SERVICES AND REGIONAL ECONOMIC PERFORMANCE: AN EXPLORATORY ANALYSIS

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I Introduction

It is commonplace to note that Canada, like other western nations, increasingly became a service oriented economy in the post-war period. The shift is most apparent from employment data, as illustrated in Table 1. Goods industries, including in this definition construction and utilities, accounted for 59% of total employment in 1947, but only 31.9% in 1981. Most of the decline came from agriculture, where employment dropped from nearly one quarter of the labour force in 1947 to less than 5% in 1981. Manufacturing yielded some relative status in the economy, as did forestry to a lesser extent and fishing and trapping marginally. Relatively more people were working in mining and construction and utilities in 1981 than were at war's end though, ameliorating the overall fall in goods production slightly.

The expansion of service industry employment was dramatic, but far from uniform across individual sectors. Jobs in personal and business services nearly trebled in relative importance, while those in finance, insurance and real estate approximately doubled. Wholesale and retail trade was the weakest of the expanding sectors, while the share of transportation, storage and communication actually declined. All told, nearly seven in ten Canadians worked in service industries in 1981 where only four in ten had done so 35 years

earlier.

GDP data provide a similar but less dramatic story. a
consequence partly of well known problems of measuring service
sector output and partly of different rates of labour saving
technical change. Goods industries held their own in terms of
shares of total output. although there was considerable
variation across activities. Agriculture is still a relatively
declining sector by this measure, but less significantly so.
The records for forestry and fishing and trapping parallel
those for employment. as do those in the opposite direction for
mines. construction and utilities. The big change is in
manufacturing, where the constant share of GDP runs counter to
the relative loss of employment observed earlier.

GDP data for services also reveal some surprises. Trade.
finance. insurance and real estate and services still grow in
relative importance. but now only marginally so.
Transportation. storage and communication's share of output
actually rises where it fell in the case of employment. while
the reverse switch is true for public administration and
defence. Thus while it is certainly correct to speak of a shift
towards a service economy in Canada in the post-war period. one
must be extremely careful which measure is used to delineate
it.

A structural change of this magnitude poses a number of

interesting questions for analysts of post-war Canadian development. What caused it? What has it meant for the broader political economy of the country? Has it created any special problems that have not been adequately dealt with by policy makers? Is the transformation largely complete, or will goods industries continue to decline in importance relative to services? Would a continuation of the trend create any new policy problems?

These are very broad questions. Our objective in what follows is to narrow the focus significantly by concentrating on one particular issue -- the relationship between service sector growth and the pattern of regional economic disparities. There are three specific questions to pose in this regard. First, what has the shift to services meant for the spatial distribution of aggregate economic activity in Canada? Second, has the equilibrium configuration of real income differentials been altered? Finally, has the capacity of the economy to reallocate resources interregionally in response to changing economic opportunities been affected?

Tables 2 and 3 provide a summary of the record to be explained. Table 2 shows that the distribution of aggregate economic activity across regions changed very little in four decades. Each Atlantic Province saw its share of the Canadian population fall, albeit only marginally. Newfoundland and PEI retained a constant fraction of GDP and personal income, while

these figures declined slightly in Nova Scotia and New Brunswick. Quebec, Saskatchewan and Manitoba grew less rapidly than the national average, and saw their shares of all three measures fall slowly but steadily. Ontario more than held its own in terms of population, but lost slightly in the share of GDP and personal income generated. Alberta, BC and the Territories were the only regions to grow relatively, although the energy-induced expansion of GDP in Alberta is the sole development to stand out in the data.

Table 3 provides two measures of income disparities. The data can be summarized by noting that there was a large gap in total personal income per capita between the richest and the poorest province in 1961, that this gap still existed in 1985 although it was somewhat reduced, that the ranking of provinces according to this measure changed only marginally over the twenty-five year period, that (not illustrated) there are only a few instances where the relative performance of any particular province altered radically, and (also not illlustrated) that the ranking by per capita income correlates well one done for measures of aggregate economic growth such as compound growth rates for GDP. Ontario, BC and Alberta ranked 1-2-3 in terms of personal income in 1961, and 1-3-2 in 1985. Manitoba and Quebec ranked 4-5 in the former year and 5-4 in the latter. Nova Scotia was 6th in 1961 due to poor agricultural conditions in Saskatchewan, but fell to 7th thereafter. New Brunswick ranked 8th throughout, while

Newfoundland and PEI traded the final two spots. The gap
between Ontario and PEI was a factor of 2.0 in 1961. and 1.5
in 1985.

The data for total personal income per capita include
transfers payments. If market income only is considered.
disparities are greater, and there is less evidence of
convergence over time. The spread between the highest and the
lowest per capita GDP shown in Table 3 actually increased from
a factor of 2.4 to one of 2.6 between 1961 and 1985. Polese
(1987, 23) shows that the gap in earned income per capita
between the poorest and the richest province was over 2.0 in
1966 and had changed very little nearly two decades later.
Individuals in poorer areas fare relatively better now than
they did at war's end. thanks to the system of transfers that
has grown up, but underlying regional economic strengths appear
not to have changed much.

The juxtaposition of Table 1 with Tables 2 and 3 raises an
interesting anlytical issue. one that can best be expressed in
the form of the following question. Is it likely that a
knowledgeable 1947 observer of the Canadian economy, given a
glimpse of the structural shifts that were to take place in the
economy over the next forty years. would have predicted as
little change in relative regional economic performance as
seems in fact to have occurred?

The answer to this question is almost certainly no. The explanation of Canada's regional economic make-up that would be offered, then as now, attaches considerable importance to observed relative successes in producing and trading goods. The staple theory tradition focuses attention on respective resource endowments: the two westernmost provinces are favourably blessed in this respect, while the Atlantic Provinces are not. Locational determinants for manufacturing activities play a key role in the analysis as well; Central Canada has the advantages of a large population and access to the US Midwest, while eastern and western Canada do not. These and other, similar considerations would lead to the conclusion that regional fortunes depend mainly on the rise or fall of export and import competing sectors. The fact that services, which appear at least casually to be different from goods in important but undefined ways, could grow so robustly with no apparent effect on regional economic performance would surely be surprising.

The remainder of this paper represents a beginning attempt to come to understand the relation between service sector growth and the post-war pattern of regional economic performance in Canada. We begin in the following section by looking for crude correlations between measures of regional disparities and service sector expansion. There is no pretence of explanation in these pages; the sole objective is to come to understand the problem better. We then turn to simple economic

theory. Section III looks at services and regional income disparities, while Section IV examines the place of these activities in the process of interregional adjustment. Section V argues for a general equilibrium modelling approach to the topic, and describes in general terms the type of model that would be appropriate for the task. The final Section makes some brief concluding comments. An Appendix draws attention to a major, and apparently largely unknown, flaw in interregional trade flow data that precludes immediate application of regional general equilibrium models to this topic.

