

**DRAFT: Comments appreciated**

# **Observations on Regional Economic Performance**

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## Observations on Regional Economic Performance

### 1. Introduction

Yes, there are regional disparities in Canada. This paper examines the nature of these regional differences over time and asks the question of whether these differences are narrowing or converging.<sup>1</sup>

One indicator of relative economic performance is personal disposable income per capita relative to the national average. (See Table 1) Two messages come through. First, the Atlantic provinces were substantially below the national average and Ontario, Alberta and British Columbia consistently above it over the period from 1966 through 1996. Secondly, these differences are persistent, although there has been convergence over the last three decades. (See also Figure 1.) These findings are broadly consistent with those of Coulombe and Day [1998], who go beyond this analysis to compare provincial developments with northern US states.

Are such differences meaningful? One can take the view that these differences arise from the way in which the lines are drawn on the map. If a different set of provincial boundaries were drawn, perhaps these differences would disappear (or become greater). But these geographical units are not arbitrary. Each province represents a political entity, with boundaries determined historically and independently of concerns for minimizing or maximizing income disparities. Across the provinces there are differing mixes of industry, different ratios of rural and urban, varying demographic mixes (immigrants, aboriginals, native-born), and differing policies. Perhaps with these differences the question should be why do they still show convergence?

In a **federal state** the relative performances of the provinces are even more important. It is not desirable that the expected income of a person born in one province should differ significantly from that of someone born in another province. In a unitary state, the option of mobility is usually stressed; not so in a confederation.

This paper will not provide the solution to eliminating regional disparities. This topic has occupied the Economic Council of Canada [1965, 1977], the Royal Commission on the Economic Union and Development Prospects for Canada [1985], and many others. Rather, in this section the objective is to describe the sources of regional disparities with a grouping around four headings:

1. Demographic
2. Economic production
3. Distributive policies
4. Macroeconomic performance.

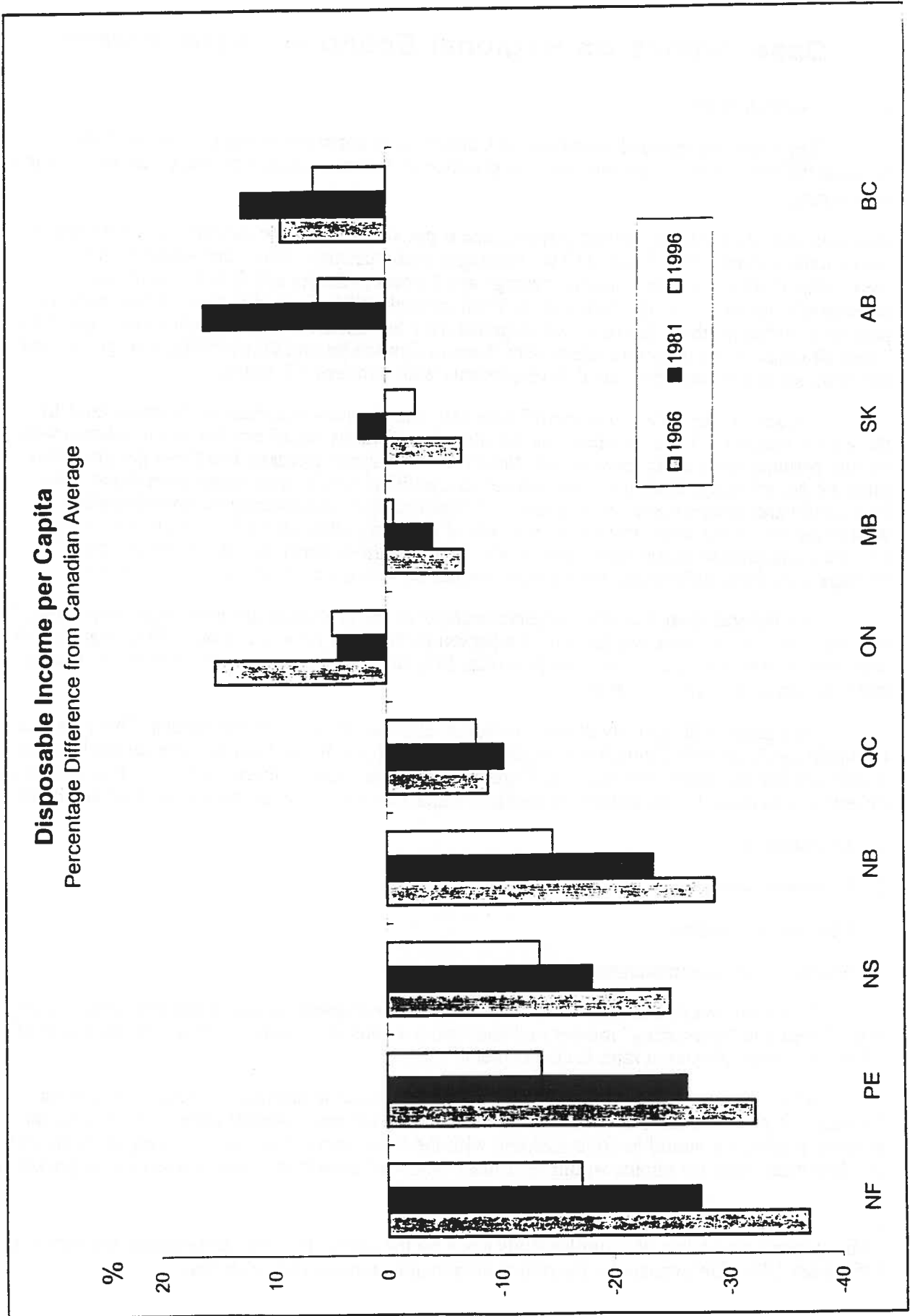
This framework can help us to determine if **convergence** is occurring and where. The role of policy in "converting" market incomes into personal disposable income, and the effect of differential unemployment rates is also evident.

More balanced levels of income per capita is a desirable economic objective in Canada. Certainly, if given a choice between two scenarios with the same overall growth in Canada, the political preference would be for a scenario with the lower income regions growing more rapidly. It is less clear what the choice would be if more balanced growth resulted in less overall growth, or

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<sup>1</sup> This paper is an update of a similar study done by the author in 1988, and extends the period to 1996 from 1984. Unfortunately, the policy conclusions remain little changed.

Figure 1



if convergence was achieved by dragging down the leaders. Perhaps we are saved from considering such options, since there may not need to be a trade-off between regional and national economic performance, although efficiency and regional development are often considered as antagonistic.

## 2. The Sources of Regional Disparity

There are many possible measures of income or well-being that could be used. For our purposes **personal disposable income per capita** will be the main measure<sup>2</sup>. Ideally, this should be in real terms but a well-developed set of spatial price indexes does not exist. This same framework can be used for other income measures or different populations, e.g., personal income per household.

The basic **identity** is:

$$YDC/POP = LT/POP \times INCOME/ET \times YDC/INCOME \times ET/LT$$

YDC - personal disposable income

POP - population

LT - labour force

INCOME- earned or market income of persons

ET - total employment

The first term reflects the **demographic** makeup of the region. The second term is essentially the income generated per person employed, indicating the **economic production** in the region. The third term measures the net effect of transfer and personal direct taxes or the **redistribution** of income. The last term indicates the fraction of the labour force that is employed, or  $(1 - URATE)$ , where URATE is the unemployment rate. This term is indicative of the relative **macroeconomic** performance of the region.

If this identity for each region is divided by the same identity at the national level, then the **relative** income measure for each region can be expressed as the product of the four relative measures. Table 1 shows this decomposition for the ten provinces<sup>3</sup>, and the two regions, **Prairies** - Alberta, Saskatchewan, and Manitoba and **Atlantic** - Newfoundland, Prince Edward Island, Nova Scotia, and New Brunswick.

In most cases the 1981 value for disposable income per capita is closer to the national average than in 1966. Alberta was at the average in 1966 and in 1981 was about 16 per cent higher. Convergence has been occurring, although Newfoundland is about 83 per cent of the

<sup>2</sup>The data in this study are based on the previous version of the National Accounts. The new Accounts at the present time only provide information for 1992-97. When data become available for a longer time period we will recalculate the tables. No major changes are expected, although there have been relative shifts of 1 or 2 percentage points evident.

<sup>3</sup> For this analysis the Northwest Territories and Yukon have been omitted. The lack of labour force data makes it impossible to decompose the data in the same way. The Canada total for income and output measures includes Yukon and Northwest Territories. This means that the sum of the provincial detail will not in all cases sum to the Canada total.

national average and BC and Alberta about 106 per cent in 1996. Convergence over the period from 1966 to 1996 is evident in all provinces, except Alberta which recently surged again with the pick up in oil prices. (Developments from 1998 on may add some additional variance to our data!)

Decomposition analysis is a tautological exercise, it is not a theory. The trick is to factor the expression in an interesting fashion and then to "model" or "explain" the components. It is only at the point that one examines the components and can link them to policy and other economic factors that some explanation is revealed.

The demographic factor (LT/POP) is substantially lower for all of the Atlantic provinces (except PEI) and particularly so for Newfoundland. Convergence is the general rule with particular marked improvement in the case of Newfoundland. For Atlantic Canada, if the other factors remained unchanged, a movement of the demographic factor to the national average would reduce the disparity of 15 per cent to only 5 per cent. Of course, other components would not necessarily remain unchanged, a point that we will return to later.

The economic production factor (INCOME/ET) is another important element in explaining regional disparities. It too has been converging, although with some volatility in the resource-rich provinces of Western Canada.

The transfer and tax policies of the federal and provincial governments essentially work as expected, with redistribution working to minimize the regional disparities. Only in Ontario and Alberta do we see a relative pulling down of disposable income as a consequence of tax and transfer policies. This is consistent with their above average income levels.

The **relative** utilization of the labour force has changed little over the 30 years. Below average unemployment rates are evident in Ontario, BC, and the Prairies, with above average rates in the rest of Canada.

A closer look at these factors through further decomposition can shed additional light on regional disparities and convergence.

## 2.1. Demographic Factors

The demographic component can be decomposed further by another identity:

$$LT/POP = SOURCE/POP \times LT/SOURCE$$

SOURCE - Source population (Aged 15 and over)

The first term captures the age structure of the population in the region. The second term is simply the labour force participation rate.

The labour force as a share of the total population is relatively lower in all of the Atlantic provinces and higher in Ontario and Alberta (see Table 2). The age distribution of the population affects this measure in two ways. A larger proportion of persons under 15 lowers the relative size of the source population (population 15 and over). Such variations are small; only the Prairie provinces are below average in 1996 by about 4 per cent. Labour force participation rates are significantly lower in most of the Atlantic provinces, and significantly higher in Alberta. Participation rates in Newfoundland are 80 per cent of the national average, Alberta is 111 per cent.

To recognize such differences is not to explain them. The mix of industry, educational attainment, family structure, and cultural values all have their influences.

## 2.2. Economic Production

The **economic production** factor can be further decomposed into three components using the following identity.

$$\text{INCOME/ET} = \text{EARNED/RDP} \times \text{RDP/ET} \times \text{INCOME/EARNED}$$

$$\text{EARNED} = \text{Total Wages} + \text{Unincorporated Income} + \text{Farm Income}$$

$$\text{RDP} = \text{Gross Domestic Product in constant dollars}$$

This component is measured by private or market income per employed person (see Table 3). Ontario and British Columbia are above the national norm by 4 to 6 per cent, Atlantic Canada is about 87 per cent of the norm, with Prince Edward Island at 81 per cent and Newfoundland at 88 per cent. Saskatchewan is at 85 per cent in 1996.

