The lack of significant impact of past policy initiatives on Canada's problems of regional economic development has been established by several recent papers (Nielsen Report 1986; Lithwick 1986; Savoie 1986); moreover, in the spring of 1987 the federal department that had been responsible for the regional development portfolio was eliminated in favour of new regional development organizations. In this context, the calls for new initiatives made in both the report of the federal-provincial task force on regional development (Government of Canada 1987) and in the last chapter of Savoie (1986) are particularly timely. Savoie's suggestion that new policy instruments should now be tried is based on his assessment of the effects of past regional development programs. By way of contrast, what is argued here is, first, that the conceptual confusion that underlay past initiatives must be
recognized, and second, that the problems and potentials for regional economic initiatives in the 1980s must be analyzed as a prerequisite to the development of new policies.

It is acknowledged that the limited progress in reducing Canadian regional development disparities is an outcome of the broader pattern of national development (Lithwick 1986); when the economy as a whole stumbles disparities increase because problem regions lack structural resilience in dealing with stagflation or a recession. Therefore, it is logical for this consideration of federal policy to begin with the recognition of those aspects of economic development that have direct long-run implications for regional problems. At the outset, however, it must be realized that the context of regional development problems is very complex in an economy as open to international influences and as locationally differentiated as that of Canada, and this means that the logical starting points for a developmental prospectus should be:

1. an assessment of the impact of technological change on the pattern of international trade, and thus on the mix of economic activity that should be encouraged to expand in Canada; and

2. an appraisal of the characteristics of the Canadian urban system which links the locational components of the economy and which transmits influences of economic change to all centres and regions.

Technological Change and the Task of Regional Analysis

Since 25 percent of Canada’s GDP is generated by exports, which permit a comparable level of imports, the economy is highly responsive to international prices, competition, and policies and to the increase in the international trading of knowledge, particularly industrial technology. There is, furthermore, an interdependence between regional and technological policy issues, although this has not been recognized by Canadian initiatives in the past.

Trade

Although the comparative advantage of Canada’s peripheral regions is based on resource extraction, Canada’s international trade pattern over the last twenty-five years suggests that bulk commodities exports are a weakening base on which to maintain a trading pattern. While there have been absolute increases in staple exports over this period and occasional booms in resource exploration and extraction, without a doubt the international terms of trade favour the producers of goods that have a high technological content. The goods experiencing growth in international trade are high value products that embody new technology; for example, data processing equipment, plastic goods, optical and photographic equipment, pharmaceuticals, and control equipment. On the negative side of the trade ledger are non-ferrous metals and iron and steel, wood products, furniture, and paper (Science Council of Canada 1981, 66). Thus, the economies of Canada’s peripheral regions are specialized in those commodities that, despite high prices in the mid-1970s (oil, fish, grain) and in the late 1980s (pulp and paper, fish, non-ferrous metals), are associated with increasingly weak long-term trade positions, and regional economic analysis and policy development must surely start with this fact.

Nevertheless, it would be wrong to assume from this that there is a simple regional dichotomy in technological performance that favours the central region, with its secondary manufacturing and services specialization, over the peripheral regions. In fact, Canada’s trade figures reveal a persistently large deficit in high technology goods; that is, Canada achieves insufficient exports of advanced products. The implication is that even the central provinces are structurally weak by the standards of international trade. The central provinces may have the bulk of Canada’s jobs in secondary manufacturing, but all provinces contribute to Canada’s low level of technological performance, since improved production processes and new products are as valid a strategic choice of progressive firms in the primary sector and in primary manufacturing as they are for firms that produce electronics and drugs.

Jobs

From the early 1950s Canada, like other Western nations, has experienced a shift in the share of employment to services from the manufacturing sector. The change reflects the continued rise in the labour productivity of goods production as a consequence of technically improved equipment and superior management. Increase in household incomes, too, has led to a greater proportion of a largely urban population spending more on services. Trade and social service jobs have also increased their proportional share of the Canadian workforce, the first as a consumption effect of the size of disposable incomes, the latter as an outcome of the increased size of the public economy. The rise in manufacturing productivity has led to declines in the proportion of production jobs, but increase in the technical versatility of services has, by contrast, led to an expansion in the output of existing services and the emergence of new types of service activities. Improved transportation and communications exemplify the first, while new techniques of medical diagnosis and treatment illustrate the latter pattern (Quinn et al. 1987). Of course, technical and scientific jobs have greatly increased
in importance in the economy; some are found in the production sectors, but others are part of the service sector, since specialized contractors (often consultants) in the producer services exist to meet the needs of manufacturing and primary sector firms.

