

# Western Economic Review

September 1983

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ASSETS	March 31, 1982	March 31, 1981
Temporary Investments .....	\$ 604,342,412	\$ 349,513,979
Advances and Other Receivables:		
Crown Corporations, Agencies, Boards and Commissions		
(Net of related Sinking Funds of \$68,246,651 at March 31, 1982		
and \$58,209,527 at March 31, 1981) .....	1,584,338,687	1,371,990,079
Government of Canada and Others .....	62,150,821	68,475,577
Long Term Investments .....	243,068,323	241,091,627
	<u>\$2,493,900,243</u>	<u>\$2,031,071,262</u>
 LESS: Allowance for Losses on Realization of Assets .....	 114,026,256	 120,974,932
 Total Assets .....	 2,379,873,987	 1,910,096,330
Excess of Liabilities over Recorded Assets .....	1,091,131,643	822,040,709
	<u>\$3,471,005,630</u>	<u>\$2,732,137,039</u>
 LIABILITIES		
Amount Owing to the Trust Fund .....	\$ 313,408,597	\$ 244,370,858
Bank Overdraft and Promissory Notes .....	53,565,192	33,710,702
Accounts Payable, Accrued Charges and Funds		
Subject to Call .....	250,273,452	184,683,915
	<u>\$ 617,247,241</u>	<u>\$ 462,765,475</u>
 Reserve Accounts .....	 \$ 1,221,235	 \$ 1,273,909
 Bonds, Debentures and Other Securities .....	 \$3,193,883,997	 \$2,548,423,189
LESS: Sinking Funds Provided .....	341,346,843	280,325,534
	<u>\$2,852,537,154</u>	<u>\$2,268,097,655</u>
Total Liabilities .....	<u>\$3,471,005,630</u>	<u>\$2,732,137,039</u>

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# Changes in Federal Pesticide Registration Procedures 1968-82: A comparative analysis of Canada and the United States

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Pesticides are an increasingly important purchased input in agricultural production. Although the pesticide industry is not subject to price regulation or formal barriers to entry it is highly regulated. Such regulations can have major impacts on retail prices. Where Canadian and United States regulations differ the potential exists for farmers to face differing price structures that can ultimately lead to different production practices and different returns. This paper examines changes in the basic federal regulations governing pesticide registration in both countries[1].

The last decade has witnessed major expressions of concern over the appropriate role and scope of regulation in the economy. This concern has been manifest in a number of ways including: election of governments which have indicated commitments to reducing government intervention in the marketplace, various forms of debate on regulation and considerable academic research on the question.

For the most part the focus of this research has been on the impacts of regulation of direct economic factors such as price

regulations and entry and exit regulations. Doern identifies two principal arguments for regulation; natural monopoly and destructive competition (Doern, 1978, p. 7). Yet other forms of regulation exist which have equally significant, although less direct, influence on the economic system. Regulations affecting production technology, environmental degradation, worker health and safety and other technical matters have a major impact on the economic system. These regulations are often neglected in the economist's examination of regulatory structure.

In Canada the most recent example of regulatory research has been the Economic Council of Canada regulation reference (Economic Council of Canada, 1981). This multi-year study investigated and documented various types of regulatory structures and their impacts in various sectors of the economy. Agriculture was one sector singled out for detailed study within the reference with various special reports and other documents being produced on the impacts of intervention and regulation in Canadian agriculture. The summary report by Forbes, Hughes and Warley identifies in

considerable detail impacts of government regulations on agriculture (Forbes, Hughes and Warley, 1982). Their analysis can, however, be criticized for focusing solely on output oriented regulations to the virtual exclusion of input regulations. Canadian policy analysts have typically neglected the impact of technical regulations on agricultural practices and costs. These technical regulations consist of such factors as: labour legislations, environmental regulations, health regulations and land use regulations. The most recent analysis of the impacts of this class of regulations in a Canadian context can be found in the 1982 Canadian Agricultural Economic Society Workshop Proceedings (Brinkman, 1982).

The principle objective of this study is an examination of the impact of federal regulations for the registration of pesticides on manufacturer's costs. Thus the work deals with a particular class of technical regulations affecting the input side of agriculture. Pesticides are a major purchased input in agriculture. Agricultural pesticides include: insecticides, fungicides, herbicides and nematocides. For the purpose of the study federal registration regulations in the United States are compared with Canadian regulations over the 1968 to 1982 period. Our implicit thesis is that since the manufacturers of pesticides are typically large multinational corporations that develop, manufacture and sell their products throughout the world, differences in registration procedures between countries can have significant impacts both on the price and availability of particular pesticides.

Higher registration costs might be expected to result in higher retail prices to the final user as companies recover their costs of production. Where individual

countries constitute profit centres for the manufacturer the costs of registering a particular pesticide in a country will be recovered from sales in that country in order to avoid cross-subsidization. The case of agricultural pesticides is particularly interesting, especially in a Canadian context. The bulk of pesticides, in particular herbicides, are used in the production of commodities sold at world prices. Thus higher registration costs and hence higher retail sales prices for pesticides will result in lower profits for commodity producers.

In addition, there is also a danger that if the cost of registration in a country becomes too high relative to the returns expected by the manufacturer, the pesticide will not be registered in that country. Canada constitutes a minor use market for most pesticides which suggests manufacturers may be unwilling to make major expenditures to register products since returns are not expected to be high, due to limited sales potential[2]. This can result in agricultural producers' losing access to particular forms of technology thereby resulting in lower yields and revenues.

A major factor capable of influencing price differentials for pesticides between Canada and the United States is different requirements for licensing of products. Over the 1968 to 1982 period significant changes took place in federal regulations governing the registration process in both countries. Analysis of the impacts of these changes on the competitive position of manufacturers in the two countries provides the basis for the discussion of the impacts of technical regulation.

One characteristic of the regulatory process in both countries has been the lag between the regulatory intent introduced in legislation, and subsequent regulations which

specify the exact registration requirements. Discussion with both regulatory and industry officials suggest that industry follows whatever guidelines, formal or informal, are in place at any point in time. Thus different periods of comparison may be distinguished by virtue of changes to these guidelines, rather than by changes to legislation or regulations.

The following areas of comparison in the comparison of the regulatory environment were selected:

1. scope or applicability of regulations and registration requirements, including an examination of exemptions, conditional or temporary registrations, and experimental use permits;
2. data requirements for registration and reregistration;
3. exclusive use and compensation for use of data, and protection of trade secrets including patent protection;
4. costs associated with marketing (for example, packaging and labelling requirements).

Initial pesticide regulations introduced in the early decades of this century in both Canada and the United States were developed to deal with questions of efficacy, protecting the purchaser from misleading claims by the pesticide manufacturer. In the 1940s, the focus of the legislation shifted towards human and economic animal health issues. As awareness of toxicity problems associated with pesticide use developed and capabilities to measure pesticide residues improved, legislation was modified.

Further policy changes continued the shift on regulatory emphasis

from efficacy to safety. Prior to 1966, registration could be obtained on the basis of either a "negligible residue" or with a "zero tolerance" as provided for in the United States Food, Drug and Cosmetic Act, Section 346(a). A re-evaluation and reregistration program was instituted in 1966, requiring all pesticides to have a finite (that is some positive measurable value in parts per million) tolerance. This change reflected the increasing precision in measurement technology. In Canada the 1952 Pest Control Products Act required pesticides to be shown to be effective and not injurious to humans or beneficial animals.

#### 1.1 THE 1968-1972 PERIOD

A comparison for the 1968-1972 period is summarized in Figure 1. Canadian pesticide legislation was revised through the passage of the 1968-1969 Pest Control Products Act. The philosophy of the Act was oriented towards prohibiting the use of pesticides under unsafe conditions, where unsafe is defined to mean contrary to the regulations. This emphasis on safety was demonstrated through legislation establishing regulatory standards with respect to safety as well as efficacy. Under the legislation, pesticides were registered under different classifications - domestic, commercial, and restricted, according to intended use and safety factors. The registration of a pesticide in the restricted use category automatically increased its cost per hectare to the user as it could only be applied by certified (licensed) applicators. Furthermore, provisions for regulations with respect to the adequacy of packaging and labelling in view of these concerns, were included. It follows, then, that the primary impact on manufacturers was an

increase in data requirements to establish the safety of the product. Data requirements increased in terms of actual testing of the product for toxic effects against various organisms, and in terms of supplying the data needed for approval of the form of the pesticide container, and the labelling on it.

In the United States, the administration of pollution control shifted from various agencies to a new body, the Environmental Protection Agency (EPA). Several political scientists have hypothesized that the more vague a law creating a regulatory agency, the less likely the agency will turn out to be independent of the industry it was created to regulate (Bernstein, Lowi, cited in Hatch, 1981). The EPA was established with clear goals and timetables to maintain its independence from industry (Marcus, cited in Hatch, 1981). Given this, the competitive position of the United States industry relative to the Canadian, could be expected to worsen, as the United States industry might be expected to face greater difficulty and costs in satisfying regulators than would be expected in Canada with its vague legislation. The negative impact on industry would not be instantaneous, but rather spread through time as specific policy changes were implemented.

The second major change in the United States during this period was the implementation of Public Regulation 70-15. This regulation required that the following information be produced to support the registration of a pesticide:

1. rate of dissipation of the pesticide in the soil;
2. mechanism of degradation of residues;

3. data respecting possibility of residues leaching through the soil;
4. movement of residues by run-off;
5. mobility of pesticide within the soil;
6. impacts on wildlife.

This requirement resulted in significant additional costs being incurred by United States manufacturers (Wechsler, et al., 1977). An examination of the data requirements for United States registration in this period, as presented by Wechsler, et al., when compared to the somewhat sketchy documentation of Canadian registration requirements, suggests that American data requirements were more comprehensive (and hence costly). The American requirements specify more types of tests, on more types of organisms, for longer lengths of times. As United States manufacturers supplied Canada with active ingredients this finding implies that United States data was more than sufficient for Canadian registration needs in the period considered. Thus, the costs of meeting Canadian requirements would not be large. We would expect, then, that Canadian data requirements would not have led to "minor use" problems in Canada during this period.

An overall evaluation of the 1968-1972 period, on the basis of the four areas of potential impacts examined, suggested that Canadian regulatory changes did not significantly worsen Canada's competitive position relative to the United States. On the other hand, the introduction of PR 70-75 in the United States did add to manufacturer's costs.



## 1.2 THE 1972-1975 PERIOD

In the United States, FIFRA was amended by the Federal Environmental Pesticide Control Act of 1972 (FEPCA), ushering in the next period of comparison, 1972-1975. A comparison for this period is summarized in Figure 2.

The consumer objective of protection against misrepresentation incorporated in FIFRA was retained by FEPCA, but was supplemented by the recognition that the public and the environment needed to be protected from potentially harmful effects of pesticide use (National Research Council, 1980). The legislation required the EPA to refuse registration of a pesticide, if, when used in accordance with "widespread and commonly accepted practice," such use resulted in "unreasonable adverse effects on the environment". The Act defined this phrase to be "any unreasonable risk to man or the environment taking into account the economic, social, and environmental costs and benefits of any pesticide". Thus, the intent of the legislation was that protection of public health should be accomplished with a balanced assessment of potential costs and benefits. Two use classifications, restricted and general, were established to recognize varying degrees of risk exposure from the use of different pesticides. Restricted use pesticides could be used only by, or under, the direct supervision of a certified applicator, hence additional costs were incurred when using a restricted use product. Furthermore, any use inconsistent with the label, was prohibited. The term "use inconsistent with the label" was not defined, but in practice appeared to mean uses not specified on the label. This requirement would be expected to shift sales from pesticides not specifically registered

for a given pest to pesticides which were specifically registered.

A primary impact of FEPCA was the requirement that all previously registered pesticides (35,000 formulations, approximately 600 active ingredients) had to be reviewed and meet the new safety standards in order to be reregistered (National Research Council, 1980). This requirement added greatly to the costs of United States manufacturers. Reregistration and other "product defence" expenditures averaged 12 percent of total research and development expenditures for the period 1974-1980, according to figures provided by the National Agricultural Chemical Association of the United States (Ernst and Whinney, 1982 and earlier).

Several incentives were provided in the amendments to balance some of the negative impacts of increased research and development costs. "Essentiality" was removed as a criterion for registration. Prior to the amendment, products attempting registration had to demonstrate significant improvements over existing products. Secondly, experimental use permits and temporary residue tolerances were established to facilitate research by smaller firms. Such permits allowed use of the chemical while data was gathered for registration. Temporary residue tolerances were established so that treated crops could be sold so as to generate revenues to cover expenses. Finally, proprietary rights to test data were established. Data submitted by an applicant could not be used subsequently by another applicant without permission of the first. In addition an offer of compensation was required.

From an allocative efficiency criterion, this last provision would appear unnecessary for products protected by patents. Optimal research allocation should occur when the net

present value of marginal social benefits equals that of marginal social costs. The intent of patent protection is to provide a period during which benefits may be captured by the developer. Once the marginal costs have been expended to develop a pests control product, there is a social welfare loss associated with incurring any further costs by redeveloping some of the data at a later point in time. Thus test data can be thought of as a public good from society's point of view. It may be the case that the length of patent protection is insufficient to recoup enough benefits to make development attractive but this is an argument for extending the length of patent protection, not for encouraging greater costs of development for competitors of a company with the patented product.

In Canada, changes in regulations included increased labelling requirements and changes in packaging design to reflect increased concern for safety. Data requirements pertaining to environmental fate, occupational safety, and appropriate analytical methods were also established. These regulations tended to bring Canadian requirements more in line with those in the United States. Since such data was already being generated to meet United States requirements, it is unlikely that such changes had a major impact on manufacturers selling in Canada.

To balance these increased requirements, Canadian regulations also provided incentives for research. Control products (pesticides) were exempted from registration if used for research purposes on premises approved by the Pesticides Division Director. Furthermore, temporary registrations were granted for a period of not greater than one year while needed data were being generated. The use of

temporary registrations allowed for the sale of treated crops, thus helping to cover research expenses.

An overall assessment of the 1972-1975 period suggests that Canada's competitive position improved relative to the United States. Amendments under FEPCA which had strong negative impacts on manufacturers include the policy of reviewing all previously registered pesticides to meet the new requirements and the introduction of the restricted use classification. The review process requires the generation of "defensive" data to maintain registration. The restricted use classification in effect increases the price of such products and may discourage development of new products. Prohibiting uses inconsistent with the label could reduce social welfare in pest control cases where no product was specifically registered to control that pest. This factor might be most significant for pests specific to a minor acreage crop.

Canadian regulations during this period suggest a pragmatic, balanced approach. Data requirements were expanded in recognition of negative environmental impacts of pesticides. Adopting requirements similar to those in the United States provided a relatively cheap means of achieving social objectives.

This conclusion follows when we recognize United States markets are much larger than corresponding Canadian markets, hence manufacturers will most likely attempt American registration before Canadian. If additional data requirements in Canada could be largely met from data that was already generated to meet United States requirements, the cost to the chemical registrant is low. Ideally this lower cost is reflected in the Canadian retail price.

### 1.3 THE 1975-1978 PERIOD

Amendments to FEPCA in the United States in 1975 were intended to increase the importance of benefit assessment in the regulation of pesticides. These amendments were in response to the conclusions of the 1975 Congressional hearings that the EPA was not giving adequate attention to the benefits of pesticide use (National Research Council, 1980). The amendments ushered in a new period in the evolution of pesticide regulation. The 1975-1978 period of comparison is summarized in Figure 3.

Specific amendments included:

1. the requirement that the EPA take into account the effects of cancellation and suspension of a pesticide's use upon the production and prices of agricultural commodities, retail food prices, and the overall agriculture economy;
2. in connection with a final cancellation notice the EPA must publish an agricultural economic impact statement;
3. proposed cancellation and suspension notices must be sent to the Secretary of Agriculture and his comments are to be published in the Federal Register;
4. a Scientific Advisory Panel is created to review health and environmental hazard assessments, and its comments are to be published in the Federal Register.

The comments of the Secretary of Agriculture and the Scientific Advisory Panel serve the purpose of a review of the benefit and risk

assessments, respectively.

The amendments brought recognition that the benefits of pesticide use could potentially increase social welfare. Prior to this amendment, maximization of social welfare through pesticide regulation appears to have been considered to be equivalent to the minimization of risk. Welfare economics suggests that true welfare optimization is achieved when marginal social benefits are equal to marginal social costs. Thus, the benefits associated with a particular pesticide may well exceed its costs, even when these costs are large. A corresponding lack of benefit assessment in Canadian regulations of the period could have discouraged development of new products for Canadian markets.

On the other hand, Canada's relative competitive position to the United States improved in the area of data requirements. Exact testing requirements were determined on a case by case basis in Canada, rather than strictly following a set of guidelines. In the United States, the first Registration Guidelines were published in 1975. The Guidelines had significant impacts on the costs of manufacturers for the following reasons:

1. testing of formulated products was increased in addition to testing of active ingredients;
2. additional environmental fate studies were required;
3. compulsory testing of various human health effects was required;
4. field testing of application techniques were required.

This testing cost increase was offset by an increase in Canada in

the area of marketing costs, which was brought about by two regulatory changes. As part of Canada's metrification policy, a 1977 change required that all labelling and packaging be in metric units by the end of 1979. This resulted in manufacturers having to incur additional costs of packaging. Another change in 1977 was a ban of imports into Canada by individual farmers. This latter regulatory change triggered concern by farmers that the import barrier would increase their costs of obtaining pesticides. Prior to 1977, farmers could import pesticides from the United States for their own use provided the pesticide was already registered in Canada.

Such a practice would appear to have few environmental consequences. Although the amount of active ingredient per container may differ between the two countries, the application rate per hectare is sufficiently similar that a Canadian producer following the directions on the United States container should pose no environmental hazards. Furthermore, all products applied in a spray are diluted with water. If the producer dilutes using Canadian instead of United States gallons, he would apply the pesticide at strengths even lower than recommended in the United States. However, the introduction of metric units may pose conversion problems and lead to over application of pesticides sold in units of United States gallons. It is problematic whether this change was in the overall interest of Canadian society.

These policies may also have been designed to encourage increased formulation in Canada. If this is the case, the import ban is inconsistent with Canada's import duty regulations. In 1982 all pre-formulated herbicide products except 2,4-D and MCPA were imported duty free. Thus a plausible reason for the

regulatory change would seem to be to improve the market power of Canadian formulators, distributors and retailers, with the potential for minor increases in employment in the domestic formulation industry.

What is certain is that closing the border reduced potential competition at the retail level (by reducing the number of sellers). For farmers close to the border who had become accustomed to shopping in the United States for fertilizers, chemicals and machinery, the border had been closed for chemicals. Where a pesticide moving through the distribution chain in Canada incurs costs additional to those incurred in the United States, individual farmers can no longer avoid these costs if they are passed on as higher prices. Lower retail prices would increase the consumer surplus of farmers and reduce the producer surplus of chemical companies. To the extent that the chemical companies are foreign multinational firms, their loss is not a cost to Canadian society. Thus, higher retail prices would represent a definite loss of social welfare from a national perspective.

An overall assessment of the 1975-1978 period suggests an overall reduction in the competitive position of Canadian pesticide formulators relative to their United States counterparts. Higher costs of United States registration resulting from increased data requirements did act to raise production costs in the United States. However, impacts favourable to the United States position relative to Canada resulted from three significant policy changes. The first of these was the recognition of benefits of pesticide use as a consideration in United States registration. This approach has the potential for improving social welfare. The second and third items involve policy changes in Canada unfavourable to this country's

competitive position, including a switch to metric units in labelling and packaging and a prohibition of farmer imports of United States pesticides. Metric packaging requirements lead to higher production costs incurred by manufacturers. The ban on imports reduces the number of sellers, thereby leading to a potential for higher Canadian retail prices while offering questionable benefits.

#### 1.4 THE 1978-1980 PERIOD

The Federal Pesticide Act of 1978 again brought significant changes to pesticide regulation in the United States. The corresponding period of comparison, 1978-1980, is summarized in Figure 4. These changes were in response to concerns that the regulatory process had become excessively restrictive (Eichers and Andrienas, 1979; Ruttan, et al., 1981).

Major changes in the area of registration applicability in the United States included a change in the meaning of use inconsistent with product label, and the establishment of conditional registration for new products or uses and new active ingredients while data are being collected, provided the Director judges that there will not be significant adverse impact on the environment while the pesticide is in use. Uses no longer considered inconsistent with the label included:

1. use against a target pest not specified on the label unless the label specifically states that the pesticide may be used only for pests identified on the label;
2. use of a pesticide at less than the label dosage, concentration, and frequency;

3. application methods not specifically prohibited on the label.

The establishment of conditional registrations facilitated research by allowing the sale of the product to a large market while data was being developed. Expanding the uses allowed could increase the sales of products, especially in a situation where no adequate specifically registered product was currently available.