If the distinction is made between "earned" and property income, then the decomposition can be made into three parts:

- earned income per unit of real output - a proxy for unit "labour" costs, including wages and all unincorporated income (farm and nonfarm)<sup>4</sup>
- real output per person - labour productivity
- ratio of total market income to earned income - a measure of the relative importance of "passive" investment income (interest, dividends, net rental income, and other property income accruing to the personal sector)

Most of the differences from the national average are attributable to different levels of productivity, reinforced by shares of property income accruing in these same regions following a similar pattern. While convergence is evident in productivity levels and earned income per unit of output, the ratio of total income to earned income has shown little change over the period 1966 to 1996.

Most of the variation in income per employed person can be attributed to differences in productivity levels. From other studies it is **not** the differences in industrial structure, but rather differences in productivity levels in the same industry that account for this variation. With the exception of Newfoundland, there is a clear indication of convergence or stability in relative productivity levels. (The 1971 level of relative productivity in Newfoundland of 98 was abnormally high; in 1996 the relative level had fallen to 85.)

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<sup>4</sup> Military pay and allowances are included in the wage bill and defence output in the real output measure. The employment measure excludes the military. It would be desirable to add the number of persons in the military to employment and labour force throughout this analysis. Data constraints have so far prevented this adjustment.

Variations in earned income per dollar of real output are also volatile in some provinces. Saskatchewan and Alberta stand out as having a low unit labour cost. Most of this reflects the substantial role of farm income in total earned income in some years.<sup>5</sup> Over the period from 1981 through 1996 it varied from about 0.5 per cent (1984) to over 12 per cent (1981) of personal income in the province. In other regions, the close correspondence of unit labour costs supports the notion that the regions are "competitive" with each other, or that relative wage rates are in line with relative productivity levels.

There is a subtle transformation from earned income to market income reflecting the inclusion of the return on wealth in the market income concept. To some extent this may already be embodied as part of unincorporated income as well. This component has been improving in all provinces from Manitoba west, and declining in provinces from Ontario east. Most of the improvement in Saskatchewan's market income per employed person can be attributed to this "wealth" related factor.

### 2.3. Distributive Policies

With few exceptions, income redistribution is a major offset to the regional income differentials evident from demographic or economic production. The ratio of disposable income to market income is relatively higher in those regions that perform less well than the national average.

This redistribution occurs both through the personal transfer system and through the personal tax system. For example, in 1996, transfers to persons are 49 per cent of market incomes in Newfoundland and 16 per cent in Ontario. At the same time personal taxes are 21 per cent of personal income (including transfers) in Newfoundland and 25 per cent in Ontario. This reflects the progressivity of the personal income tax system, not higher basic rates.

The separate contributions of transfer programs and the personal income tax system can be identified by the following identities:

$$YDC/INCOME = YP/INCOME \times YDC/YP$$

YP - personal income or market income plus transfers

or;

$$YDC/INCOME = (1 + TR) \times (1 - TD)$$

TR - transfer rate; Transfers = TR x INCOME

TD - direct tax rate; Direct Taxes = TD x YP

The first component captures the effect of federal and provincial transfers to persons. For Atlantic Canada this factor alone contributes over 10 per cent to the relative level of disposable income per capita; for Newfoundland it is 24 per cent. In Quebec relative income is improved by about 5 per cent, about the same as Manitoba and New Brunswick. (See Table 4) The fraction of transfers relative to market income are shown under TR (the transfer rate). This varies from a low of .16 in Ontario and Alberta to a high of .49 in Newfoundland.

<sup>5</sup> Separate treatment of the farm sector would be desirable. Wage income in agriculture by province is not readily available, however.

The ratio of disposable income to personal income is nothing more than  $(1 - TD)$ . Direct taxes include personal income taxes, public pension plan contributions, unemployment insurance contributions, medicare premiums, and other direct taxes on persons. The pattern of relative direct tax burdens is much less striking, with all regions between 100 and 106, except for Quebec. (Quebec is the only province with its own personal income tax system: the others share the same system with the federal government, varying the rate of tax on a common base.)

## 2.4. Macroeconomic Performance

The final factor is employment relative to the labour force (ET/LT), or the reverse. The relative unemployment rates in the various regions (1 - URATE). The disappointing story here is that convergence is not evident. Comparing 1966 to 1996, the regions that had relatively high unemployment rates still do; those with relatively low rates remain so. Atlantic Canada's employment share of the labour force in 1966 was 2.5 per cent below the national average; in 1996 it was 4.7 per cent worse.

Part of this failure to converge may be attributable to the nature of the lack of economic recovery, since the early 1970s and the extreme depths of the 1980-82 and 1990-92 recessions.

The national unemployment rate has risen substantially from the full-employment levels of the early 1970s. At the same time, relative unemployment rates in Atlantic Canada have remained high, with little evidence of convergence. In Table 5, Newfoundland's relative income per capita is lowered by 11 per cent because of the relatively low employment to labour force ratio (89.2 per cent), reflecting an unemployment rate of almost 20 per cent. Convergence is the exception to the rule for this measure.

## 3. Real Income Measures

Would these results change if real income measures were used? Obviously, if the national CPI was used as a deflator there would be no difference. But we know that "cost-of-living" variations occur both within provinces and across provinces. In the Royal Commission studies [1985, p.46] relative partial cost-of-living measures based on the major city price indexes are implicitly shown for the year 1981. The variations with Canada equal to 100 are a high of 111.7 in British Columbia and 92.8 in Saskatchewan. From some of our own unpublished work we have calculated variations of over 10 per cent among locations in British Columbia and Quebec.

Yes there are variations, but with Newfoundland at 107.5 it is as likely to make the disparities larger as to reduce them. Nevertheless, it would be valuable to develop a consistent series of spatial price indexes, particularly if areas in addition to the major cities could be included. Housing prices represent a particular challenge for construction of such indexes. Note that Atlantic Canada has the highest degree of homeownership and less of a mortgage burden than other regions.

## 4. Other Observations

The decomposition of the various factors "explaining" disparities in regional incomes is a useful first step. But it should be noted that these factors are **not independent**. For example, improvements in labour market opportunities in one region through lower unemployment rates, are likely to raise participation rates, increase productivity, and reduce that component of transfers related to unemployment. The net effect is likely to be a reduction in regional disparity, with several factors improving. Similarly, an improvement in labour force participation as a result of improved education will also impact positively on productivity.

What is missing is the full articulation of the inter-relationships among these factors, with the appropriate policy instruments as exogenous variables. The lack of a consensus on the mechanisms for regional growth remains a constraint on the development of such models.

A further complication is introduced by recognizing the possibility of "psychic income" accruing to residents of each region [Melvin, 1987]. One explanation for persistent gaps when mobility is possible, is the reluctance of people to move from A to B (or B to A) even if economic opportunities would appear to be better. Of course, if this argument is carried to its extreme then all of the differentials might be attributed to these other factors, obviating the need for any policy focus on disparities. We don't know much about this phenomenon. Research on income-in-kind, life-style differences, wage differentials among mobile and equally productive persons may shed some light on the possible magnitudes of relative psychic income in different regions.

## 5. Is There a Need for Policy Changes?

Most countries in the developed world adopted a full-employment objective after World War II. This is usually described as a **fundamental right to a job**. In Canada, as a federal state, emphasis is placed on having that job **where you want to live**. The Royal Commission [1985, p.216] put it this way:

"The core factors of regional inequality are wage differences for given types of employment, and variations in employment rates. A job is important, first and most obviously, because it provides a source of income. But it offers more than that. In a society such as ours, a steady job also provides a sense of self-worth and dignity that the most generous transfer scheme could never duplicate. In a federal state, there is even more at stake. The availability of jobs in a region also provides the population base necessary for the survival of that community."

With a right to a job and where the person wants to live, the possibility of labour movement for economic reasons is ruled out. If a third constraint, earning a wage comparable to that available elsewhere in the country, is added then the economic solutions become quite difficult. Without factor mobility or factor price differences, the only hope is that capital employed in the activity and the employees are as productive as elsewhere. If so, then there is no problem. If not, then there are few economic forces that can work to bring about employment in a region with lower productivity and still satisfy the constraint of comparable wages.

There is a strong sense that better national economic performance would certainly help to reduce disparities. The policy instruments will also be conditioned by other objectives. For example, the recent emphasis on efficiency, market forces, and neutrality of government in private decisions evidenced in Canada, the US., and the United Kingdom may limit the use of tax policy or direct subsidies for reducing regional disparities.

The Free Trade Agreement between Canada and the United States, NAFTA, and other international agreements may constrain some regional policy tools. Michael Cleland [1987, p.30] emphasizes that governments should focus their efforts on public services and infrastructure, where the conflict with market forces will be minimized. Education, information systems, post-secondary training, technology transfer and the creation of an efficient, unpolluted, high amenity landscape are all areas for government policy. But such efforts are not likely to be sufficient. What else can be done?

### 5.1. The Notion of Diversification

One current thrust of regional economic policy is "diversification". In fact, there is a Western Diversification Office to provide federal assistance for such activities, as well as to act as an advocate for Western interests. But what is diversification?

The term includes, at least, the following:

- New products from existing bases, particularly agriculture, forestry, minerals, and other resources.
- Further processing of existing resources.

- New markets for existing products.
- New products that replace imports.
- Adoption of new technologies.
- Projects which build up the business infrastructure, such as R&D and marketing.

The objectives would appear to be increased value-added for the resource base, stronger growth through expanded markets, increased activities outside of the resource sector and primary manufacturing, and lower propensities to import from other regions and countries. Presumably, the goals are higher real incomes and more stability in incomes.

The questions that arise include:

- Is there a tradeoff between more stability and higher real incomes? Creation of some service sector jobs may lead to more secure employment, but at a lower income.
- Import replacement is usually viewed with a skeptical eye by economists, who expect that there is a good reason for those things being imported, namely they can be bought at a lower price than they can be produced locally. Are there criteria employed that "ensure" that only "efficient" activities will be undertaken? And, if so, why is a grant, subsidy, loan, or other form of financial support needed?
- Diversification may be a natural process that has been proceeding for sometime. Is this effort simply "going with the flow", dispensing funds as a substitute for private funds; or is there a "capital shortage" or market failure to be overcome?
- Will the interest in further processing of resources simply dissipate the economic rents from these resources, obtainable if they were shipped in raw form to other processing centers? Would it be better to collect the rents and use those funds for other development activities, or tax reductions?

## 5.2. Small is Beautiful

The other major regional development initiative is the Atlantic Canada Opportunities Agency (ACOA), with an objective "...to reduce economic disparity between Atlantic Canada and the remainder of Canada through action, coordination, and advocacy." [ACOA, 1987]

One major thrust is the "Action Program", an enhanced and expanded program of support for small and medium-sized businesses. These measures take the form of:

- Contributions for capital costs (50%), new product expansions (40%), and facility modernizations and expansions (30%).
- Simplified application procedures, and quicker payments.
- Coverage extended to more industries, including the services sector and non-profit organizations, who, in turn, provide services to small businesses and entrepreneurs.
- Support for studies, and higher levels of contribution towards innovation projects.

Again hope springs eternal! The question is whether there is a barrier to new small companies getting off the ground, or whether, instead of 1 in 10 succeeding, with government help

it can be 1 in 20. Any business with previous experience in dealing with government programs will be pleased with the "simpler, quicker, local" nature of the agency.