Data processors, management, marketing, and engineering consultants, designers, public relations agents, and advertising specialists all provide inputs to manufacturing, other service sector firms, public institutions, and firms in the primary sector in place of the “in-house” efforts that might have been made in former times (Stanback 1979). Curiously, the “post-industrial” label has been applied to many of these changes (Bell 1973; Cohen and Zysman 1987) while others typify the process of sectoral change as the arrival of the “information economy” (Porat 1977; Hepworth 1986). The rising share of GDP accounted for by services, now over 60 percent, and the declining proportion of the workforce employed in manufacturing, however, obscure the fact that manufacturing now accounts for only a slightly lower proportion of GDP than it did in the 1950s, which suggests that its economic position is no less important than it was at the beginning of DREE’s life. It is equally relevant to recognize that manufacturing continues to maintain its importance in investment and to exercise a propulsive role in urban economies. Part of this experience can be attributed to the capital intensification of manufacturing (Gertler 1986). Nevertheless, economic planners now must conceive of interdependent sets of economic activities when attempting to encourage investment in peripheral regions. Manufacturing and producer services, for example, are not substitutable, but for economic reasons both must grow in parallel fashion if industrial jobs are to be created.

Nationally, the evidence of occupational change across industries is fairly well developed, with increased proportions of managerial, technical, scientific, and other professional jobs and reduced proportions of the lowest skill categories in production, construction, transportation and sales. Technological change is a major agent of these changes. Clearly a pressing question facing regional analysis is whether these changes are distributed equitably across regions and whether, and to what extent, regional patterns of change in the Canadian periphery reflect the fact that local firms, branch plants, and the public sector are taking advantage of the opportunities to adopt new technology and increase their productivity. Are these opportunities less frequently available in some areas? The two most recent regional policy reviews (Lithwick 1986; Savoie 1986) do not consider these issues, even though DRIE’s programs refer to the need to assist technological change.

**R & D and Technological Change**

Canada spends only 1.1 percent of GNP on R&D, which is proportionally half the expenditure level achieved in the U.S., Sweden, Japan, the U.K., or West Germany. This measure is not a precise index of expenditure on innovation or technological capacity, but it is accepted internationally as an accessible measure of the resources that are allocated in aggregate to the development of new technology. In Canada, the low level of R&D spending reflects, in the first instance, the failure of business to undertake R&D, but it also reveals a small government allocation and ineffective inducements by governments for firms to spend. Internationally, the relationship between R&D in manufacturing (R&D expenditures/value added) and trade (high technology goods/exports) is clearly linear, and in the OECD group of countries Canada is placed in an unfavourable position on both dimensions (MOSST 1985).

An implicitly regional dimension to technological change emerges through sectoral analysis; mines and primary metals, food and related industries, and wood-based industries have ranged from poor to nearly average in the growth of R&D expenditures over the past decade, and of the resource staples that drive the economies of the peripheral regions only the petroleum industry has out-performed the rest of the economy. Exploration activity, the main cause of this growth in R&D over the period to 1986, was highly localized in Alberta. Regional economic research must examine which industries contribute to R&D in each region, since some R&D for the resource sectors is undertaken in manufacturing industries such as machinery, although this sector, too, has experienced below average growth in R&D. Research should also be concerned with the speed of adoption of foreign technology and the ability of Canadian regions to respond to the technology needs of their export industries. The technology trade that is implied by this approach can, of course, include interprovincial flows of technological information. The location of laboratories in different industries may favour the central provinces, which have concentrations of R&D (in most fields), technically trained labour, and universities. The implications of this line of enquiry are that the quality of university-industry connections in peripheral regions should be analyzed and compared with the parallel relationships in the central provinces. This research would form a critical component of enquiries exploring the relationship between the technological needs of Canada’s staples and the response to these trading imperatives by business and by regions. To what degree are Canada’s staple-producing regions R&D deserts?