In the area of data requirements there were also several significant policy changes. Of primary importance was the EPA proposal to establish generic rather than product specific review of previously registered pesticides. Rather than having to generate data to meet new requirements for approximately 35,000 formulated products, generic standards for the approximately 600 active ingredients would suffice. Such a change would drastically cut the costs of generating the necessary data by both manufacturers and regulators.

Further regulatory changes designed to ease data requirements for registration were:

1. requirements for minor use pesticides to take into consideration volume, pattern and extent of use, cost of generating the data, and the degree of potential exposure to humans;
2. the waiver of efficacy data requirements for any pesticide material, by discretion of the Administrator.

Labelling requirements of minor use pesticides were eased as an additional incentive to the development of such products.

Finally, a legislative procedure

for compensation to be paid to original developers of data was established. As previously discussed, this type of regulatory change would encourage development of pesticides currently lacking adequate patent protection, but would have minimal social value otherwise.

In summary, all the changes of this period in the United States were aimed at reducing registration costs or otherwise encouraging the development of new (particularly minor use) pesticides. These changes imply a regulatory judgment that the social benefits arising from (1) reducing the costs of development by both manufacturers and regulators and (2) benefits from minor use pesticides thus developed, exceed possible social costs.

For the 1978-1980 period we conclude that the competitive position of American manufacturers selling in the United States was enhanced over their Canadian counterparts when compared to the previous period. Canadian regulations were not changed in the period. In the United States costs of registration were significantly reduced and the benefits of pesticide use were emphasized. This was particularly the case for minor use pesticides. Thus the relative position of the Canadian industry must be seen to have worsened.

### 1.5 THE 1980-1982 PERIOD

The final period of comparison, summarized in Figure 5 is that of 1980-1982. Several 1980 amendments to FIFRA significantly weakened the powers of the EPA. Congressional veto power over EPA regulations and rules was established. Furthermore, the review of design, protocol, and conduct of scientific studies by EPA are to be subject to "Peer Review" that consists of a panel of outside

experts, whose comments are to be submitted to the Scientific Advisory Panel. As a result of these amendments, the studies conducted by the EPA are subject to review by at least four outside bodies:

1. Secretary of Agriculture;
2. Scientific Advisory Panel;
3. Peer Review;
4. Congressional Review.

The comments of the first three can lead to EPA modifying and resubmitting its studies. Ultimately, Congress has the final decision. The independence of the EPA from the industry that it is intended to regulate may be significantly weakened by the inclusion of a Congressional veto depending on the strength of the industry lobby.

A further regulatory change in 1980 was the passage of a bill extending the term of patent protection to a maximum of an additional seven years as compensation for the time spent in obtaining pre-market regulatory clearance. Such an amendment is justified if the purpose of patent protection is to provide a period over which the developer may recoup his costs of development. As the growing complexity of testing has extended the period needed for regulatory clearance, the residual time available to generate revenues to recover such costs has decreased. This amendment corrects this situation.

In the area of data requirements, a ranking system of generic review of pesticide registrations was proposed in 1980. Pesticides within the same "cluster" are to be registered under the same standard. The move to generic registration will reduce costs to the industry as a whole, although the 1982

Registration Guidelines established more comprehensive testing particularly in the areas of Environmental Chemistry and Hazard Evaluation. However, the form of the Guidelines is such that there is increased flexibility in determining the exact requirements for a given pesticide.

The only regulatory change in Canada in the 1980-1982 period was the introduction of the Product Specific Registration Policy in late 1980. Essentially this policy required that different manufacturers producing the same active ingredient must submit complete and separate data. This policy was established because of concern of over detrimental environmental effects of contaminants introduced during manufacture. The result of this policy is to increase costs to manufacturers intending to market "me-too" products. A recent example in Canada was the 1982 introduction of Uniroyal's Magnum which contains the same active ingredient as Elanco's Treflan. The recent discovery of traces of dioxin contaminants in 2,4-D samples suggests that the additional social costs of generating this seemingly redundant data may well be offset by reduced environmental risks. Although the particular dioxin found in 2,4-D was not toxic, this chemical family does contain compounds which are extremely toxic to man. These contaminants arose from a different method being used in the manufacturing process and hence highlight the need for such a review of all processes even where they ultimately produce a chemical that is similar or identical to one that is already registered.

An overall review of the 1980-1982 period yields somewhat ambiguous conclusions about impacts on the relative competition position between Canada and the United States. On the whole, regulatory

changes in the United States tended to be favorable to industry. The Canadian change impacts only certain companies and may well be justified in terms of increased benefits to society from a reduction of possible environmental and toxic hazards. To the extent that Canada moved to product specific registration while the United States moved to generic registration Canada's relative position declined. Similarly the potential for Congress to override EPA regulations could have a deleterious effect on the Canadian position if Congress weakens the regulations. However, if Congress strengthens them the impact would reverse.

#### 1.6 SYNOPSIS AND CONCLUSIONS

Fundamentally it would appear that the basic intent and methodologies of the registration processes in Canada and the United States are the same. Both countries introduced initial legislation whose principal focus was efficacy. This was followed by a growing concern with toxicity to humans and economically valuable species and finally a growing concern with general environmental impacts. In this process the legislation and requirements associated with registering a product became increasingly complex and stringent. More government departments and agencies became involved in the process as interest and concern increased. Figure 6 summarizes the changes that occurred over the period.

In all phases the United States seems to have been the leader in implementing changes. Canadian legislation typically followed a United States lead, sometimes in a short time period, in other cases after a number of years. The only significantly different Canadian requirements are the result of language and

metrication legislation. Certain changes over the period considered can be seen as raising costs in Canada for manufacturers relative to their costs in the United States. The impact of legislation is exacerbated by the fact that Canada constitutes a relatively small market so the costs must be spread over a relatively small number of units. The principal areas where costs were raised for manufacturers are specialized efficacy and environmental impact tests under Canadian conditions and various packaging regulations.

It can be concluded that Canadian regulations have typically imposed a lower burden on manufacturers than United States regulations at any point in time. This conclusion follows from the lag in the Canadian system. As the United States always has the more stringent regulations, compliance with the United States legislation typically will generate the material to satisfy Canadian regulation.

Although such a policy results in lower costs to Canadian manufacturers and a less aggressive regulatory stance by the federal government one must wonder about the environmental and health impacts of this policy of delayed implementation. The rationale for increased stringency of regulations must surely be a perception that existing standards are inadequate. Delays in implementing more stringent policies result in greater

environmental and health hazard exposure than could otherwise be the case.

Both countries have been willing to provide the industry with concessions to offset higher registration costs. These include temporary registration, closing the border in Canada, extended patent life and proprietary rights to test data. From a social welfare point of view certain of these actions may be questionable. To resolve the question would require an evaluation of the additional benefits associated with induced research and development resulting from the concessions as compared to the costs of monopoly rents arising from patents and captive markets and the need to duplicate existing information.

Certain regulations may be beneficial to manufacturers but of questionable social welfare. These include import bans, requirements that test data be developed by each manufacturer, and the secretive nature of the registration process. It may be possible to justify these actions on environmental or manufacturers survival grounds, however, this does not appear to have been done at present. Similarly the lag in implementation of more stringent regulations in Canada can be argued to trade lower costs to the manufacturer and regulatory agencies for higher costs to health and the environment.



Figure 1  
Comparison of Regulatory Impacts to Costs of Manufacturers For Regulations Prevailing 1968-1972

Area of Potential Impact	Canada		United States		Impact on Canadian/U.S. Relative Competitive Position
	Regulatory Change	Canadian Impact	Regulatory Change	U.S. Impact	
1. Scope of registration requirements	<ul style="list-style-type: none"> <li>- use under unsafe conditions prohibited</li> <li>- unsafe conditions defined to be contrary to the Regulations</li> <li>- establishment of three use classifications--domestic, commercial, and restricted according to intended use and safety</li> </ul>	<ul style="list-style-type: none"> <li>- emphasis shifts to safety from consumer misrepresentation</li> <li>- costs of restricted use pesticide higher</li> </ul>	<ul style="list-style-type: none"> <li>- administration of pesticide legislation shifted from USDA to EPA</li> </ul>	<ul style="list-style-type: none"> <li>- attempt to avoid conflicts of interest between industry and users, and the regulatory body</li> </ul>	<ul style="list-style-type: none"> <li>- the final impact is unclear as the regulatory change in each country had a negative impact on industry. However, if Canada data requirements could be met by U.S. data then U.S. position relatively worse off.</li> </ul>
2. Data requirements	<ul style="list-style-type: none"> <li>- legislative provision for establishing standards with respect to safety and efficacy</li> </ul>	<ul style="list-style-type: none"> <li>- increased data requirements to establish safety of product</li> </ul>	<ul style="list-style-type: none"> <li>- PR Notice 7015 required the submission of an environmental impact statement with application for registration</li> </ul>	<ul style="list-style-type: none"> <li>- greatly increased data requirements, i.e., environmental impact on wildlife</li> </ul>	<ul style="list-style-type: none"> <li>- U.S. data requirements appear to be more comprehensive than Canadian requirements in this period</li> </ul>
3. Exclusive use of data	None	None	None	None	None
4. Marketing costs	<ul style="list-style-type: none"> <li>- legislation provides for regulations with respect to packaging and labelling</li> </ul>	<ul style="list-style-type: none"> <li>- increased costs to manufacturers to meet Canadian requirements</li> </ul>	None	None	<ul style="list-style-type: none"> <li>- Canadian competitive position worsens relative to that of U.S. as a result of increased marketing costs</li> </ul>

Figure 2

## Comparison of Regulatory Impacts to Costs of Manufacturers For Regulations Prevailing 1972-1975

Area of Potential Impact	Canada		United States		Impact on Canadian/U.S. Relative Competitive Position
	Regulatory Change	Canadian Impact	Regulatory Change	U.S. Impact	
1. Scope of registration requirements	<ul style="list-style-type: none"> <li>- temporary registrations granted for a period of not more than 1 year while required data is collected</li> <li>- control product exempt if used for research purposes on premises approved by Director</li> </ul>	<ul style="list-style-type: none"> <li>- facilitate research</li> <li>- facilitate research</li> </ul>	<ul style="list-style-type: none"> <li>- all previously registered pesticides must be reviewed according to new criteria, in order to be reregistered</li> <li>- establishment of two use classifications. Restricted use pesticides can be used only by or under direct supervision of a certified applicator</li> <li>- prohibition of any use inconsistent with label, where this term is undefined in legislation</li> <li>- prohibition of essentiality as a criterion for registration. When ? pesticides meet the requirements, both may be registered</li> <li>- issuance of experimental use permits and temporary tolerances</li> </ul>	<ul style="list-style-type: none"> <li>- restricted use cost higher as certified applicators needed. May discourage development of promising chemicals.</li> <li>- in practice, any use not specified on label was prohibited (this tended to reduce sales of pesticides previously used for other pest) but increase sales of others</li> <li>- no longer have to prove new products significantly better than existing products</li> <li>- facilitate research by smaller firms treated crops may now be sold</li> </ul>	<ul style="list-style-type: none"> <li>- In Canada, regulations lead to an easing of registration requirements. In the United States, a significant tightening of requirements occurs under PECA, with correspondingly increased costs to manufacturers. Amendments with particularly important impacts on manufacturers include the review of previous registrations, and the establishment of restricted use pesticides</li> </ul>
2. Data requirements	<ul style="list-style-type: none"> <li>- regulations specify data requirements pertaining to--environmental fate--analytical methods for identifying contaminants, degradation products and residues--occupational safety</li> </ul>	<ul style="list-style-type: none"> <li>- greater concern for environmental effects leads to increased data requirements</li> </ul>			<ul style="list-style-type: none"> <li>- such data already required in the United States. Therefore little impact on Canada's position relative to U.S.</li> </ul>
3. Exclusive use of data	None	None	<ul style="list-style-type: none"> <li>- establishing of proprietary rights to test data. Previously submitted data now could not be used to support registration by new applicant without permission of original applicant and offer of compensation</li> </ul>	<ul style="list-style-type: none"> <li>- incentive to developers of innovative pesticides, particularly where patent protection impossible (eg. bacteria used as insecticide)</li> </ul>	<ul style="list-style-type: none"> <li>- the social value of this amendment is questionable for pesticides with patent protection, as social marginal costs have already been incurred</li> </ul>
4. Marketing costs	<ul style="list-style-type: none"> <li>- increased labelling requirements</li> <li>- changes in package design according to ministerial discretion</li> </ul>	<ul style="list-style-type: none"> <li>- storage and packaging standards established</li> </ul>			<ul style="list-style-type: none"> <li>- impacts on the same order in both countries, net impact negligible</li> </ul>

Comparison of Regulatory Impacts to Costs of Manufacturers for Regulations Prevailing 1975-1978

Area of Potential Impact	Canadian		United States		Impact on Canadian/U.S. Relative Competitive Position
	Regulatory Change	Canadian Impact	Regulatory Change	U.S. Impact	
1. Scope of registration requirements	None	None	<ul style="list-style-type: none"> <li>- cancellation of or changes to the registration of a pesticide must take into account the impact on the protection and prices of agricultural commodities, retail food prices, and otherwise on the agricultural economy</li> <li>- experimental use permit extended to agricultural research agencies (private and public)</li> <li>- facilitate research</li> </ul>	<ul style="list-style-type: none"> <li>- specific recognition of benefits of pesticide use could potentially increase social welfare. The lack of similar regulations in Canada could discourage development for Canadian markets.</li> </ul>	
2. Data requirements	<ul style="list-style-type: none"> <li>- exact data requirements are determined on a case by case basis within the framework of the regulations</li> </ul>	<ul style="list-style-type: none"> <li>- flexibility in meeting data requirements</li> </ul>	<ul style="list-style-type: none"> <li>- first comprehensive Registration Guidelines published</li> <li>--testing of formulated product required in addition to active ingredient</li> <li>--additional environmental fate studies required</li> <li>--compulsory testing of teratogenic, oncogenic, and mutagenic effects</li> <li>--field testing of application techniques required</li> <li>- creation of Scientific Advisory Panel to review health and environmental hazard assessments of EPA</li> </ul>	<ul style="list-style-type: none"> <li>- cost of manufacturers increases</li> </ul>	<ul style="list-style-type: none"> <li>- Canada's competitive position improves relative to U.S.</li> </ul>
3. Exclusive use of data	None	None	None	None	
4. Marketing costs	<ul style="list-style-type: none"> <li>- labelling and packaging to be in metric units only by end of 1979. Policy change introduced 1977</li> <li>- importation by farmers prohibited in 1977</li> </ul>	<ul style="list-style-type: none"> <li>- manufacturers incur cost of switching to new containers</li> </ul>	None	None	<ul style="list-style-type: none"> <li>- Canada's competitive position worsens relative to U.S.</li> </ul>

Figure 4  
Comparison of Regulatory Impacts to Costs of Manufacturers For Regulations Prevailing 1978-1980

Area of Potential Impact	Canada		United States		Impact on Canadian/U.S. Relative Competitive Position
	Regulatory Change	Canadian Impact	Regulatory Change	U.S. Impact	
1. Scope of registration requirements	None	None	<ul style="list-style-type: none"> <li>- previously prohibited uses no longer considered inconsistent with label</li> <li>- conditional registration established for new products or uses and new materials, if no significant adverse impact on environment, while data being collected</li> </ul>	<ul style="list-style-type: none"> <li>- expand sales of some products at the expense of others</li> <li>- facilitates research</li> </ul>	<ul style="list-style-type: none"> <li>- all changes are aimed at reducing registration costs or otherwise encouraging development of new, particularly minor use, pesticides for the United States market.</li> </ul>
2. Data requirements	None	None	<ul style="list-style-type: none"> <li>- proposal to establish generic rather than product specific review of previously registered pesticides</li> <li>- data requirements for minor use pesticides used in consideration of volume, pattern and extent of use, cost of data requirements and degree of exposure to humans</li> <li>- administrator may waive efficacy data requirements</li> </ul>	<ul style="list-style-type: none"> <li>- reduce costs of generating data to maintain registration</li> <li>- facilitate research of minor use pesticides</li> <li>- facilitate research</li> </ul>	<ul style="list-style-type: none"> <li>- these changes imply a regulatory judgment that the social benefits arising from such minor use pesticides exceed possible social costs in use</li> </ul>
3. Exclusive use of data	None	None	<ul style="list-style-type: none"> <li>- established a procedure to compensate original developer for use of data</li> </ul>	<ul style="list-style-type: none"> <li>- encourage development of pesticides without adequate patent protection</li> </ul>	
4. Market costs	None	None	<ul style="list-style-type: none"> <li>- easing of labelling requirements for minor use pesticides</li> </ul>	<ul style="list-style-type: none"> <li>- encourage development of minor use pesticides</li> </ul>	

Figure 5

## Comparison of Regulatory Impacts to Costs of Manufacturers for Regulations Prevailing 1980-1982

Area of Potential Impact	Canada		United States		Impact on Canadian/U.S. Relative Competitive Position
	Regulatory Change	Canadian Impact	Regulatory Change	U.S. Impact	
1. Scope of registration / 2. Data requirements	None  - Product Specific Registration Policy introduced 1980--the same active ingredient produced by different manufacturers will require complete and separate data submissions	None  - increase costs to manufacturers intending to market 'Me too' products example Uniroyal's Magnum compared to Elanco's Treflan	- Congressional veto power over EPA regulations and rules  - 'Peer Review' with respect to design, protocols and conducted by EPA. Peer reviews comments to be submitted to the Scientific Advisory Panel  - ranking system of generic review of pesticide registrations proposed 1980. Products with the same active ingredient to be registered under the same standard  - 1982 Registration Guidelines published More comprehensive testing particularly in the case of environmental chemistry and hazard evaluation. More flexibility in data required of a specific material  - the term of patent protection extended by the number of years up to 7 needed to obtain premarket regulatory clearance	- an additional two levels of review of EPA decisions is added. If the industry can exert significant lobby power in Congress, it can benefit from Congressional veto power over EPA regulations.  - decrease costs to industry	- should improve U.S. position if EPA regulations are weakened as a result of industry lobbying  - enhance U.S. position. As Canadian legislation becomes more product specific the U.S. legislation allows more generic testing
3. Exclusive use of data	None	None		- this is a socially justified amendment if the purpose of patent protection is to provide a period over which the developing company can recoup its development costs	- provides additional period of protection extending time period over which proprietor rights are held. Should enhance U.S. position
4. Marketing costs	None	None	None	None	

Figure 6

## Time Periods Under Comparison

Time Period	Distinguishing Feature	
	In Canada	In United States
1968-1972	<ul style="list-style-type: none"> <li>- significant revisions of pesticide legislation in form of 1969 Pest Control Products Act</li> <li>- further emphasis on environmental impact of pesticides</li> </ul>	<ul style="list-style-type: none"> <li>- the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA) of 1947 still in effect. Frequent amendments since that time suggest the need for a comprehensive revision.</li> <li>- responsibility for pesticide regulation transferred from USDA to EPA in order to avoid conflicts of interest between industry and users, and the regulatory agency.</li> </ul>
1972-1975	<ul style="list-style-type: none"> <li>- regulations accompanying 1969 Act come into effect. Data requirements are specified in the regulations for the first time.</li> </ul>	<ul style="list-style-type: none"> <li>- FIFRA is significantly amended by the Federal Environmental Pesticide Control Act of 1972. Environmental concerns are addressed in the legislation. All previously registered pesticides must be reviewed under the new legislation and meet these requirements before being re-registered.</li> </ul>
1975-1978	<ul style="list-style-type: none"> <li>- exact data requirements are extended, and determined on a case by case basis within the basic regulatory framework.</li> </ul>	<ul style="list-style-type: none"> <li>- further amendments are made to pesticide legislation in 1975. These amendments stressed the need for consideration of economic benefits of pesticides</li> <li>- the first set of Registration Guidelines outlining data requirements are published in 1975.</li> </ul>
1978-1980	<ul style="list-style-type: none"> <li>- no changes</li> </ul>	<ul style="list-style-type: none"> <li>- the federal Pesticide Act of 1978 added incentive for the development of pesticides.</li> <li>- 1978 proposed Registration Guidelines which revised data requirements</li> <li>- a generic as opposed to product specific reregistration review process is proposed in 1978.</li> </ul>
1980-1982	<ul style="list-style-type: none"> <li>- Product Specific Registration Policy is introduced in 1980. Identical active ingredients produced by different manufacturers must submit individual data submission. Reflects concern for environmental effects of contaminants in pesticide</li> </ul>	<ul style="list-style-type: none"> <li>- FIFRA is again amended in 1980. The powers of EPA are weakened through the establishment of (1) congressional veto powers of EPA regulations (2) independent evaluation of scientific studies.</li> <li>- 1982 Registration Guidelines are proposed, reflecting the change to a generic registration process.</li> </ul>

## NOTES

- [1] The material in this paper is based on a larger study carried out for the Bureau of Corporate Affairs, Consumer and Corporate Affairs Canada. (Freshwater, Gibson, Loyns, 1983).
- [2] Minor use markets are those where the volume of sales is low due to limited scope for the use of the product. Although a company may be able to cover the marginal costs associated with the production and sale of an existing product there is insufficient revenue potential to cover costs for more elaborate registration or reregistration procedures. Recently Chipman withdrew Cobex from the Canadian market on the grounds that sales did not cover the costs of registration.

