd	25th	22nd	39th	19th	13th
GDP ($000 000)	39,712	30,936	425,679	174,433	84,628	76,991	107,152	129,251	32,318	164,798	239,379
% GDP	0.5	0.4	4.9	2.0	1.0	0.9	1.2	1.5	0.4	1.9	2.7
GDP per capita	33,358	25,132	35,268	29,527	29,580	29,178	27,235	29,626	25,905	32,124	38,959
Rank (GDP p.c.)	16th	45th	10th	31st	30th	33rd	40th	29th	43rd	19th	5th

TABLE 8
Key Features of U.S. States, 1998

	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hamp.	New Jersey	New Mex.	New York
Area (sq.km)	250,466	225,182	125,061	180,546	380,848	200,360	286,368	24,043	21,277	314,938	139,832
% Area	2.6	2.3	1.3	1.9	4.0	2.1	3.0	0.2	0.2	3.3	1.5
Rank (area)	11th	12th	32nd	21st	4th	16th	7th	44th	46th	5th	27th
Population	9,820,231	4,726,411	2,751,335	5,437,562	879,533	1,660,772	1,743,772	1,185,823	8,095,542	1,733,535	18,159,175
% Population	3.6	1.7	1.0	2.0	0.3	0.6	0.6	0.4	3.0	0.6	6.7
Growth since 1985	8.2%	13.0%	6.3%	8.7%	7.0%	4.8%	83.4%	19.0%	7.0%	20.5%	2.1%
Population density	39.2	21.0	22.0	30.1	2.3	8.3	6.1	49.3	380.5	5.5	129.9
Rank (population)	8th	20th	31st	16th	44th	38th	36th	42nd	9th	37th	3rd
GDP ($000 000)	294,505	161,392	62,216	162,772	19,861	51,737	63,044	41,313	319,201	47,736	706,886
% GDP	3.4	1.8	0.7	1.9	0.2	0.6	0.7	0.5	3.7	0.5	8.1
GDP per capita	29,990	34,147	22,613	29,935	22,581	31,152	36,154	34,839	39,429	27,537	38,927
Rank (GDP p.c.)	27th	13th	48th	28th	49th	22nd	8th	11th	3rd	38th	6th

	N. Carolina	N. Dakota	Ohio	Oklahoma	Oregon	Pennsylv.	Rhode Isl.	S. Carolina	S. Dakota	Tennessee	Texas
Area (sq.km)	136,420	183,123	116,103	181,049	251,471	118,516	3,188	80,780	199,743	109,156	692,245
% Area	1.4	1.9	1.2	1.9	2.6	1.2	0.0	0.8	2.1	1.1	7.2
Rank (area)	29th	18th	34th	20th	10th	33rd	50th	40th	17th	36th	2nd
Population	7,545,828	637,808	11,237,752	3,339,478	3,282,055	12,002,329	987,704	3,839,578	730,789	5,432,679	19,712,389
% Population	2.8	0.2	4.2	1.2	1.2	4.4	0.4	1.4	0.3	2.0	7.3
Growth since 1985	20.7%	-5.8%	4.7%	2.1%	22.8%	2.0%	1.9%	16.2%	4.6%	15.2%	21.1%
Population density	55.3	3.5	96.8	18.4	13.1	101.3	309.8	47.5	3.7	49.8	28.5
Rank (population)	11th	47th	7th	27th	28th	6th	43rd	26th	46th	17th	2nd
GDP ($000 000)	235,752	17,214	341,070	81,655	104,771	364,039	30,443	100,350	21,224	159,575	645,596
% GDP	2.7	0.2	3.9	0.9	1.2	4.2	0.3	1.1	0.2	1.8	7.4
GDP per capita	31,243	26,989	30,350	24,451	31,922	30,331	30,822	26,136	29,043	29,373	32,751
Rank (GDP p.c.)	21st	41st	24th	46th	20th	25th	23rd	42nd	34th	32nd	18th

TABLE 8
Key Features of U.S. States, 1998

	Utah	Vermont	Virginia	Washington	W. Virginia	Wisconsin	Wyoming	U.S.
Area (sq.km)	219,901	24,903	109,624	182,950	62,761	169,645	253,351	9,628,382
% Area	2.3	0.3	1.1	1.9	0.7	1.8	2.6	100.0
Rank (area)	13th	43rd	35th	19th	41st	22nd	9th	x
Population	2,100,562	590,579	6,789,225	5,687,832	1,811,688	5,222,124	480,045	270,248,003
% Population	0.8	0.2	2.5	2.1	0.7	1.9	0.2	100.0
Growth since 1985	27.9%	11.4%	18.8%	29.3%	-5.0%	10.0%	-3.9%	13.6%
Population density	9.6	23.7	61.9	31.1	28.9	30.8	1.9	28.1
Rank (population)	34th	49th	12th	15th	35th	18th	50th	x
GDP ($000 000)	59,624	16,257	230,825	192,864	39,938	157,761	17,530	8,745,219
% GDP	0.7	0.2	2.6	2.2	0.5	1.8	0.2	100.0
GDP per capita	28,385	27,527	33,999	33,908	22,045	30,210	36,517	32,360
Rank (GDP p.c.)	36th	39th	14th	15th	50th	26th	7th	x

Sources: Population and GDP: Bureau of Economic Analysis (www.bea.doc.gov)
　　　　Area: 1998 Grolier Encyclopedia

Table 9 shows the per capita revenue raised by state and local governments in 1997.[48] U.S. local governments play a much greater role in terms of expenditures and raising revenues than in Canada. In fact, some local governments even levy an income tax. All state governments generate revenue from taxes on sales, income and corporate taxes, payrolls and insurance premiums, as well as revenues from the operation of utilities and liquor stores. The use of these revenue sources, however, is not uniform from state to state. For instance, Alaska has neither a sales tax nor a personal income tax but instead gets its revenues primarily from the corporate income tax and also various taxes related to its natural resources. Oregon, on the other hand, depends on the individual income tax for almost 70% of its revenues.[49] In addition to different tax rates, it is, perhaps, this variation in tax mix among the states that accounts for some discrepancies between a state's fiscal capacity (per capita GDP) and its collection of revenues. New Hampshire clearly demonstrates this; the state sits comfortably above the national average in per capita GDP yet has per capita revenue collections that are 20% below the average.

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[48] 1996-97 is the most recent data available for State and Local Government revenues.
[49] Tax Foundation: www.taxfoundation.org : State Finance, Table 2 (as of June 2001).

TABLE 9

Fiscal Disparities in the United States, 1996-97

State	own revenue per capita $	own revenue per capita ratio to mean	GDP per capita ratio to mean	State	own revenue per capita $	own revenue per capita ratio to mean	GDP per capita ratio to mean
Alabama	4,094	79	81	Montana	4,301	83	73
Alaska	16,427	319	141	Nebraska	5,725	111	101
Arizona	4,160	81	91	Nevada	5,444	106	117
Arkansas	3,817	74	79	New Hampshire	4,129	80	109
California	5,669	110	109	New Jersey	5,826	113	127
Colorado	5,164	100	112	New Mexico	4,752	92	91
Connecticut	5,856	114	138	New York	7,478	145	124
Delaware	6,126	119	143	North Carolina	4,410	86	100
Florida	4,609	89	89	North Dakota	4,237	82	85
Georgia	4,616	90	105	Ohio	5,145	100	97
Hawaii	5,853	114	110	Oklahoma	4,103	80	79
Idaho	4,154	81	81	Oregon	5,938	115	102
Illinois	4,775	93	112	Pennsylvania	5,160	100	97
Indiana	4,206	82	94	Rhode Island	4,831	94	99
Iowa	4,438	86	96	South Carolina	4,457	87	84
Kansas	4,387	85	94	South Dakota	3,439	67	92
Kentucky	4,243	82	87	Tennessee	4,486	87	94
Louisiana	4,352	84	98	Texas	4,688	91	105
Maine	4,758	92	83	Utah	5,086	99	91
Maryland	5,287	103	102	Vermont	4,721	92	88
Massachusetts	5,210	101	123	Virginia	4,922	96	106
Michigan	5,571	108	96	Washington	6,341	123	106
Minnesota	6,255	121	109	West Virginia	4,111	80	71
Mississippi	3,884	75	73	Wisconsin	5,761	112	96
Missouri	3,993	78	96	Wyoming	6,181	120	124
				Mean	5,152	100	100
				Variation			
				All States		0.354	0.190
				Excluding Alaska		0.161	0.175

Sources: Population and GDP: Bureau of Economic Analysis (www.bea.doc.gov) GSP and SPI (Feb.2001)
Revenues: U.S. Census Bureau (www.census.gov/govs/www.estimate.html)
Note: Does not include District of Columbia

V. The Effects of Federal Aid

To demonstrate the effect of federal aid on the fiscal positions of the individual regions, all intergovernmental transfers from the federal government have been added to state/provincial own-source revenue. This provides a "before and after" picture of the revenue available to each regional government. The standard deviation is recalculated to determine the dispersion between the regions in per capita revenue raised with the help of the federal government. A standard deviation that is lower after the inclusion of federal intergovernmental transfers suggests that these transfers have equalizing effects in aggregate. Table 10 and Table 11 compare a region's 1997 own-source revenue per capita with its total (own-source revenue plus intergovernmental revenue from the federal government) revenue per capita relative to the national average for Canada and the United States respectively. The amount of federal aid per capita received by each province is also listed. The fourth column shows the percentage change, positive or negative, in each region's relative per capita revenue after federal aid has been added in.

The equalizing effects of Canada's intergovernmental transfers are obvious after comparing the standard deviations of the first and third columns in Table 10. Figure 2 depicts this situation. Due to the distribution in per capita federal transfers, per capita revenue is brought substantially closer to the national average in the three contributing provinces, British Columbia, Alberta and Ontario; the same occurs (but from the opposite direction) in the Atlantic Provinces. The end result is that the disparities in relative per capita revenue among the provinces have been reduced by 66%. Alberta remains the richest province in per capita terms but now has only 21% more in per capita revenue than the lowest province, Nova Scotia, despite raising 62% more in revenue per person in 1997.

TABLE 10
Relative Provincial Government Revenue per capita
by Canadian Province, 1996-97
Before and After the Inclusion of Federal Transfers

Province	government own revenue per capita ratio to mean	per capita transfers ($)	total government revenue per capita ratio to mean	percentage change (%)
British Columbia	117	$557	101	-13.5
Alberta	126	472	108	-14.4
Saskatchewan	117	710	106	-10.0
Manitoba	103	1,777	105	1.2
Ontario	109	485	95	-12.7
Quebec	100	968	103	2.7
New Brunswick	89	2,246	98	10.6
Nova Scotia	78	2,189	89	14.6
PEI	80	2,226	93	16.3
Newfoundland	80	3,308	102	27.2
Mean	100	1,494	100	0.0
Variation All Provinces	0.175		0.060	-65.66%

Sources: Calculations based on Statistics Canada: Cansim matrices 8181-8191

FIGURE 2

1997 Relative Government Revenue per capita - Ratio to Mean
Before and After the Inclusion of Federal Transfers

Government Revenue per capita - Ratio to Mean (Mean = 100)