II Regional Disparities and Services: The Empirical Record

The first question to pose is whether there is any
apparent connection between per capita income levels and the
size of service activities in provincial economies. Table 4
shows the sectoral distribution of GDP by province for 1961,
1971 and 1982. Table 5, derived from Table 4, ranks units by
personal income per capita and by the percentage individual
service activites are of total GDP. Provinces are divided into
blocks in Table 6, corresponding to the three identifiable
groupings -- Ontario, BC and Alberta in the high income income
block, the other two Prairie Provinces plus Quebec in the
intermediate one, and the four Atlantic ones in the lowest
category.

The main inference to be drawn from Table 5 is that at
this aggregate level at least there is no obvious relation
between regional income disparities and relative dependencies
on service industries. Look first at the overall importance of
services in 1982 (Column 2). The two richest provinces rank
8th and 9th in terms of percentages of GDP represented, but
Newfoundland ranks 10th. Services dominate in two
jurisdictions in the poorest block (PEI and Nova Scotia), but
next in line are two western provinces (Manitoba and BC). There
is no more consistency if the rankings are compared for 1961
instead of 1982, so the relationship or lack thereof is a

long-standing one.

With one exception, the absence of any obvious correlation between the degree of service sector development and relative income standing is also evident at a more disaggregated level. Ontario is the least dependent of any province on transportation, communication and storage and wholesale and retail trade activities, but ranks first in finance, insurance and real estate and second in personal and business services. Alberta maintains its second place per capita income ranking without any obviously dominant service sector. BC relies on services of all types more than most provinces (trade being the only exception), but so does less prosperous Manitoba. Quebec does not look as much like Ontario as one might expect, given their proximity and similar sizes. Likewise, there is no obvious similarity among those in the lowest income grouping. Nova Scotia and New Brunswick lie in the middle in terms of rankings for individual sectors, but not for the same ones. The two poorest provinces show nearly as much variability in service sector rankings as Ontario.

The obvious exception to the lack of any systematic relationship is public administration and defence, where there is a clear negative correlation. The poorest provinces rank 1 to 4, and the richest 9th and 10th, with the others in between. It is tempting to posit the causality to run from incomes to public sector spending, given the system of transfer

payments in place in Canada, and undoubtedly there is some
truth to this argument. But Courchene (1978) has argued
convincingly that there is a connection running the other way
as well. Transfers beget economic and social policies that
perpetuate the economic disadvantages of the recipient
jurisdiction, in a kind of viscious welfare dependence cycle.

Table 5 looked at the relation between per capita income
and the relative **levels** of service activity. Another
perspective is provided in Table 6 which gives for the same
income ranking **changes** in the percentage share of GDP accounted
for by individual service sectors between 1961 and 1982. The
lower the number assigned to a province, the greater was the
increase in the share of its GDP accounted for by the service
activity in question. In the case of public administration and
defence, the rankings are from the least to the greatest
decline in the share.

The same general trends are evident for each province as
were observed in the Introduction for the nation as a whole.
Services increased in importance relative to goods, but neither
the decline of the latter nor the expansion of the former was
even across sectors. Of more interest though is the variation
across provinces. The increase in the relative importance of
services in total varied significantly by province, but not
with any clear regional pattern. The share of tertiary
activities rose by a full 7.5 percentage points in BC, but by

only by 0.1 points in New Brunswick. Yet an Atlantic Province
-- Newfoundland -- is second to BC and Quebec is 3rd, while a
western one -- Saskatchewan -- is 9th, just ahead of New
Brunswick.

Somewhat more consistent patterns emerge on a
sector-by-sector basis. Transportation, storage and
communication increased most significantly in the western
economies, next in the Atlantic Provinces with the exception of
PEI, and least in Ontario and Quebec. There is no obvious
pattern for wholesale and retail trade: the first three
rankings are held by provinces in each of three regions. The
central provinces clearly dominate in the cases of finance,
insurance and real estate and community, busness and personal
services, although Newfoundland and Nova Scotia are important
in the former case. Interestingly, the western provinces
generally rank second behind Ontario and Quebec for community,
business and personal services with the Atlantic Provinces
third, while the reverse ranking is true for finance, insurance
and real estate. PEI and Newfoundland registered the least
decline in public administration and defence, but Nova Scotia
and New Brunswick were at or near the other end of the scale.
The same variation is evident within central Canada and the
west.

A final way to look at the data is to rank sectors
according to their increase in the contribution to GDP for each

province. and to look for a relationship between this pattern
and the level of per capita income. This information is given
in Table 7. The lack of any clear pattern is apparent even
here. Transportation. storage and communication led service
sector development in two of the three richest provinces. but
it did as well in two of the four poorest ones. Business and
personal services ranked first or second in the top four
provinces. but also in Nova Scotia. Finance. insurance and real
estate is typically in the middle in terms of growth
performance. but it is first in the poorest province.
Newfoundland, and second in the richest. Ontario. Even the
record for the public sector is of little help in
differentiating among strong and weak economies, as it declined
in every province but PEI.

These data obviously provide few clues as to the nature of
the connection between service sector development and the
pattern of regional economic development in Canada. It still
may be the case. however, that any links that do exist are too
complex to be captured in this casual manner. There are two
ways to proceed beyond this point. One could gather ever more
disaggregated data and examine them for correlations [1] . The
alternative is to ask in principle how service sector growth
might affect interregional income patterns. and to proceed from
these hypotheses to the data. We prefer the second of these
alternatives. and thus begin in the following two sections by
making some general comments on services and regional economic

performance before moving on in Section V to sketch out a
prototype regional general equilibrium model.

III Services and Per Capita Income Disparities

Earned income consists of the sum of payments to land,
labour, and capital. This total will vary interregionally on a
per worker basis [2] if relative factor endowments do, even if
rates of remuneration for given factors are identical.
Likewise, it will vary if wage or profit or rental rates for
identical factors are not equal across regions, even if
relative endowments are the same. The former phenomenon is a
mix effect: income differentials exist because skill levels or
resource deposits or capital stocks are not uniformly
distributed spatially. [3] The latter circumstance represents
disparities in the sense that policy makers normally conceive
of them: otherwise identical individuals are receiving
different rewards for performing the same economic service.