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## II

# Why Crown Corporations?: A review of a Saskatchewan Commission

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## 1.1 INTRODUCTION

In June, 1982, the Saskatchewan government of Grant Devine appointed a Commission to review Crown Corporations in the province. The Report of the Crown Investments Review Commission[1] was recently published and contains a number of recommendations dealing with the definition of corporate objectives, changes in administrative structure and financial policies. These recommendations will be briefly discussed in Section 4.0. The primary focus of review will be on the conceptual framework for the Commission's work since this work has the potential to contribute to a timely discussion on the rationale for Crown Corporations. Other issues raised by the report will be discussed in a later section.

## 1.2 WHY CROWN CORPORATIONS?: THE COMMISSION'S VIEW

It is a reasonable expectation that a new government will undertake a review of policies followed by the previous government. As with most work, the first step in such a review is to ask the right questions, and the Commission seems to have understood that the conceptual basis for their recommendations started with an analysis of the rationale for Crown Corporations (p. 4). The detailed analysis, comprising nearly one-half of the entire Report, is contained in a paper prepared by David L. Beattie and reported as Appendix C. A simplistic approach might suggest that if the only reason for the continued existence of the 24 Crown Corporations was the socialist philosophy of the former N.D.P. administration, the free-enterprise philosophy of the P.C. government could justify a contraction of the Crown Corporation sector. Indeed, the percentage of government employment in Crown Corporations is higher in Saskatchewan than anywhere else in Canada (p. 39) suggesting a particular reliance on this form of government[2].

The Commission perceived that

there is a rationale for Crown Corporations, and attempts to document it. Unfortunately, the attempt is unsuccessful, and can best be summarized in Beattie's comment (p. 49):

As developed, there are no unambiguous dividing lines or criteria which warrant or necessitate public enterprise over private enterprise. Rather, there are economic rationales for public sector intervention, not for the specific use of public enterprise per se.

The reader is left wondering why the Commission bothered to tighten the objectives and administrative structure if it could find no good reason for their existence in the first place. Perhaps this is what led the Commission to the recommendation that dividends should be maximized (Recommendation #13) since it could see no other benefits arising from the Crown Corporation sector.

Beattie's approach is to first review the traditional discussion of market failure. The discussion is couched in terms of the public sector framework developed by R.A. Musgrave and familiar to students of public finance. Government has a responsibility to correct allocational problems (where market signals or incentives give the "wrong" result), distributional problems (where market determined distributions of output are normatively unacceptable) and stabilization problems (business cycles). The later discussion of stabilization (p. 48) focuses on development and individual market stabilization.

### 1.2.1 Allocational Rationales for Public Enterprise

Beattie offers three reasons for expecting the market to fail to allocate resources efficiently. Technological externalities, such as the existence of economies of scale, which imply only a single firm is efficient in an industry in the province. Second, ownership/property rights externalities may exist, such as pollution where all the benefits or costs from an activity are not exclusive to the firm. Third, public goods, such as law enforcement and flood control will not be provided efficiently by a private market because of the characteristics of the good.

Beattie does not claim any of these reasons for market failure lead to unique rationale for Crown Corporations. On technological externalities, they "are the frequently cited argument supporting intervention within the utilities sector" (p. 43). Intervention can take the form of regulation as well as public enterprise. There is no discussion of whether the argument is factually correct for Saskatchewan's utilities sector in 1983. Presumably, the Commission believes economies of scale exist, since it categorizes Saskatchewan Power Corporation and Saskatchewan Telecommunications as "natural monopolies" (p. 18). In light of claims that power utility economies of scale are exhausted at about 600 mw (Vining, 1981) this would have been an excellent time to review whether natural monopoly arguments which were true in 1903 (the date at which Saskatchewan Power was created) are true today. Technology and the size of the market have changed.

The ownership externalities and public goods rationales are even weaker than technological externalities. Beattie notes: "The presence

of ownership externalities alone does not imply the need for correction through the public enterprise vehicle." (p. 45). Public goods lead to an argument for "government intervention, frequently in the form of direct public sector provision" (p. 47), but this need not be a Crown Corporation.

### 1.2.2 Equity Rationales for Public Enterprise

Two equity rationales for government intervention are offered. The first rationale concerns merit goods where people either can not be trusted to make the correct decision for themselves or else have incomplete or erroneous information and so make the wrong decisions. The normative nature of such decisions is stressed and examples are offered of housing, health care, alcohol and tobacco. Intervention is characterized by subsidies, direct provision by line-departments, taxes and legal sanctions (p. 47). So Crown Corporations do not appear to be necessary to solve this problem.

The second equity argument is more promising since it involves government intervention to capture economic profits or rents. Beattie equivocates by suggesting this argument leads to "intervening by way of taxation, public enterprise and joint venture" (p. 48). The reader might be forgiven for asking when any one of the three options might be preferred. Indeed, the dispute over taxation of the potash industry leading up to the creation of the Potash Corporation of Saskatchewan suggests that taxation and public enterprise are not always perfect substitutes. Given a governmental objective, the constitutional limi-

tations on governments' ability to use the taxation instrument, a Crown Corporation may be the only tool available to achieve that objective.

### 1.2.3 Other Rationales for Public Enterprise

Finally, the argument is made that public enterprise and joint venture have been used to develop infrastructure because of a lack of capital and entrepreneurial initiative in the private sector. Is this an historical reference or is the argument relevant to a lack of entrepreneurial initiative in Saskatchewan today? An oblique reference to foreign ownership and control is also made, reminiscent of the battle over potash, but, again, with no clear reason to see how this must lead to a rationale for public enterprise. If this part of the Commission's work was meant to be an independent consideration of the issues involved in choosing Crown Corporations as the method of intervention, it misses the major issues with alarming frequency.

### 1.3 WHY CROWN CORPORATIONS?: AN ALTERNATIVE VIEW

The Report is unable to offer any reasoned rationale for the existence of Crown Corporations. This deficiency is common to most of the traditional literature on public finance. However, there have been several recent contributions which have attempted to address the basic issues of why a Crown Corporation might be a desirable form of intervention.

### 1.3.1 Allocation Rationales for Crown Corporations

Two recent papers by Borcharding and Trebilcock and Pritchard address the rationale for a Crown Corporation. On efficiency grounds, governments face an ongoing problem of monitoring the bureaucracy to ensure that it provides the desired service at the optimum amount and at least cost. A number of contributions to the bureaucracy literature, following Niskanen (1971), suggest that the bureaucracy has an incentive to supply too much of the service and in a less efficient manner than the private sector. An economist understands that input is not output and it is output that matters. Monitoring costs may be substantially reduced for the government if it can focus on a few relatively simple measures rather than detailed monitoring of activities. In some cases, there is recourse to comparable measures from the private sector which further simplifies monitoring.

Crown Corporations such as the Saskatchewan Computer Utility Corporation and the Saskatchewan Government Printing Company appear to be examples where it is easier to monitor computer and printing activities by organizing them as Crown Corporations which sell their services to government departments, or others, rather than having these activities buried in departments' estimates. The Commission is disparaging of these Crown Corporations suggesting: "No compelling evidence was presented to convince the commission that the programs could not be administered equally well by the appropriate line departments of government" (p. 17) and using a Crown Corporation "may shield such operations in part from legislative scrutiny." (p. 17). It is of course important for the legislature to have an accounting of what a Crown Corporation has

done, but it is in precisely the cases where the activity can be monitored by recourse to simple measures, profit, for example, that detailed examination of the budget to prune waste is an unnecessary activity. It is unfortunate that the Commission appears to suggest dismantling "Departmental service units" rather than seeking further potential reductions in monitoring costs, consistent with accountability. For example, if economies of scale are exhausted in the printing business, there may be room for two government printing companies, competing against one another for the business of the departments. A very daring free-enterprise government may even want to open the government market to competition with private enterprise firms. The point to emphasize is that monitoring costs may well be reduced by using Crown Corporations to provide some departmental services, and may be further reduced by encouraging competition among them.

A second reason for Crown Corporations is that, taking a particular policy objective as given, it is the most efficient way a government can achieve that objective[3]. The Potash Corporation of Saskatchewan is a case in point[4]. The Blakeney government set an objective of taxing the economic rent from the potash reserves in the province, and to that end, introduced a "reserve tax" in 1974. Taxation appears to have been the preferred method of intervention, yet, in 1975, the courts held such a tax to be unconstitutional. In this circumstance, a Crown Corporation emerged as the only way the province could appropriate future increments in the economic rent from potash. A Crown Corporation is a less desirable alternative than taxation in this case, since taxation enables the government to appropriate existing

economic rent, while a Crown Corporation, paying market value for existing reserves, can appropriate only increases in economic rent. Yet, given the constitutional limits within which the government must operate, a Crown Corporation is the most efficient way of achieving the objective. As a Crown Corporation, the government received all increments to rent, a simple monitoring device (profits), freedom to pay comparable salaries and the secondary benefits from head office location, etc.

The Commission recognizes the importance of profits for "Competitive commercial businesses" (p. 18), but fails to recognize their wider potential as a monitoring device for other types of Crown Corporations. The Commission could have discussed the rationale for a Crown Corporation in each of the cases mentioned. For example, if the Devine government does not agree with the policy objective of appropriating the economic rent from potash, then it can be expected to curtail the Potash Corporation of Saskatchewan.

### 1.3.2 Equity Rationales for Crown Corporations

Governments have equity objectives, as the Report recognizes. Furthermore, not all redistribution need take the form of cash transfers. The government may consider it a matter of justice that all residents pay roughly similar charges for some services, such as electricity or telephones. An unregulated private company might not do this, since maximizing profit may require different prices to different consumers. The government may want cross-subsidization from low-cost to

high-cost customers. It could achieve this objective by taxing and subsidizing a private company, by regulation and approval of fee schedules, or by a Crown Corporation directed to engage in cross-subsidization. The prevalence of private and public telephone companies in Canada today, and major private electricity companies prior to 1961, suggests regulation and Crown Corporations may be closely substitutable instruments in some areas[5]. Crown Corporations may enable the government to achieve its objective in the least visible, if more inefficient, manner[6].

Second, a government may have a preference for development in its own jurisdiction. A Crown Corporation with a directive to encourage local industry may increase income in the province as a whole, but at the expense of lower Crown Corporation profits and lower incomes in other provinces. Such an action may be wealth-destroying for the nation, but in a federal nation individual provinces have the right to attempt to achieve such equity objectives. Again, subsidy policies and regulation are substitute instruments but a Crown Corporation may be the least visible way of achieving the objective.

Other rationales can be developed. Trebilcock and Pritchard have outlined a number of reasons why a Crown Corporation may be preferable to either regulation or a line-department. Multiple objectives exist, and the fact that this makes the Corporation more difficult to monitor is not any reason to deny that having simultaneous goals is illegitimate.

#### 1.4 THE RECOMMENDATIONS OF THE COMMISSION

The 17 recommendations presented attempt to simplify the administrative structure and set out a financial policy for the Crown Corporations. The administrative changes group Crown Corporations into two categories (present or future) and place all competitive commercial enterprises under Crown Investments Corporation (CIC) with a recommendation that CIC maximize dividend payments to the province (p.20). Such a policy is consistent with the view that the Crown Corporations are an investment portfolio. It is the Commission's view that dividends are the only perceptible benefit to the people of Saskatchewan (p.12) - a narrow view of benefits which ignores other rationales for such investments. Even within this narrow view, however, the retention and re-investment of dividends may be in the interests of the people by smoothing the intertemporal stream of natural resource income and so avoiding inefficient migration to Saskatchewan to capture "fiscal benefits". Alberta's boom has not been an unmitigated benefit to residents of Alberta, and Saskatchewan must consider the issues involved in timing the receipt of dividend income.

The recommendation on administrative structure is designed to increase corporate autonomy at the expense of political control. The Commission viewed the previous structure, which placed all Crown Corporations under the Cabinet Committee on Crown Corporations, as permitting too much political interference and opted to increase autonomy. The Commission suggests a move toward the "Ottawa model" for many corporations, where an individual

Minister would be responsible for relevant corporations. A committee of three ministers would oversee the Crown Investments Corporation. It is interesting that this move is occurring while recent reform proposals of the Ottawa model would increase political control. (Langford). Apparently, the balance between autonomy and control remains difficult to achieve.

#### 1.5 CONCLUSIONS

Crown Corporations remain a popular form of government intervention, regardless of the political philosophy of the government. The attempt to understand when Crown Corporations are the preferred method of intervention is likely to lead to a number of studies of specific Crown Corporations or groups of Crown Corporations such as the 24 in Saskatchewan. The Report of the Commission is a useful beginning.

The Commission may have felt that the Crown Corporation sector should be contracted. Its comments on "Departmental service units" (p. 17) give that impression. While its comments on corporations with multiple objectives (p. 18) also suggest that it was unsympathetic to the idea of using Crown Corporations to achieve other objectives which are difficult to achieve in other ways. It is true that this form of intervention is sometimes expensive, and the opportunity cost of funds must be considered (p. 5), but it may sometimes be a very good investment for the province. The Commission's narrow view of Crown Corporations misses the potential for major reform in the way government provides services and monitors the bureaucracy which provides them.

## NOTES

- [1] The page references which follow are to the Report of the Crown Investments Review Commission. The references to the "Report" and the "Commission" in this article are references to the Report of the Crown Investments Review Commission.
- [2] The Report also notes (p .40) that the public sector in Saskatchewan is median among Canadian provincial, territorial and federal governments in comparison to total employment. However, the emphasis here is on why a government will choose a Crown Corporation as its method of intervention.
- [3] This example of taxing economic rent is categorized by the Report as an equity rationale for government intervention. This is correct. The rationale for including this example here under allocational rationales is that in this case, the issue is how best to achieve a given end with minimum use of society's resources. Note that in this case it is the institutional or legal constraints which make Crown Corporations the most efficient method of intervention. The wealth-destroying aspect of the example are the constraints, rather than the Crown Corporation per se. This is in contrast to the equity rationales developed below, where the wealth-destroying aspect is the choice of the Crown Corporation to intervene in some way in the market in order to achieve an equity objective.
- [4] See the discussion in Laux and
- Molot.
- [5] See the discussion in Trebilcock, Hartle, Pritchard and Dewees.
- [6] The cross-subsidization rationale has been emphasized by Borcharding (2) in an excellent speculative essay on Crown Corporations. Borcharding also emphasizes monitoring costs and draws parallels with the property rights literature.

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## III

# The Report of the Crown Investment Review Commission: Some Clarifications

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Professor Dean's review, while useful in summarizing a number of points within the main Report, unfortunately adopts a format which creates unnecessary confusion and misunderstanding for the reader. One basic point was not fully appreciated by the reviewer: the authorship of the main Report (the Commissioners) and the Appendix (Beattie) are different. In spite of explicit reference to the multitude of source materials and inputs underlying the Commissioners' deliberations and eventual recommendations (see pages 1-2), Dean adopts a very literal, but nevertheless false assumption that the main Report flowed directly from the contents of the Appendix. Little constructive purpose is served by the frequent contrasting of selective statements from the two documents in such a manner as to leave the impression that the resultant differences (internal inconsistencies?) were unwittingly present in the Commission's review of the Crown sector.

The Appendix, in fact, was explicitly commissioned to provide an independent, introductory survey of the economic issues surrounding public enterprise. Its eventual inclusion was to serve a similar purpose

for the wider readership of the Commission's Report. As a result, it is not surprising that Dean would find differences in the treatment of the various intervention rationale, most notably on equity/rent-sharing arguments, or differences with respect to such issues as the independence, control, and accountability of public enterprises.

Before turning to specifics, one further general observation is required. Dean's review periodically laments that the Report failed to investigate the validity of the various intervention rationale as they relate to individual Crown corporations within Saskatchewan, for example, his remarks with respect to the natural monopolies argument, and later in terms of the development rationale. While one cannot dispute the worth and need for such case-by-case reviews, some brief consideration might have been given to the resource constraints arising from a total complement of 10 people and a reporting period of approximately six months. One can only speculate as to the quality of the reviews if such a heroic exercise were attempted of the 20-plus Saskatchewan Crowns. It is neither surprising, nor without merit that the

Commission concentrated upon the general operating, financial, and administrative structure of the Crown sector.

In the interests of brevity, my remaining comments will be presented in point form. Given the earlier statement on authorship, these remarks must be restricted to Dean's analysis of the Appendix. While probably unintentional, one must take issue with the implications of a number of Dean's observations. The most important omissions of the review are the following:

1. After noting the various market failures rationale contained in the Appendix, Dean points out to the reader the recent questionings of the natural monopolies (economies of scale) argument. If examination is given to page 53 of the Appendix, one finds a similar qualification, namely, the blunting forces of technological change, market growth, and inflation. Further, while not presented in his review, reference is also made to the countervailing argument involving the multi-product firm (economies of scope), where production complementarities may allow a vector of commodities to be produced most efficiently by a single firm.
2. After reviewing the Appendix's equity/rent-sharing rationale for intervention, Dean proceeds to argue that "taxation and public enterprise are not always perfect substitutes". More specifically, constitutional limitations are said to constrain the use of taxation, thereby giving rise to the use of public enterprise as an

alternative policy tool to achieve governmental objectives. Again, this point is not under contention. The careful reader will find similar, if not more general qualifications throughout the Appendix. To illustrate, the following statement is made on pages 49-50:

"Furthermore, the secondary question of instrument choice, the selection and application of a precise policy tool to pursue a given objective(s), is also not without ambiguity. While economics may suggest the use of an efficiency criterion (choose the policy which is not only effective, but which is also least costly and intrusive upon the economy), such a policy approach frequently fails to incorporate constraints inherent in the decision-making process. For example, relative to regulation and public enterprise, a system of taxation and subsidization may be a more efficient vehicle for combating market failure. However, providing public monies to polluting firms to correct their incorrect specification of costs, or providing subsidies to large corporations to supply goods and services in situations where revenues do not cover costs, or providing funding to enable production in the presence of declining costs and limited market demand, may yield efficient solutions, but may also fail to meet equity considerations (real or apparent redistributions of income) or political considerations (re-election probabilities).

Also, to what extent is the choice of intervention technique a function of the "gaming" environment in which governments operate, constrained by their partially adversarial relationships with the private sector and with other levels of government (provincial, federal, and foreign)? Institutional rigidities (constitutional interpretation, federal-provincial agreements), policy choices by other governments, and the ability of the private sector to shift or neutralize intended policy impacts, all contribute to the use of "second-best" policy choices."

3. Dean concludes the Appendix review by providing his own analysis of rationales. Strictly speaking, his discussion is one of instrument choice, not of the Appendix's survey of arguments for government intervention. In any event, Dean argues that Crowns may be a more efficient vehicle relative to traditional bureaucracy, and second, an earlier argument is repeated, namely, Crowns may overcome constraints associated with other policy tools. While admittedly not developed in detail, both arguments may be found in Section 4 of the Appendix. Finally, some mileage is made of the point that development policies may impinge negatively on other jurisdictions within the economy. This point is very well taken by Dean. However, it requires generalization to both externalities and to equity

concerns. As the Appendix notes:

"Stronger statements, such as, 'public enterprises should neutralize diseconomies', are not possible. As will be seen, it is partially a function of equity considerations, in particular, how the gains and losses from a more efficient allocation of resources would distribute not only across the population, but also across provinces and countries. (page 56)

However, since users are frequently beyond the jurisdiction of the governments in question, since consumers largely reside outside the boundaries of the resource-based province or country, the emphasis is upon rent capture, rather than dissipation. While not intending to discount concerns with rates of resource extraction and development, public policies have emphasized local interests, maximizing optimal rent capture, as opposed to, and generally over-riding concerns with global efficiency of resource use (page 48)."

Further, as developed on pages 56-58 of the Appendix, no discussion of the complexities of public enterprise and policy-making can ignore the implications of "second-best" theory.

In summary, given that the total document spans a mere 60 pages, one can only recommend a reading of the original Report.

## NOTES

\*The report "The Report of the Crown Investments Review Commission: Some Clarification" is available from the Queen's Printer, Government of Saskatchewan.

## IV

# Economic Challenges and Opportunities facing Manitoba's Agriculture Industry by the end of the century\*

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## 1.1 INTRODUCTION

Several obvious but major considerations are involved in any assessment of Manitoba's opportunities for economic development:

1. What can we best grow, produce or manufacture in Manitoba?
2. Can we market the products that we produce and manufacture: In the rest of Canada? In export markets of the world?
3. What constraints prevent us from realizing those opportunities?
4. What policies, both private and public, are needed to remove those constraints?