It is noteworthy that both ACOA and WDO have included the non-profit sector as eligible for assistance. This should be of particular interest to the community development schemes that are in vogue.

With federal fiscal crunches, budgets have been cut back for all of the federal regional development agencies, and grants converted to loans, and loans to interest-rate subsidies.

## 6. The Link to National Policies

Canada is a "common market" with mobility of labour and capital. At the same time, mobility of labour is seen as a "second-best" outcome, particularly by those regions that would lose people. Should we worry less about differences in regional performance and consequent movements, or **should balanced economic growth remain a public policy priority?**

Almost every "national" policy has differential regional impacts. Lower interest rates help all regions, but particularly help Ontario with its larger share of manufacturing of machinery and other durables. An exchange rate depreciation raises output in all regions, but again helps the price-sensitive manufactured products initially, more than the resource sectors.

Tax reductions spread fairly evenly; government expenditure effects are concentrated in the region of initial spending. Thus there is some latitude for a regional slant on procurement, given that the required goods or services are produced in the target region. The location of government activities in areas of below average income is another option, although it can create problems by distorting local wage rates and requiring more total resources than if the facility was located centrally.

## 7. MOPs and PAILS

A number of questions have been raised. But what is to be done? What kind of policy framework will allow us to have both rising incomes and more balanced regional growth?

In essence, we will need **both** market-oriented policies (MOPs) and specific programs to assist industry and labour (PAILS). Actions which improve the "market signals" will help to reduce structural unemployment, and lead to movements of capital and labour in the right directions.

Examples of appropriate MOPs:

- Allow and encourage wage rate differentials in different regions. The federal government could help by adopting different wage rates in different regions, particularly for the less-skilled, less mobile groups. Private corporations should follow suit. (Recently, the federal government adopted the provincial minimum wage as the minimum federal wage in that region.)
- Don't resist movements of people; encourage mobility, both within the regions and between regions.

But PAILS will also be necessary, including:

- Federally-funded training programs should be expanded in the lower income regions. This investment in human capital will pay off in several ways. Those who remain in the region will obtain better incomes and encourage the location of facilities in the region. Those who move will be better able to secure employment elsewhere. The federal funding is necessary and desirable, since the region sees little benefit from those who move. Yet there must be jobs to move to. Otherwise the retraining does not result in jobs, either in that location or elsewhere.

(The recent experience with Newfoundland fishers suggests some problems with simply doing a bit of human capital formation.)

- Activities like ACOA and WDO can help by assisting in the startup of new enterprises and the expansion of existing ones. Emphasis should be placed on activities new to the region, or on those who plan to serve new markets.

The involvement of provincial governments in economic development is both necessary and desirable. Not only do they have the "ground-truth", but can often deliver the programs more effectively. But the incentives for the provincial governments need to be changed. At present, if a particular action leads to more jobs and more economic activity, the "have-not" provinces find that the resulting improvements in personal income tax and corporate tax revenues lead to lower transfer payments from the federal government under the Equalization program. In some sense, provincial treasurers find themselves in a "macro welfare trap", with additional expenditures for development not matched with an improvement in revenues.

One way to "solve" this problem, is to set the payments based on a "baseline" economic path. If the provinces can improve on that path, then the incremental revenues can stick with the province, at least until the next setting of the baseline. This may entail the provinces accepting some down-side risk as well, although presumably with some provision to except those changes due to federal macroeconomic policies or external shocks. With such a system, provincial governments would see some direct benefit to their fiscal position from additional economic activity.

But MOPs and PAILS or tuning of the equalization program are not enough. Real success for regional economic development requires a set of macroeconomic policies that move the Canadian economy to "full employment", and keep it there.

In such an environment, there is continual pressure to improve on labour productivity, to expand the more productive activities and to shed inefficient operations. Location of a new facility will be influenced by cost considerations, and the search will be made more broadly. Currently, there is little incentive to build new facilities; rather the practice is to "upgrade" or "extend" the current operations. There is no need to locate elsewhere; labour is available almost everywhere.

The dedication to "full employment" was lost in the middle of the seventies. Since then, policy sequentially has focused on inflation, division of economic rents arising from higher world oil prices, repatriation of the Constitution, the FTA and NAFTA, tax reform, the National Unity Debate, and deficit reduction. Now, inflation is down, the economic rents have disappeared, international agreements have reduced economic sovereignty, the GST remains unpopular, Quebec's demands for more sovereignty grow, and federal deficits are under control, but at the expense of weak provinces and declining personal disposable income.

Some might think it is time to return to improving the overall performance of the economy - both nationally and regionally.

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## Guide to Further Reading

James R. Melvin, "Regional Inequalities in Canada: Underlying Causes and Policy Implications", **Canadian Public Policy**, September 1987, XIII:3:304-317.

The paper classifies the principal causes of regional disparities under five headings, examines each in turn, and identifies possible policy actions.

- **Illusory.** Observed statistical inequalities that do not represent real differences among comparable economic units. For example, even with comparable wages for the same skill levels, a region with a smaller proportion of high-paid skills would appear to have lower average income. No **regional** policy action would seem to be required in this case.
- **Policy-induced Differences.** Anything which generates differences in commodity prices between regions, such as tariffs, will also result in differences in real and relative factor prices. If the effect of a tariff is to lower labour costs in one region, then this can show up as an income differential. The policy response should be to remove the offending policy.
- **Market Imperfections.** Greater monopoly power in a smaller region, both in selling of goods and buying of labour, could lead to lower real incomes. The policy issue is whether to deal with changing this market structure. It is not a regional policy, but does have regional consequences. The separation of markets that leads to this result could be a consequence of transportation costs, interprovincial barriers, or other limits to entry in the smaller market.
- **Structural differences.** Different endowments of natural resources (e.g., minerals, timber, petroleum, fish) can lead to different returns to labour in the short run. If terms-of-trade change, this too can lead to differential returns. In the longer run, labour mobility should equalize the returns, but this may be hampered by uncertainty about the duration of the change in relative prices. Increasing returns to scale in certain processes may also work to the permanent disadvantage of regions with smaller plants. Failure of resource owners (provinces) to collect the higher rents from richer resource bases operates to the disadvantage of those regions with lower resource quality.
- **Externalities.** Natural amenities or differing levels of public services could lead to wage differentials even though utility levels of consumers have been equalized through factor movements. Policy actions are unclear in such a case.

Professor Melvin also examines differentials in unemployment and productivity using the same framework. He discusses the possible influences of minimum wages, unions, and other factors. He concludes that the empirical base for understanding regional differences is deficient. It would not be surprising if policy formulation suffers as a result.

$$YDC/POP=LT/POP*INCOME/ET*YDC/INCOME*ET/LT$$

$$LT/POP=SOURCE/POP*LT/SOURCE$$

$$INCOME/ET=EARNED/RDP*RDP/ET*INCOME/EARNED$$

$$YDC/INCOME= YP/INCOME*YDC/YP$$

$$= (1+TR)*(1-TD)$$

$$ET/LT=1-URATE/100$$

WHERE,

YDC	- PERSONAL DISPOSABLE INCOME
POP	- POPULATION
LT	- LABOUR FORCE
INCOME	- EARNED OR MARKET INCOME
ET	- TOTAL EMPLOYMENT
SOURCE	- SOURCE POPULATION (AGED 15 AND OVER)
EARNED	- TOTAL WAGES+UNINCORPORATED INCOME+ FARM INCOME
INCOME	- EARNED + INTEREST AND MISCELLANEOUS INVESTMENT INCOME
RDP	- GROSS DOMESTIC PRODUCT IN CONSTANT 1986 DOLLARS
YP	- PERSONAL INCOME OR MARKET INCOME PLUS TRANSFERS
YR	- TRANSFER RATE
TD	- DIRECT TAX RATE
URATE	- UNEMPLOYMENT RATE

Table 1						
Decomposition of Regional Income Differences						
Relative to National Levels						
		YDC/POP	LT/POP	INCOME/ET	YDC/INCOME	ET/LT
Atlantic	1966	70.4	82.9	82.3	105.9	97.5
	1981	77.4	82.6	86.3	113.9	95.4
	1996	85.4	90.2	87.1	113.9	95.3
Newfoundland	1966	63.0	70.0	78.4	119.4	96.1
	1981	72.5	74.9	84.7	125.1	91.5
	1996	82.9	81.7	87.7	129.8	89.2
Prince Edward Island	1966	67.6	90.1	68.4	111.6	98.3
	1981	73.6	87.2	71.5	121.7	96.9
	1996	86.4	101.5	81.1	111.0	94.6
Nova Scotia	1966	75.1	88.0	86.6	99.6	98.9
	1981	82.0	86.1	90.7	107.9	97.3
	1996	86.6	92.5	89.2	108.6	96.8
New Brunswick	1966	71.2	85.7	81.8	105.3	96.4
	1981	76.5	83.7	84.4	113.2	95.7
	1996	85.5	91.9	85.4	111.3	97.8
Quebec	1966	91.1	98.4	93.2	102.3	97.1
	1981	89.7	96.2	97.1	99.5	96.5
	1996	92.1	97.5	95.0	101.8	97.7
Ontario	1966	115.2	106.6	109.0	97.0	102.3
	1981	104.3	106.1	97.7	98.9	101.7
	1996	104.8	102.7	106.1	95.5	100.7
Prairies	1966	96.2	99.0	93.1	102.8	101.5
	1981	108.1	102.7	102.7	99.5	103.1
	1996	102.7	103.1	93.1	104.0	102.9
Manitoba	1966	93.1	99.9	92.1	100.9	100.2
	1981	95.9	97.5	91.9	105.1	101.8
	1996	99.3	98.3	90.5	109.0	102.4
Saskatchewan	1966	93.3	92.7	94.2	104.2	102.5
	1981	102.4	93.7	98.6	106.9	103.6
	1996	97.4	95.5	84.5	116.6	103.4
Alberta	1966	100.1	102.6	93.0	103.1	101.8
	1981	116.1	108.8	108.5	95.2	103.4
	1996	106.0	107.8	96.9	98.6	103.0
British Columbia	1966	109.3	102.5	108.0	100.3	98.5
	1981	112.8	102.2	110.7	99.2	100.5
	1996	106.4	101.7	103.4	100.3	100.9