The critical technological issues facing Canada’s less developed regions, then, involve the level of R&D that supports their existing
resource strengths (new product and process technology), the speed at which technology developed elsewhere is made available and adopted, and, finally, the extent to which other forms of incremental innovation are undertaken to improve the competitive position of products from these regions in national and international markets. Some fundamental research is required that will establish both the pattern of technological change (however it is occurring) in Canada’s periphery and the influence that public policy might be having on the process of change. Until this research is undertaken further policy development will be based on guesswork and ignorance.

Technological Change and Regional Policy

Was the importance of technological change in the export sectors of the peripheral provinces reflected in the way Canada’s various regional programs were implemented? Research to date suggests that DREE was not particularly concerned. Is this a fair interpretation? Since the technology used in production processes influences product quality and price, and therefore competitive position, analysis of DREE’s incentive programs should explore exactly where in the product and industry life cycles incentives were allocated. Apparently it was firms in late life-cycle industries that received most of DREE’s financial support (Biggs 1980), but this immediately raises other questions: how were assisted firms positioned within the technology of their industries, and what were the strategic plans of the firms that were assisted? Freeman (1974) lays a useful foundation for considering the latter question.

A regional approach to research on technological change also requires investigation of the improvement in the quality of jobs that has occurred in peripheral provinces, compared with the rate of labour market change in central Canada. Since the technology that firms employ is reflected in the quality of labour that they require, a long term view of development in the labour markets of slow growth regions would place weight on labour training and education to meet the needs of progressive employers and to encourage the emergence of firms that demand technologically sophisticated workers. In the absence of local employment opportunities, however, outmigration of young, trained workers will result from such a training program (see Cousineau and Vaillancourt 1987).

The incorporation of technological priorities into a regional program, which occurred with the formation of DRIE, was a significant change in Canadian regional policy, but little analysis of its program structure or the impact of the Industrial and Regional Development Program (IRDP) has been undertaken. The most obvious feature of the program has been the allocation of 36 percent of its financial assistance to ten grants of $5 million or more (DRIE 1985). The two largest, to auto assemblers, were awarded for modernization, which with expansion accounted for 58 percent of all IRDP assistance, while only 17 percent went to innovation support. Nevertheless, it is clear that DRIE did support technological change (DRIE 1985).

Locationally, however, IRDP has not had an obviously redistributive impact; in 1984-85 for example, 44 percent of its assistance went to businesses in Tier I areas, which are defined to include 50 percent of the population, while 26.5 percent went to Tier II areas, which are the next most developed parts of Canada and which contain 30 percent of the population. By way of contrast, 40 percent of the number of offers of assistance went to firms in Tiers III and IV. This way of considering the distribution of IRDP assistance reduces the influence of a small number of large Tier I grants. The locations of the Tier III and IV firms that have been assisted have not received appropriate analysis, and without this it is impossible to evaluate the performance of DRIE. Were most assisted firms in Tier I centres located in areas with development problems? The growth pole/centre literature, and locational research on technology intensive industry (Oakey 1984; Thwaites and Oakey 1985), both show that technology-based development is highly sensitive to agglomeration factors, and policies to improve Canada’s technological performance should therefore logically be focused on those locations that have demonstrated some structural advantages in generating and nurturing innovative firms (Britton and Gertler 1986). Did DRIE provide proportionately more innovation assistance to firms in major industrial centres in the expectation that this would assist national development? Were Tier III and IV grants made to firms operating within the labour market of industrial centres? What was the geography of IRDP?

DRIE’s mandate also included the joint federal-provincial Economic and Regional Development Agreements (ERDAs), and here it is possible to obtain a clearer immediate sense of priorities, although it is assumed that the aspects of policy that are revealed in data on ERDAs are complementary to those embedded in the IRDP program. How the ERDA vs IRDP allocation of technological tasks has been made, however, has not yet been analyzed. It is clear, nevertheless, that ERDAs are agreements made by the two higher levels of government about industries and regions which themselves have no direct input. The goals of the latter are not represented.