In reaching out for the future opportunities, we cannot ignore, of course, the many constraints on Manitoba's economic development. Manitoba does not have sufficient population to provide a ready-made market for everything that could be produced or manufactured in the Province. Accordingly, most

business developments in Manitoba must be geared to other Canadian or export markets. But the irony is that there are a growing number of institutional and political constraints being placed on many Manitoba products moving to other markets in Canada. We apparently cannot take a "common market" in Canada for granted, the provisions of the Constitution notwithstanding.

If we look beyond these constraints, for a moment, Manitoba does have many natural advantages and opportunities for economic development and growth in the years ahead.

The Province possesses ample supply of relatively cheap hydro power, an abundance of fresh water, a rich arable land base, a well-trained source of skilled labour, community colleges with the capacity and experience to mount a wide range of vocational training programs, universities with strong and active programs of research and public service, evidence of considerable entrepreneurial talent in the Province and a relatively diverse, if small scale, industrial base.

While Manitoba is located at a considerable distance from Canada's coast ports and facilities, it is

within reasonable distance of large, potential markets in western and eastern Canada and the large population areas of the mid-western and central United States. All of these markets are within 1,000 to 2,000 miles of our province. If Japanese trade firms in Tokyo can compete in Winnipeg over a distance of 5,866 miles, or pork processors in Copenhagen can place pork products from time to time on the shelves of Winnipeg stores and compete over a distance of 5,178 miles, surely Manitobans can think about markets for their products in Minneapolis, San Francisco, Chicago, Montreal, Toronto and Edmonton.

Of course, there are no markets available today just for the taking. Markets for Manitoba goods and products will have to be fought for with competitors who will not easily give up a market. But it would be reassuring to know that if Manitobans have a natural advantage in producing some commodity, and if they produce that commodity in an efficient manner, that they have an opportunity of competing for markets elsewhere in Canada. But that reassurance is far from evident at the present time.

My remarks, today, will be confined to some of the opportunities and the current constraints on those opportunities, which are associated with one of our larger and more basic industries in the Province - agriculture.

## 1.2 SOME PAST SUCCESS STORIES AND LESSONS TO BE LEARNED

Before I comment on the several constraints and impediments in the way of agricultural development within the Province, let me cite a few success stories that have taken place in Manitoba during the past two or three decades. Perhaps there are some lessons to be learned from these past successes.

I wonder what opportunities Ray Robinson and Peter Pakosh saw when they decided to move from Toronto to Winnipeg in 1951 to start a small implement business - later to be known as Versatile Manufacturing. What a success story Versatile Manufacturing (now Versatile-Cornat) has been! While many of us were concentrating on the problems of doing business in Manitoba, Versatile continued to add floor space and continued to employ additional people for its manufacturing operation. Imagine a farm machinery business in Manitoba selling in many countries of the world in competition with long established, giant multinational companies like Massey, John Deere and International.

And what did F.G. Bradley, a national distributor of pork and beef products, have in mind when he decided to set up his plant in Winnipeg several years ago? This firm could have located anywhere in Canada but it chose Manitoba for its operations. F.G. Bradley Co., now sell fabricated meat products to major institutions in almost every part of Canada. There are few airlines, hospitals, chain restaurants, hotels, universities and northern settlements which do not buy meat products from F.G. Bradley.

And who can overlook the success story associated with the oilseed processing business in Manitoba? Sunflowers and rapeseed became the cinderella crops in Manitoba. The

pioneers associated with the establishment of the Co-op Vegetable Oil plant at Altona, shortly after World War II, later joined others in western Canada to develop one of the more important industries in Canada - a multi-million dollar megaproject.

We will examine later some of the basic reasons behind these success stories in Manitoba. They did not happen by chance. There were certain basic factors involved in these historical experiences which can be applied in the future development of potential opportunities in Manitoba's agricultural industry.

### 1.3 MANITOBA'S AGRICULTURAL INDUSTRY IN PERSPECTIVE

While employment in primary agriculture comprises only 9 percent of the total employed persons in Manitoba, the overall contribution of agriculture and agriculturally related industries to the Province's Gross Domestic Product is very significant. Labour income from primary agriculture and agriculturally related industries amounted to 15 percent of total labour income in the Province in 1982.

If one assesses the impact agriculture has on the provincial economy by comparing "value-added" activities, then primary agriculture provided 20 percent of the total value-added for the goods producing sectors in Manitoba.

Evidence of this "value-added" activity can be seen in the agricultural input and service industries, and the agricultural output, processing and distribution activities in Winnipeg, Brandon and Portage la Prairie and in almost every town in Manitoba. These activities include the machinery, fertilizer, pesticide, farm credit, grain and meat processing, transportation, storage

and distribution industries. In 1982, Manitoba farmers spent \$1.5 billion on inputs for their farm business operations.

Some very major national and international agricultural organizations are located here in Winnipeg: The Canadian Wheat Board, the Canadian Grain Commission, agricultural departments of the commercial banks, Versatile-Cornat, the International Grains Institute, major national and international grain and meat processing companies, and the Winnipeg Commodity Exchange, to name only a few examples. And these organizations are associated with major business operations. An example is the Canadian Wheat Board which had sales of over \$5 billion in 1981/82 and which involved over 90 countries of the world. I wonder how many other organizations in Canada have such an extensive commercial involvement each year in all parts of the globe. Another example includes the meat processing business of St. Boniface which directly employs over 3,000 people and which creates hundreds of jobs in related industries.

### 1.4 OPPORTUNITIES FOR FUTURE DEVELOPMENT

Because of the importance of export markets for Canada's agricultural industry, we will look first at the global situation. Manitoba's agriculture, as important as it is, is only a small patch on planet Earth.

World population in 1975 was 4 billion and it is expected to increase to 6.35 billion by the year 2000 and to 10 billion by the year 2030. The annual increase in population is approximately 75 million at the present time and is expected to increase to 100 million annually at the end of the century.

Arable land is expected to



increase by only 4 percent by the year 2000, which means that most of the required increase in food production will have to come from higher yields. And what is important, most of the factors which now contribute to higher yields - fertilizers, pesticides, fuel for machinery, food processing and transportation - depend heavily on oil and gas (two resources that are inevitably going to cost more in the future).

Serious deterioration of agricultural soils will occur worldwide, due to erosion, loss of organic matter, salinization, alkalization and water logging. Regional water shortages could become particularly severe in some areas of the world by the year 2000.

The problems of preserving the carrying capacity of the planet Earth and sustaining the possibility of a decent life for human beings which inhabit it are immense.

In a global community of instantaneous communication, Manitoba citizens cannot isolate themselves from these global issues and questions. Indeed, it would be surprising if the global problems of the future will not have a direct and profound effect on the shape and character of Manitoba's agricultural industry.

The present surplus problems notwithstanding, agricultural productivity and the capacity to produce food in Manitoba could be a blessing in the longer run.

The long run basic fact remains: 75 million new people each year, between now and the year 2000, adds up to an additional 1.3 billion people to be fed 17 years from now - an increase in the number of food consumers equivalent to 50 times the present Canadian population. And this challenge will take place during the remaining lifetime of nearly half of those Manitoba producers presently engaged in farming. Manitoba's agricultural industry is not likely to

be a static one in the years ahead.

Manitoba's agricultural industry seems well placed to take advantage of future increases in demand for food products. The industry has a particular strength in the area of special crops. A wide variety of special crops are now produced in Manitoba - sunflowers, canola, mustard seed, sugar beets, various horticultural crops to name only a few examples. The producers of these crops have a special advantage in terms of the production and management expertise which they have developed and accumulated over the past 20 to 30 years. The producers are strongly supported by relevant research and extension programs, processing distribution and marketing facilities in the Province.

The projected expansion in world demand for the more traditional crops - wheat, barley, flaxseed, will have a positive impact as much of Manitoba's agricultural industry.

Over a third of Manitoba's farm income comes from livestock and poultry products.

Unless the national marketing quotas are drastically changed for eggs, broilers, turkeys and dairy products, it is unlikely that much expansion will take place in this aspect of Manitoba's agricultural industry. Manitoba does have a solid basis for expansion in cattle and hogs but whether this expansion occurs or not is questionable. Certainly, the red meat area of Manitoba's agricultural industry is vital from the standpoint of job and income creating activities in Manitoba. Whether the 3,300 jobs in Manitoba's meat processing industry contracts or expands in the years ahead is one of the more important questions relating to Manitoba's future economic development.

### 1.5 SYSTEMATIC APPROACH TO THE DEVELOPMENT OF THE NEW OPPORTUNITIES

One of the best examples of a systematic approach to the development of new opportunities can be found in the oilseed processing business in the prairies.

Farmers decided that they could grow rapeseed in western Canada. After considerable investment in rapeseed research and experimentation by farmers, it was demonstrated that farmers could produce a product which had a potential place in Canada and in world markets. But the Canadian and world markets for oilseeds was an intensely competitive affair. First of all, it was a market dominated for many years by American soybean producers. Furthermore, any product of this type faced intense competition from producers of substitute products in tropical countries, e.g., palm oil.

However, the rapeseed product grown in western Canada eventually gained a strong foothold in the Canadian and world markets as a result of a series of actions:

1. Coupling research with production to produce a commodity that was competitive in world markets.
2. In depth study of markets for the oilseed product itself and for the processed products, oil and meal.
3. Careful assessment of foreign competition in both the Canadian and world markets.
4. Support for livestock feeding trials in the foreign customer countries.
5. Continuing research to ensure that the product produced met

the changing requirements of the foreign customer.

6. Ensuring that there was a stable and continuing supply of the products available to domestic and foreign customers.
7. Willingness and ability to price competitively in domestic and world markets.
8. Close and continuing collaboration among all sectors of the system: scientists, farmers, government agencies, oilseed crushers, distributors, exporters and ultimate consumers of the product.

The record of this sector of the agricultural industry speaks for itself:

1. In 1981 Canadian exports of oilseeds and oilseed products amounted to one billion dollars, a significant proportion of which originated in Manitoba.
2. During the last 20 years, sunflower production in Manitoba has increased by nine times; while rapeseed (canola) increased by approximately 25 times.
3. Canola oil now represents over 40 percent of all vegetable oils consumed in Canada.
4. Oilseed development in western Canada has come a long way since the introduction of rapeseed to Canada in 1942 to meet a wartime emergency shortage of steam engine lubricants.

I am persuaded that what has been accomplished in the oilseed industry by way of an overall coordination of activities from research and production to the foreign customer can be done for other sectors of the agricultural industry.

#### 1.6 CONSTRAINTS ON THE DEVELOPMENT OF AGRICULTURAL INDUSTRY

The federal Minister of Agriculture has expressed frequent concern about the balkanization of the Canadian agricultural industry which has developed because of the proliferation of provincial agricultural policies. The provinces, in turn, have complained about the inadequacy of national agricultural policies undertaken by the central government. It is difficult, indeed, to make any assessment of the opportunities available for the expansion and development of Manitoba's agricultural industry in this complex and uncertain situation.

The major assumption of the free trade provision of Section 121 of the BNA Act was that each region of the country would concentrate on the production of those commodities in which it has the greatest comparative advantage and that free trade among the provinces and regions would benefit the nation accordingly.

The free trade principle, however, has not turned out to be the practice for several agricultural commodities. Both the central and provincial governments have initiated policies, or have been parties to agreements which have had the effect of limiting the free movement of agricultural commodities across provincial boundaries.

At times, the courts, as they have interpreted particular sections of the constitution, have ruled against policies which have tended

to restrict free trade in Canada; at other times, the courts have upheld actions which had the effect of limiting the free movement of agricultural commodities across provincial boundaries. Some of the most controversial issues have been associated with agricultural marketing board legislation initiated by both levels of government.

But marketing board legislation is not the only area which has had significant implications for the constitution and for federal-provincial relationships. Several of the provinces have passed various types of farm and real property legislation which has had the effect of restricting ownership of property to only those citizens resident in the province. Provinces have used various types of subsidies to protect their producers against competition from producers in other provinces. The federal government, under its various regional development programs, has provided grants and subsidies to develop and expand agricultural activities in regions that would not otherwise have flourished without such public assistance.

The implications of the constitution for agricultural policy are very significant. It is not an easy task to develop a national agricultural policy which reflects the very great physical, economic and political differences which distinguish the various agricultural regions in Canada, but which, at the same time, recognizes the fundamental need for a national consensus on many vital issues in the Canadian agricultural industry.

Perhaps, the federal Minister of Agriculture, Mr. Whelan, expressed the frustration of many policymakers:

Sometimes when you compare the agricultural program of one province with that

of another province, you would think they were from two different countries...It is hard for me to understand how a federal minister can be expected to act as an equalizer on some of these problems.

The reality, however, is that agricultural policy is made in a federal, not a unitary state. Differences, tensions and conflicts are an inherent part of the system. But if these tensions and conflicts are not to balkanize the country, considerable collaborative action is called for on the part of both levels of government in agricultural policy-making. No unilateral action by one government which threatens or trespasses on the jurisdiction of another level of government will endure for long unless there is agreement among the partners within the federal system. There are no two sets of separate and discrete policy or constitutional boxes into which one can neatly sort out what are matters for the central government and what belongs to the provincial partners.

Perhaps, Professor Corry expressed it best of all when he reminds us that Canada is a federal union where:

Provinces are joined together (and he could have added the central government) not by treaty but by a constitution from which they have no right to withdraw. It is a marriage and not merely a casual alliance...Yet, at the beginning at least, a federal union is merely a marriage of convenience...a practical businesslike arrangement with no sentimental nonsense.

The parties insist on retaining their distinct identities and personalities; they do not become one flesh. Of course, with the passing of time and the running of a common household, the marriage of convenience may be transformed into the kind of marriage that is made in heaven, where the identities of the several states are merged into an indissolubly united nation[1].

Most would agree that the ultimate state of heavenly bliss in the domestic affairs of the Canadian agricultural industry has not yet been attained. Canadian agricultural policy is still a marriage of convenience in many respects; untidy and uncertain, characterized at times by quarrels among the partners, but a marriage, nevertheless, which must be made to work if the agricultural industry is to develop as it should in Canada.

#### 1.7 SUGGESTIONS FOR THE MACDONALD COMMISSION

There are certain basic and longer-run issues and problems in agriculture which should be addressed by the MacDonald Commission if we in Manitoba are to understand the framework within which future developments of the agricultural industry are to take place.

1. The need for a common market in Canada. Are we to have a common market in Canada for agricultural commodities? Manitoba has neither the population base nor the necessary public resources to compete against the treasuries

of other provinces for markets in Canada. This issue must be faced.

2. Principle of comparative advantage. There is an urgent need to update a comprehensive study previously undertaken by the Economic Council of Canada on regional competition and the principle of comparative advantage in Canadian agriculture. Many public policies and programs, such as the Farm Products Marketing Agencies Act and the Feed Grain Marketing Policy pay lip service to the need to encourage production and marketing in Canadian agriculture in accordance with the principle of comparative advantage, but the results of these policies contradict this fundamental principle of trade in a common market.
3. Future structure of the Canadian agricultural industry. Fundamental changes are occurring at both the individual farm level and within the agri-food system as a whole. Until these changes are understood and placed in perspective for the future, it will be difficult to know what types of private and public policies should be developed for the Canadian agricultural industry. The Commission is urged to undertake a comprehensive study of the basic structural changes occurring in Canadian agriculture.
4. International trade policies. Approximately 40 percent of Canada's agricultural income is earned in foreign markets. Trade is the lifeblood of the

industry. There is an urgent need to assess the longer run implications of trade policies in the United States, the European community and third world countries for Canada's agricultural industry.

5. Research and development policies. The importance of research to the agricultural industry has been amply demonstrated. The payoff from agricultural research has been very significant indeed. The Federal Government rust lab literally saved western farmers hundreds of millions of dollars during the rust epidemic of the 1930s. The strategic importance of research in the development of the oilseed business in the prairies has already been discussed. The approximately \$140 million allocated for agricultural research by the Federal Department of Agriculture in 1982/83 represented only 0.7 percent of cash farm income in 1982. Relative to the returns on investment in agricultural research, the \$140 million allocated for research is simply not adequate.
6. Monetary and fiscal policies. There is an urgent need to assess the implications of Canada's monetary and fiscal policies for Canadian agriculture. Policies relating to interest rates, exchange rates, inflation, employment and taxation have a direct and profound effect on Canadian farmers. Nowhere was this impact more evident than in the interest rate policies during the past two years.

Canadian farmers depend heavily on debt capital as their external sources of funds. The high interest rates of the past two years have created considerable damage in the producing sector of the agricultural industry. The damage has been most evident

among the younger farmers of the country. We urge the Commission to undertake a basic analysis of the implications of Canada's monetary and fiscal policies for the welfare of Canadian agriculture.

## NOTES

\*This paper was presented at a special workshop convened by the University of Manitoba on behalf of the Royal Commission on the Economic Union and Development Prospects for Canada (Macdonald).

- [1] J.A. Corry, Domestic Government and Politics, University of Toronto Press, 1946, p. 551.

## V

# The Federal Deficit and Crowding Out in 1983 and after: A Consensus Forecasts\*

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Concern over the federal deficits (both in Canada and in the United States) is now recognized widely to be based not on fear that the debt will be unbearable, but rather on the notion that the rate of increase of the federal debt (the deficit per year) will crowd out other, more desirable borrowers from the capital markets.

There is much discussion of these issues, but little in the way of hard numbers or perspective from the past. In this article, we attempt to fill both gaps.

To address the question of crowding out by the federal deficit, we use a forecasting tool which blends Keynesian national income analysis with financial flow of funds analysis. This tool is the savings-investment table. First, we survey the actual sources and uses of savings in Canada from 1977 to 1982. Then we forecast for 1983 the probable level of planned savings and planned investment, in order to see if there is any gap between them. It is this gap that determines whether output grows or shrinks, and which foretells possible crowding out of private investment.

The gap between planned investment and planned savings at any

level of national income is a measure of excess demand at that income level. Where there is excess demand, it is likely that income levels will rise, since otherwise sellers will have to turn customers away or run down their inventories. Where there is excess supply, inventories accumulate and business profits fall, so income and output levels tend to fall. If there is excess demand, one of the possible responses of the economy is for interest rates to rise and crowd out some private investment. If there is excess supply, interest rates will tend to fall and private investment will be stimulated.

It is a peculiarity of the savings-investment table that actual savings and investment totals measured for past years always balance exactly. Even if there is excess demand in the economy throughout the year (planned investment being greater than planned savings), five adjustments occur in the economy which cause the measured investment-savings gap to be zero.

The first adjustment is that producers step up output levels to match the greater level of demand, which increases incomes and therefore savings levels.



The second adjustment is that inventories are run down to satisfy demand where output levels cannot be raised immediately; running down inventories reduces the capital stock of the country, and therefore lowers measured investment.

The third possible adjustment is that buyers of goods in short supply may be forced to postpone their spending, so that their measured spending falls and their savings rise temporarily until the goods can be produced.

As a fourth adjustment, buyers may turn to foreign sources; imports will rise, pushing up the balance of trade deficit. This is likely to occur if domestic output is close to capacity, or if more domestic borrowing is being done outside the country, so that Canada has a larger capital inflow and a higher value of the Canadian dollar. The higher value of the Canadian dollar worsens domestic producers' competitive position, so that net imports rise. A larger capital inflow enters the savings-investment table as a larger flow of saving from the rest of the world.

The fifth and last possible adjustment to excess demand in the economy is for interest rates to rise and crowd out private investment. Interest rates will rise if growth of domestic output (at current market prices) outstrips the growth of the money supply. When interest rates do rise, more of what borrowing remains will be done abroad, which will raise the value of the Canadian dollar as in the fourth adjustment above.

The total result of all five sources of adjustment is that any gap between measured savings and investment disappears. What is of interest is the adjustments which occur to bring that about. A first step to predicting those adjustments from 1983 and 1984 is to identify in

advance what gap there is likely to be between planned investment and savings. All that then remains is to choose which of the five adjustment processes will be used to close that gap.

### 1.1 SAVINGS AND INVESTMENT FROM 1977 TO 1982

From 1977 to 1982, the flows of measured savings and investment were as shown in Table 1, measured in 1982 dollars. Personal savings rose more or less steadily with real income levels to 1981, but soared in 1982 despite the recession, possibly because of soaring insecurity levels. Corporate savings levels fluctuate with corporate profits, and therefore plummeted in 1981 and 1982 as corporate profits fell. Government saving is the difference between government revenues and government current spending (i.e., excluding government investment spending). Government saving is positive for non-federal governments, but sharply negative for the federal government in recent years, so the total for all government sectors is still negative after 1977.

Rest of the World saving reflects our borrowing abroad to finance import deficits, and therefore more or less equals the import deficit in any year. Import deficits have been large until 1982, when a precipitous drop in merchandise imports actually generated a current account surplus in the Balance of Payments. For 1982, Canada was a net lender abroad.

