A MICROCONSISTENT DATA SET FOR CANADA FOR USE IN REGIONAL GENERAL EQUILIBRIUM POLICY ANALYSIS[1]

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This paper describes the sources and methods used in assembling a microconsistent regional data set for Canada for 1981 for use in counterfactual general equilibrium policy analyses focussing on regional impacts of government policies.

A microconsistent data set at the regional level requires assembling detailed consistent accounts of production and demand by region, of interregional and international trade flows, and of transactions involving multiple levels of government. For many or most countries, the data requirements associated with regional general equilibrium analysis preclude this form of work. But because of the substantial progress made in recent years in developing provincial data sources in Canada, such as the provincial input-output tables and the provincial economic accounts, the situation in Canada is different. Using these data, it is possible to construct an interregional microconsistent benchmark data set at a suitable level of commodity detail for subsequent model use. This data set has already been used in an initial evaluation of a number of Canadian regional issues (see Trela and Whalley (1985)). The methodology used follows that presented in an earlier paper of ours (St-Hilaire and Whalley (1983)) which described the construction of a 1972 national data set for Canada developed for tax policy analysis.

I. INTRODUCTION

In federal countries, such as Canada, a wide range of contentious regional issues frequently enter policy debate. For example, the regional impacts of tariffs, federal taxes and energy price controls have all been topics of discussion for many years. This paper describes the sources and methods used in assembling a microconsistent regional data set for Canada for 1981 for use in counterfactual general equilibrium policy analyses focusing on regional impacts of these and other policies. We also provide summary tables presenting the main features of this data.

The methodology used follows that presented in an earlier paper of ours (St-Hilaire and Whalley (1983)) which describes the construction of a 1972 national data set for Canada developed for tax policy analysis. The possibility of disaggregating this data set by region was considered at the time of construction, but due to data constraints this issue was left largely unexplored.

A microconsistent data set at the regional level requires assembling detailed consistent accounts of production and demand by region, of interregional and international trade flows and of transactions involving multiple levels of government. For many or most countries, the data requirements associated with regional general equilibrium analysis preclude this form of work. But because of the

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substantial progress made in recent years in developing provincial data sources such as the provincial input-output tables (PIO) and the provincial economic accounts (PEA),[2] the situation is different in Canada. Using these data, it is possible to construct an interregional microconsistent[3] benchmark data set at a suitable level of commodity detail for subsequent model use. This data set has in fact already been used in an initial evaluation of a number of Canadian regional issues (see Trela and Whalley (1985)).

The resulting regional benchmark data set differs from previously constructed, and largely tax oriented, microconsistent data sets such as those by St-Hilaire and Whalley (1983), Piggott and Whalley (1985), Ballard, Fullerton, Shoven and Whalley (1985) and others, in that it records transactions between regions, as well as production and demand by commodity at the regional level. The data set also incorporates federal government transactions with individual regions, and policy features such as energy price controls which have been a source of disagreement between energy producing and energy consuming regions in Canada.

Also, the problems encountered in assembling this data set are different from those in constructing national data sets. In the latter case, most of the work consists of reconciling and expanding basic input-output accounts, using additional information from income and expenditure accounts, balance of payments, financial flows accounts and family expenditure surveys. The problem in constructing the present regional data set is the lack of alternative data sources to use to reconcile and expand PIO data. Available provincial data has been adjusted to achieve microconsistency at the level of detail desired, but it is not possible to reconcile all entries in the data set with the existing system of aggregate accounts in the same way as at a national level.

The plan of the paper is as follows. In the next section we outline the structure of the regional data set. What follows is a brief description of the basic data sources and the problems encountered in assembling a regional microconsistent data set from these. We then outline the various adjustments we have made in order to achieve microconsistency. The final section reports summary tables displaying some of the main features of the resulting data.

II. The Structure of the Regional Microconsistent Data Set

In several of the numerical general equilibrium models now in use (see Shoven and Whalley (1984)), a common procedure is to calibrate the model so as to reproduce a base year data observation as an equilibrium solution. By specifying the model in this way it is then possible to compute a counterfactual equilibrium resulting from the introduction of a change in policy or some other change. The potential impacts of various policy changes can then be evaluated through a comparison of the base year microconsistent data (the benchmark

[2]It should be noted, however, that the data from these two important data sources are still considered experimental and subject to modification.