Under the ERDA system of agreements a wide variety of projects has been supported, ranging from the Market Square urban development initiative in Saint John, N.B. to tourism expansion in Quebec (Savoie 1986, Appendix A). Either forestry or paper and pulp, or both, are supported in six provinces, and many projects are explicitly
regional in definition; the peripheral regions claimed well over 40 per-
percent of federal support, and this also required a lower proportion of
provincial financing. In the peripheral provinces, existing industrial
strengths appear to have the strongest call on assistance, but without
detailed examination of the way infrastructural and industrial catego-
ries of expenditures are implemented it is impossible to evaluate
whether the ERDA program has been effective in generating new regi-
onal trading strengths or whether it is the existing structure of
employment opportunities that is the primary beneficiary.

Fortunately, IRDP is not the only R&D or technology-change
support program. Tax concessions have been of increasing importance
in attempts to increase the Canadian level of R&D, but they involve
minimal bureaucratic discretion and, therefore, minimal regional steer-
ing. Other federal initiatives that continue to be of importance include
the Industrial Research Assistance Program of the National Research
Council (NRC). While much of NRC's activity supports R&D, it also
maintains a network of field advisory offices (operating both through
some provincial research organizations and independently) that
respond to technical problems encountered by industrial enterprises in
all regions. What has been the regional distribution of NRC efforts,
and have new ventures been successfully supported in the peripheral
regions?

In addition to these explicitly federal initiatives, technology and
innovation incentives and assistance programs have been developed by
each provincial government for all types of regions, and in this they
have supported local, usually metropolitan, investments in science
parks, industrial incubators, and technology advisory offices. Federal,
provincial and local initiatives have been merged with the development
of advisory literature based on demonstration projects of the "ventur-
ing" process as it might be implemented at the local level in order to
take advantage of the power of local initiative (Doyle 1986).

To ignore these adjuncts to professed regional development pro-
grams is to ignore the thrust that is emerging throughout the OECD,
linking regional development with the emergence of new firms, the
adoption of new technology, and the pursuit of product innovation
(Sweeney 1987; Commission of the European Communities, 1986).

An Urban System Perspective on Regional Development

Research and development, design, engineering, management and
financial capabilities in Canada are increasingly localized in a few Can-
adian metropolitan centres. Therefore, the regulations, policies and
programs that affect these activities, as well as the communications
and transportation systems that bind locations together, have develop-
mental implications for all regions. Regional policy in Canada, how-
ever, has tended to treat problem regions in a spatially disjointed way,
and there is little recognition in development policy that urban centres,
and therefore urban regions, are linked in a powerful systemic fashion.
The Ministry of State for Urban Affairs—1971 to 1979—was expected
to improve the performance of policy in this sphere, but it made little
impact during its brief life. The consequence is that regional or urban
differences in economic opportunity are viewed more as problems of
political jurisdictions, rather than products of spatially structured rela-
tionships.

Conceptually, the ground for an urban systems approach has been
well established by Canadian research, but the following components
are of particular relevance (Simmons 1986):

1. In urban systems studies a nation's regional structure is described
and analysed in terms of a set of urban nodes and the linkages
among them.
2. The urban system includes a large number of nodes of varying
sizes and roles.
3. An urban system is continually in disequilibrium under the influ-
ence of such external events as commodity price changes or tech-
nological change.
4. The structure of linkages among nodes determines the spatial
extent of the diffusion of growth.
5. The attributes of the largest cities tend to approximate the system
average while the smallest nodes show the greatest variability.

Familiar models that are concerned with economic geographic
relationships—input-output, economic base, growth pole/growth cen-
tre, multiplier, and product life cycle—are easily applied within an
urban systems framework; therefore, they provide a bridge to the
logic of regional analysis. But rarely have the problems of poorly deve-
loped regions been correctly viewed within the network of interde-
pendencies that comprise the urban system. This clearly weakens the
way that the problems of these regions, or possible solutions, are speci-
fied. The urban system of Canada is basically a hierarchical structure
modified by the input demands of the staples and the input and output
links of industrial activities, but this understanding of the geography
of Canada has not informed regional programs.