Income disparities due to mix effects inevitably exist in
any regionally diverse economy. Simple comparative advantage
dictates that a region will specialize in certain activities,
exporting surplus production to other regions and abroad in
exchange for goods and services that it produces less cheaply
itself. If industry mix differs, factor endowments will. Thus
even if workers of a certain skill class are paid an identical
wage rate across the country, regions with a greater
concentration of more highly paid ones will appear wealthier
than those with the opposite endowment. Similarly, areas with

more, or more fertile, agricultural land or richer mineral deposits will exhibit greater rents per worker than those less favourably blessed. Differentials accounted for by mix effects are equilibrium ones it must be stressed, meaning they will continue to exist even after all interregional economic adjustment is complete. [4]

A shift in the structure of the economy towards services will affect disparities of this type only to the extent it manages to alter equilibrium factor endowments across regions. If services use skilled labour intensively for example, as is sometimes believed, and if they are drawn disproportionately to poorer areas, as is often hoped for, mix-related disparities will narrow. There will be more high paying jobs in the poor region, pulling up its measured income per worker. Disparities will worsen, however, if services use unskilled labour rather more, or if they are drawn to existing high income areas. Any empirical investigation of the link between service sector expansion and the post-war trend in Canadian regional income differentials would thus have to look at both factor intensities and locational determinants of services relative to goods activities. [5]

Variation in earned income per worker due to differences in factor prices across regions is a more complex phenomenon. The question is why a worker (or capitalist or landowner) might receive a different reward in one part of the country than

another for rendering an apparently identical service.
International trade theory teaches that under certain
conditions free trade in commodities will tend to equalize wage
and rental rates even when capital and labour are completely
immobile. Another literature, that dealing with factor
migration, suggests that the ability of capital and labour to
relocate in response to real earnings differentials will have
the same effect, again assuming certain conditions are met.
Both commodities and factors are free to move among provinces,
in principle at least, 4 so the normal presumption is that
factor prices should be identical in equilibrium. Since this
prediction is clearly not met in practice, it is important to
examine the principles closer to see why the do not apply.

In the simplest international trade model, two nations
produce some of each of two goods using inputs of capital and
labour. Each country has a unique endowment of these two
factors that can be freely allocated between industries within
a country, but cannot move between them. Assuming that
technology and tastes are similar in the two jurisdictions, and
that production is subject to constant returns to scale, free
trade is sufficient to bring about factor price equalization.
The logic of this result is straightforward. If free trade
equalizes output prices in the two countries, if technology is
identical, and if payments to capital and labour exhaust total
revenue, factor prices must be identical.

The literature on factor migration begins with the postulates that capital and labour will relocate geographically in response to earnings differentials, and that flows will continue as long as the expected net economic gain is greater than the real and psychic costs of relocation. Migration thus responds to earnings differentials, but it also influences them. As labour leaves a low wage area, for example, supply decreases relative to demand, pushing up the return to workers who remain. Conversely, inmigration drives down the real wage in the receiving region. In the absence of migration costs, enough workers will relocate for real wages to be exactly equalized. Otherwise, earnings will differ in equilibrium by the amount of the migration costs.

It is easy to construct examples where the combination of trade and capital and labour mobility does not lead to complete factor price equalization (Melvin, 1987). Anything that prevents trade from equalizing output prices across regions will alter real and relative capital and labour earnings, even if all other conditions of the basic trade model are met, and these differentials will not be removed by modest amounts of migration. Violations of any of the basic assumptions such as identical technology or constant returns to scale will have the same effect, only factor migration will now generally be complementary to trade in the sense that it will reinforce the advantage of the more productive region.

To the extent that any of these alternative scenarios is a better description of the real world than that assumed by the theory, the failure of regional per capita incomes to converge more than they did given the shift to service industries is explainable. For the most part, the process of deciding which conditions hold is no different for service industries than it is for goods. The key empirical questions are whether production technologies vary interregionally more for services than they do for goods, whether economies are scale are more or less important, and whether output price differentials are more likely to exist and persist. The obvious special case within this framework is non-tradeable services, where all adjustment must come from internal reallocation and interregional factor migration.

The standard trade model assumes that endowments of capital and labour differ by region, but that otherwise they are identical inputs. An alternative framework begins by assuming instead that there are some factors of production that are specific to particular industries or regions. Agricultural land and mineral deposits are examples. The essential features of these inputs are that they only have one use in production and they are immobile interregionally. Their rewards thus depend entirely on conditions in one sector; they are the residual earner in effect. Services industries are often described as using specific factors -- urban land in the case of non-tradeables for example -- so models of this type are of

obvious relevance.

With one or more specific factors, and at least one mobile
one such as labour, predictions about earnings change from the
standard model in two important ways. First, factor prices need
not necessarily be equal in the short run, even if commodity
prices are. Second, migration can reduce, and if perfect can
completely eliminate, interregional differences in payments to
mobile factors over the longer run. Returns to specific factors
will be equal only by chance in either case. This framework
thus provides a direct connection between the growth of service
activities and trends in regional per capita incomes, which
explains why it is utilized extensively in the models to be
discussed below.

The discussion thus far has dealt with the determinants of
equilibrium per capita income differentials. The process
whereby regional economies adjust to shocks to this equilibrium
is equally interesting, however, perhaps even more so in a
policy sense. Services long have figured in the regional
literature as an important part of these adjustment mechanisms,
so it is natural to proceed from here to ask what effect the
post-war expansion of the sector has had on the ability of
Canadian regional economies to adapt to changing economic
fortunes. This topic is taken up in the following section.

IV Services and Interregional Adjustment

The central analytical issue in the literature on
interregional adjustment is easily appreciated. Exchange rates
play a key role in theories of adjustment of national
economies, and factor mobility typically plays little or none.
A regional economy, however, by definition lacks its own
exchange rate and normally has no control over inflows or
outflows of capital and labour. Yet a region like a nation
cannot maintain expenditures in excess of production (or the
reverse) indefinitely, at least not in the absence of
offsetting financial transfers. The general question thus is.
if currency values cannot fluctuate, but regional factor
supplies can vary freely, how does adjustment actually proceed?
Of particular importance to this paper, what role do service
industries play in this process, and is this function dependent
in any way on the size or rate of growth of such activities?

Fortunately, there is a considerable body of literature
to draw upon in addressing these issues. The observation that
many resource abundant countries displayed relatively poor
macroeconomic performances during the period of rising resource
prices in the 1970s prompted considerable investigation of the
links among trade, industrial structure and resource
exploitation. These phenomena came to be known as the Dutch (or
occasionally the British) disease, in reference to the mixed

experience of these nations with North Sea petroleum developments. [7] While the bulk of the literature focuses on resources, the insights generalize to all "booming" sectors. And while the analysis deals primarily with the adjustment of national economies, the conclusions extend naturally to regional economies once allowance is made for their distinctive features. Finally, since services play a prominent role in the adjustment process in these models, they are readily adaptable to the main concerns of this paper.

The literature on booming resource sectors features an important distinction between the resource movement effect and the spending effect of shocks to the export industry (Corden, 1984). The spending effect arises from increases in the aggregate incomes of factors employed in the booming sector. Some portion of this increase will be spent internally by workers, landlords, the owners of capital or government (if taxes and royalties are in place). Spending will be allocated across sectors according to relative income and (should there be a price change) price elasticities of demand. The greater the former value and the less the latter, the greater is the resultant increase in demand for any given product, and the greater therefore is the impetus to expand output.

The resource movement effect arises because the initial shock to the booming sector raises the marginal products and hence the prices of factors employed therein. The rise in

rewards that results draws labour and capital from other parts of the economy. If factors are immobile interregionally, these supplies will have to come from within the region, meaning output in one or more other sectors must decline. If migration is a possibility, less internal reallocation is required. Output can expand in the booming industry without having to draw upon the resources of other sectors.