[3]The data set is considered microconsistent because the separate detail from industry and commodity accounts on production and demand is mutually consistent. The equilibrium identities required apply to each industry, each commodity, and each sector within the data set.

data) and the new equilibrium model solution. This procedure could be described as a form of comparative static analysis such as that commonly found in theoretical literature.

To implement this approach the equilibrium conditions which characterize the model must hold in the microconsistent data set used in calibration. In the case of a regional general equilibrium model, for which the present data set has been constructed, the value of intermediate and final demands for each commodity produced in each region must equal the value of supply. At an industry level, the value of production by each industry in each region must equal its total cost of production. On the demand side, each region must satisfy its budget constraint. Finally, each region must satisfy an external sector balance condition which takes account of its transactions with other regions, the rest of the world and the federal government. The benchmark regional data set assembled for 1981 satisfies all of these conditions.

In this data set each region, in effect, is treated as a separate economy, although the links between regions differ from those between nations as recorded in international trade data. Commodity trade between regions is only part of each regions' transactions. Payments of federal taxes by regions, inter-governmental and personal transfers received by regions, and federal government expenditures on regional products must also be recorded. As a result, a surplus (or deficit) in transactions with the federal government can finance (or is implied by) a deficit (or surplus) in a region's international and interregional trade in commodities.

The data set should also take account of interregional asset ownership and the associated capital income flows. However, this data is unavailable for Canada. Interregional flows of capital income are therefore excluded from the data set under the assumption that the value of capital income originating in any region equals the value of capital income accruing to residents of the region. As a result the microconsistent data, much like the available provincial data sources, is on a "domestic" basis with income allocated to the region in which it is earned.[4]

The structure of the resulting regional data set is perhaps best displayed through a numerical example of interlocking regional accounts such as the one presented in Table 1. In this example, production and demands by commodity in each region are displayed, along with interregional trade flows and those between the individual regions and the federal government, which purchases regionally produced products. As can be seen, the activities of the federal government affect the budget constraint of each region through federal taxes paid, intergovernmental transfers and transfers to persons, and federal government expenditures on goods produced by the region.

The income and outlay accounts for each region satisfy budget balance conditions (incomes equal expenditures), as does the account for the federal government. The federal government surplus or deficit with individual regions reflects the difference between taxes and investment income originating in the region on the one hand, and goods purchased from the region and amounts dispersed in transfers on the other. In each region, the federal government surplus

[4]This procedure is also applied in the provincial data when allocating the activities of the federal government as well as those of multiregional enterprises.

TABLE 1

EXAMPLE OF A MICROCONSISTENT REGIONAL DATA SET INVOLVING TWO REGIONS AND TWO COMMODITIES

Production Side — Intermediate Transactions (Inputs by region)

(Outputs by region)			Region A 1	Region A 2	Region B 1	Region B 2	
	A	1	30	20	20	10	80
		2	25	45	15	20	105
	B	1	20	15	40	25	100
		2	15	20	30	15	80
Total			90	100	105	70	

Total intermediate demand 365

Demand Side — Final Demands

		Region A	Region B	Federal Gov.		Total Demand
A	1	20	15	15	50	130
	2	20	30	5	55	160
B	1	35	7	8	50	150
	2	12	23	5	40	120
		87	75	33		

Total final demand 195 560

Interregional — Imports, Exports

		Imports Region A	Imports Region B
A	1		45
	2		65
B	1	70	
	2	47	
		117	110

Primary Inputs

	Region A 1	Region A 2	Region B 1	Region B 2	
Capital	15	25	15	20	75
Labour	20	30	25	20	95
Indirect Taxes	5	5	5	10	55
Total Value Added	40	60	45	50	195
Total Value of Production	130	160	150	120	560