Under DREE, for example, Canadian regional policy failed to con-
nect growth points with the larger urban system of which they were a
part. There was no sense of how the growth centres related to smaller
places or to competing nodes. The fragmentary conception of regional
problems became institutionalized by DREE when it monitored the
incidence of economic disparity at the level of census divisions, ignor-
ing relationships which might link several neighbouring and interconnected urban centres of quite different size and function. As important, DRIE, through IRDP, failed to recognize that firms in the largest centres of lagging regions need more or different assistance from the government than firms in comparably urbanized census divisions in growing regions (Beale 1987).

Distribution of Functions in the Urban System

The Canadian urban system is increasingly tied to Toronto, where national and international functions have eclipsed those of Montreal, which remains the regional centre for Francophone cities in Quebec and New Brunswick. Toronto dominates a broad spectrum of connections established by urban centres in all other eastern provinces and in all of the west; thus growth in the Toronto region is an accumulation of successes that occur throughout the system. It is Canada's head office city for most activities (Semple and Smith 1981) and it is Canada's major distribution, financial services, and transport and communications centre (Simmons 1986). Elsewhere, metropolitan head office functions exist in particular activities, but they reflect the localization of specialized economic activities, such as oil company head offices in Calgary. Every region has at least one metropolitan centre serving an administrative function, but some regions have competing centres, usually in different provinces. While Toronto and many other large- and medium-sized cities make significant contributions to Canada's office and factory production, a wide range of extraction and production activities is carried out in smaller centres that are often located in resource regions (forest products, fish and minerals), or in manufacturing regions (textiles and autos). In either case, these smaller centres tend to have highly specialized employment structures, which sets them apart from the large diversified centres; generally these economic patterns resolve into the association of professional, managerial, and clerical occupational groups with city size (Simmons and Bourne 1984).

Consumer and industrial products and services can penetrate the national market from peripheral regions as well as from the centre, but basic locational principles, articulated by transport and communications costs, render this an unlikely and declining part of Canada's industrial geography. Peripheral regions increasingly have to live with only three economic choices:

- export resources with varying degrees of processing and minimize export vulnerability by means of product innovation and market diversification;
- develop tourist industries and retirement functions in a program of income and employment diversification and bear the problems of seasonality of tourism;
- develop new export strengths based on human capital, especially R&D, associated with resource industries or information-related activities that rely on university expertise.

While it is valid to think of regional development being closely associated with the pattern of urbanization, which in turn reflects the location of manufacturing and service jobs (Savio 1986, 146-148), this is a limited conception of the role of urban system relationships in explaining differences in regional development. Two additional dynamic factors are of critical importance: (1) the way economic changes move through the urban system; and (2) the way the system is itself changed by incorporating new organizational choices. The latter can have profound impact upon the developmental options of problem regions, because it is the organizational and locational structures of major corporations and public institutions that comprise the main connecting elements of the urban system and the main agents of change of that system.

The differences between these modes of change may be illustrated by the diffusion of innovations. New ideas tend to be diffused down the urban system following marketing principles (for example, video stores), across the system (industrial processes) or they may follow institutionally determined contact paths (for example, technology centres). Lag time in receiving an innovation is one measure of urban differentiation. All that is involved is a temporal difference, especially with consumer related innovations like computer or video stores, or fast food fads. Income equalization programs that maintain the power of households to consume in regions of high unemployment thus permit retail and related innovations to diffuse completely, over time, but without modifying the relationship between urban centres.

Other innovations, however, are part of more basic changes occurring in the functions undertaken in major centres whose influence extends, through locational decisions over investment and employment, to the economic activities in lower order centres. Automatic teller machines (ATMs), at first glance, are yet another consumer-related innovation. Their spread, however, is accompanied by a reduction in traditional jobs within bank branches and regional offices, and an increase in the centralization of planning, systems operation, software updating and consumer marketing, and the higher paid jobs that are implied by these activities. More generally, bank head offices are now highly localized in Toronto, and this is true, to a large degree, of the other pillars of the financial establishment that are fast merging in function and control. The implications are that:
1. Within national financial institutions loans are more centrally controlled, potentially limiting discretionary authority in peripheral regions; more than ever, regional sources of venture capital are required.