Capital consumption allowances reflect parts of corporate and government revenues earmarked to offset wear and tear of existing capital structures and equipment during the year; not surprisingly, these allowances rise with the amount of capital equipment in existence, and do

Table 1

## Real Savings and Investment Flows, 1977-1982

(Billions of 1982 Dollars)

	1977	1978	1979	1980	1981	1982
Savings						
Personal	21.3	26.0	26.6	27.5	30.7	34.2
Corporate	11.0	11.0	15.3	14.4	8.7	4.0
Government	12.1	-5.7	-2.2	-3.0	-.1	-14.2
Rest of World	7.6	7.9	7.5	2.4	7.2	-1.6
C.C.A.	36.6	38.4	40.0	40.7	41.6	41.9
TOTAL	<u>75.8</u>	<u>78.4</u>	<u>87.1</u>	<u>81.9</u>	<u>89.0</u>	<u>66.0</u>
Investment Spending						
Housing	19.8	19.3	18.5	16.8	17.4	12.8
Non-res. Constr.	29.6	29.4	32.0	35.2	37.6	36.7
Mach. & Equipment	24.8	25.7	28.7	30.3	31.8	26.9
Inventory Change	.6	.7	4.8	-2.1	.7	-8.7
TOTAL	<u>75.8</u>	<u>78.4</u>	<u>87.1</u>	<u>81.9</u>	<u>89.0</u>	<u>66.0</u>

Note: C.C.A. is Capital Consumption Allowances. Corporate saving is undistributed corporate profits plus inventory valuation adjustment, plus capital assistance (typically about \$0.7 billion). Rest of the world saving is equal to the current account deficit less capital brought in by immigrants.

Source: Statistics Canada, National Income and Expenditure Accounts.

not vary much around their trend.

Housing investment has been slowed down markedly in 1982 by the rise in unemployment and the rise in interest rates on mortgages. Non-residential construction has slowed much less since 1981, largely because it takes longer to complete non-residential construction projects such as pipelines and ships and new plants and mines. Machinery and equipment spending has slumped a bit, but not nearly as much as housing in relative terms. The dramatic drop in 1982 is in inventory accumulation. Particularly in the last quarter of 1982, producers and distributors slashed their inventories to lower their bank interest charges and stave off bankruptcy. The run down of inventories in 1982 has lowered physical inventories to average levels not seen since 1974.

## 1.2 1983 FORECAST

For 1983, we generated a consensus forecast of what planned savings and investment flows would be if the five adjustment processes mentioned earlier were somehow held in abeyance. Readers can easily substitute their own forecasts for ours, and it is unlikely that the qualitative conclusions would be changed much. The forecasts are shown in the 1983 column in Table 2.

Personal saving is expected to rise slightly because of higher real incomes, but to fall with the ending of the recession and resumption of growth; the net impact is small, to a slight fall. Corporate saving is expected to rebound sharply, both because of higher corporate profits, and because of a significant loosening of corporate tax regulations in the Lalonde budget of April 19.

Government dissaving, however, will also rise as a result of the larger federal deficit, by about \$9 billion. This is almost all due to the federal government; provincial governments have not increased budget deficits by much despite the severity of the recession.

The rest of the world is not expected to generate any large capital inflow into Canada on its own in 1983, for the reason that Canada is expected to generate close to a zero balance of exports and imports. In 1982 Canada had a surplus, and our growth in 1983 relative to the U.S. will not be large enough to convert that back into a large deficit, despite large interest and dividend payments. Capital consumption allowances are expected to continue on their upward trend. Total saving is expected to reach approximately \$67 billion for 1983 before any adjustments for a savings investment gap.

Of the investment categories, housing and inventory investment will both recover sharply. Housing will rise to around \$16 billion, significantly higher but still well below the levels of the late 1970s. Inventories will stop falling, which means a huge rise in inventory investment from -\$9 billion to zero. Since inventory levels are still very low, some planned build up of stocks is likely now that the recession is over.

Non-residential construction and machinery and equipment investments are likely to continue to stagnate for 1983 and much of 1984 because of the high levels of excess capacity. Recovery in these categories is likely only in late 1984 or 1985, if the recovery is not choked off by then. Total investment is therefore about \$77 billion, \$10 billion greater than total saving.

Table 2

## Real Investment and Savings Forecasts for 1983

(Billions of 1982 Dollars)

	1982 Actual	1983 Forecast
Savings		
Personal	34.2	32
Corporate	4.0	14
Government	-14.2	-23
Rest of World	-1.6	1
C.C.A.	41.9	43
TOTAL	<u>66.0</u>	<u>67</u>
Investment Spending		
Housing	12.8	16.
Non-res. Constr.	36.7	35
Mach. & Equipment	26.9	25
Inventory Change	-8.7	1
TOTAL	<u>66.0</u>	<u>77</u>
Investment-Savings Gap		<u>10</u>

Note: See Table 1.

### 1.3 CLOSING THE GAP IN 1983

If there is a gap of \$10 billion between planned investment and saving from all sources, what adjustments will occur during 1983 to close that excess demand gap, and what do they imply for 1984? It may help to bear in mind that the major causes of this gap are the sharp drop in government saving caused by the higher federal deficit, and the end of inventory rundown by the private business sector. Of these, the higher business inventory investment is offset almost exactly by higher corporate saving, so the large net change is greater dissaving by the federal government.

The first and obvious adjustment is that firms will step up their output levels and generate real growth in 1983. The consensus of other forecasts of real growth in 1983 seems to be 2-2 1/2 percent, while \$10 billion is almost 3 percent of the 1982 GNP level of \$350 billion. This will increase business, household, and government savings, but by much less than \$10 billion.

It is not likely that inventories will be allowed to fall by much, if at all: our suggestion is a slight rise, given the size of the drop in 1982. Similarly, it does not seem that order backlogs will be very much changed in 1983. Order backlogs are important mainly for producer durables, which are not expected to have strong demand for 1983 or even 1984. Instead, it is housing, government construction and to some extent consumer spending that are expected to rise.

The bulk of the extra demand is being financed by the larger federal deficit, which will likely push even more provincial governments and corporate borrowers abroad for their loans. Such foreign borrowing by provinces and corporations has

continued apace since the mid-1970s, but accelerated sharply in 1981 and 1982. In 1982 it was offset by a large drop in the short-term capital inflow as banks retrenched on borrowing abroad to finance growth of domestic loans, and in 1981 by a large and temporary outflow of direct investment (triple the rate of the year before) associated with the National Energy Program. For 1983 there are no prospects for such an offset, so Canada will have significant savings flow from the rest of world. This will probably raise the exchange rate. As it does, some domestic demand will shift abroad, and our current account will once more shift into deficit.

It is possible that this excess demand will cause output growth to outstrip the growth of the real money supply, and therefore will force interest rates up, but there are certainly no signs of that happening yet. With inflation running at only 6 percent and real growth forecast at 2 percent, it is unlikely that the Bank of Canada would refuse to allow money supply growth at least equal to the sum of the two, 8 percent. If the exchange rate were threatening to fall, the Bank of Canada might generate higher domestic interest rates to protect the value of the currency, but we have already seen that the exchange rate is likely to rise rather than fall. The exchange rate would start to fall if U.S. interest rates were to rise, but the consensus view is that these rates are already too high for the U.S. economy, so a further increase is unlikely.

Our forecast of the main items in the Canadian balance of payments is implicit in the comments above. Long term capital inflows are expected to be large in 1983 as in 1982, because of the continuing foreign borrowing by provinces and corporations. Net short term capital

flows on the other hand, will be fairly small. The balance on current account (exports less imports) will be less than in 1982, but not by much: a small deficit might replace 1982's small surplus. That leaves a fair amount of the long term capital inflow to be absorbed in the foreign exchange market by the government in official reserve increases. How far and how fast the exchange rate increases depends on how eagerly the government absorbs the extra reserves.

#### 1.4 CROWDING OUT IN 1983

From this analysis, it does not appear likely that Canada will experience significantly higher interest rates during 1983, so it is unlikely that much private investment activity will have been crowded out by the federal deficits by the end of 1983.

There could be crowding out in another, weaker sense, but even this is not clear. Had the federal deficit been zero, for instance, instead of \$29 billion for 1983, the level of saving would have been considerably higher. Interest rates would have been much lower because of the extra slack in the economy, just as in the Depression of the 1930s, and investment projects would have been cheaper by the margin of lower interest costs. However, private investment projects would also have been much less profitable if the economy had been much more depressed, so it is far from obvious that there would have been much private investment demand left to fill the gap created by cancelling the federal deficit.

#### 1.5 PROSPECTS FOR 1984

For 1984, the savings and investment numbers will be quite different. Higher income growth in 1984 will significantly increase personal savings, and lower the government deficits by several billion dollars. On the other hand, private investment will be starting to recover, starting possibly with inventory investment. There is prospect of another investment savings gap, to be closed again by some combination of the five adjustments mentioned at the start of the article. The adjustments used in 1983 will not necessarily be repeated in 1984, and at some point in 1984 or shortly thereafter, the Bank of Canada will become concerned about demand levels approaching too close to capacity and will start to raise interest rates again. Unless at that point there is real prospect of much lower federal deficits, current financial market forecasts of higher future short-term interest rates will be borne out.

It is possible that this prospect of higher future interest rates is already crowding out some private investment, since all investment activity must be forward-looking. This possibility is hard to assess, so we can only say that few analysts have so far been advancing it.

## NOTES

\*This forecast was prepared by N. Cameron, G. Mason, S. Watson, W. Simpson, R. Lobdell, G. Churchman, D. Mole, H. Rempel and R. Bell.

## VI

# On the Form and Presentation of the Government of Manitoba's Budget

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This is a summary of the report prepared for the Manitoba Government, Department of Finance, at the request of the Honourable Vic Schroeder, Minister of Finance. Copies of the full report are available from the Department of Finance, Government of Manitoba.

Let us define the "Budget" of the Government of Manitoba as a group of related documents which describe the financial condition of the Province. These include: (1) the Estimates of Revenue and Expenditure for the coming fiscal year (in earlier years separate estimates were presented for capital expenditures); (2) the Budget Speech which presents the estimates in summary form and describes any tax or other revenue changes that are being proposed; (3) the Public Accounts, which present detailed information on revenues, expenditures, financial assets and liabilities and on the source and application of funds for the fiscal year just completed, and (4) the Auditor's Report which evaluates and criticizes the way in which the Province handles and reports upon its financial affairs. In addition, in recent years the Province has issued a quarterly report which provides information on revenues and expenditures since the beginning of the fiscal year and gives revised

estimates for the balance of the fiscal year. It also issues a Financial Report which presents the principal information from the Public Accounts in summary form. While this report concentrates its attention in the main on the budgetary presentation of revenues and expenditures, in some degree it is also concerned with the entire set of documents.

While the main emphasis of the paper is on the Government's Budget, it must be recognized that a government's financial operations have traditionally been divided between the budgetary and non-budgetary. According to one definition, non-budgetary items are those which do not enter the calculation of the annual budgetary deficit or surplus but which may increase or decrease government assets and liabilities. To provide a complete picture of the Government's financial condition, some attention will be paid to non-budgetary items as well.

In large measure, this difference



between budgetary and non-budgetary accounts reflects the fact that in carrying out its programs and activities the Government sets up or creates various agencies, boards and commissions such as the Manitoba Crop Insurance Corporation, the Universities Grants Commission and the Workers' Compensation Board. The Government also sets up Crown Corporations to carry out activities which are in the nature of business enterprises. The Manitoba Hydro-Electric Board and the Manitoba Telephone System are two examples of such business type enterprises. The Government often advances funds to these separate entities on which it earns an interest return. These advances, in turn, constitute part of its financial assets offsetting its liabilities.

In addition to the various budgetary and financial reports which the Government of Manitoba issues, there are two other sources of information on the Government's finances. The Public Finance Division of Statistics Canada issues a number of different reports which describe the financial affairs of the provinces and the federal government on a comparable basis[1]. In addition, the National Accounts Division of Statistics Canada prepares a report on the finances of each of the provincial governments on a "national accounts" basis. Some reference will be made below to each of these reports as well.

The set of financial documents issued by the Manitoba Government and described above serve a number of different purposes. A primary purpose is to enable the Legislature to control the raising and expenditure of public funds. To facilitate this purpose, members of the Legislature should receive information on various programs and activities in sufficient detail, consistent with reasonable cost, to enable them to

assess the effectiveness and efficiency of government expenditures. This same information may also be desired by various members of the voting public and by analysts of government operations. Another purpose of these reports is to provide information useful for making economic decisions; indeed the Government itself will require this information in formulating its economic policies. A wide range of users will be interested in analyzing and evaluating the impact of the Government's Budget upon the economy, such as the investment community including underwriters, credit rating agencies, potential bond buyers and present bondholders.

At the present time, the budgetary accounting approach followed by the Province is essentially the one described by the Canadian Institute of Chartered Accountants as the "net debt approach" [2]. No distinction is made between current and capital expenditures. All expenditures on fixed capital assets are written off in the year in which the expenditure is made and no record is kept of these assets in the statement of assets and liabilities. However, a separate "Statement of Construction and Physical Assets" is maintained and presented in the Public Accounts. This statement provides an annual measure of gross capital formation. Since there are no complete and systematic estimates of depreciation of the Government's capital assets, there is no attempt to measure net additions to the Government's capital stock.

The Government of Manitoba does not keep a balance sheet in the normal sense, but presents "a statement of liabilities less recorded assets" in which the assets are limited to those which are entirely financial in character. For most governments, the net balance in this statement shows a net debt position. The net

debt increases each year by the amount of the Government's deficit or declines by the amount of any surplus, where the deficit or surplus reflects the difference between all revenues and all expenditures, current and capital.

One of the major issues in government budgetary accounting is the way capital expenditures are to be handled. The present accounting treatment of capital expenditures was adopted in 1978-79. The new approach had been recommended by the Provincial Auditor and was viewed sympathetically by the Canadian Institute of Chartered Accountants in its publication Financial Reporting by Governments. It is a method now followed by many of the provincial governments in Canada, the principal exceptions being those in the Atlantic provinces. Prior to this change, separate funds had been maintained for current and capital expenditures. Funds approved for capital purposes did not lapse at the end of the fiscal year. This created an incentive to transfer unexpended funds in the current budget over to the capital budget where they could be carried forward to the following fiscal year. Under these arrangements, funds could be carried forward for many years. In contrast, with the present accounting treatment, all unexpended funds lapse at the end of the fiscal year and new authority is required from the Legislature after approval by the Treasury Board and Cabinet before further expenditures can be made[3].

This change in the treatment of capital expenditures and a number of other recent changes in the Government accounts, such as the abolition of the longstanding Special Municipal Loan and General Emergency Funds and the discontinuance of the revolving account for the Queen's Printer were made primarily to

improve legislative control over the raising and expenditure of public funds. Two of the central concepts which are basic to this control are: (1) a consolidated fund for all government revenues and expenditures; and (2) annual approval of expenditures by the Legislature. Under a Consolidated Fund all government receipts go into a single consolidated fund. Expenditures out of this fund can only be made in accordance with annual estimates submitted to and approved by the Legislature with expenditure authority lapsing at the end of each fiscal year. In earlier years, this strict accountability to legislative control was weakened by a variety of devices. As was explained above, capital expenditures could be made under estimates approved in earlier years. Again, where revolving funds were in effect, revenues received by special agencies could be spent without legislative approval.

Without denying the importance of maintaining effective legislative control over public expenditures, it is necessary to recognize that the Public Accounts have other important uses. The form and presentation of accounts suited to the most effective legislative control may not be the most desirable for showing the economic impact of the Budget or in providing the information desired by economic or financial analysts. It may be that no single approach can adequately serve all these different uses. As will be suggested below, a compromise solution may be to supplement the present emphasis on legislative control with additional data that will better serve the needs of effective economic analysis. It should also be recognized that effective legislative control of public expenditures is a complex issue. No simple set of rules can easily achieve the goal of economy and efficiency in government

expenditures. Some of the largest expenditures such as those under the hospitalization and medical care plans take place under continuing programs where the size of annual expenditures cannot be easily scrutinized or controlled by the Legislature. Once the terms of payment for a program have been established, the size of actual expenditures will depend on a variety of economic circumstances not directly subject to the Government's control. Let us now consider the issue of the capital budget in more detail.

### 1.1 THE CAPITAL BUDGET APPROACH TO GOVERNMENT ACCOUNTING

When an individual has to make a major capital expenditure such as the purchase of a house for the first time, he or she will normally finance it by taking out a mortgage covering a large part of the purchase price. Very few individuals are in a position to pay for a house in cash or to finance it entirely out of current income. Frequently, the mortgage will be paid off in a series of monthly amortization payments over a period of 20 or 30 years.

Often a smaller governmental unit such as a village or town, when faced with a large capital expenditure such as a sewage treatment plant or a major street improvement program, will find itself in a position similar to that of an individual. To finance the project entirely out of current revenues would impose an extreme if not impossible burden on its current residents. Moreover, given the fact that the capital facility will be in service for many years, it would be unfair as between present and future residents to impose the entire cost on people living in that locality at the time the project is undertaken. Thus, it is

normal to finance these projects out of borrowed funds, with the resulting debt being amortized over a period of years.

For a larger governmental unit such as a major city or a province, capital expenditures often assume a more regular character. According to one estimate, during the 1970s the capital expenditures of the Government of Manitoba varied within the range of 1.03 and 2.14 percent of Gross Provincial Product. For these larger governmental units, the budgetary treatment followed is more optional. On the one hand, the Government can follow a capital budgeting approach and allocate these expenditures to a capital account and charge an amount equal to the depreciation on its capital assets to the regular Budget. Alternatively, it can treat all capital expenditures as if they were a current expenditure, charging them off in the year in which the expenditure is made which is the treatment followed by the Government of Manitoba at the present time.

Even where no formal estimate of depreciation on capital assets is recorded, if capital expenditures are financed through borrowing, and the debt is amortized over a period of years, the amortization of principal may approximate to a charge for depreciation or capital consumption. However, the extent to which these amortization payments cover actual depreciation is more or less accidental. The size of the amortization payments depends on the way capital expenditures happened to be financed and the length of the amortization period used.

In order to assess the implication of these two approaches, consider the data given in Table 1 which presents for Manitoba, by five year periods from 1961 to 1980, estimates of government capital formation, capital consumption

Table 1

Capital Formation, Capital Consumption Allowances and Budgetary Surplus or Deficit, Province of Manitoba, 1961 TO 1980

				Budgetary Deficit or Surplus	
Years	Gross Capital Expenditures	Capital Consumption	Net Capital Expenditures	1. (a) Capital Budget	(b) Current Practice
Million Dollars at Current Prices					
1961-65	185	57	128	74	-54
1966-70	327	93	234	346	112
1971-75	420	177	243	144	-99
1976-80	595	325	270	436	166
1961-80	1,527	652	875	1,000	125

Million Dollars at Constant 1981 Prices					
1961-65	711	219	492	270	-222
1966-70	1,041	295	746	1,095	349
1971-75	994	398	596	472	-124
1976-80	797	437	360	540	180
1961-80	3,543	1,349	2,194	2,377	185

Source: Statistics Canada, Provincial Economic Accounts, Cat. No. 13-213.

Note: All data are on a calendar year national economic accounts basis. For purposes of this table, amounts shown separately for hospitals were consolidated with those of the Provincial Government. Data were converted to 1981 prices using a Statistics Canada price series for Government capital expenditures.

1. Gross Capital Expenditures - Capital Consumption (Reproduction)

allowances, net capital formation and the deficit or surplus that would be shown (a) under the capital budgeting approach and (b) under the present budgetary approach. The data are taken from Statistics Canada's Report on Provincial Economic Accounts.

As these data show, over the 20 year period 1961 to 1980, the Province of Manitoba carried out capital expenditures of about \$1.5 billion. In terms of 1981 prices, the capital projects involved would have cost over \$3.5 billion. After making allowance for depreciation there was a net addition to the stock of government owned capital assets of about \$1 billion. Translated into equivalent 1981 prices, these data show that the Province made a net addition to its stock of capital amounting to about \$2.2 billion. With the budgetary approach currently in use, where no account is taken of capital consumption and capital expenditures are charged off as though a current expense, the Budget shows a net surplus of \$125 million over the 20 year period. In contrast, if the capital budget approach is used, the recorded surplus over the period amounts to about \$1 billion. When all the data are converted to 1981 prices, the accumulated surplus amounts to \$185 million under current budgetary practice and to just under \$2.4 billion with a capital budget approach. The difference between these two figures matches exactly the estimated net addition to the stock of government owned capital.

It should be noted that these data are estimated on a somewhat different approach than the regular budgetary accounts. Capital expenditures, for example, only includes newly produced physical capital assets. Acquisition of land or other existing assets are not included. Government revenues include

contributions to pension funds of their employees as well as tax and other revenues. This approach, known among economists as the national accounts approach, is believed to provide a better measure of the economic impact of government expenditures and revenues than is shown by the regular accounts.