before transfers — after transfers
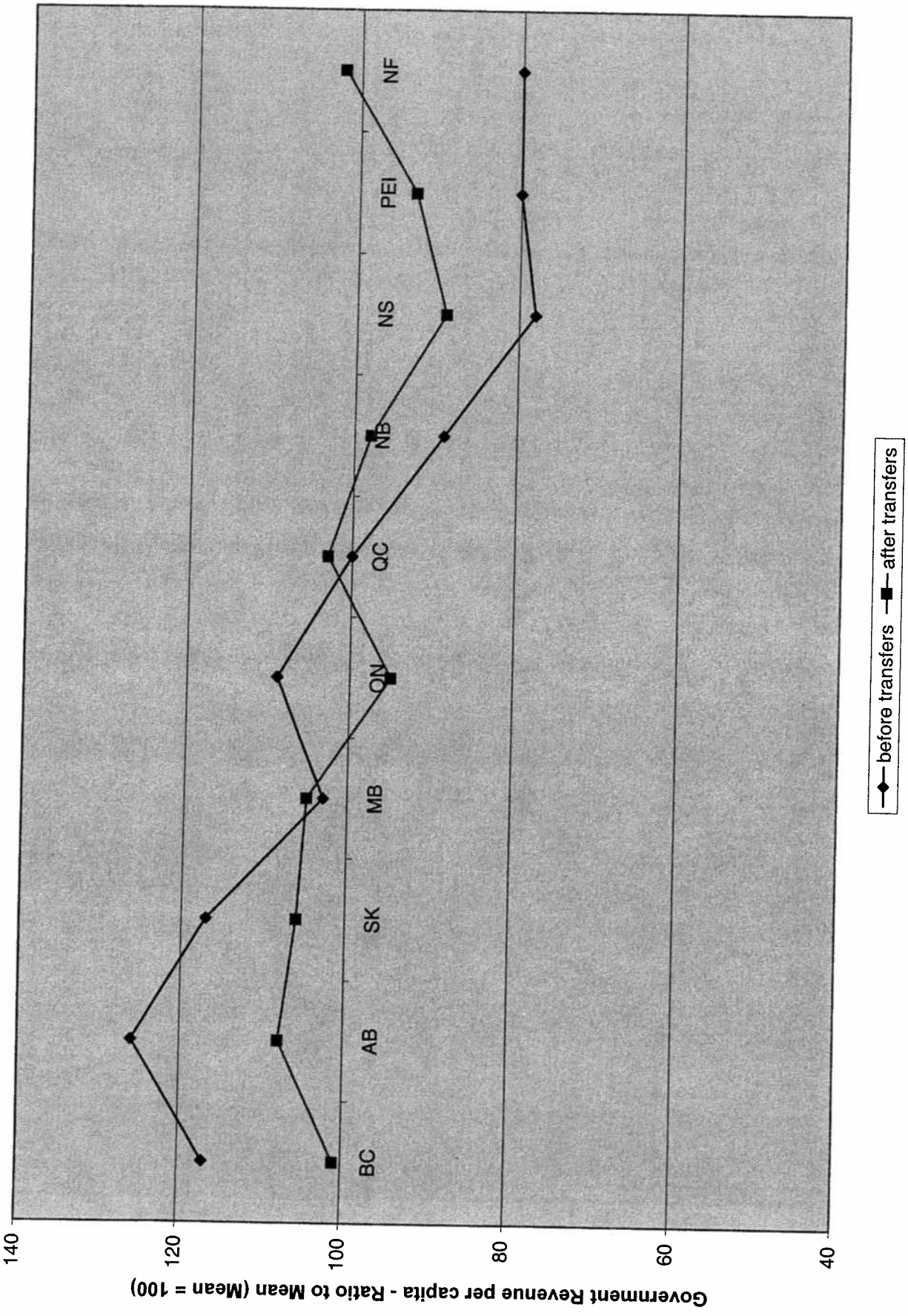
The United States is a different story. Although, with the exclusion of Alaska, disparities in per capita revenue are roughly similar to those in Canada, little is changed by the inclusion of federal transfers. While some states, both rich and poor, are brought closer to the national average in per capita revenue, for the most part, the effect of U.S. federal aid on the fiscal positions of the states is very erratic. For instance, Table 11 shows that South Dakota, a state with revenues 33% below the United States average, receives above average per capita federal aid, augmenting its relative fiscal position and thus bringing it in line – equalizing it – with the national average. Yet, Wyoming, Massachusetts and New York, all relatively rich states, also receive greater than average amounts of federal aid, having the effect of exacerbating regional disparities. Indiana, Kansas and Iowa, all below the average in both per capita revenue and GDP per capita, receive below average aid. Collectively, the inclusion of federal aid does seem to reduce the dispersion in per capita revenues relative to the average among the states but the effect is tiny. Figure 3 illustrates the effects of federal aid on state government revenues per person. States such as North Dakota and South Dakota clearly have their relative per capita government revenues raised closer to the national average but the remaining effects of federal transfers are very mild.

TABLE 11

Relative Government Revenue per capita by U.S. State, 1996-97
Before and After the Inclusion of Federal Transfers

State	own revenue per capita ratio to mean	per capita transfers ($)	total revenue per capita ratio to mean	percentage change (%)
Alabama	79	$806	81	1.8%
Alaska	319	2,140	306	-3.9%
Arizona	81	737	81	0.1%
Arkansas	74	905	78	5.2%
California	110	838	107	-2.4%
Colorado	100	628	96	-4.6%
Conn.	114	889	111	-2.1%
Delaware	119	856	115	-3.1%
Florida	89	579	86	-4.3%
Georgia	90	731	88	-1.5%
Hawaii	114	996	113	-0.5%
Idaho	81	773	81	0.8%
Illinois	93	774	92	-1.2%
Indiana	82	603	79	-2.8%
Iowa	86	693	85	-1.7%
Kansas	85	619	83	-3.0%
Kentucky	82	947	86	4.0%
Louisiana	84	1,024	89	5.0%
Maine	92	1,107	97	4.8%
Maryland	103	776	100	-2.5%
Mass.	101	1,041	103	2.0%
Michigan	108	740	104	-3.7%
Minnesota	121	843	117	-3.5%
Miss.	75	961	80	6.1%
Missouri	78	782	79	1.7%
Montana	83	$1,128	90	7.3%
Nebraska	111	741	107	-4.0%
Nevada	106	587	100	-5.8%
New Hamp.	80	718	80	-0.2%
New Jersey	113	820	110	-3.0%
New Mexico	92	1,249	99	7.4%
New York	145	1,344	146	0.3%
N. Carolina	86	846	87	1.3%
N. Dakota	82	1,676	98	18.6%
Ohio	100	743	97	-2.7%
Oklahoma	80	757	80	0.7%
Oregon	115	880	113	-2.4%
Penn.	100	855	99	-0.9%
Rhode I.	94	1,159	99	5.4%
S. Carolina	87	788	87	0.1%
S. Dakota	67	1,344	79	18.2%
Tennessee	87	847	88	1.1%
Texas	91	681	89	-2.6%
Utah	99	656	95	-4.0%
Vermont	92	1,021	95	3.4%
Virginia	96	523	90	-6.0%
Washington	123	802	118	-4.2%
W. Virginia	80	1,157	87	8.9%
Wisconsin	112	696	107	-4.7%
Wyoming	120	1,587	128	6.9%
Mean	100	$908	100	0.0%
Variation All States	35.36		33.05	-6.53%

Sources: U.S. Census Bureau (www.census.gov), see Table 9

Note: Calculations do not include the District of Columbia

FIGURE 3
1997 Relative State Government Revenue per capita – Ratio to Mean
Before and After the Inclusion of Federal Transfers
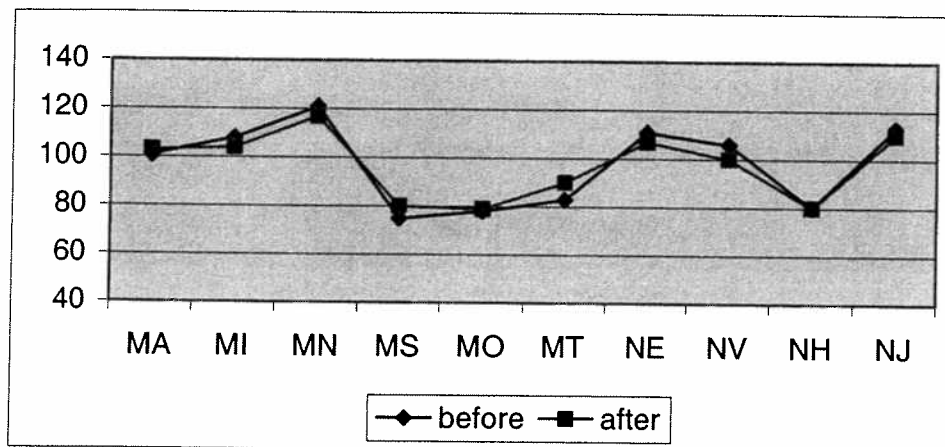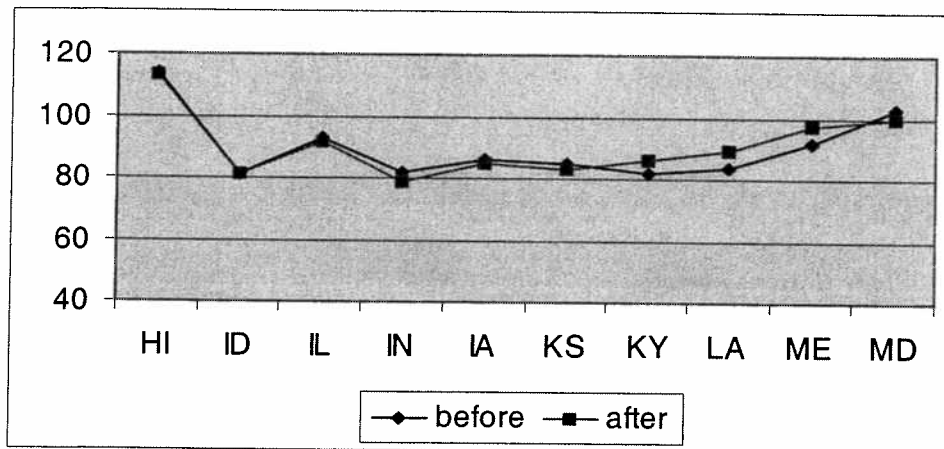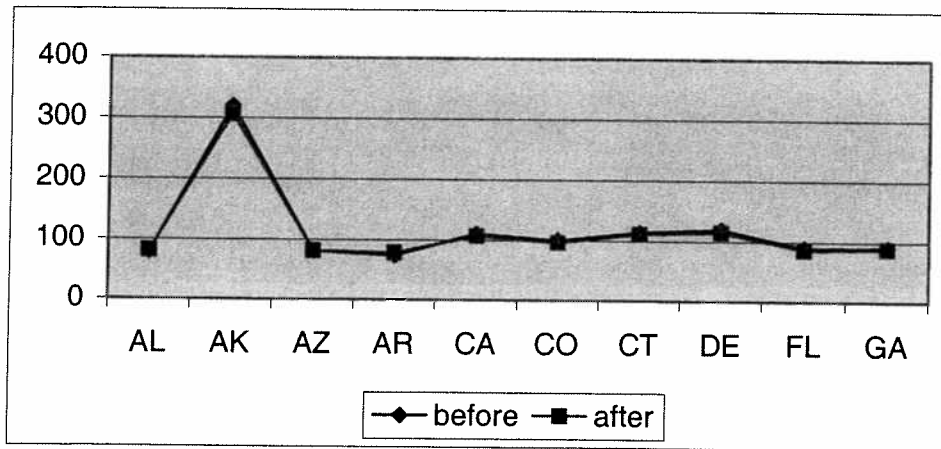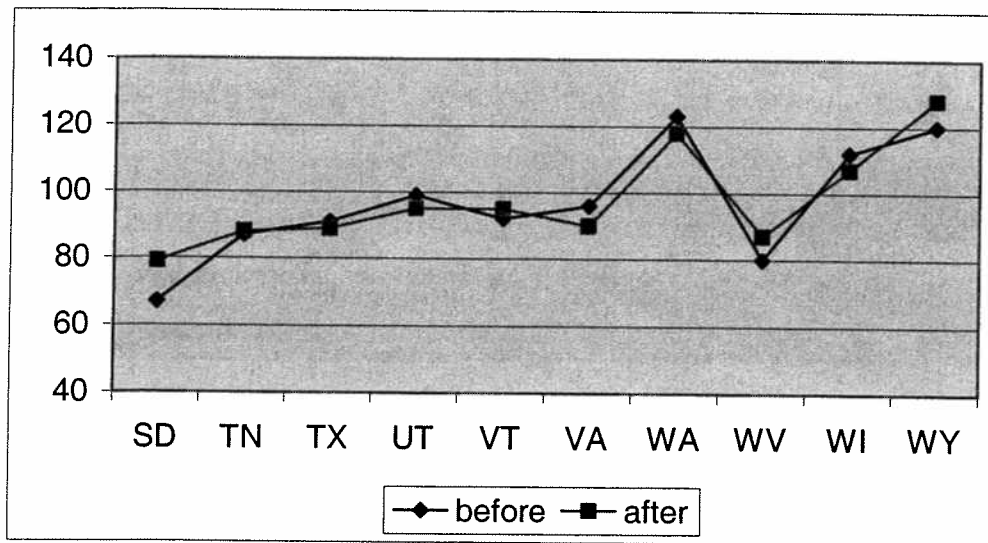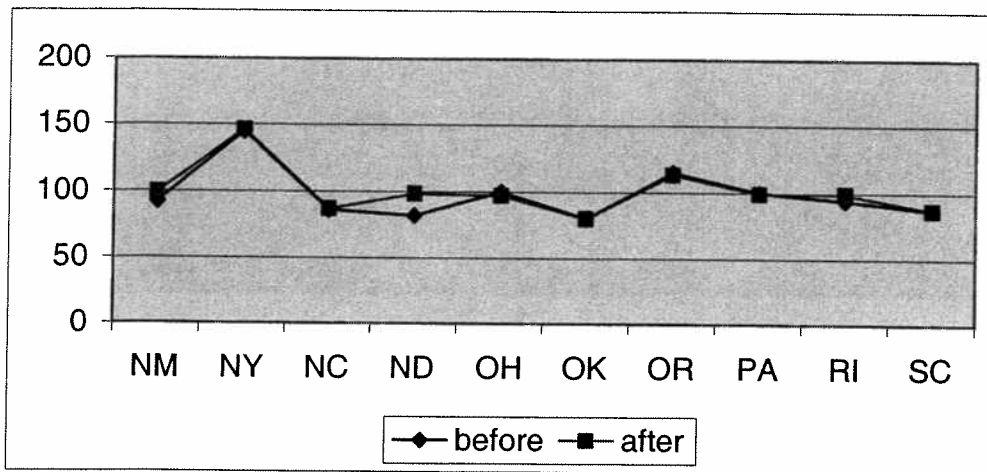**(Mean = 100)**

FIGURE 3 (cont.)