Income/Outlay Accounts

	Federal Government	Region 1	Region 2	Total	
Income:	Tax Collections	indirect	10	15	25
		direct	3	6	9
	Investment Income		5	6	11
			—	—	—
		Total	18	27	45
Outlay:	Current Expenditures		20	13	33
	Transfers to Regions		5	7	12
			—	—	—
		Total	25	20	45
	Regional Imbalance		−7	+7	0
Regional Economies					
Income:	Capital Income		35	29	64
	Labour Income		50	45	95
	Transfers		5	7	12
			—	—	—
		Total	90	81	171
Outlay:	Final Demands		87	75	162
	Direct Taxes		3	6	9
			—	—	—
		Total	90	81	171

or deficit is exactly offset by the region's trade imbalance. No interregional flows of capital income enter either this example or the 1981 microconsistent data set.

III. Basic Data Sources at the Regional Level

In constructing a microconsistent data set to be used in a regional general equilibrium model, all the transactions taking place in the separate markets and regions which comprise the national economy must be taken into account. The provincial input-output accounts prepared by Statistics Canada as part of the System of National Accounts are the most detailed set of regional production and expenditure accounts available for Canada and the only data upon which to base such a framework. These provincial tables have been prepared by Statistics Canada for 1974 and 1979 as an extension of their national model. The 1979 tables provide the main input for the regional data set described in this paper.

The PIO Tables are similar in structure to economy-wide input-output tables. They contain two sets of interrelated provincial accounts—a set of commodity accounts reporting the supply of and the demand for individual commodities produced in provinces—and a set of industry accounts showing the gross output of each industry, along with each industry's inputs.

In the first set of accounts, the supply of each commodity is reported as the amount produced by each industry in the province, plus the amount imported by the province. The demand for each commodity is reported as the amount used by each provincial industry plus the amount purchased by the final demand sectors in the province, and the amount exported. In the second set of accounts the gross output of each industry in the province is shown by commodity. The inputs used by each industry are reported by commodity, and by type for the primary inputs (i.e. indirect taxes, wages and salaries, and capital use costs). For each industry in each province, total production costs (value of intermediate plus primary inputs) equal the value of total production.

Data on interprovincial and international trade flows appear separately. Trade flow matrices record commodity trade between the various provinces, and between provinces and the rest of the world.

The provincial input-output accounts are still at a developmental stage. In contrast to national input-output tables, where demand supply equality conditions for each commodity implicitly hold, currently available provincial tables do not satisfy such conditions, mainly due to a lack of data on changes in inventories by commodity by province. Also, while the national input-output tables are typically consistent with published measures of gross domestic product and expenditure at market prices from national Income and Expenditure Accounts, the PIO data are only constructed using these estimates as a reference point; strict consistency is not ensured. A further problem is the limited amount of information available on interprovincial trade in services. A series of arbitrary assumptions are made in the Statistics Canada data both regarding the type of services that are traded across provinces, and the interprovincial pattern of flows.

One objective of the modeling exercise for which the data set has been developed was to provide regional policy evaluations for a recent year, preferably following the major policy initiatives undertaken in 1980. A joint evaluation of

the modeling objectives and data constraints resulted in 1981 being chosen as the benchmark year for the data set. This, however, required that the 1979 PIO data be updated to 1981 using regional aggregates from the Provincial Economic Accounts (PEA). The PEA also provide the data on federal government transactions with individual provinces which are integrated into this 1981 data set.

The PEA have been available longer than PIO data, and are currently published for the years 1966-81. However, these data remain officially described as experimental and subject to revision either for conceptual or other reasons. In contrast to Canadian National Income and Expenditure Accounts data which are estimated on a national basis, i.e. with incomes assigned according to the residence of the owners of factors of production, the PEA are estimated on a domestic basis, allocating income to the region in which it is earned. This approach, necessary given data availability, is also used in determining the location of activities involving the federal government and multiprovincial corporations.