2. Major administrative functions within the financial sector tend not to be found in centres in peripheral regions, at least not in the national institutions; regional banking and trust companies emerge periodically, but become part of national institutions in order to deal with the risk.

3. The related income, multiplier, linkage and job effects of these institutional choices make regional economic development a more difficult task because of the limitation of functions that are likely to be located in centres such as Halifax.

If management, producer service, R&D and other professional and technical jobs in all sectors were mapped, "urbanization" would have different meanings depending on location and position within the Canadian urban system. Differences in the growth of these occupations in Toronto and Halifax, for example, would illustrate the greater shift towards these quaternary jobs in Toronto. The implications of such results for future economic development in Halifax would be fairly clear; regional cities will have a difficult time generating growth in information-related jobs unless they have corporate head offices, innovative plants, and R&D, design, and engineering functions that create jobs for specialists.

Some indication of this pattern is obtained from provincial data, which show that whereas "information sector" jobs in 1981 attained a location quotient of 104 in Ontario, Nova Scotia scored only 89 (Hepworth 1986). Moreover, the information gap between these provinces is reflected by higher quotients for Ontario in occupational groups such as scientific and technical (diff. = 31), consultative (25), managerial-administrative (27), communication workers (32), and information machine workers (52). The first three of these reflect the important corporate and producer service specializations of Toronto, while the latter two occupations are associated with the concentration of Canada's computer capacity, 65 percent in Ontario compared with Nova Scotia's 1 percent. Halifax is distinctive in Atlantic Canada as a regional concentration of public sector jobs (public administration and defence, health and education sectors), and this is reflected in the occupational pattern of Nova Scotia's information workforce and its constrained development.

Canada's peripheral regions are thought to be poorly positioned to take advantage of the telecommunications systems that are an essential part of the new information economy (Lesser and Hall 1987; Hepworth 1986). The implication of this argument is that these regions, which failed to industrialize because of the disadvantages of location, are inhibited from benefiting fully from information technology, even though it can allow many economic activities to choose locations more or less independently of communication costs. Although telecommunications infrastructure is in place, and networks are neutral in determining the regional allocation of benefits, the impact of telecommunications depends on the investment and organizational decisions made by firms, and Lesser and Hall point out that central area firms are generally better able to take advantage of the options presented by new technology.

The flexibility of modern technology can compensate the generally smaller firms in peripheral regions by allowing them to obtain economies of scope to replace the disadvantages of small scale, but small-and medium-sized enterprises in the more highly industrialized cities of central Canada can, and do, obtain this benefit. The difficulty facing peripheral regions in expanding their information economies relates to their less developed economic base, smaller local markets, and limited labour skills, all of which impede the rate of adoption of new technology—even when the modular investment is limited to the purchase by each firm of a PC and network services. Information related jobs in each Atlantic province, for example, employ a smaller proportion of the workforce than is true for the nation—location quotients on employment in 1981 range from 90 to 76—and the proportions for managerial and administrative jobs are even lower—78 to 63, indicating a limited decision and investment capacity; both manufacturing and FIRE sectors are less well developed than their national equivalent (Hepworth 1986; Lesser and Hall 1987). It is important, therefore, to recognize that powerful urban system effects, which derive from new telecommunication technology, may disadvantage peripheral regions.

1. In multi-locational companies, considerably more centralization of high level management jobs and scientific and technical functions is now possible. Both the quantity and quality of employment in branch operations may be reduced.

2. At the same time, firms whose origins are in a peripheral region can now manage a multi-locational organization without establishing any part of their firm in a central metropolitan (market) centre. However, the costs of doing this are probably higher, because telecommunications costs are related to distance.

3. The activity location patterns of a wide variety of major corporations favour a strong metropolitan location of high level management and technical personnel, and the problem of regional disparities in "new" information-related jobs is likely to intensify.
4. Some peripheral regions, such as the west coast, have amenity advantages and may be able to retain and attract the kinds of personnel that will assist the expansion of information jobs at a faster rate than is likely in unattractive regions such as Northern Ontario and Newfoundland.