Sources: Table 11

## VI. Federal Grants and the Fiscal Capacity of States and Provinces

From the preceding sections it seems reasonably clear that Canada's system of intergovernmental transfers explicitly attempts to equalize the fiscal abilities of the provinces, while the effects of the U.S. system are a little more puzzling. This last section will analyze the relationship between the per capita receipt of federal transfers and two "macro" estimators of state fiscal capacity: per capita GDP and per capita personal income. GDP per person gives us the amount of expenditure for the average resident of that state or province and is a reasonably good indicator of that region's level of economic activity. Personal income represents the amount of income that a household receives. This measure is an indication of the standard of living of the residents of a region.[50]

Using a state or province's fiscal capacity, instead of simply looking at the collection of revenues, will ignore the variations in tax rates among the regions and put everyone on equal footing. Per capita GDP provides a more comprehensive measure of fiscal capacity (since states tax more than just personal income); however, since some grants in the United States use per capita personal income in their allocation formula, this measure has been used in the analysis as well.

Table 11 of Section V showed some of the erratic effects of U.S. federal aid to the American states. From this table, there does not seem to be any clear connection between a state's own resources and the fiscal aid it receives from the federal government. Simply put, some states win and some lose. Figure 4 illustrates, for both Canadian provinces and U.S. states, the relationship between a regional unit's fiscal capacity, measured by per capita GDP, and the amount of federal transfers that regional unit receives on a per capita basis. The equalizing effects of the Canadian system are obvious with the richer provinces sitting in the lower right quadrant (provinces with higher fiscal capacities

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[50] Bird and Vaillancourt (2000), p.10 and Mankiw and Scarth (1995), p.27, 30. See Appendix I for an assessment of the measures of fiscal capacity.

FIGURE 4

Correlation Between Relative Fiscal Capacity (GDP) and Total Federal Transfer Per Capita
Canada and the United States, 1997

fiscal capacity (p.c. GDP)

per capita federal transfers

U.S. correlation: +0.169
Can. correlation: -0.919
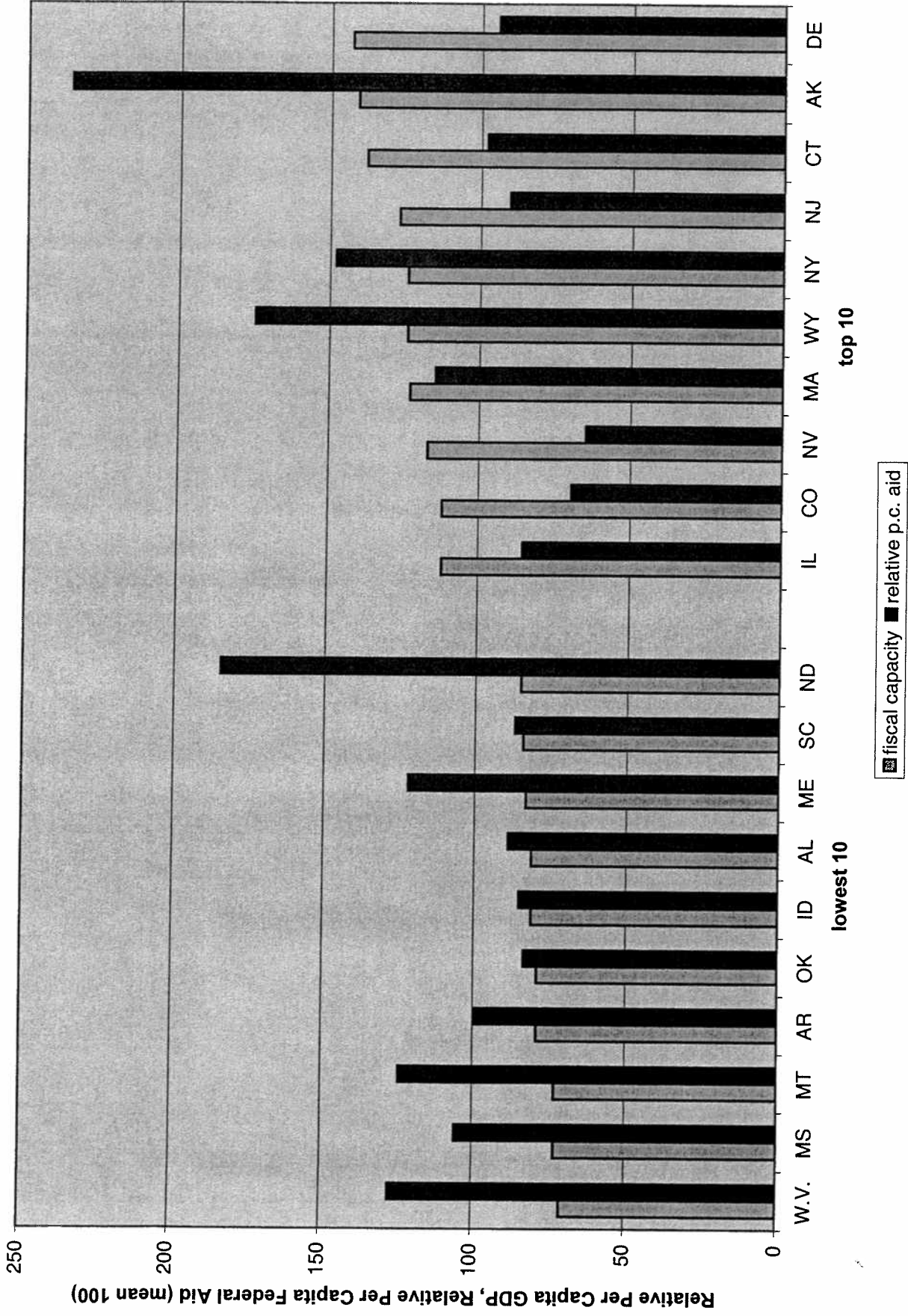
◆ U.S. States   ■ Canadian Provinces
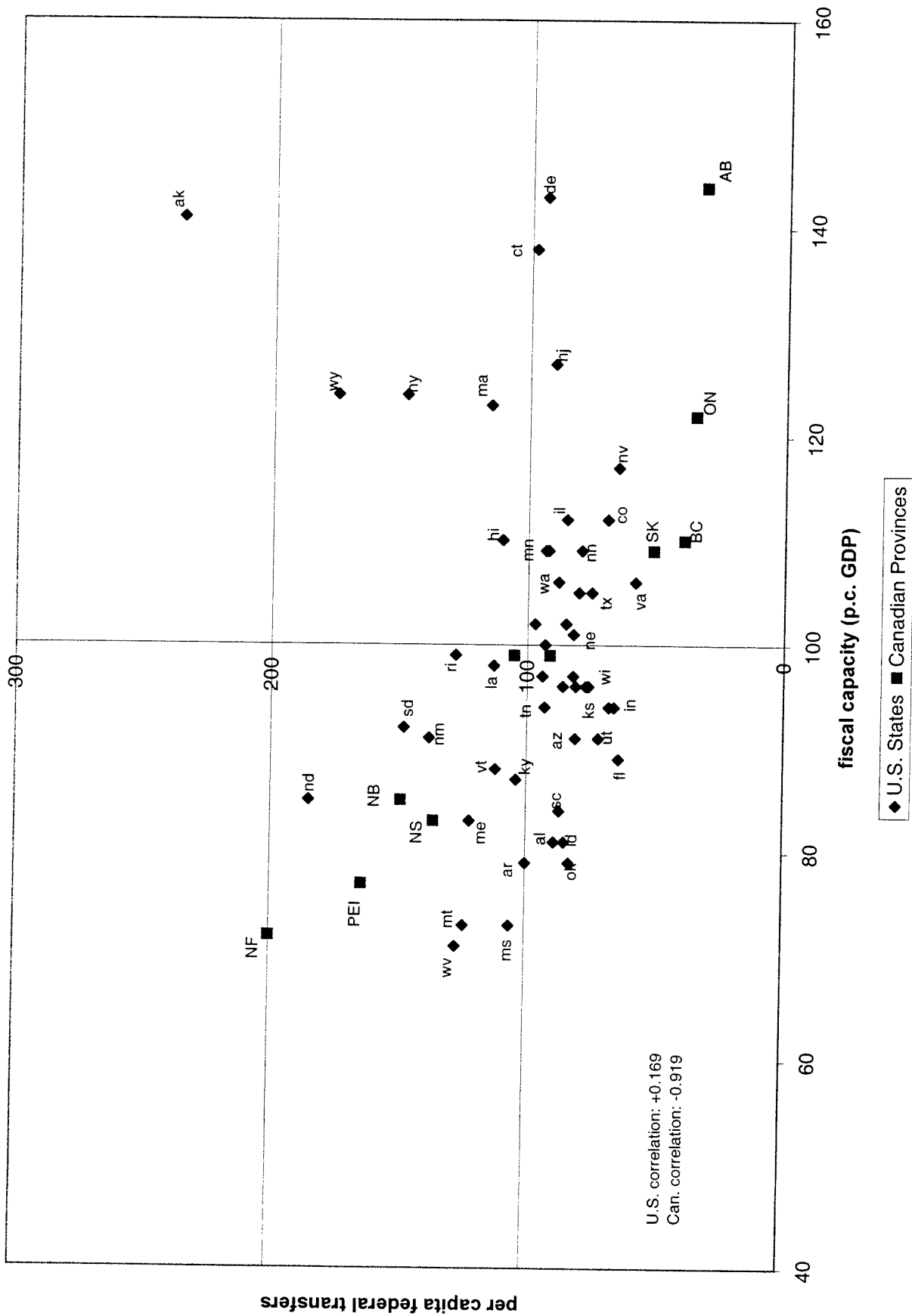
Sources: See Figures 5 and 6

receive less per capita federal aid) while the poorer provinces are located in the upper left quadrant (low fiscal capacity, high per capita aid). A clear negative relationship between fiscal capacity and per capita transfers can be observed from this graph. However, for the United States, only 11 out of the 28 states with below-average fiscal capacity receive greater than average per capita transfers.

A second set of graphs highlights the contrasting patterns in the distribution of federal transfers between the United States and Canada. Figure 5 isolates the ten richest and ten poorest states as measured by relative per capita GDP. The twenty states are measured against the national average; hence, 100 represents the average amount of per capita transfers received by the states ($908) and the U.S. average for state GDP per capita ($29,785). Five of the ten poorest states (West Virginia, Mississippi, Montana, Maine and North Dakota) receive above-average per capita aid, four (Oklahoma, Idaho, Alabama and South Carolina) receive below-average aid, while Arkansas receives exactly the average amount. At the other end of the scale, Alaska, New York, Wyoming and Massachusetts, all with high fiscal capacities, benefit from greater than average amounts of per capita transfers.[51] Turning to the Canadian case in Figure 6, a clear inverse relationship emerges between a province's fiscal capacity and the amount of federal transfers it receives on a per capita basis. The four provinces with the lowest fiscal capacities (far left of Figure 6), the four Atlantic provinces, receive amounts of per capita federal transfers well above the national average, while the three "have" provinces, Alberta, Ontario, B.C. receive the least in per capita terms.

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[51] It should be noted that while Wyoming has above-average GDP and own-source revenues, the state's personal income per person has consistently been below the national average. Wyoming's oil and gas jobs tend to be temporary and the state has a brain drain problem. Therefore, while economic activity is often high in Wyoming, the state is perennially poor in terms of income, which could explain the large sums of aid from the federal government.