# Index of Disposable Income per Capita Canada by Region 1966-1996

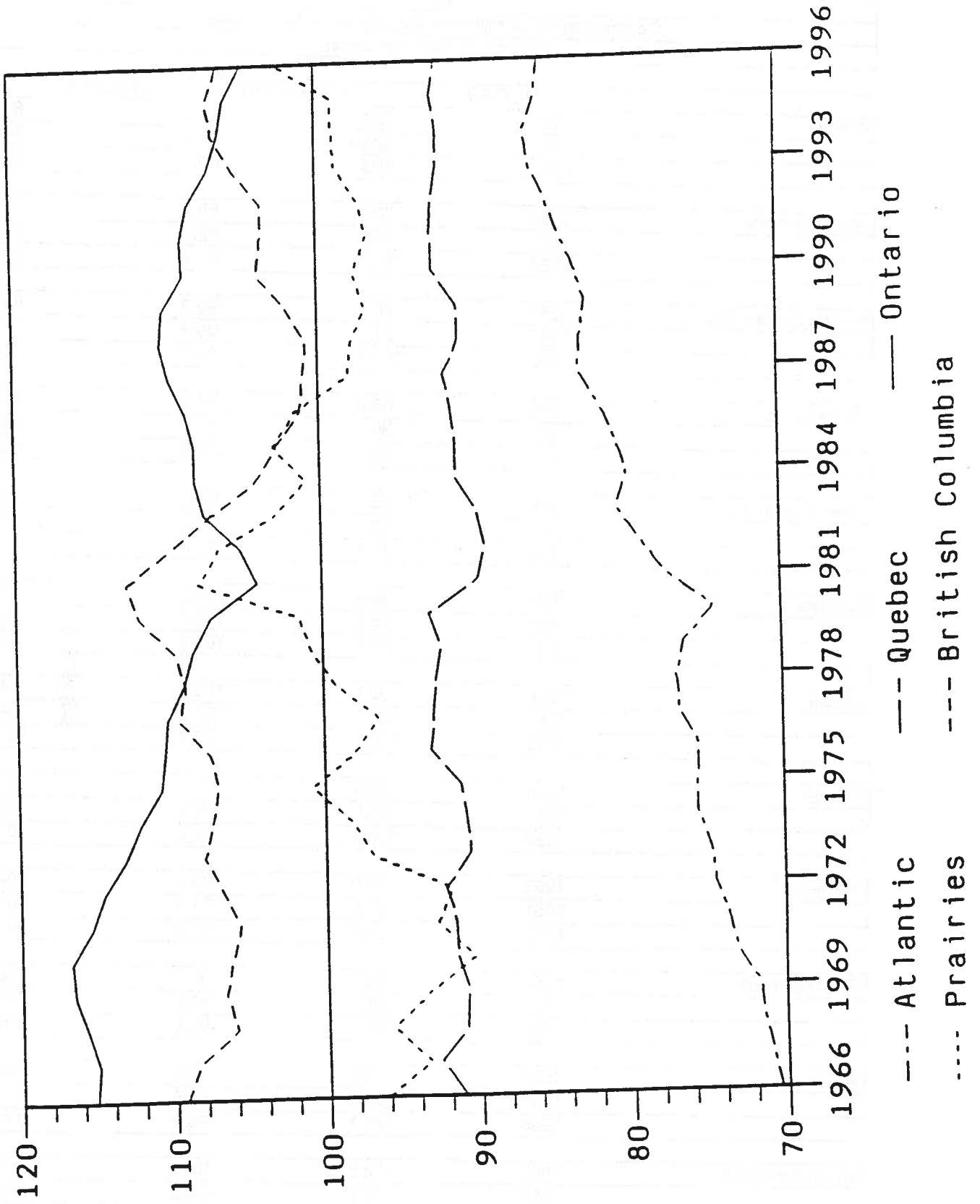
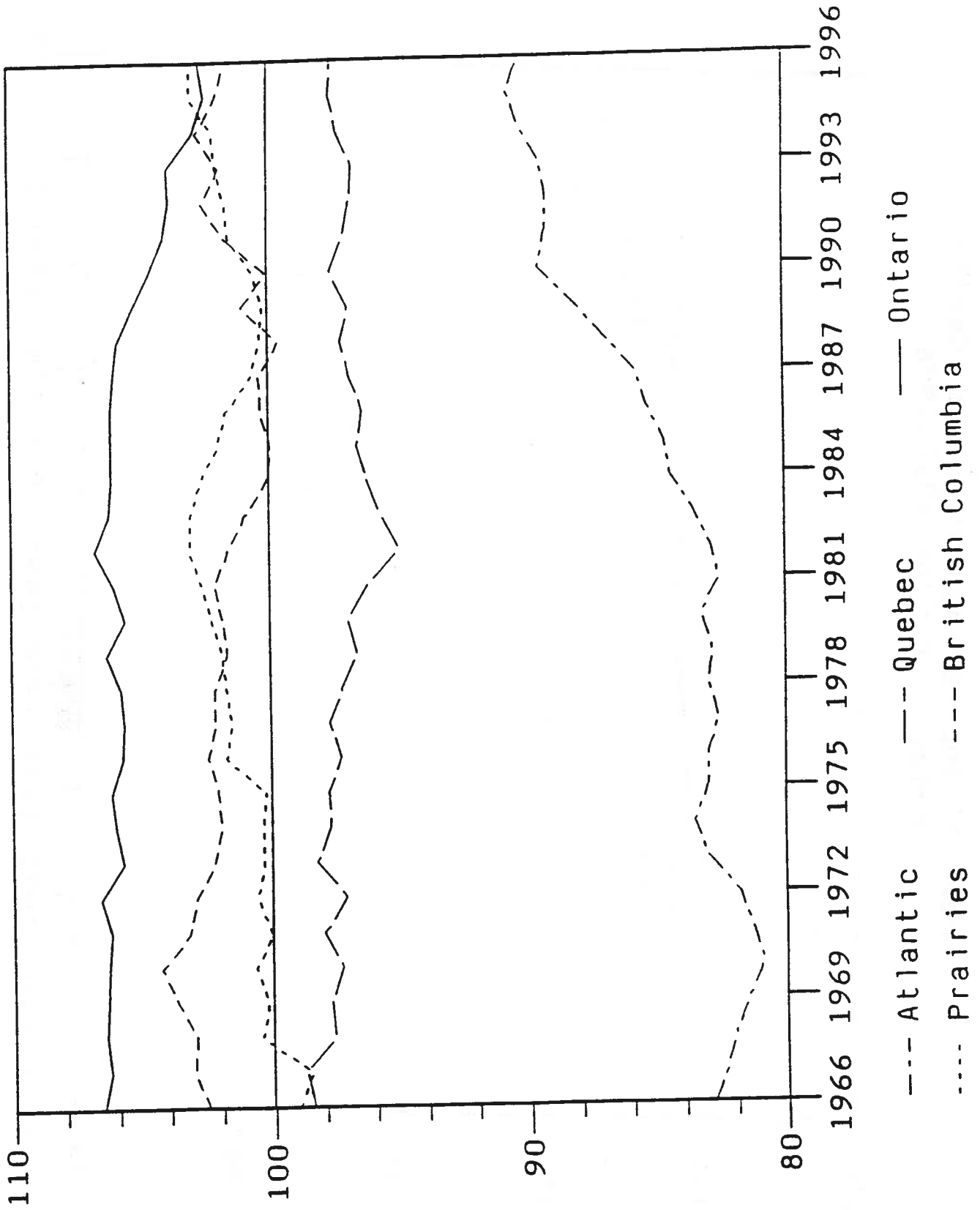
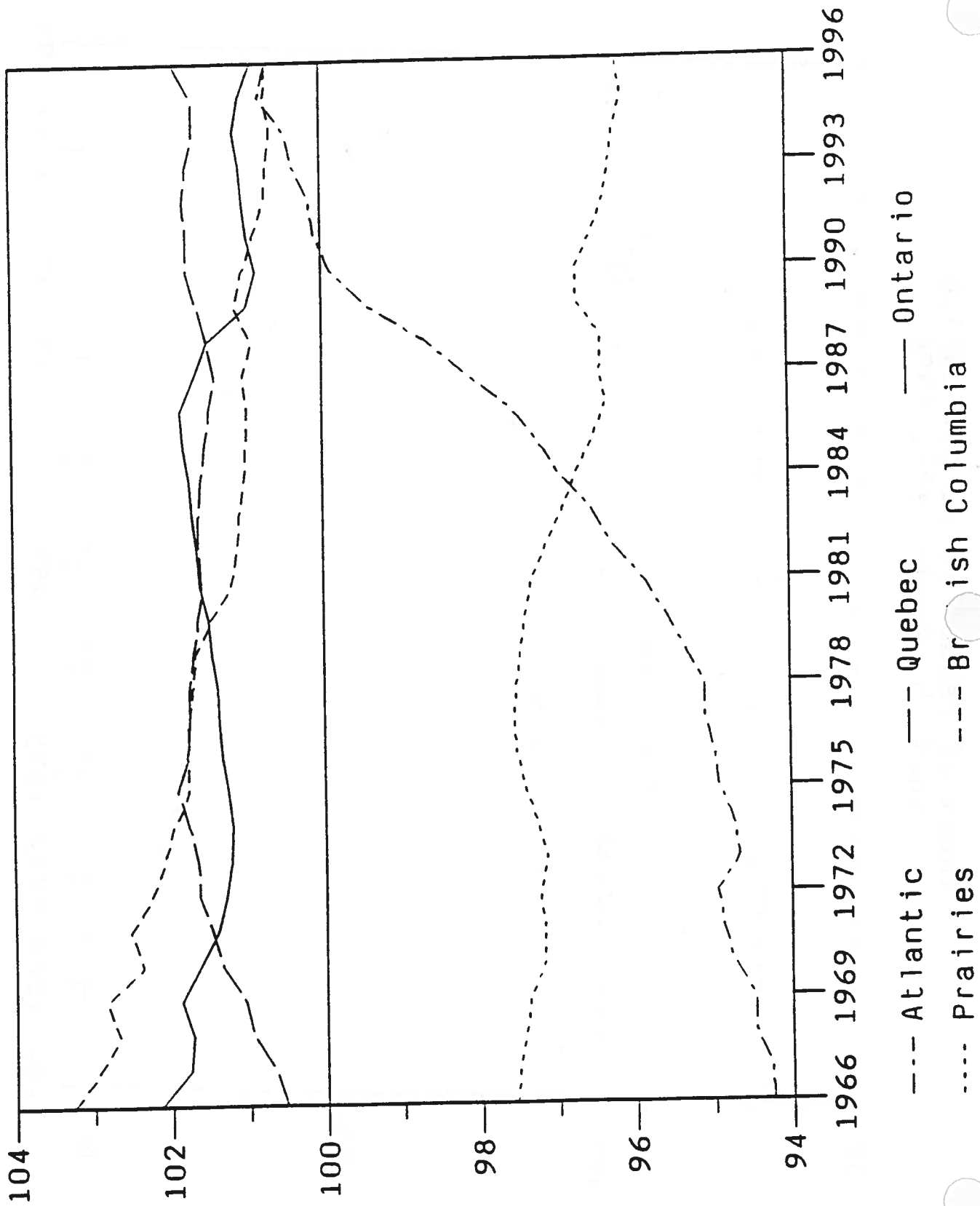


Table 2				
Decomposition of Regional Demographic Differences				
Relative to National Levels				
	LT/POP		SOURCE/POP	LT/SOURCE
Atlantic	1966	82.9	94.2	87.9
	1981	82.6	95.9	86.1
	1996	90.2	100.7	89.6
Newfoundland	1966	70.0	89.8	77.9
	1981	74.9	92.2	81.2
	1996	81.7	101.6	80.4
Prince Edward Island	1966	90.1	95.3	94.6
	1981	87.2	96.8	90.2
	1996	101.5	99.1	102.4
Nova Scotia	1966	88.0	96.2	91.5
	1981	86.1	97.6	88.3
	1996	92.5	100.2	92.3
New Brunswick	1966	85.7	95.3	90.0
	1981	83.7	96.6	86.7
	1996	91.9	101.0	91.0
Quebec	1966	98.4	100.5	97.9
	1981	96.2	101.6	94.7
	1996	97.5	101.9	95.7
Ontario	1966	106.6	102.1	104.3
	1981	106.1	101.6	104.4
	1996	102.7	100.9	101.8
Prairies	1966	99.0	97.6	101.5
	1981	102.7	97.3	105.5
	1996	103.1	96.2	107.1
Manitoba	1966	99.9	99.6	100.3
	1981	97.5	97.4	100.1
	1996	98.3	95.9	102.5
Saskatchewan	1966	92.7	98.7	93.9
	1981	93.7	95.8	97.8
	1996	95.5	94.5	101.1
Alberta	1966	102.6	95.5	107.4
	1981	108.8	97.9	111.1
	1996	107.8	96.9	111.2
British Columbia	1966	102.5	103.3	99.3
	1981	102.2	101.2	101.0
	1996	101.7	100.7	101.0