The PEA data are not as comprehensive as the National Income and Expenditure Accounts. The emphasis in developing these accounts has been on producing estimates of gross provincial product and expenditure, and government revenue and expenditure accounts for each of three levels of government as they affect each province (federal, provincial, and municipal). Data on transactions by type and by sector within each province necessary to construct sectoral income and outlay accounts or to revise national-account-based value added estimates by industry, as in the earlier national microconsistent data set (St-Hilaire and Whalley (1983)) are not yet available. A further problem with these accounts is that net exports by province are estimated by residual estimates when balancing gross provincial product and expenditure accounts. While these do provide a measure of the trade imbalance in goods and services for each province, they inevitably include a significant residual error component.

All of these data considerations must also be taken into account in evaluating the reliability of the benchmark microconsistent regional data set assembled from these basic data sources.

IV. Adjustments, Modifications and Extensions of Basic Data Sources

To produce the regional microconsistent data set for the 1981 base year, a series of adjustments to basic data are necessary. These involve on the one hand, modifications, reclassification and redefinitions of concepts for portions of the 1979 PIO accounts to make the resulting data set compatible with eventual model use and, on the other, the addition of further detail required for the desired policy analyses.

(a) *Adapting 1979 Provincial Input-Output Data*

The 1979 PIO accounts available from the Structural Analysis Division of Statistics Canada include an output matrix recording the production of commodities by industry; a use matrix recording intermediate and primary inputs of

industries; and a final demand matrix recording final expenditures for goods and primary inputs by category for each province. Data on both interprovincial and international trade appear in a series of separate flow matrices displaying the trade of each commodity between provinces (imports and exports) and between each of these and the rest of the world.

The level of detail provided includes 51 commodities and primary inputs, 14 final demand categories, and 43 industries in the most comprehensive provincial tables (Quebec and Ontario). The industry classification differs slightly across provinces, since certain industrial categories do not appear as producing industries, or are aggregated with others because of their small size.

The first step required is to make the industry classification consistent across all provinces. The PIO data are aggregated to 12 industry and 12 corresponding commodity categories[5] with a thirteenth category added to represent government-provided services. This more manageable level of commodity aggregation matches that used in the regional general equilibrium model. The final demand categories are aggregated to represent three sectors: consumer, government and business.

Data on individual provinces are also aggregated to six regions reflecting the regional aggregation in the model in which the data is to be used. These are: Atlantic (East), Quebec, Ontario, Manitoba/Saskatchewan (MAN/SASK), Alberta and British Columbia. Because of their relatively small size, and the similarity of the policy issues between them, the Atlantic provinces are aggregated into one region. This same reasoning also applied to Manitoba and Saskatchewan, with Alberta remaining a separate region because of the importance of energy resources and the related policy issues.

The interprovincial/international trade flow matrices are also made consistent with model classifications. These data are aggregated and combined into a single matrix with 91 rows (representing 13 produced commodities in each of the six regions and the rest of the world) and 8 columns (representing the six regions, the rest of the world, and the federal government).

Since 1981 is the benchmark year chosen for the regional equilibrium model analysis, the 1979 PIO tables (the latest estimates available) must be scaled to 1981 using aggregate estimates from the PEA. 1981 to 1979 ratios of gross domestic product and expenditure by region are used to scale both 1979 input-output estimates of primary input use by industry and final demand sectors on the product side, and estimates of final demands by commodity by sector on the expenditure side.

The government sector final demands are then disaggregated to differentiate between federal and regional expenditures, using as weights the ratios of federal to total government expenditures by region calculated from PEA estimates. The estimates of federal government final expenditures by commodity by region appear in the microconsistent data set alongside the interregional trade flows.

The 1981 to 1979 ratios of GDP by region calculated from PEA estimates are also used to scale 1979 interregional trade data. Estimates of imports from the rest of the world and exports to the rest of the world are scaled to 1981 using National Income and Expenditure Accounts data of Canadian international imports and exports for 1981.

[5]A description of this commodity and industry classification appears in Appendix A.

The updated primary input data (value added) are further adjusted to reflect a broader concept of factor income consistent with model use. The resulting data differ substantially from that reported in both the PIO accounts and the PEA:

—Real depreciation is netted out of both capital income and investment expenditures.[6]

—Self-employment income is allocated between the return to capital and return to labour by industry.[7]

—Property taxes are netted out of total indirect taxes and are treated as a factor tax on capital income.