FIGURE 5
Fiscal Capacity and Federal Aid
Highest and Lowest Ten Fiscal Capacities in the U.S., 1997

FIGURE 6
Fiscal Capacity and Federal Aid
Canadian Provinces by Fiscal Capacity, 1997
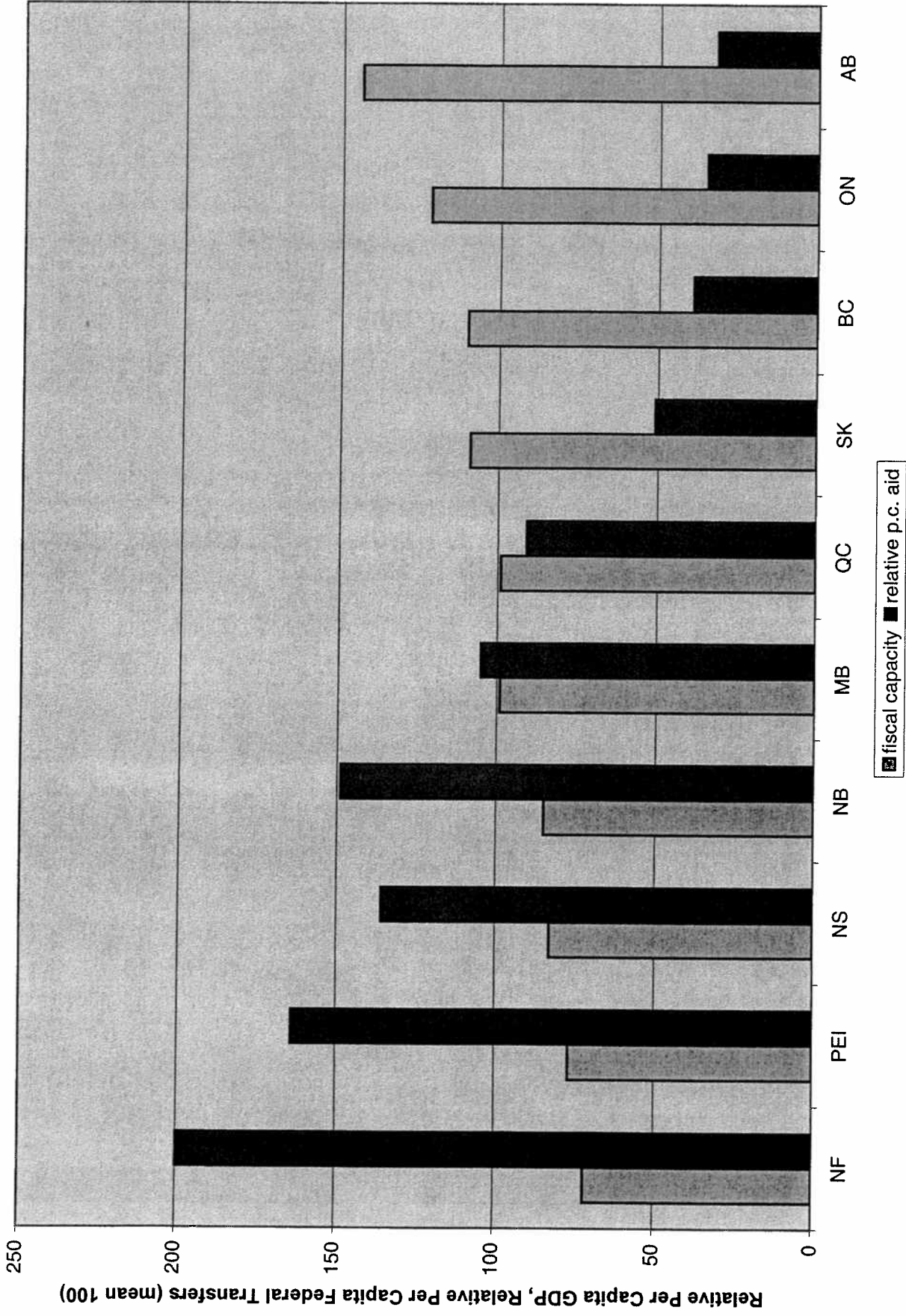
Relative Per Capita GDP, Relative Per Capita Federal Transfers (mean 100)

fiscal capacity ■ relative p.c. aid

Transfers and the Fiscal Capacity of the Canadian Provinces

Table 12 presents the correlations between the provincial per capita receipt of federal transfers and (1) per capita provincial GDP and (2) provincial per capita personal income for the 1990's. Considering that the objective of Canada's Equalization program is to raise the fiscal capacities of the poorer provinces, it is not too surprising that there is a very strong negative linear relationship between federal transfers and fiscal capacity. However, Canada's other major transfer program, the Canada Health and Social Transfer, also shows a very strong negative correlation with a province's fiscal capacity. This is most likely due to the system's equalization of tax points along with the limit on the growth of transfers to the contributing provinces. Both these features were adopted from the CHST's predecessors, EPF and CAP. However, these strong equalizing effects hidden in the CHST should diminish after 2001-02 when all provinces are to receive equal per capita amounts.

Prior to 1996-97, correlations are listed for EPF and CAP as well as "other" transfers, which represent the small federal transfers in Canada. These small transfers also show strong equalizing effects. Indeed, since 1990, the four Atlantic provinces, along with Manitoba and Saskatchewan have benefited the most from the small transfers.[52]

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[52] Vaillancourt (1999b), p.7

TABLE 12
Correlations Between per capita Receipt of Federal Transfers and
(1) per capita Provincial GDP and (2) Provincial per capita Personal Income
Canada, 1989-90 to 1998-99

Transfer Program	1998-99		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1999 Total
Equalization	-0.866*	-0.826*	29.9
Canada Health and Social Transfer	-0.803*	-0.757*	44.1
Total Federal Transfers	-0.863*	-0.873*	100.0

Transfer Program	1997-98		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1998 Total
Equalization	-0.902*	-0.851*	33.4
Canada Health and Social Transfer	-0.795*	-0.742*	50.4
Total Federal Transfers	-0.867*	-0.818*	100.0

Transfer Program	1996-97		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1997 Total
Equalization	-0.916*	-0.909*	33.1
Canada Health and Social Transfer	-0.799*	-0.748*	56.9
Total Federal Transfers	-0.902*	-0.875*	100.0

TABLE 12 (continued)

Transfer Program	1995-96		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1996 Total
Equalization	-0.928*	-0.918*	28.3
Established Programs Financing	-0.302	-0.401	30.9
Canada Assistance Plan	-0.911*	-0.819*	23.1
Other Transfers	-0.625*	-0.844*	17.6
Total Federal Transfers	-0.918*	-0.940*	100.0

Transfer Program	1994-95		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1995 Total
Equalization	-0.950*	-0.927*	26.7
Established Programs Financing	-0.344	-0.432	31.4
Canada Assistance Plan	-0.893*	-0.705*	22.7
Other Transfers	-0.361	-0.648*	19.2
Total Federal Transfers	-0.916*	-0.957*	100.0

Transfer Program	1993-94		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1994 Total
Equalization	-0.950*	-0.908*	26.1
Established Programs Financing	-0.259	-0.381	32.4
Canada Assistance Plan	-0.895*	-0.697*	24.3
Other Transfers	-0.689*	-0.877*	17.1
Total Federal Transfers	-0.915*	-0.922*	100.0

TABLE 12 (cont.)

Transfer Program	1992-93		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1993 Total
Equalization	-0.931*	-0.877*	24.0
Established Programs Financing	-0.379	-0.467	36.4
Canada Assistance Plan	-0.636*	-0.493*	21.9
Other Transfers	-0.601*	-0.795*	17.8
Total Federal Transfers	-0.910*	-0.916*	100.0

Transfer Program	1991-92		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1992 Total
Equalization	-0.959*	-0.907*	29.6
Established Programs Financing	-0.347	-0.399	32.3
Canada Assistance Plan	-0.377	-0.275	22.5
Other Transfers	-0.849*	-0.796*	15.6
Total Federal Transfers	-0.923*	-0.884*	100.0

Transfer Program	1990-91		
	Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1991 Total
Equalization	-0.958*	-0.926*	31.1
Established Programs Financing	-0.376	-0.478	29.7
Canada Assistance Plan	0.149	0.346	22.4
Other Transfers	-0.780*	-0.861*	16.8
Total Federal Transfers	-0.935*	-0.923*	100.0

TABLE 12 (cont.)

Transfer Program	1989-90 Per Capita GDP and Transfer	Per Capita Income and Transfer	Percentage of 1990 Total
Equalization	-0.950*	-0.934*	30.8
Established Programs Financing	-0.247	-0.359	33.4
Canada Assistance Plan	0.128	0.159	18.5
Other Transfers	-0.857*	-0.851*	17.3
Total Federal Transfers	-0.928*	-0.923*	100.0

Sources: 1989-90 to 1995-96: Perry (1997), Appendix
    1996-97- to 1998-99: *Finances of the Nation* (1996-1998), Table 8.1
    Statistics Canada: CANSIM matrices 8182-8191
    (calculated as Total Government Revenue – Own Source Revenue)

Notes: * indicates statistical significance at the 10% level or higher.

In addition to Canadian transfer programs possessing strong equalizing effects, these transfer programs have been remarkably stable and predictable over the 1990's. Equalization has accounted for between a quarter and a third of total transfers and has consistently had a negative correlation with per capita GDP of between -0.87 and -0.96. EPF and CAP, along with their amalgamated successor CHST, have, for the most part made up just over 50% of total transfers and have maintained a stable negative relationship with the fiscal capacities of the provinces.[53] CAP, the federal-provincial cost-sharing for social assistance, did go from being positively correlated with provincial fiscal capacity before 1991-92 to negatively correlated afterwards. This could be as a result of the cap on CAP implemented in 1991; the limit that was placed on the growth of social assistance transfers to the "have" provinces. As the tables for the United States

[53] Only the cash component of transfer programs were used in the calculations. Since, in the case of the CHST, the value of tax points is expected to increase at a faster rate than the total entitlement, the cash portion of this program will diminish. This might explain why the CHST fell to 44.1% of total transfers in 1998-99.

show, apart from Medicaid, the importance of grant programs often fluctuate in the United States.

Grants and the Fiscal Capacity of U.S. States

Part of the seemingly odd American situation depicted in the above figures might be explained by the extensive use of matching grants in the United States. As described above, the use of grants with matching formulas often lead to higher capacity states collecting more federal dollars since they are able to spend more of their own funds on nationally approved programs. With such programs, instead of helping states with fewer resources, Washington seems to be more interested in rewarding states that spend the money to provide generous benefits and services, regardless of their fiscal capacities.

From the above graphs, it seems that the U.S. federal government is not all that concerned with ensuring that fiscally weak states are compensated with increased federal funds. Of greater importance is to ensure that certain populations are provided with needed services. And it should be kept in mind that the target population of a particular grant program is not necessarily restricted to a state with a low fiscal capacity. The correlation calculations in Table 13 demonstrate this assertion. The wide variations in correlations between a certain program and a state's per capita GDP and personal income could simply indicate that those people who are intended to benefit from a particular grant program may just as easily reside in a rich state as in a poor state.

Table 13 presents the unweighted correlation between the major U.S. grant programs and (1) state per capita GDP, a measure of a state's fiscal capacity, and (2) a state's per capita personal income, at times a statistical factor in the allocation formula of a grant. These calculations are presented for 1989-90 to 1998-99.

TABLE 13

Correlations Between Per Capita Receipt of U.S. Federal Aid and
(1) Per Capita State Gross Domestic Product and (2) State Per Capita Personal Income

1998-99

Grant Program	Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1999 Outlay
Medicaid	Health and Human Services	-0.095	-0.087	39.6
Administration for Children and Families[1]	Health and Human Services	0.307*	0.308*	8.7
Highway Trust Fund	Transportation	-0.006	-0.205	8.3
Lower Income Housing Assistance	Housing and Urban Development	0.466*	0.589*	7.7
Food and Nutrition Service	Agriculture	-0.359*	-0.591*	5.8
Education for the Disadvantaged	Education	-0.208	-0.362*	2.8
Compensatory Education	Education	-0.177	-0.391*	2.7
Employment and Training	Labor	0.143	-0.035	2.7
Total Federal Aid		0.062	-0.115	100.0

1997-98

Grant Program	Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1998 Outlay
Medicaid	Health and Human Services	-0.111	-0.068	39.9
Administration for Children and Families	Health and Human Services	0.226	0.218	12.8
Highway Trust Fund	Transportation	0.084	-0.124	7.6
Compensatory Education	Education	-0.055	-0.254	4.2
Education for the Disadvantaged	Education	-0.247	-0.337*	3.3
Food and Nutrition Service	Agriculture	-0.365*	-0.619*	3.3
Employment and Training Administration	Labor	0.180	0.030	2.7
Community Development	Housing and Urban Development	-0.099	-0.103	1.8
Lower Income Housing Assistance	Housing and Urban Development	0.389*	0.420*	1.3
Total Federal Aid		0.076	-0.094	100.0

TABLE 13
Correlations Between Per Capita Receipt of U.S. Federal Aid and
(1) Per Capita State Gross Domestic Product and (2) State Per Capita Personal Income

1996-97

Grant Program	Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1997 Outlay
Medicaid	Health and Human Services	-0.099	-0.099	41.6
Administration for Children and Families	Health and Human Services	0.340*	0.291*	9.0
Highway Trust Fund	Transportation	0.249*	-0.047	8.9
Lower Income Housing Assistance	Housing and Urban Development	0.447*	0.372*	5.2
Compensatory Education	Education	0.046	-0.293*	4.5
Employment and Training Administration	Labor	0.182	0.058	2.3
Community Development	Housing and Urban Development	0.418*	0.479*	2.0
Waste Treatment Facilities Construction	Environmental Protection Agency	0.332*	0.074	1.2
Total Federal Aid		0.169	-0.110	100.0