The distinction between spending and resource movement effects can be made clearer by examining polar cases. A pure spending effect would exist if all the additional capital and labour required directly by the booming sector and indirectly by others were obtained outside the region. In this case the shock to the resource sector does not affect domestic factor markets directly; no capital or labour need be drawn out of one sector to permit the expansion of another. This example highlights the key role that factor supply elasticities play in the adjustment process.

Pure resource movement effects exist if all goods are tradeable at exogenous world prices or, alternatively, all non-tradeables have zero income elasticities of demand. The extra income produced by the expansion of the booming sector would still be spent, but the demand would be met by imports or by diverting exports. This polar case serves to illustrate the importance of distinguishing tradeable and non-tradeable outputs, and of obtaining reliable values for price and income

elasticities of demand.

The net effect of a boom in one sector on the equilibrium output levels of other sectors in the economy is uncertain. The spending effect encourages increased output, while the resource movement effect removes supply capabilities. Some general predictions can be made, however. The spending effect is likely to increase the outputs of service industries relative to those for goods, for two reasons. First, income elasticities for services are normally assumed to be relatively high. Second, some services are non-tradeable, meaning their prices are set by internal demand and supply rather than in competition with foreign products, which in turn means that their price elasticities are likely to be lower than those for internally produced tradeable outputs.

The resource movement effect will increase the output of services relative to goods industries as well, although the absolute impact is uncertain. Capital and labour redirected to the booming resource sector must come from somewhere. Non-tradeable services can increase output prices in response to rising factor costs, meaning they are more likely to retain mobile capital and labour than are tradeable goods activities where opportunities to pass on higer unit costs are restricted or, in the limit, non-existent. Services may still provide some inputs to the booming sector, however, which is why the absolute effect on production is uncertain. Again these

tendencies are ameliorated to the extent that factors can be imported.

There is one further complication worth noting. It was argued above that in the short run the resource movement effect will result primarily in an intersectoral reallocation of labour within the region, but that in the longer run if factors are mobile it will be met more by interregional factor flows than through intraregional ones. At first glance this ability to draw upon interregional factor supplies would seem to reduce the pressure on non-traded prices. However, the flow of migrants into the region has an immediate impact on the demand for population sensitive capital -- construction, urban infrastructure -- all of which is produced in the non-traded sector. It is possible then that this population induced pressure on the non-traded goods prices could exacerbate the rise in service prices.

The ratio of traded to non-traded output prices clearly plays a key role in these models. This variable is often referred to in the literature as the 'real' exchange rate. Expressed in these terms, regional economic adjustment to a resource boom proceeds via a rise in the real exchange rate (a fall in the price of tradeables relative to non-tradeables). Some authors prefer to view the nominal wage as the equivalent of the real exchange rate, since a booming sector leads to nominal wage increases in excess of those for tradeable

outputs.

These comments on interregional adjustment mechanisms
suggest that much of the particular pattern of service sector
development in Canada in the post-war period reflects the type
and sequence of shocks to goods industries. Since the mix of
these industries differs significantly across regions, the
service sector response will as well. There is, in other words,
little reason to expect the similarity across regions that was
sought in Tables 4-7.

To see this point more clearly, consider the example of
small, resource rich provincial economies such as those of
western Canada. Resources are largely crown owned, and in most
cases the governments are efficient rent collectors. Thus a
resource boom often leads to a sharp rise in provincial
government revenues. Although the resource sectors are not
themselves labour intensive, meaning the resource movement
effect is small, the spending effect is large. Moreover, the
capture of these revenues by the government allows an
absolute and relative expansion of its activities in the
provincial economy. The expansion of this sector, which is
both non-traded and labour intensive, leads to a significant
resource movement effect and large scale crowding out of other
export sectors, tradeable services, and import competing
manufacturing.

In this example, booming resource sectors are accompanied by sharp rises in non-traded prices. Symmetry holds in the event that the shock affects the export sector adversely. Now a fall in the real exchange rate promotes expansion of the import competing goods sector and of traditional export sectors including tradeable services. The point to emphasize in either case is that non-traded goods prices must adjust by enough to bring about convergence to a new balance of payments equilibrium for the region.

The discussion thus far has assumed that all shocks originate in the goods industries, and that services, especially non-traded ones, passively adjust. But precisely the same concepts apply in the event that service sector development is itself the exogenous factor. There is no conceptual difference as regards the process of interregional adjustment between an export boom in resources and one in tradeable services, only an empirical one. The framework likewise is perfectly capable of analyzing the consequences of an exogenous shift in regional demand towards non-traded services. The actual record for this sector is almost certainly a combination of all three types of developments.

As with equilibrium real earnings differentials then, there are any number of ways that service sector expansion can affect the process of regional adjustment. A full account of the interrelationships can only be given with the aid of a

formal interregional general equilibrium model calibrated to actual Canadian data. No such model yet exists, and for reasons spelled out in the Appendix the data are inadequate for the task at any rate. It is possible, however, to sketch out a prototype of the model that would need to be developed, and to discuss some of the modelling issues that exercise raises. This is the task of the following section.

V A Prototype Regional General Equilibrium Model

The preceding two sections suggest the general directions a formal analysis of the interrelationship between service sector development and regional economic performance should take. First, the basic structure can be specified along the lines of the specific factor, general equilibrium models developed in the international trade literature. These need to be adapted to the regional economy case by allowing for interregional movements of capital and labour, however, which forms the second requirement. Third, the specification of the service sector must be sufficiently detailed to allow for both traded and non-traded activities. Fourth, a distincition must be made between the short and the long run responses to shocks to equilibrium. Finally, the models must be constructed to handle a number of different types of exogenous disturbances. including those originating with governments.

The object of this section is to describe in general terms the structure of some models developed for other purposes that satisfy these basic requirements. " All view the region as a small, open trading entity set within a larger national economy and a still larger international one. The number of sectors represented depends on the problem at hand; the greater the degree of disaggregation the more detailed but also the more complex is the analysis. For each sector, local firms produce

in competition with products from other regions and from
abroad, using land, labour, capital and purchased intermediate
inputs. Consumers act to maximize utility subject to the income
available from the sale of primary factors. Supply and demand
conditions are such that the region is a net exporter of some
products, a net importer of others, and is exactly
self-sufficient by definition in still others called
non-tradeables. Exogenous world prices for tradeables
influence, but do not necessarily fix, local prices for these
same products. Prices of non-tradeables are set by internal
supply and demand. Equilibrium in each market prevails when the
demand for locally produced output equals its supply.

The demand for primary factors depends on sectoral output
levels and relative factor prices. The supply of each is
assumed to be fixed to the region in the short run. Labour can
reallocate across sectors but land and capital are specific to
the sectors in which they are employed. Full employment is
assumed, so factor market equilibrium exists when demand equals
supply for each input. Prices adjust until this condition
obtains. Supplies of factors can adjust in the longer run if
local rates of remuneration differ significantly from what may
be obtained in other regions or abroad. Analogous to the case
of commodities, exogenous external wage rates and rates of
return influence, but do not necessarily fix, local returns to
labour and capital. Rents to land depend on the ability to
alter supplies over time. Long run equilibrium prevails when

there is no further incentive for factors to move
interregionally.