—Government royalties on natural resources are not recorded as an input purchase into production activity (as in the PIO Tables), but instead are treated as a factor tax on resource income originating in natural resource industries.

—Government capital income and expenditure estimates at the regional and the federal levels include an imputation made to reflect the implicit return from government's ownership of capital stock.

—Value added shown as originating in the personal and government sectors in PIO data is included as part of production activity in the services industries in the regional benchmark data.

Because of the importance of energy issues in Canada over the past decade and the fact that this industry has been subject to wide fluctuations in annual production, attempts were made to adjust the input-output and other data to better reflect 1981 energy production costs and output in the regional data set. The microconsistent data set also incorporates additional detail to allow for model analyses of the regional impacts of energy policies, in particular, the 1981 price controls.

To improve the treatment of energy in the benchmark data, information published by the Petroleum Monitoring Agency (PMA) has been used to construct an industry-wide income and expense statement for both the upstream (production level) and the downstream (mostly refineries) segments of the industry, and to calculate the net return to the energy industry in each region. These estimates of income along with estimates of corporate income taxes, royalties, and federal sales and excise taxes paid by the energy industry are incorporated in the industries account.

Once the energy industry and the value added data have been adjusted and the input-output estimates are scaled to 1981, a final round of adjustments is required to achieve full microconsistency in the whole data set. This ensures that all required equilibrium conditions of the regional general equilibrium model are also reflected in the microconsistent data set to be used in this model.

The RAS adjustment method is used for this purpose.[8] This technique is applied first to the interregional and international trade data to ensure that regional external sector balance conditions hold. Each region's imports from

[6]The estimates are based on Capital Consumption Allowance data published in Fixed Capital Flows and Stocks (1983).

[7]Using ratio estimates from St-Hilaire and Whalley (1983). Estimates of labour income were calculated using data on wages and number of self-employed by industry. Capital income was obtained by residual.

[8]See Bacharach (1971).

other regions and the rest of the world will thus exceed or fall short of its exports to other regions and the rest of the world by the federal government's surplus or deficit with that particular region (as in the numerical example in Table 1). The intermediate demand matrix is adjusted in the same fashion using trade and value added data, along with production and final demand estimates. This ensures that in the final data set, demand is equal to supply for each commodity produced in each region, and total costs equal the value of production for each regional industry.

(b) *Incorporating Additional Detail into the Data Set*

The detailed PEA estimates of revenues and expenditures for all levels of government by province, are integrated into the data set (and in certain cases disaggregated further) in order to include all government transactions. An additional feature of the microconsistent data set is that subsidies to energy consumers and taxes on energy producers (both actual and implicit) under the price control regime operating in 1981 have been incorporated. The modifications and extensions which have been made to enable specific policy analyses are as follows:

—Indirect taxes paid both by industries and by final demand sectors for 1981 are disaggregated by commodity using tax margins and balance sheet estimates[9] provided by the Input-Output Division of Statistics Canada.

—Energy indirect taxes, such as the petroleum compensation charge, the natural gas and gas liquids tax and the Canadian ownership charge (all of which operated in 1981) can be fully passed on to consumers and are adjusted accordingly. The 1981 PEA[10] regional estimates for these taxes are reallocated using as weights the regional distribution of the imputed subsidy to consumers of crude oil and/or natural gas by region (see below). PEA estimates of oil export taxes by region are included as part of the production taxes of the energy industry.

—The Petroleum and Gas Revenue Tax (PGRT) and government royalties on natural resources are included as part of the energy industry factor taxes. The PGRT estimates are unpublished data provided by the GNP division of Statistics Canada, while estimates of royalties are calculated using the PMA survey. The total is allocated using the PEA distribution of royalties by province reported as government investment income.

—Corporate income tax payments by industry by region are calculated using the 1981 industry distribution of federal and provincial taxes paid, reported in Corporation Taxation Statistics.

—Labour taxes paid by industry by region (social security and related contributions) are calculated by using the St-Hilaire-Whalley (1983) estimates of national labour tax rates and scaling to the 1981 PEA totals.