1995-96

Grant Program	Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1996 Outlay
Medicaid	Health and Human Services	-0.092	-0.057	40.4
Highway Trust Fund	Transportation	0.335*	0.005	8.5
Lower Income Housing Assistance	Housing and Urban Development	0.102	0.233	5.4
Administration for Children and Families	Health and Human Services	-0.179	-0.393*	4.4
Compensatory Education	Education	-0.261*	-0.469*	2.8
Employment and Training Administration	Labor	0.374*	0.139	2.8
Community Development	Housing and Urban Development	-0.059	0.078	1.9
Waste Treatment Facilities Construction	Environmental Protection Agency	0.333*	0.063	1.4
Total Federal Aid		0.210	-0.064	100.0

TABLE 13
Correlations Between Per Capita Receipt of U.S. Federal Aid and
(1) Per Capita State Gross Domestic Product and (2) State Per Capita Personal Income

1994-95

Grant Program / Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1995 Outlay
Medicaid / Health and Human Services	-0.124	-0.096	38.9
Administration for Children and Families / Health and Human Services	0.370*	0.315*	14.5
Highway Trust Fund / Transportation	0.341*	0.034	8.3
Lower Income Housing Assistance / Housing and Urban Development	0.499*	0.515*	7.0
Employment and Training Administration / Labor	0.378*	0.158	3.0
Compensatory Education / Education	-0.328*	-0.512*	3.0
Community Development / Housing and Urban Development	-0.046	0.015	1.9
Waste Treatment Facilities Construction / Environmental Protection Agency	0.270*	0.259*	1.1
Total Federal Aid	0.260*	-0.009	100.0

1993-94

Grant Program / Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1994 Outlay
Medicaid / Health and Human Services	-0.171	-0.138	38.3
Administration for Children and Families / Health and Human Services	0.341*	0.325*	15.4
Highway Trust Fund / Transportation	0.366*	0.114	8.7
Lower Income Housing Assistance / Housing and Urban Development	0.413*	0.419*	6.2
Compensatory Education / Education	-0.200	-0.406*	3.2
Employment and Training Administration / Labor	0.377*	0.185	3.1
Community Development / Housing and Urban Development	0.074	0.143	1.7
Waste Treatment Facilities Construction / Environmental Protection Agency	0.261*	0.245*	0.9
Total Federal Aid	0.232	0.000	100.0

TABLE 13

Correlations Between Per Capita Receipt of U.S. Federal Aid and
(1) Per Capita State Gross Domestic Product and (2) State Per Capita Personal Income

1992-93

Grant Program	Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1993 Outlay
Medicaid	Health and Human Services	-0.152	-0.120	38.8
Administration for Children and Families	Health and Human Services	0.362*	0.311*	14.5
Highway Trust Fund	Transportation	0.358*	0.048	8.3
Lower Income Housing Assistance	Housing and Urban Development	0.473*	0.540*	6.4
Employment and Training Administration	Labor	0.423*	0.178	3.5
Compensatory Education	Education	-0.091	-0.226	3.4
Community Development	Housing and Urban Development	0.050	0.234	1.6
Waste Treatment Facilities Construction	Environmental Protection Agency	0.262*	0.341*	1.1
Total Federal Aid		0.269*	0.013	100.0

1991-92

Grant Program	Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1992 Outlay
Medicaid	Health and Human Services	-0.210	-0.116	38.8
Administration for Children and Families	Health and Human Services	0.369*	0.320*	14.6
Highway Trust Fund	Transportation	0.405*	0.073	8.5
Lower Income Housing Assistance	Housing and Urban Development	0.372*	0.450*	6.2
Employment and Training Administration	Labor	0.377*	0.128	3.8
Compensatory Education	Education	-0.239	-0.280*	3.3
Community Development	Housing and Urban Development	-0.024	0.184	1.7
Waste Treatment Facilities Construction	Environmental Protection Agency	0.308*	0.318*	1.4
Total Federal Aid		0.247*	-0.003	100.0

TABLE 13
Correlations Between Per Capita Receipt of U.S. Federal Aid and
(1) Per Capita State Gross Domestic Product and (2) State Per Capita Personal Income

1990-91

	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1992 Outlay
Total Federal Aid[2]	0.420*	0.084	100.0

1989-90

Grant Program / Department	Per Capita GDP and Grant	Per Capita Income and Grant	Percentage of 1990 Outlay
Medicaid — Health and Human Services	-0.068	-0.032	30.4
Family Support Administration — Health and Human Services	0.379*	0.387*	11.3
Highway Trust Fund — Transportation	0.536*	0.097	10.2
Lower Income Housing Assistance — Housing and Urban Development	0.421*	0.366*	5.5
Employment and Training Administration — Labor	0.462*	0.006	4.3
Compensatory Education — Education	0.118	-0.177	3.3
Community Development — Housing and Urban Development	0.050	0.207	2.1
Waste Treatment Facilities Construction — Environmental Protection Agency	0.435*	0.418*	1.7
Total Federal Aid	0.464*	0.047	100.0

Notes: * indicates statistical significance at the 10% level or higher.

[1] Includes Temporary Assistance to Needy Families-TANF (57%), Head Start (23%) and Foster Care and Adoption Assistance (20%)

[2] Individual program data not available by state.

The correlation between the 1999 per capita distribution of all grants among the states and 1999 state fiscal capacity (per capita GDP) was +0.062. Between per capita income and total grants, the correlation is negative, -0.115. However, both correlations are statistically insignificant even at the 20% level. We therefore cannot conclude with any certainty, with respect to the correlation with per capita GDP, that higher capacity states received more on average than the lower capacity states. Nor can we be certain that lower income states benefit from above-average amounts of federal money despite the negative correlation with per capita income.[54] Since 1995, federal aid has been a little more evenly distributed among rich and poor states, showing slightly positive relationships with a state's per capita GDP but negatively related to state personal income per person. The tremendous increase in importance of the Medicaid program as a percentage of total intergovernmental spending over the 1990's might explain the shift away from total federal aid being so positively correlated with the fiscal capacity and income of the states. Medicaid, which has been negatively correlated with fiscal capacity and personal income throughout the 1990's, has jumped from 22.4% of total grant outlays in 1984-85 to 30% in 1990 to roughly 40% of the federal total since 1992. However, as explained above, although Medicaid tries to support low-income states through its allocation formula, the program's spending requirements often place poorer states at a disadvantage.

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[54] The correlation between per capita income of the states and per capita GDP of the states is +0.888 for 1998-99. However, it does occur, as in the case of Wyoming, that states with above-average fiscal capacity (as measured by per capita state GDP) have below-average personal incomes. Florida is an example of the opposite case. For a description of different measures of fiscal capacity, see Appendix I.

TABLE 14
Medicaid Rate and Transfers
1999 Matching Rate and Relative Per Capita Receipt of Federal Medicaid

State	Relative Per Capita Income	Medicaid Matching Rate (%)	Relative Per Capita Receipt	State	Relative Per Capita Income	Medicaid Matching Rate (%)	Relative Per Capita Receipt
Mississippi	76	76.8	134	Connecticut	142	50.0	123
West Virginia	79	74.5	148	New Jersey	130	50.0	92
New Mexico	82	73.0	122	Massachusetts	125	50.0	125
Arkansas	82	73.0	114	New York	124	50.0	205
Utah	84	71.8	68	Maryland	118	50.0	78
Montana	82	71.7	85	Nevada	115	50.0	42
Oklahoma	85	70.8	87	Illinois	114	50.0	77
Kentucky	85	70.5	129	Delaware	113	50.0	86
Louisiana	86	70.4	139	New Hampshire	110	50.0	88
North Dakota	90	69.9	101	Hawaii	109	50.0	68
Idaho	86	69.9	80	Colorado	111	50.6	59
South Carolina	86	69.9	118	Minnesota	111	51.5	94
Alabama	86	69.3	102	California	108	51.6	88
South Dakota	92	68.2	95	Virginia	108	51.6	50
Maine	90	66.4	155	Washington	107	52.5	89
Arizona	91	65.5	77	Michigan	103	52.7	98
Wyoming	93	64.1	76	Pennsylvania	105	53.8	115
Iowa	96	63.3	84	Rhode Island	106	54.1	149
Tennessee	95	63.1	129	Florida	104	55.8	68
North Carolina	97	63.1	108	Ohio	100	58.3	94
Texas	95	62.5	87	Wisconsin	100	58.9	84
Vermont	94	62.0	135	Alaska	110	59.8	122
Nebraska	102	61.5	95	Kansas	98	60.1	72
Indiana	96	61.0	82	Missouri	98	60.2	106
Oregon	100	60.6	101	Georgia	100	60.5	78

Sources: Matching rate: Health and Human Services (www.aspe.hhs.gov/health/FMAP.htm)

Just how effective Medicaid is as an equalizing grant depends on how responsive State governments are to Medicaid's matching rate. The favourable matching rates for low-income states give these governments an advantage by lowering the relative price of additional amounts of Medicaid spending. However, despite the beneficial rate, some needy states receive below average amounts of federal Medicaid transfers on a per capita basis simply because they choose not to, or are unable to, spend the required amounts.

Table 14 shows the relative per capita income (mean of 100), the applicable Medicaid matching rate and the relative receipt of federal Medicaid transfers per capita (mean 100) for the 50 states in 1999. In the left-hand column of the Table, the states are ordered starting with the highest matching rate. These are the lower-income states. On the right, those states with the lowest matching rates (the states with the highest income) are at the top. While the four states with the most favourable matching rate (Mississippi, West Virginia, New Mexico and Arkansas) do receive above average amounts of federal Medicaid transfers, many low-income states are well below the average in their relative per capita share of federal Medicaid dollars. Furthermore, above-average amounts of federal Medicaid are allocated to some of the highest income states (Connecticut, Massachusetts and New York). The correlation coefficient between the Medicaid matching rate and the per capita receipt of federal Medicaid transfers is +0.23 but statistically insignificant at even the 10% level, suggesting that the matching rate has little impact on the actual distribution of Medicaid grant money. Still, Medicaid shows consistent equalizing effects and the poorest states such as West Virginia, Maine and Mississippi remain very large beneficiaries of per capita Medicaid funds.

Education programs aimed at the disadvantaged have also been equalizing throughout the 1990's, though the importance of these programs in terms of spending does not exceed 8% of total transfers. Nevertheless, when the programs showing negative correlations with per capita GDP and per capita income are tallied for 1998-99, 59.2% of total transfers appear to be distributed in favour of lower capacity and lower income states (Medicaid makes up 39.6% of this total of course). 52.5% of transfers seem to have been equalizing in 1997-98 (Medicaid accounting for 39.9%). However, a year prior to this, only Medicaid had negative correlations for both income measures for 1996-97.

Compared to the stability and predictability of the Canadian transfer programs, the fluctuation in both the correlations and the importance in spending of the U.S. programs is striking. Medicaid remains stable, consistently appearing to be slightly equalizing and accounting for about 40% of the federal transfer total since 1991-92. Yet it is not

uncommon for the importance of the remaining programs to vary. Federal transfers for the Administration for Children and Families, arguably the second most important U.S. program, have fluctuated between 4% and 15% of total grants for the 1990's. From Table 5 in section II, we saw that there is little stability in the top ten per capita recipients of federal transfers for Administration for Children and Families. Still, it is difficult to compare a system with over 900 programs with a system dominated by two major transfers, as is the case in Canada. A more useful comparison might be to look at the Canada Health and Social Transfer in Canada and Medicaid and Administration for Children and Families in the United States. Both programs go towards funding health and social assistance and account for roughly half of total transfers in each of the two countries. Furthermore, serious discussions took place in Washington about converting Medicaid into a form of block grant following the conversion of the greatest portion of Administration for Children and Families, Temporary Assistance for Needy Families (TANF) into to a block grant in 1996. Nevertheless, Canada's CHST remains strongly equalizing while Administration for Children and Families is distributed, for the most part, in favour of wealthier states.

Modeling the Relationship between Transfers and Fiscal Capacity

The correlation coefficient gives us an indication of the strength of the relationship between the distribution of federal transfers and fiscal capacity. However, it does not allow us to measure the influence of a state or province's fiscal capacity on the distribution of federal transfers. This relationship is analyzed in Table 15 and 16, using a simple regression model. For both Canada and the United States, the per capita distribution of federal transfers is regressed on the two macro proxies of fiscal capacity: (1) per capita Gross Regional Product and (2) per capita personal income. Once again, the results illustrate the considerable differences in the distribution pattern of federal transfers to regional governments in the two countries. For all ten years in Canada (Table 14), the coefficients for both per capita Gross Provincial Product and per capita personal income are negative – the higher the per capita GPP or per capita income of a province, the lower the amount of federal transfers it receives on a per capita basis. Furthermore,

not only are the coefficients for both proxies statistically significant, but they explain a substantial part of the variation in the dependent variable. The coefficient of determination (R^2) averages 0.824 for per capita GPP over the ten years and 0.817 for per capita income.