Index of Labour Force per Capita  
Canada by Region 1966-1996



# Index of Source Population Per Capita Canada by Region 1966-1996



# Index of Participation Rates Canada by Region 1966-1996

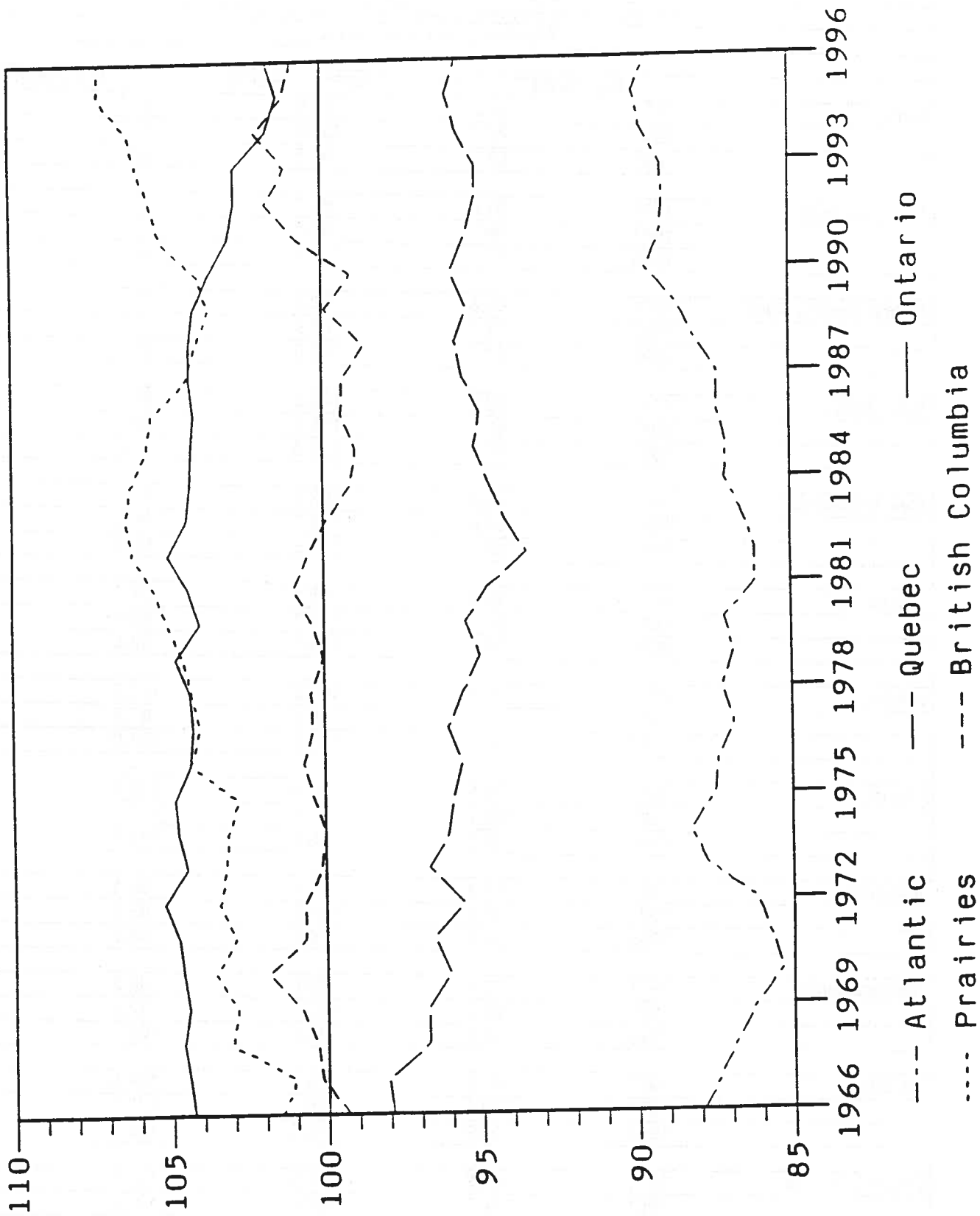
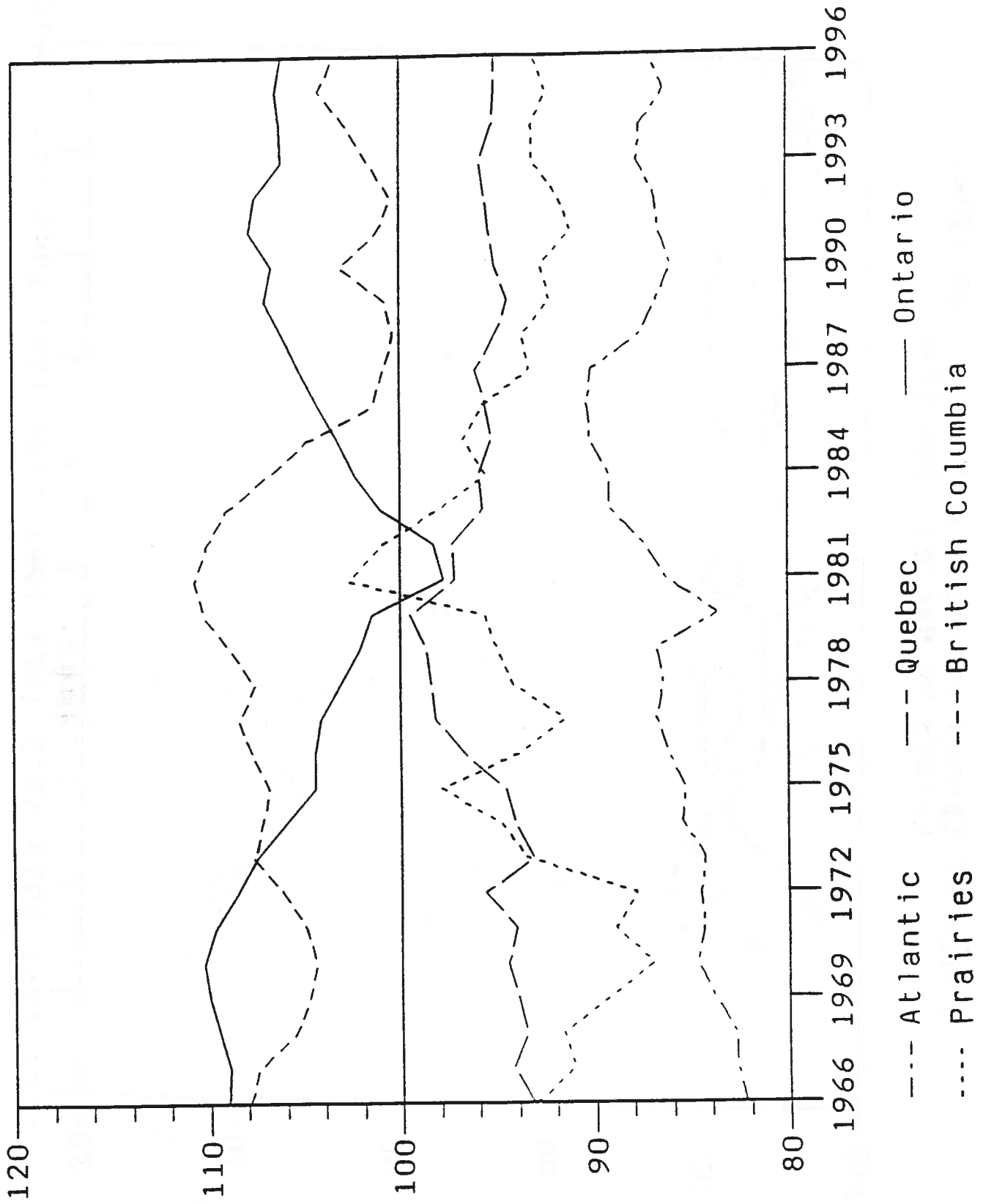


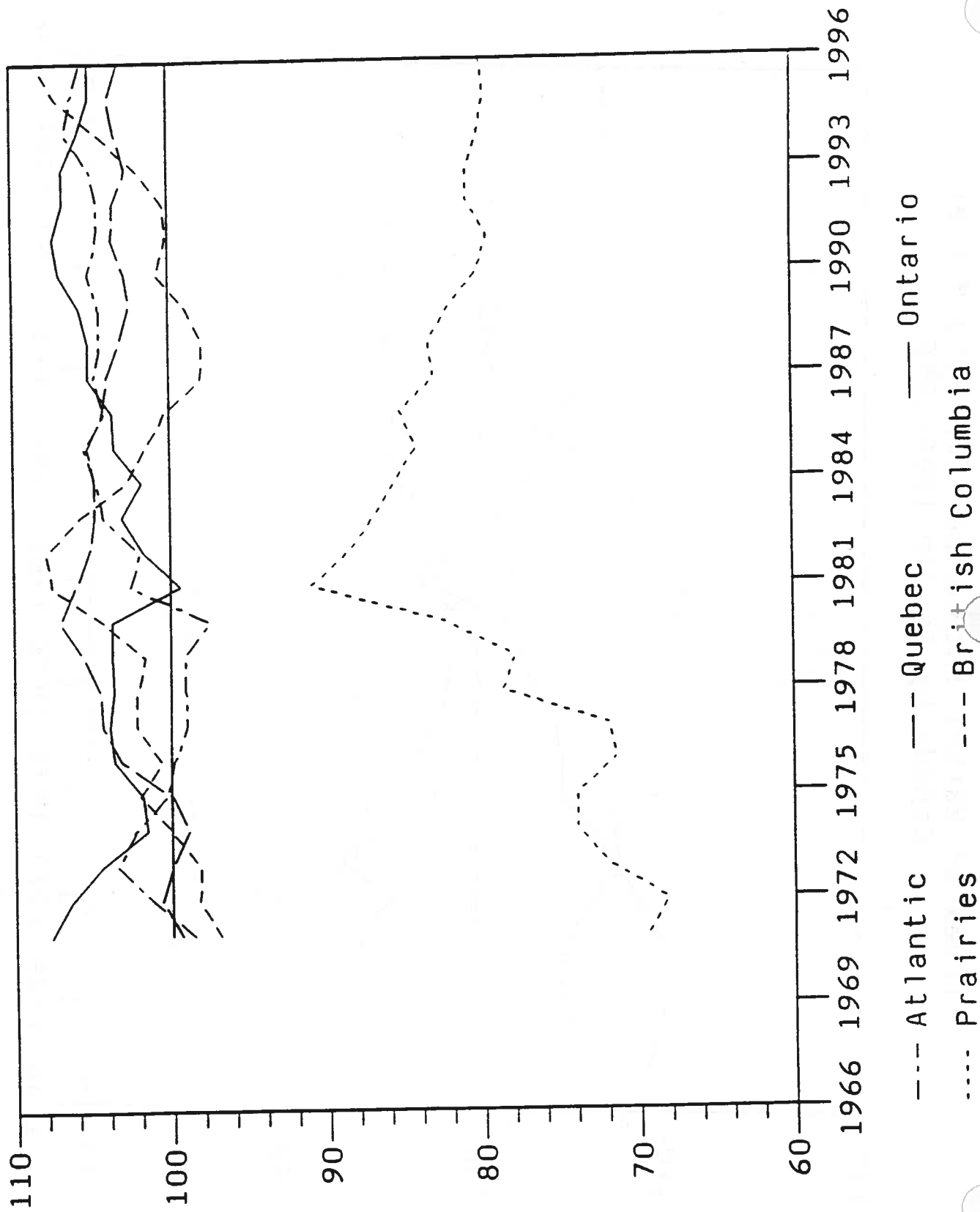
Table 3					
Decomposition of Regional Economic Production Differences					
Relative to National Levels					
		INCOME/ET	EARNED/RDP*	RDP/ET*	INCOME/EARNED
Atlantic	1971	84.3	98.6	87.2	98.1
	1981	86.3	102.6	87.5	96.1
	1996	87.1	105.5	85.1	97.0
Newfoundland	1971	81.4	86.7	97.7	96.1
	1981	84.7	97.6	93.0	93.3
	1996	87.7	107.9	84.7	96.0
Prince Edward Island	1971	65.6	92.3	72.5	97.9
	1981	71.5	93.9	77.7	98.1
	1996	81.1	108.0	77.0	97.6
Nova Scotia	1971	89.0	103.2	87.1	98.9
	1981	90.7	105.8	88.6	96.8
	1996	89.2	106.3	85.9	97.7
New Brunswick	1971	83.8	102.6	83.1	98.4
	1981	84.4	103.6	84.2	96.8
	1996	85.4	102.8	85.9	96.7
Quebec	1971	94.0	99.4	94.7	99.9
	1981	97.1	106.1	93.0	98.4
	1996	95.0	103.1	92.6	99.5
Ontario	1971	109.7	107.8	101.5	100.3
	1981	97.7	99.3	97.5	100.9
	1996	106.1	105.0	101.0	100.0
Prairies	1971	89.0	69.4	128.5	99.8
	1981	102.7	91.0	111.5	101.2
	1996	93.1	80.0	114.6	101.6
Manitoba	1971	91.4	99.4	92.1	99.9
	1981	91.9	101.0	89.0	102.2
	1996	90.5	100.6	88.5	101.7
Saskatchewan	1971	80.4	80.6	99.3	100.5
	1981	98.6	102.1	92.8	104.1
	1996	84.5	80.6	102.1	102.6
Alberta	1971	91.9	56.1	164.8	99.4
	1981	108.5	85.2	127.2	100.0
	1996	96.9	74.5	128.4	101.3
British Columbia	1971	104.9	96.9	107.5	100.6
	1981	110.7	107.6	101.2	101.7
	1996	103.4	108.4	94.9	100.6