Examination of the data in Table 1 by five year periods reveals that capital expenditures were at their highest level in real terms during the period 1966-1970. Coincidentally, the budgetary surplus, also in real terms, reached its peak in that period as well. The capital expenditures in Table 1 cover physical capital assets only. Undoubtedly, government expenditures over the two decades from 1961 to 1980 also made a significant contribution to building up the stock of human capital in the Province, in the form of the education, training and health of the people of Manitoba. However, since this type of capital is so difficult to measure, and because it may readily move out of the Province, no attempt has yet been made to measure and record this aspect of capital formation in the Province. Nevertheless, it should be emphasized that the skills and educational level of the Province's labour force are an extremely important asset that can play a vital role in the Province's future growth and development. It may prove desirable at some future date to provide estimates of this form of capital.

In the light of these data, what particular merit is there in the capital budget approach? A fundamental issue is the way in which the stock of government owned capital is recorded and accounted. There can be no doubt that the social capital provided by the Government - the roads, highways and bridges, the schools and hospitals, the parks and playgrounds, the flood control

measures and drainage networks, the various office and other public buildings - make an important contribution to the well-being and efficient functioning of the provincial economy. The present accounting approach all but neglects these assets. Even the budgetary approach which was in effect prior to 1978-79, which maintained a separate capital division, did not provide for a systematic record of both gross and net capital formation and of the resultant changes in the stock of government owned assets.

From an economic viewpoint, leaving aside considerations of fiscal policy, the stock of government owned capital should be increased according to the same considerations which determine privately owned capital assets. Both publicly and privately owned capital should be increased up to the point where the net return to the marginal additional capital asset yields a social and private return just matching the real interest cost of the funds required to finance it. Because the return to government owned capital cannot be measured precisely, this criterion for public investment can only be applied on a rough and ready basis. In addition, considerations of fiscal policy would suggest that the Government's capital spending should be varied cyclically, being increased in periods of economic slack, and reduced in periods of economic expansion when private capital spending is more buoyant.

In applying the above approach to government economic policymaking, it is not essential that the Government's accounting practice be converted back to a capital budgetary approach. The goals of effective economic policymaking and accurate economic analysis can be adequately served if the Government maintains and presents, on an annual basis, government expenditures for new

capital assets on a gross and net basis and shows the effects this will have on the Government's surplus and deficit in a manner similar to that shown in Table 1. It would be desirable to have such data calculated both in terms of current and constant prices. For these purposes, estimates of depreciation should be prepared on a current replacement cost basis. To measure accurately the net addition that current capital expenditures make to the stock of government owned capital, it is necessary to have an estimate of the depreciation that has occurred on the existing stock of capital during the preceding year, also measured at current prices. This will require a revaluation each year to current prices of the existing capital stock and an estimate of how much that stock has depreciated. It is relevant to note that the Canadian Institute of Chartered Accountants has recently recommended that business enterprises with publicly traded securities should disclose as supplementary information the effects of inflation on the company's income statement and balance sheet. Implementation of these recommendations would result in the estimation of depreciation and the valuation of inventories, plant and equipment on a current replacement cost basis (See filing instruction No. 41, C.I.C.A. handbook, December, 1982).

## 1.2 ASSETS AND LIABILITIES

At the present time, the Government of Manitoba does not maintain any formal systematic record of its physical capital assets. The balance sheet entries presented in the Budget are limited to a record of its "liabilities less recorded assets". The recorded assets are mainly financial consisting of cash, various accounts receivable,

advances to crown corporations, agencies, boards and commissions and some longer term investments consisting of shares and debentures in crown corporations such as the Manitoba Forestry Resources Limited and the Manitoba Development Corporation. Its liabilities consist of its bonds, debentures and other securities less sinking funds - this is often called the direct debt - and some shorter term liabilities such as bank overdrafts and accounts payable. In addition, the Government reports separately guaranteed securities issued by its crown corporations. The guaranteed debt consists principally of securities issued by the Manitoba Hydro-Electric Board, the Manitoba Telephone System, the Manitoba School Financing Authority and the Universities. Fixed capital assets have been written off and are carried at nominal values only.

Prior to the accounting changes made in 1978-79, for many years the Government did present a balance sheet which recorded fixed capital assets as well as financial assets. However, the information provided on government owned fixed capital assets was not very meaningful. For the most part, assets were only recorded where outstanding debt had been designated as having been used to finance certain assets. The figure shown for any asset represented an historic cost only. No attempt was made to show the current replacement cost of the asset. The balance sheet did not begin to present a complete record of the Government's capital assets.

As of March 31, 1982, the excess of liabilities over recorded assets reported by the Province of Manitoba amounted to \$1,091 million. This is clearly the best measure of the Province's direct debt position. In addition, there were guaranteed and indirect liabilities (net of sinking

fund assets) amounting to \$1,822 million. The total direct and indirect debt (net of sinking funds and various advances and other financial assets) amounted to some \$2,913 million. Offsetting this, in a complete balance sheet presentation, would be all the real capital assets owned directly by the Government and its equity ownership in various crown corporations. It was noted above that one estimate of the net addition to government owned capital assets (at 1981 prices) over the period from 1961 to 1980 amounted to some \$2.4 billion. In addition, if the real assets owned by the Government's two major crown corporations, Manitoba Hydro and the Manitoba Telephone System, which had a book value of \$3,135 billion on March 31, 1982, were valued at their current replacement cost, this would add from \$2 to \$3 billion to the above total. Thus, a realistic balance sheet for the Province would show a substantial excess of assets over liabilities. Table 2 provides such a balance sheet on a tentative basis. As these data show the total value of the Government of Manitoba's assets, when valued at current prices, exceeds its direct debt by an amount in excess of \$6 billion. And this total does not assign any value to the huge amount of crown land owned by the Province. Further work will make it possible to produce a more precise estimate of the Province's asset position.

In addition to the data presented in Table 2, it may be desirable to present an annual balance sheet covering the public sector for the Province as a whole. This would consolidate into one balance sheet public assets and liabilities in the Province including the City of Winnipeg. Again, it would be desirable to have assets reported in this balance sheet at an estimated current replacement cost. The inflation of

Table 2

Government of Manitoba  
Tentative Balance Sheet as of March 31, 1982  
(Million Dollars)

<u>Assets</u>	
Financial Assets <sup>1</sup>	\$ 2,379.9
Physical Assets	
Highways and Bridges <sup>2</sup>	3,000.0
Buildings and Contents <sup>3</sup>	544.8
Universities, buildings, land and equipment <sup>4</sup>	236.2
Hospitals <sup>5</sup>	150.3
Schools <sup>6</sup>	490.7
Crown lands <sup>7</sup>	No value assigned
Net equity in Manitoba Hydro <sup>8</sup>	2,700.0
Net equity in Manitoba Telephone System <sup>8</sup>	199.2
Water Rights <sup>9</sup>	No value assigned
<hr/> Total Assets	<hr/> \$ 9,701.1
<u>Liabilities</u>	
Bonds, debentures and other direct debt	\$ 3,471.0
<hr/> Excess of Assets over Liabilities	<hr/> \$ 6,230.1

1. As reported in Public Accounts, 1981-82, pp. 1-5.
2. Values are estimated replacement values at today's costs.
3. Asset values are at estimated replacement cost based on data compiled for insurance purposes. Buildings whose value is estimated to be less than \$500,000 are not included. The total includes the community colleges and special schools operated by the Province.
4. Data are reported book values as of March 31, 1981.
5. Winnipeg hospitals only, valued at historical cost.
6. Original cost after depreciation as at December 31, 1981.
7. While no value has been assigned to crown land, some 40 million out of the 55 million hectares of land in Manitoba belong to the Government. Provincial parks utilize 1.1 million hectares, wildlife management areas, 1.1 million, provincial forests .9 million, and .8 million hectares are used for hay production, livestock grazing and annual cropping.
8. Value of assets at current replacement cost less values recorded on company's balance sheet plus reserves.
9. At the present time only about one-third of Manitoba's potential hydro-electric power has been developed. In addition, Manitoba has vast areas of freshwater in lakes and streams.



recent years has greatly increased the difference that exists between the original cost of assets and their value at today's prices. The public sector would include the universities, the school divisions and the hospitals.

The Public Accounts and the Budget Speech should present information which will allow the interested reader to evaluate the debt position of the Government. In making this evaluation, it is important to consider the Government's accumulated debt in the light of both (a) the past and prospective growth of the economy and (b) the effects that inflation has had in distorting the Government's fiscal position. As will be noted below, inflation distorts the Government's reported deficit or surplus as well. Let us consider each of these considerations in turn.

### 1.3 THE EFFECTS OF REAL INCOME GROWTH ON THE PROVINCE'S FINANCIAL POSITION

When the real income level in a province is growing, it is possible for its government to run a continuous annual deficit (on average) without any increase in the ratio of debt to provincial income. In order to separate out the effects of real income growth from inflation, let us assume an absence of inflation. Now suppose the government deficit as a percent of provincial income remains constant and is represented by  $d$ . Then, if real income is growing at a constant rate  $r$ , it can be shown that the ratio of debt ( $D$ ) to income ( $Y$ ) will eventually approach the ratio  $d/r$ [4]. Suppose, for example,  $d$  were 2.0 percent of provincial income and income was growing at 4.0 percent a year, the ratio  $D/Y$ , debt to income, will approach  $2/4$  or .5. That is, accumulated debt will

eventually amount to about 50 percent of provincial income. This means that provided real income continues to grow at this same rate the government could run a deficit, equal to 2 percent of its income, more or less indefinitely without causing any increase in the debt burden as measured by the ratio of debt to income. In addition, if the rate of interest on the government's bonds remained constant at  $i$ , the ratio of interest payments ( $I$ ), that is net debt charges, to income ( $Y$ ) would approach and remain at the constant ratio,  $I/Y = d \cdot i / r$ . If the yield on the government's bonds in the above example were 3.5 percent, the ratio of interest payments to income would be 1.75 percent ( $0.5 \times 3.5$ ).

Applying this model to the Province of Manitoba, we find that Real Provincial Product has grown at an annual rate of 3.7 percent over the period from 1961 to 1980. In addition, we know that over the decade ending in 1962, the yield on Government of Manitoba bonds averaged about 4.5 percent. Since the average annual inflation rate over the decade ending in 1962 was about 1.0 percent, the real interest rate would have amounted to about 3.5 percent (where the real interest rate is defined as the nominal rate less the rate of inflation). Over the 24 year period from 1958/59 to 1981/82, the average deficit of total expenditures over total revenues for the Province amounted to about .57 percent of provincial income. On this basis, the expected ratio of debt to income ( $D/Y$ ) would be .154, that is, the Province's direct debt would amount to about 15.4 percent of Gross Provincial Product. In fact, the ratio was only 7.9 percent. This difference undoubtedly reflects the effects of inflation, to a consideration of which we now turn.

#### 1.4 THE EFFECTS OF INFLATION ON VARIOUS MEASURES OF THE PROVINCE'S FINANCIAL POSITION

It is well known that inflation benefits debtors and hurts creditors, for it allows the debtor to pay off the debt with dollars whose real value has declined. However, this effect may be partially or even fully offset by the level of interest rates. When inflation is fully anticipated, economists argue that nominal interest rates include an inflation premium which compensates the lender for the decline in the real purchasing power of the loan as a result of inflation. Thus, if the non-inflationary or real rate of interest was 4 percent and the inflation rate expected over the life of the loan was 10 percent, a nominal rate of 14 percent (assuming the interest income was not taxable) would compensate the lender fully for the decline in the real value of the asset and yield a real rate of return of 4 percent. No one can be sure how much of any interest rate reflects an inflation premium and how much a real rate of interest but there can be little doubt that in the past few years as high as two-thirds of interest payments have been an inflation premium, a compensation to the bondholder and other debtors for the decline in the real

value of their assets. This part of current interest payments can be considered a kind of advance repayment of the debt (in real terms), rather than a current expenditure. The inclusion of the entire interest expense in the Government's Budget exaggerates the size of the deficit.

Most economists now agree that government Budgets should be adjusted for these distorting effects of inflation. Because interest expenditures are now such a large component in government Budgets - for all governments in Canada, on a gross basis, interest payments currently exceed \$25 billion - the result is to greatly exaggerate the size of government deficits. The Department of Finance in Ottawa recently estimated that on an inflation adjusted basis the federal deficit for 1982 would be some \$7 billion less than the amount currently reported.

Let us consider the implications of such an inflation adjustment for the Province of Manitoba covering the fiscal year ended March 31, 1981. The amount of the inflation adjustment can be estimated in two different ways. These are as follows:

Fiscal Year Ended March 31, 1981

(Thousand Dollars)

Gross Interest and Debt Charges	524,111
Interest Receipts	149,169
Net Interest Payments	374,942

1. The first approach involves a consideration of the interest payments made by the Province. The above are some relevant data: As these data

show, during the fiscal year ending in March, 1981, the cost to the Province of servicing its direct and guaranteed debt amounted to \$524

million. This includes the debt of Manitoba Hydro, the Manitoba Telephone System and all other government agencies. Offsetting this, the Province earned \$149 million on various investments, advances to its own agencies or other financial assets. Thus, its net cost of servicing various debts amounted to about \$375 million. If the expected inflation rate is taken as equal to the average rate in Canada over the 5 year period from 1976 to 1980, it would be equal to 8.8 percent. The yield on long-term provincial government bonds for the 12 months ending in March, 1981, was about 13.2 percent. Thus, the 8.8 percent expected inflation rate is about two-thirds of this 13.2 percent yield. This suggests that about \$250 million of the \$375 million net debt servicing cost can be considered an inflation premium needed to compensate the bondholder for the decline in the real value of the asset.

2. A second approach to this problem is to consider how much the Province gained as a creditor during the fiscal year. For the 12 months ending in March, 1981, Canada's inflation rate was 12.5 percent. If we apply this to the Province's outstanding debt at the fiscal year-end, some \$2,680 million, we obtain an estimated gain of \$355 million[5]. However, this approach would be valid only if the entire debt were payable in Canadian dollars. If we apply to the debt held in foreign currency the

inflation rate of that country, the net gain to the Province amounts to just \$270 million. This estimate assumes that the net direct debt and the guaranteed debt of the Province can be considered as in effect almost all foreign denominated, bonds issued in Canadian dollars being roughly offset by financial assets denominated in Canadian dollars.

If we average the above two estimates, we obtain an inflation adjustment of \$260 million. Because this estimate includes the debt issued by the Province's major crown corporations as well as other agencies, the adjustment does not apply fully to the regular budgetary deficit. It is, nevertheless, a benefit to the Province which should be recognized in assessing its net debt position.

Both the real income effect and the inflation adjustment effect show up in implicit form when we compare the Province's debt with provincial income. Thus, as the data in Table 3 show, over the 24 year period, 1959 to 1982, the Province of Manitoba's net direct debt (the excess of liabilities over recorded assets) reached a peak in relation to Gross Provincial Product of 12.9 percent in 1961, thereafter it declined steadily, reaching a low point of 3.3 percent in 1974. Since then, there has been a moderate increase in this ratio to an estimated 7.9 percent for 1982. In absolute dollar terms, the net debt increased some \$884 million over the past eight years, yet because of the relatively high rate of inflation that was occurring, the debt to income ratio rose only moderately. However, it must be emphasized that once interest rates move up to levels that fully anticipate the higher

Table 3

Net Direct Debt in Relation to Gross Provincial Product,  
Manitoba, 1959 TO 1982

Net Direct Debt			Percent of G.P.P.		
(\$ million)			(\$ million)		
1959	190.1	10.4	1971	204.5	5.1
1960	216.1	11.2	1972	220.9	5.0
1961	245.1	12.9	1973	203.0	3.8
1962	263.3	12.5	1974	207.3	3.3
1963	272.6	12.5	1975	260.0	3.7
1964	289.0	12.1	1976	353.6	4.4
1965	291.1	11.4	1977	430.2	5.0
1966	300.9	11.0	1978	621.5	4.6
1967	302.9	10.1	1979	705.8	6.8
1968	281.1	8.5	1980	750.6	6.7
1969	260.1	7.4	1981	840.1	6.4
1970	234.6	6.4	1982	1,091.1	7.9 prelim.

Note: Direct debt was estimated by adjusting the excess of liabilities over recorded assets as reported at March 31, 1982 by the deficit or surplus in the preceding fiscal years.

G.P.P. = Gross Provincial Product

Table 4

Manitoba's Combined Deficit as a Percent of G.P.P., Revenues and Expenditures

		A (Deficit)	B G.P.P.	C Revs	D Expendis	A/B	A/C	A/D
Fiscal Year	Calendar Year	Surplus \$M	\$M	\$M	\$M	%	%	%
1958/59	1958	(7.4)	1,682			(0.4)		
1959/60	1959	(26.0)	1,835			(1.4)		
1960/61	1960	(29.0)	1,928			(1.5)		
1961/62	1961	(18.2)	1,893			(1.0)		
1962/63	1962	(9.3)	2,109			(0.4)		
1963/64	1963	(16.4)	2,174			(0.8)		
1964/65	1964	(2.1)	2,394			(0.1)		
1965/66	1965	(9.8)	2,550			(0.4)		
1966/67	1966	(2.0)	2,735			(0.1)		
1967/68	1967	21.8	2,994	370.8	349.0	0.7	5.9	6.2
1968/69	1968	21.0	3,289	421.8	400.8	0.6	5.0	5.2
1969/70	1969	25.5	3,492	511.7	486.2	0.7	5.0	5.2
1970/71	1970	30.1	3,674	604.6	574.5	0.8	5.0	5.2
1971/72	1971	(16.4)	4,069	640.9	657.3	(0.4)	(2.6)	(2.5)
1972/73	1972	17.9	4,477	746.5	728.6	0.4	2.4	2.5
1973/74	1973	(4.3)	5,360	866.4	870.7	(0.1)	(5.0)	(0.5)
1974/75	1974	(52.7)	6,293	1,011.4	1,064.1	(0.8)	(5.2)	(5.0)
1975/76	1975	(93.6)	7,120	1,206.1	1,299.7	(1.3)	(7.8)	(7.2)
1976/77	1976	(76.6)	7,960	1,395.5	1,472.1	(1.0)	(5.5)	(5.2)
1977/78	1977	(191.3)	8,610	1,444.3	1,635.6	(2.2)	(13.2)	(11.7)
1978/79	1978	(84.3)	9,420	1,550.8	1,635.1	(0.9)	(5.4)	(5.2)
1979/80	1979	(44.8)	10,340	1,806.0	1,850.8	(0.4)	(2.5)	(2.4)
1980/81	1980	(89.5)	11,190	1,968.4	2,057.9	(0.8)	(4.5)	(4.3)
1981/82	1981	(251.0)	13,100	2,180.8	2,431.9	(1.9)	(11.5)	(10.3)

Source: Department of Finance

Note: Revenue, expenditure and deficit surplus figures shown have been recast back to 1967/68 on a basis consistent with present accounting practices. Comparable data on revenue and expenditures for the period prior to 1967/68 are not currently available. However, the deficit/surplus figures for years prior to 1967/68 are comparable with those for subsequent years. Gross Provincial Product estimates shown are from various Manitoba Budget Addresses.

rate of inflation, inflation may no longer have any net effect on the debt to income ratio. This will be true if the higher interest payments result in correspondingly higher Budget deficits.

The deficits and surpluses recorded by the Province of Manitoba, estimated on the basis of current budgetary procedures are set forth in Table 4 along with estimates of the Gross Provincial Product and, for part of the period, for total provincial revenues and expenditures. It was this set of estimates of provincial deficit or surplus that were used in estimating the Province's net direct debt position shown in Table 3.

#### 1.5 ISSUES RELATED TO FOREIGN CURRENCY BORROWING

In view of the fact that on a net basis the Province of Manitoba's direct and guaranteed debt can be considered as being almost entirely denominated in foreign currencies, it is desirable to consider some of the issues involved in such borrowing. In recent years the yield differentials on long-term government bonds have been quite substantial. The

following are the yields that prevailed in July, 1982 for four countries from which Manitoba has borrowed substantial amounts in the past. As these data show, the yield differentials in July, 1982 varied from a low of 1.86 percentage points as between Canada and the United States and a high of 10.72 between Canada and Switzerland.

If exchange rates could be expected to remain fixed these interest differentials would provide very substantial interest savings over the life of a long term bond issue. However, today's world is one of fluctuating exchange rates. Moreover, interest rate differentials exist in very considerable degree because of different expected inflation rates in the various countries. If one country consistently has a higher inflation rate than another, one may expect the exchange values of the two currencies to reflect that difference. This relation will not be exact because exchange rates reflect a variety of other economic factors in addition to underlying inflation rates. Still, as inflation rates have increased, the inflation rate differential has become an increasingly important factor in influencing exchange rate levels.