The actual specification of the model proceeds in a series
of steps or blocks. The first requirement is to write out the
specific production relationships, allowing factor intensities
to vary by sector. Basic duality theory then allows
specification of the first equilibrium condition -- that the
cost of production per unit of output of each sector must equal
its final selling price. Costs are fully accounted for by
payments to various skill types of labour, to capital owners,
to landlords, and to suppliers of intermediate inputs.

A second equilibrium condition is that the demand for each
factor of production equal the supply available within the
region. Demand depends on the production technologies of the
mix of industries represented in the region, the price of the
factor relative to those of substitute inputs, and the level of
output of each sector. Technology is given by the production
functions, while factor prices and output levels are determined
within the model. Supply depends on the time period under
consideration. In the short run all inputs are assumed fixed to
the region. Labour can move across sectors but capital and
land/resource services cannot. This means that any excess
supplies or demands in factor markets are resolved by changes
in wages or rental rates, and that output changes are limited
to those that intersectoral labour reallocations can support.

The assumption of fixed factor supplies is dropped in the longer run scenario. Labour is assumed to move interregionally and internationaly in response to real wage differentials, as per standard migration theory. The more responsive is migration to real wage differentials, the more is the long run real return to labour set externally. Capital is typically assumed to be perfectly responsive to differences in rates of return, so excess supplies or demands are accommodated entirely through capital inflows or outflows. The main complication involved in this case is allowing for interest payments to non-residents or external interest income to residents in definitions of aggregate regional income.

Land/natural resources pose yet another type of modelling problem in the long run, though the assumption of fixed supplies in the short run is eminently plausible. These inputs are immobile by definition. Additions to them normally must come through improvements and clearing (urban or agricultural land) or exploration and development (minerals, petroleum). Some resources increase in value on their own (maturing forests), while the stocks of non-renewable ones deplete with exploitation. All these characteristics must somehow be captured in the model.

Two features of the production side of this type of model are directly relevant to the issue of services and regional

economic disparities. First, factor intensities are represented
explicitly. Thus if the expanding service industries use
factors in different proportions than do goods, as is often
believed, any effects on equilibrium earnings differential will
be captured. Positing several types of labour differentiated by
skill level would be particularly important since much of the
interest in service industries on the part of regional planners
stems from the belief, not often supported empirically, that
they represent higher quality jobs on average. Second, allowing
for specific factors of production is done with non-tradeable
service sectors in mind; location is usually held to be the key
distinguishing feature in these instances. If non-tradeable
services are growing in relative importance, more of the
adjustment process is thrown on local factor supplies.

The demand for goods and services is introduced through
the equilibrium condition that output markets must clear; ie.,
that supply equals demand for the output of each sector. Demand
from within the region comes from other activities using the
product as an intermediate input, and fom consumers in the form
of final demand. If output is tradeable, the model must allow
for net exports or imports. Market clearing takes one of three
forms, depending on whether the region is a net exporter or a
net importer of the commodity in question, or whether it is
non-tradeable. An export demand must be specified in the former
case, while in the second one the problem is allocating
intermediate and final demands between domestic production and

imports.

The main feature of the demand side of the model that is of relevance for the topic of services and regional economic growth and development is the distinction between tradeable and non-tradeable outputs. If services are tradeable, the impact they have on regional disparities is no different in principle from that of goods industries. Individual characteristics such as relative factor intensities or use of specific factors matter, but so do they for goods. There is nothing special about services, in other words. To the extent they are non-tradeable though, important differences do arise, especially in the short run in the course of adjustment to exogenous shocks to interregional equilibrium.

The specification above is a basic or "bare bones" version of a regional general equilibrium model. One can add to this framework to allow analysis of specific policy issues. One example is that of agglomeration economies. It is often held that productivity increases with the aggregate size of the regional economy, all else held equal. To the extent that service sector growth adds to regional population, there might be this ancillary productivity effect on other industries. Agglomeration economies are easily introduced into the model by adding a productivity shift term to the production functions, and making it dependent on regional population or labour force size.

A more complicated example comes with making government
one of the production sectors. Governments do hire land,
labour, capital and intermediate inputs to produce output for
residents. If the output is allocated on a user pay basis, as
with utilities that are properly priced for example, there is
no essential difference between private and public sector
provision. Modelling problems arise, however, whenever there is
no direct connection between provision of the output and a per
unit charge for it. This situation can arise if the good is a
public good, meaning it is one such as defence or police
protection that is made available to all without an explicit
charge. It can arise equally even if the product has no public
goods characteristics, but it is funded by the government out
of general tax revenue rather than per unit user fees.

Obviously many interesting policy questions involve
government taxation and expenditure issues. This is
particularly true in the service sector since public
administration is one of the important categories. Thus it is
important to have government as one of the sectors and to be
explicit about how government output enters into individual
utility functions.

Once specified, the model contains a number of non-linear
equations which make computation and solution difficult and
costly. A linear approximation of the system proposed by

Johanson (1960) resolves these problems, and does so at
relatively slight cost in terms of solution error. This
procedure yields a general expression of the form Aq = B, where
A is a matrix of parameters and elasticities, q is a vector of
endogenous prices and quantities, and B is a vector of
exogenous policy shocks or external economic shocks. The
solution for q is of the form $q = A^{-1}B$, where the elements of
A^{-1} are equivalent to impact multipliers. The values of q
represent the proportional change in endogenous variables
required to yield a new equilibrium in light of the exogenous
shocks to the system. The values of q can be interpreted as the
elasticity of the variable with respect to the exogenous shock
pertubating the system.

As noted at the outset of this Section, we have used
models of this type to investigate a variety of regional
economic issues. Unfortunately, two empirical gaps stand in the
way of applying them to the topic of service sector growth and
regional economic performance. One needs to be able to
distinguish between traded and non-traded services, and to have
actual data on interregional flows of the former. As outlined
in the Appendix, however, this is precisely the information
that is absent in Canada. Thus the full contribution of
regional general equilibrium modelling to this topic must await
improvements in this data source.

VI Conclusion

As the foregoing analysis has shown, there are a great number of ways in which the growth of service activities since WWII might have affected the pattern of regional economic growth and adjustment. The connections are numerous enough however, and sufficiently complex, that no partial equilibrium model can adequately capture them. They must be investigated with the aid of explicit general equilibrium formulations. The examples summarized above are beginning efforts in this direction, but they do not go nearly far enough.

A more satisfactory model would expand upon the ones represented here in several ways. Agglomeration economies need to be introduced more formally. The structure must be extended to an explicit two region model, with linkages betwen the region and with the rest of the world made explicit. Some consideration must be given as to why service industries locate where they do; the formulation above takes initial economic structure as given. The large variation among service industries themselves must be incorporated. We distinguish in a rough way traded, non-traded and government sectors, but there are many more interesting differences. The data need to be improved, as outlined in the Appendix.