The fiscal capacity of the states is much less of a factor in determining the allocation of U.S. federal transfers, almost to the point of exerting no influence on the per capita distribution of transfers among regional governments. Throughout the decade, federal per capita transfers have been positively related with per capita Gross State Product but the coefficients are not statistically significant. Per capita income, on the other hand, has, since 1995, been negatively related to the per capita distribution of federal transfers –

TABLE 15
Regression Analysis of Per Capita Federal Transfers
Canada, 1990 – 1999

	Intercept	per capita GPP	R^2	Intercept	per capita income	R^2
1990	4736	-0.152	0.862	6445	-0.260	0.853
1991	5296	-0.177	0.874	7024	-0.282	0.852
1992	5106	-0.166	0.852	6630	-0.259	0.782
1993	5032	-0.153	0.827	7198	-0.279	0.838
1994	4679	-0.135	0.838	7131	-0.276	0.851
1995	5326	-0.149	0.839	8553	-0.328	0.916
1996	5026	-0.137	0.843	8267	-0.315	0.883
1997	4771	-0.128	0.813	7224	-0.266	0.766
1998	5909	-0.166	0.752	8206	-0.297	0.669
1999	6284	-0.165	0.744	9478	-0.335	0.762

Sources: 1989-90 to 1995-96: Perry (1997), Appendix
    1996-97 to 1998-99: *Finances of the Nation* (1996-1998), Table 8.1
                      Statistics Canada: CANSIM matrices 8182-8191
                      calculated as (Total Government Revenue – Own Source Revenue)
    pcGPP and pcPI Statistics Canada: CANSIM matrices 9229-9220
Notes: **Bold** indicates statistical significance at the 5% level.

TABLE 16
Regression Analysis of Per Capita Federal Grants
United States, 1990 – 1999

	Intercept	per capita GSP	R²	Intercept	per capita income	R²
1990	**188**	**0.017**	0.215	**508**	0.003	0.002
1991	244	**0.018**	0.177	**542**	0.006	0.007
1992	**466**	0.011	0.061	**734**	0.000	0.000
1993	**452**	0.014	0.072	**766**	0.001	0.000
1994	**495**	0.013	0.054	**844**	0.000	0.000
1995	**497**	0.015	0.068	**915**	-0.001	0.000
1996	**570**	0.011	0.044	**991**	-0.005	0.004
1997	**606**	0.010	0.028	**1141**	-0.009	0.012
1998	**838**	0.005	0.006	**1184**	-0.008	0.009
1999	**943**	0.004	0.004	**1333**	-0.010	0.013

Sources: Based on Statistical Abstract of the United States, State and Local Government Finances
pcGSP, pcPI based on Bureau of Economic Analysis (www.bea.doc.gov/bea/regional), GSP, SPI
Notes: **Bold** indicates statistical significance at the 5% level.

poorer states tend to receive greater amounts of federal transfers per capita – yet none of the coefficients are statistically significant. Extremely low R-squared values indicate that per capita GSP and per capita income are not very useful in explaining the variation in per capita transfer distributions.

Regression analysis can also be used to compute predictions based on an assumed value for the independent variable. Therefore, the relationships calculated above allow us to simulate what the distribution of Canadian federal transfers might look like if it were to adopt the characteristics of the American model and vice versa. While Richard Bird once warned that you cannot simply take one system of intergovernmental transfers and transplant it to the soil of another country[55], such simulations do provide interesting comparative illustrations. Figure 7 compares the actual federal transfers received by each province in 1999 on a per capita basis with the per capita amount each province would receive using the characteristics of the American model, calculated above using simple

[55] Bird (1994)

regression techniques. Taking per capita Gross Regional Product as our proxy for fiscal capacity, Canadian transfers are simulated using the U.S. equation:

$$\text{p.c. transfers} = 943 + 0.004\,(\text{pcGRP}) \tag{1}$$

The provinces are arranged from the lowest fiscal capacity (Prince Edward Island) to the highest (Alberta) in Figure 7. The plotting of actual transfers received by each province exhibits a negatively sloped line with provinces tending to receive relatively greater amounts of federal transfers per capita the lower their fiscal capacity. However, when Canadian per capita Gross Provincial Product data is substituted into equation 1, it is predicted that each province would receive roughly equal per capita amounts of federal transfers, with slightly greater amounts allocated to the provinces with the highest per capita GPP (with simulated data, Alberta received $1,094 in per capita transfers while P.E.I. received $1,026). This demonstrates the almost insignificant effect that a region's fiscal capacity has on the distribution of federal transfers in the U.S. system.
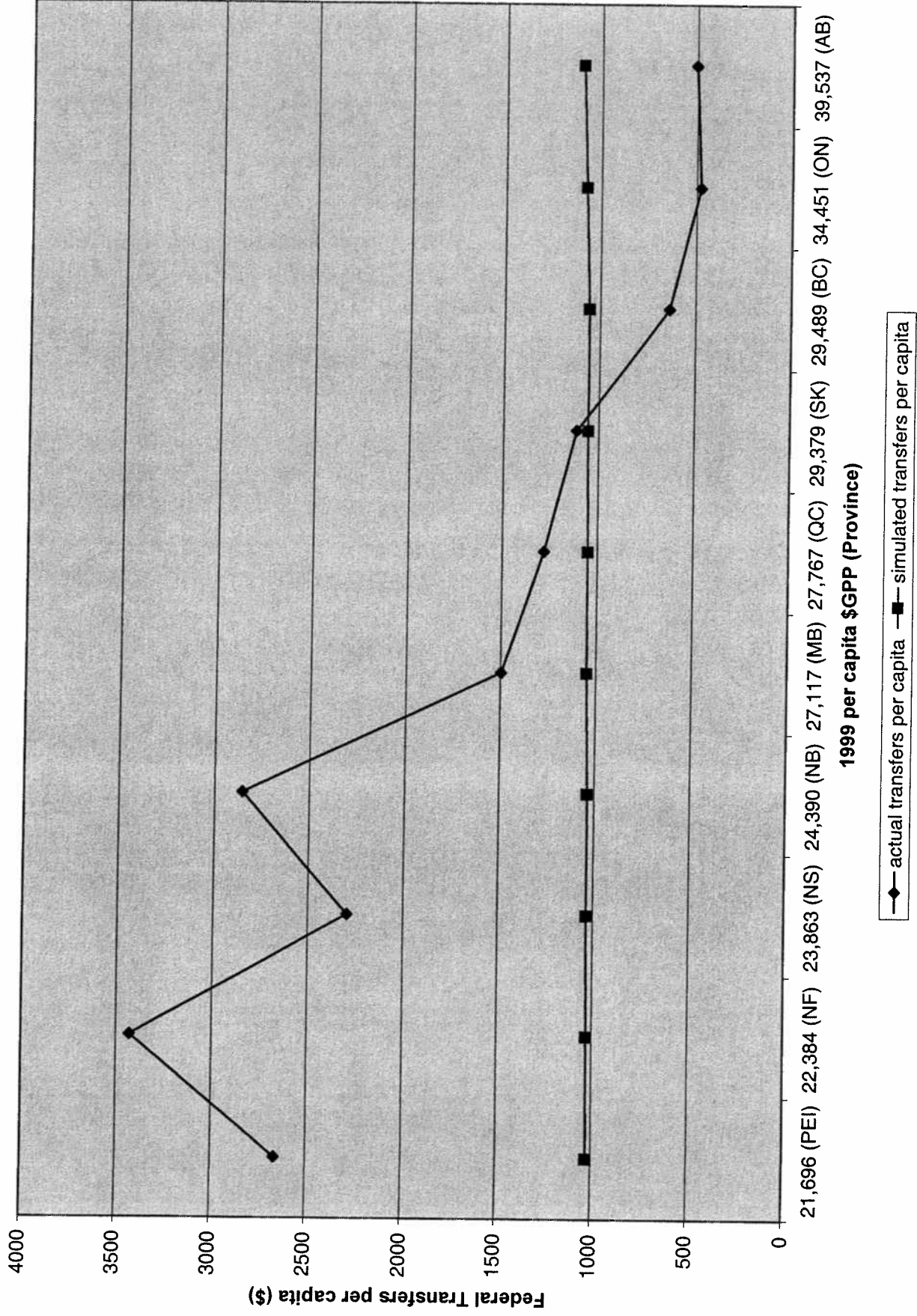
The three graphs in Figure 8 depict the Canadian system of intergovernmental transfers using U.S. per capita Gross State Product data. The equation that describes the Canadian model is:

$$\text{p.c. transfers} = 6284 - 0.165\,(\text{pcGRP}) \tag{2}$$

The first graph shows the seventeen lowest states in terms of per capita GSP starting with West Virginia, whose per capita GSP is 69% of the national average. Actual 1999 per capita transfers for these seventeen poorer states erratically bounce within a range of $714 and $1,676 per capita. Inputting U.S. per capita GSP data into the Canadian model produces a negatively sloped trend line. The state with the lowest per capita GSP would receive $2,579 per capita while the seventeenth lowest state in per capita GSP (South Dakota with per capita GSP of 90% of the national average) would be allocated $1,429. The story is the same for the next two graphs in Figure 8. The second graph presents the states with per capita GSP between 91% and 106% of the national average while the third

graph covers the above-average states, ranging from 108% to 142% of the national average. While it is difficult to describe a pattern for the actual per capita receipt of transfers, with Canadian characteristics, a state's per capita receipt of federal transfers is reduced as its per capita Gross State Product improves.

FIGURE 7

Provincial per capita receipt of transfers with U.S. characteristics
CANADA: 1999 Actual and Simulated

21,696 (PEI) 22,384 (NF) 23,863 (NS) 24,390 (NB) 27,117 (MB) 27,767 (QC) 29,379 (SK) 29,489 (BC) 34,451 (ON) 39,537 (AB)

1999 per capita $GPP (Province)

Federal Transfers per capita ($)

—◆— actual transfers per capita   —■— simulated transfers per capita

FIGURE 8
State per capita receipt of transfers with Canadian characteristics
U.S. 1999 Actual and Simulated
($22,516 - 29,505)
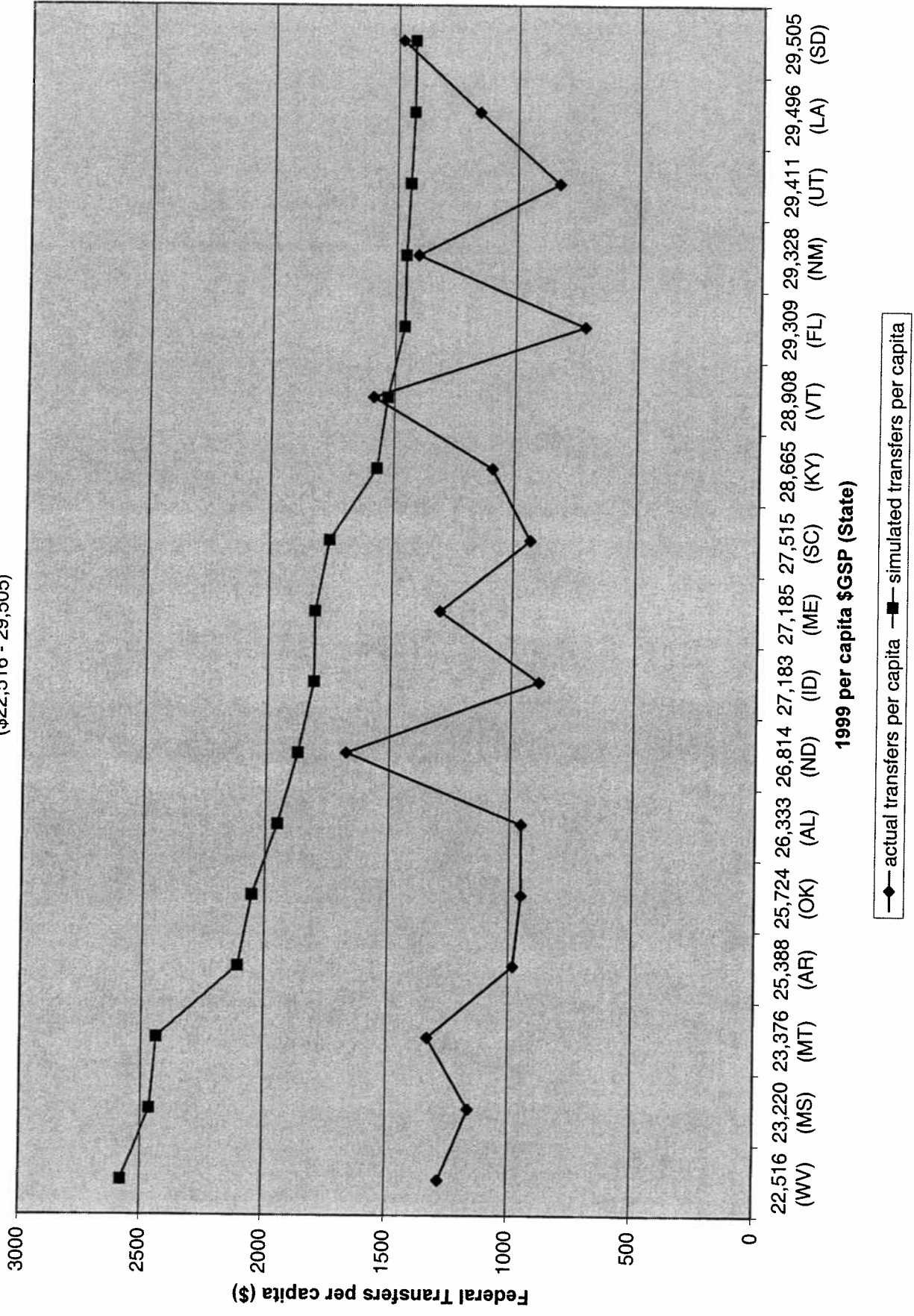
Federal Transfers per capita ($)