——The data on industry subsidies by region consist, for the most part, of 1979 input-output estimates scaled to sum to 1981 PEA aggregates. However, energy related subsidies are separately identified. Payments to regions

[9]These are the balance sheets which reconcile producers' prices with purchasers' prices through the various margins on a commodity basis.

[10]See footnote to Table 1 in PEA.

under the Petroleum Incentives Program are unpublished data obtained from Statistics Canada. Subsidies financed through the Petroleum Compensation Fund are as reported in the PEA,[11] but the oil import subsidy, which in the PEA is allocated by province according to consumption of imported oil, is reallocated using regional data on total energy consumption.

—The energy resource rents originating by province are incorporated into the data set. These data are based on published estimates by the Economic Council of Canada (1982)[12] for 1980. The reported estimates of rents not collected through energy taxes on producers of crude oil, natural gas and hydro electricity are updated to 1981 and included in the data set as implicit taxes on energy producers and implicit subsidies to energy consumers under the energy price controls in use in 1981.

—The PEA estimates of federal and regional personal income taxes, transfers to persons, and intergovernmental transfers reported in the PEA are aggregated by region and included in the benchmark income and outlay accounts. These determine, in part, the regions' budget constraints.

—Given the static nature of the regional general equilibrium model in which the microconsistent data is used, interest on the public debt is treated as a government transfer to the private sector. Repurchase of government debt is netted out of government investment income.

V. Summary Tables from the 1981 Regional Microconsistent Data Set for Canada

Some of the key features of the resulting benchmark data set are presented in summary form in Tables 2 to 5. The major characteristics of each of the regional economies are displayed as well as the degree and form of interdependence among the various regions, the relative importance of their international and interregional transactions, and the federal government's transactions with the regions.

Table 2 reports the aggregated commodity and industry accounts for one of the six regions, Ontario. This table displays the key elements of demand, supply and production which are recorded for each region, and emphasizes the equilibrium conditions characteristic of the data set. In the commodity accounts, for instance, the supply of each Ontario product is equal to the value of demand for each Ontario product (the sum of total demand in Ontario minus the value of Ontario imports plus the value of Ontario exports). In the industry accounts, zero profit conditions are satisfied since the value of production for each industry is equal to its total costs of production (the sum of intermediate inputs plus labour and capital costs, indirect taxes paid minus subsidies received). These same identities are present in each regions' commodity and industry accounts.

Table 3 presents summary data on regional domestic and external transactions. Each region is in overall balance in its transactions with other regions, the

[11]See footnote to Table 1 in PEA.

[12]See Chapter 4 and Appendix B. An average of the high and low estimates has been used in this case.

TABLE 2

COMMODITY AND INDUSTRY ACCOUNTS FOR ONTARIO, 1981

(Millions of Dollars)

A. Demand and Supply by Commodity, Ontario, 1981

Commodity Classification	Supply of Ontario Products	Demand for Products in Ontario	Ontario Imports	Ontario Exports	Demand for Ontario Products
1. Agriculture	5,110.3	6,237.4	2,647.2	1,520.1	5,110.3
2. Fishing and Trapping	56.5	62.7	48.3	42.2	56.6
3. Mines and Quarries	3,377.8	2,582.6	1,525.7	2,320.9	3,377.8
4. Food, Beverages and Tobacco	13,314.9	13,046.7	4,049.4	4,317.6	13,314.9
5. Light Manufacturing	7,934.7	8,821.9	4,571.4	3,684.1	7,934.6
6. Lumber, Paper and Printing	10,590.1	9,788.2	3,460.9	4,262.9	10,590.2
7. Metal and Machinery	41,095.5	41,395.6	21,675.0	21,374.7	41,095.3
8. Vehicles	20,405.6	17,226.0	15,410.2	18,589.7	20,405.5
9. Energy	5,309.8	14,251.3	9,855.1	913.6	5,309.8
10. Transportation	13,543.5	12,688.3	5,201.1	6,056.4	13,543.6
11. Utilities	3,286.2	2,891.4	83.8	478.7	3,286.3
12. Personal and Business Services	99,089.5	96,281.5	9,441.7	12,249.6	99,089.4
13. Government Services	26,309.9	19,609.9	0.0	6,699.9	26,309.8
Total	249,424.3	244,883.6	77,969.8	82,510.3	249,424.1