\*: Data prior to 1971 is not available.

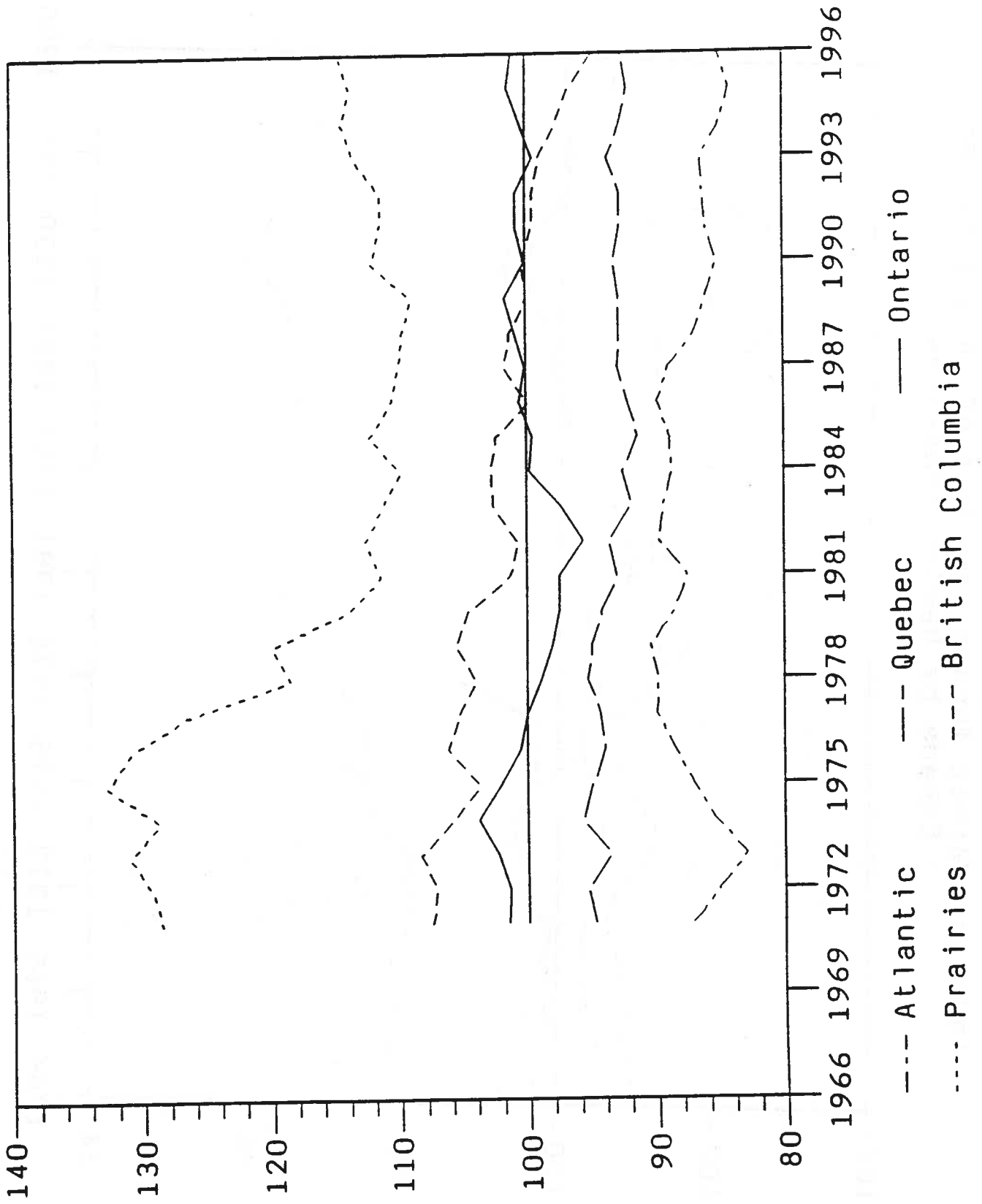
Index of Market Income per Employed Worker  
Canada by Region 1966-1996



Index of Earned Income Per Unit of RDP (\$86)  
Canada by Region 1966-1996



Index of RDP (\$86. per Employed Worker  
Canada by Region 1966-1996



Index of Market Income per Unit of Earned Income  
Canada by Region 1966-1996

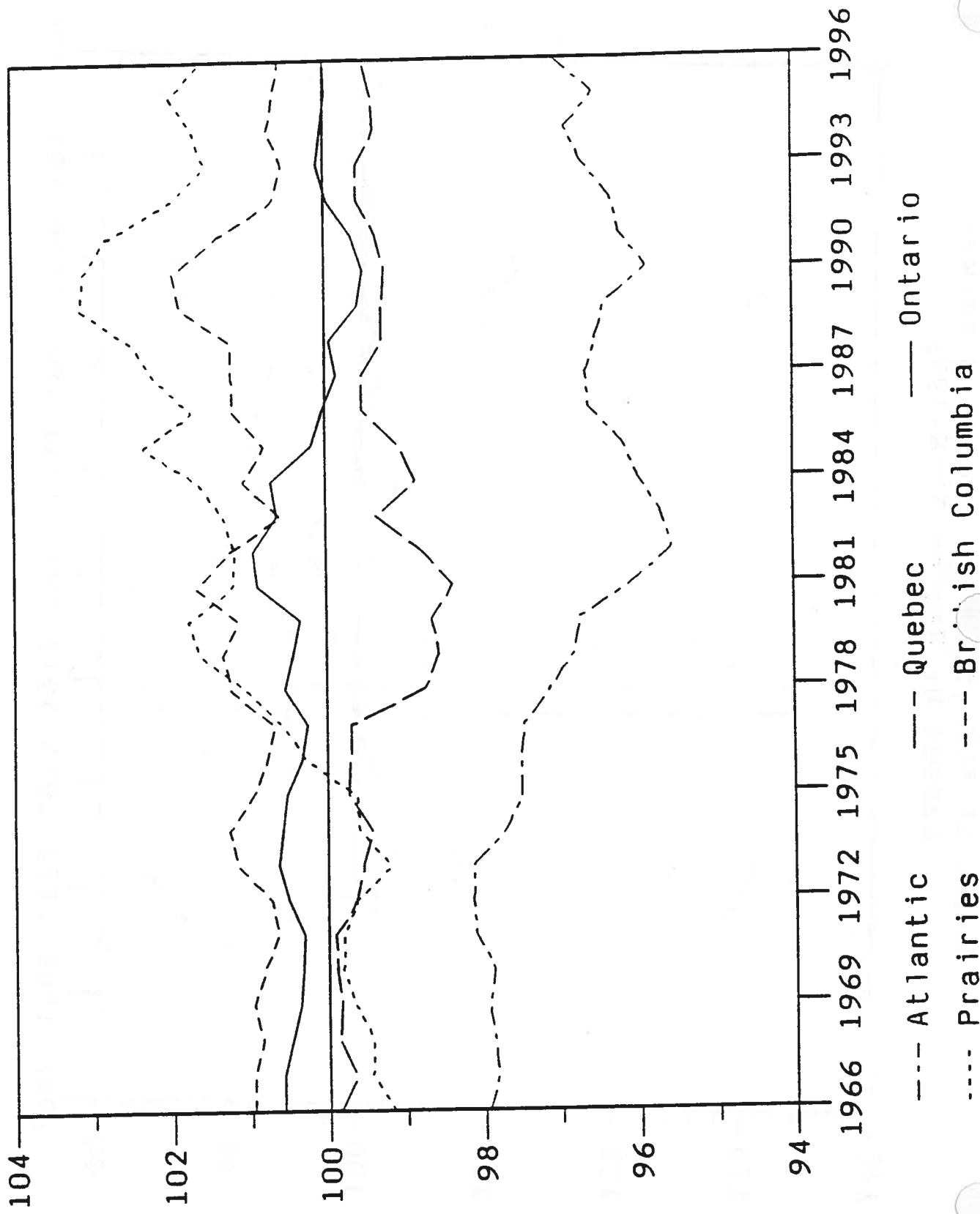
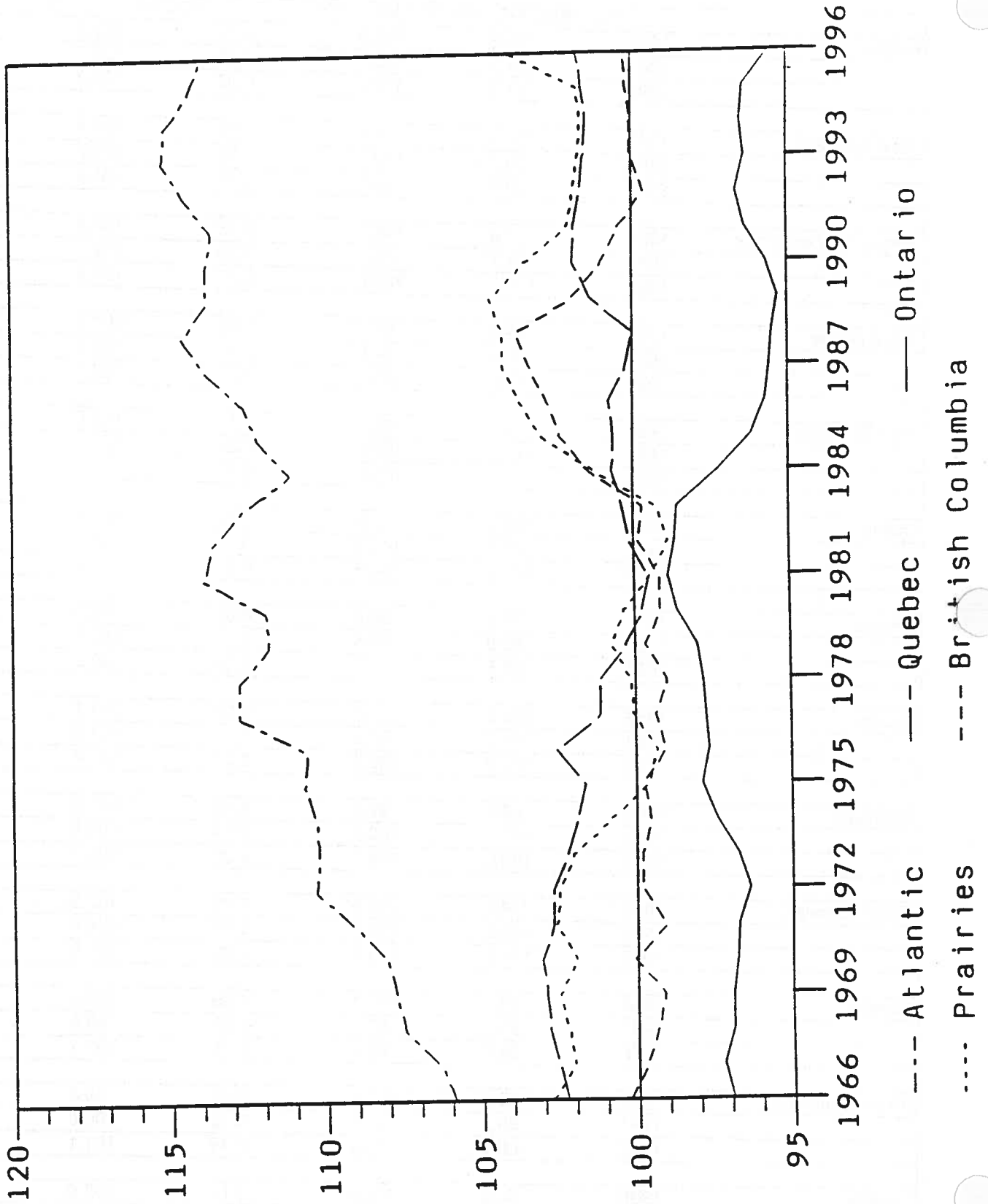