Yields on Government Bonds, July, 1982

	Yields	Differentials
Canada	15.62	
Japan	8.34	-7.28
West Germany	9.30	-6.32
Switzerland	4.90	-10.72
United States	13.76	-1.86

Some data illustrating this relationship is given in Table 5. The data compare Canada with the four countries of United States, West Germany, Japan and Switzerland. An examination of Table 5 shows that the increased cost of foreign currency in Canadian funds can very significantly affect the cost of foreign borrowing. For example, the lower interest cost of a loan in Swiss francs in 1972 would have been offset over the past 10 years by an average annual increase of 8.5 percent in the Canadian dollar price of Swiss francs. In principle, the Province will find there is an advantage in borrowing in a foreign currency if the real interest cost, that is, the nominal interest rate less the expected rate of inflation, is significantly lower. Over a long period of years, Canada's and United States' inflation rates have been very similar. To the extent that this pattern can be expected to continue, differences in nominal interest rates in the two markets can be taken as a reasonable measure of

differences in real rates. But in recent years, inflationary forces have increased and this has introduced an increased degree of uncertainty as to the advantages involved in any foreign loans. The risks involved in these transactions are undertaken by the borrower, that is, the Government of Manitoba.

How should the costs involved in a change in foreign exchange rates be treated from a budgetary viewpoint? When Canadian funds are borrowed at a higher interest cost reflecting the higher rate of inflation in Canada, all of this interest expense appears in budgetary expenditures or in the interest costs to government owned crown corporations. If the Government borrows abroad with an annual saving of 6 or 7 percent or more, as would be true today if the bonds were issued in German, Japanese or Swiss currencies, only the lower interest costs will appear in the Budget plus additional foreign exchange costs on this annual interest payment.

Table 5

Inflation Rate Differentials and Changes in Exchange Rates, Canada  
Compared with Four Other Countries, 1957 TO 1982

Inflation Differentials: Canada Minus Foreign Rate

	1957-1982	1972-1982	1977-1982
United States	+0.1	+0.5	+0.4
West Germany	+1.5	+3.8	+5.5
Japan	-1.3	0.0	+5.9
Switzerland	+1.3	+4.0	+6.1
Annual Increase in Canadian Dollar Price of Foreign Currency			
U.S. Dollar	1.01%	2.24%	3.05%
German Mark	3.09	4.63	1.30
Japanese Yen	2.20	3.44	2.98
Swiss Francs	3.93	8.51	6.15

Note: Inflation rate differentials are based on the Consumer Price Index.  
Annual increase in foreign currency prices are compound annual  
increase in percentage terms.

SOURCE:

Data taken from International Financial Statistics, International  
Monetary Fund.



The additional cost that the foreign exchange rate has on the Canadian dollar valuation of the outstanding foreign currency debt may be deferred until the date at which the original bond issue is redeemed. This might involve large additional costs in particular years. An alternative approach would be to amortize these additional costs as they occur over the remaining life of the loan. This would bring annual debt charges more closely in line with the costs that would be incurred if all borrowing took place in Canadian funds. It should be recognized that this additional foreign exchange cost corresponds more or less closely to the inflation premium in interest rates referred to above. More precisely, it corresponds to that part of the premium which reflects the difference in inflation rates. It was argued above that the inflation premium in interest rates is essentially a capital transaction rather than a current expense. Accordingly, it would be appropriate to regard this foreign exchange loss or gain on outstanding bonds as a capital transaction also.

#### 1.6 THE CURRENT DEFICIT

When the Government of Manitoba presented its Quarterly Financial Report covering the first six months of the current fiscal year, it projected a deficit for the entire year of \$498 million[6]. This was an increase of some \$155 million as compared with the estimates presented in the Budget Speech. How was this increase in the deficit to be viewed? Did it reflect a major increase in government expenditures? Or significant tax cuts? Or was it simply a reflection of the way government expenditures and revenues changed in the face of the most serious recession since the 1930s?

Economists find it useful to calculate a high employment budgetary deficit. This shows the expenditure and revenue totals that could have been expected to prevail if the economy had continued to operate at a certain level of output and employment. This concept enables economists and others to distinguish between what some have called an "active deficit" and a "passive deficit". If the increase in the Government deficit is entirely the result of a decline in economic activity which causes revenues to fall and welfare and similar payments to increase, the resulting change is labelled a "passive increase in the deficit". It is an increase which occurs without any government program or policy changes. On the other hand, if the increase in the deficit results from a planned increase in government spending or a deliberate tax cut, the change is considered to be an "active increase in the deficit". Deliberate changes of this type will change the high employment deficit or surplus. A passive increase in the deficit will have no effect on the high employment budgetary position.

The level of output and employment chosen as a high employment position is to some degree arbitrary. The Department of Finance in Ottawa publishes what they term a "cyclically adjusted deficit". For their latest estimate, this series is based on an assumed 6.3 percent unemployment rate and a rate of productivity growth of 0.5 percent. In applying the concept, the Province of Manitoba might find it useful to use the average unemployment rate in Manitoba over the period 1977 through 1981 as a benchmark. It will be recommended below that a "high employment" or "cyclically adjusted" deficit or surplus be estimated on a regular basis both for

the fiscal year just completed and for the forthcoming fiscal year. This will enable users of budgetary data to distinguish more easily between "active" and "passive" changes in the Government's budgetary position.

### 1.7 CONCLUSIONS

This paper has presented an overview of the budget reporting practice of the Government of Manitoba's fiscal positions. A number of options were explored, which may be applied to all provincial governments. The current practice of consolidating capital and current accounts does not reveal the type of information required by users of budgetary information other than the legislature which is primarily concerned with matters of effectiveness and efficiency.

It is recommended that:

1. The government should present its budgetary deficit surplus in two forms: The first (net debt approach) would continue the present practice of consolidating capital and current accounts, while the second would use a capital budget which could identify current expenditures and expenditures which added to the stock of tangible physical assets.
2. The Government should present, on an annual basis, a balance sheet showing its asset position.
3. A regular estimate of the "cyclically adjusted or high employment budgetary statement of revenue and expendi-

tures" should be presented to allow users of budgetary data to distinguish between active and passive changes in the deficit or surplus.

4. An annual supplementary statement should be presented which shows the effect of inflation on the province's financial position.
5. Neither the general accounting procedure should be changed, nor a special estimate on the impact of foreign exchange added, but it should be noted that foreign currency fluctuations do make it difficult to accurately estimate the advantage to borrowing in foreign currencies.
6. Finally, it would be helpful if supplementary data were released on earlier years as well as the ratio of the province's debt position relative to the Gross Provincial Product.

In summary, the Provincial budget functions in many more ways than simply to provide legislative control over expenditures and revenue. Certainly this is the primary function of the Provincial budget, but to serve the other users, the Provincial government should consider expanding the forms in which these data are released. The current practice of consolidating capital and current expenditures is neither inferior nor superior to a statement which includes a separate capital budget - just different. Both types of budgetary statements are essential for accurate analysis of the government's line fiscal position.

## NOTES

- [1] The reports which deal specifically with the provinces are as follows: Provincial Government Finance - Revenue and Expenditure (Estimates), Cat. No. 68-205; Provincial Government Finance - Revenue and Expenditure, Cat. No. 68-207; Provincial Government Finance - Assets, Liabilities, Source and Application of Funds, Cat. No. 68-209 and Provincial Government Enterprise Finance, Cat. No. 61-204.
- [2] See Financial Reporting by Governments: A Research Study, The Canadian Institute of Chartered Accountants, 1980.
- [3] An exception to this is expenditures under special warrant approved by the Lieutenant-Governor and Council when the House is not sitting.
- [4] See C.L. Barber, The Theory of Fiscal Policy as Applied to a Province, Ontario Committee on Taxation, 1966, Chapter 5.
- [5] The outstanding debt is taken as the excess of liabilities over recorded assets, \$822 million, plus guaranteed and indirect liabilities net of sinking funds, \$1,858 million.
- [6] Note this has recently been revised down to \$4.35 million.

## VII

# Book Reviews

Industrial Policy in Ontario and Quebec by P. Davenport, C. Green, W.J. Milne, R. Saunders, and W. Watson, Ontario Economic Council, 1982 (82 pp.)

Industrial policy is frequently cited as one of the most pressing needs for federal and provincial governments. As the authors point out in this short, but useful monograph, "Several terms are used interchangeably for government policies that affect industry. These include 'industrial policy,' 'industrial strategy,' 'industrial adjustment,' and 'industrial assistance'".

The monograph begins by setting out definitions for each of these terms. "Industrial policy" is defined to be any government program which directly affects industries, firms, households or specific regions in the country. They may be interventionist, such as the regulation of public utilities, or non-interventionist, relying upon market forces to produce desired results. "Industrial strategies" are a collection of consistent policies producing mutually complementary results. "Industrial adjustment" is the speed at which economic agents (producers and households) respond to the changes in economic activity or the allocation of resources (investment or disinvestment in a region). Finally, "industrial assistance" is the vehicle or means whereby policy, strategy and adjustment are implemented. These definitions are a good first step in clarifying the confusing muddle that currently confounds debate in this area. One danger, obvious from the

current discussion, is that a particular economic policy or program rapidly loses meaning when articulated in the political arena, as catchwords and phrases are developed to industrial strategy is a phrase that can be

trundled out to cover a variety of political palliatives.

The monograph then investigates the basic instruments of industrial strategy by briefly reviewing the history of tax favours, transfers of goods and services to firms (such as technical assistance), outright cash assistance, regulation (the prime example being the protection of producers through marketing boards), procurement policies and various non-tariff barriers to trade. This inventory, although short, does provide a useful capsule of the tools of industrial policy and further assists in clarifying the nature of the phenomenon.

A descriptive chapter on industrial policies in Ontario and Quebec follows, which chronicles the recent shift in emphasis on industrial policy evident since the late seventies. The authors raise the important point, that much industrial policy articulated at the provincial level, is either internally contradictory (in terms of negating other provincial goals) or confounds federal incentives. Indeed, as they point out, there is an inherent tension between federal and provincial

objectives in industrial policy, with one level of government interested primarily in maximizing national income, while provincial governments clearly are interested in enhancing the income of the smaller region. An example of internally inconsistent policies is the objectives of the Quebec Department of Industry and Commerce which states that industries should have both a propensity to purchase goods from within the province, yet emphasis must also be placed on high technology firms which typically import more than most industries.

The most interesting section reviews a variety of explanations for the recent concern with industrial strategy. One possible explanation is the perception (however correct) that market failure has become more important in Canada. Whether markets fail because of monopoly power or because of externalities (such as pollution or technical advantages conferred to public utility) is not of concern. The authors argue that the traditional manifestations of market failure do not really constitute a persuasive case for industrial policies.

More promising are arguments related to industrial policy as a cultural expression (such as the nation building objectives of the National Policy), and the influence of a federal state which encourages provinces to view themselves as sovereign entities. In this latter vein, the authors note that regions which are stagnant or in decline are vitally concerned with expanding their economic activities simply to maintain the tax base from which public services are financed. This fiscal requirement of provincial, and more significantly, municipal levels of government, poses an important tension between regional and national objectives in an industrial strategy.

Perhaps the most significant point made by the authors in explanation of the recent interest in industrial strategy relates not to producer decision-making, but rather to the behaviour of households and governments. They argue that the wealth of the typical household is largely fixed and not easily transferable. The speed at which a household adjusts to new economic challenges depends upon its stock of human and non-human capital. For example, workers who are trained in archaic industries find it very problematic to confront the need to either move to locales where there is a demand for their services or to retrain. Workers in declining areas, with much of their wealth tied to a stagnant housing market must face major losses in any move. Thus, political support for policies which locate industries to these regions is very strong, and often will outweigh purely economic considerations arguing for industrial location which maximizes national income. The injection of these political aspects of industrial policy is a most useful insight.

There are some omissions from the discussion. One could argue that much of labour market policy such as the Canadian Occupational Projection System which attempts to better match demand and supply for workers, and the retraining programs evident in many parts of the country are actually industrial strategies designed to persuade manufacturers that location in a given region is attractive because a skilled labour force is present. Education, especially at the secondary and post-secondary level, with its increased emphasis on high technology training is also a major element in industrial strategies, actively pursued by provincial governments. Despite these oversights, and they can be forgiven for the authors do not

claim to be exhaustive, this monograph, along with its bibliography

is an accessible and valuable introduction to a very muddy field.

Greg Mason, Institute for Social and Economic Research, University of Manitoba

The Canadian Economy in the 1980's K.D. Munt and J.A. Rink editors, (AC.SEE.MA, Winnipeg, R2P 1E2, 1983), (196 pp.)

The Canadian Economy in the 1980's edited by K.D. Munt and J.A. Rink is a collection of readings that discuss Canadian macroeconomic problems and offer policy suggestions. The 26 articles are divided into eight sections each of which addresses an aspect of particular concern (unemployment, inflation, energy, growth and development, international trade, or government spending) or provides an overview of the economy. The articles average seven to eight pages in length and are often accompanied by graphs, tables or charts.

The articles all come from unreferenced sources. Thirteen are reprinted from three bank publications: The Canadian Imperial Bank of Commerce's Spectrum, The Bank of Montreal's Business Review, and the Bank of Nova Scotia's Monthly Review. Seven articles come from federal government departments or other government bodies such as Employment and Immigration, Energy, Mines and Resources, the National Energy Board, and The Bank of Canada Review. One article comes from the Canadian Business Review, and one, a primer on unemployment, is written by the editors. The remaining four selections are by John S. McCallum (from the CGA Magazine) by Clarence Barber (from the Western Economic Review) by Dennis McDermott of the Canadian Labour Congress, and by J.W. Flanagan of Imperial Oil.

The book is intended for students or other readers who have had at

least a principles level course in economics. The editors have aimed the book toward college or university level Canadian economic issues or public policy courses, and toward individuals who want a general background or refresher reading on current macroeconomic problems and policy options.

Most of the articles contain adequate explanations of the problems they discuss, definitions of possibly unfamiliar terms, and enough statistics to illustrate the situations, problems, and solutions they present. A few of the articles such as "A Primer on Unemployment in Canada" by the editors, "Changing Labour Landscape" by the Minister of Employment and Immigration Lloyd Axworthy, "Canada's National Priorities and the Changing Economy" by Russell E. Harrison of the Canadian Imperial Bank of Commerce, and "A Practical Guide to Modern Macroeconomic Thought" by John S. McCallum from the University of Manitoba, could be used for economic principles courses or interested laypeople without an economics background. However, the collection as a whole is intended for a more sophisticated audience.

Monetarist, Keynesian, and mainstream viewpoints are all found in this collection of articles, but the labour viewpoint is noticeably underrepresented. Only one short article by Dennis McDermott of the Canadian Labour Congress gives labour's viewpoint on important issues

such as wage controls, Bank of Canada policy, unemployment, industrial strategy, the National Energy Program, and so on. The absence of more articles from the labour viewpoint is, in my view, a major fault of the collection of articles.

Another interesting area of analysis that is missing is the impact of the underground economy on government policy. Since the amount of research on this important area is increasing, one article on this topic would have been an interesting

addition to the collection.

However, with the exception of adequate analysis from labour's point of view, the editors have met their stated objective of providing "fundamental insights into the operation of Canada's economic system in the 1980's". The Canadian Economy in the 1980's should be a valuable supplement to economic issues courses, since it provides a convenient collection of good articles on economic problems and policy options.

Beverly J. Cameron, Department of Economics, University of Manitoba

# Economic Indicators\*

Greg Mason,  
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University of Manitoba

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## 1.1 CANADA

Continued growth was recorded by the Canadian economy throughout the second quarter of 1983. Real Gross National Product rose by some 7 per cent for the strongest gain since 1981, but considerable growth is yet required to compensate for the very serious losses suffered during 1982.

Financial indicators at the aggregate level continue to contain hints of inflationary bias in the economy. The consumer price index has ceased to decline and coupled with tendencies in interest rates to rise gently prompts many to caution that the economy remains on fragile ground. The main indicators of monetary conditions, M1 (the amount of all currency and deposits in chequing accounts) and M2 (M1 plus deposits in savings accounts) remain within reasonable targets to prevent serious crowding out of private sector investment. Indeed, despite large federal deficits, there appears to be little reason to fear that this public sector investment

will cause crowding out in Canada (see Consensus Forecast by Cameron et al., this issue). More problematic is the level of interest rates in the United States and the ability of its federal government to control spending, especially military expenditures. The critical element to any prognostication for Canada is the likely response of the Bank of Canada to rising U.S. level of interest. In turn, this appears to be strongly related to the strength of the Canadian dollar which has recently shown a tendency to rise. At this time most analysts do not foresee a rise in U.S. interest rates.

One very noteworthy trend in Canada is the rapid increase in M2 (see Figure 1), primarily due to expansion in savings. Under the onslaught of inflation and rapidly rising unemployment, it is apparent that many consumers reduced personal debt and increased savings. The disposition of this pool during the next few months will have an important impact on the ultimate strength of the current recovery.



TABLE 1  
Prices and Money: Percent Change From Same Month Last Year\*

DATE	CPI	PRIME RATE	M1	M2	M3
JAN82	11.4	14.7	1.8	12.7	7.8
FEB82	11.6	14.7	0.2	12.1	4.7
MAR82	11.6	15.1	-1.2	11.4	7.3
APR82	11.3	15.3	-0.7	10.6	6.6
MAY82	11.9	15.3	1.6	12.0	7.3
JUN82	11.2	16.6	1.4	11.1	5.9
JUL82	10.9	15.6	-3.3	8.4	4.1
AUG82	10.5	14.3	-1.2	7.2	2.9
SEP82	10.4	13.2	2.5	6.4	3.1
OCT82	10.0	11.5	4.3	5.6	3.3
NOV82	9.8	10.9	5.8	8.6	5.2
DEC82	9.3	10.3	3.7	8.2	3.4
JAN83	8.3	9.8	4.9	7.7	4.6
FEB83	7.4	9.4	9.0	8.1	5.7
MAR83	7.2	9.4	9.2	7.6	4.5
APR83	6.6	9.4	9.1	6.7	2.8
MAY83	5.4	9.5	8.5	4.8	2.0
JUN83	5.6	9.4	12.1	5.2	1.5
JUL83	.	9.5	13.6	5.7	0.6

\*Except Prime Rate

In the labour markets, unemployment remains unacceptably high, with little short term likelihood for improvement. The most recent data do show slight increases in employment, but the large numbers of young people and so called "discouraged workers" overhang prospects of a significant change.

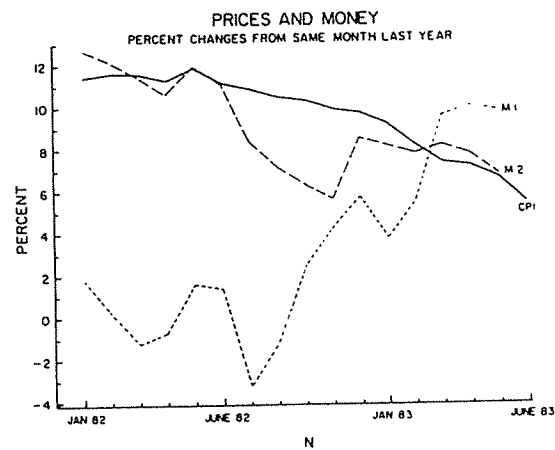
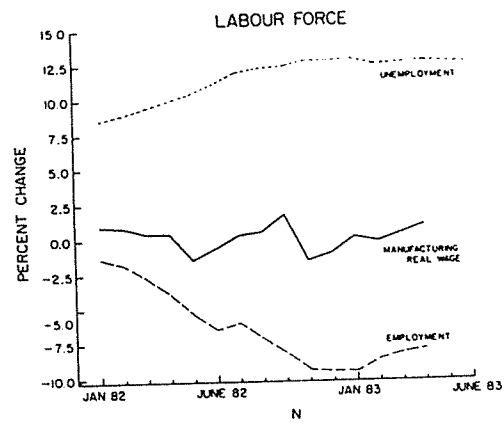
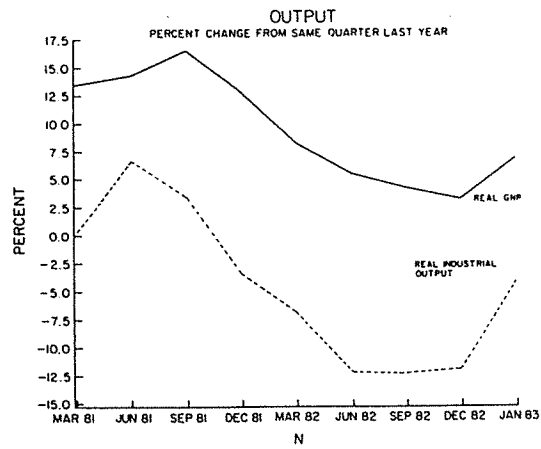
Real wages in manufacturing have shown some recovery, however in other sectors such as services and construction inflation adjusted incomes continue to fall. The most recent evidence, not yet recorded in the official statistics, do suggest that these sectors may well be recovering lost purchasing power.