1999 per capita $GSP (State)

| 22,516 | 23,220 | 23,376 | 25,388 | 25,724 | 26,333 | 26,814 | 27,183 | 27,185 | 27,515 | 28,665 | 28,908 | 29,309 | 29,328 | 29,411 | 29,496 | 29,505 |
| (WV) | (MS) | (MT) | (AR) | (OK) | (AL) | (ND) | (ID) | (ME) | (SC) | (KY) | (VT) | (FL) | (NM) | (UT) | (LA) | (SD) |

◆ actual transfers per capita ■ simulated transfers per capita

Sources: Calculations based on Tables 14 and 15

FIGURE 8
State per capita receipt of transfers with Canadian characteristics
U.S. 1999 Actual and Simulated
($29,707 - 34,512)

Federal Transfers per capita ($)

1999 per capita $GSP (State)

| 29,707 | 30,070 | 30,460 | 30,659 | 31,017 | 31,174 | 31,257 | 31,708 | 31,931 | 32,157 | 32,259 | 32,848 | 33,079 | 33,782 | 33,799 | 34,288 | 34,512 |
| (IA) | (AZ) | (KS) | (IN) | (TN) | (MO) | (MI) | (WI) | (PA) | (OH) | (NE) | (RI) | (OR) | (MD) | (NC) | (TX) | (HI) |

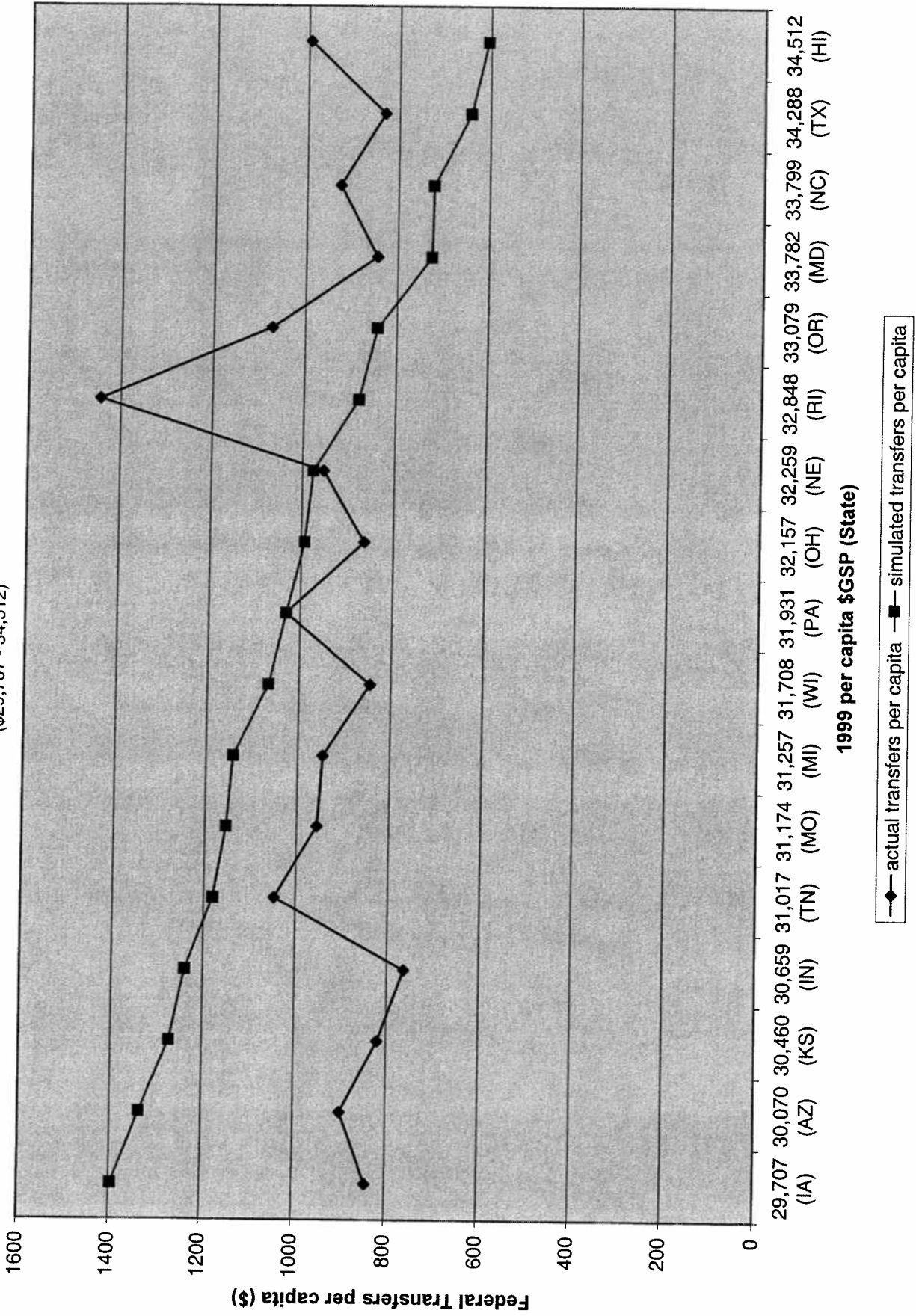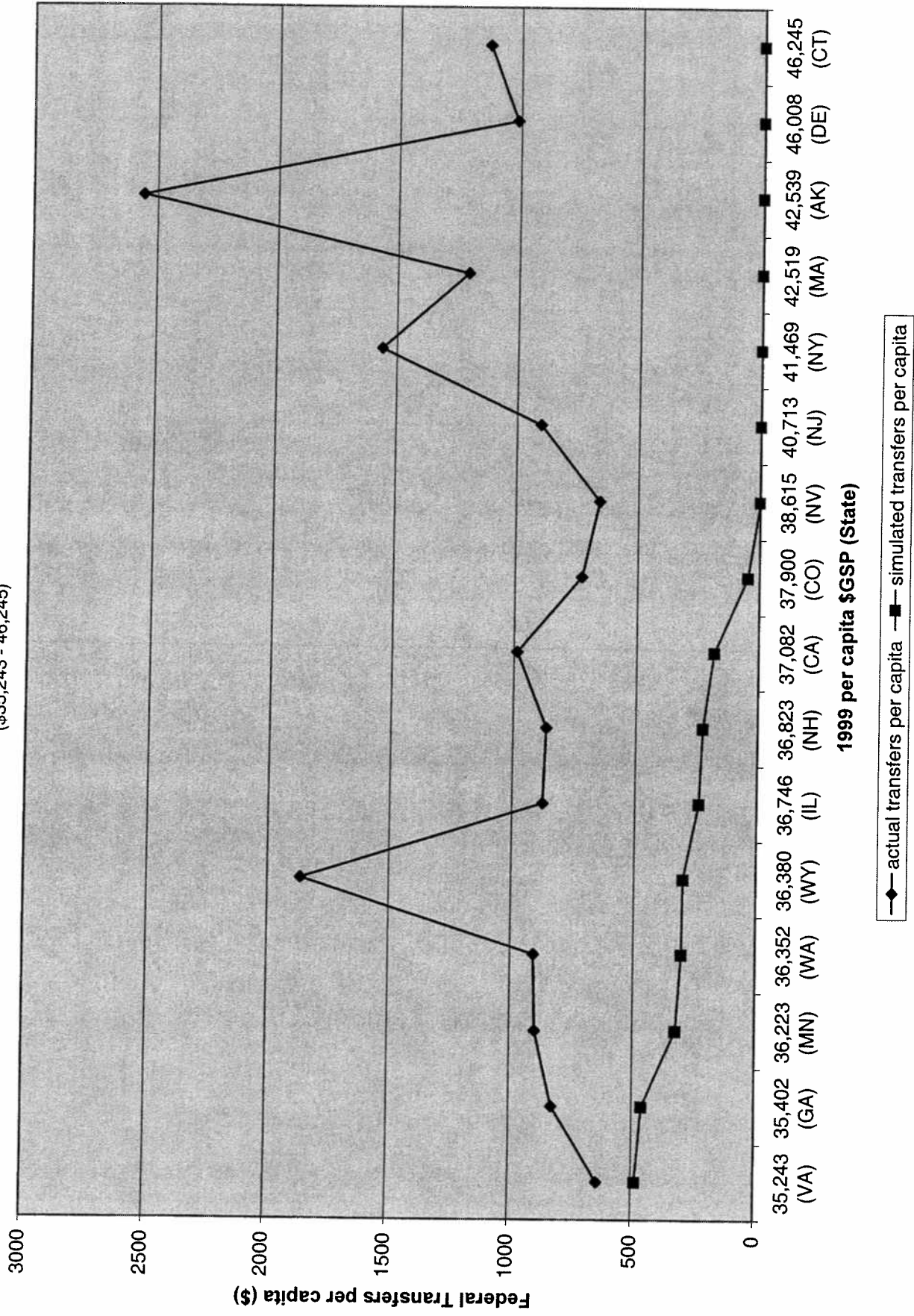◆ actual transfers per capita ■ simulated transfers per capita

Sources: Calculations based on Tables 14 and 15

FIGURE 8
State per capita receipt of transfers with Canadian characteristics
U.S. 1999 Actual and Simulated
($35,243 - 46,245)

Federal Transfers per capita ($)

1999 per capita $GSP (State)

—♦— actual transfers per capita   —■— simulated transfers per capita

Sources: Calculations based on Tables 14 and 15

VII. Conclusion

While there does seem to be some implicit equalization in certain areas of the United States' system of transfers, poorer states certainly cannot depend on more favourable treatment from federal transfers overall. Some grant programs are consistently equalizing, such as education programs aimed at the disadvantaged, food and nutrition programs and, for the most part, Medicaid, but aggregately, U.S. federal grants do nothing to ameliorate the "poor state problem". With the responsibility for public goods and services scattered over three levels of government, the U.S. system of intergovernmental transfers responds foremost to the needs determined by the various grant programs.

In Canada, the burden for providing public goods and services falls heavily on the provinces. Therefore, the objective of Canada's transfer system is to ensure that all provincial governments are capable of providing these services without having to resort to extremely high levels of taxes. The data shows that Canada's transfer system overall is equalizing and that the provinces with the lowest fiscal capacities clearly benefit the most from federal grants on a per capita basis. Canada's transfer system does a great deal to accommodate the considerable responsibilities and, at the same time, the policy priorities of provincial governments.

The conclusions for the U.S. system of intergovernmental transfers come at a time when block grants are replacing an increasing amount of restrictive categorical grants and instilling state governments with greater flexibility in the management of public programs. If Washington now feels that it can trust the states with weightier responsibilities, it must also ensure that federal transfers support those states that have insufficient resources. However, if devolution is more a solution to deficit cutting than to giving states greater autonomy and discretion, then the quality and level of public services will reflect the horizontal inequities within the U.S. federation.

Appendix I: Measures of Regional Fiscal Capacity

Fiscal capacity refers to a region's (whether provincial/state or local) relative ability to raise revenue from its own sources. It is used as an indication of the per capita revenues a particular region could generate if all the regions of a country operated under identical conditions (i.e. if all provinces used identical tax rates for all tax bases). Therefore, *fiscal capacity* is an attempt to measure a region's economic potential, determined by its resources and activities, and not its actual fiscal conditions, which might be a result of the government's choice of tax rates and tax bases. When converted to an index, it expresses the region's revenue-generating potential relative to the national average (the average of all the regions' revenue-generating potential).

There are, however, a number of measures of fiscal capacity and economists are unable to agree on the use of a single indicator. This section briefly describes and evaluates four leading measures of fiscal capacity: (1) per capita Gross Domestic Product, (2) per capita Personal Income, (3) the Representative Tax System (RTS) and (4) Total Taxable Resources (TTR). When evaluating a measure of fiscal capacity, economists consider certain criteria.[56] First, the indicator must be comprehensive and consider all aspects of a region's taxable income. In addition to covering taxable income, economists argue that the indicator should reflect elements of a resident's purchasing power even if those elements are not subject to taxation. Second, the indicator must accurately reflect the potential of a region's resources and not the fiscal choices of the region's government. Third, the indicator must properly account for the region's ability to generate revenue from nonresidents (called "tax exportation"). Fourth, the elements of the indicator must be consistent with economic and public finance theory. Finally, data for the indicator must be tractable and timely.