One can go on to list numerous ways to proceed in the future. Suffice it to say here that with the anticipated

continued growth in service industries, and with the inevitable ongoing interest in regional disparities in Canada, the conjuncture of these two topics will continue to attract researchers and policy makers alike for some time to come.

FOOTNOTES

1. Our original assignment was to use Statistics Canada data on trade in goods and services by province to look at the connection between service sector growth and regional development. We learned early on, however, that the data on trade in services -- the crucial part for our analysis -- were unsuitable for this task. This discovery meant some readjustment in focus from empirical to analytical/speculative. The problems with the data are sufficiently serious, and insufficiently well known, that we added Appendix 1.

2. The variation on a per capita basis will be different again if employment and participation rates or ages structures differ across regions. Standardization analysis done for the Canadian data suggests that these three factors together account for about one-half of the observed differences in earned income per capita, with the other half due to earnings per worker. See Mansell and Copithorne (1986).

3. There is some debate as to whether differences of this type really represent disparities in any meaningful sense. One does not expect earnings to vary across occupations within a region, so it is not obvious why earnings differentials across regions due to the same phenomenon should be considered a problem. The one reservation with this argument though centres on the situation where public goods are provided on a regional as opposed to a national basis, as in a federation such as Canada. The low income region will have a smaller tax base with which to finance its expenditures, and will have to resort either to less goods per capita or to higher tax rates. This in turn can result in so-called fiscally induced migration, which can have a real social cost. Herein lies the case for equalization payments to even out fiscal capacity. See Boadway and Flatters (1982) for a discussion of this phenomenon.

4. Attempts to allow for industry mix across regions has generally concluded that mix effects explain relatively little of the observed earnings differentials in Canada. Only Saskatchewan and PEI appear to be affected significantly by their particular industrial structures. See Economic Council of Canada (1977), Drugge (1983), or Copithorne and Mansell (1986) for details.

5. For a discussion of locational determinants for office-based service industries, see Coffey and Polese (1987a).

6. The recent interest in the Canadian economic union arises from the suspicion that this presumption is not necessarily true. See Royal Commission (1986) or Krasnick (1987) for a fuller discussion.

7. See Purvis and Buiter (1983) or Neary and Wijnbergen (1986) for a general discussion of the Dutch disease.

9. The model outlined here is a general version of more specific ones that the present authors have developed to investigate particular issues in economic history or current economic policy. See Norrie and Percy (1982, 1984).

10. Simple models such as this one do not allow for intraindustry trade; ie., when a region is observed to be both exporting and importing the same aggregate commodity.

APPENDIX

Tables A-1 and A-2 illustrate the type of interprovincial
trade flow data available from the Input-Output Division of
Statistics Canada. Table A-1 is a provincial trade flow matrix.
Provinces and territories are listed in both rows and columns,
so each cell entry represents the dollar value of shipments of
a particular commodity between any pair. There are 44 such
tables, one for each of 8 primary products, 20 manufactured
ones, 15 services and 1 non-competing import. Reading across a
row of any one of these 44 tables shows where the output of
that product for that province goes. In the first such table
one encounters -- that for grains -- element $a_{1,1}$ represents
the value of grain produced in Newfoundland that is retained
within the province. $a_{1,2}$ is the shipments of Newfoundland
grain to PEI, and so forth. Reading down a column indicates
where the supply of that product for that province comes from.
$a_{1,1}$ is now interpreted as the value of grain consumed in
Newfoundland coming from internal sources. $a_{2,1}$ is that
supplied by PEI, etc.

Table A-2 exhibits the same data in another format. The
row entries are now the 44 comodity commodities, while the
columns remain provinces and territories. There are 11 such
tables, one for each province and one for Yukon and the
Northwest Territories combined. Each cell in Table A-2
represents for the province in question the flow of one

commodity to each of 12 possible destinations. Reading across a row of the table for a particular province indicates where the output of that commodity goes. In the table for Newfoundland, for example, $a_{1,1}$ is the dollar value of grain produced in the province retained for internal use, $a_{1,2}$ is the value sent to PEI, etc. Reading down a column shows how much of each commodity individual provinces receive from the province featured. Still with the Newfoundland example, $a_{1,1}$ is interpreted as the value of Newfoundland's grain consumption coming from internal supplies, $a_{2,1}$ is the same for other agricultural products, etc. $a_{1,2}$ is the value of grain PEI receives from Newfoundland, $a_{2,2}$ the value of other agricultural products, etc.

Many of the entries in these tables are equal to zero, for one of two reasons. In many instances, there is simply no trade in particular goods between some pairs of provinces even though they are tradeable in principle. Newfoundland does not ship grains to any other province, for example, but the three Prairie Provinces do. The other occurrences arise when the products are non-tradeable; all production is for the local market or, alternatively and equivalently, all consumption must come from internal supplies. In Table A-1 this is represented by non-zero entries for elements $a_{1,1}$, $a_{2,2}$, etc. In Table A-2 only the relevant column entries would be non-zero.

There are 8 examples of the second type of commodity in

the Statistics Canada data -- all of them services. Listed,
they are services incidental to mining (which appears as
commodity 8 in the primary goods section in the actual table);
residential construction; non-residential construction; repair
construction; retail margins; imputed rent for owner-occupied
dwellings; operating, office, laboratories and food; and
travel, advertising and promotion. This leaves 8 service
industries that appear to ship outputs interprovincially and
even internationally -- transportation and storage;
communication services; other utilities; wholesale margins;
other finance, insurance and real estate; business services;
personal and other miscellaneous services; and transportation
margins.

Our original mandate was to begin to exploit this data
source to look at the connections between volumes and types of
trade in services and relative regional economic performances.
Casual perusal of tables constructed according to format A-1 or
A-2 appears to indicate substantial variation in exports of
services by province, suggesting that there may be some
fundamental economic forces at work. We learned quickly,
however, that such variation as seems to exist is purely a
statistical artifact, a product of the way the data on trade in
services are assembled. Since these data are often referred to
by researchers, and since the problems with them appear not to
be widely known, it is worth explaining their construction
here.

The basic data source from which all published
interprovincial trade flow data derive are tables with the
format of A-1 or A-2, but containing a much greater degree of
detail. The source table contains information on 602 separate
commodities -- 51 primary outputs, 470 manufactured ones, 71
services, and 10 other inputs (Alberta Treasury The Input-Out
Structure of the Alberta Economy, 1974). These items are
aggregated to form the commodity groupings that can be made
public without violating confidentiality regulations.

Not all of the data contained in the tables represent
actual survey information though; only those numbers for goods
production and trade are derived in this manner. No comparable
information is collected for the service industries, due in
part at least to the well-known practical difficulties
associated with identifying and measuring such output. These
data are constructed instead, using the survey information on
goods industries. The procedure can be explained briefly as
follows.