Paradoxically, Canadian firms with international operations can now maintain a substantial part of their expanding information workforce in Canada more securely than hitherto. Thus Ottawa and Toronto can compete as international technical or regional centres, although the firms with international operations are unlikely to have or to want to have facilities in slow growth regions. The amenity value of major cities has much to do with this pattern, although there are a constellation of factors, including industrial and occupation mix and educational attainment of the total labour force, that are relevant.

Conclusion

As noted in the introduction, Canada’s experiments with regional development programs administered by a federal department dedicated to this task appear to be at an end now that DRIE’s life is over. The new arrangements include:

1. Regionally-based administrative units that will allocate federal finance to reduce regional disparities in economic development. The Atlantic Canada Opportunities Agency and the Western Development Office, for example, will take over functions handled up till now by the Department of Regional Industrial Expansion (DRIE).

2. DRIE, trimmed down in this way, is now amalgamated with the Department of Science and Technology (formerly Ministry of State).

3. Economic Regional Development Agreements (ERDAs) for joint federal-provincial spending on infrastructural projects will be part of the mandate of the Ministry of Industry, Science, and Technology (MIST).

The current reorganization appears to reflect three specific influences in addition to the general impression that previous regional development programs of the central government have not had a significant impact:

1. the desire to reduce the size of central bureaucracies in favour of provincial, authority, or joint federal-provincial arrangements, thus decentralizing spending power and accountability;

2. implementation of cost-effectiveness criteria in the evaluation of programs with a view to reducing the size of the federal deficit—the assessment of DRIE in the Nielsen Report (1986), for example, was strongly negative; and

3. a change in political priorities, which has moved technology and science to a higher position in Cabinet priorities.

Politically, the change in administrative arrangements makes sense, since choices between attractive alternatives for assistance will now be made by supra-provincial bodies, which could be less influenced by the political process. The political environment in which DREE and DRIE operated buffeted and shaped their organization and their actions to the point that neither had a clear, theoretically defensible development mandate for allocating assistance or for managing its initiatives. The results of overseas experience with regional development programs, and Canadian and overseas research on economic development, never seemed to penetrate to DREE or DRIE. If they had had some impact there would surely have been more positive results available after thirty years of experimentation.

It would be wrong, of course, to interpret overseas experience too literally as a guide for Canadian action; the regional problems of a declining industrial economy such as the U.K. scarcely provide an appropriate model. Yet in the case of peripheral regions in the U.K., research has shown that regional development cannot be based on a branch plant economy. This clearly embodies lessons for Canada. More bluntly, if we stand back from the Canadian regional question, the task facing DREE and then DRIE was to take an economy into the late 1980s knowing at each step of the way that:

1. Canada’s population would grow, especially because of migration, and this would provide domestic demands to sustain secondary manufacturing and service job growth. The logic of demand-led growth would provide the functional economic base for the central provinces, which also had important tradeable natural resources and a history of inexpensive electrical power.

2. The peripheral provinces contained much of Canada’s export strength in the 1950s. They still do. The task was to create regional economic production spinoffs from these trading strengths. The goal should have been to preserve regional strengths so that the international competitive position of Canadian resources would be maintained or strengthened, and the task, one of reading correctly the international signals or competitive sources of supply, new technologies, cost structures, and so on, and assisting Canadian producers to adapt or to lead the pattern of international economic change.
This mandate for DREE and DRIE recognized Canada's view of its own regional strengths in the 1950s and the way the regional development task has progressively unfolded over time. Consideration of the evidence and arguments suggests that the obvious tasks were not undertaken and that regional strengths were not used as a vehicle for improving the structure of regional economies. To the extent that the agenda that has been outlined in this paper is essentially an unfulfilled prospectus, then there have been thirty years of squandered opportunity.

If the task of regional economic development is now to take up the challenge of building on the resource strengths of Canadian regions, it must be recognized that the development opportunities for the peripheral regions will derive more from the creativity of human resources—innovation—than has been true in the past.