As Tables 17 and 18, show there are significant differences between the various indicators. When one considers that, in Canada, the distribution of more than \$9 billion in Equalization payments depends on the type of indicator used, it is clear that the

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[56] The following criteria was taken from Barro (2001), p.8

Department of Finance is eager to develop the most accurate and representative indicator available. Similarly, matching rates for the $124.8 billion Medicaid program depends on the per capita personal income indicator. American finance experts argue that a superior indicator does exist.

(1) **Per Capita Gross Domestic Product**: Gross Domestic Product is an "income produced"[57] indicator and measures the value of economic activity within a region – it is the total value of all final goods and services within that region's borders. GDP per capita is then the amount of expenditure for the average resident of that region.[58] Per capita GDP is not complete because it excludes the income received by residents from outside the region. In Canada, this income is subject to taxation and therefore its omission misrepresents provincial fiscal capacity figures. Per capita GDP, however, is usually judged as a more comprehensive measure of fiscal capacity than per capita personal income because of its relatively improved treatment of tax exportation. The majority of exported taxes come from the income that is produced within the region – income that is counted as part of GDP.

(2) **Per Capita Personal Income**: Personal income is in an indicator of income received and represents the amount of income that a household receives in an economy. It is intended to reflect an *individual*'s ability to pay taxes. Although it is the most widely used fiscal capacity indicator in U.S. federal transfer allocation formulas (including the formula for the United States' largest grant, Medicaid), economists do not generally accept it as a complete measure of a region's fiscal capacity. Some of the major weaknesses of Per Capita Personal Income are its

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[57] In the discussion of regional fiscal capacity, it is important to distinguish between an indicator that measures income produced and one that measures income received. Income produced describes the income produced within a region's borders even if that income is received by nonresidents. Income received describes the income received by residents even if that income is produced outside the region. No one standard macro indicator captures both aspects: per capita GDP considers the income produced but misses income that is received by residents outside the region while per capita personal income considers the income received but fails to consider income produced within a region by nonresidents. See Barro (2001), p.18

[58] Mankiw and Scarth (1995), p.18, 27

omission of business income, such as retained corporate profits, and its inability to account for nonresident income.[59] Its exclusion of business and corporate income often results in the understating of the fiscal capacity for higher income regions and the overstating of lower income regions since business income tends to be higher in regions with high personal income. With the omission of nonresident income, the fiscal capacity of regions with high rates of tax exportation, such as energy-producing regions and tourism-intensive regions, can often be seriously understated.

(3) Representative Tax System (RTS): The Representative Tax System assesses a region's fiscal ability by determining the per capita revenue that could be generated if a national average ("representative") tax rate were applied to each tax base. It is assumed that these hypothetical tax yields directly reflect the relative strength of a region's taxable resources. However, while this method is judged by many to be fairly comprehensive and capable of accounting for nonresident income, the RTS receives most of its criticism for its tendency to be influenced by the choices of governments and consumers. For example, a region that allocates more of its income to savings or untaxed goods, such as basic foods, will be assigned a lower fiscal capacity rating than a region that, despite having equal fiscal potential, spends more on (taxable) retail goods. This contradicts the principle of measuring what a region can do, not what it chooses to do. Presently, the formula for determining Equalization payments in Canada is based on the RTS approach.

(4) Total Taxable Resources (TTR): The Total Taxable Resource approach is called a composite macroeconomic indicator and is intended to overcome some of the weaknesses of the two standard macro measures, Per Capita GDP and Per Capita Personal Income. In theory, it is an attempt to capture both the *income received* and *income produced* of a region. Presently, this indicator is used in two U.S. grant allocation formulas: Community Mental Health Services Block Grant

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[59] Barro (2001), p. 20

and Substance Abuse Prevention and Treatment Block Grant. The U.S. Treasury defines TTR as the unduplicated sum of the income flows produced within a region (captured by regional GDP) and the income flows received by its residents (captured by regional personal income), which a region can potentially tax.[60] In the estimation of TTR, non-taxable components are subtracted from regional GDP.[61] In the United States, these items include Federal indirect business taxes (since these are paid to the Federal government) and employer/employee contributions for social insurance (also payments to the Federal government). Removing these components from a region's GDP produces what is known as "Modified Gross Regional Product" (MGRP, or MGSP in the U.S.). Certain income flows must then be added to arrive at TTR. These include any dividends, and interest income earned from sources outside the region, the earnings of a region's residents who work outside the region, and net realized capital gains.

TABLE 17
Per Capita Fiscal Capacity Indices:
GDP, Personal Income and RTS – Canada, 1999

	GDP	personal income	RTS
British Columbia	105	107	104
Alberta	141	119	135
Saskatchewan	105	93	91
Manitoba	97	101	80
Ontario	123	119	108
Québec	99	101	88
New Brunswick	87	93	73
Nova Scotia	85	95	75
Prince Edward Island	77	87	69
Newfoundland	80	84	64

Sources: Based on   GDP and PI: Statistics Canada CANSIM matrices 9229-9220
RTS: Department of Finance

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[60] Compson and Navratil (1997), p.2
[61] The following steps for estimating TTR come from U.S. Department of Treasury (1998), p.2

TABLE 18
Per Capita Fiscal Capacity Indices:
GDP, Personal Income and TTR – United States, 1998

	GDP	personal income	TTR		GDP	personal income	TTR
Alabama	81	85	78	Montana	73	82	74
Alaska	127	107	115	Nebraska	100	99	97
Arizona	92	92	88	Nevada	116	114	113
Arkansas	78	81	76	New Hampshire	112	114	118
California	110	108	103	New Jersey	127	131	129
Colorado	115	114	108	New Mexico	88	81	84
Connecticut	139	143	141	New York	125	123	121
Delaware	146	113	139	North Carolina	100	97	94
Florida	90	103	94	North Dakota	87	87	85
Georgia	107	100	98	Ohio	97	100	94
Hawaii	107	102	100	Oklahoma	79	85	76
Idaho	81	84	79	Oregon	103	99	100
Illinois	113	115	110	Pennsylvania	97	105	97
Indiana	95	96	92	Rhode Island	99	107	102
Iowa	95	95	93	South Carolina	84	86	81
Kansas	94	98	95	South Dakota	93	91	92
Kentucky	87	86	84	Tennessee	94	94	88
Louisiana	95	86	90	Texas	105	99	96
Maine	83	90	82	Utah	91	85	84
Maryland	103	118	111	Vermont	88	95	88
Massachusetts	125	128	122	Virginia	109	108	108
Michigan	96	103	92	Washington	109	110	105
Minnesota	110	113	105	West Virginia	71	77	73
Mississippi	73	77	71	Wisconsin	97	100	95
Missouri	96	97	94	Wyoming	117	95	119

Sources: GDP/PI: Bureau of Economic Analysis (www.bea.doc.gov/bea/regional) GSP and SPI (Feb.2001)
   TTR: Office of Economic Policy, U.S. Department of Treasury (www.ustreas.gov/ttr/)

Appendix II: Equalization in Dollars

Can *equalization* in Canada and the United States be compared in terms of dollar amounts? While we know the exact size of the Equalization program in Canada, how much does the United States spend on equalization? Table 19 shows the equalizing portion of Medicaid in dollars by state – this amount is how much fiscally weaker states receive from their preferential Medicaid matching rate. This figure is obtained by calculating the difference between federal Medicaid transfers actually received by a state and the amount those states would have received with a base matching rate of 50%. Those transfers received in excess of the base matching rate represent equalizing transfers.

While other, smaller U.S. transfer programs also provide equalizing funds, it is more difficult to estimate their equalizing portions due to the unavailability of data. Furthermore, the sheer size of Medicaid provides a reasonable estimate of the amount of U.S. equalization in dollars. Table 20 compares U.S. equalization with the Equalization program in Canada from 1996 to 1999, using absolute and per capita dollar amounts and as a percentage of GDP. Examining the amount of federal dollars dedicated to equalization in terms of per capita amounts and as a percentage of GDP, it is obvious that fiscal equalization in the United States does not play nearly the role it does in Canada.

TABLE 19
Equalizing Portion of Medicaid by U.S. State, 1999

State	1999 Per Capita Income	Medicaid Matching Rate (%)	Medicaid Transfers ($000s)	Equalizing Portion[1] ($000s)	Equalizing Portion per capita ($)
Mississippi	18,044	76.8	1,458,000	508,534	183.68
West Virginia	18,566	74.5	1,054,000	346,332	191.67
New Mexico	19,478	73.0	838,000	263,870	151.66
Arkansas	19,442	73.0	1,141,000	359,065	140.73
Utah	19,955	71.8	569,000	172,650	81.06
Montana	19,383	71.7	297,000	89,974	101.92
Oklahoma	20,151	70.8	1,146,000	337,135	100.40
Kentucky	20,155	70.5	2,016,000	586,821	148.16
Louisiana	20,254	70.4	2,398,000	694,149	158.77
North Dakota	21,166	69.9	253,000	72,131	113.83
Idaho	20,353	69.9	392,000	111,399	89.00
South Carolina	20,403	69.9	1,810,000	514,366	132.37
Alabama	20,329	69.3	1,762,000	490,165	112.17
South Dakota	21,736	68.2	273,000	72,736	99.21
Maine	21,293	66.4	765,000	188,946	150.79
Arizona	21,611	65.5	1,445,000	341,947	71.56
Wyoming	22,098	64.1	143,000	31,421	65.51
Iowa	22,713	63.3	945,000	198,790	69.28
Tennessee	22,450	63.1	2,778,000	576,383	105.11
North Carolina	22,940	63.1	3,246,000	672,669	87.92
Texas	22,557	62.5	6,830,000	1,361,625	67.93
Vermont	22,295	62.0	316,000	61,038	102.80
Nebraska	24,045	61.5	622,000	115,980	69.61
Indiana	22,775	61.0	1,924,000	347,209	58.42
Oregon	23,649	60.6	1,316,000	229,295	69.14
Georgia	23,586	60.5	2,400,000	415,545	53.36
Missouri	23,099	60.2	2,280,000	387,570	70.88
Kansas	23,121	60.1	749,000	125,353	47.23
Alaska	26,057	59.8	297,000	48,672	78.57
Wisconsin	23,554	58.9	1,739,000	261,515	49.81
Ohio	23,613	58.3	4,186,000	593,484	52.72
Florida	24,616	55.8	4,025,000	419,661	27.77
Rhode Island	25,123	54.1	580,000	43,460	43.86
Pennsylvania	24,838	53.8	5,449,000	382,048	31.85
Michigan	24,447	52.7	3,819,000	197,035	19.98
Washington	25,287	52.5	2,023,000	96,333	16.74
Virginia	25,495	51.6	1,366,000	42,357	6.16
California	25,563	51.6	11,503,000	345,871	10.44
Minnesota	26,267	51.5	1,775,000	51,699	10.83
Colorado	26,231	50.6	941,000	10,974	2.71
Hawaii	25,661	50.0	316,000	0	0.00
New Hampshire	26,042	50.0	416,000	0	0.00
Delaware	26,640	50.0	254,000	0	0.00
Illinois	27,005	50.0	3,666,000	0	0.00
Nevada	27,142	50.0	300,000	0	0.00
Maryland	27,844	50.0	1,589,000	0	0.00
New York	29,266	50.0	14,702,000	0	0.00
Massachusetts	29,618	50.0	3,029,000	0	0.00
New Jersey	30,795	50.0	2,962,000	0	0.00
Connecticut	33,472	50.0	1,589,000	0	0.00

[1] Calculated as [1999 Medicaid grant - (1999 State Medicaid spending x 0.50)]

Sources: Medicaid: Statistical Abstract of the United States: 2000, Table 499. Federal Aid to State and Local Governments
Matching Rate: Health and Human Services (www.aspe.hhs.gov/health/FMAP.htm)

TABLE 20
Equalization in Canada and the United States, 1996-1999
$ millions, per capita $, % of GDP

	Canada			United States		
	Equalization ($millions)	Equalization per capita ($)	Equalization % of GDP	Equalization ($millions)	Equalization per capita ($)	Equalization % of GDP
1996	8,801	296.61	1.1	10,506	39.61	0.1
1997	8,796	293.33	1.0	10,724	40.05	0.1
1998	8,292	274.13	0.9	11,227	41.54	0.1
1999	8,482	278.16	0.9	12,166	44.61	0.1

Sources: Canada Equalization: *Finances of the Nation*, Table 8.1
　　　　　　　Population:　Statistics Canada: CANSIM label D31248
　　　　　　　GDP:　　　　Statistics Canada: CANSIM label D44959
　　　　United States　Equalization:　Table 19
　　　　　　　Population:　Bureau of Economic Analysis
　　　　　　　GDP:　　　　Bureau of Economic Analysis, National Accounts Data
　　　　　　　　　　　　　(www.bea.doc.gov/bea/dn/gdplev.xls)

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