Data are collected on production and interprovincial and
international shipments of individual goods for each province.
These are the numbers which, appropriately aggregated, appear
in the trade flow tables. A ratio is then calculated for each
province or territory, equal to the value of goods sent outside
the province as a share of total goods production. The higher

this figure, the greater the degree to which the province in question relies on external markets for its goods industries. A number of 0.30 for Newfoundland for example would mean that 30% of that province's total goods output went to other provinces or countries in that year, while 70% was utilized locally.

The next step involves summing up for each province the value of goods shipments sent to each of 11 possible destinations -- 10 other provinces or territories and abroad -- and expressing these figures as a share of total goods shipped externally. Staying with Newfoundland as an example, a figure of 0.30 for trade with PEI would indicate that 30% of Newfoundland's external markets for goods lay in PEI in the year for which the data were assembled.

Figures for trade in services are then constructed from these ratios and other information. The starting point is survey data on the value of output of service industries at the largest commodity classification (ie., 71 service sectors). A decision is made to treat some sectors as non-tradeable -- those identified above -- and external shipments are set at zero. For tradeable services, the assumption is made for each province that the ratio of external sales to total production for each tradeable service output is equal to that same ratio for goods production as a whole. If Newfoundland sells 30% of its total goods output externally, for example, then 30% of its tradeable services in each of the disaggregated commodity

classes is assumed to leave the province as well, with 70%

being consumed internally. Multiplying the value of output for

each service industry by 70% gives the dollar value of internal

sales.

Shipments outside the province are allocated across

destinations in much the same manner. The assumption is made

for each province that the share of total external sales of

services going to any particular destination is identical to

that for total goods shipments. If 30% of Newfoundland's goods

shipments outside the province go to PEI, for example, then 30%

of its external service sales will as well, with the remaining

70% going to the other eight provinces or territories or

abroad. Multiplying the value of out-of-province sales of each

trdeable service industry by 0.30 then gives the dollar value

of shipments from Newfoundland to PEI. Transactions with all

other destinations are done similarly. These figures are then

aggregated to the level represented in Table A-2.

These data are thus clearly of no use in studying

cnnections between tradeable services and regional economic

performance. If the researcher could work with the most

disaggregated data, correlations between trade in goods and

that in services would be perfect. Service sector exports would

follow goods exports exactly (or the reverse if one wished to

push such an argument). There is variation across provinces in

the highly aggregated data one has access to, but only because

the weights of the different service industries in total output
are not the same. Until Statistics Canada is able to provide
data on trade in services based on survey techniques then,
there can be no serious empirical work on service sector
exports and regional economic performance.

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Table 1

The Distribution of Employment and Real GDP by Industrial Sector, Canada, 1947, 1963 and 1981

	Employment			GDP		
	1947	1963	1981	1947	1963	1981
Agriculture	23.3	10.3	4.7	6.4	4.7	2.5
Forestry	3.3	1.3	0.7	1.4	0.9	0.6
Fishing and Trapping	0.5	0.4	0.4	0.4	0.3	0.2
Mines	1.6	1.7	1.7	1.9	3.7	2.9
Total Primary Goods	28.7	13.7	7.5	10.1	9.6	6.2
Manufacturing	24.8	22.8	17.8	21.8	22.2	21.6
Construction	4.7	5.7	5.5	5.8	7.3	6.2
Utilities	0.8	1.1	1.1	1.1	2.2	3.2
Total Secondary Goods	30.3	29.6	24.4	28.7	31.7	31.0
Total Goods	59.0	43.3	31.9	38.8	41.3	37.2
Transportation, Storage and Communication	9.3	8.7	7.7	8.5	8.3	10.5
Trade	12.5	15.6	17.8	12.1	11.5	12.5
Finance, Insurance and Real Estate	2.4	3.7	5.3	11.9	12.3	13.2
Services	5.9	9.0	15.8	19.4	18.2	19.7
Public Administration	10.9	19.6	21.7	8.9	8.9	6.7
Total Services	41.0	56.6	68.3	60.8	59.2	62.6

Source: Charette, Henry and Kaufman (1986, Table 2-1, 67).

Table 2

Shares of Population, GDP and Personal Income by Province,
Various Years

| | 1949 | Population | | | GDP | | | Personal Income | | |
		1961	1973	1985	1961	1973	1985	1961	1973	1985
Newfoundland	2.6	2.5	2.4	2.3	1.3	1.3	1.3	1.5	1.6	1.5
PEI	0.7	0.6	0.5	0.5	0.3	0.3	0.3	0.3	0.4	0.3
Nova Scotia	4.7	4.0	3.6	3.5	2.6	2.5	2.5	3.1	2.8	2.8
New Brunswick	3.8	3.3	2.9	2.8	2.0	1.9	1.9	2.2	2.1	2.1
Quebec	28.9	28.8	27.6	26.0	26.1	24.3	22.9	26.0	25.0	24.5
Ontario	32.6	24.2	35.9	35.7	41.1	41.4	38.9	40.5	41.0	39.3
Manitoba	5.6	5.1	4.5	4.2	4.6	4.1	3.8	4.8	4.2	4.0
Saskatchewan	6.2	5.1	4.1	4.0	4.0	3.5	3.6	3.7	3.6	3.6
Alberta	6.6	7.3	7.7	9.3	7.9	8.8	13.1	7.3	7.5	9.9
BC	8.3	8.9	10.4	11.4	10.0	11.6	11.4	10.3	11.5	11.6
Yukon/NWT	0.2	0.2	0.3	0.3	0.2	0.4	0.4	0.2	0.3	0.3

Source: Department of Finance, Quarterly Economic Review; Annual Reference Tables June, 1987 (various tables therein).

Table 3

GDP and Personal Income Per Capita by Province, Various Years

	GDP per Capita			Personal Income per Capita		
	1961	1973	1985	1961	1973	1985
Newfoundland	50.3	51.9	57.4	59.8	64.1	66.6
PEI	49.8	55.9	55.3	59.7	68.8	69.5
Nova Scotia	65.4	67.3	70.7	76.7	77.8	80.9
New Brunswick	60.2	64.9	65.5	67.1	72.2	75.1
Quebec	90.6	88.1	88.2	90.0	90.7	94.4
Ontario	120.1	115.5	108.7	118.4	114.2	109.8
Manitoba	90.1	89.8	89.8	94.1	93.3	93.7
Saskatchewan	77.9	86.4	90.9	72.2	87.9	89.7
Alberta	108.7	115.2	140.5	99.8	98.0	106.2
BC	111.4	110.6	100.3	115.0	109.6	102.3

Source: Department of Finance, Quarterly Economic Review: Annual Reference Tables June, 1987 (various tables therein).