B. Value and Costs of Production, Ontario, 1981

Industry Classification	Value of Production	Intermediate Input Costs	Labour Costs	Capital Costs	Indirect Taxes Net of Subsidies	Total Cost of Production
1. Agriculture	5,213.3	3,614.0	946.6	756.2	−103.5	5,213.3
2. Fishing and Trapping	56.8	28.5	14.6	14.5	−0.9	56.7
3. Mines and Quarries	2,881.5	1,469.9	736.5	681.9	−6.8	2,881.5
4. Food, Beverages and Tobacco	13,356.0	10,384.0	2,025.4	906.0	40.7	13,356.1
5. Light Manufacturing	9,196.6	5,763.2	2,617.2	682.8	133.3	9,196.5
6. Lumber, Paper and Printing	10.595.6	6,642.4	3,090.7	986.3	−123.8	10,595.6
7. Metal and Machinery	42,844.6	30,155.5	10,570.8	2,778.2	−659.9	42,844.6
8. Vehicles	20,385.7	15,560.5	3,506.5	1,150.3	168.5	20,385.8
9. Energy	5,415.7	5,310.5	348.6	542.3	−785.7	5,415.7
10. Transportation	13,856.6	9,766.3	4,029.7	340.0	−279.5	13,856.5
11. Utilities	3,363.9	1,181.2	914.2	850.5	418.0	3,363.9
12. Personal and Business Services	95,958.1	44,610.3	32,516.7	13.179.7	5,641.5	95,948.1
13. Government Services	26,309.9	1,399.8	17,257.9	7,652.2	0.0	26,309.9
Total	249,424.3	135,886.1	78,575.4	30,520.9	4441.9	249,424.3

TABLE 3

DOMESTIC AND EXTERNAL TRANSACTIONS BY REGION, 1981

(Millions of Dollars)

	East	Quebec	Ontario	Man/Sask	Alberta	British Columbia	Total
Within Region Transactions							
Production of own products	36,270.0	145,209.0	249,424.3	48,561.1	95,131.3	74,701.7	649,297.5
Consumption of own products	25,554.0	102,408.9	166,913.8	32,387.7	54,578.1	51,729.9	433,572.4
Consumption of imports	14,027.7	46,711.0	77,969.8	15,418.0	21,263.8	20,718.4	196,108.7
Imbalance	−3,311.7	−3,910.9	4,540.7	755.4	19,289.4	−2,253.4	19,616.3
Out of Region Transactions							
Credit:							
Export of own products	10,716.7	42,800.0	82,510.4	16,173.2	40,552.9	22,971.9	215,725.1
Subsidies and Transfers[1] from the Federal government	8,357.2	18,555.2	23,556.0	6,449.9	6,466.4	6,783.2	70,167.9
Debit:							
Imports	14,027.7	46,711.0	77,969.8	15,418.0	21,263.8	20,718.4	196,108.7
Taxes and Investment Income[2] paid to the Federal government	5,046.4	14,644.4	28,096.4	7,205.0	25,755.4	9,037.2	89,784.4
Trade Balance	−3,311.0	3,911.0	4,540.6	755.2	19,289.1	2,253.5	19,616.4
Balance with the Federal Government (Receipts-Payments)	3,310.8	3,910.8	−4,540.4	−755.1	−19,289.0	−2,254.0	−19,616.9

[1]Includes an imputation to reflect the value of subsidies to consumers of energy through price controls.

[2]Includes an imputation to reflect the value of taxes on producers of energy through price controls.

Note: Detail may not add due to rounding. See text for details on sources and methods.