TABLE 2  
Labour Force: Percent Changes From Same Month Last Year\*

DATE	REAL WAGES			UNEMPLOYMENT	
	MANUFAC- TURING	SERVICES	CONSTRUC- TION	RATE	EMPLOYMENT
JAN82	0.9	1.0	-1.9	8.5	-0.6
FEB82	0.8	0.9	-1.4	8.9	-1.7
MAR82	0.4	2.1	-1.0	9.4	-1.7
APR82	0.4	1.7	1.1	9.9	-2.7
MAY82	-1.5	-0.1	-9.5	10.4	-2.9
JUN82	-0.7	-0.1	-7.5	11.1	-3.7
JUL82	0.2	-0.6	-5.0	11.9	-3.6
AUG82	0.5	-0.8	-7.2	12.2	-4.6
SEP82	1.7	-0.6	-5.6	12.3	-4.5
OCT82	-1.6	-0.4	-0.6	12.7	-4.4
NOV82	-1.0	-1.2	-3.5	12.7	-4.6
DEC82	0.1	0.5	0.0	12.8	-3.9
JAN83	-0.2	-1.9	0.2	12.4	-3.5
FEB83	0.3	-0.9	0.9	12.5	-2.9
MAR83	0.9	-1.7	-0.8	12.6	-2.4
APR83	0.9	-2.0	-1.0	12.5	-1.3
MAY83	.	.	.	12.4	-0.4
JUN83	.	.	.	12.2	0.6

\*Except Unemployment Rate

Last observation of some series are estimates



In terms of aggregate activity, the Canadian economy has posted some gains, albeit rather modest when compared to the increase in real GNP. Retail trade, until June was sluggish, but has recently come alive, prompted by spending on durables and "big ticket" home appliances and cars. Both the Balance of Trade and Balance of Payments show no definable trend in their aggregate forms, however, the merchandise Balance of Trade (excluding services and foreign travel among other things) is presently in the range of

\$9 billion (a record) and rising. Housing starts, impelled by considerable government support are also expanding, however it is unlikely that this sector can continue to grow rapidly, since the basic demographics of demand, present in the early seventies, are absent and unlikely to return until the early 1990s when the children of the baby boom (the so-called "echo") enter the housing marketing. Starts also typically stall as a recovery matures.

TABLE 3  
Aggregate Activity

DATE	INDUSTRIAL OUTPUT \$1971 billions	REAL GNP \$1971 billions	RETAIL TRADE \$1981 billions	BALANCE OF TRADE \$ billions	BALANCE OF PAYMENTS* \$ billions
MAR80	34	132	7.8	-1.4	-1.3
JUN80	33	131	7.8	-1.0	0.2
SEP80	33	131	7.9	1.0	0.6
DEC80	33	133	7.9	0.4	-0.3
MAR81	34	136	8.1	-1.8	3.7
JUN81	35	137	7.9	-1.9	1.3
SEP81	34	136	7.7	-1.6	-0.4
DEC81	32	135	7.6	-0.5	5.2
MAR82	31	132	7.3	-1.2	1.2
JUN82	30	130	7.2	1.0	-2.7
SEP82	30	129	7.2	2.1	5.2
DEC82	28	128	7.3	1.2	-1.6
MAR83	30	131	7.4	-0.7	-0.4
JUN83	31	131	.	.	.

\*Defined as Current Account Plus Capital Account  
Last observation of some series are estimates

## 1.2 WESTERN CANADA

In general, the west is lagging the recovery at the national level. For British Columbia and Alberta, the consumer price index has fallen sharply, but in Manitoba and Saskatchewan there appears to be some hesitancy in this decline, perhaps explained by the fact that the recession has hit the two most westerly provinces particularly hard. In all provinces total real wages and salaries have declined, but are showing very early signs of reversal in Saskatchewan and Manitoba while remaining stagnant in Alberta and British Columbia. An interesting phenomenon is that weekly wages and salaries have begun to recover very sharply in all provinces, especially British Columbia. This reflects the fact that the employed worker is beginning to have increased purchasing power and is moving ahead of inflation. That total real wages and salaries continue to decline reflects the depths of the recent depression and very large levels of unemployment.

Labour markets have begun to re-

cover in Manitoba and Saskatchewan, but appear to be worsening in Alberta and British Columbia, which continue to record increasing levels of unemployment. Expansion in levels of employed people continues in Manitoba and Saskatchewan, but job opportunities still are contracting in the far west. Leading industry employment (defined as the percentage of total labour force, and percentage of Gross Domestic Product) continues to contract, with only the seasonally sensitive figures for Saskatchewan indicating substantial increase.

In general, the recovery in western Canada is unbalanced, as Manitoba and Saskatchewan lead the way. The recent depression has been particularly hard on the Alberta economy with the collapse of the oil industry, and British Columbia with the significant dependence of forestry and lumber upon the U.S. housing market. The course of the recovery will probably continue to favour Saskatchewan and Manitoba, although the crop this year has been comprised by low moisture levels.

TABLE 4  
Manitoba

DATE	CPI	REAL WAGES & SALARIES	SHIP- MENTS	UNEMPLOY- MENT RATE	EMPLOY- MENT	REAL RETAIL TRADE	REAL WEEKLY WAGES & SALARIES	LEADING INDUSTRY- MANUFACTURING
	% change from last year	\$1981 tens of millions	\$ tens of millions		% change from last year	% change from last year	% change from last year	employ- ment thousands
JAN82	9.0	55	34	6.5	-0.6	1.5	0.1	57
FEB82	9.9	55	40	6.6	1.3	0.9	1.3	56
MAR82	9.9	55	42	7.2	-0.2	-5.2	0.7	55
APR82	9.6	55	39	7.4	-0.2	-0.9	1.1	54
MAY82	9.6	54	43	7.9	-1.5	3.7	0.1	54
JUN82	8.3	54	43	8.4	-1.3	-0.4	1.8	53
JUL82	8.0	55	39	8.1	-1.9	-4.4	2.8	53
AUG82	7.8	53	41	9.5	-2.4	-0.7	1.9	51
SEP82	7.8	53	42	9.4	-1.5	-2.8	2.0	51
OCT82	7.8	52	39	9.8	-2.0	-2.0	2.4	49
NOV82	8.5	52	38	10.6	-3.0	-7.0	1.7	50
DEC82	9.6	53	37	10.7	-2.0	-4.0	1.3	49
JAN83	7.7	53	34	10.0	-0.9	-2.7	0.9	49
FEB83	7.5	53	35	10.1	-2.8	-4.2	-0.2	49
MAR83	7.3	53	40	9.7	-0.9	0.8	0.8	.
APR83	8.2	.	38	9.6	-0.4	-7.4	-0.1	.
MAY83	7.6	.	40	10.3	0.9	-2.1	.	.
JUN83	7.0	.	.	9.8	0.4	.	.	.

Last observation of some series are estimates

TABLE 5  
Saskatchewan

DATE	CPI	REAL WAGES & SALARIES	SHIP- MENTS	UNEMPLOY- MENT RATE	EMPLOY- MENT	REAL RETAIL TRADE	REAL WEEKLY WAGES & SALARIES	LEADING INDUSTRY- AGRICULTURE
	% change from last year	\$1981 millions	\$ tens of millions		% change from last year	% change from last year	% change from last year	employ- ment thousands
JAN82	10.2	45	16	4.8	1.2	-2.9	1.3	74
FEB82	10.9	45	18	4.5	3.5	-0.6	1.9	73
MAR82	10.4	45	20	4.8	1.9	-5.6	2.1	74
APR82	10.7	47	18	5.7	0.5	-7.8	1.4	78
MAY82	9.2	45	23	5.9	0.0	0.2	0.1	91
JUN82	8.4	44	22	6.3	0.0	-0.5	1.6	95
JUL82	8.5	43	19	6.5	-0.9	-6.4	1.6	97
AUG82	8.3	46	21	6.8	-2.5	-6.5	2.8	101
SEP82	7.8	45	20	6.9	-1.1	-7.5	1.9	105
OCT82	8.6	45	19	6.9	1.6	-6.6	3.0	98
NOV82	7.6	44	19	7.3	0.5	-6.7	3.9	86
DEC82	7.4	44	17	7.3	0.2	-4.9	2.6	83
JAN83	6.9	43	16	7.7	0.0	1.8	2.2	84
FEB83	6.4	43	17	7.6	-0.2	-3.0	0.9	85
MAR83	6.2	44	18	7.4	0.2	-3.4	0.3	82
APR83	6.7	.	18	7.6	0.7	-4.0	-1.5	85
MAY83	7.1	.	21	7.5	2.3	-6.4	.	97
JUN83	6.8	.	.	7.1	3.2	.	.	.

Last observation of some series are estimates

TABLE 6  
Alberta

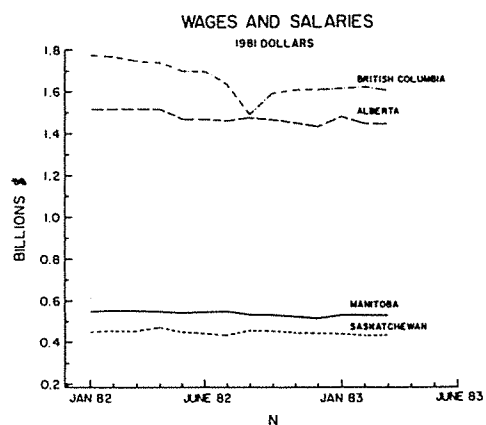
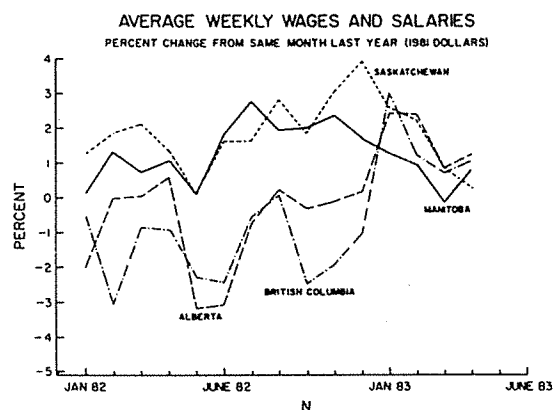
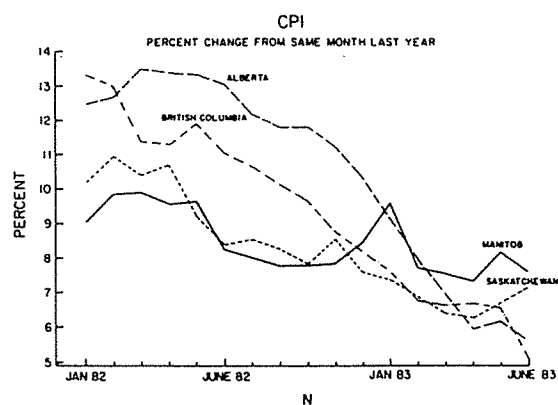
DATE	CPI % change from last year	REAL WAGES & SALARIES \$1981 billions	SHIP- MENTS \$ million	UNEMPLOY- MENT RATE	EMPLOY- MENT % change from last year	REAL RETAIL TRADE % change from last year	REAL WEEKLY WAGES & SALARIES % change from last year	LEADING INDUSTRY- CONSTRUCTION employ- ment thousands
JAN82	12.5	1.5	92	4.8	6.8	6.7	-2.0	87
FEB82	12.7	1.5	97	4.7	1.5	7.3	-0.0	86
MAR82	13.5	1.5	107	5.5	1.1	0.7	0.0	86
APR82	13.4	1.5	95	6.2	-0.7	1.5	0.6	78
MAY82	13.3	1.5	107	7.2	-2.9	2.5	-3.2	72
JUN82	13.1	1.5	110	7.7	-3.6	-0.0	-3.1	75
JUL82	12.2	1.5	101	8.1	-4.7	-3.5	-0.8	75
AUG82	11.8	1.5	108	8.5	-6.0	-1.6	0.2	72
SEP82	11.8	1.5	106	9.2	-8.0	-2.1	-0.3	74
OCT82	11.2	1.5	100	9.4	-9.8	-1.2	-0.1	72
NOV82	10.3	1.4	99	10.2	-10.3	-3.3	0.2	72
DEC82	9.1	1.5	92	10.6	-10.5	-1.9	2.4	70
JAN83	8.0	1.5	84	10.1	-14.2	1.0	2.4	66
FEB83	7.0	1.5	91	10.1	-11.0	-3.0	0.8	64
MAR83	5.9	.	101	11.0	-11.4	3.8	1.2	.
APR83	6.2	.	94	10.5	.	-1.3	.	.
MAY83	5.6	.	.	10.5	.	.	.	.

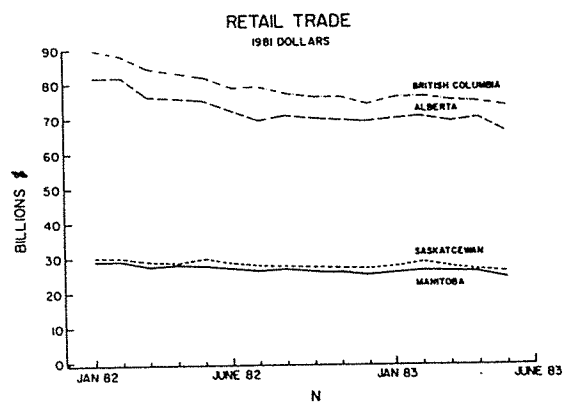
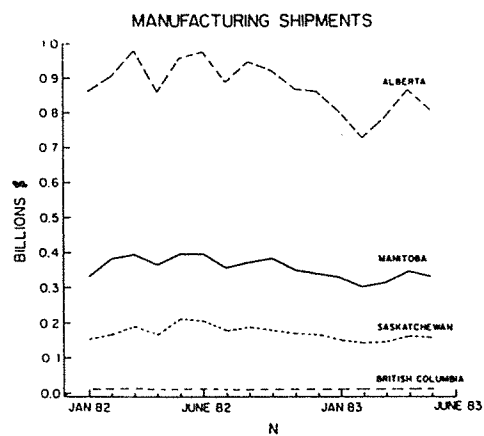
\*SEE NOTES AT END OF TABLES

TABLE 7  
British Columbia

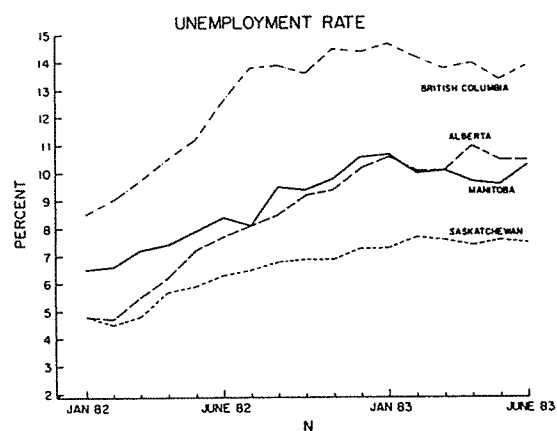
DATE	CPI % change from last year	REAL WAGES & SALARIES \$1981 billions	SHIP- MENTS \$ billions	UNEMPLOY- MENT RATE	EMPLOY- MENT % change from last year	REAL RETAIL TRADE % change from last year	REAL WEEKLY WAGES & SALARIES % change from last year	LEADING INDUSTRY- MANUFACTURING employ- ment thousands
JAN82	13.3	1.8	1.2	8.5	-0.6	-9.1	-0.5	156
FEB82	13.0	1.8	1.2	9.0	-2.0	-9.9	-3.1	154
MAR82	11.4	1.7	1.4	9.7	-2.0	-14.1	-0.9	150
APR82	11.3	1.7	1.2	10.5	-4.3	-13.4	-0.9	150
MAY82	11.9	1.7	1.3	11.2	-3.9	-13.7	-2.3	148
JUN82	11.0	1.7	1.4	12.6	-6.0	-15.6	-2.5	143
JUL82	10.6	1.6	1.2	13.8	-6.7	-12.2	-0.6	141
AUG82	10.1	1.5	1.2	13.9	-6.5	-13.0	0.1	140
SEP82	9.6	1.6	1.3	13.6	-7.0	-12.9	-2.5	138
OCT82	8.8	1.6	1.2	14.5	-7.1	-10.9	-1.9	133
NOV82	8.2	1.6	1.3	14.4	-8.0	-14.4	-1.0	132
DEC82	7.6	1.6	1.3	14.7	-7.2	-11.4	3.0	131
JAN83	6.8	1.6	1.2	14.2	-6.4	-9.8	1.2	130
FEB83	6.6	1.6	1.2	13.8	-4.6	-9.6	0.7	130
MAR83	6.7	1.6	1.4	14.0	-3.8	-6.0	1.1	.
APR83	6.5	.	1.3	13.4	-0.6	-6.4	5.2	.
MAY83	5.1	.	1.5	13.9	-1.7	-2.8	.	.
JUN83	5.1	.	.	14.1	0.3	.	.	.

Last observation of some series are estimates









## NOTES

\*Data prepared using Statistics Canada, CANSIM and University Base.

# Glossary

Economics, like all social sciences, is replete with its own curious jargon which at times appears designed to obscure rather than clarify. To assist readers in penetrating this vocabulary, the Western Economic Review will include a glossary of terms used in the current issue. It may also be useful for economists to remind them of what these terms mean.

## ALLOCATIONAL PROBLEMS

These are problems associated with structural features of markets (failure) and denote the inability of buyers and sellers to find the best price, the fact that investment is not put to the most profitable use etc.

## BUSINESS CYCLE

The regular fluctuations in output, employment and prices that characterize the capitalistic or free enterprise economy.

## CROSS SUBSIDIZATION

This occurs when losses from one activity are covered by profits from another.

## DISTRIBUTIONAL PROBLEMS

These are associated with patterns of income and wealth judged (i.e., normatively evaluated) to be unacceptable. Most societies regardless of political persuasion to have limits on the numbers of poor (not too large) and numbers of rich (not too small) which are morally acceptable.

## ECONOMIES OF SCALE

In a production unit (firm, plant, etc.) as the rate of output increases the cost per unit initially falls and then may increase. Cost decline because labour and capital are better matched, larger orders for inputs are obtained at lower price and because management can organize production better.

## EXTERNALITIES

Many activities produce effects which are not solely confined to the producer/consumer or seller/buyer. Pollution is perhaps the best example.

Technological externalities denote the benefits received by acquiring special expertise. This then acts as a barrier to new firms excluded from the new technology and may lead to economies of scale (see above).

#### MARKET FAILURE

Much of modern economics is founded upon the theory that firms and households can operate in the market without impediment. Usually, this requires many buyers and sellers to ensure freedom of choice, no dominance by one seller or buyer to avoid monopoly and free information so that buyers and sellers can search out the best price. Market failure is a general term denoting absence of one or more of the conditions noted above, and absence of some other aspects such as externalities (see above).

#### MERIT GOODS

Merit goods are provided by government because in its wisdom, it is felt people ought to consume the mandatory education is an example.

#### NORMATIVE ECONOMICS

The construction of statements relating to efficiency and value judgments about the fairness of a particular outcome.

#### PUBLIC GOOD

Economists have an idealized scale of all goods and services. At one end of the spectrum are private goods which can be produced for profit but the private sector; at the other end are public goods, such as defense which are hard for a private agent to manufacture and sell. The reason is that once clean water is provided for one person, all obtain benefit from the service. The extra cost of excluding those who have not paid are often very small. Most goods and services are a mixture of public and private such as broadcasting. The radio signal is free for anyone to appropriate, yet the industry can include a large element of private sector provisions.

#### STABILIZATION

Along with ensuring markets operate efficiently (allocation) and are fair (distribution), government is also charged with responsibility to ensure economic stability in incomes, employment, growth and prices.

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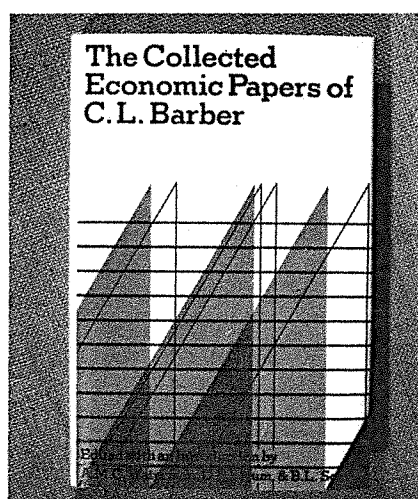
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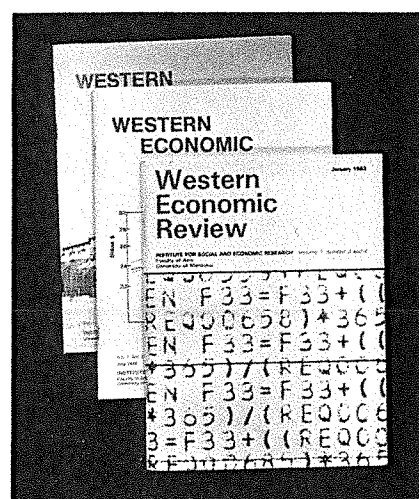
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