Table 4

Gross Domestic Product by Industry - the Provinces
(Percentage Distribution)

	1961	1971	1982
British Columbia			
Goods	38.3	37.6	29.9
Services	62.6	62.4	70.1
Transport, Storage and Communication	9.8	12.6	16.0
Trade	12.5	12.5	12.7
FIRE	13.4	12.2	14.5
Services	17.0	18.0	19.7
Public Admin. and Defence	9.8	7.0	7.2
Alberta			
Goods	41.8	41.4	37.6
Services	59.0	58.6	62.4
Transport, Storage and Communication	10.3	12.5	14.2
Trade	11.5	10.3	11.4
FIRE	11.1	9.9	11.4
Services	17.2	19.1	18.8
Public Admin. and Defence	9.0	6.8	6.7
Saskatchewan			
Goods	38.5	45.8	36.7
Services	62.4	54.2	63.3
Transport, Storage and Communication	13.8	15.1	17.2
Trade	12.2	9.8	12.9
FIRE	10.5	8.3	10.9
Services	15.6	13.7	15.1
Public Admin. and Defence	10.4	7.2	7.2
Manitoba			
Goods	31.3	33.4	28.9
Services	69.6	66.5	71.1
Transport, Storage and Communication	14.7	15.9	17.5
Trade	14.8	13.0	13.9
FIRE	13.4	11.9	13.9
Services	16.1	17.5	17.8
Public Admin. and Defence	10.6	8.2	8.0
Ontario			
Goods	41.2	42.3	37.0
Services	59.7	57.7	63.0
Transport, Storage and Communication	6.9	7.0	7.4
Trade	11.3	11.4	11.6
FIRE	13.6	12.3	15.4
Services	18.8	19.9	21.9
Public Admin. and Defence	9.3	7.2	6.5

Table 4 (continued)

Quebec			
Goods	42.4	39.7	34.8
Services	58.5	60.3	65.2
Transport, Storage and Communication	8.5	9.0	9.4
Trade	11.9	12.4	12.9
FIRE	11.6	11.3	13.3
Services	19.0	21.3	22.7
Public Admin. and Defence	7.4	6.3	6.8
New Brunswick			
Goods	31.6	34.3	30.5
Services	69.3	65.7	69.4
Transport, Storage and Communication	12.4	13.8	15.5
Trade	13.5	14.1	12.8
FIRE	11.5	10.0	12.2
Services	16.2	15.4	15.9
Public Admin. and Defence	15.7	12.6	12.9
Nova Scotia			
Goods	29.7	29.2	27.6
Services	71.2	70.8	72.4
Transport, Storage and Communication	8.6	9.5	12.0
Trade	12.0	12.8	12.5
FIRE	11.9	11.9	13.6
Services	17.4	18.9	18.4
Public Admin. and Defence	21.3	17.7	16.0
Prince Edward Island			
Goods	29.8	29.6	27.2
Services	70.8	70.4	72.8
Transport, Storage and Communication	11.2	10.7	8.6
Trade	13.7	14.2	15.7
FIRE	12.4	11.2	13.9
Services	12.4	15.5	13.6
Public Admin. and Defence	21.1	18.9	21.3
Newfoundland			
Goods	46.7	51.0	39.1
Services	54.1	48.9	60.9
Transport, Storage and Communication	9.3	10.0	12.3
Trade	12.6	11.9	13.0
FIRE	10.1	9.2	13.2
Services	8.5	8.9	9.8
Public Admin. and Defence	13.4	9.1	13.2

Source: Conference Board of Canada The Provincial Economies.
Note: Totals may not add to 100.0 due to rounding.

Table 5

Provinces Ranked by Per Capita Income and by Relative Importance of Service Activities

Provinces Ranked by Personal Income Per Capita, 1985	Rank in 1982 According to Relative Importance in					
	Total Services 1982*	Transport Storage & Communic.	Trade	FIRE	Community Business & Personal Services	Public Admin. & Defence
Ontario	8(7)	10	10	1	2	10
Alberta	9(8)	5	9	9	4	9
BC	4(5)	3	7	2	3	6
Quebec	6(9)	8	5	6	1	8
Manitoba	3(3)	1	2	3	6	5
Saskatchewan	7(6)	2	4	10	8	7
Nova Scotia	2(1)	7	8	5	5	2
New Brunswick	5(4)	4	6	8	7	4
PEI	1(2)	9	1	4	9	1
Newfoundland	10(10)	6	3	7	10	3

Source: Tables 1 and 2.
*1961 figures in brackets.

Table 6

Provinces Ranked by Personal Income Per Capita, 1985
and by the Change in the Percentage Share of GDP,
1961 to 1972

Provinces Ranked by Personal Income Per Capita, 1985	Total Services	Transport, Storage and Communication	Trade	Finance, Insurance Real Estate	Community, Business and Personal Services	Public Administration & Defence
Ontario	5	9	6	2	2	7,8
Alberta	4	2	8	9	5	4
BC	1	1	7	6	3	5,6
Quebec	3	8	2	3,4	1	3
Manitoba	7	7	10	8	4	5,6
Saskatchewan	9	3,4	3	10	10	9
Nova Scotia	8	3,4	4	3,4	8	10
New Brunswick	10	5	9	7	9	7,8
PEI	6	10	1	5	7	1
Newfoundland	2	6	5	1	6	2

Source: Derived from Table 4.

Table 7

Sectors Ranked by Change in Share of Provincial GDP,
1961 - 1982

Provinces by Per Capita Earned Income	Transporta-tion, Storage and Communication	Trade	Finance, Insurance & Real Estate	Services	Public Adminis-tration & Defence
Ontario	3	4	2	1	5*
Alberta	1	4*	3	2	5*
BC	1	4	3	2	5*
Quebec	4	3	2	1	5*
Manitoba	1	4*	3	2	5*
Saskatchewan	1	2	3	4*	5*
Nova Scotia	1	4	3	2	5*
New Brunswick	1	3*	2	4*	5*
PEI	5*	1	2	3	4
Newfoundland	2	4	1	3	5*

Source: Table 4.

*Denotes a fall in relative share.

Table A-1

Structure of Provincial Trade Flow Data Available by Commodity for Each of 44 Commodity Groupings

Origin of Shipments	Destination of Shipments												
	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	YNWT	EXPORTS	TOTAL
NFLD													
PEI													
NS													
NB													
QUE													
ONT			(dollar values of shipments)										
MAN													
SAKS													
ALTA													
BC													
YNWT													
TOTAL													

Table A-2

Structure of Provincial Trade Flow Data Available
by Province, for 11 Provinces (Territories)

Commodity	NFLD PEI NS NB QUE ONT MAN SASK ALTA BC YNWT EXPORTS TOTAL
1. Primary	
.	
8. Commodities	
9. Manufactured	
.	
28. Commodities	
29. Residential Construction	(dollar values of shipments)
30. Non-residential Construction	
31. Repair construction	
32. Transportation & storage	
33. Communication Services	
34. Other Utilities	
35. Wholesale Margins	
36. Retail Margins	
37. Imputed Rent, Owner Occ. Dwell.	

Commodity	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	YNWT	EXPORTS	TOTAL
38. Other Finance, Ins., Real Estate													
39. Business Services													
40. Personal & Misc. Serv.													
41. Transportation Margins													
42. Operating, Office, Lab and Food.													
43. Travel, Advertising, Promotion													
44. Non-Competing Imports													

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