Table 4  
Decomposition of Regional Distributive Policy Differences  
Relative to National Levels

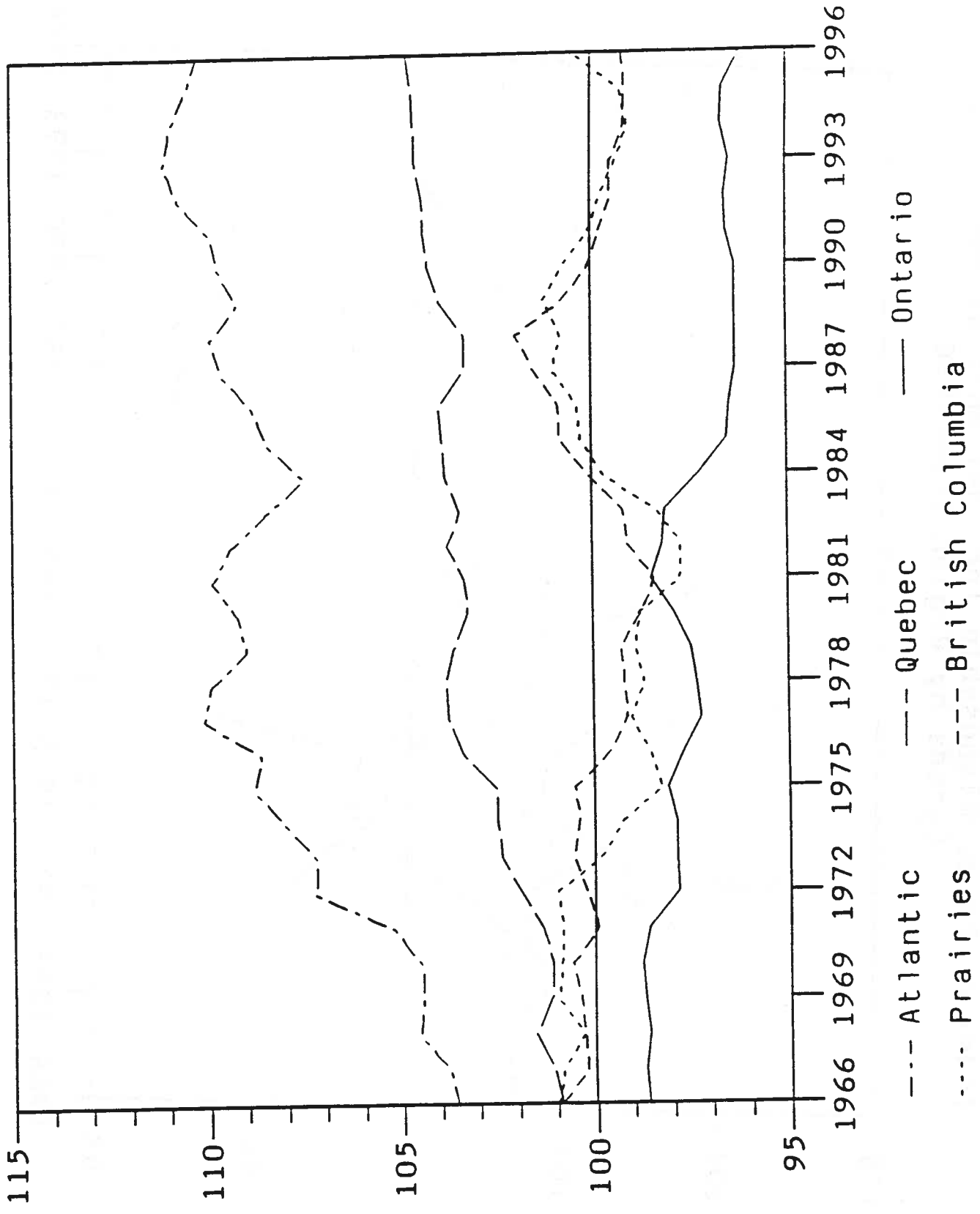
		YDC/INCOME	YP/INCOME	TR*	YDC/YP	TD*
Atlantic	1966	105.9	103.6	0.12	102.3	0.11
	1981	113.9	109.9	0.25	103.7	0.16
	1996	113.9	110.2	0.33	103.3	0.22
Newfoundland	1966	119.4	114.4	0.23	104.4	0.09
	1981	125.1	119.1	0.35	105.0	0.15
	1996	129.8	124.1	0.49	104.6	0.21
Prince Edward Island	1966	111.6	106.7	0.15	104.5	0.09
	1981	121.7	114.1	0.29	106.7	0.14
	1996	111.0	105.8	0.27	104.9	0.21
Nova Scotia	1966	99.6	98.5	0.06	101.1	0.12
	1981	107.9	104.8	0.19	102.9	0.17
	1996	108.6	105.7	0.27	102.7	0.22
New Brunswick	1966	105.3	103.3	0.11	102.0	0.11
	1981	113.2	109.6	0.24	103.2	0.16
	1996	111.3	108.2	0.30	102.9	0.22
Quebec	1966	102.3	100.9	0.09	101.4	0.12
	1981	99.5	103.3	0.17	96.3	0.22
	1996	101.8	104.8	0.26	97.2	0.27
Ontario	1966	97.0	98.6	0.06	98.3	0.15
	1981	98.9	98.5	0.12	100.4	0.19
	1996	95.5	96.2	0.16	99.3	0.25
Prairies	1966	102.8	101.0	0.09	101.8	0.12
	1981	99.5	97.8	0.11	101.8	0.17
	1996	104.0	100.5	0.21	103.4	0.22
Manitoba	1966	100.9	99.9	0.08	101.0	0.12
	1981	105.1	100.3	0.14	104.8	0.15
	1996	109.0	103.7	0.25	105.1	0.21
Saskatchewan	1966	104.2	101.9	0.10	102.3	0.11
	1981	106.9	102.5	0.16	104.4	0.15
	1996	116.6	110.4	0.33	105.6	0.20
Alberta	1966	103.1	101.1	0.09	102.0	0.11
	1981	95.2	95.4	0.08	99.8	0.19
	1996	98.6	96.5	0.16	102.1	0.23
British Columbia	1966	100.3	100.9	0.09	99.4	0.14
	1981	99.2	98.4	0.12	100.8	0.18
	1996	100.3	99.2	0.19	101.1	0.24
Canada	1966	100.0	100.0	0.08	100.0	0.13
	1981	100.0	100.0	0.13	100.0	0.19
	1996	100.0	100.0	0.20	100.0	0.24

\* Absolute Value

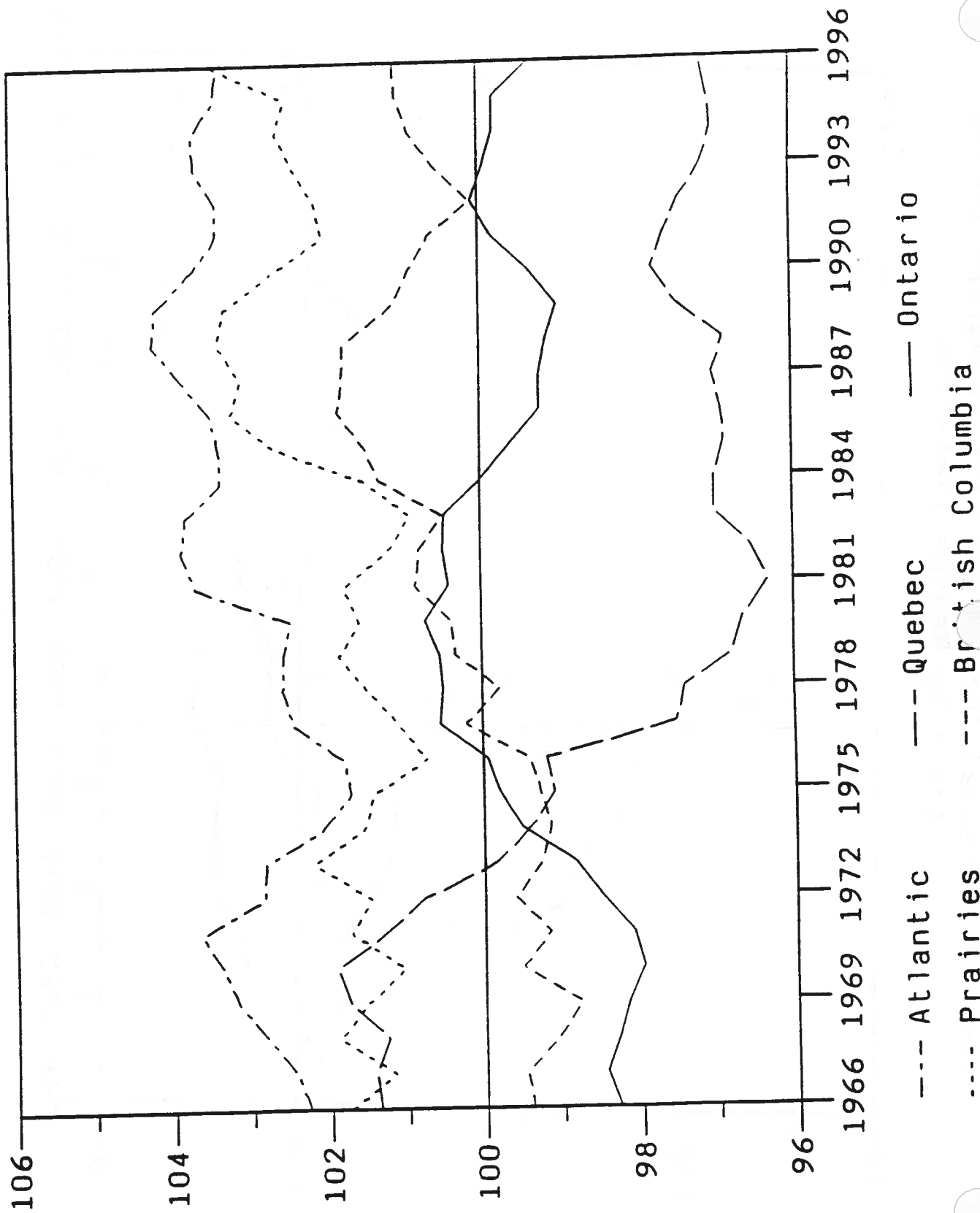
Index of Pers. Disposable Inc. per Unit of Market Inc  
Canada by Region 1966-1996