TABLE 4

FEDERAL GOVERNMENT EXPENDITURE AND TAX TRANSACTIONS BY REGION,[1] CANADA, 1981

(Millions of Dollars)

Item	East	Quebec	Ontario	Man/Sask	Alberta	British Columbia	Total
Receipts:							
Direct Taxes	2,491	7,394	15,874	2,807	6,301	5,430	40,297
Indirect Taxes[2]	1,108	4,632	7,802	1,498	1,750	1,959	18,749
Investment Income of the Federal Government Originating in the region[3]	609	1,103	3,543	689	480	552	6,976
TOTAL	4,208	13,129	27,219	4,994	8,531	7,941	66,022
Outlay:							
Purchase of Goods and Services[4]	3,150	3,646	8,104	1,731	1,217	1,769	19,617
Net Transfers to Persons[5,6]	2,854	6,441	10,323	2,209	1,391	2,887	26,105
Subsidies to Industry[7]	687	1,756	2,048	655	885	607	6,638
Transfers to Regional Governments	2,601	4,386	3,278	1,395	890	1,112	13,662
TOTAL	9,292	16,229	23,753	5,990	4,383	6,375	66,022
Surplus or Deficit[8]	−5,084	−3,100	3,466	−996	4,148	1,566	0

[1]Does not include Yukon and North West Territories.

[2]Some of the energy taxes are reallocated regionally (see text).

[3]Estimates net of interest on public debt received by the federal government, net of real depreciation. Include the value of the imputed return to government capital stock.

[4]Estimates include capital expenditures net of real depreciation and the value of the imputed return to government capital stock.

[5]Estimates include capital assistance (except PIP grants) and the interest on the public debt paid to persons.

[6]PEA estimate of aggregate federal deficit has been reallocated in proportion to interest on public debt received regionally, and has been netted out of these estimates.

[7]The oil import subsidy is reallocated regionally (see text).

[8]These estimates represent the Federal government surplus or deficit in its cash transactions with the regions. The uncollected energy rents are not included here.

Note: Detail may not add due to rounding. See text for detail on sources and methods.

TABLE 5

VALUE OF INTERREGIONAL AND INTERNATIONAL TRADE BY REGION, CANADA, 1981[1]

(Millions of Dollars)

Imports from \ Exports to	East	Quebec	Ontario	Man/Sask	Alberta	B.C.	Federal Government	Total Exports to ROC	Total Exports to ROW	Total Exports
East	0.0	1,391.0	1,469.6	122.6	210.3	88.9	3,150.1	6,432.5	4,284.2	10,716.7
Quebec	3,068.0	0.0	13,901.7	1,729.0	2,457.3	1,731.9	3,646.1	26,534.1	16,265.9	42,800.0
Ontario	4,806.9	16,023.2	0.0	4,939.6	7,806.0	4,570.5	8,103.7	46,250.0	36,260.4	82,510.4
West	298.5	1,590.5	3,318.3	0.0	1,917.9	784.7	1,731.0	9,640.9	6,532.3	16,173.2
Alberta	235.9	4,474.3	9,562.7	3,788.3	0.0	5,501.4	1,217.0	24,779.6	15,773.3	40,552.9
British Columbia	215.5	1,186.5	2,123.8	946.4	3,109.3	0.0	1,768.6	9,350.1	13,621.8	22,971.9
Total Imports from ROC	8,624.8	24,665.5	30,376.1	11,525.9	15,500.8	12,677.4	19,616.5			
Total Exports to ROC								122,987.2		
Total Imports from ROW	5,402.8	22,045.5	47,593.7	3,892.1	5,763.1	8,041.0	0.0			
Total Exports to ROW									92,737.9	
Total Imports	14,027.7	46,711.0	77,969.8	15,418.0	21,263.8	20,718.4	19,616.5			
Total Exports										215,725.0
Net Trade with ROC	−2,193.3	1,868.6	15,873.9	−1,885.0	9,278.8	−3,327.3	−19,616.5			
Net Trade with ROW	−1,118.6	−5,779.6	−11,333.3	2,640.2	10,010.2	5,580.8	0.0			

ROC refers to rest of Canada.
ROW refers to rest of the world.
[1]Does not include Yukon and North West Territories.
Note: Detail may not add due to rounding.