To be critical of the effectiveness of DREE and DRIE, however, is not to deny the importance of a "top-down" approach to regional economic development. Local initiative is to be stimulated, but the regional scale of agency is required for several reasons.

1. Canada has an overload of provincial Balkanization and rivalry, and planning for a larger-sized region is, in this context, a desirable choice.

2. Federal and provincial departments, and local governments, must coordinate their investment and assistance initiatives; bodies such as the Atlantic Canada Opportunities Agency provide focus for regional initiatives.

3. This type of body will have a large enough budget to assemble, maintain, and use relevant information data bases. The objective should be to act on international trends and interregional patterns of change by acquiring a coherent sense of the opportunities for growth and new investment in the region. Similarly, changes in the occupational structure of all Canadian regions should be a subject for constant concern, so that regional performance can be placed in context.

4. The agency should be able to enrich its data base and set achievable targets if it maintains a planning staff which continually updates its field experience as well as its skills in policy formulation.

Regional economic development as a planning activity and as a research focus has a substantial agenda of unresolved questions. Unless they are answered it is unlikely that new choices in Canadian policy implementation will be decisively taken. The case has been made that regional development policy must be based on four principles.

One, regional policy should be responsive to patterns of national and international economic change such as the interregional dynamics of occupational structure, the expansion of national market opportunities based on the availability of telecommunications technology, the high mobility of capital, internationally, to locations with very low wages, and the related need for labour training programs to create a technologically more valuable workforce.

Two, an interdependent view of the activities comprising a regional economy should prevail. This means arguments of the type that particular sectors "lead" or are "basic" should be viewed as oversimplifications that will not permit effective policy formulation. Although manufacturing jobs are shrinking in their proportion of the labour force, primary and manufacturing activities are more or less retaining their share of GDP. Jobs in the services are on the increase, yet many of them are in the producer services that supply intermediate inputs to all sectors. The vitality of manufacturing now depends on the technological and business inputs from the producer services; one will not survive without the other in the same region. Interdependence means successful commercial transactions between firms within the region, but finding a contractual partner can be difficult unless the regional development agency undertakes a brokerage function.

Three, the relocation of existing enterprises should be avoided in favour of indigenous development. Michelin, producing from a set of plants in the same region, is acknowledged as an employment coup, and the establishment of Magna in the Atlantic region has growth potential, but how many other corporate branches can be attracted, at what cost, and for how long? Will they grow, will they generate backward linkages in the region, and do they have any potential to spinoff other enterprises?

The alternative scenario involves a broadly-based development of regional human resources. Local staples and other corporate resources must be encouraged to develop new or improved products and to design or to adopt superior process technology, to secure current markets and, potentially, to expand through new sales. Encouragement comes in various forms; the public recognition of the value of these initiatives, and the development of linkages between the technical and research resources of universities and established (and new) industrial enterprises are two obvious modes. The implication in both cases is that a brokerage role is played by the regional development agency.

"Indigenous development" tends to imply that small- and medium-sized enterprises, in all sectors, are the main vehicle for growth, and that special environmental conditions (incubators, for example) need to be supplied; these might help if located in one or two major urban centres, but interdependence between small and larger firms is usual and provides highly desirable conditions for small firm survival. Spin-
offs from larger enterprises may be accompanied by market and material support, technical assistance and sometimes longer term financing. This source of new enterprise brings with it some security of marketing and input access and, therefore, is to be encouraged. Regional agencies can assist in easing the way through the formalities of starting all new enterprises; for businesses that do not have corporate origins, assistance in formulating a business plan is mandatory if other forms of support are to be obtained. Thus, a regional development agency should be seen as coordinating provincial and local initiatives that support new business.

Four, economic development as described here is an unbalanced process based on technological change, which locationally is highly sensitive to agglomeration advantages. The localization of assistance should, therefore, be undertaken in order to enhance these market choices. This principle acknowledges that throughout the urban system the size and complexity of economic function, agglomerative advantage and the location of technological change are mutually supportive facets of economic development, and it is time that Canadian regional economic development programs recognized the fact.

References