Index of Personal Income per Unit of Market Income  
 Canada by Region 1966-1996



Index of Pers. Disposable Inc. per Unit of Pers. Inc.  
 Canada by Region 1966-1996

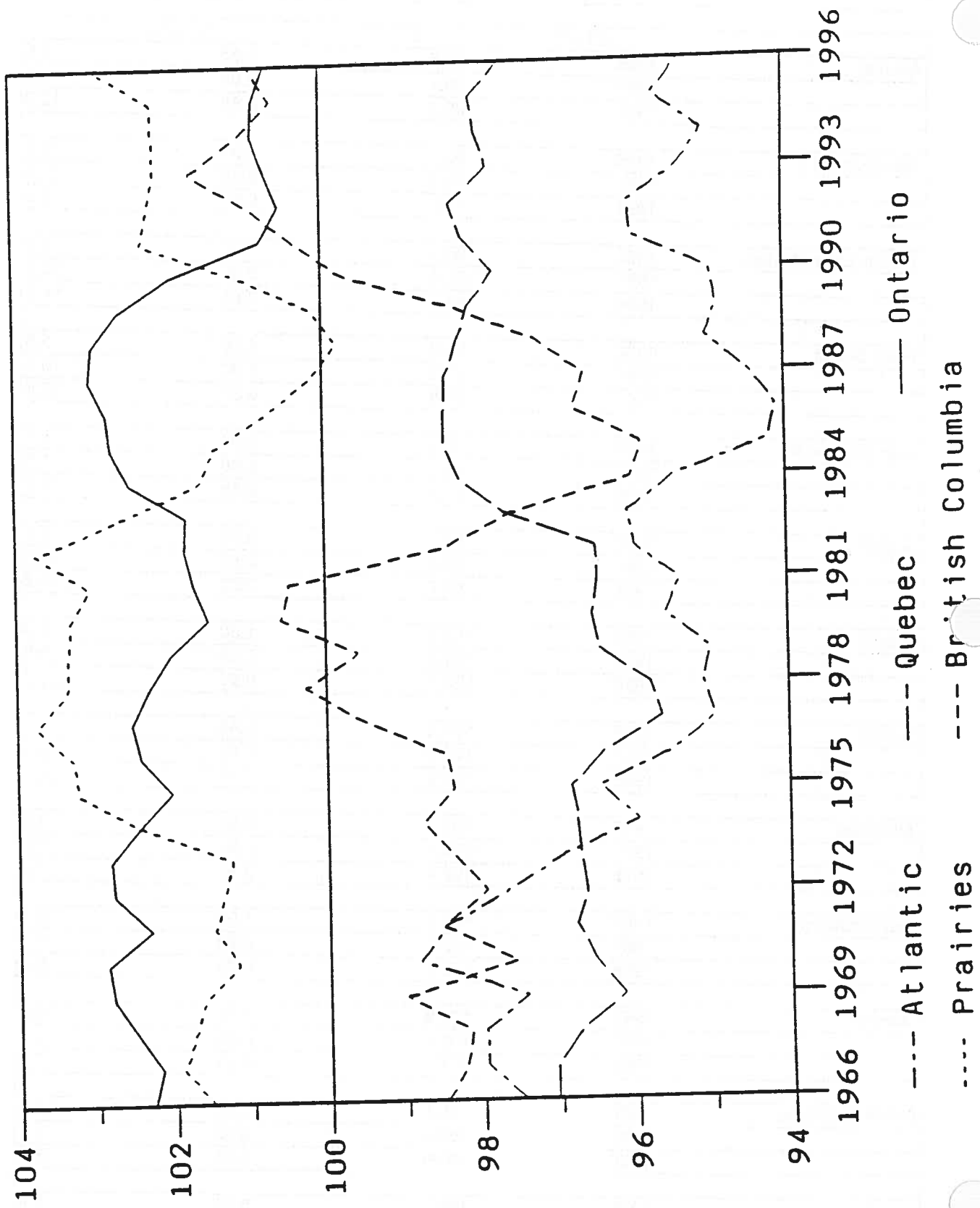


**Table 5**  
**Decomposition of Regional Macroeconomic Performance Differences**  
**Relative to National Levels**

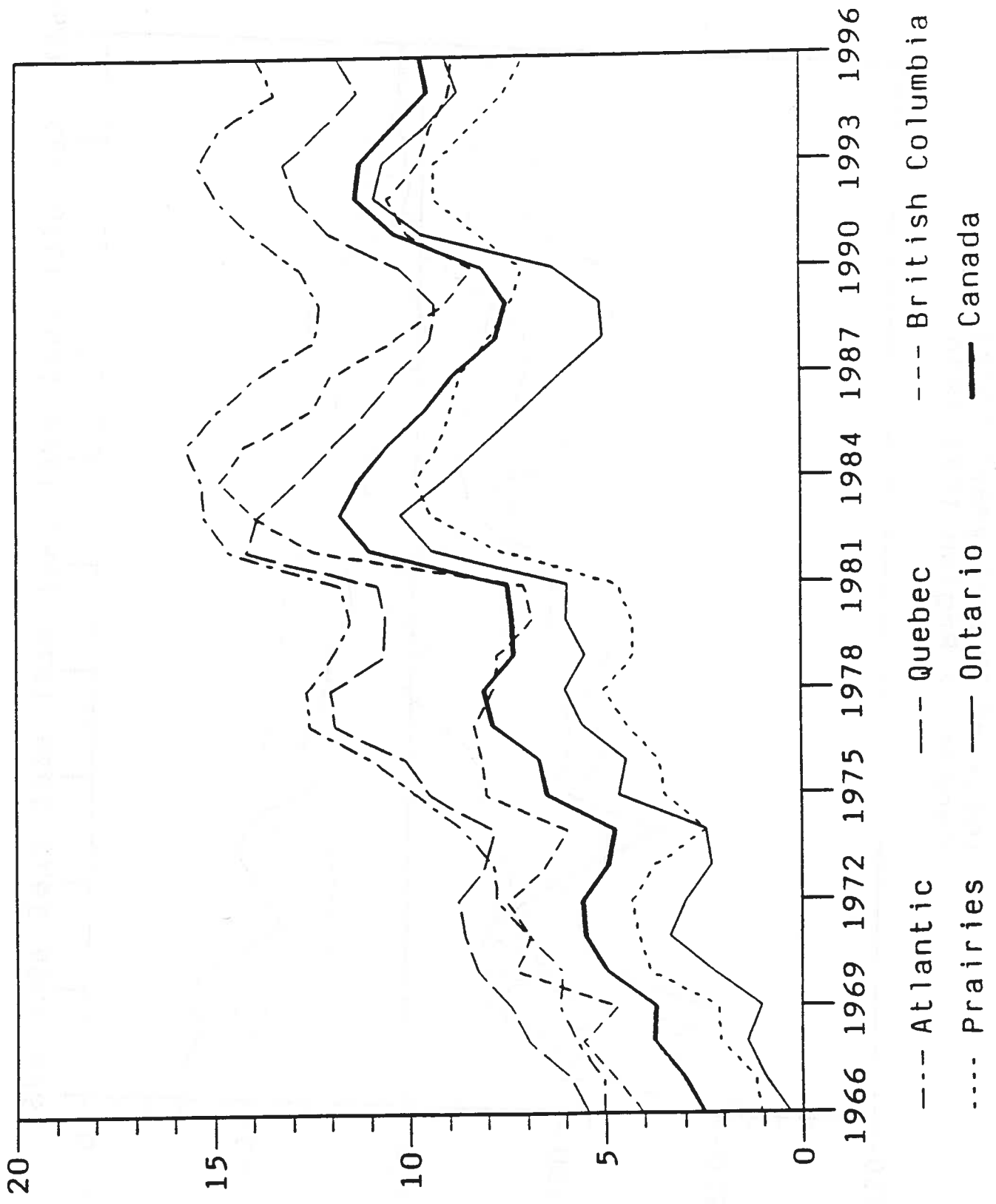
	ET/LT	ET/LT*	URATE*	
Atlantic	1966	97.5	0.95	5.0
	1981	95.4	0.88	11.8
	1996	95.3	0.86	13.9
Newfoundland	1966	96.1	0.94	6.3
	1981	91.5	0.85	15.4
	1996	89.2	0.81	19.5
Prince Edward Island	1966	98.3	0.96	4.2
	1981	96.9	0.90	10.3
	1996	94.6	0.85	14.6
Nova Scotia	1966	98.9	0.96	3.6
	1981	97.3	0.90	10.0
	1996	96.8	0.87	12.6
New Brunswick	1966	96.4	0.94	6.1
	1981	95.7	0.88	11.5
	1996	97.8	0.88	11.7
Quebec	1966	97.1	0.95	5.4
	1981	96.5	0.89	10.8
	1996	97.7	0.88	11.8
Ontario	1966	102.3	1.00	0.3
	1981	101.7	0.94	5.9
	1996	100.7	0.91	9.1
Prairies	1966	101.5	0.99	1.1
	1981	103.1	0.95	4.6
	1996	102.9	0.93	7.1
Manitoba	1966	100.2	0.98	2.3
	1981	101.8	0.94	5.8
	1996	102.4	0.92	7.5
Saskatchewan	1966	102.5	1.00	0.1
	1981	103.6	0.96	4.1
	1996	103.4	0.93	6.6
Alberta	1966	101.8	0.99	0.8
	1981	103.4	0.96	4.4
	1996	103.0	0.93	7.0
British Columbia	1966	98.5	0.96	4.0
	1981	100.5	0.93	7.1
	1996	100.9	0.91	8.9
Canada	1966	100.0	0.97	2.6
	1981	100.0	0.93	7.5
	1996	100.0	0.90	9.7

\* Absolute Level

Index of Employment per Unit of Labour Force  
Canada by Region 1966-1996



# Unemployment Rates Canada by Region 1966-1996



# Index of Unemployment Rates Canada by Region 1966-1996

